



Pneumatic Grippers

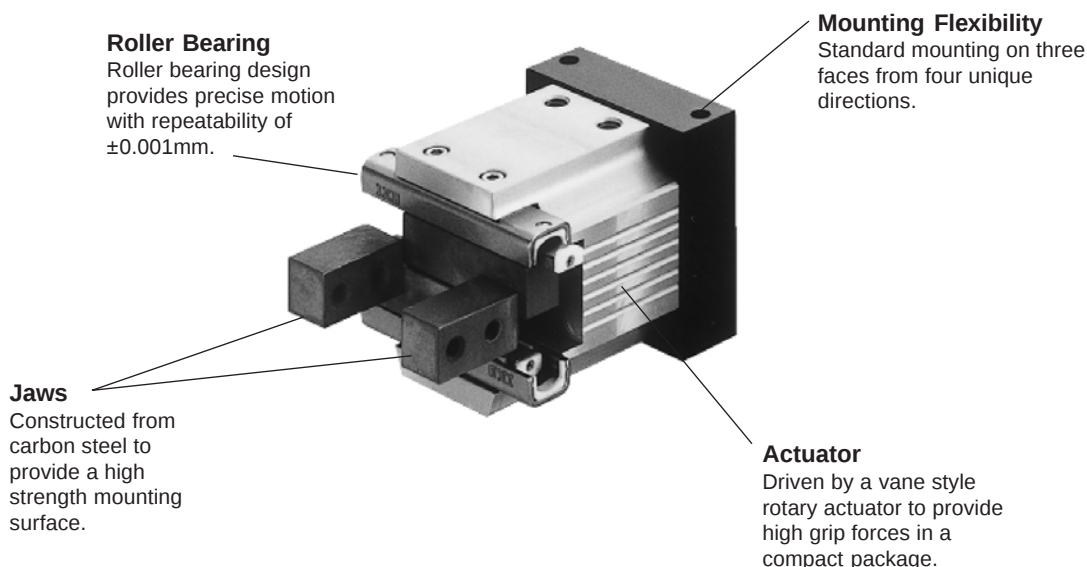
Parallel and Angular Grippers

Catalog 1900-2/US



GPR Series		Rotary vane driven design	Miniature	GPR
GPCR Series		Cross roller bearing design		GPCR
P5G-HPM(C) Series		Roller bearing design, clean room option		P5G-HPM
P5G-HP Series		Two-jaw wedge design	Automation	P5G-HP
GPT Series		Cam driven		GPT
P5G-AP Series		Automation		P5G-AP
GPEL Series		Double piston, non-synchronous	Low Profile	GPEL
GPDL Series		Double piston, synchronous		GPDL
P5G-HPL(C) Series		Roller bearing design, clean room option		P5G-HPL
P5G-RH Series		High precision automation	Precision	P5G-RH
P5G-HP-P Series		Two-jaw, roller bearings		P5G-HP-P
GPK Series		Miniature wide body	Long Stroke	GPK
P5G-HPW Series		Wide body design		P5G-HPW
P5G-HPB Series		High force	Heavy Duty	P5G-HPB
P5G-HPC Series		Three-jaw wedge design	3-Jaw	P5G-HPC

Features



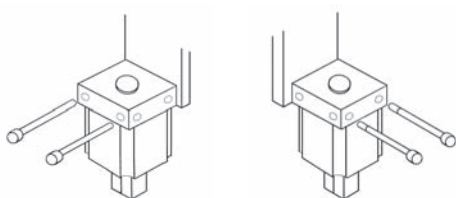
Operation

Operating Characteristic Vane Driven
 Gripping Force @ 72.5 PSI (5 bar) .. 33-142 N (11-46 lbs)
 Stroke Range 10-20 mm
 Operating Pressure Range 44-87 PSI (3-6 bar)

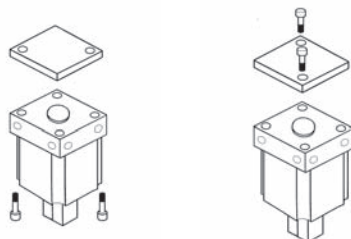
Not Recommended for Applications Containing:

- Dirt or grit
- Maching chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting



Gripper can be mounted on three faces and located with center pilot diameter for accuracy.

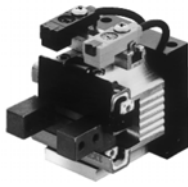


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WARNING! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

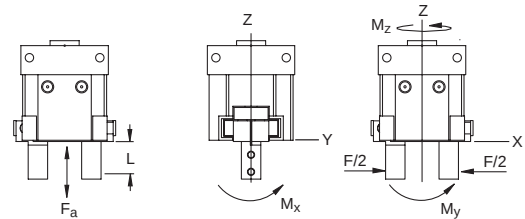
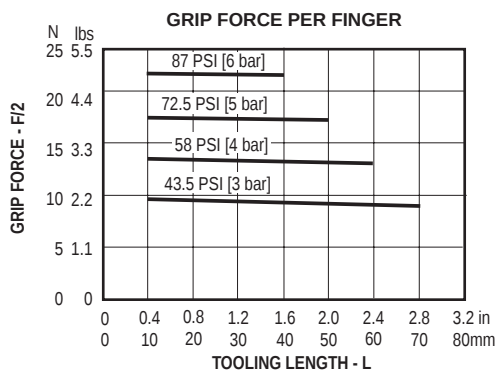
GPR1A



Total Grip Force (72.5 PSI @ 1 in)	7.6 lbs	33.8 N
Stroke	0.39 in	10 mm
Weight	0.20 lbs	0.09 kg
Bore Size	0.71 in.	18 mm
Cylinder Volume	0.061 in ³	1.0 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	23° to 140° F	-5° to 60° C
Pressure Range	44-87 psi	3-6 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

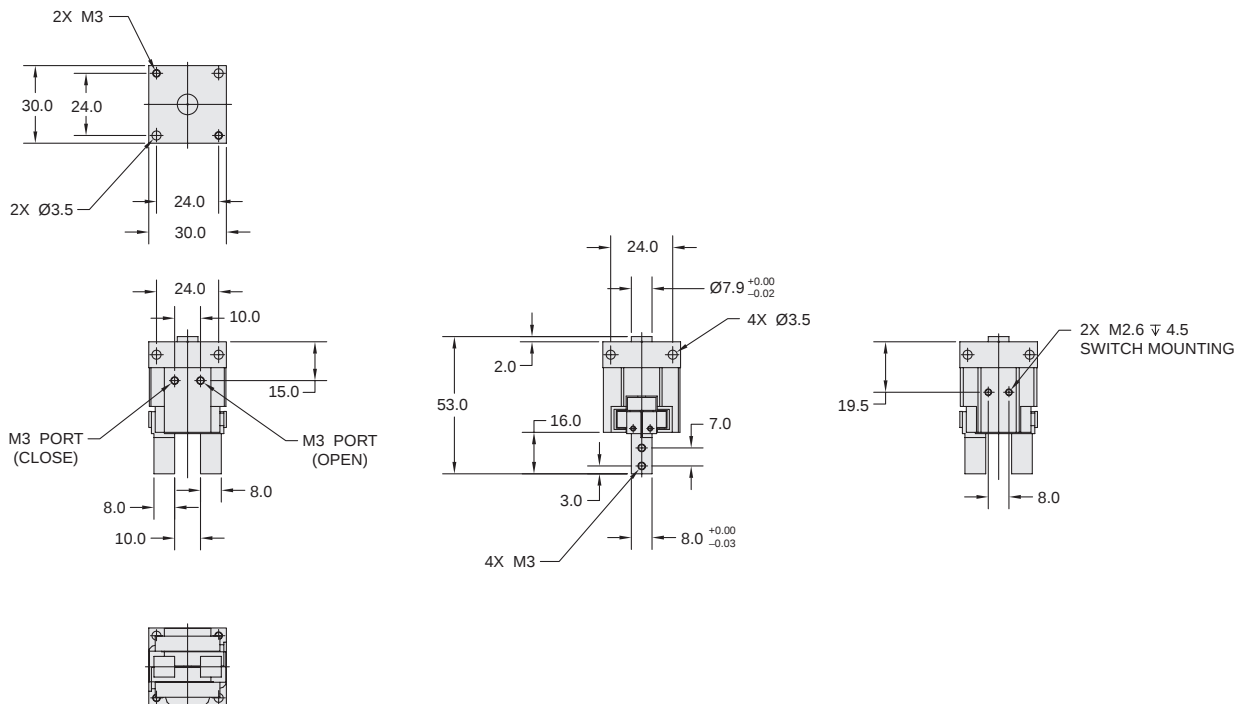
Loading Information



Maximum Loading Capacity

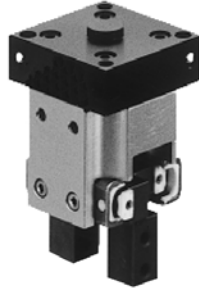
Load	Static		Dynamic	
Axial Forces (Fa)	35 lbs	343 N	50 lbs	222 N
Moment (Mx)	17 in-lbs	1.9 Nm	24 in-lbs	2.7 Nm
Moment (My)	17 in-lbs	1.9 Nm	24 in-lbs	2.7 Nm
Moment (Mz)	6.5 in-lbs	.73 Nm	9.5 in-lbs	1.0 Nm

Dimensional Information



Dimensions in mm.

GPR3A

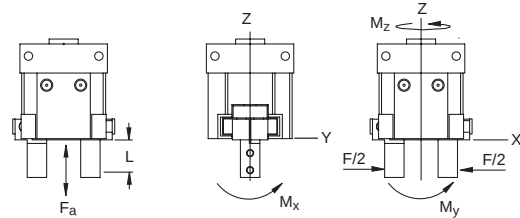
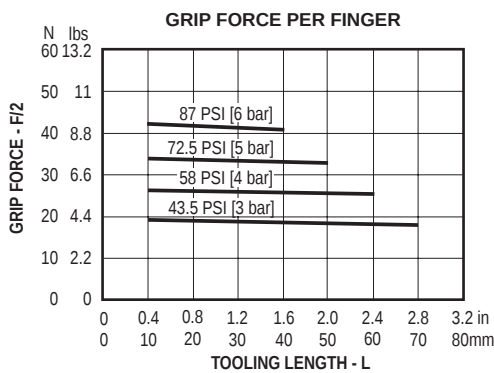


Total Grip Force (72.5 PSI @ 1 in)	14.0 lbs	62 N
Stroke	0.55 in	14 mm
Weight	0.31 lbs	0.14 kg
Bore Size	0.95 in	24 mm
Cylinder Volume	0.16 in ³	2.6 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	23° to 140° F	-5° to 60° C
Pressure Range	44-87 psi	3-6 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

Miniature
GPR
GPCR
P5G-HPM

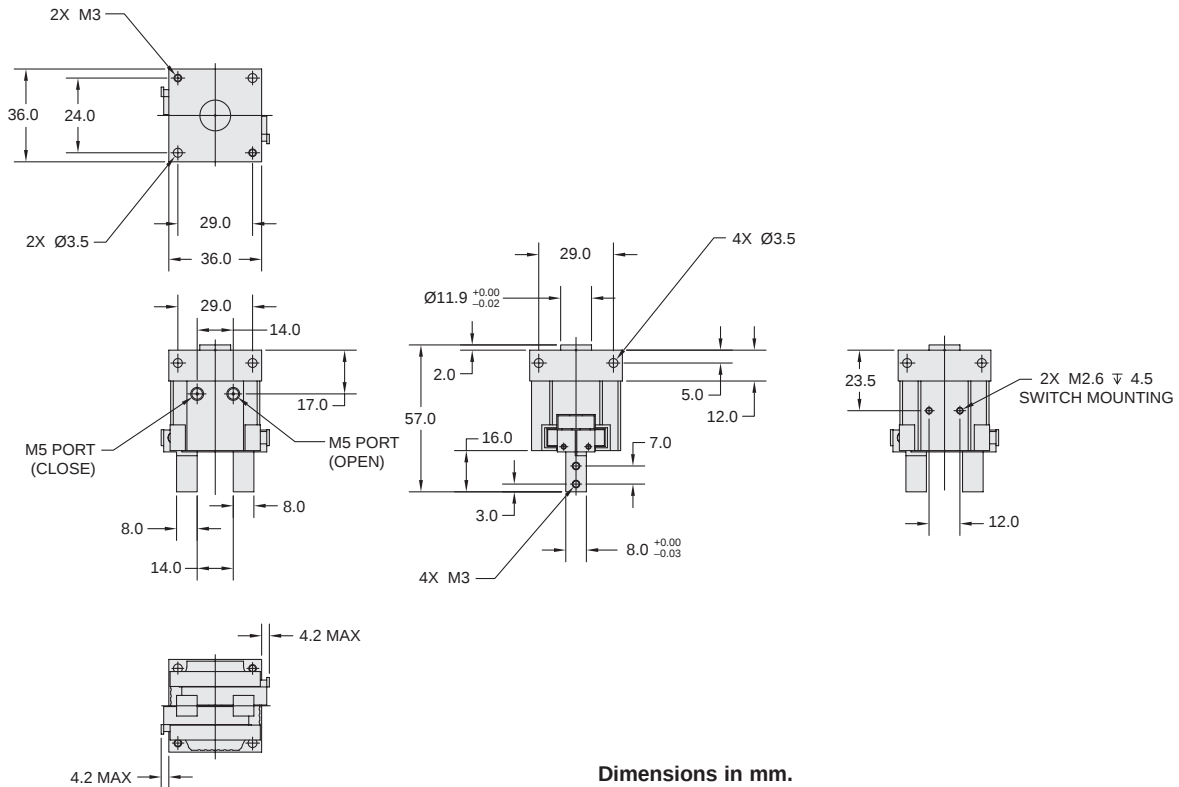
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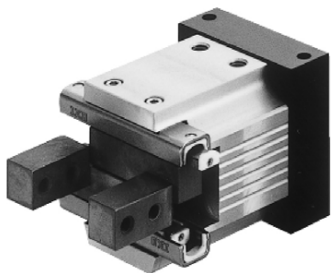
Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (Fa)	42 lbs	187 N	65 lbs	288 N
Moment (Mx)	28.7 in-lbs	3.2 Nm	44.5 in-lbs	5 Nm
Moment (My)	28.7 in-lbs	3.2 Nm	44.5 in-lbs	5 Nm
Moment (Mz)	8.0 in-lbs	0.9 Nm	12.6 in-lbs	1.4 Nm

Dimensional Information



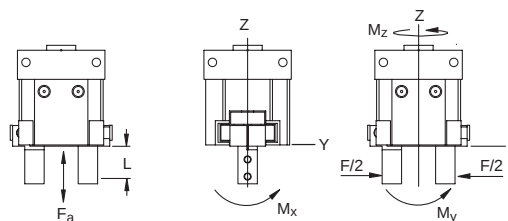
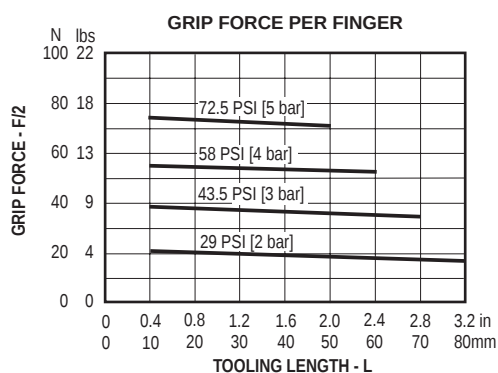
GPR10A



Total Grip Force (72.5 PSI @ 1 in)	32 lbs	142 N
Stroke	0.79 in	20 mm
Weight	0.54 lbs	0.245 kg
Bore Size	1.18 in	30 mm
Cylinder Volume	0.61 in ³	10 cm ³
Repeatability	+/- 0.0004 in	+/- 0.01 mm
Temperature Range	23° to 140° F	-5° to 60° C
Pressure Range	29-87 psi	2-6 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

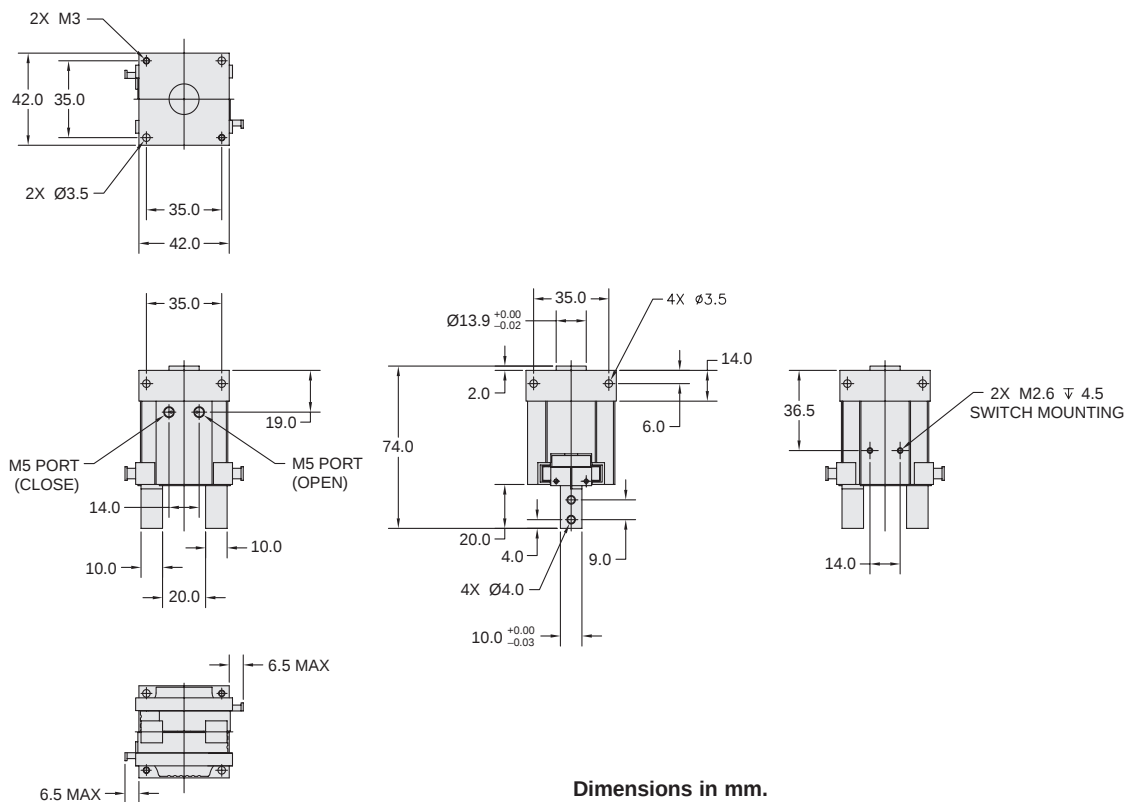
Loading Information



Maximum Loading Capacity

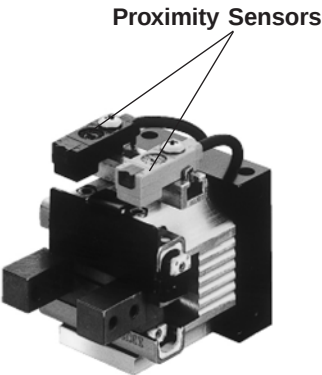
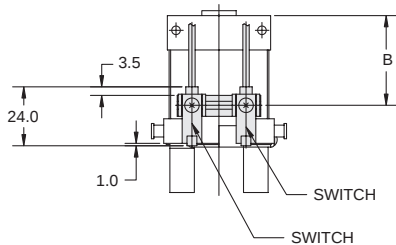
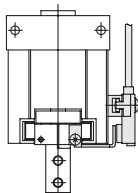
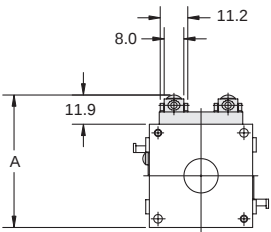
Load	Static		Dynamic	
Axial Forces (Fa)	50 lbs	222 N	80 lbs	355 N
Moment (Mx)	44 in-lbs	5 Nm	69 in-lbs	7.7 Nm
Moment (My)	44 in-lbs	5 Nm	69 in-lbs	7.7 Nm
Moment (Mz)	9.75 in-lbs	1 Nm	15.5 in-lbs	1.7 Nm

Dimensional Information



Dimensions in mm.

Optional Proximity Sensors



Dimensions

Model	A (mm)	B (mm)
GPR1A	42.8	19.5
GPR3A	48.3	23.5
GPR10A	54.3	36.5

Model Code and Ordering Information

GPR 1 A

Series

GPR – Rotary Driven Gripper

Size

- 1 – 18mm Bore
- 3 – 24mm Bore
- 10 – 30mm Bore

Function

A – Standard

Seal Kits

Size	Nitrile Seal Kit
GPR1	PSK-GPR1
GPR3	PSK-GPR3
GPR10	PSK-GPR10

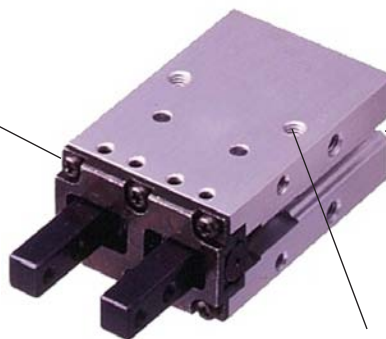
Features

Cross Roller Bearing

Bearing design provides smooth, precise motion with a high degree of repeatability.

Jaws

Carbon tool steel fingers provide high strength mounting surface.



Sensor Grooves

Sensor grooves allow for easy installation and adjustment of Hall effect sensor. Magnetic piston standard.

Mounting Flexibility

Tapped mounting holes provide mounting on 3 surfaces including through hole mounting on gripper face.

Miniature

GPR

GPCR

P5G-HPM

Operation

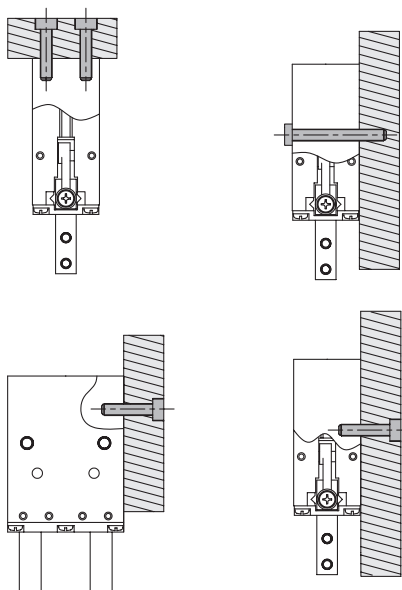
Operating Characteristic Double Acting
Gripping Force @100 PSI (7 bar) .. 28 - 228 N (6 - 51 lbs)
Stroke Range 4-14 mm
Operating Pressure Range 26 - 100 PSI (1.8 - 7 bar)

Not Recommended for Applications Containing:

- Dirt or grit
- Maching chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Gripper can be mounted on three faces and located with center pilot diameter for accuracy.



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WARNING! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

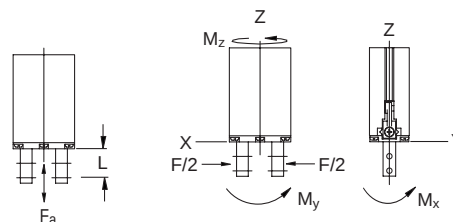
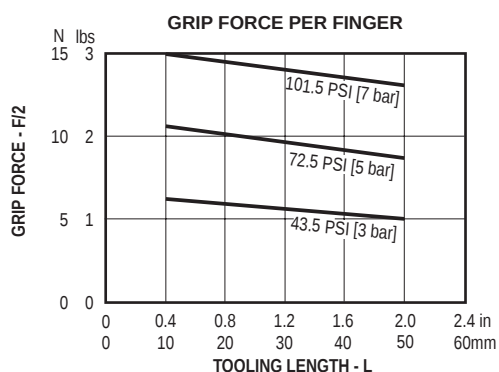
GPCR-10C



Total Grip Force (100 PSI @ 1 in)	6.4 lbs	28.5 N
Stroke	0.16 in	4 mm
Weight	0.11 lbs	0.048 kg
Bore Size	0.394 in	10 mm
Cylinder Volume	0.004 in ³	0.63 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	26-101 psi	1.8-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

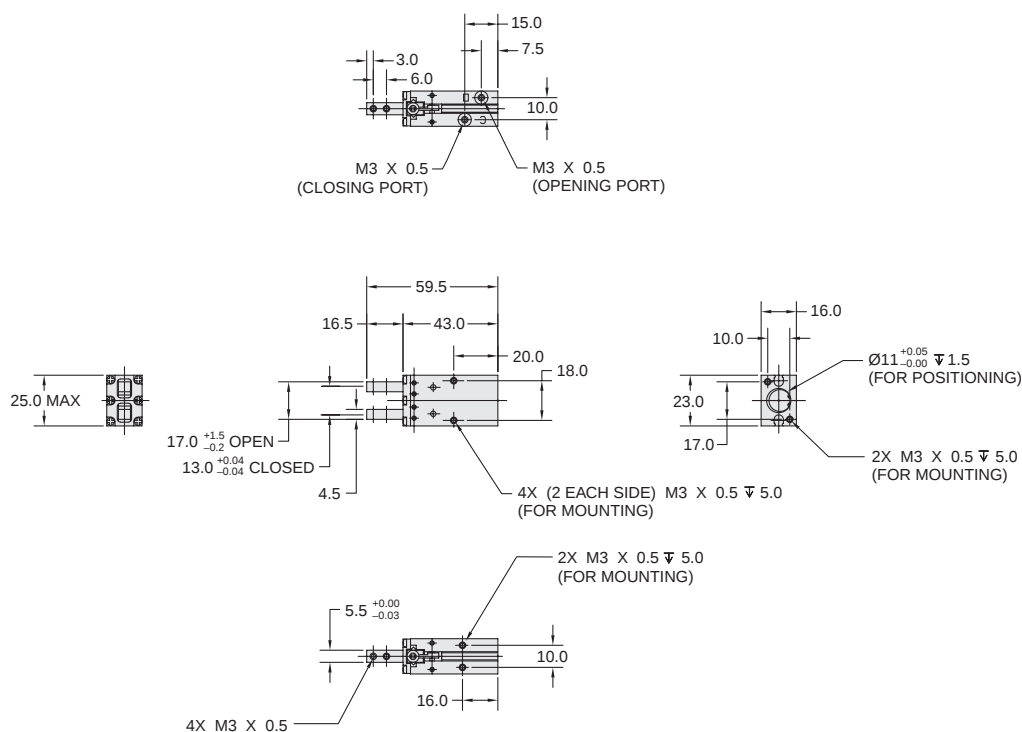
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	13 lb	58 N
Moment (Mx)	2.3 in-lb	0.26 Nm
Moment (My)	2.3 in-lb	0.26 Nm
Moment (Mz)	4.7 in-lb	0.53 Nm

Dimensional Information



Dimensions in mm.

GPCR-16C



Total Grip Force (100 PSI @ 1 in)	16.6 lbs	74 N
Stroke	0.31 in	8 mm
Weight	0.27 lbs	0.12 kg
Bore Size	0.63 in	16 mm
Cylinder Volume	0.196 in ³	3.21 cm ³
Repeatability	± .0004 in	± .01 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	17-101 psi	1.2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

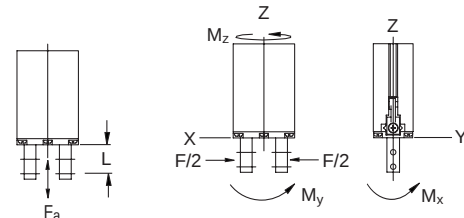
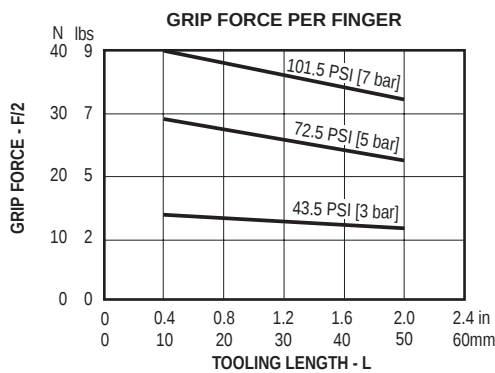
Miniature

GPR

GPCR

P5G-HPM

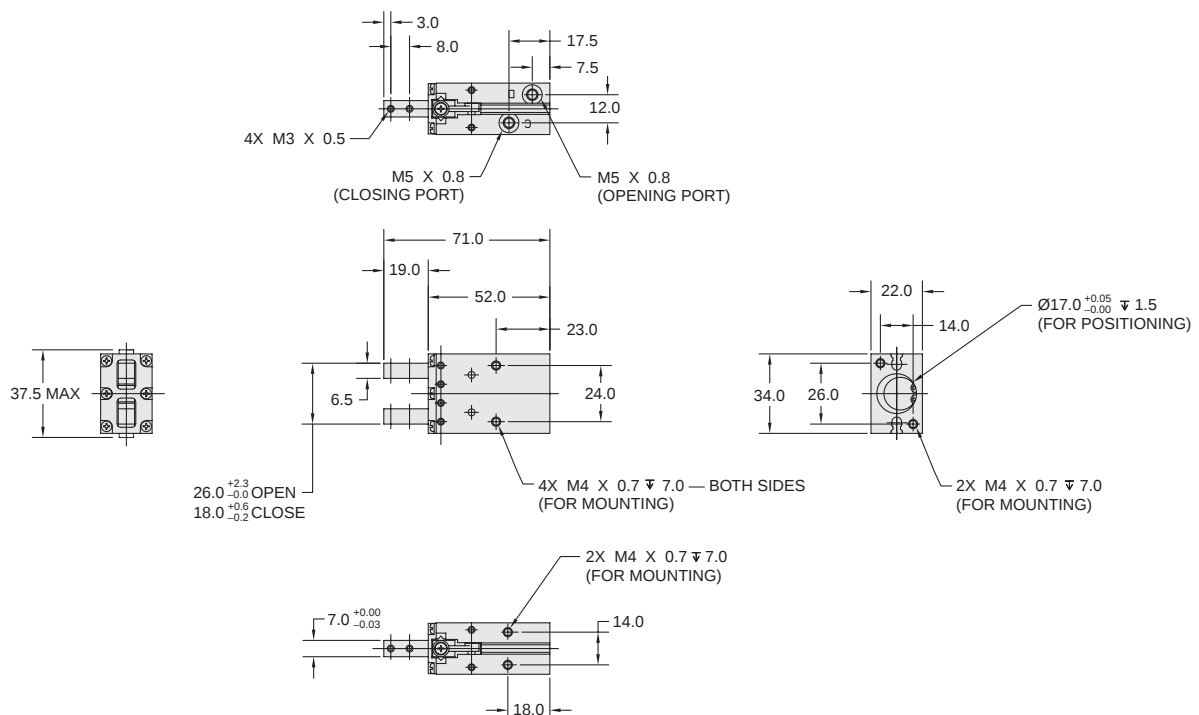
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	21.4 lbs	95 N
Moment (Mx)	6 in-lbs	0.68 Nm
Moment (My)	6 in-lbs	0.68 Nm
Moment (Mz)	12 in-lbs	1.36 Nm

Dimensional Information



Dimensions in mm.

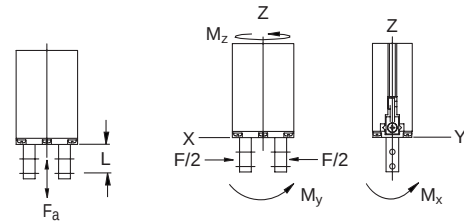
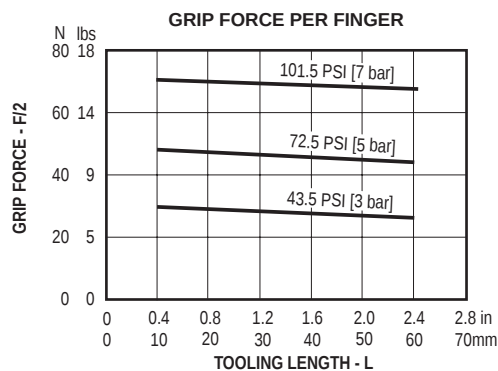
GPCR-20C



Total Grip Force (100 PSI @ 1 in)	31.4 lbs	140 N
Stroke	0.47 in	12 mm
Weight	0.48 lbs	0.218 kg
Bore Size	0.63 in	20 mm
Cylinder Volume	0.46 in ³	7.54 cm ³
Repeatability	± .0004 in	± .01 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	15-101 psi	1-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

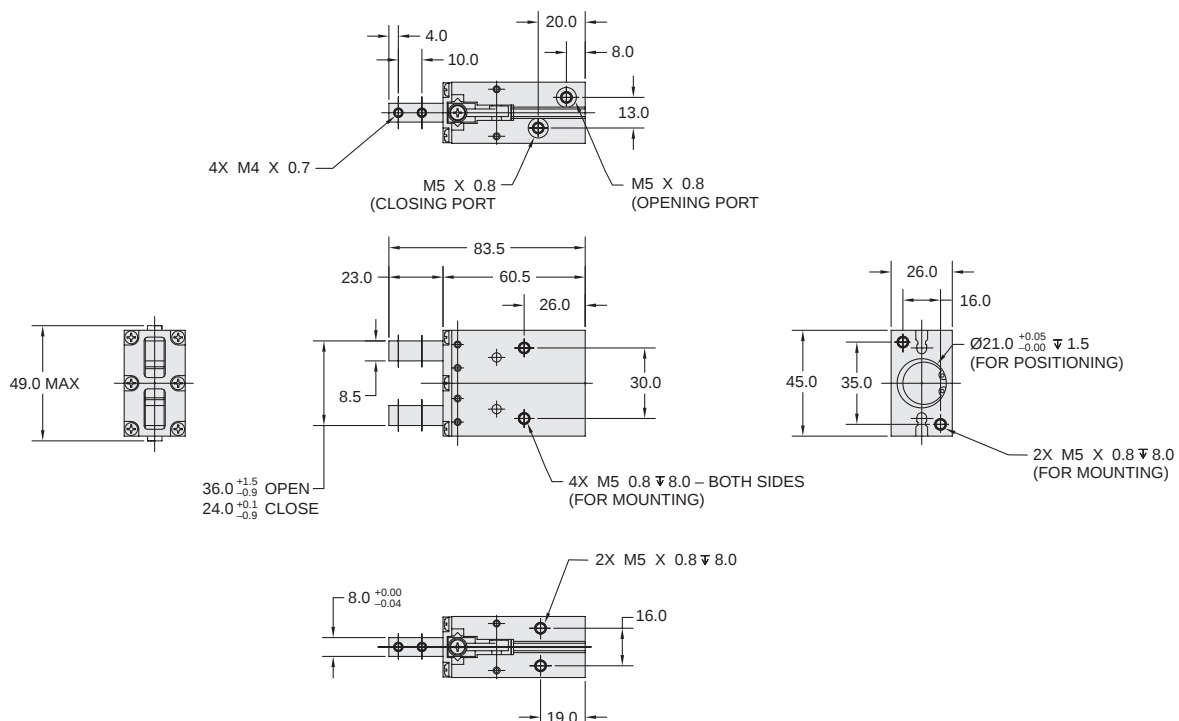
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	33 lbs	147 N
Moment (Mx)	11.5 in-lbs	1.3 Nm
Moment (My)	11.5 in-lbs	1.3 Nm
Moment (Mz)	23.9 in-lbs	2.7 Nm

Dimensional Information

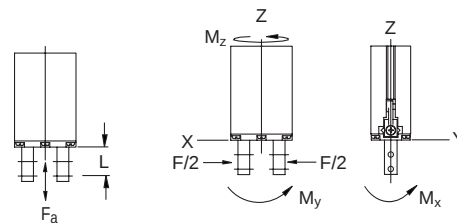
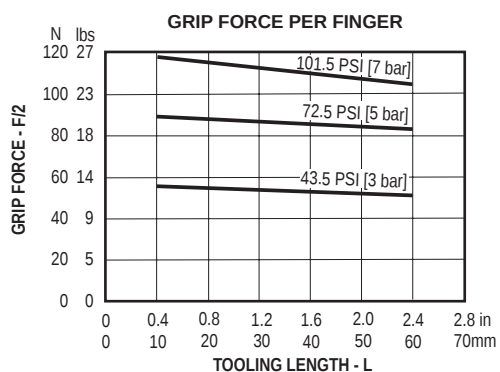


Dimensions in mm.

Total Grip Force (100 PSI @ 1 in)	50.8 lbs	226 N
Stroke	.55 in	14 mm
Weight	.81 lbs	.366 kg
Bore Size	.98 in	25 mm
Cylinder Volume	0.84 in ³	13.74 cm ³
Repeatability	+/- .0004 in	+/- .01 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	15-101 psi	1-7 bar
Filtration Requirement	40 micron (dry air)	

Miniature

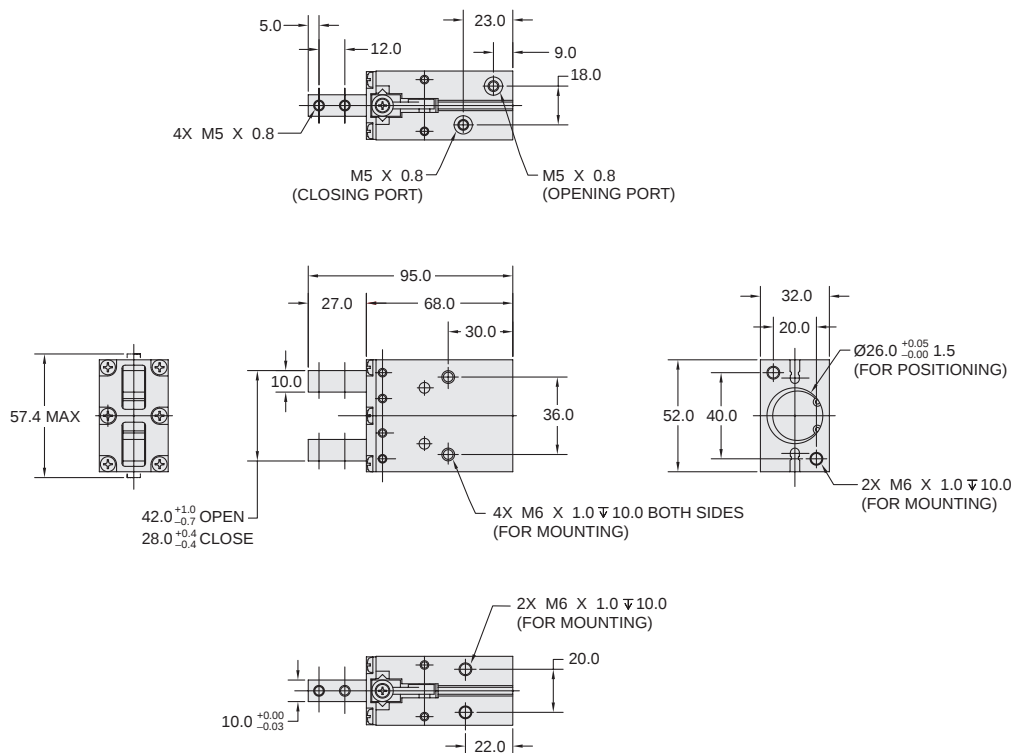
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	50.6 lbs	225 N
Moment (Mx)	16.8 in-lbs	1.9 Nm
Moment (My)	16.8 in-lbs	1.9 Nm
Moment (Mz)	34.5 in-lbs	3.9 Nm

Dimensional Information



Dimensions in mm.

Spring Open (A)

The spring open option allows for an automatic reset and jaw return under zero pressure. Selecting the spring assist option creates a single-acting gripper which may reduce the number of directional control valves needed. The spring open option also allows the fingers to return to the open position when pressure is lost during a power failure.

Note: The spring open option does not change gripper dimensions.

Size	Standard Open (lb _f)	Standard Closed (lb _f)	Spring Open (lb _f)	Spring Closed (lb _f)
GPCR-10A	4.1	6.4	2.2	0.9
GPCR-16A	11.2	15.0	9.2	1.7
GPCR-20A	20.1	26.8	15.6	3.0
GPCR-25A	29.5	38.3	23.8	6.0

Note: Based on 5 bar (72.5 psi) and l = 30mm

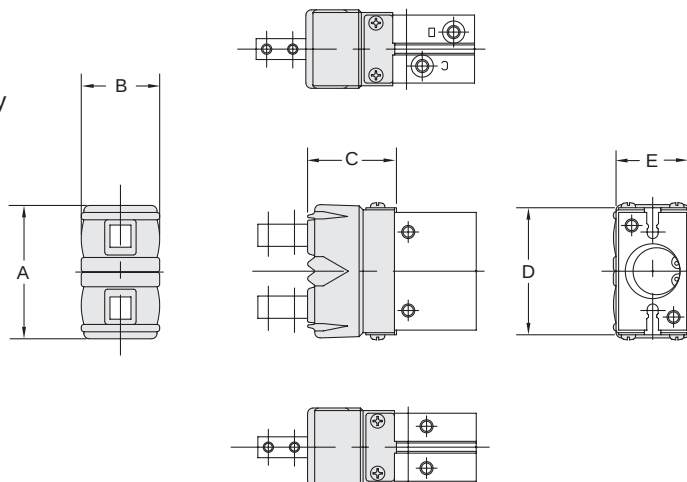
Dust Cover (JN, JF, JS)

A dust cover can be added to prevent contaminants from entering the working mechanism of the gripper. This allows for the GPCR cross roller bearing design to be used in dusty or dirty environments.

The cover is available in nitrile, fluorocarbon or silicon rubber to suit any application need.

Dimensions (mm)

Size	A	B	C	D	E
10	27	20	22	26.6	18
16	39	26	27.5	37.6	24
20	51	30	34	48.6	28
25	59	36	38.3	55.6	34



Model Code and Ordering Information

GPCR - **12** **C** - **JN**

Series

GPCR – Miniature Gripper

Size

10 – 10mm Bore
16 – 16mm Bore
20 – 20mm Bore
25 – 25mm Bore

Function

C – Standard, Double Acting
A – Single Acting, Spring Assist (Normally Open)

Dust Cover

Omit – No Cover (Standard)
JN – Nitrile Rubber Cover
JF – Fluorocarbon Rubber Cover
JS – Silicone Rubber Cover

Seal Kits

Size	Nitrile Seal Kit
GPCR-10	PSK-GPCR-10
GPCR-16	PSK-GPCR-16
GPCR-20	PSK-GPCR-20
GPCR-25	PSK-GPCR-25

Features

Bearing Adjustment

Preload adjustment screw allows for adjustment of the bearing preload, maintaining maximum gripper performance.

Dowel Pin Holes

Slip fit dowels located in gripper body and jaws.

Body

One piece anodized aluminum body

Seals

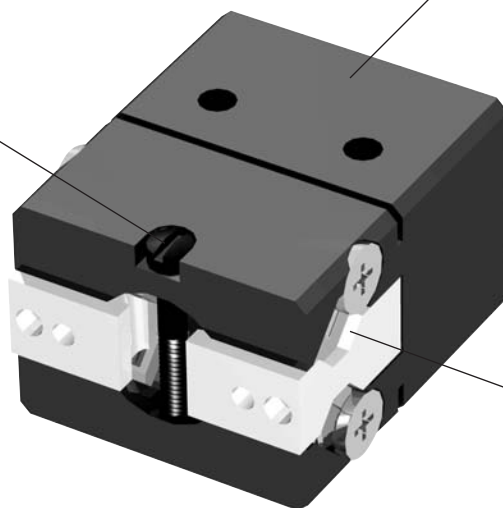
Self-lubricating dynamic seals (Nitrile only)

Internal Components

Internal components are made from hardened steels for maximum life

Preloaded Bearings

Preloaded roller bearings provide maximum support and precise motion.



Miniature

GPR

GPCR

P5G-HPM

Operation

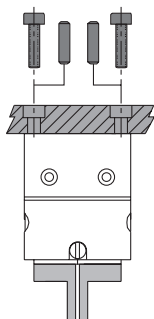
Operating Characteristic	Double acting, pin wedge design
Gripping Force @100 PSI	22 - 43 lbs
Stroke Range	1/8" to 1/4"
Operating Pressure Range	40 - 100 PSI (2.8 - 7 bar)

Not recommended for applications containing:

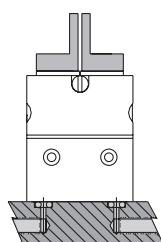
- Dirt or grit
- Machining chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

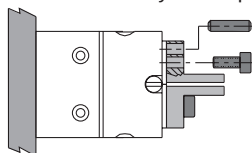
Body mounts with screws and locates with slip fit dowel pins for accuracy.



WARNING! Protect drive and bearing mechanism from falling debris when mounted with fingers up.



Fingers attach to jaws with screws and locate by dowel pins.



Contents

P5G-HPM-1	16
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P5G-HPM-3	18
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P5G-HPM-1M-V

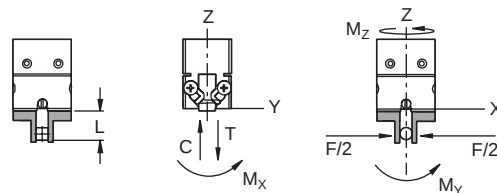
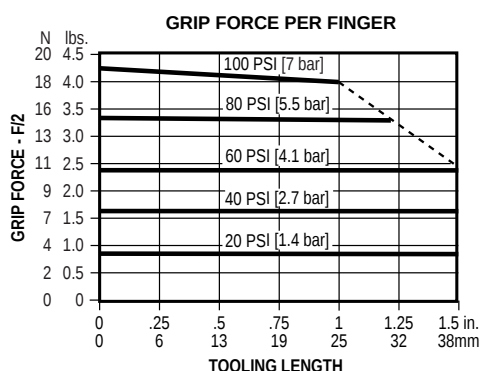


Total Grip Force (100 psi @ 1 in)	8 lbs	36 N
Stroke	0.13 in	3.2 mm
Weight	0.052 lbs	0.024 kg
Bore Size	0.394 in	10.0 mm
Cylinder Volume	0.008 in ³	0.13 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

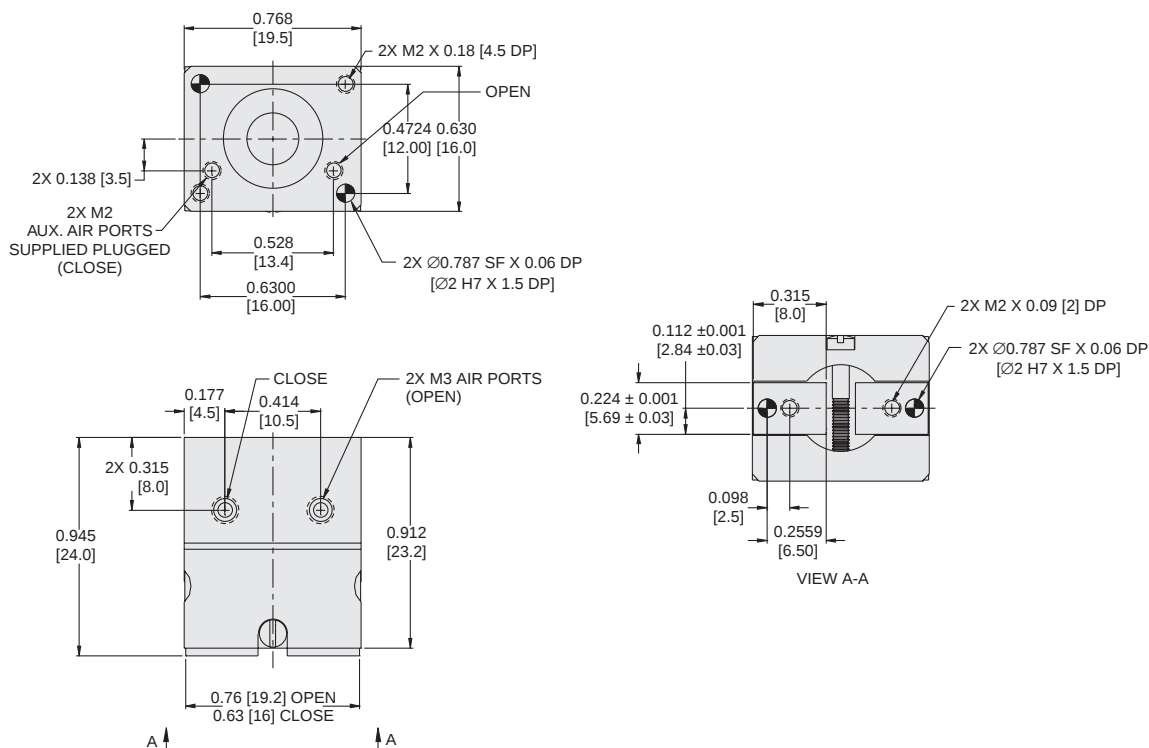
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	20 lbs	89 N	7 lbs	31 N
Moment (Mx)	12 in-lbs	1 Nm	4 in-lbs	0.5 Nm
Moment (My)	15 in-lbs	2 Nm	5 in-lbs	0.6 Nm
Moment (Mz)	12 in-lbs	1 Nm	4 in-lbs	0.5 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPM-2M-V

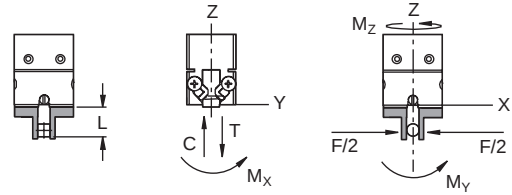
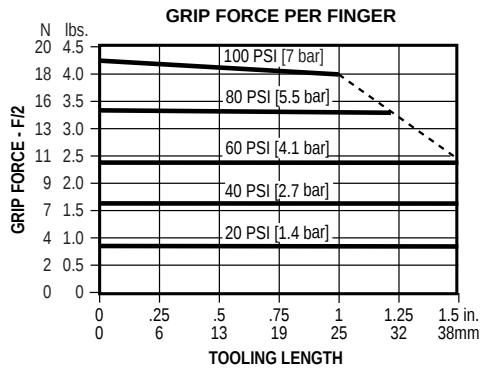


Total Grip Force (100 psi @ 1 in)	8 lbs	36 N
Stroke	0.19 in	4.8 mm
Weight	0.058 lbs	0.026 kg
Bore Size	0.394 in	10.0 mm
Cylinder Volume	0.012 in ³	0.20 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

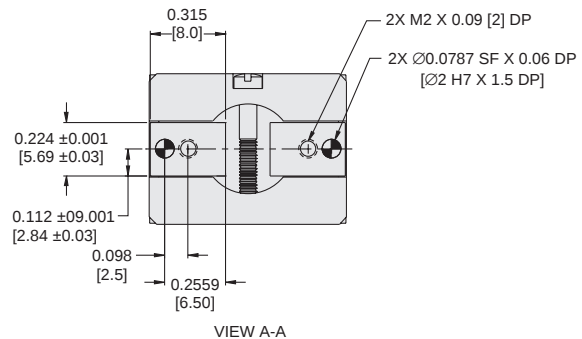
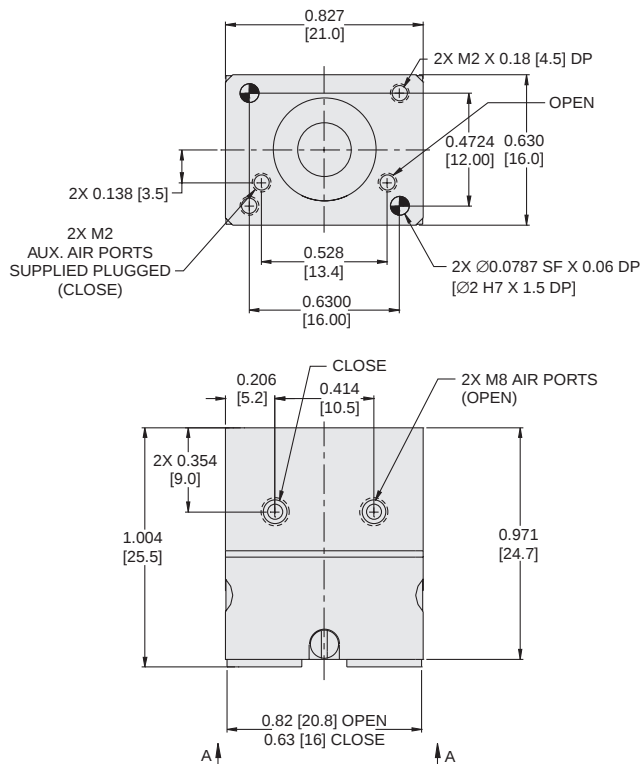
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	20 lbs	89 N	7 lbs	31 N
Moment (Mx)	12 in-lbs	1 Nm	4 in-lbs	0.5 Nm
Moment (My)	15 in-lbs	2 Nm	5 in-lbs	0.6 Nm
Moment (Mz)	12 in-lbs	1 Nm	4 in-lbs	0.5 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPM-3M-V

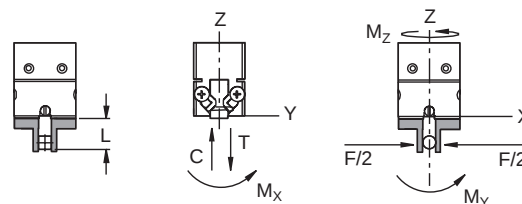
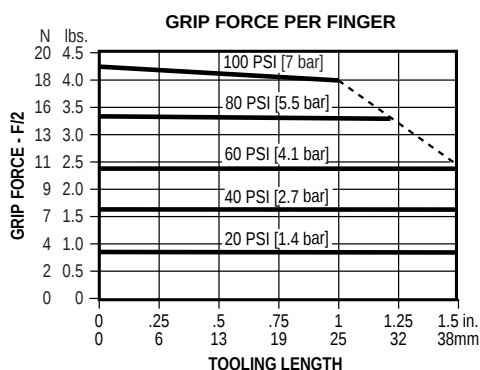


Total Grip Force (100 psi @ 1 in)	8 lbs	36 N
Stroke	0.25 in	6.3 mm
Weight	0.074 lbs	0.034 kg
Bore Size	0.394 in	10.0 mm
Cylinder Volume	0.015 in ³	0.25 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

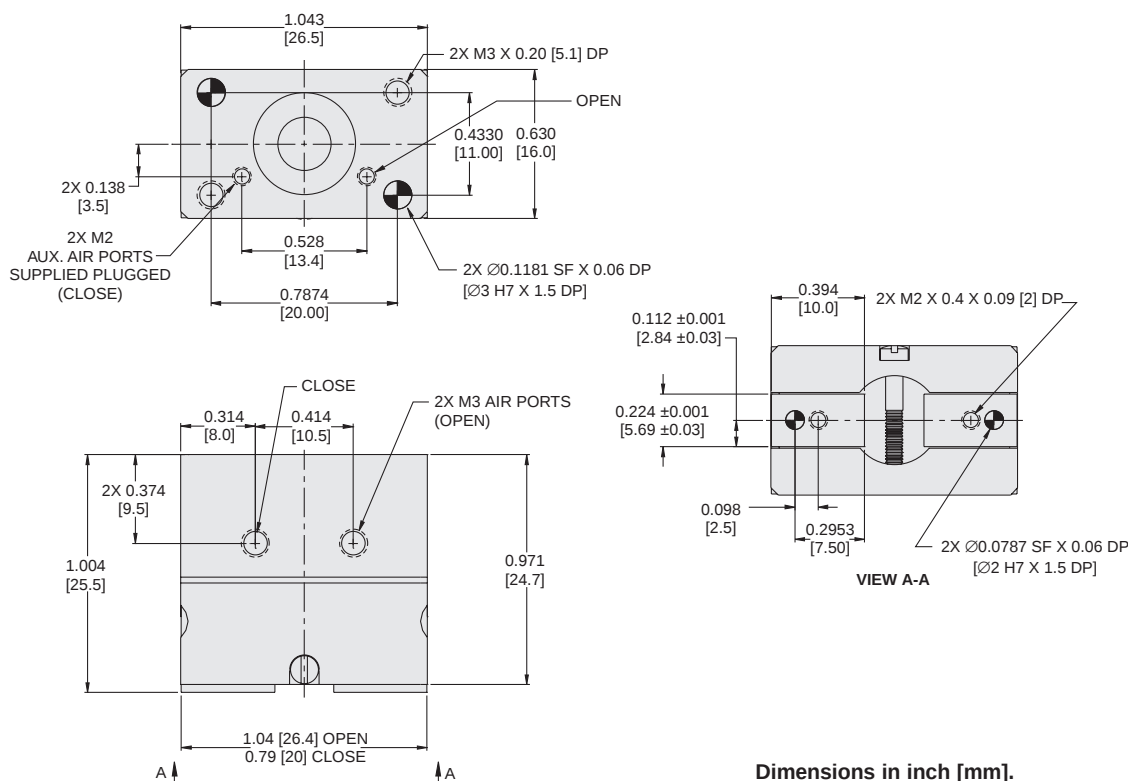
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	20 lbs	89 N	7 lbs	31 N
Moment (Mx)	12 in-lbs	1 Nm	4 in-lbs	0.5 Nm
Moment (My)	15 in-lbs	2 Nm	5 in-lbs	0.6 Nm
Moment (Mz)	12 in-lbs	1 Nm	4 in-lbs	0.5 Nm

Dimensional Information



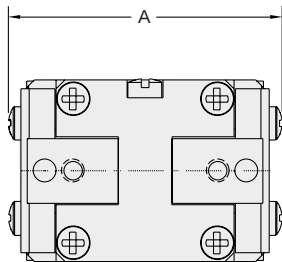
Dimensions in inch [mm].

Clean Room Option (C)

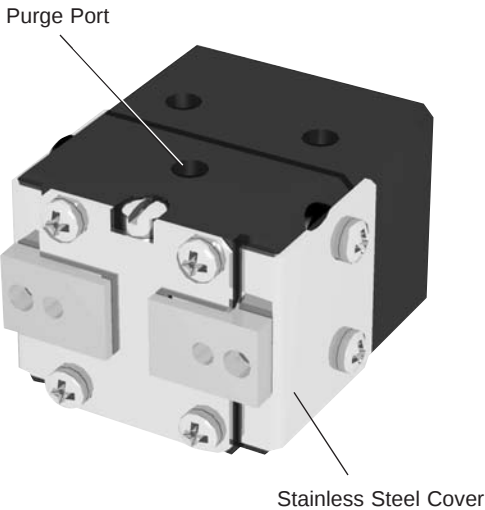
Stainless steel plates are added to the gripper housing to protect the internal linkage from contaminants. These plates also prevent the generation of contaminants in clean-room applications.

A purge port is also added for extreme applications where air born contaminants may be introduced to the gripper. Applying vacuum pressure prevents the escape of contaminants generated by internal components.

Clean-room grade lubricants are used.



Size	A in (mm)
HPM-1	0.89 (23.0)
HPM-2	0.94 (24.0)
HPM-3	1.16 (30.0)



Clean Room Lubricants

Units are lubricated with a clean-room grade grease.

Fluorocarbon Seals (V)

Standard nitrile seals should be used for general purpose applications with temperatures of -30° to 180° F (-35° to 80° C). Fluorocarbon seals are recommended for high temperature applications up to 250° F (120° C).

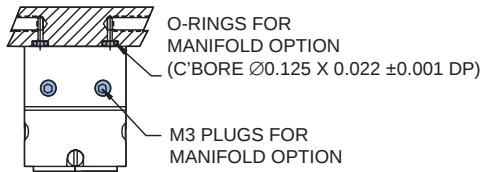
Seal Type	Temperature Range
Standard Buna-N	-30° to 180°F (-35° to 80°C)
Fluorocarbon	-20° to 250°F (-30° to 120°C)

Manifold Mount Seal Kit

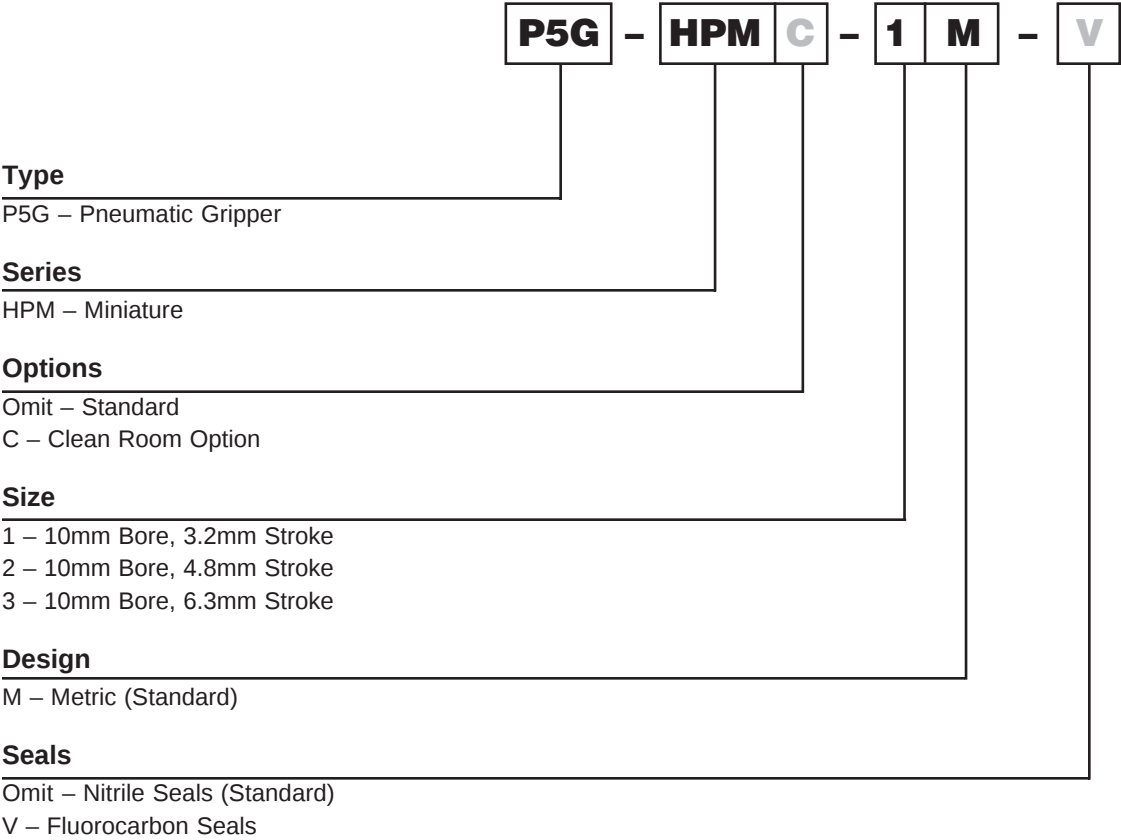
The P5G-HPM Series can be ported using the manifold mount option when mounted on the top-mounting surface. Using the manifold mount eliminates the need for external air lines or fittings and allows for mounting several grippers in close proximity.

The unit comes as standard with the manifold mounting ports plugged. The seal kit should be ordered separately and is available in fluorocarbon only.

Size	Manifold Mount Seal Kit
P5G-HPM1	PSK-P5G-HPM1-M
P5G-HPM2	PSK-P5G-HPM2-M
P5G-HPM3	PSK-P5G-HPM3-M



Model Code and Ordering Information



Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit	Manifold Mount Seal Kit
P5G-HPM1	PSK-P5G-HPM1	PSK-P5G-HPM1-V	PSK-P5G-HPM1-M
P5G-HPM2	PSK-P5G-HPM2	PSK-P5G-HPM2-V	PSK-P5G-HPM2-M
P5G-HPM3	PSK-P5G-HPM3	PSK-P5G-HPM3-V	PSK-P5G-HPM3-M

Features

Body

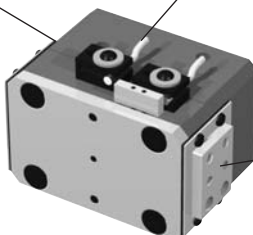
One-piece hard coat anodized aluminum body with Teflon® impregnation

Sensors/ Mounting Kit

Read position of jaw (sold separately)

Seals

Self lubricating dynamic seals (Nitrile only)



Dowel Pin Holes

Slip fit dowels located in gripper body and jaws.

Wedge Design

Efficient guided wedge design provides high force to weight ratio. Jaw components are precision ground to minimize play.

Contaminant Tolerance

Sealed design resists internal contamination (not available on sizes 11 and 12).

