

ServoFit® Gearheads

The Precision Decision

Safety Instructions

In order to obtain long life and trouble-free operation from your STOBER drive, it is essential that the proper installation and operating procedures be followed. Failure to follow these instructions will void the drive's warranty.

WARNING: Safety is the most important consideration when operating any type of drive. Through proper application, safe handling methods, and wearing appropriate clothing, you can prevent accidents and injury to yourself and fellow workers.

The torque required by the application must not exceed the rated torque capacity of the drive. For safety purposes, a safety coupling should be installed between the drive and the driven load. Otherwise, overload may cause damage to the interior parts of the drive which may result in breaking the housing. As a result, persons could be injured by flying parts or splashing hot gear oil.



The shafts of STOBER drives rotate at very high speeds and can cut off or severely injure hands, fingers, and arms.

Follow all directions in the service instruction manual. Obey all federal, state and local safety regulations when operating the drive.

- Always be sure electrical power is off while making electrical connections and during installation and maintenance of the unit.
- Keep clothing, hands, and tools away from ventilation openings on motors and from all rotating parts during operation.
- Lift the drive with a double rope sling or other proper lifting equipment of adequate strength. Make sure load is secured and balanced to prevent shifting when unit is being moved. Lifting drives by hand may be dangerous and should be avoided.
- The intended use of lifting lugs is to handle the weight of the unit only. Never use a lifting lug to lift attached assemblies.
- Never operate drive at speeds higher than those shown on the nameplate, or personal injury may result. Contact STOBER Drives Inc., if there is any change of operating conditions from those for which the unit was originally sold (as stamped on the nameplate). Failure to comply could result in personal injury and/or machinery damage.
- Always follow good safety practices at all times.



Each drive is tested before delivery. Before installation, however, it is advisable to examine the unit for possible damage which might have occurred during transit. If damage is discovered, it should be immediately reported to the transport agent.

If installation is delayed after receipt of the unit, the drive should be stored in a clean, dry place until put into service. Long term storage requires special procedures. If not kept in a heated, dry area, consult STOBER Drives, Inc. for storage instructions.

NOTE: If it is necessary to clean drive shafts, take care to protect the oil seals.

IMPORTANT: Do not use any device to hammer the unit onto the output shaft during installation since the bearing races could be damaged.

If you have questions about the installation, operation, maintenance or lubrication of the unit, information can be found in this catalog, on our website, or by calling STOBER Technical Support.



Table of Contents

P Series	
Overview	8
Features	9
Selection Data	10
Dimensions	18
PA Series	
Overview	20
Features	21
Selection Data	22
Dimensions	28
PKX Series	
Overview	30
Features	31
Selection Data	32
Dimensions	36
PH Series	
Overview	38
Features	39
Selection Data	40
Dimensions	46
PHA Series	
Overview	50
Features	51
Selection Data	52
Dimensions	58
PHKX Series	
Overview	60
Features	61
Selection Data	62
Dimensions	68
PE Series	
Overview	70
Features	71
Selection Data	72
Dimensions	73
C Series	
Overview	74
Features	75
Selection Data	76
Dimensions	96
F Series	
Overview	104
Features	105
Selection Data	106
Dimensions	112
K Series	
Overview	122
Features	123
Selection Data	124
Dimensions	142
Miscellaneous/Engineering	
Direction of Rotation	156
Motor Plate Specifications	157
Motor Installation	158
Wobble Free Bushing Installation	160
Hollow Output Installation	163
Shaft Options and Loads	164
Lubrication Information	170
Selection Procedure	172



ServoFit® Gearheads The Precision Decision



PA Series

- Backlash – ≤ 1 arc/mins
- Ratios – 3:1 to 100:1
- Input RPM – up to 6000
- Noise Level – as low as 58 dB(A)**
- Output Torque up to 8,850 in.lbs.
- Available:
 - Washdown Food Duty



P Series

- Backlash – ≤ 3 arc/mins
- Ratios – 3:1 to 100:1
- Input RPM – up to 6000
- Noise Level – as low as 58 dB(A)**
- Output Torque up to 17,700 in.lbs.
- Available:
 - Washdown Food Duty



PHA Series

- Backlash – ≤ 1 arc/mins
- Ratios – 4:1 to 910:1
- Input RPM – up to 6,000
- Noise Level – as low as 58 dB(A)**
- Output Torque up to 35,400 in.lbs.



PH Series

- Backlash – ≤ 3 arc/mins
- Ratios – 4:1 to 910:1
- Input RPM – up to 6,000
- Noise Level – as low as 58 dB(A)**
- Output Torque up to 35,400 in.lbs.



PKX Series

- Backlash – ≤ 6.5 arc/mins
- Ratios – 3:1 to 300:1
- Input RPM – up to 6,000
- Noise Level – as low as 69 dB(A)**
- Output Torque up to 17,700 in.lbs.
- Available:
 - Washdown Food Duty



PHKX Series

- Backlash – ≤ 5 arc/mins
- Ratios – 4:1 to 300:1
- Input RPM – up to 6,000
- Noise Level – as low as 69 dB(A)**
- Output Torque up to 35,400 in.lbs.



F Series

- Backlash:
 - Standard ≤ 11 arc/mins
 - Reduced ≤ 7 arc/mins
- Ratios – 4:1 to 540:1*
- Input RPM – up to 4,500
- Noise Level – as low as 53 dB(A)**
- Output Torque up to 9,700 in.lbs.
- Available:
 - Inch or Metric Output
 - Solid, Hollow, Single and Double Bushing
 - Beverage and Food Duty



K Series

- Backlash:
 - Standard ≤ 12 arc/mins
 - Reduced ≤ 6 arc/mins
- Ratios – 4:1 to 381:1*
- Input RPM – up to 4,500
- Noise Level – as low as 53 dB(A)**
- Output Torque up to 106,000 in.lbs.
- Available:
 - Inch or Metric Output
 - Solid, Hollow, Single and Double Bushing
 - Beverage and Food Duty



PE Series

- Backlash – ≤ 15 arc/mins
- Ratios – 5:1 to 100:1
- Input RPM – up to 8,000
- Noise Level – as low as 60 dB(A)**
- Output Torque up to 1,060 in.lbs.



C Series

- Backlash – ≤ 20 arc/mins
- Ratios – 2:1 to 276:1*
- Input RPM – up to 4,500
- Noise Level – as low as 53 dB(A)**
- Output Torque up to 62,000 in.lbs.
- Available:
 - Inch or Metric Output
 - Beverage and Food Duty



* Ratios standard in one housing. Higher ratios available in compound units.
 ** dB(A) rating measured at 1 meter distance with 3000 RPM input.



ServoFit® Gearheads The Precision Decision

The STOBER offering of ServoFit™ gearheads will enable you to fit all your servo needs. The ServoFit™ Precision Planetary Gearheads are for compact, highly dynamic applications. The ServoFit™ Modular System was designed for those applications where the compact size of a planetary gearhead is not needed. With these two lines, STOBER Drives offers the world's largest variety of servo gearheads.

The STOBER difference = VALUE for you!

5 YEAR LIMITED WARRANTY

Full warranty on all reducer components: gears, covers, material and workmanship, etc. Normal wear items (oil seals, bearings, etc.) are covered for 2 years.



Fits Any Servo Motor

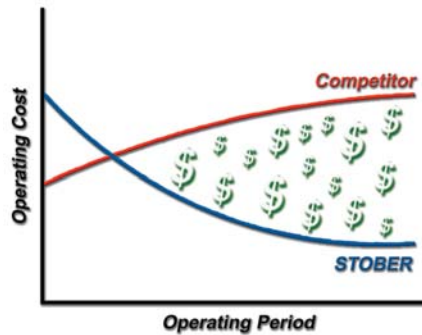
Motor plates for the TriAdapt™ mounting system will fit a wide selection of NEMA, IEC, or custom servo motors.

**STANDARD
3-DAY
DELIVERY**

Most sizes are available with STANDARD 3 DAY DELIVERY. (Does not apply to PA and PHA.) Custom motor plates – 10 days maximum.

**SAME DAY
EMERGENCY
SHIPPING**

24 Hours – No expedite fee.



Helical Gears

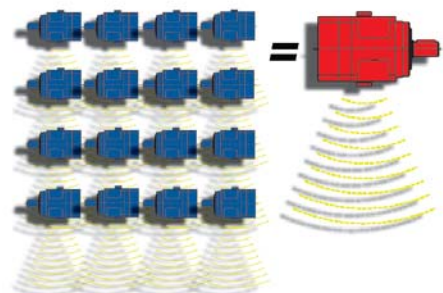
- Highest torque capacity
- Maximum efficiency
- Maintains low noise level



Exceptional Performance

- Low noise level
- Cool running
- High speed capacity
- High torque capacity
- Low backlash

1 conventional planetary gearhead produces the same noise level as 16 STOBER planetary gearheads with HeliCamber™ gearing technology.



ServoFit® Gearheads Beverage and Food Duty



Beverage and Food Duty

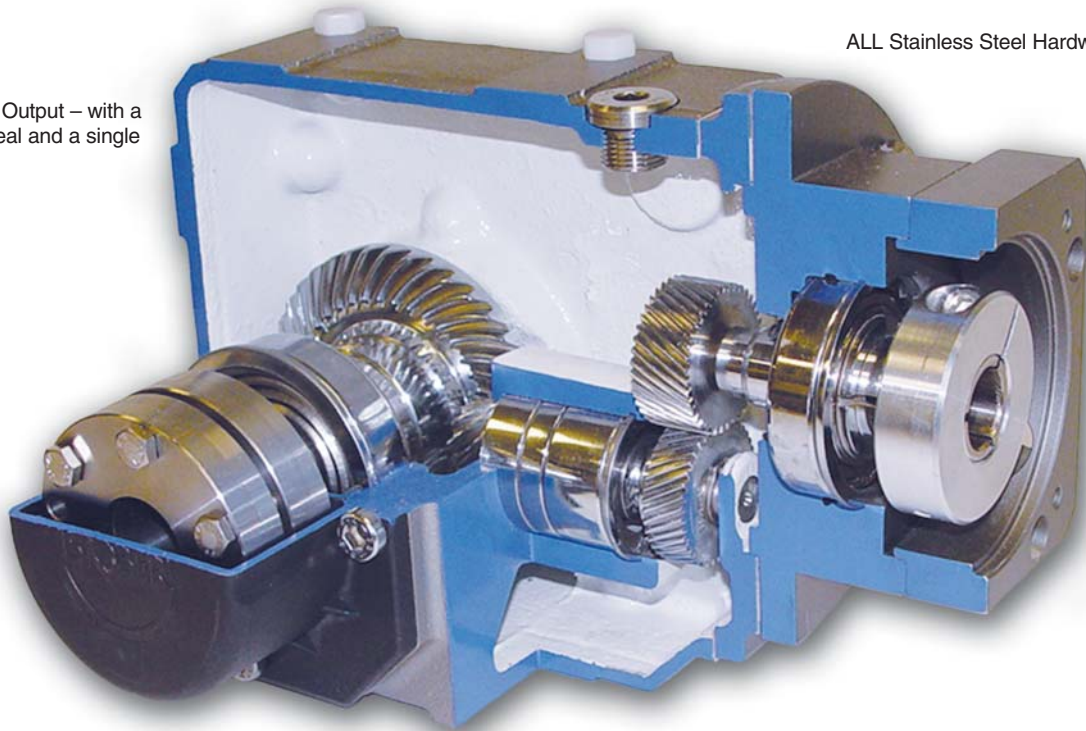
- Lubricated for Life – Double Output Seals
- Maintenance Free – No Breather
- Stainless Output Bushing, Shaft, or Bore – Includes Output Covers for Bushings and Quills
- Multilayer Industrial 316 Stainless Steel Epoxy Coating
- 5 Year Warranty

Standard Coating:

- BEVERAGE 1-Primer
2-Industrial 316 Stainless Steel Epoxy
- FOOD 1-Primer
2-Industrial 316 Stainless Steel Epoxy
1-Silver Bullet Anti-Microbial™ Epoxy
- Options Layer of Ultra Clear Industrial Epoxy
White Epoxy

**STANDARD
3-DAY
DELIVERY**

Double Sealed Output – with a dual lip outer seal and a single lip inner seal



ALL Stainless Steel Hardware

Outside Closed Cover Cap – protects seals from high pressure washing

Inside Split Cover Cap – enables easy assembly onto the shaft

OUTPUT OPTIONS:

- Patented (U.S. Patent Number 5,496,127) Stainless Steel Double Sided Bushing Mounted into Stainless Steel Output Quill – easily mounts onto standard cold finished, ground, or stainless shafting.
- Single side output shaft
- Hollow output

Silver Bullet AM™ is a registered trademark of Burke Industrial Coatings.

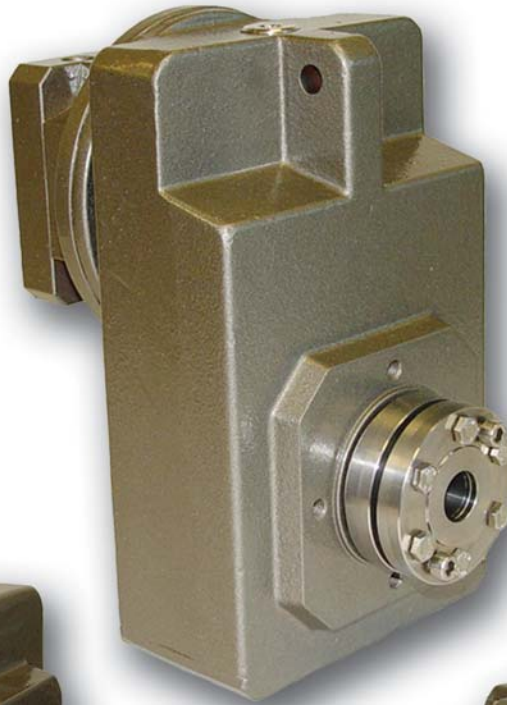
Mounting Position must be specified when ordering. See Page 171.



ServoFit® Gearheads Beverage and Food Duty

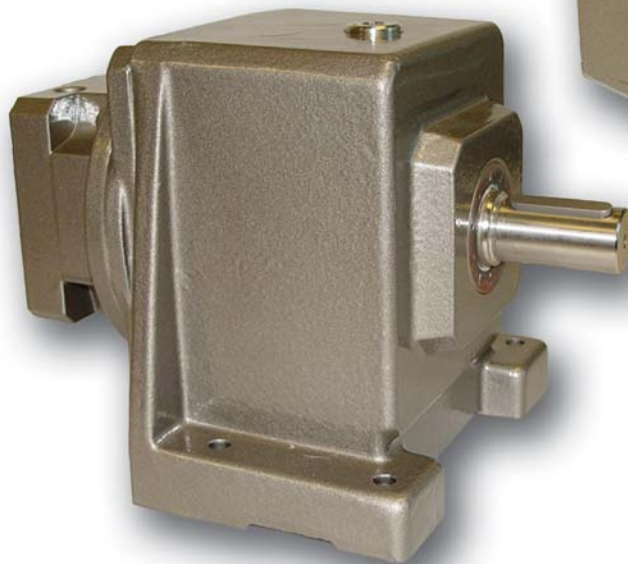
"F" Series Hollow Output.

(Stainless steel output is not available in all sizes.)



"C" Series Solid Shaft

(Stainless steel output is not available in all sizes.)



"P" and "PKX" Series Precision Planetary – Sizes 3 thru 5
(Stainless steel output is not available in all sizes.)

Mounting Position must be specified when ordering. See Page 171.

ServoFit® Gearheads ServoCool

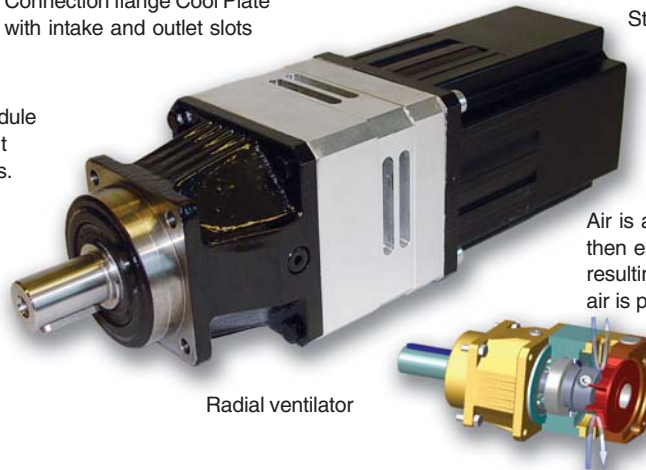


The compact design of planetary gearhead allows very little area for heat dissipation. While the STÖBER Precision Planetary Gearhead has the lowest operating temperature available, even its rating in continuous applications is limited by heat, especially with large planetaries or units with small ratios. The ServoCool planetary gearhead is made possible by adding a ventilation module to the existing ServoFit Precision Planetary Gearhead. These units are currently available in P and PH Series. For other sizes in the ServoFit Modular Series, contact STÖBER Technical Support.

Connection flange Cool Plate
with intake and outlet slots

Standard coupling

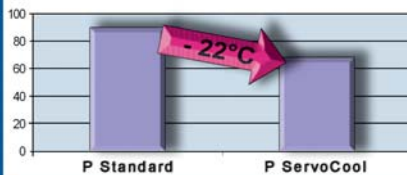
Modular design – the ventilation module can be purchased as a kit to retrofit existing P and PH Series gearheads.



Air is accelerated outward in a radial manner and then escapes through the outlet slots. Due to the resulting negative pressure in the motor adapter, air is pulled in through the inlet slots.

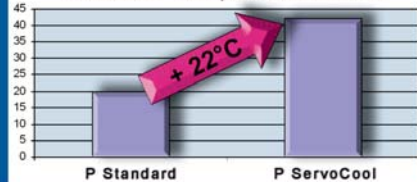
Radial ventilator

Gearhead Temperature



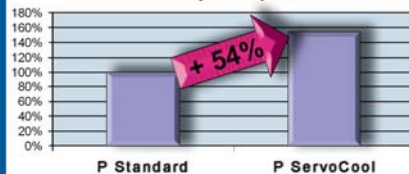
According to data from lubricant suppliers, the lifespan of oil doubles, at certain temperatures, if operating temperature is reduced by 10°C. Adding the ServoCool ventilator reduces gearhead temperature 22°C – quadrupling the expected lubricant life.

Ambient Temperature Limit



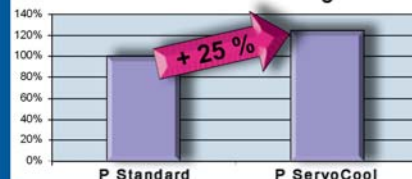
- Synthetic oil
- Lower temperature means longer life
- Lubricated for life – maintenance free solutions

Output Speed



- Ventilator fan mounts to motor shaft
- Forced air ventilation improves performance
- Modular design “fits” existing units
- Optional for P and PH Series

Servo Motor Rating



- Increased motor performance
- No added motor
- No additional wiring
- More compact than external motor fan



ServoFit® Gearheads

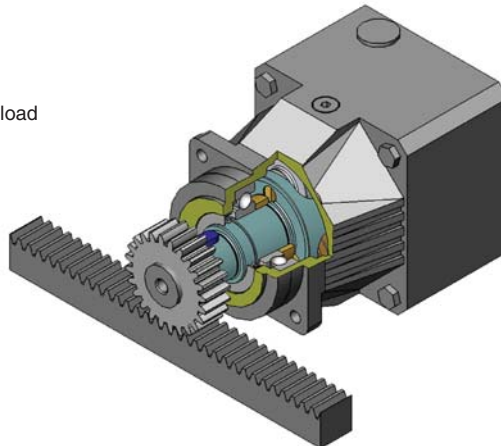
"P" Series – Precision Planetary

Output Shaft Loads

"R" – Deep Groove Ball Bearing

Characteristics:

Minimal frictional torque
Good Radial load capacity
Axial load approx. 35% of radial load



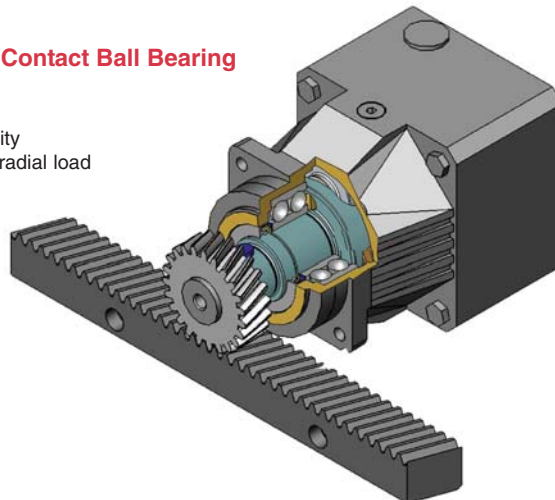
Applications:

Spur geared rack/pinion
Couplings
Belt with or without light tension

"D" – Double Row Angular Contact Ball Bearing

Characteristics:

Low frictional torque
Good radial bearing capacity
Axial load approx. 50% of radial load



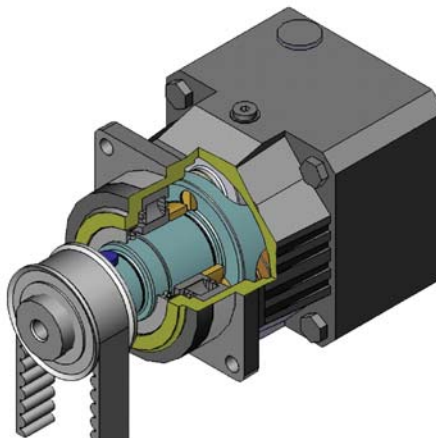
Applications:

Helical geared rack/pinion
Couplings with high axial load
Belt with or without light tension

"Z" – Cylindrical Roller Bearing

Characteristics:

Very good radial load capacity
Axial load approx. 20% of radial load



Applications:

Prestressed belt drive
Prestressed spur rack drive
Applications with high radial loads
and/or high service requirements

See Page 165 for shaft load.

"P" Series

ServoFit® Precision Planetary Gearhead

Performance Specification Overview



		P221	P222	P321	P322	P421	P422	P521	P522	P721	P722	P821	P822	P921	P922
Acceleration Torque	in.lbs.	195		575		1052		2,655		6,195		14,160		26,570	
T _{2B} MAX	Nm	22		65		120		300		700		1,600		3,000	
Output Torque Nom.¹⁾	in.lbs.	142		399		753		1,860		3,898		8,858		17,716	
T _{2N}	Nm	16		45		85		210		440		1,000		2,000	
Input Speed Max.	Continuous	4,500	4,500	4,500	4,500	4,000	4,500	3,700	4,000	3,300	3,700	2,800	3,300	2,500	2,800
n ₁ MAX	Cyclic	8,000	8,000	8,000	8,000	7,000	8,000	6,500	7,000	6,000	6,500	4,500	6,000	4,000	4,500
ServoCool															
Input Speed Max.	Continuous	—		—		4,500	—	5,500	4,500	5,000	5,000	4,500	4,500	4,000	4,000
n ₁ MAX	Cyclic	—		—		7,000	—	6,500	7,000	6,000	6,500	6,000	6,000	5,000	6,000
Torsional Backlash²⁾															
Δφ	arcmin	≤6	≤8	≤4	≤5	≤4	≤5	≤3	≤4	≤3	≤4	≤3	≤4	≤3	≤4
Torsional Stiffness															
C ₂	in.lbs./arcmin	17		44		100		266		486		1,557		3,094	3,016
	Nm/arcmin	1.9		5		11		33		55		176		350	340
Axial Load⁴⁾	R	lbs.	112	225	337	518	653	1,058	1,350						
Maximum	N	500	1,000	1,500	2,300	2,900	4,700	6,000							
F _{2AMAX} ³⁾	D	lbs.	—	315	506	788	1,013	1,688	2,250						
	N	—	1,400	2,250	3,500	4,500	7,500	10,000							
	Z	lbs.	—	135	225	360	450	810	1,125						
	N	—	600	1,000	1,600	2,000	3,600	5,000							
Radial Load⁴⁾	R	lbs.	270	563	900	1,463	1,800	2,925	4,050						
Maximum	N	1,200	2,500	4,000	6,500	8,000	13,000	18,000							
F _{2RMAX} ³⁾	D	lbs.	—	619	1,013	1,575	2,025	3,375	4,500						
	N	—	2,750	4,500	7,000	9,000	15,000	20,000							
	Z	lbs.	—	675	1,125	1,800	2,250	4,050	6,075						
	N	—	3,000	5,000	8,000	10,000	18,000	27,000							
Tilting Moment⁴⁾	R	in.lbs.	300	779	1,416	2,991	4,774	5,938	14,735						
Maximum	Nm	34	88	160	338	536	897		1,665						
T _{2Kmax} ³⁾	D	in.lbs.	—	929	1,717	3,593	5,735	10,089	18,320						
	Nm	—	105	194	406	648	1,140		2,070						
	Z	in.lbs.	—	929	1,770	3,682	5,929	10,992	22,125						
	Nm	—	105	200	416	670	1,242		2,500						
Efficiency (at Nom. Torque)															
h	%	97%	95%	97%	95%	97%	95%	97%	95%	97%	95%	97%	95%	97%	95%
Weight	pounds	3	4.0	6	8	9	12	14	19	27	33	57	71	110	135
m	kg	1.2	1.8	2.6	3.5	4.0	5.3	6.5	8.5	12	15	26	32	50	61
Noise Level															
L _{PA}	dB(A) ⁵⁾	≤61	≤61	≤61	≤61	≤62	≤60	≤63	≤61	≤64	≤62	≤65	≤63	≤65	≤64
Balance Quality		Q 2.5 (Quality Class-2.5 millimeters per second)													
Lubrication		Synthetic Oil – Lubricated for Life													
Degree of Protection		IP65 - FKM Shaft Seals													
Mounting Position		Unrestricted													
Direction of Rotation		Input and Output Rotate the SAME Direction.													
Ambient Temperature		0°C to +40°C (104° F) Other temperatures, contact STÖBER Drives.													
Finish		Black (Standard), Washdown (White), Food and Beverage (Stainless) Options Available													
Lifetime.⁶⁾	hours	L _h > 10,000 hours if T _{2K} /T _{2A} < 1.25 and > 1.00													
L _h		L _h > 20,000 hours if T _{2K} /T _{2A} > 1.25 and < 1.50													
		L _h > 30,000 hours if T _{2K} /T _{2A} > 1.5													
Warranty		5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)													

¹⁾ Ratings based on input speed (n₁) of 2000 RPM.

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Tested at 1.5% of nominal torque and recorded on the input side of the gearhead.
For reduced value see the PA Series.

³⁾ See Page 165 for output bearing options.

⁴⁾ Rating based on output speed (n₂) of 100 RPM. For values at other speeds see Page 165.

⁵⁾ Measurement at one (1) meter distance with input speed (n₁) of 2000 RPM.

⁶⁾ T_{2A} equals actual tilting moment of the application. See Page 165 for calculation details.

Refer to Page 172 for ServoFit Precision Planetary Gearhead Selection Procedure.



"P" Series ServoFit® Precision Planetary Gearhead Features

The "P" Series ServoFit Precision Planetary Gearheads feature HeliCamber® gearing, TriAdapt® motor adapter system and many other components which make them the most accurate and efficient planetary gearheads available. HeliCamber® gear technology provides minimum wear, low backlash and low noise. All units are lubricated for life with synthetic oil and sealed to IP65 standards to prevent lubricant contamination for long life.

Some of these features are:

- Readily Attaches to Any Servo Motor (IEC, NEMA, or Customized Motor Plates*)
- 5 Year Limited Warranty (2 years on bearings, seals, etc.)
- Lowest Standard Backlash
- High Torsional Stiffness
- Advanced Gear Technology
- 95 to 97% Efficiency
- Quiet Running
- Assembled in the U.S.A.

* Maximum 10 working days for custom motor plates.



Ring gear machined integral to the housing – not welded or pressed in – provides greater concentricity and eliminates speed fluctuation

Highest running smoothness achieved by proven helical gearing and gear tooth microgeometry. Gear quality provided by case-hardened and finish-ground sun and planet gears.

Magnetic oil filtration

Highest running accuracy and precision ensured by single piece housing made from high-tensile tempered ductile iron with the additional characteristics of dissipating heat, noise dampening, and greater lubrication retention on the ring gear

Triple-split collet – for greater concentricity and low inertia – is rated in excess of 200 percent of the gearheads input torque capacity

FKM seals – for the smallest possible diameter—reducing friction and heat buildup, increasing efficiency, and allowing continuous duty without additional cooling

Bearing options for application specific radial load, axial load, and tilting moments

Planet carrier straddle mounted for robust output capacity

Motor plate can easily be changed to fit your choice of motors

Adapter bushings to fit all motor shafts – no key required

Motor plate pilot toleranced to fit your motor for precise concentricity

The patented TriAdapt® motor coupling is designed to allow thermal expansion of the motor shaft – ensuring long motor life by preventing thrust load on the motor bearings.

Available as ServoCool in Sizes P4 thru P8.

The TriAdapt® motor shaft adapter system allows installation of motor in minutes – no special tools required



Also available with input shaft (AW).





"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂	Output Torque					
		Continuous RPM (n _i)	Cyclic RPM (n _i)				Nominal ¹⁾		Acceleration		Peak ²⁾	
							T _{2N}		T _{2B}		T _{2PEAK}	
							in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

P221 with Motor Mounting Plate

P221S_0040 MT	4.000	4,500	8,000	14	0.14	16.2	1.8	142	16	195	22	390	44
P221S_0040 MTL	4.000	4,500	8,000	19	0.61	16.8	1.9	142	16	195	22	390	44
P221S_0050 MT	5.000	4,500	8,000	14	0.12	16.4	1.9	142	16	195	22	390	44
P221S_0050 MTL	5.000	4,500	8,000	19	0.59	16.8	1.9	142	16	195	22	390	44
P221S_0070 MT	7.000	4,500	8,000	14	0.11	15.7	1.8	142	16	195	22	390	44
P221S_0070 MTL	7.000	4,500	8,000	19	0.57	15.9	1.8	142	16	195	22	390	44
P221S_0080 MT	8.000	4,500	8,000	14	0.10	14.9	1.7	124	14	159	18	319	36
P221S_0080 MTL	8.000	4,500	8,000	19	0.57	15.1	1.7	124	14	159	18	319	36
P221S_0100 MT	10.00	4,500	8,000	14	0.10	14.1	1.6	106	12	159	18	319	36
P221S_0100 MTL	10.00	4,500	8,000	19	0.56	14.2	1.6	106	12	159	18	319	36

P222 with Motor Mounting Plate

P222S_0160 MT	16.00	4,500	8,000	14	0.14	15.8	1.8	142	16	195	22	390	44
P222S_0160 MTL	16.00	4,500	8,000	19	0.61	15.8	1.8	142	16	195	22	390	44
P222S_0200 MT	20.00	4,500	8,000	14	0.14	16.2	1.8	142	16	195	22	390	44
P222S_0200 MTL	20.00	4,500	8,000	19	0.61	16.2	1.8	142	16	195	22	390	44
P222S_0250 MT	25.00	4,500	8,000	14	0.12	16.2	1.8	142	16	195	22	390	44
P222S_0250 MTL	25.00	4,500	8,000	19	0.59	16.2	1.8	142	16	195	22	390	44
P222S_0280 MT	28.00	4,500	8,000	14	0.11	15.8	1.8	142	16	195	22	390	44
P222S_0280 MTL	28.00	4,500	8,000	19	0.57	15.8	1.8	142	16	195	22	390	44
P222S_0320 MT	32.00	4,500	8,000	14	0.13	14.8	1.7	124	14	159	18	319	36
P222S_0320 MTL	32.00	4,500	8,000	19	0.60	14.9	1.7	124	14	159	18	319	36
P222S_0350 MT	35.00	4,500	8,000	14	0.11	16.1	1.8	142	16	195	22	390	44
P222S_0350 MTL	35.00	4,500	8,000	19	0.57	16.1	1.8	142	16	195	22	390	44
P222S_0400 MT	40.00	4,500	8,000	14	0.10	15.7	1.8	142	16	195	22	390	44
P222S_0400 MTL	40.00	4,500	8,000	19	0.56	15.7	1.8	142	16	195	22	390	44
P222S_0500 MT	50.00	4,500	8,000	14	0.10	16.1	1.8	142	16	195	22	390	44
P222S_0500 MTL	50.00	4,500	8,000	19	0.56	16.1	1.8	142	16	195	22	390	44
P222S_0700 MT	70.00	4,500	8,000	14	0.10	15.6	1.8	142	16	195	22	390	44
P222S_0700 MTL	70.00	4,500	8,000	19	0.56	15.6	1.8	142	16	195	22	390	44
P222S_1000 MT	100.0	4,500	8,000	14	0.10	14.0	1.6	106	12	159	18	319	36
P222S_1000 MTL	100.0	4,500	8,000	19	0.56	14.0	1.6	106	12	159	18	319	36

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"P" Series

ServoFit® Precision Planetary Gearhead

Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₁)					Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
						in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

P321 with Motor Mounting Plate

P321S_0030 MT	3.000	3,500	6,000	19	0.77	50.5	5.7	266	30	443	50	1,083	122
P321S_0030 MTL	3.000	3,500	6,000	24	1.45	50.5	5.7	266	30	443	50	1,083	122
P321S_0040 MT	4.000	3,700	6,500	19	0.69	46.9	5.3	399	45	576	65	1,152	130
P321S_0040 MTL	4.000	3,700	6,500	24	1.37	46.9	5.3	399	45	576	65	1,152	130
P321S_0050 MT	5.000	4,000	7,000	19	0.64	45.2	5.1	399	45	576	65	1,152	130
P321S_0050 MTL	5.000	4,000	7,000	24	1.32	45.2	5.1	399	45	576	65	1,152	130
P321S_0070 MT	7.000	4,500	8,000	19	0.59	39.0	4.4	399	45	531	60	1,152	130
P321S_0070 MTL	7.000	4,500	8,000	24	1.26	39.0	4.4	399	45	531	60	1,152	130
P321S_0080 MT	8.000	4,500	8,000	19	0.58	37.2	4.2	354	40	443	50	886	100
P321S_0080 MTL	8.000	4,500	8,000	24	1.25	37.2	4.2	354	40	443	50	886	100
P321S_0100 MT	10.00	4,500	8,000	19	0.57	35.4	4.0	266	30	443	50	886	100
P321S_0100 MTL	10.00	4,500	8,000	24	1.24	35.4	4.0	266	30	443	50	886	100

P322 with Motor Mounting Plate

P322S_0150 MT	15.00	4,500	8,000	14	0.14	39.7	4.5	266	30	443	50	1,082	122
P322S_0150 MTL	15.00	4,500	8,000	19	0.46	39.7	4.5	266	30	443	50	1,082	122
P322S_0160 MT	16.00	4,500	8,000	14	0.14	39.7	4.5	399	45	576	65	1,152	130
P322S_0160 MTL	16.00	4,500	8,000	19	0.61	40.0	4.5	399	45	576	65	1,152	130
P322S_0200 MT	20.00	4,500	8,000	14	0.14	40.6	4.6	399	45	576	65	1,152	130
P322S_0200 MTL	20.00	4,500	8,000	19	0.61	40.8	4.6	399	45	576	65	1,152	130
P322S_0250 MT	25.00	4,500	8,000	14	0.12	40.7	4.6	399	45	576	65	1,152	130
P322S_0250 MTL	25.00	4,500	8,000	19	0.59	40.8	4.6	399	45	576	65	1,152	130
P322S_0280 MT	28.00	4,500	8,000	14	0.11	39.5	4.5	399	45	576	65	1,152	130
P322S_0280 MTL	28.00	4,500	8,000	19	0.57	39.6	4.5	399	45	576	65	1,152	130
P322S_0320 MT	32.00	4,500	8,000	14	0.14	35.9	4.1	354	40	443	50	886	100
P322S_0320 MTL	32.00	4,500	8,000	19	0.61	36.0	4.1	354	40	443	50	886	100
P322S_0350 MT	35.00	4,500	8,000	14	0.11	40.5	4.6	399	45	576	65	1,152	130
P322S_0350 MTL	35.00	4,500	8,000	19	0.57	40.6	4.6	399	45	576	65	1,152	130
P322S_0400 MT	40.00	4,500	8,000	14	0.10	38.8	4.4	399	45	576	65	1,152	130
P322S_0400 MTL	40.00	4,500	8,000	19	0.56	38.9	4.4	399	45	576	65	1,152	130
P322S_0500 MT	50.00	4,500	8,000	14	0.10	40.0	4.5	399	45	576	65	1,152	130
P322S_0500 MTL	50.00	4,500	8,000	19	0.56	40.1	4.5	399	45	576	65	1,152	130
P322S_0700 MT	70.00	4,500	8,000	14	0.10	36.9	4.2	399	45	531	60	1,152	130
P322S_0700 MTL	70.00	4,500	8,000	19	0.56	36.9	4.2	399	45	531	60	1,152	130
P322S_1000 MT	100.0	4,500	8,000	14	0.10	34.6	3.9	266	30	443	50	886	100
P322S_1000 MTL	100.0	4,500	8,000	19	0.56	34.6	3.9	266	30	443	50	886	100

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm	Output Torque					
		Continuous RPM (n _i)	Cyclic RPM (n _i)				Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
							in.lbs. Nm	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm	

P421 with Motor Mounting Plate

P421S_0030 MT	3.000	3,000	5,500	24	1.94	110.7	12.5	443	50	886	100	2,126	240
P421S_0030 MTC	3.000	3,500	6,000	24	2.66	98.3	11.1	443	50	886	100	2,126	240
P421S_0030 MTL	3.000	3,000	5,500	32	4.16	110.7	12.5	443	50	886	100	2,126	240
P421S_0040 MT	4.000	3,300	6,000	24	1.54	106.3	12.0	753	85	1,063	120	2,126	240
P421S_0040 MTC	4.000	3,800	6,000	24	2.27	99.5	11.2	753	85	1,063	120	2,126	240
P421S_0040 MTL	4.000	3,300	6,000	32	3.77	106.3	12.0	753	85	1,063	120	2,126	240
P421S_0050 MT	5.000	3,700	6,500	24	1.44	103.6	11.7	753	85	1,063	120	2,126	240
P421S_0050 MTC	5.000	4,200	6,500	24	2.16	99.4	11.2	753	85	1,063	120	2,126	240
P421S_0050 MTL	5.000	3,700	6,500	32	3.66	103.6	11.7	753	85	1,063	120	2,126	240
P421S_0070 MT	7.000	4,000	7,000	24	1.31	89.5	10.1	753	85	974	110	2,126	240
P421S_0070 MTC	7.000	4,500	7,000	24	2.05	87.8	9.9	753	85	974	110	2,126	240
P421S_0070 MTL	7.000	4,000	7,000	32	3.57	89.5	10.1	753	85	974	110	2,126	240
P421S_0080 MT	8.000	4,000	7,000	24	1.29	84.2	9.5	709	80	886	100	1,772	200
P421S_0080 MTC	8.000	4,500	7,000	24	2.03	83.0	9.4	709	80	886	100	1,772	200
P421S_0080 MTL	8.000	4,000	7,000	32	3.55	84.2	9.5	709	80	886	100	1,772	200
P421S_0100 MT	10.00	4,000	7,000	24	1.27	79.7	9.0	531	60	886	100	1,772	200
P421S_0100 MTC	10.00	4,500	7,000	24	2.01	79.1	8.9	531	60	886	100	1,772	200
P421S_0100 MTL	10.00	4,000	7,000	32	3.53	79.7	9.0	531	60	886	100	1,772	200

P422 with Motor Mounting Plate

P422S_0150 MT	15.00	3,700	6,500	19	.52	92.2	10.4	443	50	885	100	2,124	240
P422S_0150 MTL	15.00	3,700	6,500	24	1.07	92.2	10.4	443	50	885	100	2,124	240
P422S_0160 MT	16.00	3,700	6,500	19	0.71	93.1	10.5	753	85	1,063	120	2,126	240
P422S_0160 MTL	16.00	3,700	6,500	24	1.39	93.1	10.5	753	85	1,063	120	2,126	240
P422S_0200 MT	20.00	3,700	6,500	19	0.70	95.2	10.8	753	85	1,063	120	2,126	240
P422S_0200 MTL	20.00	3,700	6,500	24	1.38	95.2	10.8	753	85	1,063	120	2,126	240
P422S_0250 MT	25.00	4,000	7,000	19	0.65	94.9	10.7	753	85	1,063	120	2,126	240
P422S_0250 MTL	25.00	4,000	7,000	24	1.33	94.9	10.7	753	85	1,063	120	2,126	240
P422S_0280 MT	28.00	4,500	8,000	19	0.60	90.8	10.3	753	85	1,063	120	2,126	240
P422S_0280 MTL	28.00	4,500	8,000	24	1.27	90.8	10.3	753	85	1,063	120	2,126	240
P422S_0320 MT	32.00	3,700	6,500	19	0.69	81.9	9.2	709	80	886	100	1,772	200
P422S_0320 MTL	32.00	3,700	6,500	24	1.37	81.9	9.2	709	80	886	100	1,772	200
P422S_0350 MT	35.00	4,500	8,000	19	0.60	93.7	10.6	753	85	1,063	120	2,126	240
P422S_0350 MTL	35.00	4,500	8,000	24	1.27	93.7	10.6	753	85	1,063	120	2,126	240
P422S_0400 MT	40.00	4,500	8,000	19	0.58	89.5	10.1	753	85	1,063	120	2,126	240
P422S_0400 MTL	40.00	4,500	8,000	24	1.25	89.5	10.1	753	85	1,063	120	2,126	240
P422S_0500 MT	50.00	4,500	8,000	19	0.58	92.8	10.5	753	85	1,063	120	2,126	240
P422S_0500 MTL	50.00	4,500	8,000	24	1.25	92.8	10.5	753	85	1,063	120	2,126	240
P422S_0700 MT	70.00	4,500	8,000	19	0.58	85.1	9.6	753	85	974	110	2,126	240
P422S_0700 MTL	70.00	4,500	8,000	24	1.25	85.1	9.6	753	85	974	110	2,126	240
P422S_1000 MT	100.0	4,500	8,000	19	0.58	78.0	8.8	531	60	886	100	1,772	200
P422S_1000 MTL	100.0	4,500	8,000	24	1.25	78.0	8.8	531	60	886	100	1,772	200

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₂)					Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
										in.lbs.	Nm	in.lbs.	Nm

P521 with Motor Mounting Plate

P521S_0030 MT	3.000	2,500	4,500	32	4.76	321.5	36.3	1,063	120	1,772	200	3,686	416
P521S_0030 MTC	3.000	3,500	6,000	32	6.98	262.7	29.7	1,063	120	1,772	200	3,686	416
P521S_0030 MTL	3.000	2,500	4,500	38	7.79	321.5	36.3	1,063	120	1,772	200	3,686	416
P521S_0040 MT	4.000	3,000	5,000	32	4.55	284.3	32.1	1,860	210	2,657	300	4,915	555
P521S_0040 MTC	4.000	4,000	6,000	32	6.77	255.8	28.9	1,860	210	2,447	276	4,915	555
P521S_0040 MTL	4.000	3,000	5,000	38	7.57	284.3	32.1	1,860	210	2,657	300	4,915	555
P521S_0050 MT	5.000	3,500	6,000	32	4.14	275.5	31.1	1,860	210	2,657	300	5,315	600
P521S_0050 MTC	5.000	4,500	6,000	32	6.36	257.7	29.1	1,860	210	2,657	300	5,315	600
P521S_0050 MTL	5.000	3,500	6,000	38	7.16	275.5	31.1	1,860	210	2,657	300	5,315	600
P521S_0070 MT	7.000	3,700	6,500	32	3.74	248.0	28.0	1,860	210	2,392	270	5,315	600
P521S_0070 MTC	7.000	4,500	6,500	32	5.98	240.4	27.1	1,860	210	2,392	270	5,315	600
P521S_0070 MTL	7.000	3,700	6,500	38	6.79	248.0	28.0	1,860	210	2,392	270	5,315	600
P521S_0080 MT	8.000	3,700	6,500	32	3.67	230.3	26.0	1,772	200	2,215	250	4,429	500
P521S_0080 MTC	8.000	5,000	6,500	32	5.91	225.2	25.4	1,772	200	2,215	250	4,429	500
P521S_0080 MTL	8.000	3,700	6,500	38	6.72	230.3	26.0	1,772	200	2,215	250	4,429	500
P521S_0100 MT	10.00	3,700	6,500	32	3.61	221.5	25.0	1,240	140	2,215	250	4,429	500
P521S_0100 MTC	10.00	5,500	6,500	32	5.85	218.4	24.7	1,240	140	2,215	250	4,429	500
P521S_0100 MTL	10.00	3,700	6,500	38	6.66	221.5	25.0	1,240	140	2,215	250	4,429	500

P522 with Motor Mounting Plate Continued Next Page

P522S_0150MT	15.00	3,300	6,000	24	1.22	241.5	27.3	1,062	120	1,770	200	3,683	416
P522S_0150MTC	15.00	3,800	6,000	24	2.29	241.5	27.3	1,062	120	1,770	200	3,683	416
P522S_0150MTL	15.00	3,300	6,000	32	3.13	241.5	27.3	1,062	120	1,770	200	3,683	416
P522S_0160 MT	16.00	3,300	6,000	24	1.59	243.6	27.5	1,860	210	2,657	300	4,915	555
P522S_0160 MTC	16.00	3,800	6,000	24	2.32	241.3	27.2	1,860	210	2,657	300	4,915	555
P522S_0160 MTL	16.00	3,300	6,000	32	3.82	243.6	27.5	1,860	210	2,657	300	4,915	555
P522S_0200 MT	20.00	3,300	6,000	24	1.57	249.6	28.2	1,860	210	2,657	300	5,315	600
P522S_0200 MTC	20.00	3,800	6,000	24	2.29	248.0	28.0	1,860	210	2,657	300	5,315	600
P522S_0200 MTL	20.00	3,300	6,000	32	3.79	249.6	28.2	1,860	210	2,657	300	5,315	600
P522S_0250 MT	25.00	3,700	6,500	24	1.46	249.0	28.1	1,860	210	2,657	300	5,315	600
P522S_0250 MTC	25.00	4,200	6,500	24	2.18	248.0	28.0	1,860	210	2,657	300	5,315	600
P522S_0250 MTL	25.00	3,700	6,500	32	3.68	249.0	28.1	1,860	210	2,657	300	5,315	600
P522S_0280 MT	28.00	4,000	7,000	24	1.34	237.2	26.8	1,860	210	2,657	300	4,915	555
P522S_0280 MTC	28.00	4,500	7,000	24	2.08	236.5	26.7	1,860	210	2,657	300	4,915	555
P522S_0280 MTL	28.00	4,000	7,000	32	3.60	237.2	26.8	1,860	210	2,657	300	4,915	555
P522S_0320 MT	32.00	3,300	6,000	24	1.54	222.8	25.1	1,772	200	2,215	250	4,429	500
P522S_0320 MTC	32.00	3,800	6,000	24	2.27	222.3	25.1	1,772	200	2,215	250	4,429	500
P522S_0320 MTL	32.00	3,300	6,000	32	3.76	222.8	25.1	1,772	200	2,215	250	4,429	500
P522S_0350 MT	35.00	4,000	7,000	24	1.33	245.3	27.7	1,860	210	2,657	300	5,315	600
P522S_0350 MTC	35.00	4,500	7,000	24	2.07	244.8	27.6	1,860	210	2,657	300	5,315	600
P522S_0350 MTL	35.00	4,000	7,000	32	3.59	245.3	27.7	1,860	210	2,657	300	5,315	600
P522S_0400 MT	40.00	4,000	7,000	24	1.28	232.5	26.2	1,860	210	2,657	300	4,915	555
P522S_0400 MTC	40.00	4,500	7,000	24	2.03	232.2	26.2	1,860	210	2,657	300	4,915	555
P522S_0400 MTL	40.00	4,000	7,000	32	3.55	232.5	26.2	1,860	210	2,657	300	4,915	555
P522S_0500 MT	50.00	4,000	7,000	24	1.28	242.0	27.3	1,860	210	2,657	300	5,315	600
P522S_0500 MTC	50.00	4,500	7,000	24	2.02	241.8	27.3	1,860	210	2,657	300	5,315	600
P522S_0500 MTL	50.00	4,000	7,000	32	3.54	242.0	27.3	1,860	210	2,657	300	5,315	600

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Nominal ¹⁾						Acceleration		Peak ²⁾			
		T _{2N}						T _{2B}		T _{2PEAK}			
		in.lbs. Nm				in.lbs. Nm		in.lbs. Nm					
P522 with Motor Mounting Plate Continued													
P522S_0700 MT	70.00	4,000	7,000	24	1.27	233.2	26.3	1,860	210	2,392	270	5,315	600
P522S_0700 MTC	70.00	4,500	7,000	24	2.02	233.1	26.3	1,860	210	2,392	270	5,315	600
P522S_0700 MTL	70.00	4,000	7,000	32	3.54	233.2	26.3	1,860	210	2,392	270	5,315	600
P522S_1000 MT	100.0	4,000	7,000	24	1.27	215.5	24.3	1,240	140	2,215	250	4,429	500
P522S_1000 MTC	100.0	4,500	7,000	24	2.02	215.4	24.3	1,240	140	2,215	250	4,429	500
P522S_1000 MTL	100.0	4,000	7,000	32	3.54	215.5	24.3	1,240	140	2,215	250	4,429	500
P721 with Motor Mounting Plate													
P721S_0030 MT	3.000	2,200	3,700	38	14.81	571.3	64.5	2,480	280	4,429	500	9,177	1,036
P721S_0030 MTC	3.000	3,000	6,000	38	26.04	484.5	54.7	2,480	280	4,429	500	9,177	1,036
P721S_0030 MTL	3.000	2,200	3,700	48	32.66	571.3	64.5	2,480	280	4,429	500	9,177	1,036
P721S_0040 MT	4.000	2,500	4,500	38	10.09	531.5	60.0	3,898	440	6,201	700	12,235	1,381
P721S_0040 MTC	4.000	3,300	6,000	38	21.33	485.9	54.9	3,898	440	6,201	700	12,235	1,381
P721S_0040 MTL	4.000	2,500	4,500	48	27.94	531.5	60.0	3,898	440	6,201	700	12,235	1,381
P721S_0050 MT	5.000	3,000	5,500	38	8.55	509.3	57.5	3,898	440	6,201	700	12,401	1,400
P721S_0050 MTC	5.000	3,800	6,000	38	19.79	481.6	54.4	3,898	440	6,201	700	12,401	1,400
P721S_0050 MTL	5.000	3,000	5,500	48	26.40	509.3	57.5	3,898	440	6,201	700	12,401	1,400
P721S_0070 MT	7.000	3,300	6,000	38	7.55	487.2	55.0	3,898	440	5,758	650	11,127	1,256
P721S_0070 MTC	7.000	4,500	6,000	38	18.46	470.7	53.1	3,898	440	5,758	650	11,127	1,256
P721S_0070 MTL	7.000	3,300	6,000	48	25.86	487.2	55.0	3,898	440	5,758	650	11,127	1,256
P721S_0080 MT	8.000	3,300	6,000	38	7.29	469.5	53.0	3,543	400	4,429	500	8,858	1,000
P721S_0080 MTC	8.000	5,000	6,000	38	18.20	457.6	51.7	3,543	400	4,429	500	8,858	1,000
P721S_0080 MTL	8.000	3,300	6,000	48	25.60	469.5	53.0	3,543	400	4,429	500	8,858	1,000
P721S_0100 MT	10.00	3,300	6,000	38	7.05	438.5	49.5	2,657	300	4,429	500	8,858	1,000
P721S_0100 MTC	10.00	5,000	6,000	38	17.95	431.8	48.7	2,657	300	4,429	500	8,858	1,000
P721S_0100 MTL	10.00	3,300	6,000	48	25.35	438.5	49.5	2,657	300	4,429	500	8,858	1,000
P722 with Motor Mounting Plate Continued Next Page													
P722S_0150 MT	15.00	3,000	5,000	32	3.04	470.4	53.1	2,478	280	4,429	500	9,168	1,036
P722S_0150 MTC	15.00	4,000	6,000	32	5.56	470.4	53.1	2,478	280	4,429	500	9,168	1,036
P722S_0150 MTL	15.00	3,000	5,000	38	6.76	470.4	53.1	2,478	280	4,429	500	9,168	1,036
P722S_0160 MT	16.00	3,000	5,000	32	4.63	475.9	53.7	3,898	440	6,201	700	12,235	1,381
P722S_0160 MTC	16.00	4,000	6,000	32	6.85	470.4	53.1	3,898	440	6,201	700	12,235	1,381
P722S_0160 MTL	16.00	3,000	5,000	38	7.66	475.9	53.7	3,898	440	6,201	700	12,235	1,381
P722S_0200 MT	20.00	3,000	5,000	32	4.54	475.3	53.7	3,898	440	6,201	700	12,401	1,400
P722S_0200 MTC	20.00	4,000	6,000	32	6.76	471.8	53.3	3,898	440	6,201	700	12,401	1,400
P722S_0200 MTL	20.00	3,000	5,000	38	7.57	475.3	53.7	3,898	440	6,201	700	12,401	1,400
P722S_0250 MT	25.00	3,500	6,000	32	4.14	474.3	53.5	3,898	440	6,201	700	12,401	1,400
P722S_0250 MTC	25.00	4,500	6,000	32	6.36	472.0	53.3	3,898	440	6,201	700	12,401	1,400
P722S_0250 MTL	25.00	3,500	6,000	38	7.17	474.3	53.5	3,898	440	6,201	700	12,401	1,400
P722S_0280 MT	28.00	3,700	6,500	32	3.83	468.7	52.9	3,898	440	6,201	700	12,235	1,381
P722S_0280 MTC	28.00	4,500	6,500	32	6.07	466.9	52.7	3,898	440	6,201	700	12,235	1,381
P722S_0280 MTL	28.00	3,700	6,500	38	6.88	468.7	52.9	3,898	440	6,201	700	12,235	1,381
P722S_0320 MT	32.00	3,000	5,000	32	4.46	457.7	51.7	3,543	400	4,429	500	8,858	1,000
P722S_0320 MTC	32.00	4,000	5,000	32	6.68	456.4	51.5	3,543	400	4,429	500	8,858	1,000
P722S_0320 MTL	32.00	3,000	5,000	38	7.49	457.7	51.7	3,543	400	4,429	500	8,858	1,000

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"P" Series

ServoFit® Precision Planetary Gearhead

Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₁)			in.lbs.	Nm	Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

P722 with Motor Mounting Plate Continued

P722S_0350 MT	35.00	3,700	6,500	32	3.80	470.7	53.1	3,898	440	6,201	700	12,401	1,400
P722S_0350 MTC	35.00	4,500	6,500	32	6.04	469.5	53.0	3,898	440	6,201	700	12,401	1,400
P722S_0350 MTL	35.00	3,700	6,500	38	6.85	470.7	53.1	3,898	440	6,201	700	12,401	1,400
P722S_0400 MT	40.00	3,700	6,500	32	3.65	462.2	52.2	3,898	440	6,201	700	12,235	1,381
P722S_0400 MTC	40.00	5,000	6,500	32	5.90	461.3	52.1	3,898	440	6,201	700	12,235	1,381
P722S_0400 MTL	40.00	3,700	6,500	38	6.70	462.2	52.2	3,898	440	6,201	700	12,235	1,381
P722S_0500 MT	50.00	3,700	6,500	32	3.64	466.4	52.7	3,898	440	6,201	700	12,401	1,400
P722S_0500 MTC	50.00	5,000	6,500	32	5.88	465.9	52.6	3,898	440	6,201	700	12,401	1,400
P722S_0500 MTL	50.00	3,700	6,500	38	6.69	466.4	52.7	3,898	440	6,201	700	12,401	1,400
P722S_0700 MT	70.00	3,700	6,500	32	3.63	466.3	52.6	3,898	440	5,758	650	11,127	1,256
P722S_0700 MTC	70.00	5,000	6,500	32	5.87	466.0	52.6	3,898	440	5,758	650	11,127	1,256
P722S_0700 MTL	70.00	3,700	6,500	38	6.68	466.3	52.6	3,898	440	5,758	650	11,127	1,256
P722S_1000 MT	100.0	3,700	6,500	32	3.62	430.0	48.5	2,657	300	4,429	500	8,858	1,000
P722S_1000 MTC	100.0	5,000	6,500	32	5.86	429.8	48.5	2,657	300	4,429	500	8,858	1,000
P722S_1000 MTL	100.0	3,700	6,500	38	6.67	430.0	48.5	2,657	300	4,429	500	8,858	1,000

P821 with Motor Mounting Plate

P821S_0030 MT	3.000	1,800	3,000	48	65.03	1,948.8	220.0	7,086	800	10,630	1,200	17,064	1,926
P821S_0030 MTC	3.000	2,500	4,500	48	86.28	1,464.9	165.4	7,086	800	10,630	1,200	17,064	1,926
P821S_0030 MTL	3.000	1,800	3,000	60	92.59	1,787.0	201.7	7,086	800	10,630	1,200	17,064	1,926
P821S_0040 MT	4.000	2,200	3,500	48	41.18	1,815.9	205.0	7,086	800	14,173	1,600	22,752	2,569
P821S_0040 MTC	4.000	3,000	5,000	48	62.44	1,547.9	174.7	7,086	800	14,173	1,600	22,752	2,569
P821S_0040 MTL	4.000	2,200	3,500	60	68.75	1,733.6	195.7	7,086	800	14,173	1,600	22,752	2,569
P821S_0050 MT	5.000	2,500	4,000	48	34.36	1,718.5	194.0	8,858	1,000	14,173	1,600	28,346	3,200
P821S_0050 MTC	5.000	3,500	6,000	48	55.62	1,555.4	175.6	8,858	1,000	14,173	1,600	28,346	3,200
P821S_0050 MTL	5.000	2,500	4,000	60	57.31	1,670.4	188.6	8,858	1,000	14,173	1,600	28,346	3,200
P821S_0070 MT	7.000	2,800	4,500	48	29.23	1,563.4	176.5	8,858	1,000	12,401	1,400	24,900	2,811
P821S_0070 MTC	7.000	4,000	6,000	48	50.96	1,478.9	167.0	8,858	1,000	12,401	1,400	24,900	2,811
P821S_0070 MTL	7.000	2,800	4,500	60	57.24	1,542.9	174.2	8,858	1,000	12,401	1,400	24,900	2,811
P821S_0080 MT	8.000	2,800	4,500	48	27.99	1,472.2	166.2	7,086	800	10,630	1,200	21,259	2,400
P821S_0080 MTC	8.000	4,500	6,000	48	49.72	1,413.9	159.6	7,086	800	10,630	1,200	21,259	2,400
P821S_0080 MTL	8.000	2,800	4,500	60	56.00	1,458.2	164.6	7,086	800	10,630	1,200	21,259	2,400
P821S_0100 MT	10.00	2,800	4,500	48	26.82	1,355.3	153.0	6,201	700	10,630	1,200	21,259	2,400
P821S_0100 MTC	10.00	4,500	6,000	48	48.55	1,323.1	149.4	6,201	700	10,630	1,200	21,259	2,400
P821S_0100 MTL	10.00	2,800	4,500	60	54.84	1,347.6	152.1	6,201	700	10,630	1,200	21,259	2,400

P822 with Motor Mounting Plate Continued Next Page

P822S_0150 MT	15.00	2,500	4,500	38	8.65	1,470.7	166.2	7,086	800	10,620	1,200	17,049	1,926
P822S_0150 MTC	15.00	3,300	6,000	38	11.85	1,470.7	166.2	7,086	800	10,620	1,200	17,049	1,926
P822S_0150 MTL	15.00	2,500	4,500	48	26.63	1,470.7	166.2	7,086	800	10,620	1,200	17,049	1,926
P822S_0160 MT	16.00	2,500	4,500	38	10.65	1,496.4	168.9	7,086	800	14,173	1,600	28,346	3,200
P822S_0160 MTC	16.00	3,300	6,000	38	21.89	1,472.1	166.2	7,086	800	14,173	1,600	28,346	3,200
P822S_0160 MTL	16.00	2,500	4,500	48	28.50	1,496.4	168.9	7,086	800	14,173	1,600	28,346	3,200
P822S_0200 MT	20.00	2,500	4,500	38	10.22	1,521.7	171.8	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0200 MTC	20.00	3,300	6,000	38	21.46	1,505.5	170.0	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0200 MTL	20.00	2,500	4,500	48	28.07	1,521.7	171.8	8,858	1,000	14,173	1,600	28,346	3,200

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"P" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque					
		Continuous	Cyclic					Nominal ¹⁾		Acceleration		Peak ²⁾	
								T _{2N}	T _{2B}	T _{2B}	T _{2PEAK}		
		RPM (n _i)						in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
P822 with Motor Mounting Plate Continued													
P822S_0250 MT	25.00	3,000	5,500	38	8.83	1,514.1	170.9	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0250 MTC	25.00	3,800	6,000	38	20.07	1,503.8	169.8	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0250 MTL	25.00	3,000	5,500	48	26.68	1,514.1	170.9	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0280 MT	28.00	3,300	6,000	38	7.81	1,472.8	166.3	7,086	800	14,173	1,600	28,346	3,200
P822S_0280 MTC	28.00	4,300	6,000	38	18.71	1,463.1	165.2	7,086	800	14,173	1,600	28,346	3,200
P822S_0280 MTL	28.00	3,300	6,000	48	26.11	1,472.8	166.3	7,086	800	14,173	1,600	28,346	3,200
P822S_0320 MT	32.00	2,500	4,500	38	9.85	1,411.1	159.3	7,086	800	10,630	1,200	21,259	2,400
P822S_0320 MTC	32.00	3,300	6,000	38	21.09	1,405.7	158.7	7,086	800	10,630	1,200	21,259	2,400
P822S_0320 MTL	32.00	2,500	4,500	48	27.70	1,411.1	159.3	7,086	800	10,630	1,200	21,259	2,400
P822S_0350 MT	35.00	3,300	6,000	38	7.67	1,506.0	170.0	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0350 MTC	35.00	4,300	6,000	38	18.58	1,499.5	169.3	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0350 MTL	35.00	3,300	6,000	48	25.97	1,506.0	170.0	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0400 MT	40.00	3,300	6,000	38	7.17	1,442.5	162.8	7,086	800	14,173	1,600	28,346	3,200
P822S_0400 MTC	40.00	4,500	6,000	38	18.08	1,437.9	162.3	7,086	800	14,173	1,600	28,346	3,200
P822S_0400 MTL	40.00	3,300	6,000	48	25.47	1,442.5	162.8	7,086	800	14,173	1,600	28,346	3,200
P822S_0500 MT	50.00	3,300	6,000	38	7.10	1,485.6	167.7	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0500 MTC	50.00	4,500	6,000	38	18.01	1,482.5	167.4	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0500 MTL	50.00	3,300	6,000	48	25.40	1,485.6	167.7	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0700 MT	70.00	3,300	6,000	38	7.06	1,457.4	164.5	8,858	1,000	12,401	1,400	24,900	2,811
P822S_0700 MTC	70.00	4,500	6,000	38	17.96	1,455.9	164.4	8,858	1,000	12,401	1,400	24,900	2,811
P822S_0700 MTL	70.00	3,300	6,000	48	25.36	1,457.4	164.5	8,858	1,000	12,401	1,400	24,900	2,811
P822S_1000 MT	100.0	3,300	6,000	38	7.03	1,314.6	148.4	6,201	700	10,630	1,200	21,259	2,400
P822S_1000 MTC	100.0	4,500	6,000	38	17.94	1,314.0	148.3	6,201	700	10,630	1,200	21,259	2,400
P822S_1000 MTL	100.0	3,300	6,000	48	25.33	1,314.6	148.4	6,201	700	10,630	1,200	21,259	2,400

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"P" Series

ServoFit® Precision Planetary Gearhead

Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Nominal ¹⁾ T _{2N}	Acceleration T _{2B}					Peak ²⁾ T _{2PEAK}					
		Continuous RPM (n ₁)	Cyclic			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
P921 with Motor Mounting Plate													
P921S_0040 MT	4.000	2,000	3,000	60	98.17	3,093.9	349.3	17,716	2,000	26,574	3,000	51,554	5,820
P921S_0040 MTC	4.000	3,000	4,500	60	105.81	3,093.9	349.3	17,716	2,000	26,574	3,000	51,554	5,820
P921S_0050 MT	5.000	2,200	3,500	60	80.39	3,027.4	341.8	17,716	2,000	26,574	3,000	53,148	6,000
P921S_0050 MTC	5.000	3,500	5,000	60	88.03	3,027.4	341.8	17,716	2,000	26,574	3,000	53,148	6,000
P921S_0070 MT	7.000	2,500	4,000	60	67.08	2,852.0	322.0	17,716	2,000	23,917	2,700	47,833	5,400
P921S_0070 MTC	7.000	4,000	5,000	60	74.72	2,852.0	322.0	17,716	2,000	23,917	2,700	47,833	5,400
P921S_0100 MT	10.00	2,500	4,000	60	59.46	2,281.1	257.5	12,401	1,400	17,716	2,000	35,432	4,000
P921S_0100 MTC	10.00	4,000	5,000	60	67.09	2,281.1	257.5	12,401	1,400	17,716	2,000	35,432	4,000

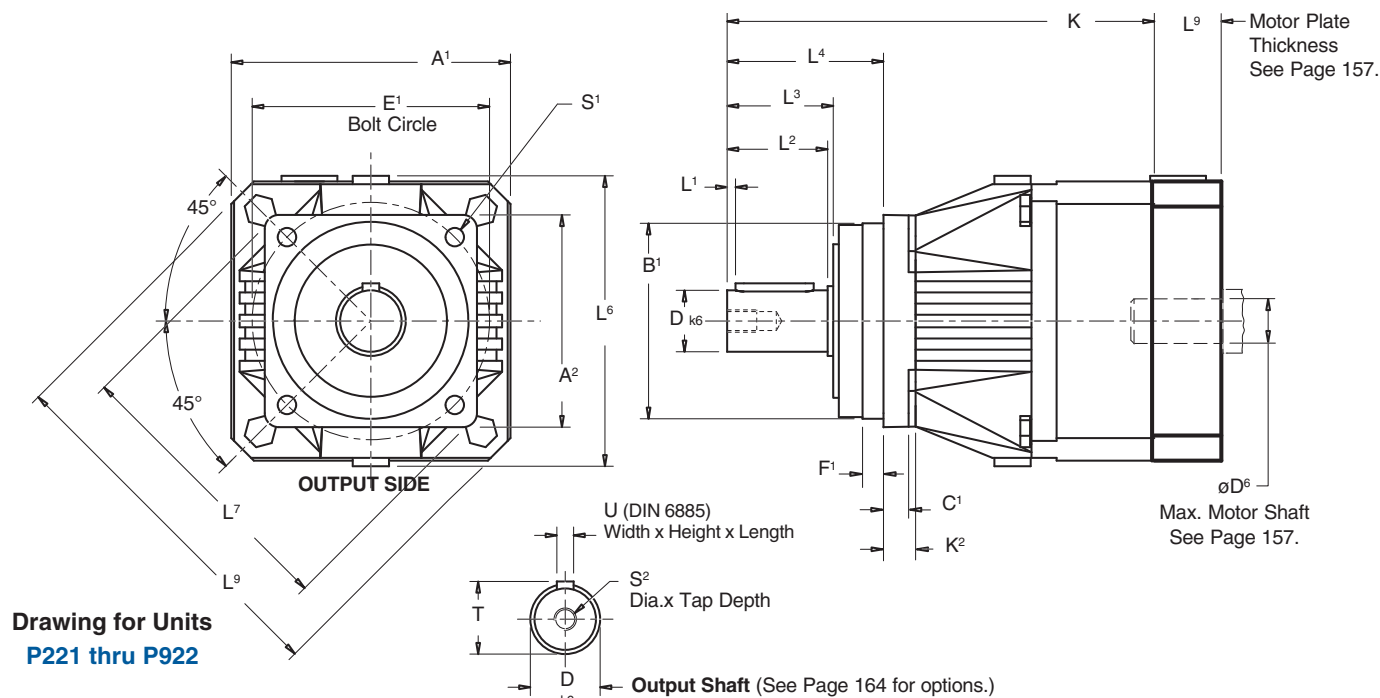
P922 with Motor Mounting Plate													
P922S_0160 MT	16.00	2,200	3,500	48	42.16	3,016.6	340.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0160 MTC	16.00	3,000	5,000	48	63.41	2,963.3	334.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0160 MTL	16.00	2,200	3,500	60	69.72	3,001.8	338.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0200 MT	20.00	2,200	3,500	48	41.04	2,979.6	336.4	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0200 MTC	20.00	3,000	5,000	48	62.30	2,946.1	332.6	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0200 MTL	20.00	2,200	3,500	60	68.61	2,970.3	335.3	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0250 MT	25.00	2,500	4,000	48	34.78	2,968.5	335.1	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0250 MTC	25.00	3,500	6,000	48	56.04	2,947.2	332.7	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0250 MTL	25.00	2,500	4,000	60	62.35	2,962.7	334.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0280 MT	28.00	2,800	4,500	48	29.81	2,966.8	334.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0280 MTC	28.00	3,750	5,000	48	51.54	2,946.8	332.7	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0280 MTL	28.00	2,800	4,500	60	57.82	2,962.1	334.4	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0350 MT	35.00	2,800	4,500	48	29.45	2,948.3	332.8	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0350 MTC	35.00	3,750	6,000	48	51.18	2,935.7	331.4	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0350 MTL	35.00	2,800	4,500	60	57.46	2,945.4	332.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0400 MT	40.00	2,800	4,500	48	26.78	2,913.7	328.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0400 MTC	40.00	4,000	6,000	48	48.51	2,904.3	327.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0400 MTL	40.00	2,800	4,500	60	54.79	2,911.5	328.7	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0500 MT	50.00	2,800	4,500	48	26.60	2,914.6	329.0	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0500 MTC	50.00	4,000	6,000	48	48.33	2,908.5	328.3	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0500 MTL	50.00	2,800	4,500	60	54.61	2,913.1	328.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0700 MT	70.00	2,800	4,500	48	26.47	2,799.9	316.1	17,716	2,000	23,917	2,700	47,833	5,400
P922S_0700 MTC	70.00	4,000	6,000	48	48.20	2,797.0	315.8	17,716	2,000	23,917	2,700	47,833	5,400
P922S_0700 MTL	70.00	2,800	4,500	60	54.48	2,799.2	316.0	17,716	2,000	23,917	2,700	47,833	5,400
P922S_1000 MT	100.0	2,800	4,500	48	26.39	2,264.6	255.7	12,401	1,400	17,716	2,000	35,432	4,000
P922S_1000 MTC	100.0	4,000	6,000	48	48.12	2,263.7	255.6	12,401	1,400	17,716	2,000	35,432	4,000
P922S_1000 MTL	100.0	2,800	4,500	60	54.40	2,264.4	255.6	12,401	1,400	17,716	2,000	35,432	4,000

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"P" Series ServoFit® Precision Planetary Gearhead Dimensional Data



Drawing for Units
P221 thru P922

Table No. 1 "P" Series – Precision Planetary Gearhead Dimensions (mm/inches)

Unit	A ¹	A ²	B ¹	h ₆	C ¹	D k ₆	E ¹	F ¹	K ²	L ¹	L ²	L ³	L ⁴	L ⁶	L ⁷	L ⁸	S ¹	S ²	T	U
P221/P222	55 2.17	55 2.17	50 1.969	+0.00/-0.019 +0.000/-0.0007	6 .24	12 +.012/+0.001	63 2.48	7 .28	— .08	2 .87	22 .94	24 1.42	36 2.44	62 2.91	74 3.15	80 .22	5.5 .22	M4x10	13.5 .53	A4x4x18
P321/P322	72 2.83	72 2.83	60 2.362	+0.00/-0.019 +0.000/-0.0007	7 .28	16 +.012/+0.001	75 2.95	7.5 .30	— .08	2 1.10	28 1.18	30 1.89	48 3.11	79 3.62	92 3.62	92 .22	5.5 .22	M5x12.5	18 .71	A5x5x22
P421/P422	98 3.86	76 2.99	70 2.756	+0.00/-0.019 +0.000/-0.0007	9 .35	22 +.015/+0.002	85 3.35	7.5 .30	12 .47	3 1.42	36 1.50	38 2.20	56 3.86	98 4.07	103.3 5.12	130 .26	6.6 .26	M8x19	24.5 .96	A6x6x28
P521/P522	115 4.53	101 3.98	90 3.543	+0.00/-0.022 +0.000/-0.0009	10 .39	32 +.018/+0.002	120 4.72	15 .59	14 .55	3 1.2	58 2.28	60 3.46	88 4.76	121 5.47	139 5.87	149 .35	9 .35	M12x28	35 1.38	A10x8x50
P721/P722	145 5.71	145 5.71	130 5.118	+0.00/-0.025 +0.000/-0.001	15 .59	40 +.018/+0.002	165 6.50	3.5 .14	— .16	4 3.23	82 3.35	85 4.41	112 5.71	145 —	— 7.48	190 .43	11 .43	M16x36	43 1.69	A12x8x70
P821/P822	190 7.48	190 7.48	160 6.299	+0.00/-0.025 +0.000/-0.001	15 .59	55 +.021/+0.002	215 8.46	10 .39	— .24	6 3.23	82 3.35	85 4.41	112 7.48	190 —	— 9.84	250 .53	13.5 .53	M20x42	59 2.32	A16x10x70
P921/P922	225 8.86	212 8.35	180 7.086	+0.00/-0.025 +0.000/-0.001	17 .67	75 +.021/+0.002	250 9.84	10 .39	22 .87	7 .28	105 4.13	109 4.29	143 5.63	225 8.86	285 11.22	300 11.81	17.5 .69	M20x42	79.5 3.13	A20x12x90

Part No. Explanation

P 4 2 1 S P R 0030 MT C

P – "P" Series ServoFit Precision Planetary Gearhead
4 – Unit No.
2 – Generation Number
1 – No. of Gear Stages (1 = 1 Stage, 2 = 2 Stages)
S – Standard Housing
P – Output Shaft with Key
R – Reinforced Bearings-Radial
0030 – Ratio (0030 = 3.0:1)
MT – Motor Plate with TriAdapt Coupling
C – Option for ServoCool

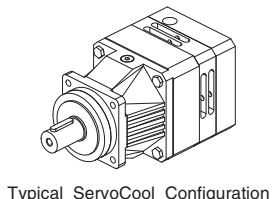
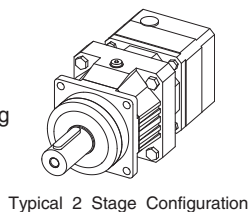


Table No. 2

K Dimension					
Standard			ServoCool		
Unit	mm	inches	Unit	mm	inches
P221	94.5	3.72	—	—	—
P222	126.5	4.98	—	—	—
P321	135	5.31	—	—	—
P322	158.5	6.24	—	—	—
P421	153	6.02	P421_C	176.5	6.95
P422	200.5	7.89	—	—	—
P521	193	7.60	P521_C	221	8.70
P522	242.5	9.55	P522_C	266	10.47
P721	242	9.53	P721_C	272	10.71
P722	294	11.57	P722_C	322	12.68
P821	283	11.14	P821_C	331	13.03
P822	350.5	13.80	P822_C	380.5	14.98
P921	353	13.89	P921_C	418	16.45
P922	441	17.36	P922_C	489	19.25

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)



"P" Series—Large Input ServoFit® Precision Planetary Gearhead Dimensional Data

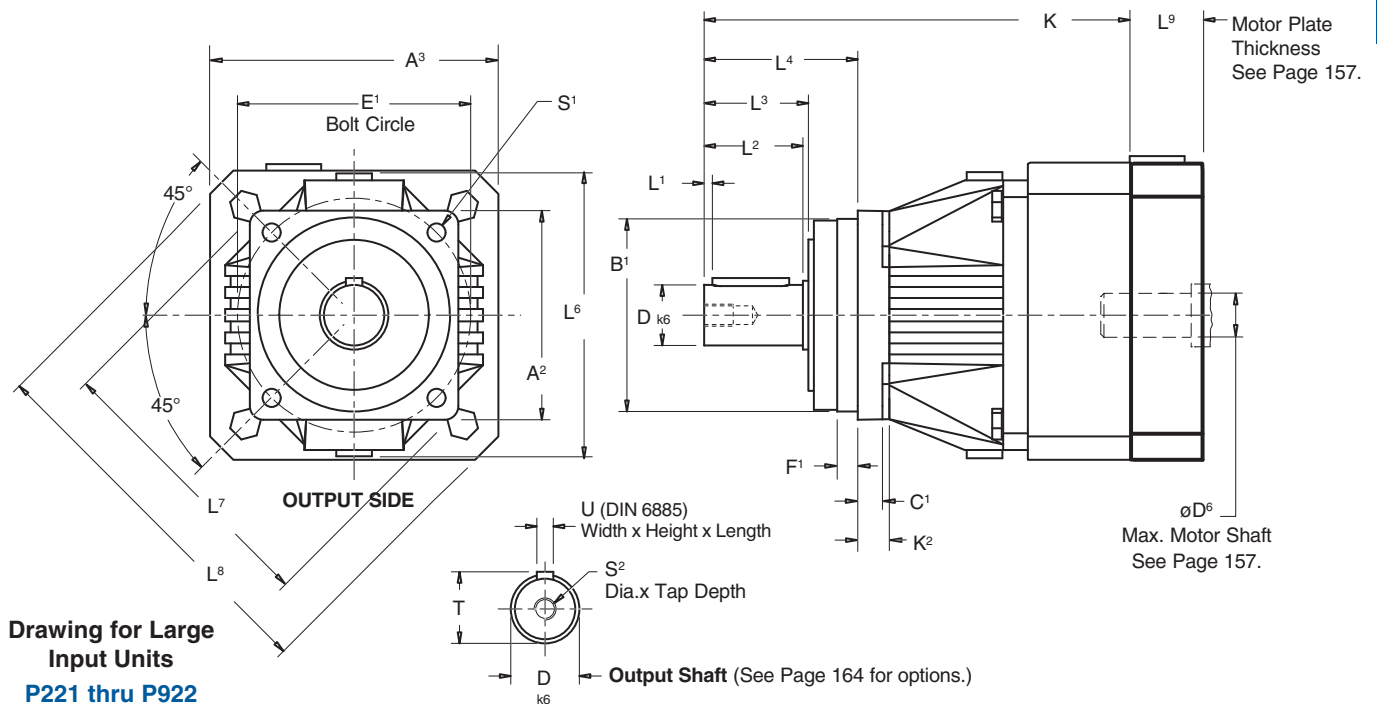


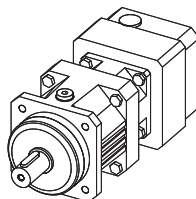
Table No. 1 "P" Series – Large Input – Precision Planetary Gearhead Dimensions (mm/inches)

Unit	A²	B¹ h6	C¹	D k6	E¹	F¹	K²	L¹	L²	L³	L⁴	L⁶	L⁷	S¹	S²	T	U
P221/P222_L	55 2.17	50 1.969 +0.000/-0.019 +0.000/-0.0007	6 .24	12 +0.012/+0.001	63 2.48	7 .28	—	2 .08	22 .87	24 .94	36 1.42	92 3.62	74 2.91	5.5 .22	M4x10	13.5 .53	A4x4x18
P321/P322_L	72 2.83	60 2.362 +0.000/-0.019 +0.000/-0.0007	7 .28	16 +0.012/+0.001	75 2.95	7.5 .30	—	2 .08	28 1.10	30 1.18	48 1.89	130 5.12	92 3.62	5.5 .22	M5x12.5	18 .71	A5x5x22
P421/P422_L	76 2.99	70 2.756 +0.000/-0.019 +0.000/-0.0007	9 .35	22 +0.015/+0.002	85 3.35	7.5 .30	12 .47	3 .12	36 1.42	38 1.50	56 2.20	149 5.87	103.3 4.07	6.6 .26	M8x19	24.5 .96	A6x6x28
P521/P522_L	101 3.98	90 3.543 +0.000/-0.022 +0.000/-0.0009	10 .39	32 +0.018/+0.002	120 4.72	15 .59	14 .55	4 .12	58 2.28	60 2.36	88 3.46	190 7.48	139 5.47	9 .35	M12x28	35 1.38	A10x8x50
P721/P722_L	145 5.71	130 5.118 +0.000/-0.025 +0.000/-0.001	15 .59	40 +0.018/+0.002	165 6.50	3.5 .14	—	4 .16	82 3.23	85 3.35	112 4.41	250 5.71	— .43	11 .43	M16x36	43 1.69	A12x8x70
P821/P822_L	190 7.48	160 6.299 +0.000/-0.025 +0.000/-0.001	15 .59	55 +0.021/+0.002	215 8.46	10 .39	—	6 .24	82 3.23	85 3.35	112 4.41	190 7.48	— .53	13.5 .53	M20x42	59 2.32	A16x10x70
P922_L	212 8.35	180 7.086 +0.000/-0.025 +0.000/-0.001	17 .67	75 +0.021/+0.002	250 9.84	10 .39	22 .87	7 .28	105 4.13	109 4.29	143 5.63	225 8.86	285 11.22	17.5 .69	M20x42	79.5 3.13	A20x12x90

Part No. Explanation

P 4 2 1 S P R 0030 M T L

P – Large Input
4 – Motor Plate with TriAdapt Coupling
2 – Ratio (0030 = 3.0:1)
1 – R – Normal Bearing
S – D – Reinforced Bearings-Axial
P – Z – Reinforced Bearings-Radial
R – G – Shaft – no Key
0030 – P – Output Shaft with Key
M – Standard Housing
T – No. of Gear Stages (1 = 1 Stage, 2 = 2 Stages)
L – Generation Number
Unit No.
"P" Series ServoFit Precision Planetary Gearhead



**Typical 2 Stage Configuration
Large Input**

Table No. 2

Unit	A³		K		L⁸	
	mm	inches	mm	inches	mm	inches
P221_L	75	2.95	111	4.37	100	3.94
P222_L	75	2.95	143	5.63	100	3.94
P321_L	100	3.94	138.3	5.44	130	5.12
P322_L	75	2.95	175	6.89	100	3.94
P421_L	115	4.53	161.5	6.36	149	5.87
P422_L	100	3.94	203.8	8.02	130	5.12
P521_L	145	5.71	207	8.15	190	7.48
P522_L	115	4.53	251	9.88	149	5.87
P721_L	190	7.48	259	10.20	250	9.84
P722_L	145	5.71	308	12.13	190	7.48
P821_L	225	8.85	291	11.45	300	11.81
P822_L	190	7.48	367.5	14.47	250	9.84
P922_L	225	8.85	449	17.68	300	11.81

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)

"PA" Series–Advanced ServoFit® Precision Planetary Gearhead Performance Specification Overview



			PA321 PA322		PA421 PA422		PA521 PA522		PA721 PA722		PA821 PA822	
Acceleration Torque Maximum	T _{2B}	in.lbs. Nm	575 65		1052 120		2,655 300		6,195 700		14,160 1,600	
Nominal Output Torque ¹⁾	T _{2N}	in.lbs. Nm	399 45		753 85		1,860 210		3,898 440		8,858 1,000	
Input Speed Maximum	n _{1MAX}	Continuous Cyclic	4,500 8,000		4,000 4,500 7,000 8,000		3,700 4,000 6,500 7,000		3,300 3,700 6,000 6,500		2,800 3,300 4,500 6,000	
ServoCool Input RPM Maximum	n _{1MAX}	Continuous Cyclic	– –		6,000 – 7,000 –		6,000 5,500 6,500 7,000		5,500 5,500 6,000 6,500		5,500 5,000 6,000 6,000	
Torsional Backlash ²⁾	Δφ	arcmin	≤2	≤3	≤2	≤3	≤1	≤2	≤1	≤2	≤1	≤2
Torsional Stiffness	C ₂	in.lbs./arcmin Nm/arcmin	44 5		100 11		266 33		486 55		1,557 176	
Axial Load Max. ³⁾	F _{2AMAX}	lbs. N	315 1,400		506 2,250		788 3,500		1,013 4,500		1,688 7,500	
Radial Load Max. ³⁾	F _{2RMAX}	lbs. N	619 2,750		1,012 4,500		1,575 7,000		2,025 9,000		3,375 15,000	
Tilting Moment Max. ³⁾	T _{2KMAX}	in.lbs. Nm	2,044 231		3,885 439		7,496 847		11,629 1,314		23,497 2,655	
Efficiency (at Nominal Torque)	h	%	97%	95%	97%	95%	97%	95%	97%	95%	97%	95%
Weight	m	pounds kg	6 2.6	8 3.5	9 4.0	12 5.3	14 6.5	19 8.5	27 12	33 15	57 26	71 32
Noise Level	L _{PA}	dB(A) ⁴⁾	≤61	≤61	≤62	≤60	≤63	≤61	≤64	≤62	≤65	≤63
Balance Quality			Q 2.5 (Quality Class-2.5 millimeters per second)									
Lubrication			Synthetic Oil – Lubricated for Life									
Degree of Protection			IP65 - FKM Shaft Seals									
Mounting Position			Unrestricted									
Direction of Rotation			Input and Output Rotate the SAME Direction.									
Ambient Temperature			0°C to +40°C (104° F) Other temperatures, contact STÖBER Drives.									
Finish			Black (Standard), Washdown, Food and Beverage Options Available									
Lifetime. ⁵⁾	L _h	hours	L _h > 10,000 hours if T _{2K} /T _{2A} < 1.25 and > 1.00 L _h > 20,000 hours if T _{2K} /T _{2A} > 1.25 and < 1.50 L _h > 30,000 hours if T _{2K} /T _{2A} > 1.5									
Warranty			5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)									

¹⁾ Ratings based on input speed (n₁) of 2000 RPM.

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Tested at 1.5% of nominal torque and recorded on the input side of the gearhead.

³⁾ Rating based on output speed (n₂) of 100 RPM. For values at other speeds see Page 165.

⁴⁾ Measurement at one (1) meter distance with input speed (n₁) of 2000 RPM.

⁵⁾ T_{2A} equals actual tilting moment of the application. See Page 165 for calculation details.

Refer to Page 172 for ServoFit Precision Planetary Gearhead Selection Procedure.



"PA" Series—Advanced ServoFit® Precision Planetary Gearhead Features

The "PA" Series Advanced ServoFit Precision Planetary Gearheads feature HeliCamber® gearing, FlexiAdapt® motor adapter system and other features which make them the most accurate, efficient, and lowest backlash planetary gearheads available. HeliCamber® gear technology provides minimum wear, low backlash and low noise. All units are lubricated for life with synthetic oil and sealed to IP65 standards to prevent lubricant contamination.

- Some of these features are:
- Lowest Backlash on the Market
 - Advanced Gear Technology
 - Quiet Running
 - 5 Year Limited Warranty (2 years on bearings, seals, etc.)
 - Readily Attaches to Any Servo Motor (IEC, NEMA, or customized motor plates*)
 - High Torsional Stiffness
 - 95 to 97% Efficiency
 - Ground and honed gearing

* Maximum 10 working days for custom motor plates.

Motor plate pilot toleranced to fit your motor for precise concentricity

Backlash ≤ 1 arcminute – Precision selection of parts ensure optimal performance without binding gear teeth – resulting in a more accurate and smooth direct drive

Motor plate can easily be changed to fit your choice of motors

Magnetic oil filtration

Adapter bushings to fit all motor shafts – no key required

Double row ball bearings on the output for high radial and axial capacity while maintaining efficiency.

Ring gear machined integral to the housing – not welded or pressed in – provides greater concentricity and eliminates speed fluctuation

High quality gearing provided by case-hardened and ground sun and planet gears and honed ring gear.

Oversized single-piece planet carrier made of high-tensile material assure the highest torsional stiffness while straddle mounted bearings minimize misalignment.

Highest running accuracy and precision ensured by single piece housing made from high-tensile tempered ductile iron with the additional characteristics of dissipating heat, noise dampening, and greater lubrication retention on the ring gear

FKM seals for the smallest possible diameter—reducing friction and heat buildup, increasing efficiency, and allowing continuous duty without additional cooling.



Available as ServoCool in Sizes P4 thru P8.



The FlexiAdapt® motor coupling is designed for accurate and precise motor installation. The integrated thermal expansion feature in the shape of a bellows compensates for linear expansion of the motor shaft.

The FlexiAdapt® motor shaft adapter system allows installation of motor in minutes without special tools.



"PA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic			Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}			
						in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
PA321 with Motor Mounting Plate													
PA321S_D0030 MF	3.000	3,500	6,000	19	0.69	44.3	5.0	266	30	443	50	1,083	122
PA321S_D0030 MFL	3.000	3,500	6,000	24	1.77	48.3	5.5	266	30	443	50	1,083	122
PA321S_D0040 MF	4.000	3,700	6,500	19	0.61	43.7	4.9	399	45	576	65	1,152	130
PA321S_D0040 MFL	4.000	3,700	6,500	24	1.69	45.9	5.2	399	45	576	65	1,152	130
PA321S_D0050 MF	5.000	4,000	7,000	19	0.57	43.2	4.9	399	45	576	65	1,152	130
PA321S_D0050 MFL	5.000	4,000	7,000	24	1.64	44.5	5.0	399	45	576	65	1,152	130
PA321S_D0070 MF	7.000	4,500	8,000	19	0.51	38.1	4.3	399	45	531	60	1,152	130
PA321S_D0070 MFL	7.000	4,500	8,000	24	1.57	38.7	4.4	399	45	531	60	1,152	130
PA321S_D0080 MF	8.000	4,500	8,000	19	0.50	36.6	4.1	354	40	443	50	886	100
PA321S_D0080 MFL	8.000	4,500	8,000	24	1.56	37.0	4.2	354	40	443	50	886	100
PA321S_D0100 MF	10.00	4,500	8,000	19	0.50	35.1	4.0	266	30	443	50	886	100
PA321S_D0100 MFL	10.00	4,500	8,000	24	1.56	35.3	4.0	266	30	443	50	886	100
PA322 with Motor Mounting Plate													
PA322S_D0160 MF	16.00	4,500	8,000	14	0.21	39.7	4.5	399	45	576	65	1,152	130
PA322S_D0200 MF	20.00	4,500	8,000	14	0.20	40.6	4.6	399	45	576	65	1,152	130
PA322S_D0250 MF	25.00	4,500	8,000	14	0.18	40.7	4.6	399	45	576	65	1,152	130
PA322S_D0280 MF	28.00	4,500	8,000	14	0.17	39.5	4.5	399	45	576	65	1,152	130
PA322S_D0320 MF	32.00	4,500	8,000	14	0.20	35.9	4.1	354	40	443	50	886	100
PA322S_D0350 MF	35.00	4,500	8,000	14	0.17	40.5	4.6	399	45	576	65	1,152	130
PA322S_D0400 MF	40.00	4,500	8,000	14	0.16	38.8	4.4	399	45	576	65	1,152	130
PA322S_D0500 MF	50.00	4,500	8,000	14	0.16	40.0	4.5	399	45	576	65	1,152	130
PA322S_D0700 MF	70.00	4,500	8,000	14	0.16	36.9	4.2	399	45	531	60	1,152	130
PA322S_D1000 MF	100.0	4,500	8,000	14	0.16	34.6	3.9	266	30	443	50	886	100

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₁)			in.lbs.	Nm	Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PA421 with Motor Mounting Plate													
PA421S_D0030 MF	3.000	3,000	5,500	24	2.35	100.7	11.4	443	50	886	100	2,126	240
PA421S_D0030 MFC	3.000	4,500	6,000	24	2.66	98.3	11.1	443	50	886	100	2,126	240
PA421S_D0030 MFL	3.000	3,000	5,500	32	5.46	104.2	11.8	443	50	886	100	2,126	240
PA421S_D0040 MF	4.000	3,300	6,000	24	1.96	100.9	11.4	753	85	1,063	120	2,126	240
PA421S_D0040 MFC	4.000	5,000	6,000	24	2.27	99.5	11.2	753	85	1,063	120	2,126	240
PA421S_D0040 MFL	4.000	3,300	6,000	32	5.07	102.8	11.6	753	85	1,063	120	2,126	240
PA421S_D0050 MF	5.000	3,700	6,500	24	1.85	100.3	11.3	753	85	1,063	120	2,126	240
PA421S_D0050 MFC	5.000	5,000	6,500	24	2.16	99.4	11.2	753	85	1,063	120	2,126	240
PA421S_D0050 MFL	5.000	3,700	6,500	32	4.96	101.5	11.5	753	85	1,063	120	2,126	240
PA421S_D0070 MF	7.000	4,000	7,000	24	1.72	87.8	9.9	753	85	974	110	2,126	240
PA421S_D0070 MFC	7.000	5,500	7,000	24	2.05	87.8	9.9	753	85	974	110	2,126	240
PA421S_D0070 MFL	7.000	4,000	7,000	32	4.78	88.5	10.0	753	85	974	110	2,126	240
PA421S_D0080 MF	8.000	4,000	7,000	24	1.70	83.0	9.4	709	80	886	100	1,772	200
PA421S_D0080 MFC	8.000	5,500	7,000	24	2.03	83.0	9.4	709	80	886	100	1,772	200
PA421S_D0080 MFL	8.000	4,000	7,000	32	4.76	83.5	9.4	709	80	886	100	1,772	200
PA421S_D0100 MF	10.00	4,000	7,000	24	1.68	79.1	8.9	531	60	886	100	1,772	200
PA421S_D0100 MFC	10.00	6,000	7,000	24	2.01	79.1	8.9	531	60	886	100	1,772	200
PA421S_D0100 MFL	10.00	4,000	7,000	32	4.74	79.3	9.0	531	60	886	100	1,772	200

PA422 with Motor Mounting Plate													
PA422S_D0150MF	15.00	3,700	6,500	19	.630	92.2	10.4	443	50	885	100	2,124	240
PA422S_D0150MFL	15.00	3,700	6,500	24	.630	92.2	10.4	443	50	885	100	2,124	240
PA422S_D0160 MF	16.00	3,700	6,500	19	0.63	92.3	10.4	753	85	1,063	120	2,126	240
PA422S_D0160 MFL	16.00	3,700	6,500	24	1.70	92.8	10.5	753	85	1,063	120	2,126	240
PA422S_D0200 MF	20.00	3,700	6,500	19	0.62	94.7	10.7	753	85	1,063	120	2,126	240
PA422S_D0200 MFL	20.00	3,700	6,500	24	1.70	95.0	10.7	753	85	1,063	120	2,126	240
PA422S_D0250 MF	25.00	4,000	7,000	19	0.57	94.6	10.7	753	85	1,063	120	2,126	240
PA422S_D0250 MFL	25.00	4,000	7,000	24	1.65	94.8	10.7	753	85	1,063	120	2,126	240
PA422S_D0280 MF	28.00	4,500	8,000	19	0.52	90.5	10.2	753	85	1,063	120	2,126	240
PA422S_D0280 MFL	28.00	4,500	8,000	24	1.58	90.7	10.2	753	85	1,063	120	2,126	240
PA422S_D0320 MF	32.00	3,700	6,500	19	0.62	81.7	9.2	709	80	886	100	1,772	200
PA422S_D0320 MFL	32.00	3,700	6,500	24	1.69	81.8	9.2	709	80	886	100	1,772	200
PA422S_D0350 MF	35.00	4,500	8,000	19	0.52	93.5	10.6	753	85	1,063	120	2,126	240
PA422S_D0350 MFL	35.00	4,500	8,000	24	1.58	93.6	10.6	753	85	1,063	120	2,126	240
PA422S_D0400 MF	40.00	4,500	8,000	19	0.50	89.4	10.1	753	85	1,063	120	2,126	240
PA422S_D0400 MFL	40.00	4,500	8,000	24	1.56	89.5	10.1	753	85	1,063	120	2,126	240
PA422S_D0500 MF	50.00	4,500	8,000	19	0.50	92.7	10.5	753	85	1,063	120	2,126	240
PA422S_D0500 MFL	50.00	4,500	8,000	24	1.56	92.7	10.5	753	85	1,063	120	2,126	240
PA422S_D0700 MF	70.00	4,500	8,000	19	0.50	85.0	9.6	753	85	974	110	2,126	240
PA422S_D0700 MFL	70.00	4,500	8,000	24	1.56	85.1	9.6	753	85	974	110	2,126	240
PA422S_D1000 MF	100.0	4,500	8,000	19	0.50	78.0	8.8	531	60	886	100	1,772	200
PA422S_D1000 MFL	100.0	4,500	8,000	24	1.56	78.0	8.8	531	60	886	100	1,772	200

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Nominal ¹⁾						Acceleration		Peak ²⁾			
		Continuous	Cyclic			T _{2N}		T _{2B}		T _{2PEAK}			
		RPM (n _i)				in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PA521 with Motor Mounting Plate													
PA521S_D0030 MF	3.000	2,500	4,500	32	6.14	271.7	30.7	1,063	120	1,772	200	3,686	416
PA521S_D0030 MFC	3.000	4,000	6,000	32	6.98	262.7	29.7	1,063	120	1,772	200	3,686	416
PA521S_D0030 MFL	3.000	2,500	4,500	38	13.23	292.1	33.0	1,063	120	1,772	200	3,686	416
PA521S_D0040 MF	4.000	3,000	5,000	32	5.93	260.6	29.4	1,860	210	2,657	300	4,915	555
PA521S_D0040 MFC	4.000	4,500	6,000	32	6.77	255.8	28.9	1,860	210	2,447	276	4,915	555
PA521S_D0040 MFL	4.000	3,000	5,000	38	13.02	270.8	30.6	1,860	210	2,657	300	4,915	555
PA521S_D0050 MF	5.000	3,500	6,000	32	5.52	260.7	29.4	1,860	210	2,657	300	5,315	600
PA521S_D0050 MFC	5.000	5,000	6,000	32	6.36	257.7	29.1	1,860	210	2,657	300	5,315	600
PA521S_D0050 MFL	5.000	3,500	6,000	38	12.61	267.2	30.2	1,860	210	2,657	300	5,315	600
PA521S_D0070 MF	7.000	3,700	6,500	32	5.07	240.4	27.1	1,860	210	2,392	270	5,315	600
PA521S_D0070 MFC	7.000	5,000	6,500	32	5.98	240.4	27.1	1,860	210	2,392	270	5,315	600
PA521S_D0070 MFL	7.000	3,700	6,500	38	11.90	243.7	27.5	1,860	210	2,392	270	5,315	600
PA521S_D0080 MF	8.000	3,700	6,500	32	5.00	225.2	25.4	1,772	200	2,215	250	4,429	500
PA521S_D0080 MFC	8.000	5,500	6,500	32	5.91	225.2	25.4	1,772	200	2,215	250	4,429	500
PA521S_D0080 MFL	8.000	3,700	6,500	38	11.83	227.4	25.7	1,772	200	2,215	250	4,429	500
PA521S_D0100 MF	10.00	3,700	6,500	32	4.94	218.4	24.7	1,240	140	2,215	250	4,429	500
PA521S_D0100 MFC	10.00	6,000	6,500	32	5.85	218.4	24.7	1,240	140	2,215	250	4,429	500
PA521S_D0100 MFL	10.00	3,700	6,500	38	11.77	219.7	24.8	1,240	140	2,215	250	4,429	500

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin		Output Torque					
		Continuous	Cyclic			C ₂		Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
						RPM (n ₁)	RPM (n ₁)	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PA522 with Motor Mounting Plate													
PA522S_D0150MF	15.00	3,300	6,000	24	1.91	241.5	27.3	1,062	120	1,770	200	3,683	416
PA522S_D0150MFC	15.00	5,000	6,000	24	1.91	241.5	27.3	1,062	120	1,770	200	3,683	416
PA522S_D0150MFL	15.00	3,300	6,000	32	1.91	241.5	27.3	1,062	120	1,770	200	3,683	416
PA522S_D0160 MF	16.00	3,300	6,000	24	2.01	241.8	27.3	1,860	210	2,657	300	4,915	555
PA522S_D0160 MFC	16.00	5,000	6,000	24	2.32	241.3	27.2	1,860	210	2,657	300	4,915	555
PA522S_D0160 MFL	16.00	3,300	6,000	32	5.12	242.4	27.4	1,860	210	2,657	300	4,915	555
PA522S_D0200 MF	20.00	3,300	6,000	24	1.98	248.4	28.0	1,860	210	2,657	300	5,315	600
PA522S_D0200 MFC	20.00	5,000	6,000	24	2.29	248.0	28.0	1,860	210	2,657	300	5,315	600
PA522S_D0200 MFL	20.00	3,300	6,000	32	5.09	248.8	28.1	1,860	210	2,657	300	5,315	600
PA522S_D0250 MF	25.00	3,700	6,500	24	1.87	248.2	28.0	1,860	210	2,657	300	5,315	600
PA522S_D0250 MFC	25.00	5,000	6,500	24	2.18	248.0	28.0	1,860	210	2,657	300	5,315	600
PA522S_D0250 MFL	25.00	3,700	6,500	32	4.98	248.5	28.1	1,860	210	2,657	300	5,315	600
PA522S_D0280 MF	28.00	4,000	7,000	24	1.75	236.5	26.7	1,860	210	2,657	300	4,915	555
PA522S_D0280 MFC	28.00	5,500	7,000	24	2.08	236.5	26.7	1,860	210	2,657	300	4,915	555
PA522S_D0280 MFL	28.00	4,000	7,000	32	4.81	236.8	26.7	1,860	210	2,657	300	4,915	555
PA522S_D0320 MF	32.00	3,300	6,000	24	1.95	222.4	25.1	1,772	200	2,215	250	4,429	500
PA522S_D0320 MFC	32.00	5,000	6,000	24	2.27	222.3	25.1	1,772	200	2,215	250	4,429	500
PA522S_D0320 MFL	32.00	3,300	6,000	32	5.06	222.5	25.1	1,772	200	2,215	250	4,429	500
PA522S_D0350 MF	35.00	4,000	7,000	24	1.74	244.8	27.6	1,860	210	2,657	300	5,315	600
PA522S_D0350 MFC	35.00	5,500	7,000	24	2.07	244.8	27.6	1,860	210	2,657	300	5,315	600
PA522S_D0350 MFL	35.00	4,000	7,000	32	4.80	245.0	27.7	1,860	210	2,657	300	5,315	600
PA522S_D0400 MF	40.00	4,000	7,000	24	1.69	232.2	26.2	1,860	210	2,657	300	4,915	555
PA522S_D0400 MFC	40.00	5,500	7,000	24	2.03	232.2	26.2	1,860	210	2,657	300	4,915	555
PA522S_D0400 MFL	40.00	4,000	7,000	32	4.75	232.3	26.2	1,860	210	2,657	300	4,915	555
PA522S_D0500 MF	50.00	4,000	7,000	24	1.69	241.8	27.3	1,860	210	2,657	300	5,315	600
PA522S_D0500 MFC	50.00	5,500	7,000	24	2.02	241.8	27.3	1,860	210	2,657	300	5,315	600
PA522S_D0500 MFL	50.00	4,000	7,000	32	4.75	241.9	27.3	1,860	210	2,657	300	5,315	600
PA522S_D0700 MF	70.00	4,000	7,000	24	1.69	233.1	26.3	1,860	210	2,392	270	5,315	600
PA522S_D0700 MFC	70.00	5,500	7,000	24	2.02	233.1	26.3	1,860	210	2,392	270	5,315	600
PA522S_D0700 MFL	70.00	4,000	7,000	32	4.75	233.1	26.3	1,860	210	2,392	270	5,315	600
PA522S_D1000 MF	100.0	4,000	7,000	24	1.69	215.4	24.3	1,240	140	2,215	250	4,429	500
PA522S_D1000 MFC	100.0	5,500	7,000	24	2.02	215.4	24.3	1,240	140	2,215	250	4,429	500
PA522S_D1000 MFL	100.0	4,000	7,000	32	4.75	215.4	24.3	1,240	140	2,215	250	4,429	500

Index of Symbols

MT Motor adapter with TriAdapt® coupling
MF Motor adapter with FlexiAdapt® coupling
L Large Input
C ServoCool

i Ratio - Exact
n₁ Maximum input speed RPM
J₁ Mass moment of inertia (input)
C₂ Torsional Stiffness

T_{2N} Nominal Torque
T_{2B} Acceleration Torque Maximum
T_{2PEAK} Peak Torque



"PA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₁)			in.lbs.	Nm	Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PA721 with Motor Mounting Plate													
PA721S_D0030 MF	3.000	2,200	3,700	38	20.25	484.5	54.7	2,480	280	4,429	500	9,177	1,036
PA721S_D0030 MFC	3.000	3,400	6,000	38	23.04	484.5	54.7	2,480	280	4,429	500	9,177	1,036
PA721S_D0030 MFL	3.000	2,200	3,700	48	22.26	520.9	58.8	2,480	280	4,429	500	9,177	1,036
PA721S_D0040 MF	4.000	2,500	4,500	38	15.53	485.9	54.9	3,898	440	6,201	700	12,235	1,381
PA721S_D0040 MFC	4.000	3,600	6,000	38	18.33	485.9	54.9	3,898	440	6,201	700	12,235	1,381
PA721S_D0040 MFL	4.000	2,500	4,500	48	17.55	505.8	57.1	3,898	440	6,201	700	12,235	1,381
PA721S_D0050 MF	5.000	3,000	5,500	38	14.00	481.6	54.4	3,898	440	6,201	700	12,401	1,400
PA721S_D0050 MFC	5.000	4,200	6,000	38	16.79	481.6	54.4	3,898	440	6,201	700	12,401	1,400
PA721S_D0050 MFL	5.000	3,000	5,500	48	16.01	494.0	55.8	3,898	440	6,201	700	12,401	1,400
PA721S_D0070 MF	7.000	3,300	6,000	38	12.66	470.7	53.1	3,898	440	5,758	650	11,127	1,256
PA721S_D0070 MFC	7.000	4,700	6,000	38	15.46	470.7	53.1	3,898	440	5,758	650	11,127	1,256
PA721S_D0070 MFL	7.000	3,300	6,000	48	15.03	478.7	54.0	3,898	440	5,758	650	11,127	1,256
PA721S_D0080 MF	8.000	3,300	6,000	38	12.40	457.6	51.7	3,543	400	4,429	500	8,858	1,000
PA721S_D0080 MFC	8.000	5,000	6,000	38	15.20	457.6	51.7	3,543	400	4,429	500	8,858	1,000
PA721S_D0080 MFL	8.000	3,300	6,000	48	14.77	463.4	52.3	3,543	400	4,429	500	8,858	1,000
PA721S_D0100 MF	10.00	3,300	6,000	38	12.15	431.8	48.7	2,657	300	4,429	500	8,858	1,000
PA721S_D0100 MFC	10.00	5,500	6,000	38	14.95	431.8	48.7	2,657	300	4,429	500	8,858	1,000
PA721S_D0100 MFL	10.00	3,300	6,000	48	14.52	435.1	49.1	2,657	300	4,429	500	8,858	1,000
PA722 with Motor Mounting Plate													
PA722S_D0160 MF	16.00	3,000	5,000	32	6.01	471.4	53.2	3,898	440	6,201	700	12,235	1,381
PA722S_D0160 MFC	16.00	4,500	6,000	32	6.85	470.4	53.1	3,898	440	6,201	700	12,235	1,381
PA722S_D0160 MFL	16.00	3,000	5,000	38	13.10	473.4	53.4	3,898	440	6,201	700	12,235	1,381
PA722S_D0200 MF	20.00	3,000	5,000	32	5.92	472.4	53.3	3,898	440	6,201	700	12,401	1,400
PA722S_D0200 MFC	20.00	4,500	6,000	32	6.76	471.8	53.3	3,898	440	6,201	700	12,401	1,400
PA722S_D0200 MFL	20.00	3,000	5,000	38	13.01	473.7	53.5	3,898	440	6,201	700	12,401	1,400
PA722S_D0250 MF	25.00	3,500	6,000	32	5.52	472.4	53.3	3,898	440	6,201	700	12,401	1,400
PA722S_D0250 MFC	25.00	5,000	6,000	32	6.36	472.0	53.3	3,898	440	6,201	700	12,401	1,400
PA722S_D0250 MFL	25.00	3,500	6,000	38	12.62	473.2	53.4	3,898	440	6,201	700	12,401	1,400
PA722S_D0280 MF	28.00	3,700	6,500	32	5.16	466.9	52.7	3,898	440	6,201	700	12,235	1,381
PA722S_D0280 MFC	28.00	5,000	6,500	32	6.07	466.9	52.7	3,898	440	6,201	700	12,235	1,381
PA722S_D0280 MFL	28.00	3,700	6,500	38	11.99	467.7	52.8	3,898	440	6,201	700	12,235	1,381
PA722S_D0320 MF	32.00	3,000	5,000	32	5.84	456.6	51.5	3,543	400	4,429	500	8,858	1,000
PA722S_D0320 MFC	32.00	4,500	5,000	32	6.68	456.4	51.5	3,543	400	4,429	500	8,858	1,000
PA722S_D0320 MFL	32.00	3,000	5,000	38	12.93	457.1	51.6	3,543	400	4,429	500	8,858	1,000
PA722S_D0350 MF	35.00	3,700	6,500	32	5.13	469.5	53.0	3,898	440	6,201	700	12,401	1,400
PA722S_D0350 MFC	35.00	5,000	6,500	32	6.04	469.5	53.0	3,898	440	6,201	700	12,401	1,400
PA722S_D0350 MFL	35.00	3,700	6,500	38	11.96	470.0	53.1	3,898	440	6,201	700	12,401	1,400
PA722S_D0400 MF	40.00	3,700	6,500	32	4.98	461.3	52.1	3,898	440	6,201	700	12,235	1,381
PA722S_D0400 MFC	40.00	5,500	6,500	32	5.90	461.3	52.1	3,898	440	6,201	700	12,235	1,381
PA722S_D0400 MFL	40.00	3,700	6,500	38	11.81	461.7	52.1	3,898	440	6,201	700	12,235	1,381
PA722S_D0500 MF	50.00	3,700	6,500	32	4.97	465.9	52.6	3,898	440	6,201	700	12,401	1,400
PA722S_D0500 MFC	50.00	5,500	6,500	32	5.88	465.9	52.6	3,898	440	6,201	700	12,401	1,400
PA722S_D0500 MFL	50.00	3,700	6,500	38	11.80	466.1	52.6	3,898	440	6,201	700	12,401	1,400
PA722S_D0700 MF	70.00	3,700	6,500	32	4.96	466.0	52.6	3,898	440	5,758	650	11,127	1,256
PA722S_D0700 MFC	70.00	5,500	6,500	32	5.87	466.0	52.6	3,898	440	5,758	650	11,127	1,256
PA722S_D0700 MFL	70.00	3,700	6,500	38	11.79	466.1	52.6	3,898	440	5,758	650	11,127	1,256
PA722S_D1000 MF	100.0	3,700	6,500	32	4.95	429.8	48.5	2,657	300	4,429	500	8,858	1,000
PA722S_D1000 MFC	100.0	5,500	6,500	32	5.86	429.8	48.5	2,657	300	4,429	500	8,858	1,000
PA722S_D1000 MFL	100.0	3,700	6,500	38	11.78	429.9	48.5	2,657	300	4,429	500	8,858	1,000

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



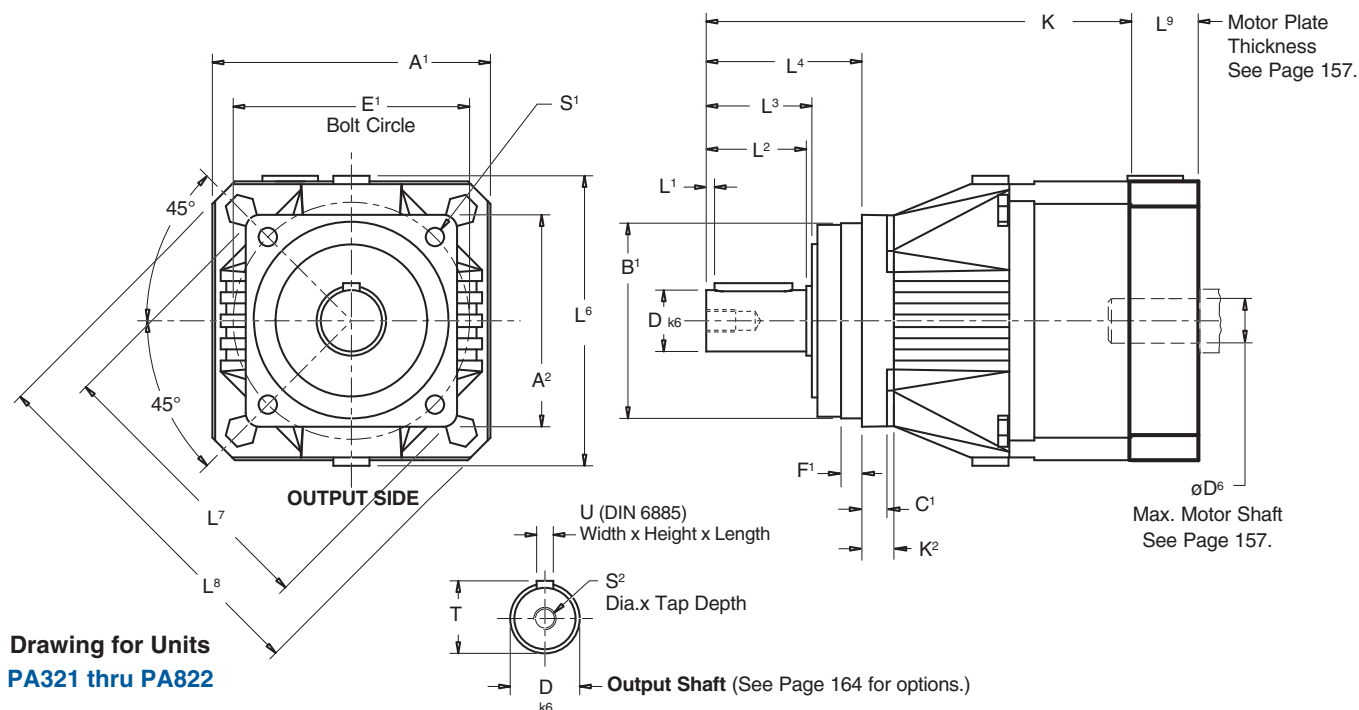
Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous	Cyclic			RPM (n ₁)	Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}		
							in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	
PA821 with Motor Mounting Plate													
PA821S_D0030 MF	3.000	1,800	3,000	48	71.80	1404.0	158.5	7,086	800	10,630	1,200	15,518	1,752
PA821S_D0030 MFC	3.000	3,000	4,500	48	87.71	1464.9	165.4	7,086	800	10,630	1,200	15,518	1,752
PA821S_D0040 MF	4.000	2,200	3,500	48	47.96	1509.0	170.4	7,086	800	14,173	1,600	20,690	2,336
PA821S_D0040 MFC	4.000	3,200	5,000	48	63.86	1547.9	174.7	7,086	800	14,173	1,600	20,690	2,336
PA821S_D0050 MF	5.000	2,500	4,000	48	41.14	1530.0	172.7	8,858	1,000	14,173	1,600	25,863	2,920
PA821S_D0050 MFC	5.000	3,750	6,000	48	57.04	1555.4	175.6	8,858	1,000	14,173	1,600	25,863	2,920
PA821S_D0070 MF	7.000	2,800	4,500	48	36.48	1478.9	167.0	8,858	1,000	12,401	1,400	24,900	2,811
PA821S_D0070 MFC	7.000	4,500	6,000	48	52.38	1478.9	167.0	8,858	1,000	12,401	1,400	24,900	2,811
PA821S_D0080 MF	8.000	2,800	4,500	48	35.25	1413.9	159.6	7,086	800	10,630	1,200	21,259	2,400
PA821S_D0080 MFC	8.000	5,000	6,000	48	51.14	1413.9	159.6	7,086	800	10,630	1,200	21,259	2,400
PA821S_D0100 MF	10.00	2,800	4,500	48	34.08	1323.1	149.4	6,201	700	10,630	1,200	21,259	2,400
PA821S_D0100 MFC	10.00	5,500	6,000	48	49.97	1323.1	149.4	6,201	700	10,630	1,200	21,259	2,400
PA822 with Motor Mounting Plate													
PA822S_D0150 MF	15.00	2,500	4,500	38	16.09	1472.1	166.2	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0150 MFC	15.00	3,400	6,000	38	18.89	1472.1	166.2	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0150 MFL	15.00	2,500	4,500	48	18.11	1483.1	167.4	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0160 MF	16.00	2,500	4,500	38	16.09	1472.1	166.2	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0160 MFC	16.00	3,400	6,000	38	18.89	1472.1	166.2	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0160 MFL	16.00	2,500	4,500	48	18.11	1483.1	167.4	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0200 MF	20.00	2,500	4,500	38	15.66	1505.5	170.0	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0200 MFC	20.00	3,600	6,000	38	18.46	1505.5	170.0	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0200 MFL	20.00	2,500	4,500	48	17.68	1512.9	170.8	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0250 MF	25.00	3,000	5,500	38	14.28	1503.8	169.8	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0250 MFC	25.00	4,000	6,000	38	17.07	1503.8	169.8	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0250 MFL	25.00	3,000	5,500	48	16.29	1508.5	170.3	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0280 MF	28.00	3,300	6,000	38	12.92	1463.1	165.2	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0280 MFC	28.00	4,500	6,000	38	15.71	1463.1	165.2	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0280 MFL	28.00	3,300	6,000	48	15.29	1467.9	165.7	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0320 MF	32.00	2,500	4,500	38	15.29	1405.7	158.7	7,086	800	10,630	1,200	21,259	2,400
PA822S_D0320 MFC	32.00	3,600	6,000	38	18.09	1405.7	158.7	7,086	800	10,630	1,200	21,259	2,400
PA822S_D0320 MFL	32.00	2,500	4,500	48	17.31	1408.2	159.0	7,086	800	10,630	1,200	21,259	2,400
PA822S_D0350 MF	35.00	3,300	6,000	38	12.78	1499.5	169.3	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0350 MFC	35.00	4,500	6,000	38	15.58	1499.5	169.3	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0350 MFL	35.00	3,300	6,000	48	15.15	1502.7	169.6	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0400 MF	40.00	3,300	6,000	38	12.28	1437.9	162.3	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0400 MFC	40.00	5,000	6,000	38	15.08	1437.9	162.3	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0400 MFL	40.00	3,300	6,000	48	14.65	1440.2	162.6	7,086	800	14,173	1,600	28,346	3,200
PA822S_D0500 MF	50.00	3,300	6,000	38	12.21	1482.5	167.4	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0500 MFC	50.00	5,000	6,000	38	15.01	1482.5	167.4	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0500 MFL	50.00	3,300	6,000	48	14.58	1484.0	167.5	8,858	1,000	14,173	1,600	28,346	3,200
PA822S_D0700 MF	70.00	3,300	6,000	38	12.17	1455.9	164.4	8,858	1,000	12,401	1,400	24,900	2,811
PA822S_D0700 MFC	70.00	5,000	6,000	38	14.96	1455.9	164.4	8,858	1,000	12,401	1,400	24,900	2,811
PA822S_D0700 MFL	70.00	3,300	6,000	48	14.54	1456.6	164.4	8,858	1,000	12,401	1,400	24,900	2,811
PA822S_D1000 MF	100.0	3,300	6,000	38	12.14	1314.0	148.3	6,201	700	10,630	1,200	21,259	2,400
PA822S_D1000 MFC	100.0	5,000	6,000	38	14.94	1314.0	148.3	6,201	700	10,630	1,200	21,259	2,400
PA822S_D1000 MFL	100.0	3,300	6,000	48	14.51	1314.3	148.4	6,201	700	10,630	1,200	21,259	2,400

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PA" Series–Advanced ServoFit® Precision Planetary Gearhead Dimensional Data



**Drawing for Units
PA321 thru PA822**

Table No. 1 "PA" Series – Advanced Precision Planetary Gearhead Dimensions (mm/inches)

Unit	A ¹	A ²	B ¹	h ₆	C ¹	D _{k6}	E ¹	F ¹	K ²	L ¹	L ²	L ³	L ⁴	L ⁶	L ⁷	L ⁸	S ¹	S ²	T	U
P321/P322	72 2.83	72 2.83	60 2.362	+0.000/-0.019 +0.0000/-0.0007	7 .28	16 +.012/+-.001	75 2.95	7.5 .30	—	2 .08	28 1.10	30 1.18	48 1.89	79 3.11	92 3.62	92 3.62	5.5 .22	M5x12.5	18 .71	A5x5x22
P421/P422	98 3.86	76 2.99	70 2.756	+0.000/-0.019 +0.0000/-0.0007	9 .35	22 +.015/+-.002	85 3.35	7.5 .30	12 .47	3 .12	36 1.42	38 1.50	56 2.20	98 3.86	103.3 4.07	130 5.12	6.6 .26	M8x19	24.5 .96	A6x6x28
P521/P522	115 4.53	101 3.98	90 3.543	+0.000/-0.022 +0.0000/-0.0009	10 .39	32 +.018/+-.002	120 4.72	15 .59	14 .55	3 .12	58 2.28	60 2.36	88 3.46	121 4.76	139 5.47	149 5.87	9 .35	M12x28	35 1.38	A10x8x50
P721/P722	145 5.71	145 5.71	130 5.118	+0.000/-0.025 +0.000/-0.001	15 .59	40 +.018/+-.002	165 6.50	3.5 .14	—	4 .16	82 3.23	85 3.35	112 4.41	145 5.71	—	190 7.48	11 .43	M16x36	43 1.69	A12x8x70
P821/P822	190 7.48	190 7.48	160 6.299	+0.000/-0.025 +0.000/-0.001	15 .59	55 +.021/+-.002	215 8.46	10 .39	—	6 .24	82 3.23	85 3.35	112 4.41	190 7.48	—	250 9.84	13.5 .53	M20x42	59 2.32	A16x10x70

Part No. Explanation

PA 4 2 1 S P D 0030 MF C

Option for ServoCool

Motor Plate with FlexiAdapt® Coupling

Ratio (0030 = 3.0:1)

D – Reinforced Bearings-Axial

G – Shaft – no Key

P – Output Shaft with Key

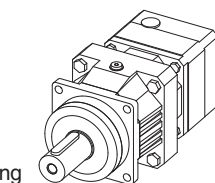
Standard Housing

No. of Gear Stages (1 = 1 Stage, 2 = 2 Stages)

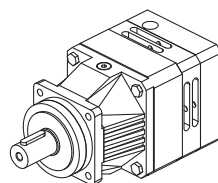
Generation Number

Unit No.

Advanced "PA" Series ServoFit Precision Planetary Gearhead



Typical 2 Stage Configuration



Typical ServoCool Configuration

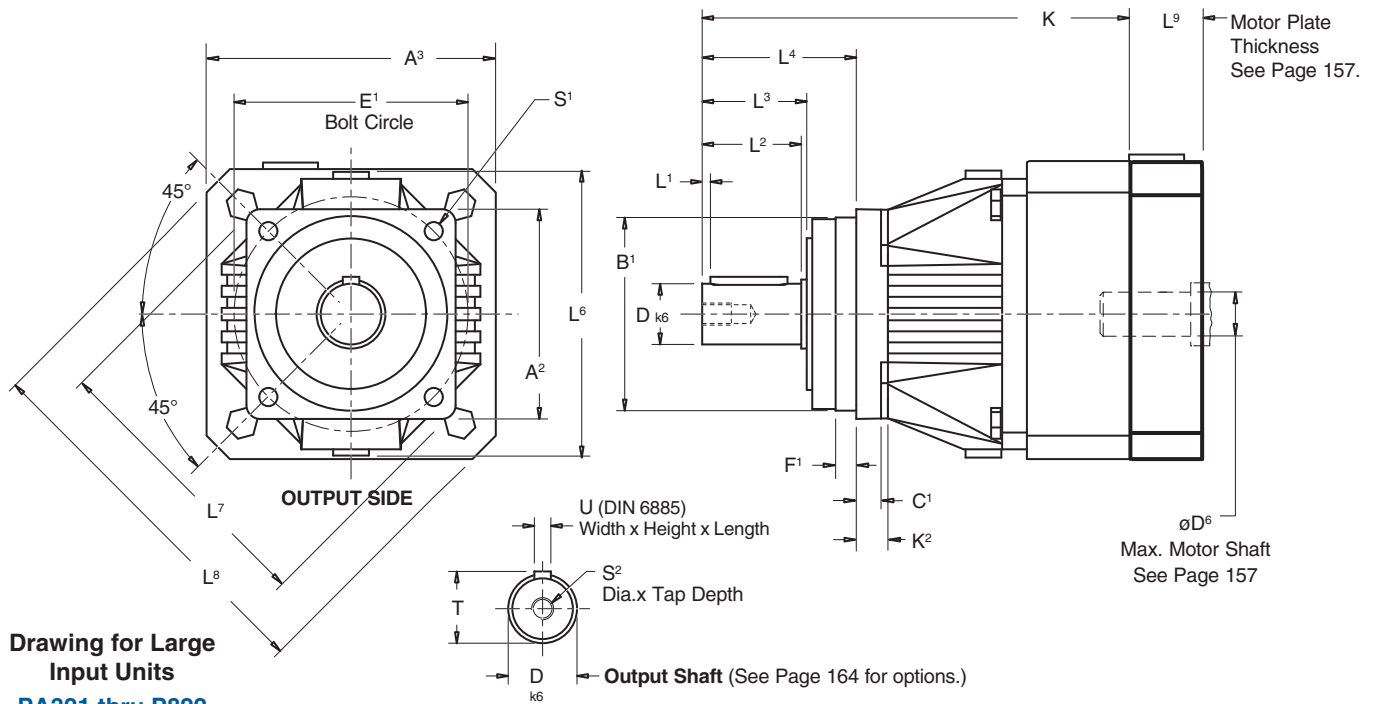
Table No. 2

K Dimension					
Standard			ServoCool		
Unit	mm	inches	Unit	mm	inches
PA321	135	5.31	—	—	—
PA322	158.5	6.24	—	—	—
PA421	153	6.02	PA421_C	176.5	6.95
PA422	200.5	7.89	—	—	—
PA521	193	7.60	PA521_C	221	8.70
PA522	242.5	9.55	PA522_C	266	10.47
PA721	242	9.53	PA721_C	272	10.71
PA722	294	11.57	PA722_C	322	12.68
PA821	283	11.14	PA821_C	331	13.03
PA822	350.5	13.80	PA822_C	380.5	14.98

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)



"PA" Series—Advanced—Large Input ServoFit® Precision Planetary Gearhead Dimensional Data



**Drawing for Large
Input Units
PA321 thru P822**

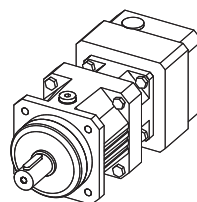
Table No. 1 "PA" Series – Large Input – Precision Planetary Gearhead Dimensions (mm/inches)

Unit	A²	B¹	h6	C¹	D	k6	E¹	F¹	K²	L¹	L²	L³	L⁴	L⁶	L⁷	S¹	S²	T	U
P321/P322_L	72 2.83	60 2.362	+0.000/-0.019 +0.0000/-0.0007	7 .28	16 2.95	+0.012/+0.001	75 2.95	7.5 .30	—	2 .08	28 1.10	30 1.18	48 1.89	130 5.12	92 3.62	5.5 .22	M5x12.5	18 .71	A5x5x22
P421/P422_L	76 2.99	70 2.756	+0.000/-0.019 +0.0000/-0.0007	9 .35	22 3.35	+0.015/+0.002	85 3.35	7.5 .30	12 .47	3 .12	36 1.42	38 1.50	56 2.20	149 5.87	103.3 4.07	6.6 .26	M8x19	24.5 .96	A6x6x28
P521/P522_L	101 3.98	90 3.543	+0.000/-0.022 +0.0000/-0.0009	10 .39	32 4.72	+0.018/+0.002	120 4.72	15 .59	14 .55	3 .12	58 2.28	60 2.36	88 3.46	190 7.48	139 5.47	9 .35	M12x28	35 1.38	A10x8x50
P721/P722_L	145 5.71	130 5.118	+0.000/-0.025 +0.000/-0.001	15 .59	40 6.50	+0.018/+0.002	165 6.50	3.5 .14	—	4 .16	82 3.23	85 3.35	112 4.41	250 5.71	—	.43	M16x36	43 1.69	A12x8x70
P822_L	190 7.48	160 6.299	+0.000/-0.025 +0.000/-0.001	15 .59	55 8.46	+0.021/+0.002	215 8.46	10 .39	—	6 .24	82 3.23	85 3.35	112 4.41	190 7.48	—	.53	M20x42	59 2.32	A16x10x70

Part No. Explanation

PA 4 2 1 S P D 0030 MFL

PA – Advanced "PA" Series ServoFit Precision Planetary Gearhead
4 – No. of Gear Stages (1 = 1 Stage, 2 = 2 Stages)
2 – Generation Number
1 – Unit No.
S – Standard Housing
P – Output Shaft with Key
D – Reinforced Bearings-Axial
0030 – Ratio (0030 = 3.0:1)
MFL – Motor Plate with FlexiAdapt Coupling
Large Input



**Typical 2 Stage Configuration
Large Input**

Table No. 2

Unit	A³		K		L⁸	
	mm	inches	mm	inches	mm	inches
PA321_L	100	3.94	138.3	5.44	130	5.12
PA421_L	115	4.53	161.5	6.36	149	5.87
PA422_L	100	3.94	203.8	8.02	130	5.12
PA521_L	145	5.71	207	8.15	190	7.48
PA522_L	115	4.53	251	9.88	149	5.87
PA721_L	190	7.48	259	10.20	250	9.84
PA722_L	145	5.71	308	12.13	190	7.48
PA822_L	190	7.48	367.5	14.47	250	9.84

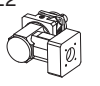
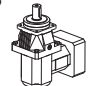
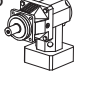
When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)

"PKX" Series

ServoFit® Precision Planetary Gearhead

Performance Specification Overview



		P221 KX3	P222 KX3	P321 KX3	P322 KX3	P421 KX4	P422 KX3	P521 KX5	P522 KX4	P721 KX7	P722 KX5	P821 KX8	P822 KX7	P922 KX8
Acceleration Torque	in.lbs.	195		576		1063		2,657		6,201		14,173		26,574
T _{2B} MAX	Nm	22		65		120		300		700		1,600		3,000
Output Torque Nom. ¹⁾	in.lbs.	142		399		753		1,860		3,898		8,858		17,716
T _{2N}	Nm	16		45		85		210		440		1,000		2,000
Input Speed Max. Continuous		3,500	3,500	3,500	3,500	3,000	3,500	3,000	3,000	2,100	3,000	1,300	2,100	1,300
n ₁ MAX	Cyclic	6,000	6,000	6,000	6,000	4,500	6,000	4,000	4,500	3,500	4,000	3,000	3,500	3,000
Torsional Backlash ²⁾														
Δφ	arcmin	≤7 - 8.5		≤5 - 7.5		≤5 - 7.5		≤4 - 6.5		≤4 - 6.5		≤4 - 6.5		≤4 - 4.5
Torsional Stiffness														
C ₂	in.lbs./arcmin	17		44		100		266		486		1,557		3,016
	Nm/arcmin	1.9		5		11		33		55		176		340
Axial Load ⁴⁾	R	lbs.		112		225		337		518		653		1,058
Maximum	N	500		1,000		1,500		2,300		2,900		4,700		6,000
F ₂ AMAX ³⁾	D	lbs.		—		315		506		788		1,013		1,688
	N			1,400		2,250		3,500		4,500		7,500		10,000
	Z	lbs.		—		135		225		360		450		810
	N			600		1,000		1,600		2,000		3,600		5,000
Radial Load ⁴⁾	R	lbs.		270		563		900		1,463		1,800		2,925
Maximum	N	1,200		2,500		4,000		6,500		8,000		13,000		18,000
F ₂ RMAX ³⁾	D	lbs.		—		619		1,013		1,575		2,025		3,375
	N			2,750		4,500		7,000		9,000		15,000		20,000
	Z	lbs.		—		675		1,125		1,800		2,250		4,050
	N			3,000		5,000		8,000		10,000		18,000		27,000
Tilting Moment ⁴⁾	R	in.lbs.		300		779		1,416		2,991		4,774		5,938
Maximum	Nm	34		88		160		338		536		897		1,665
T ₂ Kmax ³⁾	D	in.lbs.		—		929		1,717		3,593		5,735		10,089
	Nm			105		194		406		648		1,140		2,070
	Z	in.lbs.		—		929		1,770		3,682		5,929		10,992
	Nm			105		200		416		670		1,242		2,500
Weight	pounds	7.3	8.6	8.8	101	15	16	28.5	25	51	47	105	95	181
m	kg	3.3	3.9	4.0	4.6	6.8	7.0	12.8	11.3	23.2	21.3	47.4	43.2	82
Noise Level														
L _{PA}	dB(A) ⁵⁾	≤70		≤70		≤70		≤70	≤72	≤72	≤72	≤74	≤72	≤74
Efficiency (at Nom. Torque)														
h	%													≥ 93% – 95%
Balance Quality														Q 2.5 (Quality Class-2.5 millimeters per second)
Lubrication														Synthetic Oil – Lubricated for Life
Degree of Protection														IP65 - FKM Shaft Seals
Mounting Position Must be Specified.		EL1 	EL2 	EL3 	EL4 	EL5 	EL6 							
Direction of Rotation														See Page156.
Ambient Temperature														0°C to +40°C (104° F) Other temperatures, contact STÖBER Drives.
Finish														Black
Lifetime. ⁶⁾	hours													L _h > 10,000 hours if T _{2K} /T _{2A} < 1.25 and > 1.00 L _h > 20,000 hours if T _{2K} /T _{2A} > 1.25 and < 1.50 L _h > 30,000 hours if T _{2K} /T _{2A} > 1.5
Warranty														5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)

¹⁾ Ratings based on input speed (n₁) of 2000 RPM.
For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.

$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Tested at 1.5% of nominal torque and recorded on the input side of the gearhead.
For lower than standard backlash, contact STÖBER Technical Support.

³⁾ See Page 165 for output bearing options.

⁴⁾ Rating based on output speed (n₂) of 100 RPM. For values at other speeds see Page 165.

⁵⁾ Measurement at one (1) meter distance with input speed (n₁) of 2000 RPM.

⁶⁾ T_{2A} equals actual tilting moment of the application. See Page 165 for calculation details.

Refer to Page 172 for ServoFit Precision Planetary Gearhead Selection Procedure.



"PKX" Series ServoFit® Precision Planetary Gearhead Features

The "PKX" Series ServoFit Precision Planetary Gearheads combines the "P" Series gearhead and a low ratio right angle which uses the FlexiAdapt® motor coupling. HeliCamber® gear technology provides minimum wear, low backlash, and low noise. "PKX" Series units are lubricated for life with synthetic oil and sealed to IP65 standards to prevent lubricant contamination for long life. They have all the great features of the "P" Series unit with the configuration of a right angle.

Some of these features are:

- Readily Attaches to Any Servo Motor (IEC, NEMA, or Customized Motor Plates*)
- 5 Year Limited Warranty (2 years on bearings, seals, etc.)
- Lowest Standard Backlash
- High Torsional Stiffness
- Advanced Gear Technology
- 93 to 95% Efficiency
- Quiet Running
- Assembled in the U.S.A.

* Maximum 10 working days for custom motor plates.



NO EXPEDITE FEE FOR 24 HOUR SERVICE

Highest running accuracy and precision ensured by single piece housing made from high-tensile tempered ductile iron with the additional characteristics of dissipating heat, noise dampening, and greater lubrication retention on the ring gear

Ring gear machined integral to the housing – not welded or pressed in – provides greater concentricity and eliminates speed fluctuation

Bearing options for application specific radial load, axial load, and tilting moments

Magnetic oil filtration

FKM seals for the smallest possible diameter—reducing friction and heat buildup, increasing efficiency, and allowing continuous duty without additional cooling.

Planet carrier straddle mounted for robust output capacity

Highest running smoothness achieved by proven helical gearing and gear tooth microgeometry. Gear quality provided by case-hardened and finish-ground sun and planet gears.

Adapter bushings to fit all motor shafts – no key required

Motor plate pilot toleranced to fit your motor for precise concentricity

Motor plate can easily be changed to fit your choice of motors

The FlexiAdapt® motor coupling is designed for accurate and precise motor installation. The integrated thermal expansion feature in the shape of a bellows compensates for linear expansion of the motor shaft.

The FlexiAdapt® motor shaft adapter system allows installation of motor in minutes without special tools.





"PKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Max. Input RPM (n ₁)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm	Output Torque					
		Continuous		Cyclic				Nominal ¹⁾ T _{2N} in.lbs. Nm		Acceleration T _{2B} in.lbs. Nm		Peak ²⁾ T _{2PEAK} in.lbs. Nm	
		Mounting Position											
		EL 1,2,5,6	EL 3,4	All									

P221S_ _KX3 with Motor Mounting Plate

P221S_ _0040 KX301VF0010 MF	4.000	3,000	2,500	4,000	19	1.05	13.6	1.5	142	16	195	22	390	44
P221S_ _0050 KX301VF0010 MF	5.000	3,000	2,500	4,000	19	1.03	14.6	1.6	142	16	195	22	390	44
P221S_ _0070 KX301VF0010 MF	7.000	3,000	2,500	4,000	19	1.02	14.9	1.7	142	16	195	22	390	44
P221S_ _0040 KX301VF0020 MF	8.000	3,500	3,000	5,000	19	0.81	13.6	1.5	142	16	195	22	390	44
P221S_ _0050 KX301VF0020 MF	10.00	3,500	3,000	5,000	19	0.81	14.6	1.6	142	16	195	22	390	44
P221S_ _0050 KX301VF0030 MF	15.00	3,500	3,500	6,000	19	0.75	14.6	1.6	142	16	195	22	390	44
P221S_ _0100 KX301VF0020 MF	20.00	3,500	3,000	5,000	19	0.80	13.7	1.6	106	12	159	18	319	36
P221S_ _0070 KX301VF0030 MF	21.00	3,500	3,500	6,000	19	0.75	14.9	1.7	142	16	195	22	390	44
P221S_ _0080 KX301VF0030 MF	24.00	3,500	3,500	6,000	19	0.75	14.3	1.6	124	14	159	18	319	36
P221S_ _0100 KX301VF0030 MF	30.00	3,500	3,500	6,000	19	0.75	13.7	1.6	106	12	159	18	319	36

P222S_ _KX3 with Motor Mounting Plate

P222S_ _0350 KX301VF0010 MF	35.00	3,000	2,500	4,000	19	1.02	16.1	1.8	142	16	195	22	390	44
P222S_ _0200 KX301VF0020 MF	40.00	3,500	3,000	5,000	19	0.81	16.0	1.8	142	16	195	22	390	44
P222S_ _0250 KX301VF0020 MF	50.00	3,500	3,000	5,000	19	0.81	16.1	1.8	142	16	195	22	390	44
P222S_ _0280 KX301VF0020 MF	56.00	3,500	3,000	5,000	19	0.81	15.7	1.8	142	16	195	22	390	44
P222S_ _0200 KX301VF0030 MF	60.00	3,500	3,500	6,000	19	0.75	16.0	1.8	142	16	195	22	390	44
P222S_ _0350 KX301VF0020 MF	70.00	3,500	3,000	5,000	19	0.81	16.1	1.8	142	16	195	22	390	44
P222S_ _0250 KX301VF0030 MF	75.00	3,500	3,500	6,000	19	0.75	16.1	1.8	142	16	195	22	390	44
P222S_ _0400 KX301VF0020 MF	80.00	3,500	3,000	5,000	19	0.80	15.6	1.8	142	16	195	22	390	44
P222S_ _0280 KX301VF0030 MF	84.00	3,500	3,500	6,000	19	0.75	15.7	1.8	142	16	195	22	390	44
P222S_ _0500 KX301VF0020 MF	100.0	3,500	3,000	5,000	19	0.80	16.0	1.8	142	16	195	22	390	44
P222S_ _0350 KX301VF0030 MF	105.0	3,500	3,500	6,000	19	0.75	16.1	1.8	142	16	195	22	390	44
P222S_ _0400 KX301VF0030 MF	120.0	3,500	3,500	6,000	19	0.75	15.6	1.8	142	16	195	22	390	44
P222S_ _0700 KX301VF0020 MF	140.0	3,500	3,000	5,000	19	0.80	15.6	1.8	142	16	195	22	390	44
P222S_ _0500 KX301VF0030 MF	150.0	3,500	3,500	6,000	19	0.75	16.0	1.8	142	16	195	22	390	44
P222S_ _1000 KX301VF0020 MF	200.0	3,500	3,000	5,000	19	0.80	14.0	1.6	106	12	159	18	319	36
P222S_ _0700 KX301VF0030 MF	210.0	3,500	3,500	6,000	19	0.75	15.6	1.8	142	16	195	22	390	44
P222S_ _1000 KX301VF0030 MF	300.0	3,500	3,500	6,000	19	0.75	14.0	1.6	106	12	159	18	319	36

P321S_ _KX3 with Motor Mounting Plate

P321S_ _0030 KX301VF0010 MF	3.000	3,000	2,500	4,000	19	1.21	22.3	2.5	258	29	335	38	567	64
P321S_ _0040 KX301VF0010 MF	4.000	3,000	2,500	4,000	19	1.13	28.2	3.2	344	39	447	50	756	85
P321S_ _0050 KX301VF0010 MF	5.000	3,000	2,500	4,000	19	1.08	32.1	3.6	399	45	558	63	945	107
P321S_ _0030 KX301VF0020 MF	6.000	3,500	3,000	5,000	19	0.85	22.3	2.5	258	29	335	38	644	73
P321S_ _0070 KX301VF0010 MF	7.000	3,000	2,500	4,000	19	1.04	33.0	3.7	399	45	531	60	1,152	130
P321S_ _0040 KX301VF0020 MF	8.000	3,500	3,000	5,000	19	0.83	28.2	3.2	344	39	447	50	859	97
P321S_ _0050 KX301VF0020 MF	10.00	3,500	3,000	5,000	19	0.82	32.1	3.6	399	45	558	63	1,074	121
P321S_ _0050 KX301VF0030 MF	15.00	3,500	3,500	6,000	19	0.75	32.1	3.6	399	45	558	63	1,074	121
P321S_ _0100 KX301VF0020 MF	20.00	3,500	3,000	5,000	19	0.81	32.8	3.7	266	30	443	50	886	100
P321S_ _0070 KX301VF0030 MF	21.00	3,500	3,500	6,000	19	0.75	33.0	3.7	399	45	531	60	1,152	130
P321S_ _0080 KX301VF0030 MF	24.00	3,500	3,500	6,000	19	0.75	32.9	3.7	354	40	443	50	886	100
P321S_ _0100 KX301VF0030 MF	30.00	3,500	3,500	6,000	19	0.75	32.8	3.7	266	30	443	50	886	100

P322S_ _KX3 with Motor Mounting Plate Continued Next Page

P322S_ _0350 KX301VF0010 MF	35.00	3,000	2,500	4,000	19	1.02	40.3	4.5	399	45	576	65	1,152	130
P322S_ _0200 KX301VF0020 MF	40.00	3,500	3,000	5,000	19	0.81	39.9	4.5	399	45	576	65	1,152	130
P322S_ _0250 KX301VF0020 MF	50.00	3,500	3,000	5,000	19	0.81	40.2	4.5	399	45	576	65	1,152	130
P322S_ _0280 KX301VF0020 MF	56.00	3,500	3,000	5,000	19	0.81	39.2	4.4	399	45	576	65	1,152	130
P322S_ _0200 KX301VF0030 MF	60.00	3,500	3,500	6,000	19	0.75	39.9	4.5	399	45	576	65	1,152	130
P322S_ _0350 KX301VF0020 MF	70.00	3,500	3,000	5,000	19	0.81	40.3	4.5	399	45	576	65	1,152	130
P322S_ _0250 KX301VF0030 MF	75.00	3,500	3,500	6,000	19	0.75	40.2	4.5	399	45	576	65	1,152	130
P322S_ _0400 KX301VF0020 MF	80.00	3,500	3,000	5,000	19	0.80	38.7	4.4	399	45	576	65	1,152	130
P322S_ _0280 KX301VF0030 MF	84.00	3,500	3,500	6,000	19	0.75	39.2	4.4	399	45	576	65	1,152	130

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed. $T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio	Max. Input RPM (n _i)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂	Output Torque					
		Continuous		Cyclic				Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
		Mounting Position											
		EL 1,2,5,6	EL 3,4	All									
	i	1,2,5,6	3,4	All	mm	kgcm ²	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm			

P322S_ _KX3 with Motor Mounting Plate *Continued*

P322S_ _0500 KX301VF0020 MF	100.0	3,500	3,000	5,000	19	0.80	39.9	4.5	399	45	576	65	1,152	130
P322S_ _0350 KX301VF0030 MF	105.0	3,500	3,500	6,000	19	0.75	40.3	4.5	399	45	576	65	1,152	130
P322S_ _0400 KX301VF0030 MF	120.0	3,500	3,500	6,000	19	0.75	38.7	4.4	399	45	576	65	1,152	130
P322S_ _0700 KX301VF0020 MF	140.0	3,500	3,000	5,000	19	0.80	36.8	4.2	399	45	531	60	1,152	130
P322S_ _0500 KX301VF0030 MF	150.0	3,500	3,500	6,000	19	0.75	39.9	4.5	399	45	576	65	1,152	130
P322S_ _1000 KX301VF0020 MF	200.0	3,500	3,000	5,000	19	0.80	34.5	3.9	266	30	443	50	886	100
P322S_ _0700 KX301VF0030 MF	210.0	3,500	3,500	6,000	19	0.75	36.8	4.2	399	45	531	60	1,152	130
P322S_ _1000 KX301VF0030 MF	300.0	3,500	3,500	6,000	19	0.75	34.5	3.9	266	30	443	50	886	100

P421S_ _KX4 with Motor Mounting Plate

P421S_ _0030 KX401VF0010 MF	3.000	2,500	2,000	3,500	24	3.05	46.4	5.2	443	50	644	73	1,289	146
P421S_ _0040 KX401VF0010 MF	4.000	2,500	2,000	3,500	24	2.65	60.7	6.9	687	78	859	97	1,718	194
P421S_ _0050 KX401VF0010 MF	5.000	2,500	2,000	3,500	24	2.55	70.6	8.0	753	85	1,063	120	2,126	240
P421S_ _0030 KX401VF0020 MF	6.000	2,500	2,500	4,000	24	1.79	46.4	5.2	443	50	644	73	1,289	146
P421S_ _0070 KX401VF0010 MF	7.000	2,500	2,000	3,500	24	2.44	74.2	8.4	753	85	974	110	2,126	240
P421S_ _0040 KX401VF0020 MF	8.000	2,500	2,500	4,000	24	1.70	60.7	6.9	687	78	859	97	1,718	194
P421S_ _0050 KX401VF0020 MF	10.00	2,500	2,500	4,000	24	1.67	70.6	8.0	753	85	1,063	120	2,126	240
P421S_ _0050 KX401VF0030 MF	15.00	3,000	3,000	4,500	24	1.45	70.6	8.0	753	85	1,063	120	2,126	240
P421S_ _0100 KX401VF0020 MF	20.00	2,500	2,500	4,000	24	1.63	73.1	8.3	531	60	886	100	1,772	200
P421S_ _0070 KX401VF0030 MF	21.00	3,000	3,000	4,500	24	1.44	74.2	8.4	753	85	974	110	2,126	240
P421S_ _0080 KX401VF0030 MF	24.00	3,000	3,000	4,500	24	1.44	73.3	8.3	709	80	886	100	1,772	200
P421S_ _0100 KX401VF0030 MF	30.00	3,000	3,000	4,500	24	1.44	73.1	8.3	531	60	886	100	1,772	200

P422S_ _KX3 with Motor Mounting Plate

P422S_ _0160 KX301VF0020 MF	32.00	3,500	3,000	5,000	19	0.84	86.0	9.7	753	85	1,063	120	2,126	240
P422S_ _0350 KX301VF0010 MF	35.00	3,000	2,500	4,000	19	1.05	92.1	10.4	753	85	1,063	120	2,126	240
P422S_ _0200 KX301VF0020 MF	40.00	3,500	3,000	5,000	19	0.84	90.4	10.2	753	85	1,063	120	2,126	240
P422S_ _0250 KX301VF0020 MF	50.00	3,500	3,000	5,000	19	0.82	91.8	10.4	753	85	1,063	120	2,126	240
P422S_ _0200 KX301VF0030 MF	60.00	3,500	3,500	6,000	19	0.76	90.4	10.2	753	85	1,063	120	2,126	240
P422S_ _0350 KX301VF0020 MF	70.00	3,500	3,000	5,000	19	0.81	92.1	10.4	753	85	1,063	120	2,126	240
P422S_ _0250 KX301VF0030 MF	75.00	3,500	3,500	6,000	19	0.75	91.8	10.4	753	85	1,063	120	2,126	240
P422S_ _0400 KX301VF0020 MF	80.00	3,500	3,000	5,000	19	0.81	88.4	10.0	753	85	1,063	120	2,126	240
P422S_ _0500 KX301VF0020 MF	100.0	3,500	3,000	5,000	19	0.81	92.0	10.4	753	85	1,063	120	2,126	240
P422S_ _0400 KX301VF0030 MF	120.0	3,500	3,500	6,000	19	0.75	88.4	10.0	753	85	1,063	120	2,126	240
P422S_ _0700 KX301VF0020 MF	140.0	3,500	3,000	5,000	19	0.81	84.7	9.6	753	85	974	110	2,126	240
P422S_ _0500 KX301VF0030 MF	150.0	3,500	3,500	6,000	19	0.75	92.0	10.4	753	85	1,063	120	2,126	240
P422S_ _1000 KX301VF0020 MF	200.0	3,500	3,000	5,000	19	0.81	77.8	8.8	531	60	886	100	1,772	200
P422S_ _0700 KX301VF0030 MF	210.0	3,500	3,500	6,000	19	0.75	84.7	9.6	753	85	974	110	2,126	240
P422S_ _1000 KX301VF0030 MF	300.0	3,500	3,500	6,000	19	0.75	77.8	8.8	531	60	886	100	1,772	200

P521S_ _KX5 with Motor Mounting Plate

P521S_ _0030 KX501VF0010 MF	3.000	2,500	2,000	3,000	32	8.73	120.0	13.5	1,063	120	1,624	183	3,222	364
P521S_ _0040 KX501VF0010 MF	4.000	2,500	2,000	3,000	32	8.52	154.9	17.5	1,718	194	2,165	244	4,296	485
P521S_ _0050 KX501VF0010 MF	5.000	2,500	2,000	3,000	32	8.11	181.4	20.5	1,860	210	2,657	300	5,315	600
P521S_ _0030 KX501VF0020 MF	6.000	2,500	2,500	3,500	32	5.59	120.0	13.5	1,063	120	1,624	183	3,222	364
P521S_ _0070 KX501VF0010 MF	7.000	2,500	2,000	3,000	32	7.74	200.3	22.6	1,860	210	2,392	270	5,315	600
P521S_ _0040 KX501VF0020 MF	8.000	2,500	2,500	3,500	32	5.54	154.9	17.5	1,718	194	2,165	244	4,296	485
P521S_ _0050 KX501VF0020 MF	10.00	2,500	2,500	3,500	32	5.43	181.4	20.5	1,860	210	2,657	300	5,315	600
P521S_ _0050 KX501VF0030 MF	15.00	3,000	3,000	4,000	32	4.85	181.4	20.5	1,860	210	2,657	300	5,315	600
P521S_ _0100 KX501VF0020 MF	20.00	2,500	2,500	3,500	32	5.31	200.6	22.6	1,240	140	2,215	250	4,429	500
P521S_ _0070 KX501VF0030 MF	21.00	3,000	3,000	4,000	32	4.81	200.3	22.6	1,860	210	2,392	270	5,315	600
P521S_ _0080 KX501VF0030 MF	24.00	3,000	3,000	4,000	32	4.80	197.0	22.2	1,772	200	2,215	250	4,429	500
P521S_ _0100 KX501VF0030 MF	30.00	3,000	3,000	4,000	32	4.79	200.6	22.6	1,240	140	2,215	250	4,429	500

Index of Symbols

MT Motor adapter with TriAdapt® coupling	<i>i</i> Ratio - Exact	<i>T_{2N}</i> Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	<i>n₁</i> Maximum input speed RPM	<i>T_{2B}</i> Acceleration Torque Maximum
L Large Input	<i>J₁</i> Mass moment of inertia (input)	<i>T_{2PEAK}</i> Peak Torque
C ServoCool	<i>C₂</i> Torsional Stiffness	



"PKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Max. Input RPM (n ₁)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous		Cyclic					Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
		Mounting Position												
		EL 1,2,5,6	EL 3,4	All			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
P522S__KX4 with Motor Mounting Plate														
P522S__0160 KX401VF0020 MF	32.00	2,500	2,500	4,000	24	1.71	220.0	24.8	1,860	210	2,657	300	4,915	555
P522S__0350 KX401VF0010 MF	35.00	2,500	2,000	3,500	24	2.46	239.9	27.1	1,860	210	2,657	300	5,315	600
P522S__0200 KX401VF0020 MF	40.00	2,500	2,500	4,000	24	1.70	233.2	26.3	1,860	210	2,657	300	5,315	600
P522S__0250 KX401VF0020 MF	50.00	2,500	2,500	4,000	24	1.67	238.3	26.9	1,860	210	2,657	300	5,315	600
P522S__0200 KX401VF0030 MF	60.00	3,000	3,000	4,500	24	1.47	233.2	26.3	1,860	210	2,657	300	5,315	600
P522S__0350 KX401VF0020 MF	70.00	2,500	2,500	4,000	24	1.65	239.9	27.1	1,860	210	2,657	300	5,315	600
P522S__0250 KX401VF0030 MF	75.00	3,000	3,000	4,500	24	1.46	238.3	26.9	1,860	210	2,657	300	5,315	600
P522S__0400 KX401VF0020 MF	80.00	2,500	2,500	4,000	24	1.64	228.8	25.8	1,860	210	2,657	300	4,915	555
P522S__0500 KX401VF0020 MF	100.0	2,500	2,500	4,000	24	1.64	239.4	27.0	1,860	210	2,657	300	5,315	600
P522S__0400 KX401VF0030 MF	120.0	3,000	3,000	4,500	24	1.44	228.8	25.8	1,860	210	2,657	300	4,915	555
P522S__0700 KX401VF0020 MF	140.0	2,500	2,500	4,000	24	1.63	232.0	26.2	1,860	210	2,392	270	5,315	600
P522S__0500 KX401VF0030 MF	150.0	3,000	3,000	4,500	24	1.44	239.4	27.0	1,860	210	2,657	300	5,315	600
P522S__1000 KX401VF0020 MF	200.0	2,500	2,500	4,000	24	1.63	214.9	24.3	1,240	140	2,215	250	4,429	500
P522S__0700 KX401VF0030 MF	210.0	3,000	3,000	4,500	24	1.44	232.0	26.2	1,860	210	2,392	270	5,315	600
P522S__1000 KX401VF0030 MF	300.0	3,000	3,000	4,500	24	1.44	214.9	24.3	1,240	140	2,215	250	4,429	500
P721S__KX7 with Motor Mounting Plate														
P721S__0030 KX701VF0010 MF	3.000	1,800	1,600	2,250	38	33.17	325.7	36.8	2,480	280	2,399	271	5,671	640
P721S__0040 KX701VF0010 MF	4.000	1,800	1,600	2,250	38	28.45	381.1	43.0	3,437	388	4,296	485	7,561	854
P721S__0050 KX701VF0010 MF	5.000	1,800	1,600	2,250	38	26.92	410.1	46.3	3,898	440	5,370	606	9,451	1,067
P721S__0030 KX701VF0020 MF	6.000	1,800	1,800	3,000	38	16.79	325.7	36.8	2,480	280	2,399	271	6,444	728
P721S__0070 KX701VF0010 MF	7.000	1,800	1,600	2,250	38	25.92	435.7	49.2	3,898	440	5,758	650	11,127	1,256
P721S__0040 KX701VF0020 MF	8.000	1,800	1,800	3,000	38	15.61	381.1	43.0	3,437	388	4,296	485	8,592	970
P721S__0050 KX701VF0020 MF	10.00	1,800	1,800	3,000	38	15.23	410.1	46.3	3,898	440	5,370	606	10,740	1,213
P721S__0050 KX701VF0030 MF	15.00	2,100	2,100	3,500	38	12.65	410.1	46.3	3,898	440	5,370	606	10,740	1,213
P721S__0100 KX701VF0020 MF	20.00	1,800	1,800	3,000	38	14.85	416.8	47.0	2,657	300	4,429	500	8,858	1,000
P721S__0070 KX701VF0030 MF	21.00	2,100	2,100	3,500	38	12.54	435.7	49.2	3,898	440	5,758	650	11,127	1,256
P721S__0080 KX701VF0030 MF	24.00	2,100	2,100	3,500	38	12.51	431.8	48.8	3,543	400	4,429	500	8,858	1,000
P721S__0100 KX701VF0030 MF	30.00	2,100	2,100	3,500	38	12.48	416.8	47.0	2,657	300	4,429	500	8,858	1,000
P722S__KX5 with Motor Mounting Plate														
P722S__0160 KX501VF0020 MF	32.00	2,500	2,500	3,500	32	5.56	437.6	49.4	3,898	440	6,201	700	12,235	1,381
P722S__0350 KX501VF0010 MF	35.00	2,500	2,000	3,000	32	7.80	462.3	52.2	3,898	440	6,201	700	12,401	1,400
P722S__0200 KX501VF0020 MF	40.00	2,500	2,500	3,500	32	5.53	450.1	50.8	3,898	440	6,201	700	12,401	1,400
P722S__0250 KX501VF0020 MF	50.00	2,500	2,500	3,500	32	5.43	457.9	51.7	3,898	440	6,201	700	12,401	1,400
P722S__0200 KX501VF0030 MF	60.00	3,000	3,000	4,000	32	4.89	450.1	50.8	3,898	440	6,201	700	12,401	1,400
P722S__0350 KX501VF0020 MF	70.00	2,500	2,500	3,500	32	5.35	462.3	52.2	3,898	440	6,201	700	12,401	1,400
P722S__0250 KX501VF0030 MF	75.00	3,000	3,000	4,000	32	4.85	457.9	51.7	3,898	440	6,201	700	12,401	1,400
P722S__0400 KX501VF0020 MF	80.00	2,500	2,500	3,500	32	5.32	456.0	51.5	3,898	440	6,201	700	12,235	1,381
P722S__0500 KX501VF0020 MF	100.0	2,500	2,500	3,500	32	5.31	462.4	52.2	3,898	440	6,201	700	12,401	1,400
P722S__0400 KX501VF0030 MF	120.0	3,000	3,000	4,000	32	4.80	456.0	51.5	3,898	440	6,201	700	12,235	1,381
P722S__0700 KX501VF0020 MF	140.0	2,500	2,500	3,500	32	5.31	464.2	52.4	3,898	440	5,758	650	11,127	1,256
P722S__0500 KX501VF0030 MF	150.0	3,000	3,000	4,000	32	4.79	462.4	52.2	3,898	440	6,201	700	12,401	1,400
P722S__1000 KX501VF0020 MF	200.0	2,500	2,500	3,500	32	5.31	429.1	48.4	2,657	300	4,429	500	8,858	1,000
P722S__0700 KX501VF0030 MF	210.0	3,000	3,000	4,000	32	4.79	464.2	52.4	3,898	440	5,758	650	11,127	1,256
P722S__1000 KX501VF0030 MF	300.0	3,000	3,000	4,000	32	4.79	429.1	48.4	2,657	300	4,429	500	8,858	1,000

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed. $T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio	Max. Input RPM (n _i)			Max. Motor Shaft ØD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂	Output Torque					
		Continuous		Cyclic				Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
		Mounting Position											
		EL	EL										
	i	1,2,5,6	3,4	All			in.lbs. Nm	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm			

P821S_ _KX8 with Motor Mounting Plate

P821S_0030 KX801VF0010 MF	3.000	1,000	750	1,750	48	117.58	741.1	83.7	5,155	582	7,089	800	10,826	1,222
P821S_0040 KX801VF0010 MF	4.000	1,000	750	1,750	48	93.73	979.4	110.6	6,874	776	9,451	1,067	14,435	1,630
P821S_0050 KX801VF0010 MF	5.000	1,000	750	1,750	48	86.91	1132.5	127.9	8,592	970	11,814	1,334	18,044	2,037
P821S_0030 KX801VF0020 MF	6.000	1,100	1,100	2,500	48	58.98	741.1	83.7	5,155	582	7,089	800	12,888	1,455
P821S_0070 KX801VF0010 MF	7.000	1,000	750	1,750	48	82.23	1260.7	142.3	8,858	1,000	12,401	1,400	24,900	2,811
P821S_0040 KX801VF0020 MF	8.000	1,100	1,100	2,500	48	53.02	979.4	110.6	6,874	776	9,451	1,067	17,185	1,940
P821S_0050 KX801VF0020 MF	10.00	1,100	1,100	2,500	48	51.31	1132.5	127.9	8,592	970	11,814	1,334	21,481	2,425
P821S_0050 KX801VF0030 MF	15.00	1,300	1,300	3,000	48	44.31	1132.5	127.9	8,592	970	11,814	1,334	21,481	2,425
P821S_0100 KX801VF0020 MF	20.00	1,100	1,100	2,500	48	49.54	1229.8	138.8	6,201	700	10,630	1,200	21,259	2,400
P821S_0070 KX801VF0030 MF	21.00	1,300	1,300	3,000	48	43.79	1260.7	142.3	8,858	1,000	12,401	1,400	24,900	2,811
P821S_0080 KX801VF0030 MF	24.00	1,300	1,300	3,000	48	43.65	1254.9	141.7	7,086	800	10,630	1,200	21,259	2,400
P821S_0100 KX801VF0030 MF	30.00	1,300	1,300	3,000	48	43.52	1229.8	138.8	6,201	700	10,630	1,200	21,259	2,400

P822S_ _KX7 with Motor Mounting Plate

P822S_0160 KX701VF0020 MF	32.00	1,800	1,800	3,000	38	15.75	1399.2	158.0	7,086	800	14,173	1,600	28,346	3,200
P822S_0350 KX701VF0010 MF	35.00	1,800	1,600	2,250	38	26.03	1484.3	167.6	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0200 KX701VF0020 MF	40.00	1,800	1,800	3,000	38	15.64	1455.8	164.4	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0250 KX701VF0020 MF	50.00	1,800	1,800	3,000	38	15.30	1471.7	166.1	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0200 KX701VF0030 MF	60.00	2,100	2,100	3,500	38	12.83	1455.8	164.4	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0350 KX701VF0020 MF	70.00	1,800	1,800	3,000	38	15.01	1484.3	167.6	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0250 KX701VF0030 MF	75.00	2,100	2,100	3,500	38	12.68	1471.7	166.1	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0400 KX701VF0020 MF	80.00	1,800	1,800	3,000	38	14.88	1427.2	161.1	7,086	800	14,173	1,600	28,346	3,200
P822S_0500 KX701VF0020 MF	100.0	1,800	1,800	3,000	38	14.86	1475.1	166.5	8,858	1,000	14,173	1,600	28,346	3,200
P822S_0400 KX701VF0030 MF	120.0	2,100	2,100	3,500	38	12.49	1427.2	161.1	7,086	800	14,173	1,600	28,346	3,200
P822S_0700 KX701VF0020 MF	140.0	1,800	1,800	3,000	38	14.85	1452.3	163.9	8,858	1,000	12,401	1,400	24,900	2,811
P822S_0500 KX701VF0030 MF	150.0	2,100	2,100	3,500	38	12.49	1475.1	166.5	8,858	1,000	14,173	1,600	28,346	3,200
P822S_1000 KX701VF0020 MF	200.0	1,800	1,800	3,000	38	14.85	1312.6	148.2	6,201	700	10,630	1,200	21,259	2,400
P822S_0700 KX701VF0030 MF	210.0	2,100	2,100	3,500	38	12.48	1452.3	163.9	8,858	1,000	12,401	1,400	24,900	2,811
P822S_1000 KX701VF0030 MF	300.0	2,100	2,100	3,500	38	12.48	1312.6	148.2	6,201	700	10,630	1,200	21,259	2,400

P922S_ _KX8 with Motor Mounting Plate

P922S_0160 KX801VF0020 MF	32.00	1,100	1,100	2,500	48	53.26	2770.8	312.8	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0350 KX801VF0010 MF	35.00	1,000	750	1,750	48	82.45	2895.9	326.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0200 KX801VF0020 MF	40.00	1,100	1,100	2,500	48	52.98	2821.4	318.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0250 KX801VF0020 MF	50.00	1,100	1,100	2,500	48	51.41	2866.1	323.6	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0200 KX801VF0030 MF	60.00	1,300	1,300	3,000	48	45.05	2821.4	318.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0350 KX801VF0020 MF	70.00	1,100	1,100	2,500	48	50.19	2895.9	326.9	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0250 KX801VF0030 MF	75.00	1,300	1,300	3,000	48	44.35	2866.1	323.6	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0400 KX801VF0020 MF	80.00	1,100	1,100	2,500	48	49.53	2874.4	324.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0500 KX801VF0020 MF	100.0	1,100	1,100	2,500	48	49.48	2889.2	326.2	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0400 KX801VF0030 MF	120.0	1,300	1,300	3,000	48	43.51	2874.4	324.5	17,716	2,000	26,574	3,000	53,148	6,000
P922S_0700 KX801VF0020 MF	140.0	1,100	1,100	2,500	48	49.45	2787.9	314.7	17,716	2,000	23,917	2,700	47,833	5,400
P922S_0500 KX801VF0030 MF	150.0	1,300	1,300	3,000	48	43.49	2889.2	326.2	17,716	2,000	26,574	3,000	53,148	6,000
P922S_1000 KX801VF0020 MF	200.0	1,100	1,100	2,500	48	49.43	2260.7	255.2	12,401	1,400	17,716	2,000	35,432	4,000
P922S_0700 KX801VF0030 MF	210.0	1,300	1,300	3,000	48	43.48	2787.9	314.7	17,716	2,000	23,917	2,700	47,833	5,400
P922S_1000 KX801VF0030 MF	300.0	1,300	1,300	3,000	48	43.47	2260.7	255.2	12,401	1,400	17,716	2,000	35,432	4,000

Index of Symbols

MT Motor adapter with TriAdapt® coupling	<i>i</i> Ratio - Exact	<i>T_{2N}</i> Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	<i>n₁</i> Maximum input speed RPM	<i>T_{2B}</i> Acceleration Torque Maximum
L Large Input	<i>J₁</i> Mass moment of inertia (input)	<i>T_{2PEAK}</i> Peak Torque
C ServoCool	<i>C₂</i> Torsional Stiffness	



"PKX" Series–Right Angle ServoFit® Precision Planetary Gearhead Dimensional Data

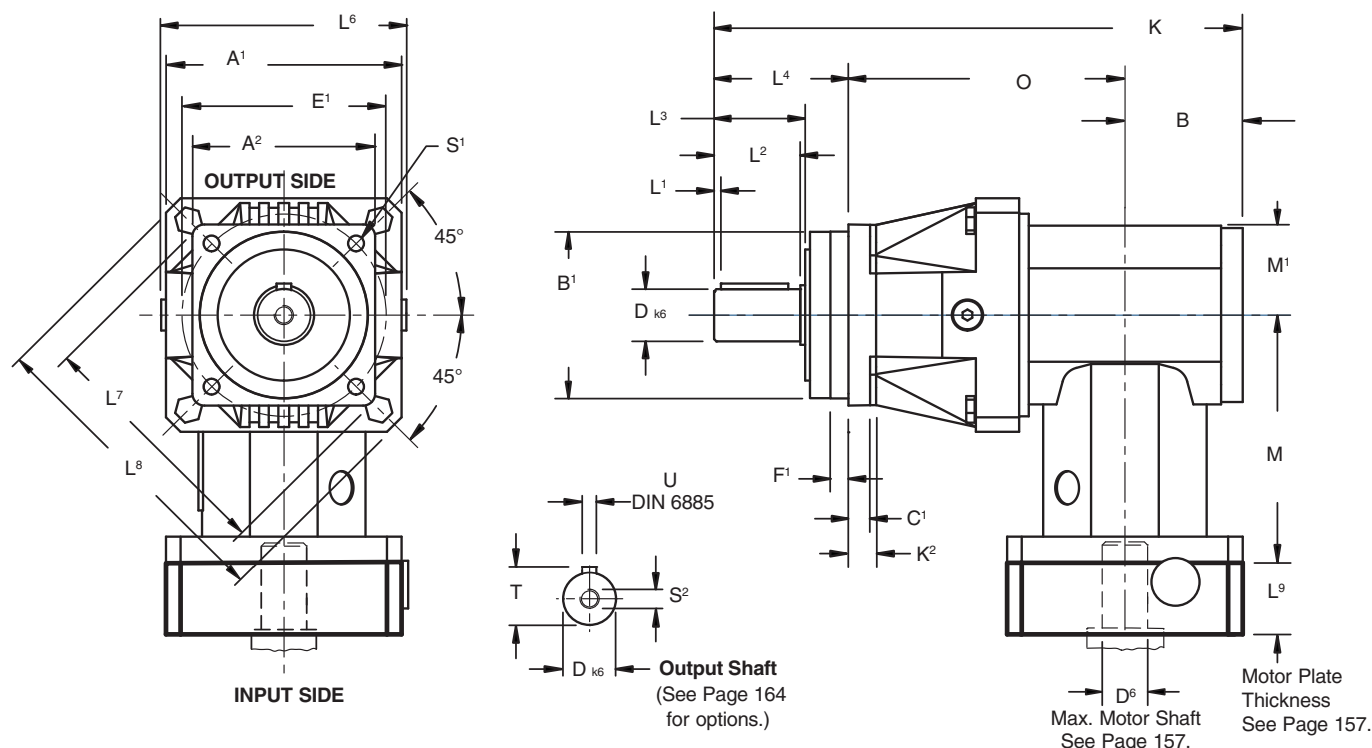


Table No. 1 "PKX" Series – ServoFit Precision Planetary Gearhead Dimensions (mm/inches)

Unit	A ¹	A ²	B ¹ h ₆	C ¹	D k ₆	E ¹	F ¹	K ²	L ¹	L ²	L ³	L ⁴	L ⁶	L ⁷	L ⁸	S ¹	S ²	T	U
P221S_KX3	55 2.17	55 2.17	50 1.969 +0.000/-0.016 +0.000/-0.006	6 .24	12 +.012/+0.001	63 2.48	7.0 .28	—	2 .08	22 .87	24 .94	36 1.42	62 2.44	74 2.91	80 3.15	5.5 .22	M4x13.5	18 .71	A4x4x18
P321S_KX3	72 2.83	72 2.83	60 2.362 +0.000/-0.019 +0.000/-0.007	7 .28	16 +.012/+0.001	75 2.95	7.5 .30	—	2 .08	28 1.10	30 1.18	48 1.89	79 3.11	—	92 3.62	5.5 .22	M5x12.5	18 .71	A5x5x22
P421S_KX4	98 3.86	76 2.99	70 2.756 +0.000/-0.019 +0.000/-0.007	9 .35	22 +.015/+0.002	85 3.35	7.5 .30	12 .47	3 .12	36 1.42	38 1.50	56 2.20	98 3.86	103.3 4.07	130 5.12	6.6 .26	M8x19	24.5 .96	A6x6x28
P521S_KX5	115 4.53	101 3.98	90 3.543 +0.000/-0.022 +0.000/-0.009	10 .39	32 +.018/+0.002	120 4.72	15 .59	14 .55	3 .12	58 2.28	60 2.36	88 3.46	121 4.76	139 5.47	149 5.87	9 .35	M12x28	35 1.38	A10x8x50
P721S_KX7	145 5.71	145 5.71	130 5.118 +0.000/-0.025 +0.000/-0.01	15 .59	40 +.018/+0.002	165 6.50	3.5 .14	—	4 .16	82 3.23	85 3.35	112 4.41	145 5.71	—	190 7.48	11 .43	M16x36	43 1.69	A12x8x70
P821S_KX8	190 7.48	190 7.48	160 6.299 +0.000/-0.025 +0.000/-0.01	15 .59	55 +.021/+0.002	215 8.46	10 .39	—	6 .24	82 3.23	85 3.35	112 4.41	190 7.48	—	250 9.84	13.5 .53	M20x42	59 2.32	A12x8x70

Table No. 2 Dimensions (mm/inches)

Unit	B	K	M	M ¹	O
P221S_KX3	40 1.57	160 6.30	95.5 3.76	31 1.22	84 3.31
P321S_KX3	40 1.57	184 7.24	95.5 3.76	31 1.22	96 3.78
P421S_KX4	49 1.93	220 8.66	104 4.09	37.5 1.48	115 4.53
P521S_KX5	60 2.36	277 10.91	132 5.20	45 1.77	129 5.08
P721S_KX7	74 2.91	343 13.50	172.5 6.79	60 2.36	157 6.18
P821S_KX8	92 3.62	417 16.42	210 8.27	75 2.95	213 8.39

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)

Part No. Explanation

P 4 2 1 S P R 0100 KX401VF 0030 MF

Motor Plate with FlexiAdapt® Coupling
Ratio (0030 = 3.0:1)
Right Angle Unit, Size 4, 1 Stage
Ratio (0100 = 10.0:1)
R – Normal Bearing
D – Reinforced Bearings-Axial
Z – Reinforced Bearings-Radial
G – Shaft – no Key
P – Output Shaft with Key
Standard Housing
No. of Gear Stages (1 = 1 Stage, 2 = 2 Stages)
Generation Number
Unit No.
"P" Series ServoFit Precision Planetary Gearhead



"PKX" Series–Right Angle ServoFit® Precision Planetary Gearhead Dimensional Data

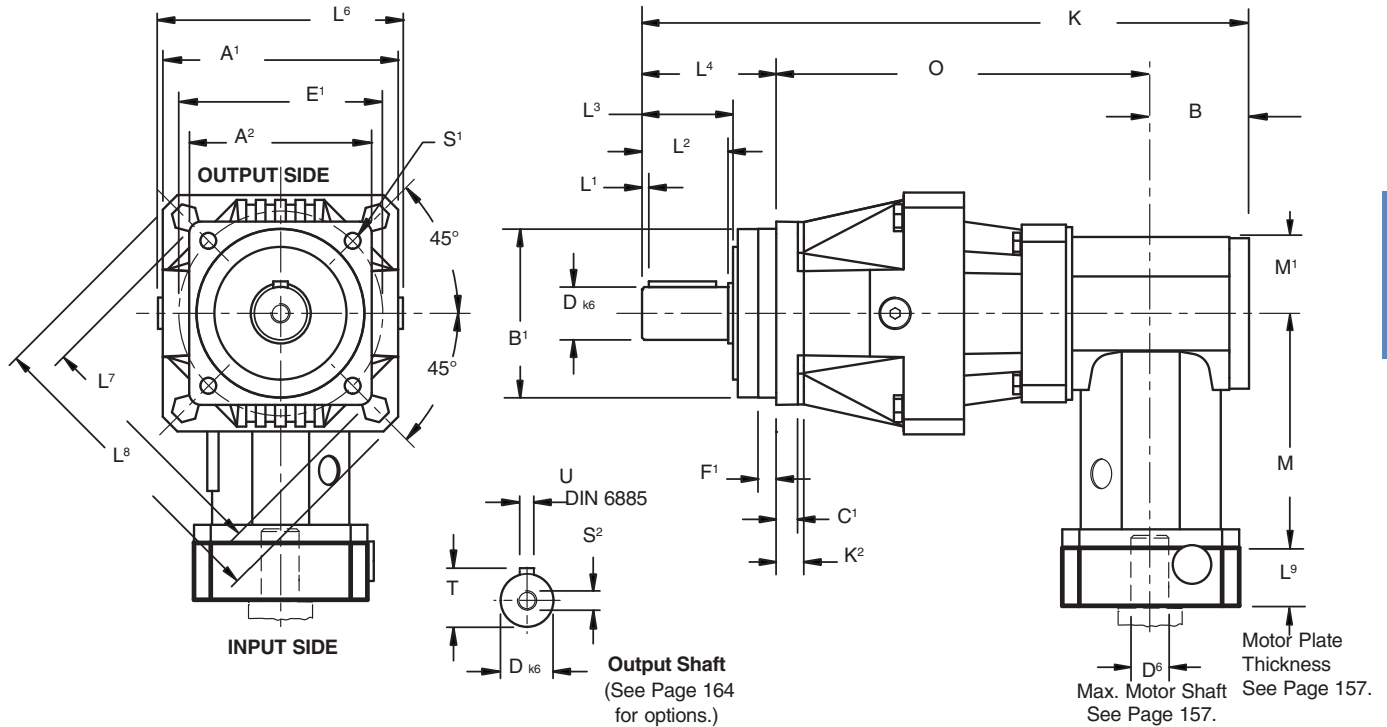


Table No. 3 "PKX" Series – ServoFit Precision Planetary Gearhead Dimensions (mm/inches)

Unit	A ¹	A ²	B ¹ h6	C ¹	D k6	E ¹	F ¹	K ²	L ¹	L ²	L ³	L ⁴	L ⁶	L ⁷	L ⁸	S ¹	S ²	T	U
P222S_KX3	55 2.17	55 2.17	50 1.969 +.000/-0.006	6 .24	12 +.012/+0.001	63 2.48 .28	7.0 -.28	—	2 .08	22 .87	24 .94	36 1.42	62 2.44	74 2.91	80 3.15	5.5 .22	M4x13.5	24.5 .96	A4x4x18
P322S_KX3	72 2.83	72 2.83	60 2.362 +.000/-0.007	7 .28	16 +.012/+0.001	75 2.95 .30	7.5 -.30	—	2 .08	28 1.10	30 1.18	48 1.89	79 3.11	92 3.62	92 3.62	5.5 .22	M5x18	24.5 .96	A5x5x22
P422S_KX3	98 3.86	76 2.99	70 2.756 +.000/-0.007	9 .35	22 +.015/+0.002	85 3.35 .30	7.5 -.47	12	3 .12	36 1.42	38 1.50	56 2.20	98 3.86	103.3 4.07	130 5.12	6.6 .26	M8x19	24.5 .96	A6x6x28
P522S_KX4	115 4.53	101 3.98	90 3.543 +.000/-0.009	10 .39	32 +.018/+0.002	120 4.72 .59	15 -.55	14	3 .12	58 2.28	60 2.36	88 3.46	121 4.76	139 5.47	149 5.87	9 .35	M12x28	35 1.38	A10x8x50
P722S_KX5	145 5.71	145 5.71	130 5.118 +.000/-0.001	15 .59	40 +.018/+0.002	165 6.50 .14	3.5 -.16	—	4 .16	82 3.23	85 3.35	112 4.41	145 5.71	—	190 7.48	11 .43	M16x36	43 1.69	A12x8x70
P822S_KX7	190 7.48	190 7.48	160 6.299 +.000/-0.001	15 .59	55 +.021/+0.002	215 8.46 .39	10 -.24	—	6 .24	82 3.23	85 3.35	112 4.41	190 7.48	—	250 9.84	13.5 .53	M20x42	59 2.32	A16x10x70
P922S_KX8	225 8.86	212 8.35	180 7.087 +.000/-0.001	17 .67	75 +.021/+0.002	250 9.84 .39	10 -.87	22	7 .28	105 4.29	109 3.35	143 5.63	225 8.86	285 11.22	300 11.81	17.5 .69	M20x42	79.5 3.13	A20x12x90

Part No. Explanation

P 4 2 2 S P R 0250 KX301VF 0030 MF

Motor Plate with FlexiAdapt® Coupling
Ratio(0030 = 3.0:1)
Right Angle Unit, Size 3, 1 Stage
Ratio (0250 = 25.0:1)
R – Normal Bearing
D – Reinforced Bearings-Axial
Z – Reinforced Bearings-Radial
G – Shaft – no Key
P – Output Shaft with Key
Standard Housing
No. of Gear Stages (1 = 1 Stage, 2 = 2 Stages)
Generation Number
Unit No.
"P" Series ServoFit Precision Planetary Gearhead

Table No. 4 Dimensions (mm/inches)

Unit	B	K	M	M ¹	O
P222S_KX3	40 1.57	192 7.56	95.5 3.76	31 1.22	116 4.57
P322S_KX3	40 1.57	224 8.82	95.5 3.76	31 1.22	136 5.35
P422S_KX3	40 1.57	249.5 9.83	95.5 3.76	31 1.22	153.5 6.04
P522S_KX4	49 1.93	309.5 12.19	104 4.09	37.5 1.48	172.5 6.79
P722S_KX5	60 2.36	378 14.88	132 5.20	45 1.77	206 8.11
P822S_KX7	74 2.91	451.5 17.76	172.5 6.79	60 2.36	265.5 10.45
P922S_KX8	92 3.62	575 22.64	210 8.27	75 2.95	340 13.39

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)

"PH" Series

ServoFit® Precision Planetary Gearhead

Performance Specifications



Size			PH321	PH322	PH421	PH422	PH521	PH522	PH721	PH722	PH821	PH822	PH912	PH923	PH1012	PH1023
Acceleration Torque Max.	T _{2B}	in.lbs. Nm	575 65		1,150 130		2,832 320		6,195 700		17,700 2,000		37,612 4,250		66,375 7,500	
Output Torque Nominal ¹⁾	T _{2N}	in.lbs. Nm	398 45		796 90		1,947 220		3,894 440		11,062 1,250		22,125 2,500		35,400 4,000	
Input Speed Maximum	n _{1MAX}	Continuous Cyclic	3,800 6,000	4,500 8,000	3,500 6,000	4,500 8,000	3,300 6,000	4,000 7,000	3,000 5,000	3,700 6,500	2,500 4,000	3,300 6,000	2,800 4,500	2,500	2,300 4,500	2,500
ServoCool Input RPM Max.	n _{1MAX}	Continuous Cyclic	— —		4,500 6,000	— —	4,500 6,000	5,000 7,000	4,000 5,000	4,700 6,500	3,700 4,500	4,300 6,000	4,000 4,500	3,200	4,000 4,500	3,000
Torsional Backlash ²⁾	Δφ	arcmin	≤3		≤3		≤3		≤3		≤3		≤3		≤3	
Torsional Stiffness	C ₂	in.lbs./arcmin Nm/arcmin	≤106 ≤12		≤292 ≤33		≤708 ≤80		≤1,371 ≤155		≤3,752 ≤424		≤5,858 ≤662		≤9,673 ≤1,093	
Axial Load ³⁾ Maximum	F _{2AMAX}	lbs. N	371 1,650		484 2,150		934 4,150		1,384 6,150		2,260 10,050		7,425 33,000		11,250 50,000	
Tilting Moment ³⁾ Maximum	T _{2K}	in.lbs. Nm	885 100		2,301 260		3,894 440		13,275 1,500		30,975 3,500		57,525 6,500		77,880 8,800	
Tilting Stiffness	C _{2K}	in.lbs./arcmin Nm/arcmin	— —		1,416 160		2,655 300		4,425 500		13,718 1,550		48,675 5,500		84,075 9,500	
Efficiency (at Nominal Torque)	η	%	96% 94%		96% 94%		96% 94%		96% 94%		96% 94%		96% 94%		94% 92%	
Weight	m	pounds kg	4 1.8		9 3.9	10 4.6	15 6.6	18 8.1	27 12.3	32 14.6	76 34.6	88 39.8	157 71	139 63	190 86	216 98
Noise Level ⁴⁾	L _{PA}	dB(A)	≤61		≤62		≤63		≤64		≤65		≤65		≤65	
Balance Quality			Q 2.5 (Quality Class-2.5 millimeters per second)													
Lubrication			Synthetic Oil (ISO VG 150)													
Degree of Protection			IP65													
Mounting Position			Unrestricted.													
Ambient Temperature			0°C to +40°C (104° F) Other temperatures, contact STÖBER Drives.													
Finish			Black (RAL 9005)													
Lifetime ⁵⁾	L _h	hours	L _h > 10,000 hours if T _{2K} /T _{2A} < 1.25 L _h > 20,000 hours if T _{2K} /T _{2A} > 1.25													
Warranty			5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)													

¹⁾ Ratings based on input speed (n_1) of 2000 RPM.

For torque at higher input speeds (T_{2NX}) solve the formula, where n_1 = Actual Input Speed. $T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$

²⁾ Tested at 1.5% of nominal torque and recorded on the input side of the gearhead.

³⁾ Rating based on output speed (n_2) of 100 RPM. For values at other speeds see Page 167.

⁴⁾ Measurement at one (1) meter distance with input speed (n_1) of 3000 RPM.

⁵⁾ T_{2A} equals actual tilting moment of the application. See Page 167 for calculation details.



"PH" Series ServoFit® Precision Planetary Gearhead Features

The "PH" Series ServoFit Precision Planetary Gearheads are designed for high demands of torsional stiffness and tilting rigidity. The "PH" series is well suited where a smooth, precise, reliable drive is needed. All units are lubricated for life with synthetic oil and sealed to IP65 standards to prevent lubricant contamination for long life.

Some features are:

- Readily Attaches to Any Servo Motor
- ISO Output Flange for Coupling Free Mounting
- Superior Torsional Stiffness
- Advanced HeliCamber Gear Technology
- 90-96% Efficiency
- 5 Year Limited Warranty (2 Year on bearings, seals, etc.)
- Excellent Axial Load Capacity
- Wide Selection of IEC, NEMA, or Customized* Motor Plates



* Maximum 10 working day for custom motor plates.

HeliCamber® gear technology provides minimum wear, low backlash, and low noise

Triple-split steel collet for greater concentricity and low inertia

Ring gear machined integral to the housing – not welded or pressed in

Oversized tapered roller bearings and shafts for high radial load capacity and superior torsional stiffness

TriAdapt® motor shaft adapter system allows installation of motor in minutes — no special tools required.

The patented TriAdapt® motor coupling is designed to allow thermal expansion of the motor shaft—ensuring long motor life by preventing thrust load on the motor bearings.

Blind pilot hole

Adapter bushings fit all motor shafts – no key required

The output flange dimensions are ISO 9409 and allow easy mounting to rotary or indexing tables, pinions, timing belt pulleys, transmission shafting, etc., without using a coupling.

FKM seals for the smallest possible diameter—reducing friction and heat buildup, increasing efficiency, and allowing continuous duty without additional cooling.

Gears are case hardened to 61 Rockwell "C" and ground for maximum efficiency

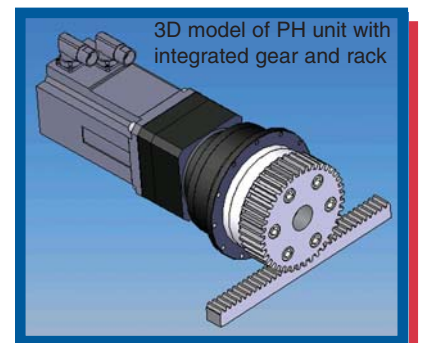
Single piece steel housing provides greater concentricity and more precise alignment

3D model of PH unit with integrated gear and rack



Also available with input shaft (AW).

Available as ServoCool in Sizes PH4 thru PH10.





"PH" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂	Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₁)				Nominal ¹⁾		Acceleration		Peak ²⁾	
							T _{2N}		T _{2B}		T _{2PEAK}	
							in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

PH321 with Motor Mounting Plate

PH321F0050MT	5.000	3,000	6,000	19	0.64	115	13.0	399	45	576	65	1,152	130
PH321F0050MTL	5.000	3,000	6,000	24	1.32	115	13.0	399	45	576	65	1,152	130
PH321F0070MT	7.000	3,500	6,000	19	0.59	102	11.5	399	45	531	60	1,152	130
PH321F0070MTL	7.000	3,500	6,000	24	1.26	102	11.5	399	45	531	60	1,152	130
PH321F0100MT	10.00	3,800	6,000	19	0.57	79.7	9.0	266	30	443	50	886	100
PH321F0100MTL	10.00	3,800	6,000	24	1.25	79.7	9.0	266	30	443	50	886	100

PH322 with Motor Mounting Plate

PH322F0200MT	20.00	4,500	8,000	14	0.14	89.7	10.1	399	45	576	65	1,152	130
PH322F0200MTL	20.00	4,500	8,000	19	0.61	90.4	10.2	399	45	576	65	1,152	130
PH322F0250MT	25.00	4,500	8,000	14	0.12	89.9	10.2	399	45	576	65	1,152	130
PH322F0250MTL	25.00	4,500	8,000	19	0.59	90.4	10.2	399	45	576	65	1,152	130
PH322F0280MT	28.00	4,500	8,000	14	0.14	90.3	10.2	399	45	531	60	1,152	130
PH322F0280MTL	28.00	4,500	8,000	19	0.61	90.7	10.2	399	45	531	60	1,152	130
PH322F0350MT	35.00	4,500	8,000	14	0.11	89.0	10.0	399	45	576	65	1,152	130
PH322F0350MTL	35.00	4,500	8,000	19	0.57	89.3	10.1	399	45	576	65	1,152	130
PH322F0400MT	40.00	4,500	8,000	14	0.14	76.0	8.6	266	30	443	50	886	100
PH322F0400MTL	40.00	4,500	8,000	19	0.61	76.1	8.6	266	30	443	50	886	100
PH322F0500MT	50.00	4,500	8,000	14	0.10	86.7	9.8	399	45	576	65	1,152	130
PH322F0500MTL	50.00	4,500	8,000	19	0.56	86.9	9.8	399	45	576	65	1,152	130
PH322F0700MT	70.00	4,500	8,000	14	0.10	88.7	10.0	399	45	531	60	1,152	130
PH322F0700MTL	70.00	4,500	8,000	19	0.56	88.8	10.0	399	45	531	60	1,152	130
PH322F1000MT	100.0	4,500	8,000	14	0.10	75.4	8.5	266	30	443	50	886	100
PH322F1000MTL	100.0	4,500	8,000	19	0.56	75.5	8.5	266	30	443	50	886	100

PH421 with Motor Mounting Plate

PH421F0040MT	4.000	2,300	5,000	24	1.73	346	39	753	85	1,152	130	2,126	240
PH421F0040MTC	4.000	3,300	5,000	24	2.46	283	32	753	85	1,152	130	2,126	240
PH421F0040MTL	4.000	2,300	5,000	32	3.96	346	39	753	85	1,152	130	2,126	240
PH421F0050MT	5.000	2,700	6,000	24	1.55	328	37	753	85	1,152	130	2,126	240
PH421F0050MTC	5.000	3,700	6,000	24	2.28	289	33	753	85	1,152	130	2,126	240
PH421F0050MTL	5.000	2,700	6,000	32	3.78	328	37	753	85	1,152	130	2,126	240
PH421F0070MT	7.000	3,200	6,000	24	1.38	275	31	753	85	974	110	2,126	240
PH421F0070MTC	7.000	4,200	6,000	24	2.13	260	29	753	85	974	110	2,126	240
PH421F0070MTL	7.000	3,200	6,000	32	3.65	275	31	753	85	974	110	2,126	240
PH421F0100MT	10.00	3,500	6,000	24	1.30	186	21	531	60	886	100	1,772	200
PH421F0100MTC	10.00	4,500	6,000	24	2.05	183	21	531	60	886	100	1,772	200
PH421F0100MTL	10.00	3,500	6,000	32	3.57	186	21	531	60	886	100	1,772	200

PH422 with Motor Mounting Plate Continued Next Page

PH422F0160MT	16.00	3,700	6,500	19	0.72	237	27	797	90	1,152	130	2,126	240
PH422F0160MTL	16.00	3,700	6,500	24	1.40	237	27	797	90	1,152	130	2,126	240
PH422F0200MT	20.00	3,700	6,500	19	0.71	256	29	797	90	1,152	130	2,126	240
PH422F0200MTL	20.00	3,700	6,500	24	1.39	256	29	797	90	1,152	130	2,126	240
PH422F0250MT	25.00	4,000	7,000	19	0.65	254	29	797	90	1,152	130	2,126	240
PH422F0250MTL	25.00	4,000	7,000	24	1.34	254	29	797	90	1,152	130	2,126	240

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed. $T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PH" Series

ServoFit® Precision Planetary Gearhead

Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n ₁)	Cyclic RPM (n ₂)					Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
						in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

PH422 with Motor Mounting Plate *Continued*

PH422F0280MT	28.00	4,500	8,000	19	0.60	222	25	797	90	1,152	130	2,126	240
PH422F0280MTL	28.00	4,500	8,000	24	1.27	222	25	797	90	1,152	130	2,126	240
PH422F0350MT	35.00	4,500	8,000	19	0.60	245	28	797	90	1,152	130	2,126	240
PH422F0350MTL	35.00	4,500	8,000	24	1.27	245	28	797	90	1,152	130	2,126	240
PH422F0400MT	40.00	4,500	8,000	19	0.58	215	24	797	90	1,152	130	2,126	240
PH422F0400MTL	40.00	4,500	8,000	24	1.25	215	24	797	90	1,152	130	2,126	240
PH422F0500MT	50.00	4,500	8,000	19	0.58	239	27	797	90	1,152	130	2,126	240
PH422F0500MTL	50.00	4,500	8,000	24	1.25	239	27	797	90	1,152	130	2,126	240
PH422F0700MT	70.00	4,500	8,000	19	0.58	237	27	797	90	974	110	2,126	240
PH422F0700MTL	70.00	4,500	8,000	24	1.25	237	27	797	90	974	110	2,126	240
PH422F1000MT	100.0	4,500	8,000	19	0.58	177	20	531	60	886	100	1,772	200
PH422F1000MTL	100.0	4,500	8,000	24	1.25	177	20	531	60	886	100	1,772	200

PH521 with Motor Mounting Plate

PH521F0040MT	4.000	2,200	5,000	32	3.65	868	98	1,860	210	2,835	320	4,915	555
PH521F0040MTC	4.000	3,200	5,000	32	5.87	648	73	1,860	210	2,447	276	4,915	555
PH521F0040MTL	4.000	2,200	5,000	38	6.68	868	98	1,860	210	2,835	320	4,915	555
PH521F0050MT	5.000	2,500	5,500	32	4.47	824	93	1,860	210	2,835	320	5,315	600
PH521F0050MTC	5.000	3,500	5,500	32	6.69	683	77	1,860	210	2,835	320	5,315	600
PH521F0050MTL	5.000	2,500	5,500	38	7.50	824	93	1,860	210	2,835	320	5,315	600
PH521F0070MT	7.000	3,000	6,000	32	3.97	682	77	1,860	210	2,392	270	5,315	600
PH521F0070MTC	7.000	4,000	6,000	32	6.21	627	71	1,860	210	2,392	270	5,315	600
PH521F0070MTL	7.000	3,000	6,000	38	7.02	682	77	1,860	210	2,392	270	5,315	600
PH521F0100MT	10.00	3,300	6,000	32	3.72	487	55	1,240	140	2,215	250	4,429	500
PH521F0100MTC	10.00	4,500	6,000	32	5.96	473	53	1,240	140	2,215	250	4,429	500
PH521F0100MTL	10.00	3,300	6,000	38	6.77	487	55	1,240	140	2,215	250	4,429	500

PH522 with Motor Mounting Plate *Continued Next Page*

PH522F0160 MT	16.00	3,300	6,000	24	1.54	575	65	1,860	210	2,835	320	4,915	555
PH522F0160MTC	16.00	4,300	6,000	24	2.26	562	63	1,860	210	2,835	320	4,915	555
PH522F0160MTL	16.00	3,300	6,000	32	3.76	575	65	1,860	210	2,835	320	4,915	555
PH522F0200MT	20.00	3,300	6,000	24	1.59	629	71	1,949	220	2,835	320	5,315	600
PH522F0200MTC	20.00	4,300	6,000	24	2.31	619	70	1,949	220	2,835	320	5,315	600
PH522F0200MTL	20.00	3,300	6,000	32	3.81	629	71	1,949	220	2,835	320	5,315	600
PH522F0250MT	25.00	3,700	6,500	24	1.47	625	71	1,949	220	2,835	320	5,315	600
PH522F0250MTC	25.00	4,500	6,500	24	2.19	619	70	1,949	220	2,835	320	5,315	600
PH522F0250MTL	25.00	3,700	6,500	32	3.69	625	71	1,949	220	2,835	320	5,315	600
PH522F0280MT	28.00	4,000	7,000	24	1.32	540	61	1,860	210	2,835	320	4,915	555
PH522F0280MTC	28.00	5,000	7,000	24	2.06	537	61	1,860	210	2,835	320	4,915	555
PH522F0280MTL	28.00	4,000	7,000	32	3.58	540	61	1,860	210	2,835	320	4,915	555
PH522F0350 MT	35.00	4,000	7,000	24	1.33	602	68	1,949	220	2,835	320	5,315	600
PH522F0350MTC	35.00	5,000	7,000	24	2.08	599	68	1,949	220	2,835	320	5,315	600
PH522F0350MTL	35.00	4,000	7,000	32	3.60	602	68	1,949	220	2,835	320	5,315	600
PH522F0400MT	40.00	4,000	7,000	24	1.27	517	58	1,860	210	2,835	320	4,915	555
PH522F0400MTC	40.00	5,000	7,000	24	2.02	515	58	1,860	210	2,835	320	4,915	555
PH522F0400MTL	40.00	4,000	7,000	32	3.54	517	58	1,860	210	2,835	320	4,915	555

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PH" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Input Speed Continuous Cyclic RPM (n ₁)		Maximum Motor Shaft øD ⁶ mm	Maximum Moment of Inertia J ₁ kgcm ²	Mass Stiffness per arcmin C ₂ in.lbs. Nm		Torsional		Output Torque			
								Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PH522 with Motor Mounting Plate Continued													
PH522F0500MT	50.00	4,000	7,000	24	1.28	583	66	1,949	220	2,835	320	5,315	600
PH522F0500MTC	50.00	5,000	7,000	24	2.03	582	66	1,949	220	2,835	320	5,315	600
PH522F0500MTL	50.00	4,000	7,000	32	3.55	583	66	1,949	220	2,835	320	5,315	600
PH522F0700MT	70.00	4,000	7,000	24	1.28	581	66	1,860	210	2,392	270	5,315	600
PH522F0700MTC	70.00	5,000	7,000	24	2.02	580	66	1,860	210	2,392	270	5,315	600
PH522F0700 MTL	70.00	4,000	7,000	32	3.54	581	66	1,860	210	2,392	270	5,315	600
PH522F1000MT	100.0	4,000	7,000	24	1.27	459	52	1,240	140	2,215	250	4,429	500
PH522F1000MTC	100.0	5,000	7,000	24	2.02	459	52	1,240	140	2,215	250	4,429	500
PH522F1000MTL	100.0	4,000	7,000	32	3.54	459	52	1,240	140	2,215	250	4,429	500
PH721 with Motor Mounting Plate													
PH721F0040MT	4.000	1,900	4,000	38	11.18	1,639	185	3,898	440	6,201	700	12,235	1,381
PH721F0040MTC	4.000	2,400	4,000	38	22.42	1,271	144	3,898	440	6,201	700	12,235	1,381
PH721F0040MTL	4.000	1,900	4,000	48	29.03	1,639	185	3,898	440	6,201	700	12,235	1,381
PH721F0050MT	5.000	2,200	5,000	38	9.34	1,630	184	3,898	440	6,201	700	12,401	1,400
PH721F0050MTC	5.000	3,000	5,000	38	20.58	1,377	155	3,898	440	6,201	700	12,401	1,400
PH721F0050MTL	5.000	2,200	5,000	48	27.19	1,630	184	3,898	440	6,201	700	12,401	1,400
PH721F0070MT	7.000	2,500	5,000	38	7.92	1,417	160	3,898	440	5,758	650	11,127	1,256
PH721F0070 MTC	7.000	3,500	5,000	38	18.82	1,286	145	3,898	440	5,758	650	11,127	1,256
PH721F0070MTL	7.000	2,500	5,000	48	26.22	1,417	160	3,898	440	5,758	650	11,127	1,256
PH721F0100MT	10.00	3,000	5,000	38	7.23	1,036	117	2,657	300	4,429	500	8,858	1,000
PH721F0100MTC	10.00	4,000	5,000	38	18.13	1,000	113	2,657	300	4,429	500	8,858	1,000
PH721F0100MTL	10.00	3,000	5,000	48	25.53	1,036	117	2,657	300	4,429	500	8,858	1,000
PH722 with Motor Mounting Plate Continued Next Page													
PH722F0160MT	16.00	3,000	5,000	32	4.70	1,205	136	3,898	440	6,201	700	12,235	1,381
PH722F0160MTC	16.00	4,000	5,000	32	6.92	1,170	132	3,898	440	6,201	700	12,235	1,381
PH722F0160MTL	16.00	3,000	5,000	38	7.73	1,205	136	3,898	440	6,201	700	12,235	1,381
PH722F0200MT	20.00	3,000	5,000	32	4.59	1,326	150	3,898	440	6,201	700	12,401	1,400
PH722F0200MTC	20.00	4,000	5,000	32	6.81	1,299	147	3,898	440	6,201	700	12,401	1,400
PH722F0200MTL	20.00	3,000	5,000	38	7.61	1,326	150	3,898	440	6,201	700	12,401	1,400
PH722F0250MT	25.00	3,500	6,000	32	4.18	1,318	149	3,898	440	6,201	700	12,401	1,400
PH722F0250MTC	25.00	4,200	6,000	32	6.40	1,301	147	3,898	440	6,201	700	12,401	1,400
PH722F0250MTL	25.00	3,500	6,000	38	7.20	1,318	149	3,898	440	6,201	700	12,401	1,400
PH722F0280MT	28.00	3,700	6,500	32	3.86	1,160	131	3,898	440	6,201	700	12,235	1,381
PH722F0280MTC	28.00	4,500	6,500	32	6.10	1,149	130	3,898	440	6,201	700	12,235	1,381
PH722F0280MTL	28.00	3,700	6,500	38	6.90	1,160	131	3,898	440	6,201	700	12,235	1,381
PH722F0350MT	35.00	3,700	6,500	32	3.82	1,291	146	3,898	440	6,201	700	12,401	1,400
PH722F0350MTC	35.00	4,500	6,500	32	6.06	1,282	145	3,898	440	6,201	700	12,401	1,400
PH722F0350MTL	35.00	3,700	6,500	38	6.87	1,291	146	3,898	440	6,201	700	12,401	1,400
PH722F0400MT	40.00	3,700	6,500	32	3.67	1,121	127	3,898	440	6,201	700	12,235	1,381
PH722F0400MTC	40.00	4,700	6,500	32	5.91	1,116	126	3,898	440	6,201	700	12,235	1,381
PH722F0400MTL	40.00	3,700	6,500	38	6.71	1,121	127	3,898	440	6,201	700	12,235	1,381
PH722F0500MT	50.00	3,700	6,500	32	3.65	1,259	142	3,898	440	6,201	700	12,401	1,400
PH722F0500MTC	50.00	4,700	6,500	32	5.89	1,255	142	3,898	440	6,201	700	12,401	1,400
PH722F0500MTL	50.00	3,700	6,500	38	6.70	1,259	142	3,898	440	6,201	700	12,401	1,400

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PH" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque						
		Continuous	Cyclic			RPM (n ₁)	in.lbs.	Nm	Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
									in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PH722 with Motor Mounting Plate Continued														
PH722F0700MT	70.00	3,700	6,500	32	3.63	1,254	142	3,898	440	5,758	650	11,127	1,256	
PH722F0700MTC	70.00	4,700	6,500	32	5.87	1,252	141	3,898	440	5,758	650	11,127	1,256	
PH722F0700MTL	70.00	3,700	6,500	38	6.68	1,254	142	3,898	440	5,758	650	11,127	1,256	
PH722F1000MT	100.0	3,700	6,500	32	3.63	990	112	2,657	300	4,429	500	8,858	1,000	
PH722F1000MTC	100.0	4,700	6,500	32	5.87	989	112	2,657	300	4,429	500	8,858	1,000	
PH722F1000MTL	100.0	3,700	6,500	38	6.67	990	112	2,657	300	4,429	500	8,858	1,000	
PH821 with Motor Mounting Plate														
PH821F0040MT	4.000	1,500	3,500	48	48.88	5,315	600	7,086	800	14,173	1,600	22,752	2,569	
PH821F0040MTC	4.000	2,200	3,500	48	70.14	3,527	398	7,086	800	14,173	1,600	22,752	2,569	
PH821F0050MT	5.000	1,700	4,000	48	39.89	4,872	550	8,858	1,000	15,059	1,700	28,346	3,200	
PH821F0050 MTC	5.000	2,500	4,000	48	61.15	3,755	424	8,858	1,000	15,059	1,700	28,346	3,200	
PH821F0070MT	7.000	2,000	4,000	48	32.00	4,075	460	8,858	1,000	14,173	1,600	24,900	2,811	
PH821F0070MTC	7.000	3,200	4,000	48	53.73	3,546	400	8,858	1,000	14,173	1,600	24,900	2,811	
PH821F0100MT	10.00	2,500	4,000	48	28.19	2,790	315	7,086	800	10,630	1,200	21,259	2,400	
PH821F0100MTC	10.00	3,700	4,500	48	49.92	2,657	300	7,086	800	10,630	1,200	21,259	2,400	
PH822 with Motor Mounting Plate														
PH822F0160MT	16.00	2,500	4,500	38	11.13	3,271	369	9,744	1,100	17,716	2,000	28,346	3,200	
PH822F0160MTC	16.00	3,250	4,500	38	22.37	3,157	356	9,744	1,100	17,716	2,000	28,346	3,200	
PH822F0160MTL	16.00	2,500	4,500	48	28.98	3,271	369	9,744	1,100	17,716	2,000	28,346	3,200	
PH822F0200MT	20.00	2,500	4,500	38	10.57	3,565	402	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0200MTC	20.00	3,300	4,500	38	21.80	3,477	393	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0200MTL	20.00	2,500	4,500	48	28.42	3,565	402	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0250 MT	25.00	3,000	5,500	38	9.05	3,524	398	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0250MTC	25.00	3,800	5,500	38	20.29	3,469	392	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0250MTL	25.00	3,000	5,500	48	26.91	3,524	398	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0280MT	28.00	3,300	6,000	38	7.97	3,160	357	9,744	1,100	17,716	2,000	28,346	3,200	
PH822F0280MTC	28.00	4,000	6,000	38	18.87	3,116	352	9,744	1,100	17,716	2,000	28,346	3,200	
PH822F0280MTL	28.00	3,300	6,000	48	26.27	3,160	357	9,744	1,100	17,716	2,000	28,346	3,200	
PH822F0350MT	35.00	3,300	6,000	38	7.78	3,480	393	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0350MTC	35.00	4,000	6,000	38	18.69	3,445	389	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0350MTL	35.00	3,300	6,000	48	26.09	3,480	393	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0400MT	40.00	3,300	6,000	38	7.25	3,024	341	9,744	1,100	17,007	1,920	28,346	3,200	
PH822F0400MTC	40.00	4,300	6,000	38	18.15	3,004	339	9,744	1,100	17,007	1,920	28,346	3,200	
PH822F0400MTL	40.00	3,300	6,000	48	25.55	3,024	341	9,744	1,100	17,007	1,920	28,346	3,200	
PH822F0500MT	50.00	3,300	6,000	38	7.16	3,373	381	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0500MTC	50.00	4,300	6,000	38	18.06	3,357	379	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0500MTL	50.00	3,300	6,000	48	25.46	3,373	381	11,073	1,250	17,716	2,000	28,346	3,200	
PH822F0700MT	70.00	3,300	6,000	38	7.08	3,425	387	8,858	1,000	14,173	1,600	24,900	2,811	
PH822F0700MTC	70.00	4,300	6,000	38	17.99	3,417	386	8,858	1,000	14,173	1,600	24,900	2,811	
PH822F0700MTL	70.00	3,300	6,000	48	25.39	3,425	387	8,858	1,000	14,173	1,600	24,900	2,811	
PH822F1000MT	100.0	3,300	6,000	38	7.05	2,623	296	7,086	800	10,630	1,200	21,259	2,400	
PH822F1000MTC	100.0	4,300	6,000	38	17.95	2,621	296	7,086	800	10,630	1,200	21,259	2,400	
PH822F1000MTL	100.0	3,300	6,000	48	25.35	2,623	296	7,086	800	10,630	1,200	21,259	2,400	

Index of Symbols

MT Motor adapter with TriAdapt® coupling
MF Motor adapter with FlexiAdapt® coupling
L Large Input
C ServoCool

i Ratio - Exact
n₁ Maximum input speed RPM
J₁ Mass moment of inertia (input)
C₂ Torsional Stiffness

T_{2N} Nominal Torque
T_{2B} Acceleration Torque Maximum
T_{2PEAK} Peak Torque



"PH" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Input Speed		Maximum Motor Shaft øD ⁶ mm	Maximum Moment of Inertia J ₁ kgcm ²	Mass Stiffness per arcmin C ₂		Torsional				Output Torque			
		Continuous RPM (n ₁)	Cyclic			in.lbs.	Nm	Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}			
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
PH912 with Motor Mounting Plate															
PH912F0160MT	16.00	2,200	3,500	48	44.87	5,342	603	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0160MTC	16.00	2,900	3,500	48	66.13	5,178	585	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0180MT	18.00	1,800	3,000	48	68.89	5,987	676	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0180MTC	18.00	2,700	3,000	48	90.15	5,823	657	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0200MT	20.00	2,500	4,000	48	37.23	5,287	597	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0200MTC	20.00	3,300	4,000	48	58.49	5,183	585	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0240MT	24.00	2,200	3,500	48	41.47	5,950	672	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0240MTC	24.00	2,900	3,500	48	62.72	5,858	661	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0280MT	28.00	2,800	4,500	48	30.69	5,188	586	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0280MTC	28.00	4,000	4,500	48	52.42	5,128	579	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0300MT	30.00	2,500	4,000	48	35.05	5,920	668	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0300MTC	30.00	3,500	4,000	48	56.31	5,861	662	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0320MT	32.00	2,800	4,500	48	29.38	5,123	578	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0320MTC	32.00	4,000	4,500	48	51.11	5,077	573	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0400MT	40.00	2,800	4,500	48	27.21	5,028	568	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0400MTC	40.00	4,000	4,500	48	48.94	5,000	565	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0420MT	42.00	2,800	4,500	48	29.58	5,864	662	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0420 MTC	42.00	4,000	4,500	48	51.31	5,829	658	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0480MT	48.00	2,800	4,500	48	28.53	5,826	658	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0480MTC	48.00	4,000	4,500	48	50.26	5,800	655	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0600MT	60.00	2,800	4,500	48	26.67	5,772	652	22,145	2,500	37,647	4,250	75,293	8,500		
PH912F0600MTC	60.00	4,000	4,500	48	48.40	5,755	645	22,145	2,500	37,647	4,250	75,293	8,500		
PH923 with Motor Mounting Plate															
PH923F0610MT	61.00	2,500	4,500	38	49.32	3,543	400	22,145	2,500	37,647	4,250	75,293	8,500		
PH923F0610MTC	61.00	3,200	4,500	38	60.56	3,534	399	22,145	2,500	37,647	4,250	75,293	8,500		
PH923F0610MTL	61.00	2,500	4,500	48	67.17	3,543	400	22,145	2,500	37,647	4,250	75,293	8,500		
PH923F0910 MT	91.00	2,500	4,500	38	45.51	3,543	400	22,145	2,500	37,647	4,250	75,293	8,500		
PH923F0910MTC	91.00	3,200	4,500	38	56.41	3,538	399	22,145	2,500	37,647	4,250	75,293	8,500		
PH923F0910MTL	91.00	2,500	4,500	48	63.81	3,543	400	22,145	2,500	37,647	4,250	75,293	8,500		
PH923F1210MT	121.0	2,500	4,500	38	44.12	3,543	400	22,145	2,500	37,647	4,250	75,293	8,500		
PH923F1210MTC	121.0	3,200	4,500	38	55.02	3,540	400	22,145	2,500	37,647	4,250	75,293	8,500		
PH923F1210MTL	121.0	2,500	4,500	48	62.42	3,543	400	22,145	2,500	37,647	4,250	75,293	8,500		

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PH" Series ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Nominal ¹⁾ T _{2N}						Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}			
		Continuous RPM (n _i)	Cyclic			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
PH1012 with Motor Mounting Plate													
PH1012F0180MT	18.00	1,800	3,000	48	72.04	10,029	1,132	35,432	4,000	61,226	6,912	98,290	11,096
PH1012F0180MTC	18.00	2,500	3,000	48	93.30	9,577	1,081	35,432	4,000	61,226	6,912	98,290	11,096
PH1012F0240MT	24.00	2,200	3,500	48	43.24	9,925	1,120	35,432	4,000	66,435	7,500	131,053	14,795
PH1012F0240MTC	24.00	2,700	3,500	48	64.50	9,671	1,092	35,432	4,000	66,435	7,500	131,053	14,795
PH1012F0300 MT	30.00	2,500	4,000	48	36.19	9,840	1,111	35,432	4,000	66,435	7,500	132,870	15,000
PH1012F0300MTC	30.00	3,200	4,000	48	57.45	9,679	1,093	35,432	4,000	66,435	7,500	132,870	15,000
PH1012F0420MT	42.00	2,800	4,500	48	30.16	9,687	1,094	35,432	4,000	66,435	7,500	132,870	15,000
PH1012F0420MTC	42.00	4,000	4,500	48	51.89	9,593	1,083	35,432	4,000	66,435	7,500	132,870	15,000
PH1012F0480MT	48.00	2,800	4,500	48	28.98	9,585	1,082	35,432	4,000	61,226	6,912	132,870	15,000
PH1012F0480MTC	48.00	4,000	4,500	48	50.71	9,514	1,074	35,432	4,000	61,226	6,912	132,870	15,000
PH1012F0600MT	60.00	2,800	4,500	48	26.95	9,438	1,066	35,432	4,000	61,226	6,912	132,870	15,000
PH1012F0600MTC	60.00	4,000	4,500	48	48.68	9,394	1,061	35,432	4,000	61,226	6,912	132,870	15,000

PH1023 with Motor Mounting Plate

PH1023F0610MT	61.00	2,500	4,500	48	146.08	4,872	550	35,432	4,000	66,435	7,500	132,870	15,000
PH1023F0610MTC	61.00	3,000	4,500	48	167.34	4,862	549	35,432	4,000	66,435	7,500	132,870	15,000
PH1023F0910 MT	91.00	2,500	4,500	48	120.21	4,872	550	35,432	4,000	66,435	7,500	132,870	15,000
PH1023F0910MTC	91.00	3,000	4,500	48	141.94	4,867	549	35,432	4,000	66,435	7,500	132,870	15,000

Index of Symbols

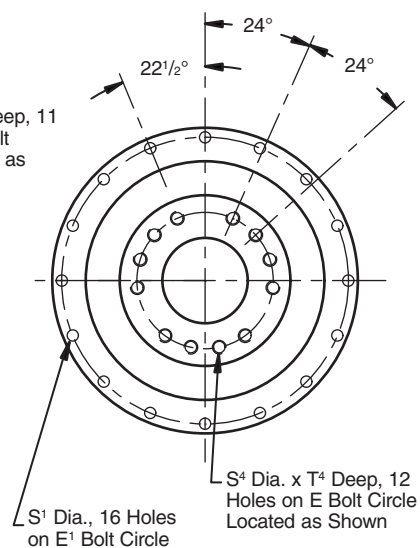
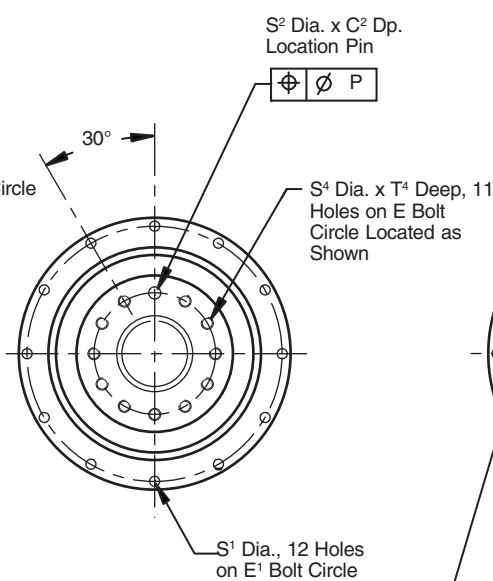
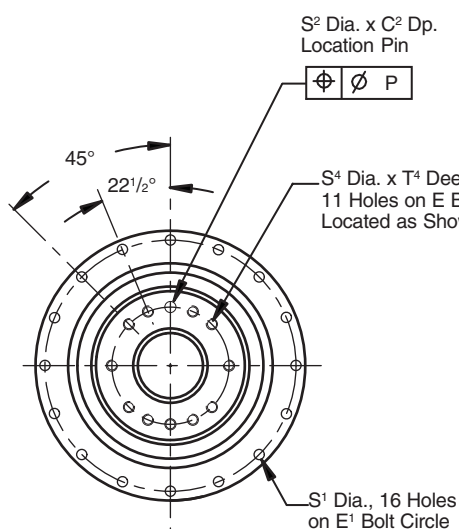
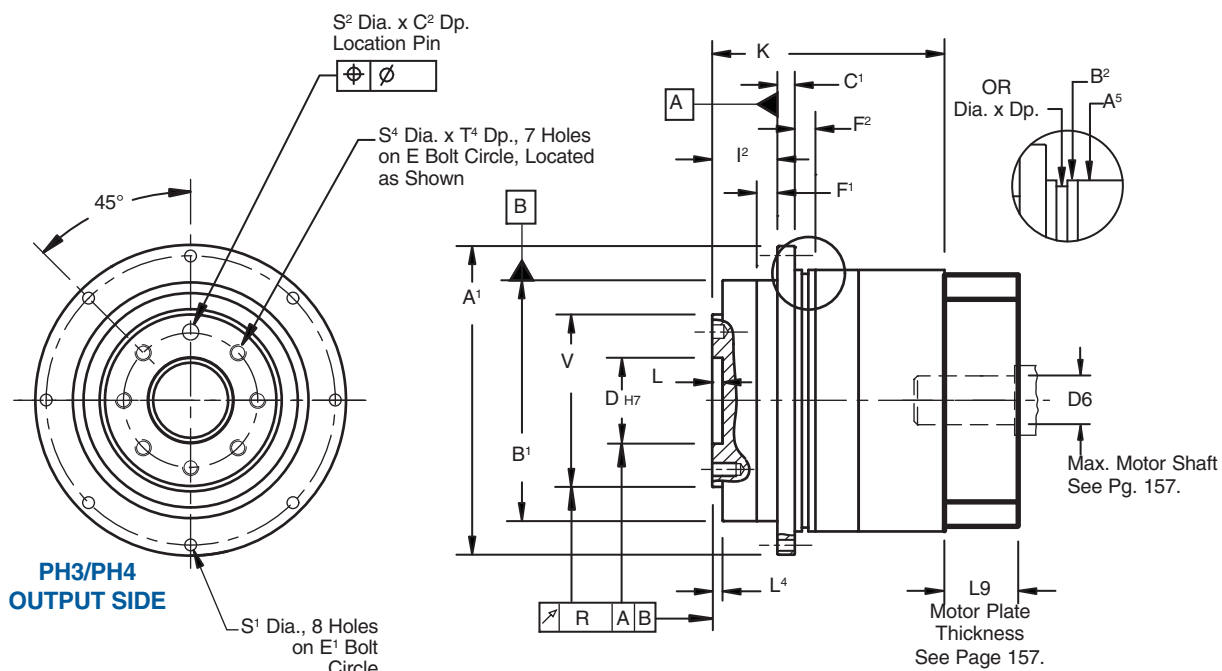
MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PH" Series ServoFit® Precision Planetary Gearhead Dimensional Data



Drawing for Units
PH321 thru PH1023





"PH" Series ServoFit® Precision Planetary Gearhead Dimensional Data



Table No. 1 "PH" Series – Gearhead with Motor Plate – Dimensions (mm/inches)

Unit	A ¹	A ⁵	B ¹ h7	B ² h7	C ¹	C ²	D h7	E	E ¹	F ¹	F ²	I ²	L	L ²	L ⁴	OR
PH321/PH322	86 3.39	70 2.76	64 2.520 +0.000/-0.030 +0.000/-0.012	70 * 2.756 +0.000/-0.030 +0.000/-0.012	4 .16	3 .12	20 .787 +0.021/-0 +0.008/-0.000	31.5 1.24	79 3.11	7 .28	8 .31	19.5 .77	4 .16	3 .12	3.5 .14	65x2 2.55x.08
PH421/PH422	118 4.65	95 3.74	90 3.543 +0.000/-0.035 +0.000/-0.014	95 3.740 +0.000/-0.035 +0.000/-0.014	7 .28	7 .28	31.5 1.240 +0.025/-0 +0.010/-0.000	50 1.97	109 4.29	10 .39	10 .39	30 1.18	6 .24	6 .24	6 .24	90x3 3.54x.12
PH521/PH522	145 5.71	120 4.72	110 4.331 +0.000/-0.035 +0.000/-0.014	120 * 4.724 +0.000/-0.035 +0.000/-0.014	8 .32	7 .28	40 1.575 +0.025/-0 +0.010/-0.000	63 2.48	135 5.31	10 .39	12 .47	29 1.14	6 .24	6 .24	6 .24	110x3 4.33x.12
PH721/PH722	179 7.05	152 5.98	140 5.513 +0.000/-0.040 +0.000/-0.016	152 5.984 +0.000/-0.040 +0.000/-0.016	10 .39	7 .28	50 1.969 +0.025/-0 +0.010/-0.000	80 3.15	168 6.61	12 .47	12 .47	38 1.50	6 .24	6 .24	6 .24	145x3 5.71x.12
PH821/PH822	247 9.72	212 8.35	200 7.874 +0.000/-0.046 +0.000/-0.018	212 8.346 +0.000/-0.046 +0.000/-0.018	12 .47	10 .39	80 3.150 +0.030/-0 +0.012/-0.000	125 4.92	233 9.17	15 .59	15 .59	50 1.97	8 .31	8 .31	8 .31	200x5 7.87x.20
PH912/PH923	300 11.81	152 5.98	255 10.039 +0.000/-0.052 +0.000/-0.020	255 10.039 +0.000/-0.052 +0.000/-0.020	18 .71	—	90 3.543 +0.035/-0 +0.014/-0.000	140 5.51	280 11.02	20 .79	20 .79	66 2.60	12 .47	11 .43	12 .47	238x5 9.37x.20
PH1012/PH1023	330 12.99	212 8.35	285 11.220 +0.000/-0.057 +0.000/-0.022	285 11.221 +0.000/-0.057 +0.000/-0.020	20 .79	—	95 3.740 +0.035/-0 +0.014/-0.000	160 6.30	310 12.20	20 .79	20 .79	75 2.95	10 .39	15 .59	15 .59	270x6 10.63x.24

* Not applicable for PH322 and PH522.