Automation
P5G-HP
GPT
P5G-AP

Operation

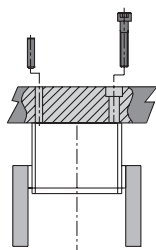
Operating Characteristic Double acting, wedge design
Gripping Force @ 100 PSI 25 - 694 lbs
Stroke Range 0.16 to 2.0 inches
Operating Pressure Range 40-100 PSI (2.8 - 7 bar)

Sizes 5 and 10 only are not recommended for applications containing:

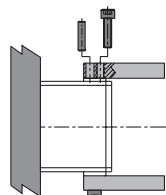
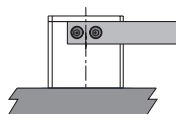
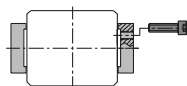
- Dirt or grit
- Machining chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Gripper can be mounted in any orientation due to sealed housing design.



Body mounts using tapped holes and slip fit dowel pin holes.



Custom finger tooling mounts using tapped holes and

Contents

P5G-HP-5 Miniature	22
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P5G-HP-5M-FS-V

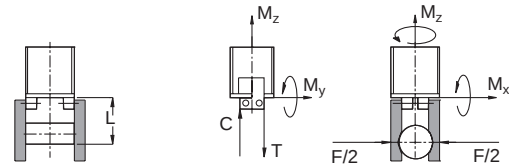
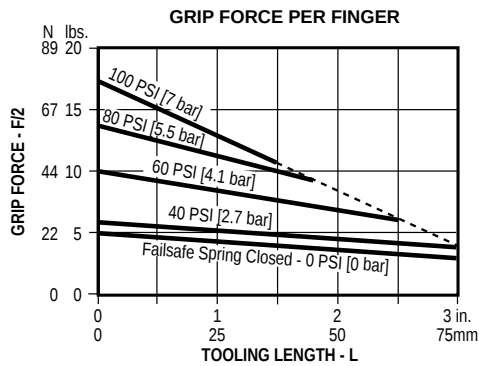


Total Grip Force (100 psi @ 1 in)	25 lbs	111 N
Stroke	0.16 in	4.1 mm
Weight	0.18 lbs	0.08 kg
Bore Size	0.75 in	19.1 mm
Cylinder Volume	0.042 in ³	0.7 cm ³
Repeatability	± 0.0005 in	± 0.01 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

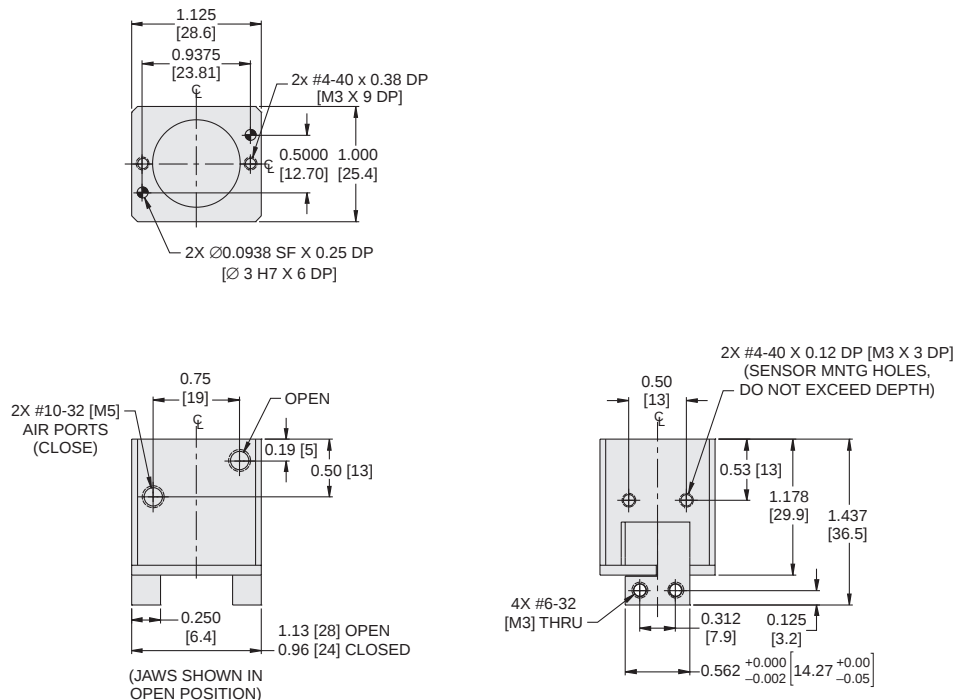
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	50 lbs	222 N	7 lbs	31 N
Moment (Mx)	30 in-lbs	3.4 Nm	5 in-lbs	0.6 Nm
Moment (My)	30 in-lbs	3.4 Nm	5 in-lbs	0.6 Nm
Moment (Mz)	30 in-lbs	3.4 Nm	5 in-lbs	0.6 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-10M-V

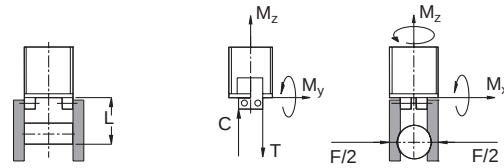
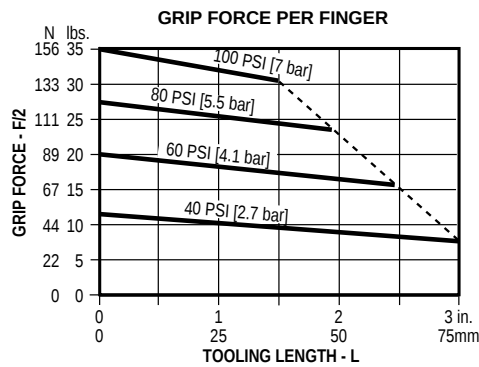


Total Grip Force (100 psi @ 1 in)	35 lbs	155 N
Stroke	0.25 in	6.4 mm
Weight	0.28 lbs	0.13 kg
Bore Size	1 in	25.4 mm
Cylinder Volume	0.098 in ³	1.6 cm ³
Repeatability	± 0.0005 in	± 0.01 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

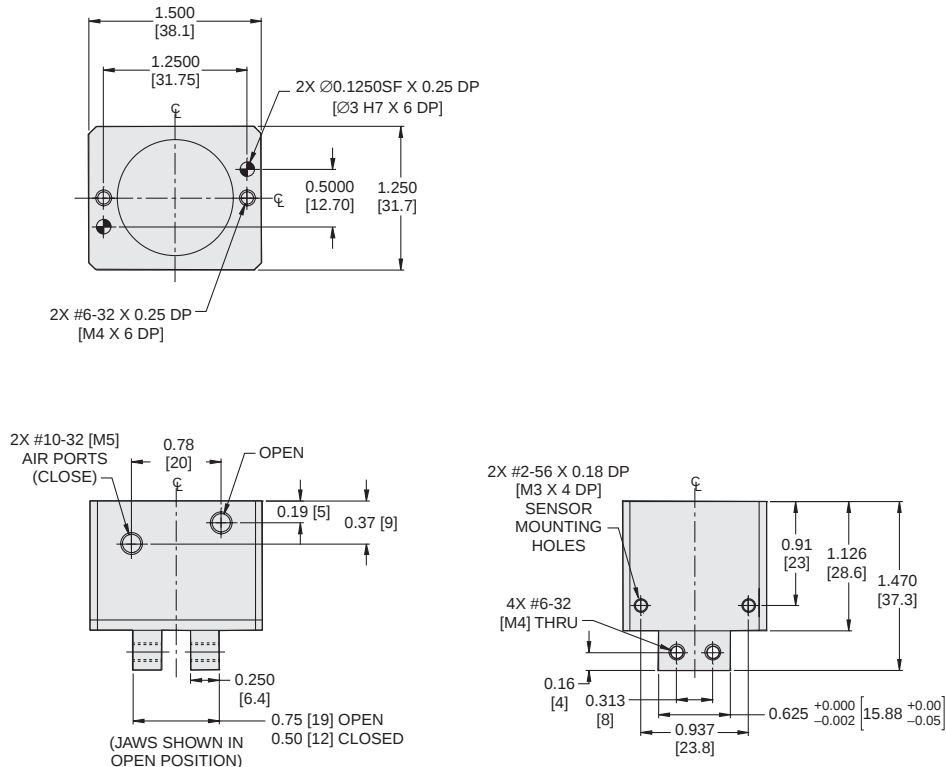
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	100 lbs	445 N	15 lbs	67 N
Moment (Mx)	90 in-lbs	10.2 Nm	15 in-lbs	1.5 Nm
Moment (My)	90 in-lbs	10.2 Nm	15 in-lbs	1.5 Nm
Moment (Mz)	90 in-lbs	10.2 Nm	15 in-lbs	1.5 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-11M-V

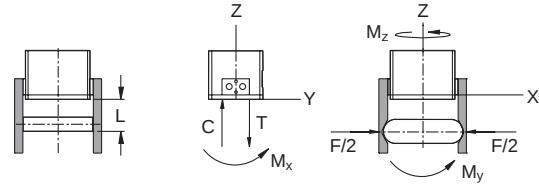
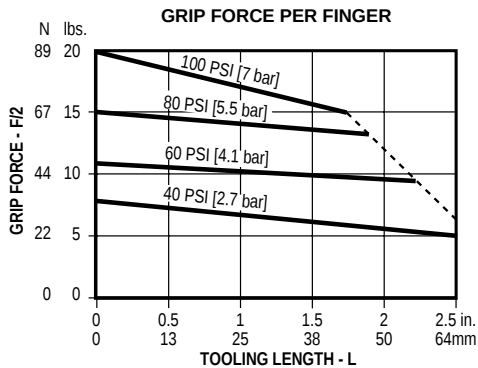


Total Grip Force (100 psi @ 1 in)	35 lbs	155 N
Stroke	0.25 in	6.4 mm
Weight	0.26 lbs	0.12 kg
Bore Size	1 in	25.4 mm
Cylinder Volume	0.098 in ³	1.6 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

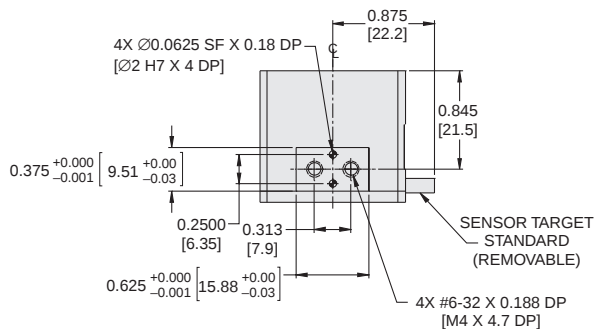
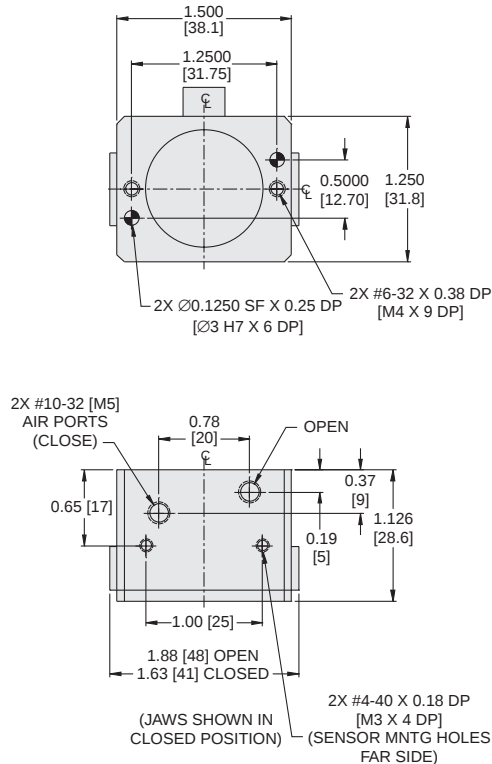
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	100 lbs	445 N	25 lbs	111 N
Moment (Mx)	100 in-lbs	11 Nm	17 in-lbs	2 Nm
Moment (My)	100 in-lbs	11 Nm	17 in-lbs	2 Nm
Moment (Mz)	100 in-lbs	11 Nm	17 in-lbs	2 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-11M-D-V

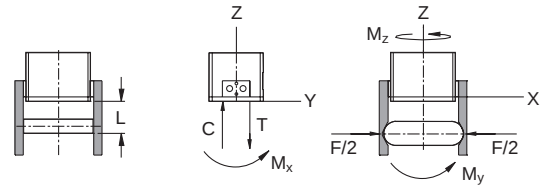
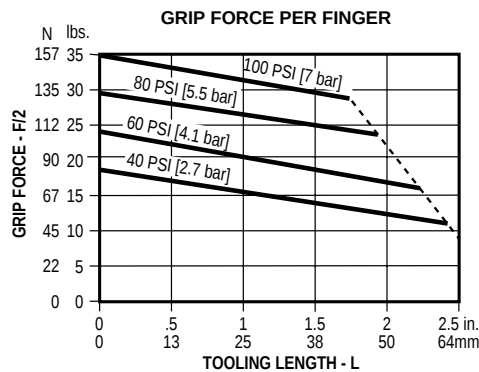


Total Grip Force (100 psi @ 1 in)	64 lbs	285 N
Stroke	0.16 in	4 mm
Weight	0.26 lbs	0.12 kg
Bore Size	1 in	25.4 mm
Cylinder Volume	0.098 in ³	1.6 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

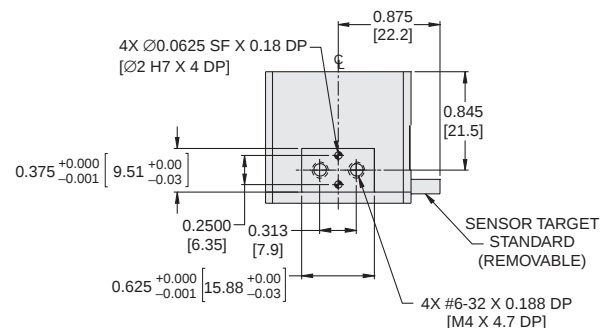
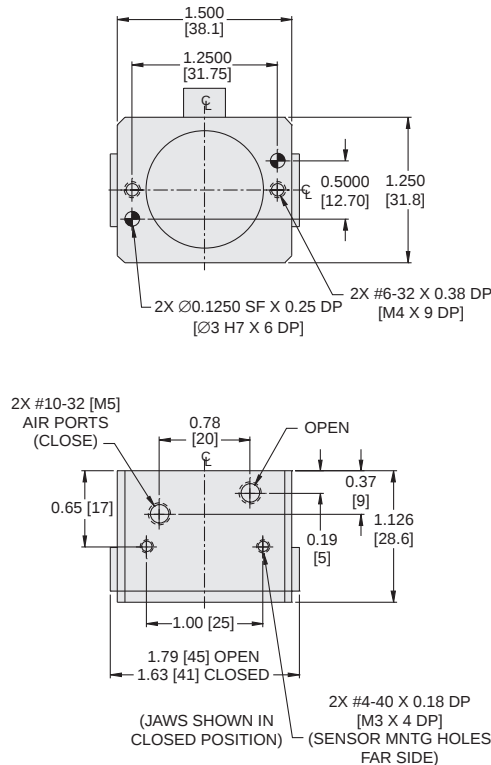
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	100 lbs	445 N	25 lbs	111 N
Moment (Mx)	100 in-lbs	11 Nm	17 in-lbs	2 Nm
Moment (My)	100 in-lbs	11 Nm	17 in-lbs	2 Nm
Moment (Mz)	100 in-lbs	11 Nm	17 in-lbs	2 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-12M-V

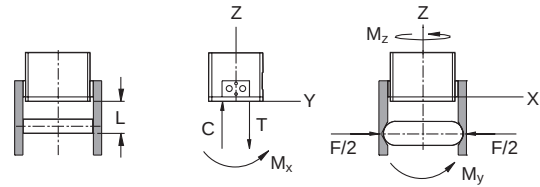
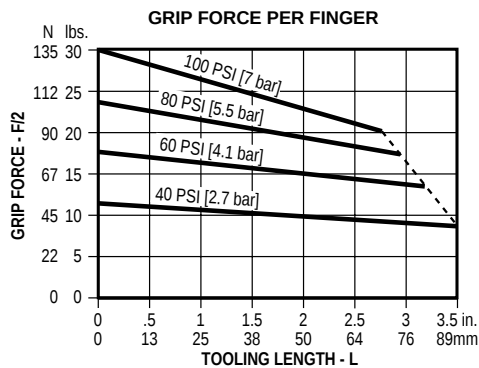


Total Grip Force (100 psi @ 1 in)	37 lbs	165 N
Stroke	0.38 in	9.5 mm
Weight	0.56 lbs	0.25 kg
Bore Size	1 in	25.4 mm
Cylinder Volume	0.150 in ³	2.5 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

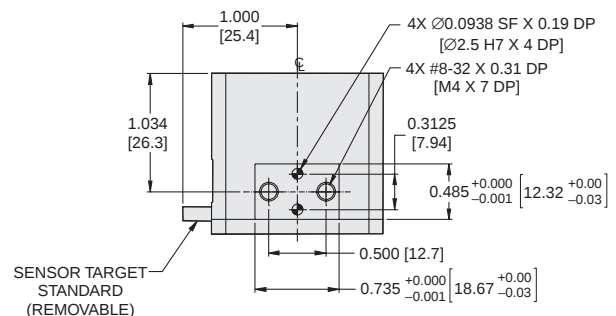
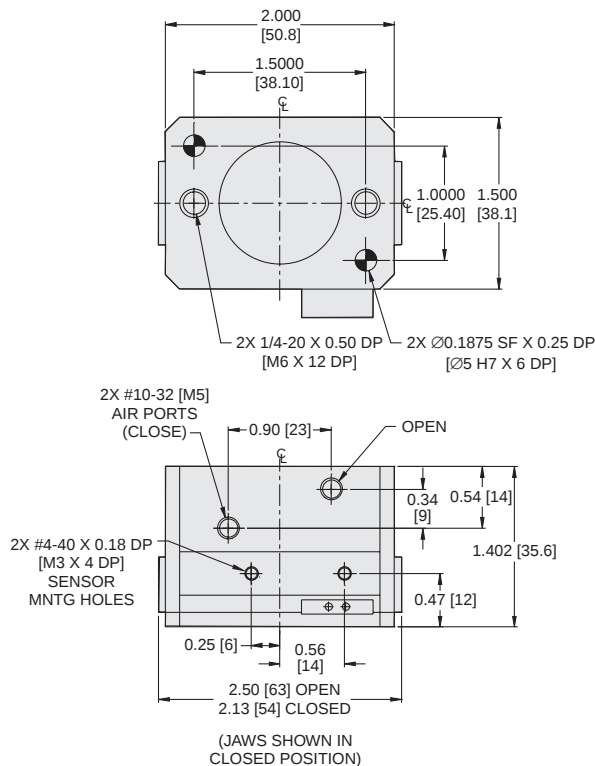
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C, T)	200 lbs	890 N	25 lbs	111 N
Moment (Mx)	150 in-lbs	17 Nm	25 in-lbs	3 Nm
Moment (My)	150 in-lbs	17 Nm	25 in-lbs	3 Nm
Moment (Mz)	150 in-lbs	17 Nm	25 in-lbs	3 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-12M-D-V

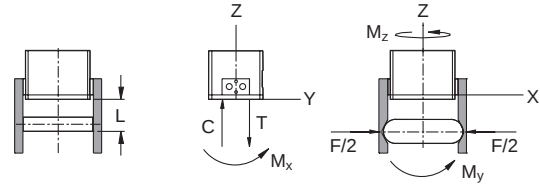
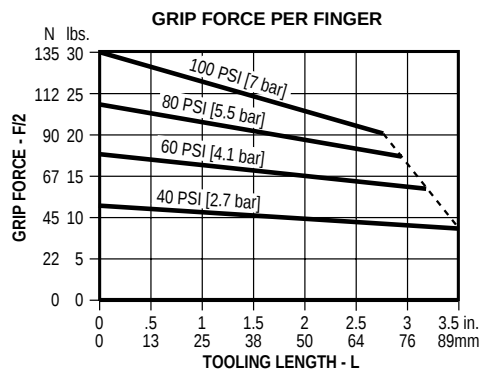


Total Grip Force (100 psi @ 1 in)	54 lbs	240 N
Stroke	0.24 in	6 mm
Weight	0.56 lbs	0.25 kg
Bore Size	1 in	25.4 mm
Cylinder Volume	0.150 in ³	2.5 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

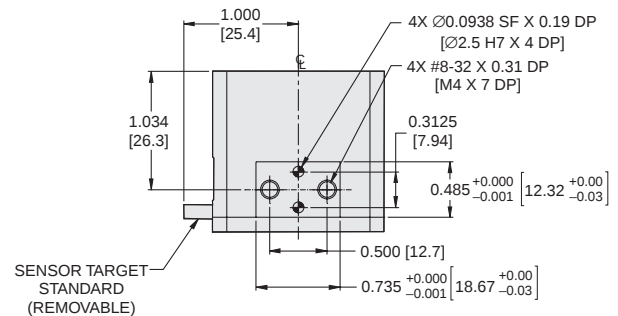
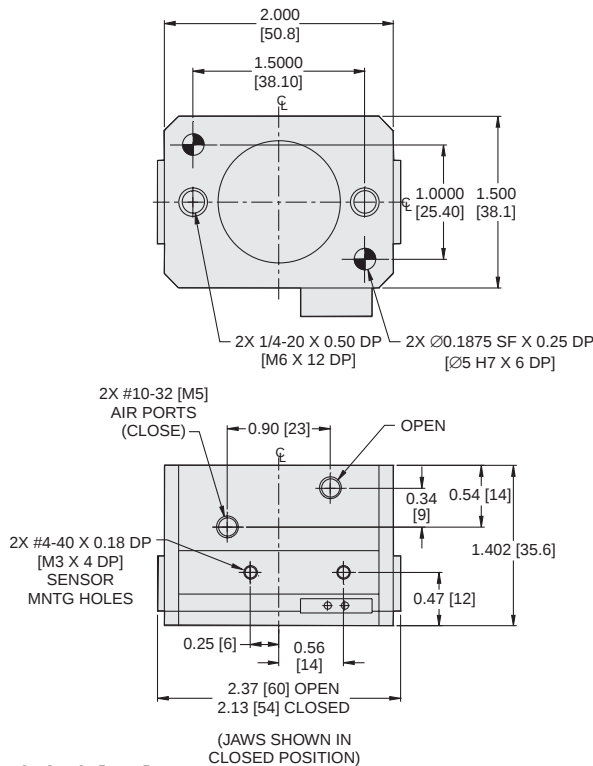
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	200 lbs	890 N	25 lbs	111 N
Moment (Mx)	150 in-lbs	17 Nm	25 in-lbs	3 Nm
Moment (My)	150 in-lbs	17 Nm	25 in-lbs	3 Nm
Moment (Mz)	150 in-lbs	17 Nm	25 in-lbs	3 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-15M-V

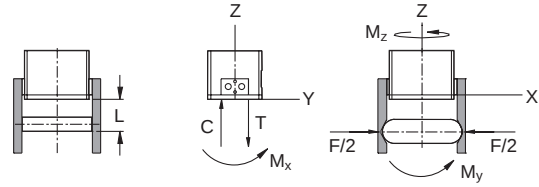
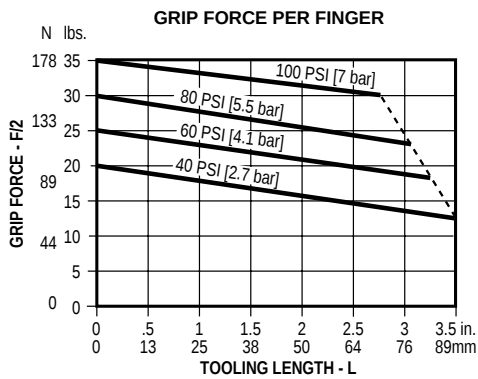


Total Grip Force (100 psi @ 1 in)	67 lbs	310 N
Stroke	0.50 in	12.7 mm
Weight	1.1 lbs	0.50 kg
Bore Size	1.25 in	31.8 mm
Cylinder Volume	0.300 in ³	4.9 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

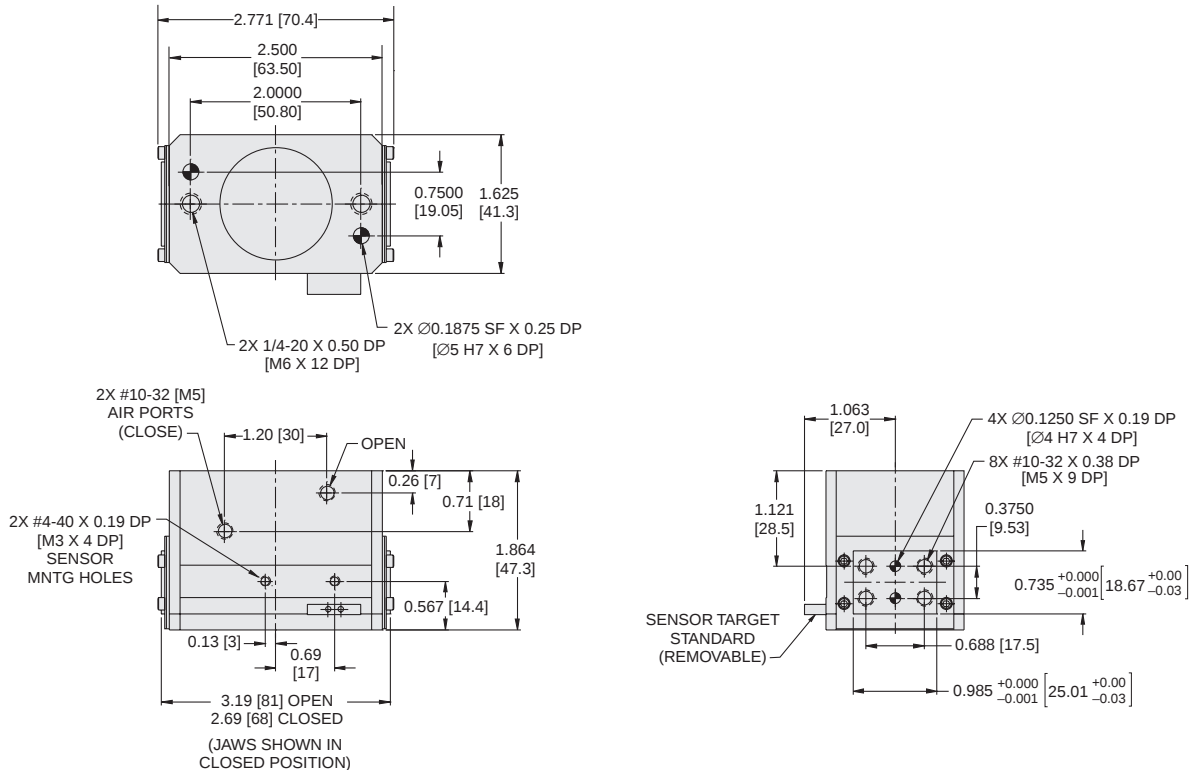
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	400 lbs	1779 N	50 lbs	222 N
Moment (Mx)	300 in-lbs	34 Nm	50 in-lbs	6 Nm
Moment (My)	300 in-lbs	34 Nm	50 in-lbs	6 Nm
Moment (Mz)	300 in-lbs	34 Nm	50 in-lbs	6 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-15M-D-V

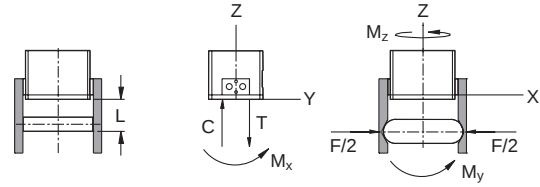
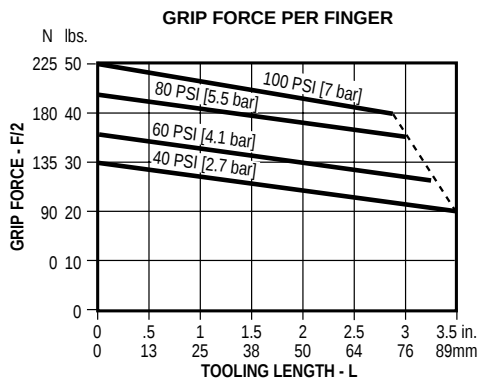


Total Grip Force (100 psi @ 1 in)	94 lbs	418 N
Stroke	0.31 in	8 mm
Weight	1.1 lbs	0.50 kg
Bore Size	1.25 in	31.8 mm
Cylinder Volume	0.300 in ³	4.9 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

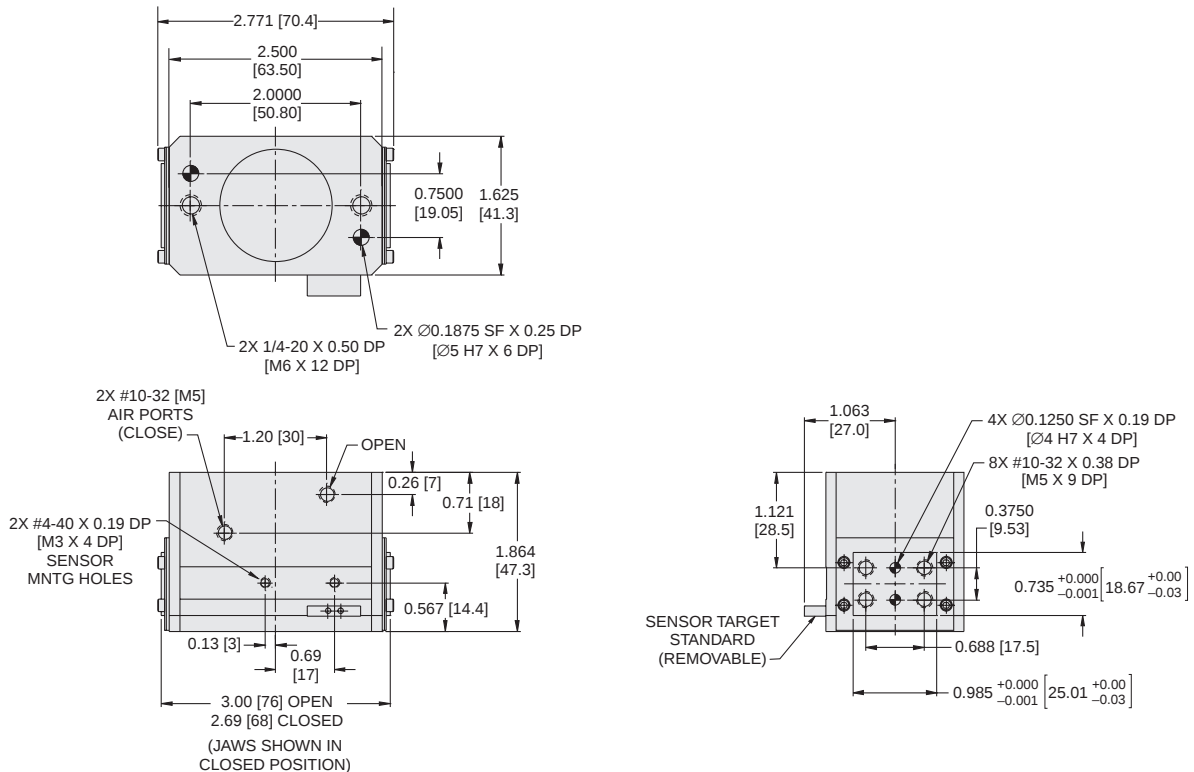
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	400 lbs	1779 N	50 lbs	222 N
Moment (Mx)	300 in-lbs	34 Nm	50 in-lbs	6 Nm
Moment (My)	300 in-lbs	34 Nm	50 in-lbs	6 Nm
Moment (Mz)	300 in-lbs	34 Nm	50 in-lbs	6 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-17M-V

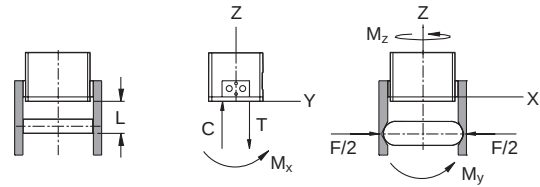
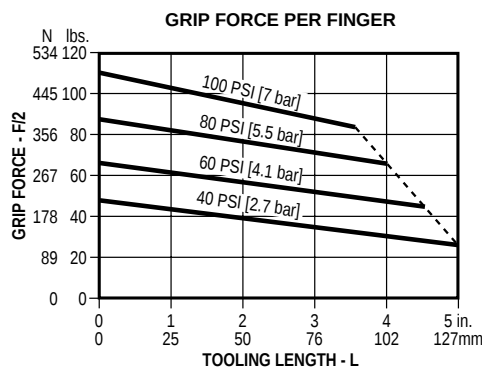


Total Grip Force (100 psi @ 1 in)	208 lbs	925 N
Stroke	0.75 in	19 mm
Weight	2.3 lbs	1.1 kg
Bore Size	1.813 in	46.1 mm
Cylinder Volume	1.4 in ³	22.9 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

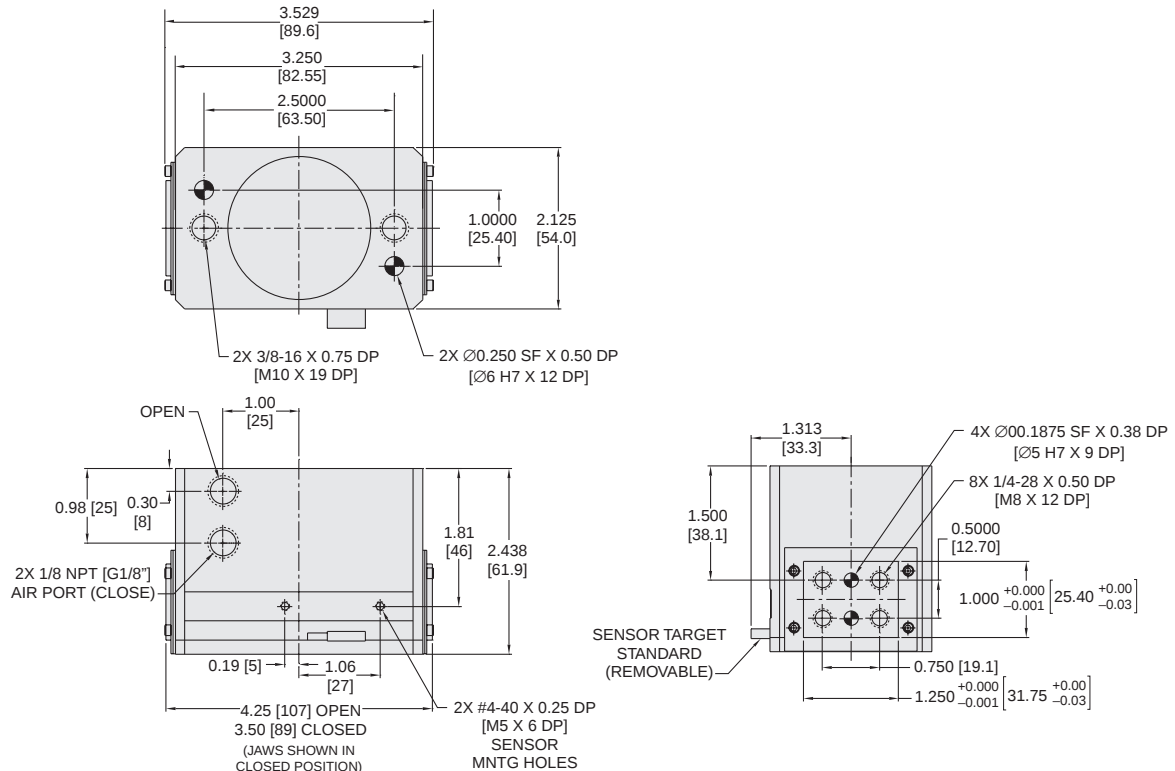
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	750 lbs	3336 N	100 lbs	445 N
Moment (Mx)	750 in-lbs	85 Nm	125 in-lbs	14 Nm
Moment (My)	750 in-lbs	85 Nm	125 in-lbs	14 Nm
Moment (Mz)	750 in-lbs	85 Nm	125 in-lbs	14 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-17M-D-V

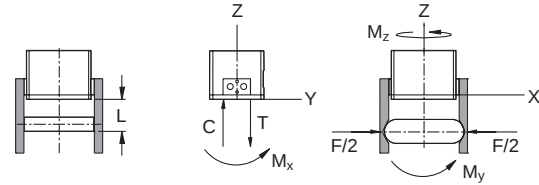
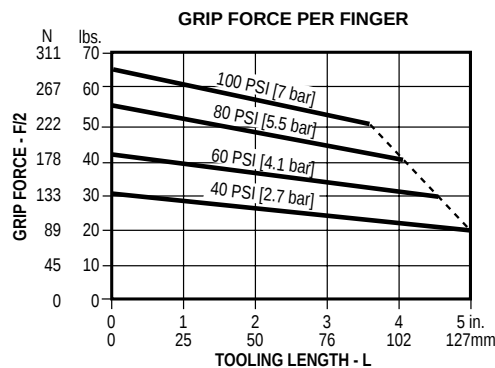


Total Grip Force (100 psi @ 1 in)	120 lbs	533 N
Stroke	1.10 in	28 mm
Weight	2.3 lbs	1.1 kg
Bore Size	1.813 in	46.1 mm
Cylinder Volume	1.4 in ³	22.9 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

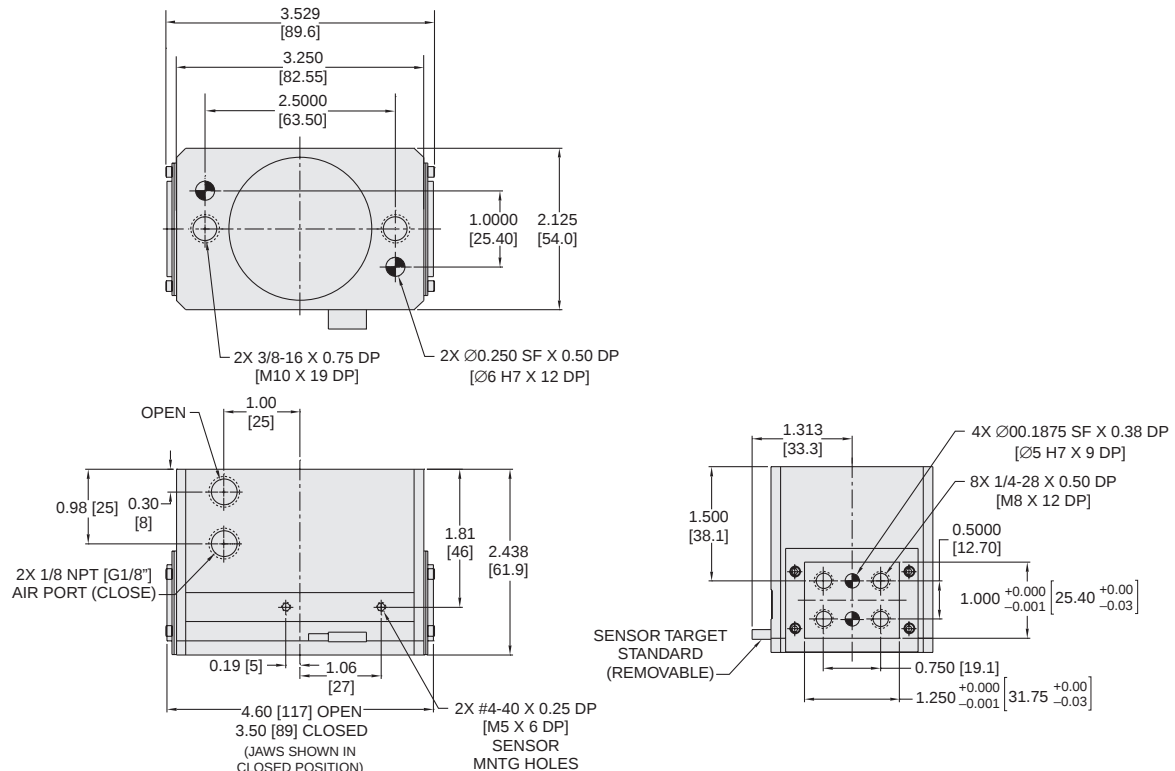
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	750 lbs	3336 N	100 lbs	445 N
Moment (Mx)	750 in-lbs	85 Nm	125 in-lbs	14 Nm
Moment (My)	750 in-lbs	85 Nm	125 in-lbs	14 Nm
Moment (Mz)	750 in-lbs	85 Nm	125 in-lbs	14 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-18M-V

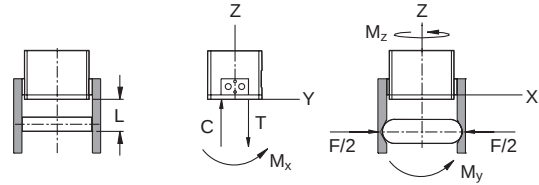
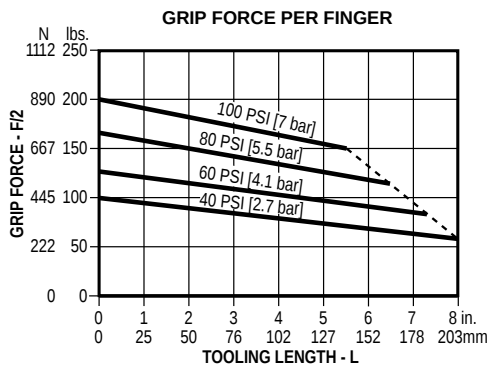


Total Grip Force (100 psi @ 1 in)	390 lbs	1735 N
Stroke	1.25 in	31.8 mm
Weight	7.7 lbs	3.5 kg
Bore Size	2.5 in	63.5 mm
Cylinder Volume	4.4 in ³	72.1 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

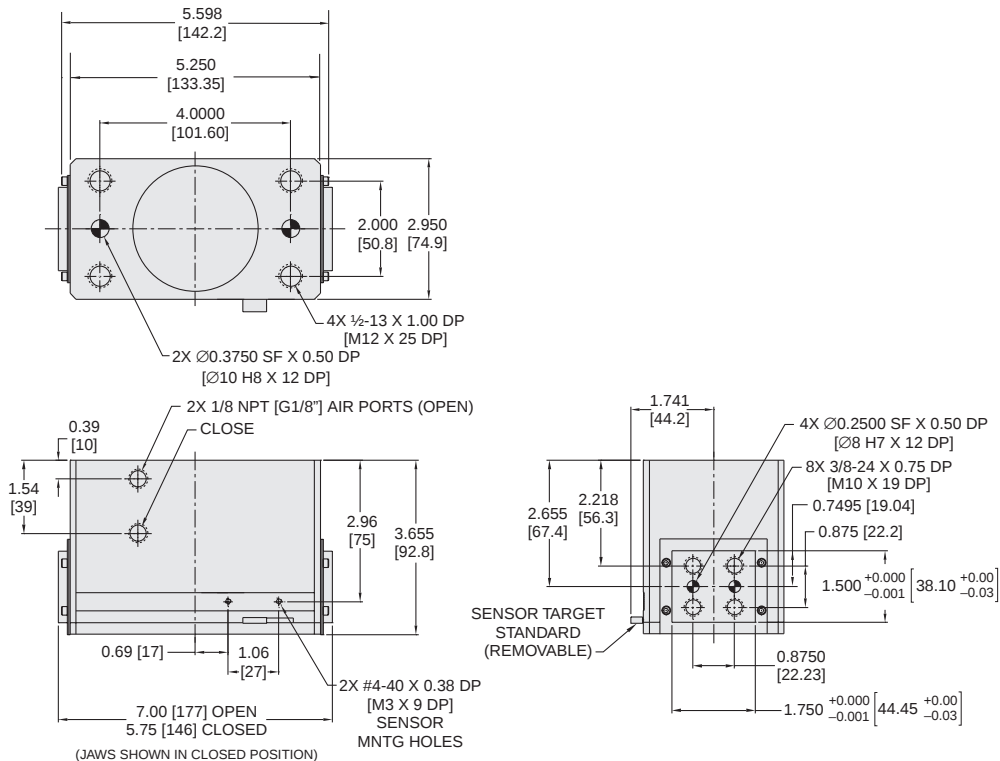
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	1500 lbs	6672 N	250 lbs	1112 N
Moment (Mx)	1500 in-lbs	170 Nm	250 in-lbs	28 Nm
Moment (My)	1500 in-lbs	170 Nm	250 in-lbs	28 Nm
Moment (Mz)	1500 in-lbs	170 Nm	250 in-lbs	28 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-18M-D-V

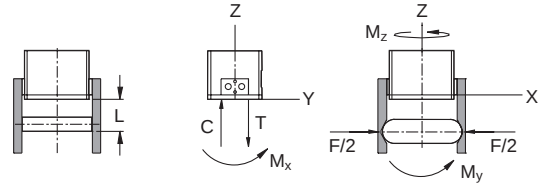
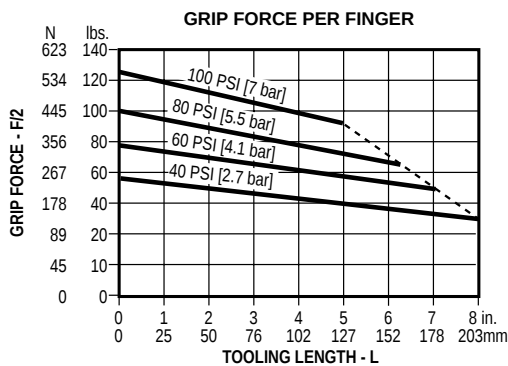


Total Grip Force (100 psi @ 1 in)	238 lbs	1058 N
Stroke	1.70 in	43 mm
Weight	7.7 lbs	3.5 kg
Bore Size	2.5 in	63.5 mm
Cylinder Volume	4.4 in ³	72.1 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

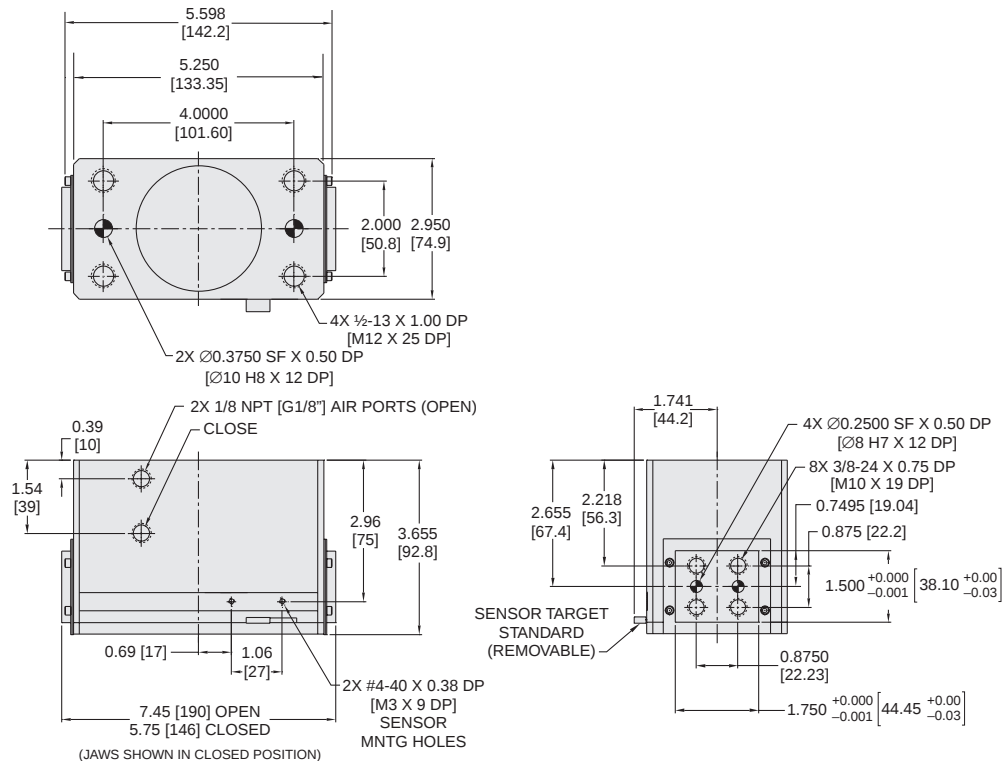
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	1500 lbs	6672 N	250 lbs	1112 N
Moment (Mx)	1500 in-lbs	170 Nm	250 in-lbs	28 Nm
Moment (My)	1500 in-lbs	170 Nm	250 in-lbs	28 Nm
Moment (Mz)	1500 in-lbs	170 Nm	250 in-lbs	28 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-19M-V

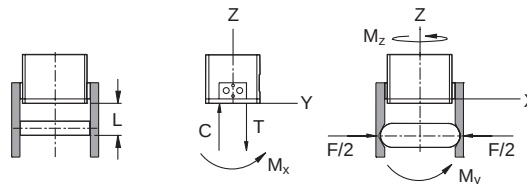
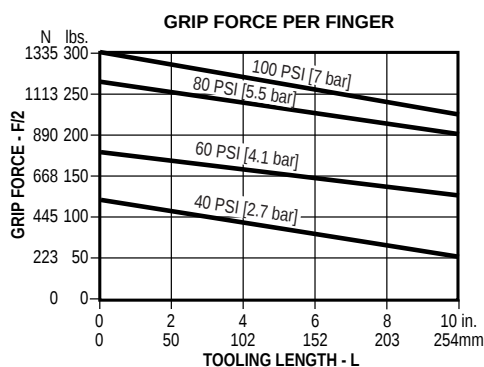


Total Grip Force (100 psi @ 1 in)	590 lbs	2624 N
Stroke	2 in	50.8 mm
Weight	21 lbs	9.5 kg
Bore Size	3.5 in	88.9 mm
Cylinder Volume	9.6 in ³	157.3 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

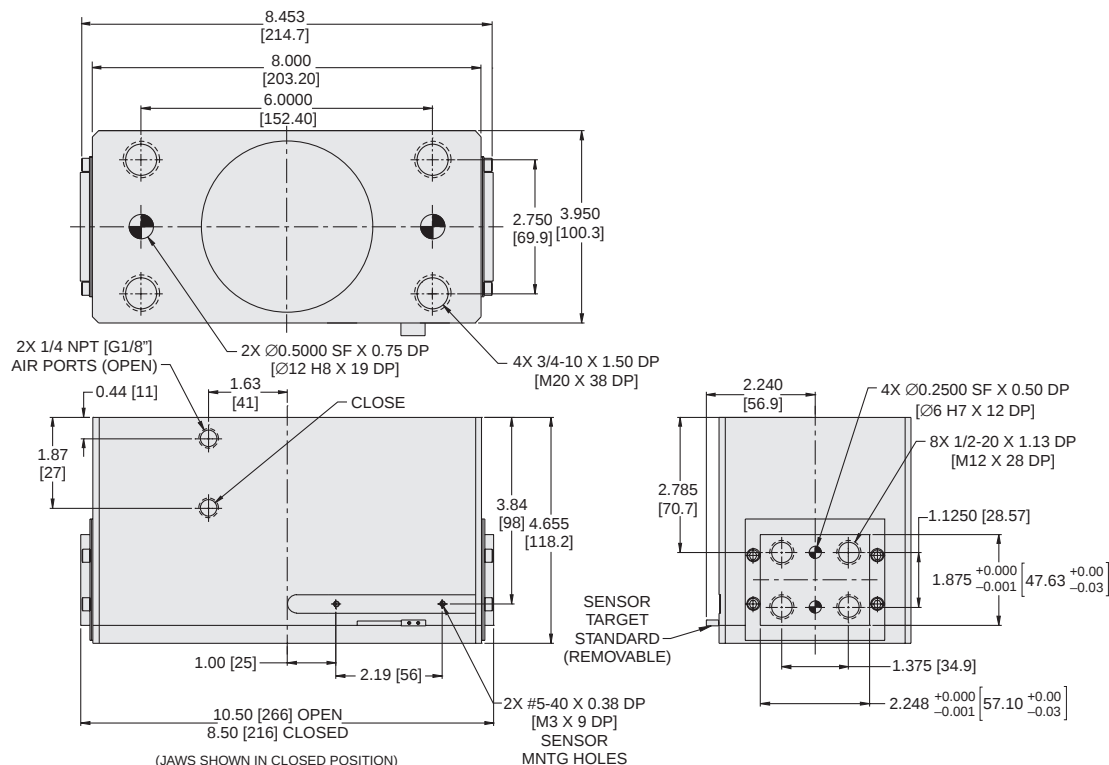
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	3000 lbs	13345 N	300 lbs	1334 N
Moment (Mx)	5000 in-lbs	565 Nm	500 in-lbs	56 Nm
Moment (My)	5000 in-lbs	565 Nm	500 in-lbs	56 Nm
Moment (Mz)	5000 in-lbs	565 Nm	500 in-lbs	56 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HP-19M-D-V

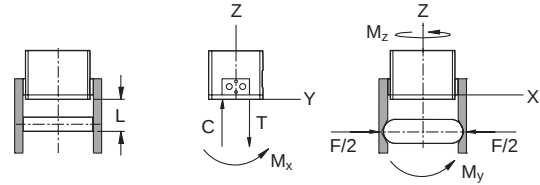
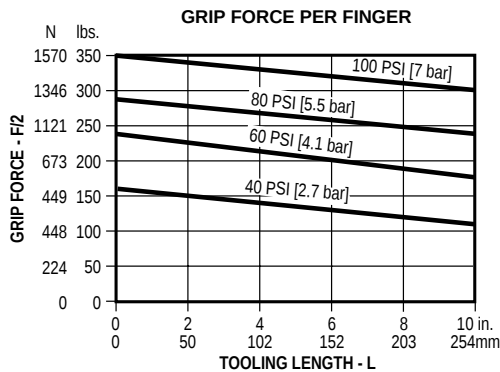


Total Grip Force (100 psi @ 1 in)	694 lbs	3087 N
Stroke	1.50 in	38 mm
Weight	21 lbs	9.5 kg
Bore Size	3.5 in	88.9 mm
Cylinder Volume	9.6 in ³	157.3 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

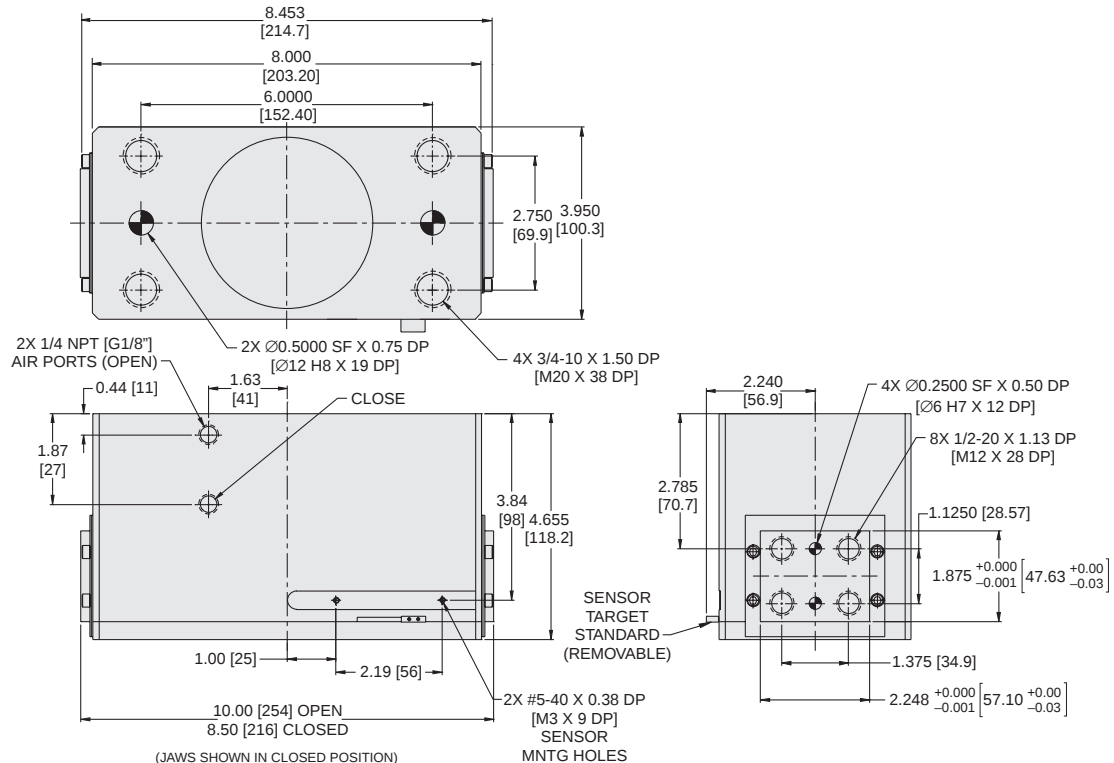
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	3000 lbs	13345 N	300 lbs	1334 N
Moment (Mx)	5000 in-lbs	565 Nm	500 in-lbs	56 Nm
Moment (My)	5000 in-lbs	565 Nm	500 in-lbs	56 Nm
Moment (Mz)	5000 in-lbs	565 Nm	500 in-lbs	56 Nm

Dimensional Information



Dimensions in inch [mm].

Metric Option (M)

When using the P5G-HP series in metric applications, metric mounting and ports can be specified with the Metric Option. When specifying this option, the gripper incorporates metric threads and BSPG ports.

Reference the dimensional drawing for each size gripper for more details.

Spring Options (FS, O, C)

The P5G-HP series gripper can be ordered as a single acting or double acting in either spring open or closed configuration. The gripper will close under pressure loss.

Ordering a gripper with a spring function can reduce the number or type of directional control valves needed in a pneumatic system.

NOTE: Spring option not available on P5G-HP10.

Size	Total Force (F) lbf	Grip Force (F/2) lbf	Spring Force lbf
P5G-HP5	12	6	4
P5G-HP10	N/A	N/A	N/A
P5G-HPS11	34	17	6
P5G-HPS11-D	60	30	12
P5G-HPS12	44	22	6
P5G-HPS12-D	64	32	12
P5G-HPS15	66	33	12
P5G-HPS15-D	76	38	18
P5G-HPS17	206	103	30
P5G-HPS17-D	130	65	25
P5G-HPS18	420	210	50
P5G-HPS18-D	300	150	35

* Total grip force at 75 psi, tooling length of 1 inch, and 25% of total gripper stroke

** Spring force taken at tooling length less than 2 inches

Note: The actual grip force will change for a single acting gripper.

Fluorocarbon Seals (V)

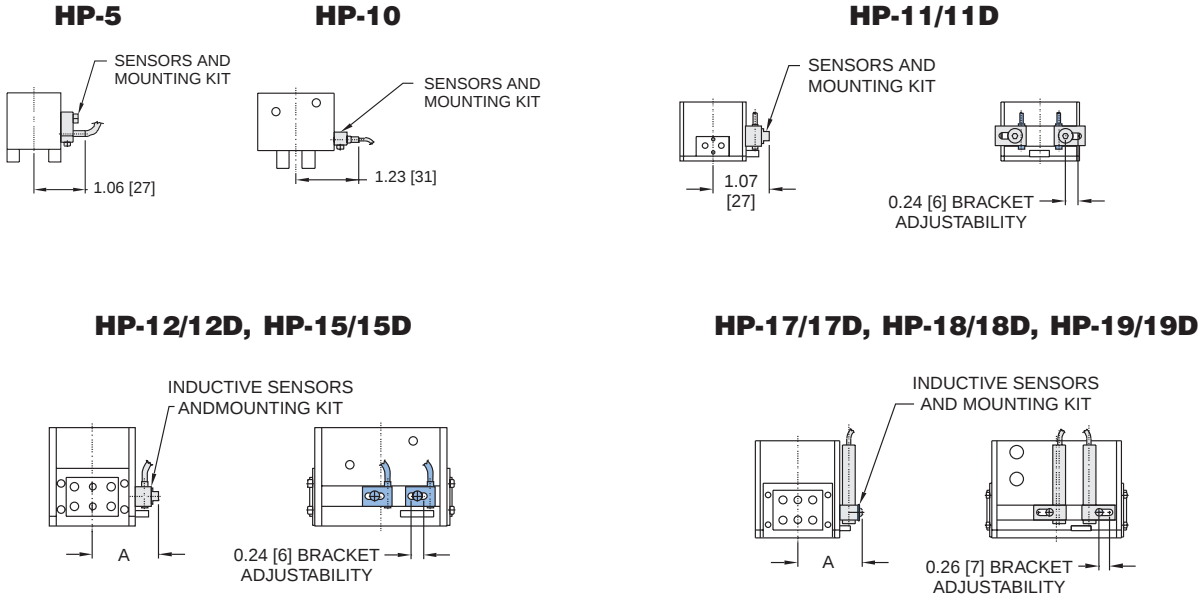
Standard nitrile seals should be used for general purpose applications with temperatures of -30° to 180° F (-35° to 80° C). Fluorocarbon seals are recommended for high temperature applications up to 250° F (120° C).

Seal Type	Temperature Range
Standard Buna-N	-30° to 180°F (-35° to 80°C)
Fluorocarbon	-20° to 250°F (-30° to 120°C)

Proximity Sensors

Proximity Sensors provide feedback on the position of the gripper fingers by sensing the metal flag which is attached to the gripper jaw. The sensor bracket is adjustable to provide sensing along the stroke of the gripper finger.

Order sensors, cables and brackets separately. See Sensor section for part numbers and specifications.



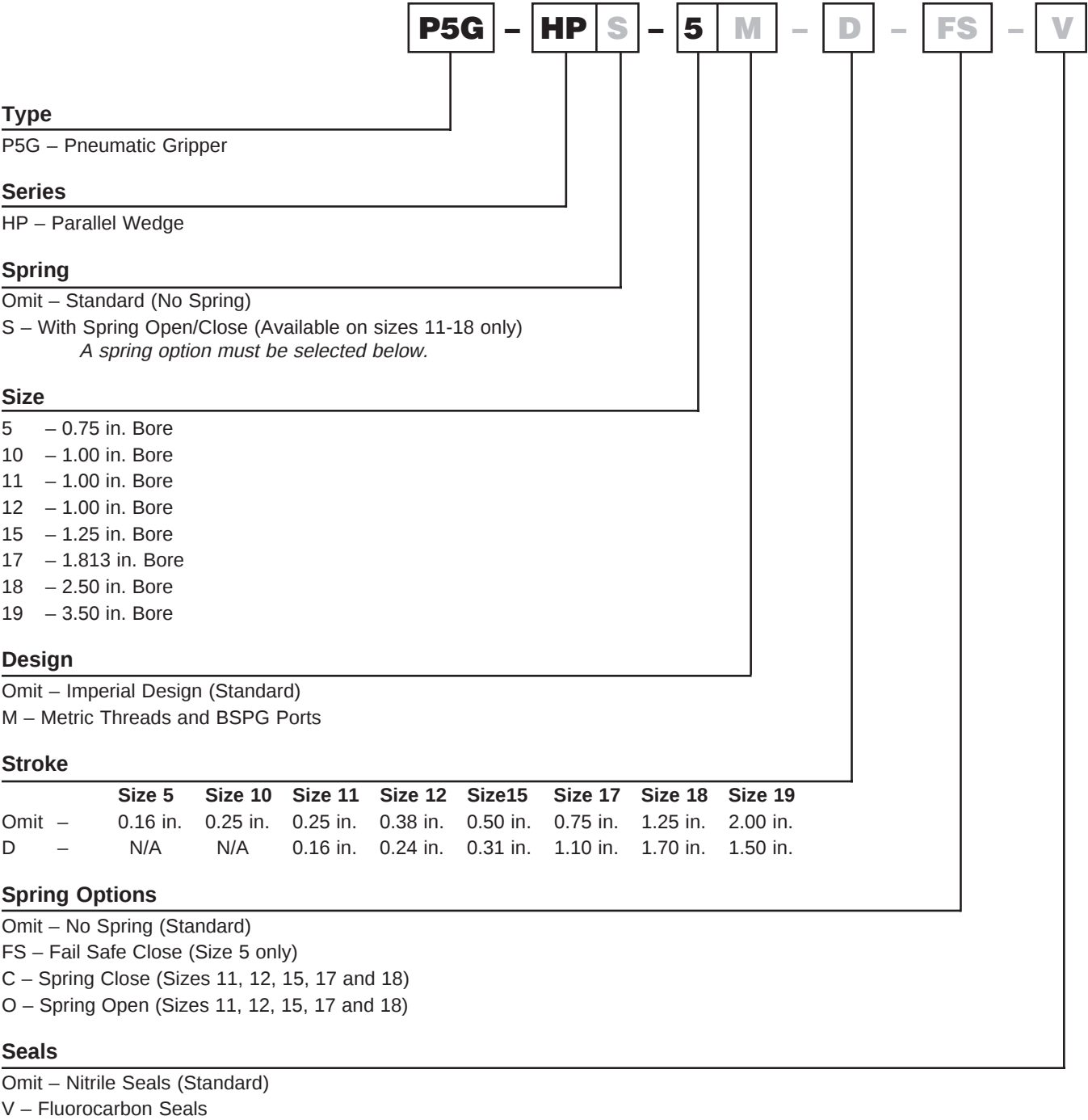
Dimensions

Model	A inch (mm)
HP-12/12D	1.19 (30)
HP-15/15D	1.25 (32)
HP-17/17D	1.61 (41)
HP-18/18D	2.03 (51)
HP-19/19D	1.61 (41)

Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-HP-5	PSK-P5G-HP-5	PSK-P5G-HP-5V
P5G-HP-10	PSK-P5G-HP-10	PSK-P5G-HP-10V
P5G-HP-11	PSK-P5G-HP-11	PSK-P5G-HP-11V
P5G-HP-12	PSK-P5G-HP-12	PSK-P5G-HP-12V
P5G-HP-15	PSK-P5G-HP-15	PSK-P5G-HP-15V
P5G-HP-17	PSK-P5G-HP-17	PSK-P5G-HP-17V
P5G-HP-18	PSK-P5G-HP-18	PSK-P5G-HP-18V
P5G-HP-19	PSK-P5G-HP-19	PSK-P5G-HP-19V

Model Code and Ordering Information



See previous page for seal kit part numbers.