Table No. 2 "PH" Series – Dimensions (mm/inches)

Unit	P	R	S ¹	S ² h7	S ⁴	T ⁴	V h7
PH321/PH322	.02 .0008	.020 .0008	4.5 .18	5 .20 +0.012/-0.000 +0.005/-0.000	M5	7 .28	40 1.575 +0.000/-0.025 +0.000/-0.010
PH421/PH422	.02 .0008	.020 .0008	5.5 .22	6 .236 +0.012/-0.000 +0.005/-0.000	M6	10 .39	63 2.480 +0.000/-0.030 +0.000/-0.012
PH521/PH522	.02 .0008	.020 .0008	5.5 .22	6 .236 +0.012/-0.000 +0.005/-0.000	M6	11 .43	80 3.150 +0.000/-0.030 +0.000/-0.012
PH721/PH722	.02 .0008	.025 .0010	6.6 .26	8 .315 +0.015/-0.000 +0.006/-0.000	M8	14 .55	100 3.937 +0.000/-0.035 +0.000/-0.014
PH821/PH822	—	.030 .0012	9 .35	10 .393 +0.015/-0.000 +0.006/-0.000	M10	18 .71	160 6.299 +0.000/-0.040 +0.000/-0.016
PH912/PH923	—	.030 .0012	13.5 .53	—	M16	24 .94	180 7.087 +0.000/-0.040 +0.000/-0.016
PH1012/PH1023	—	.040 .0016	13.5 .53	—	M20	30 1.18	200 7.874 +0.000/-0.046 +0.000/-0.018

Table No. 3

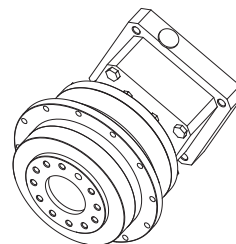
K Dimension					
Standard			ServoCool		
Unit	mm	inches	Unit	mm	inches
PH321	80.5	3.17	—		
PH322	104	4.09	—		
PH421	106	4.17	PH421_C	82.5	3.24
PH422	146.5	5.77	—		
PH521	110	4.33	PH521_C	138	5.43
PH522	159.5	6.28	PH522_C	183	7.20
PH721	138	5.43	PH721_C	168	6.61
PH722	190	7.48	PH722_C	218	8.58
PH821	183	7.20	PH821_C	231	9.09
PH822	251	9.88	PH822_C	281	11.06
PH912	336.5	13.24	PH921_C	384.5	15.14
PH923	257	10.12	PH923_C	287	11.30
PH1012	366	14.41	PH1012_C	414	16.30
PH1023	307	12.09	PH1023_C	355	13.98

Part No. Explanation

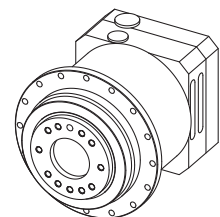
PH 8 2 1 F 0050 MT C

Option for ServoCool
Motor Plate with TriAdapt Coupling
Ratio (0050 = 5.0:1)
Output Flange
No. of Stages (1 = 1 Stage, 2 = 2 Stage)
Generation No.
Unit No.
"PH" Series ServoFit Precision Planetary Gearhead

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)



Typical 2 Stage Configuration



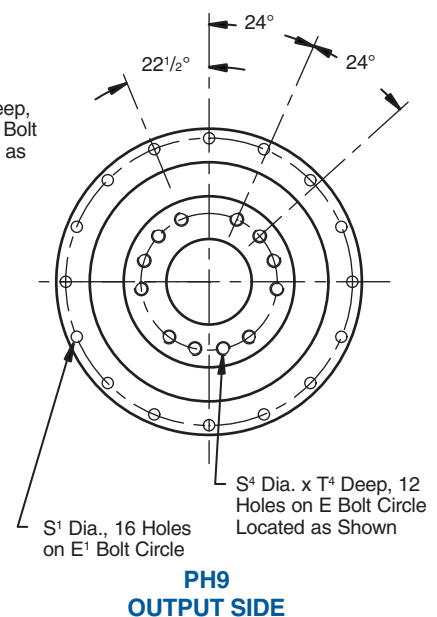
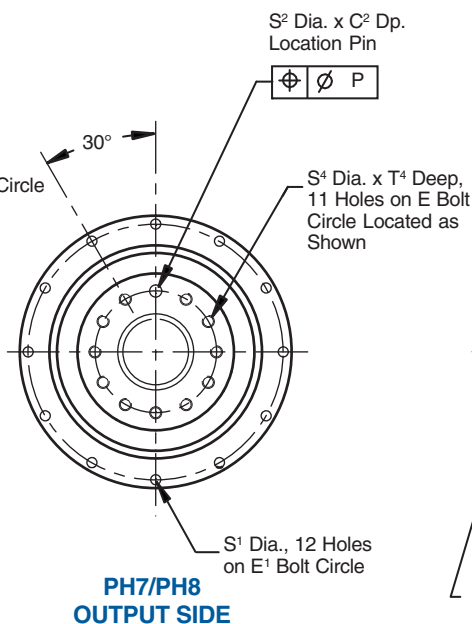
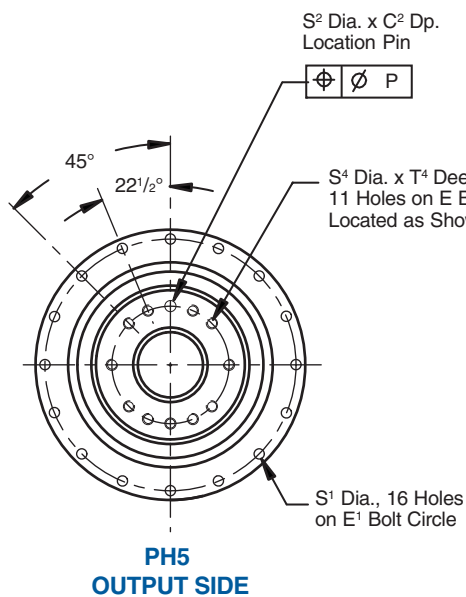
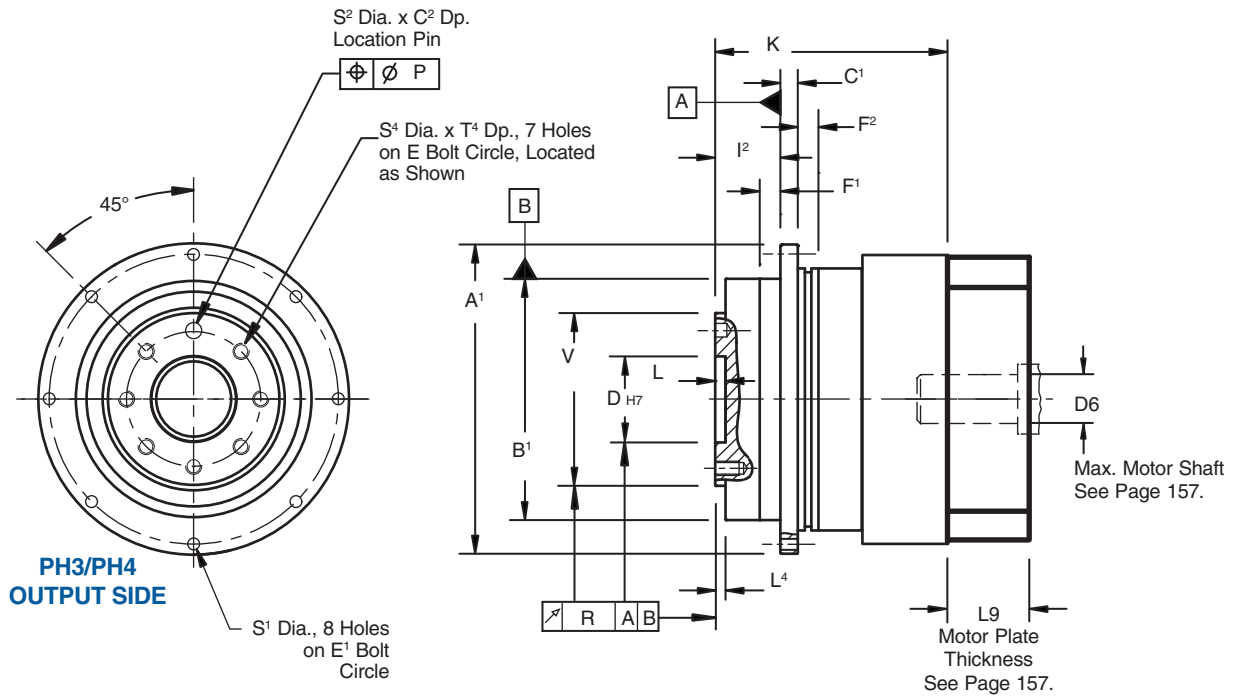
Typical ServoCool



"PH" Series— Large Input ServoFit® Precision Planetary Gearhead Dimensional Data



Drawing for Units
PH321_L thru PH923_L





"PH" Series– Large Input ServoFit® Precision Planetary Gearhead Dimensional Data



Table No. 1 "PH" Series – Large Input Gearhead – Dimensions (mm/inches)

Unit	A ¹	B ¹ h7	C ¹	C ²	D H7	E	E ¹	F ¹	F ²	I ²	L	L ²	L ⁴
PH321/PH322_L	86 3.39	64 2.520 +0.000/-0.012	4 6.16	3 .12	20 .787 +0.021/-0.0008/-0.0000	31.5 1.24	79 3.11	7 .28	8 .31	19.5 .77	4 .16	3 .12	3.5 .14
PH421/PH422_L	118 4.65	90 3.543 +0.000/-0.014	7 .28	7 .28	31.5 1.240 +0.025/-0.0010/-0.0000	50 1.97	109 4.29	10 .39	10 .39	30 1.18	6 .24	6 .24	6 .24
PH521/PH522_L	145 5.71	110 4.331 +0.000/-0.014	8 .32	7 .28	40 1.575 +0.025/-0.0010/-0.0000	63 2.48	135 5.31	10 .39	12 .47	29 1.14	6 .24	6 .24	6 .24
PH721/PH722_L	179 7.05	140 5.513 +0.000/-0.016	10 .39	7 .28	50 1.969 +0.025/-0.0010/-0.0000	80 3.15	168 6.61	12 .47	12 .47	38 1.50	6 .24	6 .24	6 .24
PH822_L	247 9.72	200 7.874 +0.000/-0.018	12 .47	10 .39	80 3.150 +0.030/-0.0012/-0.0000	125 4.92	233 9.17	15 .59	15 .59	50 1.97	8 .31	8 .31	8 .31
PH923_L	300 11.81	255 10.039 +0.000/-0.020	18 .71	—	90 3.543 +0.035/-0.0014/-0.0000	140 5.51	280 11.02	20 .79	20 .79	66 2.60	12 .47	11 .43	12 .47

Table No. 2 "PH" Series – Large Input – Dimensions (mm/inches)

Unit	P	R	S ¹	S ² H7	S ⁴	T ⁴	V h7
PH321/PH322_L	.02 .0008	.020 .0008	4.5 .18	5 .20 +0.012/-0.0005/-0.0000	M5	7 .28	40 1.575 +0.000/-0.025/-0.0010
PH421/PH422_L	.02 .0008	.020 .0008	5.5 .22	6 .236 +0.012/-0.0005/-0.0000	M6	10 .39	63 2.480 +0.000/-0.030/-0.0012
PH521/PH522_L	.02 .0008	.020 .0008	5.5 .22	6 .236 +0.012/-0.0005/-0.0000	M6	11 .43	80 3.150 +0.000/-0.030/-0.0012
PH721/PH722_L	.02 .0008	.025 .0010	6.6 .26	8 .315 +0.015/-0.0006/-0.0000	M8	14 .55	100 3.937 +0.000/-0.035/-0.0014
PH822_L	—	.030 .0012	9 .35	10 .393 +0.015/-0.0006/-0.0000	M10	18 .71	160 6.299 +0.000/-0.040/-0.0016
PH923_L	—	.030 .0012	13.5 .53	—	M16	24 .94	180 7.087 +0.000/-0.040/-0.0016

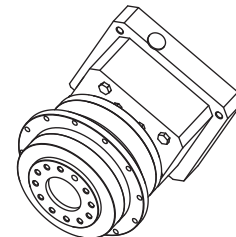
Table No. 3

Unit	K Dimension	
	mm	inches
PH321_L	84.5	3.33
PH322_L	121	4.76
PH421_L	117.5	4.63
PH422_L	150.5	5.93
PH521_L	124	4.88
PH522_L	171	6.73
PH721_L	155	6.10
PH722_L	204	8.03
PH822_L	268	10.55
PH923_L	274	10.79

Part No. Explanation

PH 4 2 1 F 0050 MT L

PH "PH" Series ServoFit Precision Planetary Gearhead
 4 Unit No.
 2 No. of Stages (1 = 1 Stage, 2 = 2 Stage)
 1 Output Flange
 F Motor Plate with TriAdapt Coupling
 0050 Ratio (0050 = 5.0:1)
 MT Large Input
 L Motor with TriAdapt Coupling



Typical 2 Stage Configuration

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)

"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Performance Specifications



Size			PHA321	PHA322	PHA421	PHA422	PHA521	PHA522	PHA721	PHA722	PHA821	PHA822	PHA912	PHA923	PHA1012	PHA1023
Acceleration Torque Max.	T _{2B}	in.lbs. Nm	575 65		1,150 130		2,832 320		6,195 700		17,700 2,000		37,612 4,250		66,375 7,500	
Output Torque Nominal ¹⁾	T _{2N}	in.lbs. Nm	398 45		796 90		1,947 220		3,894 440		11,062 1,250		22,125 2,500		35,400 4,000	
Input Speed Maximum	n _{1MAX}	Continuous Cyclic	3,800 6,000	4,500 8,000	3,500 6,000	4,500 8,000	3,300 6,000	4,000 7,000	3,000 5,000	3,700 6,500	2,500 4,000	3,300 6,000	2,800 4,500	2,500 4,500	2,800 4,500	2,500 4,500
ServoCool Input RPM Max.	n _{1MAX}	Continuous Cyclic	— —		4,500 6,000	— —	4,500 6,000	5,000 7,000	4,000 5,000	4,700 6,500	3,700 4,500	4,300 6,000	4,000 4,500	3,200 4,500	4,000 4,500	3,000 4,500
Torsional Backlash ²⁾	Δφ	arcmin	≤2		≤1		≤1		≤1		≤1		≤1		≤1	
Torsional Stiffness	C ₂	in.lbs./arcmin Nm/arcmin	≤106 ≤12		≤292 ≤33		≤708 ≤80		≤1,371 ≤155		≤3,752 ≤424		≤5,858 ≤662		≤9,673 ≤1,093	
Axial Load ³⁾ Maximum	F _{2AMAX}	lbs. N	371 1,650		484 2,150		934 4,150		1,384 6,150		2,260 10,050		7,425 33,000		11,250 50,000	
Tilting Moment ³⁾ Maximum	T _{2K}	in.lbs. Nm	885 100		2,301 260		3,894 440		13,275 1,500		30,975 3,500		57,525 6,500		77,880 8,800	
Tilting Stiffness	C _{2K}	in.lbs./arcmin Nm/arcmin	— —		1,416 160		2,655 300		4,425 500		13,718 1,550		48,675 5,500		84,075 9,500	
Efficiency (at Nominal Torque)	η	%	96% 94%		96% 94%		96% 94%		96% 94%		96% 94%		96% 94%		94% 92%	
Weight	m	pounds kg	4 1.8		9 3.9	10 4.6	15 6.6	18 8.1	27 12.3	32 14.6	76 34.6	88 39.8	157 71	139 63	190 86	216 98
Noise Level ⁴⁾	L _{PA}	dB(A)	≤61		≤62		≤63		≤64		≤65		≤65		≤65	
Balance Quality			Q 2.5 (Quality Class-2.5 millimeters per second)													
Lubrication			Synthetic Oil (ISO VG 150)													
Degree of Protection			IP65													
Mounting Position			Unrestricted													
Ambient Temperature			0°C to +40°C (104° F) Other temperatures, contact STÖBER Drives.													
Finish			Black (RAL 9005)													
Lifetime ⁵⁾	L _h	hours	L _h > 10,000 hours if T _{2K} /T _{2A} < 1.25 L _h > 20,000 hours if T _{2K} /T _{2A} > 1.25													
Warranty			5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)													

¹⁾ Ratings based on input speed (n_1) of 2000 RPM.

For torque at higher input speeds (T_{2NX}) solve the formula, where n_1 = Actual Input Speed. $T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$

²⁾ Tested at 1.5% of nominal torque and recorded on the input side of the gearhead.

³⁾ Rating based on output speed (n_2) of 100 RPM. For values at other speeds see Page 167.

⁴⁾ Measurement at one (1) meter distance with input speed (n_1) of 3000 RPM.

⁵⁾ T_{2A} equals actual tilting moment of the application. See Page 167 for calculation details.



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Features

The "PHA" Series ServoFit Precision Planetary Gearheads are designed for high demands of torsional stiffness and tilting rigidity. The "PHA" series is well suited where a smooth, precise, reliable drive is needed. All units are lubricated for life with synthetic oil and sealed on the smallest diameters possible with FKM radial oil seals to IP65 standards – reduces friction and prevents heat build up, increases efficiency, and prevents lubricant contamination for long life.

Some features are:

- Readily Attaches to Any Servo Motor
- Superior Torsional Stiffness
- 90-96% Efficiency
- Excellent Axial Load Capacity
- ≤ 1 arc minute backlash
- ISO Output Flange for Coupling Free Mounting
- Advanced HeliCamber® Gear Technology
- 5 Year Limited Warranty (2 Year on bearings, seals, etc.)
- Wide Selection of IEC, NEMA, or Customized* Motor Plates
- Ground and honed gearing

* Maximum 10 working day for custom motor plates.

Helical gears made with the proven experience of HeliCamber® gear technology provides the highest running smoothness – ensuring backlash stability and extremely quiet operation.

Ring gear machined integral to the housing – not welded or pressed in

Adapter bushings fit all motor shafts – no key required

FKM double-lip radial oil seals for continuous duty applications and very good chemical resistance.

Gears are case hardened to 61 Rockwell "C" and ground and honed for maximum accuracy.

Backlash ≤ 1 arcminute – Precision selection of parts ensure optimal performance without binding gear teeth – resulting in a more accurate and smooth direct drive

Single piece high tensile steel housing provides greater concentricity and more precise alignment – ensuring high running accuracy and precision.



Available as ServoCool in Sizes PH7 and PH8.

The FlexiAdapt® motor coupling is designed for large motor shaft diameters and features a bellows coupling to compensate for thermal expansion of the motor shaft—ensuring long motor life by preventing thrust load on the motor bearings.

Balanced clamp coupling for smooth operation at high speeds.

The FlexiAdapt® motor shaft adapter system allows easy and accurate installation of motor in minutes — no special tools required.

Blind pilot hole

The output flange dimensions are ISO 9409 and allow easy mounting to rotary or indexing tables, pinions, timing belt pulleys, transmission shafting, etc., without using a coupling.

Oversized tapered roller bearings and shafts for high radial load capacity and superior torsional stiffness

Precision selection of gears and parts ensures backlash of less than 1 arcminute.



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Input Speed Continuous Cyclic RPM (n _i)		Maximum Motor Shaft øD ⁶ mm	Maximum Moment of Inertia J ₁ kgcm ²	Mass Stiffness per arcmin C ₂ in.lbs. Nm		Torsional						Output Torque	
								Nominal ¹⁾		Acceleration		Peak ²⁾			
								T _{2N}		T _{2B}		T _{2PEAK}			
		in.lbs. Nm				in.lbs. Nm		in.lbs. Nm		in.lbs. Nm					
PHA321 with Motor Mounting Plate															
PHA321F0050MF	5.000	3,000	6,000	19	0.56	103	11.7	399	45	576	65	1,152	130		
PHA321F0050MFL	5.000	3,000	6,000	24	1.64	111	12.5	399	45	576	65	1,152	130		
PHA321F0070MF	7.000	3,500	6,000	19	0.52	95.8	10.8	399	45	531	60	1,152	130		
PHA321F0070MFL	7.000	3,500	6,000	24	1.58	100	11.3	399	45	531	60	1,152	130		
PHA321F0100MF	10.00	3,800	6,000	19	0.50	77.8	8.8	266	30	443	50	886	100		
PHA321F0100MFL	10.00	3,800	6,000	24	1.56	79.1	8.9	266	30	443	50	886	100		
PHA322 with Motor Mounting Plate															
PHA322F0200MF	20.00	4,500	8,000	14	0.20	89.7	10.1	399	45	576	65	1,152	130		
PHA322F0250MF	25.00	4,500	8,000	14	0.18	89.9	10.2	399	45	576	65	1,152	130		
PHA322F0280MF	28.00	4,500	8,000	14	0.20	90.3	10.2	399	45	531	60	1,152	130		
PHA322F0350MF	35.00	4,500	8,000	14	0.17	89.0	10.0	399	45	576	65	1,152	130		
PHA322F0400MF	40.00	4,500	8,000	14	0.20	76.0	8.6	266	30	443	50	886	100		
PHA322F0500MF	50.00	4,500	8,000	14	0.16	86.7	9.8	399	45	576	65	1,152	130		
PHA322F0700MF	70.00	4,500	8,000	14	0.16	88.7	10.0	399	45	531	60	1,152	130		
PHA322F1000MF	100.0	4,500	8,000	14	0.16	75.4	8.5	266	30	443	50	886	100		
PHA421 with Motor Mounting Plate															
PHA421F0040MF	4.000	2,300	5,000	24	2.15	294	33	753	85	1,152	130	2,126	240		
PHA421F0040MFC	4.000	3,300	5,000	24	2.46	283	32	753	85	1,152	130	2,126	240		
PHA421F0040MFL	4.000	2,300	5,000	32	5.26	311	35	753	85	1,152	130	2,126	240		
PHA421F0050MF	5.000	2,700	6,000	24	1.97	296	33	753	85	1,152	130	2,126	240		
PHA421F0050MFC	5.000	3,700	6,000	24	2.28	289	33	753	85	1,152	130	2,126	240		
PHA421F0050MFL	5.000	2,700	6,000	32	5.08	307	35	753	85	1,152	130	2,126	240		
PHA421F0070MF	7.000	3,200	6,000	24	1.79	260	29	753	85	974	110	2,126	240		
PHA421F0070MFC	7.000	4,200	6,000	24	2.13	260	29	753	85	974	110	2,126	240		
PHA421F0070MFL	7.000	3,200	6,000	32	4.85	265	30	753	85	974	110	2,126	240		
PHA421F0100MF	10.00	3,500	6,000	24	1.72	183	21	531	60	886	100	1,772	200		
PHA421F0100MFC	10.00	4,500	6,000	24	2.05	183	21	531	60	886	100	1,772	200		
PHA421F0100MFL	10.00	3,500	6,000	32	4.78	184	21	531	60	886	100	1,772	200		
PHA422 with Motor Mounting Plate Continued Next Page															
PHA422F0160MF	16.00	3,700	6,500	19	0.64	231	26	797	90	1,152	130	2,126	240		
PHA422F0160MFL	16.00	3,700	6,500	24	1.72	235	27	797	90	1,152	130	2,126	240		
PHA422F0200MF	20.00	3,700	6,500	19	0.63	252	28	797	90	1,152	130	2,126	240		
PHA422F0200MFL	20.00	3,700	6,500	24	1.70	255	29	797	90	1,152	130	2,126	240		
PHA422F0250MF	25.00	4,000	7,000	19	0.58	251	28	797	90	1,152	130	2,126	240		
PHA422F0250MFL	25.00	4,000	7,000	24	1.65	253	29	797	90	1,152	130	2,126	240		
PHA422F0280MF	28.00	4,500	8,000	19	0.53	220	25	797	90	1,152	130	2,126	240		
PHA422F0280MFL	28.00	4,500	8,000	24	1.59	222	25	797	90	1,152	130	2,126	240		
PHA422F0350MF	35.00	4,500	8,000	19	0.52	244	28	797	90	1,152	130	2,126	240		
PHA422F0350MFL	35.00	4,500	8,000	24	1.58	245	28	797	90	1,152	130	2,126	240		
PHA422F0400MF	40.00	4,500	8,000	19	0.50	214	24	797	90	1,152	130	2,126	240		
PHA422F0400MFL	40.00	4,500	8,000	24	1.56	214	24	797	90	1,152	130	2,126	240		
PHA422F0500MF	50.00	4,500	8,000	19	0.50	239	27	797	90	1,152	130	2,126	240		
PHA422F0500MFL	50.00	4,500	8,000	24	1.56	239	27	797	90	1,152	130	2,126	240		

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous	Cyclic					Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
		RPM (n ₁)	RPM (n ₁)			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

PHA422 with Motor Mounting Plate *Continued*

PHA422F0700MF	70.00	4,500	8,000	19	0.50	237	27	797	90	974	110	2,126	240
PHA422F0700MFL	70.00	4,500	8,000	24	1.56	237	27	797	90	974	110	2,126	240
PHA422F1000MF	100.0	4,500	8,000	19	0.50	177	20	531	60	886	100	1,772	200
PHA422F1000MFL	100.0	4,500	8,000	24	1.56	177	20	531	60	886	100	1,772	200

PHA521 with Motor Mounting Plate

PHA521F0040MF	4.000	2,200	5,000	32	5.03	679	77	1,860	210	2,835	320	4,915	555
PHA521F0040MFC	4.000	3,200	5,000	32	5.87	648	73	1,860	210	2,447	276	4,915	555
PHA521F0040MFL	4.000	2,200	5,000	38	12.12	753	85	1,860	210	2,835	320	4,915	555
PHA521F0050MF	5.000	2,500	5,500	32	5.85	705	80	1,860	210	2,835	320	5,315	600
PHA521F0050MFC	5.000	3,500	5,500	32	6.69	683	77	1,860	210	2,835	320	5,315	600
PHA521F0050MFL	5.000	2,500	5,500	38	12.94	754	85	1,860	210	2,835	320	5,315	600
PHA521F0070MF	7.000	3,000	6,000	32	5.30	627	71	1,860	210	2,392	270	5,315	600
PHA521F0070MFC	7.000	4,000	6,000	32	6.21	627	71	1,860	210	2,392	270	5,315	600
PHA521F0070MFL	7.000	3,000	6,000	38	12.13	650	73	1,860	210	2,392	270	5,315	600
PHA521F0100MF	10.00	3,300	6,000	32	5.05	473	53	1,240	140	2,215	250	4,429	500
PHA521F0100MFC	10.00	4,500	6,000	32	5.96	473	53	1,240	140	2,215	250	4,429	500
PHA521F0100MFL	10.00	3,300	6,000	38	11.88	479	54	1,240	140	2,215	250	4,429	500

PHA522 with Motor Mounting Plate

PHA522F0160MF	16.00	3,300	6,000	24	1.95	565	64	1,860	210	2,835	320	4,915	555
PHA522F0160MFC	16.00	4,300	6,000	24	2.26	562	63	1,860	210	2,835	320	4,915	555
PHA522F0160MFL	16.00	3,300	6,000	32	5.06	568	64	1,860	210	2,835	320	4,915	555
PHA522F0200MF	20.00	3,300	6,000	24	2.00	621	70	1,949	220	2,835	320	5,315	600
PHA522F0200MFC	20.00	4,300	6,000	24	2.31	619	70	1,949	220	2,835	320	5,315	600
PHA522F0200MFL	20.00	3,300	6,000	32	5.11	624	70	1,949	220	2,835	320	5,315	600
PHA522F0250MF	25.00	3,700	6,500	24	1.88	620	70	1,949	220	2,835	320	5,315	600
PHA522F0250MFC	25.00	4,500	6,500	24	2.19	619	70	1,949	220	2,835	320	5,315	600
PHA522F0250MFL	25.00	3,700	6,500	32	4.99	622	70	1,949	220	2,835	320	5,315	600
PHA522F0280MF	28.00	4,000	7,000	24	1.73	537	61	1,860	210	2,835	320	4,915	555
PHA522F0280MFC	28.00	5,000	7,000	24	2.06	537	61	1,860	210	2,835	320	4,915	555
PHA522F0280MFL	28.00	4,000	7,000	32	4.79	538	61	1,860	210	2,835	320	4,915	555
PHA522F0350MF	35.00	4,000	7,000	24	1.75	599	68	1,949	220	2,835	320	5,315	600
PHA522F0350MFC	35.00	5,000	7,000	24	2.08	599	68	1,949	220	2,835	320	5,315	600
PHA522F0350MFL	35.00	4,000	7,000	32	4.81	600	68	1,949	220	2,835	320	5,315	600
PHA522F0400MF	40.00	4,000	7,000	24	1.69	515	58	1,860	210	2,835	320	4,915	555
PHA522F0400MFC	40.00	5,000	7,000	24	2.02	515	58	1,860	210	2,835	320	4,915	555
PHA522F0400MFL	40.00	4,000	7,000	32	4.75	516	58	1,860	210	2,835	320	4,915	555
PHA522F0500MF	50.00	4,000	7,000	24	1.69	581	66	1,949	220	2,835	320	5,315	600
PHA522F0500MFC	50.00	5,000	7,000	24	2.03	581	66	1,949	220	2,835	320	5,315	600
PHA522F0500MFL	50.00	4,000	7,000	32	4.75	582	66	1,949	220	2,835	320	5,315	600
PHA522F0700MF	70.00	4,000	7,000	24	1.69	580	65	1,860	210	2,392	270	5,315	600
PHA522F0700MFC	70.00	5,000	7,000	24	2.02	580	65	1,860	210	2,392	270	5,315	600
PHA522F0700MFL	70.00	4,000	7,000	32	4.75	580	66	1,860	210	2,392	270	5,315	600
PHA522F1000MF	100.0	4,000	7,000	24	1.69	459	52	1,240	140	2,215	250	4,429	500
PHA522F1000MFC	100.0	5,000	7,000	24	2.02	459	52	1,240	140	2,215	250	4,429	500
PHA522F1000MFL	100.0	4,000	7,000	32	4.75	459	52	1,240	140	2,215	250	4,429	500

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Input Speed Continuous Cyclic RPM (n _i)		Maximum Motor Shaft øD ⁶ mm	Maximum Moment of Inertia J ₁ kgcm ²	Mass Stiffness per arcmin C ₂ in.lbs. Nm		Torsional				Output Torque	
								Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PHA721 with Motor Mounting Plate													
PHA721F0040MF	4.000	1,900	4,000	38	16.63	1,271	144	3,898	440	6,201	700	12,235	1,381
PHA721F0040MFC	4.000	2,400	4,000	38	22.42	1,271	144	3,898	440	6,201	700	12,235	1,381
PHA721F0040MFL	4.000	1,900	4,000	48	35.43	1,417	160	3,898	440	6,201	700	12,235	1,381
PHA721F0050MF	5.000	2,200	5,000	38	14.78	1,377	155	3,898	440	6,201	700	12,401	1,400
PHA721F0050MFC	5.000	3,000	5,000	38	20.58	1,377	155	3,898	440	6,201	700	12,401	1,400
PHA721F0050MFL	5.000	2,200	5,000	48	33.58	1,482	167	3,898	440	6,201	700	12,401	1,400
PHA721F0070MF	7.000	2,500	5,000	38	13.03	1,286	145	3,898	440	5,758	650	11,127	1,256
PHA721F0070MFC	7.000	3,500	5,000	38	18.82	1,286	145	3,898	440	5,758	650	11,127	1,256
PHA721F0070MFL	7.000	2,500	5,000	48	32.18	1,347	152	3,898	440	5,758	650	11,127	1,256
PHA721F0100MF	10.00	3,000	5,000	38	12.33	1,000	113	2,657	300	4,429	500	8,858	1,000
PHA721F0100MFC	10.00	4,000	5,000	38	18.13	1,000	113	2,657	300	4,429	500	8,858	1,000
PHA721F0100MFL	10.00	3,000	5,000	48	31.49	1,017	115	2,657	300	4,429	500	8,858	1,000
PHA722 with Motor Mounting Plate													
PHA722F0160MF	16.00	3,000	5,000	32	6.08	1,176	133	3,898	440	6,201	700	12,235	1,381
PHA722F0160MFC	16.00	4,000	5,000	32	6.92	1,170	132	3,898	440	6,201	700	12,235	1,381
PHA722F0160MFL	16.00	3,000	5,000	38	13.17	1,189	134	3,898	440	6,201	700	12,235	1,381
PHA722F0200MF	20.00	3,000	5,000	32	5.97	1,304	147	3,898	440	6,201	700	12,401	1,400
PHA722F0200MFC	20.00	4,000	5,000	32	6.81	1,299	147	3,898	440	6,201	700	12,401	1,400
PHA722F0200MFL	20.00	3,000	5,000	38	13.06	1,314	148	3,898	440	6,201	700	12,401	1,400
PHA722F0250MF	25.00	3,500	6,000	32	5.56	1,304	147	3,898	440	6,201	700	12,401	1,400
PHA722F0250MFC	25.00	4,200	6,000	32	6.40	1,301	147	3,898	440	6,201	700	12,401	1,400
PHA722F0250MFL	25.00	3,500	6,000	38	12.65	1,310	148	3,898	440	6,201	700	12,401	1,400
PHA722F0280MF	28.00	3,700	6,500	32	5.18	1,149	130	3,898	440	6,201	700	12,235	1,381
PHA722F0280MFC	28.00	4,500	6,500	32	6.10	1,149	130	3,898	440	6,201	700	12,235	1,381
PHA722F0280MFL	28.00	3,700	6,500	38	12.01	1,154	130	3,898	440	6,201	700	12,235	1,381
PHA722F0350MF	35.00	3,700	6,500	32	5.15	1,282	145	3,898	440	6,201	700	12,401	1,400
PHA722F0350MFC	35.00	4,500	6,500	32	6.06	1,282	145	3,898	440	6,201	700	12,401	1,400
PHA722F0350MFL	35.00	3,700	6,500	38	11.98	1,286	145	3,898	440	6,201	700	12,401	1,400
PHA722F0400MF	40.00	3,700	6,500	32	4.99	1,116	126	3,898	440	6,201	700	12,235	1,381
PHA722F0400MFC	40.00	4,700	6,500	32	5.91	1,116	126	3,898	440	6,201	700	12,235	1,381
PHA722F0400MFL	40.00	3,700	6,500	38	11.82	1,118	126	3,898	440	6,201	700	12,235	1,381
PHA722F0500MF	50.00	3,700	6,500	32	4.98	1,255	142	3,898	440	6,201	700	12,401	1,400
PHA722F0500MFC	50.00	4,700	6,500	32	5.89	1,255	142	3,898	440	6,201	700	12,401	1,400
PHA722F0500MFL	50.00	3,700	6,500	38	11.80	1,257	142	3,898	440	6,201	700	12,401	1,400
PHA722F0700MF	70.00	3,700	6,500	32	4.96	1,252	141	3,898	440	5,758	650	11,127	1,256
PHA722F0700MFC	70.00	4,700	6,500	32	5.87	1,252	141	3,898	440	5,758	650	11,127	1,256
PHA722F0700MFL	70.00	3,700	6,500	38	11.79	1,252	141	3,898	440	5,758	650	11,127	1,256
PHA722F1000MF	100.0	3,700	6,500	32	4.95	989	112	2,657	300	4,429	500	8,858	1,000
PHA722F1000MFC	100.0	4,700	6,500	32	5.87	989	112	2,657	300	4,429	500	8,858	1,000
PHA722F1000MFL	100.0	3,700	6,500	38	11.78	990	112	2,657	300	4,429	500	8,858	1,000

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque					
		Continuous	Cyclic					Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
								RPM (n ₁)	RPM (n ₁)	in.lbs.	Nm	in.lbs.	Nm
PHA821 with Motor Mounting Plate													
PHA821F0040MF	4.000	1,500	3,500	48	55.66	3,332	376	7,086	800	14,173	1,600	20,477	2,312
PHA821F0040MFC	4.000	2,200	3,500	48	70.14	3,527	398	7,086	800	14,173	1,600	20,477	2,312
PHA821F0050MF	5.000	1,700	4,000	48	46.67	3,611	408	8,858	1,000	15,059	1,700	25,596	2,890
PHA821F0050MFC	5.000	2,500	4,000	48	61.15	3,755	424	8,858	1,000	15,059	1,700	25,596	2,890
PHA821F0070MF	7.000	2,000	4,000	48	39.26	3,546	400	8,858	1,000	14,173	1,600	24,900	2,811
PHA821F0070MFC	7.000	3,200	4,000	48	53.73	3,546	400	8,858	1,000	14,173	1,600	24,900	2,811
PHA821F0100MF	10.00	2,500	4,000	48	35.44	2,657	300	7,086	800	10,630	1,200	21,259	2,400
PHA821F0100MFC	10.00	3,700	4,500	48	49.92	2,657	300	7,086	800	10,630	1,200	21,259	2,400
PHA822 with Motor Mounting Plate													
PHA822F0160MF	16.00	2,500	4,500	38	16.57	3,157	356	9,744	1,100	17,716	2,000	28,346	3,200
PHA822F0160MFC	16.00	3,250	4,500	38	19.37	3,157	356	9,744	1,100	17,716	2,000	28,346	3,200
PHA822F0160MFL	16.00	2,500	4,500	48	18.59	3,208	362	9,744	1,100	17,716	2,000	28,346	3,200
PHA822F0200MF	20.00	2,500	4,500	38	16.01	3,477	393	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0200MFC	20.00	3,300	4,500	38	18.80	3,477	393	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0200MFL	20.00	2,500	4,500	48	18.02	3,517	397	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0250MF	25.00	3,000	5,500	38	14.50	3,469	392	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0250MFC	25.00	3,800	5,500	38	17.29	3,469	392	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0250MFL	25.00	3,000	5,500	48	16.51	3,494	394	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0280MF	28.00	3,300	6,000	38	13.08	3,116	352	9,744	1,100	17,716	2,000	28,346	3,200
PHA822F0280MFC	28.00	4,000	6,000	38	15.87	3,116	352	9,744	1,100	17,716	2,000	28,346	3,200
PHA822F0280MFL	28.00	3,300	6,000	48	15.45	3,137	354	9,744	1,100	17,716	2,000	28,346	3,200
PHA822F0350MF	35.00	3,300	6,000	38	12.89	3,445	389	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0350MFC	35.00	4,000	6,000	38	15.69	3,445	389	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0350MFL	35.00	3,300	6,000	48	15.26	3,462	391	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0400MF	40.00	3,300	6,000	38	12.36	3,004	339	9,744	1,100	17,007	1,920	28,346	3,200
PHA822F0400MFC	40.00	4,300	6,000	38	15.15	3,004	339	9,744	1,100	17,007	1,920	28,346	3,200
PHA822F0400MFL	40.00	3,300	6,000	48	14.73	3,014	340	9,744	1,100	17,007	1,920	28,346	3,200
PHA822F0500MF	50.00	3,300	6,000	38	12.27	3,357	379	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0500MFC	50.00	4,300	6,000	38	15.06	3,357	379	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0500MFL	50.00	3,300	6,000	48	14.64	3,365	380	11,073	1,250	17,716	2,000	28,346	3,200
PHA822F0700MF	70.00	3,300	6,000	38	12.19	3,417	386	8,858	1,000	14,173	1,600	24,900	2,811
PHA822F0700MFC	70.00	4,300	6,000	38	14.99	3,417	386	8,858	1,000	14,173	1,600	24,900	2,811
PHA822F0700MFL	70.00	3,300	6,000	48	14.56	3,421	386	8,858	1,000	14,173	1,600	24,900	2,811
PHA822F1000MF	100.0	3,300	6,000	38	12.15	2,621	296	7,086	800	10,630	1,200	21,259	2,400
PHA822F1000MFC	100.0	4,300	6,000	38	14.95	2,621	296	7,086	800	10,630	1,200	21,259	2,400
PHA822F1000MFL	100.0	3,300	6,000	48	14.52	2,622	296	7,086	800	10,630	1,200	21,259	2,400

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Input Speed Continuous Cyclic RPM (n ₁)		Maximum Motor Shaft øD ⁶ mm	Maximum Moment of Inertia J ₁ kgcm ²	Mass Stiffness per arcmin C ₂ in.lbs. Nm		Torsional				Output Torque			
								Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}			
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
PHA912 with Motor Mounting Plate															
PHA912F0160MF	16.00	2,200	3,500	48	53.54	5,150	581	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0160MFC	16.00	2,900	3,500	48	69.44	5,178	585	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0180MF	18.00	1,800	3,000	48	75.67	5,795	654	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0180MFC	18.00	2,700	3,000	48	91.57	5,823	657	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0200MF	20.00	2,500	4,000	48	44.71	5,165	583	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0200MFC	20.00	3,300	4,000	48	60.61	5,183	585	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0240MF	24.00	2,200	3,500	48	50.14	5,842	660	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0240MFC	24.00	2,900	3,500	48	66.04	5,858	661	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0280MF	28.00	2,800	4,500	48	38.30	5,128	579	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0280MFC	28.00	4,000	4,500	48	54.20	5,128	579	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0300MF	30.00	2,500	4,000	48	42.53	5,851	661	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0300MFC	30.00	3,500	4,000	48	58.43	5,861	662	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0320MF	32.00	2,800	4,500	48	36.64	5,077	573	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0320MFC	32.00	4,000	4,500	48	52.54	5,077	573	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0400MF	40.00	2,800	4,500	48	34.97	5,000	564	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0400MFC	40.00	4,000	4,500	48	50.87	5,000	564	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0420MF	42.00	2,800	4,500	48	37.19	5,829	658	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0420MFC	42.00	4,000	4,500	48	53.09	5,829	658	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0480MF	48.00	2,800	4,500	48	35.79	5,800	655	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0480MFC	48.00	4,000	4,500	48	51.69	5,800	655	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0600MF	60.00	2,800	4,500	48	34.42	5,755	650	22,145	2,500	37,647	4,250	75,293	8,500		
PHA912F0600MFC	60.00	4,000	4,500	48	50.32	5,755	650	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923 with Motor Mounting Plate															
PHA923F0610MF	61.00	2,500	4,500	38	54.76	3,534	399	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923F0610MFC	61.00	3,200	4,500	38	60.56	3,534	399	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923F0610MFL	61.00	2,500	4,500	48	73.56	3,538	399	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923F0910MF	91.00	2,500	4,500	38	50.61	3,538	399	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923F0910MFC	91.00	3,200	4,500	38	56.41	3,538	399	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923F0910MFL	91.00	2,500	4,500	48	69.77	3,540	400	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923F1210MF	121.0	2,500	4,500	38	49.23	3,540	400	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923F1210MFC	121.0	3,200	4,500	38	55.02	3,540	400	22,145	2,500	37,647	4,250	75,293	8,500		
PHA923F1210MFL	121.0	2,500	4,500	48	68.39	3,542	400	22,145	2,500	37,647	4,250	75,293	8,500		

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous RPM (n _i)	Cyclic RPM			in.lbs.	Nm	Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
								in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PHA1012 with Motor Mounting Plate													
PHA1012F0180MF	18.00	1,800	3,000	48	78.82	9,502	1,073	35,432	4,000	61,226	6,912	89,266	10,077
PHA1012F0180MFC	18.00	2,500	3,000	48	94.72	9,576	1,081	35,432	4,000	61,226	6,912	89,266	10,077
PHA1012F0240MF	24.00	2,200	3,500	48	51.91	9,628	1,087	35,432	4,000	66,435	7,500	119,022	13,437
PHA1012F0240MFC	24.00	2,700	3,500	48	67.81	9,671	1,092	35,432	4,000	66,435	7,500	119,022	13,437
PHA1012F0300MF	30.00	2,500	4,000	48	43.66	9,651	1,090	35,432	4,000	66,435	7,500	132,870	15,000
PHA1012F0300MFC	30.00	3,200	4,000	48	59.57	9,679	1,093	35,432	4,000	66,435	7,500	132,870	15,000
PHA1012F0420MF	42.00	2,800	4,500	48	37.77	9,593	1,083	35,432	4,000	66,435	7,500	132,870	15,000
PHA1012F0420MFC	42.00	4,000	4,500	48	53.67	9,593	1,083	35,432	4,000	66,435	7,500	132,870	15,000
PHA1012F0480MF	48.00	2,800	4,500	48	36.23	9,514	1,074	35,432	4,000	61,226	6,912	132,870	15,000
PHA1012F0480MFC	48.00	4,000	4,500	48	52.13	9,514	1,074	35,432	4,000	61,226	6,912	132,870	15,000
PHA1012F0600MF	60.00	2,800	4,500	48	34.71	9,394	1,060	35,432	4,000	61,226	6,912	132,870	15,000
PHA1012F0600MFC	60.00	4,000	4,500	48	50.61	9,394	1,060	35,432	4,000	61,226	6,912	132,870	15,000
PHA1023 with Motor Mounting Plate													
PHA1023F0610MF	61.00	2,500	4,500	48	152.86	4,861	549	35,432	4,000	66,435	7,500	132,870	15,000
PHA1023F0610MFC	61.00	3,000	4,500	48	167.34	4,862	549	35,432	4,000	66,435	7,500	132,870	15,000
PHA1023F0910MF	91.00	2,500	4,500	48	127.47	4,867	549	35,432	4,000	66,435	7,500	132,870	15,000
PHA1023F0910MFC	91.00	3,000	4,500	48	141.94	4,867	549	35,432	4,000	66,435	7,500	132,870	15,000

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Dimensional Data



Drawing for Units
PHA321 thru PHA1023

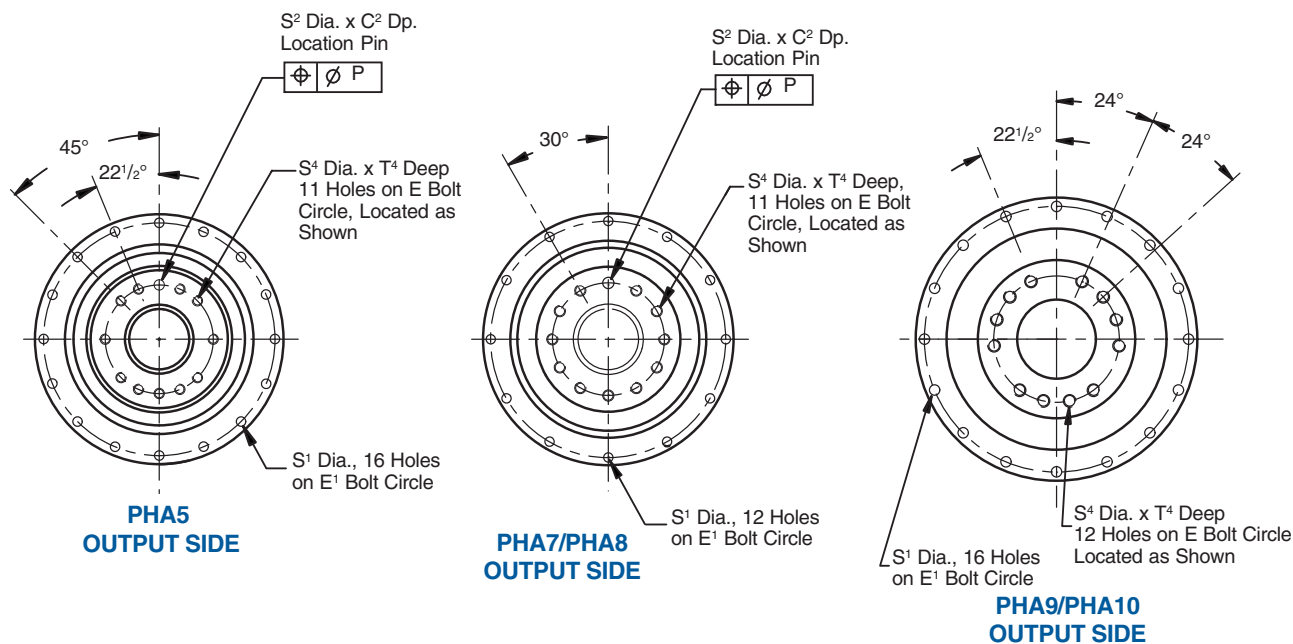
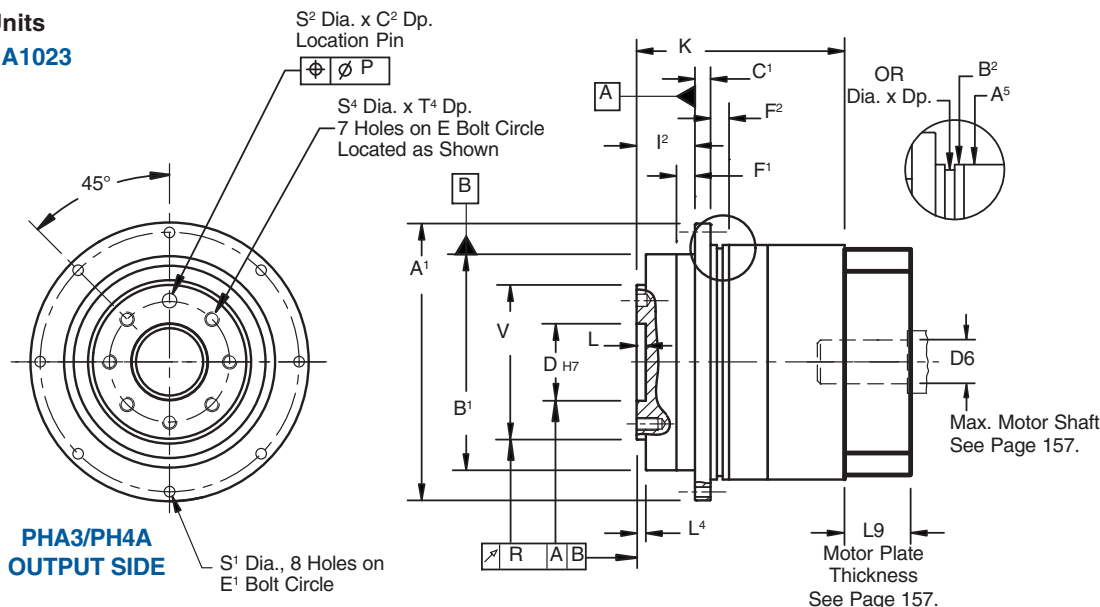


Table No. 1 "PHA" Series – Advanced Gearhead with Motor Plate – Dimensions (mm/inches)

Unit	A ¹	A ⁵	B ¹	h ₇	B ²	h ₇	C ¹	C ²	D	h ₇	E	E ¹	F ¹	F ²	I ²	L	L ²	L ⁴	OR
PHA321/PHA322	86	70	64	+0.00/-0.030	70 *	+0.00/-0.030	4	3	20	+0.021/-0	31.5	79	7	8	19.5	4	3	3.5	65x2
	3.39	2.76	2.520	+0.000/-0.012	2.756	+0.000/-0.012	.16	.12	.787	+0.0008/-0.0000	1.24	3.11	.28	.31	.77	.16	.12	.14	2.55x.08
PHA421/PHA422	118	95	90	+0.00/-0.035	95	+0.00/-0.035	7	7	31.5	+0.025/-0	50	109	10	10	30	6	6	6	90x3
	4.65	3.74	3.543	+0.000/-0.014	3.740	+0.000/-0.014	.28	.28	1.240	+0.010/-0.0000	1.97	4.29	.39	.39	1.18	.24	.24	.24	3.54x.12
PHA521/PHA522	145	120	110	+0.00/-0.035	120 *	+0.00/-0.035	8	7	40	+0.025/-0	63	135	10	12	29	6	6	6	110x3
	5.71	4.72	4.331	+0.000/-0.014	4.724	+0.000/-0.014	.32	.28	1.575	+0.010/-0.0000	2.48	5.31	.39	.47	1.14	.24	.24	.24	4.33x.12
PHA721/PHA722	179	152	140	+0.00/-0.040	152	+0.00/-0.040	10	7	50	+0.025/-0	80	168	12	12	38	6	6	6	145x3
	7.05	5.98	5.513	+0.000/-0.016	5.984	+0.000/-0.016	.39	.28	1.969	+0.010/-0.0000	3.15	6.61	.47	.47	1.50	.24	.24	.24	5.71x.12
PHA821/PHA822	247	212	200	+0.00/-0.046	212	+0.00/-0.046	12	10	80	+0.030/-0	125	233	15	15	50	8	8	8	200x5
	9.72	8.35	7.874	+0.000/-0.018	8.346	+0.000/-0.018	.47	.39	3.150	+0.012/-0.0000	4.92	9.17	.59	.59	1.97	.31	.31	.31	7.87x.20
PHA912/PHA923	300	152	255	+0.00/-0.052	255	+0.00/-0.052	18	—	90	+0.035/-0	140	280	20	20	66	12	11	12	238x5
	11.81	5.98	10.039	+0.00/-0.020	10.039	+0.000/-0.020	.71	—	3.543	+0.014/-0.0000	5.51	11.02	.79	.79	2.60	.47	.43	.47	9.37x.20
PHA1012/PHA1023	330	212	285	+0.00/-0.057	285	+0.00/-0.052	20	—	95	+0.035/-0	160	310	20	20	75	10	15	15	270x6
	12.99	8.35	11.220	+0.00/-0.022	11.221	+0.000/-0.020	.79	—	3.740	+0.014/-0.0000	6.30	12.20	.79	.79	2.95	.39	.59	.59	10.63x.24

* Not applicable for PHA322 and PHA522.



"PHA" Series—Advanced ServoFit® Precision Planetary Gearhead Dimensional Data



Table No. 2 "PHA" Series – Dimensions (mm/inches)

Unit	P	R	S ¹	S ²	H7	S ⁴	T ⁴	V	h7
PHA321/PHA322	.02 .0008	.020 .0008	4.5 .18	5 .20	+0.012/-0.000 +0.0005/-0.0000	M5	7 .28	40 1.575	+0.000/-0.025 +0.000/-0.0010
PHA421/PHA422	.02 .0008	.020 .0008	5.5 .22	6 .236	+0.012/-0.000 +0.0005/-0.0000	M6	10 .39	63 2.480	+0.000/-0.030 +0.000/-0.0012
PHA521/PHA522	.02 .0008	.020 .0008	5.5 .22	6 .236	+0.012/-0.000 +0.0005/-0.0000	M6	11 .43	80 3.150	+0.000/-0.030 +0.000/-0.0012
PHA721/PHA722	.02 .0008	.025 .0010	6.6 .26	8 .315	+0.015/-0.000 +0.0005/-0.0000	M8	14 .55	100 3.937	+0.000/-0.035 +0.000/-0.0014
PHA821/PHA822	— .0012	.030 .35	9 .393	10 .393	+0.015/-0.000 +0.0005/-0.0000	M10	18 .71	160 6.299	+0.000/-0.040 +0.000/-0.0016
PHA912/PHA923	— .0012	.030 .53	13.5 .53	—	—	M16	24 .94	180 7.087	+0.000/-0.040 +0.000/-0.0016
PHA1012/PHA1023	— .0016	.040 .53	13.5 .53	—	—	M20	30 1.18	200 7.874	+0.000/-0.046 +0.000/-0.0018

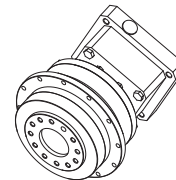
Table No. 3 K Dimension

Standard			ServoCool		
Unit	mm	inches	Unit	mm	inches
PHA321	80.5	3.17	—	—	—
PHA322	104	4.09	—	—	—
PHA421	106	4.17	PHA421_C	82.5	3.24
PHA422	146.5	5.77	—	—	—
PHA521	110	4.33	PHA521_C	138	5.43
PHA522	159.5	6.28	PHA522_C	183	7.20
PHA721	138	5.43	PHA721_C	168	6.61
PHA722	190	7.48	PHA722_C	218	8.58
PHA821	183	7.20	PHA821_C	231	9.09
PHA822	251	9.88	PHA822_C	281	11.06
PHA912	336.5	13.24	PHA921_C	384.5	15.14
PHA923	257	10.12	PHA923_C	287	11.30
PHA1012	366	14.41	PHA1012_C	414	16.30
PHA1023	307	12.09	PHA1023_C	355	13.98

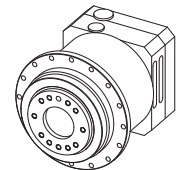
Part No. Explanation

PHA 5 2 1 F 0050 MF C

Option for ServoCool
Motor Plate with FlexiAdapt Coupling
Ratio (0050 = 5.0:1)
Output Flange
No. of Stages (1 = 1 Stage, 2 = 2 Stage)
Generation No.
Unit No.
Advanced "PHA" Series ServoFit Precision Planetary Gearhead



Typical 2 Stage Configuration



Typical ServoCool

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)

Large Input – Dimensional Data

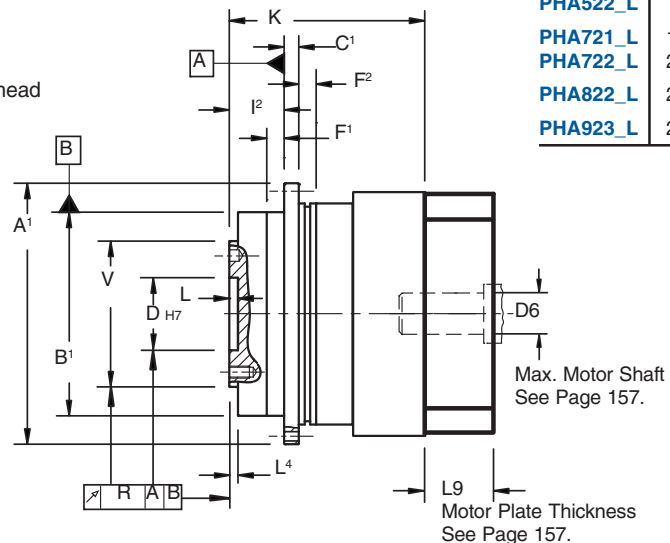
Part No. Explanation

PHA 5 2 1 F 0050 MF L

Large Input
Motor Plate with FlexiAdapt Coupling
Ratio (0050 = 5.0:1)
Output Flange
No. of Stages (1 = 1 Stage, 2 = 2 Stage)
Generation No.
Unit No.
Advanced "PHA" Series ServoFit Precision Planetary Gearhead

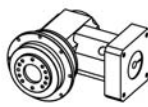
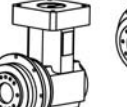
Table No. 4

Unit	K Dimension	
	mm	inches
PHA321_L	84.5	3.33
PHA322_L	121	4.76
PHA421_L	117.5	4.63
PHA422_L	150.5	5.93
PHA521_L	124	4.88
PHA522_L	171	6.73
PHA721_L	155	6.10
PHA722_L	204	8.03
PHA822_L	268	10.55
PHA923_L	274	10.79



"PHKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Performance Specifications



Size			PH321 KX3	PH322 KX3	PH421 KX4	PH422 KX3	PH521 KX5	PH522 KX4	PH721 KX7	PH722 KX5	PH821 KX8	PH822 KX7	PH922 KX8					
Acceleration Torque Maximum	T _{2B}	in.lbs. Nm	558 63	576 65	1,071 121	1,105 130	2,708 306	2,832 320	5,753 650	6,195 700	14,160 1,600	17,700 2,000	37,612 4250					
Output Torque ¹⁾ Nominal	T _{2N}	in.lbs. Nm	398 45		797 90		1,947 220		3,894 440		8,850 1,000	11,063 1,250	22,125 2,500					
Input Speed Maximum	n _{1MAX}	Continuous Cyclic	3,500 6,000		3,000 4,500	3,500 6,000	3,000 4,500		2,100 3,500	3,000 4,000	1,300 3,000	2,100 3,500	1,300 3,000					
Torsional Backlash ²⁾ Δφ		arcmin	≤4	≤6	≤3	≤5.5	≤3	≤5.5	≤3	≤5.5	≤3	≤5.5	≤3.5					
Torsional Stiffness Maximum	C ₂	in.lbs./arcmin Nm/arcmin	69 7.8	88 10	168 19	230 26	416 47	575 65	1,053 119	1,239 140	2,505 283	3,407 385	5,717 646					
Axial Load ³⁾ Maximum	F _{2AMAX}	lbs. N	371 1,650		484 2,150		934 4,150		1,384 6,150		2,261 10,050		7,425 33,000					
Tilting Moment ³⁾ Maximum	T _{2K}	in.lbs. Nm	885 100		2,301 260		3,894 440		2,593 1,500		30,975 3,500		57,525 6,500					
Weight	m	pounds kg	8 3.5	9 4.0	12 5.5	14 6.3	28 12.9	24 10.9	52 23.5	46 20.9	124 56	112 51	203 92.0					
Noise Level ⁴⁾	L _{PA}	dB(A)	≤70		≤70	≤70	≤72	≤70	≤72		≤74	≤72	≤74					
Efficiency at Nominal Torque	η	%	≥93 - 96															
Balance Quality	Q 2.5 (Quality Class - 2.5 millimeters per second)																	
Lubrication	Synthetic Oil (ISO VG 150)																	
Mounting Position	EL1 													EL2 	EL3 	EL4 	EL5 	EL6 
Direction of Rotation	See Page 156 for direction of rotation.																	
Ambient Temperature	0°C to +40°C (104° F) Other temperatures, contact STOBER Drives.																	
Finish	Black (RAL 9005)																	
Lifetime ⁵⁾	L _h	hours	L _h > 10,000 hours if T _{2K} /T _{2A} < 1.25 L _h > 20,000 hours if T _{2K} /T _{2A} > 1.25															
Warranty	5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)																	

¹⁾ Ratings based on input speed (n₁) of 2000 RPM.

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.

²⁾ Tested at 1.5% of nominal torque and recorded on the input side of the gearhead.

³⁾ Rating based on output speed (n₂) of 100 RPM. For values at other speeds see Page 167.

⁴⁾ Measurement at one (1) meter distance with input speed (n₁) of 3000 RPM.

⁵⁾ T_{2A} equals actual tilting moment of the application. See Page 167 for overhung loads.

$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

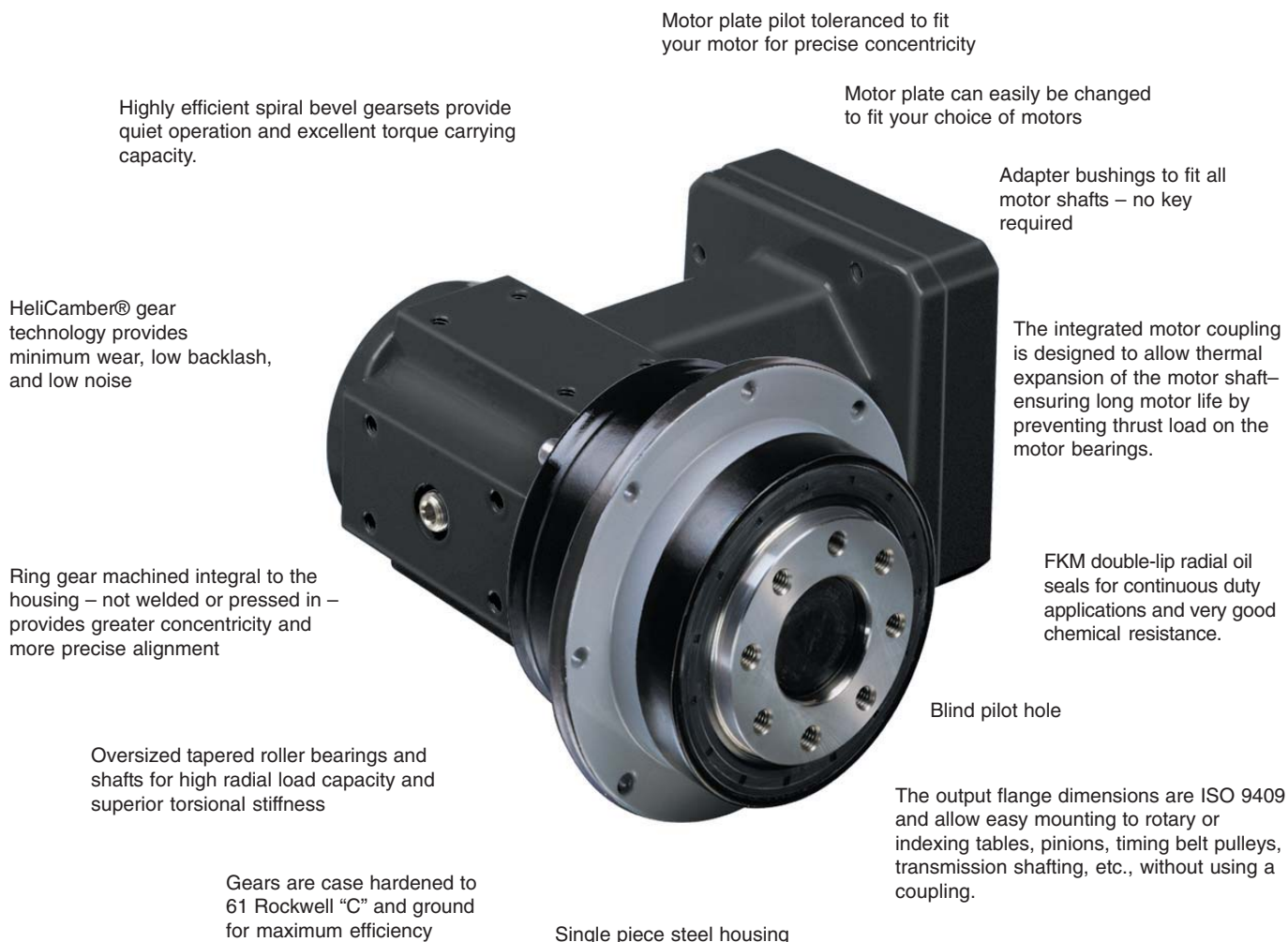


"PHKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Features

The "PHKX" Series combines the "PH" Series ServoFit Precision Planetary Gearheads with a right angle to provide a configuration that is a smooth, precise, and reliable drive with the benefit of direct mounting to many types of equipment without a coupling. All units are lubricated for life with synthetic oil and sealed to IP65 standards to prevent lubricant contamination for long life.

Some features are:

- High Axial Load Capacity
- Superior Torsional Stiffness
- 5-300:1 Ratio Range
- Wide Selection of IEC, NEMA, or Customized Motor Wide Plates
- Lowest Backlash
- Advanced Helical Gear Technology
- 5 Year Limited Warranty (2 Year on bearings, seals, etc.)





"PHKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Max. Input RPM (n ₁)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque					
		Continuous		Cyclic					Nominal ¹⁾ T _{2N} in.lbs. Nm		Acceleration T _{2B} in.lbs. Nm		Peak ²⁾ T _{2PEAK} in.lbs. Nm	
		Mounting Position												
		EL 1,2,5,6	EL 3,4	All										
PH321_KX3 with Motor Mounting Plate														
PH321F0050 KX301VF0010 MF	5.000	3,000	2,500	4,000	19	1.08	56.5	6.4	399	45	553	62	935	106
PH321F0070 KX301VF0010 MF	7.000	3,000	2,500	4,000	19	1.04	69.3	7.8	399	45	531	60	1,152	130
PH321F0050 KX301VF0020 MF	10.00	3,500	3,000	5,000	19	0.82	56.5	6.4	399	45	553	62	1,063	120
PH321F0070 KX301VF0020 MF	14.00	3,500	3,000	5,000	19	0.81	69.3	7.8	399	45	531	60	1,152	130
PH321F0050 KX301VF0030 MF	15.00	3,500	3,500	6,000	19	0.75	56.5	6.4	399	45	553	62	1,063	120
PH321F0100 KX301VF0020 MF	20.00	3,500	3,000	5,000	19	0.81	67.6	7.6	266	30	443	50	886	100
PH321F0070 KX301VF0030 MF	21.00	3,500	3,500	6,000	19	0.75	69.3	7.8	399	45	531	60	1,152	130
PH321F0100 KX301VF0030 MF	30.00	3,500	3,500	6,000	19	0.75	67.6	7.6	266	30	443	50	886	100
PH322_KX3 with Motor Mounting Plate														
PH322F0350 KX301VF0010 MF	35.00	3,000	2,500	4,000	19	1.02	87.9	9.9	399	45	576	65	1,152	130
PH322F0200 KX301VF0020 MF	40.00	3,500	3,000	5,000	19	0.81	86.0	9.7	399	45	576	65	1,152	130
PH322F0250 KX301VF0020 MF	50.00	3,500	3,000	5,000	19	0.81	87.6	9.9	399	45	576	65	1,152	130
PH322F0280 KX301VF0020 MF	56.00	3,500	3,000	5,000	19	0.81	88.4	10.0	399	45	531	60	1,152	130
PH322F0200 KX301VF0030 MF	60.00	3,500	3,500	6,000	19	0.75	86.0	9.7	399	45	576	65	1,152	130
PH322F0350 KX301VF0020 MF	70.00	3,500	3,000	5,000	19	0.81	87.9	9.9	399	45	576	65	1,152	130
PH322F0250 KX301VF0030 MF	75.00	3,500	3,500	6,000	19	0.75	87.6	9.9	399	45	576	65	1,152	130
PH322F0400 KX301VF0020 MF	80.00	3,500	3,000	5,000	19	0.81	75.3	8.5	266	30	443	50	886	100
PH322F0280 KX301VF0030 MF	84.00	3,500	3,500	6,000	19	0.75	88.4	10.0	399	45	531	60	1,152	130
PH322F0500 KX301VF0020 MF	100.0	3,500	3,000	5,000	19	0.80	86.2	9.7	399	45	576	65	1,152	130
PH322F0350 KX301VF0030 MF	105.0	3,500	3,500	6,000	19	0.75	87.9	9.9	399	45	576	65	1,152	130
PH322F0400 KX301VF0030 MF	120.0	3,500	3,500	6,000	19	0.75	75.3	8.5	266	30	443	50	886	100
PH322F0700 KX301VF0020 MF	140.0	3,500	3,000	5,000	19	0.80	88.5	10.0	399	45	531	60	1,152	130
PH322F0500 KX301VF0030 MF	150.0	3,500	3,500	6,000	19	0.75	86.2	9.7	399	45	576	65	1,152	130
PH322F1000 KX301VF0020 MF	200.0	3,500	3,000	5,000	19	0.80	75.4	8.5	266	30	443	50	886	100
PH322F0700 KX301VF0030 MF	210.0	3,500	3,500	6,000	19	0.75	88.5	10.0	399	45	531	60	1,152	130
PH322F1000 KX301VF0030 MF	300.0	3,500	3,500	6,000	19	0.75	75.4	8.5	266	30	443	50	886	100

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed.
$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PHKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Max. Input RPM (n ₁)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque					
		Continuous		Cyclic					Nominal ¹⁾		Acceleration		Peak ²⁾	
		Mounting Position							T _{2N}		T _{2B}		T _{2PEAK}	
		EL 1,2,5,6	EL 3,4	All										
PH421_KX4 with Motor Mounting Plate														
PH421F0040 KX401VF0010 MF	4.00	2,500	2,000	3,500	24	2.84	100.5	11.3	680	77	850	96	1,701	192
PH421F0050 KX401VF0010 MF	5.00	2,500	2,000	3,500	24	2.66	132.2	14.9	753	85	1,063	120	2,126	240
PH421F0070 KX401VF0010 MF	7.00	2,500	2,000	3,500	24	2.51	168.2	19.0	753	85	974	110	2,126	240
PH421F0040 KX401VF0020 MF	8.00	2,500	2,500	4,000	24	1.74	100.5	11.3	680	77	850	96	1,701	192
PH421F0050 KX401VF0020 MF	10.00	2,500	2,500	4,000	24	1.70	132.2	14.9	797	90	1,063	120	2,126	240
PH421F0070 KX401VF0020 MF	14.00	2,500	2,500	4,000	24	1.66	168.2	19.0	797	90	974	110	2,126	240
PH421F0050 KX401VF0030 MF	15.00	3,000	3,000	4,500	24	1.47	132.2	14.9	797	90	1,063	120	2,126	240
PH421F0100 KX401VF0020 MF	20.00	2,500	2,500	4,000	24	1.64	153.7	17.4	531	60	886	100	1,772	200
PH421F0070 KX401VF0030 MF	21.00	3,000	3,000	4,500	24	1.45	168.2	19.0	797	90	974	110	2,126	240
PH421F0100 KX401VF0030 MF	30.00	3,000	3,000	4,500	24	1.44	153.7	17.4	531	60	886	100	1,772	200
PH422_KX3 with Motor Mounting Plate														
PH422F0350 KX301VF0010 MF	35.00	3,000	2,500	4,000	19	1.05	234.6	26.5	797	90	1,152	130	2,126	240
PH422F0200 KX301VF0020 MF	40.00	3,500	3,000	5,000	19	0.84	223.8	25.3	797	90	1,152	130	2,126	240
PH422F0160 KX301VF0030 MF	48.00	3,500	3,500	6,000	19	0.76	195.8	22.1	797	90	1,152	130	2,126	240
PH422F0250 KX301VF0020 MF	50.00	3,500	3,000	5,000	19	0.82	232.7	26.3	797	90	1,152	130	2,126	240
PH422F0280 KX301VF0020 MF	56.00	3,500	3,000	5,000	19	0.81	208.9	23.6	797	90	1,152	130	2,126	240
PH422F0200 KX301VF0030 MF	60.00	3,500	3,500	6,000	19	0.76	223.8	25.3	797	90	1,152	130	2,126	240
PH422F0350 KX301VF0020 MF	70.00	3,500	3,000	5,000	19	0.81	234.6	26.5	797	90	1,152	130	2,126	240
PH422F0250 KX301VF0030 MF	75.00	3,500	3,500	6,000	19	0.76	232.7	26.3	797	90	1,152	130	2,126	240
PH422F0400 KX301VF0020 MF	80.00	3,500	3,000	5,000	19	0.81	208.3	23.5	797	90	1,152	130	2,126	240
PH422F0280 KX301VF0030 MF	84.00	3,500	3,500	6,000	19	0.75	208.9	23.6	797	90	1,152	130	2,126	240
PH422F0500 KX301VF0020 MF	100.0	3,500	3,000	5,000	19	0.81	234.2	26.4	797	90	1,152	130	2,126	240
PH422F0350 KX301VF0030 MF	105.0	3,500	3,500	6,000	19	0.75	234.6	26.5	797	90	1,152	130	2,126	240
PH422F0400 KX301VF0030 MF	120.0	3,500	3,500	6,000	19	0.75	208.3	23.5	797	90	1,152	130	2,126	240
PH422F0700 KX301VF0020 MF	140.0	3,500	3,000	5,000	19	0.81	234.5	26.5	797	90	974	110	2,126	240
PH422F0500 KX301VF0030 MF	150.0	3,500	3,500	6,000	19	0.75	234.2	26.4	797	90	1,152	130	2,126	240
PH422F1000 KX301VF0020 MF	200.0	3,500	3,000	5,000	19	0.81	176.0	19.9	531	60	886	100	1,772	200
PH422F0700 KX301VF0030 MF	210.0	3,500	3,500	6,000	19	0.75	234.5	26.5	797	90	974	110	2,126	240
PH422F1000 KX301VF0030 MF	300.0	3,500	3,500	6,000	19	0.75	176.0	19.9	531	60	886	100	1,772	200

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PHKX" Series–Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Max. Input RPM (n ₁)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous		Cyclic					Nominal ¹⁾		Acceleration		Peak ²⁾	
		Mounting Position							T _{2N}		T _{2B}		T _{2PEAK}	
		EL 1,2,5,6	EL 3,4	All			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
PH521_KX5 with Motor Mounting Plate														
PH521F0040 KX501VF0010 MF	4.000	2,500	2,000	3,000	32	7.62	244.4	27.6	1,701	192	2,143	242	4,252	480
PH521F0050 KX501VF0010 MF	5.000	2,500	2,000	3,000	32	8.44	323.1	36.5	1,860	210	2,679	302	5,315	600
PH521F0070 KX501VF0010 MF	7.000	2,500	2,000	3,000	32	7.97	412.2	46.5	1,860	210	2,392	270	5,315	600
PH521F0040 KX501VF0020 MF	8.000	2,500	2,500	3,500	32	5.31	244.4	27.6	1,701	192	2,143	242	4,252	480
PH521F0050 KX501VF0020 MF	10.00	2,500	2,500	3,500	32	5.52	323.1	36.5	1,949	220	2,679	302	5,315	600
PH521F0070 KX501VF0020 MF	14.00	2,500	2,500	3,500	32	5.40	412.2	46.5	1,860	210	2,392	270	5,315	600
PH521F0050 KX501VF0030 MF	15.00	3,000	3,000	4,000	32	4.88	323.1	36.5	1,949	220	2,679	302	5,315	600
PH521F0100 KX501VF0020 MF	20.00	2,500	2,500	3,500	32	5.33	396.4	44.7	1,240	140	2,215	250	4,429	500
PH521F0070 KX501VF0030 MF	21.00	3,000	3,000	4,000	32	4.83	412.2	46.5	1,860	210	2,392	270	5,315	600
PH521F0100 KX501VF0030 MF	30.00	3,000	3,000	4,000	32	4.80	396.4	44.7	1,240	140	2,215	250	4,429	500
PH522_KX4 with Motor Mounting Plate														
PH522F0350 KX401VF0010 MF	35.00	2,500	2,000	3,500	24	2.46	570.4	64.4	1,949	220	2,835	320	5,315	600
PH522F0200 KX401VF0020 MF	40.00	2,500	2,500	4,000	24	1.71	534.1	60.3	1,949	220	2,835	320	5,315	600
PH522F0160 KX401VF0030 MF	48.00	3,000	3,000	4,500	24	1.46	458.5	51.8	1,860	210	2,835	320	4,915	555
PH522F0250 KX401VF0020 MF	50.00	2,500	2,500	4,000	24	1.68	561.6	63.4	1,949	220	2,835	320	5,315	600
PH522F0280 KX401VF0020 MF	56.00	2,500	2,500	4,000	24	1.64	501.4	56.6	1,860	210	2,835	320	4,915	555
PH522F0200 KX401VF0030 MF	60.00	3,000	3,000	4,500	24	1.47	534.1	60.3	1,949	220	2,835	320	5,315	600
PH522F0350 KX401VF0020 MF	70.00	2,500	2,500	4,000	24	1.65	570.4	64.4	1,949	220	2,835	320	5,315	600
PH522F0250 KX401VF0030 MF	75.00	3,000	3,000	4,500	24	1.46	561.6	63.4	1,949	220	2,835	320	5,315	600
PH522F0400 KX401VF0020 MF	80.00	2,500	2,500	4,000	24	1.63	498.4	56.3	1,860	210	2,835	320	4,915	555
PH522F0280 KX401VF0030 MF	84.00	3,000	3,000	4,500	24	1.44	501.4	56.6	1,860	210	2,835	320	4,915	555
PH522F0500 KX401VF0020 MF	100.0	2,500	2,500	4,000	24	1.64	567.9	64.1	1,949	220	2,835	320	5,315	600
PH522F0350 KX401VF0030 MF	105.0	3,000	3,000	4,500	24	1.44	570.4	64.4	1,949	220	2,835	320	5,315	600
PH522F0400 KX401VF0030 MF	120.0	3,000	3,000	4,500	24	1.44	498.4	56.3	1,860	210	2,835	320	4,915	555
PH522F0700 KX401VF0020 MF	140.0	2,500	2,500	4,000	24	1.63	573.0	64.7	1,860	210	2,392	270	5,315	600
PH522F0500 KX401VF0030 MF	150.0	3,000	3,000	4,500	24	1.44	567.9	64.1	1,949	220	2,835	320	5,315	600
PH522F1000 KX401VF0020 MF	200.0	2,500	2,500	4,000	24	1.63	456.8	51.6	1,240	140	2,215	250	4,429	500
PH522F0700 KX401VF0030 MF	210.0	3,000	3,000	4,500	24	1.44	573.0	64.7	1,860	210	2,392	270	5,315	600
PH522F1000 KX401VF0030 MF	300.0	3,000	3,000	4,500	24	1.44	456.8	51.6	1,240	140	2,215	250	4,429	500

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed. $T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PHKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio	Max. Input RPM (n ₁)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂	Output Torque					
		Continuous		Cyclic				Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
		Mounting Position											
		EL 1,2,5,6	EL 3,4	All									
	i	1,2,5,6	3,4	All	mm	kgcm ²	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm			

PH721_KX7 with Motor Mounting Plate

PH721F0040 KX701VF0010 MF	4.000	1,800	1,600	2,250	38	29.54	739.1	83.4	3,401	384	4,252	480	7,483	845
PH721F0050 KX701VF0010 MF	5.000	1,800	1,600	2,250	38	27.70	918.4	103.7	3,898	440	5,315	600	9,354	1,056
PH721F0070 KX701VF0010 MF	7.000	1,800	1,600	2,250	38	26.28	1054.7	119.1	3,898	440	5,758	650	11,127	1,256
PH721F0040 KX701VF0020 MF	8.000	1,800	1,800	3,000	38	15.88	739.1	83.4	3,401	384	4,252	480	8,504	960
PH721F0050 KX701VF0020 MF	10.00	1,800	1,800	3,000	38	15.42	918.4	103.7	3,898	440	5,315	600	10,630	1,200
PH721F0070 KX701VF0020 MF	14.00	1,800	1,800	3,000	38	15.07	1054.7	119.1	3,898	440	5,758	650	11,127	1,256
PH721F0050 KX701VF0030 MF	15.00	2,100	2,100	3,500	38	12.74	918.4	103.7	3,898	440	5,315	600	10,630	1,200
PH721F0100 KX701VF0020 MF	20.00	1,800	1,800	3,000	38	14.89	922.7	104.2	2,657	300	4,429	500	8,858	1,000
PH721F0070 KX701VF0030 MF	21.00	2,100	2,100	3,500	38	12.58	1054.7	119.1	3,898	440	5,758	650	11,127	1,256
PH721F0100 KX701VF0030 MF	30.00	2,100	2,100	3,500	38	12.50	922.7	104.2	2,657	300	4,429	500	8,858	1,000

PH722_KX5 with Motor Mounting Plate

PH722F0350 KX501VF0010 MF	35.00	2,500	2,000	3,000	32	7.82	1229.7	138.8	3,898	440	6,201	700	12,401	1,400
PH722F0200 KX501VF0020 MF	40.00	2,500	2,500	3,500	32	5.55	1147.0	129.5	3,898	440	6,201	700	12,401	1,400
PH722F0160 KX501VF0030 MF	48.00	3,000	3,000	4,000	32	4.91	986.4	111.4	3,898	440	6,201	700	12,235	1,381
PH722F0250 KX501VF0020 MF	50.00	2,500	2,500	3,500	32	5.44	1199.0	135.4	3,898	440	6,201	700	12,401	1,400
PH722F0280 KX501VF0020 MF	56.00	2,500	2,500	3,500	32	5.37	1084.3	122.4	3,898	440	6,201	700	12,235	1,381
PH722F0200 KX501VF0030 MF	60.00	3,000	3,000	4,000	32	4.90	1147.0	129.5	3,898	440	6,201	700	12,401	1,400
PH722F0350 KX501VF0020 MF	70.00	2,500	2,500	3,500	32	5.36	1229.7	138.8	3,898	440	6,201	700	12,401	1,400
PH722F0250 KX501VF0030 MF	75.00	3,000	3,000	4,000	32	4.85	1199.0	135.4	3,898	440	6,201	700	12,401	1,400
PH722F0400 KX501VF0020 MF	80.00	2,500	2,500	3,500	32	5.32	1084.8	122.5	3,898	440	6,201	700	12,235	1,381
PH722F0280 KX501VF0030 MF	84.00	3,000	3,000	4,000	32	4.82	1084.3	122.4	3,898	440	6,201	700	12,235	1,381
PH722F0500 KX501VF0020 MF	100.0	2,500	2,500	3,500	32	5.32	1230.0	138.9	3,898	440	6,201	700	12,401	1,400
PH722F0350 KX501VF0030 MF	105.0	3,000	3,000	4,000	32	4.81	1229.7	138.8	3,898	440	6,201	700	12,401	1,400
PH722F0400 KX501VF0030 MF	120.0	3,000	3,000	4,000	32	4.80	1084.8	122.5	3,898	440	6,201	700	12,235	1,381
PH722F0700 KX501VF0020 MF	140.0	2,500	2,500	3,500	32	5.31	1238.6	139.8	3,898	440	5,758	650	11,127	1,256
PH722F0500 KX501VF0030 MF	150.0	3,000	3,000	4,000	32	4.79	1230.0	138.9	3,898	440	6,201	700	12,401	1,400
PH722F1000 KX501VF0020 MF	200.0	2,500	2,500	3,500	32	5.31	985.5	111.3	2,657	300	4,429	500	8,858	1,000
PH722F0700 KX501VF0030 MF	210.0	3,000	3,000	4,000	32	4.79	1238.6	139.8	3,898	440	5,758	650	11,127	1,256
PH722F1000 KX501VF0030 MF	300.0	3,000	3,000	4,000	32	4.79	985.5	111.3	2,657	300	4,429	500	8,858	1,000

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PHKX" Series–Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Max. Input RPM (n ₁)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
		Continuous	Cyclic	Nominal ¹⁾ T _{2N}					Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}			
													Mounting Position	
		EL 1,2,5,6	EL 3,4	All			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
PH821_KX8 with Motor Mounting Plate														
PH821F0040 KX801VF0010 MF	4.000	1,000	750	1,750	48	101.43	1518.5	171.4	6,803	768	9,354	1,056	14,286	1,613
PH821F0050 KX801VF0010 MF	5.000	1,000	750	1,750	48	92.44	1975.1	223.0	8,504	960	11,693	1,320	17,858	2,016
PH821F0070 KX801VF0010 MF	7.000	1,000	750	1,750	48	85.00	2506.2	282.9	8,858	1,000	14,173	1,600	24,900	2,811
PH821F0040 KX801VF0020 MF	8.000	1,100	1,100	2,500	48	54.94	1518.5	171.4	6,803	768	9,354	1,056	17,007	1,920
PH821F0050 KX801VF0020 MF	10.00	1,100	1,100	2,500	48	52.69	1975.1	223.0	8,504	960	11,693	1,320	21,259	2,400
PH821F0070 KX801VF0020 MF	14.00	1,100	1,100	2,500	48	50.83	2506.2	282.9	8,858	1,000	14,173	1,600	24,900	2,811
PH821F0050 KX801VF0030 MF	15.00	1,300	1,300	3,000	48	44.92	1975.1	223.0	8,504	960	11,693	1,320	21,259	2,400
PH821F0100 KX801VF0020 MF	20.00	1,100	1,100	2,500	48	49.88	2306.0	260.3	7,086	800	10,630	1,200	21,259	2,400
PH821F0070 KX801VF0030 MF	21.00	1,300	1,300	3,000	48	44.09	2506.2	282.9	8,858	1,000	14,173	1,600	24,900	2,811
PH821F0100 KX801VF0030 MF	30.00	1,300	1,300	3,000	48	43.67	2306.0	260.3	7,086	800	10,630	1,200	21,259	2,400
PH822_KX7 with Motor Mounting Plate														
PH822F0350 KX701VF0010 MF	35.00	1,800	1,600	2,250	38	26.15	3366.3	380.0	11,073	1,250	17,716	2,000	28,346	3,200
PH822F0200 KX701VF0020 MF	40.00	1,800	1,800	3,000	38	15.73	3223.4	363.9	11,073	1,250	17,716	2,000	28,346	3,200
PH822F0160 KX701VF0030 MF	48.00	2,100	2,100	3,500	38	12.93	2839.5	320.6	9,744	1,100	16,476	1,860	28,346	3,200
PH822F0250 KX701VF0020 MF	50.00	1,800	1,800	3,000	38	15.35	3302.4	372.8	11,073	1,250	17,716	2,000	28,346	3,200
PH822F0280 KX701VF0020 MF	56.00	1,800	1,800	3,000	38	15.08	3015.7	340.5	9,744	1,100	17,716	2,000	28,346	3,200
PH822F0200 KX701VF0030 MF	60.00	2,100	2,100	3,500	38	12.87	3223.4	363.9	11,073	1,250	17,716	2,000	28,346	3,200
PH822F0350 KX701VF0020 MF	70.00	1,800	1,800	3,000	38	15.03	3366.3	380.0	11,073	1,250	17,716	2,000	28,346	3,200
PH822F0250 KX701VF0030 MF	75.00	2,100	2,100	3,500	38	12.70	3302.4	372.8	11,073	1,250	17,716	2,000	28,346	3,200
PH822F0400 KX701VF0020 MF	80.00	1,800	1,800	3,000	38	14.90	2957.5	333.9	9,744	1,100	17,007	1,920	28,346	3,200
PH822F0280 KX701VF0030 MF	84.00	2,100	2,100	3,500	38	12.58	3015.7	340.5	9,744	1,100	17,716	2,000	28,346	3,200
PH822F0500 KX701VF0020 MF	100.0	1,800	1,800	3,000	38	14.88	3319.6	374.8	11,073	1,250	17,716	2,000	28,346	3,200
PH822F0350 KX701VF0030 MF	105.0	2,100	2,100	3,500	38	12.56	3366.3	380.0	11,073	1,250	17,716	2,000	28,346	3,200
PH822F0400 KX701VF0030 MF	120.0	2,100	2,100	3,500	38	12.50	2957.5	333.9	9,744	1,100	17,007	1,920	28,346	3,200
PH822F0700 KX701VF0020 MF	140.0	1,800	1,800	3,000	38	14.86	3396.9	383.5	8,858	1,000	14,173	1,600	24,900	2,811
PH822F0500 KX701VF0030 MF	150.0	2,100	2,100	3,500	38	12.49	3319.6	374.8	11,073	1,250	17,716	2,000	28,346	3,200
PH822F1000 KX701VF0020 MF	200.0	1,800	1,800	3,000	38	14.85	2615.2	295.2	7,086	800	10,630	1,200	21,259	2,400
PH822F0700 KX701VF0030 MF	210.0	2,100	2,100	3,500	38	12.49	3396.9	383.5	8,858	1,000	14,173	1,600	24,900	2,811
PH822F1000 KX701VF0030 MF	300.0	2,100	2,100	3,500	38	12.48	2615.2	295.2	7,086	800	10,630	1,200	21,259	2,400

¹⁾ Based on input speed: n₁ = 2000 RPM
For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed. $T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PHKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Selection Data



Part Number	Exact Ratio	Max. Input RPM (n ₁)			Max. Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂	Output Torque					
		Continuous		Cyclic				Nominal ¹⁾ T _{2N}		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
		Mounting Position											
		EL 1,2,5,6	EL 3,4	All									
	i	1,2,5,6	3,4	All	mm	kgcm ²	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm	in.lbs. Nm			

PH912_KX8 with Motor Mounting Plate

PH912F0160 KX801VF0010 MF	16.00	1,000	750	1,750	48	97.42	4617.2	521.2	22,145	2,500	36,247	4,092	55,359	6,250
PH912F0180 KX801VF0010 MF	18.00	1,000	750	1,750	48	121.44	5256.3	593.4	22,145	2,500	37,647	4,250	62,279	7,031
PH912F0200 KX801VF0010 MF	20.00	1,000	750	1,750	48	89.78	4808.9	542.9	22,145	2,500	37,647	4,250	69,199	7,812
PH912F0120 KX801VF0020 MF	24.00	1,100	1,100	2,500	48	61.45	4217.6	476.1	19,771	2,232	27,185	3,069	49,428	5,580
PH912F0300 KX801VF0010 MF	30.00	1,000	750	1,750	48	87.60	5640.5	636.8	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0160 KX801VF0020 MF	32.00	1,100	1,100	2,500	48	53.94	4617.2	521.2	22,145	2,500	36,247	4,092	65,904	7,440
PH912F0180 KX801VF0020 MF	36.00	1,100	1,100	2,500	48	59.94	5256.3	593.4	22,145	2,500	37,647	4,250	74,141	8,370
PH912F0200 KX801VF0020 MF	40.00	1,100	1,100	2,500	48	52.03	4808.9	542.9	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0420 KX801VF0010 MF	42.00	1,000	750	1,750	48	82.59	5720.9	645.8	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0240 KX801VF0020 MF	48.00	1,100	1,100	2,500	48	53.09	5521.0	623.3	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0180 KX801VF0030 MF	54.00	1,300	1,300	3,000	48	48.14	5256.3	593.4	22,145	2,500	37,647	4,250	74,141	8,370
PH912F0300 KX801VF0020 MF	60.00	1,100	1,100	2,500	48	51.48	5640.5	636.8	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0240 KX801VF0030 MF	72.00	1,300	1,300	3,000	48	45.09	5521.0	623.3	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0400 KX801VF0020 MF	80.00	1,100	1,100	2,500	48	49.63	4912.0	554.5	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0420 KX801VF0020 MF	84.00	1,100	1,100	2,500	48	50.23	5720.9	645.8	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0300 KX801VF0030 MF	90.00	1,300	1,300	3,000	48	44.38	5640.5	636.8	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0480 KX801VF0020 MF	96.00	1,100	1,100	2,500	48	49.97	5717.6	645.5	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0600 KX801VF0020 MF	120.0	1,100	1,100	2,500	48	49.50	5702.9	643.8	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0420 KX801VF0030 MF	126.0	1,300	1,300	3,000	48	43.82	5720.9	645.8	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0480 KX801VF0030 MF	144.0	1,300	1,300	3,000	48	43.71	5717.6	645.5	22,145	2,500	37,647	4,250	75,293	8,500
PH912F0600 KX801VF0030 MF	180.0	1,300	1,300	3,000	48	43.50	5702.9	643.8	22,145	2,500	37,647	4,250	75,293	8,500

PH1012_KX8 with Motor Mounting Plate

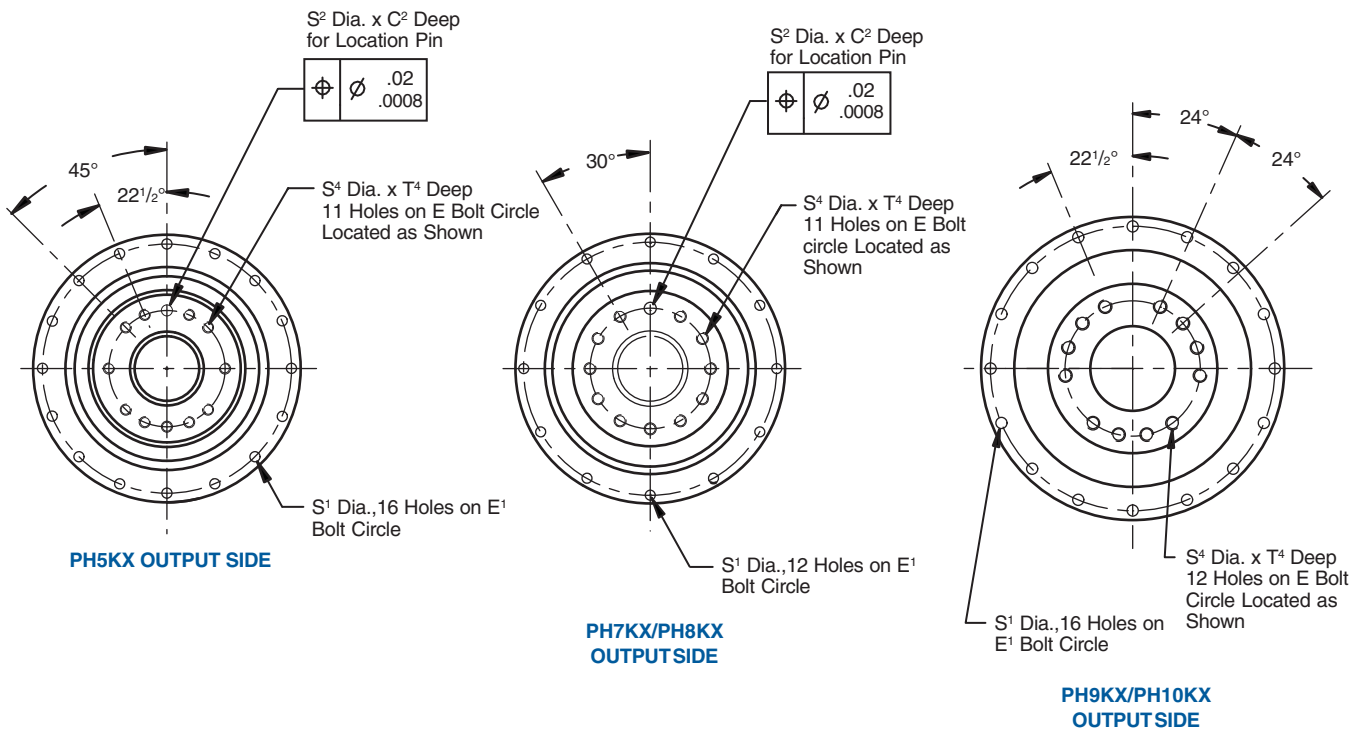
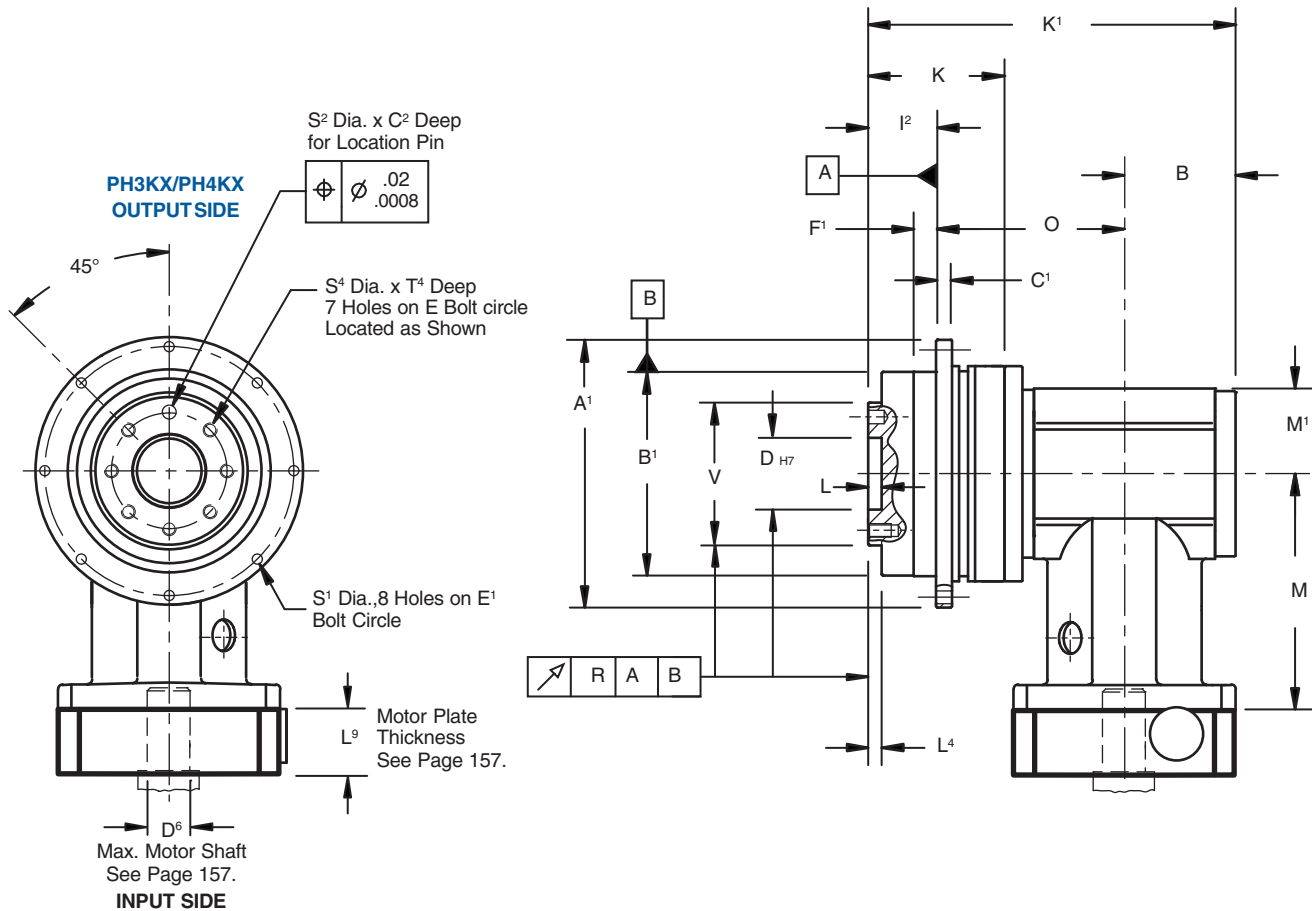
PH1012F0180 KX801VF0010 MF	18.00	1,000	750	1,750	48	124.59	8133.9	918.3	29,657	3,348	40,778	4,604	62,279	7,031
PH1012F0240 KX801VF0010 MF	24.00	1,000	750	1,750	48	95.79	8785.6	991.8	35,432	4,000	54,370	6,138	83,038	9,374
PH1012F0300 KX801VF0010 MF	30.00	1,000	750	1,750	48	88.74	9092.0	1026.4	35,432	4,000	66,435	7,500	103,798	11,718
PH1012F0180 KX801VF0020 MF	36.00	1,100	1,100	2,500	48	60.73	8133.9	918.3	29,657	3,348	40,778	4,604	74,141	8,370
PH1012F0420 KX801VF0010 MF	42.00	1,000	750	1,750	48	83.16	9302.9	1050.2	35,432	4,000	66,435	7,500	132,870	15,000
PH1012F0240 KX801VF0020 MF	48.00	1,100	1,100	2,500	48	53.53	8785.6	991.8	35,432	4,000	54,370	6,138	98,855	11,160
PH1012F0180 KX801VF0030 MF	54.00	1,300	1,300	3,000	48	48.49	8133.9	918.3	29,657	3,348	40,778	4,604	74,141	8,370
PH1012F0300 KX801VF0020 MF	60.00	1,100	1,100	2,500	48	51.77	9092.0	1026.4	35,432	4,000	66,435	7,500	123,569	13,950
PH1012F0240 KX801VF0030 MF	72.00	1,300	1,300	3,000	48	45.29	8785.6	991.8	35,432	4,000	54,370	6,138	98,855	11,160
PH1012F0420 KX801VF0020 MF	84.00	1,100	1,100	2,500	48	50.37	9302.9	1050.2	35,432	4,000	66,435	7,500	132,870	15,000
PH1012F0300 KX801VF0030 MF	90.00	1,300	1,300	3,000	48	44.51	9092.0	1026.4	35,432	4,000	66,435	7,500	123,569	13,950
PH1012F0480 KX801VF0020 MF	96.00	1,100	1,100	2,500	48	50.08	9294.2	1049.2	35,432	4,000	61,226	6,912	132,870	15,000
PH1012F0600 KX801VF0020 MF	120.0	1,100	1,100	2,500	48	49.57	9255.3	1044.9	35,432	4,000	61,226	6,912	132,870	15,000
PH1012F0420 KX801VF0030 MF	126.0	1,300	1,300	3,000	48	43.89	9302.9	1050.2	35,432	4,000	66,435	7,500	132,870	15,000
PH1012F0480 KX801VF0030 MF	144.0	1,300	1,300	3,000	48	43.76	9294.2	1049.2	35,432	4,000	61,226	6,912	132,870	15,000
PH1012F0600 KX801VF0030 MF	180.0	1,300	1,300	3,000	48	43.53	9255.3	1044.9	35,432	4,000	61,226	6,912	132,870	15,000

Index of Symbols

MT Motor adapter with TriAdapt® coupling	i Ratio - Exact	T _{2N} Nominal Torque
MF Motor adapter with FlexiAdapt® coupling	n ₁ Maximum input speed RPM	T _{2B} Acceleration Torque Maximum
L Large Input	J ₁ Mass moment of inertia (input)	T _{2PEAK} Peak Torque
C ServoCool	C ₂ Torsional Stiffness	



"PHKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Dimensional Data





"PHKX" Series—Right Angle ServoFit® Precision Planetary Gearhead Dimensional Data



Table No. 1 "PHKX" Series – Gearhead with Motor Plate – Dimensions (mm/inches)

Unit	A ¹	B ¹ h7	C ¹	C ²	D h7	E	E ¹	F ¹	I ²	L	L ²	L ⁴	R	S ¹	S ² H7	S ⁴	T ⁴	V h7
PH3_KX	86 3.39	64 2.520 +0.000/-0.030 +0.0000/-0.0012	4 .16	3 .12	20 .787 +0.021/-0 +0.0008/-0.0000	31.5 1.24	79 3.11	7 .28	19.5 .77	4 .16	3 .12	3.5 .14	.020 .0008	4.5 .18	5 .20 +0.012/-0.000 +0.0005/-0.0000	M5	7 .28	40 1.575 +0.000/-0.025 +0.000/-0.0010
PH4_KX	118 4.65	90 3.543 +0.000/-0.035 +0.0000/-0.0014	7 .28	7 .28	31.5 1.240 +0.025/-0 +0.0010/-0.0000	50 1.97	109 4.29	10 .39	30 1.18	6 .24	6 .24	6 .24	.020 .0008	5.5 .22	6 .236 +0.012/-0.000 +0.0005/-0.0000	M6	10 .39	63 2.480 +0.000/-0.030 +0.000/-0.0012
PH5_KX	145 5.71	110 4.331 +0.000/-0.035 +0.0000/-0.0014	8 .32	7 .28	40 1.575 +0.025/-0 +0.0010/-0.0000	63 2.48	135 5.31	10 .39	29 1.14	6 .24	6 .24	6 .24	.020 .0008	5.5 .22	6 .236 +0.012/-0.000 +0.0005/-0.0000	M6	11 .43	80 3.150 +0.000/-0.030 +0.000/-0.0012
PH7_KX	179 7.05	140 5.513 +0.000/-0.040 +0.0000/-0.0016	10 .39	7 .28	50 1.969 +0.025/-0 +0.0010/-0.0000	80 3.15	168 6.61	12 .47	38 1.50	6 .24	6 .24	6 .24	.025 .0010	6.6 .26	8 .315 +0.015/-0.000 +0.0006/-0.0000	M8	14 .55	100 3.937 +0.000/-0.035 +0.000/-0.0014
PH8_KX	247 9.72	200 7.874 +0.000/-0.046 +0.0000/-0.0018	12 .47	10 .39	80 3.150 +0.030/-0 +0.0012/-0.0000	125 4.92	233 9.17	15 .59	50 1.97	8 .31	8 .31	8 .31	.030 .0012	9 .35	10 .393 +0.015/-0.000 +0.0006/-0.0000	M10	18 .71	160 6.299 +0.000/-0.040 +0.000/-0.0016
PH9_KX	300 11.81	255 10.039 +0.000/-0.052 +0.000/-0.0020	18 .71	—	90 3.543 +0.035/-0 +0.0014/-0.0000	140 5.51	280 11.02	20 .79	66 2.60	12 .47	11 .43	12 .47	.030 .0012	13.5 .53	—	M16	24 .94	180 7.087 +0.000/-0.046 +0.000/-0.0018
PH10_KX	330 12.99	285 11.220 +0.000/-0.052 +0.000/-0.0020	20 .78	—	95 3.740 +0.035/-0 +0.0014/-0.0000	160 6.30	310 12.20	20 .79	75 2.95	10 .39	15 .59	15 .59	.040 .0016	13.5 .53	—	M20	30 1.18	200 7.874 +0.000/-0.046 +0.000/-0.0018

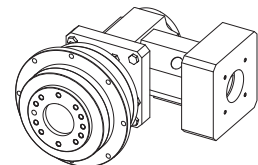
Table No. 2 "PHKX" Series
Dimensions (mm/inches)

Unit	B	K	K ¹	M	M ¹	O
PH321_KX3	40 1.57	50 1.97	133.5 5.26	95.5 3.76	31 1.22	74 2.91
PH322_KX3	40 1.57	87 3.43	169.5 6.67	95.5 3.76	31 1.22	110 4.33
PH421_KX4	50 1.97	66 2.60	167 6.57	104 4.09	37.5 1.48	87 3.43
PH422_KX3	40 1.57	113 4.45	195.5 7.70	95.5 3.76	31 1.22	125.5 4.94
PH521_KX5	59 2.32	70 2.76	193 7.60	132 5.20	45 1.77	105 4.13
PH522_KX4	50 1.97	124.5 4.90	227.5 8.96	104 4.09	37.5 1.48	148.5 5.85
PH721_KX7	74 2.91	88 3.46	239 9.41	172.5 6.79	60 2.39	127 5.00
PH722_KX5	59 2.32	150 5.91	273 10.75	132 5.20	45 1.77	176 6.93
PH821_KX8	92 3.62	126 4.96	317.5 12.50	210 8.27	75 2.95	175.5 6.91
PH822_KX7	74 2.91	201 7.91	352 13.86	172.5 6.79	60 2.39	228 8.98
PH912_KX8	92 3.62	277.5 10.93	470.5 18.52	210 8.27	75 2.95	312.5 12.30
PH1012_KX8	92 3.62	307 12.09	500 19.69	210 8.27	75 2.95	333 13.11

Part No. Explanation

PH 4 2 1 F 0050 KX401VF 0020 MF

"PH" Series ServoFit Precision Planetary Gearhead
 Unit No.
 Generation No.
 No. of Stages (1 = 1 Stage, 2 = 2 Stage)
 Output Flange
 Ratio (0050 = 5:1, Total Ratio 5 x 2 = 10:1)
 Right Angle Unit, Size 4 with Shaft and Flange
 Ratio (0020 = 2:1)
 Motor Plate with FlexiAdapt Coupling



Typical 2 Stage Configuration

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)

"PE" Series

ServoFit® Precision Planetary Gearhead

Performance Specifications



	Size	Ratio	PE201 PE202	PE301 PE302	PE401 PE402	PE501 PE502
Permissible Acceleration Torque T_{2B}	in.lbs. Nm	5, 25, 50	132 15	292 33	725 82	1,858 210
	in.lbs. Nm	10, 100	106 12	265 30	637 72	1,593 180
Nominal Output Torque ¹⁾ T_{2N}	in.lbs. Nm		58 6.5	159 18	398 45	1,062 120
Input Speed Maximum n_{1MAX}	Continuous Cyclic		4,000 8,000	3,700 6,000	3,400 6,000	2,600 5,000
Torsional Stiffness C_2	in.lbs./arcmin Nm/arcmin		9 1	31 3.5	89 10	221 25
Axial Load Max. ²⁾ F_{2AMAX}	lbs. N		56 250	93 412	146 650	270 1,200
Radial Load Max. ²⁾ F_{2RMAX}	lbs. N		190 850	370 1,650	585 2,600	1,080 4,800
Tilting Moment Max. ²⁾ T_{2K}	in.lbs. Nm		221 25	451 51	991 112	2,973 336
Weight m	pounds kg		1.8 2.2 0.8 1.0	4.4 5.5 2.0 2.5	9.4 11.6 4.3 5.3	20.2 25.1 9.2 11.4
Noise Level ³⁾ L_{PA}	dB(A)		≤60	≤62	≤62	≤64
Torsional Backlash $\Delta\varphi$	arcmin		1 Stage (5, 10:1) = ≤12; 2 Stage (25, 50, 100:1) = ≤15			
Efficiency (at Nominal Torque) η	%		1 Stage (5, 10:1) = ≥96; 2 Stage (25, 50, 100:1) = ≥94			
Lubrication			Synthetic Grease (NLGI 2) Lubricated for Life			
Mounting Position			Unrestricted			
Ambient Temperature			0°C to +40°C (104° F) Other temperatures, contact STÖBER Drives.			
Finish			Black (RAL 9005)			
Lifetime ⁴⁾ L_h	hours		$L_h > 10,000$ hours if $T_{2K}/T_{2A} < 1.25$ $L_h > 20,000$ hours if $T_{2K}/T_{2A} > 1.25$			
Warranty			5 Year Limited (2 Years on normal wear items: bearings, seals, etc.)			

¹⁾ Ratings based on input speed (n_1) of 2000 RPM.

For torque at higher input speeds (T_{2NX}) solve the formula, where n_1 = Actual Input Speed.

$$T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$$

²⁾ Rating based on output speed (n_2) of 100 RPM. For values at other speeds see Page 168.

³⁾ Measurement at one (1) meter distance with input speed (n_1) of 3000 RPM.

⁴⁾ T_{2A} equals actual tilting moment of the application. See Page 168 for overhung loads.



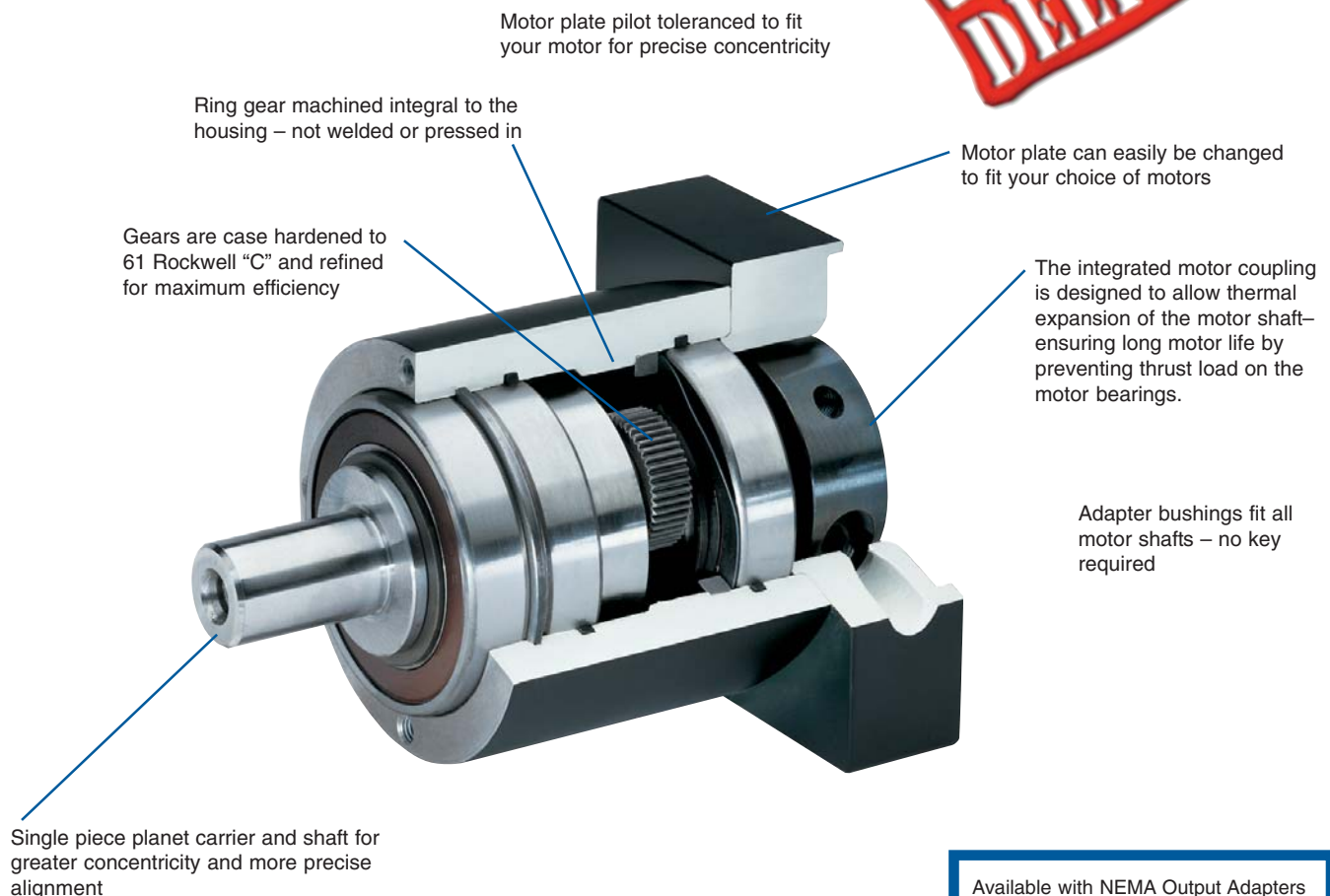
"PE" Series ServoFit® Precision Planetary Gearhead Features

The "PE" Series ServoFit Precision Planetary Gearheads are available for applications where very low backlash is not a criteria. They are an economical straight tooth planetary, comparable in quality to other STÖBER units. "PE" Series units are shipped with a motor adapter to fit your specific motor, can be supplied with NEMA output adapters, and have a five year warranty. All units are lubricated for life with synthetic grease and enclosed to IP65 standards to prevent lubricant contamination for long life.

Some features of these units are:

- Readily Attaches to Any Servo Motor
- Quiet Running ≤ 64 dB(A)
- Readily Available
- Wide Selection of IEC, NEMA, or Customized* Motor Plates
- 94 to 96% Efficiency
- NEMA Output Available
- 5 Year Limited Warranty (2 Years bearings, seals, etc.)

* Maximum 10 working days for custom motor plates.



Available with NEMA Output Adapters (shaft remains metric). See Page 73.





"PE" Series ServoFit® Planetary Gearhead Selection Data



Part Number	Exact Ratio i	Maximum Input Speed		Maximum Motor Shaft øD ⁶ mm	Mass Moment of Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque					
		Continuous RPM (n _i)	Cyclic RPM (n _i)					Nominal ¹⁾		Acceleration		Peak ²⁾	
								T _{2N}		T _{2B}		T _{2PEAK}	
PE201 with Motor Mounting Plate													
PE201SP0050M	5.000	4,000	8,000	11	.063	8.9	1.0	58	6.5	133	15	248	28
PE201SP0100M	10.00	4,000	8,000	11	.063	8.9	1.0	49	5.5	106	12	248	28
PE202 with Motor Mounting Plate													
PE202SP0250M	25.00	4,000	8,000	11	.052	8.9	1.0	58	6.5	133	15	248	28
PE202SP0500M	50.00	4,000	8,000	11	.052	8.9	1.0	58	6.5	133	15	248	28
PE202SP1000M	100.0	4,000	8,000	11	.052	8.9	1.0	49	5.5	106	12	248	28
PE301 with Motor Mounting Plate													
PE301SP0050M	5.000	3,700	6,000	14	.31	31	3.5	159	18	292	33	664	75
PE301SP0100M	10.00	3,700	6,000	14	.31	31	3.5	150	17	266	30	664	75
PE302 with Motor Mounting Plate													
PE302SP0250M	25.00	3,700	6,000	14	.25	31	3.5	159	18	292	33	664	75
PE302SP0500M	50.00	3,700	6,000	14	.25	31	3.5	159	18	292	33	664	75
PE302SP1000M	100.0	3,700	6,000	14	.25	31	3.5	150	17	266	30	664	75
PE401 with Motor Mounting Plate													
PE401SP0050M	5.000	3,400	6,000	19	1.72	88.5	10	398	45	726	82	1,770	200
PE401SP0100M	10.00	3,400	6,000	19	1.72	88.5	10	354	40	637	72	1,770	200
PE402 with Motor Mounting Plate													
PE402SP0250M	25.00	3,400	6,000	19	1.47	88.5	10	398	45	726	82	1,770	200
PE402SP0500M	50.00	3,400	6,000	19	1.47	88.5	10	398	45	726	82	1,770	200
PE402SP1000M	100.0	3,400	6,000	19	1.47	88.5	10	354	40	637	72	1,770	200
PE501 with Motor Mounting Plate													
PE501SP0050M	5.000	2,600	5,000	24	5.50	221.3	25	1,062	120	1,859	210	4,248	480
PE501SP0100M	10.00	2,600	5,000	24	5.50	221.3	25	885	100	1,593	180	4,248	480
PE502 with Motor Mounting Plate													
PE502SP0250M	25.00	2,600	5,000	24	4.45	221.3	25	1,062	120	1,859	210	4,248	480
PE502SP0500M	50.00	2,600	5,000	24	4.45	221.3	25	1,062	120	1,859	210	4,248	480
PE502SP1000M	100.0	2,600	5,000	24	4.45	221.3	25	885	100	1,593	180	4,248	480

Part No. Explanation

PE 4 0 1 SP 0050 M

Motor Plate
 Ratio (0050 = 5.0:1)
 SP – Output shaft with key
 No. of Gear Stages (1 = 1 Stage, 2 = 2 Stages)
 Generation Number
 Unit No.
 "PE" Series ServoFit Planetary Gearhead

When ordering a planetary gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. (See Page 157.)

¹⁾ Based on input speed: n₁ = 2000 RPM

For torque at higher input speeds (T_{2NX}) solve the formula, where n₁ = Actual Input Speed. $T_{2NX} = \frac{T_{2N}}{\sqrt[3]{\frac{n_1}{2000}}}$

²⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of gearhead = 1,000 stops maximum.



"PE" Series ServoFit® Planetary Gearhead Dimensional Data



Dimension shown in millimeters (inches).

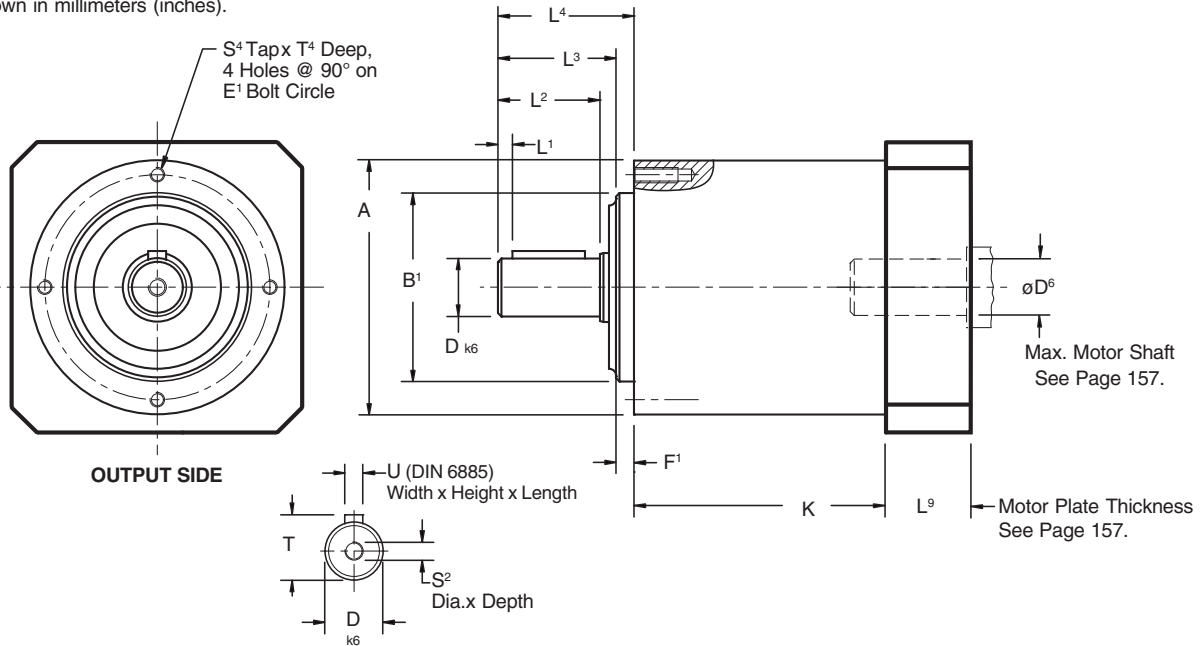


Table No. 1 "PE" Series – Planetary Gearhead Dimensions (mm/inches)

Unit	A	B ¹	h_6	D k_6	E ¹	F ¹	L ¹	L ²	L ³	L ⁴	S ²	S ⁴	T	T ⁴	U
PE201/P202	50 1.97	35 1.378	+0.000/-0.016 +0.0000/-0.0006	12 +.012/+.001	44 1.73	4 .16	2 .08	18 .71	20.5 .81	24.5 .96	M4	M4	13.5 .53	10 .39	A4x4x14
PE301/PE302	70 2.76	52 2.047	+0.000/-0.019 +0.0000/-0.0007	16 +.012/+.001	62 2.44	5 .20	2 .08	28 1.10	31 1.22	36 1.42	M5	M5	18 .71	12 .47	A5x5x25
PE401/PE402	90 3.54	68 2.677	+0.000/-0.019 +0.0000/-0.0007	22 +.015/+.002	80 3.15	5 .20	3 .12	36 1.42	41 1.61	46 1.81	M8	M6	24.5 .96	15 .59	A6x6x32
PE501/PE502	120 4.72	90 3.543	+0.000/-0.022 +0.0000/-0.0009	32 +.018/+.002	108 4.25	6 .24	3 .12	58 2.28	64 2.52	70 2.76	M12	M8	35 1.38	20 .79	A10x8x50

Table No. 2

Unit	K	
	mm	inches
PE201	53	2.09
PE202	74.5	2.93
PE301	69	2.72
PE302	91.5	3.60
PE401	80	3.15
PE402	109	4.29
PE501	106.5	4.19
PE502	142	5.59

Table No. 3 NEMA Output Flange (mm/inches)

NEMA	N ¹	N ²	N ³		N ⁵	N ⁶	N ⁷	N ⁸
23	58	66.67	38.10	+0.00/-0.025	7	1.6	5.0	76
	2.28	2.625	1.500	+0.000/-0.001	.28	.063	.20	2.99
34	83	98.43	73.03	+0.00/-0.030	8	1.6	5.5	111
	3.27	3.875	2.875	+0.000/-0.001	.31	.063	.22	4.37
42	107	125.73	55.52	+0.00/-0.030	7.6	2.4	7.1	143
	4.21	4.950	2.186	+0.000/-0.001	.30	.094	.28	5.63
56	146	149.23	114.30	+0.00/-0.035	15	3.2	10	200
	5.75	5.875	4.500	+0.000/-0.001	.59	.125	.39	7.87

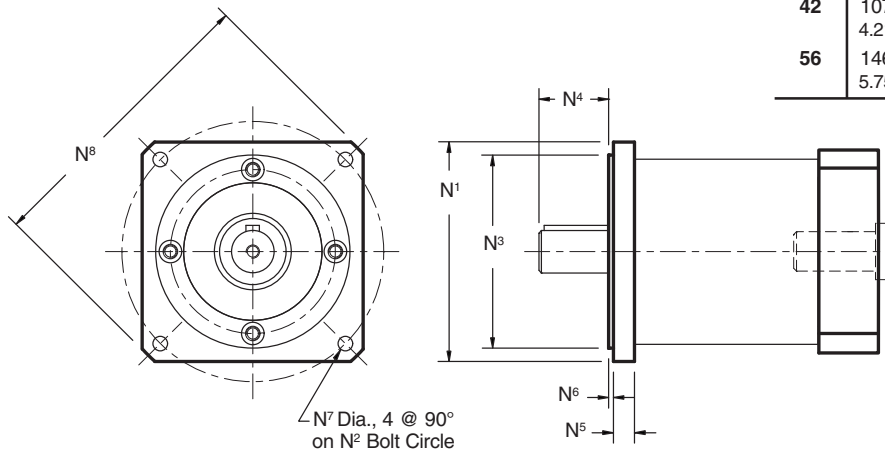


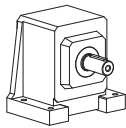
Table No. 4 N⁴ Dimension

NEMA	PE2	PE3	PE4	PE5
23	15.9 .63	—	—	—
34	—	26.6 1.05	36.8 1.45	—
42	—	25.6 1.01	36 1.42	—
56	—	—	—	51.8 2.04

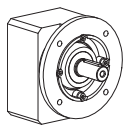
"C" Series—Concentric Helical ServoFit® SMS Gearhead Overview



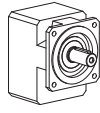
Housing Styles + TriAdapt® Motor Adapter Input = Gearhead Configurations



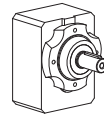
Style N
Foot Mount



Style F
Round Flange



Style Q,
Square Flange



Style G
Tapped Holes

+

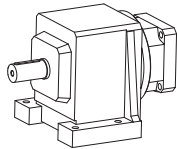


MT
Motor Adapter

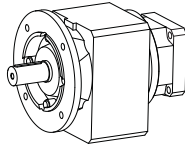


Motor Plate
to fit any servo motor

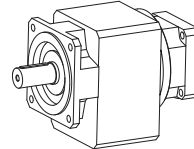
Gearhead Configurations



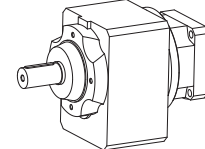
Style N, Foot Mount



Style F, Round Flange



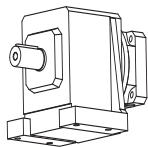
Style Q, Square Flange



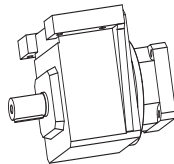
Style G, Tapped Holes

Mounting Positions (See Page 171 for additional mounting information.)

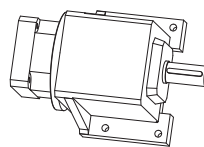
EL1



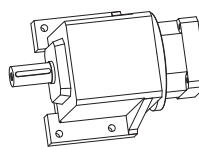
EL2



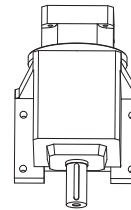
EL3



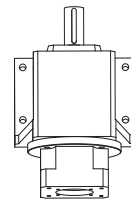
EL4



EL5



EL6



Part No. Explanation with OPTIONS and REQUIRED INFORMATION

C **4** **0** **2** **N** **0135** **MT20** **B**

Concentric Helical
Unit Size No.
Design Generation
No. of Stages (**02** = 2 Stage, determined by ratio)
HOUSING STYLE
"N" Housing Style – Foot Mounting
"F" Housing Style – Flange Mounting
"Q" Housing Style – Square Output Flange
"G" Housing Style – Tapped Holes
Nominal Ratio: **0135** = 13.5:1
TriAdapt® Motor Adapter Size: **MT10, MT20, MT30, MT40, MT50**
This designation is only required when ordering a:
B – Beverage Duty
F – Food Duty

THE FOLLOWING INFORMATION IS REQUIRED FOR ANY UNIT:

- Mounting Position – EL1 EL2 EL3 EL4 EL5 EL6
- Motor – Motor Manufacturer and Model Number
- Paint – Black (Standard) White Stainless
- Option – Imperial or Metric Shaft¹⁾
- Package Options – Beverage Duty Food Duty

¹⁾ Not available in all sizes. Contact STÖBER.



"C" Series—Concentric Helical ServoFit® Modular System

These versatile gear drives offer you performance, durability, and economy for a wide range of applications. High efficiency helical gearing keeps motor size to a minimum while running almost silently.

Performance Specifications:

- Input RPM up to 4,500 RPM
- Nominal output torque – 97 to 62,000 in.lbs. (21-7,000 Nm)
- Reducer ratios from 2:1 to 276:1
- 5 year limited warranty (2 years on bearings, seals, etc.)
- Ambient temperature – 0°C to +40°C (104°F)
- Noise level – as low as 53 dB(A)
- $\geq 95.5\%$ Efficiency
- Maintenance free
- Can be back driven

**STANDARD
3-DAY
DELIVERY**

Motor plate can easily be changed to fit your choice of motors.

Shipped with the proper amount of oil to prevent gear damaging dry start-ups

Available in four housing styles:
N-mounting foot
F-output flange
Q-square output flange
G-tapped holes

High quality helical gearing is case hardened to 58-62 Rockwell C. Precision finished for low noise and long service life.
Backlash is ≤ 20 arc minutes

High tensile strength shafts with captured keys available inches, metric, or stainless.

Double lip seals keep oil in and contaminants out. Double seals available for severe duty applications.

One-piece cast iron housing. Precision machined bearing supports assure gearset alignment, prolongs bearing life, provides exceptional overhung load capacities to eliminate leakage problems common to drives with bolt-on output covers.

Also available in washdown, food duty, and beverage duty.
Maximum 10 working days for custom motor plates.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\phi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque						
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM in.lbs. Nm		Acceleration T _{2B} in.lbs. Nm		Peak ²⁾ T _{2PEAK} in.lbs. Nm		
			Continuous	Cyclic												
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}											
C002 with MT TriAdapt® Motor Adapter Continued Next Page Noise Level ≤ 55 dB(A)³⁾																
C002_0020 MT10	1.997	1480/741	3,500	3,000	6,000	20	1.3	7	0.8	184	21	184	21	230	26	
C002_0020 MT20	1.997	1480/741	3,500	3,000	5,000	20	1.9	7	0.8	272	31	346	39	433	49	
C002_0028 MT10	2.769	36/13	3,500	3,000	6,000	20	1.0	9	1.0	241	27	241	27	302	34	
C002_0028 MT20	2.769	36/13	3,500	3,000	5,000	20	1.6	9	1.0	304	34	455	51	568	64	
C002_0031 MT10	3.067	46/15	3,700	3,600	6,000	20	1.0	9	1.0	263	30	263	30	329	37	
C002_0031 MT20	3.067	46/15	3,500	3,500	5,000	20	1.6	9	1.0	314	35	495	56	619	70	
C002_0033 MT10	3.318	1702/513	3,700	3,600	6,000	20	1.0	9	1.0	284	32	284	32	356	40	
C002_0033 MT20	3.318	1702/513	3,500	3,500	5,000	20	1.6	9	1.1	323	36	536	60	669	76	
C002_0038 MT10	3.835	441/115	3,700	3,600	6,000	20	0.9	10	1.1	316	36	316	36	395	45	
C002_0038 MT20	3.835	441/115	3,500	3,500	5,000	20	1.5	10	1.1	339	38	572	65	743	84	
C002_0041 MT10	4.149	1813/437	3,700	3,600	6,000	20	0.9	10	1.1	342	39	342	39	427	48	
C002_0041 MT20	4.149	1813/437	3,500	3,500	5,000	20	1.5	10	1.1	348	39	576	65	804	91	
C002_0047 MT10	4.680	117/25	4,000	4,000	6,000	20	0.8	10	1.1	362	41	372	42	465	53	
C002_0047 MT20	4.680	117/25	3,500	3,500	5,000	20	1.4	10	1.1	362	41	576	65	876	99	
C002_0051 MT10	5.063	481/95	4,000	4,000	6,000	20	0.8	10	1.1	371	42	403	45	503	57	
C002_0051 MT20	5.063	481/95	3,500	3,500	5,000	20	1.4	10	1.2	371	42	576	65	948	107	
C002_0058 MT10	5.824	99/17	4,000	4,000	6,000	20	0.7	10	1.2	389	44	445	50	556	63	
C002_0058 MT20	5.824	99/17	3,500	3,500	5,000	20	1.3	10	1.2	389	44	576	65	974	110	
C002_0063 MT10	6.300	2035/323	4,000	4,000	6,000	20	0.7	10	1.2	399	45	481	54	601	68	
C002_0063 MT20	6.300	2035/323	3,500	3,500	5,000	20	1.3	11	1.2	399	45	576	65	974	110	
C002_0077 MT10	7.714	54/7	4,000	4,000	6,000	20	0.7	11	1.2	427	48	561	63	701	79	
C002_0077 MT20	7.714	54/7	3,500	3,500	5,000	20	1.3	11	1.2	427	48	561	63	701	79	
C002_0082 MT10	8.235	667/81	3,700	3,600	6,000	16	0.9	14	1.5	516	58	638	72	882	100	
C002_0082 MT20	8.235	667/81	3,500	3,500	5,000	16	1.5	14	1.5	516	58	638	72	1,063	120	
C002_0092 MT10	9.228	1495/162	3,700	3,600	6,000	16	0.9	14	1.5	531	60	576	65	989	112	
C002_0092 MT20	9.228	1495/162	3,500	3,500	5,000	16	1.5	14	1.6	531	60	576	65	1,063	120	
C002_0105 MT10	10.30	1421/138	3,700	3,600	6,000	16	0.8	14	1.6	531	60	638	72	1,060	120	
C002_0105 MT20	10.30	1421/138	3,500	3,500	5,000	16	1.4	14	1.6	531	60	638	72	1,063	120	
C002_0115 MT10	11.54	3185/276	3,700	3,600	6,000	16	0.8	14	1.6	531	60	576	65	1,063	120	
C002_0115 MT20	11.54	3185/276	3,500	3,500	5,000	16	1.4	14	1.6	531	60	576	65	1,063	120	
C002_0125 MT10	12.57	377/30	4,000	4,000	6,000	16	0.8	14	1.6	531	60	638	72	1,063	120	
C002_0125 MT20	12.57	377/30	3,500	3,500	5,000	16	1.4	14	1.6	531	60	638	72	1,063	120	
C002_0140 MT10	14.08	169/12	4,000	4,000	6,000	16	0.8	14	1.6	531	60	576	65	1,063	120	
C002_0140 MT20	14.08	169/12	3,500	3,500	5,000	16	1.4	14	1.6	531	60	576	65	1,063	120	
C002_0155 MT10	15.64	1595/102	4,000	4,000	6,000	16	0.7	14	1.6	531	60	638	72	1,063	120	
C002_0155 MT20	15.64	1595/102	3,500	3,500	5,000	16	1.3	14	1.6	531	60	638	72	1,063	120	
C002_0175 MT10	17.53	3575/204	4,000	4,000	6,000	16	0.7	14	1.6	531	60	576	65	1,063	120	
C002_0175 MT20	17.53	3575/204	3,500	3,500	5,000	16	1.3	14	1.6	531	60	576	65	1,063	120	
C002_0210 MT10	20.71	145/7	4,000	4,000	6,000	16	0.7	14	1.6	531	60	638	72	1,063	120	
C002_0210 MT20	20.71	145/7	3,500	3,500	5,000	16	1.3	14	1.6	531	60	638	72	1,063	120	
C002_0230 MT10	23.21	325/14	4,000	4,000	6,000	16	0.7	14	1.6	531	60	576	65	1,063	120	
C002_0230 MT20	23.21	325/14	3,500	3,500	5,000	16	1.3	14	1.6	531	60	576	65	1,063	120	

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
 Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\phi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

C002 with MT TriAdapt® Motor Adapter Continued

Noise Level ≤ 55 dB(A)³⁾

C002_0250 MT10	24.97	899/36	4,000	4,000	6,000	16	0.7	14	1.6	531	60	638	72	1,063	120
C002_0250 MT20	24.97	899/36	3,500	3,500	5,000	16	1.3	14	1.6	531	60	638	72	1,063	120
C002_0280 MT10	27.99	2015/72	4,000	4,000	6,000	16	0.7	14	1.6	531	60	576	65	1,063	120
C002_0280 MT20	27.99	2015/72	3,500	3,500	5,000	16	1.3	14	1.6	531	60	576	65	1,063	120
C002_0310 MT10	31.26	2813/90	4,000	4,000	6,000	16	0.6	14	1.6	531	60	638	72	1,063	120
C002_0310 MT20	31.26	2813/90	3,500	3,500	5,000	16	1.2	14	1.6	531	60	638	72	1,063	120
C002_0350 MT10	35.03	1261/36	4,000	4,000	6,000	16	0.6	14	1.6	531	60	576	65	1,063	120
C002_0350 MT20	35.03	1261/36	3,500	3,500	5,000	16	1.2	14	1.6	531	60	576	65	1,063	120
C002_0420 MT10	41.77	3509/84	4,000	4,000	6,000	16	0.6	14	1.6	531	60	638	72	1,063	120
C002_0470 MT10	46.82	7865/168	4,000	4,000	6,000	16	0.6	14	1.6	531	60	576	65	1,063	120
C002_0500 MT10	49.94	899/18	4,000	4,000	6,000	16	0.6	14	1.6	531	60	638	72	1,048	118
C002_0560 MT10	55.97	2015/36	4,000	4,000	6,000	16	0.6	14	1.6	531	60	576	65	1,063	120
C002_0620 MT10	62.35	1247/20	4,000	4,000	6,000	16	0.6	14	1.6	531	60	638	72	1,063	120
C002_0700 MT10	69.88	559/8	4,000	4,000	6,000	16	0.6	14	1.6	531	60	576	65	1,063	120

C102 with MT TriAdapt® Motor Adapter Continued Next Page

Noise Level ≤ 55 dB(A)³⁾

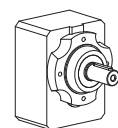
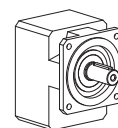
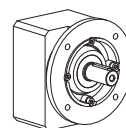
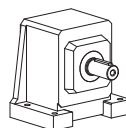
C102_0020 MT10	2.018	1128/559	3,100	2,600	5,000	18	2.5	12	1.3	195	22	195	22	243	27
C102_0020 MT20	2.018	1128/559	3,100	2,600	5,000	18	3.1	12	1.4	547	62	763	86	1,076	121
C102_0020 MT30	2.018	1128/559	3,100	2,600	4,000	18	7.9	16	1.8	547	62	861	97	1,076	121
C102_0022 MT10	2.177	468/215	3,100	2,600	5,000	18	2.4	13	1.4	210	24	210	24	263	30
C102_0022 MT20	2.177	468/215	3,100	2,600	5,000	18	3.0	13	1.5	561	63	823	93	1,161	131
C102_0022 MT30	2.177	468/215	3,100	2,600	4,000	18	7.8	17	1.9	561	63	929	105	1,161	131
C102_0024 MT20	2.394	2303/962	3,100	2,600	5,000	18	2.7	15	1.7	579	65	905	102	1,260	142
C102_0024 MT30	2.394	2303/962	3,100	2,600	4,000	18	7.5	18	2.0	579	65	978	110	1,260	142
C102_0026 MT20	2.582	1911/740	3,100	2,600	5,000	18	2.7	16	1.8	593	67	976	110	1,359	153
C102_0026 MT30	2.582	1911/740	3,100	2,600	4,000	18	7.5	19	2.1	593	67	1,003	113	1,359	153
C102_0031 MT10	3.091	2491/806	3,600	3,100	6,000	18	1.6	17	2.0	282	32	282	32	352	40
C102_0031 MT20	3.091	2491/806	3,500	3,100	5,000	18	2.2	18	2.0	630	71	1,065	120	1,556	176
C102_0031 MT30	3.091	2491/806	3,500	3,100	4,000	18	7.0	21	2.4	630	71	1,065	120	1,556	176
C102_0033 MT10	3.334	2067/620	3,600	3,100	6,000	18	1.6	18	2.1	304	34	304	34	380	43
C102_0033 MT20	3.334	2067/620	3,500	3,100	5,000	18	2.2	19	2.1	646	73	1,092	123	1,678	189
C102_0033 MT30	3.334	2067/620	3,500	3,100	4,000	18	7.0	22	2.4	646	73	1,092	123	1,678	189
C102_0039 MT10	3.883	1363/351	3,600	3,100	6,000	18	1.3	20	2.3	342	39	342	39	427	48
C102_0039 MT20	3.883	1363/351	3,500	3,100	5,000	18	1.9	21	2.3	680	77	1,149	130	1,888	213
C102_0039 MT30	3.883	1363/351	3,500	3,100	4,000	18	6.7	23	2.6	680	77	1,149	130	1,888	213
C102_0042 MT10	4.189	377/90	3,600	3,100	6,000	18	1.3	21	2.4	369	42	369	42	461	52
C102_0042 MT20	4.189	377/90	3,500	3,100	5,000	18	1.9	22	2.4	697	79	1,152	130	1,949	220
C102_0042 MT30	4.189	377/90	3,500	3,100	4,000	18	6.7	24	2.7	697	79	1,152	130	1,949	220
C102_0047 MT10	4.658	3149/676	3,800	3,500	6,000	18	1.1	22	2.5	396	45	396	45	494	56
C102_0047 MT20	4.658	3149/676	3,500	3,500	5,000	18	1.7	22	2.5	722	82	1,152	130	1,949	220
C102_0047 MT30	4.658	3149/676	3,500	3,500	4,000	18	6.5	24	2.7	722	82	1,152	130	1,949	220

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
C102 with MT TriAdapt® Motor Adapter Continued Next Page Noise Level ≤ 55 dB(A)³⁾															
C102_0050 MT10	5.025	201/40	3,800	3,500	6,000	18	1.1	23	2.6	427	48	427	48	533	60
C102_0050 MT20	5.025	201/40	3,500	3,500	5,000	18	1.7	23	2.6	741	84	1,152	130	1,949	220
C102_0050 MT30	5.025	201/40	3,500	3,500	4,000	18	6.5	25	2.8	741	84	1,152	130	1,949	220
C102_0059 MT10	5.875	47/8	3,800	3,500	6,000	18	1.0	24	2.7	480	54	480	54	600	68
C102_0059 MT20	5.875	47/8	3,500	3,500	5,000	18	1.6	24	2.7	781	88	1,152	130	1,949	220
C102_0059 MT30	5.875	47/8	3,500	3,500	4,000	18	6.4	25	2.9	781	88	1,152	130	1,949	220
C102_0063 MT10	6.338	507/80	3,800	3,500	6,000	18	1.0	24	2.7	517	58	517	58	647	73
C102_0063 MT20	6.338	507/80	3,500	3,500	5,000	18	1.6	25	2.8	801	90	1,152	130	1,949	220
C102_0063 MT30	6.338	507/80	3,500	3,500	4,000	18	6.4	26	2.9	801	90	1,152	130	1,949	220
C102_0078 MT10	7.796	3243/416	4,000	3,900	6,000	18	0.8	25	2.9	602	68	602	68	752	85
C102_0078 MT20	7.796	3243/416	3,500	3,500	5,000	18	1.4	26	2.9	858	97	1,152	130	1,949	220
C102_0078 MT30	7.796	3243/416	3,500	3,500	4,000	18	6.2	26	3.0	858	97	1,152	130	1,949	220
C102_0083 MT10	8.263	1537/186	3,600	3,100	6,000	15	1.3	32	3.6	753	85	753	85	941	106
C102_0083 MT20	8.263	1537/186	3,500	3,100	5,000	15	1.9	32	3.6	1,033	117	1,222	138	2,126	240
C102_0083 MT30	8.263	1537/186	3,500	3,100	4,000	15	6.7	33	3.7	1,033	117	1,222	138	2,126	240
C102_0093 MT10	9.326	3180/341	3,600	3,100	6,000	15	1.3	32	3.6	850	96	850	96	1,062	120
C102_0093 MT20	9.326	3180/341	3,500	3,100	5,000	15	1.9	32	3.7	1,063	120	1,222	138	2,126	240
C102_0093 MT30	9.326	3180/341	3,500	3,100	4,000	15	6.7	33	3.8	1,063	120	1,222	138	2,126	240
C102_0105 MT10	10.38	841/81	3,600	3,100	6,000	15	1.1	33	3.7	914	103	914	103	1,142	129
C102_0105 MT20	10.38	841/81	3,500	3,100	5,000	15	1.7	33	3.7	1,063	120	1,222	138	2,126	240
C102_0105 MT30	10.38	841/81	3,500	3,100	4,000	15	6.5	34	3.8	1,063	120	1,222	138	2,126	240
C102_0115 MT10	11.72	1160/99	3,600	3,100	6,000	15	1.1	33	3.7	1,031	116	1,031	116	1,289	146
C102_0115 MT20	11.72	1160/99	3,500	3,100	5,000	15	1.7	33	3.8	1,063	120	1,222	138	2,126	240
C102_0115 MT30	11.72	1160/99	3,500	3,100	4,000	15	6.5	34	3.8	1,063	120	1,222	138	2,126	240
C102_0125 MT10	12.46	1943/156	3,800	3,500	6,000	15	1.0	33	3.8	1,058	119	1,058	119	1,322	149
C102_0125 MT20	12.46	1943/156	3,500	3,500	5,000	15	1.6	33	3.8	1,063	120	1,222	138	2,126	240
C102_0125 MT30	12.46	1943/156	3,500	3,500	4,000	15	6.4	34	3.8	1,063	120	1,222	138	2,126	240
C102_0140 MT10	14.06	2010/143	3,800	3,500	6,000	15	1.0	34	3.8	1,063	120	1,194	135	1,492	168
C102_0140 MT20	14.06	2010/143	3,500	3,500	5,000	15	1.6	34	3.8	1,063	120	1,222	138	2,126	240
C102_0140 MT30	14.06	2010/143	3,500	3,500	4,000	15	6.4	34	3.9	1,063	120	1,222	138	2,126	240
C102_0155 MT10	15.71	377/24	3,800	3,500	6,000	15	0.9	34	3.8	1,063	120	1,222	138	1,603	181
C102_0155 MT20	15.71	377/24	3,500	3,500	5,000	15	1.5	34	3.8	1,063	120	1,222	138	2,126	240
C102_0155 MT30	15.71	377/24	3,500	3,500	4,000	15	6.3	34	3.9	1,063	120	1,222	138	2,126	240
C102_0175 MT10	17.73	195/11	3,800	3,500	6,000	15	0.9	34	3.8	1,063	120	1,222	138	1,809	204
C102_0175 MT20	17.73	195/11	3,500	3,500	5,000	15	1.5	34	3.9	1,063	120	1,222	138	2,126	240
C102_0175 MT30	17.73	195/11	3,500	3,500	4,000	15	6.3	34	3.9	1,063	120	1,222	138	2,126	240
C102_0210 MT10	20.84	667/32	4,000	3,900	6,000	15	0.8	34	3.9	1,063	120	1,222	138	2,012	227
C102_0210 MT20	20.84	667/32	3,500	3,500	5,000	15	1.4	34	3.9	1,063	120	1,222	138	2,126	240
C102_0210 MT30	20.84	667/32	3,500	3,500	4,000	15	6.2	34	3.9	1,063	120	1,222	138	2,126	240
C102_0240 MT10	23.52	1035/44	4,000	3,900	6,000	15	0.8	34	3.9	1,063	120	1,222	138	2,126	240
C102_0240 MT20	23.52	1035/44	3,500	3,500	5,000	15	1.4	34	3.9	1,063	120	1,222	138	2,126	240
C102_0240 MT30	23.52	1035/44	3,500	3,500	4,000	15	6.2	35	3.9	1,063	120	1,222	138	2,126	240

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N(n1DBH)} ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\phi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

C102 with MT TriAdapt® Motor Adapter Continued

Noise Level ≤ 55 dB(A) ³⁾

C102_0250 MT10	25.13	377/15	4,000	3,900	6,000	15	0.8	34	3.9	1,063	120	1,222	138	2,126	240
C102_0250 MT20	25.13	377/15	3,500	3,500	5,000	15	1.4	34	3.9	1,063	120	1,222	138	2,126	240
C102_0250 MT30	25.13	377/15	3,500	3,500	4,000	15	6.2	35	3.9	1,063	120	1,222	138	2,126	240
C102_0280 MT10	28.36	312/11	4,000	3,900	6,000	15	0.8	35	3.9	1,063	120	1,222	138	2,126	240
C102_0280 MT20	28.36	312/11	3,500	3,500	5,000	15	1.4	35	3.9	1,063	120	1,222	138	2,126	240
C102_0280 MT30	28.36	312/11	3,500	3,500	4,000	15	6.2	35	3.9	1,063	120	1,222	138	2,126	240
C102_0310 MT10	31.07	435/14	4,000	3,900	6,000	15	0.7	35	3.9	1,063	120	1,222	138	2,126	240
C102_0310 MT20	31.07	435/14	3,500	3,500	5,000	15	1.3	35	3.9	1,063	120	1,222	138	2,126	240
C102_0310 MT30	31.07	435/14	3,500	3,500	4,000	15	6.1	35	3.9	1,063	120	1,222	138	2,126	240
C102_0350 MT10	35.07	2700/77	4,000	3,900	6,000	15	0.7	35	3.9	1,063	120	1,222	138	2,126	240
C102_0350 MT20	35.07	2700/77	3,500	3,500	5,000	15	1.3	35	3.9	1,063	120	1,222	138	2,126	240
C102_0350 MT30	35.07	2700/77	3,500	3,500	4,000	15	6.1	35	3.9	1,063	120	1,222	138	2,126	240
C102_0420 MT10	41.57	1247/30	4,000	3,900	6,000	15	0.7	35	3.9	1,063	120	1,222	138	2,126	240
C102_0420 MT20	41.57	1247/30	3,500	3,500	5,000	15	1.3	35	3.9	1,063	120	1,222	138	2,126	240
C102_0470 MT10	46.91	516/11	4,000	3,900	6,000	15	0.7	35	3.9	1,063	120	1,222	138	2,126	240
C102_0470 MT20	46.91	516/11	3,500	3,500	5,000	15	1.3	35	3.9	1,063	120	1,222	138	2,126	240
C102_0500 MT10	49.94	899/18	4,000	3,900	6,000	15	0.6	35	3.9	1,063	120	1,222	138	2,089	236
C102_0560 MT10	56.36	620/11	4,000	3,900	6,000	15	0.6	35	3.9	1,063	120	1,222	138	2,126	240
C102_0620 MT10	62.43	4495/72	4,000	3,900	6,000	15	0.6	35	3.9	1,054	119	1,222	138	2,108	238
C102_0700 MT10	70.46	775/11	4,000	3,900	6,000	15	0.6	35	3.9	1,063	120	1,222	138	2,126	240

C103 with MT TriAdapt® Motor Adapter

Noise Level ≤ 55 dB(A) ³⁾

C103_0820 MT10	81.64	31349/384	4,000	3,900	6,000	15	0.7	35	3.9	1,063	120	1,222	138	2,126	240
C103_0920 MT10	92.13	16215/176	4,000	3,900	6,000	15	0.7	35	3.9	1,063	120	1,222	138	2,126	240
C103_1110 MT10	111.1	1222/11	4,000	3,900	6,000	15	0.7	35	3.9	1,063	120	1,222	138	2,126	240
C103_1370 MT10	137.3	10575/77	4,000	3,900	6,000	15	0.7	35	3.9	1,063	120	1,222	138	2,126	240
C103_1840 MT10	183.7	2021/11	4,000	3,900	6,000	15	0.6	35	3.9	1,063	120	1,222	138	2,126	240
C103_2210 MT10	220.8	7285/33	4,000	3,900	6,000	15	0.6	35	3.9	1,063	120	1,222	138	2,126	240
C103_2760 MT10	275.9	36425/132	4,000	3,900	6,000	15	0.6	35	3.9	1,063	120	1,222	138	2,126	240

C202 with MT TriAdapt® Motor Adapter Continued Next Page

Noise Level ≤ 53 dB(A) ³⁾

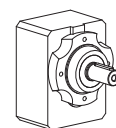
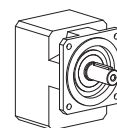
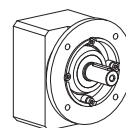
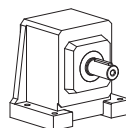
C202_0020 MT20	2.009	432/215	3,000	2,600	4,500	17	5.1	15	1.7	690	78	760	86	1,114	126
C202_0020 MT30	2.009	432/215	3,000	2,600	4,000	17	9.9	21	2.4	834	94	1,408	159	2,874	324
C202_0022 MT20	2.184	2160/989	3,000	2,600	4,500	17	4.9	17	2.0	751	85	826	93	1,211	137
C202_0022 MT30	2.184	2160/989	3,000	2,600	4,000	17	9.7	23	2.6	857	97	1,448	163	3,100	350
C202_0025 MT20	2.475	99/40	3,000	2,600	4,500	17	4.1	20	2.3	851	96	936	106	1,328	150
C202_0025 MT30	2.475	99/40	3,000	2,600	4,000	17	8.9	27	3.0	894	101	1,062	120	1,328	150
C202_0027 MT20	2.690	495/184	3,000	2,600	4,500	17	4.0	23	2.5	919	104	1,017	115	1,443	163
C202_0027 MT30	2.690	495/184	3,000	2,600	4,000	17	8.8	29	3.3	919	104	1,155	130	1,443	163
C202_0031 MT20	3.103	90/29	3,500	3,100	5,000	17	3.3	26	3.0	964	109	1,173	132	1,618	183
C202_0031 MT30	3.103	90/29	3,500	3,100	4,000	17	8.1	33	3.7	964	109	1,295	146	1,618	183

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
C202 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 53 dB(A) ³⁾					
C202_0034 MT20	3.373	2250/667	3,500	3,100	5,000	17	3.2	29	3.2	991	112	1,275	144	1,759	199
C202_0034 MT30	3.373	2250/667	3,500	3,100	4,000	17	8.0	35	3.9	991	112	1,407	159	1,759	199
C202_0039 MT20	3.888	486/125	3,500	3,100	5,000	17	2.7	32	3.6	1,039	117	1,470	166	1,954	221
C202_0039 MT30	3.888	486/125	3,500	3,100	4,000	17	7.5	38	4.3	1,039	117	1,563	176	1,954	221
C202_0042 MT20	4.226	486/115	3,500	3,100	5,000	17	2.6	34	3.9	1,068	121	1,598	180	2,124	240
C202_0042 MT30	4.226	486/115	3,500	3,100	4,000	17	7.4	40	4.5	1,068	121	1,699	192	2,124	240
C202_0047 MT20	4.667	14/3	3,500	3,500	5,000	17	2.3	37	4.1	1,104	125	1,764	199	2,261	255
C202_0047 MT30	4.667	14/3	3,500	3,500	4,000	17	7.1	42	4.7	1,104	125	1,772	200	2,261	255
C202_0051 MT20	5.072	350/69	3,500	3,500	5,000	17	2.3	39	4.4	1,135	128	1,772	200	2,457	277
C202_0051 MT30	5.072	350/69	3,500	3,500	4,000	17	7.1	43	4.9	1,135	128	1,772	200	2,457	277
C202_0058 MT10	5.791	666/115	3,700	3,500	5,500	17	1.4	40	4.5	488	55	488	55	610	69
C202_0058 MT20	5.791	666/115	3,500	3,500	5,000	17	2.0	41	4.7	1,186	134	1,772	200	2,696	304
C202_0058 MT30	5.791	666/115	3,500	3,500	4,000	17	6.8	45	5.1	1,186	134	1,772	200	2,696	304
C202_0063 MT10	6.295	3330/529	3,700	3,500	5,500	17	1.4	42	4.7	530	60	530	60	663	75
C202_0063 MT20	6.295	3330/529	3,500	3,500	5,000	17	2.0	43	4.8	1,220	138	1,772	200	2,930	331
C202_0063 MT30	6.295	3330/529	3,500	3,500	4,000	17	6.8	46	5.2	1,220	138	1,772	200	2,930	331
C202_0078 MT10	7.800	39/5	4,000	3,900	6,000	17	1.1	45	5.1	618	70	618	70	772	87
C202_0078 MT20	7.800	39/5	3,500	3,500	5,000	17	1.7	46	5.2	1,310	148	1,772	200	3,100	350
C202_0078 MT30	7.800	39/5	3,500	3,500	4,000	17	6.5	48	5.5	1,310	148	1,772	200	3,100	350
C202_0082 MT20	8.190	475/58	3,500	3,100	5,000	14	2.7	61	6.9	1,692	191	2,037	230	3,543	400
C202_0082 MT30	8.190	475/58	3,500	3,100	4,000	14	7.5	65	7.4	1,692	191	2,037	230	3,543	400
C202_0094 MT20	9.387	2450/261	3,500	3,100	5,000	14	2.7	64	7.2	1,771	200	2,037	230	3,543	400
C202_0094 MT30	9.387	2450/261	3,500	3,100	4,000	14	7.5	67	7.6	1,771	200	2,037	230	3,543	400
C202_0105 MT20	10.26	513/50	3,500	3,100	5,000	14	2.3	65	7.3	1,772	200	2,037	230	3,543	400
C202_0105 MT30	10.26	513/50	3,500	3,100	4,000	14	7.1	68	7.7	1,772	200	2,037	230	3,543	400
C202_0120 MT20	11.76	294/25	3,500	3,100	5,000	14	2.3	67	7.5	1,772	200	2,037	230	3,543	400
C202_0120 MT30	11.76	294/25	3,500	3,100	4,000	14	7.1	69	7.8	1,772	200	2,037	230	3,543	400
C202_0125 MT20	12.32	665/54	3,500	3,500	5,000	14	2.1	67	7.6	1,772	200	2,037	230	3,543	400
C202_0125 MT30	12.32	665/54	3,500	3,500	4,000	14	6.9	70	7.9	1,772	200	2,037	230	3,543	400
C202_0140 MT20	14.12	3430/243	3,500	3,500	5,000	14	2.0	69	7.8	1,772	200	2,037	230	3,543	400
C202_0140 MT30	14.12	3430/243	3,500	3,500	4,000	14	6.8	70	8.0	1,772	200	2,037	230	3,543	400
C202_0155 MT10	15.28	703/46	3,700	3,500	5,500	14	1.2	69	7.8	1,287	145	1,287	145	1,609	182
C202_0155 MT20	15.28	703/46	3,500	3,500	5,000	14	1.8	69	7.8	1,772	200	2,037	230	3,543	400
C202_0155 MT30	15.28	703/46	3,500	3,500	4,000	14	6.6	71	8.0	1,772	200	2,037	230	3,543	400
C202_0175 MT10	17.52	3626/207	3,700	3,500	5,500	14	1.2	70	7.9	1,476	167	1,476	167	1,844	208
C202_0175 MT20	17.52	3626/207	3,500	3,500	5,000	14	1.8	70	7.9	1,772	200	2,037	230	3,543	400
C202_0175 MT30	17.52	3626/207	3,500	3,500	4,000	14	6.6	71	8.1	1,772	200	2,037	230	3,543	400
C202_0210 MT10	20.58	247/12	4,000	3,900	6,000	14	1.0	71	8.0	1,631	184	1,631	184	2,038	230
C202_0210 MT20	20.58	247/12	3,500	3,500	5,000	14	1.6	71	8.0	1,772	200	2,037	230	3,543	400
C202_0210 MT30	20.58	247/12	3,500	3,500	4,000	14	6.4	72	8.1	1,772	200	2,037	230	3,543	400
C202_0240 MT10	23.59	637/27	4,000	3,900	6,000	14	1.0	71	8.1	1,772	200	1,869	211	2,337	264
C202_0240 MT20	23.59	637/27	3,500	3,500	5,000	14	1.6	72	8.1	1,772	200	2,037	230	3,543	400
C202_0240 MT30	23.59	637/27	3,500	3,500	4,000	14	6.4	72	8.2	1,772	200	2,037	230	3,543	400

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
 Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\phi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		

C202 with MT TriAdapt® Motor Adapter Continued

Noise Level ≤ 53 dB(A) ³⁾

C202_0250 MT10	24.64	1577/64	4,000	3,900	6,000	14	0.9	72	8.1	1,772	200	1,889	213	2,362	267
C202_0250 MT20	24.64	1577/64	3,500	3,500	5,000	14	1.5	72	8.1	1,772	200	2,037	230	3,543	400
C202_0250 MT30	24.64	1577/64	3,500	3,500	4,000	14	6.3	72	8.2	1,772	200	2,037	230	3,543	400
C202_0280 MT10	28.24	4067/144	4,000	3,900	6,000	14	0.9	72	8.1	1,772	200	2,037	230	2,707	306
C202_0280 MT20	28.24	4067/144	3,500	3,500	5,000	14	1.5	72	8.2	1,772	200	2,037	230	3,543	400
C202_0280 MT30	28.24	4067/144	3,500	3,500	4,000	14	6.3	73	8.2	1,772	200	2,037	230	3,543	400
C202_0310 MT10	30.69	399/13	4,000	3,900	6,000	14	0.8	72	8.2	1,772	200	2,037	230	2,793	315
C202_0310 MT20	30.69	399/13	3,500	3,500	5,000	14	1.4	72	8.2	1,772	200	2,037	230	3,543	400
C202_0310 MT30	30.69	399/13	3,500	3,500	4,000	14	6.2	73	8.2	1,772	200	2,037	230	3,543	400
C202_0350 MT10	35.18	1372/39	4,000	3,900	6,000	14	0.8	73	8.2	1,772	200	2,037	230	3,201	361
C202_0350 MT20	35.18	1372/39	3,500	3,500	5,000	14	1.4	73	8.2	1,772	200	2,037	230	3,543	400
C202_0350 MT30	35.18	1372/39	3,500	3,500	4,000	14	6.2	73	8.2	1,772	200	2,037	230	3,543	400
C202_0410 MT10	40.85	817/20	4,000	3,900	6,000	14	0.7	73	8.2	1,772	200	2,037	230	3,493	394
C202_0410 MT20	40.85	817/20	3,500	3,500	5,000	14	1.3	73	8.2	1,772	200	2,037	230	3,543	400
C202_0410 MT30	40.85	817/20	3,500	3,500	4,000	14	6.1	73	8.2	1,772	200	2,037	230	3,543	400
C202_0470 MT10	46.82	2107/45	4,000	3,900	6,000	14	0.7	73	8.2	1,772	200	2,037	230	3,543	400
C202_0470 MT20	46.82	2107/45	3,500	3,500	5,000	14	1.3	73	8.2	1,772	200	2,037	230	3,543	400
C202_0470 MT30	46.82	2107/45	3,500	3,500	4,000	14	6.1	73	8.3	1,772	200	2,037	230	3,543	400
C202_0490 MT10	49.23	1083/22	4,000	3,900	6,000	14	0.7	73	8.2	1,772	200	2,037	230	3,543	400
C202_0490 MT20	49.23	1083/22	3,500	3,500	5,000	14	1.3	73	8.2	1,772	200	2,037	230	3,543	400
C202_0560 MT10	56.42	1862/33	4,000	3,900	6,000	14	0.7	73	8.3	1,772	200	2,037	230	3,543	400
C202_0560 MT20	56.42	1862/33	3,500	3,500	5,000	14	1.3	73	8.3	1,772	200	2,037	230	3,543	400
C202_0610 MT10	61.35	2945/48	4,000	3,900	6,000	14	0.7	73	8.3	1,658	187	1,989	225	2,518	284
C202_0700 MT10	70.32	7595/108	4,000	3,900	6,000	14	0.7	73	8.3	1,772	200	2,037	230	2,886	326

C203 with MT TriAdapt® Motor Adapter

Noise Level ≤ 53 dB(A) ³⁾

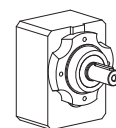
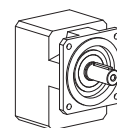
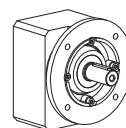
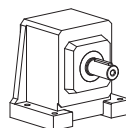
C203_0800 MT20	79.59	7163/90	3,500	3,500	5,000	14	1.4	73	8.3	1,772	200	2,037	230	3,543	400
C203_0810 MT10	80.62	11609/144	4,000	3,900	6,000	14	0.7	73	8.3	1,772	200	2,037	230	3,543	400
C203_0910 MT20	91.23	36946/405	3,500	3,500	5,000	14	1.4	73	8.3	1,772	200	2,037	230	3,543	400
C203_0920 MT10	92.40	29939/324	4,000	3,900	6,000	14	0.7	73	8.3	1,772	200	2,037	230	3,543	400
C203_1090 MT20	109.2	117943/1080	3,500	3,500	5,000	14	1.4	73	8.3	1,772	200	2,037	230	3,543	400
C203_1110 MT10	110.6	191149/1728	4,000	3,900	6,000	14	0.7	73	8.3	1,772	200	2,037	230	3,543	400
C203_1360 MT20	136.0	79576/585	3,500	3,500	5,000	14	1.4	73	8.3	1,772	200	2,037	230	3,543	400
C203_1380 MT10	137.8	16121/117	4,000	3,900	6,000	14	0.7	73	8.3	1,772	200	2,037	230	3,543	400
C203_1810 MT20	181.0	122206/675	3,500	3,500	5,000	14	1.4	73	8.3	1,772	200	2,037	230	3,543	400
C203_1830 MT10	183.4	99029/540	4,000	3,900	6,000	14	0.7	73	8.3	1,772	200	2,037	230	3,543	400
C203_2210 MT10	221.0	43757/198	4,000	3,900	6,000	14	0.7	73	8.3	1,772	200	2,037	230	3,543	400
C203_2750 MT10	275.4	356965/1296	4,000	3,900	6,000	14	0.6	73	8.3	1,772	200	2,037	230	2,885	326

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
C302 with MT TriAdapt® Motor Adapter Continued Next Page Noise Level ≤ 53 dB(A) ³⁾															
C302_0020 MT20	2.020	608/301	2,700	2,300	4,000	16	8.2	16	1.8	694	78	764	86	1,159	131
C302_0020 MT30	2.020	608/301	2,700	2,300	4,000	16	13.0	23	2.6	1,367	154	1,814	205	2,988	337
C302_0020 MT40	2.020	608/301	2,700	2,300	3,500	16	17.0	34	3.9	1,367	154	2,309	261	2,988	337
C302_0022 MT20	2.177	468/215	2,700	2,300	4,000	16	7.8	18	2.1	748	84	823	93	1,249	141
C302_0022 MT30	2.177	468/215	2,700	2,300	4,000	16	12.6	25	2.8	1,402	158	1,955	221	3,221	364
C302_0022 MT40	2.177	468/215	2,700	2,300	3,500	16	16.6	37	4.1	1,402	158	2,368	267	3,221	364
C302_0025 MT20	2.510	1634/651	2,700	2,300	4,000	16	6.3	22	2.5	863	97	949	107	1,398	158
C302_0025 MT30	2.510	1634/651	2,700	2,300	4,000	16	11.1	29	3.3	1,470	166	2,254	254	3,607	407
C302_0025 MT40	2.510	1634/651	2,700	2,300	3,500	16	15.1	41	4.6	1,470	166	2,483	280	3,607	407
C302_0027 MT20	2.705	1677/620	2,700	2,300	4,000	16	6.1	24	2.7	930	105	1,023	115	1,507	170
C302_0027 MT30	2.705	1677/620	2,700	2,300	4,000	16	10.9	32	3.6	1,507	170	2,429	274	3,887	439
C302_0027 MT40	2.705	1677/620	2,700	2,300	3,500	16	14.9	43	4.8	1,507	170	2,546	287	3,887	439
C302_0031 MT20	3.110	1045/336	3,200	2,800	4,500	16	4.8	28	3.2	1,069	121	1,176	133	1,669	188
C302_0031 MT30	3.110	1045/336	3,200	2,800	4,000	16	9.6	36	4.1	1,579	178	2,667	301	4,304	486
C302_0031 MT40	3.110	1045/336	3,000	2,800	3,500	16	13.6	46	5.2	1,579	178	2,667	301	4,304	486
C302_0034 MT20	3.352	429/128	3,200	2,800	4,500	16	4.7	31	3.5	1,152	130	1,267	143	1,798	203
C302_0034 MT30	3.352	429/128	3,200	2,800	4,000	16	9.5	38	4.3	1,618	183	2,734	309	4,639	524
C302_0034 MT40	3.352	429/128	3,000	2,800	3,500	16	13.5	48	5.4	1,618	183	2,734	309	4,639	524
C302_0039 MT20	3.878	190/49	3,200	2,800	4,500	16	3.8	35	4.0	1,333	150	1,466	166	2,012	227
C302_0039 MT30	3.878	190/49	3,200	2,800	4,000	16	8.6	42	4.8	1,699	192	2,870	324	4,872	550
C302_0039 MT40	3.878	190/49	3,000	2,800	3,500	16	12.6	51	5.8	1,699	192	2,870	324	4,872	550
C302_0042 MT20	4.179	117/28	3,200	2,800	4,500	16	3.7	38	4.3	1,436	162	1,580	178	2,169	245
C302_0042 MT30	4.179	117/28	3,200	2,800	4,000	16	8.5	44	5.0	1,742	197	2,923	330	4,872	550
C302_0042 MT40	4.179	117/28	3,000	2,800	3,500	16	12.5	52	5.9	1,742	197	2,923	330	4,872	550
C302_0047 MT20	4.675	589/126	3,500	3,100	5,000	16	3.2	41	4.6	1,552	175	1,767	200	2,334	264
C302_0047 MT30	4.675	589/126	3,500	3,100	4,000	16	8.0	47	5.3	1,808	204	2,923	330	4,872	550
C302_0047 MT40	4.675	589/126	3,000	3,000	3,500	16	12.0	54	6.1	1,808	204	2,923	330	4,872	550
C302_0050 MT20	5.038	403/80	3,500	3,100	5,000	16	3.1	43	4.9	1,672	189	1,905	215	2,515	284
C302_0050 MT30	5.038	403/80	3,500	3,100	4,000	16	7.9	49	5.5	1,854	209	2,923	330	4,872	550
C302_0050 MT40	5.038	403/80	3,000	3,000	3,500	16	11.9	55	6.2	1,854	209	2,923	330	4,872	550
C302_0059 MT20	5.859	2584/441	3,500	3,100	5,000	16	2.6	47	5.3	1,702	192	2,215	250	2,829	319
C302_0059 MT30	5.859	2584/441	3,500	3,100	4,000	16	7.4	52	5.9	1,950	220	2,923	330	4,872	550
C302_0059 MT40	5.859	2584/441	3,000	3,000	3,500	16	11.4	57	6.4	1,950	220	2,923	330	4,872	550
C302_0063 MT20	6.314	221/35	3,500	3,100	5,000	16	2.6	49	5.5	1,834	207	2,387	269	3,049	344
C302_0063 MT30	6.314	221/35	3,500	3,100	4,000	16	7.4	53	6.0	1,999	226	2,923	330	4,872	550
C302_0063 MT40	6.314	221/35	3,000	3,000	3,500	16	11.4	58	6.5	1,999	226	2,923	330	4,872	550
C302_0078 MT20	7.841	494/63	3,500	3,500	5,000	16	2.1	53	5.9	1,771	200	2,845	321	3,556	401
C302_0078 MT30	7.841	494/63	3,500	3,500	4,000	16	6.9	56	6.3	2,148	243	2,923	330	4,872	550
C302_0078 MT40	7.841	494/63	3,000	3,000	3,500	16	10.9	59	6.7	2,148	243	2,923	330	4,872	550
C302_0083 MT20	8.250	33/4	3,200	2,800	4,500	13	3.8	64	7.2	2,638	298	3,119	352	4,426	500
C302_0083 MT30	8.250	33/4	3,200	2,800	4,000	13	8.6	68	7.7	2,638	298	3,543	400	6,201	700
C302_0083 MT40	8.250	33/4	3,000	2,800	3,500	13	12.6	73	8.2	2,638	298	3,543	400	6,201	700

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
 Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



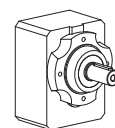
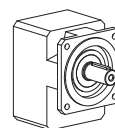
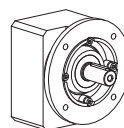
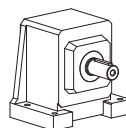
Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
C302 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 53 dB(A) ³⁾					
C302_0093 MT20	9.310	3575/384	3,200	2,800	4,500	13	3.7	66	7.5	2,746	310	3,100	350	4,995	564
C302_0093 MT30	9.310	3575/384	3,200	2,800	4,000	13	8.5	70	7.9	2,746	310	3,100	350	6,201	700
C302_0093 MT40	9.310	3575/384	3,000	2,800	3,500	13	12.5	74	8.3	2,746	310	3,100	350	6,201	700
C302_0105 MT20	10.29	72/7	3,200	2,800	4,500	13	3.1	68	7.7	2,839	321	3,543	400	5,338	603
C302_0105 MT30	10.29	72/7	3,200	2,800	4,000	13	7.9	71	8.1	2,839	321	3,543	400	6,201	700
C302_0105 MT40	10.29	72/7	3,000	2,800	3,500	13	11.9	74	8.4	2,839	321	3,543	400	6,201	700
C302_0115 MT20	11.61	325/28	3,200	2,800	4,500	13	3.1	70	7.9	2,956	334	3,100	350	6,023	680
C302_0115 MT30	11.61	325/28	3,200	2,800	4,000	13	7.9	73	8.2	2,956	334	3,100	350	6,201	700
C302_0115 MT40	11.61	325/28	3,000	2,800	3,500	13	11.9	75	8.5	2,956	334	3,100	350	6,201	700
C302_0125 MT20	12.40	62/5	3,500	3,100	5,000	13	2.7	71	8.0	3,022	341	3,543	400	6,191	699
C302_0125 MT30	12.40	62/5	3,500	3,100	4,000	13	7.5	73	8.3	3,022	341	3,543	400	6,201	700
C302_0125 MT40	12.40	62/5	3,000	3,000	3,500	13	11.5	75	8.5	3,022	341	3,543	400	6,201	700
C302_0140 MT20	13.99	2015/144	3,500	3,100	5,000	13	2.7	72	8.1	3,100	350	3,100	350	6,201	700
C302_0140 MT30	13.99	2015/144	3,500	3,100	4,000	13	7.5	74	8.4	3,100	350	3,100	350	6,201	700
C302_0140 MT40	13.99	2015/144	3,000	3,000	3,500	13	11.5	76	8.5	3,100	350	3,100	350	6,201	700
C302_0155 MT20	15.54	544/35	3,500	3,100	5,000	13	2.3	73	8.2	3,100	350	3,543	400	6,201	700
C302_0155 MT30	15.54	544/35	3,500	3,100	4,000	13	7.1	75	8.4	3,100	350	3,543	400	6,201	700
C302_0155 MT40	15.54	544/35	3,000	3,000	3,500	13	11.1	76	8.6	3,100	350	3,543	400	6,201	700
C302_0175 MT20	17.54	1105/63	3,500	3,100	5,000	13	2.3	74	8.3	3,100	350	3,100	350	6,201	700
C302_0175 MT30	17.54	1105/63	3,500	3,100	4,000	13	7.1	75	8.5	3,100	350	3,100	350	6,201	700
C302_0175 MT40	17.54	1105/63	3,000	3,000	3,500	13	11.1	76	8.6	3,100	350	3,100	350	6,201	700
C302_0210 MT20	20.80	104/5	3,500	3,500	5,000	13	1.9	75	8.5	3,100	350	3,543	400	6,201	700
C302_0210 MT30	20.80	104/5	3,500	3,500	4,000	13	6.7	76	8.6	3,100	350	3,543	400	6,201	700
C302_0210 MT40	20.80	104/5	3,000	3,000	3,500	13	10.7	77	8.6	3,100	350	3,543	400	6,201	700
C302_0230 MT20	23.47	845/36	3,500	3,500	5,000	13	1.9	75	8.5	3,100	350	3,100	350	6,201	700
C302_0230 MT30	23.47	845/36	3,500	3,500	4,000	13	6.7	76	8.6	3,100	350	3,100	350	6,201	700
C302_0230 MT40	23.47	845/36	3,000	3,000	3,500	13	10.7	77	8.7	3,100	350	3,100	350	6,201	700
C302_0250 MT20	24.80	124/5	3,500	3,500	5,000	13	1.7	76	8.5	3,100	350	3,543	400	6,201	700
C302_0250 MT30	24.80	124/5	3,500	3,500	4,000	13	6.5	76	8.6	3,100	350	3,543	400	6,201	700
C302_0250 MT40	24.80	124/5	3,000	3,000	3,500	13	10.5	77	8.7	3,100	350	3,543	400	6,201	700
C302_0280 MT20	27.99	2015/72	3,500	3,500	5,000	13	1.7	76	8.6	3,100	350	3,100	350	6,201	700
C302_0280 MT30	27.99	2015/72	3,500	3,500	4,000	13	6.5	76	8.6	3,100	350	3,100	350	6,201	700
C302_0280 MT40	27.99	2015/72	3,000	3,000	3,500	13	10.5	77	8.7	3,100	350	3,100	350	6,201	700
C302_0310 MT20	31.04	776/25	3,500	3,500	5,000	13	1.6	76	8.6	3,100	350	3,543	400	6,201	700
C302_0310 MT30	31.04	776/25	3,500	3,500	4,000	13	6.4	77	8.7	3,100	350	3,543	400	6,201	700
C302_0310 MT40	31.04	776/25	3,000	3,000	3,500	13	10.4	77	8.7	3,100	350	3,543	400	6,201	700
C302_0350 MT20	35.03	1261/36	3,500	3,500	5,000	13	1.6	76	8.6	3,100	350	3,100	350	6,201	700
C302_0350 MT30	35.03	1261/36	3,500	3,500	4,000	13	6.4	77	8.7	3,100	350	3,100	350	6,201	700
C302_0350 MT40	35.03	1261/36	3,000	3,000	3,500	13	10.4	77	8.7	3,100	350	3,100	350	6,201	700
C302_0410 MT20	41.35	2688/65	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,543	400	6,201	700
C302_0410 MT30	41.35	2688/65	3,500	3,500	4,000	13	6.2	77	8.7	3,100	350	3,543	400	6,201	700
C302_0470 MT20	46.67	140/3	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,100	350	6,201	700
C302_0470 MT30	46.67	140/3	3,500	3,500	4,000	13	6.2	77	8.7	3,100	350	3,100	350	6,201	700

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
C302 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 53 dB(A) ³⁾					
C302_0500 MT20	49.75	2736/55	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,543	400	6,201	700
C302_0500 MT30	49.75	2736/55	3,500	3,500	4,000	13	6.2	77	8.7	3,100	350	3,543	400	6,201	700
C302_0560 MT20	56.14	1235/22	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,100	350	6,201	700
C302_0560 MT30	56.14	1235/22	3,500	3,500	4,000	13	6.2	77	8.7	3,100	350	3,100	350	6,201	700
C302_0620 MT20	61.92	1548/25	3,500	3,500	5,000	13	1.3	77	8.7	2,932	331	3,518	397	4,990	563
C302_0700 MT20	69.88	559/8	3,500	3,500	5,000	13	1.3	77	8.7	3,100	350	3,100	350	5,631	636
C303 with MT TriAdapt® Motor Adapter										Noise Level ≤ 53 dB(A) ³⁾					
C303_0800 MT20	80.43	6032/75	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,543	400	6,201	700
C303_0810 MT10	81.47	1222/15	3,800	3,500	5,500	13	0.7	77	8.7	2,954	334	2,954	334	3,693	417
C303_0910 MT20	90.76	4901/54	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,100	350	6,201	700
C303_0920 MT10	91.93	39715/432	3,800	3,500	5,500	13	0.7	77	8.7	3,100	350	3,100	350	4,167	470
C303_1080 MT20	108.2	11687/108	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,100	350	6,201	700
C303_1100 MT10	109.6	94705/864	3,800	3,500	5,500	13	0.7	77	8.7	3,100	350	3,100	350	4,969	561
C303_1350 MT20	135.4	36569/270	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,100	350	6,201	700
C303_1370 MT10	137.2	59267/432	3,800	3,500	5,500	13	0.7	77	8.7	3,100	350	3,100	350	6,201	700
C303_1800 MT20	180.4	1624/9	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,100	350	6,201	700
C303_1830 MT10	182.8	1645/9	3,800	3,500	5,500	13	0.7	77	8.7	3,100	350	3,100	350	6,201	700
C303_2170 MT20	217.1	7163/33	3,500	3,500	5,000	13	1.4	77	8.7	3,100	350	3,100	350	6,201	700
C303_2200 MT10	219.9	58045/264	3,800	3,500	5,500	13	0.7	77	8.7	3,100	350	3,100	350	6,201	700
C303_2740 MT10	273.7	26273/96	3,800	3,500	5,500	13	0.7	77	8.7	3,100	350	3,100	350	5,631	636
C402 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 61 dB(A) ³⁾					
C402_0020 MT30	1.968	551/280	2,500	2,100	3,500	15	23.1	28	3.1	1,606	181	1,767	199	3,029	342
C402_0020 MT40	1.968	551/280	2,500	2,100	3,500	15	27.1	49	5.5	1,971	223	2,424	274	3,029	342
C402_0022 MT30	2.221	171/77	2,500	2,100	3,500	15	21.2	34	3.8	1,813	205	1,994	225	3,419	386
C402_0022 MT40	2.221	171/77	2,500	2,100	3,500	15	25.2	57	6.4	2,052	232	2,735	309	3,419	386
C402_0025 MT30	2.456	609/248	2,500	2,100	3,500	15	18.2	39	4.4	2,005	226	2,205	249	3,668	414
C402_0025 MT40	2.456	609/248	2,500	2,100	3,500	15	22.2	64	7.2	2,122	240	2,934	331	3,668	414
C402_0028 MT30	2.771	945/341	2,500	2,100	3,500	15	17.0	47	5.3	2,209	249	2,488	281	4,138	467
C402_0028 MT40	2.771	945/341	2,500	2,100	3,500	15	21.0	73	8.3	2,209	249	3,311	374	4,138	467
C402_0031 MT30	3.099	1537/496	2,900	2,500	4,000	15	14.5	54	6.1	2,293	259	2,783	314	4,453	503
C402_0031 MT40	3.099	1537/496	2,900	2,500	3,500	15	18.5	82	9.2	2,293	259	3,562	402	4,453	503
C402_0035 MT30	3.497	2385/682	2,900	2,500	4,000	15	13.7	63	7.1	2,388	270	3,140	354	5,025	567
C402_0035 MT40	3.497	2385/682	2,900	2,500	3,500	15	17.7	91	10.2	2,388	270	4,020	454	5,025	567
C402_0039 MT20	3.894	841/216	2,900	2,500	4,000	15	7.2	53	6.0	1,338	151	1,472	166	2,088	236
C402_0039 MT30	3.894	841/216	2,900	2,500	4,000	15	12.0	71	8.0	2,475	279	3,496	395	5,385	608
C402_0039 MT40	3.894	841/216	2,900	2,500	3,500	15	16.0	98	11.1	2,475	279	4,181	472	5,385	608
C402_0044 MT20	4.394	145/33	2,900	2,500	4,000	15	6.7	62	7.0	1,510	170	1,661	188	2,356	266
C402_0044 MT30	4.394	145/33	2,900	2,500	4,000	15	11.5	80	9.0	2,576	291	3,945	445	6,077	686
C402_0044 MT40	4.394	145/33	2,900	2,500	3,500	15	15.5	106	12.0	2,576	291	4,353	491	6,077	686

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
 Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



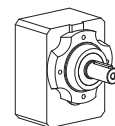
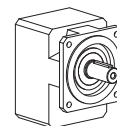
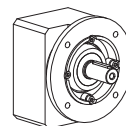
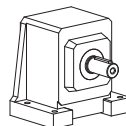
Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
C402 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 61 dB(A) ³⁾					
C402_0047 MT20	4.682	899/192	3,300	2,800	4,500	15	5.8	66	7.5	1,609	182	1,770	200	2,438	275
C402_0047 MT30	4.682	899/192	3,300	2,800	4,000	15	10.6	84	9.5	2,632	297	4,204	475	6,287	710
C402_0047 MT40	4.682	899/192	3,000	2,800	3,500	15	14.6	110	12.4	2,632	297	4,446	502	6,287	710
C402_0053 MT20	5.284	465/88	3,300	2,800	4,500	15	5.4	75	8.5	1,816	205	1,998	226	2,751	311
C402_0053 MT30	5.284	465/88	3,300	2,800	4,000	15	10.2	93	10.5	2,740	309	4,629	523	7,096	801
C402_0053 MT40	5.284	465/88	3,000	2,800	3,500	15	14.2	117	13.2	2,740	309	4,629	523	7,096	801
C402_0059 MT20	5.891	377/64	3,300	2,800	4,500	15	4.4	84	9.4	1,927	218	2,227	251	2,930	331
C402_0059 MT30	5.891	377/64	3,300	2,800	4,000	15	9.2	101	11.4	2,841	321	4,799	542	7,529	850
C402_0059 MT40	5.891	377/64	3,000	2,800	3,500	15	13.2	122	13.8	2,841	321	4,799	542	7,529	850
C402_0066 MT20	6.648	585/88	3,300	2,800	4,500	15	4.2	92	10.4	2,174	245	2,513	284	3,307	373
C402_0066 MT30	6.648	585/88	3,300	2,800	4,000	15	9.0	109	12.3	2,958	334	4,872	550	7,529	850
C402_0066 MT40	6.648	585/88	3,000	2,800	3,500	15	13.0	127	14.4	2,958	334	4,872	550	7,529	850
C402_0078 MT20	7.816	2001/256	3,500	3,200	5,000	15	3.3	103	11.7	2,045	231	2,942	332	3,677	415
C402_0078 MT30	7.816	2001/256	3,500	3,200	4,000	15	8.1	118	13.3	3,122	352	4,872	550	7,529	850
C402_0078 MT40	7.816	2001/256	3,000	3,000	3,500	15	12.1	133	15.0	3,122	352	4,872	550	7,529	850
C402_0083 MT30	8.285	3339/403	2,900	2,500	4,000	12	11.9	146	16.5	4,432	500	5,315	600	9,744	1,100
C402_0083 MT40	8.285	3339/403	2,900	2,500	3,500	12	15.9	168	18.9	4,432	500	5,315	600	9,744	1,100
C402_0093 MT30	9.261	3445/372	2,900	2,500	4,000	12	11.8	154	17.4	4,600	519	4,872	550	9,744	1,100
C402_0093 MT40	9.261	3445/372	2,900	2,500	3,500	12	15.8	172	19.5	4,600	519	4,872	550	9,744	1,100
C402_0105 MT20	10.41	406/39	2,900	2,500	4,000	12	5.6	145	16.4	3,578	404	3,936	444	5,582	630
C402_0105 MT30	10.41	406/39	2,900	2,500	4,000	12	10.4	161	18.1	4,783	540	5,315	600	9,744	1,100
C402_0105 MT40	10.41	406/39	2,900	2,500	3,500	12	14.4	176	19.9	4,783	540	5,315	600	9,744	1,100
C402_0115 MT20	11.64	1885/162	2,900	2,500	4,000	12	5.5	153	17.3	3,999	451	4,399	497	6,239	704
C402_0115 MT30	11.64	1885/162	2,900	2,500	4,000	12	10.3	166	18.8	4,872	550	4,872	550	9,744	1,100
C402_0115 MT40	11.64	1885/162	2,900	2,500	3,500	12	14.3	179	20.3	4,872	550	4,872	550	9,744	1,100
C402_0125 MT20	12.52	651/52	3,300	2,800	4,500	12	4.6	157	17.8	4,303	486	4,733	534	6,518	736
C402_0125 MT30	12.52	651/52	3,300	2,800	4,000	12	9.4	169	19.1	4,872	550	5,315	600	9,744	1,100
C402_0125 MT40	12.52	651/52	3,000	2,800	3,500	12	13.4	181	20.5	4,872	550	5,315	600	9,744	1,100
C402_0140 MT20	13.99	2015/144	3,300	2,800	4,500	12	4.6	163	18.5	4,809	543	4,872	550	7,285	822
C402_0140 MT30	13.99	2015/144	3,300	2,800	4,000	12	9.4	174	19.6	4,872	550	4,872	550	9,744	1,100
C402_0140 MT40	13.99	2015/144	3,000	2,800	3,500	12	13.4	183	20.7	4,872	550	4,872	550	9,744	1,100
C402_0160 MT20	15.75	63/4	3,300	2,800	4,500	12	3.7	169	19.1	4,872	550	5,315	600	7,835	884
C402_0160 MT30	15.75	63/4	3,300	2,800	4,000	12	8.5	178	20.0	4,872	550	5,315	600	9,744	1,100
C402_0160 MT40	15.75	63/4	3,000	2,800	3,500	12	12.5	185	20.9	4,872	550	5,315	600	9,744	1,100
C402_0175 MT20	17.60	845/48	3,300	2,800	4,500	12	3.7	173	19.6	4,872	550	4,872	550	8,757	989
C402_0175 MT30	17.60	845/48	3,300	2,800	4,000	12	8.5	180	20.4	4,872	550	4,872	550	9,744	1,100
C402_0175 MT40	17.60	845/48	3,000	2,800	3,500	12	12.5	187	21.1	4,872	550	4,872	550	9,744	1,100
C402_0210 MT20	20.90	4347/208	3,500	3,200	5,000	12	2.9	179	20.2	4,872	550	5,315	600	9,744	1,100
C402_0210 MT30	20.90	4347/208	3,500	3,200	4,000	12	7.7	184	20.8	4,872	550	5,315	600	9,744	1,100
C402_0210 MT40	20.90	4347/208	3,000	3,000	3,500	12	11.7	189	21.3	4,872	550	5,315	600	9,744	1,100
C402_0230 MT20	23.36	1495/64	3,500	3,200	5,000	12	2.9	181	20.5	4,872	550	4,872	550	9,744	1,100
C402_0230 MT30	23.36	1495/64	3,500	3,200	4,000	12	7.7	186	21.0	4,872	550	4,872	550	9,744	1,100
C402_0230 MT40	23.36	1495/64	3,000	3,000	3,500	12	11.7	190	21.4	4,872	550	4,872	550	9,744	1,100

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
C402 with MT TriAdapt® Motor Adapter Continued															
Noise Level ≤ 61 dB(A) ³⁾															
C402_0250 MT20	24.92	324/13	3,500	3,200	5,000	12	2.5	183	20.6	4,872	550	5,315	600	9,744	1,100
C402_0250 MT30	24.92	324/13	3,500	3,200	4,000	12	7.3	187	21.1	4,872	550	5,315	600	9,744	1,100
C402_0250 MT40	24.92	324/13	3,000	3,000	3,500	12	11.3	190	21.5	4,872	550	5,315	600	9,744	1,100
C402_0280 MT20	27.86	195/7	3,500	3,200	5,000	12	2.5	185	20.9	4,872	550	4,872	550	9,744	1,100
C402_0280 MT30	27.86	195/7	3,500	3,200	4,000	12	7.3	188	21.2	4,872	550	4,872	550	9,744	1,100
C402_0280 MT40	27.86	195/7	3,000	3,000	3,500	12	11.3	191	21.5	4,872	550	4,872	550	9,744	1,100
C402_0310 MT20	31.15	405/13	3,500	3,200	5,000	12	2.1	186	21.0	4,872	550	5,315	600	9,744	1,100
C402_0310 MT30	31.15	405/13	3,500	3,200	4,000	12	6.9	189	21.3	4,872	550	5,315	600	9,744	1,100
C402_0310 MT40	31.15	405/13	3,000	3,000	3,500	12	10.9	191	21.6	4,872	550	5,315	600	9,744	1,100
C402_0350 MT20	34.82	975/28	3,500	3,200	5,000	12	2.1	188	21.2	4,872	550	4,872	550	9,744	1,100
C402_0350 MT30	34.82	975/28	3,500	3,200	4,000	12	6.9	190	21.4	4,872	550	4,872	550	9,744	1,100
C402_0350 MT40	34.82	975/28	3,000	3,000	3,500	12	10.9	192	21.6	4,872	550	4,872	550	9,744	1,100
C402_0420 MT20	41.75	7056/169	3,500	3,200	5,000	12	1.8	189	21.4	4,872	550	5,315	600	9,744	1,100
C402_0420 MT30	41.75	7056/169	3,500	3,200	4,000	12	6.6	191	21.5	4,872	550	5,315	600	9,744	1,100
C402_0420 MT40	41.75	7056/169	3,000	3,000	3,500	12	10.6	192	21.7	4,872	550	5,315	600	9,744	1,100
C402_0470 MT20	46.67	140/3	3,500	3,200	5,000	12	1.7	190	21.5	4,872	550	4,872	550	9,744	1,100
C402_0470 MT30	46.67	140/3	3,500	3,200	4,000	12	6.5	191	21.6	4,872	550	4,872	550	9,744	1,100
C402_0470 MT40	46.67	140/3	3,000	3,000	3,500	12	10.5	192	21.7	4,872	550	4,872	550	9,744	1,100
C402_0500 MT20	50.19	1305/26	3,500	3,200	5,000	12	1.6	191	21.5	4,872	550	5,315	600	8,313	938
C402_0500 MT30	50.19	1305/26	3,500	3,200	4,000	12	6.4	192	21.6	4,872	550	5,315	600	8,313	938
C402_0560 MT20	56.10	9425/168	3,500	3,200	5,000	12	1.6	191	21.6	4,872	550	4,872	550	9,292	1,049
C402_0560 MT30	56.10	9425/168	3,500	3,200	4,000	12	6.4	192	21.7	4,872	550	4,872	550	9,292	1,049
C402_0630 MT20	62.52	8127/130	3,500	3,200	5,000	12	1.5	192	21.6	4,440	501	5,315	600	8,879	1,002
C402_0630 MT30	62.52	8127/130	3,500	3,200	4,000	12	6.3	192	21.7	4,440	501	5,315	600	8,879	1,002
C402_0700 MT20	69.88	559/8	3,500	3,200	5,000	12	1.5	192	21.7	4,872	550	4,872	550	9,744	1,100
C402_0700 MT30	69.88	559/8	3,500	3,200	4,000	12	6.3	192	21.7	4,872	550	4,872	550	9,744	1,100
C403 with MT TriAdapt® Motor Adapter															
Noise Level ≤ 61 dB(A) ³⁾															
C403_0810 MT20	80.81	42021/520	3,500	3,200	5,000	12	1.5	192	21.7	4,872	550	5,315	600	9,744	1,100
C403_0900 MT20	90.32	8671/96	3,500	3,200	5,000	12	1.5	192	21.7	4,872	550	4,872	550	9,744	1,100
C403_1080 MT20	107.7	754/7	3,500	3,200	5,000	12	1.5	193	21.8	4,872	550	4,872	550	9,744	1,100
C403_1350 MT20	134.6	1885/14	3,500	3,200	5,000	12	1.4	193	21.8	4,872	550	4,872	550	9,744	1,100
C403_1800 MT20	180.4	1624/9	3,500	3,200	5,000	12	1.4	193	21.8	4,872	550	4,872	550	9,744	1,100
C403_2170 MT20	216.9	54665/252	3,500	3,200	5,000	12	1.4	193	21.8	4,872	550	4,872	550	9,291	1,049
C403_2700 MT20	270.2	16211/60	3,500	3,200	5,000	12	1.4	193	21.8	4,872	550	4,872	550	9,744	1,100

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
 Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



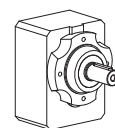
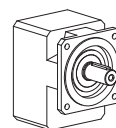
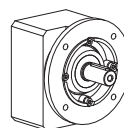
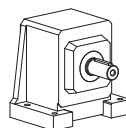
Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcm C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
C502 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 61 dB(A) ³⁾					
C502_0020 MT30	1.976	81/41	2,400	2,000	3,000	14	36.0	29	3.3	1,613	182	1,774	200	3,142	355
C502_0020 MT40	1.976	81/41	2,400	2,000	3,000	14	40.0	52	5.9	2,514	284	2,514	284	3,142	355
C502_0020 MT50	1.976	81/41	2,400	2,000	3,000	14	50.0	103	11.6	3,060	345	4,804	542	6,005	678
C502_0022 MT30	2.247	645/287	2,400	2,000	3,000	14	33.8	36	4.0	1,834	207	2,018	228	3,573	403
C502_0022 MT40	2.247	645/287	2,400	2,000	3,000	14	37.8	62	7.0	2,859	323	2,859	323	3,573	403
C502_0022 MT50	2.247	645/287	2,400	2,000	3,000	14	47.8	114	12.9	3,193	361	5,395	609	6,828	771
C502_0025 MT30	2.450	49/20	2,400	2,000	3,000	14	27.6	41	4.6	2,000	226	2,200	248	3,784	427
C502_0025 MT40	2.450	49/20	2,400	2,000	3,000	14	31.6	70	7.9	3,027	342	3,027	342	3,784	427
C502_0025 MT50	2.450	49/20	2,400	2,000	3,000	14	41.6	122	13.8	3,287	371	5,553	627	7,231	816
C502_0028 MT30	2.787	301/108	2,400	2,000	3,000	14	26.1	50	5.6	2,275	257	2,502	283	4,305	486
C502_0028 MT40	2.787	301/108	2,400	2,000	3,000	14	30.1	81	9.2	3,431	387	3,444	389	4,305	486
C502_0028 MT50	2.787	301/108	2,400	2,000	3,000	14	40.1	133	15.0	3,431	387	5,797	654	8,226	929
C502_0031 MT30	3.077	477/155	2,800	2,400	3,500	14	21.3	58	6.5	2,512	284	2,763	312	4,595	519
C502_0031 MT40	3.077	477/155	2,800	2,400	3,500	14	25.3	91	10.2	3,546	400	3,676	415	4,595	519
C502_0031 MT50	3.077	477/155	2,500	2,400	3,000	14	35.3	140	15.8	3,546	400	3,676	415	4,595	519
C502_0035 MT30	3.501	2279/651	2,800	2,400	3,500	14	20.4	68	7.7	2,858	323	3,144	355	5,228	590
C502_0035 MT40	3.501	2279/651	2,800	2,400	3,500	14	24.4	103	11.6	3,702	418	4,183	472	5,228	590
C502_0035 MT50	3.501	2279/651	2,500	2,400	3,000	14	34.4	149	16.8	3,702	418	4,183	472	5,228	590
C502_0039 MT30	3.867	58/15	2,800	2,400	3,500	14	17.0	77	8.7	3,156	356	3,472	392	5,579	630
C502_0039 MT40	3.867	58/15	2,800	2,400	3,500	14	21.0	112	12.6	3,827	432	4,463	504	5,579	630
C502_0039 MT50	3.867	58/15	2,500	2,400	3,000	14	31.0	154	17.4	3,827	432	4,463	504	5,579	630
C502_0044 MT30	4.399	2494/567	2,800	2,400	3,500	14	16.4	89	10.1	3,591	405	3,950	446	6,346	716
C502_0044 MT40	4.399	2494/567	2,800	2,400	3,500	14	20.4	123	13.9	3,995	451	5,077	573	6,346	716
C502_0044 MT50	4.399	2494/567	2,500	2,400	3,000	14	30.4	161	18.2	3,995	451	5,077	573	6,346	716
C502_0046 MT20	4.629	162/35	3,100	2,700	4,000	14	9.4	72	8.1	1,591	180	1,750	198	2,496	282
C502_0046 MT30	4.629	162/35	3,100	2,700	4,000	14	14.2	94	10.6	3,512	396	4,156	469	6,439	727
C502_0046 MT40	4.629	162/35	3,000	2,700	3,500	14	18.2	128	14.4	4,063	459	5,151	582	6,439	727
C502_0046 MT50	4.629	162/35	2,500	2,500	3,000	14	28.2	163	18.4	4,063	459	5,151	582	6,439	727
C502_0053 MT20	5.265	258/49	3,100	2,700	4,000	14	9.0	83	9.4	1,810	204	1,990	225	2,839	321
C502_0053 MT30	5.265	258/49	3,100	2,700	4,000	14	13.8	106	12.0	3,994	451	4,727	534	7,323	827
C502_0053 MT40	5.265	258/49	3,000	2,700	3,500	14	17.8	138	15.5	4,242	479	5,859	661	7,323	827
C502_0053 MT50	5.265	258/49	2,500	2,500	3,000	14	27.8	168	19.0	4,242	479	5,859	661	7,323	827
C502_0059 MT20	5.850	117/20	3,100	2,700	4,000	14	7.1	93	10.5	2,011	227	2,212	250	3,036	343
C502_0059 MT30	5.850	117/20	3,100	2,700	4,000	14	11.9	116	13.1	3,804	429	5,253	593	7,830	884
C502_0059 MT40	5.850	117/20	3,000	2,700	3,500	14	15.9	145	16.4	4,393	496	6,264	707	7,830	884
C502_0059 MT50	5.850	117/20	2,500	2,500	3,000	14	25.9	172	19.4	4,393	496	6,264	707	7,830	884
C502_0067 MT20	6.655	559/84	3,100	2,700	4,000	14	6.8	105	11.9	2,287	258	2,516	284	3,453	390
C502_0067 MT30	6.655	559/84	3,100	2,700	4,000	14	11.6	127	14.3	4,328	489	5,975	675	8,907	1,006
C502_0067 MT40	6.655	559/84	3,000	2,700	3,500	14	15.6	153	17.3	4,586	518	7,086	800	8,907	1,006
C502_0067 MT50	6.655	559/84	2,500	2,500	3,000	14	25.6	175	19.8	4,586	518	7,086	800	8,907	1,006
C502_0078 MT20	7.763	621/80	3,400	3,000	4,500	14	5.0	119	13.5	2,405	272	2,935	331	3,810	430
C502_0078 MT30	7.763	621/80	3,400	3,000	4,000	14	9.8	139	15.7	4,039	456	6,970	787	9,826	1,109
C502_0078 MT40	7.763	621/80	3,000	3,000	3,500	14	13.8	161	18.2	4,828	545	7,086	800	9,826	1,109
C502_0078 MT50	7.763	621/80	2,500	2,500	3,000	14	23.8	178	20.1	4,828	545	7,086	800	9,826	1,109

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
C502 with MT TriAdapt® Motor Adapter Continued Next Page Noise Level ≤ 61 dB(A) ³⁾															
C502_0083 MT30	8.263	1537/186	2,800	2,400	3,500	12	16.9	150	17.0	6,642	750	7,419	838	12,340	1,393
C502_0083 MT40	8.263	1537/186	2,800	2,400	3,500	12	20.9	173	19.6	6,642	750	8,149	920	12,340	1,393
C502_0083 MT50	8.263	1537/186	2,500	2,400	3,000	12	30.9	191	21.6	6,642	750	8,149	920	12,340	1,393
C502_0093 MT30	9.261	3445/372	2,800	2,400	3,500	12	16.6	159	17.9	6,900	779	7,529	850	13,830	1,561
C502_0093 MT40	9.261	3445/372	2,800	2,400	3,500	12	20.6	178	20.1	6,900	779	7,529	850	13,830	1,561
C502_0093 MT50	9.261	3445/372	2,500	2,400	3,000	12	30.6	193	21.8	6,900	779	7,529	850	13,830	1,561
C502_0105 MT30	10.38	841/81	2,800	2,400	3,500	12	14.1	166	18.7	7,086	800	8,149	920	14,173	1,600
C502_0105 MT40	10.38	841/81	2,800	2,400	3,500	12	18.1	183	20.6	7,086	800	8,149	920	14,173	1,600
C502_0105 MT50	10.38	841/81	2,500	2,400	3,000	12	28.1	195	22.0	7,086	800	8,149	920	14,173	1,600
C502_0115 MT30	11.64	1885/162	2,800	2,400	3,500	12	13.9	172	19.4	7,086	800	7,529	850	14,173	1,600
C502_0115 MT40	11.64	1885/162	2,800	2,400	3,500	12	17.9	186	21.0	7,086	800	7,529	850	14,173	1,600
C502_0115 MT50	11.64	1885/162	2,500	2,400	3,000	12	27.9	196	22.1	7,086	800	7,529	850	14,173	1,600
C502_0125 MT20	12.43	87/7	3,100	2,700	4,000	12	7.4	162	18.3	4,272	482	4,699	530	6,703	757
C502_0125 MT30	12.43	87/7	3,100	2,700	4,000	12	12.2	175	19.8	7,086	800	8,149	920	14,173	1,600
C502_0125 MT40	12.43	87/7	3,000	2,700	3,500	12	16.2	188	21.2	7,086	800	8,149	920	14,173	1,600
C502_0125 MT50	12.43	87/7	2,500	2,500	3,000	12	26.2	197	22.2	7,086	800	8,149	920	14,173	1,600
C502_0140 MT20	13.93	195/14	3,100	2,700	4,000	12	7.3	169	19.0	4,787	540	5,266	594	7,512	848
C502_0140 MT30	13.93	195/14	3,100	2,700	4,000	12	12.1	180	20.3	7,086	800	7,529	850	14,173	1,600
C502_0140 MT40	13.93	195/14	3,000	2,700	3,500	12	16.1	190	21.5	7,086	800	7,529	850	14,173	1,600
C502_0140 MT50	13.93	195/14	2,500	2,500	3,000	12	26.1	197	22.3	7,086	800	7,529	850	14,173	1,600
C502_0155 MT20	15.71	377/24	3,100	2,700	4,000	12	5.8	175	19.7	5,399	609	5,939	670	8,151	920
C502_0155 MT30	15.71	377/24	3,100	2,700	4,000	12	10.6	184	20.8	7,086	800	8,149	920	14,173	1,600
C502_0155 MT40	15.71	377/24	3,000	2,700	3,500	12	14.6	193	21.7	7,086	800	8,149	920	14,173	1,600
C502_0155 MT50	15.71	377/24	2,500	2,500	3,000	12	24.6	198	22.4	7,086	800	8,149	920	14,173	1,600
C502_0175 MT20	17.60	845/48	3,100	2,700	4,000	12	5.8	179	20.3	6,050	683	6,655	751	9,135	1,031
C502_0175 MT30	17.60	845/48	3,100	2,700	4,000	12	10.6	187	21.1	7,086	800	7,529	850	14,173	1,600
C502_0175 MT40	17.60	845/48	3,000	2,700	3,500	12	14.6	194	21.9	7,086	800	7,529	850	14,173	1,600
C502_0175 MT50	17.60	845/48	2,500	2,500	3,000	12	24.6	199	22.4	7,086	800	7,529	850	14,173	1,600
C502_0210 MT20	20.84	667/32	3,400	3,000	4,500	12	4.3	185	20.9	6,458	729	7,880	890	10,229	1,155
C502_0210 MT30	20.84	667/32	3,400	3,000	4,000	12	9.1	191	21.6	7,086	800	8,149	920	14,173	1,600
C502_0210 MT40	20.84	667/32	3,000	3,000	3,500	12	13.1	196	22.1	7,086	800	8,149	920	14,173	1,600
C502_0210 MT50	20.84	667/32	2,500	2,500	3,000	12	23.1	199	22.5	7,086	800	8,149	920	14,173	1,600
C502_0230 MT20	23.36	1495/64	3,400	3,000	4,500	12	4.2	188	21.2	7,086	800	7,529	850	11,464	1,294
C502_0230 MT30	23.36	1495/64	3,400	3,000	4,000	12	9.0	193	21.8	7,086	800	7,529	850	14,173	1,600
C502_0230 MT40	23.36	1495/64	3,000	3,000	3,500	12	13.0	197	22.2	7,086	800	7,529	850	14,173	1,600
C502_0230 MT50	23.36	1495/64	2,500	2,500	3,000	12	23.0	200	22.5	7,086	800	7,529	850	14,173	1,600
C502_0250 MT20	25.07	2407/96	3,400	3,000	4,500	12	3.5	190	21.4	6,561	741	8,149	920	11,796	1,332
C502_0250 MT30	25.07	2407/96	3,400	3,000	4,000	12	8.3	194	21.9	7,086	800	8,149	920	14,173	1,600
C502_0250 MT40	25.07	2407/96	3,000	3,000	3,500	12	12.3	198	22.3	7,086	800	8,149	920	14,173	1,600
C502_0250 MT50	25.07	2407/96	2,500	2,500	3,000	12	22.3	200	22.6	7,086	800	8,149	920	14,173	1,600
C502_0280 MT20	28.10	5395/192	3,400	3,000	4,500	12	3.5	192	21.7	7,086	800	7,529	850	13,219	1,492
C502_0280 MT30	28.10	5395/192	3,400	3,000	4,000	12	8.3	195	22.1	7,086	800	7,529	850	14,173	1,600
C502_0280 MT40	28.10	5395/192	3,000	3,000	3,500	12	12.3	198	22.4	7,086	800	7,529	850	14,173	1,600
C502_0280 MT50	28.10	5395/192	2,500	2,500	3,000	12	22.3	200	22.6	7,086	800	7,529	850	14,173	1,600

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
 Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\phi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

C502 with MT TriAdapt® Motor Adapter Continued

Noise Level ≤ 61 dB(A) ³⁾

C502_0310 MT20	31.23	406/13	3,400	3,000	4,500	12	2.8	194	21.9	6,739	761	8,149	920	14,001	1,581
C502_0310 MT30	31.23	406/13	3,400	3,000	4,000	12	7.6	196	22.2	7,086	800	8,149	920	14,001	1,581
C502_0310 MT40	31.23	406/13	3,000	3,000	3,500	12	11.6	199	22.4	7,086	800	8,149	920	14,001	1,581
C502_0350 MT20	35.00	35/1	3,400	3,000	4,500	12	2.8	195	22.0	7,086	800	7,529	850	14,173	1,600
C502_0350 MT30	35.00	35/1	3,400	3,000	4,000	12	7.6	197	22.3	7,086	800	7,529	850	14,173	1,600
C502_0350 MT40	35.00	35/1	3,000	3,000	3,500	12	11.6	199	22.5	7,086	800	7,529	850	14,173	1,600
C502_0420 MT20	41.69	667/16	3,400	3,000	4,500	12	2.2	197	22.2	7,014	792	8,149	920	14,173	1,600
C502_0420 MT30	41.69	667/16	3,400	3,000	4,000	12	7.0	198	22.4	7,086	800	8,149	920	14,173	1,600
C502_0420 MT40	41.69	667/16	3,000	3,000	3,500	12	11.0	200	22.5	7,086	800	8,149	920	14,173	1,600
C502_0470 MT20	46.72	1495/32	3,400	3,000	4,500	12	2.2	198	22.3	7,086	800	7,529	850	14,173	1,600
C502_0470 MT30	46.72	1495/32	3,400	3,000	4,000	12	7.0	199	22.5	7,086	800	7,529	850	14,173	1,600
C502_0470 MT40	46.72	1495/32	3,000	3,000	3,500	12	11.0	200	22.6	7,086	800	7,529	850	14,173	1,600
C502_0500 MT20	49.82	1943/39	3,400	3,000	4,500	12	1.9	198	22.4	7,086	800	8,149	920	14,173	1,600
C502_0500 MT30	49.82	1943/39	3,400	3,000	4,000	12	6.7	199	22.5	7,086	800	8,149	920	14,173	1,600
C502_0500 MT40	49.82	1943/39	3,000	3,000	3,500	12	10.7	200	22.6	7,086	800	8,149	920	14,173	1,600
C502_0560 MT20	55.83	335/6	3,400	3,000	4,500	12	1.9	199	22.4	7,086	800	7,529	850	14,173	1,600
C502_0560 MT30	55.83	335/6	3,400	3,000	4,000	12	6.7	200	22.5	7,086	800	7,529	850	14,173	1,600
C502_0560 MT40	55.83	335/6	3,000	3,000	3,500	12	10.7	200	22.6	7,086	800	7,529	850	14,173	1,600
C502_0620 MT20	62.43	4495/72	3,400	3,000	4,500	12	1.7	199	22.5	6,325	714	7,590	857	10,212	1,153
C502_0620 MT30	62.43	4495/72	3,400	3,000	4,000	12	6.5	200	22.6	6,325	714	7,590	857	10,212	1,153
C502_0700 MT20	69.97	10075/144	3,400	3,000	4,500	12	1.7	199	22.5	7,086	800	7,529	850	11,444	1,292
C502_0700 MT30	69.97	10075/144	3,400	3,000	4,000	12	6.5	200	22.6	7,086	800	7,529	850	11,444	1,292

C503 with MT TriAdapt® Motor Adapter

Noise Level ≤ 61 dB(A) ³⁾

C503_0810 MT20	80.60	19343/240	3,400	3,000	4,500	12	1.6	200	22.6	7,086	800	8,149	920	10,228	1,155
C503_0900 MT20	90.32	8671/96	3,400	3,000	4,500	12	1.6	200	22.6	7,086	800	7,529	850	11,463	1,294
C503_1090 MT20	108.6	31291/288	3,400	3,000	4,500	12	1.5	200	22.6	7,086	800	7,529	850	13,218	1,492
C503_1350 MT20	135.3	406/3	3,400	3,000	4,500	12	1.5	201	22.6	7,086	800	7,529	850	14,173	1,600
C503_1810 MT20	180.6	8671/48	3,400	3,000	4,500	12	1.4	201	22.7	7,086	800	7,529	850	14,173	1,600
C503_2160 MT20	215.9	1943/9	3,400	3,000	4,500	12	1.4	201	22.7	7,086	800	7,529	850	14,173	1,600
C503_2710 MT20	270.5	58435/216	3,400	3,000	4,500	12	1.4	201	22.7	7,086	800	7,529	850	11,443	1,292

C612 with MT TriAdapt® Motor Adapter Continued Next Page

Noise Level ≤ 61 dB(A) ³⁾

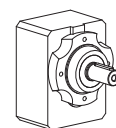
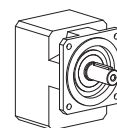
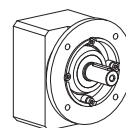
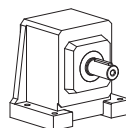
C612_0042 MT30	4.184	2745/656	2,300	1,900	2,800	10	52.9	124	14.0	3,415	386	3,757	424	6,831	771
C612_0042 MT40	4.184	2745/656	2,300	1,900	2,800	10	56.9	217	24.5	5,522	623	5,522	623	6,902	779
C612_0042 MT50	4.184	2745/656	2,300	1,900	2,800	10	66.9	398	45.0	7,293	823	10,552	1,191	13,190	1,489
C612_0051 MT30	5.083	61/12	2,300	1,900	2,800	10	42.1	168	19.0	4,149	468	4,564	515	8,147	920
C612_0051 MT40	5.083	61/12	2,300	1,900	2,800	10	46.1	277	31.3	6,518	736	6,518	736	8,147	920
C612_0051 MT50	5.083	61/12	2,300	1,900	2,800	10	56.1	456	51.5	7,782	878	12,455	1,406	15,569	1,758
C612_0065 MT30	6.518	3233/496	2,700	2,300	3,300	10	31.7	238	26.8	5,320	601	5,852	661	10,064	1,136
C612_0065 MT40	6.518	3233/496	2,700	2,300	3,300	10	35.7	358	40.4	8,051	909	8,051	909	10,064	1,136
C612_0065 MT50	6.518	3233/496	2,500	2,300	3,000	10	45.7	518	58.5	8,454	954	14,282	1,612	19,232	2,171

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque						
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}		
			Continuous	Cyclic												
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	
C612 with MT TriAdapt® Motor Adapter										Continued Next Page			Noise Level ≤ 61 dB(A) ³⁾			
C612_0071 MT30	7.111	64/9	2,300	1,900	2,800	10	38.4	265	29.9	5,804	655	6,385	721	11,398	1,287	
C612_0071 MT40	7.111	64/9	2,300	1,900	2,800	10	42.4	386	43.6	8,703	983	9,118	1,029	11,398	1,287	
C612_0071 MT50	7.111	64/9	2,300	1,900	2,800	10	52.4	536	60.6	8,703	983	12,224	1,380	21,780	2,459	
C612_0082 MT30	8.190	1769/216	2,700	2,300	3,300	10	25.0	310	35.0	6,685	755	7,354	830	12,217	1,379	
C612_0082 MT40	8.190	1769/216	2,700	2,300	3,300	10	29.0	430	48.5	9,123	1,030	9,773	1,103	12,217	1,379	
C612_0082 MT50	8.190	1769/216	2,500	2,300	3,000	10	39.0	562	63.4	9,123	1,030	14,616	1,650	23,344	2,635	
C612_0091 MT30	9.118	848/93	2,700	2,300	3,300	10	29.4	346	39.0	7,443	840	8,187	924	14,079	1,589	
C612_0091 MT40	9.118	848/93	2,700	2,300	3,300	10	33.4	460	52.0	9,455	1,067	11,263	1,272	14,079	1,589	
C612_0091 MT50	9.118	848/93	2,500	2,300	3,000	10	43.4	578	65.3	9,455	1,067	12,224	1,380	23,031	2,600	
C612_0100 MT30	10.11	3721/368	3,000	2,600	3,500	10	20.7	379	42.8	8,253	932	9,079	1,025	14,489	1,636	
C612_0100 MT40	10.11	3721/368	3,000	2,600	3,500	10	24.7	488	55.1	9,787	1,105	11,592	1,309	14,489	1,636	
C612_0100 MT50	10.11	3721/368	2,500	2,500	3,000	10	34.7	591	66.8	9,787	1,105	14,616	1,650	25,688	2,900	
C612_0115 MT30	11.46	928/81	2,700	2,300	3,300	10	23.6	418	47.2	9,352	1,056	10,287	1,161	17,090	1,929	
C612_0115 MT40	11.46	928/81	2,700	2,300	3,300	10	27.6	517	58.4	10,203	1,152	12,224	1,380	17,090	1,929	
C612_0115 MT50	11.46	928/81	2,500	2,300	3,000	10	37.6	605	68.3	10,203	1,152	12,224	1,380	23,031	2,600	
C612_0125 MT30	12.58	2013/160	3,000	2,600	3,500	10	16.7	446	50.3	9,091	1,026	11,296	1,275	17,288	1,952	
C612_0125 MT40	12.58	2013/160	3,000	2,600	3,500	10	20.7	537	60.6	10,526	1,188	13,830	1,561	17,288	1,952	
C612_0125 MT50	12.58	2013/160	2,500	2,500	3,000	10	30.7	613	69.2	10,526	1,188	14,616	1,650	25,688	2,900	
C612_0140 MT30	14.15	976/69	3,000	2,600	3,500	10	19.7	478	54.0	10,945	1,236	12,224	1,380	20,270	2,288	
C612_0140 MT40	14.15	976/69	3,000	2,600	3,500	10	23.7	558	63.0	10,945	1,236	12,224	1,380	20,270	2,288	
C612_0140 MT50	14.15	976/69	2,500	2,500	3,000	10	33.7	622	70.2	10,945	1,236	12,224	1,380	23,031	2,600	
C612_0160 MT30	16.20	1037/64	3,200	2,900	4,000	10	13.3	511	57.7	9,634	1,088	14,549	1,642	21,206	2,394	
C612_0160 MT40	16.20	1037/64	3,000	2,900	3,500	10	17.3	579	65.3	11,452	1,293	14,616	1,650	21,206	2,394	
C612_0160 MT50	16.20	1037/64	2,500	2,500	3,000	10	27.3	630	71.1	11,452	1,293	14,616	1,650	25,688	2,900	
C612_0175 MT30	17.60	88/5	3,000	2,600	3,500	10	16.1	529	59.7	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0175 MT40	17.60	88/5	3,000	2,600	3,500	10	20.1	590	66.6	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0175 MT50	17.60	88/5	2,500	2,500	3,000	10	30.1	634	71.6	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0195 MT30	19.61	549/28	3,200	2,900	4,000	10	11.4	550	62.1	9,917	1,120	14,616	1,650	24,644	2,782	
C612_0195 MT40	19.61	549/28	3,000	2,900	3,500	10	15.4	602	67.9	12,204	1,378	14,616	1,650	24,644	2,782	
C612_0195 MT50	19.61	549/28	2,500	2,500	3,000	10	25.4	638	72.0	12,204	1,378	14,616	1,650	24,644	2,782	
C612_0230 MT30	22.67	68/3	3,200	2,900	4,000	10	12.9	573	64.7	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0230 MT40	22.67	68/3	3,000	2,900	3,500	10	16.9	615	69.4	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0230 MT50	22.67	68/3	2,500	2,500	3,000	10	26.9	643	72.6	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0250 MT30	24.93	5185/208	3,200	2,900	4,000	10	9.7	586	66.2	10,244	1,157	14,616	1,650	25,688	2,900	
C612_0250 MT40	24.93	5185/208	3,000	2,900	3,500	10	13.7	622	70.2	12,844	1,450	14,616	1,650	25,688	2,900	
C612_0250 MT50	24.93	5185/208	2,500	2,500	3,000	10	23.7	645	72.8	12,844	1,450	14,616	1,650	25,688	2,900	
C612_0270 MT30	27.43	192/7	3,200	2,900	4,000	10	11.2	598	67.5	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0270 MT40	27.43	192/7	3,000	2,900	3,500	10	15.2	627	70.8	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0270 MT50	27.43	192/7	2,500	2,500	3,000	10	25.2	647	73.1	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0320 MT30	32.41	1037/32	3,200	2,900	4,000	10	8.4	613	69.2	10,679	1,206	14,616	1,650	25,688	2,900	
C612_0320 MT40	32.41	1037/32	3,000	2,900	3,500	10	12.4	636	71.8	12,844	1,450	14,616	1,650	25,688	2,900	
C612_0320 MT50	32.41	1037/32	2,500	2,500	3,000	10	22.4	650	73.4	12,844	1,450	14,616	1,650	25,688	2,900	
C612_0350 MT30	34.87	1360/39	3,200	2,900	4,000	10	9.5	619	69.9	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0350 MT40	34.87	1360/39	3,000	2,900	3,500	10	13.5	638	72.1	11,515	1,300	12,224	1,380	23,031	2,600	
C612_0350 MT50	34.87	1360/39	2,500	2,500	3,000	10	23.5	651	73.5	11,515	1,300	12,224	1,380	23,031	2,600	

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N(n1DBH)} ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcm C ₂ in.lbs. Nm		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

C612 with MT TriAdapt® Motor Adapter Continued

Noise Level ≤ 61 dB(A) ³⁾

C612_0390 MT30	39.40	1891/48	3,200	2,900	4,000	10	7.7	627	70.8	10,812	1,221	12,975	1,465	16,479	1,860
C612_0390 MT40	39.40	1891/48	3,000	2,900	3,500	10	11.7	642	72.5	10,812	1,221	12,975	1,465	16,479	1,860
C612_0450 MT30	45.33	136/3	3,200	2,900	4,000	10	8.3	634	71.6	11,515	1,300	12,224	1,380	23,031	2,600
C612_0450 MT40	45.33	136/3	3,000	2,900	3,500	10	12.3	646	72.9	11,515	1,300	12,224	1,380	23,031	2,600
C612_0450 MT50	45.33	136/3	2,500	2,500	3,000	10	22.3	653	73.8	11,515	1,300	12,224	1,380	23,031	2,600
C612_0550 MT30	55.11	496/9	3,200	2,900	4,000	10	7.6	641	72.4	11,515	1,300	12,224	1,380	23,031	2,600
C612_0550 MT40	55.11	496/9	3,000	2,900	3,500	10	11.6	649	73.3	11,515	1,300	12,224	1,380	23,031	2,600
C612_0690 MT30	68.89	620/9	3,200	2,900	4,000	10	7.1	647	73.0	11,515	1,300	12,224	1,380	23,031	2,600
C612_0690 MT40	68.89	620/9	3,000	2,900	3,500	10	11.1	652	73.6	11,515	1,300	12,224	1,380	23,031	2,600

C613 with MT TriAdapt® Motor Adapter

Noise Level ≤ 61 dB(A) ³⁾

C613_0490 MT30	49.28	31537/640	3,200	2,900	4,000	10	7.2	637	72.0	12,688	1,432	13,829	1,561	17,287	1,952
C613_0630 MT30	63.46	48739/768	3,200	2,900	4,000	10	6.9	645	72.8	12,844	1,450	14,616	1,650	21,204	2,394
C613_0760 MT20	75.81	5307/70	3,200	2,900	4,000	10	1.7	643	72.6	7,643	863	7,643	863	9,554	1,079
C613_0770 MT30	76.80	8601/112	3,200	2,900	4,000	10	6.8	649	73.2	12,844	1,450	14,616	1,650	24,642	2,782
C613_0880 MT20	87.64	3944/45	3,200	2,900	4,000	10	1.8	647	73.0	9,200	1,039	9,200	1,039	11,500	1,298
C613_0890 MT30	88.78	799/9	3,200	2,900	4,000	10	6.9	651	73.5	11,515	1,300	12,224	1,380	23,031	2,600
C613_0980 MT30	97.63	243695/2496	3,200	2,900	4,000	10	6.7	652	73.6	12,844	1,450	14,616	1,650	25,688	2,900
C613_1060 MT20	106.1	3712/35	3,200	2,900	4,000	10	1.7	650	73.4	10,692	1,207	10,692	1,207	13,365	1,509
C613_1070 MT30	107.4	752/7	3,200	2,900	4,000	10	6.8	653	73.7	11,515	1,300	12,224	1,380	23,031	2,600
C613_1270 MT30	126.9	48739/384	3,200	2,900	4,000	10	6.6	654	73.8	12,844	1,450	14,616	1,650	25,688	2,900
C613_1350 MT20	134.8	15776/117	3,200	2,900	4,000	10	1.6	653	73.7	11,515	1,300	12,224	1,380	16,132	1,821
C613_1370 MT30	136.6	15980/117	3,200	2,900	4,000	10	6.7	654	73.9	11,515	1,300	12,224	1,380	23,031	2,600
C613_1750 MT20	175.3	7888/45	3,200	2,900	4,000	10	1.5	655	73.9	11,515	1,300	12,224	1,380	19,846	2,240
C613_1780 MT30	177.6	1598/9	3,200	2,900	4,000	10	6.6	656	74.0	11,515	1,300	12,224	1,380	23,031	2,600
C613_2130 MT20	213.1	28768/135	3,200	2,900	4,000	10	1.5	655	74.0	11,515	1,300	12,224	1,380	23,031	2,600
C613_2660 MT20	266.4	7192/27	3,200	2,900	4,000	10	1.4	656	74.1	11,515	1,300	12,224	1,380	23,031	2,600