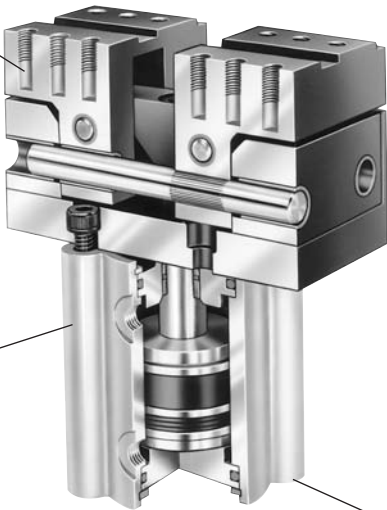


Features

Jaws
Fingers are made from steel for added strength and durability. Multiple holes facilitate mounting of end effect tooling.

Seals
Self lubricating dynamic seals (Nitrile or Fluorocarbon)

One-piece Anodized Body
Body is machined from one-piece aluminum extrusion. The extrusion is hard coat anodized and permanently sealed, resulting in a smooth, slick seal surface which guarantees long seal life and low breakaway pressures.



Magnetic Piston
Magnetic piston is standard.

Mounting Flexibility
Combination side and base tapped holes are standard and provide for design flexibility. The base mount includes a pilot diameter for alignment. Mounting kits are also available to interface with other Parker automation components.

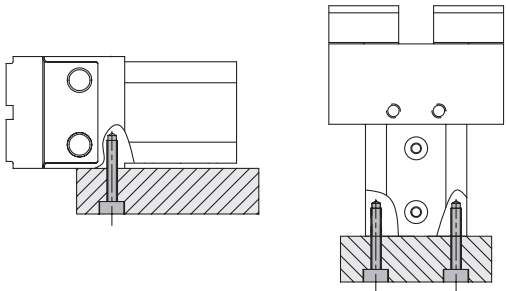


Operation

Operating Characteristic	Double acting
Gripping Force @ 100 PSI	22 - 43 lbs
Stroke	0.625 in.
Operating Pressure Range	10 - 100 PSI (0.7 - 7 bar)

Mounting

Gripper mounts with screws and locates with center pilot diameter for accuracy.



WARNING! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

Contents

GPT101	40
GPT151	41
Right Angle Flow Controls	42
Port Location Option	42
Proximity Mounting Bracket Option	42
Magnetic Piston Option	43
Hall Effect and Reed Switches	43
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GPT101

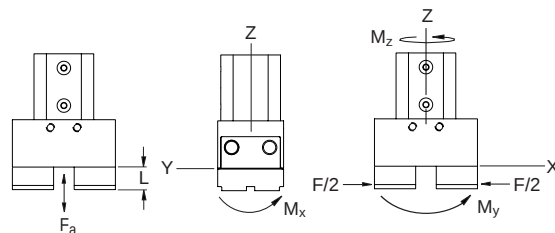
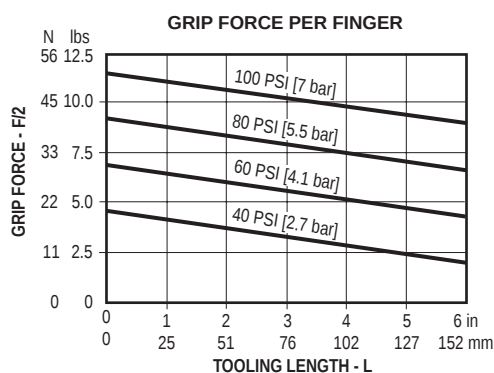


Total Grip Force (100 psi @ 1 in)	46 lbs	204 N
Stroke	0.625 in	15.875 mm
Weight	1.2 lbs	0.54 kg
Bore Size	1.0 in	25.4 mm
Cylinder Volume	0.254 in ³	4.16 cm ³
Repeatability	± 0.004 in	± 0.10 mm
Temperature Range*	0° to 180° F	17° to 80° C
Pressure Range	10-100 psi	0.7-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

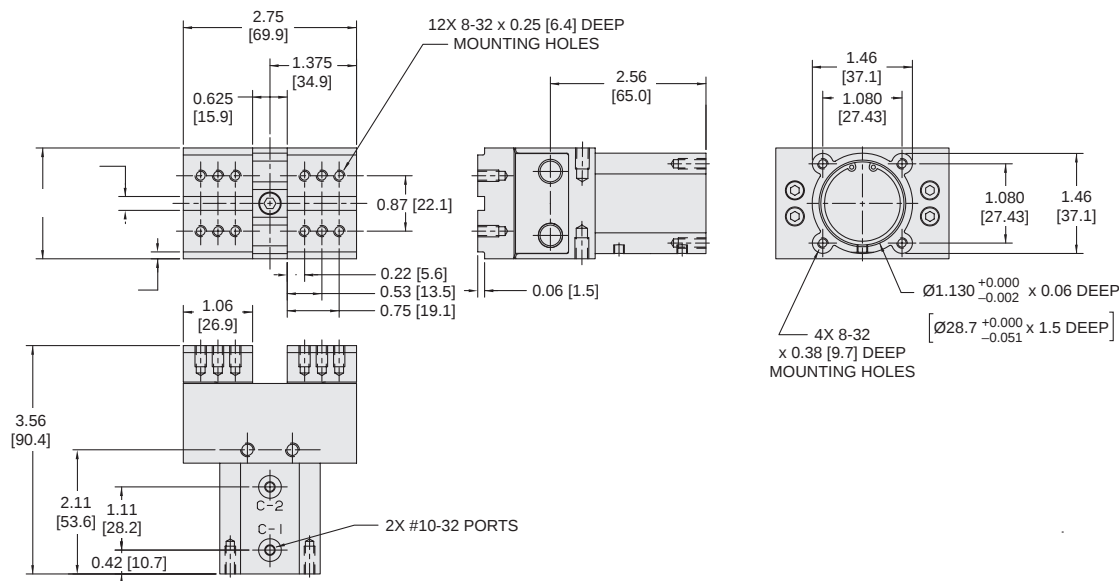
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	18 lbs	80 N
Moment (Mx)	22 in-lbs	2.5 Nm
Moment (My)	22 in-lbs	2.5 Nm
Moment (Mz)	12 in-lbs	1.4 Nm

Dimensional Information



Dimensions in inch [mm].

GPT151

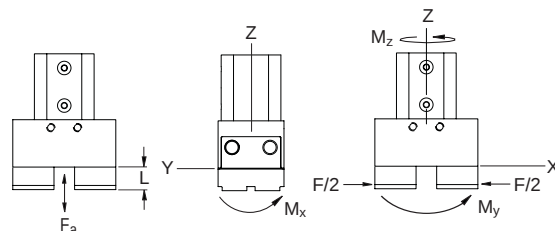
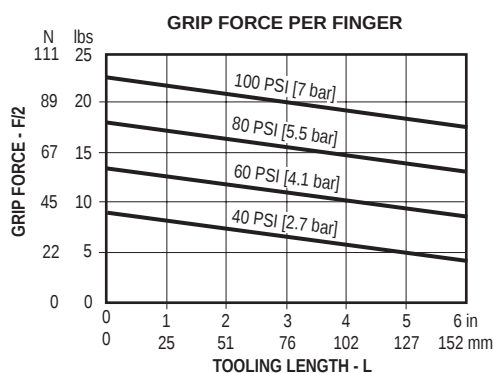


Total Grip Force (100 psi @ 1 in)	86 lbs	382 N
Stroke	0.625 in	15.875 mm
Weight	2.1 lbs	0.95 kg
Bore Size	1.5 in	38.1 mm
Cylinder Volume	0.541 in ³	8.87 cm ³
Repeatability	± 0.004 in	± 0.10 mm
Temperature Range*	0° to 180° F	17° to 80° C
Pressure Range	10-100 psi	0.7-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

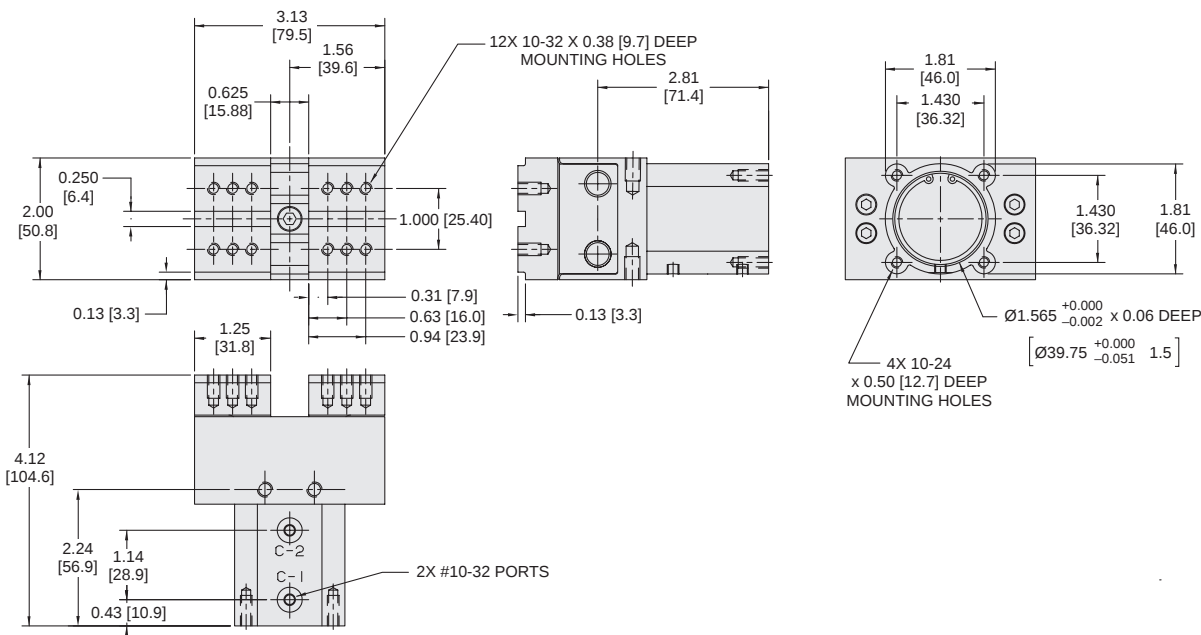
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	28 lbs	124 N
Moment (Mx)	30 in-lbs	3.4 Nm
Moment (My)	30 in-lbs	3.4 Nm
Moment (Mz)	17 in-lbs	2.0 Nm

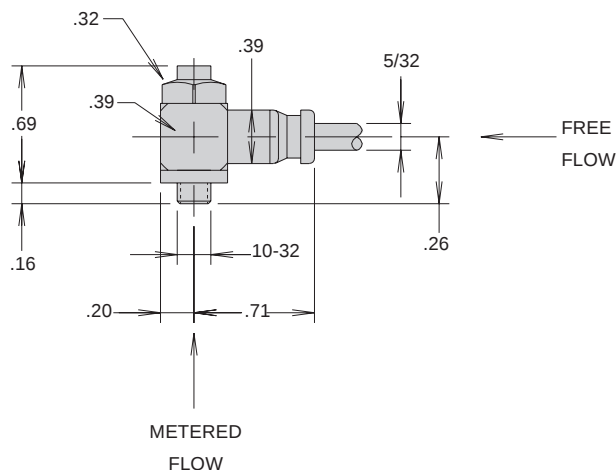
Dimensional Information



Dimensions in inch [mm].

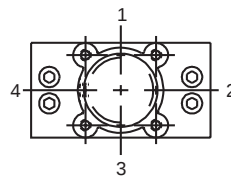
Right Angle Flow Control (P)

Right angle flow control valves allow precise adjustment of cylinder speed by metering exhaust air flow. Presto-Lok push-in ports provide 360° orientation capability.



Port Location (1, 2)

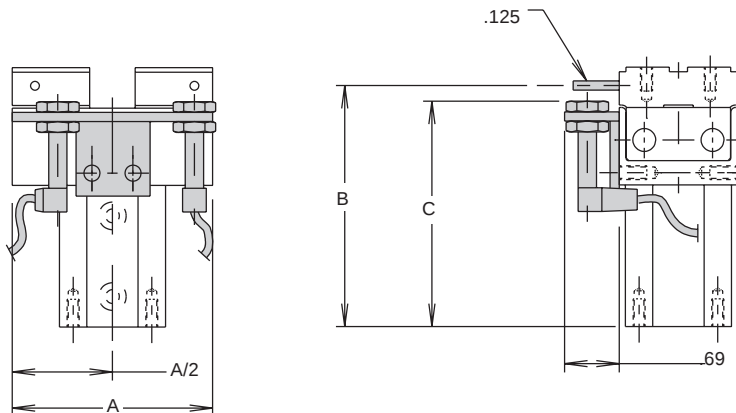
GP Series grippers are symmetrical. Ports position 1 is standard. Position 3 can be obtained by rotating the gripper 180°. Ports position 2 is an option. Position 4 is obtainable by ordering port position 2 and rotating 180°.



Proximity Sensor Bracket (J)

Proximity sensors sense the position of the flag that is attached to the gripper finger. The flag is held onto the gripper finger by a set screw. Loosening the set screw allows positioning of the flag to sense any position of the gripper finger. Care should be taken when adjusting the proximity sensor so that the flag does not physically contact the sensor. The distance from the flag to the sensor should be approximately 0.04 inches.

Order proximity sensor separately. See Sensor section for part number and specification data.



Model	A	B	C
10	2.75	3.31	3.10
15	3.13	3.75	3.23

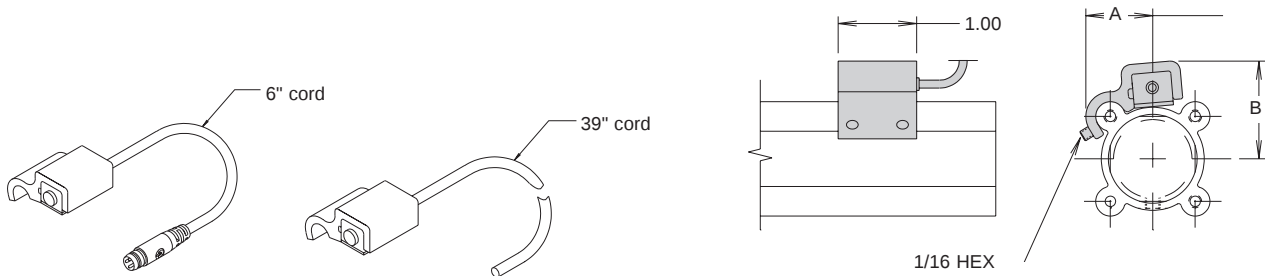
Magnetic Piston (M)

This option prepares the actuator for use with reed and Hall effect switches. The "M" option should be specified to provide a magnet on the cylinder piston.

Order switches separately. See Sensor section for part number and specification data.

Hall Effect and Reed Switches

Order switches separately. See the Sensors section for part numbers and specifications.



Dimensions

Model	A	B
10	.84	1.22
15	.99	1.46

Fluorocarbon Seals (V)

Standard abrasion resistant nitrile seals should be used for general purpose applications with temperatures of 0° to 180°F.

Fluorocarbon seals are recommended for high temperature applications up to 250°F.

Option	Temperature Range (°F)
Bumpers	0 - 200
Piston Magnets	0 - 165
Switches	14 - 140
Proximity Sensor	-13 - 158

Model Code and Ordering Information

GP T 15 1 P - A 2 1 J V - A

Series

GP - Parallel gripper

Type

T - True Parallel

Size

10 - 1 in. bore

15 - 1.5 in. bore

Opening Characteristics

1 - Double acting (STD)

Flow Controls

Omit - None

P - Right angle flow control (both)

Mounting

A - Rear and side tapped holes (STD)

Port Type

2 - 10-32 (STD)

8 - Presto-Lok right angle flow control

Port Location

1 - Position 1 (STD)

2 - Position 2

Switches

Omit - N/A

J - Bracket for proximity sensor option*

M - Magnetic piston for reed and Hall Effect switch option*

Seals

Omit - Nitrile (STD)

V - Fluorocarbon

Design Series

A - Current Design Series

* Proximity sensor, Hall Effect, and reed switches to be ordered separately. See Sensors section.

Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
GPT10	PSK-G10	PSK-G10V
GPT15	PSK-G15	PSK-G15V

Features

Bumpers

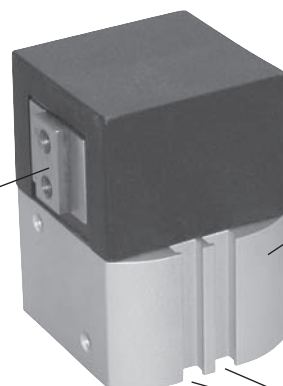
Bumpers reduce noise and dissipate energy, thus permitting faster cycle times and increased production rates.

Jaws

Hardened alloy steel jaws are available for standard or extended travel. Unique design permits maximum jaw travel without loss of grip force.

Magnetic Piston

Standard on all P5G-AP Series grippers.



Body

Machined from an aluminum extrusion, the body is anodized and permanently sealed. This results in a smooth, slick surface which guarantees long seal life and low breakaway pressure.

Sensors

All gripper sizes are equipped with two standardized sensor grooves. Grippers may be ordered with proximity, Hall effect or reed switches or as "prox ready".

Multiple Function

Jaw travel can be ordered for maximum grip open or grip close.

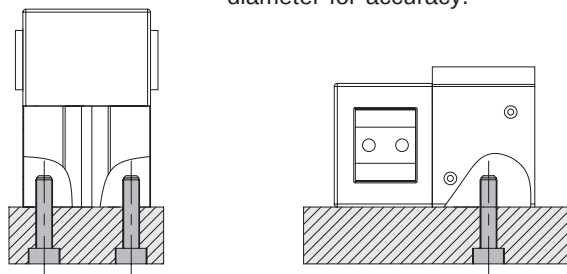


Operation

Operating Characteristic	Double acting
Gripping Force @ 100 PSI	137-925N (31-208 lbs)
Stroke Range	5.3-10.5 mm
Operating Pressure Range	4-100 PSI (0.3-7 bar)

Mounting

Gripper mounts with screws and locates with center pilot diameter for accuracy.



Gripper can be mounted in any orientation.

Contents

P5G-AP3	46
P5G-AP4	47
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P5G-AP6	49
Right Angle Flow Controls	50
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Spring Return Options	51
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P5G-AP3BANNNS-A

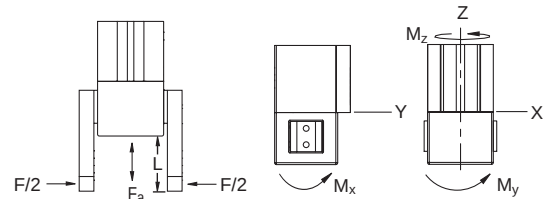
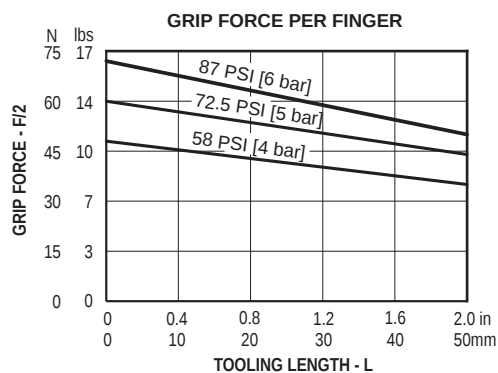


Total Grip Force (100 psi @ 1 in)	31 lbs	137 N
Stroke	0.21 in	5.3 mm
Weight	0.25 lbs	0.11 kg
Bore Size	0.62 in	16 mm
Cylinder Volume	0.07 in ³	1.14 cm ³
Repeatability	± 0.003 in	± 0.08 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

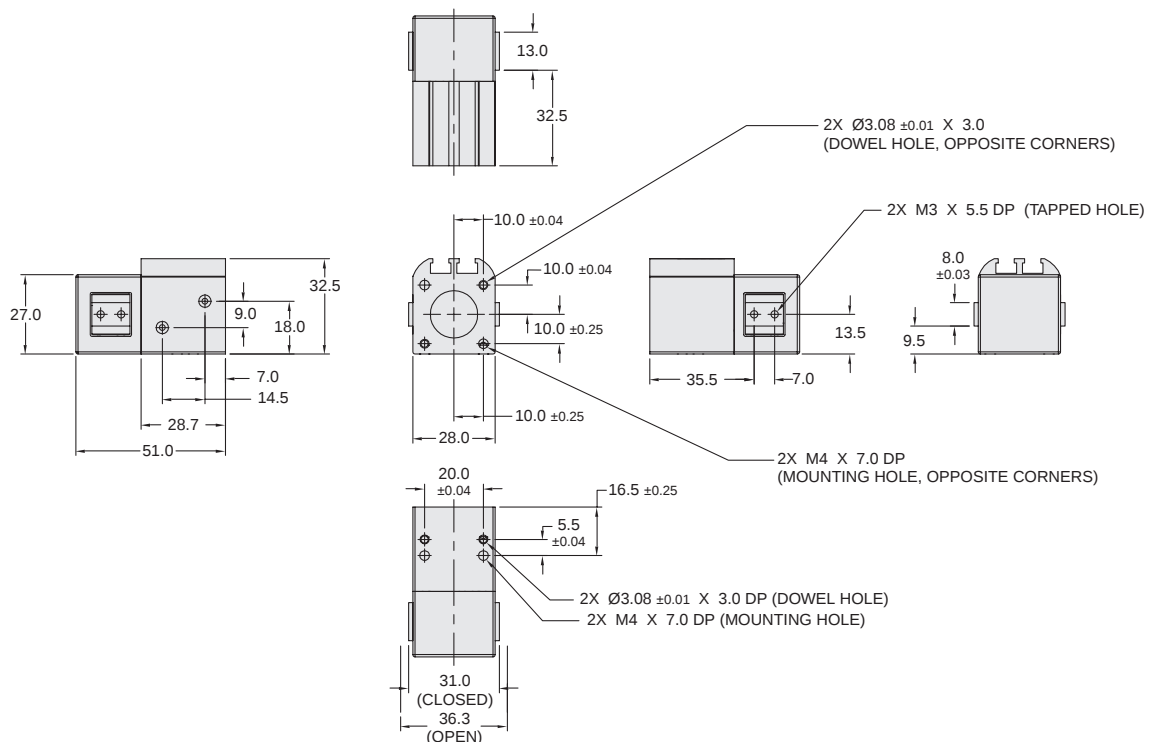
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	20.1 lbs	88 N
Moment (Mx)	38.7 in-lbs	4.3 Nm
Moment (My)	38.7 in-lbs	4.3 Nm
Moment (Mz)	37.8 in-lbs	4.2 Nm

Dimensional Information



Dimensions in mm.

P5G-AP4BANNNS-A

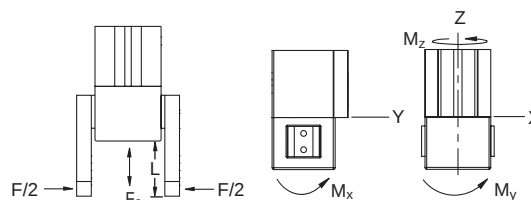
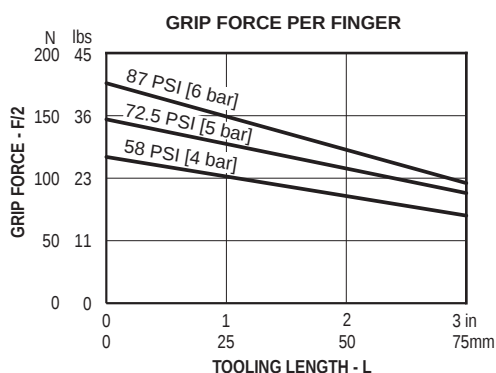


Total Grip Force (100 psi @ 1 in)	78 lbs	346 N
Stroke	0.32 in	8 mm
Weight	0.53 lbs	0.24 kg
Bore Size	0.98 in	25 mm
Cylinder Volume	0.30 in ³	4.9 cm ³
Repeatability	± 0.003 in	± 0.08 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

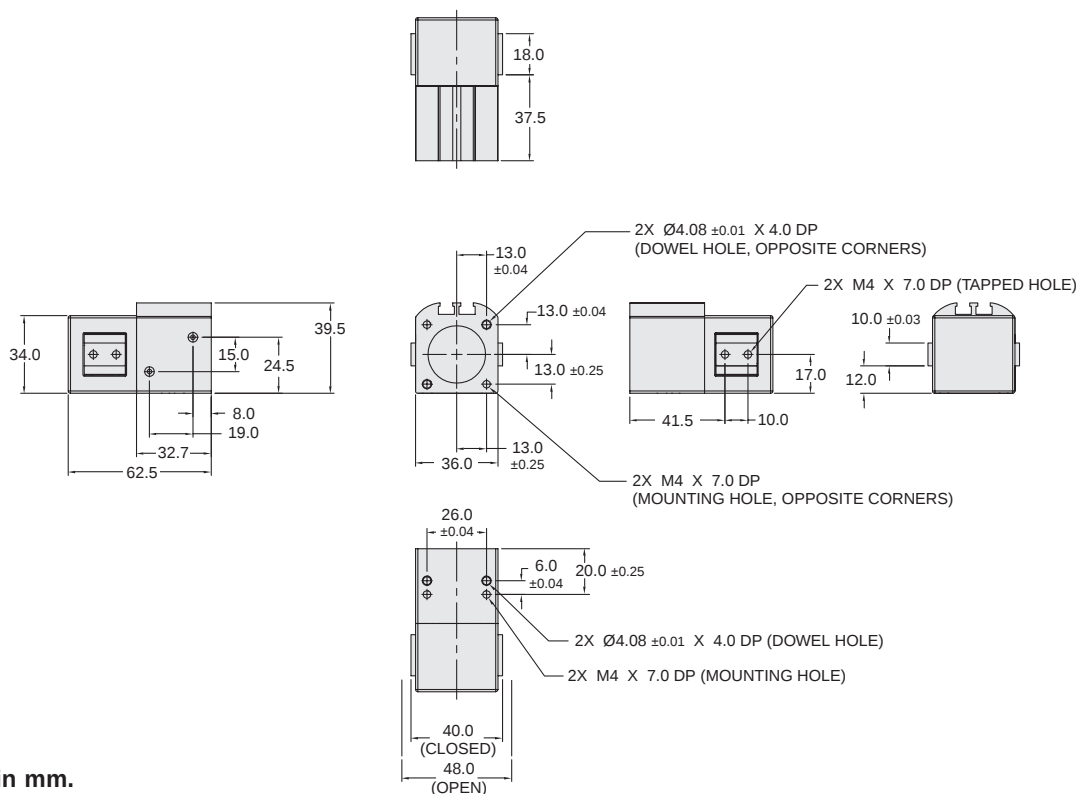
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	40 lbs	175 N
Moment (Mx)	49.5 in-lbs	5.5 Nm
Moment (My)	49.5 in-lbs	5.5 Nm
Moment (Mz)	40.5 in-lbs	4.5 Nm

Dimensional Information



Dimensions in mm.

P5G-AP5BANNNS-A

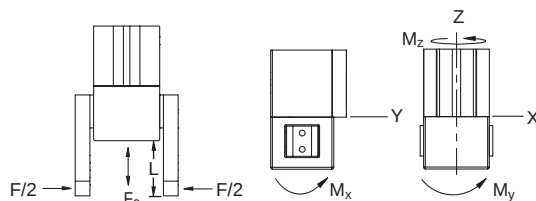
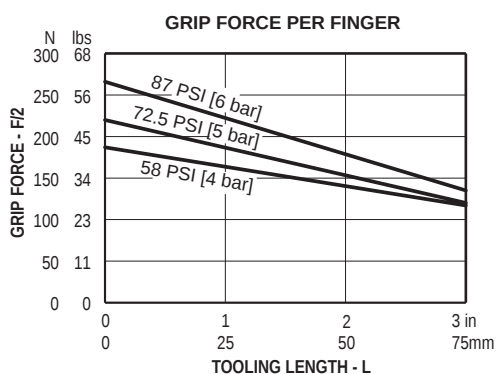


Total Grip Force (100 psi @ 1 in)	117 lbs	520 N
Stroke	0.36 in	9.2 mm
Weight	0.81 lbs	0.36 kg
Bore Size	1.25 in	32 mm
Cylinder Volume	0.58 in ³	9.5 cm ³
Repeatability	± 0.003 in	± 0.08 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

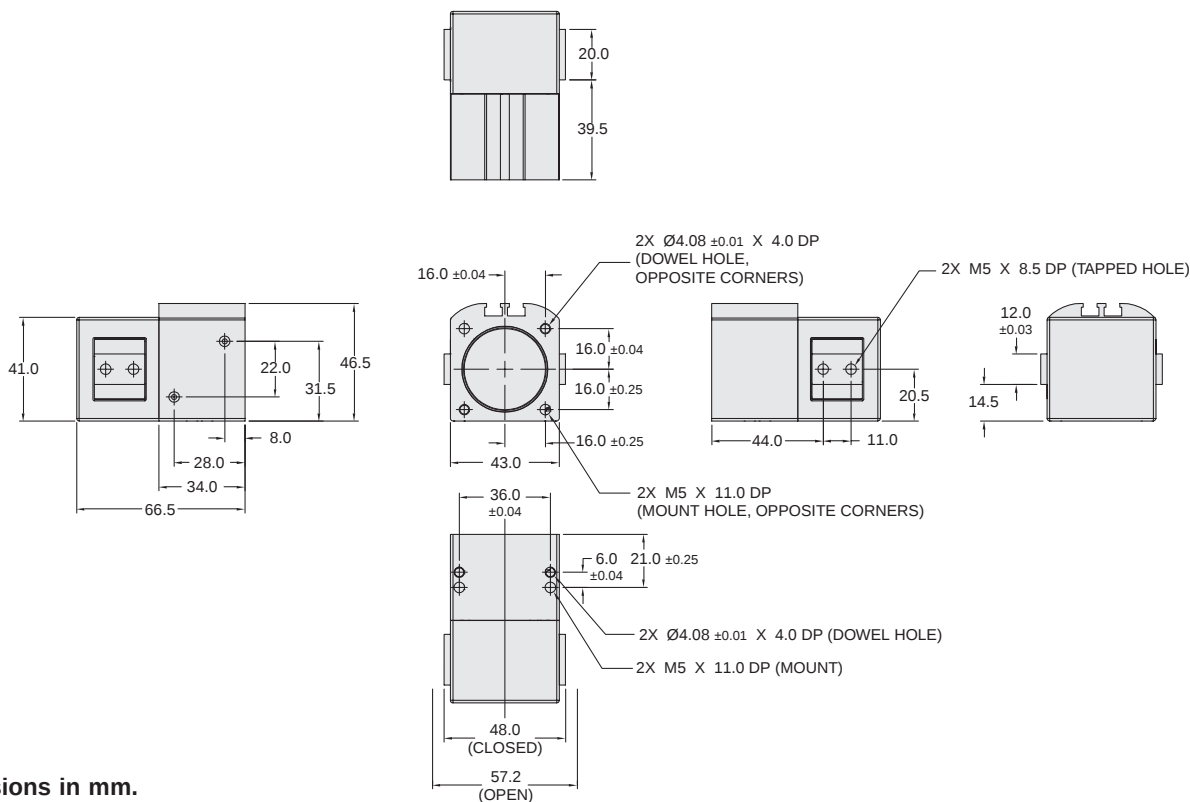
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	69.9 lbs	306 N
Moment (Mx)	76.4 in-lbs	8.5 Nm
Moment (My)	80.9 in-lbs	9 Nm
Moment (Mz)	53.1 in-lbs	5.9 Nm

Dimensional Information



Dimensions in mm.

P5G-AP6BANNNS-A

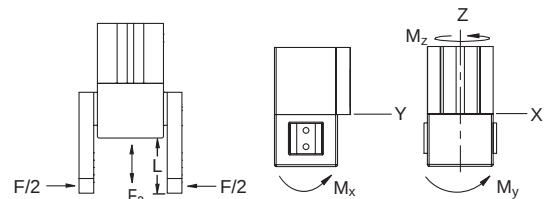
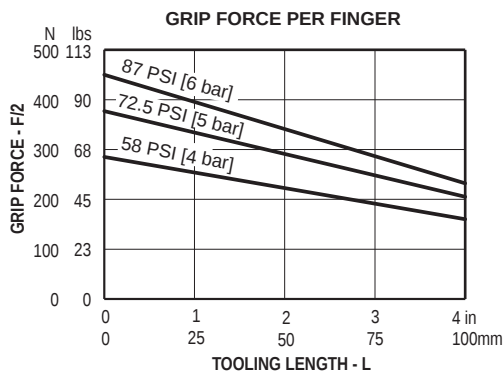


Total Grip Force (100 psi @ 1 in)	208 lbs	925 N
Stroke	0.41 in	10.5 mm
Weight	1.19 lbs	0.53 kg
Bore Size	1.57 in	40 mm
Cylinder Volume	0.92 in ³	15 cm ³
Repeatability	± 0.003 in	± 0.08 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

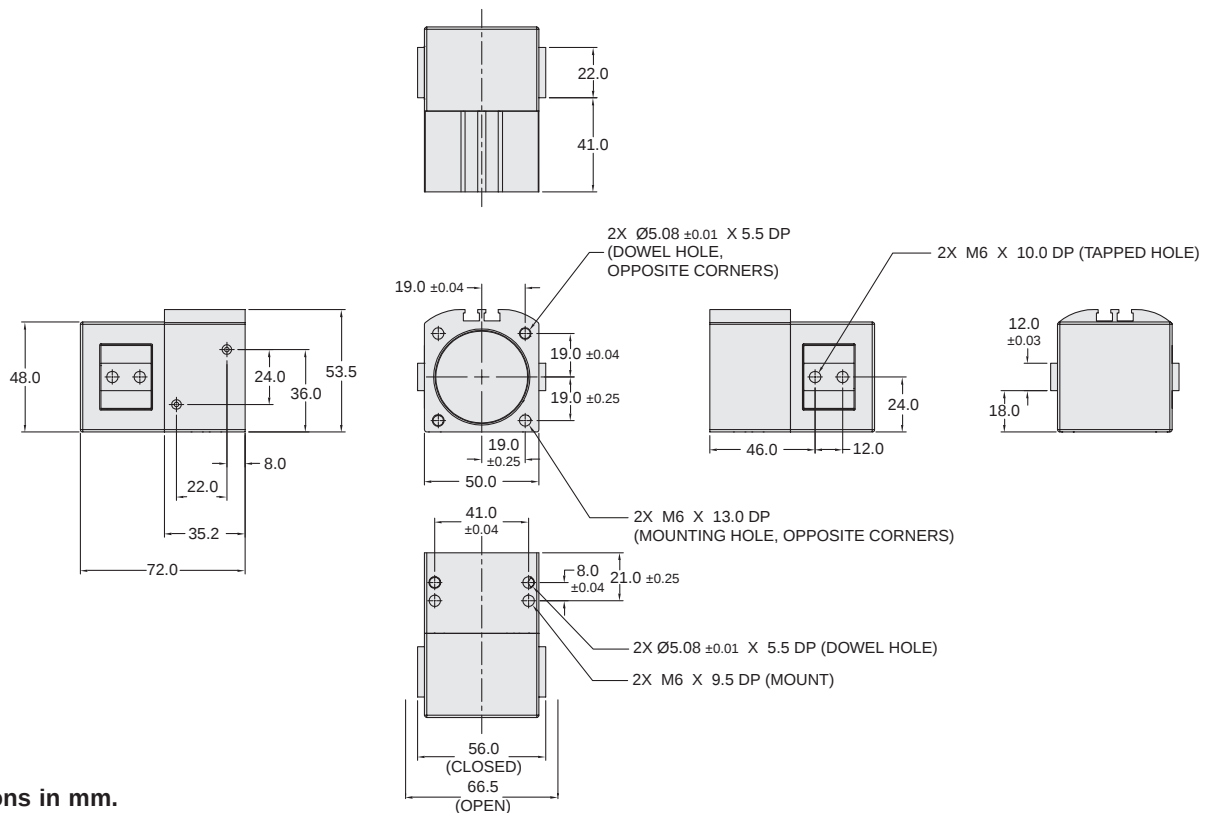
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (F _a)	110.1 lbs	482 N
Moment (M _x)	116.9 in-lbs	13 Nm
Moment (M _y)	123.2 in-lbs	13.7 Nm
Moment (M _z)	75.5 in-lbs	8.4 Nm

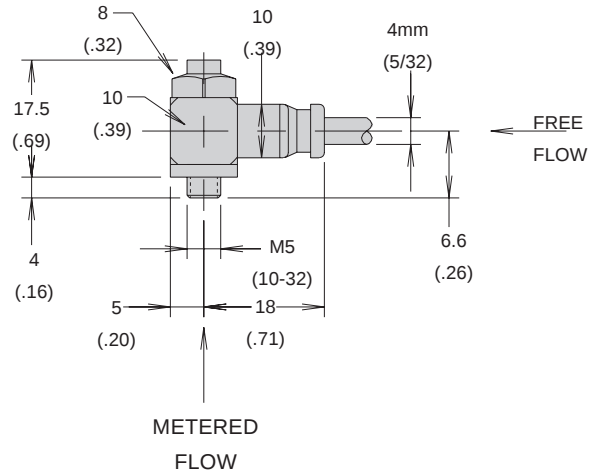
Dimensional Information



Dimensions in mm.

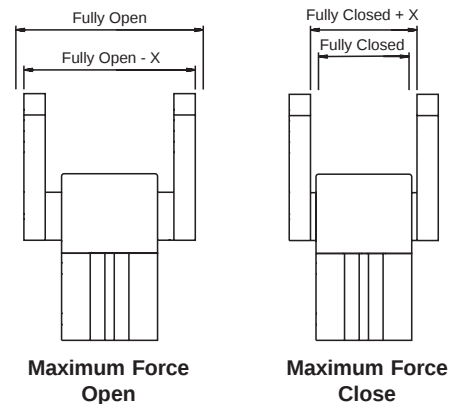
Right Angle Flow Control (3)

Right angle flow control valves allow precise adjustment of speed by metering exhaust air flow. Presto-Lok push-in ports provide 360° orientation capability.



Extended Jaw Travel

To utilize the extended travel jaws, the tooling must be designed to engage the workpiece in the maximum force portion of the travel (X).



Spring Option	Model Size	Total Travel, mm (in)	Engagement and Maximum Force Travel (X), mm (in)	Max. Grip Force * during Engagement Travel	Transitional Travel, mm (in)	Grip Force * during Transitional Travel
No Spring	3	9.4 (0.37)	1.0 (0.04)	60.0 (13.5)	8.4 (0.33)	4.8 (1.1)
	4	14.0 (0.55)	3.0 (0.12)	147.0 (33.0)	11.0 (0.43)	11.7 (2.6)
	5	15.6 (0.61)	3.0 (0.12)	220.0 (49.4)	13.6 (0.49)	17.6 (4.0)
	6	17.9 (0.70)	3.0 (0.12)	377.0 (84.7)	14.9 (0.58)	30.1 (6.8)
Spring Return	3	9.4 (0.37)	1.0 (0.04)	51.6 (11.6)	8.4 (0.33)	4.1 (0.9)
	4	14.0 (0.56)	3.0 (0.12)	109.0 (24.5)	11.0 (0.43)	8.7 (1.9)
	5	15.6 (0.61)	3.0 (0.12)	203.0 (45.6)	13.6 (0.49)	16.2 (3.6)
	6	17.9 (0.70)	3.0 (0.12)	310.0 (69.7)	14.9 (0.48)	24.8 (5.6)
Spring Assist	3	9.40 (0.37)	1.0 (0.04)	92.6 (20.8)	8.4 (0.33)	7.4 (1.7)
	4	14.0 (0.55)	3.0 (0.12)	205.0 (46.1)	11.0 (0.43)	16.4 (3.7)
	5	15.6 (0.61)	3.0 (0.12)	315.0 (70.8)	13.6 (0.49)	25.2 (5.7)
	6	17.9 (0.70)	3.0 (0.12)	471.4 (105.9)	14.9 (0.58)	37.7 (8.5)

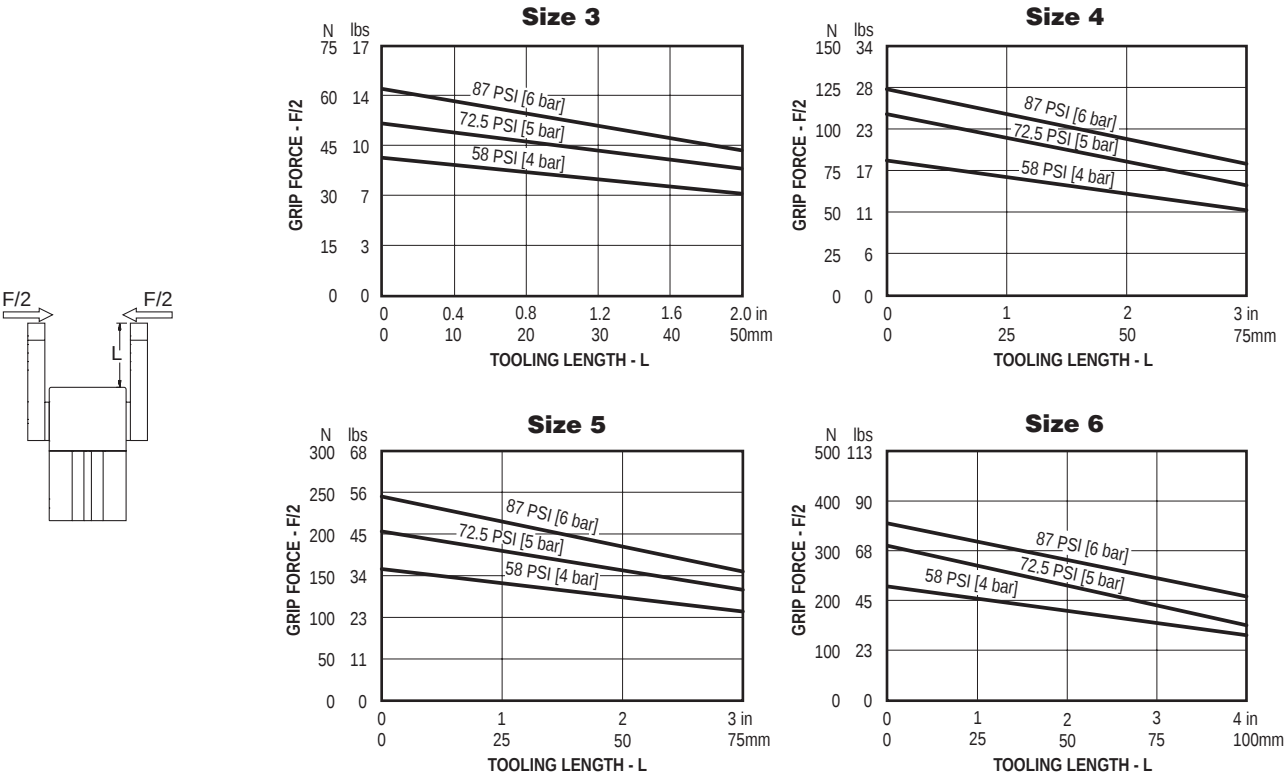
* Grip force (F/2) given in N (lbf) at 5 bar (72.5 psi)

Spring Return Options (A, B, C)

The spring return option allows for an automatic reset and jaw return. Selecting the spring return option creates a single-acting gripper component that reduces the number or type of directional control valves needed.

NOTE: The spring return option does not change the dimensions of the gripper.

Maximum Total Grip Forces



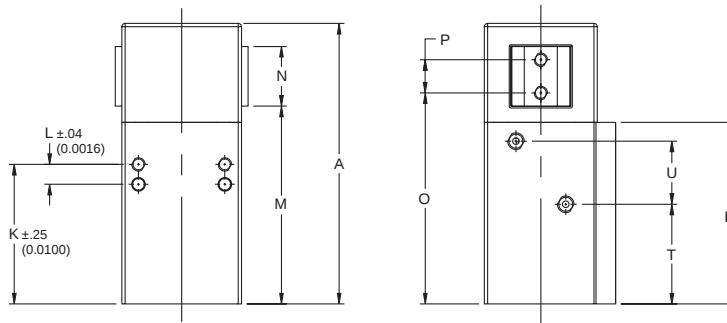
Specifications

Size	Grip Force (F/2) with No Air Pressure, N (lbf)	Minimum Air Pressure to Overcome Spring Force Bar (PSI)	Cylinder Volume (Full Bore Side), mm ³ (in ³)	Unit Weight, N (lbf)	
				Standard Travel	Extended Travel
P5G-AP3	6.1 (1.4)	0.7 (10)	3286 (0.20)	1.4 (0.32)	1.5 (0.34)
P5G-AP4	10.8 (2.5)	0.5 (7)	4891 (0.30)	2.3 (0.53)	2.7 (0.62)
P5G-AP5	12.6 (2.8)	0.3 (5)	5940 (0.58)	3.6 (0.82)	3.8 (0.87)
P5G-AP6	18.0 (4.0)	0.3 (4.5)	15003 (0.92)	5.2 (1.19)	5.5 (1.25)

Spring Assist Options (D, E)

The spring assist option offers extra gripping force and works as a fail-safe mode during a power failure. Spring assist is available with grip open or grip close.

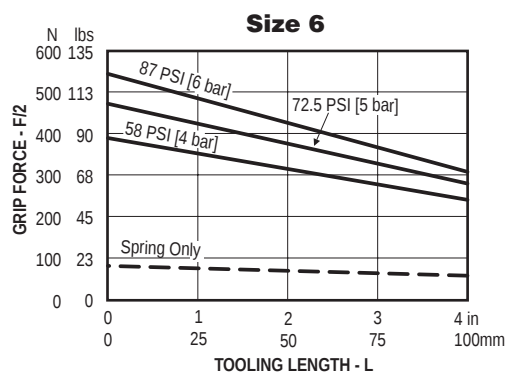
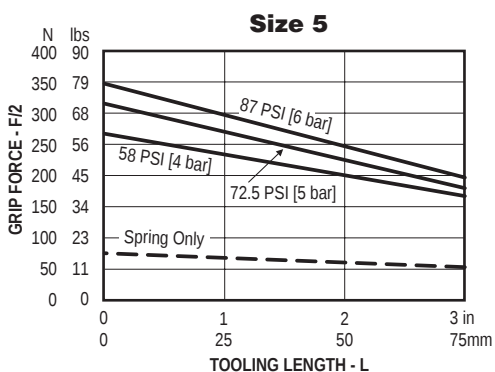
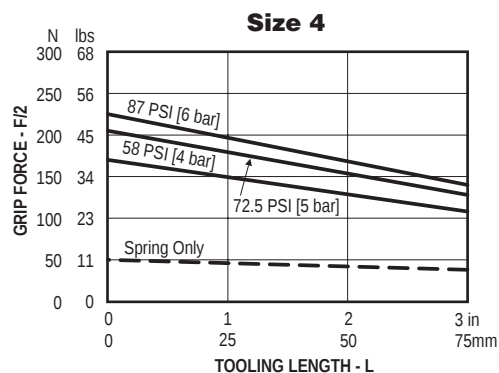
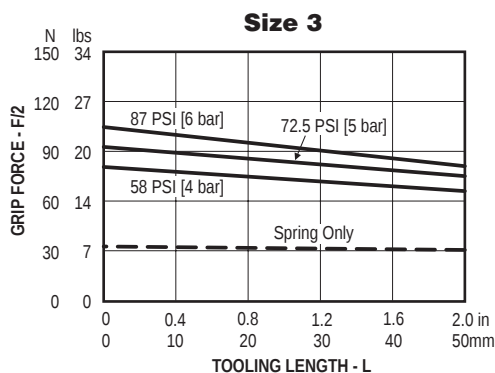
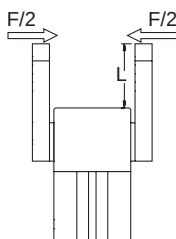
NOTE: Not available with the stroke adjust rear option. Spring assist will increase main body length.



Dimensions (mm)

Size	A	E	K	L	M	N	O	P	T	U
3	67	44.7	32.5	5.5	48.5	13.0	51.5	7	23	14.5
4	84.5	54.7	42	6	59.5	18.0	63.5	10	30	19
5	86.5	54	41	6	59.5	20.0	64.0	11	28	20
6	97	60.2	46	8	66	22	71	12	33	22

Maximum Grip Forces



Specifications

Size	Minimum Air Pressure to Overcome Spring Force Bar (PSI)	Cylinder Volume Full Bore Side, mm ³ (in ³)	Cylinder Volume Rod Side, mm ³ (in ³)	Unit Weight, N (lbf)	
				Standard Travel	Extended Travel
3	4.6 (67)	3769 (0.23)	1020 (0.06)	1.5 (0.34)	1.6 (0.37)
4	3.7 (56)	13875 (0.85)	3523 (0.21)	3.2 (0.73)	3.6 (0.82)
5	3.7 (56)	23147 (1.41)	6060 (0.37)	4.6 (1.05)	4.9 (1.12)
6	3.0 (43)	41242 (2.52)	11758 (0.72)	6.8 (1.55)	7.1 (1.62)

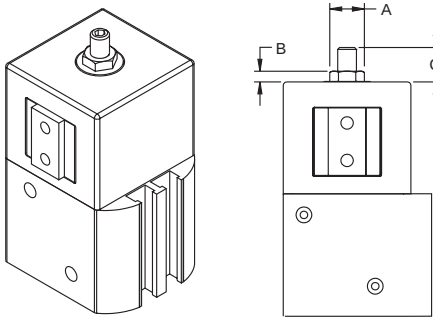
Stroke Adjust (A, B, D, F, G)

Use the stroke adjust option when you need exact travel distances. Fully adjustable internal stops permit precise stopping locations anywhere within the jaw travel. The stroke adjust option is available in two configurations:

- Stroke adjust front
- Stroke adjust rear

This gives the machine designer the flexibility to create the best possible design within limited space requirements.

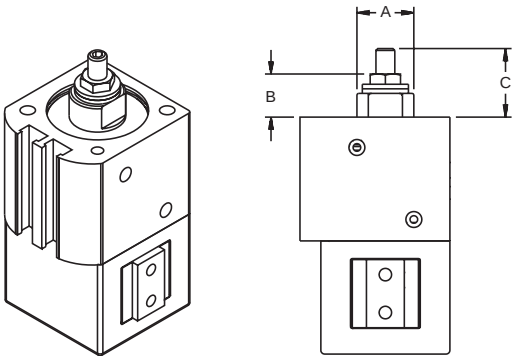
Stroke Adjust Front



Dimensions (mm)

Size	A	B	C
3	8	3	7
4	9.5	3	11
5	9.5	3	11
6	9.5	3	12

Stroke Adjust Rear



Dimensions (mm)

Size	A	B	C
3	10.5	10	14.5
4	15	11.5	19
5	20	14	21.5
6	24	12.5	21.5

NOTES:

Stroke adjust rear not available with spring return on Size 3.
Stroke adjust rear is not available with spring assist.

Adjustment Tools

Size	Socket Stroke Adjuster		Nut	
	Size	Wrench	Size	Wrench
3	M4	2 mm	M4	7 mm
4	M5	2.5 mm	M5	8 mm
5	M5	2.5 mm	M5	8 mm
6	M5	2.5 mm	M5	8 mm

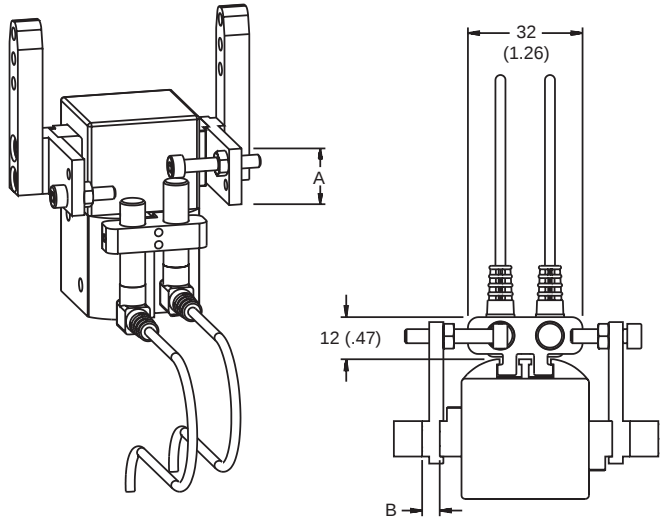
Proximity Sensors Prox Ready (PJ)

Proximity sensors provide feedback on the position of the gripper fingers by sensing the metal screw that is attached to the gripper jaw. The sensor is adjustable along the full travel of the steel screw and is held in place by the set screw.

Care should be taken when adjusting the sensor so that the adjustable screw does not physically contact the sensor. Distance from the screw to the sensor should be approximately 1 mm (0.04 inches).

Size	A	B
3	15 (0.59)	4.5 (0.18)
4	18 (0.71)	5.0 (0.20)
5	20 (0.79)	5.5 (0.22)
6	22 (0.87)	6.0 (0.27)

All dimensions in mm (inches)



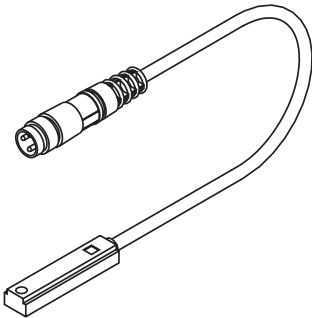
Reed and Hall Effect Sensors

Reed or Hall effect sensors mount in the sensor mounting grooves located in the gripper body. A magnetic piston is standard for ease of field addition of sensors.

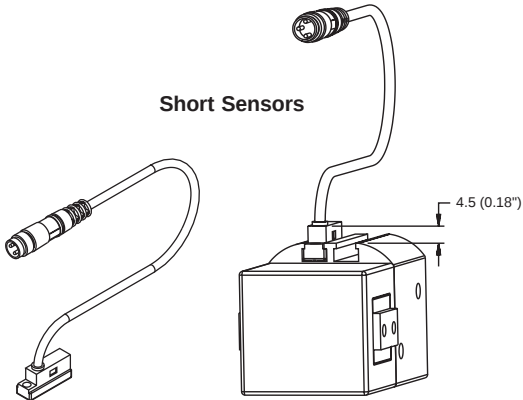
See Sensors section for specifications.

Standard Sensors

Standard sensors mount flush to the body. Sensor shown with connector. Lead wires also available.



Short Sensors



Fluorocarbon Seals (V)

Standard abrasion resistant nitrile seals should be used for general purpose applications with temperatures of -18° to 82°C (0° to 180°F). Fluorocarbon seals are recommended for high temperature applications up to 121°C (250°F). The items shown in the table should be considered when planning high temperature applications.

	Temperature Range
Magnets	-27° to 130°C (-16° to 266°F)
Bumpers	-27° to 90°C (-16° to 195°F)
Sensors	-25° to 75°C (-13° to 167°F)
Proximity Sensors	-25° to 70°C (-13° to 158°F)

Model Code and Ordering Information

P5G – **A** **P** **4** **B** **A** **N** **H** **B** **S** – **A**

Global Pneumatic Grippers

P5G

Series

A – Automation

Type

P – Parallel

Size

3 – 16 mm

5 – 32 mm

4 – 25 mm

6 – 40 mm

Ports

B – M5 Female

3 – Prestolok Flow Control 4mm (5/32") tube diameter

Function

A – Standard Travel, Maximum Grip Close

B – Standard Travel, Maximum Grip Open

C – Extended Travel, Maximum Grip Close

D – Extended Travel, Maximum Grip Open

Spring/Stroke Adjust Options

A – Spring Return, Stroke Adjust Front

B – Spring Return, Stroke Adjust Rear (Not available on Size 3)

C – Spring Return

D – Spring Assist, Stroke Adjust Front

E – Spring Assist

F – No Spring, Stroke Adjust Front

G – No Spring, Stroke Adjust Rear

N – No Option (Standard)

Sensors

NN – No Sensors

PJ – Proximity Sensor Ready

Standard Hall Effect

HA – (2) NPN w/Plug*

HB – (2) PNP w/Plug*

HC – (1) NPN w/Plug*

HD – (1) PNP w/Plug*

HE – (2) NPN w/o Plug**

HF – (2) PNP w/o Plug**

HG – (1) NPN w/o Plug**

HK – (1) PNP w/o Plug**

Short Hall Effect

HV – (2) PNP w/Plug*

HY – (1) PNP w/Plug*

KB – (2) PNP w/o Plug**

KD – (1) PNP w/o Plug**

Standard Reed

RA – (2) w/Plug*

RB – (1) w/Plug*

RC – (2) w/o Plug**

RD – (1) w/o Plug**

Proximity

PA – (2) NPN Plug-in †

PB – (2) PNP Plug-in †

PC – (1) NPN Plug-in †

PD – (1) PNP Plug-in †

PE – (2) NPN Potted ‡

PF – (2) PNP Potted ‡

PG – (1) NPN Potted ‡

PK – (1) PNP Potted ‡

* 0.27m cable

** 3m cable

† 5m cable

‡ 6m lead

Seals

S – Standard

F – Fluorocarbon

Design Series

A – Current Design Series

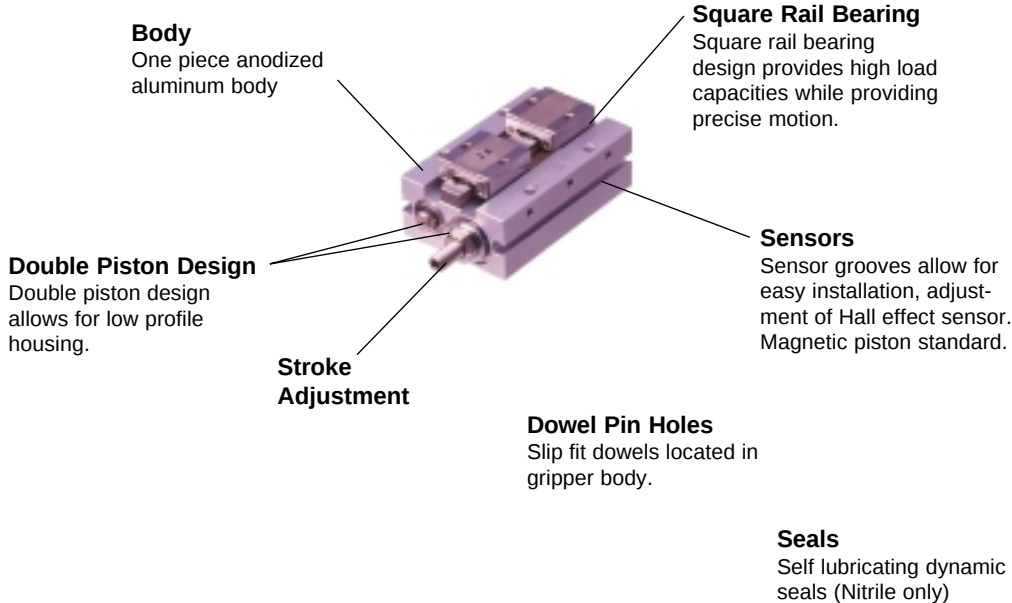
Automation
P5G-HP
GPT
P5G-AP

See next page for Seal Kits.

Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-AP3	PSK-P5GAP3	PSK-P5GAP3-F
P5G-AP4	PSK-P5GAP4	PSK-P5GAP4-F
P5G-AP5	PSK-P5GAP5	PSK-P5GAP5-F
P5G-AP6	PSK-P5GAP6	PSK-P5GAP6-F

Features



Operation

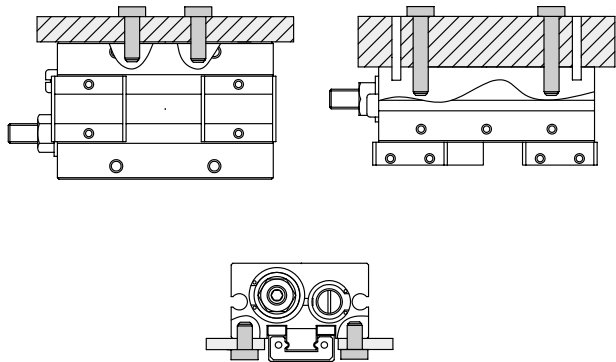
Operating Characteristic	Double acting, double piston
Gripping Force @ 100 PSI	46 - 120 N (10 - 27 lbs)
Stroke Range	16-22 mm
Operating Pressure Range	30 - 100 PSI (2 - 7 bar)

Not Recommended for Applications Containing:

- Dirt or grit
- Maching chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Gripper can be mounted on three faces and locates with dowel pin holes for accuracy.