C712 with MT TriAdapt® Motor Adapter Continued Next Page

Noise Level ≤ 67 dB(A) ³⁾

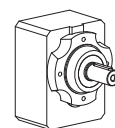
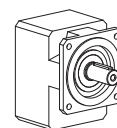
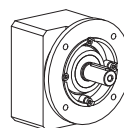
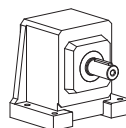
C712_0043 MT30	4.259	477/112	2,200	1,900	2,600	10	101.8	139	15.7	3,476	392	3,824	432	6,953	785
C712_0043 MT40	4.259	477/112	2,200	1,900	2,600	10	105.8	256	28.9	5,899	666	5,899	666	7,374	832
C712_0043 MT50	4.259	477/112	2,200	1,900	2,600	10	115.8	532	60.1	11,272	1,273	11,272	1,273	14,090	1,591
C712_0053 MT30	5.311	1827/344	2,200	1,900	2,600	10	77.3	201	22.7	4,335	489	4,769	538	8,670	979
C712_0053 MT40	5.311	1827/344	2,200	1,900	2,600	10	81.3	352	39.8	7,120	804	7,120	804	8,900	1,005
C712_0053 MT50	5.311	1827/344	2,200	1,900	2,600	10	91.3	650	73.4	13,070	1,475	13,605	1,536	17,006	1,920
C712_0068 MT30	6.811	252/37	2,600	2,300	3,100	10	57.4	296	33.4	5,560	628	6,116	690	10,992	1,241
C712_0068 MT40	6.811	252/37	2,600	2,300	3,100	10	61.4	479	54.1	8,794	993	8,794	993	10,992	1,241
C712_0068 MT50	6.811	252/37	2,500	2,300	3,000	10	71.4	771	87.0	14,200	1,603	16,804	1,897	21,005	2,371
C712_0074 MT30	7.357	3480/473	2,200	1,900	2,600	10	70.9	330	37.2	6,005	678	6,606	746	12,011	1,356
C712_0074 MT40	7.357	3480/473	2,200	1,900	2,600	10	74.9	520	58.7	9,862	1,113	9,862	1,113	12,328	1,392
C712_0074 MT50	7.357	3480/473	2,200	1,900	2,600	10	84.9	804	90.8	14,569	1,645	18,846	2,128	23,557	2,659

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque						
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}		
			Continuous	Cyclic												
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	
C712 with MT TriAdapt® Motor Adapter Continued Next Page															Noise Level ≤ 67 dB(A) ³⁾	
C712_0085 MT30	8.490	4347/512	2,600	2,300	3,100	10	44.2	399	45.0	6,930	782	7,623	861	13,214	1,492	
C712_0085 MT40	8.490	4347/512	2,600	2,300	3,100	10	48.2	598	67.5	10,571	1,193	10,571	1,193	13,214	1,492	
C712_0085 MT50	8.490	4347/512	2,500	2,300	3,000	10	58.2	859	97.0	15,282	1,725	20,200	2,280	25,250	2,850	
C712_0094 MT30	9.435	3840/407	2,600	2,300	3,100	10	53.4	454	51.2	7,701	869	8,472	956	15,227	1,719	
C712_0094 MT40	9.435	3840/407	2,600	2,300	3,100	10	57.4	653	73.7	12,182	1,375	12,182	1,375	15,227	1,719	
C712_0094 MT50	9.435	3840/407	2,500	2,300	3,000	10	67.4	894	100.9	15,829	1,787	20,373	2,300	29,097	3,285	
C712_0099 MT30	9.912	4599/464	2,900	2,600	3,400	10	37.5	480	54.2	8,091	913	8,900	1,005	15,052	1,699	
C712_0099 MT40	9.912	4599/464	2,900	2,600	3,400	10	41.5	678	76.6	12,041	1,359	12,041	1,359	15,052	1,699	
C712_0099 MT50	9.912	4599/464	2,500	2,500	3,000	10	51.5	909	102.6	16,091	1,817	23,010	2,598	28,762	3,247	
C712_0120 MT30	11.76	1035/88	2,600	2,300	3,100	10	41.7	572	64.6	9,600	1,084	10,560	1,192	18,304	2,066	
C712_0120 MT40	11.76	1035/88	2,600	2,300	3,100	10	45.7	761	85.9	14,644	1,653	14,644	1,653	18,304	2,066	
C712_0120 MT50	11.76	1035/88	2,500	2,300	3,000	10	55.7	953	107.6	17,035	1,923	20,373	2,300	34,978	3,949	
C712_0130 MT30	13.18	4851/368	2,900	2,600	3,400	10	27.6	633	71.4	10,760	1,215	11,836	1,336	18,890	2,133	
C712_0130 MT40	13.18	4851/368	2,900	2,600	3,400	10	31.6	810	91.4	15,112	1,706	15,112	1,706	18,890	2,133	
C712_0130 MT50	13.18	4851/368	2,500	2,500	3,000	10	41.6	977	110.3	17,696	1,998	24,448	2,760	36,097	4,075	
C712_0135 MT30	13.73	4380/319	2,900	2,600	3,400	10	35.6	654	73.8	11,207	1,265	12,328	1,392	20,850	2,354	
C712_0135 MT40	13.73	4380/319	2,900	2,600	3,400	10	39.6	826	93.3	16,680	1,883	16,680	1,883	20,850	2,354	
C712_0135 MT50	13.73	4380/319	2,500	2,500	3,000	10	49.6	984	111.1	17,716	2,000	20,373	2,300	35,432	4,000	
C712_0165 MT30	16.73	1071/64	3,100	2,900	3,600	10	21.1	751	84.8	12,091	1,365	15,025	1,696	22,994	2,596	
C712_0165 MT40	16.73	1071/64	3,000	2,900	3,500	10	25.1	895	101.1	18,395	2,077	18,395	2,077	22,994	2,596	
C712_0165 MT50	16.73	1071/64	2,500	2,500	3,000	10	35.1	1,014	114.5	19,160	2,163	24,448	2,760	42,518	4,800	
C712_0185 MT30	18.26	420/23	2,900	2,600	3,400	10	26.5	790	89.2	14,906	1,683	16,396	1,851	26,169	2,954	
C712_0185 MT40	18.26	420/23	2,900	2,600	3,400	10	30.5	921	103.9	17,716	2,000	20,373	2,300	26,169	2,954	
C712_0185 MT50	18.26	420/23	2,500	2,500	3,000	10	40.5	1,025	115.7	17,716	2,000	20,373	2,300	35,432	4,000	
C712_0210 MT30	20.67	1323/64	3,100	2,900	3,600	10	16.9	840	94.8	12,291	1,388	18,561	2,095	27,054	3,054	
C712_0210 MT40	20.67	1323/64	3,000	2,900	3,500	10	20.9	952	107.5	20,559	2,321	21,643	2,443	27,054	3,054	
C712_0210 MT50	20.67	1323/64	2,500	2,500	3,000	10	30.9	1,037	117.0	20,559	2,321	24,448	2,760	42,518	4,800	
C712_0230 MT30	23.18	255/11	3,100	2,900	3,600	10	20.4	880	99.4	16,751	1,891	20,373	2,300	31,854	3,596	
C712_0230 MT40	23.18	255/11	3,000	2,900	3,500	10	24.4	976	110.2	17,716	2,000	20,373	2,300	31,854	3,596	
C712_0230 MT50	23.18	255/11	2,500	2,500	3,000	10	34.4	1,046	118.1	17,716	2,000	20,373	2,300	35,432	4,000	
C712_0250 MT30	25.31	405/16	3,100	2,900	3,600	10	13.8	907	102.4	12,803	1,445	22,728	2,566	31,815	3,592	
C712_0250 MT40	25.31	405/16	3,000	2,900	3,500	10	17.8	992	112.0	21,259	2,400	24,448	2,760	31,815	3,592	
C712_0250 MT50	25.31	405/16	2,500	2,500	3,000	10	27.8	1,051	118.7	21,259	2,400	24,448	2,760	31,815	3,592	
C712_0290 MT30	28.64	315/11	3,100	2,900	3,600	10	16.5	941	106.2	17,027	1,922	20,373	2,300	35,432	4,000	
C712_0290 MT40	28.64	315/11	3,000	2,900	3,500	10	20.5	1,010	114.0	17,716	2,000	20,373	2,300	35,432	4,000	
C712_0290 MT50	28.64	315/11	2,500	2,500	3,000	10	30.5	1,058	119.4	17,716	2,000	20,373	2,300	35,432	4,000	
C712_0340 MT30	33.80	2163/64	3,100	2,900	3,600	10	10.9	977	110.3	13,188	1,489	24,448	2,760	39,811	4,494	
C712_0340 MT40	33.80	2163/64	3,000	2,900	3,500	10	14.9	1,029	116.2	21,259	2,400	24,448	2,760	39,811	4,494	
C712_0340 MT50	33.80	2163/64	2,500	2,500	3,000	10	24.9	1,065	120.2	21,259	2,400	24,448	2,760	39,811	4,494	
C712_0350 MT30	35.07	2700/77	3,100	2,900	3,600	10	13.6	983	111.0	17,716	2,000	20,373	2,300	35,432	4,000	
C712_0350 MT40	35.07	2700/77	3,000	2,900	3,500	10	17.6	1,033	116.6	17,716	2,000	20,373	2,300	35,432	4,000	
C712_0350 MT50	35.07	2700/77	2,500	2,500	3,000	10	27.6	1,066	120.3	17,716	2,000	20,373	2,300	35,432	4,000	
C712_0410 MT30	41.02	2625/64	3,100	2,900	3,600	10	9.5	1,008	113.8	13,517	1,526	22,265	2,514	37,108	4,189	
C712_0410 MT40	41.02	2625/64	3,000	2,900	3,500	10	13.5	1,046	118.1	18,554	2,095	22,265	2,514	37,108	4,189	
C712_0410 MT50	41.02	2625/64	2,500	2,500	3,000	10	23.5	1,070	120.8	18,554	2,095	22,265	2,514	37,108	4,189	

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\phi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

C712 with MT TriAdapt® Motor Adapter Continued

Noise Level ≤ 67 dB(A) ³⁾

C712_0470 MT30	46.82	515/11	3,100	2,900	3,600	10	10.7	1,024	115.7	17,716	2,000	20,373	2,300	35,432	4,000
C712_0470 MT40	46.82	515/11	3,000	2,900	3,500	10	14.7	1,054	119.0	17,716	2,000	20,373	2,300	35,432	4,000
C712_0470 MT50	46.82	515/11	2,500	2,500	3,000	10	24.7	1,073	121.1	17,716	2,000	20,373	2,300	35,432	4,000
C712_0570 MT30	56.82	625/11	3,100	2,900	3,600	10	9.4	1,042	117.7	17,716	2,000	20,373	2,300	35,432	4,000
C712_0570 MT40	56.82	625/11	3,000	2,900	3,500	10	13.4	1,063	120.0	17,716	2,000	20,373	2,300	35,432	4,000
C712_0570 MT50	56.82	625/11	2,500	2,500	3,000	10	23.4	1,076	121.5	17,716	2,000	20,373	2,300	35,432	4,000
C712_0700 MT30	69.55	765/11	3,100	2,900	3,600	10	8.3	1,055	119.1	17,716	2,000	20,373	2,300	29,091	3,284
C712_0700 MT40	69.55	765/11	3,000	2,900	3,500	10	12.3	1,069	120.7	17,716	2,000	20,373	2,300	29,091	3,284

C713 with MT TriAdapt® Motor Adapter

Noise Level ≤ 67 dB(A) ³⁾

C713_0510 MT40	50.85	18711/368	3,000	2,900	3,500	10	13.1	1,058	119.5	21,259	2,400	24,448	2,760	36,099	4,075
C713_0650 MT40	64.55	4131/64	3,000	2,900	3,500	10	12.6	1,067	120.5	21,259	2,400	24,448	2,760	42,518	4,800
C713_0800 MT40	79.73	5103/64	3,000	2,900	3,500	10	12.4	1,072	121.1	21,259	2,400	24,448	2,760	42,518	4,800
C713_0810 MT30	80.97	20727/256	3,100	2,900	3,600	10	7.2	1,062	119.9	17,492	1,975	21,642	2,443	27,052	3,054
C713_0890 MT40	89.42	6885/77	3,000	2,900	3,500	10	12.6	1,074	121.3	17,716	2,000	20,373	2,300	35,432	4,000
C713_0980 MT40	97.63	10935/112	3,000	2,900	3,500	10	12.2	1,076	121.4	21,259	2,400	24,448	2,760	31,816	3,592
C713_0990 MT30	99.14	6345/64	3,100	2,900	3,600	10	7.0	1,069	120.7	18,518	2,090	24,448	2,760	31,812	3,591
C713_1100 MT40	110.5	1215/11	3,000	2,900	3,500	10	12.3	1,077	121.6	17,716	2,000	20,373	2,300	35,432	4,000
C713_1300 MT40	130.4	8343/64	3,000	2,900	3,500	10	12.0	1,078	121.8	21,259	2,400	24,448	2,760	39,812	4,494
C713_1320 MT30	132.4	33887/256	3,100	2,900	3,600	10	6.8	1,075	121.3	19,575	2,210	24,448	2,760	39,807	4,494
C713_1350 MT40	135.3	72900/539	3,000	2,900	3,500	10	12.1	1,079	121.8	17,716	2,000	20,373	2,300	35,432	4,000
C713_1370 MT30	137.3	10575/77	3,100	2,900	3,600	10	7.0	1,075	121.4	17,716	2,000	20,373	2,300	35,432	4,000
C713_1810 MT40	180.6	13905/77	3,000	2,900	3,500	10	11.9	1,080	122.0	17,716	2,000	20,373	2,300	35,432	4,000
C713_1830 MT30	183.4	24205/132	3,100	2,900	3,600	10	6.8	1,078	121.7	17,716	2,000	20,373	2,300	35,432	4,000
C713_2190 MT40	219.2	16875/77	3,000	2,900	3,500	10	11.9	1,081	122.0	17,716	2,000	20,373	2,300	35,432	4,000
C713_2230 MT30	222.5	29375/132	3,100	2,900	3,600	10	6.7	1,079	121.9	17,716	2,000	20,373	2,300	35,432	4,000

C812 with MT TriAdapt® Motor Adapter Continued Next Page

Noise Level ≤ 67 dB(A) ³⁾

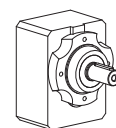
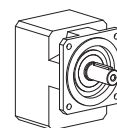
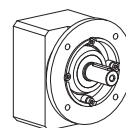
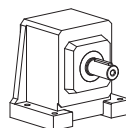
C812_0042 MT50	4.225	1711/405	2,100	1,800	2,500	10	264.3	573	64.7	11,756	1,327	11,756	1,327	14,695	1,659
C812_0054 MT50	5.387	1239/230	2,100	1,800	2,500	10	195.5	728	82.2	14,454	1,632	14,454	1,632	18,067	2,040
C812_0067 MT50	6.670	767/115	2,500	2,200	2,800	10	151.9	858	96.9	17,377	1,962	17,377	1,962	21,721	2,452
C812_0073 MT50	7.304	168/23	2,100	1,800	2,500	10	179.0	1,138	128.4	19,597	2,212	19,597	2,212	24,496	2,765
C812_0085 MT50	8.472	1652/195	2,500	2,200	2,800	10	113.4	983	111.0	21,179	2,391	21,179	2,391	26,474	2,989
C812_0090 MT50	9.043	208/23	2,500	2,200	2,800	10	141.2	1,305	147.3	23,559	2,660	23,559	2,660	29,448	3,325
C812_0100 MT50	10.15	944/93	2,500	2,400	3,000	10	93.8	1,059	119.6	24,585	2,776	24,585	2,776	30,732	3,469
C812_0115 MT50	11.49	448/39	2,500	2,200	2,800	10	106.8	1,458	164.7	27,458	3,100	28,716	3,242	35,895	4,052
C812_0125 MT40	12.75	5546/435	2,700	2,400	3,200	10	63.5	902	101.8	15,488	1,748	15,488	1,748	19,360	2,186
C812_0125 MT50	12.75	5546/435	2,500	2,400	3,000	10	73.5	1,133	127.9	28,429	3,209	29,596	3,341	36,994	4,176
C812_0140 MT50	13.76	1280/93	2,500	2,400	3,000	10	89.2	1,548	174.8	29,164	3,292	33,334	3,763	41,667	4,704
C812_0170 MT40	17.10	1180/69	2,900	2,700	3,400	10	45.2	1,041	117.5	19,605	2,213	19,605	2,213	24,506	2,767
C812_0170 MT50	17.10	1180/69	2,500	2,500	3,000	10	55.2	1,197	135.1	31,353	3,540	37,463	4,229	46,829	5,287

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

N – Foot Mounted F – Round Flange Q – Square Flange G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque					
			Maximum							Nominal ¹⁾		Acceleration		Peak ²⁾	
			Continuous		Cyclic					T _{2N} ≤ 2000 RPM		T _{2B}		T _{2PEAK}	
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

C812 with MT TriAdapt® Motor Adapter *Continued*

Noise Level ≤ 67 dB(A) ³⁾

C812_0175 MT40	17.29	1504/87	2,700	2,400	3,200	10	60.6	1,360	153.6	21,001	2,371	21,001	2,371	26,251	2,964
C812_0175 MT50	17.29	1504/87	2,500	2,400	3,000	10	70.6	1,633	184.4	31,466	3,552	36,672	4,140	50,163	5,663
C812_0200 MT40	20.26	6077/300	2,900	2,700	3,400	10	37.1	1,102	124.4	22,426	2,532	22,426	2,532	28,032	3,165
C812_0200 MT50	20.26	6077/300	2,500	2,500	3,000	10	47.1	1,222	137.9	33,174	3,745	42,518	4,800	53,566	6,047
C812_0230 MT40	23.19	1600/69	2,900	2,700	3,400	10	43.6	1,527	172.4	26,583	3,001	26,583	3,001	33,229	3,751
C812_0230 MT50	23.19	1600/69	2,500	2,500	3,000	10	53.6	1,705	192.4	31,889	3,600	36,672	4,140	63,497	7,168
C812_0260 MT40	26.06	3127/120	2,900	2,700	3,400	10	28.3	1,169	131.9	27,158	3,066	27,283	3,080	34,103	3,850
C812_0260 MT50	26.06	3127/120	2,500	2,500	3,000	10	38.3	1,247	140.8	36,079	4,073	42,518	4,800	65,167	7,357
C812_0270 MT40	27.47	412/15	2,900	2,700	3,400	10	35.9	1,597	180.3	30,408	3,433	30,408	3,433	38,010	4,291
C812_0270 MT50	27.47	412/15	2,500	2,500	3,000	10	45.9	1,732	195.5	31,889	3,600	36,672	4,140	63,778	7,200
C812_0340 MT40	33.59	2183/65	2,900	2,700	3,400	10	22.1	1,213	137.0	28,022	3,163	33,261	3,755	41,577	4,694
C812_0340 MT50	33.59	2183/65	2,500	2,500	3,000	10	32.1	1,263	142.6	37,204	4,200	42,518	4,800	74,407	8,400
C812_0350 MT40	35.33	106/3	2,900	2,700	3,400	10	27.6	1,673	188.9	31,889	3,600	36,672	4,140	46,242	5,220
C812_0350 MT50	35.33	106/3	2,500	2,500	3,000	10	37.6	1,760	198.7	31,889	3,600	36,672	4,140	63,778	7,200
C812_0400 MT40	39.94	2596/65	2,900	2,700	3,400	10	18.9	1,234	139.4	28,769	3,248	38,126	4,304	47,658	5,380
C812_0400 MT50	39.94	2596/65	2,500	2,500	3,000	10	28.9	1,271	143.4	33,527	3,785	38,126	4,304	47,658	5,380
C812_0460 MT40	45.54	592/13	2,900	2,700	3,400	10	21.7	1,723	194.5	31,889	3,600	36,672	4,140	56,374	6,364
C812_0460 MT50	45.54	592/13	2,500	2,500	3,000	10	31.7	1,777	200.6	31,889	3,600	36,672	4,140	63,778	7,200
C812_0540 MT40	54.15	704/13	2,900	2,700	3,400	10	18.6	1,746	197.1	31,889	3,600	36,672	4,140	63,778	7,200
C812_0540 MT50	54.15	704/13	2,500	2,500	3,000	10	28.6	1,785	201.5	31,889	3,600	36,672	4,140	63,778	7,200
C812_0690 MT40	68.89	620/9	2,900	2,700	3,400	10	15.6	1,767	199.5	31,889	3,600	36,672	4,140	63,778	7,200
C812_0690 MT50	68.89	620/9	2,500	2,500	3,000	10	25.6	1,792	202.3	31,889	3,600	36,672	4,140	63,778	7,200

C813 with MT TriAdapt® Motor Adapter

Noise Level ≤ 67 dB(A) ³⁾

C813_0490 MT40	49.18	49914/1015	2,900	2,700	3,400	10	15.2	1,734	195.7	29,597	3,341	29,597	3,341	36,997	4,177
C813_0660 MT40	65.96	10620/161	2,900	2,700	3,400	10	14.0	1,764	199.2	32,936	3,718	37,466	4,230	46,832	5,287
C813_0780 MT40	78.13	54693/700	2,900	2,700	3,400	10	13.4	1,775	200.4	34,401	3,884	42,518	4,800	53,567	6,047
C813_0790 MT30	79.34	285619/3600	2,900	2,700	3,400	10	8.3	1,747	197.2	20,953	2,365	22,424	2,531	28,029	3,164
C813_0890 MT40	89.44	14400/161	2,900	2,700	3,400	10	13.9	1,782	201.2	31,889	3,600	36,672	4,140	63,501	7,169
C813_0910 MT30	90.82	18800/207	2,900	2,700	3,400	10	8.7	1,760	198.7	24,905	2,812	26,582	3,001	33,227	3,751
C813_1010 MT40	100.5	28143/280	2,900	2,700	3,400	10	12.9	1,786	201.7	36,202	4,087	42,518	4,800	65,171	7,357
C813_1060 MT40	105.9	3708/35	2,900	2,700	3,400	10	13.4	1,788	201.9	31,889	3,600	36,672	4,140	63,778	7,200
C813_1080 MT30	107.6	4841/45	2,900	2,700	3,400	10	8.2	1,772	200.1	28,411	3,207	30,405	3,432	38,006	4,291
C813_1300 MT40	129.5	58941/455	2,900	2,700	3,400	10	12.4	1,793	202.4	37,204	4,200	42,518	4,800	74,407	8,400
C813_1360 MT40	136.3	954/7	2,900	2,700	3,400	10	12.8	1,794	202.6	31,889	3,600	36,672	4,140	63,778	7,200
C813_1380 MT30	138.4	2491/18	2,900	2,700	3,400	10	7.6	1,784	201.5	29,899	3,375	36,672	4,140	46,238	5,220
C813_1760 MT40	175.6	15984/91	2,900	2,700	3,400	10	12.4	1,798	203.0	31,889	3,600	36,672	4,140	63,778	7,200
C813_1780 MT30	178.4	6956/39	2,900	2,700	3,400	10	7.3	1,792	202.3	31,543	3,561	36,672	4,140	56,370	6,364
C813_2090 MT40	208.9	19008/91	2,900	2,700	3,400	10	12.2	1,800	203.2	31,889	3,600	36,672	4,140	63,778	7,200
C813_2120 MT30	212.1	8272/39	2,900	2,700	3,400	10	7.1	1,795	202.7	31,889	3,600	36,672	4,140	63,778	7,200
C813_2660 MT40	265.7	1860/7	2,900	2,700	3,400	10	12.0	1,801	203.3	31,889	3,600	36,672	4,140	63,778	7,200
C813_2700 MT30	269.8	7285/27	2,900	2,700	3,400	10	6.9	1,799	203.0	31,889	3,600	36,672	4,140	63,778	7,200

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

- ¹⁾ Maximum torque for continuous input RPM - horizontal output position.
²⁾ Maximum momentary torque for emergency stops or heavy shock load.
 Admissible stops per life of reducer = 1,000 stops maximum.
³⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.



"C" Series—Concentric Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ¹⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ²⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

C912 with MT TriAdapt® Motor Adapter

Noise Level ≤ 73 dB(A) ³⁾

C912_0165 MT50	16.5	5795/352	2,500	2,500	3,000	10	101.5	2,020	228.0	37,713	4,258	37,713	4,258	47,141	5,322
C912_0200 MT50	20.2	2257/112	2,500	2,500	3,000	10	79.6	2,110	238.2	44,280	4,999	44,280	4,999	55,349	6,249
C912_0230 MT50	23.4	6175/264	2,500	2,500	3,000	10	96.8	3,134	353.8	53,148	6,000	53,581	6,049	66,977	7,561
C912_0250 MT50	25.3	6893/272	2,500	2,500	3,000	10	61.5	2,183	246.4	53,014	5,985	53,014	5,985	66,268	7,481
C912_0290 MT50	28.6	2405/84	2,500	2,500	3,000	10	76.4	3,240	365.8	53,148	6,000	57,577	6,500	78,638	8,878
C912_0320 MT50	32.1	3599/112	2,500	2,500	3,000	10	48.0	2,232	252.0	55,803	6,300	63,801	7,203	79,751	9,003
C912_0360 MT50	36.0	7345/204	2,500	2,500	3,000	10	59.6	3,324	375.3	53,148	6,000	57,577	6,500	94,151	10,629
C912_0390 MT50	39.3	4087/104	2,500	2,500	3,000	10	39.9	2,260	255.2	53,230	6,009	63,876	7,211	92,963	10,495
C912_0460 MT50	45.7	3835/84	2,500	2,500	3,000	10	46.8	3,381	381.7	53,148	6,000	57,577	6,500	106,296	12,000
C912_0560 MT50	55.8	335/6	2,500	2,500	3,000	10	39.0	3,413	385.3	53,148	6,000	57,577	6,500	106,296	12,000
C912_0700 MT50	70.0	10075/144	2,500	2,500	3,000	10	32.8	3,436	387.9	53,148	6,000	57,577	6,500	82,414	9,304

C913 with MT TriAdapt® Motor Adapter

Noise Level ≤ 73 dB(A) ³⁾

C913_0650 MT50	64.6	295545/4576	2,500	2,500	3,000	10	28.3	3,429	387.1	58,960	6,656	70,864	8,000	94,010	10,613
C913_0780 MT40	77.7	60939/784	2,800	2,600	3,200	10	15.8	3,374	380.9	39,232	4,429	44,280	4,999	55,351	6,249
C913_0790 MT50	79.1	115107/1456	2,500	2,500	3,000	10	26.8	3,445	389.0	62,006	7,000	70,864	8,000	110,376	12,461
C913_0900 MT40	90.2	55575/616	2,800	2,600	3,200	10	17.0	3,400	383.8	52,907	5,973	53,584	6,049	66,979	7,561
C913_0920 MT50	91.8	8075/88	2,500	2,500	3,000	10	28.0	3,454	389.9	53,148	6,000	57,577	6,500	106,296	12,000
C913_0990 MT50	99.4	20679/208	2,500	2,500	3,000	10	25.7	3,457	390.3	62,006	7,000	70,864	8,000	124,012	14,000
C913_1100 MT40	110.4	21645/196	2,800	2,600	3,200	10	15.6	3,426	386.7	53,148	6,000	57,577	6,500	78,641	8,878
C913_1120 MT50	112.3	3145/28	2,500	2,500	3,000	10	26.6	3,462	390.8	53,148	6,000	57,577	6,500	106,296	12,000
C913_1260 MT50	126.1	183549/1456	2,500	2,500	3,000	10	24.8	3,465	391.2	62,006	7,000	70,864	8,000	124,012	14,000
C913_1390 MT40	138.9	66105/476	2,800	2,600	3,200	10	14.5	3,445	388.9	53,148	6,000	57,577	6,500	94,154	10,629
C913_1410 MT50	141.3	565/4	2,500	2,500	3,000	10	25.5	3,468	391.5	53,148	6,000	57,577	6,500	106,296	12,000
C913_1760 MT40	176.1	34515/196	2,800	2,600	3,200	10	13.6	3,458	390.3	53,148	6,000	57,577	6,500	106,296	12,000
C913_1790 MT50	179.1	5015/28	2,500	2,500	3,000	10	24.7	3,472	392.0	53,148	6,000	57,577	6,500	106,296	12,000
C913_2150 MT40	215.4	3015/14	2,800	2,600	3,200	10	13.1	3,464	391.1	53,148	6,000	57,577	6,500	106,296	12,000

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

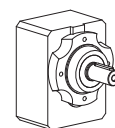
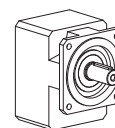
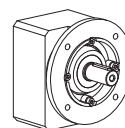
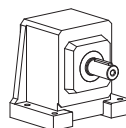
Housing Styles

N – Foot Mounted

F – Round Flange

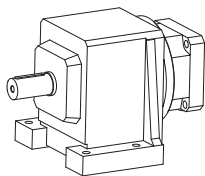
Q – Square Flange

G – Tapped Holes



Contact STÖBER for availability of "Q" housing style.

See Page 74 for required ordering information and part number example.



ServoFit® "C" Series—Concentric Helical Foot Mount – "N" Housing Dimensional Data

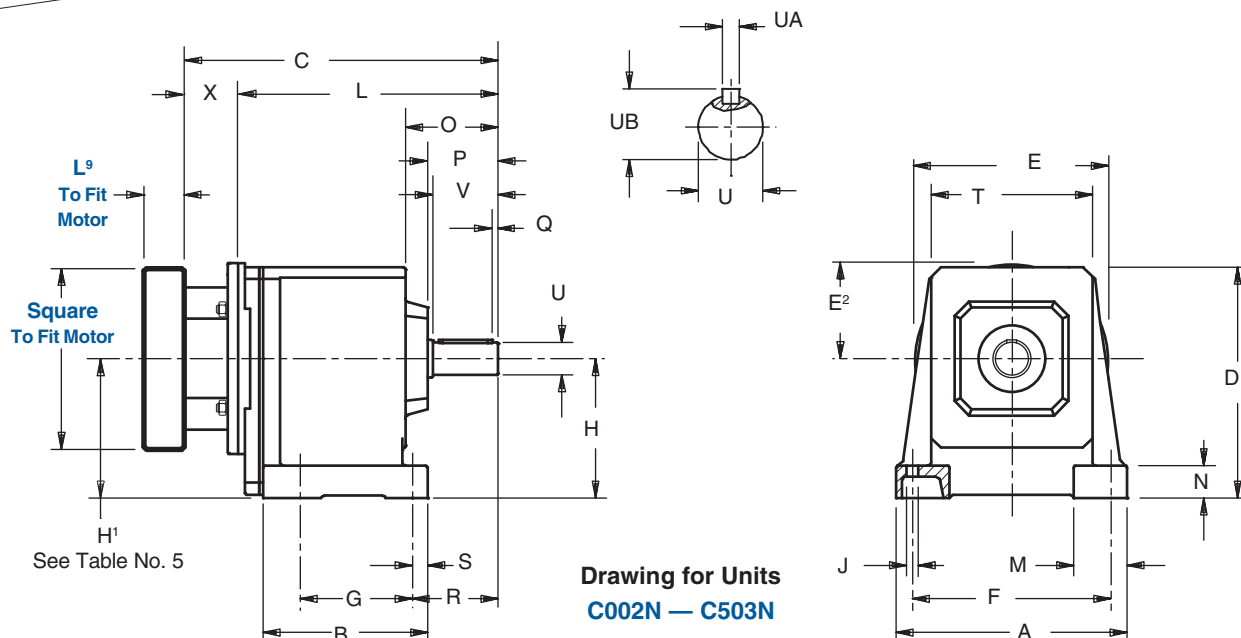


Table No. 1 "C" Series – Foot Mounting Unit Dimensions (Inches) – "N" Housing Style

Base Module	A	B	D	F	G	H	J	M	N	O	P	Q	R
C002	5.20	3.74	5.67	4.33	2.44	3.23	.28	1.38	.79	2.24	1.73	.16	2.17
C102/C103	6.93	4.65	6.97	5.91	2.76	4.02	.35	1.65	.98	2.72	2.13	.16	2.64
C202/C203	7.87	5.31	7.68	6.69	3.35	4.53 ¹⁾	.43	1.97	1.18	3.39	2.56	.16	3.11
C302/C303	8.46	6.06	8.46	7.28	4.13	5.12 ¹⁾	.43	1.97	1.18	3.35	2.56	.16	3.11
C402/C403	10.04	7.09	9.65	8.66	4.33	5.71	.55	2.36	1.38	4.17	3.39	.16	4.13
C502/C503	11.42	7.76	11.42	9.65	5.12	6.69	.71	2.76	1.57	4.21	3.39	.16	4.25
C612/C613	11.81	10.43	12.40	9.65	8.46	7.87 ¹⁾	.71	2.95	1.57	6.02	4.17	.20	5.12
C712/C713	14.37	11.22	14.76	11.81	9.25	9.25 ¹⁾	.71	3.54	1.97	7.28	5.00	.20	6.42
C812/C813	17.13	14.17	17.72	13.39	11.81	11.42	.87	3.74	2.17	8.58	5.83	.39	7.48
C912/C913	20.08	16.14	20.87	15.75	13.39	13.39	1.02	4.33	2.36	10.08	7.01	.39	8.74

¹⁾ See Table No. 5

Table No. 2 Metric output available on request

Base Module	S	T	Standard Shaft - inches			Optional Shaft - mm			V	Z ¹⁾
			U	UA	UB	U	UA	UB		
C002	.43	3.62	.750	$\frac{3}{16} \times \frac{3}{16} \times \frac{17}{32}$	.83	20 _{k6}	A6x6x32	22.5	1.57	—
C102/C103	.51	4.88	1.000	$\frac{1}{4} \times \frac{1}{4} \times \frac{19}{16}$	1.11	25 _{k6}	A8x7x40	28	1.97	—
C202/C203	.55	5.43	1.250	$\frac{1}{4} \times \frac{1}{4} \times \frac{15}{16}$	1.36	30 _{k6}	A8x7X50	33	2.36	—
C302/C303	.55	5.91	1.250	$\frac{1}{4} \times \frac{1}{4} \times \frac{15}{16}$	1.36	30 _{k6}	A8x7X50	33	2.36	—
C402/C403	.75	6.89	1.625	$\frac{3}{8} \times \frac{3}{8} \times \frac{27}{8}$	1.79	40 _{k6}	A12x8X70	43	3.15	—
C502/C503	.87	7.56	1.625	$\frac{3}{8} \times \frac{3}{8} \times \frac{27}{8}$	1.79	40 _{k6}	A12x8X70	43	3.15	—
C612/C613	.98	6.97	2.125	$\frac{1}{2} \times \frac{1}{2} \times \frac{35}{32}$	2.35	50 _{k6}	A14x9x90	53.5	3.94	6.57
C712/C713	.98	7.56	2.375	$\frac{5}{8} \times \frac{5}{8} \times \frac{315}{16}$	2.65	60 _{m6}	A18x11x100	64	4.72	7.91
C812/C813	1.14	8.78	2.875	$\frac{3}{4} \times \frac{3}{4} \times \frac{45}{16}$	3.21	70 _{m6}	A20x12x125	74.5	5.51	8.70
C912/C913	1.34	10.91	3.625	$\frac{7}{8} \times \frac{7}{8} \times \frac{51}{2}$	4.01	90 _{m6}	A25x14x140	95	6.69	10.24

Table No. 3 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.



ServoFit "C" Series—Concentric Helical Foot Mount – "N" Housing Dimensional Data

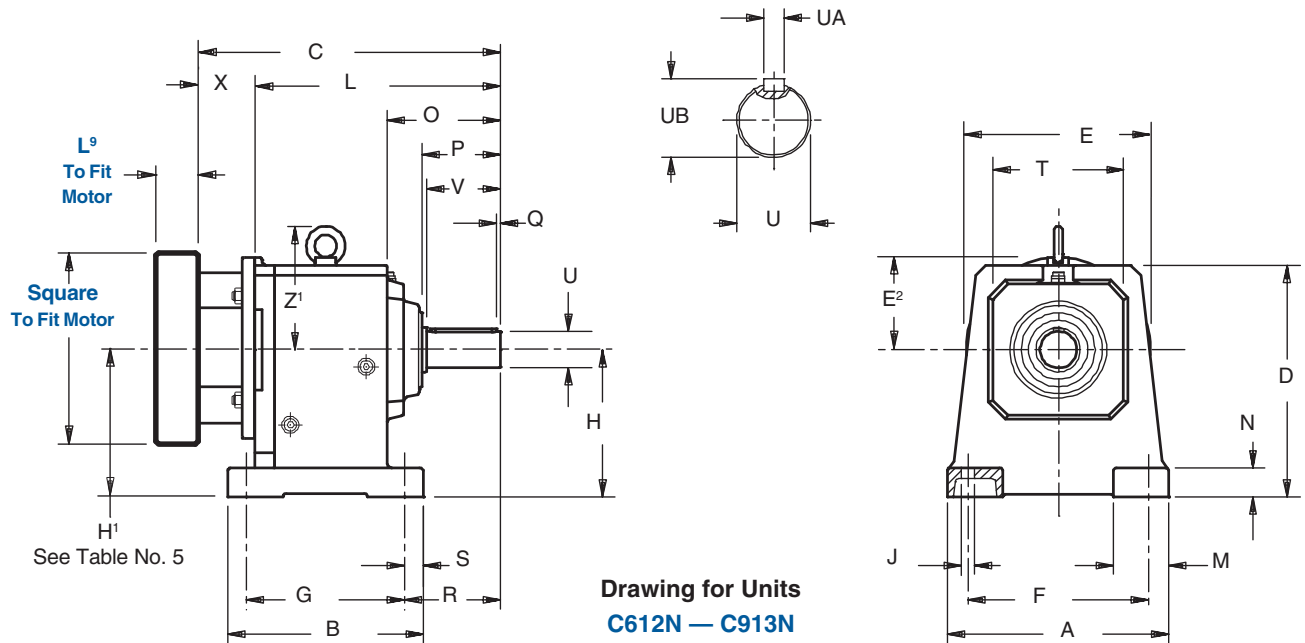
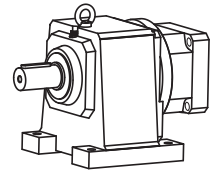


Table No. 4

"C" Series – Foot Mounting Unit Dimensions (Inches) – "N" Housing Style

Base Module	MT10		MT20		MT30		MT40		MT50		Approx. Wt.(lbs.)
	C	L	C	L	C	L	C	L	C	L	
C002	7.63	6.06	8.19	6.22	—	—	—	—	—	—	18
C102	8.93	7.36	9.49	7.52	9.96	7.60	—	—	—	—	29
C103	10.39	8.82	—	—	—	—	—	—	—	—	34
C202	10.03	8.46	10.59	8.62	11.06	8.70	—	—	—	—	38
C203 ¹⁾	11.49	9.92	12.28	10.31	—	—	—	—	—	—	45
C302	—	—	11.34	9.37	11.81	9.45	13.07	9.57	—	—	49
C303 ¹⁾	12.24	10.67	13.03	11.06	—	—	—	—	—	—	56
C402	—	—	13.23	11.26	13.70	11.34	14.96	11.46	—	—	71
C403	—	—	14.92	12.95	—	—	—	—	—	—	78
C502	—	—	14.06	12.09	14.53	12.17	15.78	12.28	16.04	12.83	95
C503	—	—	15.75	13.78	—	—	—	—	—	—	111
C612 ¹⁾	—	—	—	—	15.47	13.11	16.73	13.23	16.95	13.74	115
C613 ¹⁾	—	—	16.73	14.76	17.91	15.55	—	—	—	—	159
C712	—	—	—	—	17.56	15.20	18.78	15.28	19.00	15.79	199
C713 ¹⁾	—	—	—	—	19.96	17.60	—	—	—	—	221
C812	—	—	—	—	—	—	21.41	17.91	21.24	18.03	322
C813	—	—	—	—	22.60	20.24	24.21	20.71	—	—	342
C912	—	—	—	—	—	—	—	—	24.27	21.06	596
C913	—	—	—	—	—	—	26.06	22.56	27.54	24.33	678

¹⁾ See Table No. 5

Table No. 5

"C" Series – Input Dimension

Base Module	MT20	MT30	MT40	MT50
	H ¹	H ¹	H ¹	H ¹
C203	3.09	—	—	—
C303	3.66	—	—	—
C612	—	7.63	7.63	7.63
C613	—	—	7.63	—
C713	—	—	10.00	—

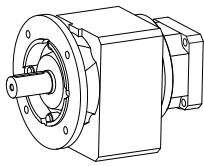
Units shown in Table 5 do not have a concentric input and output.

Part No. Example

Foot Mounting with TriAdapt® Motor Adapter

C302N0620 MT10

For approximate weight, add adapter weight from Table 3 and base module weight from Table 4.



ServoFit® "C" Series—Concentric Helical Round Flange – "F" Housing Dimensional Data

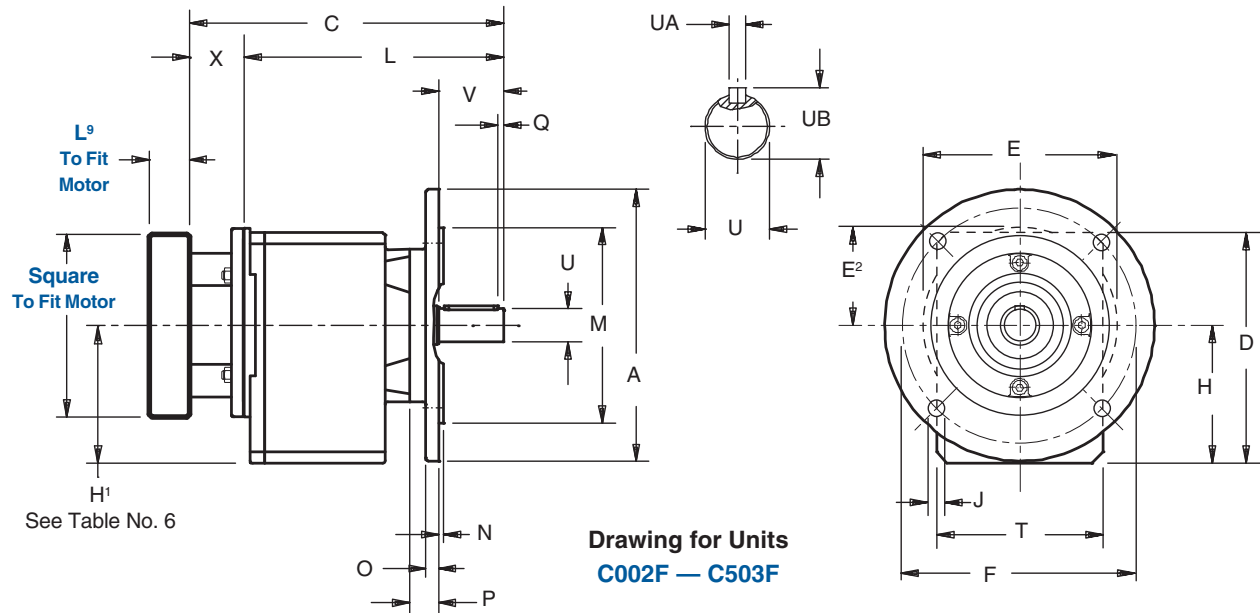


Table No. 1 "C" Series – Round Flange Unit Dimensions (Inches) – "F" Housing Style

Base Module	A	D	F	H	J	M	N	O	P	Q	T
C002	6.30	5.55	5.12	3.11	.35	4.331 +.001/- .0004	.12	.39	.71	.16	3.82
C102/C103	7.87	6.89	6.50	3.94	.43	5.118 +.001/- .0004	.14	.47	.83	.16	5.12
C202/C203	7.87	7.56	6.50	4.41 ¹⁾	.43	5.118 +.001/- .0004	.14	.47	1.06	.16	5.59
C302/C303	9.84	8.35	8.46	5.00 ¹⁾	.55	7.087 +.001/- .0004	.16	.47	1.06	.16	6.06
C402/C403	9.84	9.55	8.46	5.61	.55	7.087 +.001/- .0004	.16	.55	1.10	.16	7.01
C502/C503	11.81	11.26	10.43	6.54	.55	9.055 +.001/- .001	.16	.63	1.14	.16	7.68
C612/C613	11.81	11.97	10.43	7.44 ¹⁾	.55	9.055 +.001/- .001	.16	.67	1.42	.20	8.86
C712/C713	13.78	14.61	11.81	9.09 ¹⁾	.71	9.842 +.000/- .001	.20	.71	1.73	.20	10.43
C812/C813	15.75	17.52	13.78	11.22	.71	11.811 +.000/- .001	.20	.79	1.77	.39	12.20
C912/C913	17.72	20.63	15.75 *	13.15	.71	13.780 +.000/- .001	.20	.91	1.97	.39	14.37

¹⁾ See Table No. 6

* C913 has 8 mounting holes (located 22.5° from horizontal) in the output flange instead of 4 as shown in the drawing.

Table No. 2 Metric output available on request

Base Module	Standard Shaft - inches			Optional Shaft - mm			V	Z ¹⁾
	U	UA	UB	U	UA	UB		
C002	.750	3/16 x 3/16 x 17/32	.83	20 _{k6}	A6x6x32	22.5	1.57	—
C102/C103	1.000	1/4 x 1/4 x 19/16	1.11	25 _{k6}	A8x7x40	28	1.97	—
C202/C203	1.250	1/4 x 1/4 x 1 5/16	1.36	30 _{k6}	A8x7X50	33	2.36	—
C302/C303	1.250	1/4 x 1/4 x 1 5/16	1.36	30 _{k6}	A8x7X50	33	2.36	—
C402/C403	1.625	3/8 x 3/8 x 2 7/8	1.79	40 _{k6}	A12x8X70	43	3.15	—
C502/C503	1.625	3/8 x 3/8 x 2 7/8	1.79	40 _{k6}	A12x8X70	43	3.15	—
C612/C613	2.125	1/2 x 1/2 x 3 5/32	2.35	50 _{k6}	A14x9x90	53.5	3.94	6.57
C712/C713	2.375	5/8 x 5/8 x 3 15/16	2.65	60 _{m6}	A18x11x100	64	4.72	7.91
C812/C813	2.875	3/4 x 3/4 x 4 5/16	3.21	70 _{m6}	A20x12x125	74.5	5.51	8.70
C912/C913	3.625	7/8 x 7/8 x 5 1/2	4.01	90 _{m6}	A25x14x140	95	6.69	10.24

Table No. 3 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

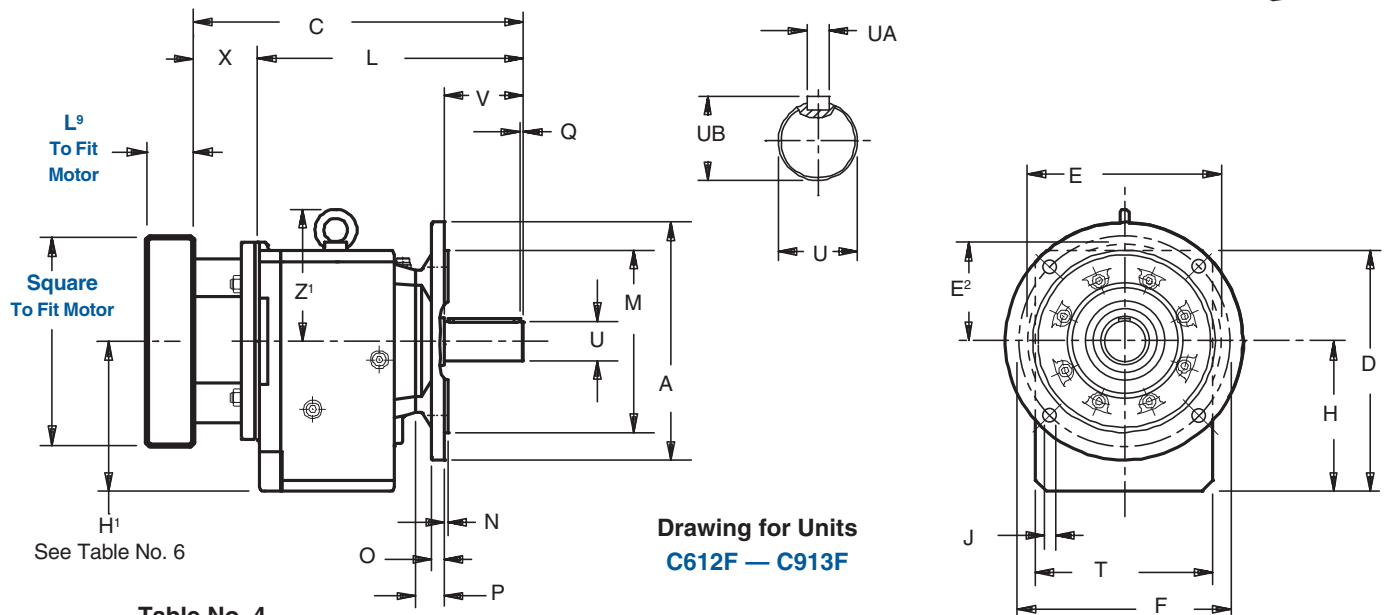
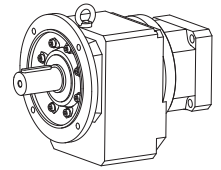
¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

For approximate weight, add adapter weight from Table 3 and base module weight from Table 4.



ServoFit® "C" Series—Concentric Helical Round Flange – "F" Housing Dimensional Data



Drawing for Units
C612F — C913F

Table No. 4

"C" Series – Round Flange Unit Dimensions (Inches) – "F" Housing Style

Base Module	MT10		MT20		MT30		MT40		MT50		Approx. Wt.(lbs.)
	C	L	C	L	C	L	C	L	C	L	
C002	7.63	6.06	8.19	6.22	—	—	—	—	—	—	18
C102	8.93	7.36	9.49	7.52	9.96	7.60	—	—	—	—	29
C103	10.39	8.82	—	—	—	—	—	—	—	—	34
C202	10.03	8.46	10.59	8.62	11.06	8.70	—	—	—	—	38
C203 ¹⁾	11.49	9.92	12.28	10.31	—	—	—	—	—	—	45
C302	—	—	11.34	9.37	11.81	9.45	13.07	9.57	—	—	49
C303 ¹⁾	12.24	10.67	13.03	11.06	—	—	—	—	—	—	56
C402	—	—	13.23	11.26	13.70	11.34	14.96	11.46	—	—	71
C403	—	—	14.92	12.95	—	—	—	—	—	—	78
C502	—	—	14.06	12.09	14.53	12.17	15.78	12.28	16.04	12.83	95
C503	—	—	15.75	13.78	—	—	—	—	—	—	111
C612 ¹⁾	—	—	—	—	15.47	13.11	16.73	13.23	16.95	13.74	115
C613 ¹⁾	—	—	16.73	14.76	17.91	15.55	—	—	—	—	159
C712	—	—	—	—	17.56	15.20	18.78	15.28	19.00	15.79	199
C713 ¹⁾	—	—	—	—	19.96	17.60	—	—	—	—	221
C812	—	—	—	—	—	—	21.41	17.91	21.24	18.03	322
C813	—	—	—	—	22.60	20.24	24.21	20.71	—	—	342
C912	—	—	—	—	—	—	—	—	24.27	21.06	596
C913	—	—	—	—	—	—	26.06	22.56	27.54	24.33	678

¹⁾See Table No. 6

Table No. 5 Optional Flange Dimensions (Inches)

Base Module	Flange Size	A	F	J	M	N	O
C0	120	4.724	3.93	.28	3.150 +.001/- .0004	.12	.39
	140	5.512	4.53	.35	3.740 +.001/- .0004	.12	.39
C1	140	5.512	4.53	.35	3.740 +.001/- .0004	.14	.32
	160	6.300	5.12	.35	4.331 +.001/- .0004	.14	.39
C2	160	6.300	5.12	.35	4.331 +.001/- .0004	.14	.39
	250	9.843	8.46	.55	7.087 +.001/- .0004	.16	.47
C3	160	6.300	5.12	.35	4.331 +.001/- .0004	.14	.39
	200	7.874	6.50	.43	5.118 +.001/- .0004	.14	.47
C4	200	7.874	6.50	.43	5.118 +.001/- .0004	.16	.55
	300	11.811	10.43	.55	9.055 +.001/- .001	.16	.55
C5	250	9.843	8.46	.55	7.087 +.001/- .0004	.16	.55
	350	13.780	11.81	.71	9.842 +.000/- .001	.20	.71
C8	450	17.717	15.75	.71	13.780 +.000/- .001	.20	.79

Optional flange are not available for all sizes.

Table No. 6

"C" Series – Input Dimension

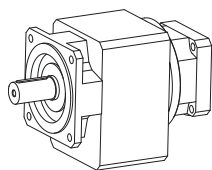
Base Module	MT20	MT30	MT40	MT50
	H¹	H¹	H¹	H¹
C203	2.97	—	—	—
C303	3.54	—	—	—
C612	—	7.44	7.44	7.44
C613	—	—	7.44	—
C713	—	—	9.84	—

Units shown in Table 6 do not have a concentric input and output.

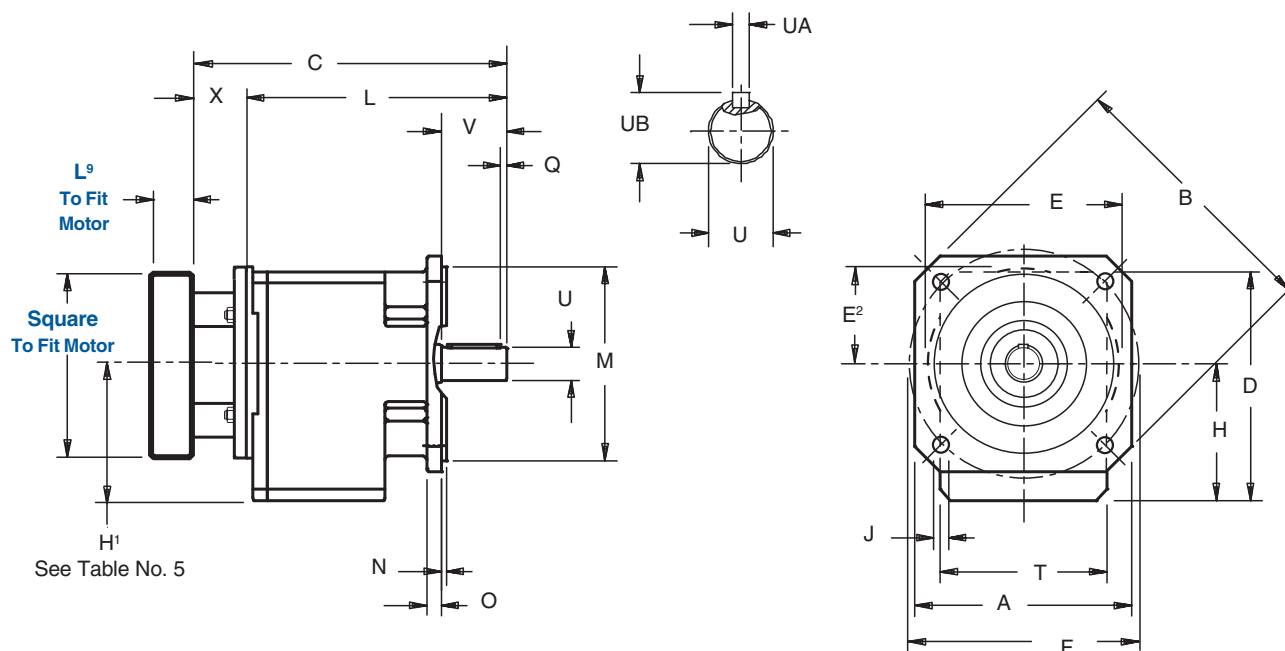
Part No. Example

Round Flange with TriAdapt® Motor Adapter

C302F0620 MT10



ServoFit® "C" Series—Concentric Helical Square Flange – “Q” Housing Dimensional Data



Drawing for Units
C002Q — C503Q

Table No. 1 "C" Series – Square Flange Unit Dimensions (Inches) – "Q" Housing Style

Base Module	A	B	D	F	H	J	M	N	O	Q	T
C002	4.88	6.30	5.55	5.12	3.11	.35	4.331 +.001/-0.0004	.14	.35	.16	3.82
C102/C103	5.71	7.56	6.89	6.50	3.94	.43	5.118 +.001/-0.0004	.14	.43	.16	5.12
C202/C203	5.71	7.56	7.56	6.50	4.41 ¹⁾	.43	5.118 +.001/-0.0004	.14	.43	.16	5.59
C302/C303	7.87	9.84	8.35	8.46	5.00 ¹⁾	.55	7.087 +.001/-0.0004	.16	.55	.16	6.06
C402/C403	7.87	9.84	9.55	8.46	5.61	.55	7.087 +.001/-0.0004	.16	.55	.16	7.01
C502/C503	9.84	11.81	11.26	10.43	6.54	.55	9.055 +.001/-0.001	.16	.63	.16	7.68

¹⁾See Table No. 5

Table No. 2 Metric output available on request

Base Module	Standard Shaft - inches			Optional Shaft - mm		
	U	UA	UB	U	UA	UB
C002	.750	$\frac{3}{16} \times \frac{3}{16} \times \frac{17}{32}$	.83	20 _{k6}	A6x6x32	22.5
C102/C103	1.000	$\frac{1}{4} \times \frac{1}{4} \times \frac{19}{16}$	1.11	25 _{k6}	A8x7x40	28
C202/C203	1.250	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{5}{16}$	1.36	30 _{k6}	A8x7X50	33
C302/C303	1.250	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{5}{16}$	1.36	30 _{k6}	A8x7X50	33
C402/C403	1.625	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{7}{8}$	1.79	40 _{k6}	A12x8X70	43
C502/C503	1.625	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{7}{8}$	1.79	40 _{k6}	A12x8X70	43

Contact STÖBER Drives for availability of "Q" housing style.



ServoFit® "C" Series—Concentric Helical Square Flange – "Q" Housing

Dimensional Data

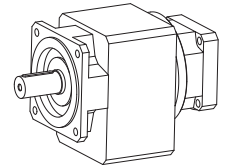


Table No. 3 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

Table No. 4

"C" Series – Square Flange Unit Dimensions (Inches) – "Q" Housing Style

Base Module	MT10		MT20		MT30		MT40		MT50		Approx. Wt.(lbs.)
	C	L	C	L	C	L	C	L	C	L	
C002	7.63	6.06	8.19	6.22	—	—	—	—	—	—	18
C102	8.93	7.36	9.49	7.52	9.96	7.60	—	—	—	—	29
C103	10.39	8.82	—	—	—	—	—	—	—	—	34
C202	10.03	8.46	10.59	8.62	11.06	8.70	—	—	—	—	38
C203 ¹⁾	11.49	9.92	12.28	10.31	—	—	—	—	—	—	45
C302	—	—	11.34	9.37	11.81	9.45	13.07	9.57	—	—	49
C303 ¹⁾	12.24	10.67	13.03	11.06	—	—	—	—	—	—	56
C402	—	—	13.23	11.26	13.70	11.34	14.96	11.46	—	—	71
C403	—	—	14.92	12.95	—	—	—	—	—	—	78
C502	—	—	14.06	12.09	14.53	12.17	15.78	12.28	16.04	12.83	95
C503	—	—	15.75	13.78	—	—	—	—	—	—	111

¹⁾ See Table No. 6

Table No. 5
Input Dimension (Inches)

Base	MT20
Module	H ¹
C203	2.97
C303	3.54

Units shown in Table 5 do not have a concentric input and output.

Part No. Example

Square Flange with TriAdapt® Motor Adapter

C302Q0620 MT20

For approximate weight, add adapter weight from Table 3 and base module weight from Table 4.

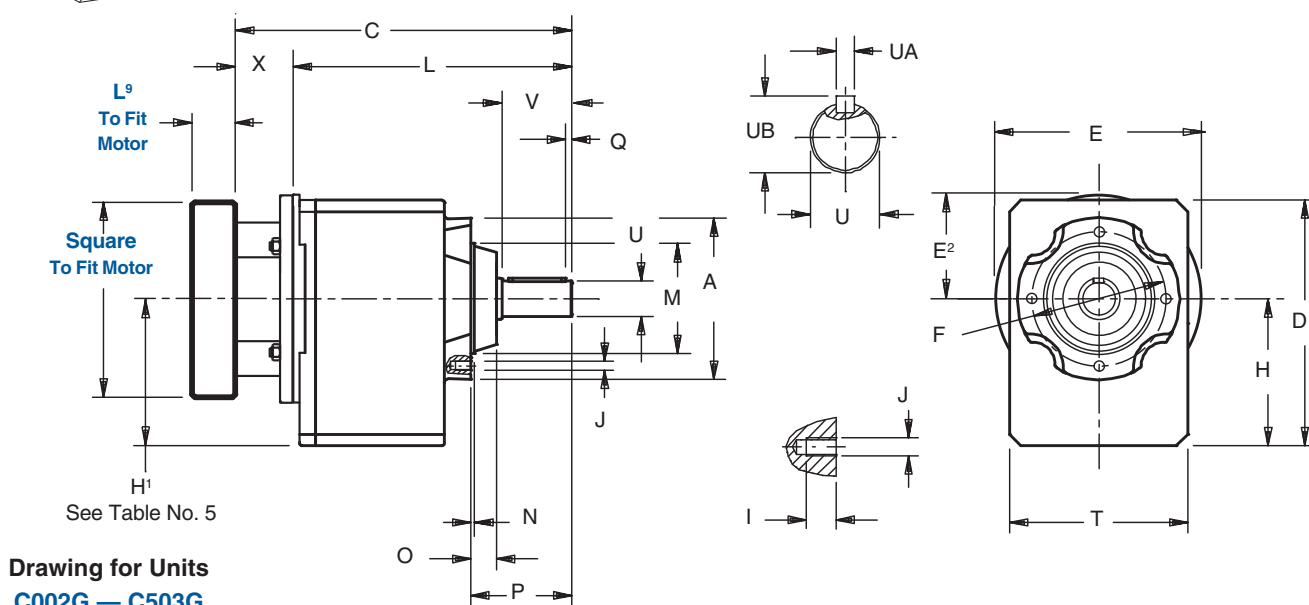


Table No. 1 "C" Series – Tapped Holes Unit Dimensions (Inches) – "G" Housing Style

Base Module	A	D	F	H	I	J	M	N	O	P	Q	T
C002	3.43	5.55	2.95	3.11	.39	4-M6	2.165 ^{+0.01/- .0003}	.12	.55	2.28	.16	3.82
C102/C103	4.72	6.89	3.94	3.94	.51	4-M6	3.150 ^{+0.01/- .0003}	.12	.67	2.80	.16	5.12
C202/C203	5.51	7.56	4.53	4.41 ¹⁾	.51	4-M8	3.740 ^{+0.01/- .0004}	.12	.87	3.43	.16	5.59
C302/C303	5.51	8.35	4.53	5.00 ¹⁾	.51	4-M8	3.740 ^{+0.01/- .0004}	.12	.87	3.43	.16	6.06
C402/C403	6.30	9.55	5.12	5.61	.63	4-M10	4.331 ^{+0.01/- .0004}	.14	.87	4.25	.16	7.01
C502/C503	7.56	11.26	6.50	6.54	.63	8-M10 ²⁾	5.118 ^{+0.01/- .0004}	.14	.91	4.29	.16	7.68
C612/C613	7.09	11.97	6.50	7.44 ¹⁾	.63	8-M10	5.512 ^{+0.01/- .0004}	.20	1.18	5.35	.20	8.86
C712/C713	7.68	14.61	7.28	9.09 ¹⁾	.75	8-M12	6.102 ^{+0.01/- .0004}	.31	1.46	6.46	.20	10.43
C812/C813	8.90	17.52	8.46	11.22	.75	8-M12	7.283 ^{+0.01/- .001}	.20	1.46	7.28	.39	12.20
C912/C913	11.02	20.63	10.43	13.15	1.02	8-M16	9.055 ^{+0.01/- .001}	.20	1.65	8.66	.39	14.37

¹⁾ See Table No. 5

²⁾ C502/C503 has 8 holes located as shown on drawing for C612G–C913G.

Table No. 2 **Metric output available on request**

Base Module	Standard Shaft - inches			Optional Shaft - mm			V	Z
	U	UA	UB	U	UA	UB		
C002	.750	$\frac{3}{16} \times \frac{3}{16} \times 1\frac{17}{32}$	.83	20 _{k6}	A6x6x32	22.5	1.57	—
C102/C103	1.000	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{9}{16}$	1.11	25 _{k6}	A8x7x40	28	1.97	—
C202/C203	1.250	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{5}{16}$	1.36	30 _{k6}	A8x7X50	33	2.36	—
C302/C303	1.250	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{5}{16}$	1.36	30 _{k6}	A8x7X50	33	2.36	—
C402/C403	1.625	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{7}{8}$	1.79	40 _{k6}	A12x8X70	43	3.15	—
C502/C503	1.625	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{7}{8}$	1.79	40 _{k6}	A12x8X70	43	3.15	—
C612/C613	2.125	$\frac{1}{2} \times \frac{1}{2} \times 3\frac{3}{32}$	2.35	50 _{k6}	A14x9x90	53.5	3.94	6.57
C712/C713	2.375	$\frac{5}{8} \times \frac{5}{8} \times 3\frac{15}{16}$	2.65	60 _{m6}	A18x11x100	64	4.72	7.91
C812/C813	2.875	$\frac{3}{4} \times \frac{3}{4} \times 4\frac{1}{16}$	3.21	70 _{m6}	A20x12x125	74.5	5.51	8.70
C912/C913	3.625	$\frac{7}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	4.01	90 _{m6}	A25x14x140	95	6.69	10.24

Table No. 3 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

1) If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

2) Motor plate maximum thickness (L^9) will vary with motor shaft length but will not be less than shown.



ServoFit® "C" Series—Concentric Helical Tapped Hole – "G" Housing Dimensional Data

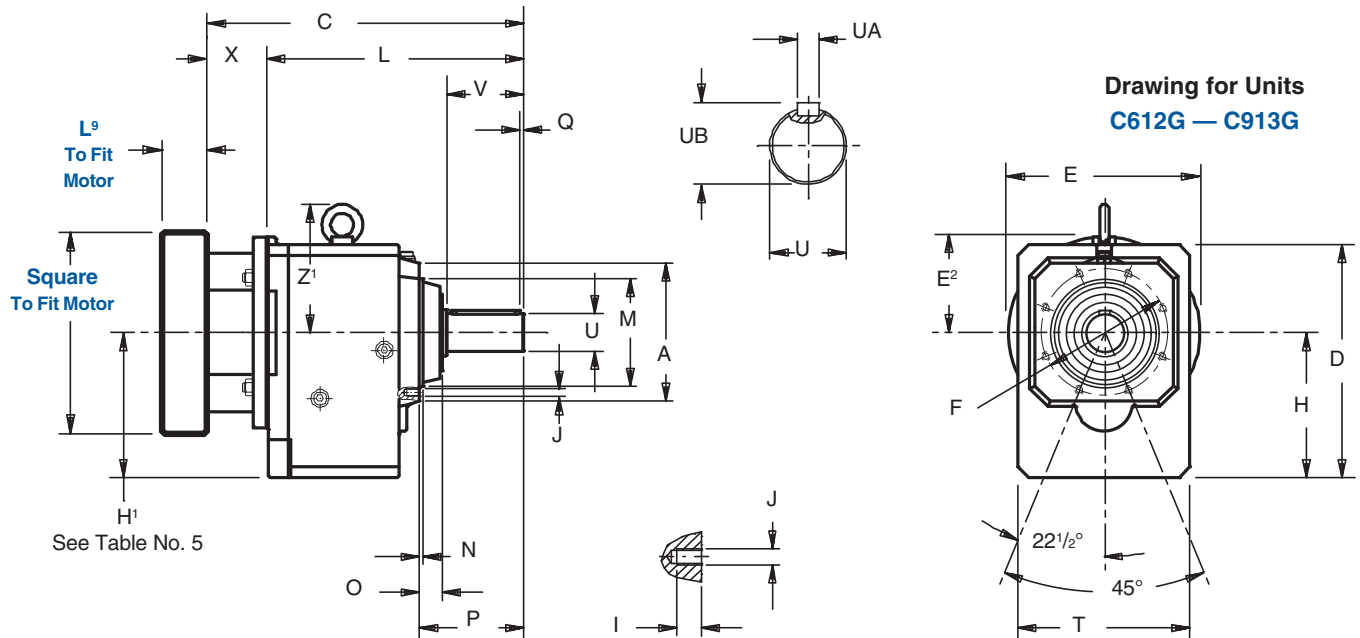
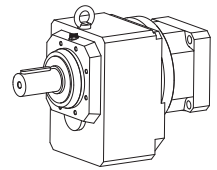


Table No. 4

"C" Series – Tapped Holes Unit Dimensions (Inches) – "G" Housing Style

Base Module	MT10		MT20		MT30		MT40		MT50		Approx. Wt.(lbs.)
	C	L	C	L	C	L	C	L	C	L	
C002	7.63	6.06	8.19	6.22	—	—	—	—	—	—	18
C102	8.93	7.36	9.49	7.52	9.96	7.60	—	—	—	—	29
C103	10.39	8.82	—	—	—	—	—	—	—	—	34
C202	10.03	8.46	10.59	8.62	11.06	8.70	—	—	—	—	38
C203 ¹⁾	11.49	9.92	12.28	10.31	—	—	—	—	—	—	45
C302	—	—	11.34	9.37	11.81	9.45	13.07	9.57	—	—	49
C303 ¹⁾	12.24	10.67	13.03	11.06	—	—	—	—	—	—	56
C402	—	—	13.23	11.26	13.70	11.34	14.96	11.46	—	—	71
C403	—	—	14.92	12.95	—	—	—	—	—	—	78
C502	—	—	14.06	12.09	14.53	12.17	15.78	12.28	16.04	12.83	95
C503	—	—	15.75	13.78	—	—	—	—	—	—	111
C612 ¹⁾	—	—	—	—	15.47	13.11	16.73	13.23	16.95	13.74	115
C613 ¹⁾	—	—	16.73	14.76	17.91	15.55	—	—	—	—	159
C712	—	—	—	—	17.56	15.20	18.78	15.28	19.00	15.79	199
C713 ¹⁾	—	—	—	—	19.96	17.60	—	—	—	—	221
C812	—	—	—	—	—	—	21.41	17.91	21.24	18.03	322
C813	—	—	—	—	22.60	20.24	24.21	20.71	—	—	342
C912	—	—	—	—	—	—	—	—	24.27	21.06	596
C913	—	—	—	—	—	—	26.06	22.56	27.54	24.33	678

¹⁾See Table No. 6

Table No. 5

"C" Series – Input Dimension

Base Module	MT20	MT30	MT40	MT50
	H'	H'	H'	H'
C203	2.97	—	—	—
C303	3.54	—	—	—
C612	—	7.44	7.44	7.44
C613	—	—	7.44	—
C713	—	—	9.84	—

Units shown in Table 5 do not have a concentric input and output.

Part No. Example

Tapped Holes Housing with TriAdapt® Motor Adapter

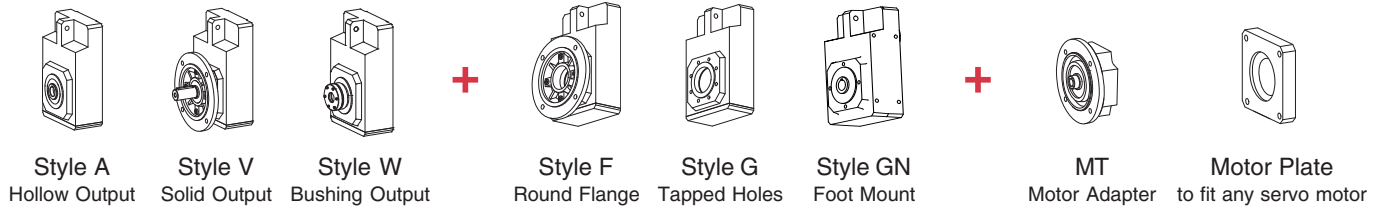
C302G0620 MT20

For approximate weight, add adapter weight from Table 3 and base module weight from Table 4.

"F" Series—Offset Helical ServoFit® SMS Gearhead Overview



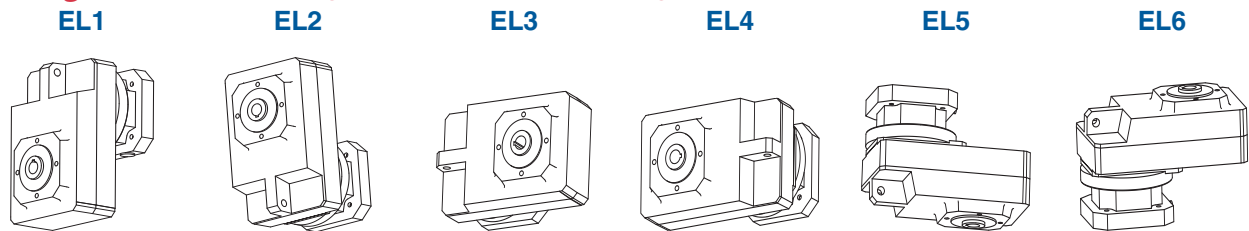
Output Style + Housing Style + TriAdapt® Input = Gearhead Configurations



Gearhead Configurations



Mounting Positions (See Page 171 for additional mounting information.)



Part No. Explanation with OPTIONS and REQUIRED INFORMATION

F 4 0 2 V F 0135 MT20 B

This designation is only required when ordering a:
B – Beverage Duty
F – Food Duty

TriAdapt® Motor Adapter Size: **MT10, MT20, MT30, MT40**

Nominal Ratio: (**0135** = 13.5:1)

HOUSING STYLE
"F" Housing Style – Flange Mounting
"G" Housing Style – Tapped Holes
"GN" Housing Style – Foot Mount

OUTPUT STYLE
"V" Solid Output – ONLY AVAILABLE with "F" Housing Style
SPECIFY IN A NOTE: Standard or Stainless Steel¹⁾
Imperial or Metric¹⁾

"A" Hollow Output
SPECIFY IN A NOTE: Standard or Stainless Steel¹⁾
Imperial or Metric¹⁾

"W" Wobble Free Bushing
SPECIFY IN A NOTE: Bushing Part Number
Single or Double Bushing (Double not possible on F203, F303, F403, F603)
Single Side 5 or Side 6 (Side 6 not possible on F203, F303, F403, F603)

No. of Stages (**02** = 2 Stage, determined by ratio)

Design Generation

Unit Size No.

Offset Helical

¹⁾Not available in all sizes.

Bushing Part No. Explanation

W F 2 - 103
W – Wobble Free
F – Single Side Bushing
2 – Double Side Bushing
103 – Output Bore in inches – **103** = 1³/₁₆
Base Module Size example: F202/F203)

W F N 2 - 103
W – Wobble Free
F – Single Side Bushing
N – No Covers
2 – Double Side Bushing
103 – Output Bore in inches – **103** = 1³/₁₆
Base Module Size example: F202)

THE FOLLOWING INFORMATION IS REQUIRED FOR ANY UNIT:

- Mounting Position – EL1 EL2 EL3 EL4 EL5 EL6
- Motor – Motor Manufacturer and Model Number
- Paint – Black (Standard) White Stainless
- Package Option – Beverage Duty Food Duty
- Backlash Option – Standard or Reduced Backlash



"F" Series—Offset Helical ServoFit® Modular System

Compact size and flexibility make these gear drives a popular choice for applications that require high performance, efficiency, and durability. Series "F" gear drives, like all SMS units, are available with a wide selection of configurations to match almost any mounting requirement.

Performance Specifications:

- Input RPM up to 4,500 RPM
- Nominal output torque – 200 to 9,700 in. lbs. (22-1,100 Nm)
- Reducer ratios from 4.1:1 to 540:1
- 5 year limited warranty (2 years on bearings, seals, etc.)
- Ambient temperature – 0°C to +40°C (104°F)
- Noise level – as low as 53 dB(A)
- $\geq 95.5\%$ Efficiency
- Maintenance free
- Can be back driven



Motor plate can easily be changed to fit your choice of motors.

Shipped with the proper amount of oil to prevent gear damaging dry start-ups

High quality helical gearing is case hardened to 58-62 Rockwell C. Precision finished for low noise and long service life. Standard backlash is ≤ 11 arc minutes. Reduced backlash is ≤ 7 arc minutes

One-piece cast iron housing with precision machined bearing supports assure gearset alignment, prolongs bearing life, provides exceptional overhung load capacities, and eliminates leakage problems common to two-piece housings.

Double lip seals keep oil in and contaminants out. Double seals available for severe duty applications.

Output Options:

- Solid shaft
- Hollow
- Backlash free, wobble free bushings

Also available in metric or stainless shaft or quill.

Also available in washdown and poultry duty.
Maximum 10 working days for custom motor plates.



"F" Series—Offset Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π _{1DBH}	Π _{1DBV}	Π _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
F102 with MT TriAdapt® Motor Adapter															
Noise Level ≤ 55 dB(A) ⁴⁾															
F102_0043 MT10	4.308	56/13	3,500	3,000	6,000	11/8	2.1	35	4.0	396	45	396	45	496	56
F102_0043 MT20	4.308	56/13	3,500	3,000	5,000	11/8	2.7	37	4.1	539	61	746	84	933	105
F102_0065 MT10	6.462	84/13	3,500	3,000	6,000	11/8	1.4	45	5.1	563	64	563	64	704	79
F102_0065 MT20	6.462	84/13	3,500	3,000	5,000	11/8	2.0	46	5.2	617	70	930	105	1,326	150
F102_0072 MT10	7.156	322/45	3,700	3,600	6,000	11/8	1.2	47	5.3	613	69	613	69	767	87
F102_0072 MT20	7.156	322/45	3,500	3,500	5,000	11/8	1.8	48	5.4	639	72	930	105	1,444	163
F102_0089 MT10	8.948	1029/115	3,700	3,600	6,000	11/8	1.0	50	5.7	688	78	737	83	921	104
F102_0089 MT20	8.948	1029/115	3,500	3,500	5,000	11/8	1.6	51	5.8	688	78	930	105	1,734	196
F102_0110 MT10	10.92	273/25	4,000	4,000	6,000	11/8	0.9	53	5.9	735	83	868	98	1,085	123
F102_0110 MT20	10.92	273/25	3,500	3,500	5,000	11/8	1.5	53	6.0	735	83	930	105	1,772	200
F102_0135 MT10	13.59	231/17	4,000	4,000	6,000	11/8	0.8	54	6.1	791	89	930	105	1,297	146
F102_0135 MT20	13.59	231/17	3,500	3,500	5,000	11/8	1.4	55	6.2	791	89	930	105	1,772	200
F102_0185 MT10	18.46	1495/81	3,700	3,600	6,000	11/6	0.9	66	7.4	876	99	1,063	120	1,978	223
F102_0185 MT20	18.46	1495/81	3,500	3,500	5,000	11/6	1.5	66	7.5	876	99	1,063	120	2,126	240
F102_0230 MT10	23.08	3185/138	3,700	3,600	6,000	11/6	0.8	67	7.5	944	107	1,063	120	2,126	240
F102_0230 MT20	23.08	3185/138	3,500	3,500	5,000	11/6	1.4	67	7.6	944	107	1,063	120	2,126	240
F102_0280 MT10	28.17	169/6	4,000	4,000	6,000	11/6	0.8	67	7.6	1,009	114	1,063	120	2,126	240
F102_0280 MT20	28.17	169/6	3,500	3,500	5,000	11/6	1.4	67	7.6	1,009	114	1,063	120	2,126	240
F102_0350 MT10	35.05	3575/102	4,000	4,000	6,000	11/6	0.7	68	7.7	1,063	120	1,063	120	2,126	240
F102_0350 MT20	35.05	3575/102	3,500	3,500	5,000	11/6	1.3	68	7.7	1,063	120	1,063	120	2,126	240
F102_0460 MT10	46.43	325/7	4,000	4,000	6,000	11/6	0.7	68	7.7	1,063	120	1,063	120	2,126	240
F102_0460 MT20	46.43	325/7	3,500	3,500	5,000	11/6	1.3	68	7.7	1,063	120	1,063	120	2,126	240
F102_0560 MT10	55.97	2015/36	4,000	4,000	6,000	11/6	0.7	68	7.7	1,063	120	1,063	120	2,126	240
F102_0560 MT20	55.97	2015/36	3,500	3,500	5,000	11/6	1.3	68	7.7	1,063	120	1,063	120	2,126	240
F102_0700 MT10	70.06	1261/18	4,000	4,000	6,000	11/6	0.6	68	7.7	1,063	120	1,063	120	2,126	240
F102_0700 MT20	70.06	1261/18	3,500	3,500	5,000	11/6	1.2	68	7.7	1,063	120	1,063	120	2,126	240
F102_0940 MT10	93.63	7865/84	4,000	4,000	6,000	11/6	0.6	68	7.7	1,063	120	1,063	120	2,126	240
F102_1120 MT10	111.9	2015/18	4,000	4,000	6,000	11/6	0.6	68	7.7	1,063	120	1,063	120	2,126	240
F102_1400 MT10	139.8	559/4	4,000	4,000	6,000	11/6	0.6	69	7.7	1,063	120	1,063	120	2,126	240
F202 with MT TriAdapt® Motor Adapter															
Continued Next Page															
Noise Level ≤ 53 dB(A) ⁴⁾															
F202_0047 MT10	4.680	2616/559	3,100	2,600	5,000	11/8	4.7	60	6.8	452	51	452	51	564	64
F202_0047 MT20	4.680	2616/559	3,100	2,600	5,000	11/8	5.3	64	7.2	1,103	125	1,769	200	2,495	282
F202_0047 MT30	4.680	2616/559	3,100	2,600	4,000	11/8	10.1	80	9.1	1,103	125	1,860	210	2,495	282
F202_0056 MT20	5.552	5341/962	3,100	2,600	5,000	11/8	4.2	75	8.5	1,168	132	1,860	210	2,921	330
F202_0056 MT30	5.552	5341/962	3,100	2,600	4,000	11/8	9.0	91	10.3	1,168	132	1,860	210	2,921	330
F202_0072 MT10	7.167	5777/806	3,600	3,100	6,000	11/8	2.5	89	10.0	653	74	653	74	816	92
F202_0072 MT20	7.167	5777/806	3,500	3,100	5,000	11/8	3.1	92	10.4	1,272	144	1,860	210	3,543	400
F202_0072 MT30	7.167	5777/806	3,500	3,100	4,000	11/8	7.9	106	11.9	1,272	144	1,860	210	3,543	400
F202_0090 MT10	9.006	3161/351	3,600	3,100	6,000	11/8	1.9	102	11.5	793	89	793	89	991	112
F202_0090 MT20	9.006	3161/351	3,500	3,100	5,000	11/8	2.5	105	11.8	1,372	155	1,860	210	3,543	400
F202_0090 MT30	9.006	3161/351	3,500	3,100	4,000	11/8	7.3	115	13.0	1,372	155	1,860	210	3,543	400

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.



"F" Series—Offset Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
F202 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 53 dB(A) ⁴⁾					
F202_0110 MT10	10.80	7303/676	3,800	3,500	6,000	11/8	1.5	111	12.5	917	104	917	104	1,147	129
F202_0110 MT20	10.80	7303/676	3,500	3,500	5,000	11/8	2.1	113	12.8	1,458	165	1,860	210	3,543	400
F202_0110 MT30	10.80	7303/676	3,500	3,500	4,000	11/8	6.9	121	13.7	1,458	165	1,860	210	3,543	400
F202_0135 MT10	13.63	109/8	3,800	3,500	6,000	11/8	1.2	120	13.5	1,112	126	1,112	126	1,391	157
F202_0135 MT20	13.63	109/8	3,500	3,500	5,000	11/8	1.8	121	13.7	1,576	178	1,860	210	3,543	400
F202_0135 MT30	13.63	109/8	3,500	3,500	4,000	11/8	6.6	127	14.3	1,576	178	1,860	210	3,543	400
F202_0185 MT10	18.65	6360/341	3,600	3,100	6,000	11/6	1.5	145	16.4	1,699	192	1,699	192	2,124	240
F202_0185 MT20	18.65	6360/341	3,500	3,100	5,000	11/6	2.1	146	16.5	1,749	197	2,392	270	4,252	480
F202_0185 MT30	18.65	6360/341	3,500	3,100	4,000	11/6	6.9	151	17.0	1,749	197	2,392	270	4,252	480
F202_0230 MT10	23.43	2320/99	3,600	3,100	6,000	11/6	1.3	150	16.9	1,888	213	2,062	233	2,578	291
F202_0230 MT20	23.43	2320/99	3,500	3,100	5,000	11/6	1.9	151	17.0	1,888	213	2,392	270	4,252	480
F202_0230 MT30	23.43	2320/99	3,500	3,100	4,000	11/6	6.7	154	17.3	1,888	213	2,392	270	4,252	480
F202_0280 MT10	28.11	4020/143	3,800	3,500	6,000	11/6	1.1	152	17.2	2,006	226	2,387	269	2,984	337
F202_0280 MT20	28.11	4020/143	3,500	3,500	5,000	11/6	1.7	153	17.3	2,006	226	2,392	270	4,252	480
F202_0280 MT30	28.11	4020/143	3,500	3,500	4,000	11/6	6.5	155	17.5	2,006	226	2,392	270	4,252	480
F202_0350 MT10	35.46	390/11	3,800	3,500	6,000	11/6	1.0	155	17.5	2,126	240	2,392	270	3,618	408
F202_0350 MT20	35.46	390/11	3,500	3,500	5,000	11/6	1.6	155	17.5	2,126	240	2,392	270	4,252	480
F202_0350 MT30	35.46	390/11	3,500	3,500	4,000	11/6	6.4	156	17.7	2,126	240	2,392	270	4,252	480
F202_0470 MT10	47.05	1035/22	4,000	3,900	6,000	11/6	0.8	156	17.7	2,126	240	2,392	270	4,252	480
F202_0470 MT20	47.05	1035/22	3,500	3,500	5,000	11/6	1.4	157	17.7	2,126	240	2,392	270	4,252	480
F202_0470 MT30	47.05	1035/22	3,500	3,500	4,000	11/6	6.2	157	17.8	2,126	240	2,392	270	4,252	480
F202_0570 MT10	56.73	624/11	4,000	3,900	6,000	11/6	0.8	157	17.7	2,126	240	2,392	270	4,252	480
F202_0570 MT20	56.73	624/11	3,500	3,500	5,000	11/6	1.4	157	17.8	2,126	240	2,392	270	4,252	480
F202_0570 MT30	56.73	624/11	3,500	3,500	4,000	11/6	6.2	158	17.8	2,126	240	2,392	270	4,252	480
F202_0700 MT10	70.13	5400/77	4,000	3,900	6,000	11/6	0.7	158	17.8	2,126	240	2,392	270	4,252	480
F202_0700 MT20	70.13	5400/77	3,500	3,500	5,000	11/6	1.3	158	17.8	2,126	240	2,392	270	4,252	480
F202_0700 MT30	70.13	5400/77	3,500	3,500	4,000	11/6	6.1	158	17.9	2,126	240	2,392	270	4,252	480
F202_0940 MT10	93.82	1032/11	4,000	3,900	6,000	11/6	0.7	158	17.9	2,126	240	2,392	270	4,252	480
F202_0940 MT20	93.82	1032/11	3,500	3,500	5,000	11/6	1.3	158	17.9	2,126	240	2,392	270	4,252	480
F202_1130 MT10	112.7	1240/11	4,000	3,900	6,000	11/6	0.7	158	17.9	2,126	240	2,392	270	4,252	480
F202_1410 MT10	140.9	1550/11	4,000	3,900	6,000	11/6	0.6	158	17.9	2,126	240	2,392	270	4,252	480
F203 with MT TriAdapt® Motor Adapter										Noise Level ≤ 53 dB(A) ⁴⁾					
F203_1840 MT10	184.3	16215/88	4,000	3,900	6,000	11/7	0.7	159	17.9	2,126	240	2,392	270	4,252	480
F203_2220 MT10	222.2	2444/11	4,000	3,900	6,000	11/7	0.7	159	17.9	2,126	240	2,392	270	4,252	480
F203_2750 MT10	274.7	21150/77	4,000	3,900	6,000	11/7	0.7	159	17.9	2,126	240	2,392	270	4,252	480
F203_3670 MT10	367.5	4042/11	4,000	3,900	6,000	11/7	0.7	159	17.9	2,126	240	2,392	270	4,252	480
F203_4420 MT10	441.5	14570/33	4,000	3,900	6,000	11/7	0.6	159	17.9	2,126	240	2,392	270	4,252	480
F203_5520 MT10	551.9	36425/66	4,000	3,900	6,000	11/7	0.6	159	17.9	2,126	240	2,392	270	4,252	480

Motor Shaft

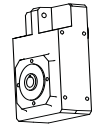
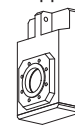
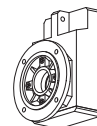
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48

Housing Styles

F – Round Flange

G – Tapped Holes

GN – Foot Mount



The "F" Housing Style is available as Hollow (A) or Solid (V) Output.
"G" style is Hollow (A) or Bushing (W).

See Page 104 for required ordering information and part number example.



"F" Series—Offset Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum		Nominal ²⁾ T _{2N} ≤ 2000 RPM					Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}			
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π12B			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
F302 with MT TriAdapt® Motor Adapter															
Noise Level ≤ 53 dB(A) ⁴⁾															
F302_0046 MT20	4.644	4992/1075	3,000	2,600	4,500	11/8	9.4	71	8.0	1,596	180	1,756	198	2,576	291
F302_0046 MT30	4.644	4992/1075	3,000	2,600	4,000	11/8	14.2	92	10.4	1,832	207	3,094	349	5,758	650
F302_0057 MT20	5.720	143/25	3,000	2,600	4,500	11/8	6.9	89	10.1	1,963	222	2,163	244	3,069	346
F302_0057 MT30	5.720	143/25	3,000	2,600	4,000	11/8	11.7	111	12.5	1,963	222	2,455	277	3,069	346
F302_0072 MT20	7.172	208/29	3,500	3,100	5,000	11/8	5.1	109	12.3	2,117	239	2,711	306	3,741	422
F302_0072 MT30	7.172	208/29	3,500	3,100	4,000	11/8	9.9	129	14.5	2,117	239	2,992	338	3,741	422
F302_0090 MT20	8.986	5616/625	3,500	3,100	5,000	11/8	3.8	128	14.4	2,282	258	3,100	350	4,516	510
F302_0090 MT30	8.986	5616/625	3,500	3,100	4,000	11/8	8.6	144	16.2	2,282	258	3,100	350	4,516	510
F302_0110 MT20	10.79	1456/135	3,500	3,500	5,000	11/8	3.1	140	15.8	2,426	274	3,100	350	5,225	590
F302_0110 MT30	10.79	1456/135	3,500	3,500	4,000	11/8	7.9	153	17.3	2,426	274	3,100	350	5,225	590
F302_0135 MT10	13.38	7696/575	3,700	3,500	5,500	11/8	1.9	149	16.9	1,127	127	1,127	127	1,409	159
F302_0135 MT20	13.38	7696/575	3,500	3,500	5,000	11/8	2.5	152	17.2	2,607	294	3,100	350	5,758	650
F302_0135 MT30	13.38	7696/575	3,500	3,500	4,000	11/8	7.3	162	18.3	2,607	294	3,100	350	5,758	650
F302_0190 MT20	18.77	4900/261	3,500	3,100	5,000	11/6	3.1	175	19.8	2,918	329	3,986	450	7,086	800
F302_0190 MT30	18.77	4900/261	3,500	3,100	4,000	11/6	7.9	182	20.5	2,918	329	3,986	450	7,086	800
F302_0240 MT20	23.52	588/25	3,500	3,100	5,000	11/6	2.6	182	20.5	3,146	355	3,986	450	7,086	800
F302_0240 MT30	23.52	588/25	3,500	3,100	4,000	11/6	7.4	186	21.0	3,146	355	3,986	450	7,086	800
F302_0280 MT20	28.23	6860/243	3,500	3,500	5,000	11/6	2.2	185	20.9	3,343	377	3,986	450	7,086	800
F302_0280 MT30	28.23	6860/243	3,500	3,500	4,000	11/6	7.0	188	21.2	3,343	377	3,986	450	7,086	800
F302_0350 MT10	35.03	7252/207	3,700	3,500	5,500	11/6	1.3	187	21.1	2,951	333	2,951	333	3,689	416
F302_0350 MT20	35.03	7252/207	3,500	3,500	5,000	11/6	1.9	188	21.2	3,543	400	3,986	450	7,086	800
F302_0350 MT30	35.03	7252/207	3,500	3,500	4,000	11/6	6.7	190	21.4	3,543	400	3,986	450	7,086	800
F302_0470 MT10	47.19	1274/27	4,000	3,900	6,000	11/6	1.1	190	21.4	3,543	400	3,738	422	4,673	528
F302_0470 MT20	47.19	1274/27	3,500	3,500	5,000	11/6	1.7	190	21.5	3,543	400	3,986	450	7,086	800
F302_0470 MT30	47.19	1274/27	3,500	3,500	4,000	11/6	6.5	191	21.6	3,543	400	3,986	450	7,086	800
F302_0560 MT10	56.49	4067/72	4,000	3,900	6,000	11/6	1.0	191	21.6	3,543	400	3,986	450	5,414	611
F302_0560 MT20	56.49	4067/72	3,500	3,500	5,000	11/6	1.6	191	21.6	3,543	400	3,986	450	7,086	800
F302_0560 MT30	56.49	4067/72	3,500	3,500	4,000	11/6	6.4	192	21.7	3,543	400	3,986	450	7,086	800
F302_0700 MT10	70.36	2744/39	4,000	3,900	6,000	11/6	0.9	192	21.6	3,543	400	3,986	450	6,402	723
F302_0700 MT20	70.36	2744/39	3,500	3,500	5,000	11/6	1.5	192	21.7	3,543	400	3,986	450	7,086	800
F302_0700 MT30	70.36	2744/39	3,500	3,500	4,000	11/6	6.3	192	21.7	3,543	400	3,986	450	7,086	800
F302_0940 MT10	93.64	4214/45	4,000	3,900	6,000	11/6	0.8	192	21.7	3,543	400	3,986	450	7,086	800
F302_0940 MT20	93.64	4214/45	3,500	3,500	5,000	11/6	1.4	192	21.7	3,543	400	3,986	450	7,086	800
F302_0940 MT30	93.64	4214/45	3,500	3,500	4,000	11/6	6.2	193	21.8	3,543	400	3,986	450	7,086	800
F302_1130 MT10	112.8	3724/33	4,000	3,900	6,000	11/6	0.7	193	21.8	3,543	400	3,986	450	7,086	800
F302_1130 MT20	112.8	3724/33	3,500	3,500	5,000	11/6	1.3	193	21.8	3,543	400	3,986	450	7,086	800
F302_1410 MT10	140.6	7595/54	4,000	3,900	6,000	11/6	0.7	193	21.8	3,543	400	3,986	450	5,771	652
F303 with MT TriAdapt® Motor Adapter															
Continued Next Page															
Noise Level ≤ 53 dB(A) ⁴⁾															
F303_1820 MT20	182.4	73892/405	3,500	3,500	5,000	11/7	1.4	193	21.8	3,543	400	3,986	450	7,086	800
F303_1850 MT10	184.8	29939/162	4,000	3,900	6,000	11/7	0.7	193	21.8	3,543	400	3,986	450	7,086	800
F303_2180 MT20	218.4	117943/540	3,500	3,500	5,000	11/7	1.4	193	21.8	3,543	400	3,986	450	7,086	800
F303_2210 MT10	221.2	191149/864	4,000	3,900	6,000	11/7	0.7	193	21.8	3,543	400	3,986	450	7,086	800

- ¹⁾ Backlash shown "STANDARD/REDUCED".
- ²⁾ Maximum torque for continuous input RPM - horizontal output position.
- ³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.
- ⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{12B} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N(n1DBH)} ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"F" Series—Offset Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum		Nominal ²⁾					Acceleration		Peak ³⁾			
			Continuous	Cyclic	T _{2N} ≤ 2000 RPM					T _{2B}		T _{2PEAK}			
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
F303 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 53 dB(A) ⁴⁾					
F303_2720 MT20	272.1	159152/585	3,500	3,500	5,000	11/7	1.4	193	21.8	3,543	400	3,986	450	7,086	800
F303_2760 MT10	275.6	32242/117	4,000	3,900	6,000	11/7	0.7	193	21.8	3,543	400	3,986	450	7,086	800
F303_3620 MT20	362.1	244412/675	3,500	3,500	5,000	11/7	1.4	193	21.8	3,543	400	3,986	450	7,086	800
F303_3670 MT10	366.8	99029/270	4,000	3,900	6,000	11/7	0.7	193	21.8	3,543	400	3,986	450	7,086	800
F303_4420 MT10	442.0	43757/99	4,000	3,900	6,000	11/7	0.7	193	21.8	3,543	400	3,986	450	7,086	800
F303_5510 MT10	550.9	356965/648	4,000	3,900	6,000	11/7	0.7	193	21.8	3,543	400	3,986	450	5,771	651
F402 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 53 dB(A) ⁴⁾					
F402_0047 MT20	4.678	1408/301	2,700	2,300	4,000	10/7	16.0	88	9.9	1,608	182	1,769	200	2,683	303
F402_0047 MT30	4.678	1408/301	2,700	2,300	4,000	10/7	20.8	123	13.9	3,033	342	4,200	474	6,921	781
F402_0047 MT40	4.678	1408/301	2,700	2,300	3,500	10/7	24.8	186	21.0	3,033	342	4,872	550	6,921	781
F402_0058 MT20	5.813	3784/651	2,700	2,300	4,000	10/7	11.4	119	13.4	1,998	226	2,198	248	3,238	366
F402_0058 MT30	5.813	3784/651	2,700	2,300	4,000	10/7	16.2	159	17.9	3,260	368	4,872	550	8,353	943
F402_0058 MT40	5.813	3784/651	2,700	2,300	3,500	10/7	20.2	221	25.0	3,260	368	4,872	550	8,353	943
F402_0072 MT20	7.202	605/84	3,200	2,800	4,500	10/7	8.1	154	17.4	2,475	279	2,723	307	3,864	436
F402_0072 MT30	7.202	605/84	3,200	2,800	4,000	10/7	12.9	195	22.1	3,502	395	4,872	550	9,744	1,100
F402_0072 MT40	7.202	605/84	3,000	2,800	3,500	10/7	16.9	253	28.5	3,502	395	4,872	550	9,744	1,100
F402_0090 MT20	8.980	440/49	3,200	2,800	4,500	10/7	5.9	192	21.7	3,086	348	3,395	383	4,660	526
F402_0090 MT30	8.980	440/49	3,200	2,800	4,000	10/7	10.7	231	26.1	3,769	425	4,872	550	9,744	1,100
F402_0090 MT40	8.980	440/49	3,000	2,800	3,500	10/7	14.7	279	31.5	3,769	425	4,872	550	9,744	1,100
F402_0110 MT20	10.83	682/63	3,500	3,100	5,000	10/7	4.6	222	25.1	3,593	406	4,092	462	5,405	610
F402_0110 MT30	10.83	682/63	3,500	3,100	4,000	10/7	9.4	257	29.0	4,011	453	4,872	550	9,744	1,100
F402_0110 MT40	10.83	682/63	3,000	3,000	3,500	10/7	13.4	296	33.4	4,011	453	4,872	550	9,744	1,100
F402_0135 MT20	13.57	5984/441	3,500	3,100	5,000	10/7	3.5	255	28.8	3,941	445	4,872	550	6,552	740
F402_0135 MT30	13.57	5984/441	3,500	3,100	4,000	10/7	8.3	283	31.9	4,325	488	4,872	550	9,744	1,100
F402_0135 MT40	13.57	5984/441	3,000	3,000	3,500	10/7	12.3	311	35.2	4,325	488	4,872	550	9,744	1,100
F402_0185 MT20	18.62	3575/192	3,200	2,800	4,500	10/5	4.5	290	32.7	4,806	543	6,201	700	9,990	1,128
F402_0185 MT30	18.62	3575/192	3,200	2,800	4,000	10/5	9.3	308	34.8	4,806	543	6,201	700	12,401	1,400
F402_0185 MT40	18.62	3575/192	3,000	2,800	3,500	10/5	13.3	325	36.7	4,806	543	6,201	700	12,401	1,400
F402_0230 MT20	23.21	325/14	3,200	2,800	4,500	10/5	3.6	307	34.6	5,173	584	6,201	700	12,046	1,360
F402_0230 MT30	23.21	325/14	3,200	2,800	4,000	10/5	8.4	320	36.1	5,173	584	6,201	700	12,401	1,400
F402_0230 MT40	23.21	325/14	3,000	2,800	3,500	10/5	12.4	331	37.4	5,173	584	6,201	700	12,401	1,400
F402_0280 MT20	27.99	2015/72	3,500	3,100	5,000	10/5	3.0	317	35.8	5,505	622	6,201	700	12,401	1,400
F402_0280 MT30	27.99	2015/72	3,500	3,100	4,000	10/5	7.8	326	36.9	5,505	622	6,201	700	12,401	1,400
F402_0280 MT40	27.99	2015/72	3,000	3,000	3,500	10/5	11.8	335	37.8	5,505	622	6,201	700	12,401	1,400
F402_0350 MT20	35.08	2210/63	3,500	3,100	5,000	10/5	2.5	326	36.8	5,936	670	6,201	700	12,401	1,400
F402_0350 MT30	35.08	2210/63	3,500	3,100	4,000	10/5	7.3	332	37.5	5,936	670	6,201	700	12,401	1,400
F402_0350 MT40	35.08	2210/63	3,000	3,000	3,500	10/5	11.3	338	38.1	5,936	670	6,201	700	12,401	1,400
F402_0470 MT20	46.94	845/18	3,500	3,500	5,000	10/5	2.0	333	37.6	6,201	700	6,201	700	12,401	1,400
F402_0470 MT30	46.94	845/18	3,500	3,500	4,000	10/5	6.8	337	38.0	6,201	700	6,201	700	12,401	1,400
F402_0470 MT40	46.94	845/18	3,000	3,000	3,500	10/5	10.8	340	38.4	6,201	700	6,201	700	12,401	1,400

Motor Shaft

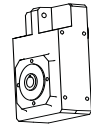
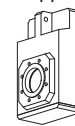
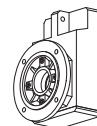
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48

Housing Styles

F – Round Flange

G – Tapped Holes

GN – Foot Mount



The "F" Housing Style is available as Hollow (A) or Solid (V) Output.
"G" style is Hollow (A) or Bushing (W).

See Page 104 for required ordering information and part number example.



"F" Series—Offset Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾		Acceleration		Peak ³⁾	
			Continuous	Cyclic						T _{2N} ≤ 2000 RPM		T _{2B}		T _{2PEAK}	
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
F402 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 53 dB(A) ⁴⁾					
F402_0560 MT20	55.97	2015/36	3,500	3,500	5,000	10/5	1.8	336	37.9	6,201	700	6,201	700	12,401	1,400
F402_0560 MT30	55.97	2015/36	3,500	3,500	4,000	10/5	6.6	338	38.2	6,201	700	6,201	700	12,401	1,400
F402_0560 MT40	55.97	2015/36	3,000	3,000	3,500	10/5	10.6	341	38.5	6,201	700	6,201	700	12,401	1,400
F402_0700 MT20	70.06	1261/18	3,500	3,500	5,000	10/5	1.6	338	38.2	6,201	700	6,201	700	12,401	1,400
F402_0700 MT30	70.06	1261/18	3,500	3,500	4,000	10/5	6.4	340	38.4	6,201	700	6,201	700	12,401	1,400
F402_0700 MT40	70.06	1261/18	3,000	3,000	3,500	10/5	10.4	341	38.5	6,201	700	6,201	700	12,401	1,400
F402_0930 MT20	93.33	280/3	3,500	3,500	5,000	10/5	1.5	340	38.4	6,201	700	6,201	700	12,401	1,400
F402_0930 MT30	93.33	280/3	3,500	3,500	4,000	10/5	6.3	341	38.5	6,201	700	6,201	700	12,401	1,400
F402_1120 MT20	112.3	1235/11	3,500	3,500	5,000	10/5	1.4	341	38.5	6,201	700	6,201	700	12,401	1,400
F402_1120 MT30	112.3	1235/11	3,500	3,500	4,000	10/5	6.2	342	38.6	6,201	700	6,201	700	12,401	1,400
F402_1400 MT20	139.8	559/4	3,500	3,500	5,000	10/5	1.3	342	38.6	6,201	700	6,201	700	11,262	1,271
F403 with MT TriAdapt® Motor Adapter										Noise Level ≤ 53 dB(A) ⁴⁾					
F403_1820 MT20	181.5	4901/27	3,500	3,500	5,000	10/6	1.4	342	38.6	6,201	700	6,201	700	12,401	1,400
F403_1840 MT10	183.9	39715/216	3,800	3,500	5,500	10/6	0.7	342	38.6	6,201	700	6,201	700	8,334	941
F403_2160 MT20	216.4	11687/54	3,500	3,500	5,000	10/6	1.4	342	38.6	6,201	700	6,201	700	12,401	1,400
F403_2190 MT10	219.2	94705/432	3,800	3,500	5,500	10/6	0.7	342	38.6	6,201	700	6,201	700	9,937	1,122
F403_2710 MT20	270.9	36569/135	3,500	3,500	5,000	10/6	1.4	342	38.7	6,201	700	6,201	700	12,401	1,400
F403_2740 MT10	274.4	59267/216	3,800	3,500	5,500	10/6	0.7	342	38.7	6,201	700	6,201	700	12,401	1,400
F403_3610 MT20	360.9	3248/9	3,500	3,500	5,000	10/6	1.4	343	38.7	6,201	700	6,201	700	12,401	1,400
F403_3660 MT10	365.6	3290/9	3,800	3,500	5,500	10/6	0.7	343	38.7	6,201	700	6,201	700	12,401	1,400
F403_4340 MT20	434.1	14326/33	3,500	3,500	5,000	10/6	1.4	343	38.7	6,201	700	6,201	700	12,401	1,400
F403_4400 MT10	439.7	58045/132	3,800	3,500	5,500	10/6	0.7	343	38.7	6,201	700	6,201	700	12,401	1,400
F403_5470 MT10	547.4	26273/48	3,800	3,500	5,500	10/6	0.7	343	38.7	6,201	700	6,201	700	11,261	1,271
F602 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 61 dB(A) ⁴⁾					
F602_0045 MT30	4.546	1273/280	2,500	2,100	3,500	10/7	42.2	141	16.0	3,711	419	4,082	461	6,998	790
F602_0045 MT40	4.546	1273/280	2,500	2,100	3,500	10/7	46.2	240	27.1	5,020	567	5,598	632	6,998	790
F602_0057 MT30	5.673	1407/248	2,500	2,100	3,500	10/7	30.5	196	22.2	4,631	523	5,094	575	8,472	956
F602_0057 MT40	5.673	1407/248	2,500	2,100	3,500	10/7	34.5	310	34.9	5,405	610	6,778	765	8,472	956
F602_0072 MT30	7.159	3551/496	2,900	2,500	4,000	10/7	22.2	265	29.9	5,840	659	6,428	726	10,287	1,161
F602_0072 MT40	7.159	3551/496	2,900	2,500	3,500	10/7	26.2	384	43.3	5,840	659	8,230	929	10,287	1,161
F602_0090 MT20	8.995	1943/216	2,900	2,500	4,000	10/7	12.1	260	29.4	3,091	349	3,401	384	4,823	545
F602_0090 MT30	8.995	1943/216	2,900	2,500	4,000	10/7	16.9	338	38.1	6,302	711	8,077	912	12,440	1,404
F602_0090 MT40	8.995	1943/216	2,900	2,500	3,500	10/7	20.9	450	50.9	6,302	711	8,858	1,000	12,440	1,404
F602_0110 MT20	10.82	2077/192	3,300	2,800	4,500	10/7	9.1	319	36.0	3,718	420	4,090	462	5,632	636
F602_0110 MT30	10.82	2077/192	3,300	2,800	4,000	10/7	13.9	396	44.7	6,702	757	8,858	1,000	14,173	1,600
F602_0110 MT40	10.82	2077/192	3,000	2,800	3,500	10/7	17.9	497	56.1	6,702	757	8,858	1,000	14,173	1,600
F602_0135 MT20	13.61	871/64	3,300	2,800	4,500	10/7	6.6	392	44.2	4,451	502	5,145	581	6,770	764
F602_0135 MT30	13.61	871/64	3,300	2,800	4,000	10/7	11.4	461	52.1	7,235	817	8,858	1,000	14,173	1,600
F602_0135 MT40	13.61	871/64	3,000	2,800	3,500	10/7	15.4	542	61.2	7,235	817	8,858	1,000	14,173	1,600

- ¹⁾ Backlash shown "STANDARD/REDUCED".
- ²⁾ Maximum torque for continuous input RPM - horizontal output position.
- ³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.
- ⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input.

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 3, 4
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL5 and EL6
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL3, EL4
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"F" Series—Offset Helical ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
F602 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 61 dB(A) ⁴⁾					
F602_0185 MT30	18.52	3445/186	2,900	2,500	4,000	10/5	13.6	558	63.0	8,018	905	9,744	1,100	17,716	2,000
F602_0185 MT40	18.52	3445/186	2,900	2,500	3,500	10/5	17.6	619	69.8	8,018	905	9,744	1,100	17,716	2,000
F602_0230 MT20	23.27	1885/81	2,900	2,500	4,000	10/5	6.6	555	62.7	7,998	903	8,798	993	12,479	1,409
F602_0230 MT30	23.27	1885/81	2,900	2,500	4,000	10/5	11.4	599	67.6	8,652	977	9,744	1,100	17,716	2,000
F602_0230 MT40	23.27	1885/81	2,900	2,500	3,500	10/5	15.4	642	72.4	8,652	977	9,744	1,100	17,716	2,000
F602_0280 MT20	27.99	2015/72	3,300	2,800	4,500	10/5	5.4	590	66.6	9,200	1,039	9,744	1,100	14,571	1,645
F602_0280 MT30	27.99	2015/72	3,300	2,800	4,000	10/5	10.2	623	70.4	9,200	1,039	9,744	1,100	17,716	2,000
F602_0280 MT40	27.99	2015/72	3,000	2,800	3,500	10/5	14.2	654	73.9	9,200	1,039	9,744	1,100	17,716	2,000
F602_0350 MT20	35.21	845/24	3,300	2,800	4,500	10/5	4.2	622	70.2	9,744	1,100	9,744	1,100	17,514	1,977
F602_0350 MT30	35.21	845/24	3,300	2,800	4,000	10/5	9.0	645	72.8	9,744	1,100	9,744	1,100	17,716	2,000
F602_0350 MT40	35.21	845/24	3,000	2,800	3,500	10/5	13.0	666	75.1	9,744	1,100	9,744	1,100	17,716	2,000
F602_0470 MT20	46.72	1495/32	3,500	3,200	5,000	10/5	3.1	648	73.1	9,744	1,100	9,744	1,100	17,716	2,000
F602_0470 MT30	46.72	1495/32	3,500	3,200	4,000	10/5	7.9	662	74.7	9,744	1,100	9,744	1,100	17,716	2,000
F602_0470 MT40	46.72	1495/32	3,000	3,000	3,500	10/5	11.9	674	76.1	9,744	1,100	9,744	1,100	17,716	2,000
F602_0560 MT20	55.71	390/7	3,500	3,200	5,000	10/5	2.7	659	74.3	9,744	1,100	9,744	1,100	17,716	2,000
F602_0560 MT30	55.71	390/7	3,500	3,200	4,000	10/5	7.5	669	75.5	9,744	1,100	9,744	1,100	17,716	2,000
F602_0560 MT40	55.71	390/7	3,000	3,000	3,500	10/5	11.5	677	76.5	9,744	1,100	9,744	1,100	17,716	2,000
F602_0700 MT20	69.64	975/14	3,500	3,200	5,000	10/5	2.2	668	75.4	9,744	1,100	9,744	1,100	17,716	2,000
F602_0700 MT30	69.64	975/14	3,500	3,200	4,000	10/5	7.0	675	76.2	9,744	1,100	9,744	1,100	17,716	2,000
F602_0700 MT40	69.64	975/14	3,000	3,000	3,500	10/5	11.0	680	76.8	9,744	1,100	9,744	1,100	17,716	2,000
F602_0930 MT20	93.33	280/3	3,500	3,200	5,000	10/5	1.8	676	76.3	9,744	1,100	9,744	1,100	17,716	2,000
F602_0930 MT30	93.33	280/3	3,500	3,200	4,000	10/5	6.6	679	76.7	9,744	1,100	9,744	1,100	17,716	2,000
F602_0930 MT40	93.33	280/3	3,000	3,000	3,500	10/5	10.6	683	77.1	9,744	1,100	9,744	1,100	17,716	2,000
F602_1120 MT20	112.2	9425/84	3,500	3,200	5,000	10/5	1.6	679	76.6	9,744	1,100	9,744	1,100	17,716	2,000
F602_1120 MT30	112.2	9425/84	3,500	3,200	4,000	10/5	6.4	681	76.9	9,744	1,100	9,744	1,100	17,716	2,000
F602_1400 MT20	139.8	559/4	3,500	3,200	5,000	10/5	1.5	681	76.9	9,744	1,100	9,744	1,100	17,716	2,000
F602_1400 MT30	139.8	559/4	3,500	3,200	4,000	10/5	6.3	683	77.1	9,744	1,100	9,744	1,100	17,716	2,000
F603 with MT TriAdapt® Motor Adapter										Noise Level ≤ 61 dB(A) ⁴⁾					
F603_1810 MT20	180.6	8671/48	3,500	3,200	5,000	10/6	1.5	683	77.1	9,744	1,100	9,744	1,100	17,716	2,000
F603_2150 MT20	215.4	1508/7	3,500	3,200	5,000	10/6	1.5	684	77.2	9,744	1,100	9,744	1,100	17,716	2,000
F603_2690 MT20	269.3	1885/7	3,500	3,200	5,000	10/6	1.4	684	77.2	9,744	1,100	9,744	1,100	17,716	2,000
F603_3610 MT20	360.9	3248/9	3,500	3,200	5,000	10/6	1.4	685	77.3	9,744	1,100	9,744	1,100	17,716	2,000
F603_4340 MT20	433.8	54665/126	3,500	3,200	5,000	10/6	1.4	685	77.3	9,744	1,100	9,744	1,100	17,716	2,000
F603_5400 MT20	540.4	16211/30	3,500	3,200	5,000	10/6	1.4	685	77.3	9,744	1,100	9,744	1,100	17,716	2,000

Motor Shaft

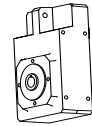
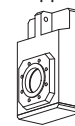
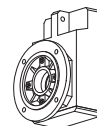
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48

Housing Styles

F – Round Flange

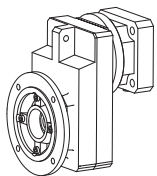
G – Tapped Holes

GN – Foot Mount



The "F" Housing Style is available as Hollow (A) or Solid (V) Output.
"G" style is Hollow (A) or Bushing (W).