Warning! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

Contents

GPEL-8	58
GPEL-12	59
Stroke Adjust Option	60
Proximity Sensors	60
Ordering Information	60

Low Profile	GPEL
	GPDL
	P5G-HPL

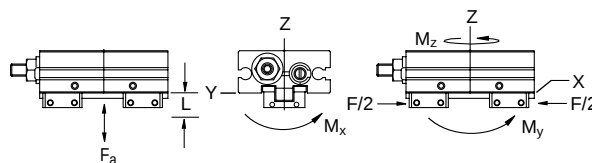
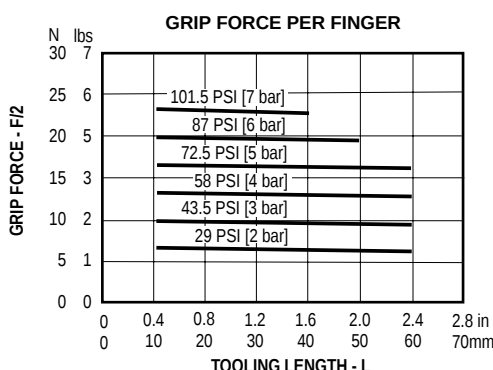
GPEL-8JA



Total Grip Force (100 psi @ 1 in)	10.34 lbs	46 N
Stroke	0.63 in	16 mm
Weight	0.19 lbs	0.085 kg
Bore Size	0.315 in	8 mm
Cylinder Volume	5.22 in ³	85.6 cm ³
Repeatability	± 0.0005 in	± 0.01 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	30-100 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

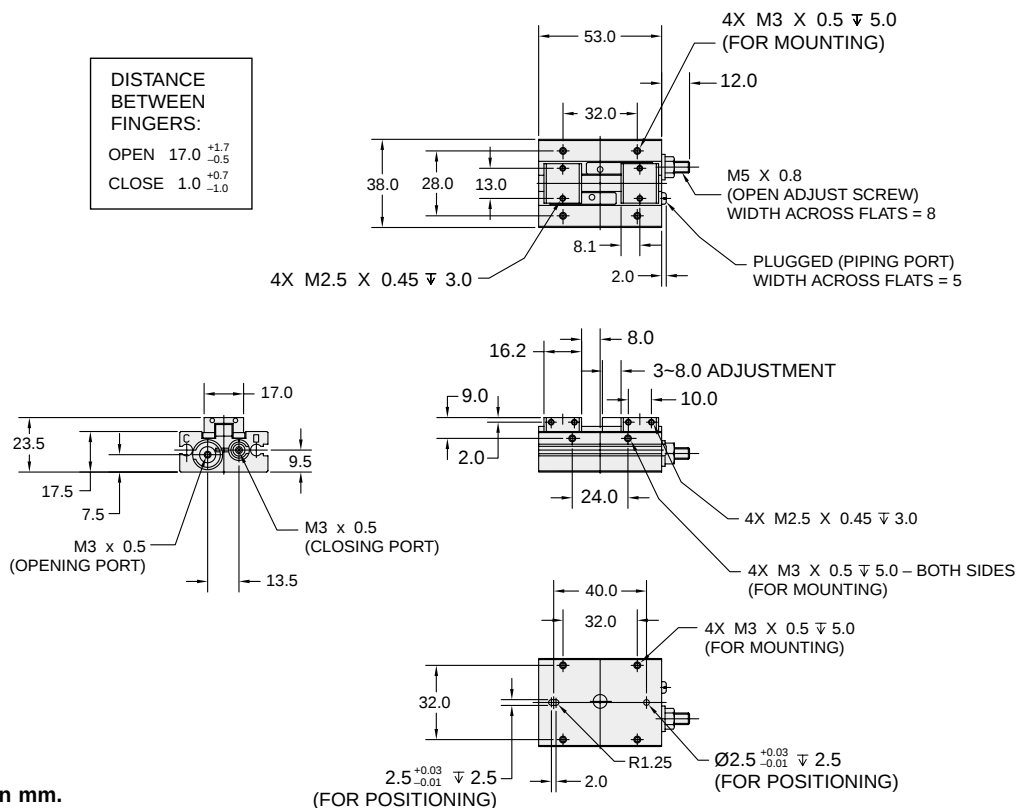
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	9 lbs	40 N
Moment (Ma)	2.7 in-lbs	0.3 Nm
Moment (Mb)	2.7 in-lbs	0.3 Nm
Moment (Mc)	4.4 in-lbs	0.5 Nm

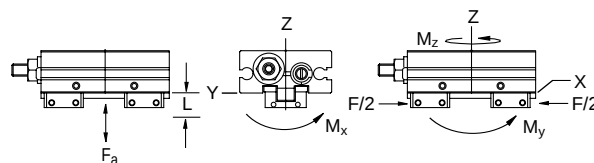
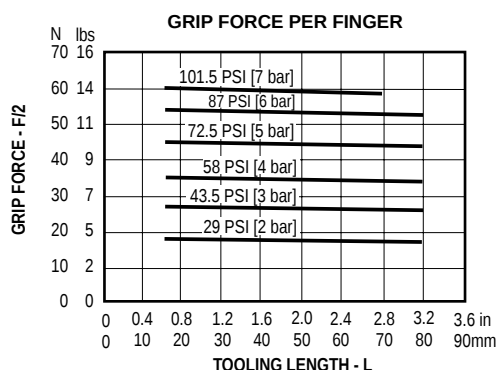
Dimensional Information



Dimensions in mm.

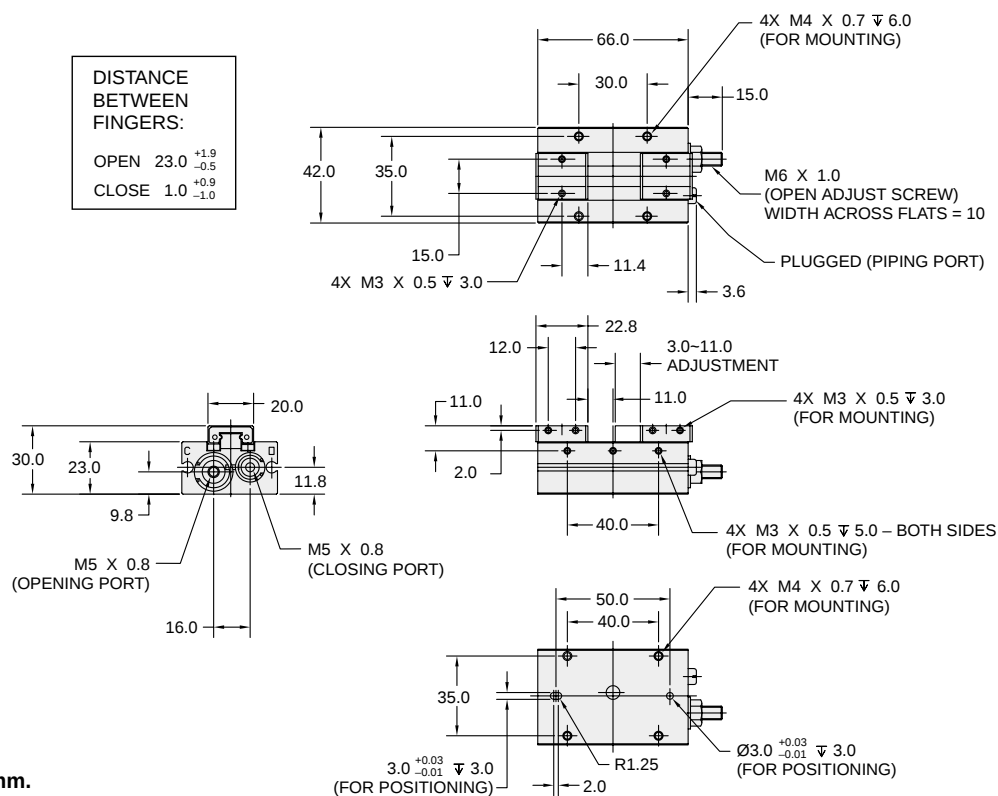
Total Grip Force (100 psi @ 1 in)	26.9 lbs	120 N
Stroke	0.87 in	22 mm
Weight	0.21 lbs	0.195 kg
Bore Size	0.472 in	12 mm
Cylinder Volume	13.82 in ³	226.6 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	22-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

Loading Information



Loading Capacity	Static	
Axial Forces (F _a)	27 lbs	120 N
Moment (M _a)	8.8 in-lbs	1.0 Nm
Moment (M _b)	8.8 in-lbs	1.0 Nm
Moment (M _c)	17.7 in-lbs	2.0 Nm

Dimensional Information



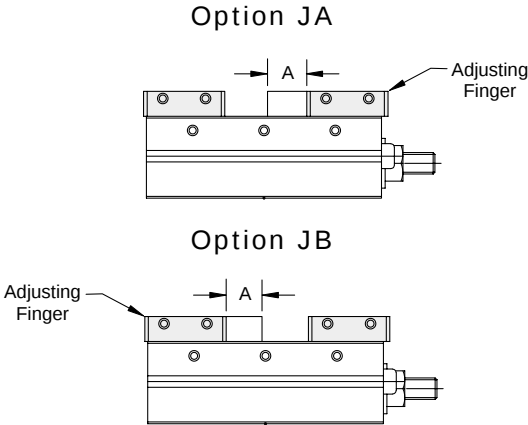
Dimensions in mm.

Stroke Adjust (JA, JB)

Stroke adjusters are a standard option and available in a stroke adjust open or stroke adjust close configuration.

Adjusting the stroke adjuster will reduce/increase the travel of the "adjusting finger" only. See figure for adjusting finger designation.

Model	Adjustment Range (A)
GPEL-8	3~8 mm
GPEL-12	3~11 mm



Magnetic Piston (Standard)

The GPEL Series grippers include a standard magnetic piston to sense piston position. Hall effect switches can be ordered and mounted in the sensor mounting groove located in the gripper body.

See Sensor section for sensor part numbers and specifications.

Model Code and Ordering Information

GPEL - 12 JA

Series

GPEL – Compact

Size

8 – 8mm Bore, 16mm Stroke
12 – 12mm Bore, 22mm Stroke

Stroke Adjustment

JA – Double Acting with Stroke Adjust Open
JB – Double Acting with Stroke Adjust Close

Seal Kits

Size	Nitrile Seal Kit
GPEL-8	PSK-GPEL-8
GPEL-12	PSK-GPEL-12

Features

Body
One piece anodized aluminum body

Seals
Self lubricating dynamic seals (Nitrile only)

Double Piston Design
Double piston design allows for low profile housing.

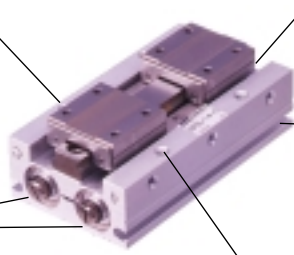
Travel Options
Available in either a short stroke or long stroke configuration.

Square Rail Bearing
Square rail bearing design provides high load capacities while providing precise motion.

Sensors
Sensor grooves allow for easy installation, adjustment of Hall effect sensor. Magnetic piston standard.

Mounting
Standard mounting on three faces.

Dowel Pin Holes
Press fit dowels located in gripper body.



Operation

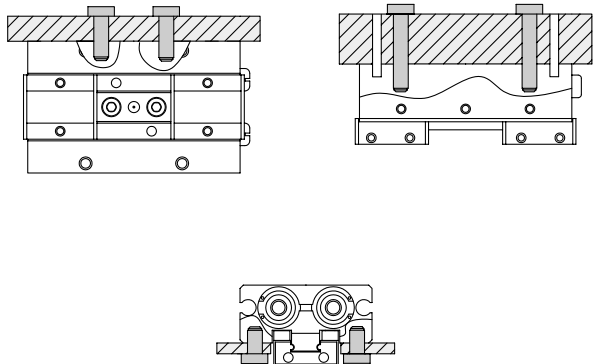
Operating Characteristic	Double acting, double piston
Gripping Force @ 100 PSI	46 - 287 N (10 - 65 lbs)
Stroke Range	16-80mm
Operating Pressure Range	30 - 100 PSI (2 - 7 bar)

Not Recommended for Applications Containing:

- Dirt or grit
- Maching chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Gripper can be mounted on three faces and locates with dowel pin holes for accuracy.



Warning! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

Contents

GPDL-8	62
GPDL-12	63
GPDL-14S	64
GPDL-18S	65
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Proximity Sensors	66
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Low Profile

GPDL

GPEL

P5G-HPL

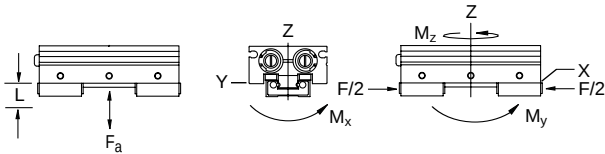
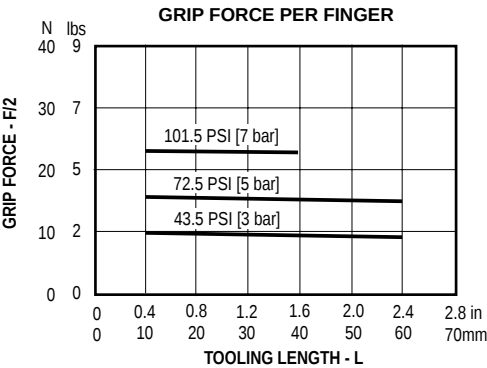
GPD-8



Total Grip Force (100 psi @ 1 in)	10.34 lbs	46 N
Stroke	0.63 in	16 mm
Weight	0.163 lbs	0.074 kg
Bore Size	0.315 in	8 mm
Cylinder Volume	3.21 in ³	52.6 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	30-100 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

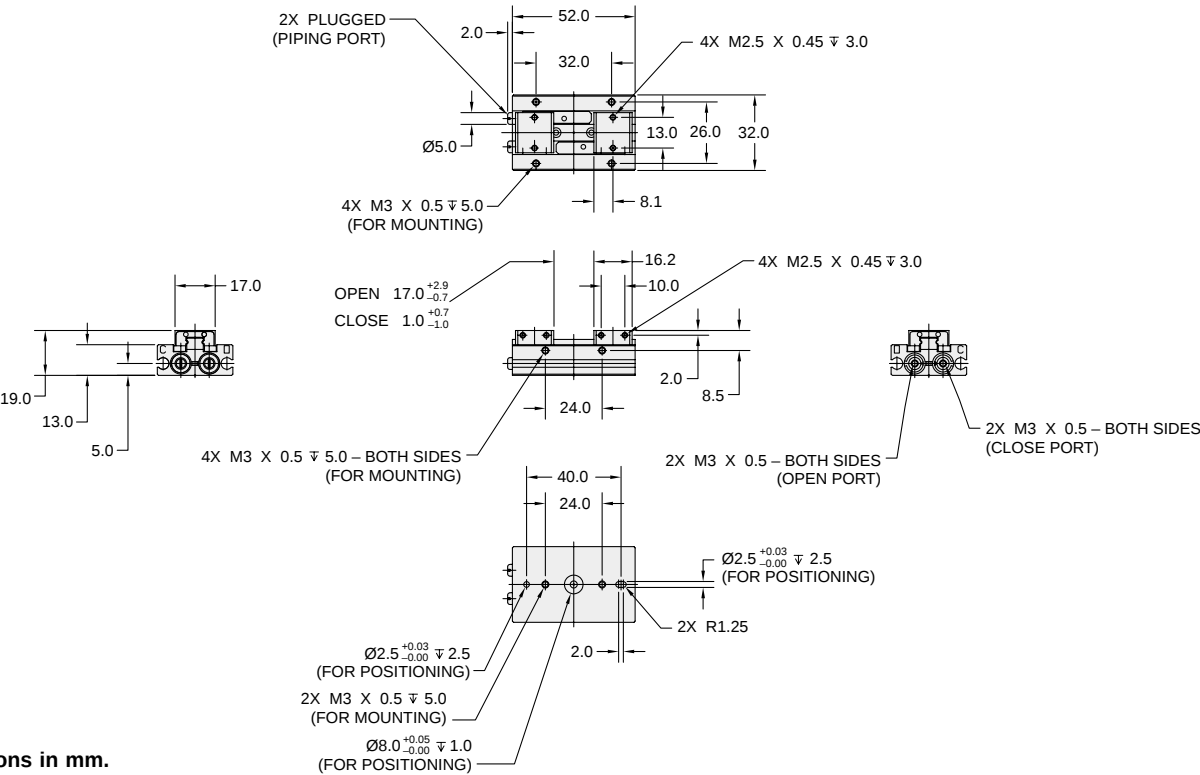
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	9 lbs	40 N
Moment (Mx)	2.7 in-lbs	0.3 Nm
Moment (My)	2.7 in-lbs	0.3 Nm
Moment (Mz)	4.4 in-lbs	0.5 Nm

Dimensional Information



Dimensions in mm.

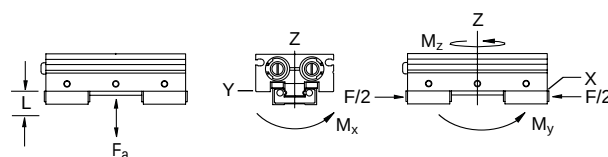
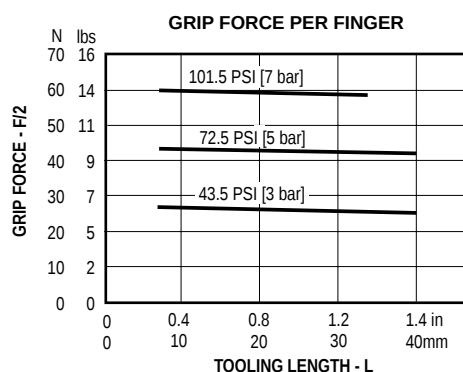
GPD-12



Total Grip Force (100 psi @ 1 in)	26.5 lbs	118 N
Stroke	0.86 in	22 mm
Weight	0.4 lbs	0.183 kg
Bore Size	0.472 in	12 mm
Cylinder Volume	9.95 in ³	162 cm ³
Repeatability	± 0.0005 in	± 0.01 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	22-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

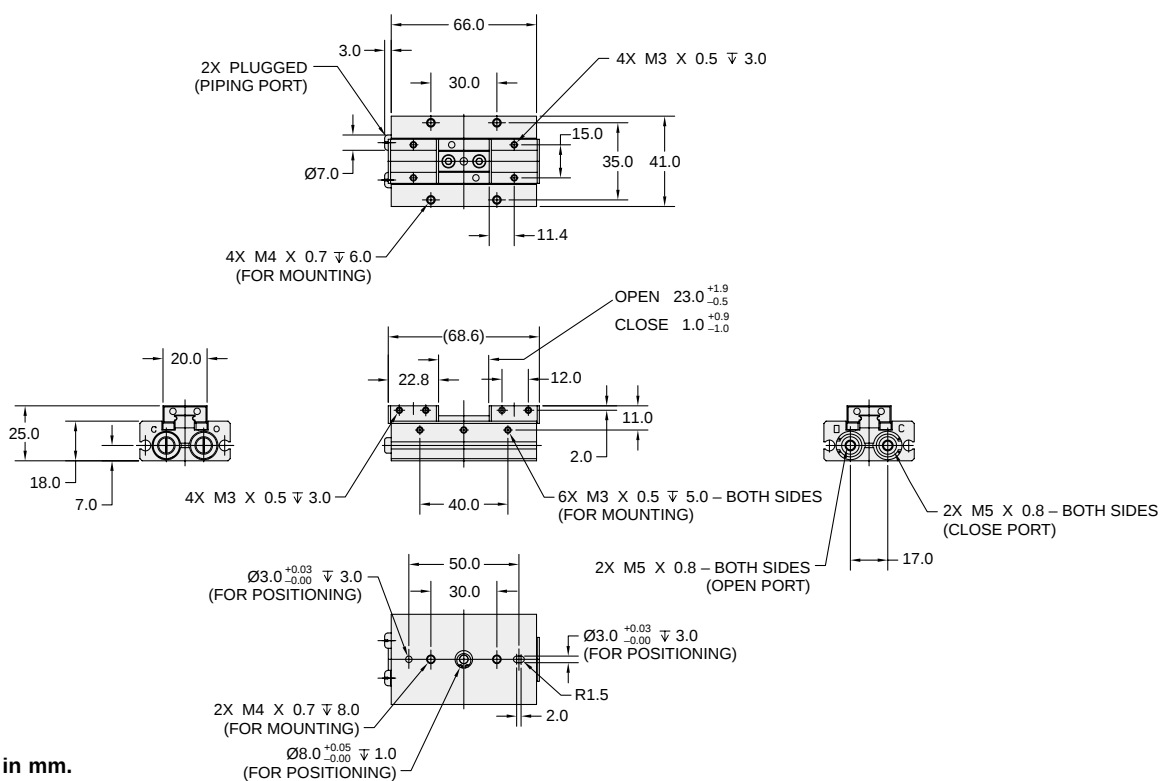
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	27 lbs	120 N
Moment (Mx)	8.8 in-lbs	1.0 Nm
Moment (My)	8.8 in-lbs	1.0 Nm
Moment (Mz)	17.7 in-lbs	2.0 Nm

Dimensional Information



Dimensions in mm.

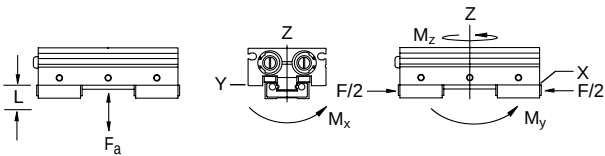
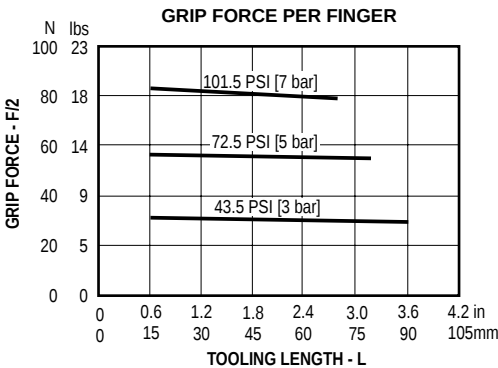
GPDL-14-S



Total Grip Force (100 psi @ 1 in)	36.8 lbs	164 N
Stroke	S: 1.18 in	S: 30 mm
(S=short; L=long)	L: 2.36 in	L: 60 mm
Weight	S: 0.95 lbs	S: 0.43 kg
(S=short; L=long)	L: 1.26 lbs	L: 0.57 kg
Bore Size	0.551 in	14 mm
Cylinder Volume	36.93 in ³	605.4 cm ³
Repeatability	± 0.0004 in	± 0.01mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	22-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

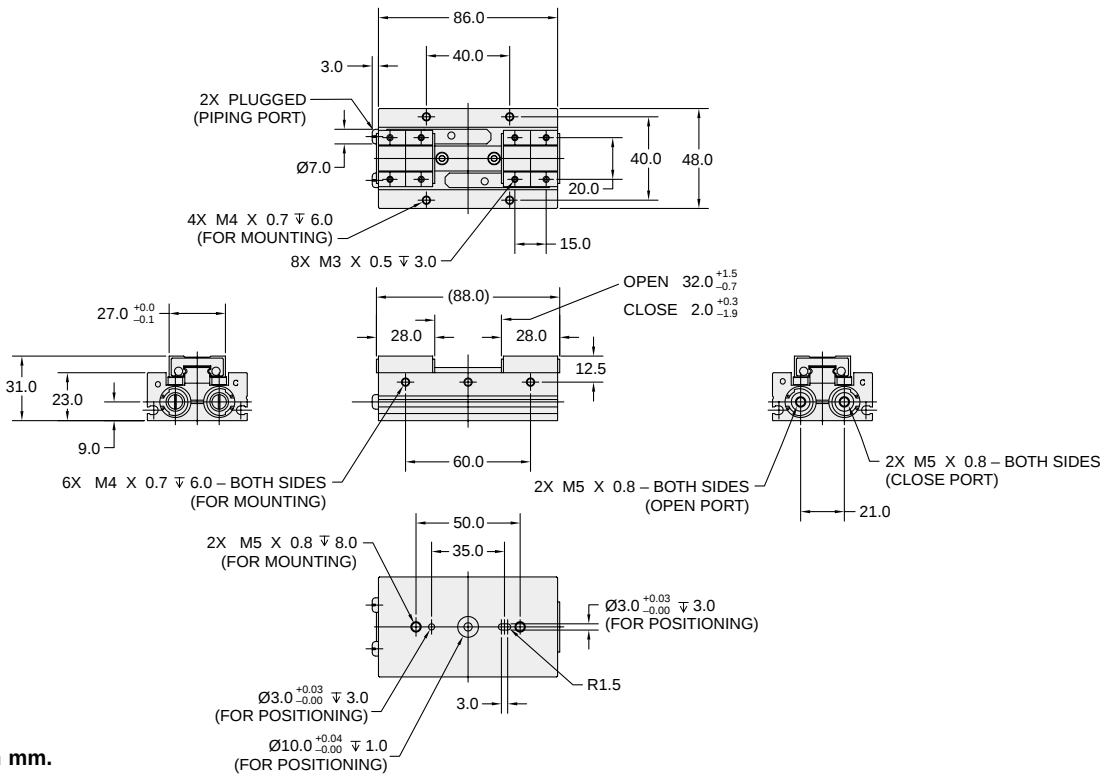
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	42.7 lbs	190 N
Moment (Mx)	30.1 in-lbs	3.4 Nm
Moment (My)	35.4 in-lbs	4.0 Nm
Moment (Mz)	70.8 in-lbs	8.0 Nm

Dimensional Information



Dimensions in mm.

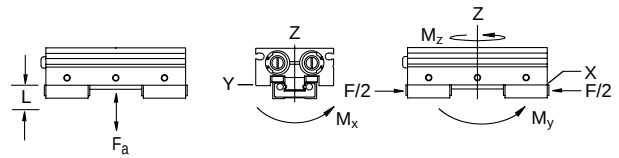
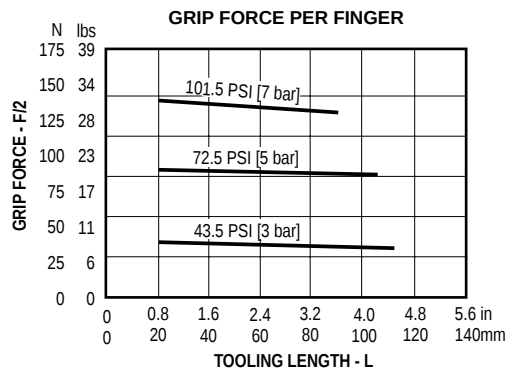
GPDL-18-S



Total Grip Force (100 psi @ 1 in)	64.5 lbs	287 N
Stroke	S: 1.57 in	S: 40 mm
(S=short; L=long)	L: 3.15 in	L: 80 mm
Weight	S: 1.41 lbs	S: 0.64 kg
(S=short; L=long)	L: 2.07 lbs	L: 0.94 kg
Bore Size	0.709 in	18 mm
Cylinder Volume	80.39 in ³	402
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	22-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

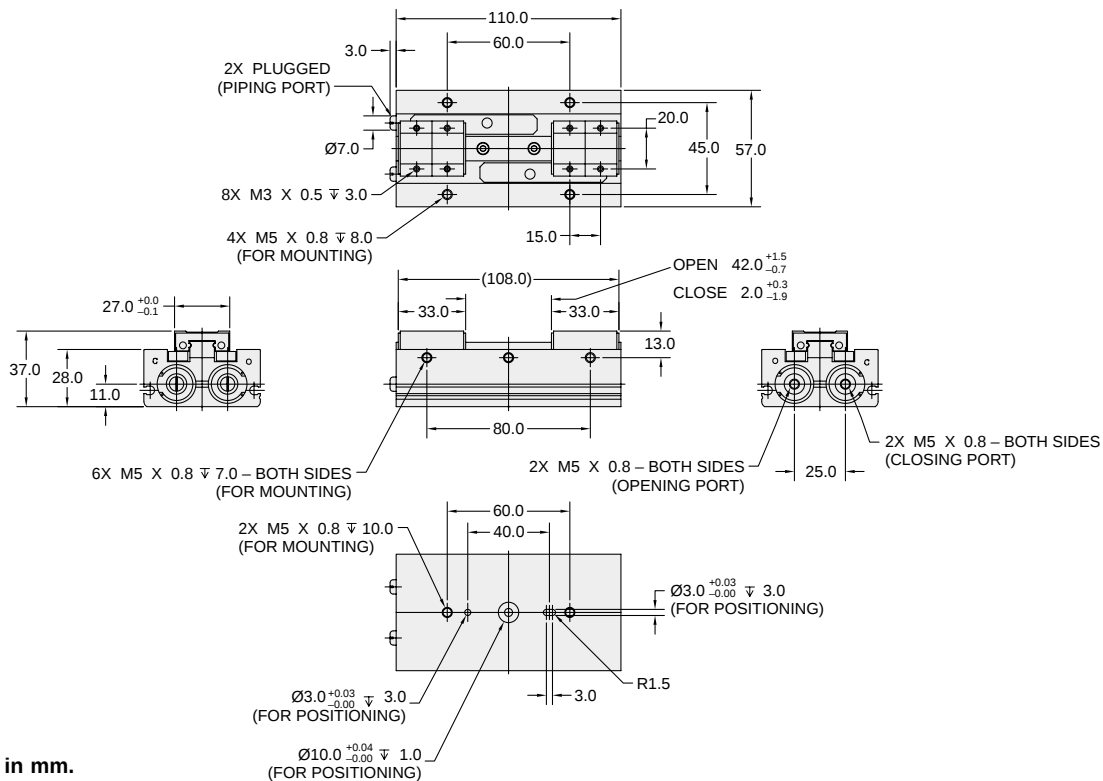
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	47.2 lbs	210 N
Moment (Mx)	38.9 in-lbs	4.4 Nm
Moment (My)	47.8 in-lbs	5.4 Nm
Moment (Mz)	79.6 in-lbs	9.0 Nm

Dimensional Information



Dimensions in mm.

Stroke Adjusters (JA, JB, JC)

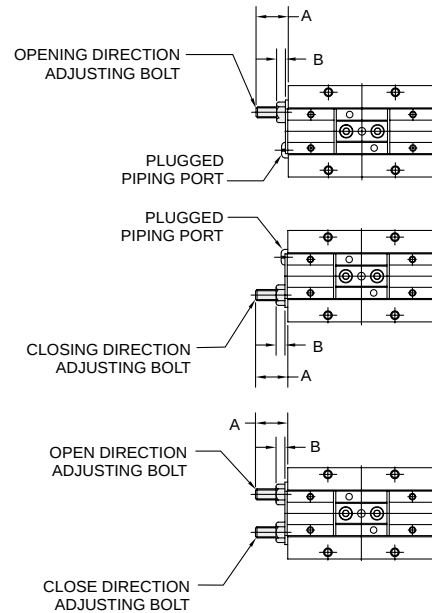
Use the stroke adjuster option when precise end-of-stroke jaw positioning is needed. Fully adjustable internal stops permit precise stopping locations anywhere within the jaw travel. The stroke adjuster option is available in three configurations:

- Stroke adjust open
- Stroke adjust close
- Stroke adjust both directions

This gives the machine designer the flexibility to create the best possible design within limited space requirements.

Dimensions (mm)

Size	A	B	Adjusting Bolt
8	9	2.4	M3 x 0.5
12	14.5	4.0	M5 x 0.8
14	14.6	5.0	M6 x 1
18	14.1	5.0	M8 x 1.25



Travel Options (S, L)

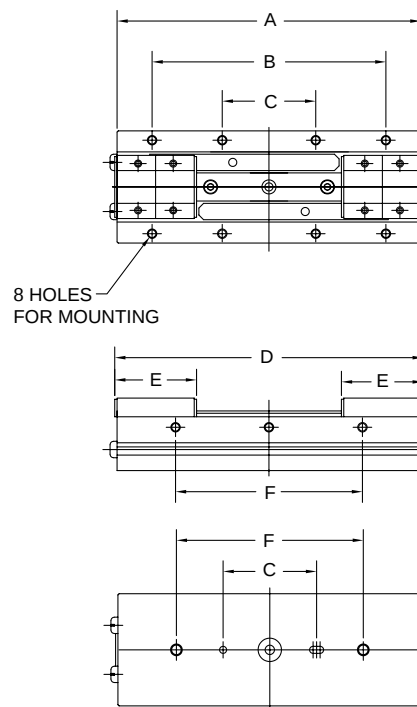
The short stroke configuration (S) and long stroke configuration (L) are available on size 14 and 18 grippers only. Short stroke dimensions are shown on the individual model pages. Dimensions are shown below for long stroke models.

Maximum Stroke

Model	Short Stroke (mm)	Long Stroke (mm)
GPDL-14	30	60
GPDL-18	40	80

Long Stroke Dimensions (mm)

Model	A	B	C	D	E	F
GPDL-14	130	100	40	132	35	80
GPDL-18	166	100	40	168	43	120

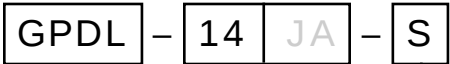


Magnetic Piston (Standard)

The GPDL Series grippers include a standard magnetic piston to sense piston position. Hall effect switches can be ordered and mounted in the sensor mounting groove located in the gripper body.

See Sensor section for sensor part numbers and specifications.

Model Code and Ordering Information



Series

GPDL

Size

- 8 – 8mm Bore
- 12 – 12mm Bore
- 14 – 14mm Bore
- 18 – 18mm Bore

Stroke Adjustment

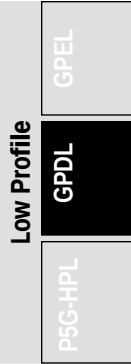
- Omit – No Stroke Adjustment (Standard)
- JA – Stroke Adjust Open
- JB – Stroke Adjust Close
- JC – Stroke Adjust Open and Close

Stroke

- Omit – Sizes 8 and 12 only.
- S – Short Stroke (Sizes 14 and 18 only)
- L – Long Stroke (Sizes 14 and 18 only)

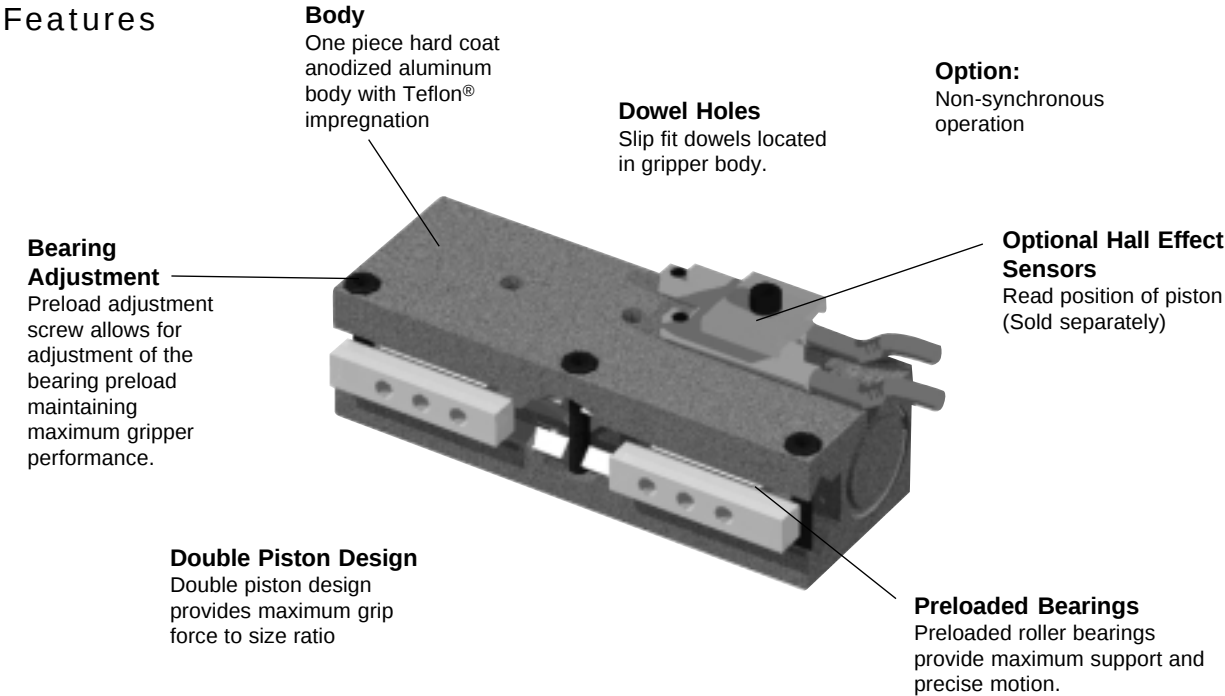
Seal Kits

Size	Nitrile Seal Kit
GPDL-8	PSK-GPDL-8
GPDL-12	PSK-GPDL-12
GPDL-14	PSK-GPDL-14
GPDL-18	PSK-GPDL-18



Notes

Features

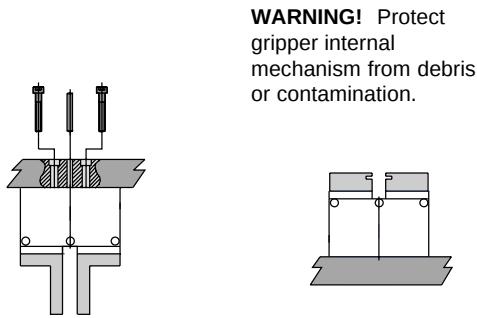


Operation

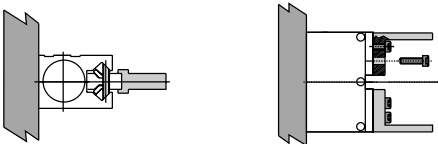
Operating Characteristic	Double acting, double piston
Gripping Force @ 100 PSI	25 - 33 lbs
Stroke Range	1/4" to 1"
Operating Pressure Range	5 - 100 PSI (0.3 - 7 bar)

Clean Room Option
Available for dirty, harsh or clean room applications.

Mounting



Gripper mounts using tapped holes and slip fit dowel pin holes.



Custom finger tooling mounts using tapped holes and precise tolerancing of fingers.

WARNING! Protect gripper internal mechanism from debris or contamination.

Contents

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P5G-HPL4	73
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Low Profile
GPDL
P5G-HPL

P5G-HPL-1M-NS-V

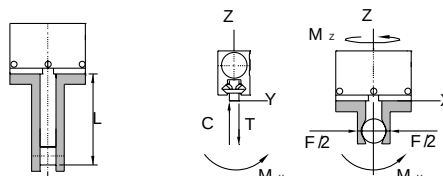
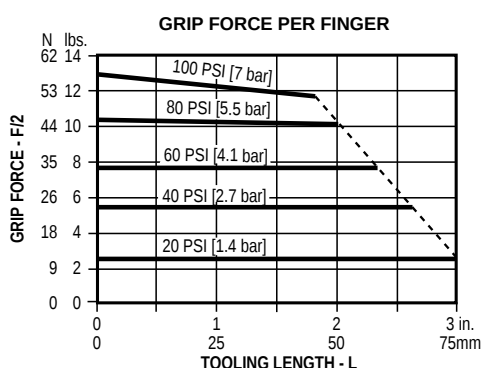


Total Grip Force (100 psi @ 1 in)	25 lbs	111 N
Stroke	0.25 in	6.4 mm
Weight	0.16 lbs	0.07 kg
Bore Size	7/16 in	11.1 mm
Cylinder Volume	0.038 in ³	0.6 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

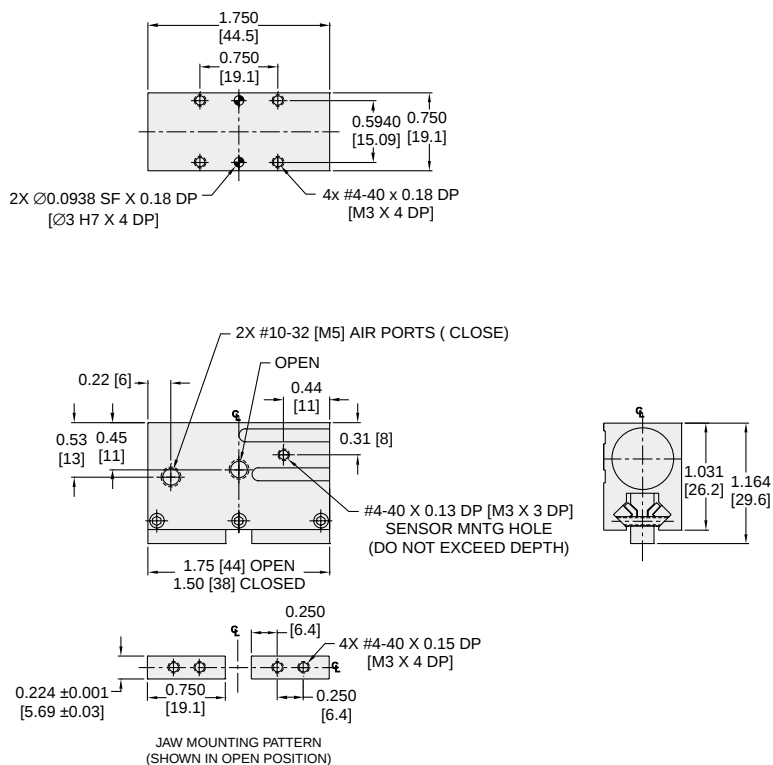
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	50 lbs	222.4 N	15 lbs	66.7 N
Moment (Mx)	30 in-lbs	3.4 Nm	10 in-lbs	1.1 Nm
Moment (My)	40 in-lbs	4.5 Nm	12 in-lbs	1.4 Nm
Moment (Mz)	30 in-lbs	3.4 Nm	10 in-lbs	1.1 Nm

Dimensional Information



Dimensions in inch (mm).

P5G-HPL-2M-NS-V

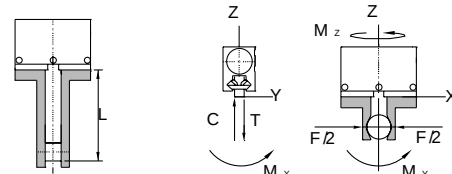
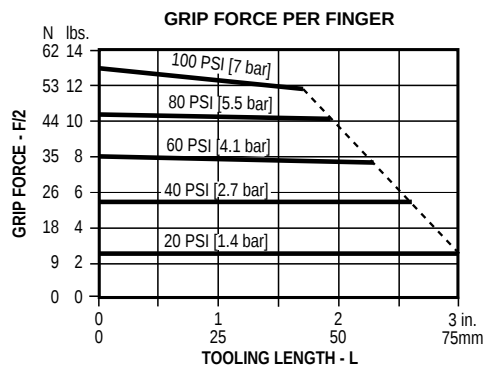


Total Grip Force (100 psi @ 1 in)	25 lbs	111 N
Stroke	0.50 in	12.7 mm
Weight	0.20 lbs	0.09 kg
Bore Size	7/16 in	11.1 mm
Cylinder Volume	0.075 in ³	1.2 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80°C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

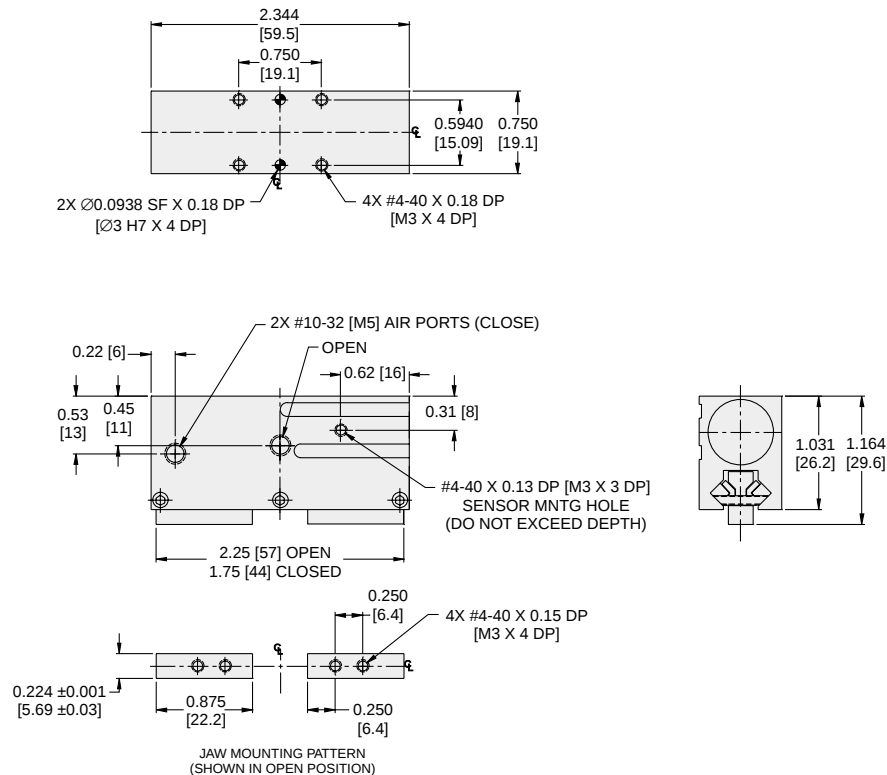
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	65 lbs	289.1 N	20 lbs	89.0 N
Moment (Mx)	45 in-lbs	5.1 Nm	15 in-lbs	1.7 Nm
Moment (My)	60 in-lbs	6.8 Nm	20 in-lbs	2.3 Nm
Moment (Mz)	45 in-lbs	5.1 Nm	15 in-lbs	1.7 Nm

Dimensional Information



Dimensions in inch (mm).

P5G-HPL-3M-NS-V

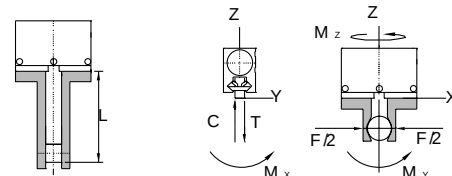
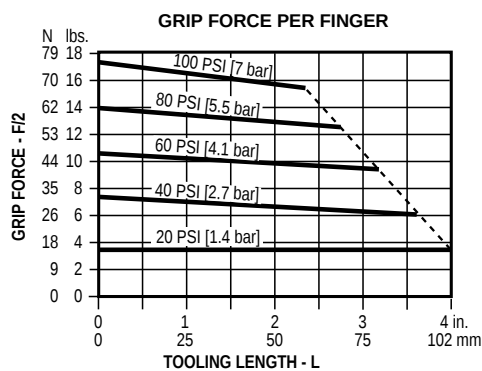


Total Grip Force (100 psi @ 1 in)	33 lbs	146 N
Stroke	0.75 in	19.1 mm
Weight	0.32 lbs	0.15 kg
Bore Size	0.5 in	12.7 mm
Cylinder Volume	0.147 in ³	2.4 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

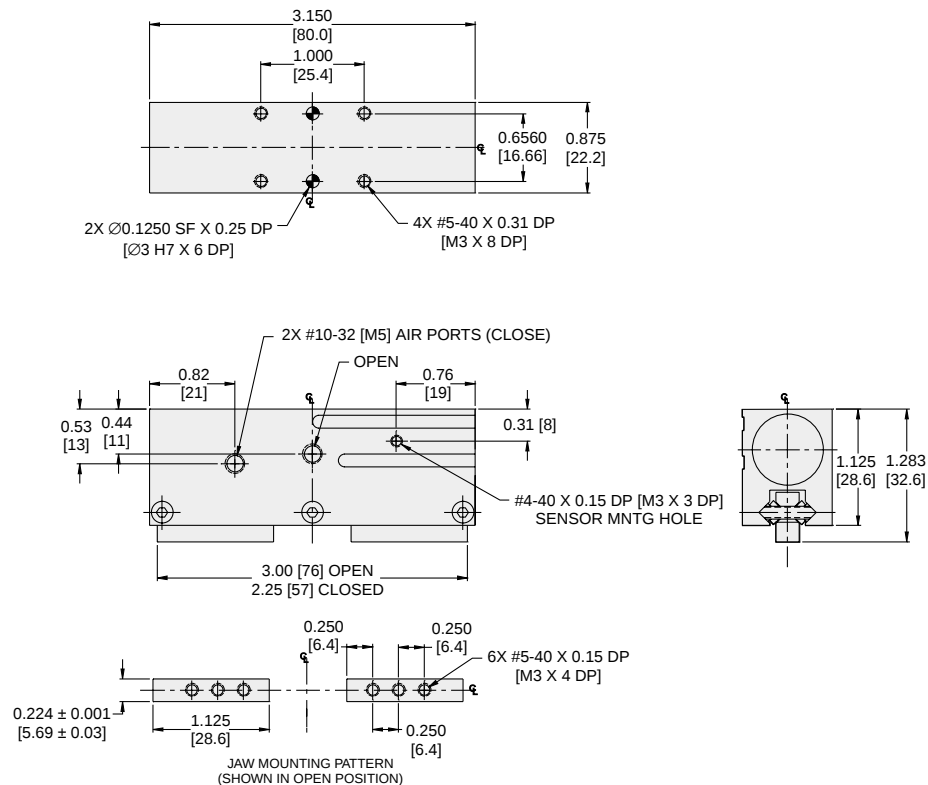
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	90 lbs	400.3 N	30 lbs	133.4 N
Moment (Mx)	60 in-lbs	6.8 Nm	20 in-lbs	2.3 Nm
Moment (My)	80 in-lbs	9.0 Nm	25 in-lbs	2.8 Nm
Moment (Mz)	60 in-lbs	6.8 Nm	20 in-lbs	2.3 Nm

Dimensional Information



Dimensions in inch (mm).

P5G-HPL-4M-NS-V

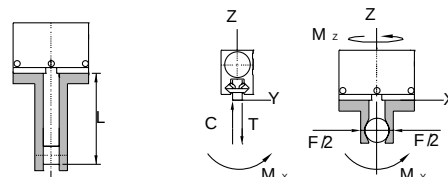
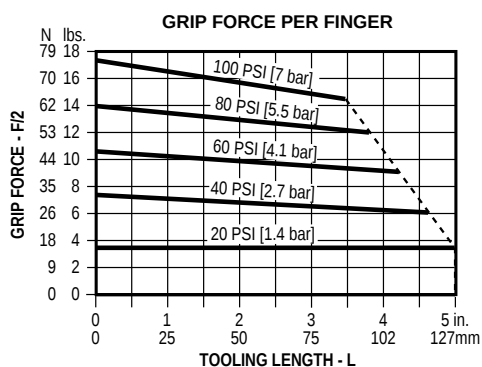


Total Grip Force (100 psi @ 1 in)	33 lbs	146 N
Stroke	1.00 in	25.4 mm
Weight	0.38 lbs	0.17 kg
Bore Size	1/2 in	12.7 mm
Cylinder Volume	0.196 in ³	3.2 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

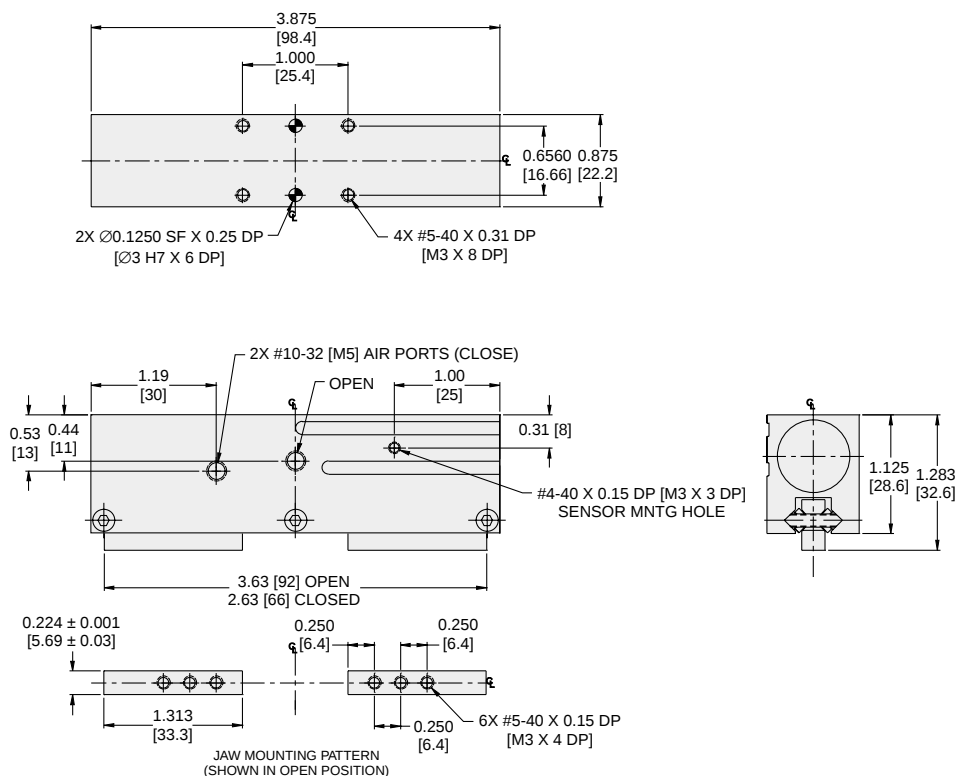
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	120 lbs	533.8 N	40 lbs	177.9 N
Moment (Mx)	75 in-lbs	8.5 Nm	25 in-lbs	2.8 Nm
Moment (My)	100 in-lbs	11.3 Nm	35 in-lbs	4.0 Nm
Moment (Mz)	75 in-lbs	8.5 Nm	25 in-lbs	2.8 Nm

Dimensional Information



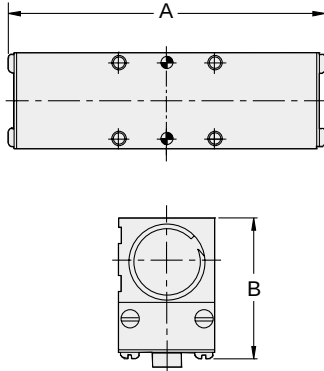
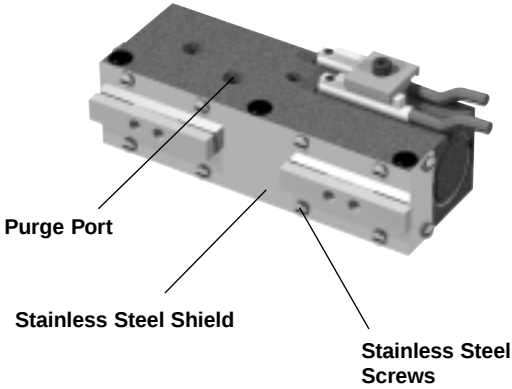
Dimensions in inch (mm).

Clean Room (C)

Stainless steel plates are added to the gripper housing to protect the internal linkage from contaminants. These plates also prevent the generation of contaminants in clean-room applications.

A purge port is also added for extreme applications where air born contaminants may be introduced to the gripper. Applying vacuum pressure prevents the escape of contaminants generated by internal components.

Clean-room grade lubricants are used.



Dimensions

Size	A	B
	inch (mm)	inch (mm)
1	1.900 (48.3)	1.096 (27.8)
2	2.476 (62.9)	1.096 (27.8)
3	3.282 (83.4)	1.191 (30.3)
4	4.007 (101.8)	1.191 (30.3)

Metric Option (M)

When using the P5G-HPL Series in metric applications, metric mounting and ports can be specified with the Metric Option. When specifying this option, the gripper incorporates metric threads and BSPG ports.

Reference the dimensional drawing for each size gripper for more details.

Non-Synchronous (NS)

As standard the low profile series gripper fingers operate in a synchronized manner. For applications where parts may be off center or randomly placed, the non-synchronous option can be utilized. With this option both fingers operate independently of each other.

Fluorocarbon Seals (V)

Standard nitrile seals should be used for general purpose applications with temperatures of -30° to 180° F (-35° to 80° C). Fluorocarbon seals are recommended for high temperature applications up to 250° F (120° C).

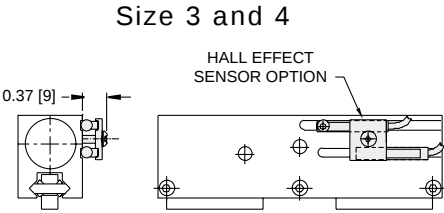
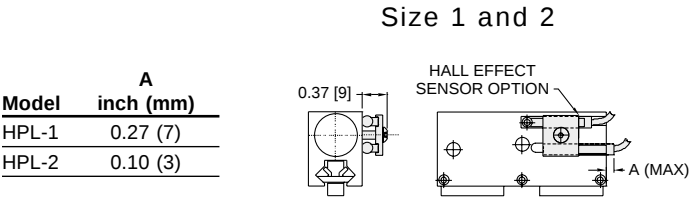
Seal Type	Temperature Range
Standard Buna-N	-30° to 180°F (-35° to 80°C)
Fluorocarbon	-20° to 250°F (-30° to 120°C)

Sensors

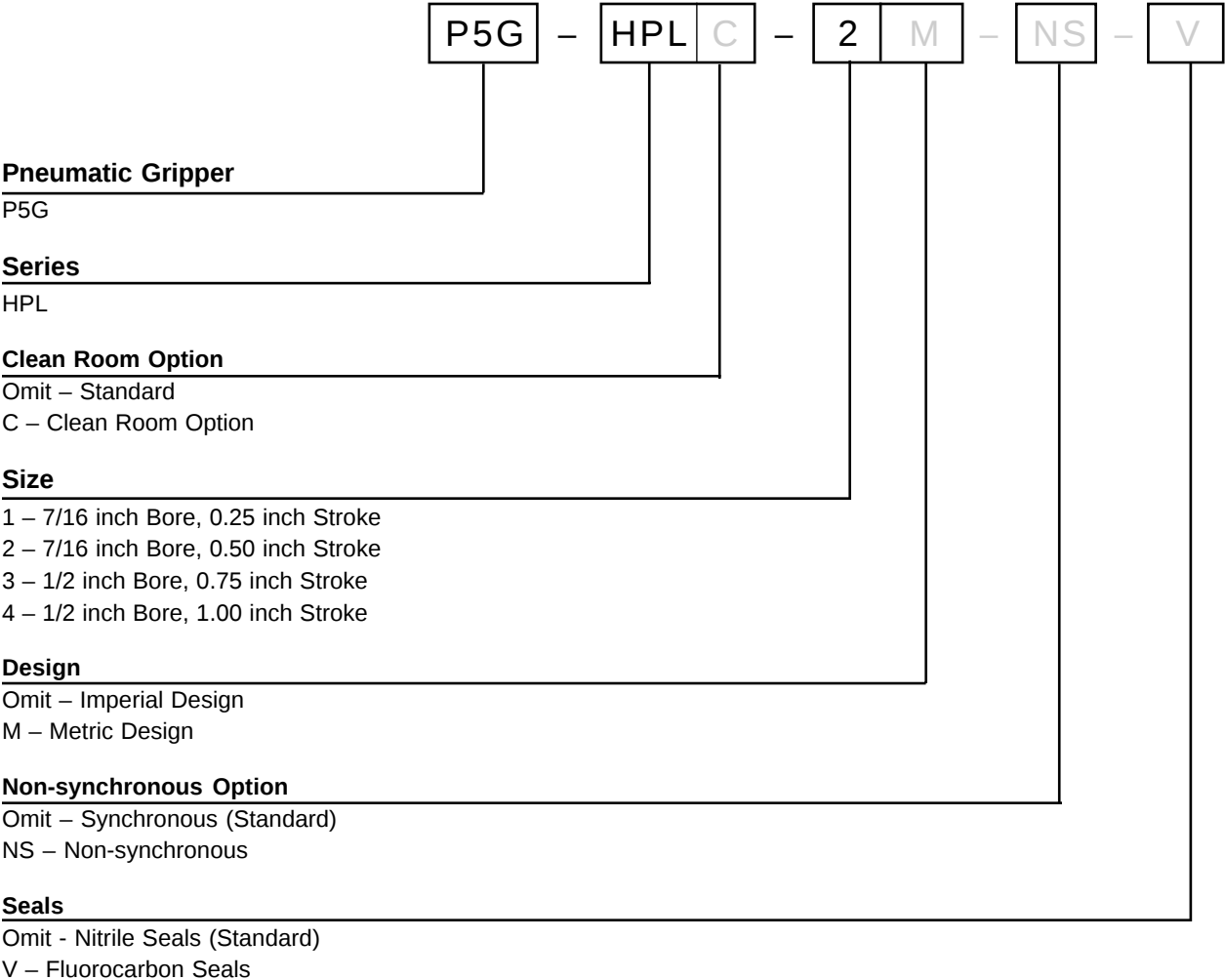
The P5G-HPL series is prepared for Hall Effect sensors with a magnetic piston as standard. Hall Effect sensors can be ordered separately in either NPN or PNP configurations.

Order sensors, cables and mounting kits separately. See Sensor section for part numbers and sensor specifications.

Dimensions



Model Code and Ordering Information

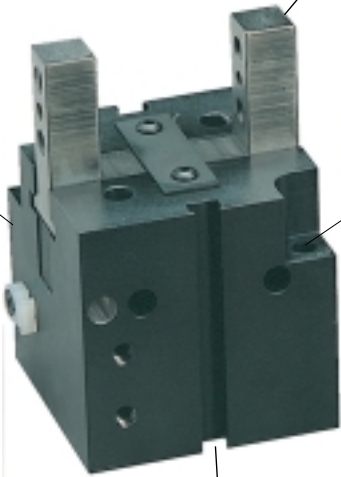


Features

Body
Permanently sealed,
anodized aluminum to
provide maximum
resistance to corrosion
and internal contaminants

Fail Safe Option
Internal springs act
in the closed position
to ensure that the
part remains
clamped in the event
of a power failure

Seals
Self lubricating
dynamic seals
(Nitrile only)



Jaws
Available in short and
long configurations
with tapped through-
holes and dowel pin
holes.

Mounting
Standard mounting
on three faces with
through-hole top
mount and standard
dowel pin holes to
provide a precise
alignment and easy
installation.

Dowel Pin Holes
Press fit dowels
located in gripper
body and jaws

Sensors
Sensor grooves allow easy
installation, adjustment of
magneto resistive sensor.
Magnetic piston is standard.

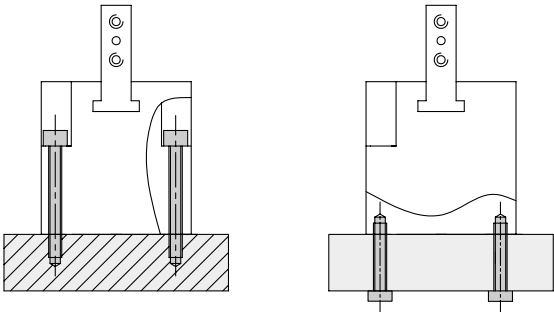
Operation

Operating Characteristic	Double acting, spring closed
Gripping Force @ 100 PSI	97 - 1767 N (16 - 365 lbs)
Stroke Range	4-16 mm
Operating Pressure Range	44 - 116 PSI (3 - 8 bar)

Dust Cover Option
Available for dirty or harsh environments.

Mounting

Gripper can be mounted on three faces and
locates with dowel pin holes for accuracy.



Warning! Protect drive and bearing mechanism
from falling debris when mounted with fingers up.

Contents

P5G-RH1	78
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P5G-RH5	82
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P5G-RH1

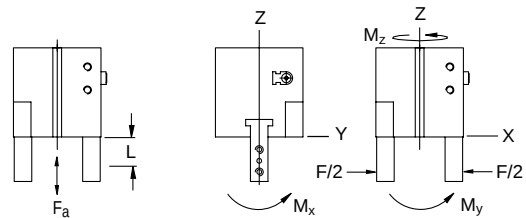
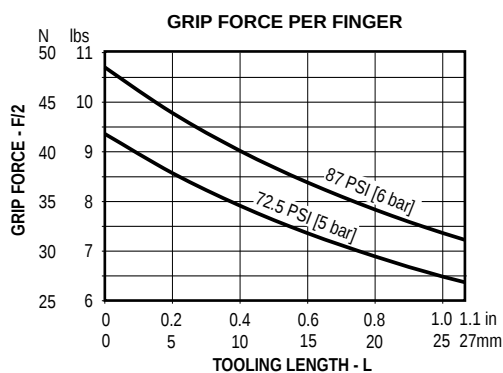


Total Grip Force (100 psi @ 1 in)	21.8 lbs	97 N
Stroke	0.1574 in	4 mm
Weight	0.22 lbs	0.10 kg
Bore Size	0.6299 in	16 mm
Cylinder Volume	0.045 in ³	0.75 cm ³
Repeatability	+/- 0.002 in	+/- 0.05 mm
Temperature Range*	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

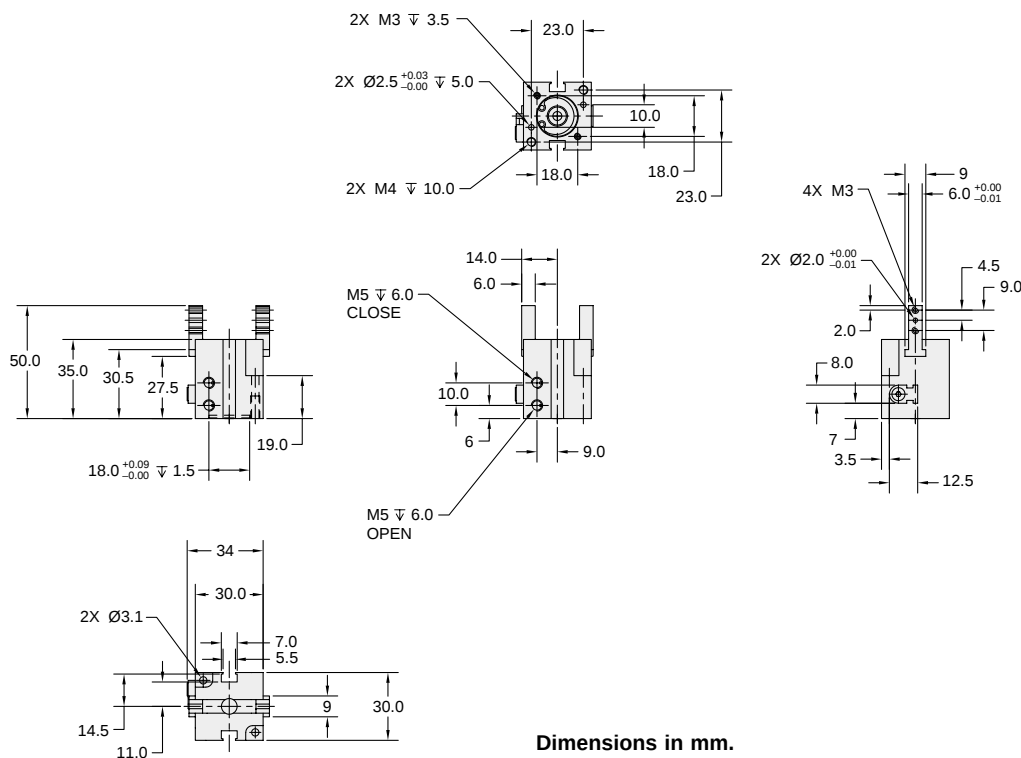
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	18 lbs	80 N
Moment (Mx)	4.4 in-lbs	0.5 Nm
Moment (My)	33.6 in-lbs	3.8 Nm
Moment (Mz)	17.7 in-lbs	2 Nm

Dimensional Information



Dimensions in mm.