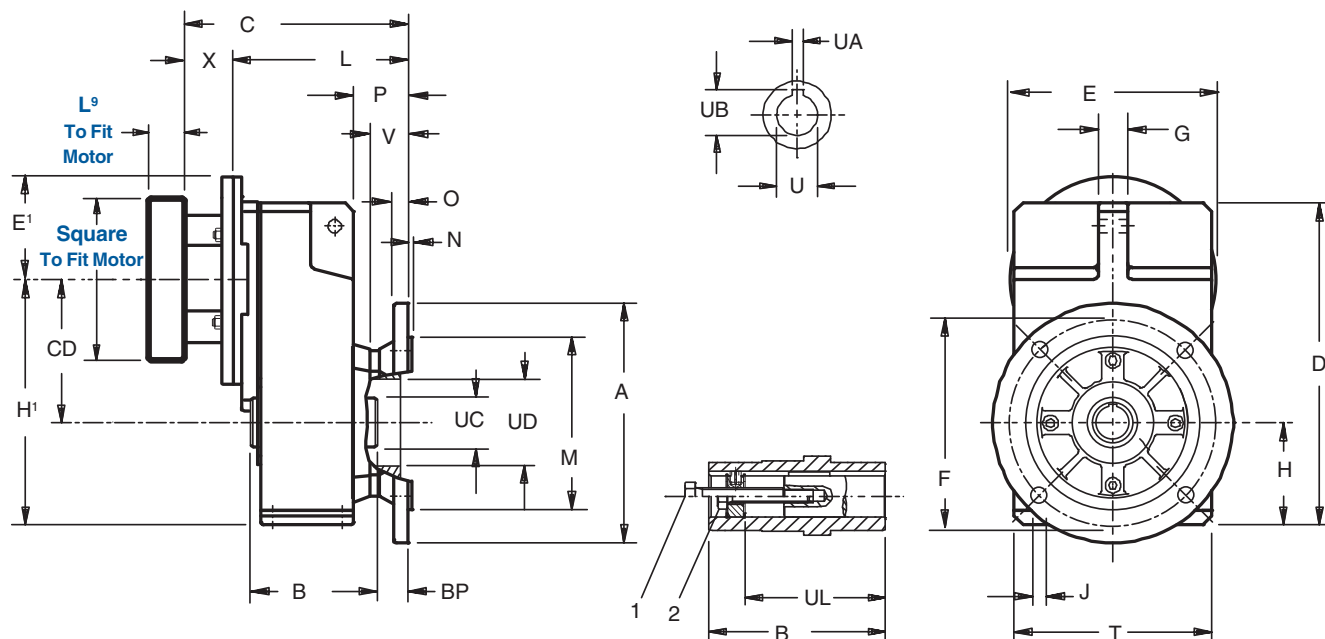
See Page 104 for required ordering information and part number example.



ServoFit® "F" Series—Offset Helical Round Flange – “F” Housing Hollow Output – Dimensional Data



See Page 163 for installation of hollow output.



Drawing for Units
F102AF — F603AF

Table No. 1 "F" Series –Round Flange Unit Dimensions (Inches) – "F" Housing Style

Base Module	CD	A	B	D	F	G	H	H¹	J	M	N	O	P	T	BP	UC	UD	UL	1	
F102	4.02	6.30	3.74	9.37	5.12	.79	2.91	6.93	.43	4.331	+.001/-0.0004	.14	.39	1.75	5.71	1.00	1.38	2.05	2.87	3/8-16
F202/F203	5.16	7.87	4.53	11.77	6.50	.87	3.66	8.82	.43	5.118	+.001/-0.0004	.14	.55	2.09	7.09	1.18	1.77	2.56	3.62	1/2-13
F302/F303	5.89	9.84	5.12	13.23	8.46	1.18	4.17	10.06	.55	7.087	+.001/-0.0004	.16	.59	2.22	8.11	1.24	1.97	2.83	4.06	1/2-13
F402/F403	6.65 ¹)	9.84	5.71	14.57	8.46	1.18	4.57	11.22	.55	7.087	+.001/-0.0004	.16	.59	2.22	9.06	1.24	2.17	2.83	4.49	3/4-10
F602/F603	7.72	11.81	7.09	17.64	10.43	1.38	5.39	13.11	.87	9.055	+.001/-0.001	.16	.67	2.38	10.43	1.16	2.76	3.15	5.63	3/4-10

¹⁾ C.D. is 5.19 for F403 with MT20.

1. Removal Bolt — not supplied.
2. Mounting Bolt — must be smaller than removal bolt.

Table No. 2 Metric output available on request

Base Module	Standard Bore - inches			Optional Bore - mm		
	U	UA	UB	U	UA	UB
F102	.750	.187	.84	20 _{H7}	6 _{JS9}	22.8
F202/F203	1.000	.250	1.12	25 _{H7}	8 _{JS9}	28.3
F302/F303	1.250	.250	1.37	30 _{H7}	8 _{JS9}	33.3
F402/F403	1.500	.375	1.67	40 _{H7}	12 _{JS9}	43.3
F602/F603	2.000	.500	2.23	40 _{H7}	14 _{JS9}	53.8



ServoFit® "F" Series—Offset Helical Round Flange – “F” Housing Hollow Output – Dimensional Data

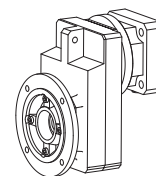


Table No. 3

"F" Series – Unit Dimensions (Inches) – "F" Housing Style

Base	MT10		MT20		MT30		MT40		Approx.
Module	C	L	C	L	C	L	C	L	Wt. lbs.
F102	6.67	5.10	7.23	5.26	—	—	—	—	38
F202	7.59	6.02	8.15	6.18	9.62	6.26	—	—	51
F203	9.05	7.48	—	—	—	—	—	—	64
F302	8.24	6.67	8.80	6.83	9.27	6.91	—	—	67
F303	9.70	8.13	10.49	8.52	—	—	—	—	73
F402	—	—	14.62	7.42	9.86	7.50	11.12	7.62	84
F403	10.29	8.72	11.08	9.11	—	—	—	—	91
F602	—	—	10.61	8.64	11.08	8.72	12.34	8.84	165
F603	—	—	12.30	10.33	—	—	—	—	177

Table No. 4 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

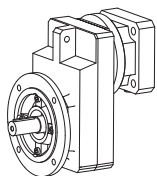
²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

For approximate weight, add base module weight from Table 3 and adapter weight from Table 4.

Part No. Example

Round Flange Unit with TriAdapt® Motor Adapter

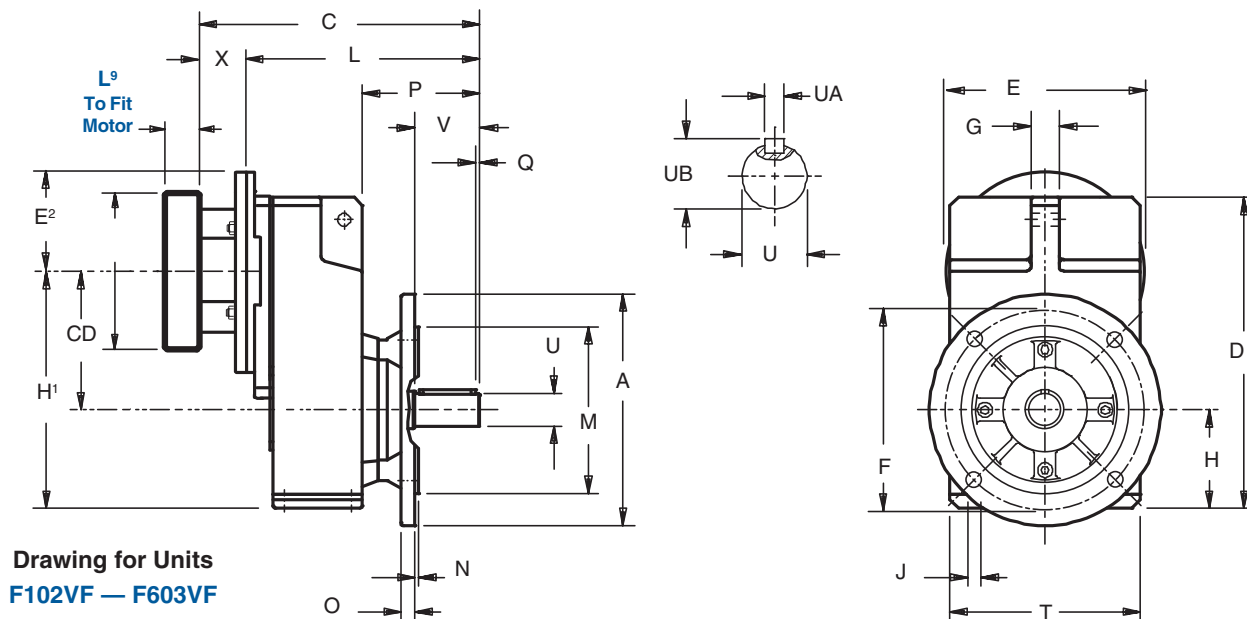
F302AF0620 MT20



ServoFit® "F" Series—Offset Helical Round Flange – “F” Housing Shaft Output – Dimensional Data



NOTE: Solid output shaft is **ONLY** available with an output flange.



Drawing for Units
F102VF — F603VF

Table No. 1 "F" Series – Round Flange Dimensions (Inches) – "F" Housing Style

Base Module	CD	A	D	F	G	H	H¹	J	M	N	O	P	Q	T	V
F102	4.02	6.30	9.37	5.12	.79	2.91	6.93	.35	4.331 ⁺ _{-.0004}	.14	.39	3.80	.16	5.71	1.97
F202/F203	5.16	7.87	11.77	6.50	.87	3.66	8.82	.43	5.118 ⁺ _{-.0004}	.14	.55	4.53	.16	7.09	2.36
F302/F303	5.89	9.84	13.23	8.46	1.18	4.17	10.06	.55	7.087 ⁺ _{-.0004}	.16	.59	5.10	.16	8.11	2.76
F402/F403	6.65 ¹⁾	9.84	14.57	8.46	1.18	4.57	11.22	.55	7.087 ⁺ _{-.0004}	.16	.59	5.49	.16	9.06	3.15
F602/F603	7.72	11.81	17.64	10.43	1.38	5.39	13.11	.55	9.055 ⁺ _{-.001}	.16	.67	6.44	.20	10.43	3.94

¹⁾ C.D. is 5.19 for F403 with MT20.

Table No. 2 Metric output available on request

Base Module	Standard Shaft - inches			Optional Shaft - mm		
	U	UA	UB	U	UA	UB
F102	1.000	1/4 × 1/4 × 1 ⁹ / ₁₆	1.11	25 _{k6}	A8x7x40	28
F202/F203	1.250	1/4 × 1/4 × 1 ¹⁵ / ₁₆	1.36	30 _{k6}	A8x7x50	33
F302/F303	1.375	5/16 × 5/16 × 2 ⁵ / ₁₆	1.51	35 _{k6}	A10x8X60	38
F402/F403	1.625	3/8 × 3/8 × 2 ⁷ / ₈	1.79	40 _{k6}	A12x8X70	43
F602/F603	2.125	1/2 × 1/2 × 3 ⁵ / ₃₂	2.35	50 _{k6}	A14x9X90	53.5



ServoFit® "F" Series—Offset Helical Round Flange – “F” Housing Shaft Output – Dimensional Data

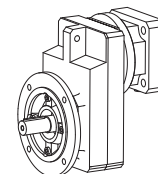


Table No. 3 "F" Series—"F" Housing Style

Base Module	MT10		MT20		MT30		MT40		Approx. Wt. lbs.
	C	L	C	L	C	L	C	L	
F102	8.66	7.09	9.21	7.24	—	—	—	—	38
F202	9.96	8.39	10.51	8.54	10.98	8.62	—	—	51
F203	11.41	9.84	—	—	—	—	—	—	64
F302	11.02	9.45	11.58	9.61	12.05	9.69	—	—	67
F303	12.48	10.91	13.25	11.28	—	—	—	—	73
F402	—	—	12.56	10.59	13.03	10.67	14.29	10.79	84
F403	13.46	11.89	14.25	12.28	—	—	—	—	91
F602	—	—	14.57	12.60	15.04	12.68	16.30	12.80	165
F603	—	—	16.26	14.29	—	—	—	—	177

Table No. 4 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

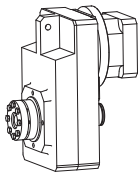
²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

For approximate weight, add base module weight from Table 3 and adapter weight from Table 4.

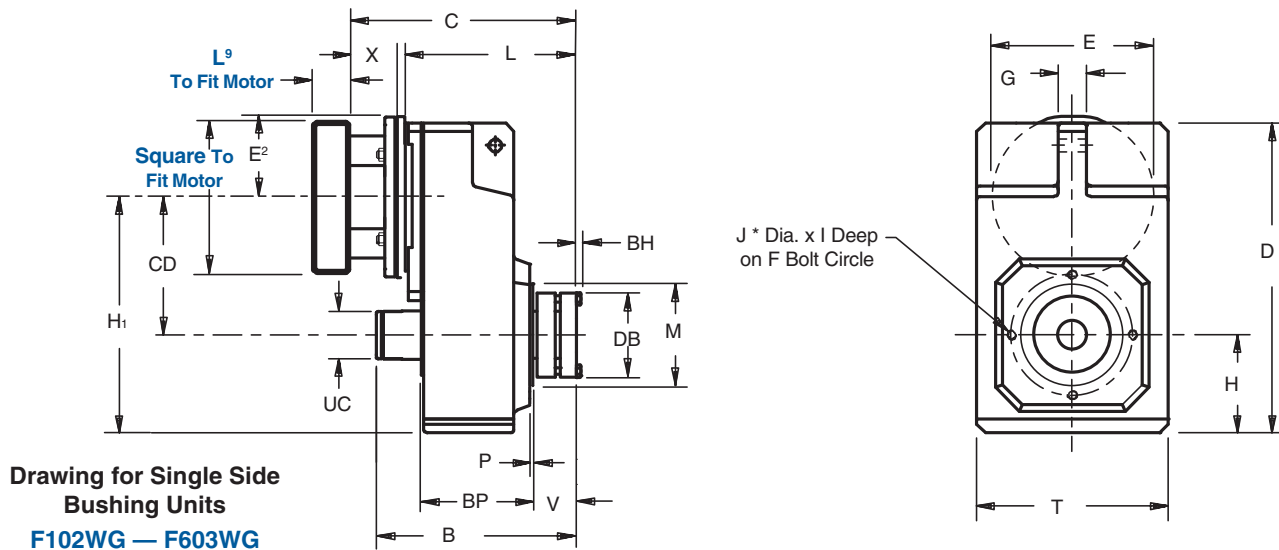
Part No. Example

Round Flange with TriAdapt® Motor Adapter

F302VF0620 MT20



ServoFit® "F" Series—Offset Helical Tapped Hole – “G” Housing Single Bushing – Dimensional Data



Drawing for Single Side Bushing Units
F102WG — F603WG

Important: For ease of installation, a $\frac{1}{32}$ x 45° chamfer (minimum) is recommended for the output shaft end.

Table No. 1 "F" Series – Single Side Wobble Free Bushing Unit Dimensions (Inches)

Base Module	CD	B	D	F	G	H	H ₁	I	J *	M	P	T	V	BH	BP	DB	UC	Bushing Capscrews		
																		No.— Size	Tight	Torque
																		Metric	in.lbs	Nm
F102	4.02	6.40	9.37	3.35	.79	2.91	6.93	.51	M8	2.756	.10	5.71	1.18	.16	3.43	2.68	1.35	6 – M6x25	89	10
F202/F203	5.16	7.26	11.77	4.53	.87	3.66	8.82	.51	M8	3.740	.12	7.09	1.54	.16	4.13	3.07	1.74	8 – M6x30	89	10
F302/F303	5.89	7.95	13.23	5.12	1.18	4.17	10.06	.63	M10	4.331	.14	8.11	1.54	.16	4.72	3.31	1.90	8 – M6x30	89	10
F402/F403	6.65 ¹⁾	8.93	14.57	5.12	1.18	4.57	11.22	.63	M10	4.331	.14	9.06	1.78	.20	5.31	3.82	2.14	8 – M8x30	221	25
F602/F603	7.72	10.24	17.64	6.50	1.38	5.39	13.11	.63	M10	5.118	.14	10.43	1.77	.24	6.54	4.13	2.53	8 – M10x35	434	49

*F602 and F603 has 8 tapped holes instead of 4 as shown on drawing.

¹⁾ C.D. is 5.19 for F403 with MT20.

Table No. 2 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

Table No. 3 "F" Series—"F" Housing Style

Base Module	MT10		MT20		MT30		MT40		Approx. Wt. lbs.
	C	L	C	L	C	L	C	L	
F102	8.66	7.09	9.21	7.24	—	—	—	—	38
F202	9.96	8.39	10.51	8.54	10.98	8.62	—	—	51
F203	11.41	9.84	—	—	—	—	—	—	64
F302	11.02	9.45	11.58	9.61	12.05	9.69	—	—	67
F303	12.48	10.91	13.25	11.28	—	—	—	—	73
F402	—	—	12.56	10.59	13.03	10.67	14.29	10.79	84
F403	13.46	11.89	14.25	12.28	—	—	—	—	91
F602	—	—	14.57	12.60	15.04	12.68	16.30	12.80	165
F603	—	—	16.26	14.29	—	—	—	—	177



ServoFit® "F" Series—Offset Helical Tapped Hole – “G” Housing Single Bushing – Dimensional Data

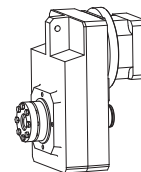


Table No. 4 "WF" Single Side Bushings – Inches

Base Module	Stock Bores Sizes												
	3/4	1	1 ³ / ₁₆	1 ¹ / ₄	1 ³ / ₈	1 ⁷ / ₁₆	1 ¹ / ₂	1 ⁵ / ₈	1 ¹¹ / ₁₆	1 ³ / ₄	1 ⁷ / ₈	1 ¹⁵ / ₁₆	2
F102	WF1-075	—	—	—	—	—	—	—	—	—	—	—	—
F202/F203	—	WF2-100	WF2-103	—	—	—	—	—	—	—	—	—	—
F302/F303	—	WF3-100	WF3-103	WF3-104	WF3-106	WF3-107	WF3-108	—	—	—	—	—	—
F402/F403	—	WF4-100	WF4-103	WF4-104	WF4-106	WF4-107	WF4-108	—	—	—	—	—	—
F602/F603	—	—	—	—	—	WF5-107	WF5-108	WF5-110	WF5-111	WF5-112	WF5-114	WF5-115	WF5-200

A complete bushing kit includes the locking ring assembly, tapered cone, support ring, and all hardware to mount the kit into the reducer. The bushing will accept a shaft with a tolerance of +.000/-.005.

NOTE: F6 units use a WF5 Bushing Kit.

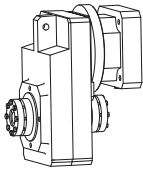
**Table No. 5 "WF" Bushing
Single Side – Metric**

Unit	Stock Bores Sizes		
	20	30	35
F102	WF1-20	—	—
F202	—	WF2-30	—
F302	—	WF3-30	WF3-35

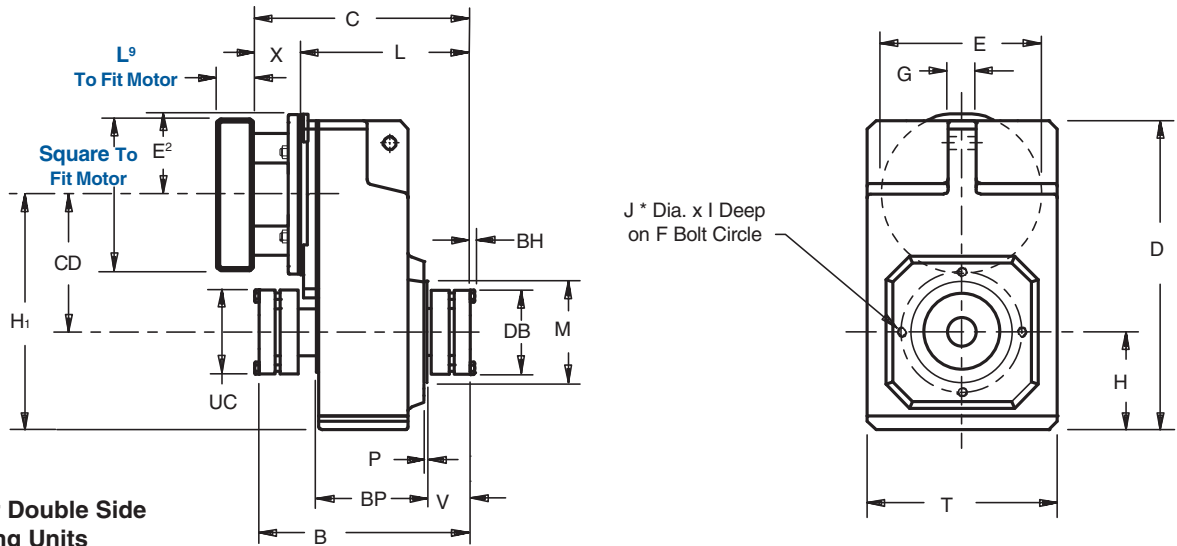
Part No. Example

Unit with TriAdapt® Motor Adapter, 1³/₈" Bore, Single Bushing
F402WG0560 MT20 WF4-106

For an approximate unit weight, add the weights in Table 2 and Table 3.



ServoFit® "F" Series—Offset Helical Tapped Hole – “G” Housing Double Bushing – Dimensional Data



Drawing for Double Side Bushing Units
F102WG – F602WG

IMPORTANT: A $\frac{1}{32}$ x 45° chamfer minimum is recommended for the shaft end.
The bushing will accept a shaft with a tolerance of $+.000/-0.005$.
The double bushing cannot be mounted on sizes F203, F303, F403, or F603.

Table No. 1 "F" Series – Double Side Wobble Free Bushing Unit Dimensions (Inches)

Base Module	CD	B	D	F	G	H	H ₁	I	J *	M	P	T	V	BH	BP	DB	Bushing Capscrews		
																	No.— Size	Tight Torque	
																	Metric	in.lbs	Nm
F102	4.02	6.73	9.37	3.35	.79	2.91	6.93	.51	M8	2.756	.10	5.71	1.18	.16	3.43	2.68	6 – M6x25	89	10
F202	5.16	7.77	11.77	4.53	.87	3.66	8.82	.51	M8	3.740	.12	7.09	1.54	.16	4.13	3.07	8 – M6x30	89	10
F302	5.89	8.46	13.23	5.12	1.18	4.17	10.06	.63	M10	4.331	.14	8.11	1.54	.16	4.72	3.31	8 – M6x30	89	10
F402	6.65	9.57	14.57	5.12	1.18	4.57	11.22	.63	M10	4.331	.14	9.06	1.78	.20	5.31	3.82	8 – M8x30	221	25
F602	7.72	10.84	17.64	6.50	1.38	5.39	13.11	.63	M10	5.118	.14	10.43	1.77	.24	6.54	4.13	8 – M10x35	434	49

*F602 has 8 tapped holes instead of 4 as shown on drawing.

Table No. 2 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

Table No. 3 "F" Series—"F" Housing Style

Base Module	MT10		MT20		MT30		MT40		Approx. Wt. lbs.
	C	L	C	L	C	L	C	L	
F102	8.66	7.09	9.21	7.24	—	—	—	—	38
F202	9.96	8.39	10.51	8.54	10.98	8.62	—	—	51
F302	11.02	9.45	11.58	9.61	12.05	9.69	—	—	67
F402	—	—	12.56	10.59	13.03	10.67	14.29	10.79	84
F602	—	—	14.57	12.60	15.04	12.68	16.30	12.80	165



ServoFit® "F" Series—Offset Helical Tapped Hole – “G” Housing Double Bushing – Dimensional Data

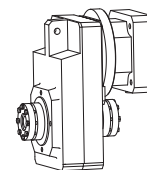


Table No. 4 "WFN" Double Side Bushings without Covers – Inches

Unit	Stock Bores Sizes												
	3/4	1	1 3/16	1 1/4	1 3/8	1 7/16	1 1/2	1 5/8	1 11/16	1 3/4	1 7/8	1 15/16	2
F102	WFN1-075	—	—	—	—	—	—	—	—	—	—	—	—
F202	—	WFN2-100	WFN2-103	—	—	—	—	—	—	—	—	—	—
F302	—	WFN3-100	WFN3-103	WFN3-104	WFN3-106	WFN3-107	WFN3-108	—	—	—	—	—	—
F402	—	WFN4-100	WFN4-103	WFN4-104	WFN4-106	WFN4-107	WFN4-108	—	—	—	—	—	—
F602	—	—	—	—	—	WFN5-107	WFN5-108	WFN5-110	WFN5-111	WFN5-112	WFN5-114	WFN5-115	WFN5-200

A complete bushing kit includes the locking ring assembly, tapered cone, support ring, and all hardware to mount the kit into the reducer. The bushing will accept a shaft with a tolerance of +.000/-.005.

NOTE: F6 units use a WFN5 Bushing Kit.

Table No. 5 "WFN" Bushing Double Side without Covers – Metric

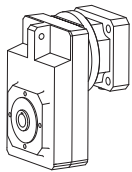
Unit	Stock Bores Sizes			
	20	30	35	40
F102	WFN1-20	—	—	—
F202	—	WFN2-30	—	—
F302	—	WFN3-30	WFN3-35	—
F402	—	—	—	WFN4-40
F602	—	—	—	WFN5-40

NOTE: F6 units use a WFN5 Bushing Kit.

Part No. Explanation

Unit with TriAdapt® Motor Adapter 1 3/8" Bore Double Bushing – No Covers
F402WG0560 MT20 WFN4-106

For an approximate unit weight, add the weights in Table 2 and Table 3.



ServoFit® "F" Series—Offset Helical Tapped Hole – "G" Housing Hollow Output – Dimensional Data



See Page 163 for installation of hollow output.

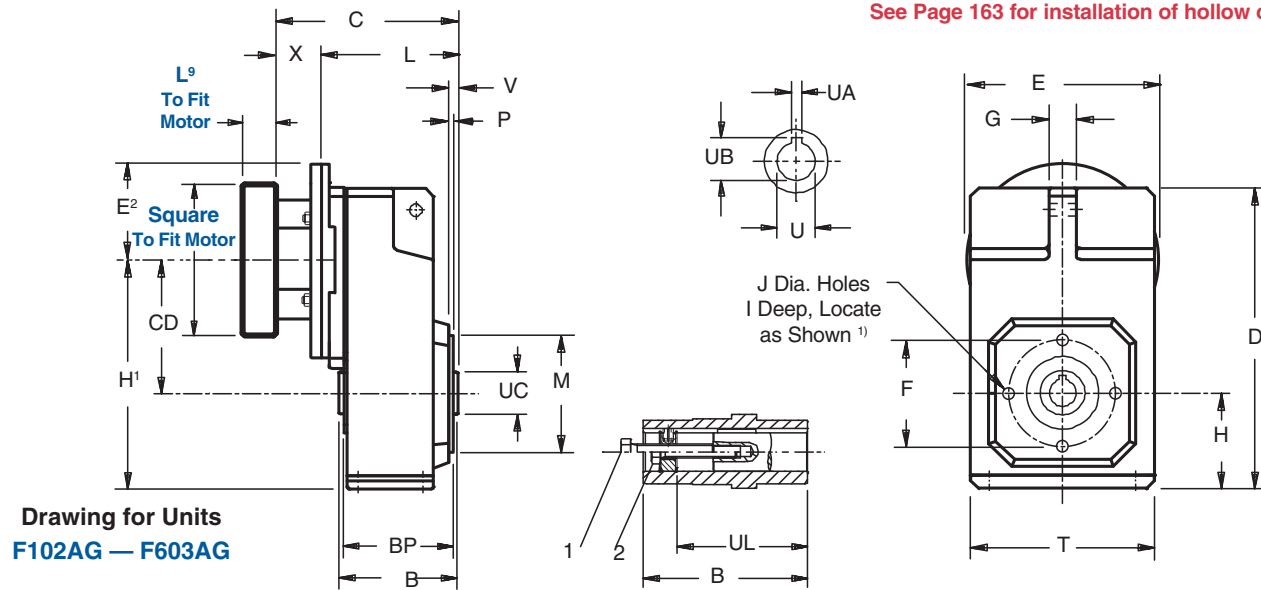


Table No. 1 "F" Series – Tapped Holes Unit Dimensions (Inches) – "G" Housing Style

Base Module	CD	B	D	F	G	H	H ¹	I	J ¹⁾	M	P	T	V	BP	UC	UL	1
F102	4.02	3.74	9.37	3.35	.79	2.91	6.93	.51	4-M8	2.756 +.001/-0.0003	.10	5.71	.26	3.43	1.38	2.87	3/8-16
F202/F203	5.16	4.53	11.77	4.53	.87	3.66	8.82	.51	4-M8	3.740 +.001/-0.0004	.12	7.09	.31	4.13	1.77	3.62	1/2-13
F302/F303	5.89	5.12	13.23	5.12	1.18	4.17	10.06	.63	4-M10	4.331 +.001/-0.0004	.14	8.11	.33	4.72	1.97	4.06	1/2-13
F402/F403	6.65 ²⁾	5.71	14.57	5.12	1.18	4.57	11.22	.63	4-M10	4.331 +.001/-0.0004	.14	9.06	.33	5.31	2.17	4.49	3/4-10
F602/F603	7.72	7.09	17.64	6.50	1.38	5.39	13.11	.63	8-M10	5.118 +.001/-0.0004	.14	10.43	.41	6.54	2.76	5.63	3/4-10

¹⁾ F602 and F603 has 8 tapped holes located 22.5° from horizontal instead of 4 as shown on drawing.

²⁾ C.D. is 5.19 for F403 with MT20.

1. Removal Bolt — not supplied.

2. Mounting Bolt — must be smaller than removal bolt.

Table No. 2 Metric output available on request

Base Module	Standard Bore - inches			Optional Bore - mm		
	U	UA	UB	U	UA	UB
F102	.750	.187	.84	20 _{H7}	6 _{JS9}	22.8
F202/F203	1.000	.250	1.12	25 _{H7}	8 _{JS9}	28.3
F302/F303	1.250	.250	1.37	30 _{H7}	8 _{JS9}	33.3
F402/F403	1.500	.375	1.67	40 _{H7}	12 _{JS9}	43.3
F602/F603	2.000	.500	2.23	40 _{H7}	14 _{JS9}	53.8

Table No. 3 "F" Series – "G" Housing Style

Base Module	MT10		MT20		MT30		MT40		Approx. Wt. lbs.
	C	L	C	L	C	L	C	L	
F102	5.66	4.09	6.22	4.25	—	—	—	—	38
F202	6.41	4.84	6.97	5.00	7.44	5.08	—	—	51
F203	7.87	6.30	—	—	—	—	—	—	64
F302	7.00	5.43	7.56	5.59	8.03	5.67	—	—	67
F303	8.46	6.89	9.25	7.28	—	—	—	—	73
F402	—	—	8.15	6.18	8.62	6.26	9.88	6.38	84
F403	9.05	7.48	9.84	7.87	—	—	—	—	91
F602	—	—	9.45	7.48	9.92	7.56	11.18	7.68	165
F603	—	—	11.14	9.17	—	—	—	—	177

Table No. 4 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

For approximate weight, add base module weight from Table 3 and adapter weight from Table 4.

Part No. Example
Tapped Holes Housing with TriAdapt® Motor Adapter
F302AG0620 MT20



ServoFit® "F" Series—Offset Helical Tapped Hole – “GN” Housing Hollow Output – Dimensional Data

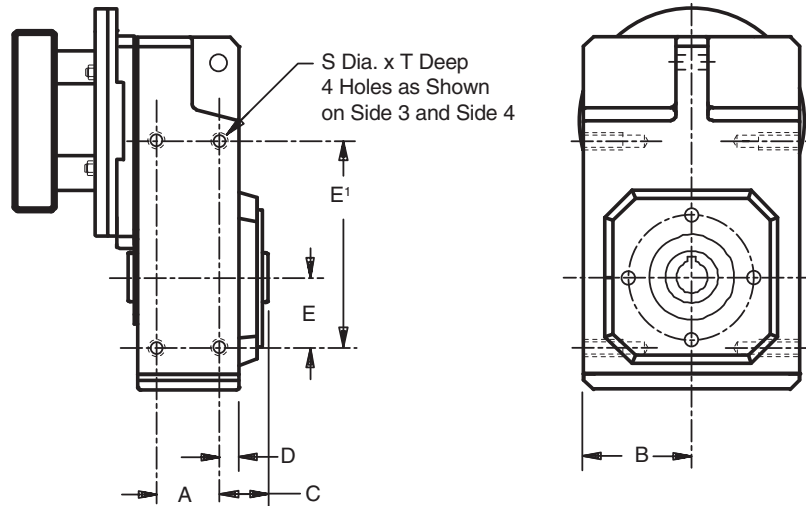


Table No. 1

"F" Series — Foot Mount “GN” Housing Dimensions (Ins.)

Base Module	A	B	C	D	E	E'	S	T
F102/F103	1.97	2.79	1.14	.39	1.57	5.51	M6	.43
F202/F203	2.52	3.46	1.32	.41	2.17	6.89	M8	.51
F302/F303	2.83	4.02	1.48	.49	2.36	7.87	M10	.63
F402/F403	3.43	4.49	1.48	.49	2.76	8.66	M10	.63
F602/F603	4.25	5.16	1.83	.61	3.35	10.63	M12	.75

Rubber Buffer – Dimensional Data

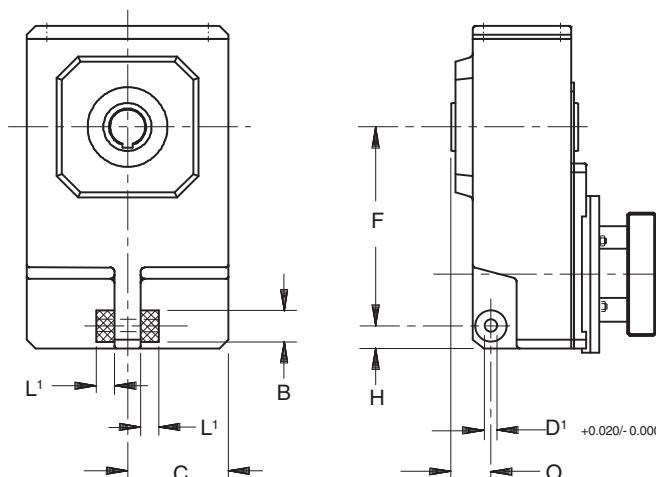


Table No. 2

"F" Series — Rubber Buffer Dimensions (Inches)

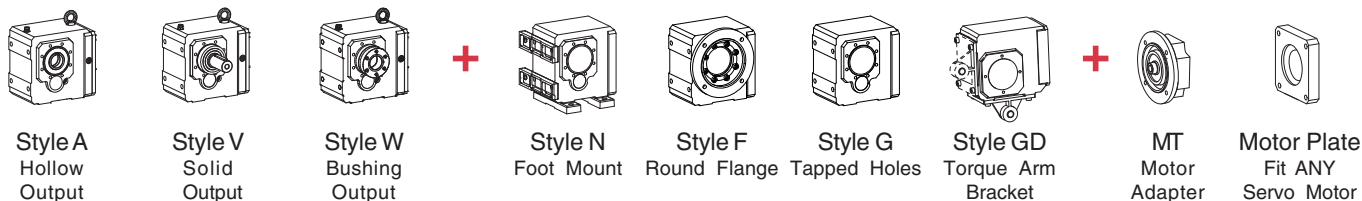
Base Module	Part No.	B	C	F	H	D'	L'	O
F102/F103	25192	1.18	2.86	5.91	.55	.43	.59	1.38
F202/F203	25192	1.18	3.55	7.12	.98	.43	.59	1.57
F302/F303	25193	1.57	4.06	8.07	.96	.55	.79	1.77
F402/F403	25193	1.57	4.53	8.98	1.02	.55	.79	1.77
F602/F603	25194	2.36	5.22	10.63	1.02	.57	1.18	2.77

Order two (2) rubber buffers for each unit.
Torque arms are not supplied by STÖBER.

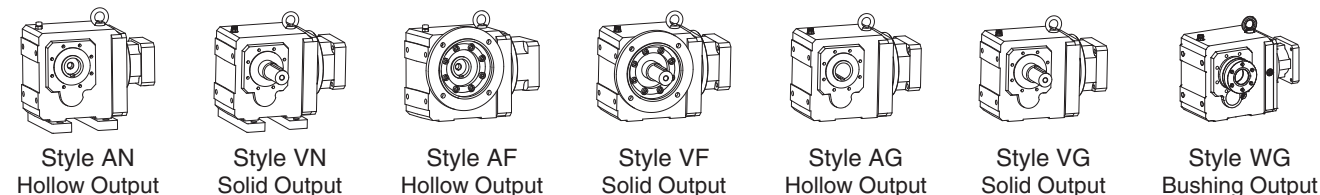
"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Overview



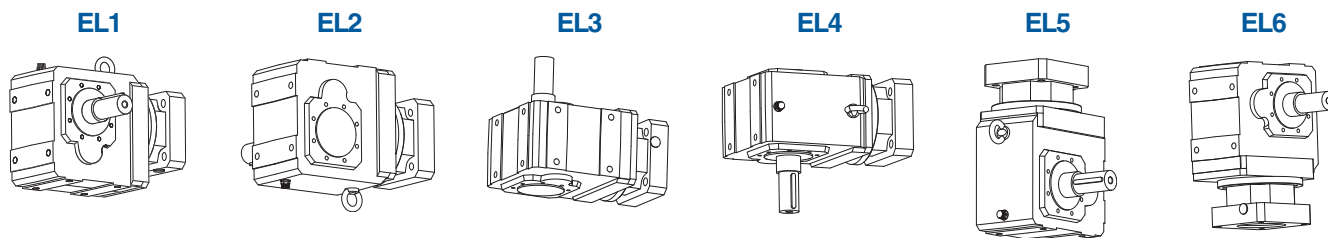
Output Style + Housing Style + TriAdapt® Input = Gearhead Configurations



Gearhead Configurations



Mounting Positions (Units shown with shaft on Side 4. See Page 171 for additional mounting information.)



Part No. Explanation with OPTIONS and REQUIRED INFORMATION

K 6 1 3 A GD 0580 MT40 B

This designation is only required when ordering a: **B** – Beverage Duty
F – Food Duty

TriAdapt® Motor Adapter Size: **MT10, MT20, MT30, MT40, MT50**

Nominal Ratio: (**0580** = 57.5:1)

HOUSING STYLE

"F" Housing Style – Flange Mounting **SPECIFY IN A NOTE:** Flange on Side 3 or Side 4

"G" Housing Style – Tapped Holes

"GD" G Housing Style with Torque Arm Bracket **SPECIFY IN A NOTE:** Torque Arm Bracket on Side 1 or Side 5

"N" Housing Style – Foot Mount **SPECIFY IN A NOTE:** Feet on Side 1 or Side 5

OUTPUT STYLE

"V" Solid Output **SPECIFY IN A NOTE:** Standard or Stainless Steel¹⁾

Imperial or Metric¹⁾

Single or Double

IF Single: Shaft on Side 3 or Side 4

"A" Hollow Output **SPECIFY IN A NOTE:** Standard or Stainless Steel¹⁾

Imperial or Metric¹⁾

"W" Wobble Free Bushing **SPECIFY IN A NOTE:** Bushing Part Number

Single or Double Bushing

IF Single: Side 3 or Side 4

No. of Stages (3 = 3 Stage, determined by ratio)

Design Generation

Unit Size No.

Right Angle Helical/Bevel

Bushing Part No. Explanation

W F 5 – 107

Output Bore in inches – **107** = 17/16

Base Module Size example: **K513/K514**

Wobble Free Single Side Bushing

W F B 5 – 107

Output Bore in inches – **107** = 17/16

Base Module Size example: **K513/K514**

Wobble Free Double Side

THE FOLLOWING INFORMATION IS REQUIRED FOR ANY UNIT:

- Mounting Position – EL1 EL2 EL3 EL4 EL5 EL6 (See also Page 171.)
- Motor – Motor Manufacturer and Model Number
- Paint – Black (Standard) White Stainless
- Package Option – Beverage Duty Food Duty
- Backlash Option – Standard or Reduced Backlash

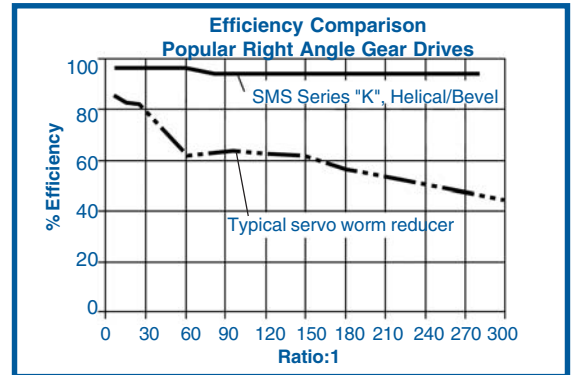


"K" Series—Right Angle Helical/Bevel ServoFit® Modular System

Right angle helical/bevel gear drives offer higher input-to-output efficiencies than conventional worm gear drives or right angle planetary gearheads—making them the optimal drive for truly demanding continuous applications.

Performance Specifications:

- Input RPM up to 4,500 RPM
- Nominal output torque—109 to 106,000 in. lbs. (12-11,900Nm)
- Reducer ratios from 4:1 to 381:1
- 5 year limited warranty (2 years on bearings, seals, etc.)
- Ambient temperature – 0°C to +40°C (104°F)
- Noise level – as low as 53 dB(A)
- Maintenance free
- Can be back driven



**STANDARD
3-DAY
DELIVERY**

Motor plate can easily be changed to fit your choice of motors.

High quality helical gearing is case hardened to 58-62 Rockwell C. Precision finished for low noise and long service life. When the backlash is set by our manufacturing and assemble methods it remains consistent throughout the life of the reducer without further need for adjustment. Standard backlash is ≤ 12 arc minutes. Reduced backlash is ≤ 6 arc minutes.

Double lip seals keep oil in and contaminants out. Double seals available for severe duty applications.

Output Options:

- Solid shaft
- Hollow
- Backlash free, wobble free bushings

Also available in metric or stainless shaft or quill

One-piece cast iron housing with precision machined bearing supports assure gearset alignment, prolongs bearing life, provides exceptional overhung load capacities, and eliminates leakage problems common to drives with bolt-on output covers.

High efficiency spiral bevel gearing provides quiet operation and excellent torque carrying capacity

Shipped with the proper amount of oil to prevent gear damaging dry start-ups.

Also available in washdown, poultry duty, food duty, and beverage duty. Maximum 10 working days for custom motor plates.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K102 with MT TriAdapt® Motor Adapter															
Noise Level ≤ 53 dB(A) ⁴⁾															
K102_0040 MT10	4.000	4/1	3,300	2,800	4,500	12/6	1.4	25	2.8	368	42	368	42	460	52
K102_0040 MT20	4.000	4/1	3,300	2,800	4,500	12/6	2.0	25	2.9	512	58	693	78	866	98
K102_0056 MT10	5.568	1520/273	3,300	2,800	4,500	12/6	1.3	38	4.3	512	58	512	58	640	72
K102_0056 MT20	5.568	1520/273	3,300	2,800	4,500	12/6	1.9	39	4.5	572	65	965	109	1,206	136
K102_0060 MT10	6.000	6/1	3,300	2,800	4,500	12/6	1.1	30	3.4	523	59	523	59	654	74
K102_0060 MT20	6.000	6/1	3,300	2,800	4,500	12/6	1.7	30	3.4	587	66	985	111	1,231	139
K102_0066 MT10	6.644	299/45	3,600	3,300	5,000	12/6	1.0	31	3.5	570	64	570	64	712	80
K102_0066 MT20	6.644	299/45	3,500	3,300	5,000	12/6	1.6	31	3.5	607	69	1,025	116	1,340	151
K102_0083 MT10	8.309	1911/230	3,600	3,300	5,000	12/6	0.9	33	3.7	654	74	684	77	855	97
K102_0083 MT20	8.309	1911/230	3,500	3,300	5,000	12/6	1.5	33	3.7	654	74	1,104	125	1,611	182
K102_0092 MT10	9.249	1748/189	3,600	3,300	5,000	12/6	0.9	46	5.2	678	76	793	90	991	112
K102_0092 MT20	9.249	1748/189	3,500	3,300	5,000	12/6	1.5	46	5.2	678	76	1,145	129	1,866	211
K102_0100 MT10	10.14	507/50	4,000	3,800	5,500	12/6	0.8	34	3.8	699	79	806	91	1,008	114
K102_0100 MT20	10.14	507/50	3,500	3,500	5,000	12/6	1.4	34	3.8	699	79	1,107	125	1,898	214
K102_0115 MT10	11.57	266/23	3,600	3,300	5,000	12/6	0.8	48	5.4	730	82	952	108	1,190	134
K102_0115 MT20	11.57	266/23	3,500	3,300	5,000	12/6	1.4	48	5.4	730	82	1,196	135	2,126	240
K102_0125 MT10	12.62	429/34	4,000	3,800	5,500	12/6	0.7	34	3.9	751	85	963	109	1,204	136
K102_0125 MT20	12.62	429/34	3,500	3,500	5,000	12/6	1.3	35	3.9	751	85	1,107	125	1,949	220
K102_0140 MT10	14.11	494/35	4,000	3,800	5,500	12/6	0.8	49	5.5	780	88	1,122	127	1,403	158
K102_0140 MT20	14.11	494/35	3,500	3,500	5,000	12/6	1.4	49	5.6	780	88	1,196	135	2,126	240
K102_0165 MT10	16.71	117/7	4,000	4,000	6,000	12/6	0.7	35	4.0	825	93	1,107	125	1,520	172
K102_0165 MT20	16.71	117/7	3,500	3,500	5,000	12/6	1.3	35	4.0	825	93	1,107	125	1,520	172
K102_0175 MT10	17.56	2090/119	4,000	3,800	5,500	12/6	0.7	50	5.6	839	95	1,196	135	1,676	189
K102_0175 MT20	17.56	2090/119	3,500	3,500	5,000	12/6	1.3	50	5.6	839	95	1,196	135	2,126	240
K102_0200 MT10	20.15	403/20	4,000	4,000	6,000	12/6	0.7	35	4.0	878	99	1,107	125	1,763	199
K102_0200 MT20	20.15	403/20	3,500	3,500	5,000	12/6	1.3	35	4.0	878	99	1,107	125	1,763	199
K102_0230 MT10	23.27	1140/49	4,000	4,000	6,000	12/6	0.7	51	5.7	921	104	1,196	135	2,115	239
K102_0230 MT20	23.27	1140/49	3,500	3,500	5,000	12/6	1.3	51	5.7	921	104	1,196	135	2,115	239
K102_0250 MT10	25.22	1261/50	4,000	4,000	6,000	12/6	0.6	36	4.0	851	96	1,021	115	1,701	192
K102_0250 MT20	25.22	1261/50	3,500	3,500	5,000	12/6	1.2	36	4.0	851	96	1,021	115	1,701	192
K102_0280 MT10	28.05	589/21	4,000	4,000	6,000	12/6	0.7	51	5.7	981	111	1,196	135	2,126	240
K102_0280 MT20	28.05	589/21	3,500	3,500	5,000	12/6	1.3	51	5.8	981	111	1,196	135	2,126	240
K102_0340 MT10	33.71	4719/140	4,000	4,000	6,000	12/6	0.6	36	4.0	647	73	776	88	1,293	146
K102_0350 MT10	35.11	3686/105	4,000	4,000	6,000	12/6	0.6	51	5.8	1,057	119	1,196	135	2,126	240
K102_0350 MT20	35.11	3686/105	3,500	3,500	5,000	12/6	1.2	51	5.8	1,057	119	1,196	135	2,126	240
K102_0400 MT10	40.30	403/10	4,000	4,000	6,000	12/6	0.6	36	4.1	544	61	653	74	846	96
K102_0470 MT10	46.92	2299/49	4,000	4,000	6,000	12/6	0.6	51	5.8	900	102	1,080	122	1,800	203
K102_0500 MT10	50.31	5031/100	4,000	4,000	6,000	12/6	0.6	36	4.1	442	50	531	60	885	100
K102_0560 MT10	56.10	1178/21	4,000	4,000	6,000	12/6	0.6	51	5.8	758	86	909	103	1,178	133
K102_0700 MT10	70.03	2451/35	4,000	4,000	6,000	12/6	0.6	51	5.8	616	70	739	83	1,232	139

Index of Symbols

i ... Exact Ratio = Exact Tooth Count
J₁ ... Reducer Inertia
C ... ServoCool
C₂ ... Torsional Stiffness
n_{1DBH} ... Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n_{1DBV} ... Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n_{1ZB} ... Maximum Cyclic Input RPM
T_{2N} ... Nominal Torque @ 2000 RPM Input
T_{2N(n1DBH)} ... Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T_{2B} ... Acceleration Torque Maximum
T_{2PEAK} ... Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



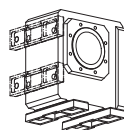
Part Number			Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque									
					Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}					
					Continuous		Cyclic														
			Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm						
K202 with MT TriAdapt® Motor Adapter										Continued Next Page						Noise Level ≤ 53 dB(A) ⁴⁾					
K202_0040 MT10	4.000	4/1	3,000	2,600	4,000	10/5	3.1	33	3.8	393	44	393	44	491	55						
K202_0040 MT20	4.000	4/1	3,000	2,600	4,000	10/5	3.7	35	3.9	915	103	1,512	171	2,170	245						
K202_0040 MT30	4.000	4/1	3,000	2,600	4,000	10/5	8.5	41	4.7	915	103	1,546	174	2,170	245						
K202_0044 MT10	4.364	48/11	3,000	2,600	4,000	10/5	2.7	36	4.1	421	48	421	48	526	59						
K202_0044 MT20	4.364	48/11	3,000	2,600	4,000	10/5	3.3	37	4.2	942	106	1,591	180	2,327	263						
K202_0044 MT30	4.364	48/11	3,000	2,600	4,000	10/5	8.1	43	4.9	942	106	1,591	180	2,327	263						
K202_0052 MT20	5.177	2107/407	3,000	2,600	4,000	10/5	2.9	42	4.7	997	113	1,684	190	2,724	308						
K202_0052 MT30	5.177	2107/407	3,000	2,600	4,000	10/5	7.7	47	5.3	997	113	1,684	190	2,724	308						
K202_0060 MT10	6.000	6/1	3,000	2,600	4,000	10/5	2.3	51	5.8	579	65	579	65	724	82						
K202_0060 MT20	6.000	6/1	3,000	2,600	4,000	10/5	2.9	53	5.9	1,047	118	1,769	200	3,199	361						
K202_0060 MT30	6.000	6/1	3,000	2,600	4,000	10/5	7.7	59	6.6	1,047	118	1,769	200	3,199	361						
K202_0067 MT10	6.683	2279/341	3,500	3,100	4,500	10/5	1.7	46	5.2	609	69	609	69	761	86						
K202_0067 MT20	6.683	2279/341	3,500	3,100	4,500	10/5	2.3	47	5.3	1,086	123	1,834	207	3,364	380						
K202_0067 MT30	6.683	2279/341	3,500	3,100	4,000	10/5	7.1	51	5.8	1,086	123	1,834	207	3,364	380						
K202_0071 MT20	7.118	2107/296	3,000	2,600	4,000	10/5	2.6	57	6.4	1,109	125	1,873	211	3,543	400						
K202_0071 MT30	7.118	2107/296	3,000	2,600	4,000	10/5	7.4	62	7.0	1,109	125	1,873	211	3,543	400						
K202_0084 MT10	8.397	2494/297	3,500	3,100	4,500	10/5	1.4	50	5.7	739	83	739	83	924	104						
K202_0084 MT20	8.397	2494/297	3,500	3,100	4,500	10/5	2.0	51	5.7	1,171	132	1,949	220	3,543	400						
K202_0084 MT30	8.397	2494/297	3,500	3,100	4,000	10/5	6.8	54	6.1	1,171	132	1,949	220	3,543	400						
K202_0092 MT10	9.190	2279/248	3,500	3,100	4,500	10/5	1.5	61	6.9	837	95	837	95	1,046	118						
K202_0092 MT20	9.190	2279/248	3,500	3,100	4,500	10/5	2.1	62	7.0	1,207	136	1,949	220	3,543	400						
K202_0092 MT30	9.190	2279/248	3,500	3,100	4,000	10/5	6.9	66	7.4	1,207	136	1,949	220	3,543	400						
K202_0100 MT10	10.07	2881/286	3,900	3,500	5,000	10/5	1.2	52	5.9	855	97	855	97	1,069	121						
K202_0100 MT20	10.07	2881/286	3,500	3,500	5,000	10/5	1.8	53	6.0	1,245	141	1,949	220	3,543	400						
K202_0100 MT30	10.07	2881/286	3,500	3,500	4,000	10/5	6.6	55	6.2	1,245	141	1,949	220	3,543	400						
K202_0115 MT10	11.55	1247/108	3,500	3,100	4,500	10/5	1.3	65	7.3	1,016	115	1,016	115	1,270	143						
K202_0115 MT20	11.55	1247/108	3,500	3,100	4,500	10/5	1.9	66	7.4	1,303	147	1,949	220	3,543	400						
K202_0115 MT30	11.55	1247/108	3,500	3,100	4,000	10/5	6.7	68	7.7	1,303	147	1,949	220	3,543	400						
K202_0125 MT10	12.71	559/44	3,900	3,500	5,000	10/5	1.0	55	6.2	1,037	117	1,037	117	1,297	146						
K202_0125 MT20	12.71	559/44	3,500	3,500	5,000	10/5	1.6	55	6.2	1,345	152	1,949	220	3,543	400						
K202_0125 MT30	12.71	559/44	3,500	3,500	4,000	10/5	6.4	56	6.4	1,345	152	1,949	220	3,543	400						
K202_0140 MT10	13.85	2881/208	3,900	3,500	5,000	10/5	1.1	67	7.6	1,176	133	1,176	133	1,470	166						
K202_0140 MT20	13.85	2881/208	3,500	3,500	5,000	10/5	1.7	67	7.6	1,384	156	1,949	220	3,543	400						
K202_0140 MT30	13.85	2881/208	3,500	3,500	4,000	10/5	6.5	69	7.8	1,384	156	1,949	220	3,543	400						
K202_0170 MT10	16.86	2967/176	4,000	3,900	5,500	10/5	0.9	56	6.4	1,302	147	1,302	147	1,627	184						
K202_0170 MT20	16.86	2967/176	3,500	3,500	5,000	10/5	1.5	57	6.4	1,478	167	1,949	220	3,543	400						
K202_0170 MT30	16.86	2967/176	3,500	3,500	4,000	10/5	6.3	57	6.5	1,478	167	1,949	220	3,543	400						
K202_0175 MT10	17.47	559/32	3,900	3,500	5,000	10/5	1.0	69	7.8	1,426	161	1,426	161	1,783	201						
K202_0175 MT20	17.47	559/32	3,500	3,500	5,000	10/5	1.6	69	7.8	1,495	169	1,949	220	3,543	400						
K202_0175 MT30	17.47	559/32	3,500	3,500	4,000	10/5	6.4	70	7.9	1,495	169	1,949	220	3,543	400						
K202_0200 MT10	20.33	1118/55	4,000	3,900	5,500	10/5	0.8	57	6.4	1,504	170	1,504	170	1,880	212						
K202_0200 MT20	20.33	1118/55	3,500	3,500	5,000	10/5	1.4	57	6.5	1,573	178	1,949	220	3,541	400						
K202_0200 MT30	20.33	1118/55	3,500	3,500	4,000	10/5	6.2	58	6.5	1,573	178	1,949	220	3,541	400						

Motor Shaft

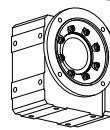
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

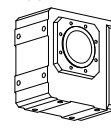
N
Foot Mounted



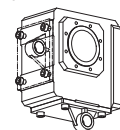
F
Round Flange



G
Tapped Holes



GD
Torque Arm Bracket



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM in.lbs. Nm		Acceleration T _{2B} in.lbs. Nm		Peak ³⁾ T _{2PEAK} in.lbs. Nm	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB										
K202 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 53 dB(A) ⁴⁾					
K202_0230 MT10	23.18	2967/128	4,000	3,900	5,500	10/5	0.8	70	7.9	1,643	186	1,790	202	2,237	253
K202_0230 MT20	23.18	2967/128	3,500	3,500	5,000	10/5	1.4	70	7.9	1,643	186	1,949	220	3,543	400
K202_0230 MT30	23.18	2967/128	3,500	3,500	4,000	10/5	6.2	71	8.0	1,643	186	1,949	220	3,543	400
K202_0250 MT10	25.13	1935/77	4,000	3,900	5,500	10/5	0.7	58	6.5	1,688	191	1,775	200	2,219	250
K202_0250 MT20	25.13	1935/77	3,500	3,500	5,000	10/5	1.3	58	6.5	1,688	191	1,949	220	3,543	400
K202_0250 MT30	25.13	1935/77	3,500	3,500	4,000	10/5	6.1	58	6.6	1,688	191	1,949	220	3,543	400
K202_0280 MT10	27.95	559/20	4,000	3,900	5,500	10/5	0.8	71	8.0	1,749	197	1,949	220	2,586	292
K202_0280 MT20	27.95	559/20	3,500	3,500	5,000	10/5	1.4	71	8.0	1,749	197	1,949	220	3,543	400
K202_0280 MT30	27.95	559/20	3,500	3,500	4,000	10/5	6.2	71	8.1	1,749	197	1,949	220	3,543	400
K202_0340 MT10	33.62	1849/55	4,000	3,900	5,500	10/5	0.7	58	6.6	1,364	154	1,637	185	2,729	308
K202_0340 MT20	33.62	1849/55	3,500	3,500	5,000	10/5	1.3	58	6.6	1,364	154	1,637	185	2,729	308
K202_0350 MT10	34.55	1935/56	4,000	3,900	5,500	10/5	0.7	71	8.0	1,772	200	1,949	220	3,051	344
K202_0350 MT20	34.55	1935/56	3,500	3,500	5,000	10/5	1.3	71	8.1	1,772	200	1,949	220	3,543	400
K202_0350 MT30	34.55	1935/56	3,500	3,500	4,000	10/5	6.1	72	8.1	1,772	200	1,949	220	3,543	400
K202_0400 MT10	40.39	1333/33	4,000	3,900	5,500	10/5	0.7	58	6.6	1,023	116	1,228	139	1,690	191
K202_0460 MT10	46.23	1849/40	4,000	3,900	5,500	10/5	0.7	72	8.1	1,772	200	1,949	220	3,543	400
K202_0460 MT20	46.23	1849/40	3,500	3,500	5,000	10/5	1.3	72	8.1	1,772	200	1,949	220	3,543	400
K202_0500 MT10	50.49	6665/132	4,000	3,900	5,500	10/5	0.6	58	6.6	853	96	1,023	116	1,705	193
K202_0560 MT10	55.54	1333/24	4,000	3,900	5,500	10/5	0.7	72	8.1	1,407	159	1,688	191	2,323	262
K202_0690 MT10	69.43	6665/96	4,000	3,900	5,500	10/5	0.6	72	8.1	1,172	132	1,407	159	2,345	265
K203 with MT TriAdapt® Motor Adapter										Noise Level ≤ 53 dB(A) ⁴⁾					
K203_0390 MT10	39.45	135407/3432	4,000	3,900	5,500	10/6	0.7	58	6.6	1,431	162	1,431	162	1,788	202
K203_0450 MT10	45.22	58609/1296	4,000	3,900	5,500	10/6	0.7	72	8.1	1,640	185	1,640	185	2,050	231
K203_0500 MT10	49.76	26273/528	4,000	3,900	5,500	10/6	0.7	58	6.6	1,772	200	1,804	204	2,256	255
K203_0540 MT10	54.25	135407/2496	4,000	3,900	5,500	10/6	0.7	72	8.1	1,772	200	1,949	220	2,459	278
K203_0660 MT10	66.03	46483/704	4,000	3,900	5,500	10/6	0.7	59	6.6	1,772	200	1,949	220	2,993	338
K203_0680 MT10	68.42	26273/384	4,000	3,900	5,500	10/6	0.7	72	8.1	1,772	200	1,949	220	3,101	350
K203_0800 MT10	79.62	26273/330	4,000	3,900	5,500	10/6	0.7	59	6.6	1,772	200	1,949	220	3,540	400
K203_0910 MT10	90.79	46483/512	4,000	3,900	5,500	10/6	0.7	72	8.1	1,772	200	1,949	220	3,543	400
K203_1090 MT10	109.5	26273/240	4,000	3,900	5,500	10/6	0.7	72	8.1	1,772	200	1,949	220	3,543	400
K203_1350 MT10	135.3	30315/224	4,000	3,900	5,500	10/6	0.7	72	8.1	1,772	200	1,949	220	3,543	400
K203_1810 MT10	181.0	86903/480	4,000	3,900	5,500	10/6	0.7	72	8.1	1,772	200	1,949	220	3,543	400
K203_2180 MT10	217.5	62651/288	4,000	3,900	5,500	10/6	0.6	72	8.1	1,407	159	1,688	191	2,323	262
K203_2720 MT10	271.9	313255/1152	4,000	3,900	5,500	10/6	0.6	72	8.1	1,172	132	1,407	159	2,345	265

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



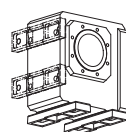
Part Number	Reducer Ratio i		Input RPM			Backlash arcs/min Δp ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K302 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 53 dB(A) ⁴⁾					
K302_0040 MT20	4.000	4/1	2,700	2,300	3,800	10/4	6.4	40	4.5	1,375	155	1,512	171	2,238	253
K302_0040 MT30	4.000	4/1	2,700	2,300	3,800	10/4	11.2	49	5.5	1,602	181	2,707	306	5,772	652
K302_0044 MT20	4.364	48/11	2,700	2,300	3,800	10/4	5.7	43	4.9	1,500	169	1,650	186	2,421	273
K302_0044 MT30	4.364	48/11	2,700	2,300	3,800	10/4	10.5	52	5.8	1,650	186	2,787	315	6,201	700
K302_0054 MT20	5.375	43/8	2,700	2,300	3,800	10/4	4.5	51	5.7	1,768	200	2,032	229	2,884	326
K302_0054 MT30	5.375	43/8	2,700	2,300	3,800	10/4	9.3	58	6.5	1,768	200	2,307	260	2,884	326
K302_0060 MT20	6.000	6/1	2,700	2,300	3,800	10/4	4.8	59	6.7	1,834	207	2,268	256	3,328	376
K302_0060 MT30	6.000	6/1	2,700	2,300	3,800	10/4	9.6	67	7.6	1,834	207	3,099	350	6,201	700
K302_0067 MT20	6.740	2150/319	3,200	2,800	4,200	10/4	3.5	57	6.5	1,907	215	2,548	288	3,515	397
K302_0067 MT30	6.740	2150/319	3,200	2,800	4,000	10/4	8.3	63	7.1	1,907	215	2,812	317	3,515	397
K302_0074 MT20	7.391	473/64	2,700	2,300	3,800	10/4	3.9	66	7.5	1,966	222	2,794	315	3,965	448
K302_0074 MT30	7.391	473/64	2,700	2,300	3,800	10/4	8.7	73	8.2	1,966	222	3,172	358	3,965	448
K302_0084 MT20	8.444	2322/275	3,200	2,800	4,200	10/4	2.8	63	7.1	2,056	232	3,192	360	4,244	479
K302_0084 MT30	8.444	2322/275	3,200	2,800	4,000	10/4	7.6	67	7.5	2,056	232	3,395	383	4,244	479
K302_0093 MT20	9.267	1075/116	3,200	2,800	4,200	10/4	3.2	72	8.2	2,120	239	3,410	385	4,833	546
K302_0093 MT30	9.267	1075/116	3,200	2,800	4,000	10/4	8.0	77	8.7	2,120	239	3,410	385	4,833	546
K302_0100 MT20	10.14	3010/297	3,500	3,100	5,000	10/4	2.4	66	7.4	2,185	247	3,410	385	4,911	554
K302_0100 MT30	10.14	3010/297	3,500	3,100	4,000	10/4	7.2	69	7.8	2,185	247	3,410	385	4,911	554
K302_0115 MT20	11.61	1161/100	3,200	2,800	4,200	10/4	2.6	77	8.6	2,286	258	3,410	385	5,835	659
K302_0115 MT30	11.61	1161/100	3,200	2,800	4,000	10/4	7.4	80	9.0	2,286	258	3,410	385	5,835	659
K302_0125 MT10	12.58	3182/253	3,500	3,100	5,000	10/4	1.5	68	7.7	1,059	120	1,059	120	1,324	150
K302_0125 MT20	12.58	3182/253	3,500	3,100	5,000	10/4	2.1	69	7.8	2,348	265	3,410	385	5,854	661
K302_0125 MT30	12.58	3182/253	3,500	3,100	4,000	10/4	6.9	71	8.0	2,348	265	3,410	385	5,854	661
K302_0140 MT20	13.94	1505/108	3,500	3,100	5,000	10/4	2.3	79	8.9	2,429	274	3,410	385	6,201	700
K302_0140 MT30	13.94	1505/108	3,500	3,100	4,000	10/4	7.1	81	9.2	2,429	274	3,410	385	6,201	700
K302_0170 MT10	16.94	559/33	3,800	3,500	5,000	10/4	1.1	71	8.0	1,342	152	1,342	152	1,678	189
K302_0170 MT20	16.94	559/33	3,500	3,500	5,000	10/4	1.7	71	8.1	2,592	293	3,410	385	6,201	700
K302_0170 MT30	16.94	559/33	3,500	3,500	4,000	10/4	6.5	73	8.2	2,592	293	3,410	385	6,201	700
K302_0175 MT10	17.29	1591/92	3,500	3,100	5,000	10/4	1.4	81	9.1	1,457	164	1,457	164	1,821	206
K302_0175 MT20	17.29	1591/92	3,500	3,100	5,000	10/4	2.0	81	9.2	2,610	295	3,410	385	6,201	700
K302_0175 MT30	17.29	1591/92	3,500	3,100	4,000	10/4	6.8	83	9.4	2,610	295	3,410	385	6,201	700
K302_0200 MT10	20.28	3569/176	3,800	3,500	5,000	10/4	1.0	72	8.1	1,555	176	1,555	176	1,943	219
K302_0200 MT20	20.28	3569/176	3,500	3,500	5,000	10/4	1.6	72	8.2	2,753	311	3,410	385	6,201	700
K302_0200 MT30	20.28	3569/176	3,500	3,500	4,000	10/4	6.4	73	8.3	2,753	311	3,410	385	6,201	700
K302_0230 MT10	23.29	559/24	3,800	3,500	5,000	10/4	1.1	83	9.4	1,845	208	1,845	208	2,307	260
K302_0230 MT20	23.29	559/24	3,500	3,500	5,000	10/4	1.7	83	9.4	2,883	325	3,410	385	6,201	700
K302_0230 MT30	23.29	559/24	3,500	3,500	4,000	10/4	6.5	84	9.5	2,883	325	3,410	385	6,201	700
K302_0250 MT10	25.26	3612/143	3,800	3,500	5,000	10/4	0.9	73	8.2	1,839	208	1,839	208	2,298	259
K302_0250 MT20	25.26	3612/143	3,500	3,500	5,000	10/4	1.5	73	8.3	2,962	334	3,410	385	4,328	489
K302_0250 MT30	25.26	3612/143	3,500	3,500	4,000	10/4	6.3	74	8.3	2,962	334	3,410	385	4,328	489
K302_0280 MT10	27.88	3569/128	3,800	3,500	5,000	10/4	1.0	84	9.4	2,138	241	2,138	241	2,672	302
K302_0280 MT20	27.88	3569/128	3,500	3,500	5,000	10/4	1.6	84	9.5	3,061	346	3,410	385	6,201	700
K302_0280 MT30	27.88	3569/128	3,500	3,500	4,000	10/4	6.4	85	9.5	3,061	346	3,410	385	6,201	700

Motor Shaft

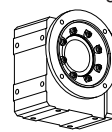
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

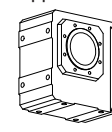
N
Foot Mounted



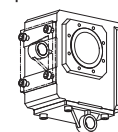
F
Round Flange



G
Tapped Holes



GD
Torque Arm Bracket



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K302 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 53 dB(A) ⁴⁾					
K302_0340 MT10	33.62	1849/55	3,800	3,500	5,000	10/4	0.8	74	8.3	2,217	250	2,299	260	2,874	324
K302_0340 MT20	33.62	1849/55	3,500	3,500	5,000	10/4	1.4	74	8.3	2,217	250	2,660	300	4,434	501
K302_0340 MT30	33.62	1849/55	3,500	3,500	4,000	10/4	6.2	74	8.4	2,217	250	2,660	300	4,434	501
K302_0350 MT10	34.73	903/26	3,800	3,500	5,000	10/4	0.9	84	9.5	2,528	285	2,528	285	3,160	357
K302_0350 MT20	34.73	903/26	3,500	3,500	5,000	10/4	1.5	84	9.5	3,100	350	3,410	385	5,951	672
K302_0350 MT30	34.73	903/26	3,500	3,500	4,000	10/4	6.3	85	9.6	3,100	350	3,410	385	5,951	672
K302_0410 MT10	40.51	4902/121	3,800	3,500	5,000	10/4	0.7	74	8.4	1,705	193	2,046	231	3,334	376
K302_0410 MT20	40.51	4902/121	3,500	3,500	5,000	10/4	1.3	74	8.4	1,705	193	2,046	231	3,334	376
K302_0460 MT10	46.23	1849/40	3,800	3,500	5,000	10/4	0.8	85	9.6	3,048	344	3,162	357	3,952	446
K302_0460 MT20	46.23	1849/40	3,500	3,500	5,000	10/4	1.4	85	9.6	3,048	344	3,410	385	6,097	688
K302_0460 MT30	46.23	1849/40	3,500	3,500	4,000	10/4	6.2	85	9.6	3,048	344	3,410	385	6,097	688
K302_0500 MT10	50.49	6665/132	3,800	3,500	5,000	10/4	0.7	74	8.4	1,364	154	1,637	185	2,072	234
K302_0560 MT10	55.71	2451/44	3,800	3,500	5,000	10/4	0.7	85	9.6	2,345	265	2,814	318	4,584	517
K302_0560 MT20	55.71	2451/44	3,500	3,500	5,000	10/4	1.3	85	9.6	2,345	265	2,814	318	4,584	517
K302_0690 MT10	69.43	6665/96	3,800	3,500	5,000	10/4	0.7	85	9.6	1,876	212	2,251	254	2,849	322
K303 with MT TriAdapt® Motor Adapter										Noise Level ≤ 53 dB(A) ⁴⁾					
K303_0330 MT20	32.65	44892/1375	3,500	3,500	5,000	10/5	1.5	74	8.3	3,100	350	3,394	383	4,243	479
K303_0360 MT20	35.83	215/6	3,500	3,500	5,000	10/5	1.5	85	9.5	3,100	350	3,410	385	4,833	546
K303_0390 MT20	39.19	34916/891	3,500	3,500	5,000	10/5	1.4	74	8.4	3,100	350	3,410	385	4,910	554
K303_0450 MT20	44.89	11223/250	3,500	3,500	5,000	10/5	1.4	85	9.6	3,100	350	3,410	385	5,834	659
K303_0490 MT10	49.26	74777/1518	3,800	3,500	5,000	10/5	0.7	74	8.4	1,786	202	1,786	202	2,233	252
K303_0490 MT20	48.63	184556/3795	3,500	3,500	5,000	10/5	1.4	74	8.4	3,100	350	3,410	385	5,854	661
K303_0540 MT20	53.88	8729/162	3,500	3,500	5,000	10/5	1.4	85	9.6	3,100	350	3,410	385	6,201	700
K303_0550 MT10	54.58	70735/1296	3,800	3,500	5,000	10/5	0.7	85	9.6	1,979	223	1,979	223	2,474	279
K303_0650 MT20	65.50	32422/495	3,500	3,500	5,000	10/5	1.4	75	8.4	3,100	350	3,410	385	6,201	700
K303_0660 MT10	66.35	26273/396	3,800	3,500	5,000	10/5	0.7	75	8.4	2,406	272	2,406	272	3,007	340
K303_0670 MT20	66.87	46139/690	3,500	3,500	5,000	10/5	1.4	85	9.6	3,100	350	3,410	385	6,201	700
K303_0680 MT10	67.73	74777/1104	3,800	3,500	5,000	10/5	0.7	85	9.6	2,456	277	2,456	277	3,070	347
K303_0780 MT20	78.41	103501/1320	3,500	3,500	5,000	10/5	1.4	75	8.4	3,100	350	3,410	385	6,201	700
K303_0790 MT10	79.42	167743/2112	3,800	3,500	5,000	10/5	0.7	75	8.4	2,832	320	2,880	325	3,600	406
K303_0900 MT20	90.06	16211/180	3,500	3,500	5,000	10/5	1.4	85	9.6	3,100	350	3,410	385	6,201	700
K303_0910 MT10	91.23	26273/288	3,800	3,500	5,000	10/5	0.7	85	9.6	3,100	350	3,308	373	4,135	467
K303_1080 MT20	107.8	103501/960	3,500	3,500	5,000	10/5	1.4	85	9.6	3,100	350	3,410	385	6,201	700
K303_1090 MT10	109.2	167743/1536	3,800	3,500	5,000	10/5	0.7	85	9.6	3,100	350	3,410	385	4,950	559
K303_1340 MT20	134.3	8729/65	3,500	3,500	5,000	10/5	1.4	85	9.7	3,100	350	3,410	385	5,950	672
K303_1360 MT10	136.0	14147/104	3,800	3,500	5,000	10/5	0.7	85	9.7	3,100	350	3,410	385	5,950	672
K303_1790 MT20	178.7	53621/300	3,500	3,500	5,000	10/5	1.4	86	9.7	3,048	344	3,410	385	6,097	688
K303_1810 MT10	181.0	86903/480	3,800	3,500	5,000	10/5	0.7	86	9.7	3,048	344	3,410	385	6,097	688
K303_2180 MT10	218.2	38399/176	3,800	3,500	5,000	10/5	0.7	86	9.7	2,345	265	2,814	318	4,583	517
K303_2720 MT10	271.9	313255/1152	3,800	3,500	5,000	10/5	0.7	86	9.7	1,876	212	2,251	254	2,849	322

Index of Symbols

i ... Exact Ratio = Exact Tooth Count
J₁ ... Reducer Inertia
C ... ServoCool
C₂ ... Torsional Stiffness
n_{1DBH} ... Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n_{1DBV} ... Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n_{1ZB} ... Maximum Cyclic Input RPM
T_{2N} ... Nominal Torque @ 2000 RPM Input
T_{2N(n1DBH)} ... Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T_{2B} ... Acceleration Torque Maximum
T_{2PEAK} ... Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



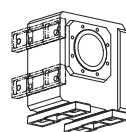
Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum		Nominal ²⁾					Acceleration		Peak ³⁾			
			Continuous	Cyclic	T _{2N} ≤ 2000 RPM					T _{2B}		T _{2PEAK}			
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm		
K402 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 51 dB(A) ⁴⁾					
K402_0040 MT20	4.000	4/1	2,600	2,200	3,500	10/4	11.4	55	6.2	1,375	155	1,512	171	2,311	261
K402_0040 MT30	4.000	4/1	2,600	2,200	3,500	10/4	16.2	72	8.2	2,405	271	3,592	405	5,960	673
K402_0040 MT40	4.000	4/1	2,600	2,200	3,500	10/4	20.2	99	11.2	2,405	271	4,062	459	5,960	673
K402_0044 MT20	4.364	48/11	2,600	2,200	3,500	10/4	10.1	61	6.9	1,500	169	1,650	186	2,503	283
K402_0044 MT30	4.364	48/11	2,600	2,200	3,500	10/4	14.9	79	8.9	2,475	279	3,918	442	6,456	729
K402_0044 MT40	4.364	48/11	2,600	2,200	3,500	10/4	18.9	105	11.8	2,475	279	4,182	472	6,456	729
K402_0054 MT20	5.422	1849/341	2,600	2,200	3,500	10/4	7.5	77	8.7	1,863	210	2,050	231	3,021	341
K402_0054 MT30	5.422	1849/341	2,600	2,200	3,500	10/4	12.3	95	10.7	2,661	300	4,496	508	7,791	880
K402_0054 MT40	5.422	1849/341	2,600	2,200	3,500	10/4	16.3	117	13.2	2,661	300	4,496	508	7,791	880
K402_0060 MT20	6.000	6/1	2,600	2,200	3,500	10/4	8.4	92	10.4	2,062	233	2,268	256	3,442	389
K402_0060 MT30	6.000	6/1	2,600	2,200	3,500	10/4	13.2	113	12.8	2,752	311	4,650	525	8,877	1,002
K402_0060 MT40	6.000	6/1	2,600	2,200	3,500	10/4	17.2	139	15.7	2,752	311	4,650	525	8,877	1,002
K402_0067 MT20	6.719	215/32	3,000	2,600	4,000	10/4	5.6	93	10.5	2,309	261	2,540	287	3,605	407
K402_0067 MT30	6.719	215/32	3,000	2,600	4,000	10/4	10.4	108	12.2	2,858	323	4,829	545	9,298	1,050
K402_0067 MT40	6.719	215/32	3,000	2,600	3,500	10/4	14.4	127	14.3	2,858	323	4,829	545	9,298	1,050
K402_0075 MT20	7.456	1849/248	2,600	2,200	3,500	10/4	6.4	111	12.5	2,563	289	2,819	318	4,154	469
K402_0075 MT30	7.456	1849/248	2,600	2,200	3,500	10/4	11.2	129	14.6	2,959	334	4,999	564	9,744	1,100
K402_0075 MT40	7.456	1849/248	2,600	2,200	3,500	10/4	15.2	150	17.0	2,959	334	4,999	564	9,744	1,100
K402_0084 MT20	8.377	645/77	3,000	2,600	4,000	10/4	4.3	107	12.1	2,879	325	3,167	358	4,347	491
K402_0084 MT30	8.377	645/77	3,000	2,600	4,000	10/4	9.1	120	13.6	3,076	347	5,197	587	9,744	1,100
K402_0084 MT40	8.377	645/77	3,000	2,600	3,500	10/4	13.1	134	15.1	3,076	347	5,197	587	9,744	1,100
K402_0092 MT20	9.238	2365/256	3,000	2,600	4,000	10/4	4.9	128	14.4	3,175	358	3,493	394	4,956	560
K402_0092 MT30	9.238	2365/256	3,000	2,600	4,000	10/4	9.7	143	16.1	3,178	359	5,315	600	9,744	1,100
K402_0092 MT40	9.238	2365/256	3,000	2,600	3,500	10/4	13.7	159	17.9	3,178	359	5,315	600	9,744	1,100
K402_0100 MT20	10.10	1333/132	3,400	3,000	4,500	10/4	3.5	118	13.3	3,274	370	3,818	431	5,042	569
K402_0100 MT30	10.10	1333/132	3,400	3,000	4,000	10/4	8.3	128	14.5	3,274	370	5,315	600	9,744	1,100
K402_0100 MT40	10.10	1333/132	3,000	3,000	3,500	10/4	12.3	138	15.6	3,274	370	5,315	600	9,744	1,100
K402_0115 MT20	11.52	645/56	3,000	2,600	4,000	10/4	3.9	141	16.0	3,421	386	4,354	492	5,977	675
K402_0115 MT30	11.52	645/56	3,000	2,600	4,000	10/4	8.7	153	17.3	3,421	386	5,315	600	9,744	1,100
K402_0115 MT40	11.52	645/56	3,000	2,600	3,500	10/4	12.7	164	18.6	3,421	386	5,315	600	9,744	1,100
K402_0125 MT20	12.66	2924/231	3,400	3,000	4,500	10/4	2.8	127	14.4	3,530	399	4,785	540	6,113	690
K402_0125 MT30	12.66	2924/231	3,400	3,000	4,000	10/4	7.6	135	15.2	3,530	399	5,315	600	9,744	1,100
K402_0125 MT40	12.66	2924/231	3,000	3,000	3,500	10/4	11.6	142	16.1	3,530	399	5,315	600	9,744	1,100
K402_0140 MT20	13.89	1333/96	3,400	3,000	4,500	10/4	3.2	151	17.0	3,641	411	5,249	593	6,933	783
K402_0140 MT30	13.89	1333/96	3,400	3,000	4,000	10/4	8.0	160	18.0	3,641	411	5,315	600	9,744	1,100
K402_0140 MT40	13.89	1333/96	3,000	3,000	3,500	10/4	12.0	168	19.0	3,641	411	5,315	600	9,744	1,100
K402_0170 MT20	16.94	559/33	3,500	3,300	5,000	10/4	2.2	136	15.4	3,827	432	5,315	600	7,682	867
K402_0170 MT30	16.94	559/33	3,500	3,300	4,000	10/4	7.0	141	15.9	3,890	439	5,315	600	9,744	1,100
K402_0170 MT40	16.94	559/33	3,000	3,000	3,500	10/4	11.0	145	16.4	3,890	439	5,315	600	9,744	1,100
K402_0175 MT20	17.41	731/42	3,400	3,000	4,500	10/4	2.6	159	18.0	3,926	443	5,315	600	8,405	949
K402_0175 MT30	17.41	731/42	3,400	3,000	4,000	10/4	7.4	165	18.7	3,926	443	5,315	600	9,744	1,100
K402_0175 MT40	17.41	731/42	3,000	3,000	3,500	10/4	11.4	171	19.3	3,926	443	5,315	600	9,744	1,100

Motor Shaft

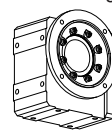
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

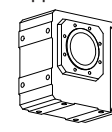
N
Foot Mounted



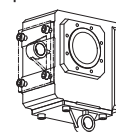
F
Round Flange



G
Tapped Holes



GD
Torque Arm Bracket



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂ in.lbs. Nm		Output Torque					
			Maximum		Nominal ²⁾ T _{2N} ≤ 2000 RPM in.lbs. Nm					Acceleration T _{2B} in.lbs. Nm		Peak ³⁾ T _{2PEAK} in.lbs. Nm			
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}										
K402 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 51 dB(A) ⁴⁾					
K402_0200 MT20	20.20	1333/66	3,500	3,300	5,000	10/4	1.9	140	15.8	3,964	447	5,315	600	8,842	998
K402_0200 MT30	20.20	1333/66	3,500	3,300	4,000	10/4	6.7	143	16.2	4,125	466	5,315	600	8,842	998
K402_0200 MT40	20.20	1333/66	3,000	3,000	3,500	10/4	10.7	147	16.5	4,125	466	5,315	600	8,842	998
K402_0230 MT20	23.29	559/24	3,500	3,300	5,000	10/4	2.1	166	18.8	4,326	488	5,315	600	9,744	1,100
K402_0230 MT30	23.29	559/24	3,500	3,300	4,000	10/4	6.9	170	19.2	4,326	488	5,315	600	9,744	1,100
K402_0230 MT40	23.29	559/24	3,000	3,000	3,500	10/4	10.9	173	19.6	4,326	488	5,315	600	9,744	1,100
K402_0250 MT20	25.28	4171/165	3,500	3,300	5,000	10/4	1.7	143	16.2	4,079	460	5,315	600	8,868	1,001
K402_0250 MT30	25.28	4171/165	3,500	3,300	4,000	10/4	6.5	146	16.4	4,434	501	5,315	600	8,868	1,001
K402_0250 MT40	25.28	4171/165	3,000	3,000	3,500	10/4	10.5	148	16.7	4,434	501	5,315	600	8,868	1,001
K402_0280 MT20	27.77	1333/48	3,500	3,300	5,000	10/4	1.9	169	19.1	4,587	518	5,315	600	9,744	1,100
K402_0280 MT30	27.77	1333/48	3,500	3,300	4,000	10/4	6.7	172	19.4	4,587	518	5,315	600	9,744	1,100
K402_0280 MT40	27.77	1333/48	3,000	3,000	3,500	10/4	10.7	174	19.7	4,587	518	5,315	600	9,744	1,100
K402_0340 MT20	33.68	4816/143	3,500	3,300	5,000	10/4	1.5	146	16.5	3,445	389	4,134	467	5,620	634
K402_0340 MT30	33.68	4816/143	3,500	3,300	4,000	10/4	6.3	147	16.6	3,445	389	4,134	467	5,620	634
K402_0350 MT20	34.76	4171/120	3,500	3,300	5,000	10/4	1.7	172	19.4	4,872	550	5,315	600	9,744	1,100
K402_0350 MT30	34.76	4171/120	3,500	3,300	4,000	10/4	6.5	173	19.6	4,872	550	5,315	600	9,744	1,100
K402_0350 MT40	34.76	4171/120	3,000	3,000	3,500	10/4	10.5	175	19.7	4,872	550	5,315	600	9,744	1,100
K402_0410 MT20	40.51	4902/121	3,500	3,300	5,000	10/4	1.4	147	16.6	2,729	308	3,274	370	5,457	616
K402_0410 MT30	40.51	4902/121	3,500	3,300	4,000	10/4	6.2	148	16.7	2,729	308	3,274	370	5,457	616
K402_0460 MT20	46.31	602/13	3,500	3,300	5,000	10/4	1.5	174	19.6	4,737	535	5,315	600	7,728	872
K402_0460 MT30	46.31	602/13	3,500	3,300	4,000	10/4	6.3	175	19.7	4,737	535	5,315	600	7,728	872
K402_0500 MT20	50.43	5547/110	3,500	3,300	5,000	10/4	1.4	148	16.7	2,387	270	2,865	323	4,064	459
K402_0560 MT20	55.71	2451/44	3,500	3,300	5,000	10/4	1.4	174	19.7	3,752	424	4,502	508	7,504	847
K402_0560 MT30	55.71	2451/44	3,500	3,300	4,000	10/4	6.2	175	19.8	3,752	424	4,502	508	7,504	847
K402_0690 MT20	69.34	5547/80	3,500	3,300	5,000	10/4	1.3	175	19.8	3,283	371	3,939	445	5,588	631
K403 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 51 dB(A) ⁴⁾					
K403_0320 MT20	32.39	2494/77	3,500	3,300	5,000	10/5	1.6	146	16.4	3,477	393	3,477	393	4,346	491
K403_0360 MT20	35.72	13717/384	3,500	3,300	5,000	10/5	1.6	172	19.4	3,965	448	3,965	448	4,956	560
K403_0390 MT20	39.05	38657/990	3,500	3,300	5,000	10/5	1.5	147	16.6	4,033	455	4,033	455	5,042	569
K403_0450 MT20	44.54	1247/28	3,500	3,300	5,000	10/5	1.5	173	19.6	4,781	540	4,781	540	5,976	675
K403_0490 MT20	48.94	169592/3465	3,500	3,300	5,000	10/5	1.5	148	16.7	4,872	550	4,890	552	6,112	690
K403_0540 MT20	53.69	38657/720	3,500	3,300	5,000	10/5	1.5	174	19.7	4,872	550	5,315	600	6,932	783
K403_0650 MT20	65.50	32422/495	3,500	3,300	5,000	10/5	1.4	148	16.8	4,872	550	5,315	600	7,681	867
K403_0660 MT10	66.35	26273/396	3,600	3,300	5,000	10/5	0.7	148	16.8	2,406	272	2,406	272	3,007	340
K403_0670 MT20	67.30	21199/315	3,500	3,300	5,000	10/5	1.4	175	19.8	4,872	550	5,315	600	8,404	949
K403_0680 MT10	68.17	34357/504	3,600	3,300	5,000	10/5	0.7	175	19.7	2,472	279	2,472	279	3,090	349
K403_0780 MT20	78.10	38657/495	3,500	3,300	5,000	10/5	1.4	149	16.8	4,872	550	5,315	600	8,842	998
K403_0790 MT10	79.11	62651/792	3,600	3,300	5,000	10/5	0.7	149	16.8	2,869	324	2,869	324	3,586	405
K403_0900 MT20	90.06	16211/180	3,500	3,300	5,000	10/5	1.4	176	19.8	4,872	550	5,315	600	9,744	1,100
K403_0910 MT10	91.23	26273/288	3,600	3,300	5,000	10/5	0.7	176	19.8	3,308	373	3,308	373	4,135	467
K403_1070 MT20	107.4	38657/360	3,500	3,300	5,000	10/5	1.4	176	19.8	4,872	550	5,315	600	9,744	1,100

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N(n1DBH)} ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load. Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins	Input Inertia J ₁	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous		Cyclic										
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			Δp ¹⁾	kgcm ²	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K403 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 51 dB(A) ⁴⁾					
K403_1090 MT10	108.8	62651/576	3,600	3,300	5,000	10/5	0.7	176	19.8	3,944	445	3,944	445	4,930	557
K403_1340 MT20	134.4	120959/900	3,500	3,300	5,000	10/5	1.4	176	19.9	4,872	550	5,315	600	9,744	1,100
K403_1360 MT10	136.1	196037/1440	3,600	3,300	5,000	10/5	0.7	176	19.9	4,581	517	4,937	557	6,171	697
K403_1790 MT20	179.1	34916/195	3,500	3,300	5,000	10/5	1.4	176	19.9	4,737	535	5,315	600	7,727	872
K403_1810 MT10	181.4	14147/78	3,600	3,300	5,000	10/5	0.7	176	19.9	4,737	535	5,315	600	7,727	872
K403_2150 MT20	215.4	23693/110	3,500	3,300	5,000	10/5	1.4	176	19.9	3,752	424	4,502	508	7,504	847
K403_2180 MT10	218.2	38399/176	3,600	3,300	5,000	10/5	0.7	176	19.9	3,752	424	4,502	508	7,504	847
K403_2720 MT10	271.6	86903/320	3,600	3,300	5,000	10/5	0.7	176	19.9	3,283	371	3,939	445	5,587	631

K403 with MT TriAdapt® Motor Adapter Continued

Noise Level ≤ 51 dB(A) ⁴⁾

K403_1090 MT10	108.8	62651/576	3,600	3,300	5,000	10/5	0.7	176	19.8	3,944	445	3,944	445	4,930	557
K403_1340 MT20	134.4	120959/900	3,500	3,300	5,000	10/5	1.4	176	19.9	4,872	550	5,315	600	9,744	1,100
K403_1360 MT10	136.1	196037/1440	3,600	3,300	5,000	10/5	0.7	176	19.9	4,581	517	4,937	557	6,171	697
K403_1790 MT20	179.1	34916/195	3,500	3,300	5,000	10/5	1.4	176	19.9	4,737	535	5,315	600	7,727	872
K403_1810 MT10	181.4	14147/78	3,600	3,300	5,000	10/5	0.7	176	19.9	4,737	535	5,315	600	7,727	872
K403_2150 MT20	215.4	23693/110	3,500	3,300	5,000	10/5	1.4	176	19.9	3,752	424	4,502	508	7,504	847
K403_2180 MT10	218.2	38399/176	3,600	3,300	5,000	10/5	0.7	176	19.9	3,752	424	4,502	508	7,504	847
K403_2720 MT10	271.6	86903/320	3,600	3,300	5,000	10/5	0.7	176	19.9	3,283	371	3,939	445	5,587	631

K513 with MT TriAdapt® Motor Adapter Continued Next Page

Noise Level ≤ 61 dB(A) ⁴⁾

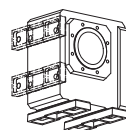
K513_0073 MT30	7.347	551/75	1,900	1,800	3,000	10/5	23.1	172	19.4	5,461	617	6,502	734	11,147	1,258
K513_0073 MT40	7.347	551/75	1,900	1,800	3,000	10/5	27.1	213	24.0	5,461	617	8,858	1,000	11,147	1,258
K513_0081 MT30	8.134	17081/2100	1,900	1,800	3,000	10/5	21.2	185	20.8	5,649	638	7,198	813	12,341	1,393
K513_0081 MT40	8.134	17081/2100	1,900	1,800	3,000	10/5	25.2	222	25.0	5,649	638	8,858	1,000	12,341	1,393
K513_0092 MT30	9.168	1421/155	1,900	1,800	3,000	10/5	18.2	198	22.3	5,879	664	8,113	916	13,494	1,523
K513_0092 MT40	9.168	1421/155	1,900	1,800	3,000	10/5	22.2	230	26.0	5,879	664	8,858	1,000	13,494	1,523
K513_0100 MT30	10.15	203/20	1,900	1,800	3,000	10/5	17.0	208	23.5	6,082	687	8,858	1,000	14,939	1,686
K513_0100 MT40	10.15	203/20	1,900	1,800	3,000	10/5	21.0	237	26.7	6,082	687	8,858	1,000	14,939	1,686
K513_0115 MT30	11.57	10759/930	2,300	2,200	3,600	10/5	14.5	220	24.8	6,353	717	8,858	1,000	15,944	1,800
K513_0115 MT40	11.57	10759/930	2,300	2,200	3,500	10/5	18.5	244	27.5	6,353	717	8,858	1,000	15,944	1,800
K513_0130 MT30	12.81	1537/120	2,300	2,200	3,600	10/5	13.7	228	25.7	6,573	742	8,858	1,000	15,944	1,800
K513_0130 MT40	12.81	1537/120	2,300	2,200	3,500	10/5	17.7	248	28.0	6,573	742	8,858	1,000	15,944	1,800
K513_0145 MT20	14.54	5887/405	2,300	2,200	3,600	10/5	7.2	219	24.7	4,924	556	5,416	611	7,682	867
K513_0145 MT30	14.54	5887/405	2,300	2,200	3,600	10/5	12.0	236	26.6	6,856	774	8,858	1,000	15,944	1,800
K513_0145 MT40	14.54	5887/405	2,300	2,200	3,500	10/5	16.0	253	28.6	6,856	774	8,858	1,000	15,944	1,800
K513_0160 MT20	16.09	26071/1620	2,300	2,200	3,600	10/5	6.7	227	25.6	5,451	615	5,996	677	8,505	960
K513_0160 MT30	16.09	26071/1620	2,300	2,200	3,600	10/5	11.5	242	27.3	7,092	801	8,858	1,000	15,944	1,800
K513_0160 MT40	16.09	26071/1620	2,300	2,200	3,500	10/5	15.5	256	28.9	7,092	801	8,858	1,000	15,944	1,800
K513_0175 MT20	17.48	6293/360	2,800	2,500	4,000	10/5	5.8	232	26.2	5,921	668	6,513	735	8,970	1,013
K513_0175 MT30	17.48	6293/360	2,800	2,500	4,000	10/5	10.6	246	27.7	7,291	823	8,858	1,000	15,944	1,800
K513_0175 MT40	17.48	6293/360	2,800	2,500	3,500	10/5	14.6	258	29.1	7,291	823	8,858	1,000	15,944	1,800
K513_0195 MT20	19.35	27869/1440	2,800	2,500	4,000	10/5	5.4	239	26.9	6,555	740	7,211	814	9,931	1,121
K513_0195 MT30	19.35	27869/1440	2,800	2,500	4,000	10/5	10.2	250	28.2	7,542	851	8,858	1,000	15,944	1,800
K513_0195 MT40	19.35	27869/1440	2,800	2,500	3,500	10/5	14.2	260	29.4	7,542	851	8,858	1,000	15,944	1,800
K513_0220 MT20	21.99	2639/120	2,800	2,500	4,000	10/5	4.4	245	27.7	7,089	800	8,194	925	10,782	1,217
K513_0220 MT30	21.99	2639/120	2,800	2,500	4,000	10/5	9.2	254	28.7	7,870	888	8,858	1,000	15,944	1,800
K513_0220 MT40	21.99	2639/120	2,800	2,500	3,500	10/5	13.2	263	29.6	7,870	888	8,858	1,000	15,944	1,800
K513_0240 MT20	24.35	11687/480	2,800	2,500	4,000	10/5	4.2	249	28.2	7,849	886	8,858	1,000	11,937	1,348
K513_0240 MT30	24.35	11687/480	2,800	2,500	4,000	10/5	9.0	257	29.0	7,972	900	8,858	1,000	15,944	1,800
K513_0240 MT40	24.35	11687/480	2,800	2,500	3,500	10/5	13.0	264	29.8	7,972	900	8,858	1,000	15,944	1,800
K513_0290 MT20	29.18	4669/160	3,400	3,000	4,500	10/5	3.3	256	28.8	7,525	850	8,858	1,000	13,530	1,527
K513_0290 MT30	29.18	4669/160	3,400	3,000	4,000	10/5	8.1	261	29.5	7,972	900	8,858	1,000	15,944	1,800
K513_0290 MT40	29.18	4669/160	3,000	3,000	3,500	10/5	12.1	266	30.0	7,972	900	8,858	1,000	15,944	1,800

Motor Shaft

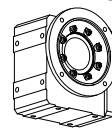
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

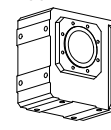
N
Foot Mounted



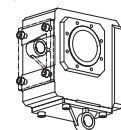
F
Round Flange



G
Tapped Holes



GD
Torque Arm Bracket



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum		Nominal ²⁾ T _{2N} ≤ 2000 RPM					Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}			
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K513 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 61 dB(A) ⁴⁾					
K513_0320 MT20	32.31	20677/640	3,400	3,000	4,500	10/5	3.2	258	29.1	7,972	900	8,858	1,000	14,980	1,691
K513_0320 MT30	32.31	20677/640	3,400	3,000	4,000	10/5	8.0	263	29.7	7,972	900	8,858	1,000	15,944	1,800
K513_0320 MT40	32.31	20677/640	3,000	3,000	3,500	10/5	12.0	267	30.1	7,972	900	8,858	1,000	15,944	1,800
K513_0350 MT20	34.80	174/5	3,400	3,000	4,500	10/5	2.8	260	29.3	7,852	886	8,858	1,000	15,606	1,762
K513_0350 MT30	34.80	174/5	3,400	3,000	4,000	10/5	7.6	264	29.8	7,972	900	8,858	1,000	15,606	1,762
K513_0350 MT40	34.80	174/5	3,000	3,000	3,500	10/5	11.6	267	30.2	7,972	900	8,858	1,000	15,606	1,762
K513_0390 MT20	38.53	2697/70	3,400	3,000	4,500	10/5	2.7	262	29.5	7,972	900	8,858	1,000	15,944	1,800
K513_0390 MT30	38.53	2697/70	3,400	3,000	4,000	10/5	7.5	265	29.9	7,972	900	8,858	1,000	15,944	1,800
K513_0390 MT40	38.53	2697/70	3,000	3,000	3,500	10/5	11.5	268	30.2	7,972	900	8,858	1,000	15,944	1,800
K513_0440 MT20	43.50	87/2	3,400	3,000	4,500	10/5	2.3	264	29.8	7,972	900	8,858	1,000	15,944	1,800
K513_0440 MT30	43.50	87/2	3,400	3,000	4,000	10/5	7.1	266	30.1	7,972	900	8,858	1,000	15,944	1,800
K513_0440 MT40	43.50	87/2	3,000	3,000	3,500	10/5	11.1	268	30.3	7,972	900	8,858	1,000	15,944	1,800
K513_0480 MT20	48.16	2697/56	3,400	3,000	4,500	10/5	2.2	265	29.9	7,972	900	8,858	1,000	15,944	1,800
K513_0480 MT30	48.16	2697/56	3,400	3,000	4,000	10/5	7.0	267	30.1	7,972	900	8,858	1,000	15,944	1,800
K513_0480 MT40	48.16	2697/56	3,000	3,000	3,500	10/5	11.0	269	30.3	7,972	900	8,858	1,000	15,944	1,800
K513_0580 MT20	58.30	11368/195	3,400	3,000	4,500	10/5	1.9	267	30.1	7,972	900	8,858	1,000	15,944	1,800
K513_0580 MT30	58.30	11368/195	3,400	3,000	4,000	10/5	6.7	268	30.3	7,972	900	8,858	1,000	15,944	1,800
K513_0580 MT40	58.30	11368/195	3,000	3,000	3,500	10/5	10.7	269	30.4	7,972	900	8,858	1,000	15,944	1,800
K513_0650 MT20	64.54	12586/195	3,400	3,000	4,500	10/5	1.8	267	30.2	7,972	900	8,858	1,000	15,944	1,800
K513_0650 MT30	64.54	12586/195	3,400	3,000	4,000	10/5	6.6	269	30.3	7,972	900	8,858	1,000	15,944	1,800
K513_0650 MT40	64.54	12586/195	3,000	3,000	3,500	10/5	10.6	270	30.4	7,972	900	8,858	1,000	15,944	1,800
K513_0700 MT20	70.08	841/12	3,400	3,000	4,500	10/5	1.7	268	30.2	7,268	821	8,722	985	11,440	1,291
K513_0700 MT30	70.08	841/12	3,400	3,000	4,000	10/5	6.5	269	30.3	7,268	821	8,722	985	11,440	1,291
K513_0780 MT20	77.59	26071/336	3,400	3,000	4,500	10/5	1.7	268	30.3	7,972	900	8,858	1,000	12,666	1,430
K513_0780 MT30	77.59	26071/336	3,400	3,000	4,000	10/5	6.5	269	30.4	7,972	900	8,858	1,000	12,666	1,430
K513_0870 MT20	87.29	8729/100	3,400	3,000	4,500	10/5	1.5	269	30.3	6,105	689	7,326	827	12,211	1,378
K513_0870 MT30	87.29	8729/100	3,400	3,000	4,000	10/5	6.3	269	30.4	6,105	689	7,326	827	12,211	1,378
K513_0970 MT20	96.64	38657/400	3,400	3,000	4,500	10/5	1.5	269	30.4	6,761	763	8,113	916	13,522	1,527
K513_0970 MT30	96.64	38657/400	3,400	3,000	4,000	10/5	6.3	270	30.4	6,761	763	8,113	916	13,522	1,527
K514 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 61 dB(A) ⁴⁾					
K514_0850 MT20	85.03	76531/900	3,400	3,000	4,500	10/6	1.6	269	30.3	7,972	900	8,625	974	10,781	1,217
K514_0940 MT20	94.15	338923/3600	3,400	3,000	4,500	10/6	1.6	269	30.4	7,972	900	8,858	1,000	11,936	1,347
K514_1130 MT20	112.8	135401/1200	3,400	3,000	4,500	10/6	1.5	269	30.4	7,972	900	8,858	1,000	13,529	1,527
K514_1250 MT20	124.9	599633/4800	3,400	3,000	4,500	10/6	1.5	270	30.4	7,972	900	8,858	1,000	14,979	1,691
K514_1350 MT20	134.6	3364/25	3,400	3,000	4,500	10/6	1.5	270	30.5	7,972	900	8,858	1,000	15,604	1,762
K514_1490 MT20	149.0	26071/175	3,400	3,000	4,500	10/6	1.5	270	30.5	7,972	900	8,858	1,000	15,944	1,800
K514_1680 MT20	168.2	841/5	3,400	3,000	4,500	10/6	1.4	270	30.5	7,972	900	8,858	1,000	15,944	1,800
K514_1860 MT20	186.2	26071/140	3,400	3,000	4,500	10/6	1.4	270	30.5	7,972	900	8,858	1,000	15,944	1,800
K514_2250 MT20	225.4	659344/2925	3,400	3,000	4,500	10/6	1.4	270	30.5	7,972	900	8,858	1,000	15,944	1,800
K514_2500 MT20	249.6	729988/2925	3,400	3,000	4,500	10/6	1.4	270	30.5	7,972	900	8,858	1,000	15,944	1,800
K514_2710 MT20	271.0	24389/90	3,400	3,000	4,500	10/6	1.4	270	30.5	7,268	821	8,722	985	11,439	1,291

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



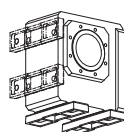
Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K514 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 61 dB(A) ⁴⁾					
K514_3000 MT20	300.0	756059/2520	3,400	3,000	4,500	10/6	1.4	270	30.5	7,972	900	8,858	1,000	12,665	1,430
K514_3380 MT20	337.5	253141/750	3,400	3,000	4,500	10/6	1.4	270	30.5	6,105	689	7,326	827	12,211	1,378
K514_3740 MT20	373.7	1121053/3000	3,400	3,000	4,500	10/6	1.4	270	30.5	6,761	763	8,113	916	13,522	1,527
K613 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 61 dB(A) ⁴⁾					
K613_0073 MT30	7.323	19215/2624	1,800	1,700	2,900	10/5	37.9	216	24.4	5,891	665	6,480	732	11,477	1,296
K613_0073 MT40	7.323	19215/2624	1,800	1,700	2,900	10/5	41.9	285	32.2	7,208	814	9,182	1,037	11,477	1,296
K613_0073 MT50	7.323	19215/2624	1,800	1,700	2,900	10/5	51.9	354	39.9	7,208	814	12,178	1,375	21,932	2,476
K613_0081 MT30	8.107	85095/10496	1,800	1,700	2,900	10/5	34.8	236	26.6	6,522	736	7,174	810	12,706	1,434
K613_0081 MT40	8.107	85095/10496	1,800	1,700	2,900	10/5	38.8	301	33.9	7,457	842	10,165	1,148	12,706	1,434
K613_0081 MT50	8.107	85095/10496	1,800	1,700	2,900	10/5	48.8	361	40.8	7,457	842	12,597	1,422	24,280	2,741
K613_0091 MT30	9.081	20923/2304	1,800	1,700	2,900	10/5	28.8	257	29.0	7,306	825	8,036	907	13,823	1,561
K613_0091 MT40	9.081	20923/2304	1,800	1,700	2,900	10/5	32.8	317	35.7	7,744	874	11,059	1,248	13,823	1,561
K613_0091 MT50	9.081	20923/2304	1,800	1,700	2,900	10/5	42.8	369	41.6	7,744	874	13,083	1,477	25,688	2,900
K613_0100 MT30	10.05	92659/9216	1,800	1,700	2,900	10/5	26.8	275	31.1	8,012	904	8,897	1,004	15,305	1,728
K613_0100 MT40	10.05	92659/9216	1,800	1,700	2,900	10/5	30.8	329	37.2	8,012	904	12,244	1,382	15,305	1,728
K613_0100 MT50	10.05	92659/9216	1,800	1,700	2,900	10/5	40.8	374	42.2	8,012	904	13,534	1,528	25,688	2,900
K613_0115 MT30	11.41	22631/1984	2,200	2,000	3,200	10/5	22.1	296	33.4	8,356	943	10,094	1,140	16,789	1,895
K613_0115 MT40	11.41	22631/1984	2,200	2,000	3,200	10/5	26.1	343	38.7	8,356	943	13,431	1,516	16,789	1,895
K613_0115 MT50	11.41	22631/1984	2,200	2,000	3,000	10/5	36.1	379	42.8	8,356	943	13,431	1,516	16,789	1,895
K613_0125 MT30	12.63	3233/256	2,200	2,000	3,200	10/5	20.9	311	35.1	8,644	976	11,176	1,262	18,588	2,098
K613_0125 MT40	12.63	3233/256	2,200	2,000	3,200	10/5	24.9	352	39.7	8,644	976	14,173	1,600	18,588	2,098
K613_0125 MT50	12.63	3233/256	2,200	2,000	3,000	10/5	34.9	383	43.2	8,644	976	14,173	1,600	18,588	2,098
K613_0145 MT30	14.33	12383/864	2,200	2,000	3,200	10/5	17.4	327	36.9	9,017	1,018	12,683	1,432	20,378	2,301
K613_0145 MT40	14.33	12383/864	2,200	2,000	3,200	10/5	21.4	361	40.8	9,017	1,018	14,173	1,600	20,378	2,301
K613_0145 MT50	14.33	12383/864	2,200	2,000	3,000	10/5	31.4	386	43.6	9,017	1,018	14,173	1,600	20,378	2,301
K613_0160 MT30	15.87	54839/3456	2,200	2,000	3,200	10/5	16.6	338	38.2	9,328	1,053	14,042	1,585	22,562	2,547
K613_0160 MT40	15.87	54839/3456	2,200	2,000	3,200	10/5	20.6	368	41.5	9,328	1,053	14,173	1,600	22,562	2,547
K613_0160 MT50	15.87	54839/3456	2,200	2,000	3,000	10/5	30.6	389	43.9	9,328	1,053	14,173	1,600	22,562	2,547
K613_0170 MT20	17.16	549/32	2,600	2,300	3,600	10/5	9.7	319	36.0	5,811	656	6,392	722	9,119	1,029
K613_0170 MT30	17.16	549/32	2,600	2,300	3,600	10/5	14.5	346	39.0	9,574	1,081	14,173	1,600	23,519	2,655
K613_0170 MT40	17.16	549/32	2,600	2,300	3,500	10/5	18.5	372	42.0	9,574	1,081	14,173	1,600	23,519	2,655
K613_0170 MT50	17.16	549/32	2,500	2,300	3,000	10/5	28.5	390	44.1	9,574	1,081	14,173	1,600	23,519	2,655
K613_0190 MT20	18.99	17019/896	2,600	2,300	3,600	10/5	9.2	331	37.4	6,434	726	7,077	799	10,095	1,140
K613_0190 MT30	18.99	17019/896	2,600	2,300	3,600	10/5	14.0	355	40.0	9,904	1,118	14,173	1,600	25,688	2,900
K613_0190 MT40	18.99	17019/896	2,600	2,300	3,500	10/5	18.0	377	42.5	9,904	1,118	14,173	1,600	25,688	2,900
K613_0190 MT50	18.99	17019/896	2,500	2,300	3,000	10/5	28.0	392	44.2	9,904	1,118	14,173	1,600	25,688	2,900
K613_0220 MT20	21.68	5551/256	2,600	2,300	3,600	10/5	7.3	345	39.0	7,345	829	8,080	912	11,090	1,252
K613_0220 MT30	21.68	5551/256	2,600	2,300	3,600	10/5	12.1	364	41.1	10,351	1,169	14,173	1,600	25,688	2,900
K613_0220 MT40	21.68	5551/256	2,600	2,300	3,500	10/5	16.1	382	43.1	10,351	1,169	14,173	1,600	25,688	2,900
K613_0220 MT50	21.68	5551/256	2,500	2,300	3,000	10/5	26.1	394	44.4	10,351	1,169	14,173	1,600	25,688	2,900

Motor Shaft

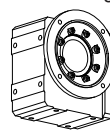
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