P5G-RH2

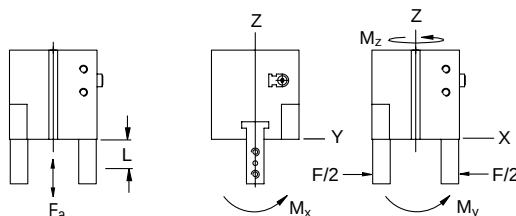
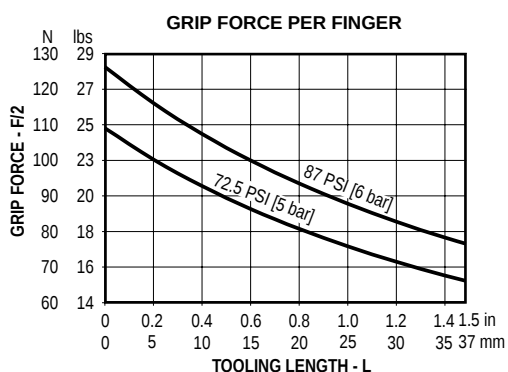


Total Grip Force (100 psi @ 1 in)	56.6 lbs	252 N
Stroke	0.236 in	6 mm
Weight	0.51 lbs	0.23 kg
Bore Size	0.984 in	25 mm
Cylinder Volume	0.167 in ³	2.75 cm ³
Repeatability	+/- 0.002 in	+/- 0.05 mm
Temperature Range*	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

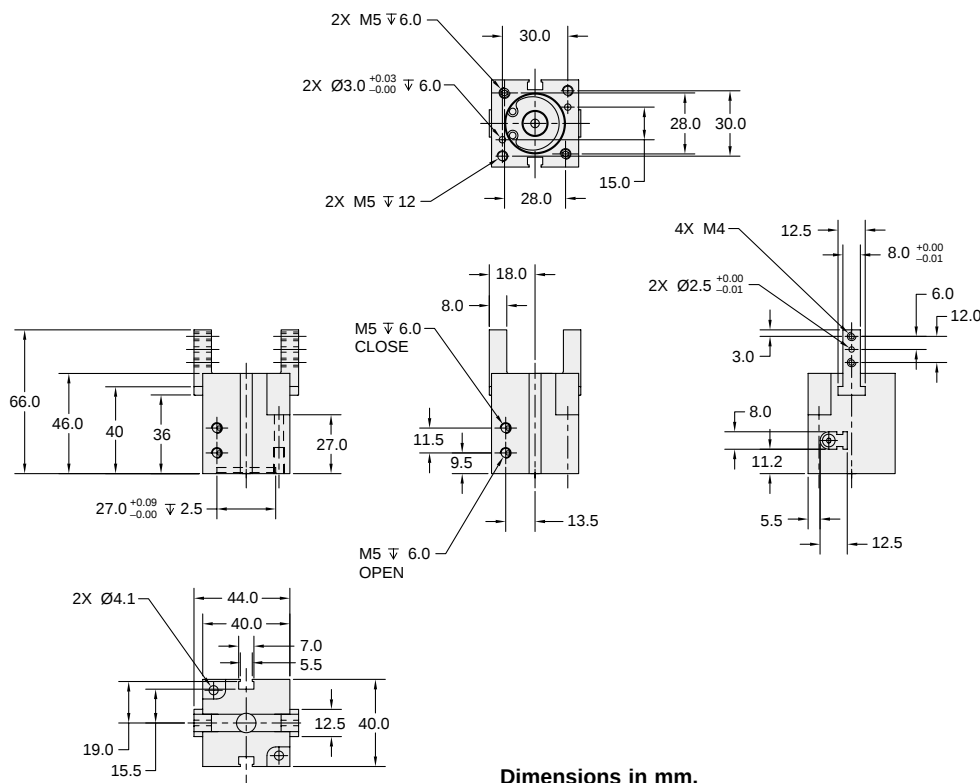
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	49.45 lbs	220 N
Moment (Mx)	10.62 in-lbs	1.2 Nm
Moment (My)	223 in-lbs	25.2 Nm
Moment (Mz)	115 in-lbs	13 Nm

Dimensional Information



Dimensions in mm.

P5G-RH3

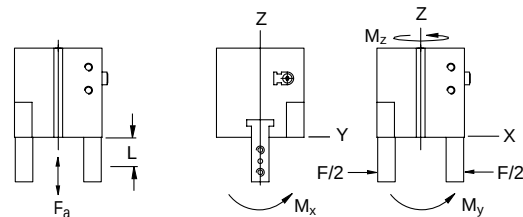
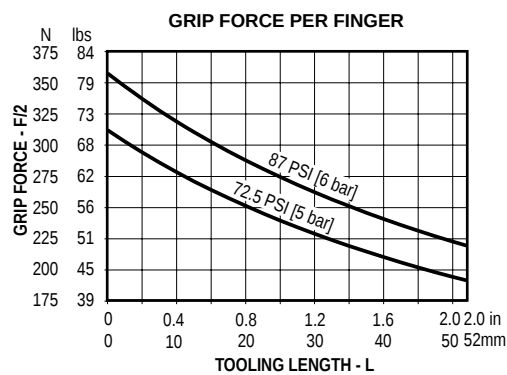


Total Grip Force (100 psi @ 1 in)	160.7 lbs	715 N
Stroke	0.3937 in	10 mm
Weight	1.08 lbs	0.49 kg
Bore Size	1.57 in	40 mm
Cylinder Volume	0.72 in ³	11.8 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range*	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

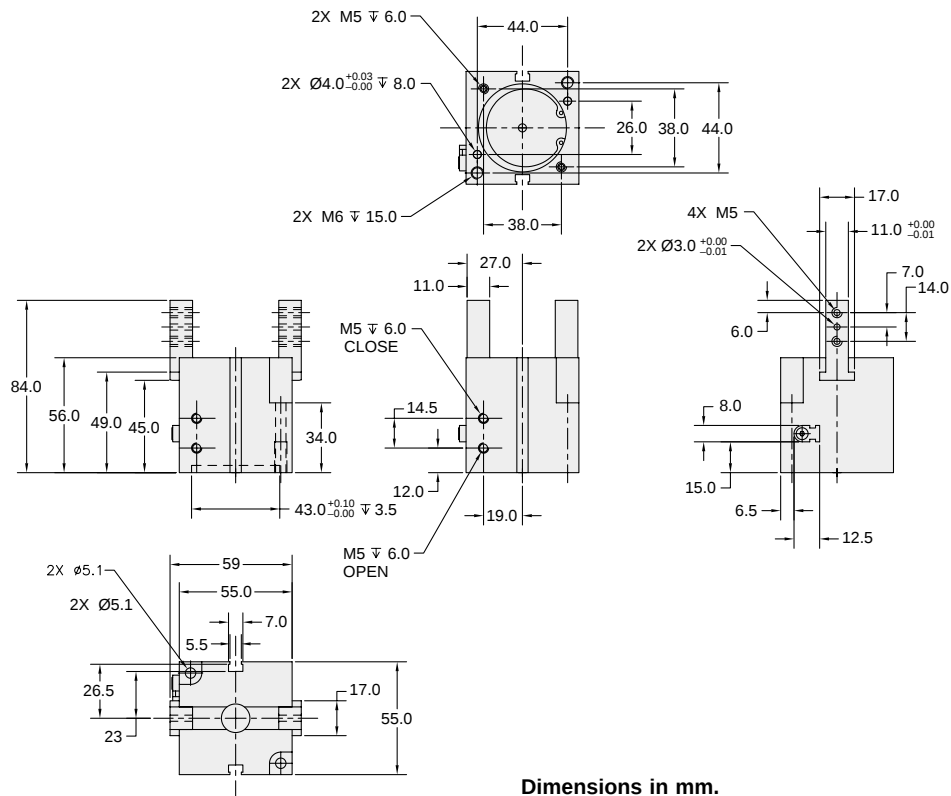
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	130.4 lbs	580 N
Moment (Mx)	38.9 in-lbs	4.4 Nm
Moment (My)	502.7 in-lbs	56.8 Nm
Moment (Mz)	256.6 in-lbs	29 Nm

Dimensional Information



Dimensions in mm.

P5G-RH4

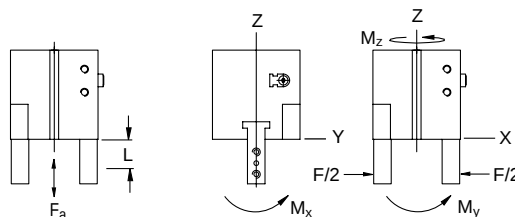
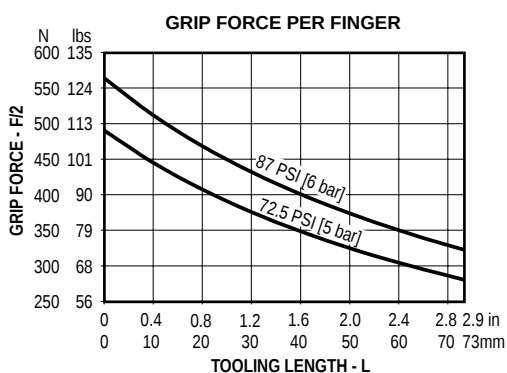


Total Grip Force (100 psi @ 1 in)	253.6 lbs	1128 N
Stroke	0.511 in	13 mm
Weight	1.72 lbs	0.78 kg
Bore Size	1.968 in	50 mm
Cylinder Volume	1.476 in ³	24.2 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range*	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

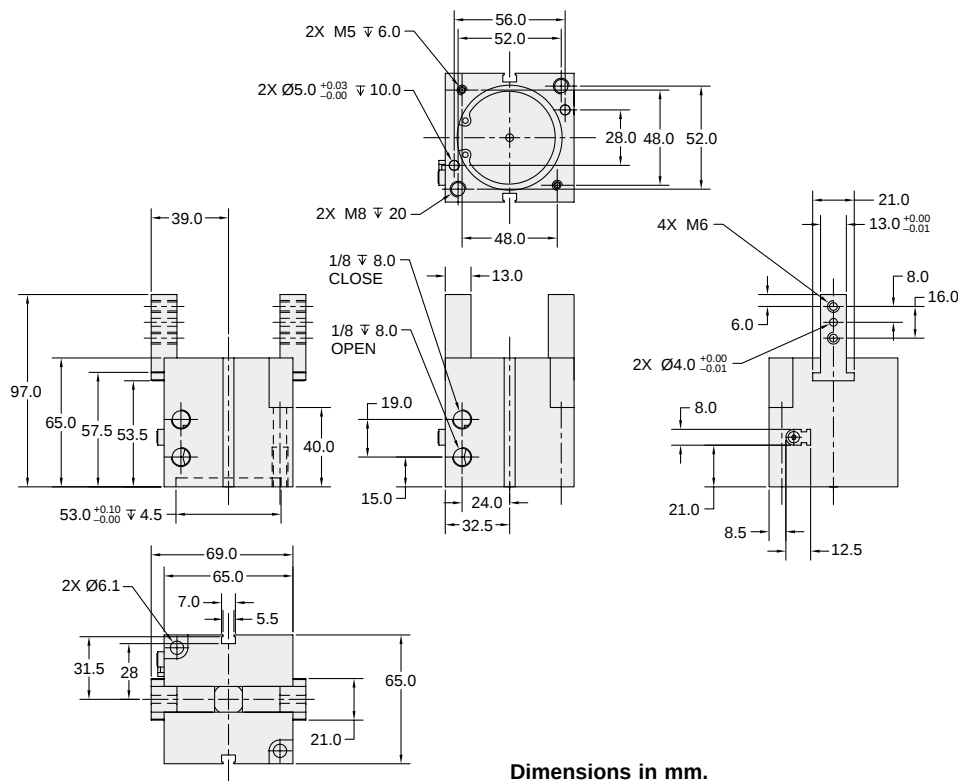
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	202.3 lbs	900 N
Moment (Mx)	70.8 in-lbs	8 Nm
Moment (My)	637.2 in-lbs	72 Nm
Moment (Mz)	318.6 in-lbs	36 Nm

Dimensional Information



Dimensions in mm.

P5G-RH5

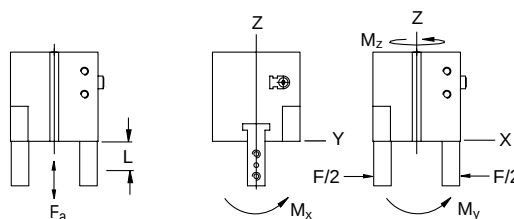
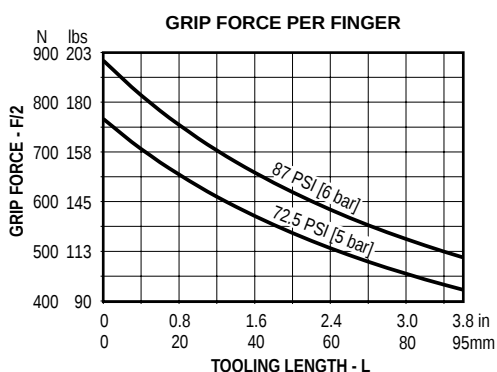


Total Grip Force (100 psi @ 1 in)	397.2 lbs	1767 N
Stroke	0.708 in	18 mm
Weight	2.93 lbs	1.33 kg
Bore Size	2.48 in	63 mm
Cylinder Volume	3.27 in ³	53.6 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range*	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

* Fluorcarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

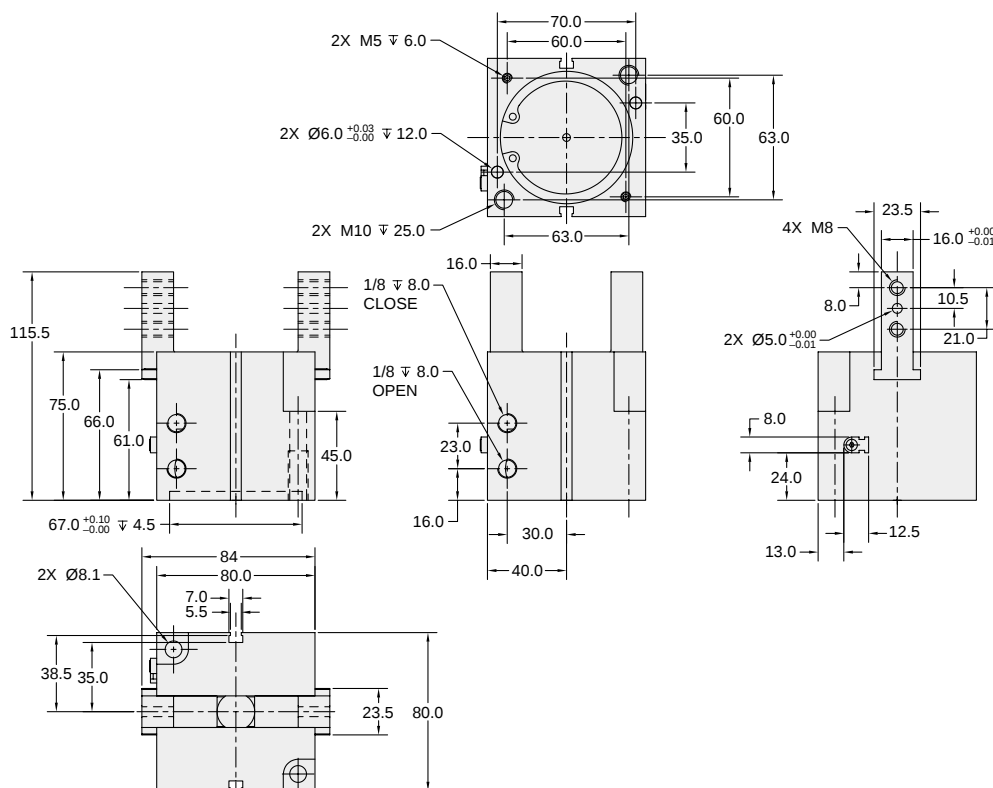
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	314.7 lbs	1400 N
Moment (Mx)	132.75 in-lbs	15 Nm
Moment (My)	773.5 in-lbs	87.4 Nm
Moment (Mz)	389.4 in-lbs	44 Nm

Dimensional Information

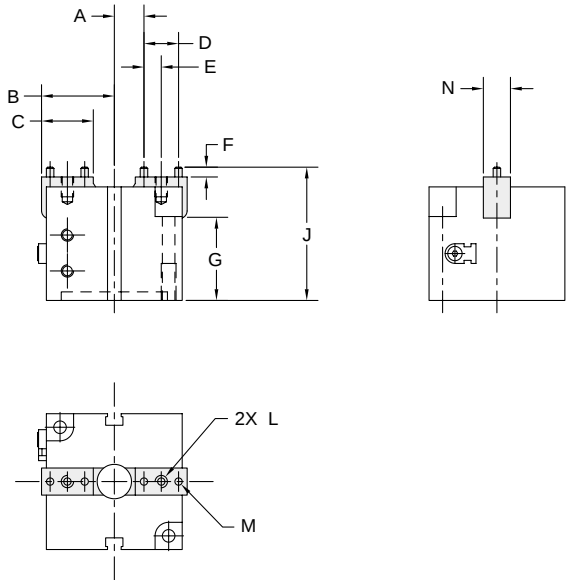
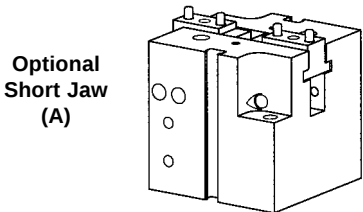


Dimensions in mm.

Jaw Style Option (A, H)

Two jaw styles are available, Long (H) and Short (A). The long finger style is standard and allows for mounting on the edge of the jaw.

The optional short fingers allow for mounting on the face of the jaw. See illustration to the right for dimensional differences.



Short Jaw Dimensions (mm)

Model	A	B	C	D	E	F	G	J	L	M	N
P5G-RA1	7	17.5	12	9	4.5	2.5	19	9.5	M3 x 5 dp	2	9
P5G-RA2	9.5	23.5	16.5	12	6	3.5	27	51.5	M4 x 6.5 dp	2.5	13
P5G-RA3	15	32	20	14	7	4	34	62	M5 x 8 dp	3	17
P5G-RA4	19.5	39	23	16	8	5	40	78	M6 x 12 dp	4	21
P5G-RA5	23	47.5	28	21	10.5	6	45	91	M8 x 15 dp	5	24

Spring Assist Option (F)

The spring assist option allows for an automatic reset and jaw return. Selecting the spring assist option creates a single-acting gripper which may reduce the number of directional control valves needed to operate automated machinery. The spring assist option also allows the fingers to return to the closed position when pressure is lost during a power failure.

Size	Spring Force	
	lbs	N
1	2.2	10
2	5.6	25
3	17.9	80
4	24.7	110
5	40.4	180

Dust Cover (A)

A dust cover can be added to prevent machining chip contaminants from entering the working mechanism of the gripper. This dust cover is also ideal for dusty and dirty environments.

Reed and Hall Effect Sensors

Reed or Hall effect sensors mount in the sensor mounting grooves located in the gripper body. A magnetic piston is standard for ease of field addition of sensors.

Model Code and Ordering Information

P5G – R H 1 B 0 C 00 004

Type

P5G – Pneumatic Gripper

Series

R – Robotic

Jaw Style

H – Long Jaws (Standard)

A – Short Jaws

Size

1 – 16mm Bore

2 – 25mm Bore

3 – 40mm Bore

4 – 50mm Bore

5 – 63mm Bore

Port Size

B – M5 for sizes 1, 2 and 3

C – G1/8 for sizes 4 and 5

Spring

0 – No Spring (Standard)

F – Spring Assist

Dust Cover

C – No Dust Cover (Standard)

A – Dust Cover

Function

00 – Standard

Stroke

004 – Size 1

006 – Size 2

010 – Size 3

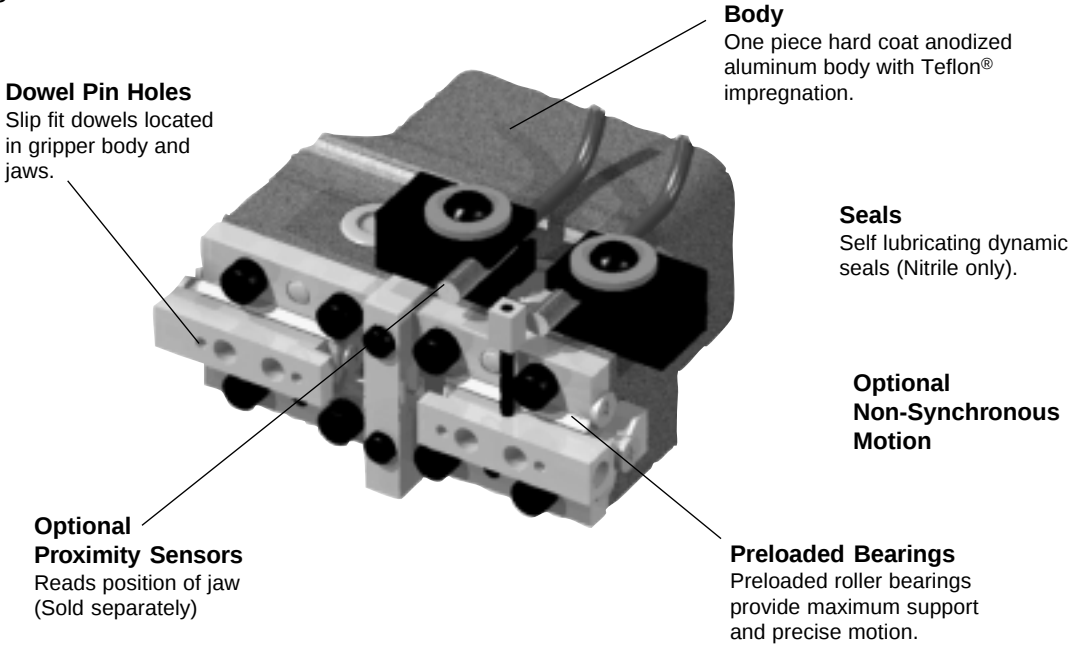
013 – Size 4

019 – Size 5

Seal Kits

Size	Nitrile Seal Kit
P5G-RH1	PSK-RH1
P5G-RH2	PSK-RH2
P5G-RH3	PSK-RH3
P5G-RH4	PSK-RH4
P5G-RH5	PSK-RH5

Features



Operation

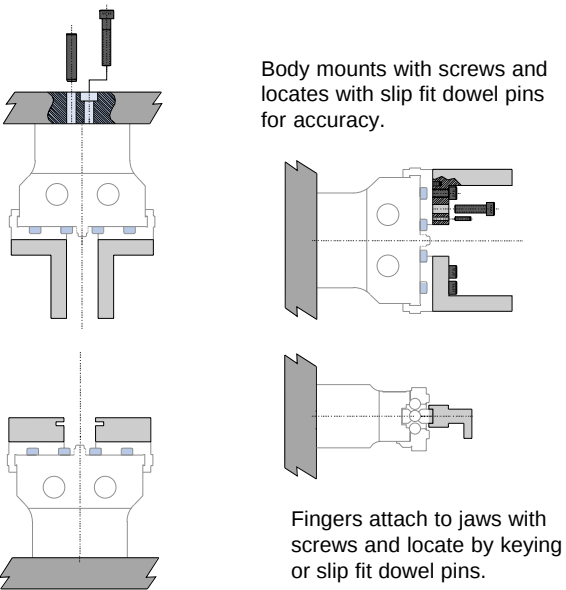
Operating Characteristic	Double acting, rack and pinion
Gripping Force @ 100 PSI	23 - 498 lbs
Stroke Range	0.5 to 3 inches
Operating Pressure Range	5 - 100 PSI (0.3 - 7 bar)

Not Recommended for Applications Containing:

- Dirt or grit
- Machining chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Grippers can be mounted and operated in any orientation.



WARNING! Protect drive and bearing mechanism from falling debris when mounted upside down.

Contents

P5G-HP-50P	86
P5G-HP-100P	87
P5G-HP-25P	88
P5G-HP-35P	89
P5G-HP-40P	90
P5G-HP-43P	91
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P5G-HP-50PM-V

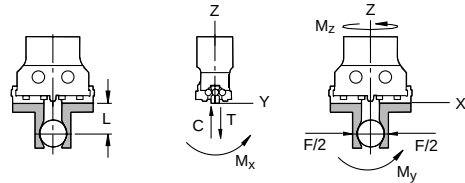
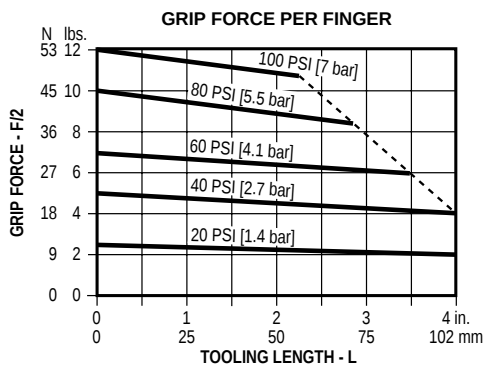


Total Grip Force (100 psi @ 1 in)	23 lbs	102 N
Stroke	0.50 in	12.7 mm
Weight	0.31 lbs	0.14 kg
Bore Size	0.625 in	5.9 mm
Cylinder Volume	0.100 in ³	1.64 cm ³
Repeatability	± 0.0005 in	± 0.01 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

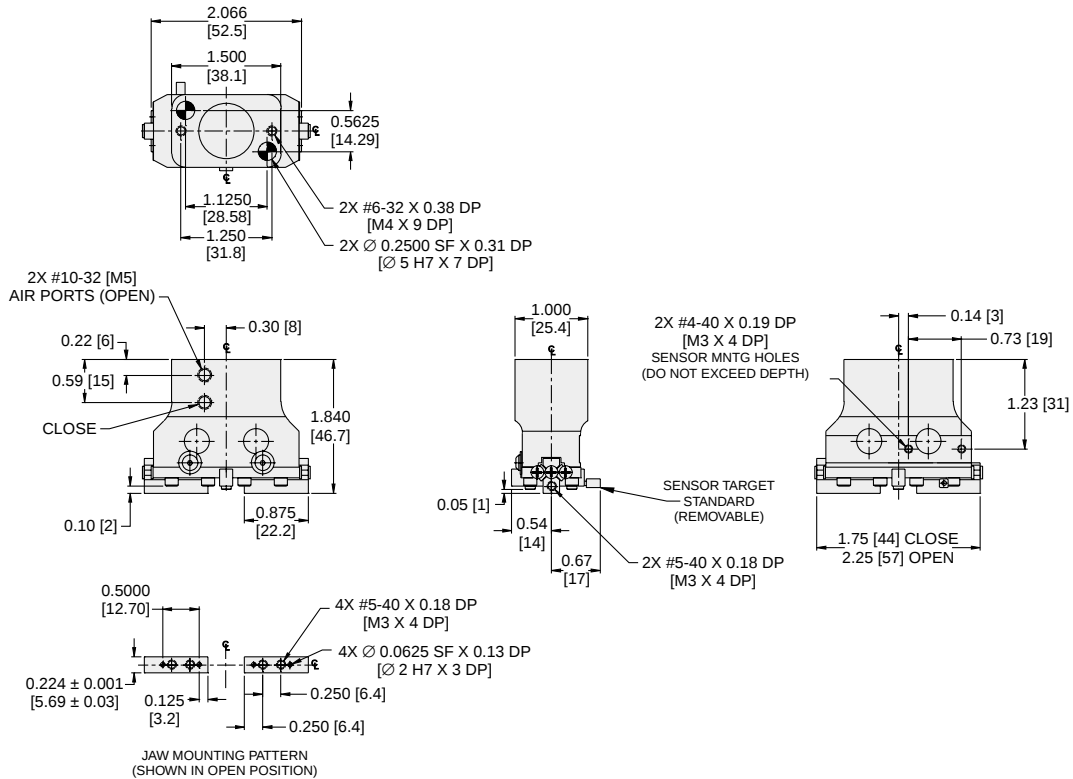
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	50 lbs	222 N	15 lbs	67 N
Moment (Mx)	50 in-lbs	6 Nm	12 in-lbs	1 Nm
Moment (My)	60 in-lbs	7 Nm	15 in-lbs	2 Nm
Moment (Mz)	50 in-lbs	6 Nm	12 in-lbs	1 Nm

Dimensional Information



Dimensions in inch (mm).

P5G-HP-100PM-V

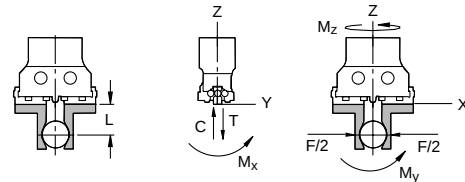
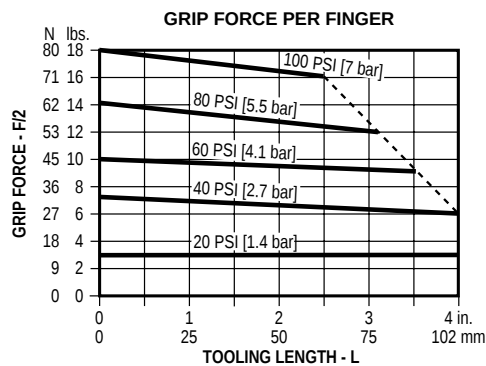


Total Grip Force (100 psi @ 1 in)	34 lbs	151 N
Stroke	1.00 in	25.4 mm
Weight	0.5 lbs	0.23 kg
Bore Size	0.750 in	19.1 mm
Cylinder Volume	.220 in ³	3.6 cm ³
Repeatability	± 0.0005 in	± 0.01 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

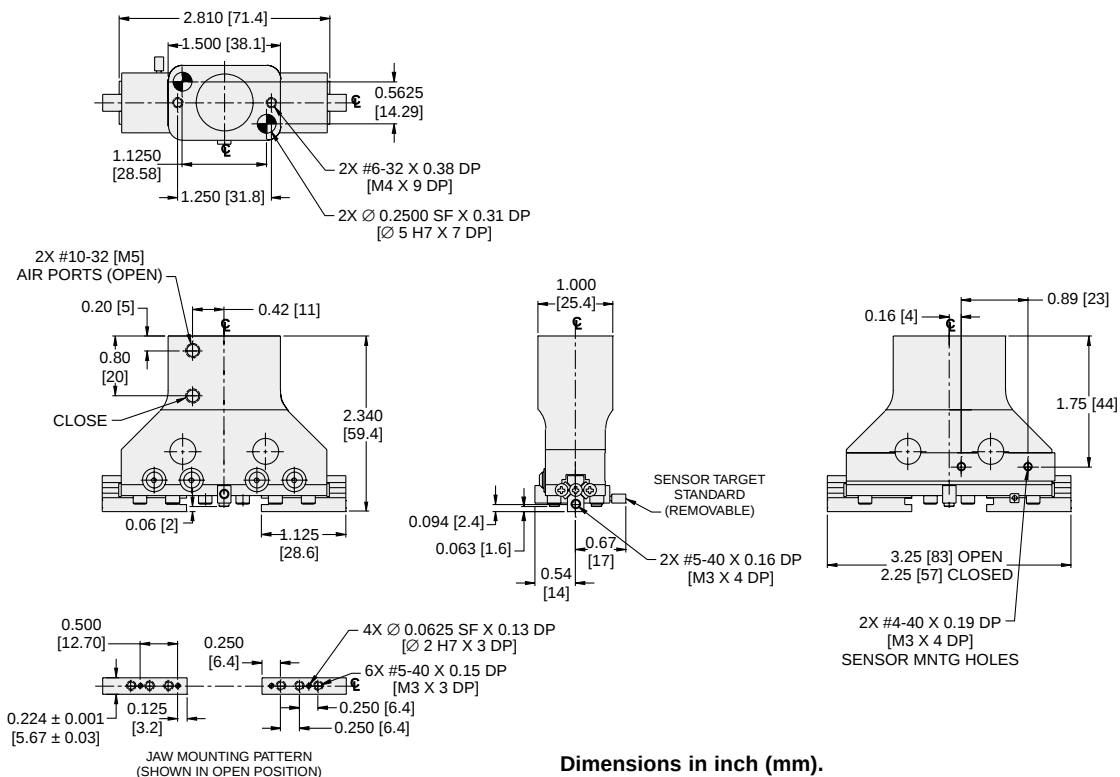
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C, T)	60 lbs	267 N	20 lbs	89 N
Moment (M _x)	100 in-lbs	11 Nm	25 in-lbs	3 Nm
Moment (M _y)	120 in-lbs	14 Nm	30 in-lbs	3 Nm
Moment (M _z)	100 in-lbs	11 Nm	25 in-lbs	3 Nm

Dimensional Information



Dimensions in inch (mm).

P5G-HP-25PM-V

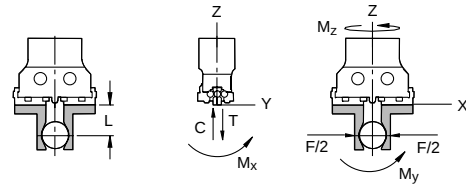
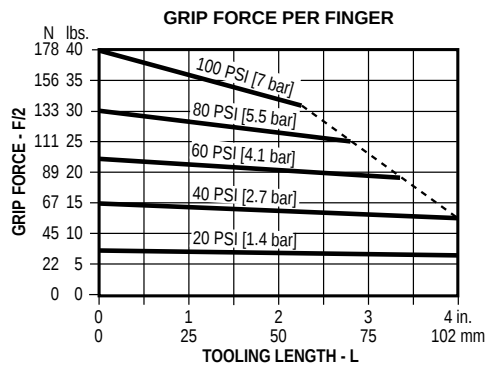


Total Grip Force (100 psi @ 1 in)	72 lbs	320 N
Stroke	1.13 in	28.7 mm
Weight	1.0 lbs	0.45 kg
Bore Size	1.00 in	25.2 mm
Cylinder Volume	0.500 in ³	8.2 cm ³
Repeatability	± 0.0005 in	± 0.01 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

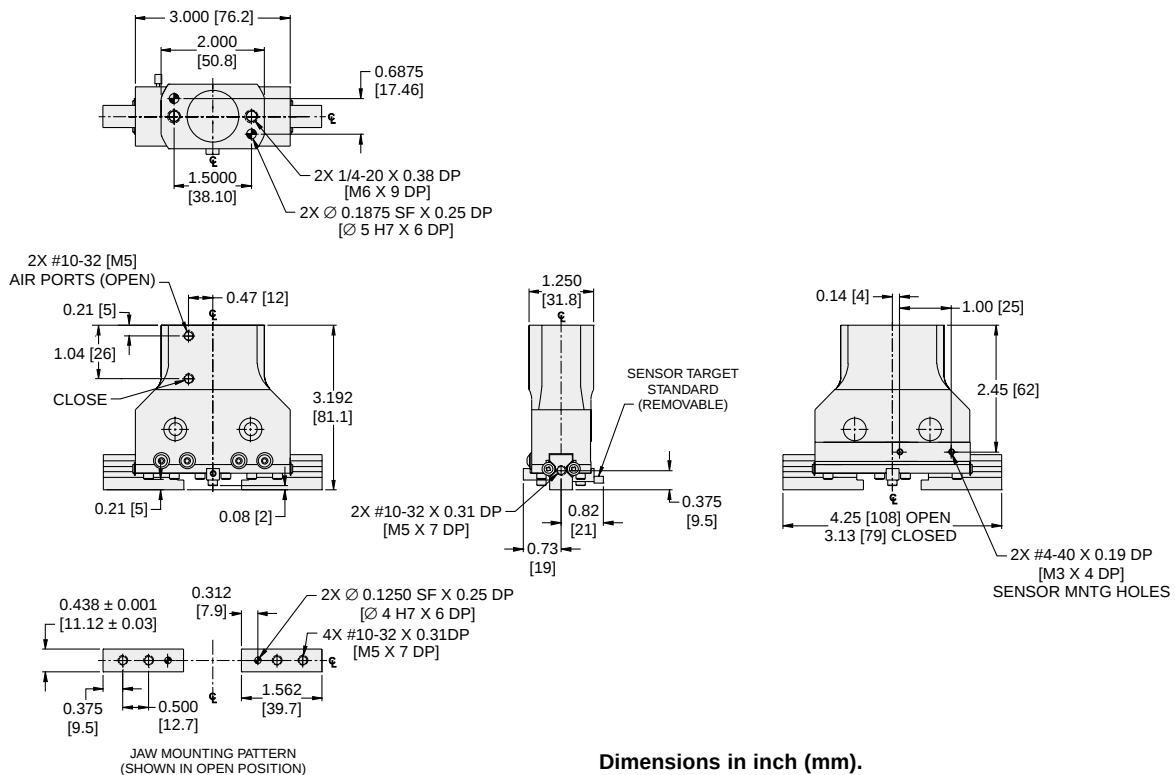
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C, T)	100 lbs	445 N	30 lbs	133 N
Moment (Mx)	200 in-lbs	23 Nm	50 in-lbs	6 Nm
Moment (My)	250 in-lbs	28 Nm	60 in-lbs	7 Nm
Moment (Mz)	200 in-lbs	23 Nm	50 in-lbs	6 Nm

Dimensional Information



P5G-HP-35PM-V

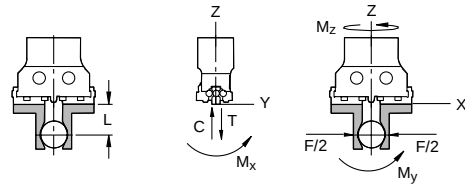
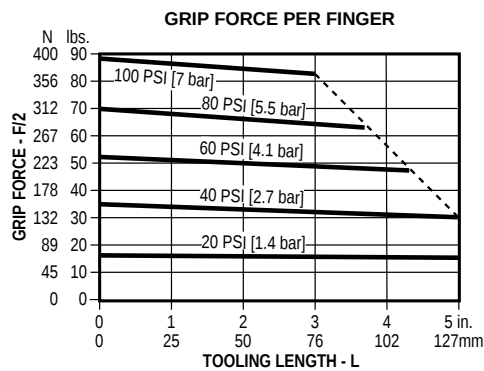


Total Grip Force (100 psi @ 1 in)	174 lbs	774 N
Stroke	1.00 in	25.4 mm
Weight	3.5 lbs	1.6 kg
Bore Size	1.62 in	41.1 mm
Cylinder Volume	1.036 in ³	17.0 cm ³
Repeatability	± 0.0005 in	± 0.01 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

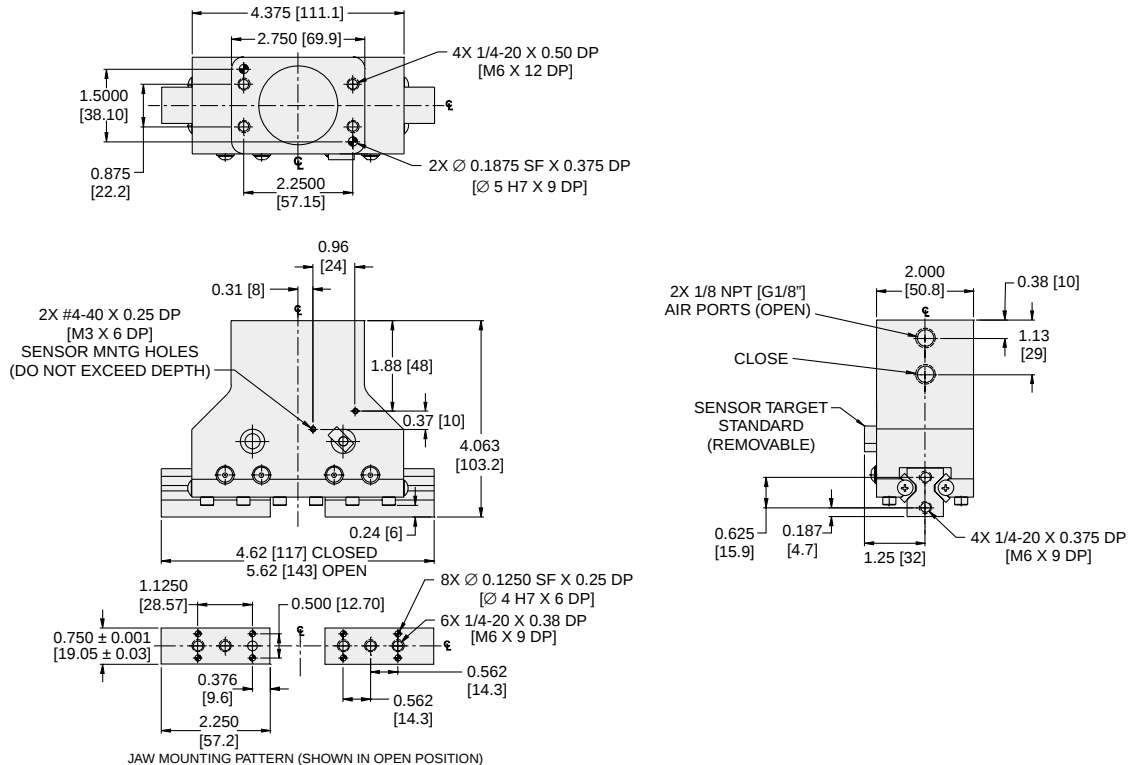
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	200 lbs	890 N	75 lbs	334 N
Moment (Mx)	500 in-lbs	57 Nm	125 in-lbs	14 Nm
Moment (My)	600 in-lbs	68 Nm	150 in-lbs	17 Nm
Moment (Mz)	500 in-lbs	57 Nm	125 in-lbs	14 Nm

Dimensional Information



Dimensions in inch (mm).

P5G-HP-40PM-V

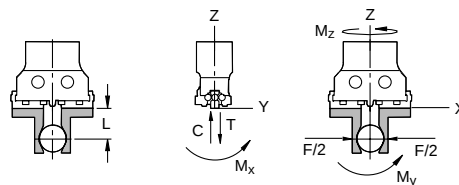
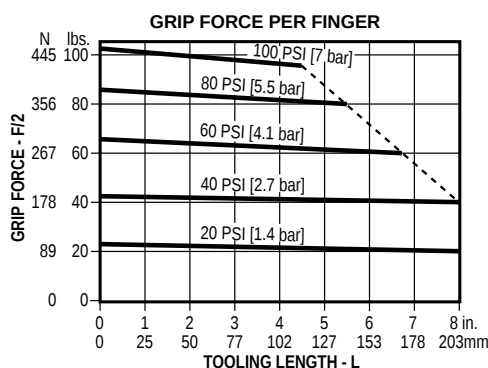


Total Grip Force (100 psi @ 1 in)	200 lbs	890 N
Stroke	2.00 in	50.8 mm
Weight	6.0 lbs	2.7 kg
Bore Size	1.75 in	44.4 mm
Cylinder Volume	1.710 in ³	28.0 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

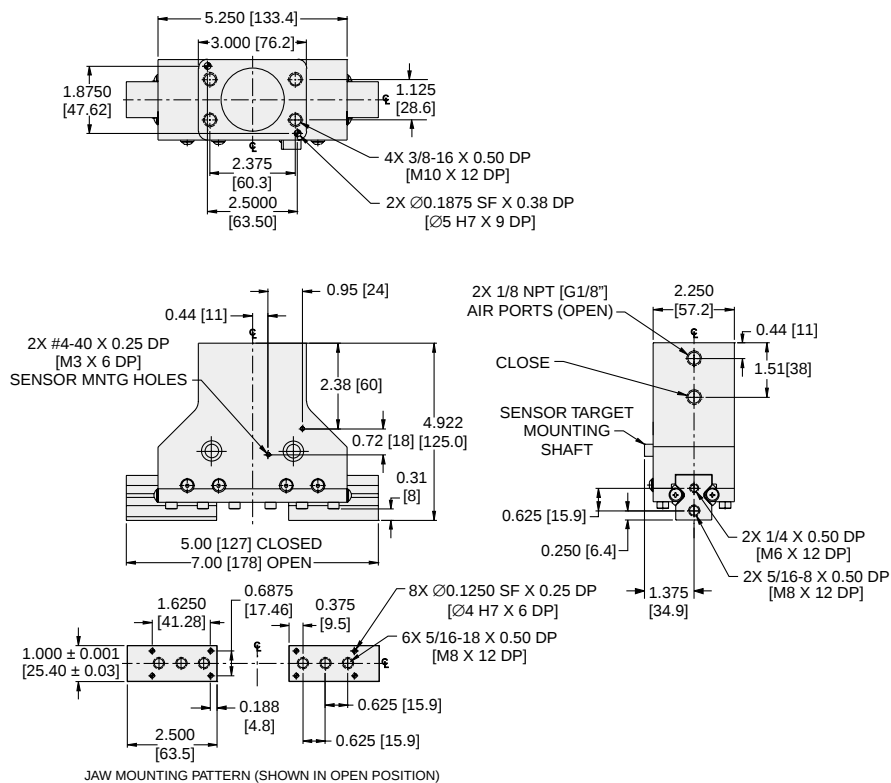
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C , T)	400 lbs	1179 N	150 lbs	667 N
Moment (Mx)	1000 in-lbs	113 Nm	250 in-lbs	28 Nm
Moment (My)	1200 in-lbs	136 Nm	300 in-lbs	34 Nm
Moment (Mz)	1000 in-lbs	113 Nm	250 in-lbs	28 Nm

Dimensional Information



Dimensions in inch (mm).

P5G-HP-43PM-V

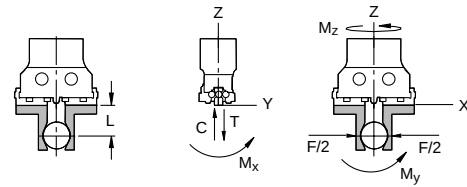
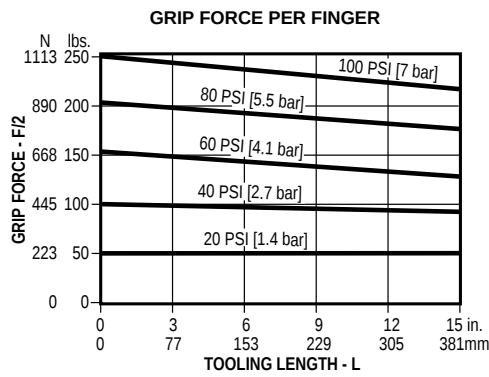


Total Grip Force (100 psi @ 1 in)	498 lbs	2215 N
Stroke	3.00 in	76.2 mm
Weight	16 lbs	7.3 kg
Bore Size	2.50 in	63.5 mm
Cylinder Volume	7.360 in ³	120.6 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	5-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

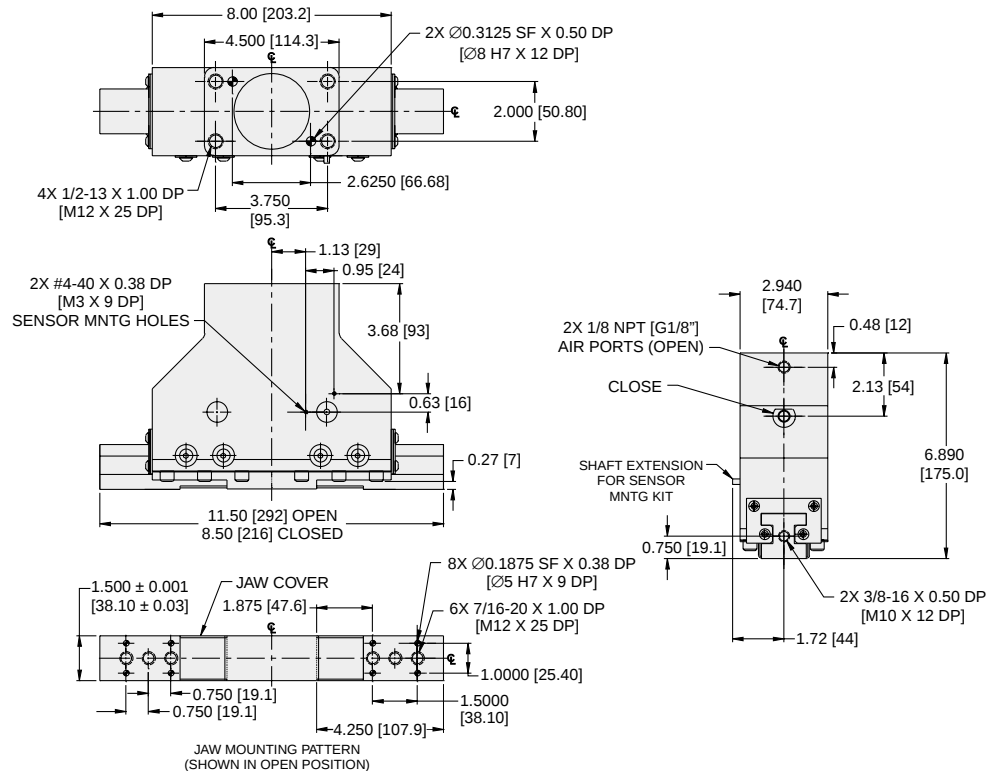
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	1000 lbs	4448 N	350 lbs	1557 N
Moment (Mx)	2500 in-lbs	283 Nm	500 in-lbs	57 Nm
Moment (My)	3000 in-lbs	339 Nm	600 in-lbs	68 Nm
Moment (Mz)	2500 in-lbs	283 Nm	500 in-lbs	57 Nm

Dimensional Information



Dimensions in inch (mm).

Metric Option (M)

The standard unit is manufactured with imperial mounting and porting. With this option specified, the gripper incorporates metric threads and ports.

Reference the dimensional drawings for each size gripper for more details.

Fluorocarbon Seals (V)

Standard nitrile seals should be used for general purpose applications with temperatures of -30° to 180° F (-35° to 80° C). Fluorocarbon seals are recommended for high temperature applications up to 250° F (120° C).

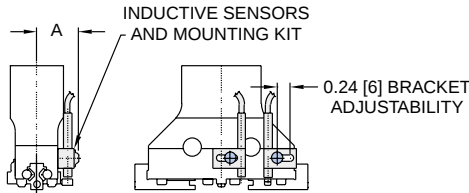
Seal Type	Temperature Range
Standard Buna-N	-30° to 180°F (-35° to 80°C)
Fluorocarbon	-20° to 250°F (-30° to 120°C)

Proximity Sensor

Proximity sensors provide feedback on the position of the gripper fingers by sensing the metal target. The P5G-HP-P series grippers come standard with the target assembled. The target can be removed in applications where it is not needed.

Proximity sensors, cables and mounting kits must be ordered separately. See Sensor section for part numbers and sensor specifications.

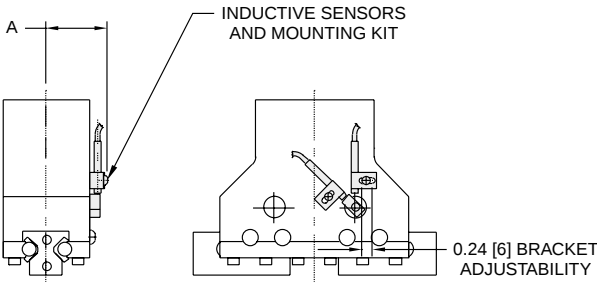
HP-50P, HP-100P, HP-25P



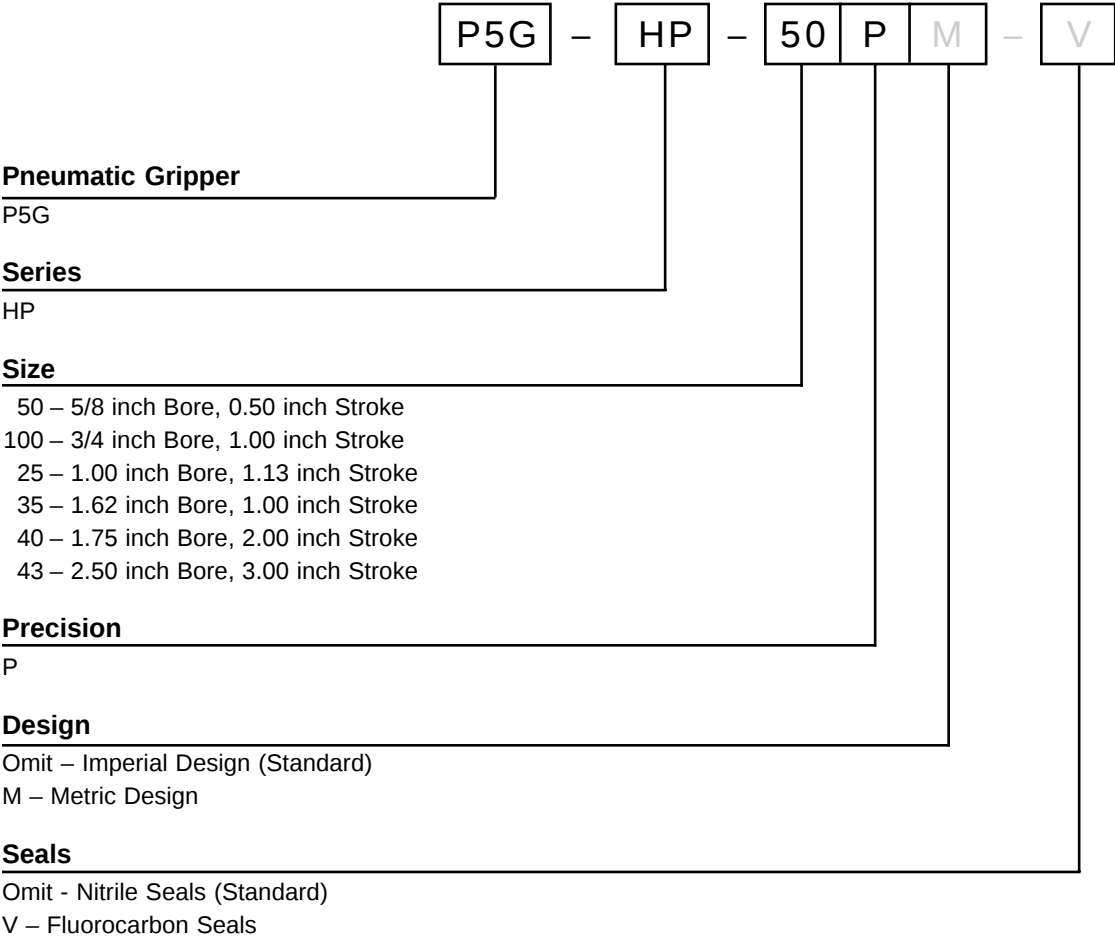
Dimensions

Model	^A inch (mm)
HP-50P	0.79 (20)
HP-100P	0.79 (20)
HP-25P	0.96 (24)
HP-35P	1.41 (36)
HP-40P	1.54 (39)
HP-43P	1.88 (48)

HP-35P, HP40P, HP-43P

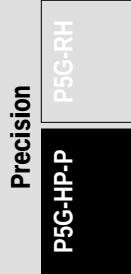


Model Code and Ordering Information



Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-HP-50P	PSK-P5G-HP-50P	PSK-P5G-HP-50PV
P5G-HP-100P	PSK-P5G-HP-100P	PSK-P5G-HP-100PV
P5G-HP-25P	PSK-P5G-HP-25P	PSK-P5G-HP-25PV
P5G-HP-35P	PSK-P5G-HP-35P	PSK-P5G-HP-35PV
P5G-HP-40P	PSK-P5G-HP-40P	PSK-P5G-HP-40PV
P5G-HP-43P	PSK-P5G-HP-43P	PSK-P5G-HP-43PV

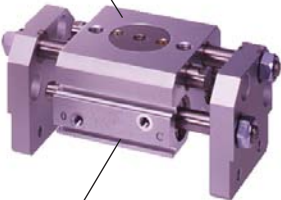


Features

Rack and Pinion
Rack and pinion drive mechanism provides synchronous motion.

Double Piston
Two pistons provide large grip forces from a small compact package.

Body
One piece anodized aluminum body



Bushings
Four composite bushings provide the support needed for high force applications.

Contaminant Tolerance
Sealed design resists internal contamination.

Sensors
Sensor grooves allow for easy installation, adjustment of Hall effect sensor. Magnetic piston is standard.

Seals
Self lubricating dynamic seals (Nitrile only)

Operation

Operating Characteristic	Double acting, double piston, rack and pinion
Gripping Force @ 100 PSI	88 - 400 N (20 - 90 lbs)
Stroke Range	24-50 mm
Operating Pressure Range	30 - 100 PSI (2 - 7 bar)

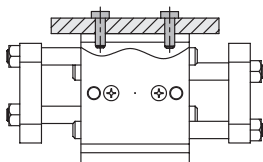
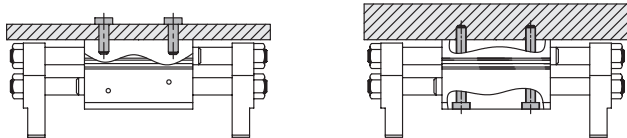
Contents

GPK-12	96
GPK-16	97
GPK-20	98
GPK-25	99
Sensors	100
Ordering Information	100
Seal Kits	100

Mounting

Grippers can be mounted and operated in any orientation.

Grippers can be mounted on three faces.



20 and 25mm bore only

Long Stroke

GPK

P5G-HPW

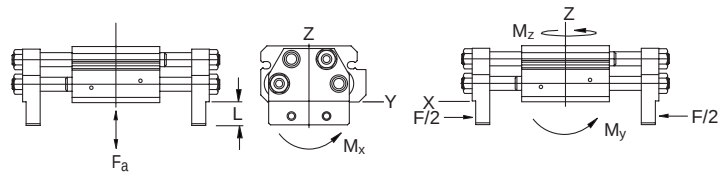
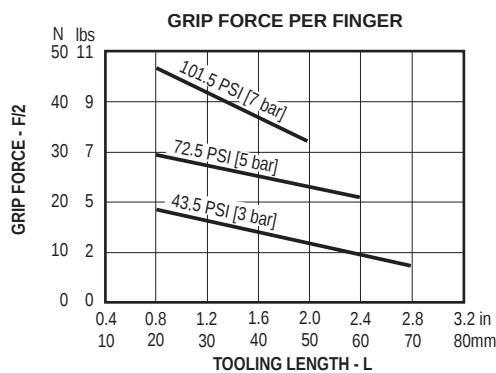
GPK-12



Total Grip Force (100 psi @ 1 in)	19.7 lbs	88 N
Stroke	0.944 in	24 mm
Weight	0.187 lbs	0.085 kg
Bore Size	0.47 in	12 mm
Cylinder Volume	0.32 in ³	5.4 cm ³
Repeatability	± 0.0027 in	± 0.07 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	29-101 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

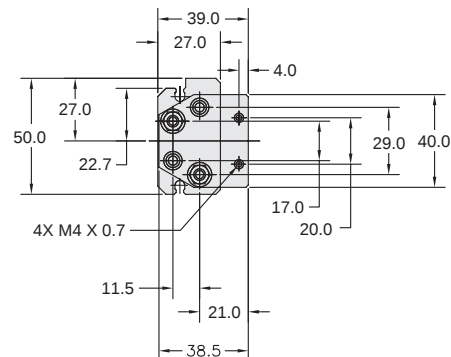
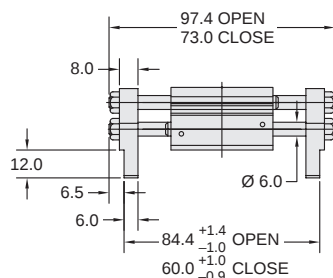
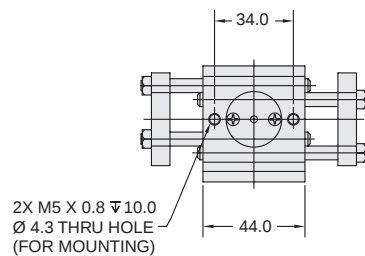
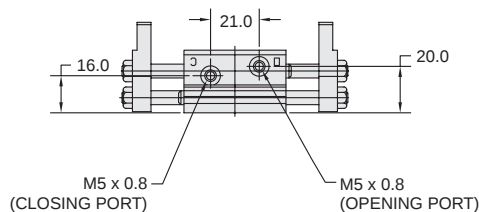
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (F)	40 lbs	178 N	49.9 lbs	222 N
Moment (Mx)	79.6 in-lbs	9 Nm	100 in-lbs	11.3 Nm
Moment (My)	120 in-lbs	13.6 Nm	149 in-lbs	16.9 Nm
Moment (Mz)	79.6 in-lbs	9.0 Nm	100 in-lbs	11.3 Nm

Dimensional Information



Dimensions in mm.

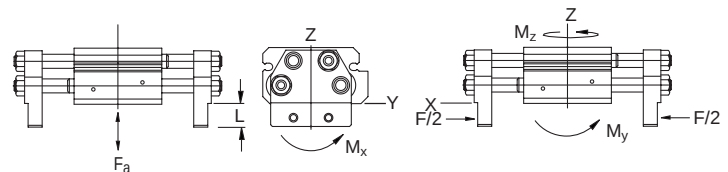
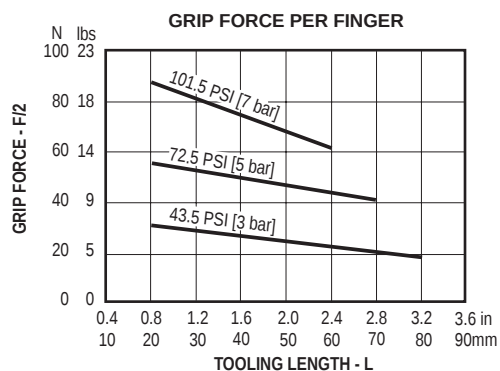
GPK-16



Total Grip Force (100 psi @ 1 in)	36.8 lbs	164 N
Stroke	1.25 in	32 mm
Weight	0.187 lbs	0.085 kg
Bore Size	0.629 in	16 mm
Cylinder Volume	0.78 in ³	12.86 cm ³
Repeatability	± 0.0027 in	± 0.07 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	29-101 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

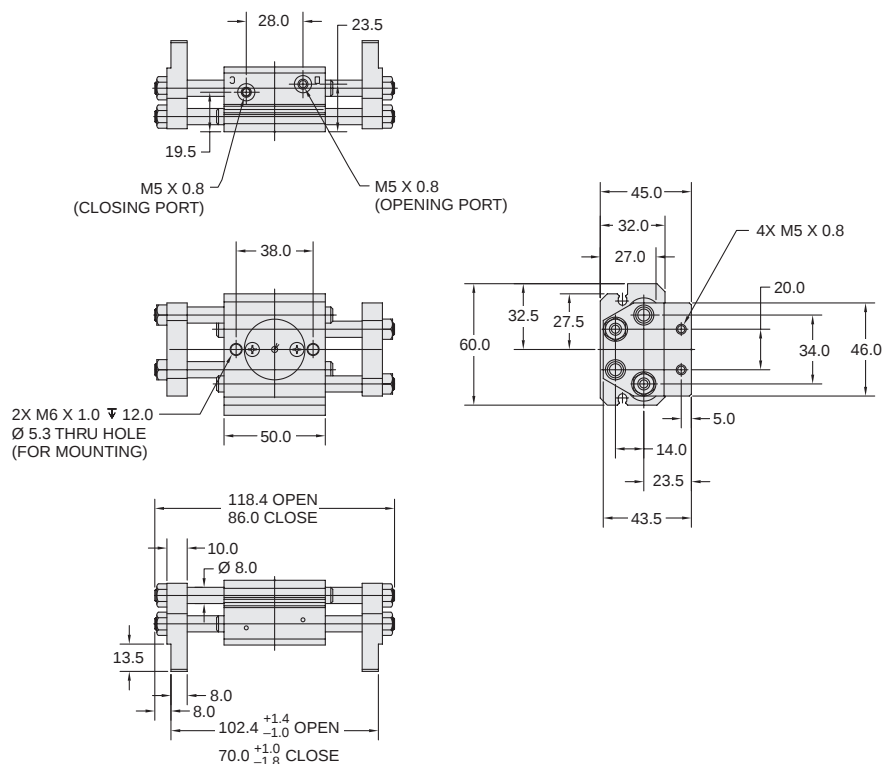
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (F)	49.9 lbs	222 N	100 lbs	445 N
Moment (Mx)	90.3 in-lbs	10.1 Nm	173 in-lbs	19.5 Nm
Moment (My)	130 in-lbs	14.7 Nm	251 in-lbs	28.3 Nm
Moment (Mz)	90.3 in-lbs	10.2 Nm	175 in-lbs	19.8 Nm

Dimensional Information



Dimensions in mm.