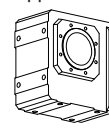
N
Foot Mounted



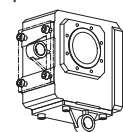
F
Round Flange



G
Tapped Holes



GD
Torque Arm Bracket



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\phi$ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K613 with MT TriAdapt® Motor Adapter Continued Noise Level ≤ 61 dB(A) ⁴⁾															
K613_0240 MT20	24.01	24583/1024	2,600	2,300	3,600	10/5	6.9	354	40.0	8,132	918	8,945	1,010	12,278	1,386
K613_0240 MT30	24.01	24583/1024	2,600	2,300	3,600	10/5	11.7	370	41.8	10,708	1,209	14,173	1,600	25,688	2,900
K613_0240 MT40	24.01	24583/1024	2,600	2,300	3,500	10/5	15.7	385	43.5	10,708	1,209	14,173	1,600	25,688	2,900
K613_0240 MT50	24.01	24583/1024	2,500	2,300	3,000	10/5	25.7	395	44.6	10,708	1,209	14,173	1,600	25,688	2,900
K613_0290 MT20	28.77	29463/1024	3,100	2,800	4,000	10/5	5.1	367	41.4	8,786	992	10,721	1,210	13,916	1,571
K613_0290 MT30	28.77	29463/1024	3,100	2,800	4,000	10/5	9.9	379	42.7	11,374	1,284	14,173	1,600	25,688	2,900
K613_0290 MT40	28.77	29463/1024	3,000	2,800	3,500	10/5	13.9	389	43.9	11,374	1,284	14,173	1,600	25,688	2,900
K613_0290 MT50	28.77	29463/1024	2,500	2,500	3,000	10/5	23.9	396	44.7	11,374	1,284	14,173	1,600	25,688	2,900
K613_0320 MT20	31.86	130479/4096	3,100	2,800	4,000	10/5	4.9	372	42.0	9,727	1,098	11,869	1,340	15,407	1,739
K613_0320 MT30	31.86	130479/4096	3,100	2,800	4,000	10/5	9.7	382	43.2	11,767	1,328	14,173	1,600	25,688	2,900
K613_0320 MT40	31.86	130479/4096	3,000	2,800	3,500	10/5	13.7	391	44.2	11,767	1,328	14,173	1,600	25,688	2,900
K613_0320 MT50	31.86	130479/4096	2,500	2,500	3,000	10/5	23.7	397	44.8	11,767	1,328	14,173	1,600	25,688	2,900
K613_0350 MT20	34.61	35441/1024	3,100	2,800	4,000	10/5	4.1	376	42.5	8,925	1,008	12,838	1,449	16,048	1,812
K613_0350 MT30	34.61	35441/1024	3,100	2,800	4,000	10/5	8.9	385	43.4	12,097	1,366	14,173	1,600	25,688	2,900
K613_0350 MT40	34.61	35441/1024	3,000	2,800	3,500	10/5	12.9	392	44.3	12,097	1,366	14,173	1,600	25,688	2,900
K613_0350 MT50	34.61	35441/1024	2,500	2,500	3,000	10/5	22.9	397	44.8	12,097	1,366	14,173	1,600	25,688	2,900
K613_0380 MT20	38.32	156953/4096	3,100	2,800	4,000	10/5	3.9	380	42.9	9,882	1,116	14,173	1,600	17,767	2,006
K613_0380 MT30	38.32	156953/4096	3,100	2,800	4,000	10/5	8.7	387	43.7	12,514	1,413	14,173	1,600	25,688	2,900
K613_0380 MT40	38.32	156953/4096	3,000	2,800	3,500	10/5	12.7	394	44.4	12,514	1,413	14,173	1,600	25,688	2,900
K613_0380 MT50	38.32	156953/4096	2,500	2,500	3,000	10/5	22.7	398	44.9	12,514	1,413	14,173	1,600	25,688	2,900
K613_0430 MT20	43.11	8967/208	3,100	2,800	4,000	10/5	3.2	384	43.4	9,168	1,035	14,173	1,600	19,048	2,150
K613_0430 MT30	43.11	8967/208	3,100	2,800	4,000	10/5	8.0	390	44.0	12,844	1,450	14,173	1,600	19,048	2,150
K613_0430 MT40	43.11	8967/208	3,000	2,800	3,500	10/5	12.0	395	44.6	12,844	1,450	14,173	1,600	19,048	2,150
K613_0480 MT20	47.73	39711/832	3,100	2,800	4,000	10/5	3.1	387	43.7	10,150	1,146	14,173	1,600	21,089	2,381
K613_0480 MT30	47.73	39711/832	3,100	2,800	4,000	10/5	7.9	392	44.2	12,844	1,450	14,173	1,600	21,089	2,381
K613_0480 MT40	47.73	39711/832	3,000	2,800	3,500	10/5	11.9	396	44.7	12,844	1,450	14,173	1,600	21,089	2,381
K613_0580 MT20	57.55	29463/512	3,100	2,800	4,000	10/5	2.4	391	44.1	9,542	1,077	14,173	1,600	23,893	2,697
K613_0580 MT30	57.55	29463/512	3,100	2,800	4,000	10/5	7.2	394	44.5	12,844	1,450	14,173	1,600	23,893	2,697
K613_0580 MT40	57.55	29463/512	3,000	2,800	3,500	10/5	11.2	397	44.8	12,844	1,450	14,173	1,600	23,893	2,697
K613_0640 MT20	63.71	130479/2048	3,100	2,800	4,000	10/5	2.4	392	44.3	10,565	1,193	14,173	1,600	25,688	2,900
K613_0640 MT30	63.71	130479/2048	3,100	2,800	4,000	10/5	7.2	395	44.6	12,844	1,450	14,173	1,600	25,688	2,900
K613_0640 MT40	63.71	130479/2048	3,000	2,800	3,500	10/5	11.2	397	44.9	12,844	1,450	14,173	1,600	25,688	2,900
K613_0690 MT20	68.77	28609/416	3,100	2,800	4,000	10/5	2.1	393	44.4	9,750	1,101	13,967	1,577	23,278	2,628
K613_0690 MT30	68.77	28609/416	3,100	2,800	4,000	10/5	6.9	396	44.7	11,639	1,314	13,967	1,577	23,278	2,628
K613_0690 MT40	68.77	28609/416	3,000	2,800	3,500	10/5	10.9	398	44.9	11,639	1,314	13,967	1,577	23,278	2,628
K613_0760 MT20	76.14	126697/1664	3,100	2,800	4,000	10/5	2.0	394	44.5	10,794	1,219	14,173	1,600	25,688	2,900
K613_0760 MT30	76.14	126697/1664	3,100	2,800	4,000	10/5	6.8	396	44.7	12,844	1,450	14,173	1,600	25,688	2,900
K613_0760 MT40	76.14	126697/1664	3,000	2,800	3,500	10/5	10.8	398	44.9	12,844	1,450	14,173	1,600	25,688	2,900
K613_0860 MT20	86.18	66185/768	3,100	2,800	4,000	10/5	1.8	395	44.6	8,600	971	10,320	1,165	13,893	1,568
K613_0860 MT30	86.18	66185/768	3,100	2,800	4,000	10/5	6.6	397	44.8	8,600	971	10,320	1,165	13,893	1,568
K613_0950 MT20	95.41	293105/3072	3,100	2,800	4,000	10/5	1.8	396	44.7	9,524	1,075	11,429	1,290	15,382	1,736
K613_0950 MT30	95.41	293105/3072	3,100	2,800	4,000	10/5	6.6	397	44.9	9,524	1,075	11,429	1,290	15,382	1,736

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB			Δφ ¹⁾	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.
K614 with MT TriAdapt® Motor Adapter										Noise Level ≤ 61 dB(A) ⁴⁾					
K614_0840 MT20	83.84	160979/1920	3,100	2,800	4,000	10/6	1.8	395	44.6	8,871	1,001	8,871	1,001	11,088	1,252
K614_0930 MT20	92.83	712907/7680	3,100	2,800	4,000	10/6	1.7	396	44.7	9,821	1,109	9,821	1,109	12,277	1,386
K614_1110 MT20	111.3	284809/2560	3,100	2,800	4,000	10/6	1.6	397	44.8	11,132	1,257	11,132	1,257	13,915	1,571
K614_1230 MT20	123.2	1261297/10240	3,100	2,800	4,000	10/6	1.6	397	44.9	12,325	1,391	12,325	1,391	15,406	1,739
K614_1340 MT20	133.8	1027789/7680	3,100	2,800	4,000	10/6	1.6	398	44.9	12,837	1,449	12,837	1,449	16,046	1,812
K614_1480 MT20	148.2	4551637/30720	3,100	2,800	4,000	10/6	1.5	398	44.9	12,844	1,450	14,173	1,600	17,766	2,006
K614_1670 MT20	166.7	86681/520	3,100	2,800	4,000	10/6	1.5	398	45.0	12,844	1,450	14,173	1,600	19,047	2,150
K614_1850 MT20	184.6	383873/2080	3,100	2,800	4,000	10/6	1.5	399	45.0	12,844	1,450	14,173	1,600	21,087	2,381
K614_2230 MT20	222.5	284809/1280	3,100	2,800	4,000	10/6	1.4	399	45.0	12,844	1,450	14,173	1,600	23,891	2,697
K614_2460 MT20	246.3	1261297/5120	3,100	2,800	4,000	10/6	1.4	399	45.0	12,844	1,450	14,173	1,600	25,688	2,900
K614_2660 MT20	265.9	829661/3120	3,100	2,800	4,000	10/6	1.4	399	45.0	11,639	1,314	13,967	1,577	23,278	2,628
K614_2940 MT20	294.4	3674213/12480	3,100	2,800	4,000	10/6	1.4	399	45.1	12,844	1,450	14,173	1,600	25,688	2,900
K614_3330 MT20	333.2	383873/1152	3,100	2,800	4,000	10/6	1.4	399	45.1	8,600	971	10,320	1,165	13,892	1,568
K614_3690 MT20	368.9	1700009/4608	3,100	2,800	4,000	10/6	1.4	399	45.1	9,524	1,075	11,429	1,290	15,380	1,736

K614 with MT TriAdapt® Motor Adapter

Noise Level ≤ 61 dB(A) ⁴⁾

K614_0840 MT20	83.84	160979/1920	3,100	2,800	4,000	10/6	1.8	395	44.6	8,871	1,001	8,871	1,001	11,088	1,252
K614_0930 MT20	92.83	712907/7680	3,100	2,800	4,000	10/6	1.7	396	44.7	9,821	1,109	9,821	1,109	12,277	1,386
K614_1110 MT20	111.3	284809/2560	3,100	2,800	4,000	10/6	1.6	397	44.8	11,132	1,257	11,132	1,257	13,915	1,571
K614_1230 MT20	123.2	1261297/10240	3,100	2,800	4,000	10/6	1.6	397	44.9	12,325	1,391	12,325	1,391	15,406	1,739
K614_1340 MT20	133.8	1027789/7680	3,100	2,800	4,000	10/6	1.6	398	44.9	12,837	1,449	12,837	1,449	16,046	1,812
K614_1480 MT20	148.2	4551637/30720	3,100	2,800	4,000	10/6	1.5	398	44.9	12,844	1,450	14,173	1,600	17,766	2,006
K614_1670 MT20	166.7	86681/520	3,100	2,800	4,000	10/6	1.5	398	45.0	12,844	1,450	14,173	1,600	19,047	2,150
K614_1850 MT20	184.6	383873/2080	3,100	2,800	4,000	10/6	1.5	399	45.0	12,844	1,450	14,173	1,600	21,087	2,381
K614_2230 MT20	222.5	284809/1280	3,100	2,800	4,000	10/6	1.4	399	45.0	12,844	1,450	14,173	1,600	23,891	2,697
K614_2460 MT20	246.3	1261297/5120	3,100	2,800	4,000	10/6	1.4	399	45.0	12,844	1,450	14,173	1,600	25,688	2,900
K614_2660 MT20	265.9	829661/3120	3,100	2,800	4,000	10/6	1.4	399	45.0	11,639	1,314	13,967	1,577	23,278	2,628
K614_2940 MT20	294.4	3674213/12480	3,100	2,800	4,000	10/6	1.4	399	45.1	12,844	1,450	14,173	1,600	25,688	2,900
K614_3330 MT20	333.2	383873/1152	3,100	2,800	4,000	10/6	1.4	399	45.1	8,600	971	10,320	1,165	13,892	1,568
K614_3690 MT20	368.9	1700009/4608	3,100	2,800	4,000	10/6	1.4	399	45.1	9,524	1,075	11,429	1,290	15,380	1,736

K713 with MT TriAdapt® Motor Adapter

Continued Next Page

Noise Level ≤ 59 dB(A) ⁴⁾

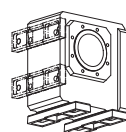
K713_0076 MT30	7.563	19845/2624	1,700	1,600	2,700	10/5	71.2	295	33.4	6,084	687	6,693	756	12,169	1,374
K713_0076 MT40	7.563	19845/2624	1,700	1,600	2,700	10/5	75.2	428	48.3	9,837	1,111	9,837	1,111	12,297	1,388
K713_0076 MT50	7.563	19845/2624	1,700	1,600	2,700	10/5	85.2	590	66.7	11,924	1,346	18,798	2,122	23,498	2,653
K713_0084 MT30	8.373	87885/10496	1,700	1,600	2,700	10/5	66.3	331	37.4	6,736	760	7,410	836	13,472	1,521
K713_0084 MT40	8.373	87885/10496	1,700	1,600	2,700	10/5	70.3	463	52.2	10,891	1,230	10,891	1,230	13,614	1,537
K713_0084 MT50	8.373	87885/10496	1,700	1,600	2,700	10/5	80.3	611	68.9	12,336	1,393	20,812	2,349	26,014	2,937
K713_0092 MT30	9.188	147/16	1,700	1,600	2,700	10/5	54.4	365	41.2	7,392	834	8,131	918	14,515	1,639
K713_0092 MT40	9.188	147/16	1,700	1,600	2,700	10/5	58.4	492	55.6	11,612	1,311	11,612	1,311	14,515	1,639
K713_0092 MT50	9.188	147/16	1,700	1,600	2,700	10/5	68.4	627	70.7	12,724	1,436	21,495	2,427	27,736	3,131
K713_0100 MT30	10.17	651/64	1,700	1,600	2,700	10/5	51.2	401	45.3	8,183	924	9,002	1,016	16,069	1,814
K713_0100 MT40	10.17	651/64	1,700	1,600	2,700	10/5	55.2	523	59.0	12,855	1,451	12,855	1,451	16,069	1,814
K713_0100 MT50	10.17	651/64	1,700	1,600	2,700	10/5	65.2	642	72.4	13,163	1,486	22,237	2,510	30,706	3,467
K713_0120 MT30	11.78	23373/1984	2,000	1,900	3,000	10/5	39.2	452	51.0	9,478	1,070	10,425	1,177	17,928	2,024
K713_0120 MT40	11.78	23373/1984	2,000	1,900	3,000	10/5	43.2	562	63.4	13,823	1,561	14,342	1,619	17,928	2,024
K713_0120 MT50	11.78	23373/1984	2,000	1,900	3,000	10/5	53.2	660	74.5	13,823	1,561	23,031	2,600	34,258	3,868
K713_0130 MT30	13.04	3339/256	2,000	1,900	3,000	10/5	37.2	485	54.8	10,493	1,185	11,542	1,303	19,849	2,241
K713_0130 MT40	13.04	3339/256	2,000	1,900	3,000	10/5	41.2	585	66.1	14,300	1,614	15,879	1,793	19,849	2,241
K713_0130 MT50	13.04	3339/256	2,000	1,900	3,000	10/5	51.2	670	75.6	14,300	1,614	23,031	2,600	37,928	4,282
K713_0150 MT30	14.80	1421/96	2,000	1,900	3,000	10/5	29.8	523	59.1	11,908	1,344	13,099	1,479	21,761	2,457
K713_0150 MT40	14.80	1421/96	2,000	1,900	3,000	10/5	33.8	611	68.9	14,916	1,684	17,409	1,965	21,761	2,457
K713_0150 MT50	14.80	1421/96	2,000	1,900	3,000	10/5	43.8	680	76.8	14,916	1,684	23,031	2,600	41,582	4,694
K713_0165 MT30	16.39	6293/384	2,000	1,900	3,000	10/5	28.5	551	62.2	13,184	1,488	14,502	1,637	24,092	2,720
K713_0165 MT40	16.39	6293/384	2,000	1,900	3,000	10/5	32.5	628	70.9	15,431	1,742	19,274	2,176	24,092	2,720
K713_0165 MT50	16.39	6293/384	2,000	1,900	3,000	10/5	42.5	687	77.6	15,431	1,742	23,031	2,600	42,518	4,800

Motor Shaft

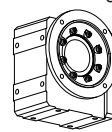
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

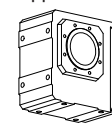
N
Foot Mounted



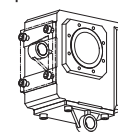
F
Round Flange



G
Tapped Holes



GD
Torque Arm Bracket



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π _{1DBH}	Π _{1DBV}	Π _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K713 with MT TriAdapt® Motor Adapter Continued										Noise Level ≤ 59 dB(A) ⁴⁾					
K713_0185 MT30	18.28	26901/1472	2,400	2,200	3,400	10/5	23.8	577	65.2	14,702	1,660	16,172	1,826	25,811	2,914
K713_0185 MT40	18.28	26901/1472	2,400	2,200	3,400	10/5	27.8	644	72.7	16,001	1,806	20,649	2,331	25,811	2,914
K713_0185 MT50	18.28	26901/1472	2,400	2,200	3,000	10/5	37.8	693	78.2	16,001	1,806	23,031	2,600	42,518	4,800
K713_0200 MT30	20.23	119133/5888	2,400	2,200	3,400	10/5	23.0	599	67.6	16,277	1,838	17,905	2,021	28,576	3,226
K713_0200 MT40	20.23	119133/5888	2,400	2,200	3,400	10/5	27.0	657	74.1	16,554	1,869	22,861	2,581	28,576	3,226
K713_0200 MT50	20.23	119133/5888	2,400	2,200	3,000	10/5	37.0	698	78.8	16,554	1,869	23,031	2,600	42,518	4,800
K713_0230 MT30	22.74	14553/640	2,400	2,200	3,400	10/5	18.8	621	70.1	16,193	1,828	20,122	2,272	30,795	3,476
K713_0230 MT40	22.74	14553/640	2,400	2,200	3,400	10/5	22.8	669	75.5	17,211	1,943	23,031	2,600	30,795	3,476
K713_0230 MT50	22.74	14553/640	2,400	2,200	3,000	10/5	32.8	702	79.3	17,211	1,943	23,031	2,600	42,518	4,800
K713_0250 MT30	25.18	64449/2560	2,400	2,200	3,400	10/5	18.2	637	71.9	17,804	2,010	22,278	2,515	34,094	3,849
K713_0250 MT40	25.18	64449/2560	2,400	2,200	3,400	10/5	22.2	677	76.5	17,804	2,010	23,031	2,600	34,094	3,849
K713_0250 MT50	25.18	64449/2560	2,400	2,200	3,000	10/5	32.2	705	79.6	17,804	2,010	23,031	2,600	42,518	4,800
K713_0290 MT30	29.29	7497/256	2,900	2,600	3,800	10/5	14.5	656	74.1	17,161	1,937	23,031	2,600	37,773	4,264
K713_0290 MT40	29.29	7497/256	2,900	2,600	3,500	10/5	18.5	688	77.6	18,725	2,114	23,031	2,600	37,773	4,264
K713_0290 MT50	29.29	7497/256	2,500	2,500	3,000	10/5	28.5	709	80.0	18,725	2,114	23,031	2,600	42,518	4,800
K713_0320 MT30	32.42	33201/1024	2,900	2,600	3,800	10/5	14.2	667	75.3	19,000	2,145	23,031	2,600	41,821	4,721
K713_0320 MT40	32.42	33201/1024	2,900	2,600	3,500	10/5	18.2	693	78.3	19,371	2,187	23,031	2,600	41,821	4,721
K713_0320 MT50	32.42	33201/1024	2,500	2,500	3,000	10/5	28.2	711	80.2	19,371	2,187	23,031	2,600	42,518	4,800
K713_0350 MT30	35.44	567/16	2,900	2,600	3,800	10/5	12.2	675	76.2	17,666	1,994	23,031	2,600	42,518	4,800
K713_0350 MT40	35.44	567/16	2,900	2,600	3,500	10/5	16.2	697	78.7	19,954	2,253	23,031	2,600	42,518	4,800
K713_0350 MT50	35.44	567/16	2,500	2,500	3,000	10/5	26.2	712	80.4	19,954	2,253	23,031	2,600	42,518	4,800
K713_0390 MT30	39.23	2511/64	2,900	2,600	3,800	10/5	12.0	683	77.1	19,558	2,208	23,031	2,600	42,518	4,800
K713_0390 MT40	39.23	2511/64	2,900	2,600	3,500	10/5	16.0	701	79.2	20,642	2,330	23,031	2,600	42,518	4,800
K713_0390 MT50	39.23	2511/64	2,500	2,500	3,000	10/5	26.0	713	80.5	20,642	2,330	23,031	2,600	42,518	4,800
K713_0450 MT30	45.05	37485/832	2,900	2,600	3,800	10/5	10.2	691	78.0	18,248	2,060	23,031	2,600	42,518	4,800
K713_0450 MT40	45.05	37485/832	2,900	2,600	3,500	10/5	14.2	705	79.6	21,259	2,400	23,031	2,600	42,518	4,800
K713_0450 MT50	45.05	37485/832	2,500	2,500	3,000	10/5	24.2	715	80.7	21,259	2,400	23,031	2,600	42,518	4,800
K713_0500 MT30	49.88	166005/3328	2,900	2,600	3,800	10/5	10.1	696	78.6	20,203	2,281	23,031	2,600	42,518	4,800
K713_0500 MT40	49.88	166005/3328	2,900	2,600	3,500	10/5	14.1	708	79.9	21,259	2,400	23,031	2,600	42,518	4,800
K713_0500 MT50	49.88	166005/3328	2,500	2,500	3,000	10/5	24.1	715	80.8	21,259	2,400	23,031	2,600	42,518	4,800
K713_0590 MT30	58.57	7497/128	2,900	2,600	3,800	10/5	8.7	702	79.3	19,023	2,148	23,031	2,600	42,518	4,800
K713_0590 MT40	58.57	7497/128	2,900	2,600	3,500	10/5	12.7	711	80.3	21,259	2,400	23,031	2,600	42,518	4,800
K713_0590 MT50	58.57	7497/128	2,500	2,500	3,000	10/5	22.7	716	80.9	21,259	2,400	23,031	2,600	42,518	4,800
K713_0650 MT30	64.85	33201/512	2,900	2,600	3,800	10/5	8.6	705	79.6	21,061	2,378	23,031	2,600	42,518	4,800
K713_0650 MT40	64.85	33201/512	2,900	2,600	3,500	10/5	12.6	712	80.4	21,259	2,400	23,031	2,600	42,518	4,800
K713_0650 MT50	64.85	33201/512	2,500	2,500	3,000	10/5	22.6	717	80.9	21,259	2,400	23,031	2,600	42,518	4,800
K713_0710 MT30	71.20	4557/64	2,900	2,600	3,800	10/5	7.9	707	79.9	19,244	2,173	23,031	2,600	29,355	3,314
K713_0710 MT40	71.20	4557/64	2,900	2,600	3,500	10/5	11.9	713	80.5	19,244	2,173	23,031	2,600	29,355	3,314
K713_0790 MT30	78.83	20181/256	2,900	2,600	3,800	10/5	7.8	710	80.1	21,259	2,400	23,031	2,600	32,500	3,669
K713_0790 MT40	78.83	20181/256	2,900	2,600	3,500	10/5	11.8	714	80.7	21,259	2,400	23,031	2,600	32,500	3,669
K713_0890 MT30	89.00	22785/256	2,900	2,600	3,800	10/5	7.3	712	80.3	14,803	1,671	17,764	2,005	29,607	3,342
K713_0890 MT40	89.00	22785/256	2,900	2,600	3,500	10/5	11.3	715	80.8	14,803	1,671	17,764	2,005	29,607	3,342
K713_0990 MT30	98.54	100905/1024	2,900	2,600	3,800	10/5	7.2	713	80.5	16,394	1,851	19,672	2,221	32,787	3,701
K713_0990 MT40	98.54	100905/1024	2,900	2,600	3,500	10/5	11.2	716	80.8	16,394	1,851	19,672	2,221	32,787	3,701

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N} (n _{1DBH}) ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm

K714 with MT TriAdapt® Motor Adapter

Noise Level ≤ 59 dB(A) ⁴⁾

K714_0890 MT30	89.06	227997/2560	2,900	2,600	3,800	10/6	7.3	712	80.3	21,259	2,400	23,031	2,600	30,792	3,476
K714_0990 MT30	98.60	1009701/10240	2,900	2,600	3,800	10/6	7.2	713	80.5	21,259	2,400	23,031	2,600	34,091	3,849
K714_1130 MT20	113.2	72471/640	2,900	2,600	3,800	10/6	1.9	712	80.3	11,715	1,323	11,715	1,323	14,644	1,653
K714_1150 MT30	114.7	117453/1024	2,900	2,600	3,800	10/6	7.0	714	80.7	21,259	2,400	23,031	2,600	37,770	4,264
K714_1250 MT20	125.4	320943/2560	2,900	2,600	3,800	10/6	1.9	713	80.5	12,970	1,464	12,970	1,464	16,213	1,830
K714_1270 MT30	127.0	520149/4096	2,900	2,600	3,800	10/6	7.0	715	80.8	21,259	2,400	23,031	2,600	41,817	4,721
K714_1370 MT20	137.0	5481/40	2,900	2,600	3,800	10/6	1.8	714	80.6	13,615	1,537	13,615	1,537	17,018	1,921
K714_1390 MT30	138.8	8883/64	2,900	2,600	3,800	10/6	6.9	716	80.8	21,259	2,400	23,031	2,600	42,518	4,800
K714_1520 MT20	151.7	24273/160	2,900	2,600	3,800	10/6	1.8	715	80.7	15,073	1,702	15,073	1,702	18,842	2,127
K714_1540 MT30	153.7	39339/256	2,900	2,600	3,800	10/6	6.8	716	80.9	21,259	2,400	23,031	2,600	42,518	4,800
K714_1740 MT20	174.2	72471/416	2,900	2,600	3,800	10/6	1.6	716	80.8	16,434	1,855	16,434	1,855	20,542	2,319
K714_1760 MT30	176.5	587265/3328	2,900	2,600	3,800	10/6	6.7	717	80.9	21,259	2,400	23,031	2,600	42,518	4,800
K714_1930 MT20	192.9	320943/1664	2,900	2,600	3,800	10/6	1.6	716	80.9	18,194	2,054	18,194	2,054	22,743	2,567
K714_1950 MT30	195.4	2600745/13312	2,900	2,600	3,800	10/6	6.7	717	81.0	21,259	2,400	23,031	2,600	42,518	4,800
K714_2260 MT20	226.5	72471/320	2,900	2,600	3,800	10/6	1.5	717	81.0	17,798	2,009	20,216	2,282	25,271	2,853
K714_2290 MT30	229.4	117453/512	2,900	2,600	3,800	10/6	6.6	718	81.0	21,259	2,400	23,031	2,600	42,518	4,800
K714_2510 MT20	250.7	320943/1280	2,900	2,600	3,800	10/6	1.5	717	81.0	19,705	2,225	22,382	2,527	27,978	3,159
K714_2540 MT30	254.0	520149/2048	2,900	2,600	3,800	10/6	6.6	718	81.1	21,259	2,400	23,031	2,600	42,518	4,800
K714_2750 MT20	275.3	44051/160	2,900	2,600	3,800	10/6	1.5	718	81.0	18,362	2,073	23,031	2,600	29,352	3,314
K714_3050 MT20	304.8	195083/640	2,900	2,600	3,800	10/6	1.5	718	81.0	20,330	2,295	23,031	2,600	32,497	3,669
K714_3440 MT20	344.1	44051/128	2,900	2,600	3,800	10/6	1.4	718	81.1	14,803	1,671	17,764	2,005	29,607	3,342
K714_3810 MT20	381.0	195083/512	2,900	2,600	3,800	10/6	1.4	718	81.1	16,394	1,851	19,672	2,221	32,787	3,701

K813 with MT TriAdapt® Motor Adapter Continued Next Page

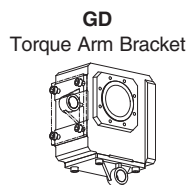
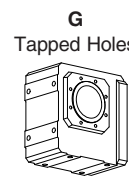
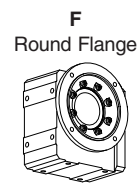
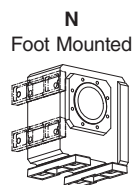
Noise Level ≤ 65 dB(A) ⁴⁾

K813_0074 MT30	7.445	3127/420	1,600	1,500	2,600	10/5	161.2	350	39.5	5,989	676	6,588	744	11,979	1,352
K813_0074 MT40	7.445	3127/420	1,600	1,500	2,600	10/5	165.2	564	63.7	10,163	1,147	10,163	1,147	12,704	1,434
K813_0074 MT50	7.445	3127/420	1,600	1,500	2,600	10/5	175.2	900	101.6	19,420	2,192	19,420	2,192	24,275	2,740
K813_0082 MT30	8.243	96937/11760	1,600	1,500	2,600	10/5	142.9	404	45.6	6,631	749	7,294	823	13,263	1,497
K813_0082 MT40	8.243	96937/11760	1,600	1,500	2,600	10/5	146.9	628	70.8	11,252	1,270	11,252	1,270	14,065	1,588
K813_0082 MT50	8.243	96937/11760	1,600	1,500	2,600	10/5	156.9	949	107.2	21,242	2,398	21,502	2,427	26,877	3,034
K813_0093 MT30	9.284	11977/1290	1,600	1,500	2,600	10/5	115.5	471	53.2	7,469	843	8,216	927	14,938	1,686
K813_0093 MT40	9.284	11977/1290	1,600	1,500	2,600	10/5	119.5	702	79.2	12,266	1,385	12,266	1,385	15,333	1,731
K813_0093 MT50	9.284	11977/1290	1,600	1,500	2,600	10/5	129.5	1,001	113.0	22,101	2,495	23,439	2,646	29,299	3,308
K813_0105 MT30	10.28	53041/5160	1,600	1,500	2,600	10/5	103.7	533	60.1	8,269	934	9,096	1,027	16,539	1,867
K813_0105 MT40	10.28	53041/5160	1,600	1,500	2,600	10/5	107.7	763	86.2	13,581	1,533	13,581	1,533	16,976	1,916
K813_0105 MT50	10.28	53041/5160	1,600	1,500	2,600	10/5	117.7	1,039	117.3	22,864	2,581	25,951	2,930	32,439	3,662
K813_0120 MT30	11.91	6608/555	1,900	1,800	2,900	10/5	80.6	624	70.4	9,578	1,081	10,536	1,189	18,938	2,138
K813_0120 MT40	11.91	6608/555	1,900	1,800	2,900	10/5	84.6	848	95.7	15,150	1,710	15,150	1,710	18,938	2,138
K813_0120 MT50	11.91	6608/555	1,900	1,800	2,900	10/5	94.6	1,086	122.6	24,011	2,711	28,950	3,268	36,188	4,085

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K813 with MT TriAdapt® Motor Adapter Continued Next Page										Noise Level ≤ 65 dB(A) ⁴⁾					
K813_0130 MT30	13.18	7316/555	1,900	1,800	2,900	10/5	73.4	687	77.6	10,605	1,197	11,665	1,317	20,967	2,367
K813_0130 MT40	13.18	7316/555	1,900	1,800	2,900	10/5	77.4	901	101.8	16,774	1,894	16,774	1,894	20,967	2,367
K813_0130 MT50	13.18	7316/555	1,900	1,800	2,900	10/5	87.4	1,113	125.7	24,840	2,804	32,053	3,619	40,066	4,523
K813_0150 MT30	14.84	9499/640	1,900	1,800	2,900	10/5	59.2	760	85.8	11,940	1,348	13,134	1,483	22,766	2,570
K813_0150 MT40	14.84	9499/640	1,900	1,800	2,900	10/5	63.2	958	108.2	18,213	2,056	18,213	2,056	22,766	2,570
K813_0150 MT50	14.84	9499/640	1,900	1,800	2,900	10/5	73.2	1,140	128.7	25,842	2,917	34,803	3,929	43,504	4,911
K813_0165 MT30	16.43	42067/2560	1,900	1,800	2,900	10/5	54.5	819	92.5	13,219	1,492	14,541	1,642	25,205	2,845
K813_0165 MT40	16.43	42067/2560	1,900	1,800	2,900	10/5	58.5	1,001	113.1	20,164	2,276	20,164	2,276	25,205	2,845
K813_0165 MT50	16.43	42067/2560	1,900	1,800	2,900	10/5	68.5	1,159	130.9	26,734	3,018	38,531	4,350	48,164	5,437
K813_0175 MT30	17.33	30149/1740	2,300	2,100	3,300	10/5	48.4	849	95.8	13,939	1,574	15,333	1,731	25,932	2,928
K813_0175 MT40	17.33	30149/1740	2,300	2,100	3,300	10/5	52.4	1,022	115.4	20,746	2,342	20,746	2,342	25,932	2,928
K813_0175 MT50	17.33	30149/1740	2,300	2,100	3,000	10/5	62.4	1,168	131.8	27,211	3,072	39,642	4,475	49,553	5,594
K813_0190 MT30	19.18	133517/6960	2,300	2,100	3,300	10/5	45.1	902	101.8	15,432	1,742	16,976	1,916	28,710	3,241
K813_0190 MT40	19.18	133517/6960	2,300	2,100	3,300	10/5	49.1	1,058	119.4	22,968	2,593	22,968	2,593	28,710	3,241
K813_0190 MT50	19.18	133517/6960	2,300	2,100	3,000	10/5	59.1	1,183	133.5	28,149	3,178	41,190	4,650	54,861	6,193
K813_0230 MT30	23.04	31801/1380	2,300	2,100	3,300	10/5	33.8	987	111.4	18,539	2,093	20,392	2,302	32,546	3,674
K813_0230 MT40	23.04	31801/1380	2,300	2,100	3,300	10/5	37.8	1,111	125.4	26,037	2,939	26,037	2,939	32,546	3,674
K813_0230 MT50	23.04	31801/1380	2,300	2,100	3,000	10/5	47.8	1,203	135.8	29,924	3,378	41,190	4,650	62,192	7,021
K813_0260 MT30	25.51	140833/5520	2,300	2,100	3,300	10/5	31.9	1,027	115.9	20,525	2,317	22,577	2,549	36,033	4,068
K813_0260 MT40	25.51	140833/5520	2,300	2,100	3,300	10/5	35.9	1,134	128.1	28,827	3,254	28,827	3,254	36,033	4,068
K813_0260 MT50	25.51	140833/5520	2,300	2,100	3,000	10/5	45.9	1,212	136.8	30,956	3,495	41,190	4,650	68,856	7,773
K813_0290 MT30	29.25	7021/240	2,800	2,500	3,600	10/5	24.9	1,073	121.2	20,833	2,352	25,888	2,923	39,618	4,473
K813_0290 MT40	29.25	7021/240	2,800	2,500	3,500	10/5	28.9	1,161	131.0	31,694	3,578	31,694	3,578	39,618	4,473
K813_0290 MT50	29.25	7021/240	2,500	2,500	3,000	10/5	38.9	1,221	137.9	32,401	3,658	41,190	4,650	74,407	8,400
K813_0320 MT30	32.39	31093/960	2,800	2,500	3,600	10/5	23.7	1,102	124.4	23,065	2,604	28,662	3,236	43,863	4,952
K813_0320 MT40	32.39	31093/960	2,800	2,500	3,500	10/5	27.7	1,176	132.8	33,519	3,784	35,091	3,961	43,863	4,952
K813_0320 MT50	32.39	31093/960	2,500	2,500	3,000	10/5	37.7	1,227	138.5	33,519	3,784	41,190	4,650	74,407	8,400
K813_0360 MT30	36.14	2891/80	2,800	2,500	3,600	10/5	19.4	1,129	127.4	21,177	2,391	31,980	3,610	46,613	5,262
K813_0360 MT40	36.14	2891/80	2,800	2,500	3,500	10/5	23.4	1,191	134.4	34,766	3,925	37,290	4,210	46,613	5,262
K813_0360 MT50	36.14	2891/80	2,500	2,500	3,000	10/5	33.4	1,232	139.1	34,766	3,925	41,190	4,650	74,407	8,400
K813_0400 MT30	40.01	12803/320	2,800	2,500	3,600	10/5	18.6	1,150	129.8	23,446	2,647	35,405	3,997	51,606	5,826
K813_0400 MT40	40.01	12803/320	2,800	2,500	3,500	10/5	22.6	1,201	135.6	35,965	4,060	41,190	4,650	51,606	5,826
K813_0400 MT50	40.01	12803/320	2,500	2,500	3,000	10/5	32.6	1,236	139.5	35,965	4,060	41,190	4,650	74,407	8,400
K813_0440 MT30	44.25	177/4	2,800	2,500	3,600	10/5	15.5	1,167	131.8	22,059	2,490	39,158	4,421	54,814	6,188
K813_0440 MT40	44.25	177/4	2,800	2,500	3,500	10/5	19.5	1,210	136.6	37,194	4,199	41,190	4,650	54,814	6,188
K813_0440 MT50	44.25	177/4	2,500	2,500	3,000	10/5	29.5	1,239	139.8	37,194	4,199	41,190	4,650	54,814	6,188
K813_0490 MT30	48.99	5487/112	2,800	2,500	3,600	10/5	15.0	1,182	133.4	24,422	2,757	41,190	4,650	60,687	6,851
K813_0490 MT40	48.99	5487/112	2,800	2,500	3,500	10/5	19.0	1,218	137.5	37,204	4,200	41,190	4,650	60,687	6,851
K813_0490 MT50	48.99	5487/112	2,500	2,500	3,000	10/5	29.0	1,241	140.1	37,204	4,200	41,190	4,650	60,687	6,851
K813_0590 MT30	59.08	42539/720	2,800	2,500	3,600	10/5	11.8	1,203	135.8	22,721	2,565	41,190	4,650	68,590	7,743
K813_0590 MT40	59.08	42539/720	2,800	2,500	3,500	10/5	15.8	1,228	138.7	37,204	4,200	41,190	4,650	68,590	7,743
K813_0590 MT50	59.08	42539/720	2,500	2,500	3,000	10/5	25.8	1,245	140.5	37,204	4,200	41,190	4,650	68,590	7,743

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n _{12B} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N(n1DBH)} ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data

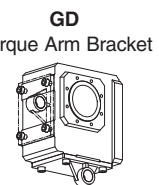
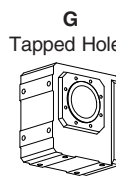
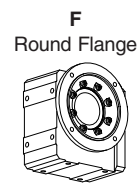
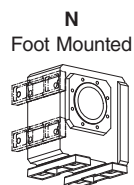


Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂	Output Torque											
			Maximum						Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}							
			Continuous	Cyclic																
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB				in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm				
K813 with MT TriAdapt® Motor Adapter Continued															Noise Level ≤ 65 dB(A) ⁴⁾					
K813_0650 MT30	65.41	188387/2880	2,800	2,500	3,600	10/5	11.5	1,212	136.8	25,155	2,840	41,190	4,650	74,407	8,400					
K813_0650 MT40	65.41	188387/2880	2,800	2,500	3,500	10/5	15.5	1,233	139.2	37,204	4,200	41,190	4,650	74,407	8,400					
K813_0650 MT50	65.41	188387/2880	2,500	2,500	3,000	10/5	25.5	1,246	140.7	37,204	4,200	41,190	4,650	74,407	8,400					
K813_0720 MT30	71.70	10325/144	2,800	2,500	3,600	10/5	10.1	1,218	137.5	23,288	2,629	38,322	4,326	63,869	7,210					
K813_0720 MT40	71.70	10325/144	2,800	2,500	3,500	10/5	14.1	1,236	139.5	31,935	3,605	38,322	4,326	63,869	7,210					
K813_0720 MT50	71.70	10325/144	2,500	2,500	3,000	10/5	24.1	1,247	140.8	31,935	3,605	38,322	4,326	63,869	7,210					
K813_0790 MT30	79.38	45725/576	2,800	2,500	3,600	10/5	9.9	1,225	138.2	25,783	2,911	41,190	4,650	70,731	7,985					
K813_0790 MT40	79.38	45725/576	2,800	2,500	3,500	10/5	13.9	1,239	139.9	35,365	3,992	41,190	4,650	70,731	7,985					
K813_0790 MT50	79.38	45725/576	2,500	2,500	3,000	10/5	23.9	1,248	140.9	35,365	3,992	41,190	4,650	70,731	7,985					
K813_0880 MT30	87.76	7021/80	2,800	2,500	3,600	10/5	8.8	1,229	138.8	23,753	2,682	28,945	3,268	36,182	4,085					
K813_0880 MT40	87.76	7021/80	2,800	2,500	3,500	10/5	12.8	1,241	140.1	24,838	2,804	28,945	3,268	36,182	4,085					
K813_0970 MT30	97.17	31093/320	2,800	2,500	3,600	10/5	8.7	1,234	139.3	26,298	2,969	32,047	3,618	40,058	4,522					
K813_0970 MT40	97.17	31093/320	2,800	2,500	3,500	10/5	12.7	1,243	140.4	27,506	3,105	32,047	3,618	40,058	4,522					
K814 with MT TriAdapt® Motor Adapter															Noise Level ≤ 65 dB(A) ⁴⁾					
K814_0670 MT40	66.83	38763/580	2,800	2,500	3,500	10/6	14.5	1,234	139.3	37,204	4,200	39,644	4,476	49,555	5,594					
K814_0740 MT40	73.99	1201653/16240	2,800	2,500	3,500	10/6	14.3	1,237	139.6	37,204	4,200	41,190	4,650	54,864	6,194					
K814_0890 MT40	88.89	40887/460	2,800	2,500	3,500	10/6	13.5	1,242	140.2	37,204	4,200	41,190	4,650	62,195	7,021					
K814_0980 MT40	98.41	181071/1840	2,800	2,500	3,500	10/6	13.4	1,244	140.4	37,204	4,200	41,190	4,650	68,859	7,774					
K814_1130 MT40	112.8	9027/80	2,800	2,500	3,500	10/6	12.9	1,246	140.6	37,204	4,200	41,190	4,650	74,407	8,400					
K814_1150 MT30	114.6	329987/2880	2,800	2,500	3,600	10/6	7.7	1,239	139.8	29,076	3,282	31,692	3,578	39,615	4,472					
K814_1250 MT40	124.9	279837/2240	2,800	2,500	3,500	10/6	12.8	1,247	140.8	37,204	4,200	41,190	4,650	74,407	8,400					
K814_1270 MT30	126.9	1461371/11520	2,800	2,500	3,600	10/6	7.7	1,241	140.1	32,191	3,634	35,087	3,961	43,859	4,951					
K814_1390 MT40	139.4	11151/80	2,800	2,500	3,500	10/6	12.5	1,248	140.9	37,204	4,200	41,190	4,650	74,407	8,400					
K814_1420 MT30	141.5	135877/960	2,800	2,500	3,600	10/6	7.4	1,243	140.4	30,138	3,402	37,287	4,209	46,608	5,262					
K814_1540 MT40	154.3	49383/320	2,800	2,500	3,500	10/6	12.5	1,249	141.0	37,204	4,200	41,190	4,650	74,407	8,400					
K814_1570 MT30	156.7	601741/3840	2,800	2,500	3,600	10/6	7.3	1,245	140.6	33,367	3,767	41,190	4,650	51,602	5,825					
K814_1710 MT40	170.7	4779/28	2,800	2,500	3,500	10/6	12.3	1,249	141.0	37,204	4,200	41,190	4,650	54,816	6,188					
K814_1730 MT30	173.3	2773/16	2,800	2,500	3,600	10/6	7.1	1,246	140.7	31,904	3,602	41,190	4,650	54,810	6,188					
K814_1890 MT40	189.0	148149/784	2,800	2,500	3,500	10/6	12.2	1,250	141.1	37,204	4,200	41,190	4,650	60,690	6,851					
K814_1920 MT30	191.9	85963/448	2,800	2,500	3,600	10/6	7.1	1,247	140.8	35,323	3,988	41,190	4,650	60,682	6,851					
K814_2280 MT40	227.9	18231/80	2,800	2,500	3,500	10/6	12.0	1,251	141.2	37,204	4,200	41,190	4,650	68,593	7,744					
K814_2310 MT30	231.4	1999333/8640	2,800	2,500	3,600	10/6	6.9	1,249	141.0	33,726	3,807	41,190	4,650	68,584	7,743					
K814_2520 MT40	252.3	565161/2240	2,800	2,500	3,500	10/6	12.0	1,251	141.2	37,204	4,200	41,190	4,650	74,407	8,400					
K814_2560 MT30	256.2	8854189/34560	2,800	2,500	3,600	10/6	6.9	1,250	141.1	37,204	4,200	41,190	4,650	74,407	8,400					
K814_2770 MT40	276.6	4425/16	2,800	2,500	3,500	10/6	11.9	1,251	141.2	31,935	3,605	38,322	4,326	63,869	7,210					
K814_2810 MT30	280.8	485275/1728	2,800	2,500	3,600	10/6	6.8	1,250	141.1	31,935	3,605	38,322	4,326	63,869	7,210					
K814_3060 MT40	306.2	137175/448	2,800	2,500	3,500	10/6	11.9	1,251	141.3	35,365	3,992	41,190	4,650	70,731	7,985					
K814_3110 MT30	310.9	2149075/6912	2,800	2,500	3,600	10/6	6.8	1,250	141.2	35,365	3,992	41,190	4,650	70,731	7,985					

Motor Shaft

Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



Part Number	Reducer Ratio i		Input RPM			Backlash arcmins $\Delta\varphi$ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum							Nominal ²⁾ T _{2N} ≤ 2000 RPM		Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}	
			Continuous	Cyclic											
	Nom.	Exact	Π1DBH	Π1DBV	Π1ZB					in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K913 with MT TriAdapt® Motor Adapter															
Noise Level ≤ 65 dB(A) ⁴⁾															
K913_0079 MT50	7.934	54839/6912	1,500	1,500	2,500	10/5	351.2	1,232	139.1	21,757	2,456	21,757	2,456	27,197	3,070
K913_0100 MT50	10.12	119133/11776	1,500	1,500	2,500	10/5	248.9	1,417	159.9	26,753	3,020	26,753	3,020	33,441	3,775
K913_0125 MT50	12.53	73749/5888	1,800	1,800	2,800	10/5	186.8	1,545	174.4	32,159	3,631	32,159	3,631	40,199	4,538
K913_0160 MT50	15.91	13237/832	1,800	1,800	2,800	10/5	135.0	1,652	186.5	39,199	4,425	39,199	4,425	48,999	5,532
K913_0190 MT50	19.06	305/16	2,200	2,100	3,000	10/5	108.9	1,711	193.2	45,504	5,137	45,504	5,137	56,880	6,421
K913_0240 MT40	23.94	88877/3712	2,200	2,100	3,100	10/5	73.0	1,585	178.9	28,667	3,236	28,667	3,236	35,834	4,045
K913_0240 MT50	23.94	88877/3712	2,200	2,100	3,000	10/5	83.0	1,764	199.1	54,779	6,184	54,779	6,184	68,474	7,730
K913_0320 MT40	32.12	47275/1472	2,600	2,500	3,400	10/5	50.5	1,697	191.6	36,287	4,097	36,287	4,097	45,359	5,121
K913_0320 MT50	32.12	47275/1472	2,500	2,500	3,000	10/5	60.5	1,806	203.9	60,669	6,849	68,207	7,700	86,676	9,785
K913_0380 MT40	38.04	194773/5120	2,600	2,500	3,400	10/5	40.9	1,742	196.6	41,507	4,686	41,507	4,686	51,884	5,857
K913_0380 MT50	38.04	194773/5120	2,500	2,500	3,000	10/5	50.9	1,822	205.7	62,006	7,000	68,207	7,700	99,144	11,193
K913_0490 MT40	48.94	100223/2048	2,600	2,500	3,400	10/5	30.6	1,788	201.8	50,266	5,675	50,497	5,701	63,122	7,126
K913_0490 MT50	48.94	100223/2048	2,500	2,500	3,000	10/5	40.6	1,838	207.5	62,006	7,000	68,207	7,700	120,618	13,617
K913_0630 MT40	63.07	209901/3328	2,600	2,500	3,400	10/5	23.5	1,817	205.1	51,864	5,855	61,561	6,950	76,952	8,687
K913_0630 MT50	63.07	209901/3328	2,500	2,500	3,000	10/5	33.5	1,848	208.6	62,006	7,000	68,207	7,700	124,012	14,000
K913_0750 MT40	75.00	62403/832	2,600	2,500	3,400	10/5	19.9	1,830	206.6	53,248	6,011	68,207	7,700	88,210	9,958
K913_0750 MT50	75.00	62403/832	2,500	2,500	3,000	10/5	29.9	1,852	209.1	62,006	7,000	68,207	7,700	88,210	9,958
K913_0950 MT40	95.41	293105/3072	2,600	2,500	3,400	10/5	16.4	1,843	208.0	47,620	5,376	57,144	6,451	95,240	10,752
K913_0950 MT50	95.41	293105/3072	2,500	2,500	3,000	10/5	26.4	1,856	209.6	47,620	5,376	57,144	6,451	95,240	10,752
K914 with MT TriAdapt® Motor Adapter															
Noise Level ≤ 65 dB(A) ⁴⁾															
K914_0920 MT40	92.35	2399679/25984	2,600	2,500	3,400	10/5	15.9	1,841	207.9	54,781	6,184	54,781	6,184	68,477	7,730
K914_0940 MT30	93.78	4177219/44544	2,600	2,500	3,400	10/5	10.6	1,819	205.3	25,351	2,862	28,664	3,236	35,831	4,045
K914_1240 MT40	123.9	1276425/10304	2,600	2,500	3,400	10/5	14.3	1,851	208.9	60,960	6,882	68,207	7,700	86,680	9,785
K914_1260 MT30	125.8	2221925/17664	2,600	2,500	3,400	10/5	9.1	1,838	207.5	34,011	3,840	36,284	4,096	45,355	5,120
K914_1470 MT40	146.7	5258871/35840	2,600	2,500	3,400	10/5	13.7	1,854	209.3	62,006	7,000	68,207	7,700	99,147	11,193
K914_1490 MT30	149.0	9154331/61440	2,600	2,500	3,400	10/5	8.5	1,845	208.3	38,782	4,378	41,503	4,685	51,879	5,857
K914_1890 MT40	188.8	2706021/14336	2,600	2,500	3,400	10/5	13.0	1,858	209.7	62,006	7,000	68,207	7,700	120,623	13,617
K914_1920 MT30	191.7	4710481/24576	2,600	2,500	3,400	10/5	7.8	1,852	209.1	40,812	4,607	50,493	5,700	63,116	7,125
K914_2430 MT40	243.3	5667327/23296	2,600	2,500	3,400	10/5	12.5	1,860	210.0	62,006	7,000	68,207	7,700	124,012	14,000
K914_2470 MT30	247.0	3288449/13312	2,600	2,500	3,400	10/5	7.4	1,856	209.6	43,056	4,861	61,556	6,949	76,945	8,687
K914_2940 MT30	293.8	977647/3328	2,600	2,500	3,400	10/5	7.1	1,858	209.8	44,860	5,064	68,207	7,700	88,202	9,957
K914_3740 MT30	373.7	3775935/36864	2,600	2,500	3,400	10/5	6.9	1,860	210.0	46,783	5,281	57,144	6,451	95,240	10,752

Index of Symbols

i ...	Exact Ratio = Exact Tooth Count
J ₁ ...	Reducer Inertia
C ...	ServoCool
C ₂ ...	Torsional Stiffness
n _{1DBH} ...	Maximum Continuous Input RPM Horizontal Mounting - EL1, 2, 5, 6
n _{1DBV} ...	Maximum Continuous Input RPM Vertical Position - EL3 and EL4
n _{1ZB} ...	Maximum Cyclic Input RPM
T _{2N} ...	Nominal Torque @ 2000 RPM Input
T _{2N(n1DBH)} ...	Rated Torque @ Maximum Continuous Input RPM Horizontal Mounting - EL1, EL2, EL5, EL6
T _{2B} ...	Acceleration Torque Maximum
T _{2PEAK} ...	Peak Torque

¹⁾ Backlash shown "STANDARD/REDUCED".

²⁾ Maximum torque for continuous input RPM - horizontal output position.

³⁾ Maximum momentary torque for emergency stops or heavy shock load.
Admissible stops per life of reducer = 1,000 stops maximum.

⁴⁾ dB(A) Measured at 1 meter distance with 3000 RPM input



"K" Series—Right Angle Helical/Bevel ServoFit® Modular System Selection Data



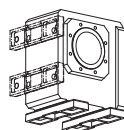
Part Number	Reducer Ratio i		Input RPM			Backlash arcmins Δφ ¹⁾	Input Inertia J ₁ kgcm ²	Torsional Stiffness per arcmin C ₂		Output Torque					
			Maximum		Nominal ²⁾ T _{2N} ≤ 2000 RPM					Acceleration T _{2B}		Peak ³⁾ T _{2PEAK}			
			Continuous	Cyclic											
	Nom.	Exact	n _{1DBH}	n _{1DBV}	n _{1ZB}			in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm	in.lbs.	Nm
K1013 with MT TriAdapt® Motor Adapter										Noise Level ≤ 65 dB(A) ⁴⁾					
K1013_0320MT50	31.5	144305/4576	2,500	2,300	3,000	10/5	117.3	3,847	434.2	71,197	8,038	71,197	8,038	88,996	10,047
K1013_0390MT50	38.6	8029/208	2,500	2,300	3,000	10/5	90.1	3,934	444.1	83,593	9,437	83,593	9,437	104,491	11,796
K1013_0490MT50	48.5	171647/3536	2,500	2,300	3,000	10/5	68.2	4,001	451.7	100,084	11,299	100,084	11,299	125,105	14,123
K1013_0620MT50	61.6	12803/208	2,500	2,300	3,000	10/5	52.2	4,046	456.8	105,349	11,893	116,926	13,200	150,559	16,997
K1013_0750MT50	75.3	101773/1352	2,500	2,300	3,000	10/5	42.6	4,071	459.6	100,417	11,336	116,926	13,200	175,501	19,813
K1013_0940MT50	94.3	235445/2496	2,500	2,300	3,000	10/5	35.1	4,090	461.7	82,844	9,352	87,608	9,890	109,510	12,363
K1014 with MT TriAdapt® Motor Adapter										Noise Level ≤ 65 dB(A) ⁴⁾					
K1014_0930MT50	93.3	252399/2704	2,500	2,300	3,000	10/5	32.7	4,089	461.6	95,723	10,806	113,260	12,786	141,576	15,983
K1014_1220MT40	121.6	556605/4576	2,500	2,300	3,200	10/5	18.4	4,062	458.5	70,302	7,937	71,200	8,038	89,000	10,047
K1014_1240MT50	123.7	7359555/59488	2,500	2,300	3,000	10/5	29.3	4,104	463.3	106,296	12,000	116,926	13,200	177,477	20,036
K1014_1490MT40	148.9	30969/208	2,500	2,300	3,200	10/5	16.5	4,082	460.8	74,065	8,361	83,596	9,437	104,495	11,797
K1014_1510MT50	151.4	409479/2704	2,500	2,300	3,000	10/5	27.5	4,110	464.0	106,296	12,000	116,926	13,200	208,376	23,524
K1014_1870MT40	187.2	662067/3536	2,500	2,300	3,200	10/5	15.1	4,097	462.5	78,043	8,811	100,087	11,299	125,108	14,124
K1014_1900MT50	190.4	514941/2704	2,500	2,300	3,000	10/5	26.1	4,115	464.5	106,296	12,000	116,926	13,200	212,592	24,000
K1014_2370MT40	237.4	49383/208	2,500	2,300	3,200	10/5	14.0	4,106	463.6	81,994	9,256	116,926	13,200	150,564	16,998
K1014_2900MT40	290.4	392553/1352	2,500	2,300	3,200	10/5	13.3	4,112	464.2	84,369	9,525	116,926	13,200	175,508	19,813

Motor Shaft

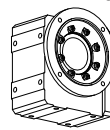
Motor Adapter	Max. Shaft Diameter
MT10	19
MT20	24
MT30	38
MT40	48
MT50	60

Housing Styles

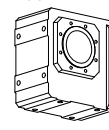
N
Foot Mounted



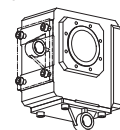
F
Round Flange



G
Tapped Holes

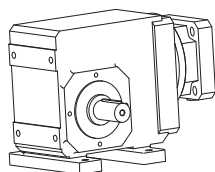


GD
Torque Arm Bracket



These Housing Styles are available as Hollow (A), Bushing (W), or Solid (V) Output.

See Page 122 for required ordering information and part number example.



ServoFit® "K" Series—Helical/Bevel Foot Mount – "N" Housing Shaft Output – Dimensional Data

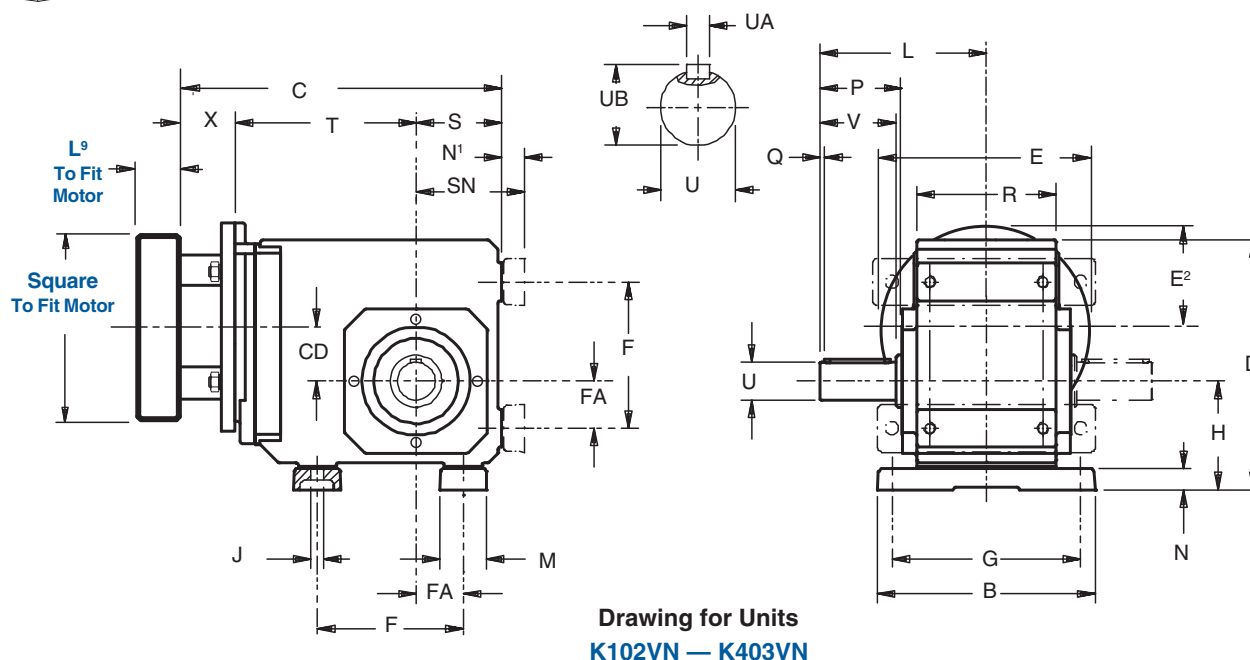


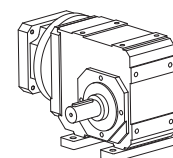
Table No. 1 "K" Series – Foot Mounting Unit Dimensions (Inches) – "N" Housing Style

Base Module	B	D	F	G	H	J	L	M	N	O	P	Q	R	S	V	Z ¹	BO	FA	N ¹	SN
K102	5.51	6.81	3.54 ¹⁾	4.53	2.95	.35	4.53	1.18	.51	—	2.32	.16	3.54	2.36	1.97	—	—	1.18	.59	2.95
K202/203	7.28	8.39	4.53	6.10	3.46	.43	5.31	1.57	.79	—	2.56	.16	4.53	2.56	2.36	—	—	1.38	.91	3.46
K302/303	7.87	9.29	5.12	6.69	3.86	.43	5.59	1.77	.79	—	2.60	.16	5.12	2.95	2.36	—	—	1.57	.91	3.86
K402/403	9.06	10.43	6.10	7.87	4.53	.55	6.54	1.97	.87	—	3.39	.16	5.83	3.54	2.76	—	—	1.97	.98	4.53
K513/514	9.45	11.42	5.51	7.87	7.48	.71	8.74	2.36	1.06	5.10	3.90	.16	6.30	3.94	3.54	5.98	7.28	1.57	1.18	5.12
K613/614	9.84	13.39	6.30	8.27	8.66	.71	9.29	2.56	1.06	5.35	4.31	.16	6.61	4.72	3.94	6.77	7.87	1.97	1.18	5.91
K713/714	11.42	14.96	7.09	9.45	9.84	.87	10.91	2.76	1.38	6.46	5.14	.16	7.48	4.92	4.72	7.52	8.90	2.17	1.50	6.42
K813/814	14.17	17.91	9.45	11.81	12.20	1.02	12.83	3.35	1.61	7.28	5.94	.20	9.25	5.71	5.51	8.11	11.10	2.95	1.77	7.48
K913/914	16.93	21.46	11.02	14.17	14.37	1.30	15.16	3.74	1.81	8.66	7.13	.31	11.22	7.09	6.69	9.84	12.99	3.74	1.97	9.06
K1013/1014	15.75	23.27	13.78	12.99	14.76	1.54	16.46	4.72	1.77	9.45	8.66	.59	15.75	—	8.27	12.01	14.02	4.53	1.77	8.86

¹⁾ Mounting holes are also located on Side 1 of the K1 unit ONLY.

Table No. 2 Metric output available on request.

Base Module	Standard Shaft – inches			Optional Shaft – mm		
	U	UA – Key	UB	U	UA – Key	UB
K102	1.000	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{9}{16}$	1.11	25 _{k6}	M8 x7x40	28
K202/203	1.250	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{5}{16}$	1.36	30 _{k6}	M8 x7x50	33
K302/303	1.250	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{5}{16}$	1.36	30 _{k6}	M8 x7x50	33
K402/403	1.375	$\frac{5}{16} \times \frac{5}{16} \times 2\frac{5}{16}$	1.51	40 _{k6}	M12 x8x70	43
K513/514	1.750	$\frac{3}{8} \times \frac{3}{8} \times 3\frac{5}{32}$	1.92	45 _{k6}	M14 x9x80	48.5
K613/614	1.750	$\frac{3}{8} \times \frac{3}{8} \times 3\frac{5}{32}$	1.92	50 _{k6}	M14 x9x90	53.5
K713/714	2.375	$\frac{5}{8} \times \frac{5}{8} \times 3\frac{5}{16}$	2.65	60 _{k6}	M18 x11x110	64
K813/814	2.875	$\frac{3}{4} \times \frac{3}{4} \times 4\frac{5}{16}$	3.21	70 _{m6}	M20 x12x125	74.5
K913/914	3.625	$\frac{7}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	4.01	90 _{m6}	M25 x14x140	95
K1013/1014	4.375	$1 \times 1 \times 7\frac{1}{8}$	4.82	110 _{m6}	M28 x16x180	116



K1 Housing with tapped holes on Side 1, Side 2, and Side 5. Shown EL1 with mounting feet on Side 1.

Part No. Example

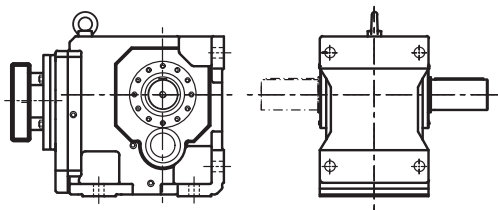
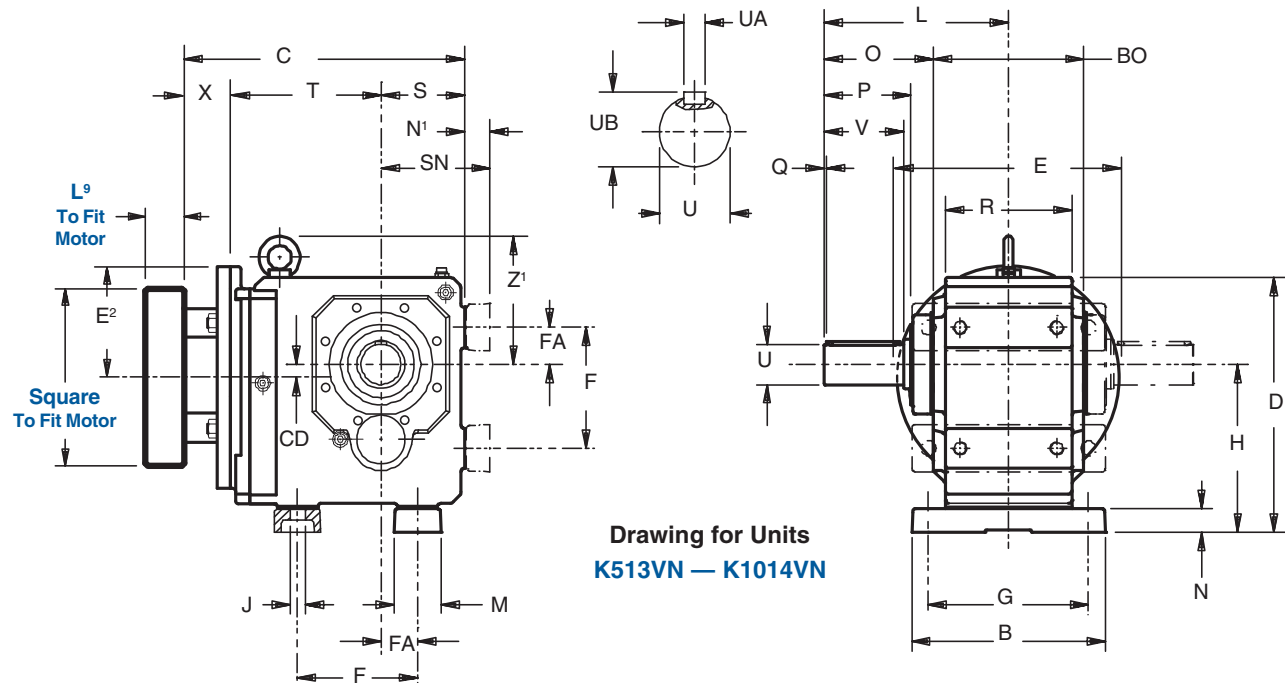
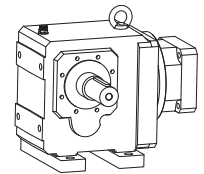
Foot Mounting with TriAdapt® Motor Adapter

K303VN0650 MT20

For approximate weight, add adapter weight from Table 3 and base module weight from Table 4.



ServoFit® "K" Series—Helical/Bevel Foot Mount – "N" Housing Shaft Output – Dimensional Data



Mounting feet are integral on the K10 housing.

Table No. 3 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

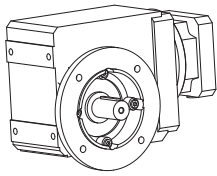
¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

Table No. 4

"K" Series – Foot Mounting Unit Dimensions (Inches) – "N" Housing Style

Base Module	MT10			MT20			MT30			MT40			MT50			Wt. lbs.
	CD	C	T	CD	C	T	CD	C	T	CD	C	T	CD	C	T	
K102	1.42	9.40	4.88	1.42	9.96	5.04	—	—	—	—	—	—	—	—	—	31
K202	1.81	9.76	5.63	1.81	10.32	5.79	1.81	10.79	5.87	—	—	—	—	—	—	40
K203	1.81	11.22	7.09	—	—	—	—	—	—	—	—	—	—	—	—	53
K302	2.07	10.94	6.42	2.07	11.49	6.57	2.07	11.96	6.65	—	—	—	—	—	—	67
K303	2.07	12.39	7.87	.63	13.19	8.27	—	—	—	—	—	—	—	—	—	73
K402	—	—	—	2.36	12.87	7.36	2.36	13.34	7.44	2.36	14.60	7.56	—	—	—	93
K403	2.36	13.77	8.66	.91	14.57	9.06	—	—	—	—	—	—	—	—	—	100
K513	—	—	—	.59	12.68	6.77	.59	13.15	6.85	.59	14.41	6.97	—	—	—	106
K514	—	—	—	.59	14.37	8.46	—	—	—	—	—	—	—	—	—	109
K613	—	—	—	.71	14.21	7.52	.71	14.68	7.60	.71	15.94	7.72	.71	11.48	8.27	170
K614	—	—	—	.71	15.90	9.21	—	—	—	—	—	—	—	—	—	177
K713	—	—	—	—	—	—	.79	15.98	8.70	.79	17.24	8.82	.79	12.54	9.33	221
K714	—	—	—	.79	17.24	10.35	.79	18.42	11.14	—	—	—	—	—	—	234
K813	—	—	—	—	—	—	.94	17.79	9.72	.94	19.01	9.80	.94	13.52	10.31	309
K814	—	—	—	—	—	—	.94	20.20	12.13	—	—	—	—	—	—	331
K913	—	—	—	—	—	—	—	—	—	.98	22.16	11.57	.98	15.30	12.09	508
K914	—	—	—	—	—	—	.98	23.35	13.90	.98	24.96	14.37	—	—	—	530
K1013	—	—	—	—	—	—	—	—	—	—	—	—	1.10	27.50	15.43	1,055
K1014	—	—	—	—	—	—	—	—	—	1.10	30.08	17.72	1.10	30.77	18.70	1,079



ServoFit® "K" Series—Helical/Bevel Round Flange – "F" Housing Shaft Output – Dimensional Data

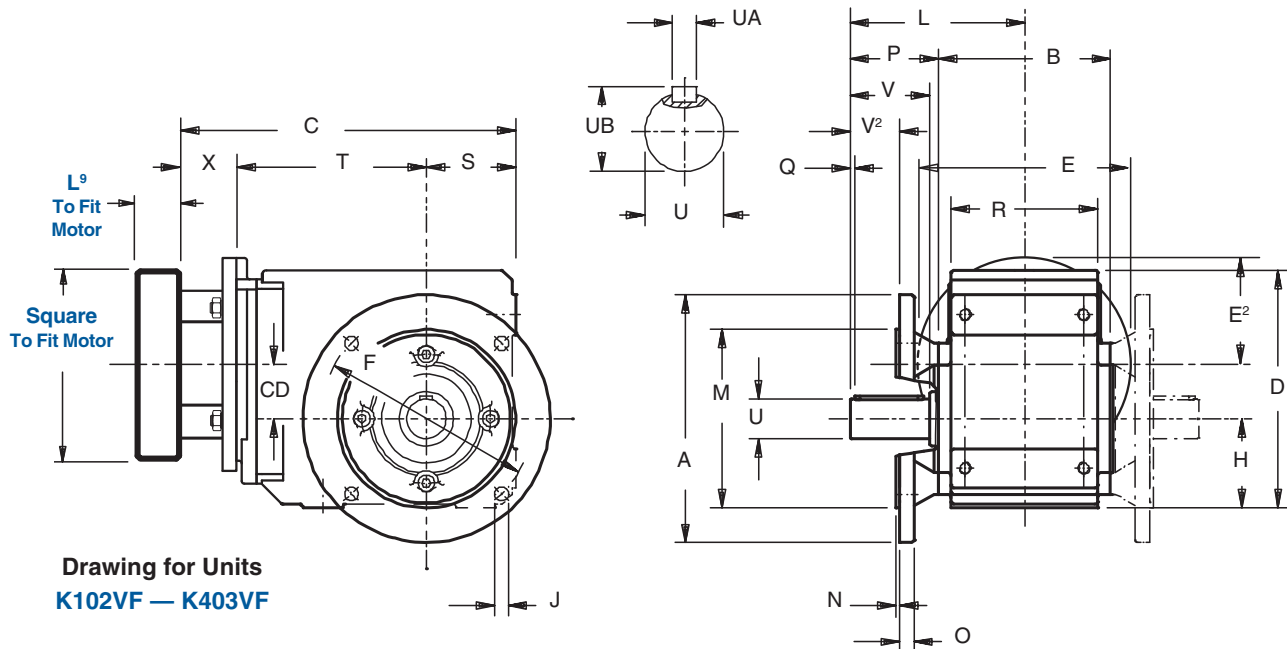


Table No. 1 "K" Series – Round Flange Unit Dimensions (Inches) – "F" Housing Style

Base Module	A	B	D	F	H	J	L	M	N	O	P	Q	R	S	V	V²	Z¹
K102	6.30	4.17	6.30	5.12	2.36	.35	4.53	4.331 +.001/- .0004	.14	.39	2.44	.16	3.54	2.36	1.97	1.18	—
K202/203	7.87	5.28	7.48	6.50	2.56	.43	5.31	5.118 +.001/- .0004	.14	.47	2.68	.16	4.53	2.56	2.36	1.42	—
K302/303	7.87	5.75	8.39	6.50	2.95	.43	5.59	5.118 +.001/- .0004	.14	.55	2.72	.16	5.12	2.95	2.36	1.22	—
K402/403	9.84	6.81	9.45	8.46	3.54	.55	6.54	7.087 +.001/- .0004	.16	.59	3.52	.16	5.83	3.54	2.76	1.95	—
K513/514	9.84	7.28	10.24	8.46	6.30	.55	8.74	7.087 +.001/- .0004	.16	.59	5.10	.16	6.30	3.94	3.54	—	5.98
K613/614	11.81	7.87	12.20	10.43	7.48	.55	9.29	9.055 +.001/- .001	.16	.67	5.35	.16	6.61	4.72	3.94	—	6.77
K713/714	13.78	8.90	13.46	11.81	8.35	.71	10.91	9.842 +.000/- .001	.20	.71	6.46	.16	7.48	4.92	4.72	—	7.52
K813/814	15.75	11.10	16.14	13.78	10.43	.71	12.83	11.811 +.000/- .001	.20	.79	7.28	.20	9.25	5.71	5.51	—	8.11
K913/914	17.72	12.99	19.49	15.75 *	12.40	.71	15.16	13.780 +.000/- .001	.20	.91	8.66	.31	11.22	7.09	6.69	—	9.84
K1013/K1014	21.65	14.02	23.27	19.69 *	14.76	.71	18.35	17.716 +.000/- .002	.20	.98	11.34	.59	15.75	8.86	8.27	—	12.01

* K913 thru K1014 has 8 mounting holes in the output flange instead of 4 as shown in drawing.

Table No. 2 Metric output available on request.

Base Module	Standard Shaft – inches			Optional Shaft – mm		
	U	UA – Key	UB	U	UA – Key	UB
K102	1.000	1/4 x 1/4 x 19/16	1.11	25 _{k6}	M8 x7x40	28
K202/203	1.250	1/4 x 1/4 x 115/16	1.36	30 _{k6}	M8 x7x50	33
K302/303	1.250	1/4 x 1/4 x 115/16	1.36	30 _{k6}	M8 x7x50	33
K402/403	1.375	5/16 x 5/16 x 25/16	1.51	40 _{k6}	M12 x8x70	43
K513/514	1.750	3/8 x 3/8 x 35/32	1.92	45 _{k6}	M14 x9x80	48.5
K613/614	1.750	3/8 x 3/8 x 35/32	1.92	50 _{k6}	M14 x9x90	53.5
K713/714	2.375	5/8 x 5/8 x 315/16	2.65	60 _{k6}	M18 x11x110	64
K813/814	2.875	3/4 x 3/4 x 45/16	3.21	70 _{m6}	M20 x12x125	74.5
K913/914	3.625	7/8 x 7/8 x 51/2	4.01	90 _{m6}	M25 x14x140	95
K1013/K1014	4.375	1 x 1 x 71/8	4.82	110 _{m6}	M28 x16x180	116

Part No. Example

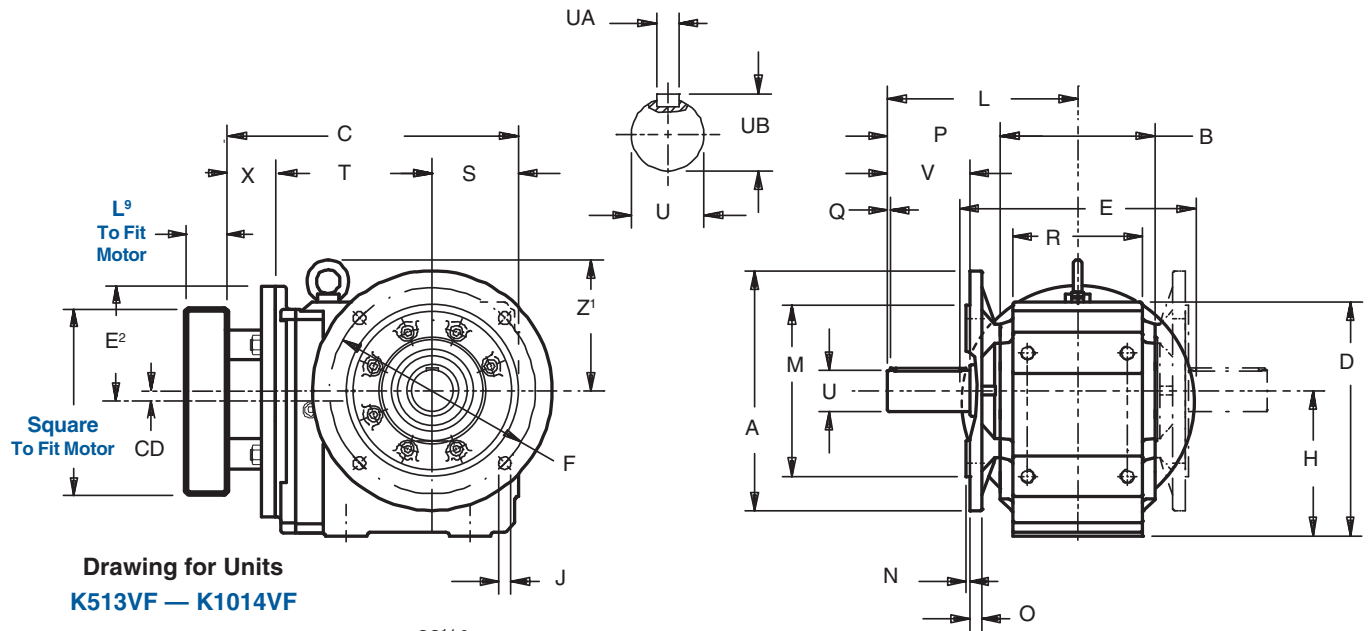
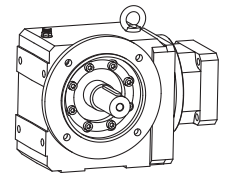
Round Flange with TriAdapt® Motor Adapter

K303VF0650 MT20

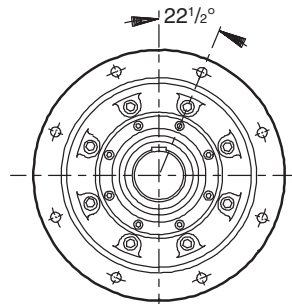
For approximate weight, add adapter weight from Table 3 and base module weight from Table 4.



ServoFit® "K" Series—Helical/Bevel Round Flange – "F" Housing Shaft Output – Dimensional Data



Drawing for Units
K513VF — K1014VF



K913 thru K1014 has 8 mounting holes
in the output flange located as shown.

Table No. 3 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

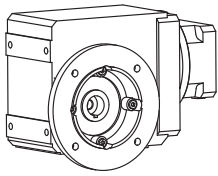
¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

Table No. 4

"K" Series – Flange Mounting Unit Dimensions (Inches) – "F" Housing Style

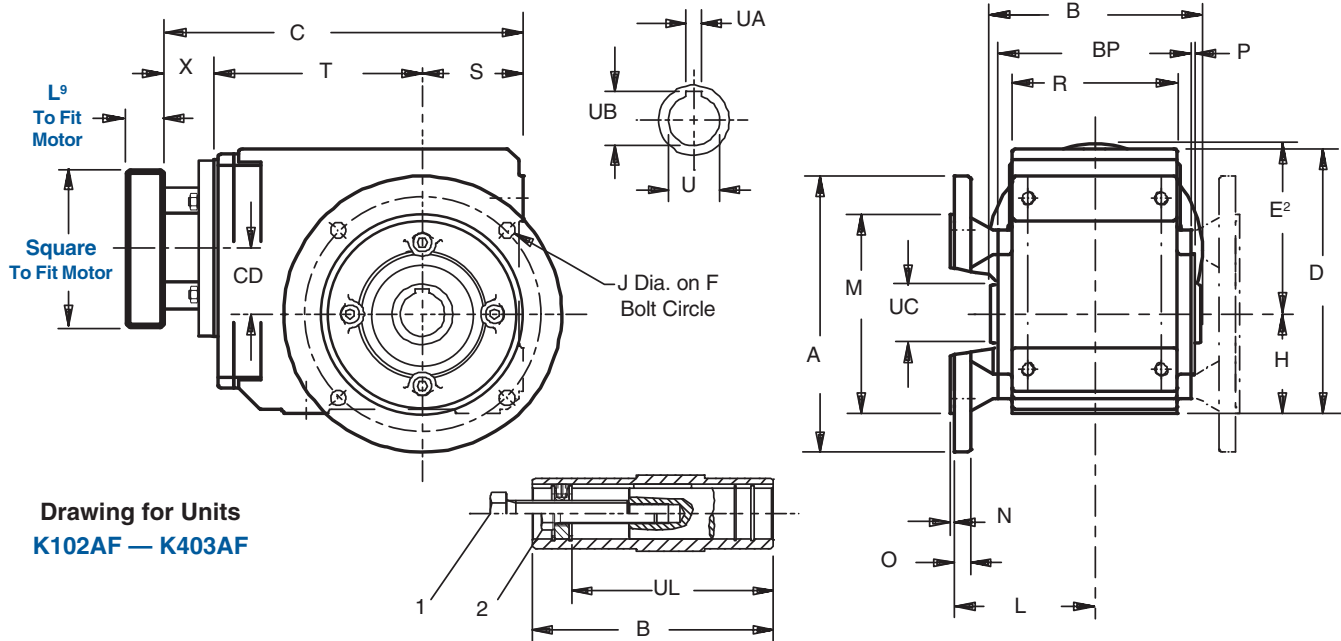
Base Module	MT10			MT20			MT30			MT40			MT50			Wt. lbs.
	CD	C	T	CD	C	T	CD	C	T	CD	C	T	CD	C	T	
K102	1.42	9.40	4.88	1.42	9.96	5.04	—	—	—	—	—	—	—	—	—	31
K202	1.81	9.76	5.63	1.81	10.32	5.79	1.81	10.79	5.87	—	—	—	—	—	—	40
K203	1.81	11.22	7.09	—	—	—	—	—	—	—	—	—	—	—	—	53
K302	2.07	10.94	6.42	2.07	11.49	6.57	2.07	11.96	6.65	—	—	—	—	—	—	67
K303	2.07	12.39	7.87	.63	13.19	8.27	—	—	—	—	—	—	—	—	—	73
K402	—	—	—	2.36	12.87	7.36	2.36	13.34	7.44	2.36	14.60	7.56	—	—	—	93
K403	2.36	13.77	8.66	.91	14.57	9.06	—	—	—	—	—	—	—	—	—	100
K513	—	—	—	.59	12.68	6.77	.59	13.15	6.85	.59	14.41	6.97	—	—	—	106
K514	—	—	—	.59	14.37	8.46	—	—	—	—	—	—	—	—	—	109
K613	—	—	—	.71	14.21	7.52	.71	14.68	7.60	.71	15.94	7.72	.71	11.48	8.27	170
K614	—	—	—	.71	15.90	9.21	—	—	—	—	—	—	—	—	—	177
K713	—	—	—	—	—	—	.79	15.98	8.70	.79	17.24	8.82	.79	12.54	9.33	221
K714	—	—	—	.79	17.24	10.35	.79	18.42	11.14	—	—	—	—	—	—	234
K813	—	—	—	—	—	—	.94	17.79	9.72	.94	19.01	9.80	.94	13.52	10.31	309
K814	—	—	—	—	—	—	.94	20.20	12.13	—	—	—	—	—	—	331
K913	—	—	—	—	—	—	—	—	—	.98	22.16	11.57	.98	15.30	12.09	508
K914	—	—	—	—	—	—	.98	23.35	13.90	.98	24.96	14.37	—	—	—	530
K1013	—	—	—	—	—	—	—	—	—	—	—	—	1.10	27.50	15.43	1,055
K1014	—	—	—	—	—	—	—	—	—	1.10	30.08	17.72	1.10	30.77	18.70	1,079



ServoFit® "K" Series—Helical/Bevel Round Flange – "F" Housing Hollow Output – Dimensional Data



See Page 163 for installation of hollow output.



Drawing for Units
K102AF — K403AF

Table No. 1 "K" Series – Hollow Output, Round Flange Unit Dimensions (Inches) – "F" Housing Style

Base Module	A	B	D	F	H	J	L	M	N	O	P	R	S	Z ₁	BP	UC	UL	1
K102	6.30	4.72	6.30	5.12	2.36	.35	3.35	4.331 +.001/-0.004	.14	.39	.12	3.54	2.36	—	3.54	1.57	3.86	1/2-13
K202/203	7.87	5.83	7.48	6.50	2.56	.43	3.90	5.118 +.001/-0.004	.14	.47	.12	4.53	2.56	—	3.94	1.77	4.78	1/2-13
K302/303	7.87	6.30	8.39	6.50	2.95	.43	4.37	5.118 +.001/-0.004	.14	.55	.12	5.12	2.95	—	4.53	1.97	4.92	5/8-11
K402/403	9.84	7.40	9.45	8.46	3.54	.55	4.98	7.087 +.001/-0.004	.16	.59	.14	5.83	3.54	—	5.12	2.17	6.18	3/4-10
K513/514	9.84	7.87	10.24	8.46	6.30	.55	5.20	7.087 +.001/-0.004	.16	.59	.14	6.30	3.94	5.98	5.12	2.56	6.46	3/4-10
K613/614	11.81	8.46	12.20	10.43	7.48	.55	5.35	9.055 +.001/-0.001	.16	.67	.14	6.61	4.72	6.77	6.50	2.76	7.05	3/4-10
K713/714	13.78	9.53	13.46	11.81	8.35	.71	6.18	9.842 +.000/-0.001	.20	.71	.14	7.48	4.92	7.52	7.28	3.35	8.43	1-8
K813/814	15.75	11.81	16.14	13.78	10.43	.71	7.32	11.811 +.000/-0.001	.20	.79	.16	9.25	5.71	8.11	8.46	3.94	10.35	1-8
K913/914	17.72	13.78	19.49	15.75	12.40	.71	8.46	13.780 +.000/-0.001	.20	.91	.20	11.22	7.09	9.84	10.43	4.33	12.32	1-8
K1013/K1014	21.65	16.14	23.27	19.69	14.76	.71	10.08	17.716 +.000/-0.002	.20	.98	.28	15.75	8.86	12.01	11.81	5.12	14.25	1 1/4-7

Table No. 2 Metric output available on request.

Base Module	Standard Bore - inches			Optional Bore - mm		
	U	UA	UB	U	UA	UB
K102	1.000	.250	1.11	25 _{H7}	8 _{JS9}	28.3
K202/203	1.1875	.250	1.31	30 _{H7}	8 _{JS9}	33.3
K302/303	1.375	.312	1.52	35 _{H7}	10 _{JS9}	38.3
K402/403	1.500	.375	1.67	40 _{H7}	12 _{JS9}	43.3
K513/514	2.000	.500	2.13	50 _{H7}	14 _{JS9}	53.8
K613/614	2.000	.500	2.23	50 _{H7}	14 _{JS9}	53.8
K713/714	2.375	.625	2.66	60 _{H7}	18 _{JS9}	64.4
K813/814	2.750	.625	3.03	70 _{H7}	20 _{JS9}	74.9
K913/914	3.250	.750	3.59	90 _{H7}	25 _{JS9}	95.4
K1013/K1014	4.000	1.000	4.31	100 _{H7}	28 _{JS9}	116

Part No. Example

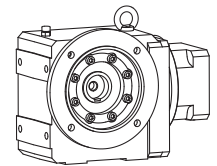
Round Flange with TriAdapt® Motor Adapter

K303AF0650 MT20

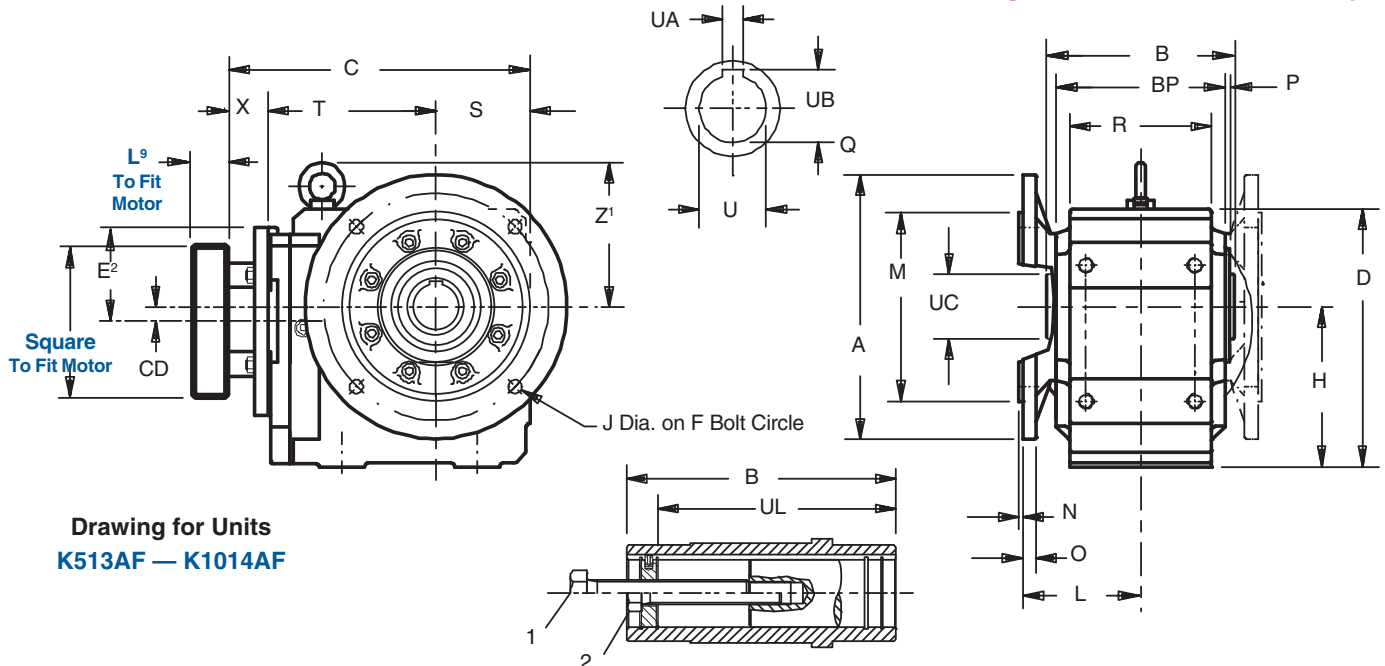
For approximate weight, add adapter weight from Table 3 and base module weight from Table 4.



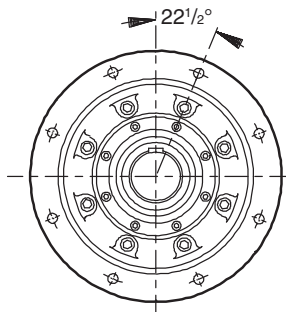
ServoFit® "K" Series—Helical/Bevel Round Flange – "F" Housing Hollow Output – Dimensional Data



See Page 163 for installation of hollow output.



Drawing for Units
K513AF — K1014AF



K913 thru K1014 has 8 mounting holes in the output flange located as shown.

Table No. 3 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

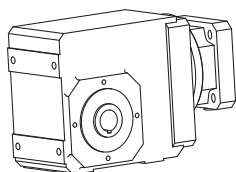
¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

Table No. 4

"K" Series – Flange Mounting Unit Dimensions (Inches) – "F" Housing Style

Base Module	MT10			MT20			MT30			MT40			MT50			Wt. lbs.
	CD	C	T	CD	C	T	CD	C	T	CD	C	T	CD	C	T	
K102	1.42	9.40	4.88	1.42	9.96	5.04	—	—	—	—	—	—	—	—	—	31
K202	1.81	9.76	5.63	1.81	10.32	5.79	1.81	10.79	5.87	—	—	—	—	—	—	40
K203	1.81	11.22	7.09	—	—	—	—	—	—	—	—	—	—	—	—	53
K302	2.07	10.94	6.42	2.07	11.49	6.57	2.07	11.96	6.65	—	—	—	—	—	—	67
K303	2.07	12.39	7.87	.63	13.19	8.27	—	—	—	—	—	—	—	—	—	73
K402	—	—	—	2.36	12.87	7.36	2.36	13.34	7.44	2.36	14.60	7.56	—	—	—	93
K403	2.36	13.77	8.66	.91	14.57	9.06	—	—	—	—	—	—	—	—	—	100
K513	—	—	—	.59	12.68	6.77	.59	13.15	6.85	.59	14.41	6.97	—	—	—	106
K514	—	—	—	.59	14.37	8.46	—	—	—	—	—	—	—	—	—	109
K613	—	—	—	.71	14.21	7.52	.71	14.68	7.60	.71	15.94	7.72	.71	11.48	8.27	170
K614	—	—	—	.71	15.90	9.21	—	—	—	—	—	—	—	—	—	177
K713	—	—	—	—	—	—	.79	15.98	8.70	.79	17.24	8.82	.79	12.54	9.33	221
K714	—	—	—	.79	17.24	10.35	.79	18.42	11.14	—	—	—	—	—	—	234
K813	—	—	—	—	—	—	.94	17.79	9.72	.94	19.01	9.80	.94	13.52	10.31	309
K814	—	—	—	—	—	—	.94	20.20	12.13	—	—	—	—	—	—	331
K913	—	—	—	—	—	—	—	—	—	.98	22.16	11.57	.98	15.30	12.09	508
K914	—	—	—	—	—	—	.98	23.35	13.90	.98	24.96	14.37	—	—	—	530
K1013	—	—	—	—	—	—	—	—	—	—	—	—	1.10	27.50	15.43	1,055
K1014	—	—	—	—	—	—	—	—	—	1.10	30.08	17.72	1.10	30.77	18.70	1,079



ServoFit® "K" Series—Helical/Bevel Tapped Hole – "G" Housing Hollow Output – Dimensional Data



See Page 163 for installation of hollow output.

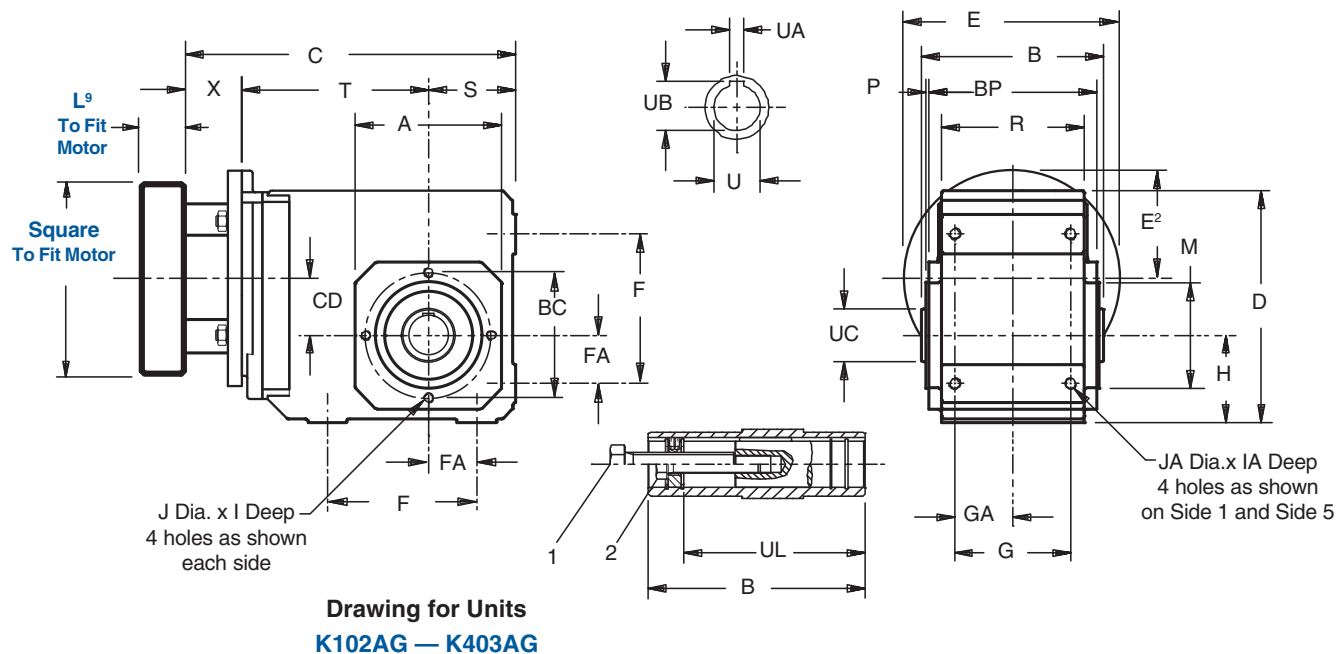
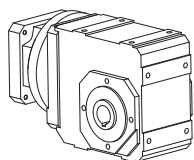


Table No. 1 "K" Series – Tapped Hole Unit Dimensions (Inches) – "G" Housing Style

Base Module	A	B	D	F	G	H	I	J	M	P	R	S	Z ¹	BC	BP	FA	GA	IA	JA
K102	4.13	4.72	6.30	3.54	2.76	2.36	.51	4-M8	2.953 +.001/- .0003	.12	3.54	2.36	—	3.54	4.17	1.18	1.38	.51	M8
K202/203	4.57	5.83	7.48	4.53	3.54	2.56	.51	4-M8	3.228 +.001/- .0004	.12	4.53	2.56	—	3.94	5.28	1.38	1.77	.63	M10
K302/303	5.20	6.30	8.39	5.12	4.13	2.95	.51	4-M8	3.740 +.001/- .0004	.12	5.12	2.95	—	4.53	5.75	1.57	2.07	.63	M10
K402/403	5.98	7.40	9.45	6.10	4.72	3.54	.63	4-M10	4.331 +.001/- .0004	.14	5.83	3.54	—	5.12	6.81	1.97	2.36	.75	M12
K513/514	5.71	7.87	10.24	5.51	4.92	6.30	.63	8-M10	4.331 +.001/- .0004	.14	6.30	3.94	5.98	5.12	7.28	1.57	2.46	1.02	M16
K613/614	7.09	8.46	12.20	6.30	5.12	7.48	.63	8-M10	5.512 +.001/- .0004	.14	6.61	4.72	6.77	6.50	7.87	1.97	2.56	1.02	M16
K713/714	7.68	9.53	13.46	7.09	5.71	8.35	.75	8-M12	6.102 +.001/- .0004	.14	7.48	4.92	7.52	7.28	8.90	2.17	2.85	1.22	M20
K813/814	8.90	11.81	16.14	9.45	7.28	10.43	.75	8-M12	7.283 +.001/- .001	.16	9.25	5.71	8.11	8.46	11.10	2.95	3.64	1.50	M24
K913/914	11.02	13.78	19.49	11.02	8.86	12.40	1.02	8-M16	9.055 +.001/- .001	.20	11.22	7.09	9.84	10.43	12.99	3.74	4.43	1.89	M30
K1013/K1014	13.38	16.14	23.27	11.81	12.99	14.76	1.30	8-M20	9.843 +.001/- .001	.28	15.59	8.86	12.01	11.81	15.60	4.53	6.50	1.77	1.54

Table No. 2

Base Module	UC	UL	1
K102	1.57	3.86	1/2-13
K202/203	1.77	4.78	1/2-13
K302/303	1.97	4.92	5/8-11
K402/403	2.17	6.18	3/4-10
K513/514	2.56	6.46	3/4-10
K613/614	2.76	7.05	3/4-10
K713/714	3.35	8.43	1-8
K813/814	3.94	10.35	1-8
K913/914	4.33	12.32	1-8
K1013/K1014	5.12	14.25	1 1/4-7



K1 Housing with tapped holes on Side 1, Side 2, and Side 5.

Table No. 3 Metric output available on request.

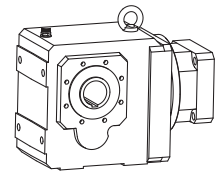
Base Module	Standard Bore - inches			Optional Bore - mm		
	U	UA	UB	U	UA	UB
K102	1.000	.250	1.11	25 _{H7}	8 _{JS9}	28.3
K202/203	1.1875	.250	1.31	30 _{H7}	8 _{JS9}	33.3
K302/303	1.375	.312	1.52	35 _{H7}	10 _{JS9}	38.3
K402/403	1.500	.375	1.67	40 _{H7}	12 _{JS9}	43.3
K513/514	2.000	.500	2.13	50 _{H7}	14 _{JS9}	53.8
K613/614	2.000	.500	2.23	50 _{H7}	14 _{JS9}	53.8
K713/714	2.375	.625	2.66	60 _{H7}	18 _{JS9}	64.4
K813/814	2.750	.625	3.03	70 _{H7}	20 _{JS9}	74.9
K913/914	3.250	.750	3.59	90 _{H7}	25 _{JS9}	95.4
K1013/K1014	4.000	1.000	4.31	100 _{H7}	28 _{JS9}	116

1. Removal Bolt — not supplied.
2. Mounting Bolt — must be smaller than removal bolt.

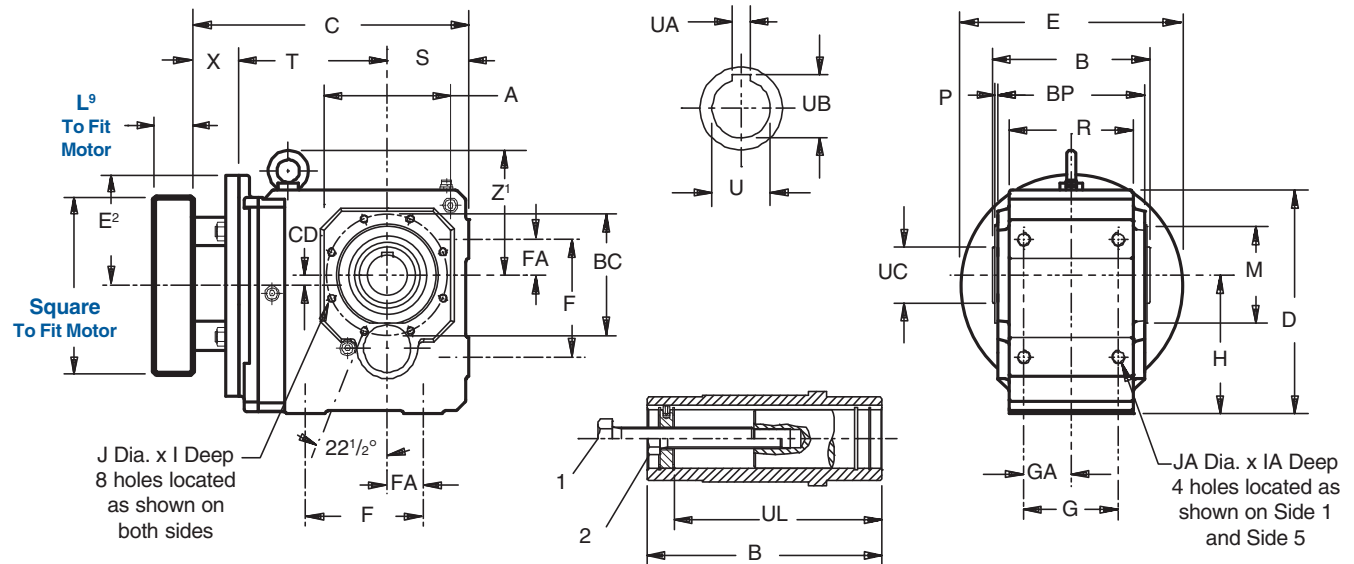
For approximate weight, add adapter weight from Table 4 and base module weight from Table 5.



ServoFit® "K" Series—Helical/Bevel Tapped Hole – "G" Housing Hollow Output – Dimensional Data



See Page 163 for installation of hollow output.



Drawing for Units
K513AG — K1014AG

Table No. 4

"K" Series – Tapped Hole Unit Dimensions (Inches) – "G" Housing Style

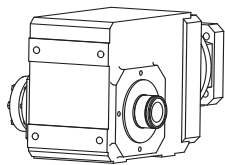
Base Module	MT10			MT20			MT30			MT40			MT50			Wt. lbs.
	CD	C	T	CD	C	T	CD	C	T	CD	C	T	CD	C	T	
K102	1.42	9.40	4.88	1.42	9.96	5.04	—	—	—	—	—	—	—	—	—	31
K202	1.81	9.76	5.63	1.81	10.32	5.79	1.81	10.79	5.87	—	—	—	—	—	—	40
K203	1.81	11.22	7.09	—	—	—	—	—	—	—	—	—	—	—	—	53
K302	2.07	10.94	6.42	2.07	11.49	6.57	2.07	11.96	6.65	—	—	—	—	—	—	67
K303	2.07	12.39	7.87	.63	13.19	8.27	—	—	—	—	—	—	—	—	—	73
K402	—	—	—	2.36	12.87	7.36	2.36	13.34	7.44	2.36	14.60	7.56	—	—	—	93
K403	2.36	13.77	8.66	.91	14.57	9.06	—	—	—	—	—	—	—	—	—	100
K513	—	—	—	.59	12.68	6.77	.59	13.15	6.85	.59	14.41	6.97	—	—	—	106
K514	—	—	—	.59	14.37	8.46	—	—	—	—	—	—	—	—	—	109
K613	—	—	—	.71	14.21	7.52	.71	14.68	7.60	.71	15.94	7.72	.71	11.48	8.27	170
K614	—	—	—	.71	15.90	9.21	—	—	—	—	—	—	—	—	—	177
K713	—	—	—	—	—	—	.79	15.98	8.70	.79	17.24	8.82	.79	12.54	9.33	221
K714	—	—	—	.79	17.24	10.35	.79	18.42	11.14	—	—	—	—	—	—	234
K813	—	—	—	—	—	—	.94	17.79	9.72	.94	19.01	9.80	.94	13.52	10.31	309
K814	—	—	—	—	—	—	.94	20.20	12.13	—	—	—	—	—	—	331
K913	—	—	—	—	—	—	—	—	—	.98	22.16	11.57	.98	15.30	12.09	508
K914	—	—	—	—	—	—	.98	23.35	13.90	.98	24.96	14.37	—	—	—	530
K1013	—	—	—	—	—	—	—	—	—	—	—	—	1.10	27.50	15.43	1,055
K1014	—	—	—	—	—	—	—	—	—	1.10	30.08	17.72	1.10	30.77	18.70	1,079

Table No. 5 "MT" Motor Plate Dimensions

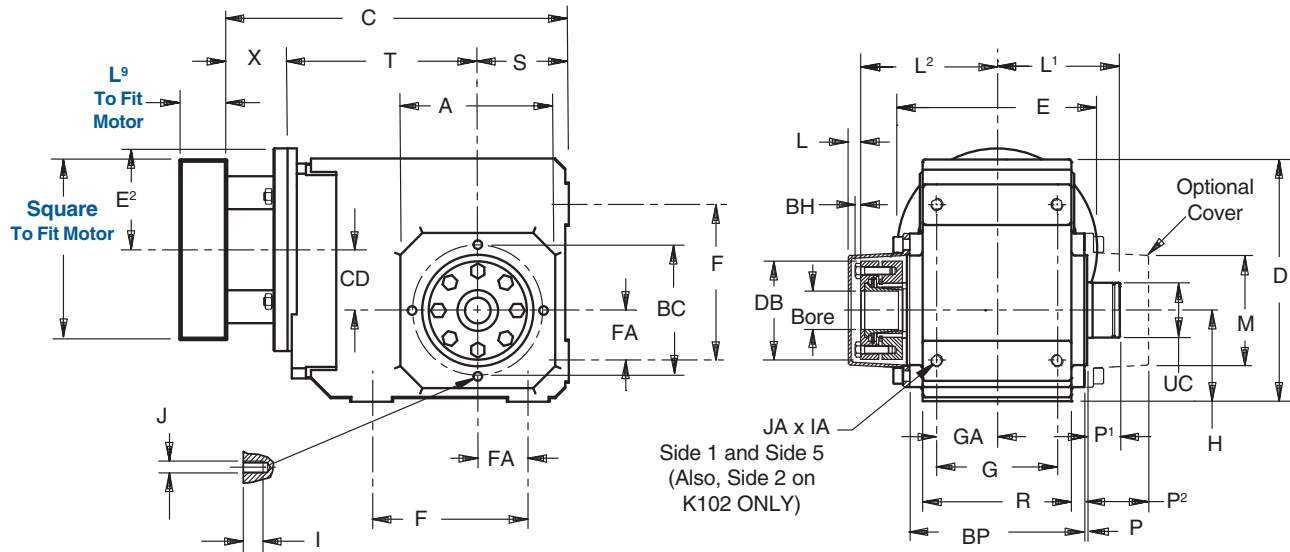
Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.



ServoFit® "K" Series—Helical/Bevel Tapped Hole – "G" Housing Single Bushing – Dimensional Data



Drawing for Units

K102WG — K403WG

Important: A $1/32 \times 45^\circ$ chamfer minimum is recommended for the shaft end.

The bushing will accept a shaft with a tolerance of $+.000/-0.005$.