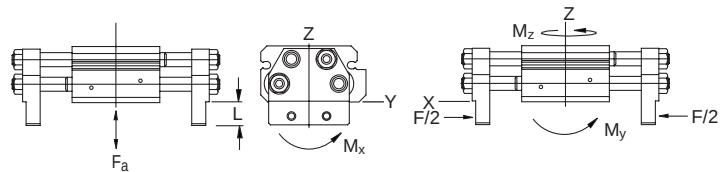
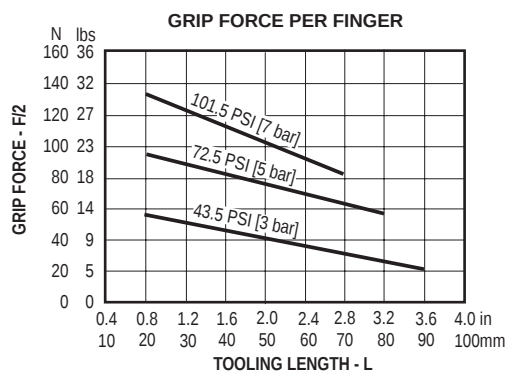
GPK-20



Total Grip Force (100 psi @ 1 in)	58.4 lbs	260 N
Stroke	1.57 in	40 mm
Weight	0.43 lbs	0.195 kg
Bore Size	0.787 in	20 mm
Cylinder Volume	1.53 in ³	25.12 cm ³
Repeatability	± 0.0027 in	± 0.07 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	29-101 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

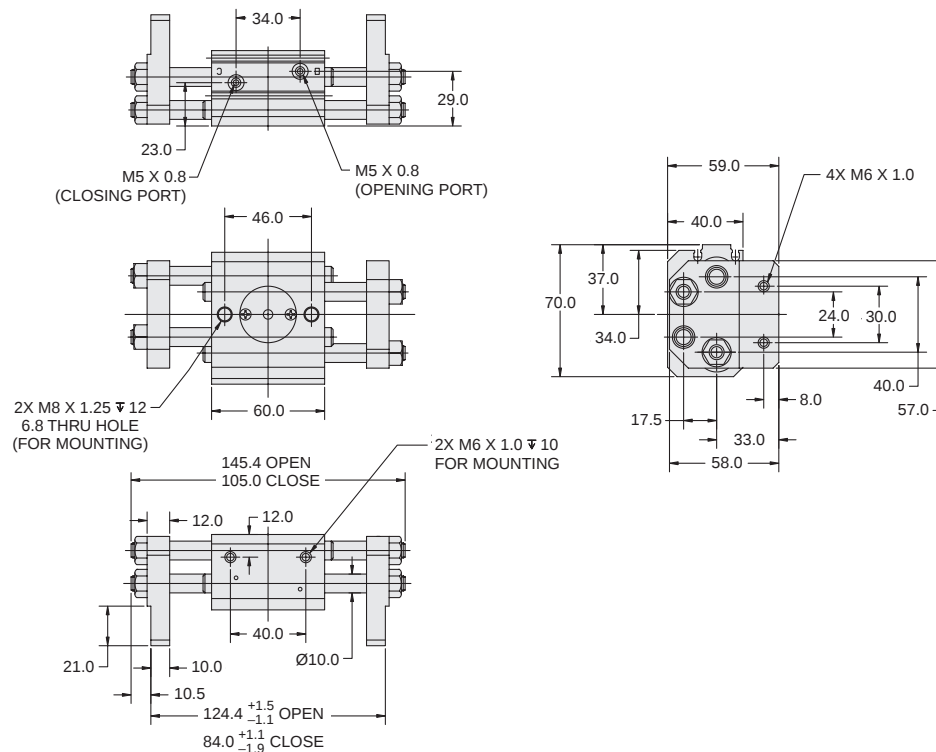
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (Fa)	70.1 lbs	312 N	500 lbs	2223 N
Moment (Mx)	69.9 in-lbs	7.9 Nm	500 in-lbs	56.5 Nm
Moment (My)	130 in-lbs	14.7 Nm	751 in-lbs	84.8 Nm
Moment (Mz)	69.9 in-lbs	7.9 Nm	500 in-lbs	56.5 Nm

Dimensional Information



Dimensions in mm.

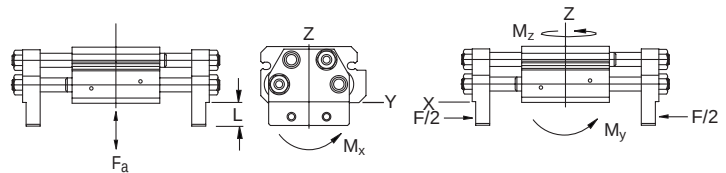
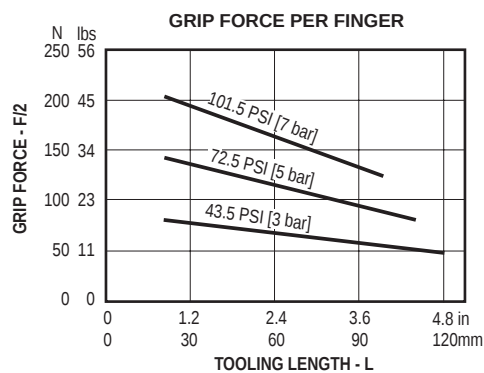
GPK-25



Total Grip Force (100 psi @ 1 in)	89.9 lbs	400 N
Stroke	1.96 in	50 mm
Weight	0.43 lbs	0.195 kg
Bore Size	0.984 in	25 mm
Cylinder Volume	2.99 in ³	49.06 cm ³
Repeatability	± 0.0027 in	± 0.07 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	29-101 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

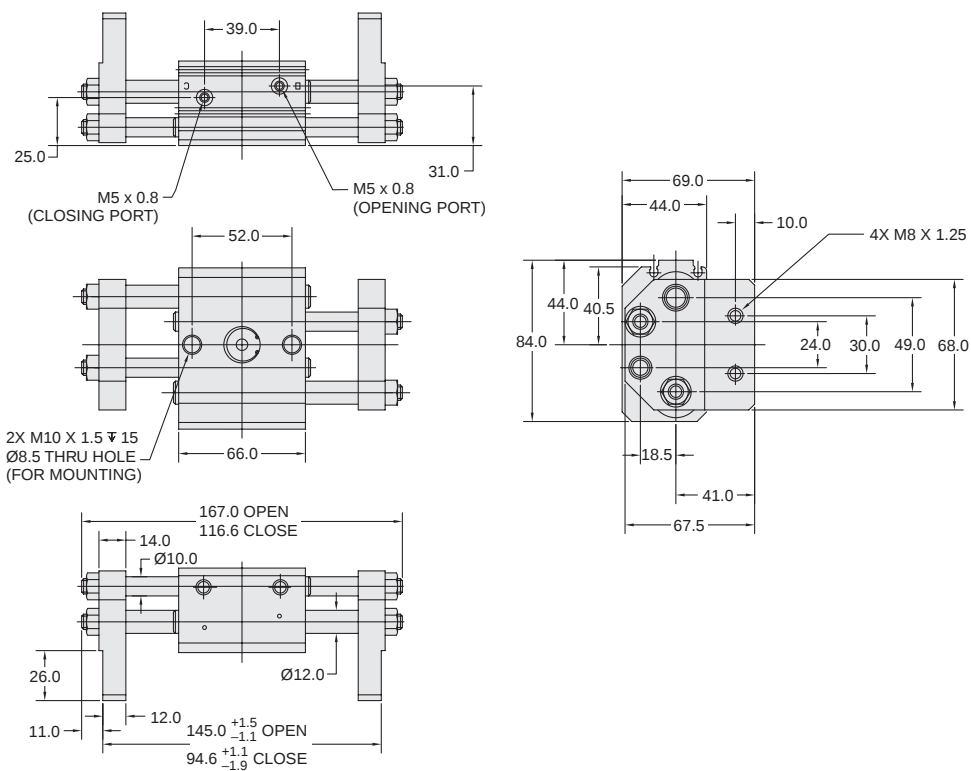
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (Fa)	90.1 lbs	401 N	500 lbs	2223 N
Moment (Mx)	90.3 in-lbs	10.2 Nm	500 in-lbs	56.5 Nm
Moment (My)	160 in-lbs	18.1 Nm	751 in-lbs	84.8 Nm
Moment (Mz)	90.3 in-lbs	10.2 Nm	500 in-lbs	56.5 Nm

Dimensional Information



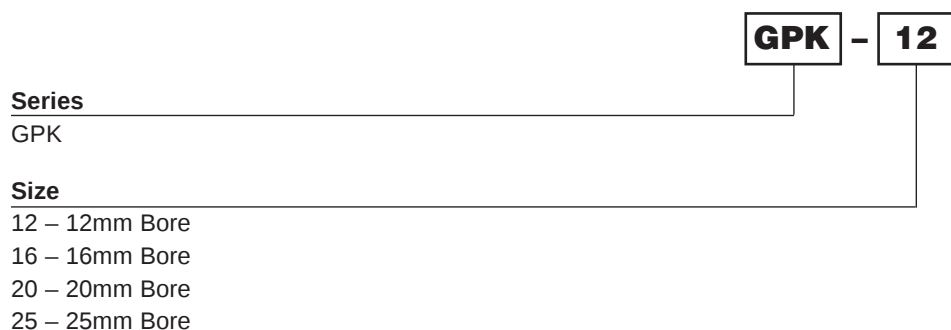
Dimensions in mm.

Magnetic Piston (Standard)

The GPK Series grippers include a standard magnetic piston to sense piston position. Hall Effect switches can be mounted in the sensor mounting groove located in the gripper body.

Order sensors separately. See Sensor section for sensor part numbers and specifications.

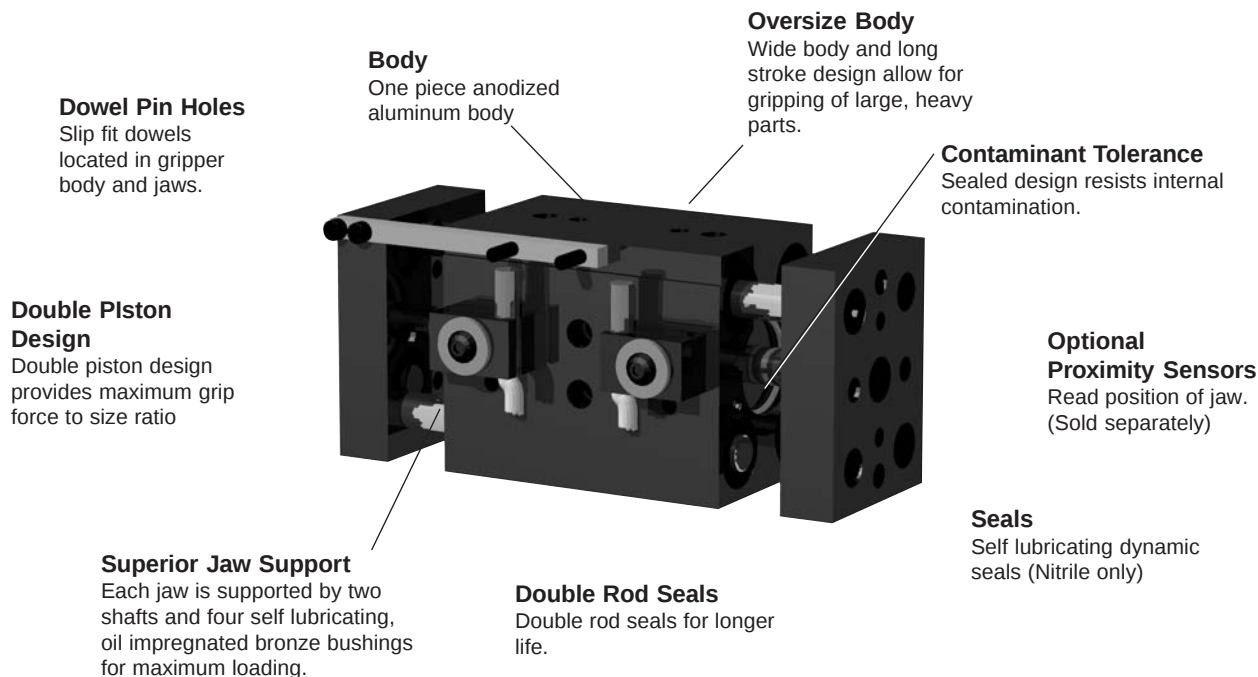
Model Code and Ordering Information



Seal Kits

Size	Nitrile Seal Kit
GPK-12	PSK-GPK-12
GPK-16	PSK-GPK-16
GPK-20	PSK-GPK-20
GPK-25	PSK-GPK-25

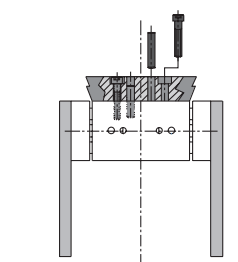
Features



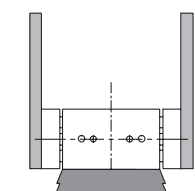
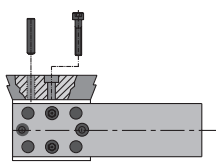
Operation

Operating Characteristic	Double acting, double piston, rack and pinion
Gripping Force @ 100 PSI	45 - 450 lbs
Stroke Range	0.75 to 4.5 inches
Operating Pressure Range	40 - 100 PSI (3 - 7 bar)

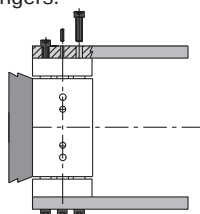
Mounting



Gripper mounts using tapped holes and slip fit dowel pin holes.



Jaw design allows for simplified mounting of fingers.

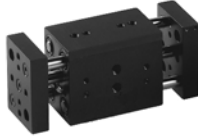


Custom finger tooling mounts using tapped holes and precise tolerancing of fingers.

Contents

P5G-HPW-250	102
P5G-HPW-375(M)-1	103
P5G-HPW-375(M)-2	104
P5G-HPW-500(M)-1	105
P5G-HPW-500(M)-2	106
P5G-HPW-625(M)-1	107
P5G-HPW-625(M)-2	108
P5G-HPW-750	109
Metric Design Option	110
Non-Synchronous Option	110
Fluorocarbon Seals	110
Sensors	110
Ordering Information	111
Seal Kits	111

P5G-HPW-250M-NS-V

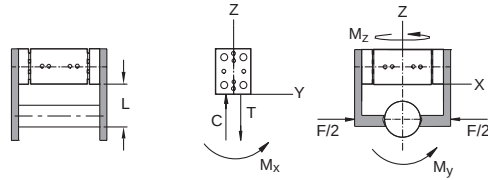
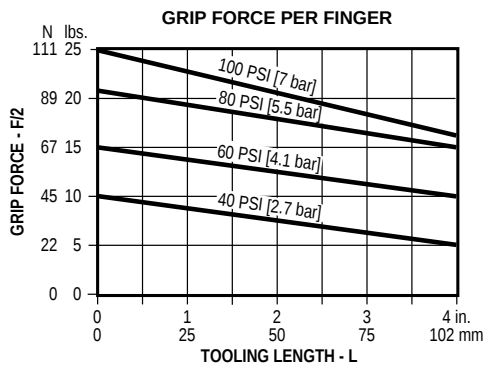


Total Grip Force (100 psi @ 1 in)	45 lbs	200 N
Stroke	0.75 in	19.1 mm
Weight	0.66 lbs	0.30 kg
Bore Size	0.625 in	15.9 mm
Cylinder Volume	0.230 in ³	3.8 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

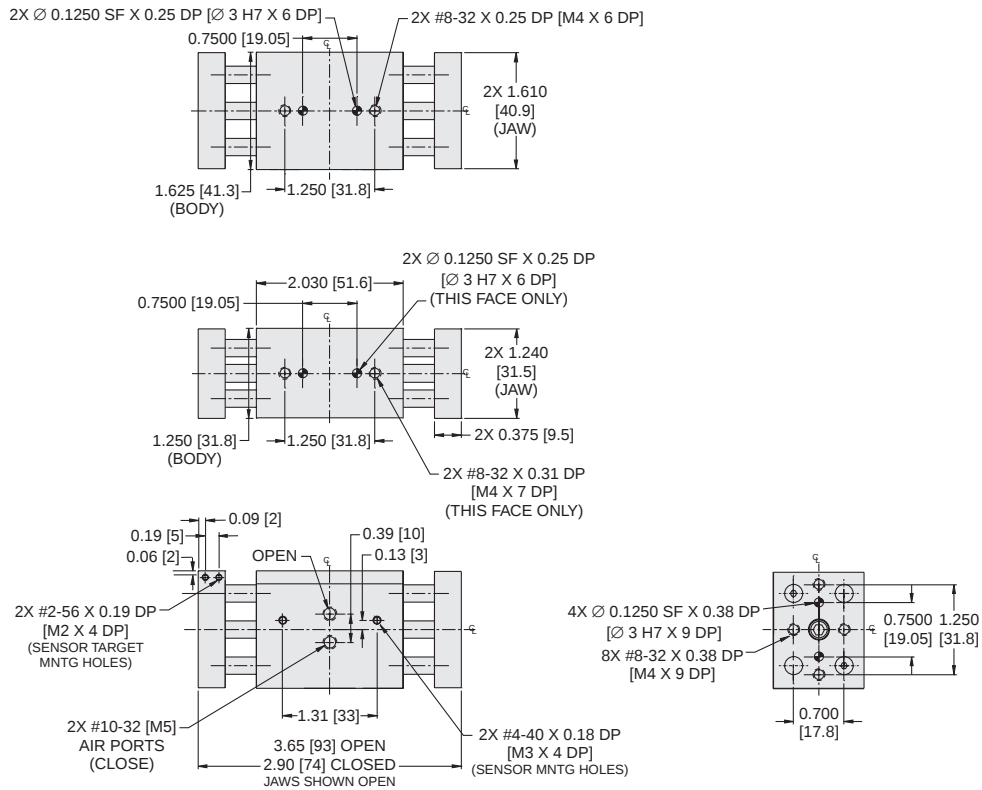
Loading Information



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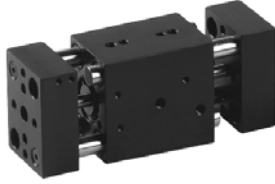
Load	Static		Dynamic	
Axial Forces (C,T)	50 lbs	222 N	10 lbs	44 N
Moment (Mx)	100 in-lbs	11 Nm	20 in-lbs	2 Nm
Moment (My)	150 in-lbs	17 Nm	30 in-lbs	3 Nm
Moment (Mz)	100 in-lbs	11 Nm	20 in-lbs	2 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPW-375M1-NS-V

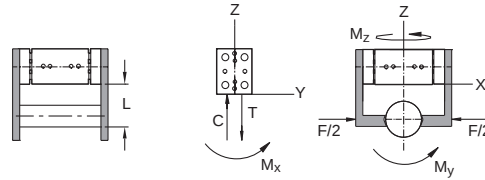
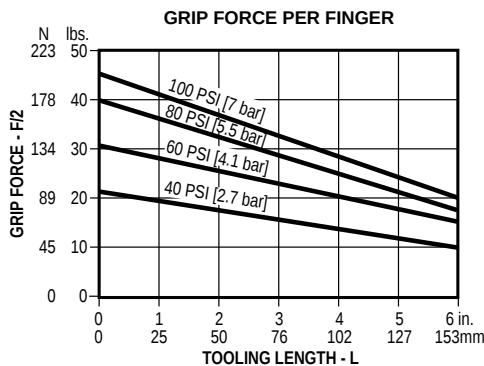


Total Grip Force (100 psi @ 1 in)	82 lbs	364 N
Stroke	1.00 in	25.4 mm
Weight	1.3 lbs	0.59 kg
Bore Size	0.875 in	22.2 mm
Cylinder Volume	0.600 in ³	9.8 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

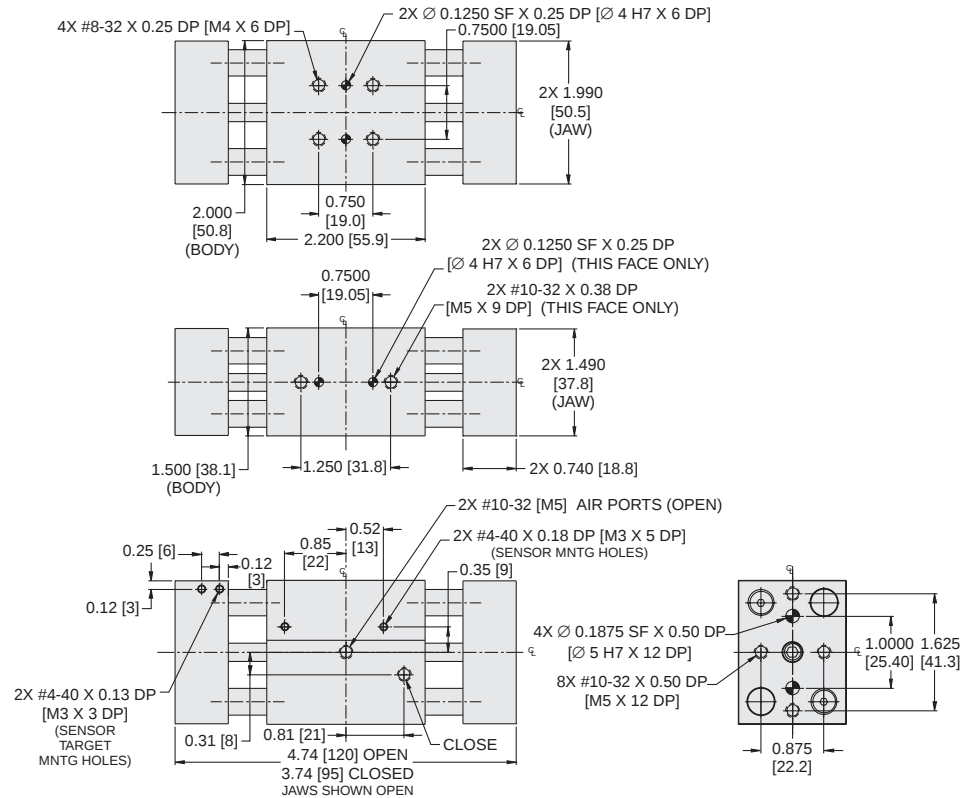
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Maximum Loading Capacity

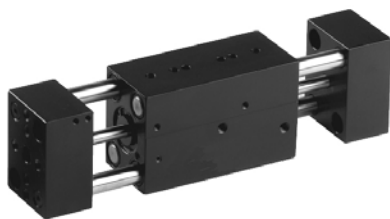
Load	Static	Dynamic
Axial Forces (C,T)	100 lbs 445 N	20 lbs 89 N
Moment (Mx)	175 in-lbs 20 Nm	35 in-lbs 4 Nm
Moment (My)	250 in-lbs 28 Nm	50 in-lbs 6 Nm
Moment (Mz)	175 in-lbs 20 Nm	35 in-lbs 4 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPW-375M2-NS-V

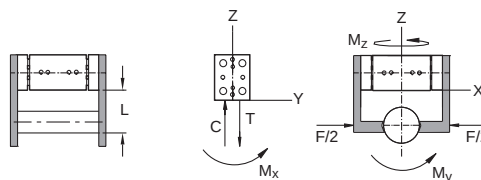
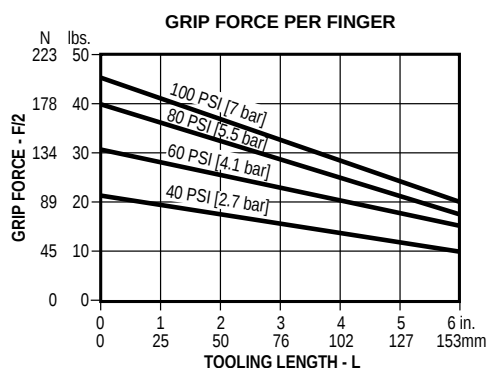


Total Grip Force (100 psi @ 1 in)	82 lbs	364 N
Stroke	2.00 in	50.8 mm
Weight	2.0 lbs	0.91 kg
Bore Size	0.875 in	22.2 mm
Cylinder Volume	1.200 in ³	19.7 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

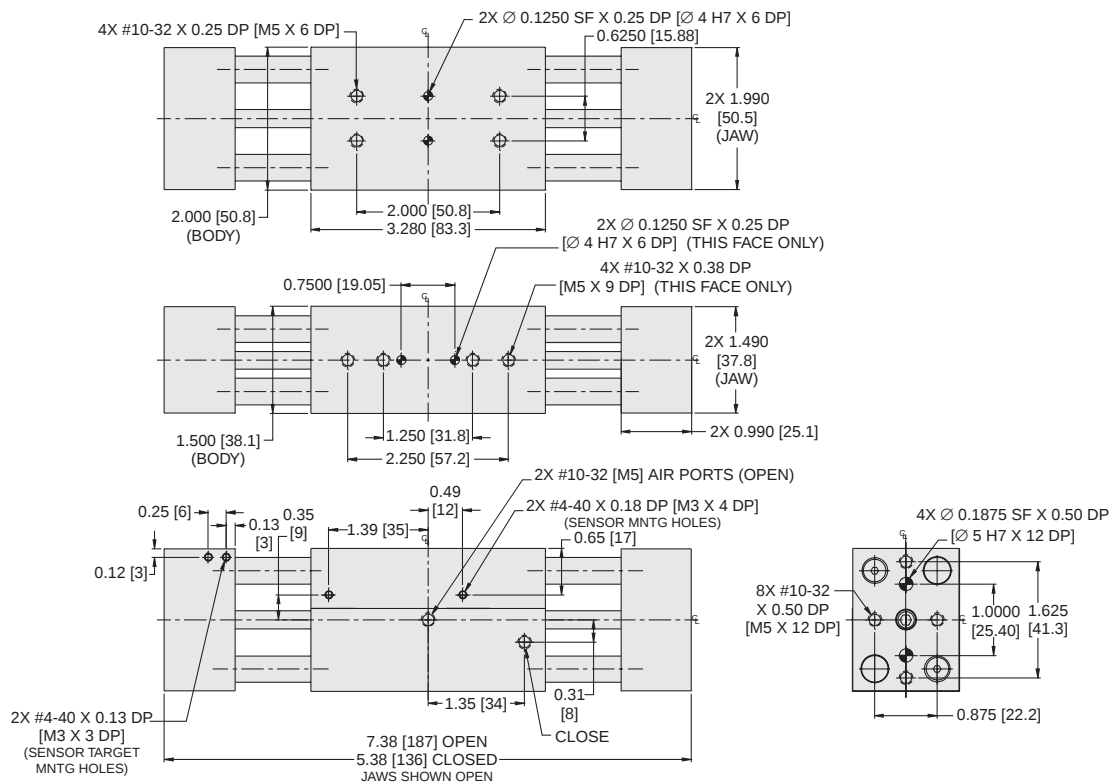
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Maximum Loading Capacity

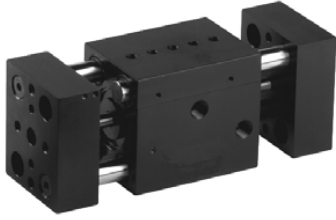
Load	Static	Dynamic
Axial Forces (C,T)	100 lbs / 445 N	20 lbs / 89 N
Moment (Mx)	175 in-lbs / 20 Nm	35 in-lbs / 4 Nm
Moment (My)	250 in-lbs / 28 Nm	50 in-lbs / 6 Nm
Moment (Mz)	175 in-lbs / 20 Nm	35 in-lbs / 4 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPW-500M1-NS-V

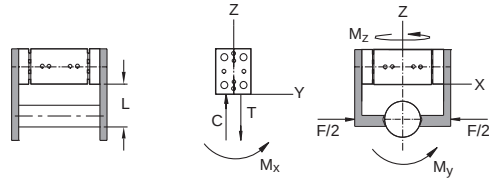
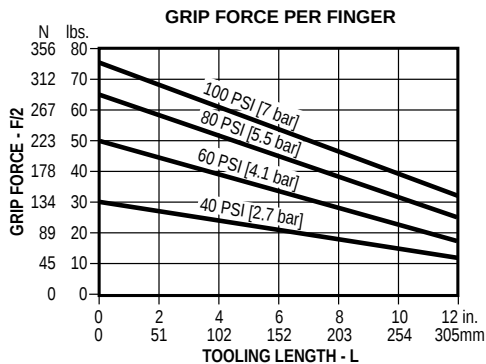


Total Grip Force (100 psi @ 1 in)	142 lbs	631 N
Stroke	1.50 in	38.1 mm
Weight	3.0 lbs	1.4 kg
Bore Size	1.250 in	31.8 mm
Cylinder Volume	1.800 in ³	29.5 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

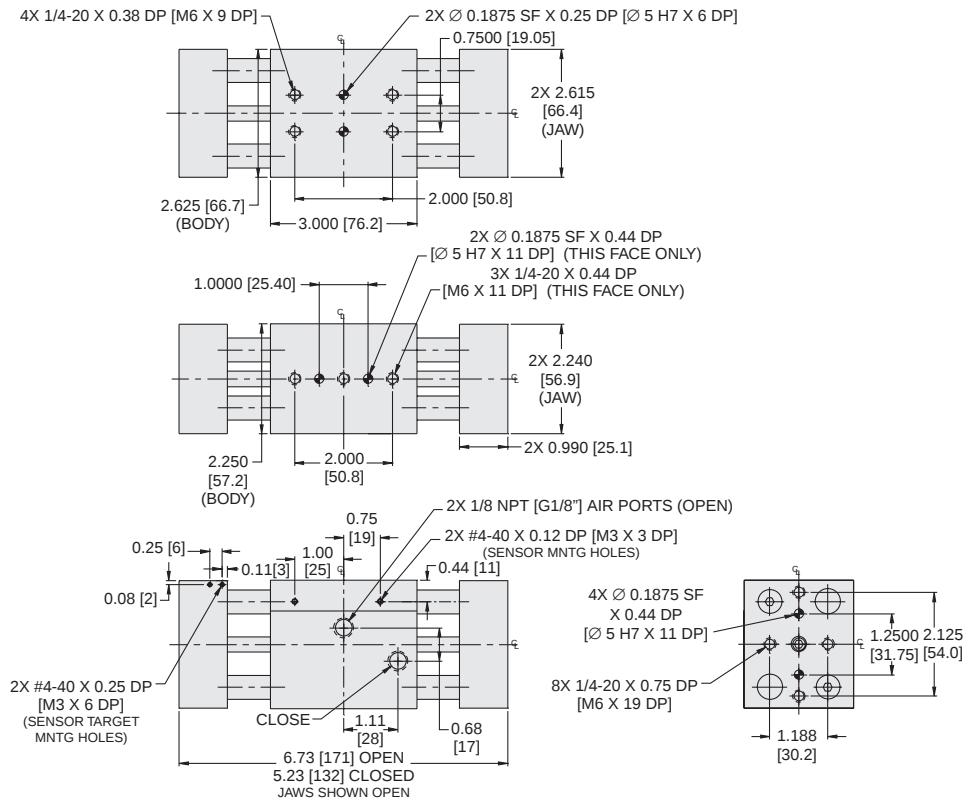
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Maximum Loading Capacity

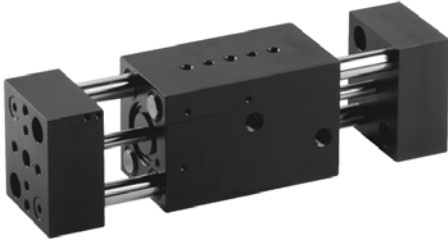
Load	Static	Dynamic
Axial Forces (C,T)	500 lbs 2224 N	50 lbs 222 N
Moment (Mx)	500 in-lbs 57 Nm	50 in-lbs 6 Nm
Moment (My)	750 in-lbs 85 Nm	75 in-lbs 8 Nm
Moment (Mz)	500 in-lbs 57 Nm	50 in-lbs 6 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPW-500M2-NS-V

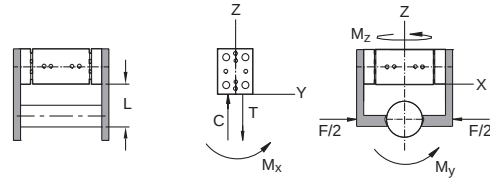
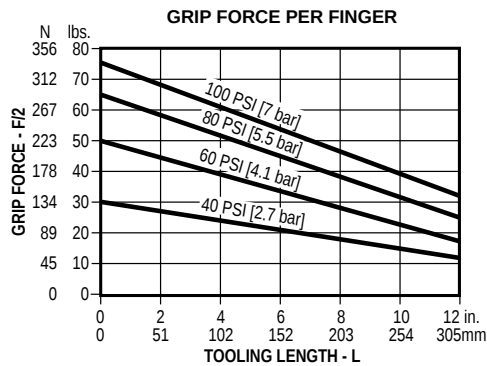


Total Grip Force (100 psi @ 1 in)	142 lbs	631 N
Stroke	2.50 in	63.5 mm
Weight	4.0 lbs	1.8 kg
Bore Size	1.250 in	31.8 mm
Cylinder Volume	3.000 in ³	49.2 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

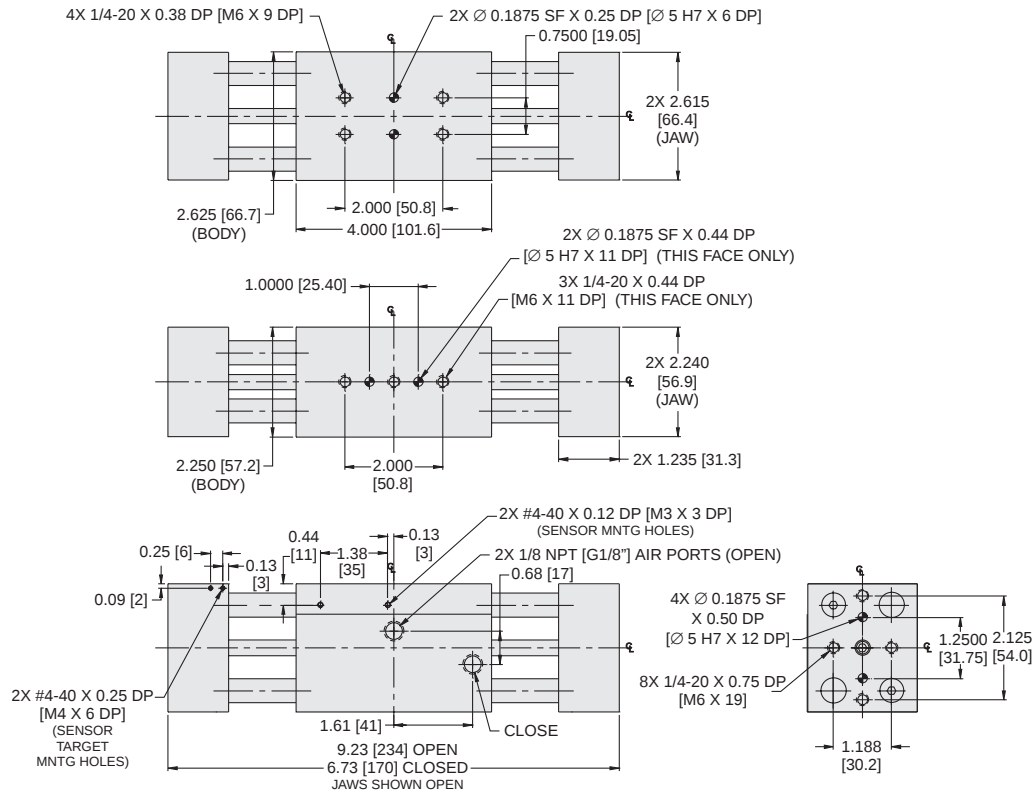
Loading Information



Maximum Loading Capacity

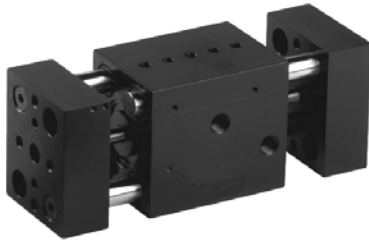
Load	Static	Dynamic
Axial Forces (C,T)	500 lbs 2224 N	50 lbs 222 N
Moment (Mx)	500 in-lbs 57 Nm	50 in-lbs 6 Nm
Moment (My)	750 in-lbs 85 Nm	75 in-lbs 8 Nm
Moment (Mz)	500 in-lbs 57 Nm	50 in-lbs 6 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPW-625M1-NS-V

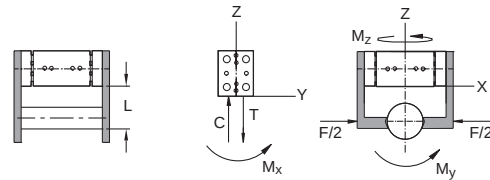
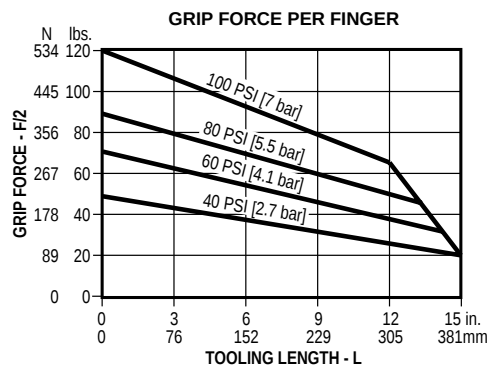


Total Grip Force (100 psi @ 1 in)	234 lbs	1040 N
Stroke	2.00 in	50.8 mm
Weight	6.5 lbs	3.0 kg
Bore Size	1.625 in	41.3 mm
Cylinder Volume	1.320 in ³	21.6 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

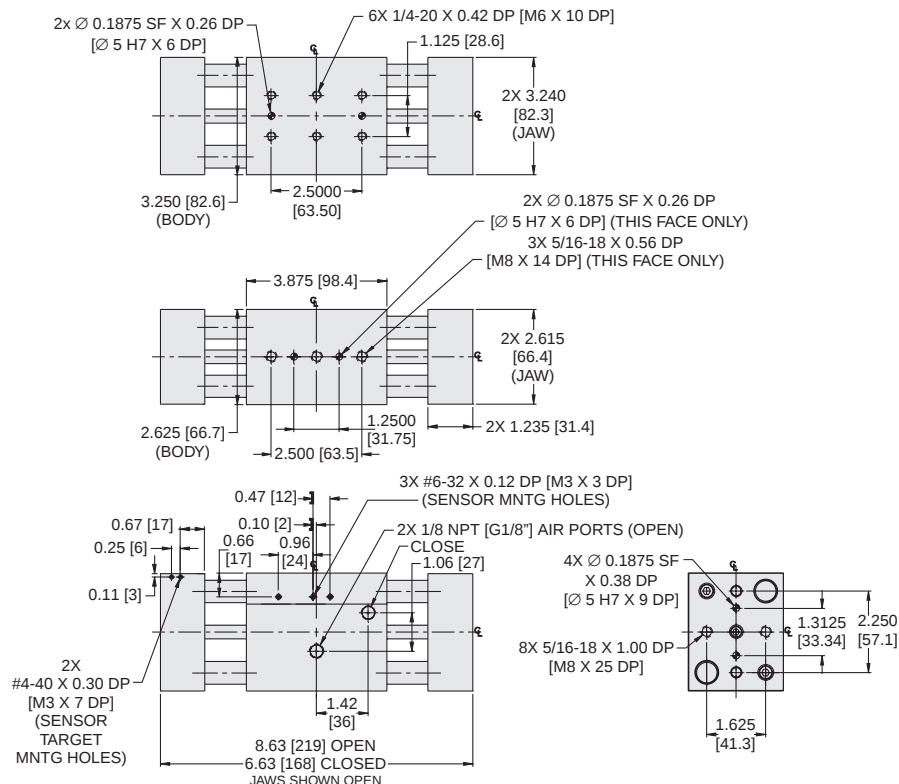
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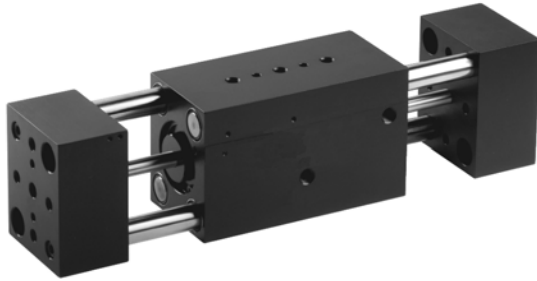
Load	Static	Dynamic
Axial Forces (C,T)	1200 lbs 5338 N	125 lbs 556 N
Moment (Mx)	1000 in-lbs 113 Nm	100 in-lbs 11 Nm
Moment (My)	1500 in-lbs 170 Nm	125 in-lbs 14 Nm
Moment (Mz)	1000 in-lbs 113 Nm	100 in-lbs 11 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPW-625M2-NS-V

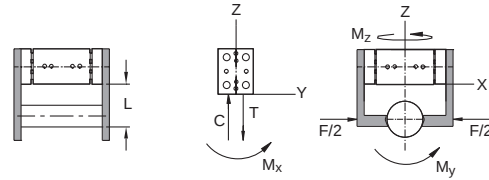
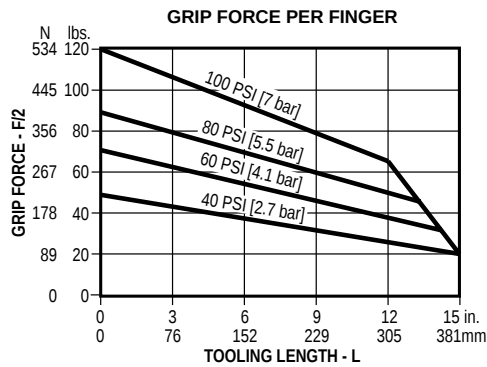


Total Grip Force (100 psi @ 1 in)	234 lbs	1040 N
Stroke	3.50 in	88.9 mm
Weight	7.8 lbs	3.6 kg
Bore Size	1.625 in	41.3 mm
Cylinder Volume	2.310 in ³	37.9 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

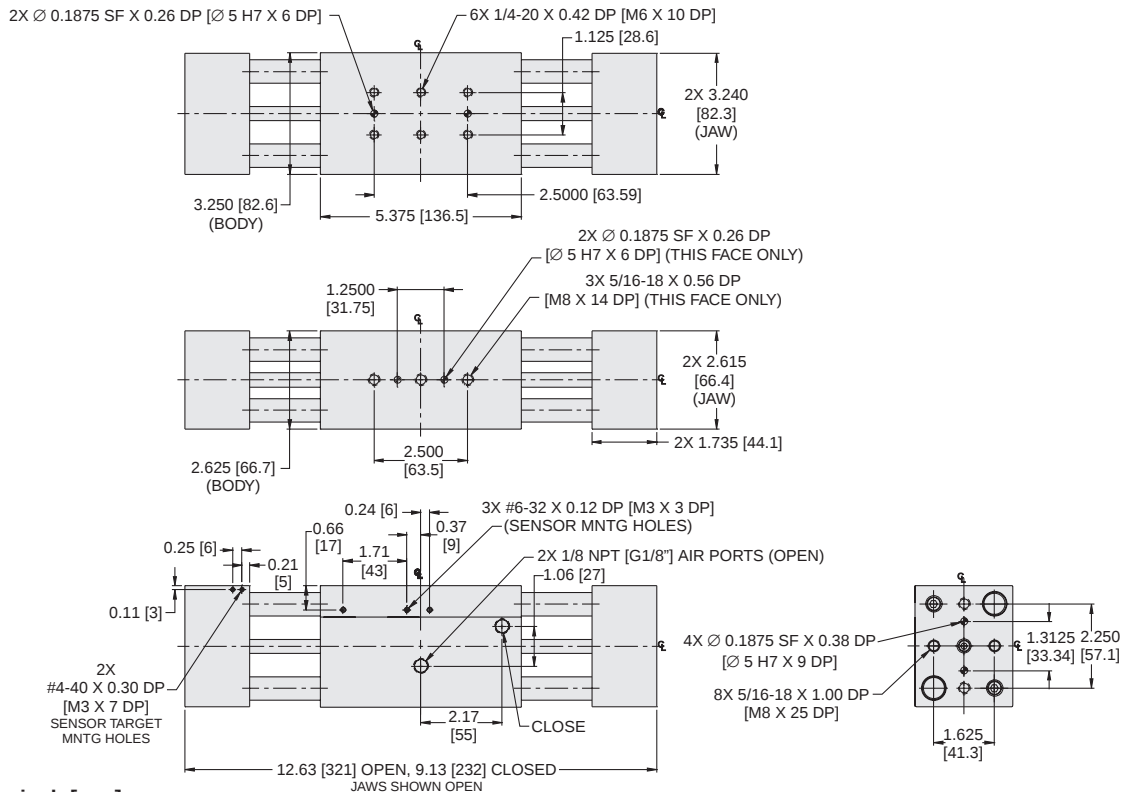
Loading Information



Maximum Loading Capacity

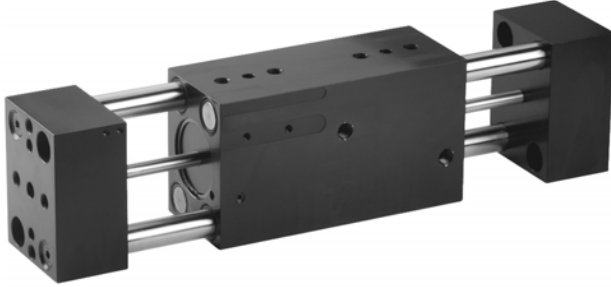
Load	Static		Dynamic	
Axial Forces (C,T)	1200 lbs	5338 N	125 lbs	556 N
Moment (Mx)	1000 in-lbs	113 Nm	100 in-lbs	11 Nm
Moment (My)	1500 in-lbs	170 Nm	125 in-lbs	14 Nm
Moment (Mz)	1000 in-lbs	113 Nm	100 in-lbs	11 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HPW-750M-NS-V

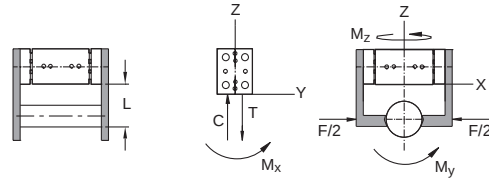
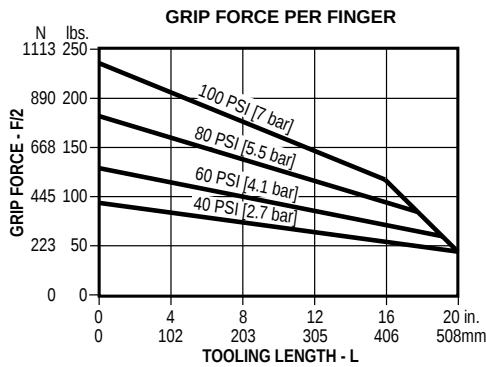


Total Grip Force (100 psi @ 1 in)	450 lbs	2001 N
Stroke	4.50 in	114.3 mm
Weight	14 lbs	6.4 kg
Bore Size	2.000 in	50.8 mm
Cylinder Volume	14.200 in ³	232.7 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

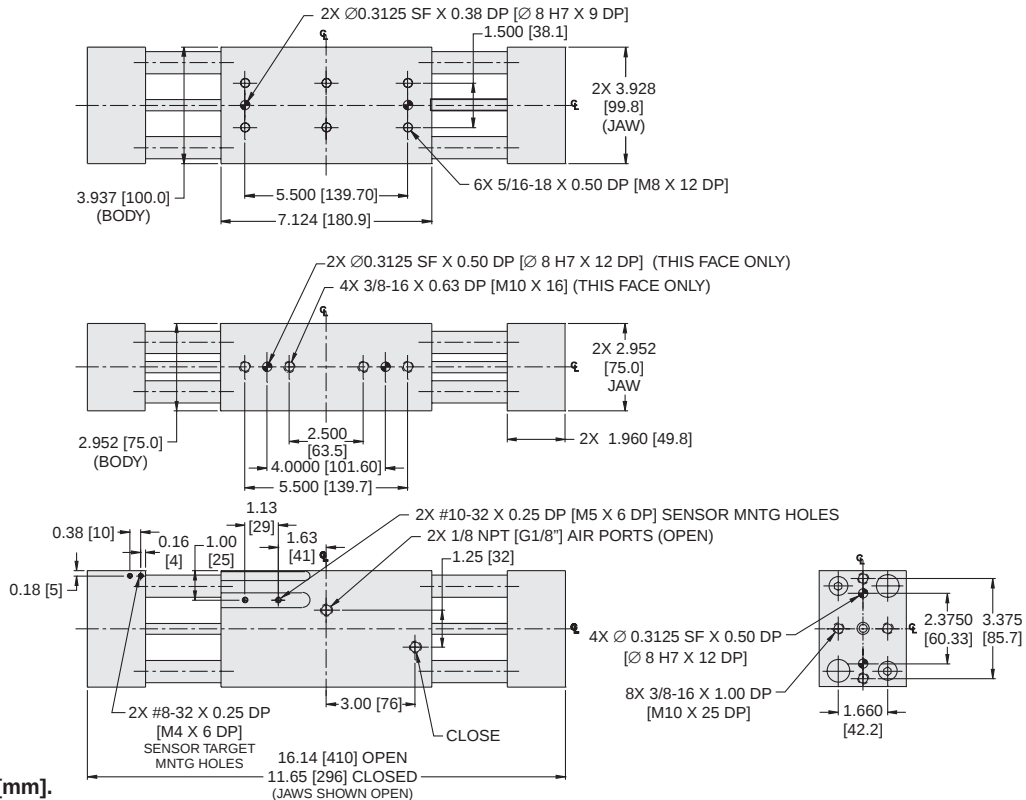
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	2500 lbs	11121 N	250 lbs	1112 N
Moment (Mx)	2000 in-lbs	226 Nm	200 in-lbs	22 Nm
Moment (My)	3000 in-lbs	339 Nm	250 in-lbs	28 Nm
Moment (Mz)	2000 in-lbs	226 Nm	200 in-lbs	22 Nm

Dimensional Information



Metric Option (M)

The standard unit is manufactured with imperial mounting and porting. When this option is specified, the gripper incorporates metric threads and ports.

See dimensional drawings for details.

Non-synchronous (NS)

The gripper fingers of this series are synchronized in nature. For applications where parts may be off center or randomly placed, the non-synchronous option can be utilized. With this option, both fingers operate independently of each other.

Fluorocarbon Seals (V)

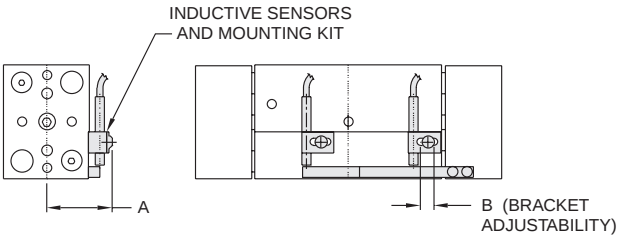
Standard nitrile seals should be used for general purpose applications with temperatures of -30° to 180°F (-35° to 80°C). Fluorocarbon seals are recommended for high temperature applications up to 250°F (120°C).

Seal Type	Temperature Range
Standard Buna-N	-30° to 180°F (-35° to 80°C)
Fluorocarbon	-20° to 250°F (-30° to 120°C)

Proximity Sensors

Proximity Sensors provide feedback on the position of the gripper fingers by sensing the metal flag which is attached to the gripper jaw. The sensor bracket is adjustable to provide sensing along the stroke of the gripper finger.

Order sensors, cables and brackets separately. See Sensor section for part numbers and sensor specifications.



Dimensions

Model	A inch (mm)	B inch (mm)
250	1.04 (26)	0.24 (6)
375	1.15 (29)	0.24 (6)
500	1.53 (39)	0.24 (6)
625	1.94 (49)	0.26 (7)
750	2.28 (58)	0.36 (9)

Model Code and Ordering Information

P5G – **HPW** – **375** **M** – **1** – **NS** – **V**

Type

P5G – Pneumatic Gripper

Series

HPW

Size

250 – 0.625 inch Bore
 375 – 0.875 inch Bore
 500 – 1.25 inch Bore
 625 – 1.625 inch Bore
 750 – 2.00 inch Bore

Design

Omit – Imperial Design (Standard)
 M – Metric Design

Stroke

Omit – Standard Stroke (not available for sizes 375, 500 or 625)
 Size 250 – 0.75 inch
 Size 750 – 4.50 inches
 1 – Short Stroke (not available for sizes 250 and 750)
 Size 375 – 1.00 inch
 Size 500 – 1.50 inches
 Size 625 – 2.00 inches
 2 – Long Stroke (not available for sizes 250 and 750)
 Size 375 – 2.00 inches
 Size 500 – 2.50 inches
 Size 625 – 3.50 inches

Synchronous

Omit – Synchronous (Standard)
 NS – Non-synchronous Fingers

Seals

Omit – Nitrile Seals (Standard)
 V – Fluorocarbon Seals

Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-HPW-250	PSK-P5G-HPW-250	PSK-P5G-HPW-251V
P5G-HPW-375-1	PSK-P5G-HPW-375-1	PSK-P5G-HPW-375-1V
P5G-HPW-375-2	PSK-P5G-HPW-375-2	PSK-P5G-HPW-375-2V
P5G-HPW-500-1	PSK-P5G-HPW-500-1	PSK-P5G-HPW-500-1V
P5G-HPW-500-2	PSK-P5G-HPW-500-2	PSK-P5G-HPW-500-2V
P5G-HPW-625-1	PSK-P5G-HPW-625-1	PSK-P5G-HPW-625-1V
P5G-HPW-625-2	PSK-P5G-HPW-625-2	PSK-P5G-HPW-625-2V
P5G-HPW-750	PSK-P5G-HPW-750	PSK-P5G-HPW-751V

Long Stroke

GPK

P5G-HPW

Notes

Features

Seals

Self lubricating, high temperature dynamic seals are standard (Fluorocarbon only)

Double Piston Design

Double piston design provides maximum grip force to size ratio

Roller Bearing Design

Jaws are supported by roller bearings allowing for a large load carrying capacity.

Body

One piece anodized aluminum body

Contaminant Tolerance

Sealed design resists internal contamination

Optional Proximity Sensors

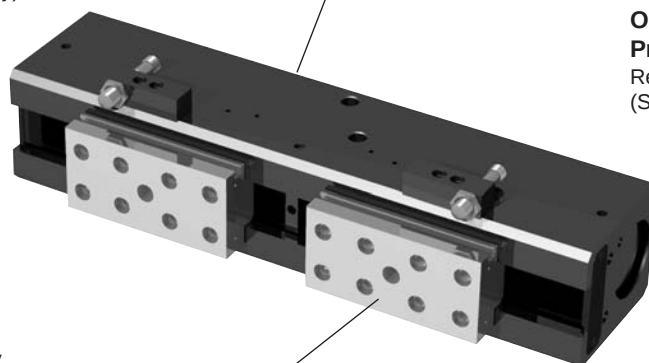
Read position of jaw. (Sold separately)

Oversized Design

Wide body and long stroke design allow gripping of large, heavy parts.

Jaw Configuration

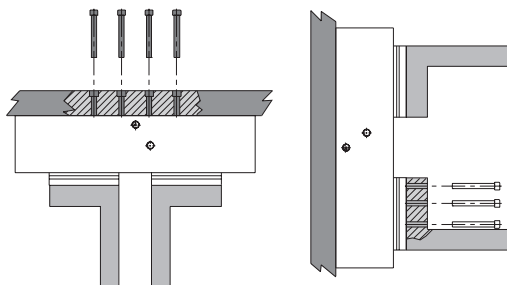
Large design and multiple mounting holes facilitate easy mounting of end effector tooling.



Operation

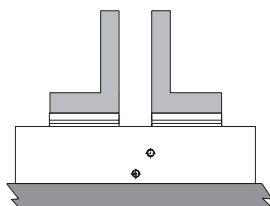
Operating Characteristic	Double acting, double piston
Gripping Force @ 100 PSI	600 lbs
Stroke Range	4-6 inches
Operating Pressure Range	20 - 100 PSI (1.5 - 7 bar)

Mounting



Gripper mounts using tapped holes and slip fit dowel pin holes.

Custom finger tooling mounts using tapped holes and precise tolerancing of fingers.



WARNING! Use bellows cover to protect internal mechanism from debris.

Contents

P5G-HPB-24	114
P5G-HPB-26	115
Metric Design Option	116
Non-Synchronous Option	116
Sensors	116
Ordering Information	117

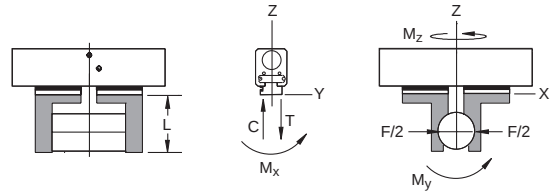
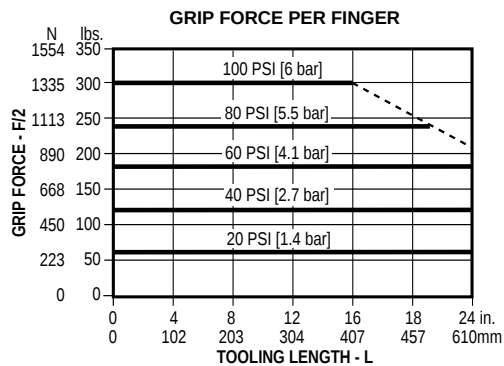
P5G-HPB-24M-NS



Total Grip Force (100 psi @ 1 in)	600 lbs	2669 N
Stroke	4 in	101.6 mm
Weight	24 lbs	11 kg
Bore Size	2.000 in	50.8 mm
Cylinder Volume	12.5 in ³	204.8 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range	-20° to 300° F	-30° to 150° C
Pressure Range	20-100 psi	1.4-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

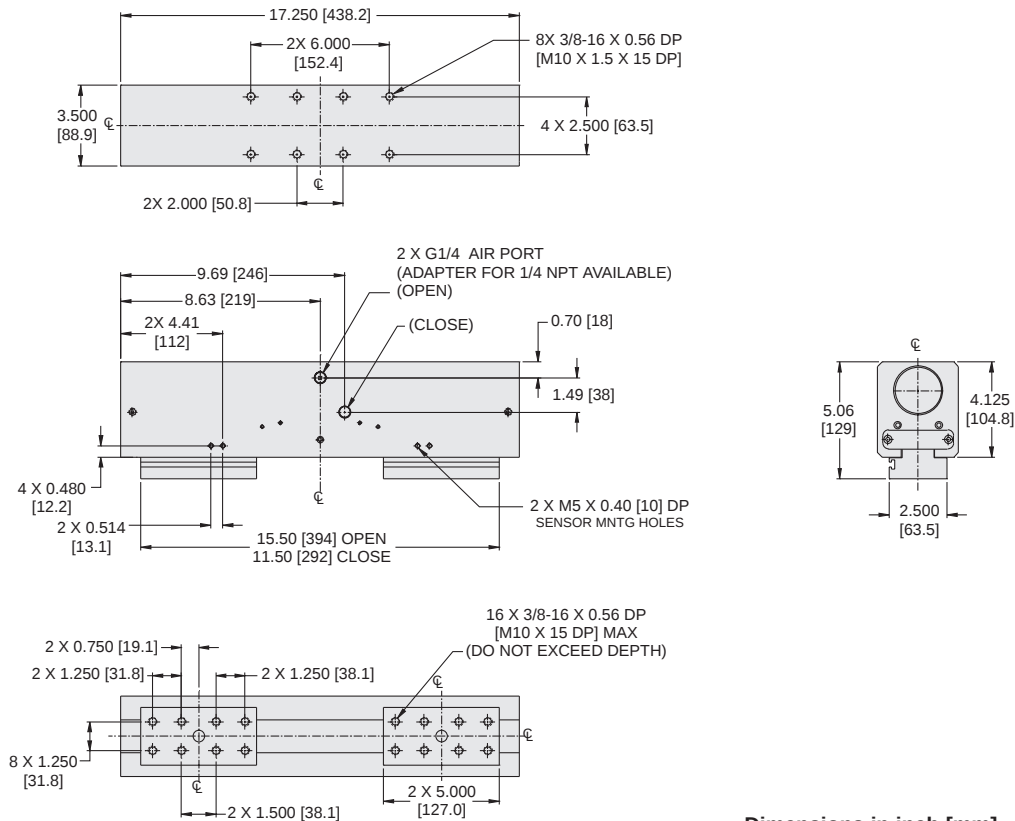
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	1500 lbs	6672 N	500 lbs	2224 N
Moment (Mx)	3000 in-lbs	339 Nm	750 in-lbs	84.8 Nm
Moment (My)	3000 in-lbs	339 Nm	750 in-lbs	84.8 Nm
Moment (Mz)	3000 in-lbs	339 Nm	750 in-lbs	84.8 Nm

Dimensional Information



Dimensions in inch [mm].

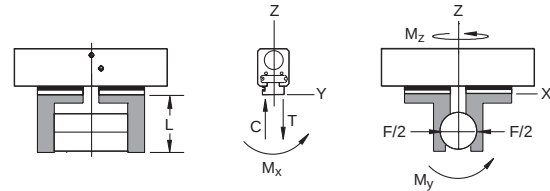
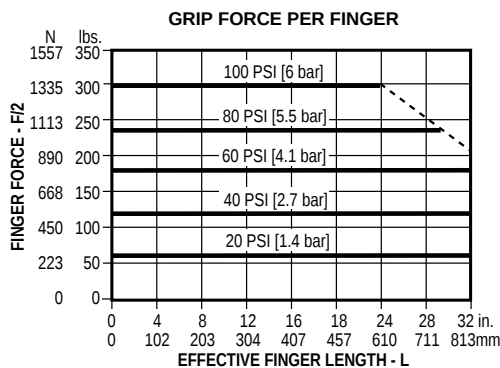
P5G-HPB-26M-NS



Total Grip Force (100 psi @ 1 in)	600 lbs	2669 N
Stroke	6 in	152.4 mm
Weight	32 lbs	14.55 kg
Bore Size	2.000 in	50.8 mm
Cylinder Volume	18.8 in ³	308.1 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range	-20° to 300° F	-30° to 150° C
Pressure Range	20-100 psi	1.4-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

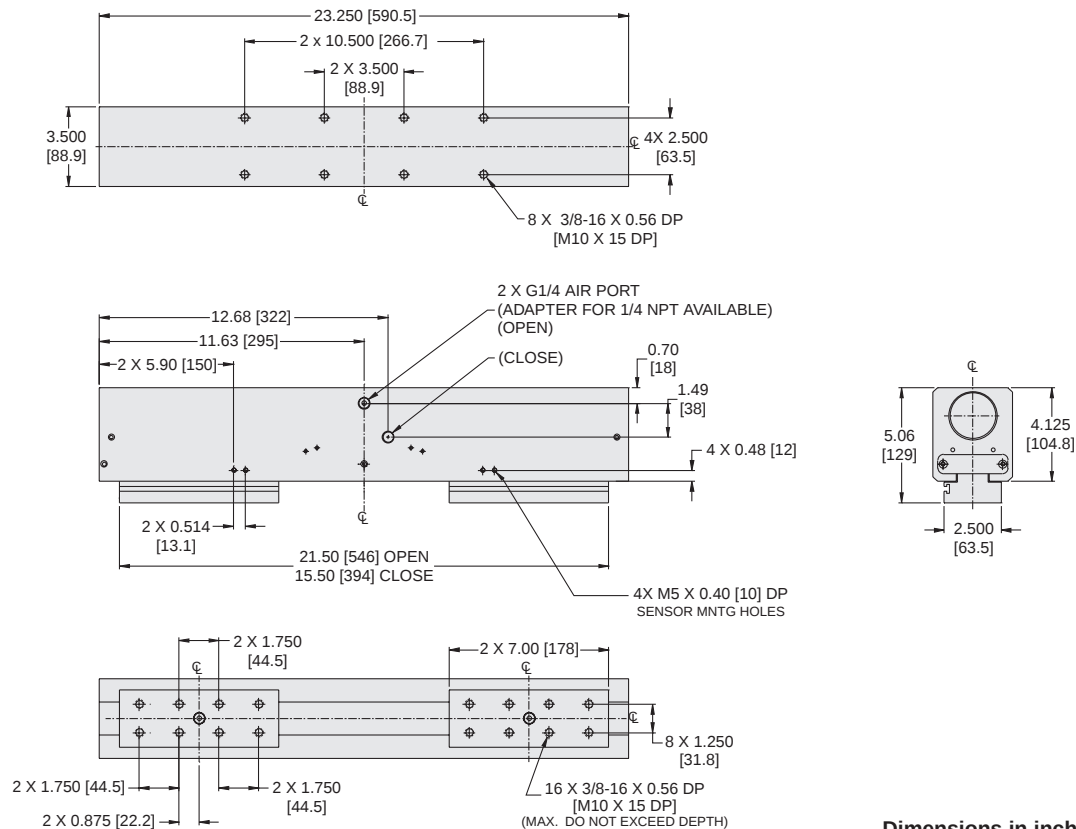
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	2000 lbs	8896 N	640 lbs	2891 N
Moment (Mx)	3500 in-lbs	396 Nm	900 in-lbs	101.7 Nm
Moment (My)	3500 in-lbs	396 Nm	900 in-lbs	101.7 Nm
Moment (Mz)	3500 in-lbs	396 Nm	900 in-lbs	101.7 Nm

Dimensional Information



Dimensions in inch [mm].