Table No. 1 "K" Series – Single Side Wobble Free – Unit Dimensions (Inches)

Base Module	Max. Bore	A	D	F	G	H	I	J	L	L ₁	L ₂	M	P	P ₁	P ₂	R	S	Z ₁	BC	BH
K102	1.000	4.13	6.30	3.54	2.76	2.36	.51	4-M8	.24	3.15	3.66	3.07	.12	.95	1.62	3.54	2.36	—	3.54	.16
K202/203	1.1875	4.57	7.48	4.53	3.54	2.56	.51	4-M8	.39	3.78	4.27	3.46	.12	1.02	1.54	4.53	2.56	—	3.94	.16
K302/303	1.500	5.20	8.39	5.12	4.13	2.95	.51	4-M8	.43	4.02	4.54	3.78	.12	1.02	1.55	5.12	2.95	—	4.53	.16
K402/403	1.500	5.98	9.45	6.10	4.72	3.54	.63	4-M10	.47	4.69	5.32	4.33	.14	1.14	1.83	5.83	3.54	—	5.12	.20
K513/514	2.000	5.71	10.24	5.51	4.92	6.30	.63	8-M10	.43	4.96	5.61	4.54	.14	1.18	1.87	6.30	3.94	5.98	5.12	.20
K613/614	2.1875	7.09	12.20	6.30	5.12	7.48	.63	8-M10	.51	5.12	6.10	5.00	.14	1.38	2.11	6.61	4.72	5.98	6.50	.24
K713/714	2.375	7.68	13.46	7.09	5.71	8.35	.75	8-M12	—	6.20	7.29	—	.14	1.61	2.70	7.48	4.92	7.52	7.28	.24
K813/814	2.750	8.90	16.14	9.45	7.28	10.43	.75	8-M12	—	7.58	8.70	—	.16	2.03	2.99	9.25	5.71	8.11	8.46	.31

Table No. 2

Base Module	BP	DB	FA	GA	IA	JA	UC
K102	4.17	2.76	1.18	1.38	.51	M8	1.54
K202/203	5.28	3.07	1.38	1.77	.63	M10	1.73
K302/303	5.75	3.31	1.57	2.07	.63	M10	1.93
K402/403	6.81	3.82	1.97	2.36	.75	M12	2.13
K513/514	7.28	4.13	1.57	2.46	1.02	M16	2.56
K613/614	7.87	4.65	1.97	2.56	1.02	M16	2.91
K713/714	8.90	5.43	2.17	2.85	1.22	M20	3.35
K813/814	11.10	6.22	2.95	3.64	1.50	M24	3.94

Table No. 3 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

Table No. 4

"WF" Single Side Bushing – Metric

Unit	Stock Bore Sizes – mm		
	25	30	35
K1	WF1-25	—	—
K2	—	WF2-30	—
K3	—	WF3-30	WF3-35

Table No. 5 "WF" Single Side Bushing – Inches

Unit	Stock Bore Sizes					
	1	1 ³ / ₁₆	1 ¹ / ₄	1 ³ / ₈	1 ⁷ / ₁₆	1 ¹ / ₂
K1	WF1-100	—	—	—	—	—
K2	WF2-100	WF2-103	—	—	—	—
K3	WF3-100	WF3-103	WF3-104	WF3-106	WF3-107	WF3-108
K4	WF4-100	WF4-103	WF4-104	WF4-106	WF4-107	WF4-108



ServoFit® "K" Series—Helical/Bevel Tapped Hole – “G” Housing Single Bushing – Dimensional Data

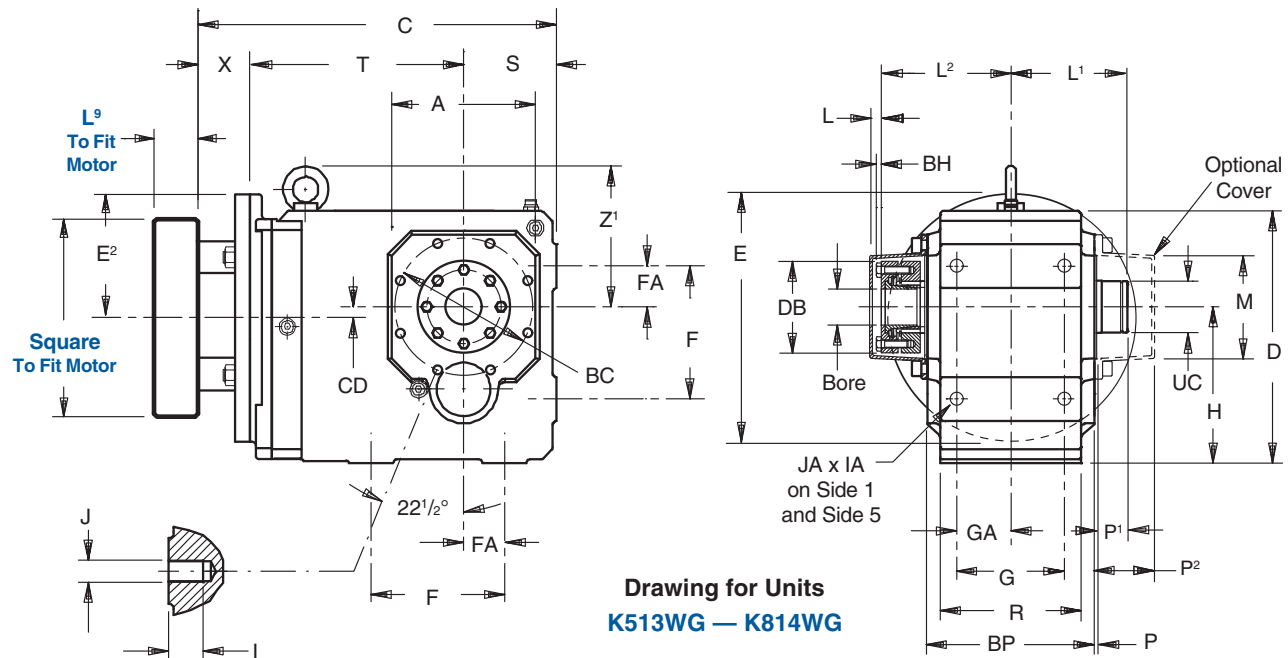
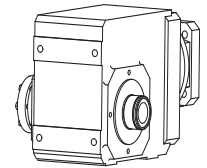


Table No. 6 "K" Series – Single Side Bushing – Unit Dimensions (Inches) – "G" Housing Style

Base Module	MT10			MT20			MT30			MT40			MT50			Wt. lbs.
	CD	C	T	CD	C	T	CD	C	T	CD	C	T	CD	C	T	
K102	1.42	9.40	4.88	1.42	9.96	5.04	—	—	—	—	—	—	—	—	—	31
K202	1.81	9.76	5.63	1.81	10.32	5.79	1.81	10.79	5.87	—	—	—	—	—	—	40
K203	1.81	11.22	7.09	—	—	—	—	—	—	—	—	—	—	—	—	53
K302	2.07	10.94	6.42	2.07	11.49	6.57	2.07	11.96	6.65	—	—	—	—	—	—	67
K303	2.07	12.39	7.87	.63	13.19	8.27	—	—	—	—	—	—	—	—	—	73
K402	—	—	—	2.36	12.87	7.36	2.36	13.34	7.44	2.36	14.60	7.56	—	—	—	93
K403	2.36	13.77	8.66	.91	14.57	9.06	—	—	—	—	—	—	—	—	—	100
K513	—	—	—	.59	12.68	6.77	.59	13.15	6.85	.59	14.41	6.97	—	—	—	106
K514	—	—	—	.59	14.37	8.46	—	—	—	—	—	—	—	—	—	109
K613	—	—	—	.71	14.21	7.52	.71	14.68	7.60	.71	15.94	7.72	.71	11.48	8.27	170
K614	—	—	—	.71	15.90	9.21	—	—	—	—	—	—	—	—	—	177
K713	—	—	—	—	—	—	.79	15.98	8.70	.79	17.24	8.82	.79	12.54	9.33	221
K714	—	—	—	.79	17.24	10.35	.79	18.42	11.14	—	—	—	—	—	—	234
K813	—	—	—	—	—	—	.94	17.79	9.72	.94	19.01	9.80	.94	13.52	10.31	309
K814	—	—	—	—	—	—	.94	20.20	12.13	—	—	—	—	—	—	331

Part No. Example

Unit with TriAdapt® Motor Adapter
1 3/8" Bore Single Bushing
K402WG0560 MT20
WF4-106

SPECIFY BUSHING SIDE WHEN ORDERING

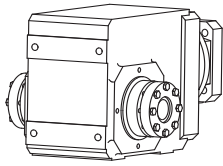
Table No. 7

"WF" Single Side Bushings – Inches

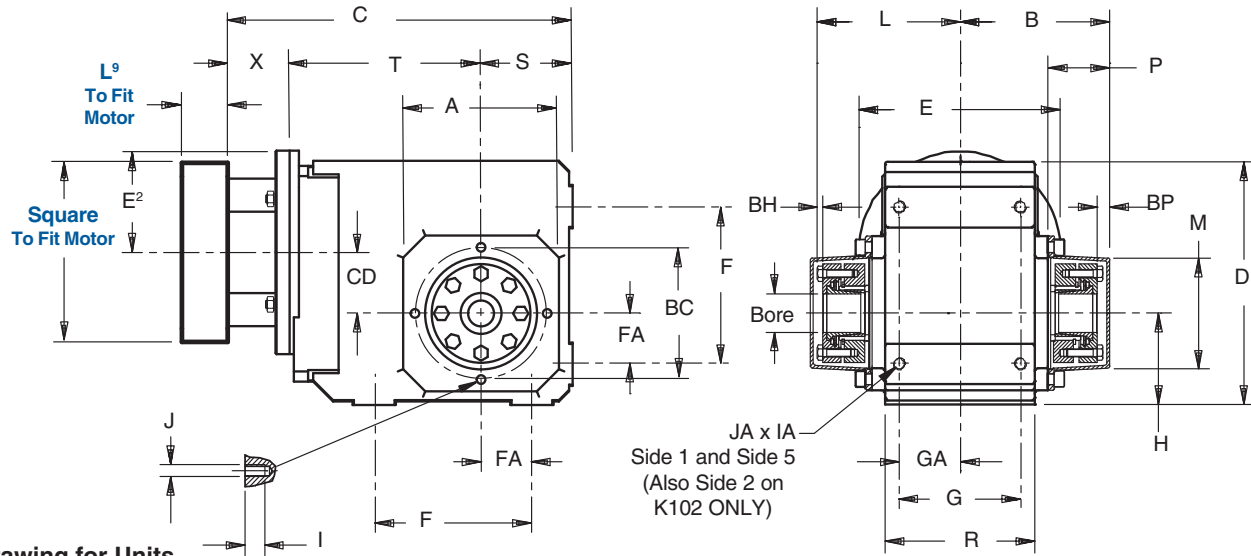
Unit	Stock Bores Sizes – Inches											
	17/16	1 1/2	1 5/8	1 11/16	1 3/4	1 7/8	1 15/16	2	2 3/16	2 3/8	2 7/16	2 3/4
K5	WF5-107	WF5-108	WF5-110	WF5-111	WF5-112	WF5-114	WF5-115	WF5-200	—	—	—	—
K6	WF6-107	WF6-108	WF6-110	WF6-111	WF6-112	—	WF6-115	WF6-200	WF6-203	—	—	—
K7	—	—	—	—	—	—	WF7-115	WF7-200	WF7-203	WF7-206	—	—
K8	—	—	—	—	—	—	—	—	WF8-203	WF8-206	WF8-207	WF8-212

NOTES: A complete bushing kit includes the locking ring assembly, tapered cone, support ring, and all hardware to mount the kit into the reducer. The WF1-100 bushing does not have a tapered cone.

The optional cover caps can be ordered separately.



ServoFit® "K" Series—Helical/Bevel Tapped Hole – "G" Housing Double Bushing – Dimensional Data



Drawing for Units
K102WG — K403WG

Important: A 1/32 x 45° chamfer minimum is recommended for the shaft end.
The bushing will accept a shaft with a tolerance of +.000/- .005.

Table No. 1 "K" Series – Double Side Bushing – Unit Dimensions (Inches)

Base Module	A	B	D	F	G	H	I	J	L	M	P	R	S	Z¹	BC	BP	BH	FA	GA	IA	JA
K102	4.13	3.90	6.30	3.54	2.76	2.36	.51	4-M8	3.82	3.07	1.97	3.54	2.36	—	3.54	.24	.16	1.18	1.38	.51	M8
K202/203	4.57	4.68	7.48	4.53	3.54	2.56	.51	4-M8	4.45	3.46	2.05	4.53	2.56	—	3.94	.39	.16	1.38	1.77	.63	M10
K302/303	5.20	4.98	8.39	5.12	4.13	2.95	.51	4-M8	4.70	3.78	2.09	5.12	2.95	—	4.53	.43	.16	1.57	2.07	.63	M10
K402/403	5.98	5.80	9.45	6.10	4.72	3.54	.63	4-M10	5.53	4.33	2.40	5.83	3.54	—	5.12	.47	.20	1.97	2.36	.75	M12
K513/514	5.71	6.05	10.24	5.51	4.92	6.30	.63	8-M10	5.81	4.54	2.40	6.30	3.94	5.98	5.12	.43	.20	1.57	2.46	1.02	M16
K613/614	7.09	6.61	12.20	6.30	5.12	7.48	.63	8-M10	6.34	5.00	2.68	6.61	4.72	6.77	6.50	.51	.24	1.97	2.56	1.02	M16
K713/714	7.68	7.68	13.46	7.09	5.71	8.35	.75	8-M12	7.53	5.75	2.91	7.48	4.92	7.52	7.28	.39	.24	2.17	2.85	1.22	M20
K813/814	8.90	9.34	16.14	9.45	7.28	10.43	.75	8-M12	9.01	6.95	3.43	9.25	5.71	8.11	8.46	.64	.31	2.95	3.64	1.50	M24

Table No. 2 "MT" Motor Plate Dimensions

Motor Adapter	Motor Shaft D ⁶ Max. ¹⁾		Motor Plate ²⁾ Thickness		Inches			Wt. lbs.
	mm	ins.	L ⁹ Minimum		E	E ²	X	
			mm	inches				
MT10	19	.748	21	.83	5.51	2.75	1.57	5
MT20	24	.945	24	.95	6.30	3.15	1.97	8
MT30	38	1.260	25	.98	7.87	3.94	2.36	12
MT40	48	1.890	33	1.30	9.84	4.92	3.50	18
MT50	60	2.362	43	1.69	11.81	5.91	3.21	16

¹⁾ If an adapter bushing is required it will be supplied as a component of the motor mounting plate.

²⁾ Motor plate maximum thickness (L⁹) will vary with motor shaft length but will not be less than shown.

Table No. 3

"WFB" – Double Side Bushings – Metric

Unit	Stock Bores Sizes – mm			
	25	30	35	40
K1	WFB1-25	—	—	—
K2	—	WFB2-30	—	—
K3	—	WFB3-30	WFB3-35	—
K4	—	—	—	WFB4-40
K5	—	—	—	WFB5-40
K6	—	—	—	WFB6-40

Table No. 4 "WFB" Double Side Bushings – Inches

Unit	Stock Bores Sizes					
	1	1 ³ / ₁₆	1 ¹ / ₄	1 ³ / ₈	1 ⁷ / ₁₆	1 ¹ / ₂
K1	WFB1-100	—	—	—	—	—
K2	WFB2-100	WFB2-103	—	—	—	—
K3	WFB3-100	WFB3-103	WFB3-104	WFB3-106	WFB3-107	WFB3-108
K4	WFB4-100	WFB4-103	WFB4-104	WFB4-106	WFB4-107	WFB4-108



ServoFit® "K" Series—Helical/Bevel Tapped Hole – “G” Housing Double Bushing – Dimensional Data

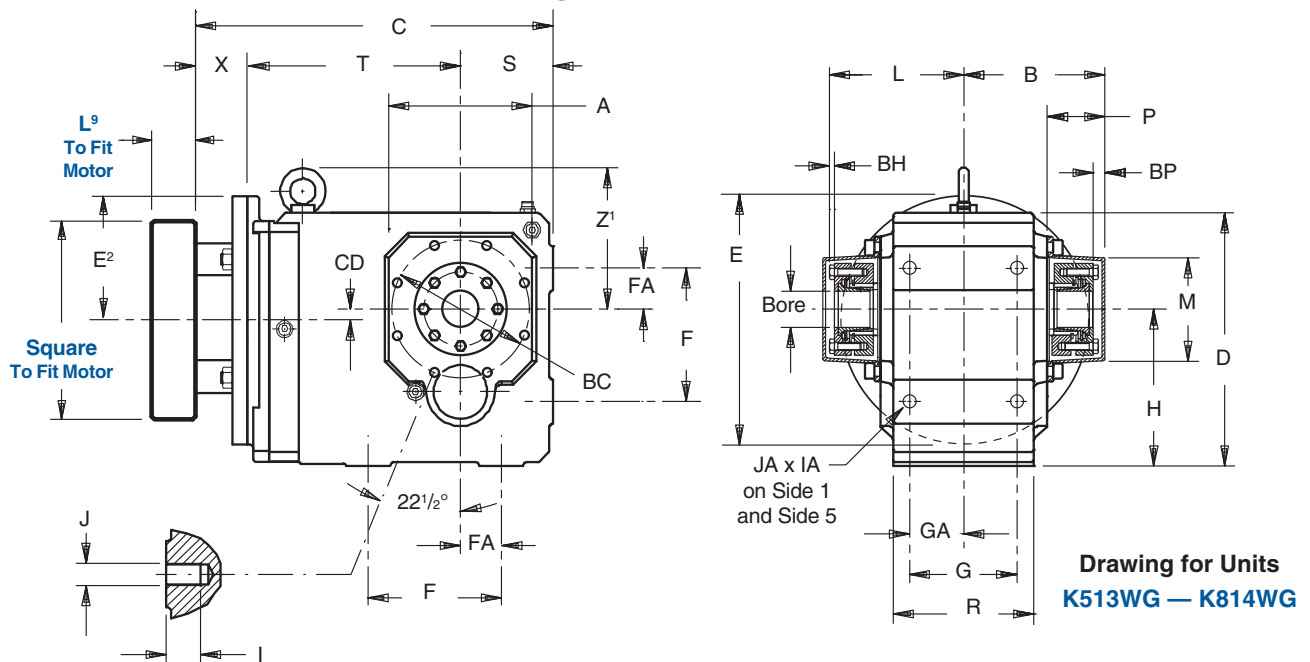
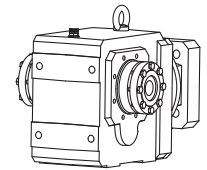


Table No. 5 "K" Series – Double Side Bushing – Unit Dimensions (Inches) – "G" Housing Style

Base	MT10			MT20			MT30			MT40			MT50			Wt.
Module	CD	C	T	CD	C	T	CD	C	T	CD	C	T	CD	C	T	lbs.
K102	1.42	9.40	4.88	1.42	9.96	5.04	—	—	—	—	—	—	—	—	—	31
K202	1.81	9.76	5.63	1.81	10.32	5.79	1.81	10.79	5.87	—	—	—	—	—	—	40
K203	1.81	11.22	7.09	—	—	—	—	—	—	—	—	—	—	—	—	53
K302	2.07	10.94	6.42	2.07	11.49	6.57	2.07	11.96	6.65	—	—	—	—	—	—	67
K303	2.07	12.39	7.87	.63	13.19	8.27	—	—	—	—	—	—	—	—	—	73
K402	—	—	—	2.36	12.87	7.36	2.36	13.34	7.44	2.36	14.60	7.56	—	—	—	93
K403	2.36	13.77	8.66	.91	14.57	9.06	—	—	—	—	—	—	—	—	—	100
K513	—	—	—	.59	12.68	6.77	.59	13.15	6.85	.59	14.41	6.97	—	—	—	106
K514	—	—	—	.59	14.37	8.46	—	—	—	—	—	—	—	—	—	109
K613	—	—	—	.71	14.21	7.52	.71	14.68	7.60	.71	15.94	7.72	.71	11.48	8.27	170
K614	—	—	—	.71	15.90	9.21	—	—	—	—	—	—	—	—	—	177
K713	—	—	—	—	—	—	.79	15.98	8.70	.79	17.24	8.82	.79	12.54	9.33	221
K714	—	—	—	.79	17.24	10.35	.79	18.42	11.14	—	—	—	—	—	—	234
K813	—	—	—	—	—	—	.94	17.79	9.72	.94	19.01	9.80	.94	13.52	10.31	309
K814	—	—	—	—	—	—	.94	20.20	12.13	—	—	—	—	—	—	331

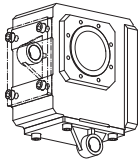
Part No. Example

Unit with TriAdapt® Motor Adapter
1 3/8" Bore Double Bushing
K402WG0560 MT20
WFB4-106

Table No. 6 "WFB" Double Side Bushings – Inches

Unit	Stock Bores Sizes – Inches											
	1 7/16	1 1/2	1 5/8	1 11/16	1 3/4	1 7/8	1 15/16	2	2 3/16	2 3/8	2 7/16	2 3/4
K5	WFB5-107	WFB5-108	WFB5-110	WFB5-111	WFB5-112	WFB5-114	WFB5-115	WFB5-200	—	—	—	—
K6	WFB6-107	WFB6-108	WFB6-110	WFB6-111	WFB6-112	—	WFB6-115	WFB6-200	WFB6-203	—	—	—
K7	—	—	—	—	—	—	WFB7-115	WFB7-200	WFB7-203	WFB7-206	—	—
K8	—	—	—	—	—	—	—	—	WFB8-203	WFB8-206	WFB7-207	WFB8-212

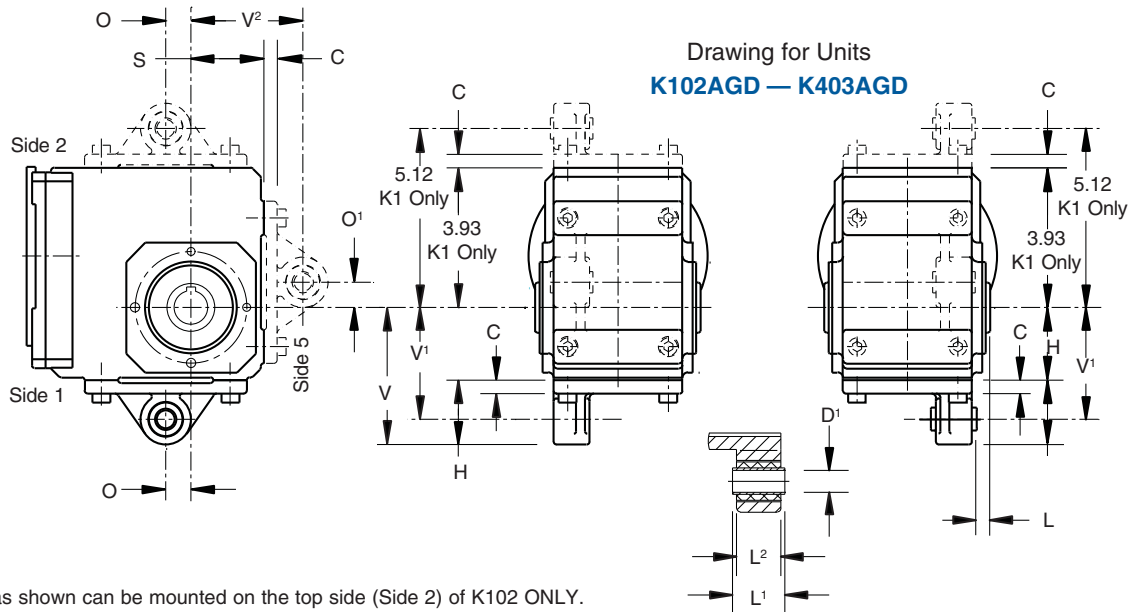
NOTES: A complete bushing kit includes the locking ring assembly, tapered cone, support ring, and all hardware to mount the kit into the reducer. The WFB1-100 bushing does not have a tapered cone.



ServoFit® "K" Series—Helical/Bevel Torque Arm Bracket Dimensional Data



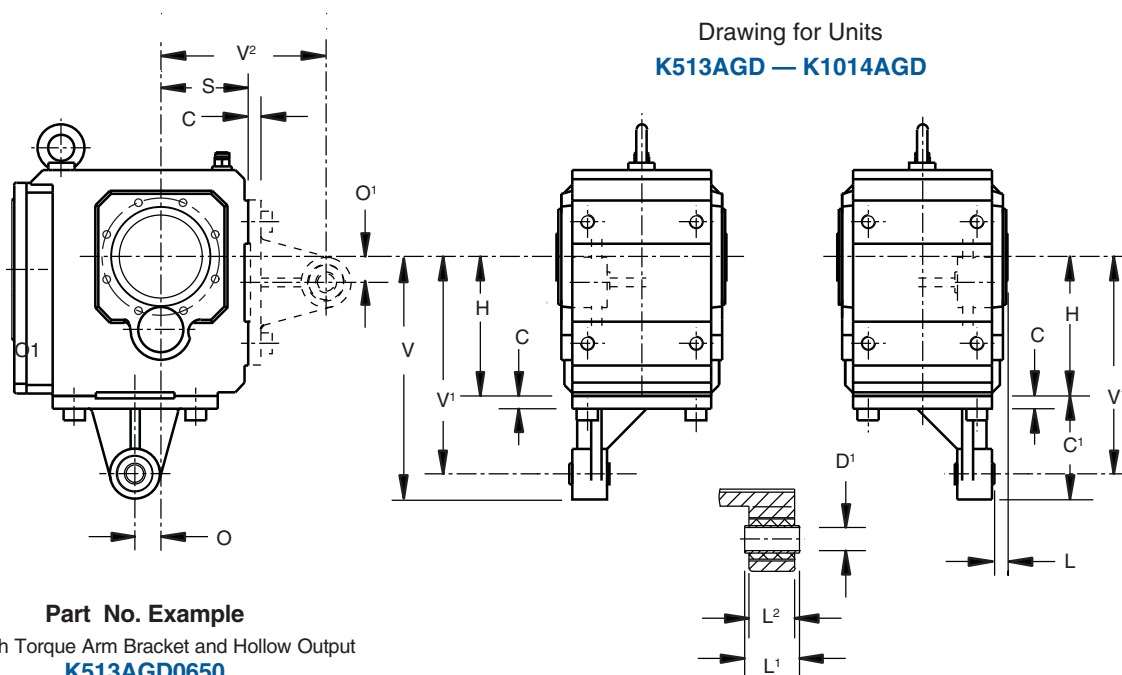
(Torque arm supplied by others.)



The bracket as shown can be mounted on the top side (Side 2) of K102 ONLY.
All brackets can be mounted on all units K102 through K1014 on Side 1 and Side 5.

Table No. 1 "K" Series — Torque Arm Bracket Dimensions (Inches)

Base Module	C	C'	D'	H9	H	L	L'	L ²	O	O'	S	V	V'	V ²
K102	.39	2.03	.47	+0.017/-0.000	2.36	.51	1.10	.94	.59	.59	2.36	4.39	3.54	3.54
K202/K203	.47	2.26	.63	+0.017/-0.000	2.56	.53	1.50	1.26	.89	.89	2.56	4.82	3.93	3.93
K302/K303	.47	2.66	.63	+0.017/-0.000	2.95	.47	1.50	1.26	.98	.98	2.95	5.61	4.72	4.72
K402/K403	.55	3.46	.79	+0.020/-0.000	3.54	.67	1.81	1.57	1.08	1.08	3.54	7.00	5.91	5.91
K513/K514	.59	4.68	.79	+0.020/-0.000	6.30	.67	1.81	1.57	1.18	1.18	3.93	10.98	9.84	7.48
K613/K614	.59	3.50	.79	+0.020/-0.000	7.48	.81	1.81	1.57	1.18	1.18	4.72	10.98	9.84	7.09
K713/K714	.67	4.80	.79	+0.020/-0.000	8.35	.91	2.76	2.52	1.38	1.38	4.92	13.15	11.81	8.39
K813/K814	.67	4.77	.94	+0.020/-0.000	10.43	1.02	4.53	4.02	1.77	1.77	5.71	15.20	13.78	9.06
K913/K914	.79	6.80	.94	+0.020/-0.000	12.40	1.02	4.53	4.02	1.77	1.77	7.09	19.20	17.72	12.40
K1013/K1014	1.65	9.25	1.57	+0.024/-0.000	14.76	.24	4.88	4.65	2.36	2.17	8.86	24.01	21.65	15.75

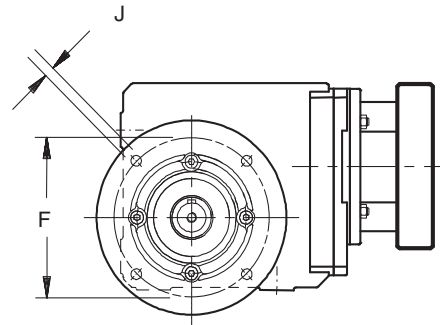
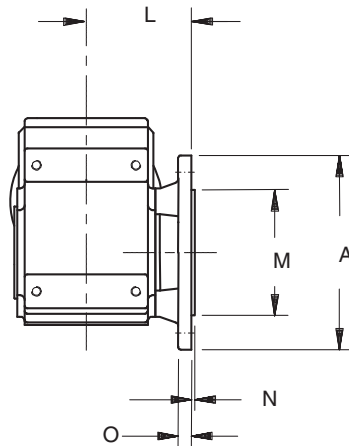
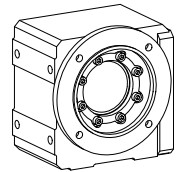




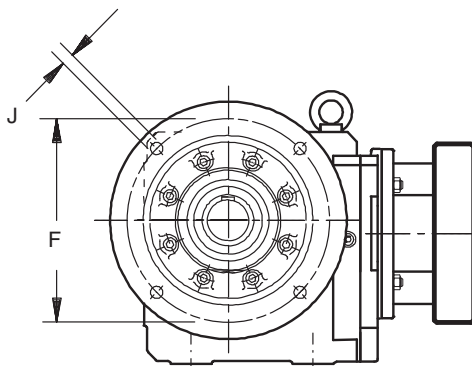
ServoFit® "K" Series—Helical/Bevel

Optional Round Flange Sizes

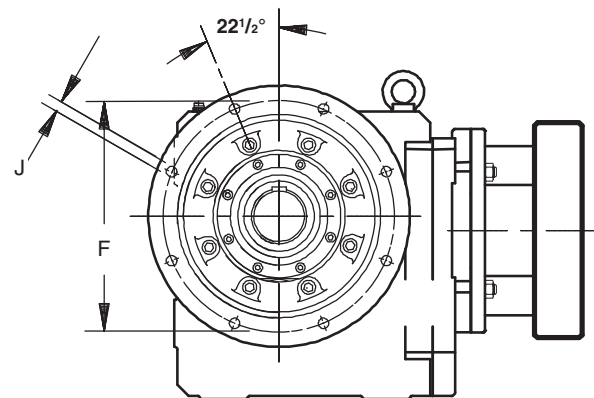
Dimensional Data



Drawing for Units
K102F—K403F



Drawing for Units
K513F—K814F



Drawing for Units
K913-K1014F

Table No. 1 "K" Series — Optional Flange Dimensions (Inches)

Base Module	Flange Designation	A	F	J	L	M	N	O
K102	140	5.51	4.53	.35	3.35	3.740 +0.001/-0.0004	.12	.39
	160 *	6.30	5.12	.35	3.35	4.331 +0.001/-0.0004	.14	.39
K202/K203	160	6.30	5.12	.35	3.90	4.331 +0.001/-0.0004	.14	.47
	200 *	7.87	6.50	.43	3.90	5.118 +0.001/-0.0004	.14	.47
K302/K303	160	6.30	5.12	.35	4.37	4.331 +0.001/-0.0004	.14	.55
	200 *	7.87	6.50	.43	4.37	5.118 +0.001/-0.0004	.14	.55
	250	9.84	8.46	.55	4.37	7.087 +0.001/-0.0004	.14	.55
K402/K403	250 *	9.84	8.46	.55	4.98	7.087 +0.001/-0.0004	.16	.59
K513/K514	250 *	9.84	8.46	.55	5.20	7.087 +0.001/-0.0004	.16	.59
K613/K614	300 *	11.81	10.43	.55	5.35	9.055 +0.001/-0.0005	.16	.67
K713/K714	350 *	13.78	11.81	.71	6.18	9.843 +0.000/-0.001	.20	.71
K813/K814	350	13.78	11.81	.71	7.32	9.843 +0.000/-0.001	.20	.79
	400 *	15.75	13.78	.71	7.32	11.811 +0.000/-0.001	.20	.79
	450	17.72	15.75	.71	7.32	13.781 +0.000/-0.002	.20	.79
K913/K914	450 *	17.72	15.75	.71	8.46	13.780 +0.000/-0.002	.20	.91
	550	21.65	19.69	.71	8.46	17.717 +0.000/-0.002	.20	.91
K1013/K1014	550	21.65	19.69	.71	10.08	17.717 +0.000/-0.002	.20	.98

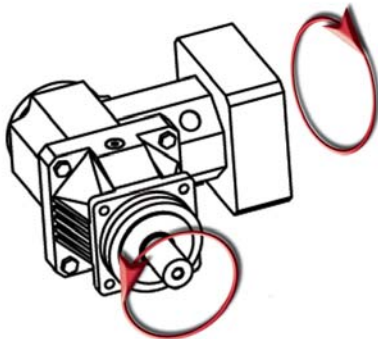
* This is the standard flange diameter. For other diameters, specify at the time of ordering.



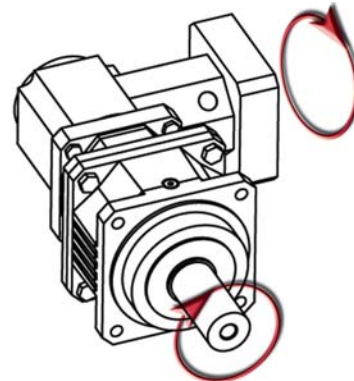
ServoFit® Gearhead Direction of Rotation



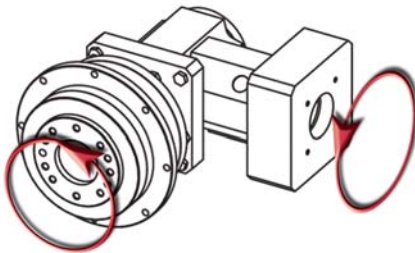
P221KX301 – P521KX501
P222KX301 – P522KX401



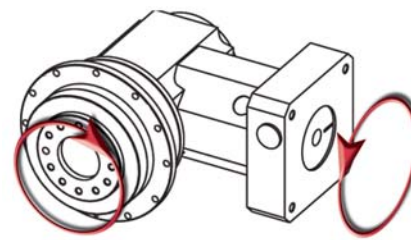
P721KX701 – P821KX801
P722KX501 – P822KX701



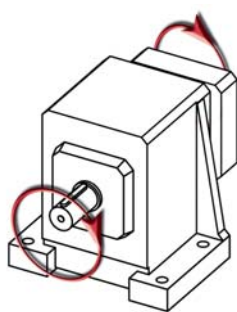
PH321KX3 – PH521KX5
PH322KX3 – PH522KX4



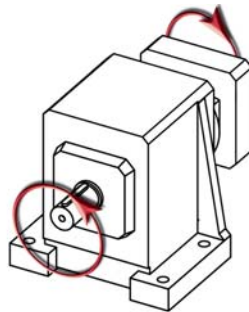
PH721KX7 – PH821KX8
PH722KX5 – PH1012KX8



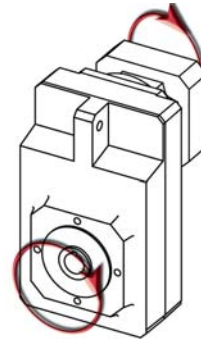
"C" Series – 2 Stage
C002 through C812



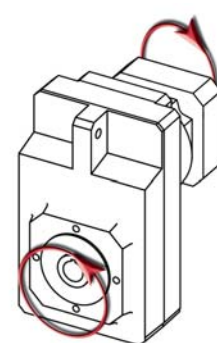
"C" Series – 3 Stage
C103 through C913



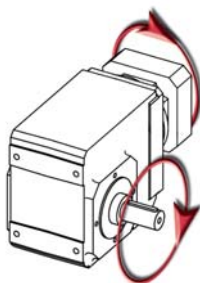
"F" Series – 2 Stage
F102 through F602



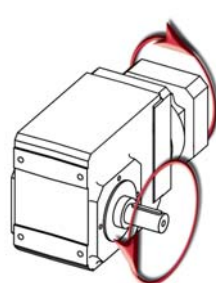
"F" Series – 3 Stage
F203 through F603



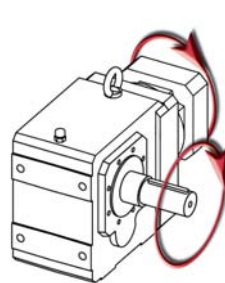
"K" Series – 2 Stage
K102 through K402



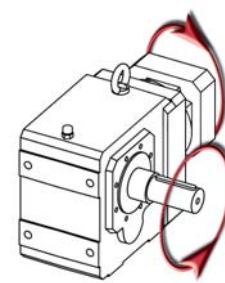
"K" Series – 3 Stage
K203 through K403



"K" Series – 3 Stage
K513 through K913



"K" Series – 4 Stage
K514 through K1014





ServoFit® Gearhead Motor Plate Specifications



STOBER ServoFit Gearheads will fit the motor of your choice by assembling the correct motor mounting plate between the motor and the gearhead. When ordering a gearhead, specify the motor manufacturer and part number, provide the motor drawing with dimensions, or specify the motor mounting dimensions. The motor plate thickness (L⁹) dimension will be determined by the motor shaft length. The minimum motor plate thickness is shown below. For a precise dimension on a specific motor, contact STOBER Technical Support.

The following dimensions are required to provide the correct motor mounting plate:

1. D⁶ Motor Shaft Diameter (If an adapter bushing is required it will be supplied with the motor plate.)
2. D⁷ Pilot Diameter
3. D⁸ Bolt Circle Diameter
4. D⁹ Bolt Diameter
5. L¹¹ Motor Shaft Length
6. L¹² Pilot Length
7. L¹⁴ Square Flange (Optional—Motor plate will typically be made to match.)

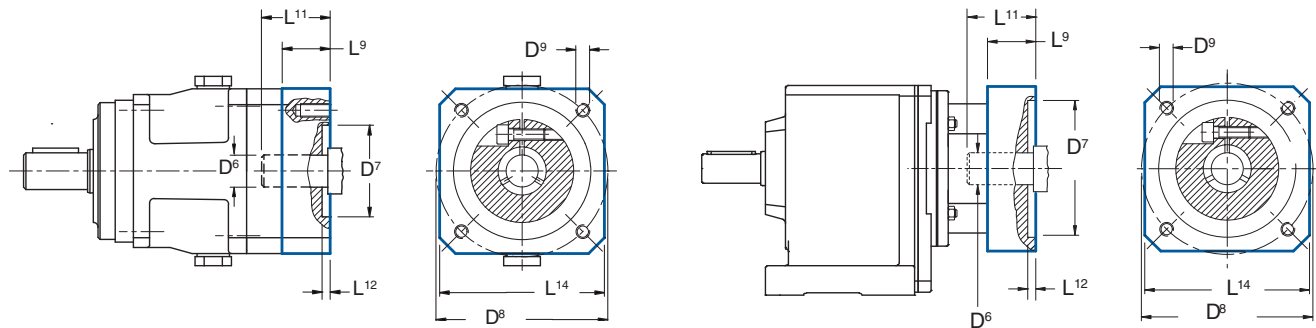


Table No. 1 Motor Plate Thickness - Minimum

Unit								Motor Shaft D ⁶ Max. mm	Motor Plate L ⁹ Min. mm ins.	
P	PA	PKX	PH	PHA	PHKX	PE	C, F, K			
P221/222 P322	PA322		PH322	PHA322				14	15	.59
P221L P222L P321 P322L P422	PA321 PA422	P321KX3 P422KX3	PH321 * PH322L PH422	PHA321 * PHA422	PH321KX3 PH322KX3 PH422KX3			19	18 * 22	.71 .87
P321L P421 P422L P522	PA421 PA522	P421KX4 P522KX4	PH321L PH421 PH422L PH522	PHA421 PHA522	PH421KX4 PH522KX4			24	21	.83
P421L P521 P522L P722	PA521 PA722	P521KX5 P722KX5	PH421L PH521 PH522L PH722 PH924	PHA521 PHA722 PHA924	PH521KX5 PH722KX5			32	24	.95
P521L P721 P722L P822	PA721 PA822	P721KX7 P822KX7	PH521L PH721 PH722L PH822 PH923 PH1024	PHA721 PHA822 PHA923 PHA1024	PH721KX7 PH822KX7			38	25	.98
P721L P821 P822L P922	PA821	P821KX8	PH821 PH912 PH1012	PHA821 PHA912 PHA1012 PHA1023	PH821KX8 PH912KX8			48	33	1.3
P921 P922L								60	43	1.69
						PE201/PE202 PE301/PE302 PE401/PE402 PE501/PE502		11 14 19 24	18 20 30 33	.71 .79 1.2 1.3
							MT10 MT20 MT30 MT40 MT50	19 24 38 48 60	21 24 25 33 43	.83 .95 .98 1.30 1.69





ServoFit® Gearhead Motor Mounting Instructions



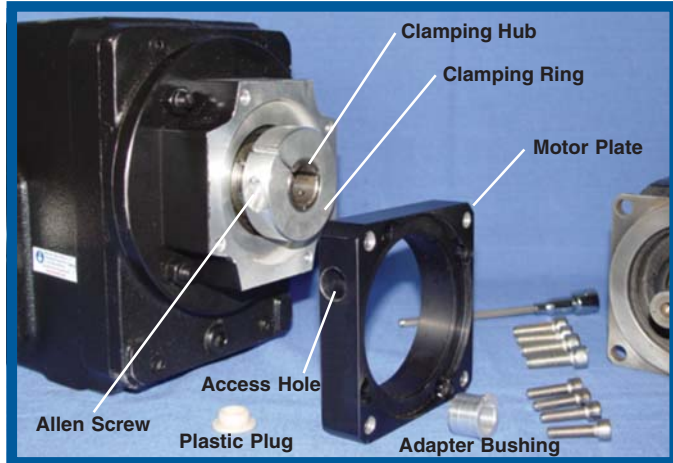
General Information

Servo motors are mounted to ServoFit® gearheads by using a TriAdapt® motor adapter with a clamp coupling or the FlexiAdapt® motor adapter with a bellows shaped thermal expansion feature. These patented adapters require no key but uses a friction locking triple split collet to clamp the shaft. A split bushing is included when the motor shaft is smaller than the input bore in the gearhead. The coupling operates free of backlash and, if installed correctly, requires no maintenance.

Tolerances for the motor must be ISO j6 on the pilot diameter and ISO k6 on the motor shaft, see Table No. 1. The motor shaft does not require a key but shaft runout, pilot concentricity and perpendicularity should meet DIN standard 42955-N when possible.

Important: Clean the motor shaft with degreaser to remove any film of oil or grease.

Parts for ServoFit Modular System



Parts for ServoFit Precision Planetary Gearheads

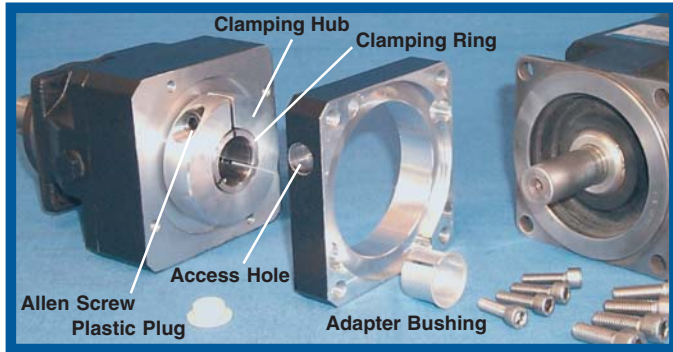


Table No. 1 Tolerances for Motors

k6 - Shaft Diameter	Metric (µm)	Imperial (ins.)
over 6 - 10	+10 / +1	+0.00039 / +.00004
over 10 - 18	+12 / +1	+0.00047 / +.00004
over 18 - 30	+15 / +2	+0.00059 / +.00008
over 30 - 50	+18 / +2	+0.0007 / +.00008
j6 - Pilot Diameter	Metric (µm)	Imperial (ins.)
over 10 - 18	+8 / -3	+0.0003 / -.00012
over 18 - 30	+9 / -4	+0.00035 / -.00016
over 30 - 50	+11 / -5	+0.0004 / -.0002
over 50 - 80	+12 / -7	+0.00047 / -.00027
over 80 - 120	+13 / -9	+0.0005 / -.00035
over 120 - 180	+14 / -11	+0.00055 / -.0004
over 180 - 250	+16 / -13	+0.0006 / -.0005
over 250 - 315	+16 / -16	+0.0006 / -.0006
over 315 - 400	+18 / -18	+0.0007 / -.0007

Table No. 2 Capscrew Tightening Torque

Unit	Allen Wrench	Tightening Torque	
	Size	Nm.	in. lbs.
P221, P222, P322	3	3	26.6
P221L, P222L, P321, P322L, P422	5	10	88.5
P321L, P421, P422L, P522	6	25	221.3
P421L, P521, P522L, P722	6	25	221.3
P521L, P721, P722L, P822	8	45	398.3
P721L, P821, P822L, P922	10	60	531
P821L, P921, P922L	14	210	1,858.5
PA322	3	4.5	39.8
PA321, PA422	4	9	35.4
PA321L, PA421, PA522	5	16	141.6
PA421L, PA521, PA522L, PA722	6	40	354.0
PA521L, PA721, PA722L, PA822	8	75	663.8
PA821, PA822L	10	130	1,150.5
P321KX3, P422KX3	4	10	88.5
P421KX4, P521KX5, P522KX4, P722KX5	5	14	123.9
P721KX7, P822KX7	8	45	398.3
P821KX8, P922KX8	10	60	531
PH322	3	3	26.6
PH321, PH322L, PH422	5	10	88.5
PH321L, PH421, PH422L, PH522,	6	25	221.25
PH421L, PH521, PH522L, PH722	6	25	221.3
PH521L, PH721, PH722L, PH822, PH923	8	45	398.3
PH821, PH912, PH1012, PH1023	10	60	531
PHA322	3	4.5	39.8
PHA321, PHA422	4	9	35.4
PHA321L, PHA421, PHA522	5	16	141.6
PHA421L, PHA521, PHA722	6	40	354.0
PHA521L, PHA721, PHA822, PHA923	8	75	663.8
PHA821, PHA1012, PHA1023	10	130	1,150.5
PH321KX3, PH422KX3	4	10	88.5
PH421KX4, PH521KX5	5	14	123.9
PH522KX4, PH722KX5	5	14	123.9
PH721KX7, PH822KX7	8	45	398.3
PH821KX8, PH912KX8	10	60	531
PE2	4	10	88.5
PE3	5	17	150.5
PE4	6	42	371.7
PE5	8	83	734.6

ServoFit Gearheads – "C", "F", or "K"

MT10	5	10	88.5
MT20	6	25	221.3
MT30	8	45	398.3
MT40	10	60	531
MT50	14	210	1,858.5



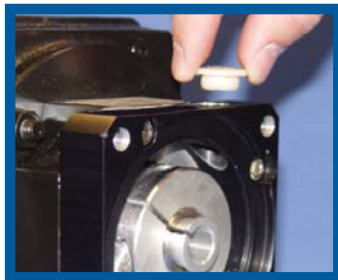
ServoFit® Gearhead Motor Mounting Instructions



STEP 1. Remove the access hole plug.

Carefully remove the plastic plug from the access hole in the motor plate.

For new installations, the plastic plug, wrench, instructions, and bushing, when required, are contained in a plastic bag included in the shipping carton.



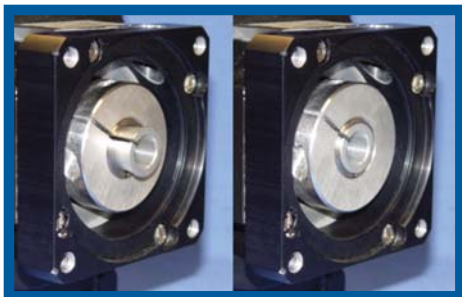
STEP 2. Align screw with access hole.



Visually align the access hole with the Allen screw in the clamping ring by turning the gearhead output shaft or the input coupling. (Shown with wrench for illustration purposes.)

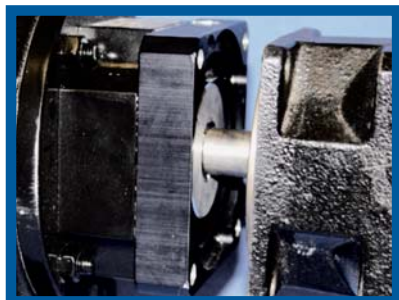
STEP 3. Install bushing (when applicable).

If an adapter bushing is needed, degrease the bushing inside and outside. Align the slot in the adapter bushing with the slot in the coupling hub. Slide the bushing into the input bore until the collar of the bushing touches the shaft end.



STEP 4. Carefully mount the motor.

Place the gearhead (with the bushing installed where necessary) onto the motor shaft. (If there is a keyway in the motor shaft, align the slot in the clamping hub with the keyway.) Support the gearhead while sliding it onto the motor shaft.

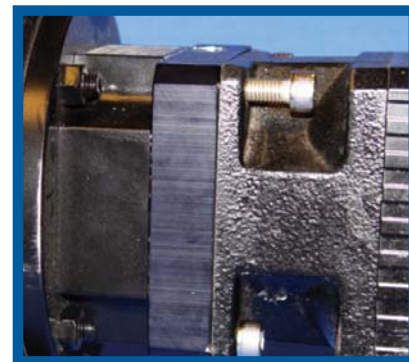


IT IS VERY IMPORTANT THAT THE GEARHEAD IS NOT FORCED ONTO THE SHAFT AND THE MOTOR IS CONCENTRIC WITH THE GEARHEAD COUPLING.

STEP 5. Bolt the motor to the motor plate.

Bolt the motor flange to the gearhead motor plate.

Tighten the motor bolts to the recommended tightening torque shown in Table No. 2.

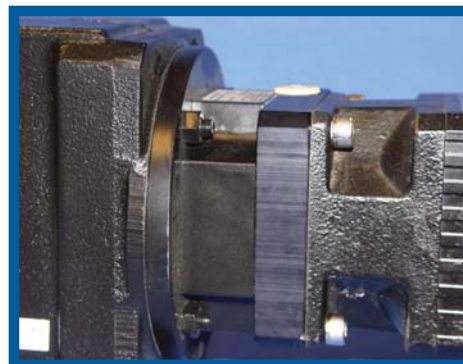


STEP 6. Tighten the TriAdapt coupling screw.

With a torque wrench, tighten the Allen screw on the coupling to the recommended torque shown in Table No. 2. A torque wrench extension is provided with each gearhead. If there are two (2) screws, be sure to tighten them equally.

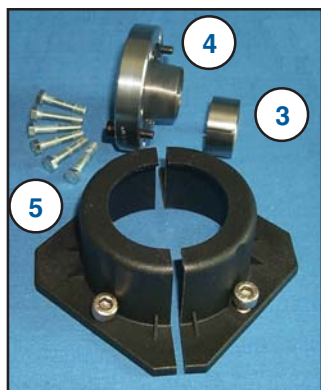


STEP 7. Re-insert the plastic plug.





"K" Series – ServoFit® Modular System "WFB" Bushing Installation



**Support Side
Bushing Components**

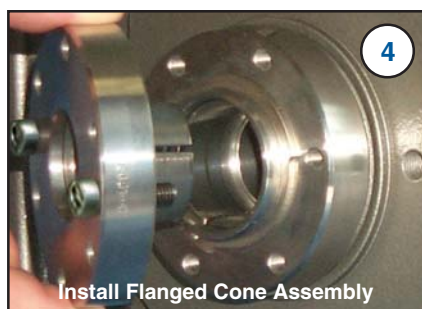
The Support Side is the bushing with the dark coating on the cone. Do NOT use cleaner on the coated cone.

Support Side Installation



Insert Tapered Cone

K1 units do not have a tapered cone.

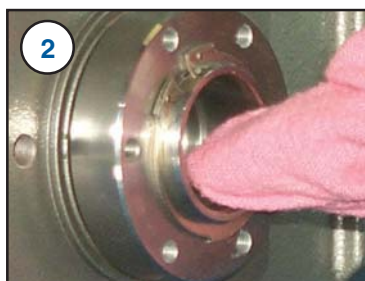
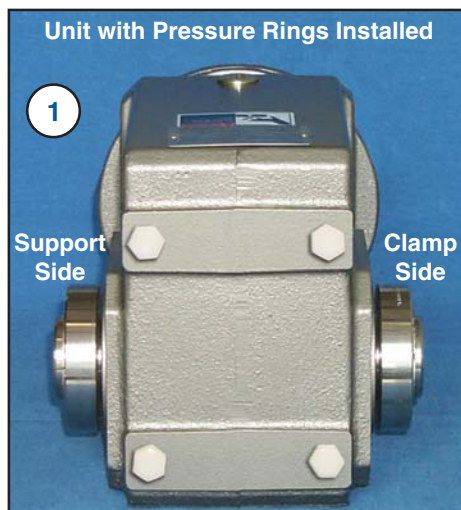


Install Flanged Cone Assembly

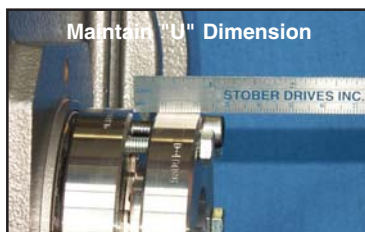
Install the Flanged Cone Assembly (4) with its slot opposite the slot in the tapered cone (3).



Hand Tighten Capscrews



Be sure the inside of the quill is free of grease and oil before installing the tapered cones.

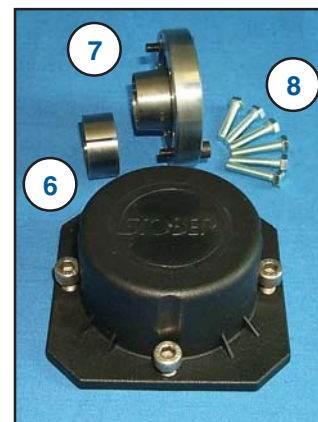


Maintain "U" Dimension

The "U" distance (between the rings) determined by the spacer bolts (see Table 1) must be maintained throughout assembly of the bushing and mounting onto the shaft. Therefore DO NOT tighten the capscrews or remove the spacer bolts until the unit is mounted on the shaft.



**VERY IMPORTANT
Do NOT Remove Spacer Bolts**



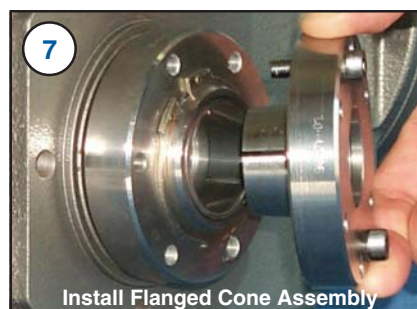
**Clamp Side
Bushing Components**

Clamp Side Installation



Insert Tapered Cone

K1 units do not have a tapered cone.



Install Flanged Cone Assembly

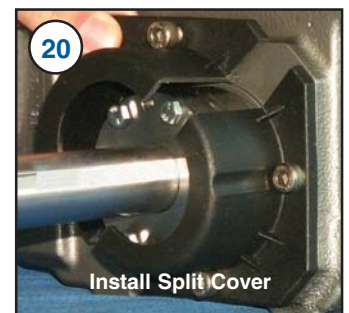
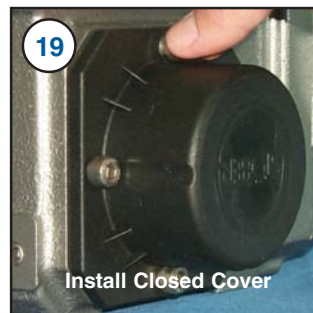
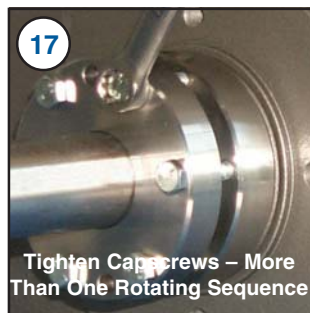
Install the Flanged Cone Assembly (7) with its slot opposite the slot in the tapered cone (6).



Hand Tighten Capscrews



"K" Series – ServoFit® Modular System "WFB" Bushing Installation

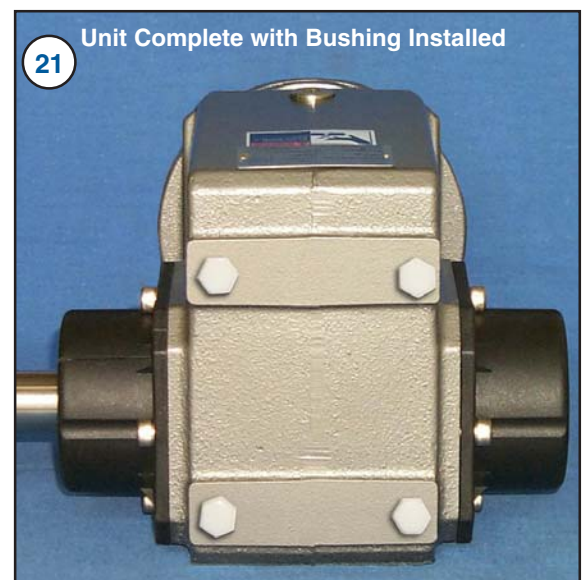


Tighten all capscrews to the torque shown in Table 1. Use a torque wrench. The tightening should be done gradually in a rotating sequence and will require more than one rotation.

After two hours (minimum) running time, check capscrews and retighten, if necessary.

Table No. 1

Base Module	Capscrews		Tightening Torque		U		Spacer Bolts
	Qty.	Size x Length	Nm.	in. lbs.	mm	ins.	
K102	6	M6x25 mm	10	89	5	.20	M6x20mm
K202/K203	6	M6x30 mm	10	89	5	.20	M6x20mm
K302/K303	8	M6x30 mm	10	89	5	.20	M6x20mm
K402/K403	8	M8x30 mm	25	221	6	.24	M8x20mm
K513/K514	8	M8x30 mm	25	221	7	.28	M8x25mm
K613/K614	8	M10x35 mm	49	434	8.5	.33	M10x25mm
K713/K714	8	M10x40 mm	49	434	5.5	.22	M10x25mm
K813/K814	8	M12x40 mm	85	752	7	.28	M12x45mm





ServoFit® Modular System Wobble Free Bushing Features



"No Key and Wobble Free"

The STÖBER "Wobble Free" bushing is a unique patented⁽¹⁾ stainless steel system which can be supplied on a single side or double sides. These bushings can be mounted in the "F" Series and "K" Series ServoFit reducers. Each case size can be provided with a variety of bushing bore sizes. The unit is selected based on horsepower or torque rating, output speed or ratio, and the shaft size of the driven equipment.

Some special features of the bushing system are:

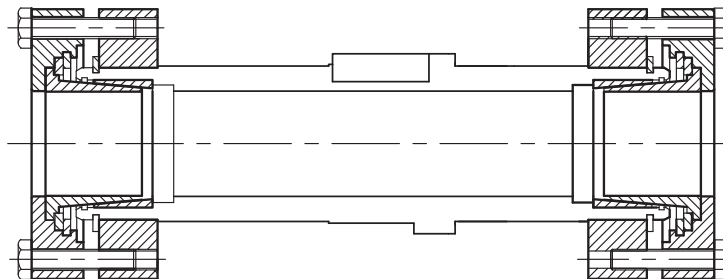
- All quills and bushing parts are high tensile stainless steel – providing the additional benefit of corrosion resistance.
- Featuring a distinct support side and a clamp side, the dual tapered cones will overcome a wide range of tolerances normally found with standard shaft materials. There is no shaft key necessary.
- All hardware is stainless steel.
- Units sizes K102 through K814 can be supplied with output covers on one or both sides which protect the seals and also cover the rotating bushing. F102 through F603 can only have a cover mounted on Side 5.
- Wobble Free – tapered cones in conjunction with a support ring or support side bushing prevent the "rocking" of the reducer on the shaft, common with many bushing designs.
- The reducer output bore can be changed any time by changing the bushing kit.

Important: A $\frac{1}{32} \times 45^\circ$ chamfer minimum is recommended for the shaft end.

The bushing will accept a shaft with a tolerance of $+.000/-0.005$ inches.

Detailed instructions for mounting the bushing are included with each bushing kit.

Double Sided Bushing



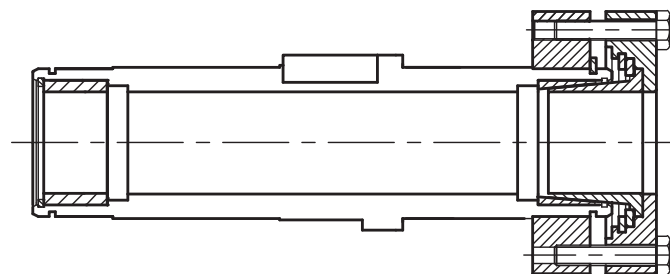
Support Side

Clamp Side

This unique design allows the unit to be mounted on the shaft from either side of the reducer by reversing the clamp side and support side bushings. The clamp side is determined by the customer but is usually the easily accessible outside bushing.

The double sided bushing is not installed into the unit at assembly, but with easy-to-follow installation instructions, the unit and bushing can be mounted on the machinery quickly – without any special tools.

Single Sided Bushing



Support Side

Clamp Side

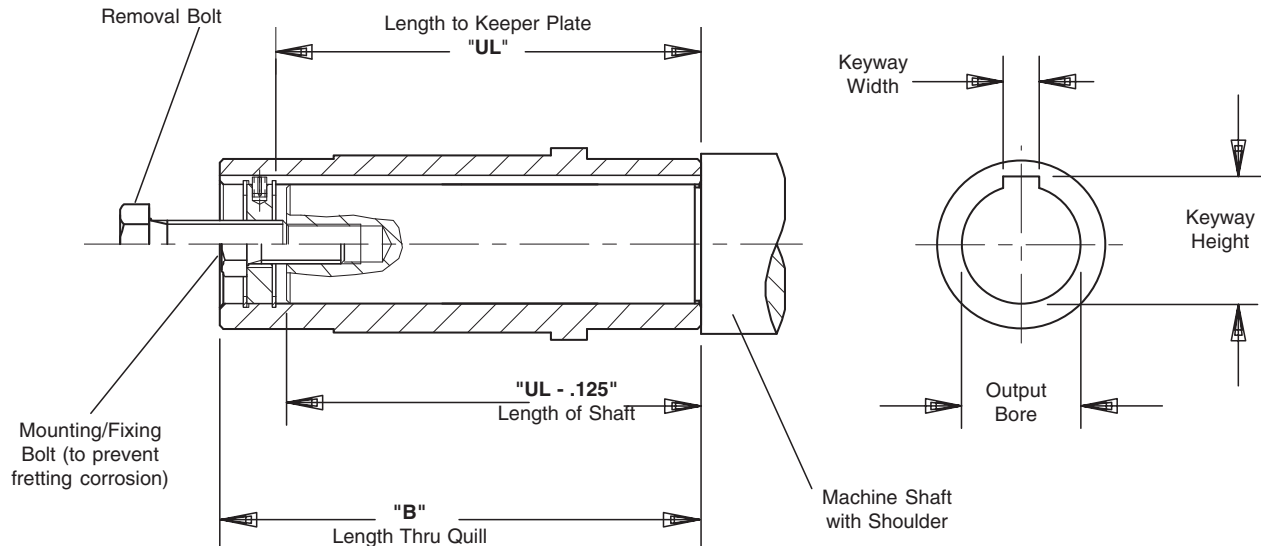
The single sided bushing is assembled at the time of the order. The bushing side extension must be specified by the customer before assembly. The bushing is installed into the unit for shipping and is not interchangeable once the unit is assembled.

⁽¹⁾ U.S. Patent Number 5,496,127



ServoFit® Modular System

Installation of Hollow Output



Mounting Hollow Output Reducers

A STÖBER hollow output reducer can be mounted from either side. The tolerance for the hollow bore is shown in the table below and the shaft should be toleranced to fit this bore accordingly.

A keeper plate inside the quill is provided with each unit to prevent axial movement. This keeper plate is held in place with snap rings and can be easily removed for location on either end. A spring pin in the keeper plate mounts into the keyway of the quill and prevents rotation. The keeper plate center hole is tapped to fit the removal bolt.

Before installation, brush the inside of the quill with rust inhibiting grease. When mounting the unit onto the shaft, avoid hammering as this may damage the bearings. Do not mount the reducer dry as removal may be impossible.

The drawing above shows a mounting or fixing bolt and a removal bolt. The mounting/fixing bolt should be smaller in size than the removal bolt. See Table No. 2.

To use the keeper plate with a mounting/fixing bolt, drill and tap the end of the shaft that will be mounted into the reducer. Insert the mounting/fixing bolt through the keeper plate and thread into the shaft end. The machine shaft length should not be longer than the "UL" dimension. A shaft length of "UL minus .125" will allow the shaft shoulder to pull against the face of the quill of the reducer.

Removal of Hollow Output Reducers

To dismantle the unit from the shaft, remove the mounting bolt. Thread the removal bolt into the keeper plate to press against the shaft and loosen the shaft from the unit. Removal of the reducer will be easier if the quill is greased before installation.

Table No. 1
Hollow Shaft — "U" Dimension

Bore Range	Tolerance
.39 – .71	+0.0007 / -0.0000
.71 – 1.18	+0.0008 / -0.0000
1.18 – 1.97	+0.0010 / -0.0000
1.97 – 3.15	+0.0012 / -0.0000
3.15 Up	+0.0014 / -0.0000

Table No. 2 "UL" Dimension and Removal Bolt Size

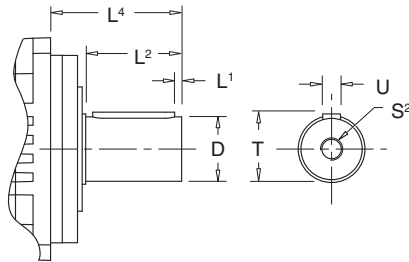
Unit	Bore	UL	Bolt	Unit	Bore	UL	Bolt
F1	.750	2.67	3/8-16 NC	K1	1.000	3.86	1/2-13 NC
F2	1.000	3.62	1/2-13 NC	K2	1.187	4.78	1/2-13 NC
F3	1.250	4.06	1/2-13 NC	K3	1.375	4.92	5/8-11 NC
F4	1.500	4.49	3/4-10 NC	K4	1.500	6.18	3/4-10 NC
F6	2.000	5.63	3/4-10 NC	K5	2.000	6.46	3/4-10 NC
				K6	2.000	7.05	3/4-10 NC
				K7	2.375	8.43	1-8 NC
				K8	2.750	10.35	1-8 NC
				K9	3.250	12.32	1-8 NC
				K10	4.000	14.25	1 1/4-7 NC



"P and PA" Series ServoFit® Precision Planetary Gearhead Output Shaft Options



"P" – Shaft with Key



"G" – Shaft without Key

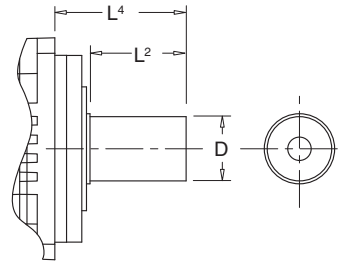


Table No. 1 Output Shaft Options

P – Shaft with Key

Unit No.	D k6 mm	L ¹ mm inches	L ² mm inches	L ⁴ mm inches	S ² (1)	T mm inches	U (2) WDxHTxLG
P2	12 +.012/+ .001	2 .08	22 .87	36 1.42	M4	13.5 .53	A4x4x18
P3/PA3	16 +.012/+ .001	2 .08	28 1.10	48 1.89	M5	18 .71	A5x5x22
P4/PA4	22 +.015/+ .002	3 .11	36 1.42	56 2.20	M8	24.5 .96	A6x6x28
P5/PA5	32 +.018/+ .002	3 .11	58 2.28	88 3.46	M12	35 1.38	A10x8x50
P7/PA7	40 +.018/+ .002	4 .16	82 3.23	112 4.41	M16	43 1.69	A12x8x70
P8/PA8	55 +.021/+ .002	6 .24	82 3.23	112 4.41	M20	59 2.32	A16x10x70
P9	75 +.021/+ .002	7 .28	105 4.13	143 5.63	M20	79.5 3.13	A20x12x90

G – Shaft without Key

Unit No.	D k6 mm	L ² mm inches	L ⁴ mm inches
P2	12 +.012/+ .001	22 .87	36 1.42
P3/PA3	16 +.012/+ .001	28 1.10	48 1.89
P4/PA4	22 +.015/+ .002	36 1.42	56 2.20
P5/PA5	32 +.018/+ .002	58 2.28	88 3.46
P7/PA7	40 +.018/+ .002	82 3.23	112 4.41
P8/PA8	55 +.021/+ .002	82 3.23	112 4.41
P9	75 +.021/+ .002	105 4.13	143 5.63

(1) The center hole in shafts with keys (Option "P") are machined to DIN 332 T2 shape DR.

(2) Feather keys are toleranced according to standard DIN 6885.



"P and PA" Series ServoFit® Precision Planetary Gearhead Output Shaft Loads



The permissible load and tilting moment values are based on an output speed of 100 RPM.
For higher speeds the following applies, where n_2 is the desired speed:

$$F_{2AX} = \frac{F_{2A}}{\sqrt[3]{\frac{n_2}{100}}} \quad F_{2RX} = \frac{F_{2R}}{\sqrt[3]{\frac{n_2}{100}}} \quad T_{2KX} = \frac{T_{2K}}{\sqrt[3]{\frac{n_2}{100}}}$$

The application input tilting moment should be determined by the following formula: $T_{2A} = \frac{2 \times F_{2a} \times y_2 + F_{2r} \times (x_2 + z_2)}{1000} \leq T_{2K}$

The hours of life (L_h) of the unit can be determined by the following formula:
 $L_h > 10,000$ hours if $T_{2K}/T_{2A} < 1.25$ and > 1.00
 $L_h > 20,000$ hours if $T_{2K}/T_{2A} > 1.25$ and < 1.50
 $L_h > 30,000$ hours if $T_{2K}/T_{2A} > 1.5$

All formulas shown are based on metric values.

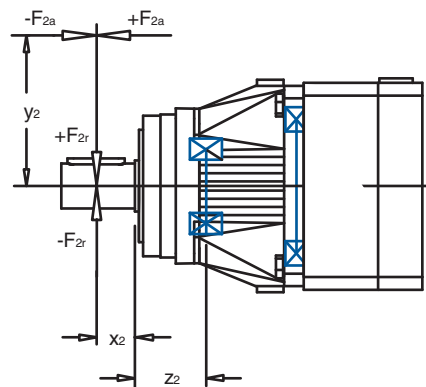


Table No. 1 Permissible Load and Tilting Moments

R – Output Bearing Option, Normal								
Unit No.	Z ₂		F _{2A}		F _{2R}		T _{2K}	
	mm	inches	N	lbs.	N	lbs.	Nm	in.lbs.
P2	17	.669	500	112	1,200	270	34	300
P3	21	.827	1,000	225	2,500	563	88	779
P4	22	.866	1,500	337	4,000	900	160	1,416
P5	23	.906	2,300	518	6,500	1,463	338	2,708
P7	26	1.023	2,900	653	8,000	1,800	536	4,744
P8	28	1.102	4,700	1,058	13,000	2,925	897	7,938
P9	40	1.575	6,000	1,350	18,000	4,050	1,665	14,735

D – Output Bearing Option, Axially Reinforced								
Unit No.	Z ₂		F _{2A}		F _{2R}		T _{2K}	
	mm	inches	N	lbs.	N	lbs.	Nm	in.lbs.
P3, PA3	24	.945	1,400	315	2,750	619	105	929
P4, PA4	25	.984	2,250	506	4,500	1,013	194	1,717
P5, PA5	29	1.142	3,500	788	7,000	1,575	406	3,593
P7, PA7	31	1.220	4,500	1,013	9,000	2,025	648	5,735
P8, PA8	35	1.378	7,500	1,688	15,000	3,375	1,140	10,089
P9	51	2.008	10,000	2,250	20,000	4,500	2,070	18,320

Z – Output Bearing Option, Radially Reinforced								
Unit No.	Z ₂		F _{2A}		F _{2R}		T _{2K}	
	mm	inches	N	lbs.	N	lbs.	Nm	in.lbs.
P3	21	.83	600	135	3,000	675	105	929
P4	22	.87	1,000	225	5,000	1,125	200	1,770
P5	23	.91	1,600	360	8,000	1,800	416	3,682
P7	26	1.02	2,000	450	10,000	2,250	670	5,929
P8	28	1.10	3,600	810	18,000	4,050	1,242	10,992
P9	40	1.58	5,000	1,125	27,000	6,075	2,500	22,125

The permissible load values given are valid with the load applied to the center of the output shaft (x_2).
See Page 7 for output shaft load characteristics and typical applications.



"P and PA" Series ServoFit® Precision Planetary Gearhead No Load Running Torque



Table No. 1 "P" Series Input – No Load Running Torque – T_R

	Ratio																
Unit No.	3	4	5	7	8	10	15	16	20	25	28	32	35	40	50	70	100
P2 in.lbs. Nm.	—	1.8 .2	1.8 .2	1.8 .2	1.8 .2	.9 .1	—	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1
P3 in.lbs. Nm.	2.7 .3	1.8 .2	1.8 .2	1.8 .2	1.8 .2	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1
P4 in.lbs. Nm	3.5 .4	2.7 .3	2.7 .3	1.8 .2	1.8 .2	1.8 .2	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1
P5 in.lbs. Nm	7.0 .8	5.3 .6	4.4 .5	3.5 .4	2.7 .3	2.7 .3	2.7 .3	2.7 .3	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2
P7 in.lbs. Nm	8.0 .9	6.2 .7	5.3 .6	4.4 .5	3.5 .4	3.5 .4	2.7 .3	2.7 .3	2.7 .3	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2
P8 in.lbs. Nm	14.2 1.6	11.5 1.3	9.7 1.1	8.0 .9	6.2 .7	6.2 .7	5.3 .3	5.3 .6	4.4 .5	4.4 .5	3.5 .4	3.5 .4	3.5 .4	3.5 .4	3.5 .4	3.5 .4	3.5 .4

The torque is measured with the input at 2000 RPM and an ambient temperature of 20° C.

Table No. 2 "PA" Series Input – No Load Running Torque – T_R

Unit No.		Ratio																
		3	4	5	7	8	10	15	16	20	25	28	32	35	40	50	70	100
PA3	in.lbs. Nm.	2.7 .3	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	— —	1.3 .15	1.3 .15	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1	.9 .1
PA4	in.lbs. Nm	4.4 .5	3.5 .4	3.5 .4	2.7 .3	2.7 .3	2.7 .3	2.7 .3	2.7 .3	1.8 .2	1.8 .15	1.8 .15	1.8 .15	1.8 .15	1.8 .15	1.8 .15	1.8 .15	1.8 .15
PA5	in.lbs. Nm	7.0 .8	5.3 .6	4.4 .5	3.5 .4	3.5 .4	3.5 .4	3.5 .4	3.5 .4	2.7 .3	2.7 .3	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2	1.8 .2
PA7	in.lbs. Nm	8.0 .9	6.2 .7	5.3 .6	4.4 .5	4.4 .5	4.4 .5	6.2 .7	4.4 .5	3.5 .4	1.8 .2	3.5 .4	3.5 .4	3.5 .4	3.5 .4	3.5 .4	3.5 .4	3.5 .4
PA8	in.lbs. Nm	19.5 2.2	17.7 2.0	15.9 1.8	15.0 1.7	15.0 1.7	15.0 1.7	8.0 .9	5.3 .6	4.4 .5	4.4 .5	4.4 .5	4.4 .5	4.4 .5	4.4 .5	4.4 .5	4.4 .5	4.4 .5

The torque is measured with the input at 2000 RPM and an ambient temperature of 20° C.



"PH and PHA" Series ServoFit® Precision Planetary Gearhead Permissible Shaft Load



The permissible load and tilting moment values are based on an output speed of 100 RPM. For higher speeds the following applies, where n_2 is the desired speed:

$$F_{2AX} = \frac{F_{2A}}{\sqrt[3]{\frac{n_2}{100}}} \quad T_{2KX} = \frac{T_{2K}}{\sqrt[3]{\frac{n_2}{100}}}$$

The application input tilting moment should be determined by the following formula: $T_{2A} = \frac{F_{2a} \times y_2 + F_{2r} \times (x_2 + z_2)}{1000} \leq T_{2K}$

The application input tilting angle can be determined by the following formula: $\Delta\varphi = \frac{T_{2A}}{C_{2K}}$ Value is in arcminutes. C_{2K} is found on Page 30.

The hours of life (L_h) of the unit can be determined by the following formula:
 $L_h > 10,000$ hours if $T_{2K}/T_{2A} < 1.25$
 $L_h > 20,000$ hours if $T_{2K}/T_{2A} > 1.25$

All formulas shown are based on metric values.

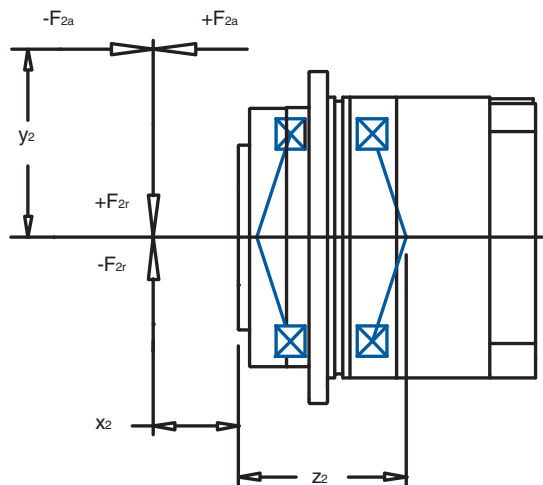


Table No. 1 "PH" and "PHA" Series – Permissible Output Load and Tilting Moments

Unit No.	z_2		F_{2AMAX}		T_{2KMAX}		C_{2K}	
	mm	inches	N	lbs.	Nm	in.lbs.	Nm/arcmin	in.lbs/arcmin
PH3, PHA3	62	2.44	1,650	371	100	885	–	–
PH4, PHA4	84	3.07	2,150	484	260	2,124	160	1,416
PH5, PHA5	97	3.62	4,150	934	440	3,717	300	2,655
PH7, PHA7	88	3.31	6,150	1,384	1,500	13,275	500	4,425
PH8, PHA8	126	4.65	10,050	2,261	3,500	30,975	1,550	13,718
PH9, PHA9	140	5.51	33,000	7,425	6,500	57,525	5,500	48,675
PH10, PHA10	171	5.51	50,000	11,250	8,800	77,880	9,500	84,075



"PE" Series ServoFit® Planetary Gearhead Permissible Shaft Load



The permissible load and tilting moment values are based on an output speed of 100 RPM. For higher speeds the following applies, where n_2 is the desired speed:

$$F_{2AX} = \frac{F_{2A}}{\sqrt[3]{\frac{n_2}{100}}}$$

$$F_{2RX} = \frac{F_{2R}}{\sqrt[3]{\frac{n_2}{100}}}$$

$$T_{2KX} = \frac{T_{2K}}{\sqrt[3]{\frac{n_2}{100}}}$$

The application input tilting moment should be determined by the following formula: $T_{2A} = \frac{2 \times F_{2a} \times y_2 + F_{2r} \times (x_2 + z_2)}{1000} \leq T_{2K}$

The hours of life (L_h) of the unit can be determined by the following formula:

$L_h > 10,000$ hours if $T_{2K}/T_{2A} < 1.25$
 $L_h > 20,000$ hours if $T_{2K}/T_{2A} > 1.25$

All formulas shown are based on metric values.

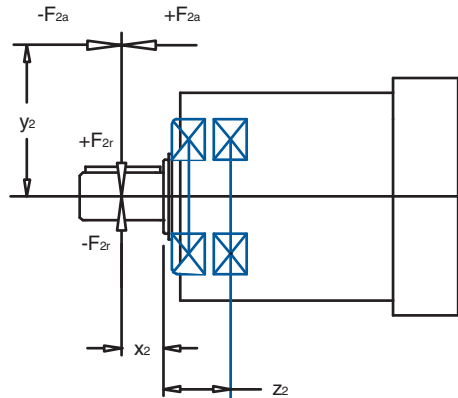


Table No. 1 "PE" Series – Permissible Load and Tilting Moments

Unit No.	z_2		F_{2A}		F_{2R}		T_{2K}	
	mm	inches	N	lbs.	N	lbs.	Nm	in.lbs.
PE201, PE202	20	0.79	250	56	850	191	25	221
PE301, PE302	28	1.10	412	93	1,650	371	69	610
PE401, PE402	31	1.22	650	146	2,600	585	127	1,124
PE501, PE502	41	1.61	1,200	270	4,800	1,080	336	2,974

ServoFit® Modular System

Permissible Loads

Tilting Moment



The permissible load values given are valid with the load applied to the center of the output shaft (x_2).

The permissible load and tilting moment values are based on an output speed of 20 RPM. For higher speeds the following applies, where n_2 is the desired speed:

$$F_{2AX} = \frac{F_{2A}}{\sqrt[3]{\frac{n_2}{20}}} \quad F_{2RX} = \frac{F_{2R}}{\sqrt[3]{\frac{n_2}{20}}} \quad T_{2KX} = \frac{T_{2K}}{\sqrt[3]{\frac{n_2}{20}}}$$

The application input tilting moment should be determined by the following formula:

$$2 \times F_{2a} \times y_2 + F_{2r} \times (x_2 + z_2)$$

$$T_{2A} = \frac{2 \times F_{2a} \times y_2 + F_{2r} \times (x_2 + z_2)}{1000} \leq T_{2K}$$

All formulas shown are based on METRIC values.

Upper case letters are permissible values. Lower case letters are for existing values.

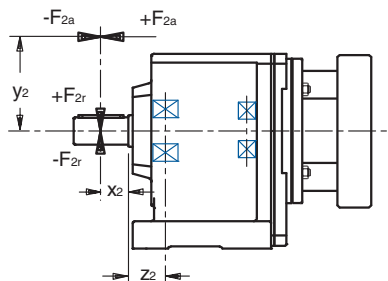


Table No. 1 Permissible Load and Tilting Moments

Unit No.	Z ₂		F _{2A}		F _{2R}		T _{2K}	
	mm	inches	N	lbs.	N	lbs.	Nm	in.lbs.
C0	20	0.79	500	112	1,900	427	80	708
C1	30	1.18	850	191	3,400	765	190	1,682
C2	30	1.18	1,050	236	4,200	945	260	2,301
C3	30	1.18	1,400	315	5,650	1,271	350	3,098
C4	35	1.38	2,400	540	9,700	2,182	750	6,638
C5	42	1.65	3,000	675	11,000	2,475	900	7,965
C6	40	1.57	4,000	900	16,000	3,600	1,500	13,275
C7	45	1.77	5,500	1,237	22,000	4,950	2,400	21,240
C8	50	1.97	7,500	1,687	30,000	6,750	3,700	32,745
C9	55	2.17	9,500	2,137	37,000	8,325	5,200	46,020

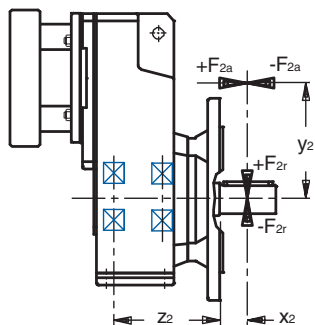


Table No. 2 Permissible Load and Tilting Moments

Unit No.	Z ₂		F _{2A}		F _{2R}		T _{2K}	
	mm	inches	N	lbs.	N	lbs.	Nm	in.lbs.
F1	93	3.66	1,100	247	4,200	945	500	4,425
F2	116	4.57	1,400	351	5,400	1,215	790	6,991
F3	131	5.16	1,900	427	7,500	1,687	1250	11,062
F4	144	5.67	2,350	528	9,250	2,081	1700	15,045
F6	170	6.69	3,100	697	12,500	2,812	2750	24,337

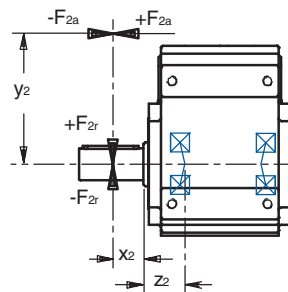


Table No. 3 Single Solid Output
Permissible Load and Tilting Moments

Unit No.	Z2		F _{2A}		F _{2R}		T _{2K}	
	mm	inches	N	lbs.	N	lbs.	Nm	in.lbs.
K1	40	1.57	1,900	427	5,000	1,125	360	3,186
K2	42	1.65	2,100	472	6,000	1,350	430	3,805
K3	45	1.77	2,400	540	7,000	1,575	525	4,646
K4	52	2.05	3,500	787	11,200	2,520	1,050	9,292
K5	72	2.83	3,500	787	13,450	3,026	1,580	13,983
K6	72	2.83	4,000	900	16,000	3,600	1,960	17,346
K7	85	3.35	5,500	1,237	22,000	4,950	3,200	28,320
K8	60	2.36	7,250	1,631	29,000	6,525	3,800	33,630
K9	70	2.76	16,500	3,712	65,000	14,625	10,100	89,385
K10	84	3.31	25,000	5,625	80,000	18,000	15,200	134,520

For DOUBLE output shaft: $F_{2R} \times 0.7$

Overhung Loads

Pulling forces or overhung load of pulleys, sheaves, sprockets, etc. on the reducer output shaft must not exceed the allowable limits shown in the above calculations. The overhung load shown is measured at the center of the shaft extension.

The following formula can be used to determine actual overhung load for a given drive.

$$\text{OHL} = \frac{126,000 \times \text{HP} \times \text{K}}{\text{D} \times \text{RPM}}$$

where

OHL = Overhung Load (lbs.)

HP = Horsepower

D = Pitch Dia. (in.) of Sprocket, Gear, Sheave, Pulley, etc.

RPM = Maximum Speed

K = 1.00 Chain Drives

1.25 Gear Drives

1.25 Gearbelt Drives

1.50 V-Belt Drives

2.50 Flat Belt Drives

No overhung load is encountered when an reducer is flange mounted and/or coupling connected to another unit. However, the shafts of all components must be accurately aligned and secured to prevent pre-loading of the bearings and premature bearing failure.



ServoFit® Modular System Lubrication Data



All ServoFit Precision Planetary units are filled with synthetic oil and lubricated for life. The units should never be opened or the oil changed.

All ServoFit Modular System units are shipped filled with the required amount of Mobilgear XP600 lubrication. In order to provide the proper lubrication quantity **the mounting position must be specified at the time the unit is ordered.**

Maintenance

With STÖBER reducers very little maintenance is required under normal operating conditions.

Unless otherwise noted breathers are provided on the following units:

C612 through C913

K513 through K1014

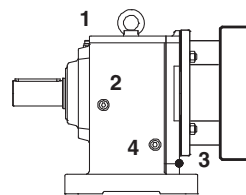
We recommend that the lubrication be changed in units supplied with breathers according

to the following schedule:

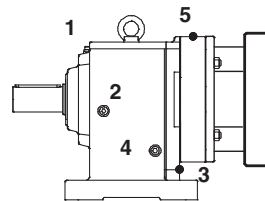
Normal Operating Conditions after 5000 Hours

Wet Operating Conditions after 2000 Hours.

Units supplied without breathers (beverage and food packages) are lubricated for life.



C612-C912

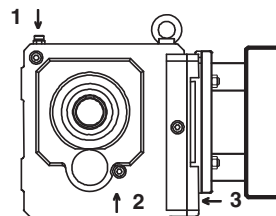


C613-C913

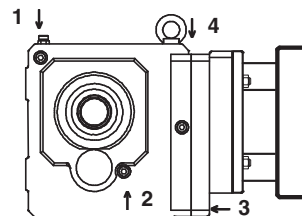
Table No. 1 Drain Plug and Vent Location

Mounting Position	1	2	2a	3	5
EL1	Vent			Drain	
EL2	Drain			Vent	
EL3		Vent	Drain		
EL4		Drain	Vent		
EL5 (C612-C912)	Drain			Vent	
EL5 (C613-C913)	Drain			Drain	Vent
EL6	Vent				

Position 2a is on the opposite side of 2.



K513-K1013



K514-K1014

Table No. 1 Drain Plug and Vent Location

Mounting Position	1	2	2a	3	4
EL1	Vent			Drain	
EL2	Drain			Vent	
EL3		Vent	Drain		
EL4		Drain	Vent		
EL5 (K513/K1013)	Drain			Vent	
EL5 (K514/K1014)	Drain			Drain	Vent
EL6 (K513/K1013)	Vent				
EL6 (K513/K1014)	Vent				Drain

Position 2a is on the opposite side of 2.



ServoFit® Modular System Mounting Position Specification

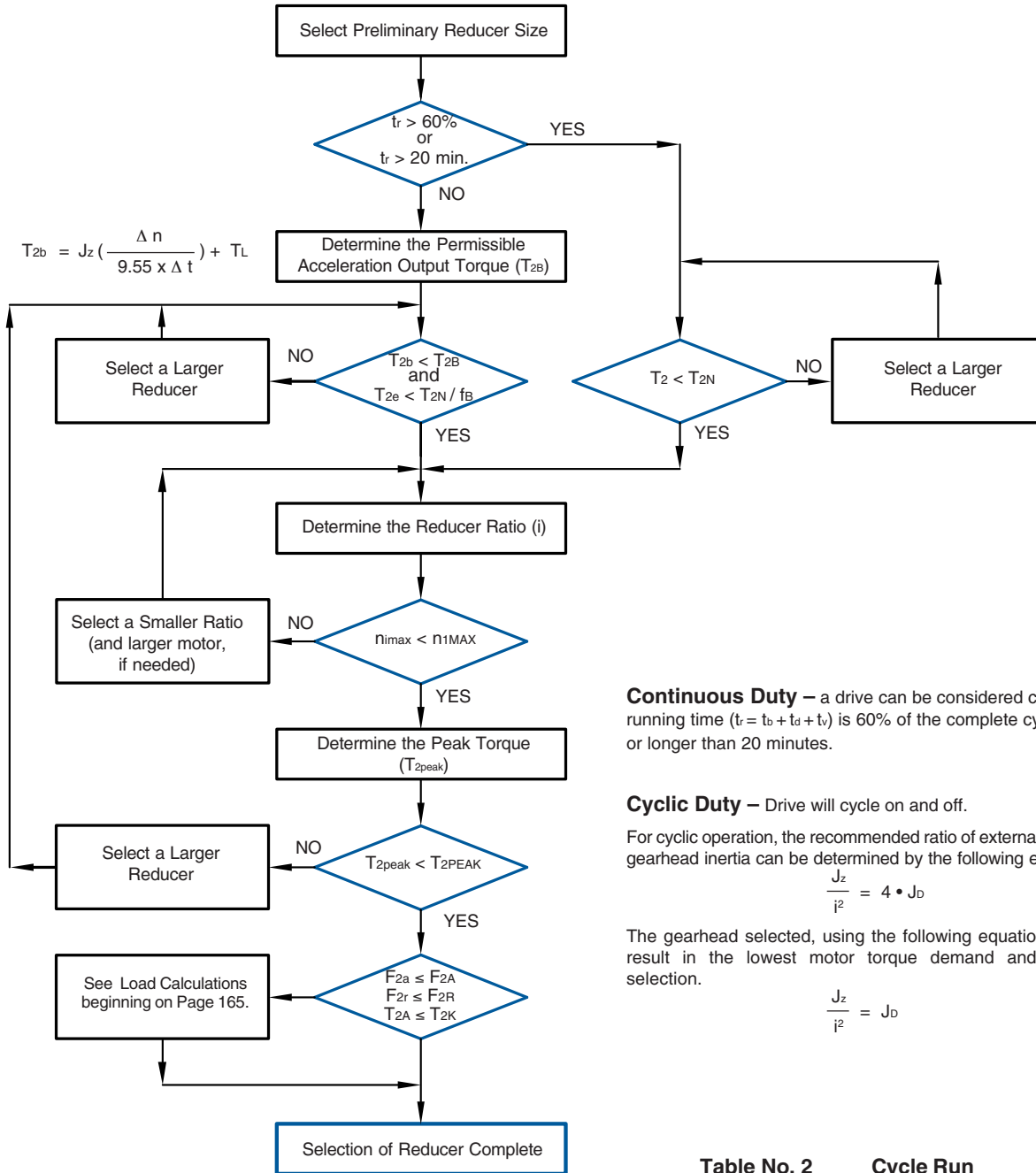
("K" Series shown with shaft on Side 4.)



All STÖBER units are filled with the correct amount of lubrication before shipping. In order to provide the proper lubrication quantity **the mounting position must be specified at the time the unit is ordered.**

Mounting Position	"C" Series	"F" Series	"K" Series K1 - K4	K5 - K10
EL1 Side 1 is the bottom side when the unit is set in a normal position. Side 1 is the down side for EL1.				
EL2 Side 2 is the top of the unit. Side 2 is the down side for EL2. (The unit is up-side-down.)				
EL3 Side 3 is the right side when facing the input with the unit in a normal position (EL1). Side 3 is the down side for EL3. Right angle units have the output on Side 3 or 4.				
EL4 Side 4 is the left side when facing the input with the unit in a normal position (EL1). Side 4 is the down side for EL4. Right angle units have the output on Side 3 or 4.				
EL5 Side 5 is the side opposite the motor. Side 5 is the down side for EL5.				
EL6 Side 6 is always the input or motor side. Side 6 is the down side for EL6.				

ServoFit® Gearhead Selection Procedures Flow Chart



Continuous Duty – a drive can be considered continuous duty if the running time ($t_r = t_b + t_d + t_v$) is 60% of the complete cycle time ($t_b + t_d + t_v + t_p$) or longer than 20 minutes.

Cyclic Duty – Drive will cycle on and off.

For cyclic operation, the recommended ratio of external (application) inertia to gearhead inertia can be determined by the following equation:

$$\frac{J_z}{j^2} = 4 \cdot J_0$$

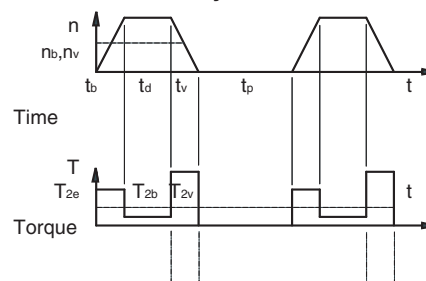
The gearhead selected, using the following equation for inertia ratio, will result in the lowest motor torque demand and the optimum drive selection.

$$\frac{J_z}{j^2} = J_0$$

Table No. 1
"C", "F", and "K" ONLY
ServoFit Service Factor

Operating Mode	f_b
Continuous	1.0
Cyclic	1.25
Cyclic-Reversing	1.4

Table No. 2 Cycle Run



$$T_{2e} = \sqrt[3]{\frac{n_{2b} \cdot t_b \cdot T_{2b}^3 + \dots + n_{2n} \cdot t_n \cdot T_{2n}^3}{n_{2b} \cdot t_b + \dots + n_{2n} \cdot t_n}}$$



ServoFit® Gearhead

Selection Procedures Formula Explanation

Table No. 3 Index of Values and Symbols

Symbol	Value			Description
	Imperial	Multiplier	Metric	
F _{2a}	lbs.	4.45	N	Axial Force @ Output Shaft
F _{2A}	lbs.	4.45	N	Permissible Axial Force
F _{2r}	lbs.	4.45	N	Radial Force @ Output Shaft
F _{2R}	lbs.	4.45	N	Permissible Radial Load
f _B	—	—	—	Load Factor – SMS Only
i	—	—	—	Reducer Ratio
J _D	lb-in-s ²	1.13x10 ³	kgcm ²	Motor + Reducer Inertia @ Motor RPM
J _Z	lb-in-s ²	1.13x10 ³	kgcm ²	Total Inertia @ Reducer RPM
n	RPM	—	min ⁻¹	Speed
n _b	RPM	—	min ⁻¹	Acceleration Speed
n _v	RPM	—	min ⁻¹	Deceleration Speed
n ₁	RPM	—	min ⁻¹	Input Speed
n ₂	RPM	—	min ⁻¹	Reducer Output Speed
T	in.lbs.	.113	Nm	Torque
T ₂	in.lbs.	.113	Nm	Application Torque
T _{2e}	in.lbs.	.113	Nm	Equivalent Torque (Average RMS Torque)
T _{2K}	in.lbs.	.113	Nm	Reducer Tilting Moment
T _L	in.lbs.	.113	Nm	Friction Torque (Losses)
T _{2b}	in.lbs.	.113	Nm	Application Acceleration Torque
T _{2B}	in.lbs.	.113	Nm	Reducer Acceleration Torque
T _{2N}	in.lbs.	.113	Nm	Reducer Nominal Output Torque
T _{2peak}	in.lbs.	.113	Nm	Application Peak Torque
T _{2PEAK}	in.lbs.	.113	Nm	Reducer Peak Torque
T _{2v}	in.lbs.	.113	Nm	Application Deceleration Torque
t	seconds	—	seconds	Time
t _b	seconds	—	seconds	Acceleration Time
t _d	seconds	—	seconds	Duration Time
t _v	seconds	—	seconds	Deceleration Time
t _p	seconds	—	seconds	Pause Time
t _r	seconds	—	seconds	Running Time

Table No. 4

Conversions Factors

Imperial		
1 inch	x 25.4	= mm
1 in ²	x 645.16	= mm ²
1 lb	x .453	= kg
1 US gal	x 3.785	= L
1 HP	x .746	= kW
1 lb	x 4.45	= N
1 lb in	x .113	= Nm
1 lb ft	x 1.36	= Nm
1 lb ft	x .1383	= kgm
1 lb in	x .0115	= kgm
1 lb in ²	x .00029	= kgm ²
1 PSI	x .0689	= bar
1 PSI	x .00689	= N/mm ²
°F = 32 + ⁹ / ₅ x °C		
Metric		
mm	x .03937	= inch
1 mm ²	x .0015	= in ²
1 kg	x 2.205	= lb
1 L	x .264	= US gal
1 kW	x 1.341	= HP
1 N	x .225	= lb
1 Nm	x 8.85	= lb in
1 Nm	x .737	= lb ft
1 kgm	x 7.233	= lb ft
1 kgm	x 86.798	= lb ft
1 kgm ² (J)	x 3418.0	= lb in ² (WR ²)
1 bar	x 14.5	= PSI
1 N/mm ²	x 145.04	= PSI
°C = ⁵ / ₉ (°F-32)		

Table No. 5 Backlash Comparison – Arcminute vs Linear Distance

Arcminute	Degrees	Linear Distance in Inches			
		at 3" R	at 12" R	at 24" R	at 48" R
1	.017	.0009	.0035	.0070	.0140
2	.033	.0017	.0070	.0140	.0279
3	.050	.0026	.0105	.0209	.0419
4	.067	.0035	.0140	.0279	.0558
5	.083	.0044	.0175	.0349	.0698
6	.100	.0052	.0209	.0419	.0838
7	.117	.0061	.0244	.0489	.0977
8	.133	.0070	.0279	.0558	.1117
9	.150	.0079	.0314	.0628	.1257
10	.167	.0087	.0349	.0698	.1396
11	.183	.0096	.0384	.0768	.1536
12	.200	.0105	.0419	.0838	.1675
13	.217	.0113	.0454	.0908	.1815
14	.233	.0122	.0489	.0977	.1955
15	.250	.0131	.0524	.1047	.2094
16	.267	.0140	.0558	.1117	.2234
17	.283	.0148	.0593	.1187	.2373
18	.300	.0157	.0628	.1257	.2513
19	.317	.0166	.0663	.1326	.2653
20	.333	.0175	.0698	.1396	.2792

These values can be interpolated for backlash or distances not shown in the table.

$$\text{Backlash in Arcminutes} = \left(\frac{\text{Linear Backlash in Inches} \times 57.296}{\text{Radius}} \right) 60$$

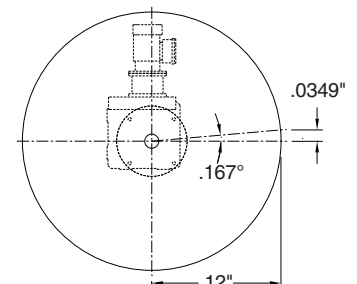
Table No. 5 can be used to determine the amount of linear movement that will be realized with a given backlash value.

Example:

A "K" Series gearhead is mounted, with the output shaft vertical, under a 24" diameter turntable. The gearhead backlash is 10 arcminutes.

Reading across the table, the angular value of 10 arcminutes is .167 degrees.

Further determination indicates 10 arcminutes backlash will allow a linear movement of .0349 inches when measured at a 12 inch radius.



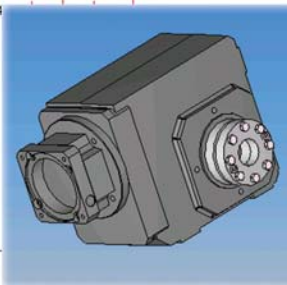
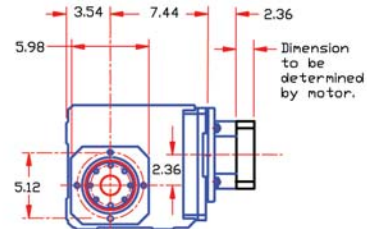
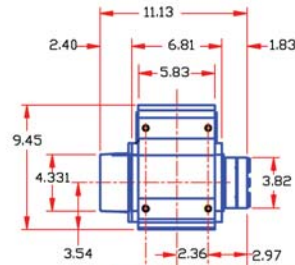
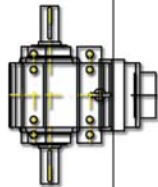
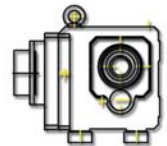
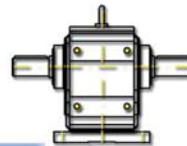
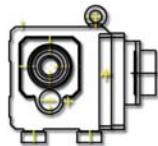
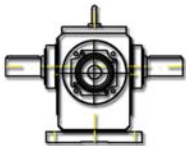
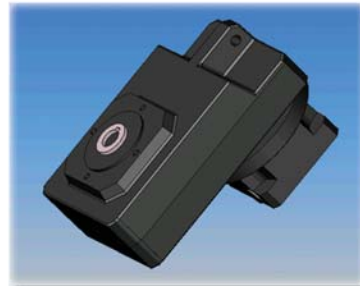
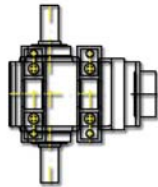
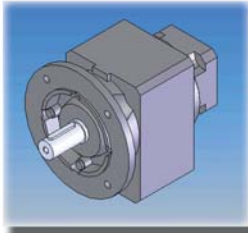
ServoFit® Gearhead 2D and 3D Drawing Support



Drawings are available in multiple formats to suit your application needs. We can provide eDrawings, 2D, 3D, CAD drawings with six views, or certified faxable prints.

The eDrawing application gives you the power to view 3D models and 2D drawings with no special software. The viewer and drawing are contained in one simple download. eDrawings eliminate the communication barriers that designers and engineers deal with daily. They are small enough to email, are self-viewing, and significantly easier to understand, plus, there is no more uncertainty about whether the recipient will be able to open and view the drawing file you send.

Check our web site (www.stober.com) for product drawings in the configuration you need. Call Technical Support for information that is not shown or e-mail sales@stober.com or drawings@stober.com with your request.



Do Not Scale		STÖBER DRIVES, INC.	
Dimensions are typical of this combination.		1781 Downing Drive	
		Mayville, KY 41056	
		Phone: 508 759-5090	
		K3062501	
DATE	PART NUMBER		
25 June 2003	K402WG	MT30	



International Sales Locations

Germany (Headquarters)

STÖBER ANTRIEBSTECHNIK GmbH + Co. KG

Kieselbronner Strasse 12

75177 PFORZHEIM

Phone: +49 (0) 7231 582-0

Fax: +49 (0) 7231 582-1000

Web: www.stoeber.de

E-mail: mail@stoeber.de



Austria

STÖBER ANTRIEBSTECHNIK GmbH

Fabriksplatz 1

4662 Steyrermühl

Phone: +43 (0) 7613 76000

Fax: +43 (0) 7613 76009

E-mail: office@stoeber.at

France

STÖBER S.a.r.l.

131, Chemin du Bac à Traille

Les Portes du Rhône

69300 Caluire et Cuire

Phone: +33 (0) 4 78989180

Fax: +33 (0) 4 78985901

E-mail: mail@stober.fr

Great Britain

STOBER DRIVES LIMITED

Ability House

121 Brooker Road, Waltham Abbey

Essex EN9 1JH

Phone: +44 (0) 1992 709710

Fax: +44 (0) 1992 714111

E-mail: mail@stober.co.uk

Italy

STÖBER TRASMISSIONI S.r.l.

Via Risorgimento, 8

20017 Mazza di Rho (MI)

Phone: +39 02 93909-570

Fax: +39 02 93909-325

E-mail: info@stoeber.it

Poland

STOEBER POLSKA

ul. H. Kamienskiego 201-219

51-126 Wrocław

Phone: +48 71 3207417

Fax: +48 71 3207417

E-mail: biuro@stoeber.pl

South Korea

DAE KWANG STOEBER CO. LTD.

2 Ma 301-3 Sihwa Industrial Complex

1704-3 Jungwang dong, Siheung city

Gyeonggi do

Phone: +82 (0) 31 4347047

Fax: +82 (0) 31 4347048

E-mail: dkstoeber@stoeber.co.kr

Switzerland

STÖBER SCHWEIZ AG

Bahnhofstr. 9

6341 Baar

Phone: +41 (0) 41 760 59 05

Fax: +41 (0) 41 760 62 62

E-mail: info@stoeber.ch

United States of America

STOBER Drives Inc.

1781 Downing Drive

Maysville KY 41056

Phone: 606 759-5090

Fax: 606 759-5045

E-mail: sales@stober.com

Terms and Conditions of Sale



1. **GENERAL.** All orders for products supplied by STÖBER DRIVES INC. ("STÖBER") shall be subject to these terms and conditions of sales. All transactions shall be governed by the laws of the Commonwealth of Kentucky. No modifications hereto will be binding unless agreed to in writing by STÖBER.

2. **CUSTOMER.** The term "Customer," as used herein, means the distributor, resale dealer, original equipment manufacturer or first end-user customer that purchases the STÖBER products.

3. **WARRANTY.** STÖBER products shall be free from defects in material and workmanship for a maximum of 5-years (single shift operation or 30 months multiple shift operation) for ServoFit products (ServoFit Modular System, ServoFit Precision Planetary Gearheads, and ServoFit Geared Motors) and MGS Long Life products; 3-years (single shift operation or 18 months multiple shift operation) for other MGS products; 2-years (single shift operation or 12 months multiple shift operation) for ComTrac products, from the date of shipment to the Customer. For ServoFit products, the motor on ServoFit Geared Motors, as well as all normal wear items, including oil seals and bearings, shall be covered for a period of 2-years (single shift operation or 12 months multiple shift operation). In the event that a product proves to be defective, STÖBER's sole obligation shall be, at its option, to repair or replace the product. The repaired or replacement product will be shipped F.O.B. STÖBER's facilities, freight prepaid by STÖBER.

No employee, agent or representative of STÖBER has the authority to waive, alter, vary or add to the terms hereof without the prior written approval of an officer of STÖBER. It is expressly agreed that (a) this section constitutes the final expression of the parties' understanding with respect to the warranty and (b) this section is a complete and exclusive statement of the terms of the warranty.

STÖBER shall have no obligation under the warranty set forth above in the event that:

(a) The Customer fails, within the warranty period to notify STÖBER in writing and provide STÖBER with evidence satisfactory to STÖBER of the alleged defect within five (5) days after it becomes known to the customer;

(b) After inspection of a product, STÖBER determines, in its sole discretion, that it is not defective in material or workmanship;

(c) Repair or replacement of a product is required through normal wear and tear;

(d) Any part in a product or any ingredient contained in a product requires replacement or repair through routine usage or normal wear and tear;

(e) A product is not maintained or used in accordance with STÖBER's applicable operating and/or maintenance manuals, whether by the Customer or any third party;

(f) A product has been subject to misuse, misapplication, negligence, neglect (including, but not limited to, improper maintenance or storage), accident, catastrophe, improper installation, modification, adjustment, repair or lubrication, whether by the Customer or any third party, without the prior written consent of STÖBER. Misuse shall include, but not be limited to, deterioration in a product due to chemical action and wear caused by the presence of abrasive materials;

(g) The system of connected rotating parts into which the product becomes incorporated is not compatible with the product, or it is not free from critical speed or torsional or other type of vibration within the specified operating range, no matter how induced; or

(h) The transmitted load and imposed torsional thrust and overhanging loads are not within the published capacity limits for the unit sold.

Items manufactured by other parties but installed in or affixed to STÖBER's products are not warranted by STÖBER and bear only those warranties, express or implied, which are given by the manufacturer of such items, if any.

THE WARRANTY SET FORTH ABOVE IS INTENDED SOLELY FOR THE BENEFIT OF THE Customer AND DOES NOT APPLY TO ANY THIRD PARTY. ALL CLAIMS MUST BE MADE BY THE

Customer AND MAY NOT BE MADE BY ANY THIRD PARTY. THIS WARRANTY MAY NOT BE TRANSFERRED OR ASSIGNED, IN WHOLE OR IN PART, BY THE Customer FOR ANY REASON WHATSOEVER. ANY SUCH ATTEMPTED TRANSFER OR ASSIGNMENT SHALL BE NULL AND VOID.

THIS WARRANTY TAKES THE PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH ARE HEREBY DISCLAIMED AND EXCLUDED BY STÖBER, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF USE AND ALL OBLIGATIONS OR LIABILITIES ON THE PART OF STÖBER FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE, REPAIR OR PERFORMANCE OF THE PRODUCTS.

4. **MODIFICATIONS.** STÖBER reserves the right, without notice to the Customer, to (a) change the specifications of any product, (b) improve a product in any manner that STÖBER deems necessary or appropriate and (c) discontinue the manufacture of any product.

5. **PURCHASE ORDERS.** The Customer will submit purchase orders for the products to STÖBER in writing, whether by mail or telefax, which shall set forth, at a minimum: (a) an identification of the products ordered, (b) prices for such products, (c) quantities, (d) requested delivery dates and (e) shipping instructions and shipping addresses.

6. **ACCEPTANCE OF ORDERS.** All purchase orders received from the Customer are subject to acceptance by STÖBER in writing.

7. **MODIFICATION OF ORDERS.** No accepted purchase order shall be modified or canceled except upon the written agreement of STÖBER and the Customer. Mutually agreed cancellations shall be subject to reasonable charges based upon expenses already incurred by STÖBER and commitments made by STÖBER. Mutually agreed change orders shall be subject to all provisions of these Terms and Conditions of Sale.

8. **PRICE INCREASES.** STÖBER may increase its prices for the products by providing the original purchaser of the products with at least thirty (30) days' prior written notice. Increased prices for products shall not apply to purchase orders accepted prior to the effective date of the price increase unless such orders provide for delivery more than thirty (30) days after the date of acceptance of the order.

9. **PRICING AND DELIVERY TERMS.** In accordance with KRS 355.2-319(1)(b), all products are delivered F.O.B. STÖBER's warehouse facility in Maysville, Kentucky, or such other facility as STÖBER may designate. Orders are then shipped per Customer's shipping instructions as set forth in Customer's purchase order. **CATALOG PRICING DOES NOT INCLUDE SHIPPING, HANDLING AND TAXES.** Once delivered to a common carrier of the Customer's choosing [or of STÖBER's choosing if Customer has failed to specify a common carrier on or before five (5) days prior to the requested delivery date] STÖBER shall have no further responsibility for the products and all risk of damage, loss or delay shall pass to the Customer. A handling fee is added to freight costs by STÖBER to cover the cost of having to pay the carrier within seven (7) days when the terms with the Customer are net 30. The Customer has the option of shipping collect with our carrier or the carrier of choice.

10. **PAYMENT TERMS.** Net 30 days. All orders will be shipped either prepaid by the Customer or C.O.D., at STÖBER's option, unless the Customer has established a previously approved credit line. If STÖBER approves a credit line for the Customer, all payments shall be due within thirty (30) days of the date of the invoice. If any invoice is not paid in full within such thirty (30) day period, then finance charges shall be assessed at the rate of one and one-half percent (1½%) per month (eighteen percent (18%) per year). If such rate is deemed to be usurious at any time, it shall be reduced to the maximum rate permitted by applicable law. STÖBER may stop or withhold shipment of products if the

Customer does not fulfill its payment obligations. If STÖBER is insecure about payment for any reason, STÖBER may require full or partial payment in advance and as a condition to the continuation of its delivery of products.

11. **SECURITY INTEREST.** Unless and until the products are paid for in full, STÖBER reserves a security interest in them to secure the unpaid balance of the purchase price. The Customer hereby grants to STÖBER a power of attorney, coupled with an interest, to execute and file on behalf of the Customer all necessary financing statements and other documents required or appropriate to protect the security interest granted herein.

12. **ACCEPTANCE OF PRODUCTS.** The Customer will conduct any incoming inspection tests as soon as possible upon arrival of the products, but in no event later than ten (10) days after the date of receipt. Any products not rejected by written notice to STÖBER within such period shall be deemed accepted by the Customer. STÖBER shall not be liable for any additional costs, expenses or damages incurred by the Customer, directly or indirectly, as a result of any shortage, damage or discrepancy in a shipment.

13. LIMITATION OF REMEDIES.

(a) STÖBER SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE CAUSED BY DELAY IN FURNISHING THE CUSTOMER WITH PRODUCTS.

(b) IN NO EVENT SHALL STÖBER'S LIABILITY INCLUDE ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL LOSSES OR DAMAGES, EVEN IF STÖBER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH POTENTIAL LOSS OR DAMAGE.

14. **MADE-TO-ORDER PRODUCTS.** STÖBER reserves the right to revoke and amend any price quotations offered to the Customer for made-to-order products, provided that such price quotations have not been accepted by the Customer prior to the date of revocation or amendment.

15. **DIES, TOOLS AND EQUIPMENT.** Charges incurred by the Customer for dies, tools and other equipment shall not confer ownership or the right to possession therein by the Customer. All such dies, tools and equipment shall remain the property of STÖBER, and STÖBER shall have the exclusive right to possession thereof. STÖBER shall maintain such tools and equipment in good working order.

16. **REGULATORY LAWS AND STANDARDS.** STÖBER makes no representation that its products conform to state or local laws, ordinances, regulations, codes or standards except as may be otherwise agreed to in writing by STÖBER.

17. **SIZES AND WEIGHTS.** STÖBER's products are made only in the sizes and to the specifications set forth in its catalogs and other literature. If any alteration is requested, such altered product will be treated as a made-to-order item. STÖBER assumes no responsibility for typographical errors which may appear in its catalogs or literature, and cannot accept alteration charges caused by such errors. Since weights shown in STÖBER's catalogs are approximate, they cannot be used in determining freight allowances set forth in its catalogs and other literature. Freight allowances will be determined at the time of shipment and shall be based on actual shipping weight.

18. **SYSTEM DESIGN.** Responsibility for system design to ensure proper use and application of STÖBER's products within their published specifications and ratings rests solely with the Customer. This includes, but is not limited to, an analysis of loads created by torsional vibrations within the entire system, regardless of how induced.

STÖBER DRIVES INC.

1781 Downing Drive • Maysville, KY 41056
Phone: (606) 759-5090 • FAX: (606) 759-5045
www.stober.com • E-mail: sales@stober.com