Metric Design (M)

The standard unit is manufactured with imperial mounting and porting. When metric design option is specified, the gripper incorporates metric threads and ports.

See dimensional drawings for details.

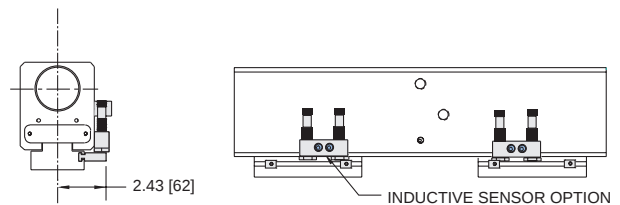
Non-synchronous (NS)

The gripper fingers of this series are synchronized in nature. For applications where parts may be off center or randomly placed, the non-synchronous option can be utilized. With this option, both fingers operate independently of each other.

Proximity Sensors

Proximity Sensors provide feedback on the position of the gripper fingers by sensing the metal flag which is attached to the gripper jaw. The sensor bracket is adjustable to provide sensing along the stroke of the gripper finger.

Order sensors, cables and brackets separately. See Sensor section for part numbers and sensor specifications.



Model Code and Ordering Information



Type

P5G – Pneumatic Gripper

Series

HPB

Size

24 – 2.00 inch Bore, 6.0 inch Stroke
26 – 2.00 inch Bore, 4.0 inch Stroke

Design

Omit – Imperial Design (Standard)
M – Metric Design

Synchronous

Omit – Synchronous (Standard)
NS – Non-synchronous Fingers

Seal Kits

Size	Fluorocarbon Seal Kit
P5G-HPB-24	PSK-P5G-HPB-24
P5G-HPB-26	PSK-P5G-HPB-26

Notes

Features

Optional Hall Effect Sensors

Read position of piston
 (Sold separately).
 Magnetic piston standard.

Stripper Plate

Optional stripper plate
 provides spring loaded
 part ejection.

Internal Components

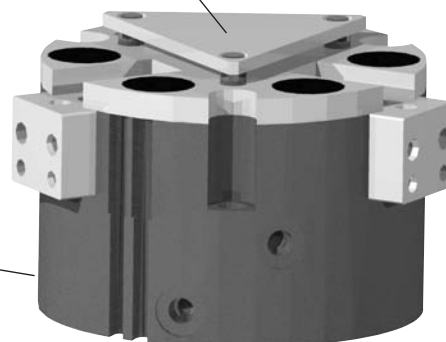
Jaw components are precision
 ground for minimal jaw play and
 hardened for wear resistance and
 maximum life.

Body

One piece hard-coat
 anodized aluminum body
 with Teflon® impregnation.

Seals

Self lubricating dynamic
 seals (Nitrile only)



Contaminant Tolerance

Sealed design resists
 internal contamination.

Wedge Design

Efficient guided wedge design
 provides high force to weight ratio.
 Jaw components are precision
 ground to minimize play.

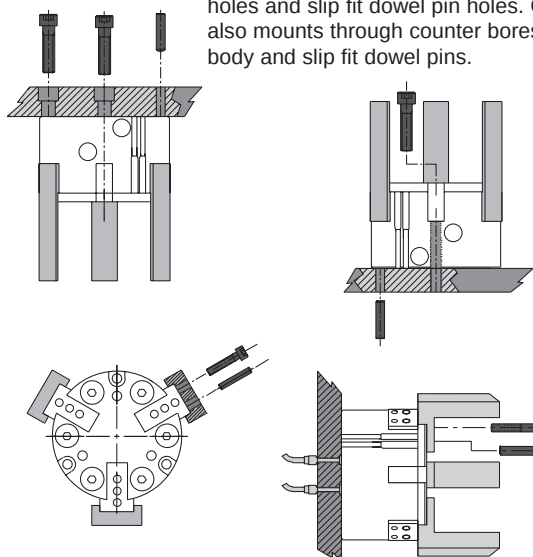
Operation

Operating Characteristic	Double acting, 3-jaw wedge design
Gripping Force @ 100 PSI	80 - 2800 lbs
Stroke Range	0.30 to 1.38 inches
Operating Pressure Range	20 - 100 PSI (1.5 - 7 bar)

Mounting

Gripper can be mounted in any orientation due to sealed
 housing design.

Gripper mounts from behind using tapped
 holes and slip fit dowel pin holes. Gripper
 also mounts through counter bores in the
 body and slip fit dowel pins.



Custom finger tooling mounts to end or bottom of jaws
 using tapped holes and precise tolerancing of fingers.

Contents

P5G-HPC-315	120
P5G-HPC-320	121
P5G-HPC-331	122
P5G-HPC-344	123
P5G-HPC-356	124
P5G-HPC-368	125
Metric Design Option	126
Stripper Plate Option	126
Fluorocarbon Seals	126
Sensors	126
Ordering Information	127

P5G-HPC-315M-SP-V

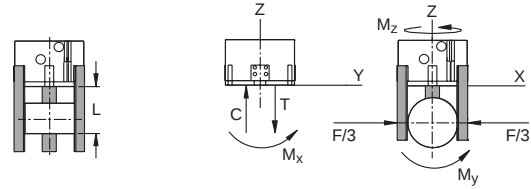
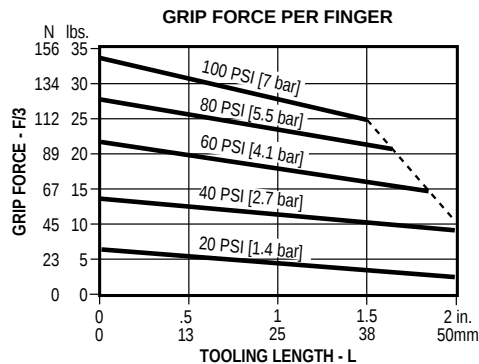


Total Grip Force (100 psi @ 1 in)	80 lbs	356 N
Stroke	0.30 in	7.6 mm
Weight	0.53 lbs	0.24 kg
Bore Size	1.250 in	31.8 mm
Cylinder Volume	1.040 in ³	17.0 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	20-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

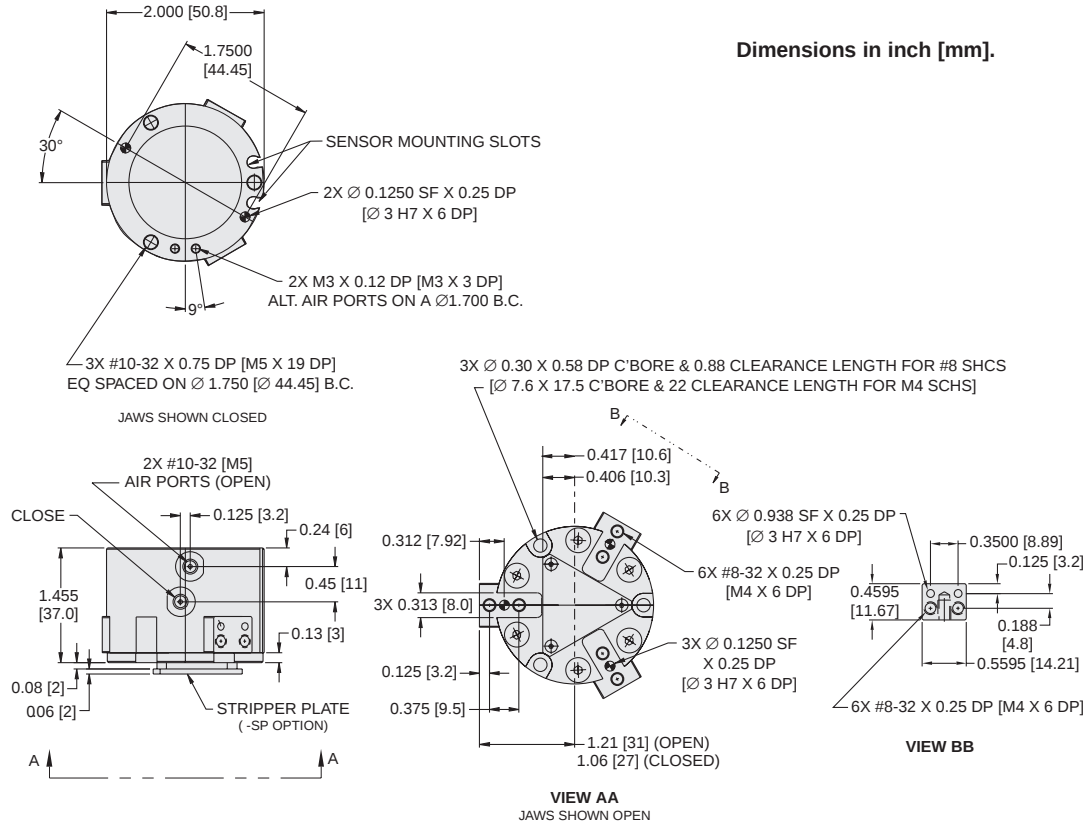
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	300 lbs	1334 N	100 lbs	445 N
Moment (Mx)	250 in-lbs	28 Nm	75 in-lbs	8 Nm
Moment (My)	250 in-lbs	28 Nm	75 in-lbs	8 Nm
Moment (Mz)	150 in-lbs	17 Nm	50 in-lbs	6 Nm

Dimensional Information



P5G-HPC-320M-SP-V

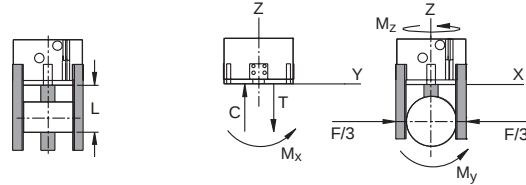
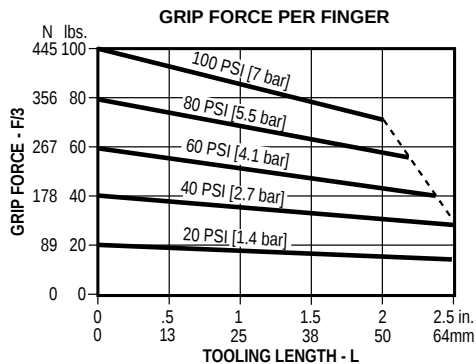


Total Grip Force (100 psi @ 1 in)	240 lbs	1068 N
Stroke	0.40 in	10.2 mm
Weight	1.0 lbs	0.45 kg
Bore Size	2.000 in	50.8 mm
Cylinder Volume	0.690 in ³	11.3 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	20-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

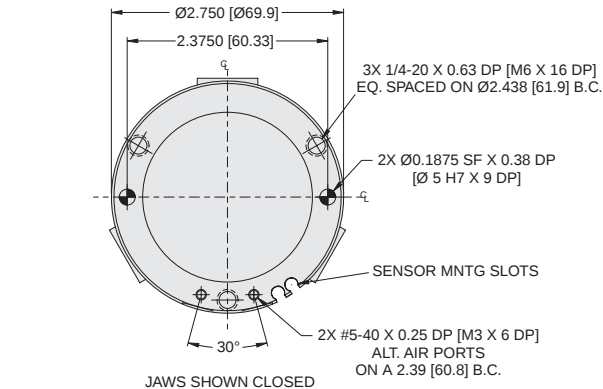
Loading Information



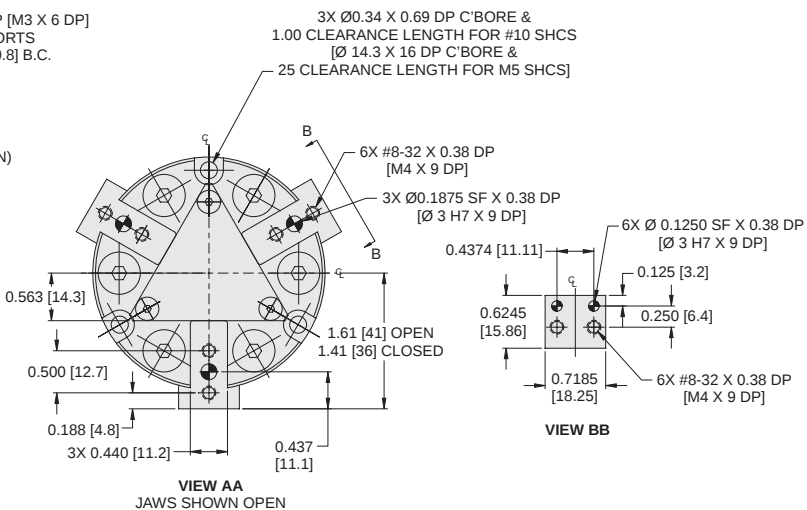
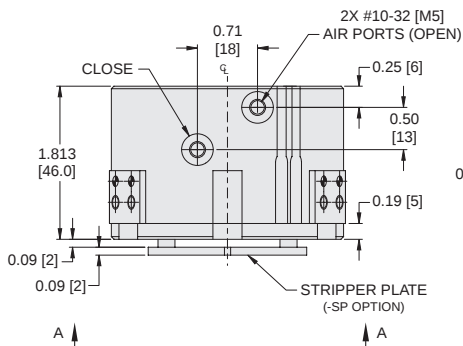
Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	750 lbs	3336 N	250 lbs	1112 N
Moment (Mx)	750 in-lbs	85 Nm	255 in-lbs	28 Nm
Moment (My)	750 in-lbs	85 Nm	255 in-lbs	28 Nm
Moment (Mz)	350 in-lbs	40 Nm	100 in-lbs	11 Nm

Dimensional Information



Dimensions in inch [mm].



P5G-HPC-331M-SP-V

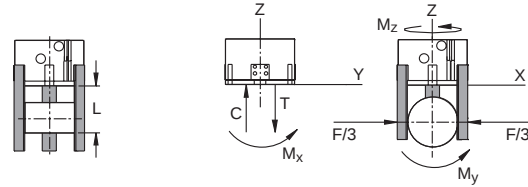
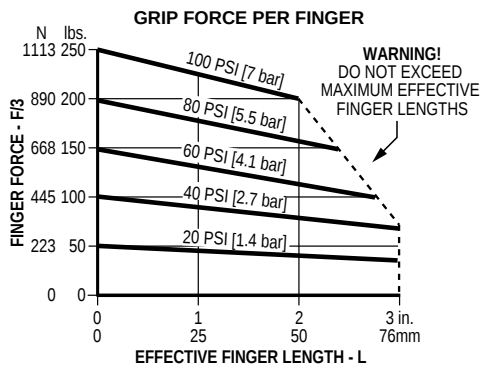


Total Grip Force (100 psi @ 1 in)	675 lbs	3002 N
Stroke	0.62 in	15.7 mm
Weight	3.0 lbs	1.4 kg
Bore Size	2.750 in	69.8 mm
Cylinder Volume	2.815 in ³	46.1cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	20-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

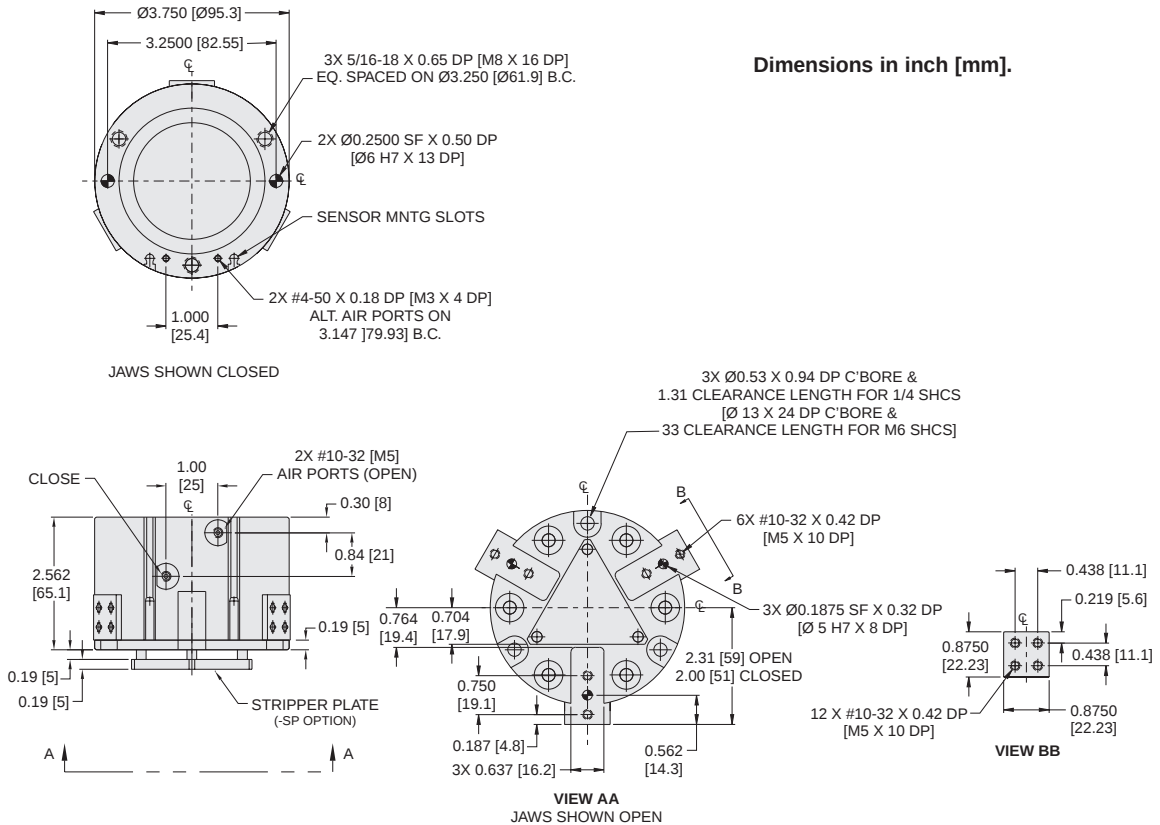
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	1250 lbs	5560 N	400 lbs	1779 N
Moment (M _x)	1250 in-lbs	141 Nm	400 in-lbs	45 Nm
Moment (M _y)	1250 in-lbs	141 Nm	400 in-lbs	45 Nm
Moment (M _z)	1000 in-lbs	113 Nm	300 in-lbs	34 Nm

Dimensional Information



P5G-HPC-344M-SP-V

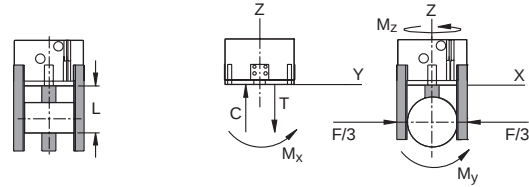
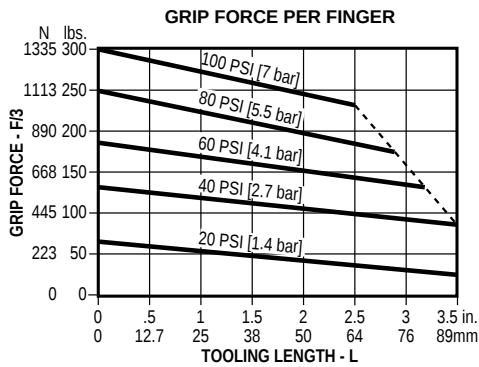


Total Grip Force (100 psi @ 1 in)	825 lbs	3670 N
Stroke	0.88 in	22.2 mm
Weight	6.0 lbs	2.7 kg
Bore Size	3.500 in	88.9 mm
Cylinder Volume	6.200 in ³	101.6 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	20-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

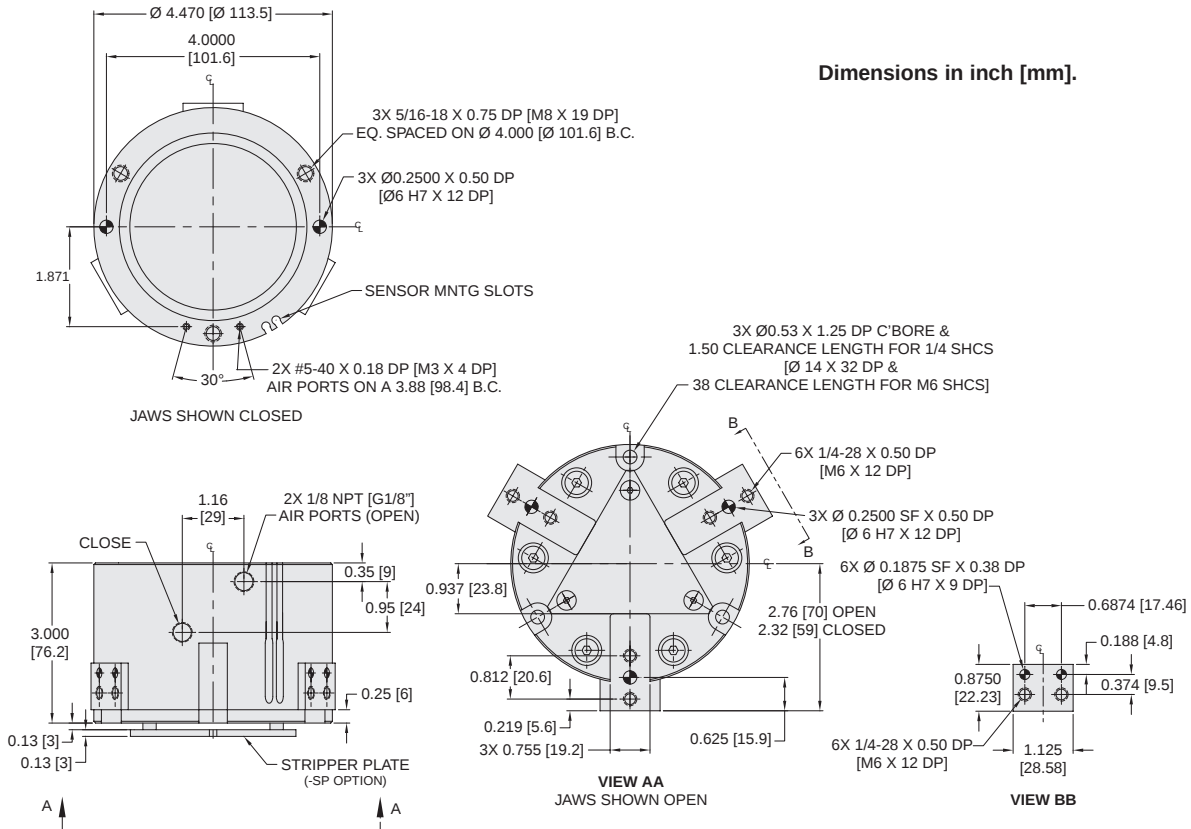
Loading Information



Maximum Loading Capacity

	Static	Dynamic
Axial Forces (C and T)	2000 lbs	8896 N
Moment (Mx)	2000 in-lbs	226 Nm
Moment (My)	2000 in-lbs	226 Nm
Moment (Mz)	1500 in-lbs	170 Nm

Dimensional Information



P5G-HPC-356M-SP-V

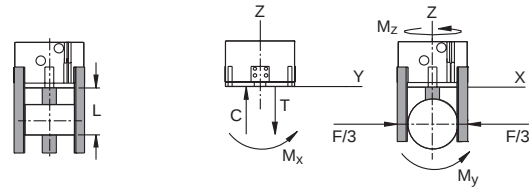
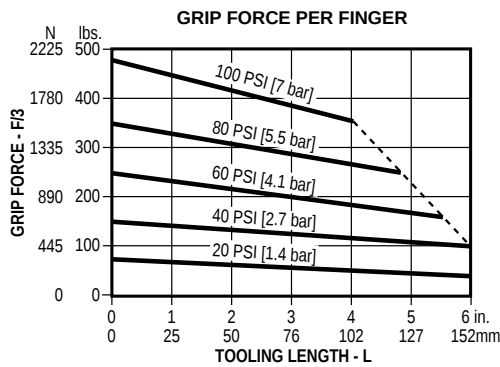


Total Grip Force (100 psi @ 1 in)	1357 lbs	6036 N
Stroke	1.12 in	28.4 mm
Weight	9.75 lbs	4.4 kg
Bore Size	4.500 in	114.3 mm
Cylinder Volume	11.674 in ³	191.3cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	20-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

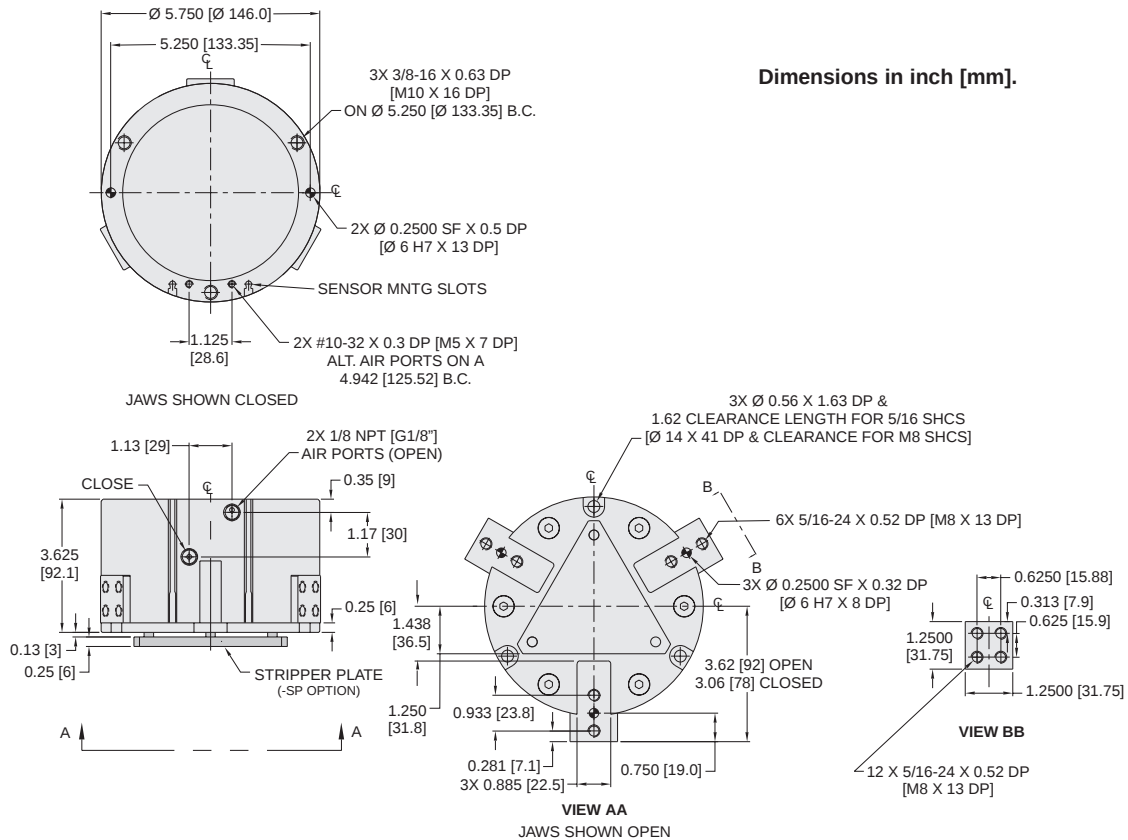
Loading Information



Maximum Loading Capacity

	Static		Dynamic	
Axial Forces (C,T)	3000 lbs	13345 N	1000 lbs	4448 N
Moment (Mx)	4000 in-lbs	452 Nm	1000 in-lbs	113 Nm
Moment (My)	4000 in-lbs	452 Nm	1000 in-lbs	113 Nm
Moment (Mz)	3000 in-lbs	339 Nm	750 in-lbs	85 Nm

Dimensional Information



P5G-HPC-368M-SP-V

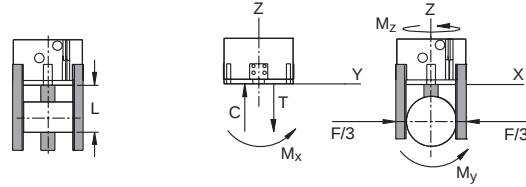
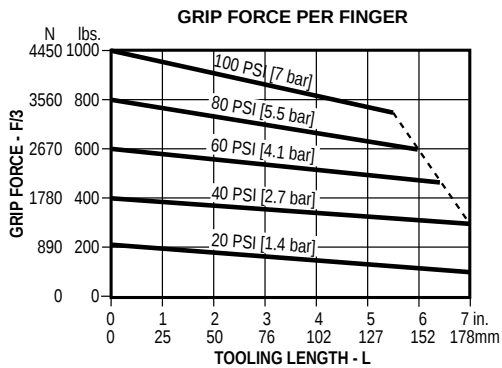


Total Grip Force (100 psi @ 1 in)	2800 lbs	12455 N
Stroke	1.38 in	34.9 mm
Weight	16 lbs	7.3 kg
Bore Size	5.250 in	133.3 mm
Cylinder Volume	23.000 in ³	376.9 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	20-100 psi	1.5-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

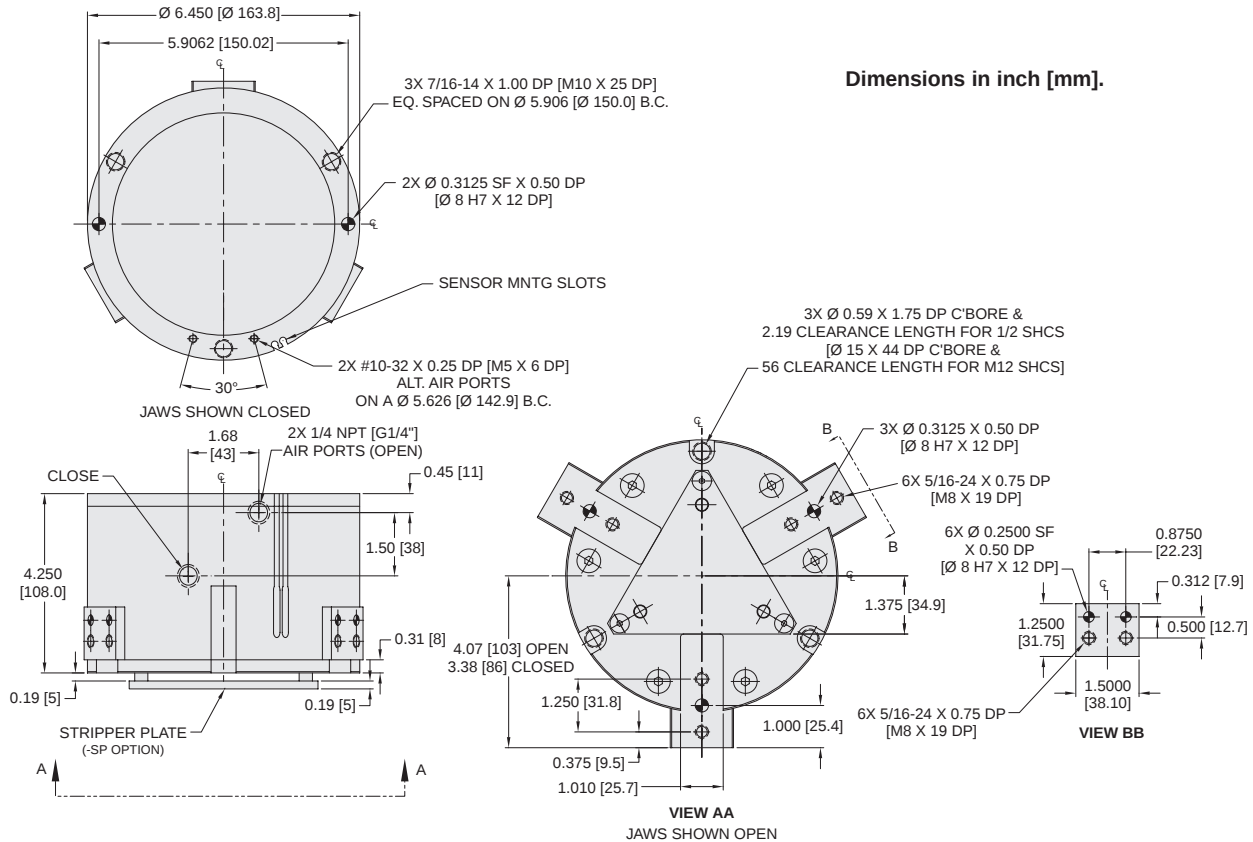
Loading Information



Maximum Loading Capacity

	Static	Dynamic
Axial Forces (C and T)	5000 lbs 22241 N	1500 lbs 6672 N
Moment (Mx)	7000 in-lbs 791 Nm	1500 in-lbs 170 Nm
Moment (My)	7000 in-lbs 791 Nm	1500 in-lbs 170 Nm
Moment (Mz)	5000 in-lbs 565 Nm	1000 in-lbs 113 Nm

Dimensional Information



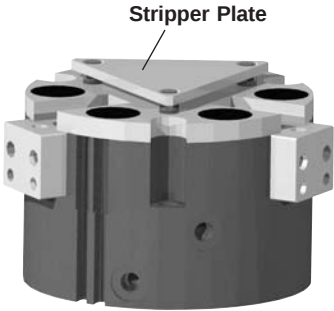
Metric Design (M)

The standard unit is manufactured with imperial mounting and porting. When metric design option is specified, the gripper incorporates metric threads and ports.

See dimensional drawings for details.

Stripper Plate (SP)

Spring loaded stripper plate can be used in high speed applications to "eject" parts from the gripper fingers.



Fluorocarbon Seals (V)

Standard nitrile seals should be used for general purpose applications with temperatures of -30° to 180°F (-35° to 80°C). Fluorocarbon seals are recommended for high temperature applications up to 250°F (120°C).

Seal Type	Temperature Range
Standard Buna-N	-30° to 180°F (-35° to 80°C)
Fluorocarbon	-20° to 250°F (-30° to 120°C)

Hall Effect Sensors

Hall effect sensors provide feedback to the position of the gripper fingers by sensing a magnet within the piston. Sensors mount in the sensor mounting grooves in the gripper body and are adjustable to sense along the full travel of the piston.

Order sensors and cables separately. See Sensor section for part numbers and sensor specifications.

Model Code and Ordering Information

P5G – **HPC** – **315** **M** – **SP** – **V**

Type

P5G – Pneumatic Gripper

Series

HPC

Size

315 – 1.25 inch Bore, 0.30 inch Stroke
 320 – 2.00 inch Bore, 0.40 inch Stroke
 331 – 2.75 inch Bore, 0.62 inch Stroke
 344 – 3.50 inch Bore, 0.88 inch Stroke
 356 – 4.50 inch Bore, 1.12 inch Stroke
 368 – 5.25 inch Bore, 1.38 inch Stroke

Design

Omit – Imperial Design (Standard)

M – Metric Design

Stripper Plate

Omit – No Stripper Plate (Standard)

SP – Stripper Plate Option

Seals

Omit – Nitrile Seals (Standard)

V – Fluorocarbon Seals

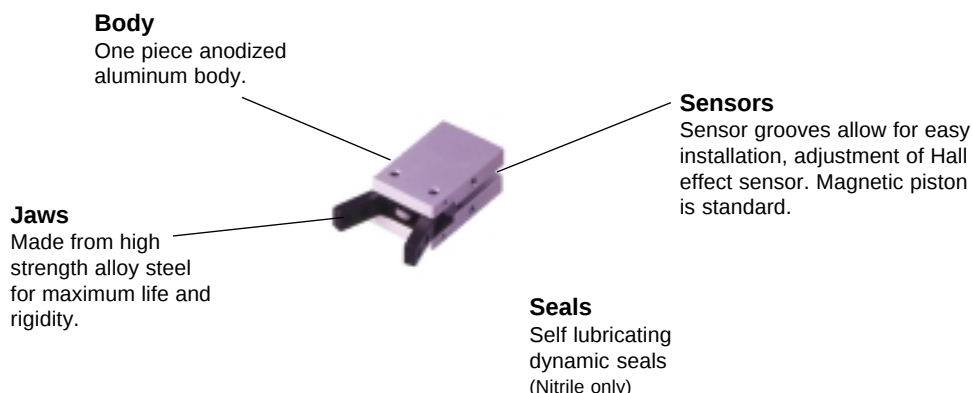
Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-HPC-315	PSK-P5G-HPC-315	PSK-P5G-HPC-315V
P5G-HPC-320	PSK-P5G-HPC-320	PSK-P5G-HPC-320V
P5G-HPC-331	PSK-P5G-HPC-331	PSK-P5G-HPC-331V
P5G-HPC-344	PSK-P5G-HPC-344	PSK-P5G-HPC-344V
P5G-HPC-356	PSK-P5G-HPC-356	PSK-P5G-HPC-356V
P5G-HPC-368	PSK-P5G-HPC-368	PSK-P5G-HPC-368V

Contents

GVC Series		30° Miniature, Cross Roller Bearing	30° Angle	GVC
GAA Series		30° Double Acting, Linkage Design		GAA
P5G-HA Series		30° Cam Driven		P5G-HA
P5G-AA Series		30° Automation		P5G-AA
P5G-RK Series		30° Precision		P5G-RK
P5G-HA Series		12° Locking, Linkage Design	12° Locking	P5G-HA
3H2 Series		30° High Force	High Force	3H2
GVH Series		180° Miniature	180° Wide Angle	GVH
GAW Series		180° Double Acting, Linkage Design		GAW
P5G-AW Series		180° Automation		P5G-AW
P5G-RB Series		180° Precision		P5G-RB

Features



30° Angle

GVC

GAA

P5G-HA

P5G-AA

P5G-RK

Operation

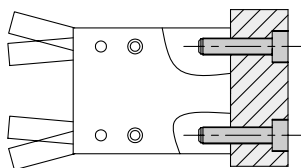
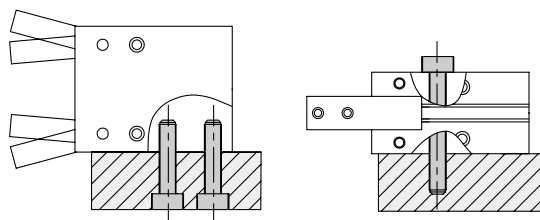
Operating Characteristic Double acting
 Gripping Force @ 100 PSI 5 - 160 N (1.8 - 36 lbs)
 Stroke Range -10° to +30°
 Operating Pressure Range 14 - 100 PSI (1 - 7 bar)

Not recommended for applications containing:

- Dirt or grit
- Machining chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Gripper can be mounted on three faces and located with center pilot diameter for accuracy.



Warning! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

Contents

GVC-8C	132
GVC-10C	133
GVC-16C	134
GVC-20C	135
GVC-25C	136
Spring Assist Option	137
Ordering Information	137

GVC-8C

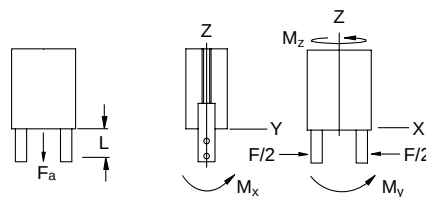
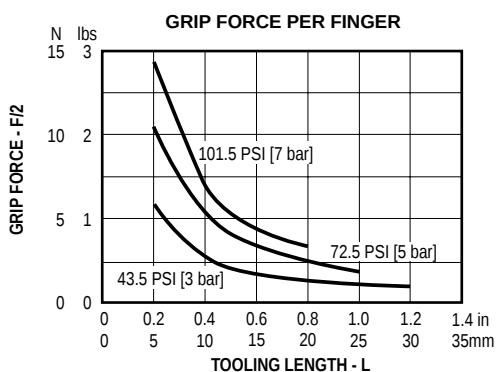


Total Grip Force (0.7 Mpa @ 25 mm)	1.25 lbs	5.6 N
Stroke (Degree)	-10 to +30	
Weight	0.05 lbs	0.023 kg
Bore Size	0.31 in	8 mm
Cylinder Volume	0.004 in ³	0.07 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range*	41° to 140° F	5° to 60° C
Pressure Range	31.9-101.5 psi	2.2-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

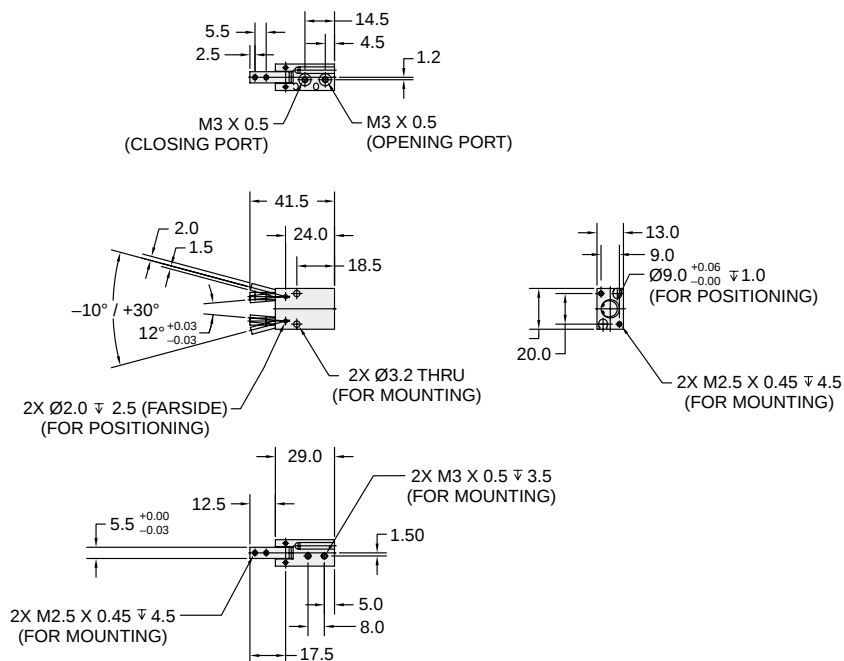
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (F_a)	2.9 lbs	13.3 N
Moment (M_x)	6.2 in-lb	0.7 Nm
Moment (M_y)	1.8 in-lb	0.2 Nm
Moment (M_z)	5.3 in-lb	0.6 Nm

Dimensional Information



Dimensions in mm.

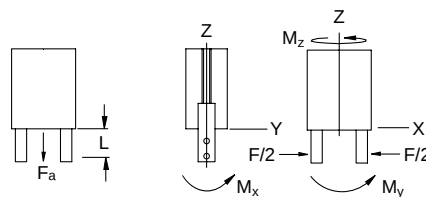
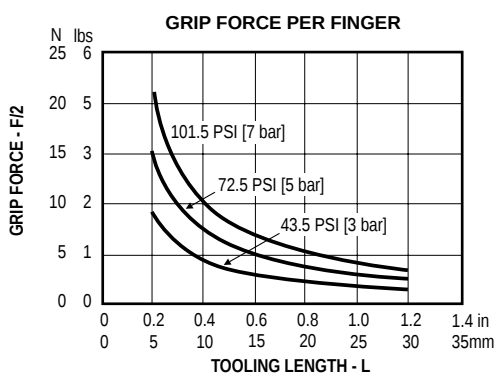
GVC-10C



Total Grip Force (0.7 Mpa @ 25 mm)	1.79 lbs	8 N
Stroke (Degree)	-10 to +30	
Weight	0.088 lbs	0.04 kg
Bore Size	0.39 in	10 mm
Cylinder Volume	0.012 in ³	0.2 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	14.5-101.5 psi	1-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

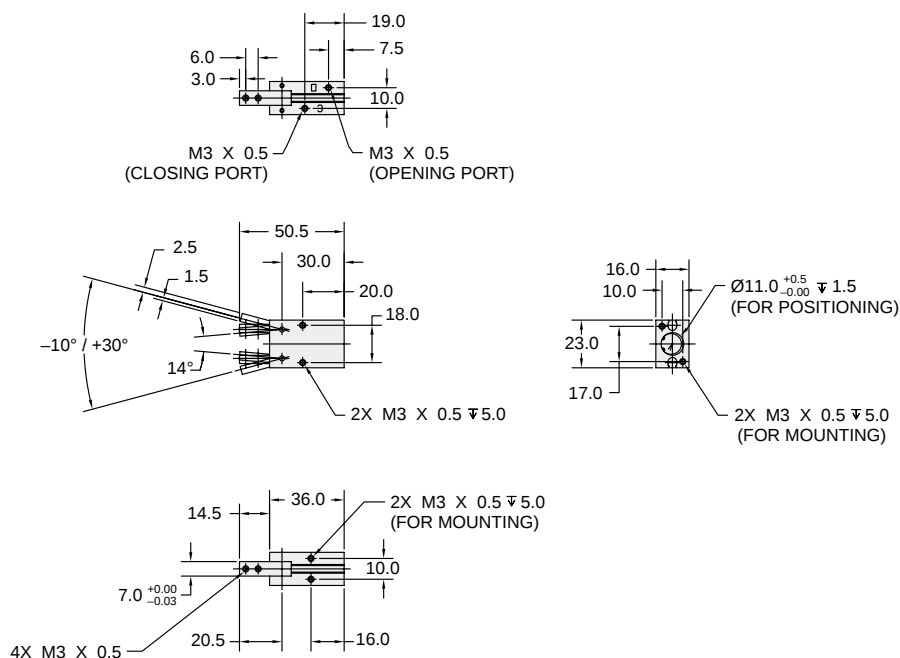
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	4.1 lbs	18 N
Moment (Mx)	10.6 in-lb	1.2 Nm
Moment (My)	4.4 in-lb	0.5 Nm
Moment (Mz)	8.0 in-lb	0.9 Nm

Dimensional Information



Dimensions in mm.

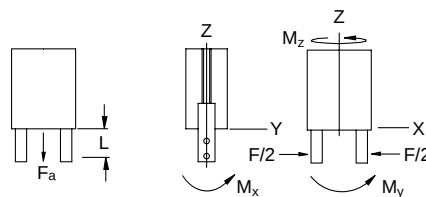
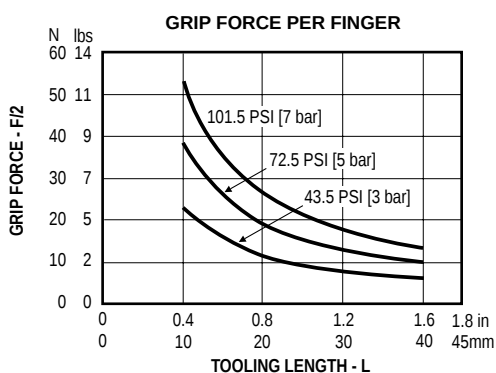
GVC-16C



Total Grip Force (0.7 Mpa @ 25 mm)	9.2 lbs	41 N
Stroke (Degree)	-10 to +30	
Weight	0.21 lbs	0.096 kg
Bore Size	0.62 in	16 mm
Cylinder Volume	0.055 in ³	0.9 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	14.5-101.5 psi	1-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

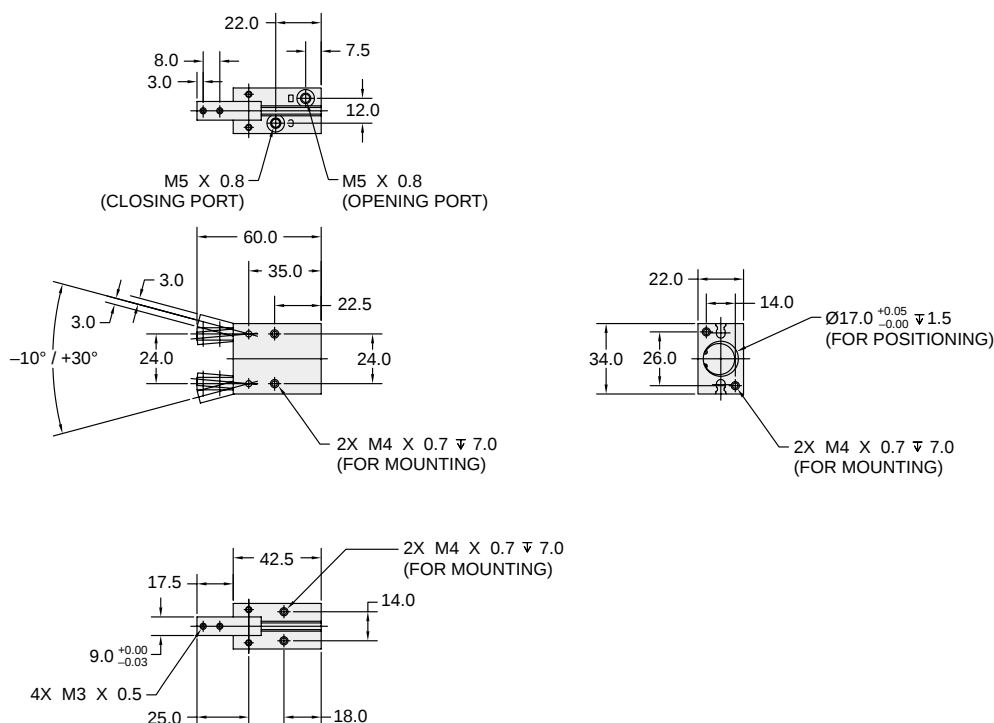
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (F)	8 lbs	35.6 N
Moment (Mx)	20.4 in-lb	2.3 Nm
Moment (My)	8.0 in-lb	0.9 Nm
Moment (Mz)	12.4 in-lb	1.4 Nm

Dimensional Information



Dimensions in mm.

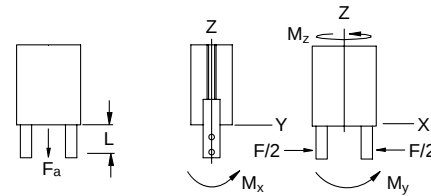
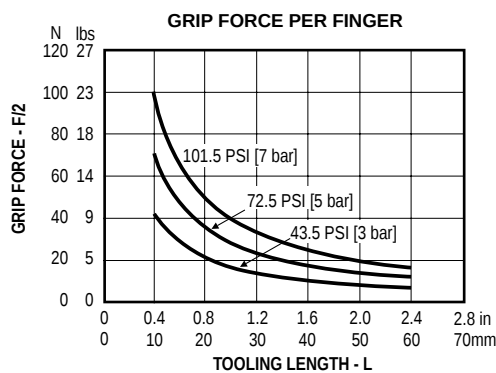
GVC-20C



Total Grip Force (0.7 Mpa @ 25 mm)	17.5 lbs	78 N
Stroke (Degree)	-10 to +30	
Weight	0.39 lbs	0.180 kg
Bore Size	0.78 in	20 mm
Cylinder Volume	0.1 in ³	1.66 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	14.5-101.5 psi	1-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

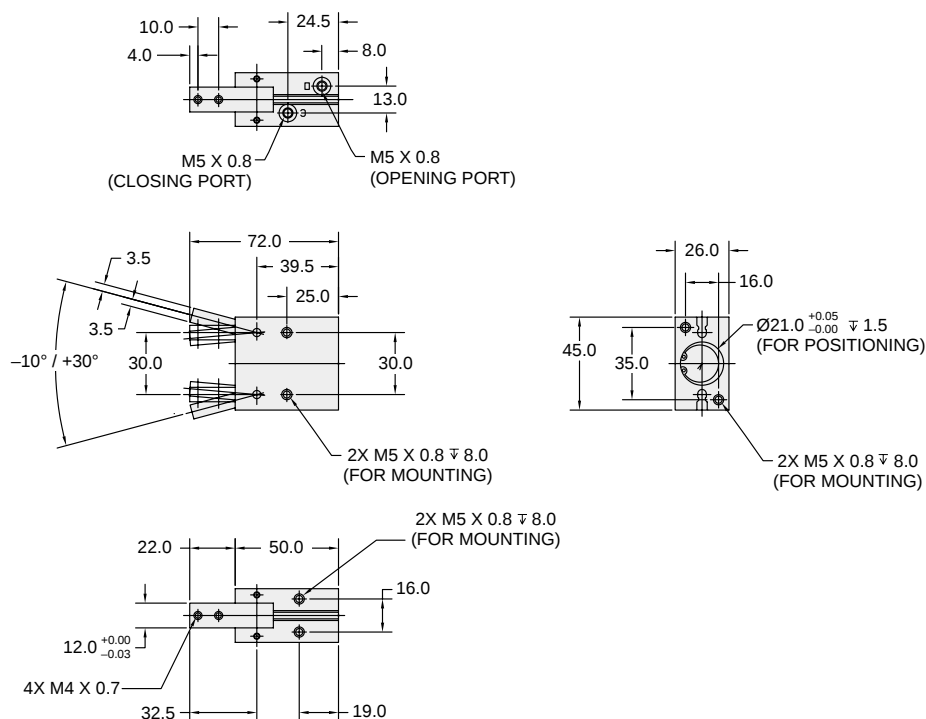
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (F)	13 lbs	57.8 N
Moment (Mx)	31 in-lb	3.5 Nm
Moment (My)	12.4 in-lb	1.4 Nm
Moment (Mz)	17.7 in-lb	2.0 Nm

Dimensional Information



Dimensions in mm.

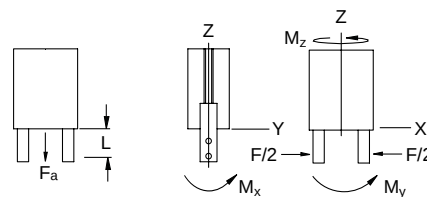
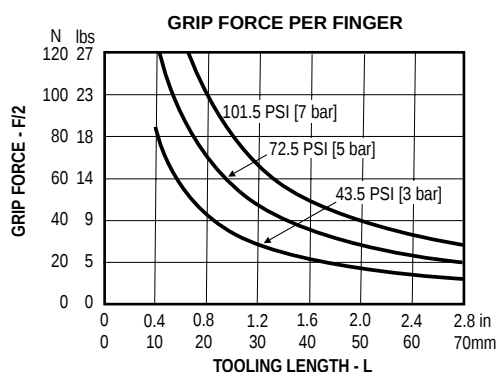
GVC-25C



Total Grip Force (0.7 Mpa @ 25 mm)	35.9 lbs	160 N
Stroke (Degree)	-10 to +30	
Weight	0.69 lbs	0.313 kg
Bore Size	0.98 in	25 mm
Cylinder Volume	0.19 in ³	3.14 cm ³
Repeatability	± 0.0004 in	± 0.01 mm
Temperature Range	41° to 140° F	5° to 60° C
Pressure Range	14.5-101.5 psi	1-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

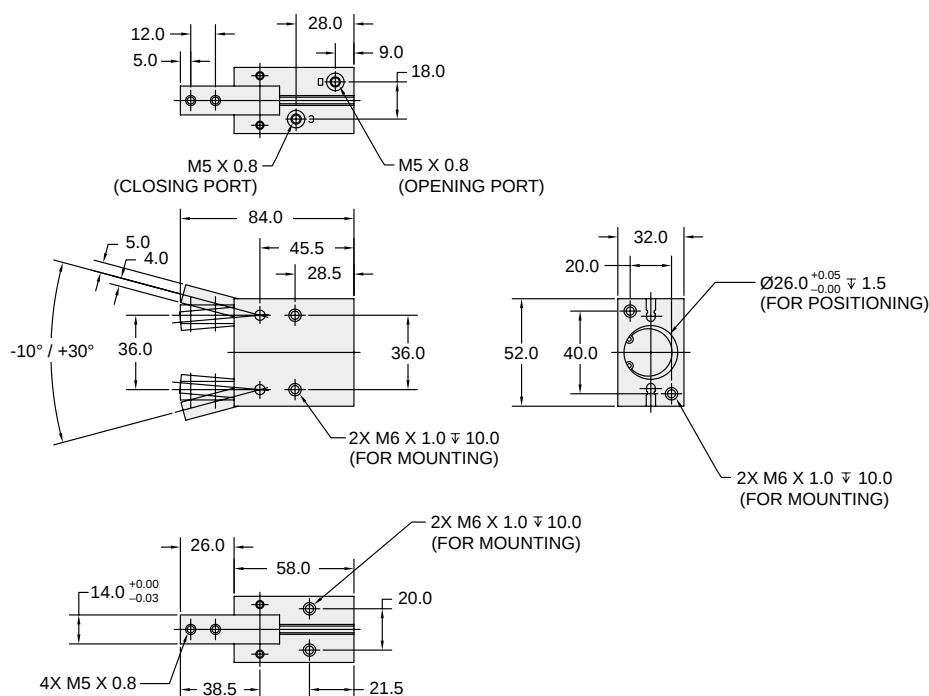
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (F)	17.2 lbs	76.5 N
Moment (Mx)	35.4 in-lb	4 Nm
Moment (My)	16.8 in-lb	1.9 Nm
Moment (Mz)	23 in-lb	2.6 Nm

Dimensional Information



Dimensions in mm.

Spring Assist (A)

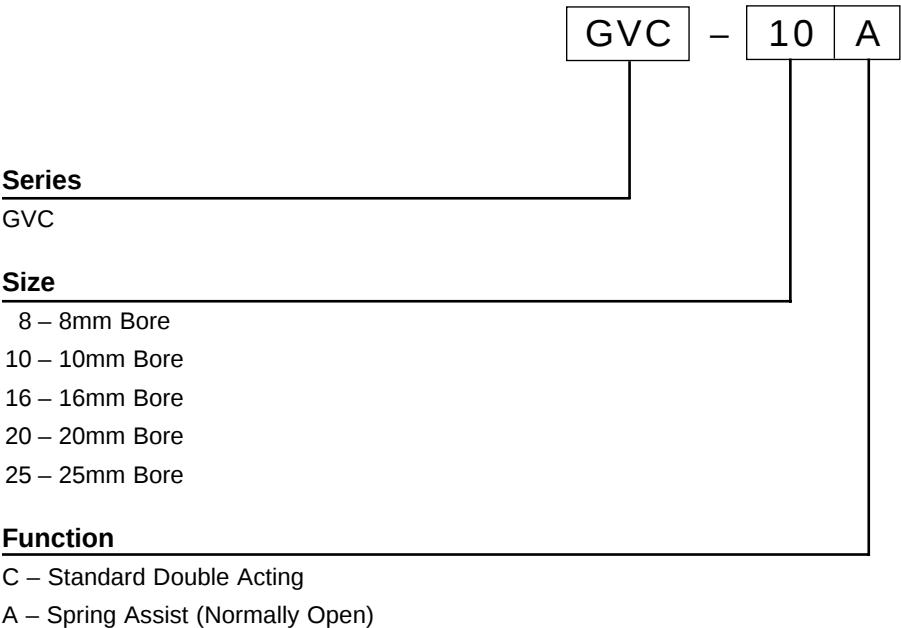
The spring assist option allows for an automatic reset and jaw return. Selecting the spring assist option creates a single-acting gripper, which may reduce the number of directional control valves needed to operate automated machinery. The spring assist option also allows the fingers to return to the open position when pressure is lost during a power failure.

Note: The spring assist option does not change gripper dimensions.

Size	Spring Force Only*	
	N	lbs
8	3.9	0.9
10	6.8	1.5
16	12.6	2.9
20	18.6	4.2
25	28.4	6.5

*Values based on l = 30mm

Model Code and Ordering Information



Seal Kits

Size	Nitrile Seal Kit
GVC-8	PSK-GVC-8
GVC-10	PSK-GVC-10
GVC-16	PSK-GVC-16
GVC-20	PSK-GVC-20
GVC-25	PSK-GVC-25

30° Angle	GVC
	GAA
	P5G-HA
	P5G-AA
	P5G-RK

Features

Internal Components

A hardened steel pin and self-lubricated bronze bearing support the gripper fingers, minimizing play after millions of cycles.

Ports

Standard 10-32 (M5) ports or optional Presto-lok right angle flow controls are available. The body can be rotated in the field in 90° increments to provide ports in other positions, simplifying plumbing and increasing design flexibility.

Bumpers

Polyurethane bumper pad absorbs shock and noise, thus permitting faster cycle times, increased production rates and longer life.

Seals

Self lubricating dynamic seals (Nitrile or Fluorocarbon)

Jaws

Fingers are made from steel for added strength and durability with through holes for easy addition of customer tooling.

Extruded Body

The hard coat anodized body is machined from an aluminum extrusion to provide a slick seal surface which guarantees long seal life and low breakaway pressure.

Mounting

Combination side and base tapped holes are standard and provide for design flexibility. The base mount includes a pilot diameter for alignment. Mounting kits are also available to interface with other automation components.

30° Angle

GVC

GAA

P5G-HA

P5G-AA

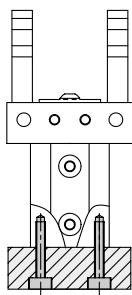
P5G-RK

Operation

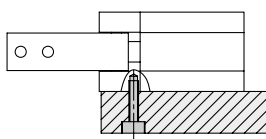
Operating Characteristic	Double acting
Gripping Force @ 100 PSI	24 - 56 lbs
Stroke	-5° to +30°
Operating Pressure Range	10 - 100 PSI (0.7 - 7 bar)

Mounting

Body mounts with screws and locates with center pilot diameter for accuracy.



Fingers attach to jaws with screws.



WARNING! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

Contents

GAA101	140
GAA151	141
Right Angle Flow Controls	142
Port Location Option	142
Sensor Mounting Bracket	143
Magnetic Piston	143
Fluorocarbon Seals	143
Sensors	143
Ordering Information	144

GAA101

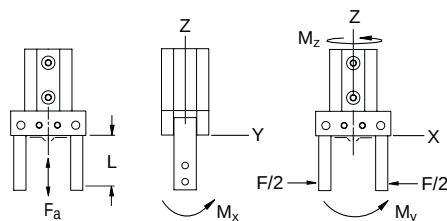
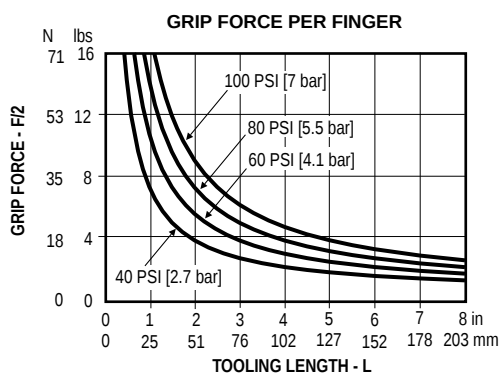


Total Grip Force (100 psi @ 1.5 in)	24 lbs	106 N
Stroke (Degree)	-5 to +30	
Weight	1.1 lbs	0.49 kg
Bore Size	1 in	25.4 mm
Cylinder Volume	3.85 in ³	15 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	0° to 180° F	17° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

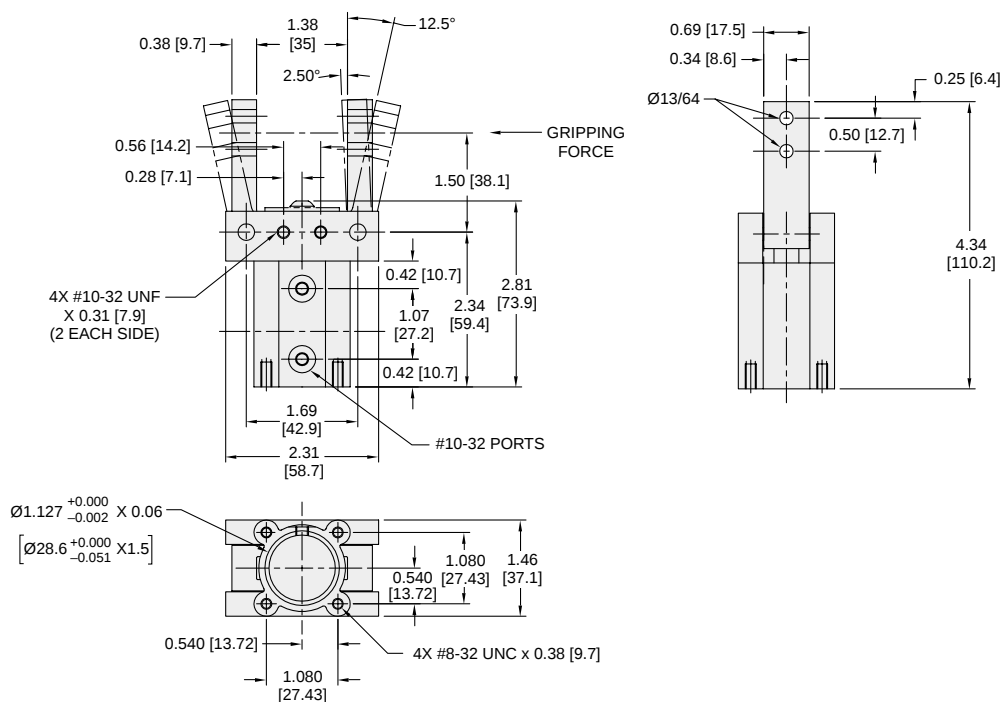
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	18 lbs	80 N
Moment (Mx)	22 in-lbs	2.5 Nm
Moment (My)	22 in-lbs	2.5 Nm
Moment (Mz)	12 in-lbs	1.4 Nm

Dimensional Information



Dimensions in inch [mm].

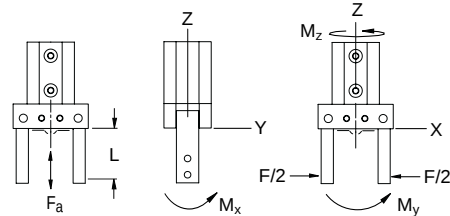
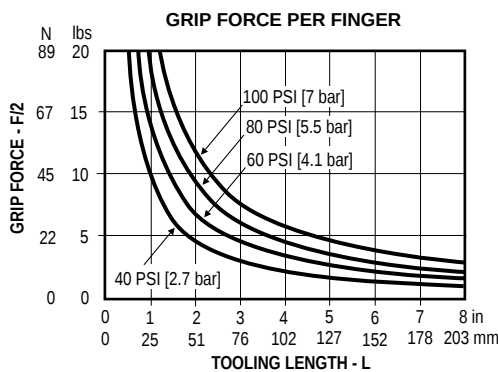
GAA151



Total Grip Force (100 psi @ 1.5 in)	56 lbs	249 N
Stroke (Degree)	-5 to +30	
Weight	2 lbs	0.90 kg
Bore Size	1.5 in	38.1 mm
Cylinder Volume	3.85 in ³	63 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	0° to 180° F	17° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	
* Fluorocarbon seals available for high temperature applications		

Note: See model code and ordering information page for complete part number selection.

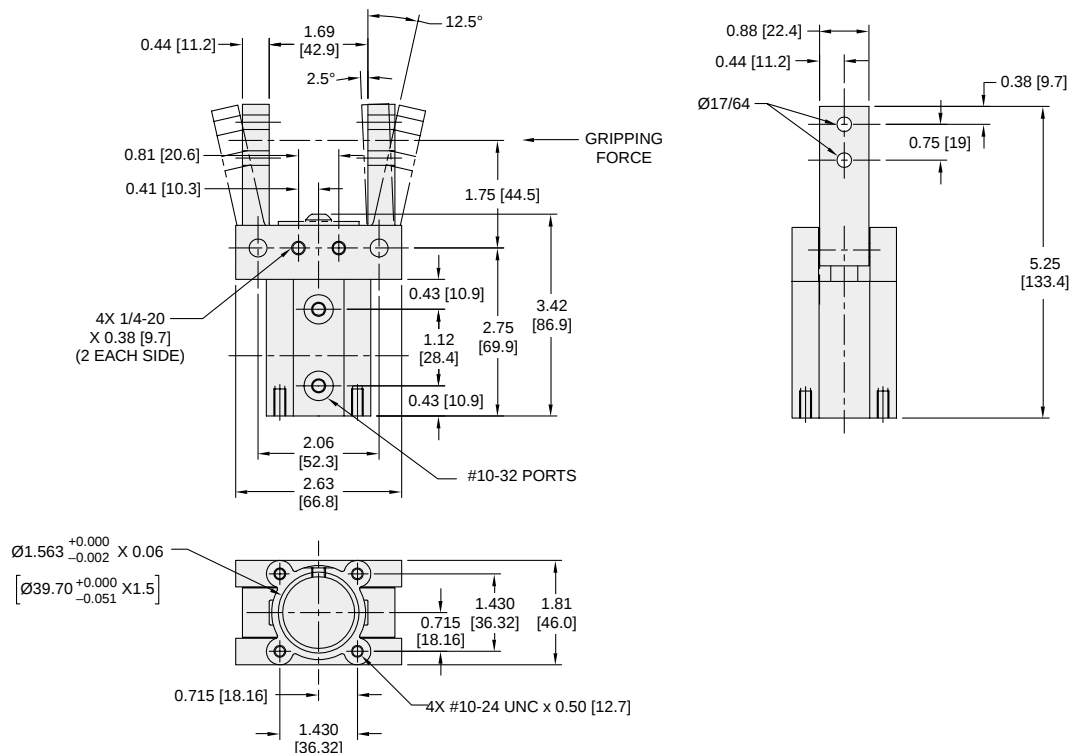
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	28 lbs	124 N
Moment (Mx)	30 in-lbs	3.4 Nm
Moment (My)	30 in-lbs	3.4 Nm
Moment (Mz)	17 in-lbs	2.0 Nm

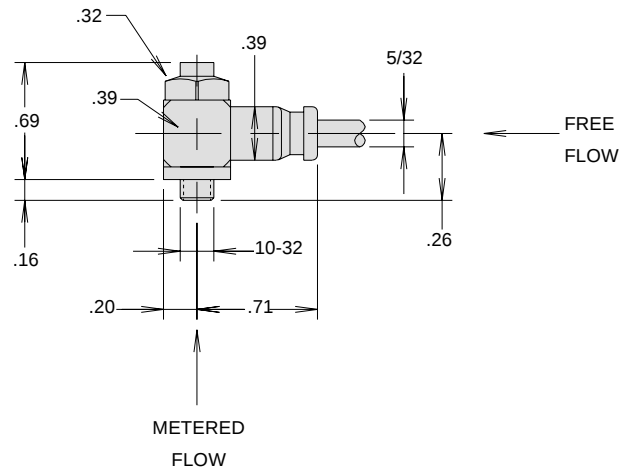
Dimensional Information



Dimensions in inch [mm].

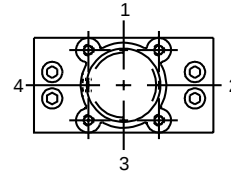
Right Angle Flow Control (P)

Right angle flow control valves allow precise adjustment of cylinder speed by metering exhaust air flow. Presto-Lok push-in ports provide 360° orientation capability.



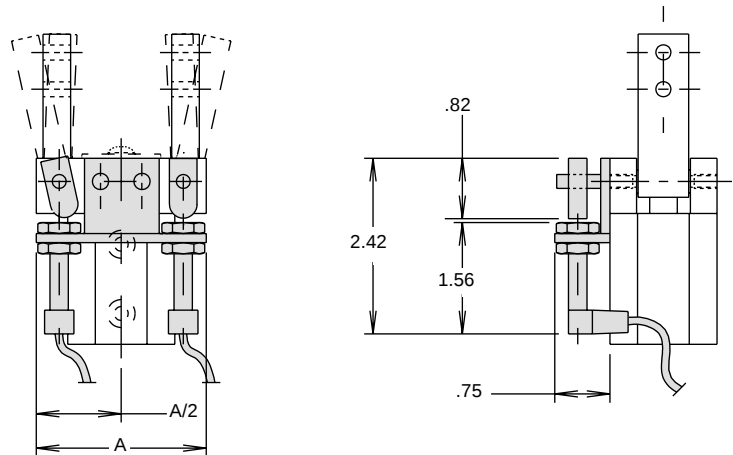
Port Location (1, 2)

GA Series grippers are symmetrical. Ports position 1 is standard. Position 3 can be obtained by rotating the gripper 180°. Ports position 2 is an option. Position 4 is obtainable by ordering port position 2 and rotating 180°.



Proximity Sensor Bracket (J)

Proximity sensors sense the position of the flag that is attached to the gripper finger. The flag is held onto the gripper finger by a set screw. Loosening the set screw allows positioning of the flag to sense any position of the gripper finger. Care should be taken when adjusting the proximity sensor so that the flag does not physically contact the sensor. The distance from the flag to the sensor should be approximately 0.04 inches.



Model	A
GAA10	2.51
GAA15	2.63

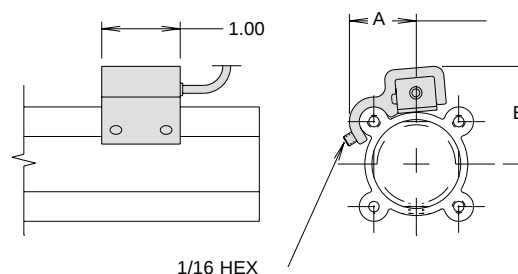
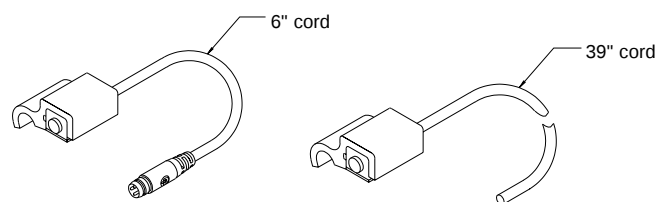
Magnetic Piston (M)

This option prepares the actuator for use with reed and Hall Effect switches. The "M" option should be specified to provide a magnet on the cylinder piston.

Order switches separately. See Sensor section for part numbers and sensor specifications.

Hall Effect and Reed Switches

Order switches separately. See Sensor section for part numbers and sensor specifications.



Dimensions

Model	A	B
GAA10	.84	1.22
GAA15	.99	1.46

Fluorocarbon Seals (V)

Standard abrasion resistant nitrile seals should be used for general purpose applications with temperatures of 0 to 180°F.

Fluorocarbon seals are recommended for high temperature applications up to 250°F.

Option	Temperature Range (°F)
Bumpers	0 - 200
Piston Magnets	0 - 165
Switches	14 - 140
Proximity Sensor	-13 - 158

30° Angle

GVC

GAA

P5G-HA

P5G-AA

P5G-RK

Model Code and Ordering Information

	GA	A	15	1	P	-	A	2	1	J	V	-	A
--	----	---	----	---	---	---	---	---	---	---	---	---	---

Series
GA

Type
A - Standard 30°

Size
10 - 1 in. bore
15 - 1.5 in. bore

Opening Characteristics
1 - Double acting (STD)

Flow Controls
Omit - None
P - Right angle flow control (both)

Mounting
A - Rear and side tapped holes (STD)

Port Type
2 - 10-32 (STD)
8 - Presto-Lok right angle flow control

Port Location
1 - Position 1 (STD)
2 - Position 2

Switches
Omit - None
J - Bracket for proximity sensor option*
M - Magnetic piston for reed and Hall Effect switch option*

Seals
Omit - Nitrile (STD)
V - Fluorocarbon

Design Series
A - Current Design Series

* Proximity sensor, Hall Effect, and reed switches to be ordered separately.

Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
GAA10	PSK-G10	PSK-G10V
GAA15	PSK-G15	PSK-G15V

Features

Body

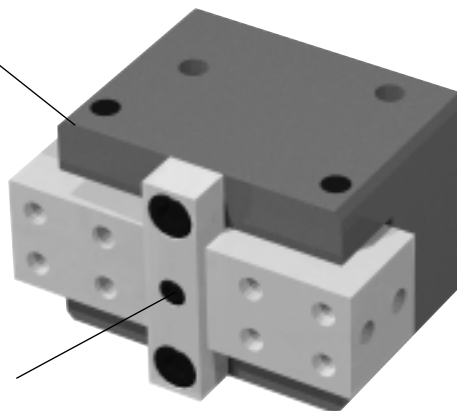
One piece hard coat anodized aluminum body with Teflon® impregnation.

Dowel Pin Holes

Slip fit dowels located in gripper body.

Stroke Adjustment

Limits open position of jaws.



Internal Components

Internal components are precision ground from hardened steel for maximum life and minimal jaw play.

Seals

Self-lubricating dynamic seals (Nitrile only)

Optional Sensors

Read position of piston.
 Magnetic piston is standard.
 (Order sensor separately)

30° Angle

GVC

GAA

P5G-HA

P5G-AA

P5G-RK

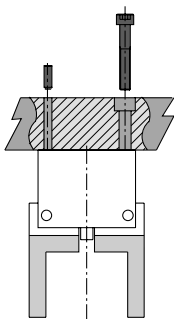
Operation

Operating Characteristic	Double acting, cam design
Gripping Force @ 100 PSI	11 - 134 lbs
Stroke	-2° to +30°
Operating Pressure Range	40 - 100 PSI (3 - 7 bar)

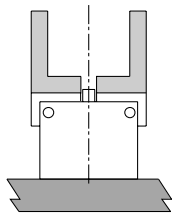
Not recommended for applications containing:

- Dirt or grit
- Machining chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

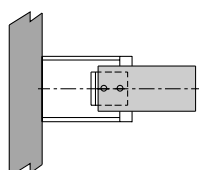
Mounting



Gripper mounts using tapped holes and slip fit dowel pin holes.



WARNING! Protect jaw mechanism from falling debris.



Custom finger tooling mounts using tapped holes and precise tolerancing of fingers.

Contents

P5G-HA-5	146
P5G-HA-6	147
P5G-HA-7	148
P5G-HA-8	149
P5G-HA-10 Miniature	150
Metric Design Option	151
Ordering Information	151

P5G-HA-5M

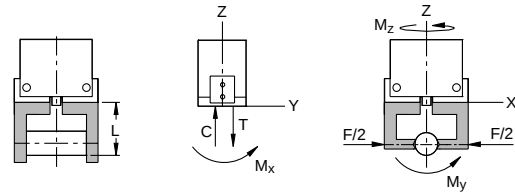
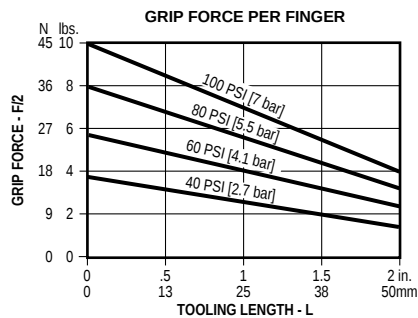


Total Grip Force (100 psi @ 1 in)	14 lbs	62 N
Total Stroke (Degree)	-2 to +30	
Weight	0.25 lbs	0.11 kg
Bore Size	0.813 in	20.6 mm
Cylinder Volume	0.13 in ³	2.1 cm ³
Repeatability	± 0.003 in	± 0.08 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

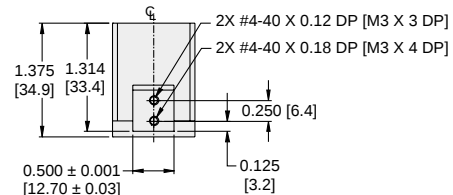
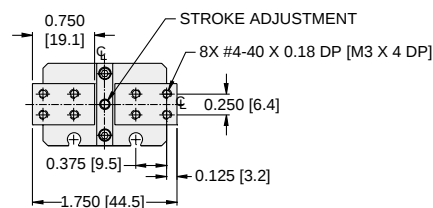
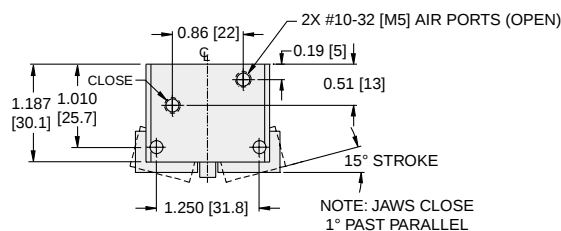
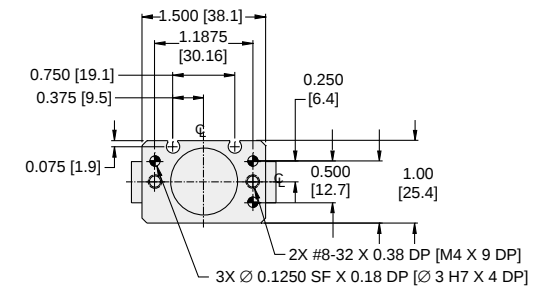
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	10 lbs	44 N	10 lbs	44 N
Moment (Mx)	10 in-lbs	1.1 Nm	10 in-lbs	1.1 Nm
Moment (My)	10 in-lbs	1.1 Nm	10 in-lbs	1.1 Nm
Moment (Mz)	10 in-lbs	1.1 Nm	10 in-lbs	1.1 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HA-6M

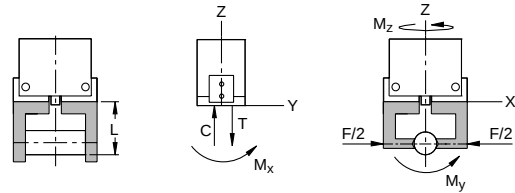
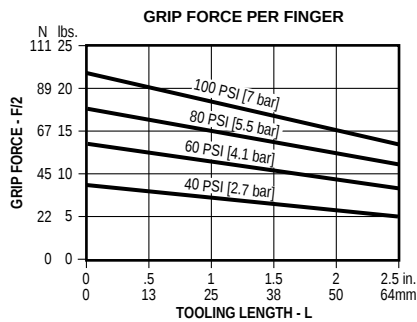


Total Grip Force (100 psi @ 1 in)	36 lbs	160 N
Total Stroke (Degree)	-2 to +30	
Weight	0.69 lbs	0.31 kg
Bore Size	1.25 in	31.8 mm
Cylinder Volume	0.30 in ³	4.9 cm ³
Repeatability	± 0.003 in	± 0.08 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

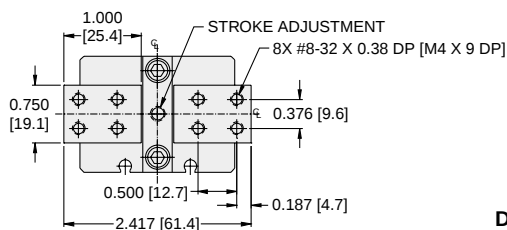
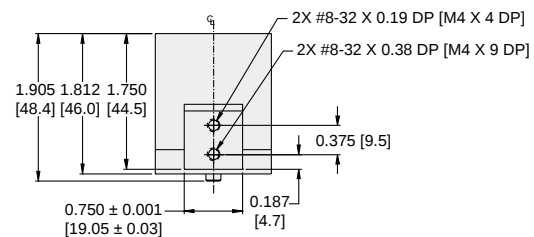
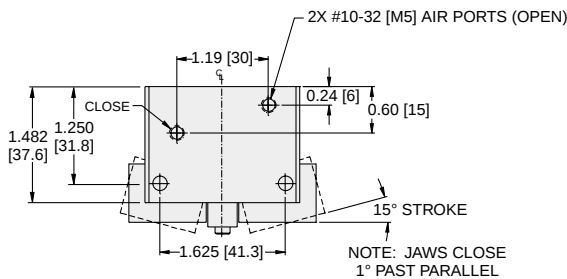
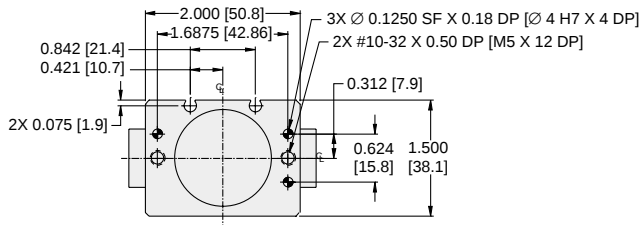
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	20 lbs	89 N	20 lbs	89 N
Moment (Mx)	20 in-lbs	23 Nm	20 in-lbs	23 Nm
Moment (My)	20 in-lbs	23 Nm	20 in-lbs	23 Nm
Moment (Mz)	20 in-lbs	23 Nm	20 in-lbs	23 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HA-7M

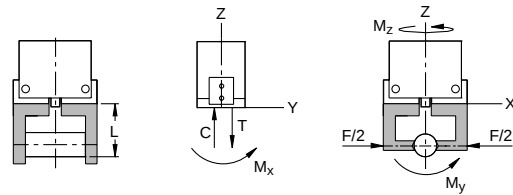
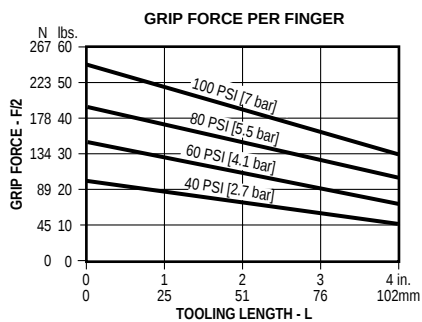


Total Grip Force (100 psi @ 1 in)	96 lbs	427 N
Total Stroke (Degree)	-2 to +30	
Weight	1.8 lbs	0.8 kg
Bore Size	1.75 in	44.4 mm
Cylinder Volume	0.601 in ³	9.8 cm ³
Repeatability	± 0.003 in	± 0.08 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

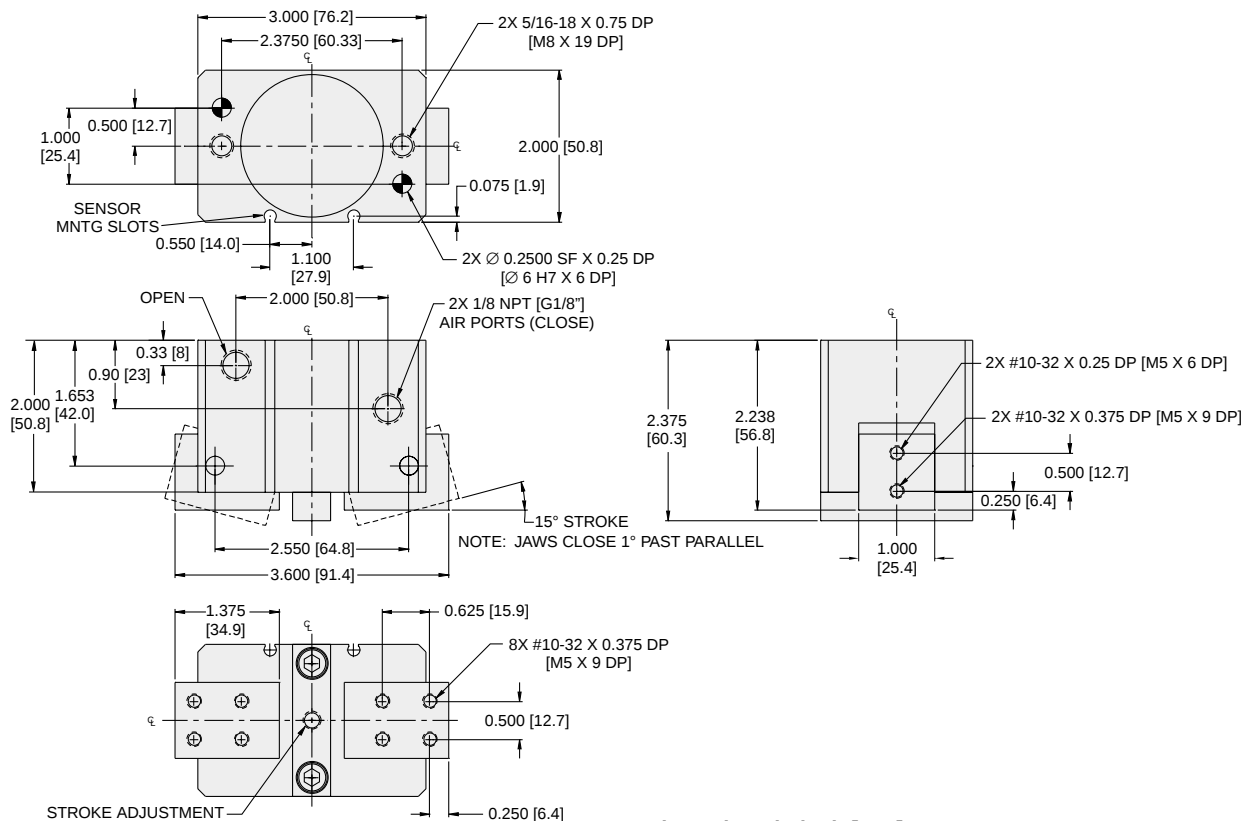
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	60 lbs	267 N	60 lbs	267 N
Moment (Mx)	60 in-lbs	6.8 Nm	60 in-lbs	6.8 Nm
Moment (My)	61 in-lbs	6.8 Nm	61 in-lbs	6.8 Nm
Moment (Mz)	62 in-lbs	6.8 Nm	62 in-lbs	6.8 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HA-8M



Total Grip Force (100 psi @ 1 in)	134 lbs	596 N
Total Stroke (Degree)	-2 to +30	
Weight	4.6 lbs	2.1 kg
Bore Size	2.5 in	63.5 mm
Cylinder Volume	1.32 in ³	21.6 cm ³
Repeatability	± 0.003 in	± 0.08 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	
* Fluorocarbon seals available for high temperature applications		

Note: See model code and ordering information page for complete part number selection.

30° Angle

GVC

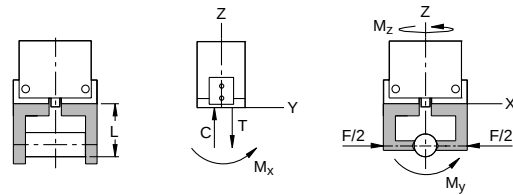
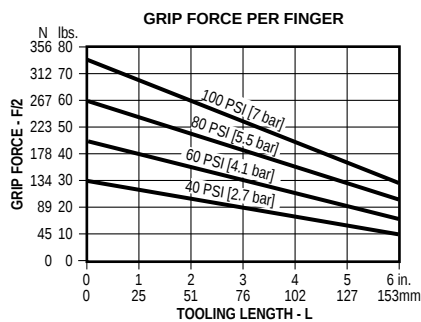
GAA

P5G-HA

P5G-AA

P5G-RK

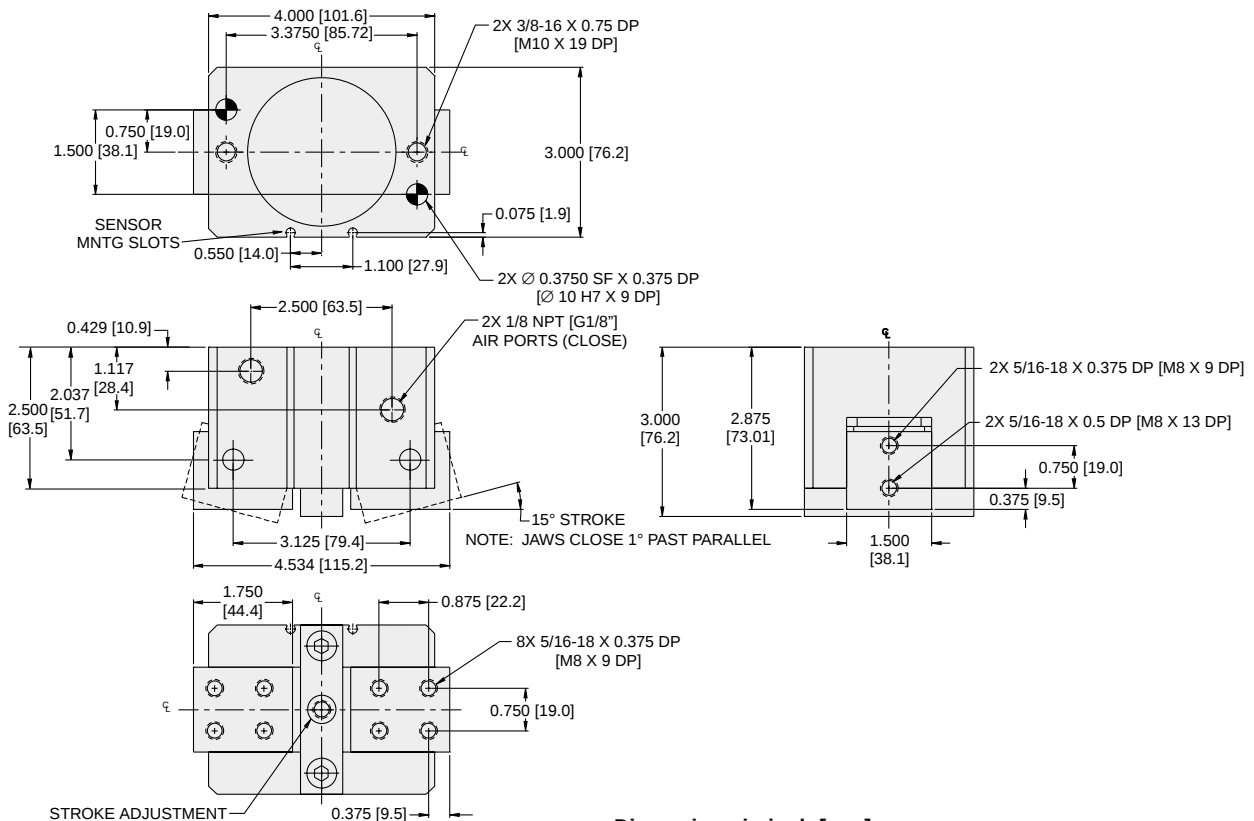
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	90 lbs	400 N	90 lbs	400 N
Moment (Mx)	60 in-lbs	6.8 Nm	60 in-lbs	6.8 Nm
Moment (My)	60 in-lbs	6.8 Nm	60 in-lbs	6.8 Nm
Moment (Mz)	60 in-lbs	6.8 Nm	60 in-lbs	6.8 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HA-10M

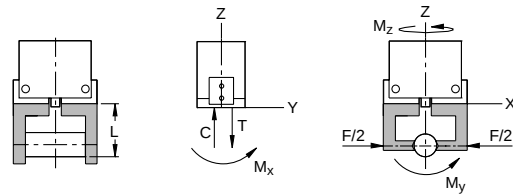
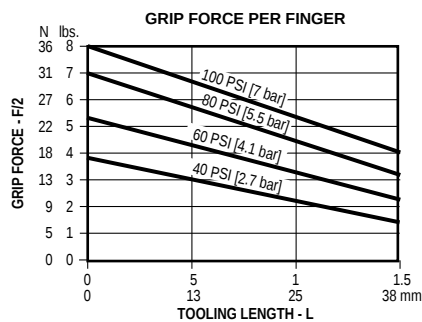


Total Grip Force (100 psi @ 1 in)	11 lbs	48.9 N
Total Stroke (Degree)	-2 to +30	
Weight	0.063 lbs	0.03 kg
Bore Size	0.813 in	20.6 mm
Cylinder Volume	0.026 in ³	0.4 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

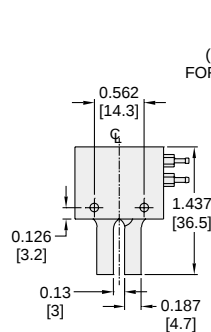
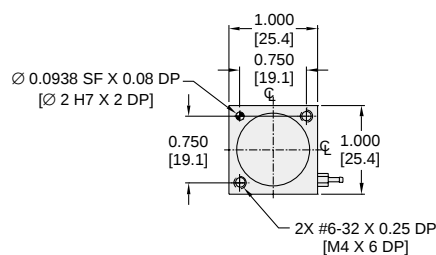
Loading Information



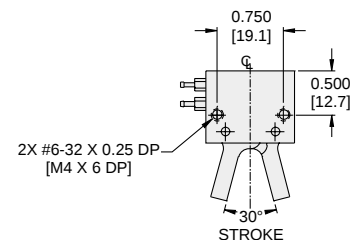
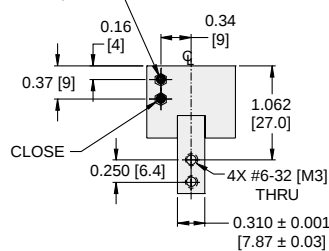
Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	5 lbs	22 N	5 lbs	22 N
Moment (Mx)	5 in-lbs	.6 Nm	5 in-lbs	.6 Nm
Moment (My)	5 in-lbs	.6 Nm	5 in-lbs	.6 Nm
Moment (Mz)	5 in-lbs	.6 Nm	5 in-lbs	.6 Nm

Dimensional Information



2X #3-56 [M3]
 AIR PORTS (OPEN)
 (FITTINGS SUPPLIED
 FOR 0.06 [2.0] TUBING I.D.)



NOTE: JAWS CLOSE 1° PAST PARALLEL

Dimensions in inch [mm].

Metric Unit (M)

The standard unit is manufactured with imperial mounting and porting. When this option is specified, the gripper incorporates metric threads and ports.

Reference dimensional drawings for more details.

Fluorocarbon Seals (V)

Standard nitrile seals should be used for general purpose applications with temperatures of -30° to 180° F (-35° to 80° C). Fluorocarbon seals are recommended for high temperature applications up to 250° F (120° C).

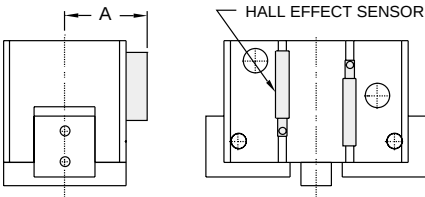
Seal Type	Temperature Range
Standard Buna-N	-30° to 180°F (-35 to 80°C)
Fluorocarbon	-20° to 250°F (-xx° to 120°C)

Hall Effect Sensors

Hall effect sensors provide feedback to the position of the gripper fingers by sensing a magnet within the piston. Sensors mount in the sensor mounting grooves in the gripper body and are adjustable to sense along the full travel of the piston.

Order sensors and cables separately. See Sensor section for part numbers and sensor specifications.

Note: Sensors not available for P5G-HA-10.



Dimensions

Model	A	
	inch	(mm)
5	0.70	(18)
6	1.01	(26)
7	1.35	(34)
8	1.85	(47)

30° Angle

GVC

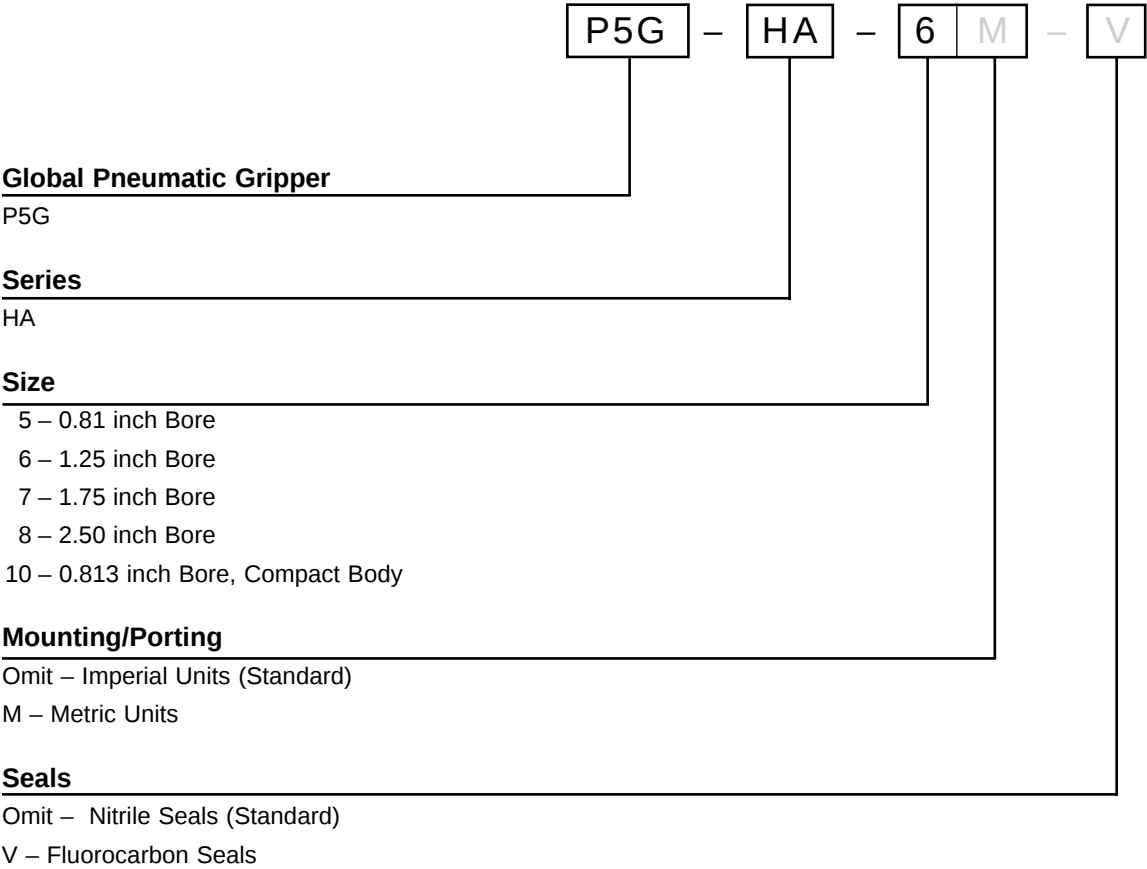
GAA

P5G-HA

P5G-AA

P5G-RK

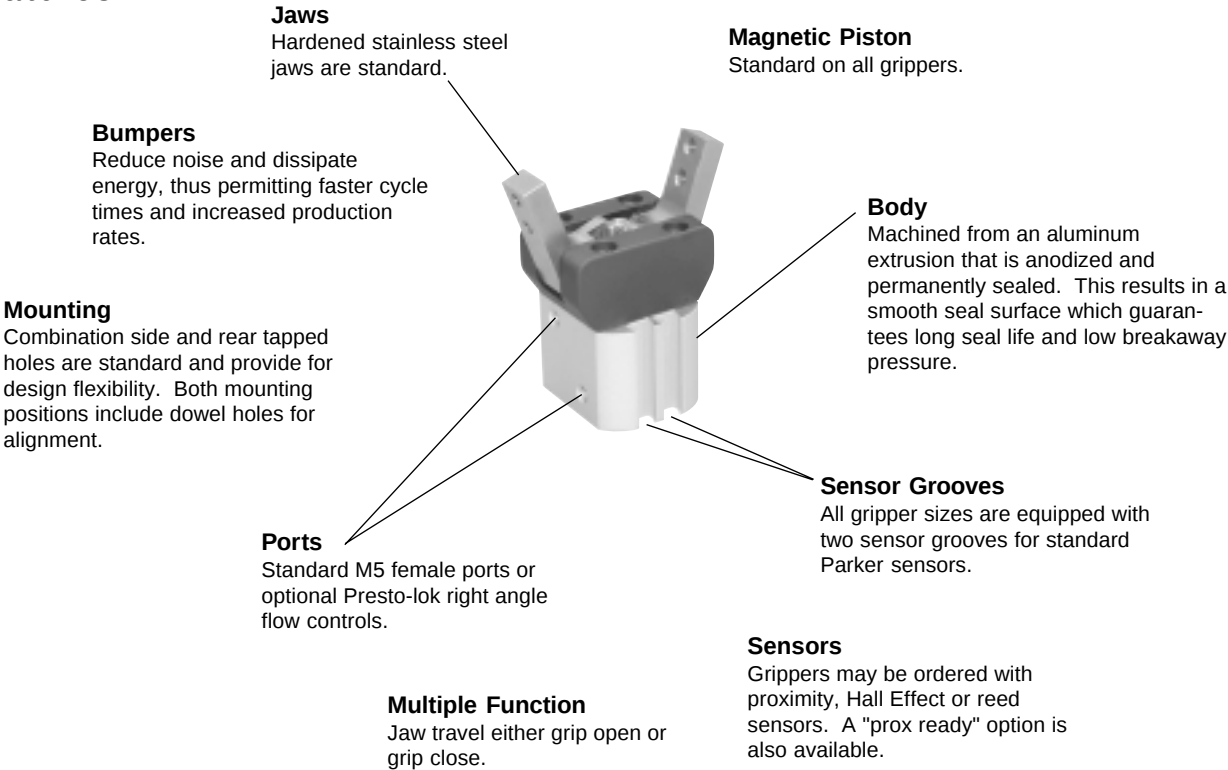
Model Code and Ordering Information



Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-HA-5	PSK-P5G-HA-5	PSK-P5G-HA-5V
P5G-HA-6	PSK-P5G-HA-6	PSK-P5G-HA-6V
P5G-HA-7	PSK-P5G-HA-7	PSK-P5G-HA-7V
P5G-HA-8	PSK-P5G-HA-8	PSK-P5G-HA-8V
P5G-HA-10	PSK-P5G-HA-10	PSK-P5G-HA-10V

Features



30° Angle

GVC

GAA

P5G-HA

P5G-AA

P5G-RK

Operation

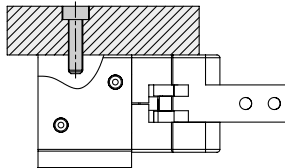
Operating Characteristic Double acting
Gripping Force @ 100 PSI 11 - 134 lbs
Stroke -5° to +30°
Operating Pressure Range 40 - 100 PSI (3 - 7 bar)

Not recommended for applications containing:

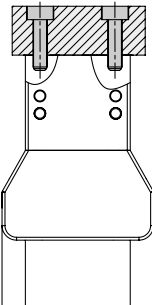
- Dirt or grit
- Machining chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Gripper mounts with screws and locates with dowel pin holes for accuracy.



Gripper mounts with screws and locates with center pilot diameter for accuracy.



Contents

P5G-AA3	154
P5G-AA4	155
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Right Angle Flow Controls	158
Sprint Return Option	158
Sensors	159
Fluorocarbon Seals	159
Ordering Information	160
Seal Kits	160

Warning! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

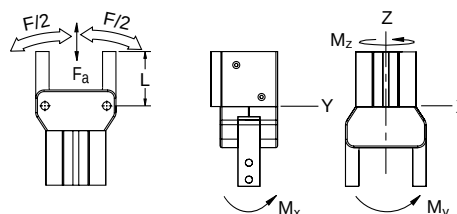
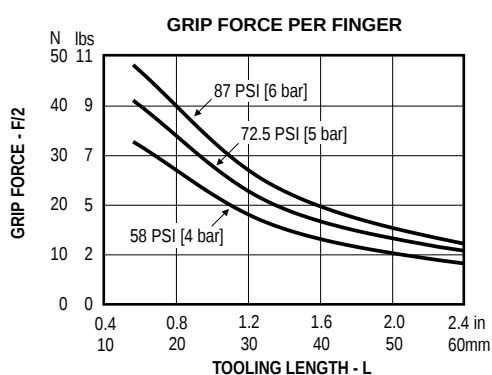
P5G-AA3



Total Grip Force (0.7 Mpa @ 25 mm)	17.4 lbs	77.7 N
Stroke (Degree)	-5 to +30	
Weight	0.27 lbs	0.122 kg
Bore Size	0.62 in	16 mm
Cylinder Volume	0.07 in³	1.14 cm³
Repeatability	± 0.003 in	± 0.076 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	
* Fluorocarbon seals available for high temperature applications		

Note: See model code and ordering information page for complete part number selection.

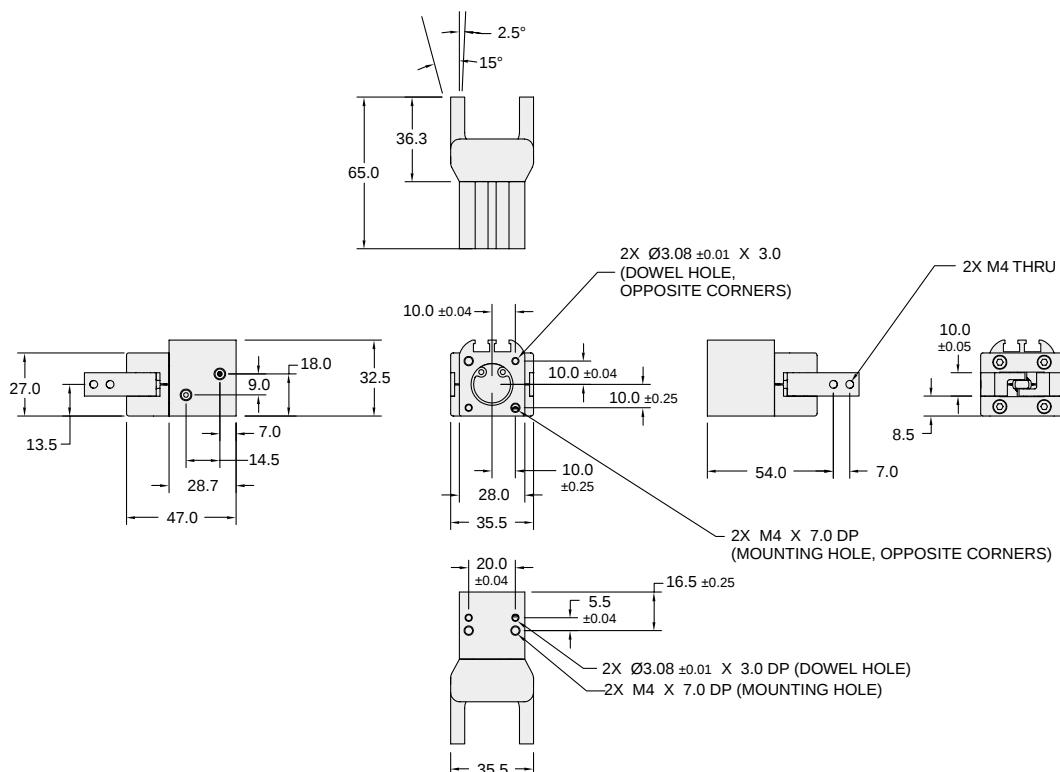
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	20.1 lbs	88 N
Moment (Mx)	38.7 in-lbs	4.3 Nm
Moment (My)	38.7 in-lbs	4.3 Nm
Moment (Mz)	37.8 in-lbs	4.2 Nm

Dimensional Information



Dimensions in mm.

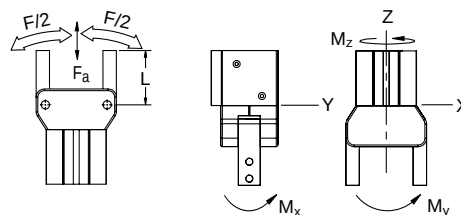
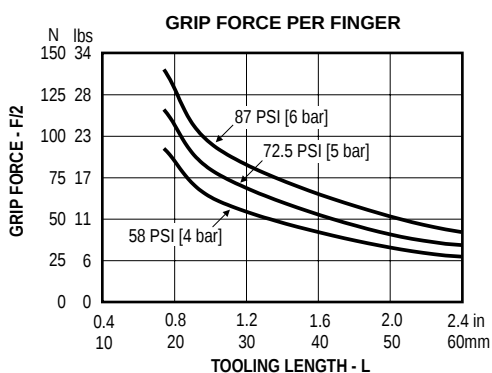
P5G-AA4



Total Grip Force (0.7 Mpa @ 25 mm)	46.9 lbs	208.8 N
Stroke (Degree)	-5 to +30	
Weight	0.54 lbs	0.244 kg
Bore Size	0.98 in	25 mm
Cylinder Volume	0.3 in³	4.9 cm³
Repeatability	± 0.003 in	± 0.076 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	
* Fluorocarbon seals available for high temperature applications		

Note: See model code and ordering information page for complete part number selection.

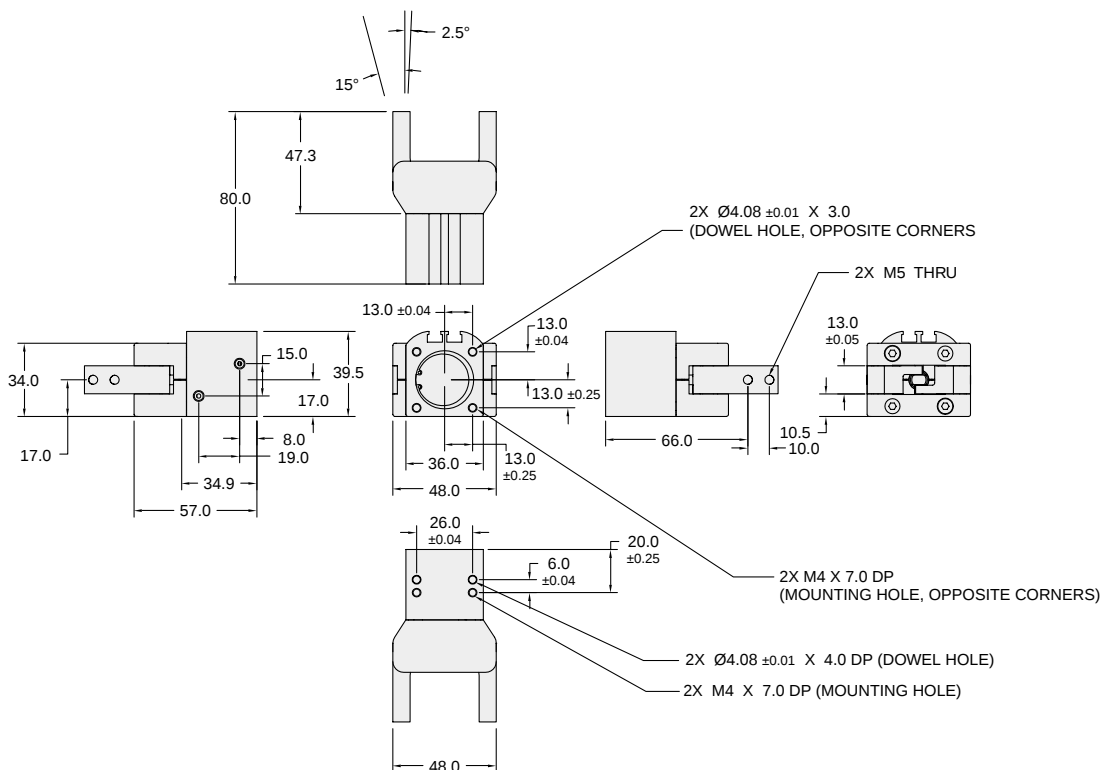
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	40 lbs	175 N
Moment (Mx)	49.5 in-lbs	5.5 Nm
Moment (My)	49.5 in-lbs	5.5 Nm
Moment (Mz)	37.8 in-lbs	4.5 Nm

Dimensional Information



Dimensions in mm.

P5G-AA5

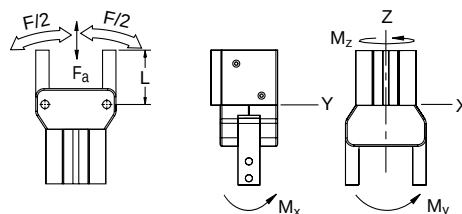
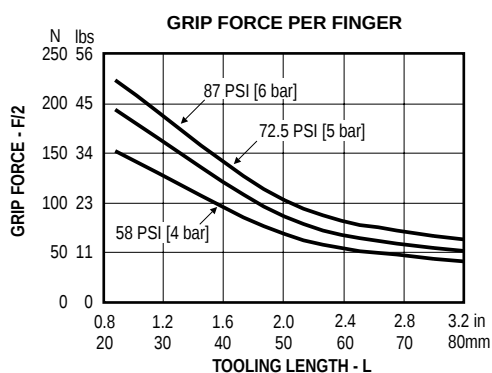


Total Grip Force (0.7 Mpa @ 25 mm)	108.2 lbs	481.4 N
Stroke (Degree)	-5 to +30	
Weight	.90 lbs	0.4 kg
Bore Size	1.25 in	32 mm
Cylinder Volume	0.58 in ³	9.5 cm ³
Repeatability	± 0.003 in	± 0.076 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

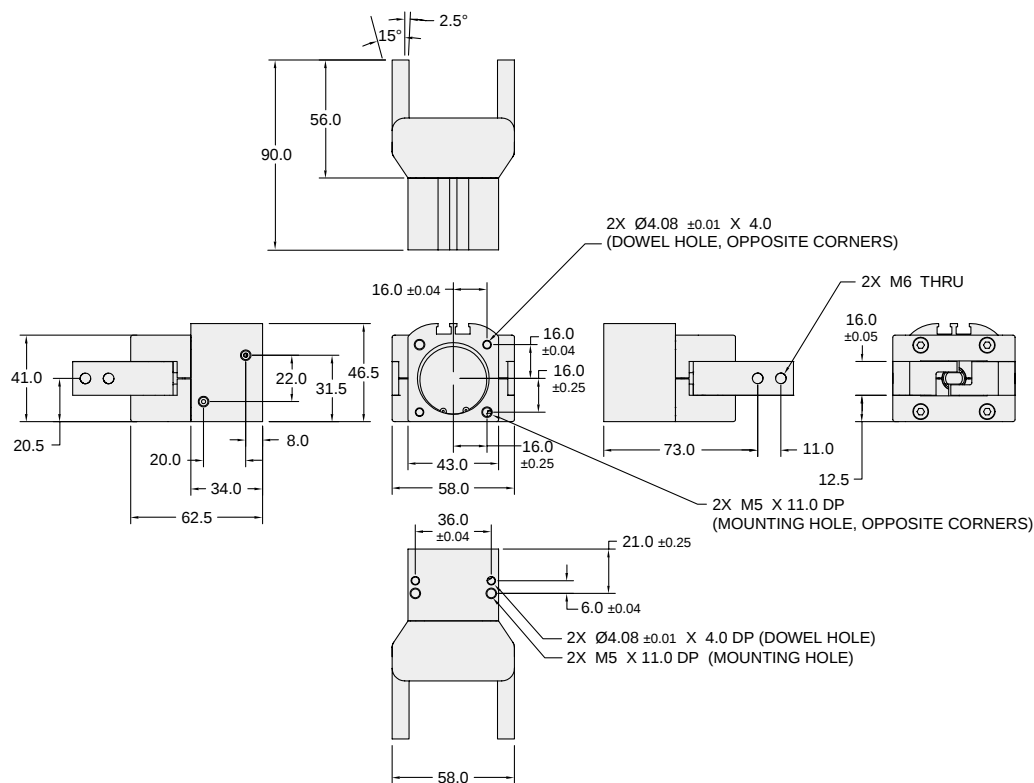
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fa)	69.9 lbs	306 N
Moment (Mx)	76.4 in-lbs	8.5 Nm
Moment (My)	80.9 in-lbs	9 Nm
Moment (Mz)	53.1 in-lbs	5.9 Nm

Dimensional Information

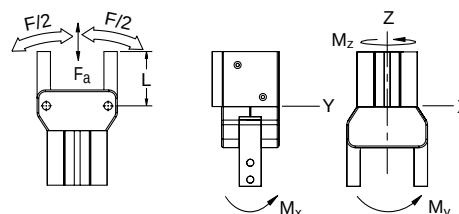


Dimensions in mm.

30° Angle

GAA

P5G-HA



Load	Static	
Axial Forces (Fa)	110.1 lbs	482 N
Moment (Mx)	116.9 in-lbs	13 Nm
Moment (My)	123.2 in-lbs	13.7 Nm
Moment (Mz)	75.5 in-lbs	8.4 Nm

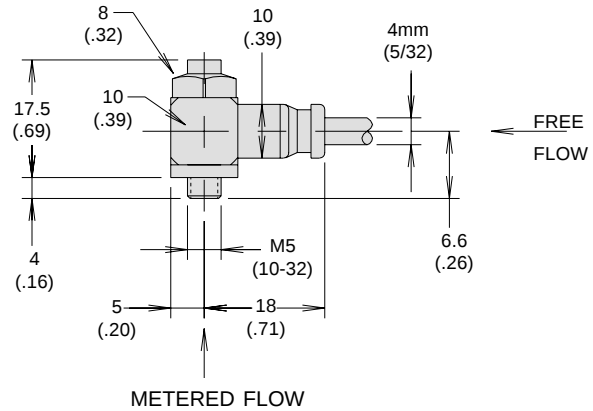
Technical drawing of a mechanical assembly, showing multiple views and dimensions. The drawing includes the following views and dimensions:

- Top View (Left):** Shows a rectangular base with a central rectangular feature. Dimensions include 48.0, 24.0, 67.0, 22.0, 35.2, 8.0, 24.0, 36.0, and 53.5.
- Front View (Top):** Shows a vertical assembly with a central cylindrical feature. Dimensions include 62.8, 98.0, 15°, and 2.5°.
- Front View (Bottom):** Shows a vertical assembly with a central cylindrical feature. Dimensions include 19.0 ±0.04, 19.0 ±0.04, 19.0 ±0.25, 19.0 ±0.25, 50.0, 68.0, 19.0 ±0.25, 41.0 ±0.04, 8.0 ±0.04, 21.0 ±0.25, and 68.0.
- Side View (Right):** Shows a horizontal assembly with a central rectangular feature. Dimensions include 80.0, 12.0, 18.00 ±0.05, and 15.0.
- Annotations:**
 - 2X Ø5.08 ±0.01 X 5.5 DP (DOWEL HOLE, OPPOSITE CORNERS)
 - 2X M6 THRU
 - 2X M6 X 13.0 DP (MOUNTING HOLE, OPPOSITE CORNERS)
 - 2X Ø5.08 ±0.01 X 5.5 DP (DOWEL HOLE)
 - 2X M6 X 13.0 DP (MOUNTING HOLE)



Right Angle Flow Control (3)

Right angle flow control valves allow precise adjustment of speed by metering exhaust air flow. Presto-Lok push-in ports provide 360° orientation capability.

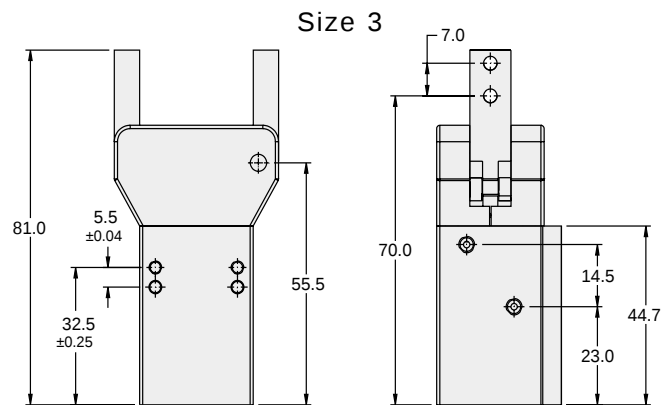


Spring Return (C)

The spring return option allows for an automatic reset and jaw return. Selecting the spring return option creates a single-acting gripper component that may reduce the number of directional control valves needed to operate automated machinery.

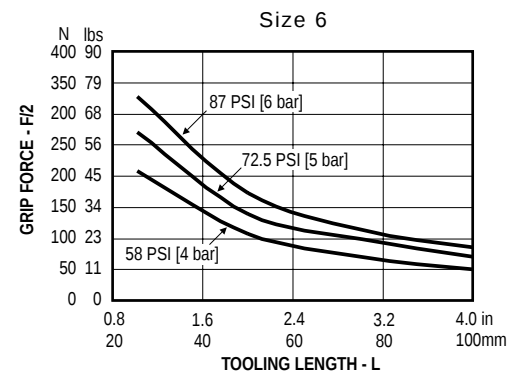
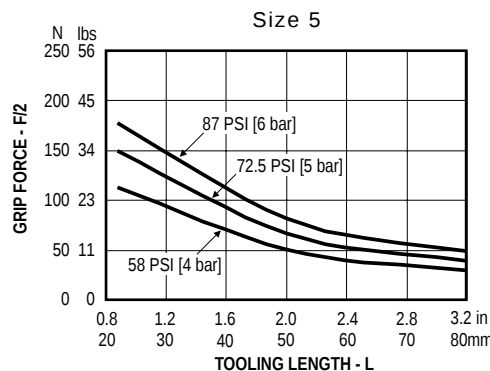
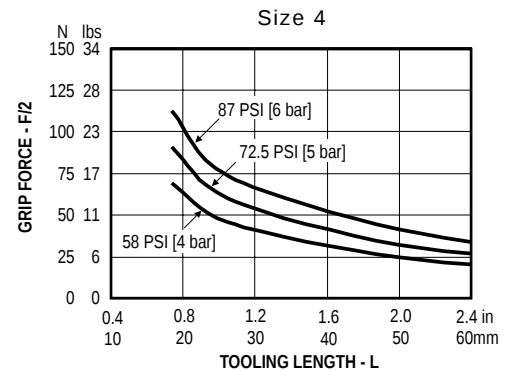
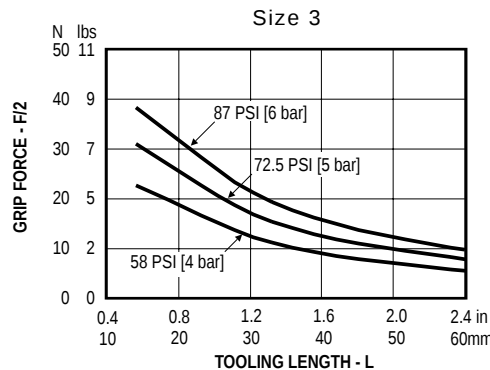
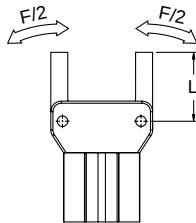
Dimensions

Spring return will increase body length on the **Size 3 models only**. See drawing at right.



Gripping Force

Total grip force (F) is defined as the sum of the forces applied by both jaws. Distance (L) is the distance from the pivot of the gripper to the center of the contact on the workpiece.

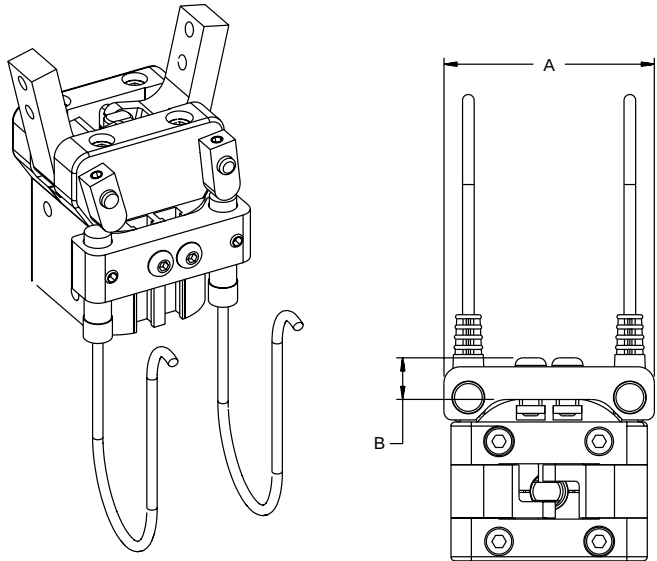


Proximity Sensors

Prox Ready (PJ)

Proximity sensors provide feedback on the position of the gripper fingers by sensing the metal screw that is attached to the gripper jaw. The sensor is adjustable along the full travel of the steel screw and is held in place by the set screw.

Care should be taken when adjusting the sensor so that the adjustable screw does not physically contact the sensor. Distance from the screw to the sensor should be approximately 1 mm (0.04 inches).



Dimensions
(mm)

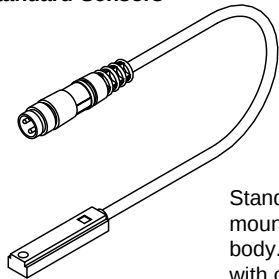
Size	A	B
3	42	10.3
4	51.5	10.2
5	59	10.2
6	66	10.2

Reed and Hall Effect Sensors

Reed or Hall effect sensors mount in the sensor mounting grooves located in the gripper body. A magnetic piston is standard for ease of field addition of sensors.

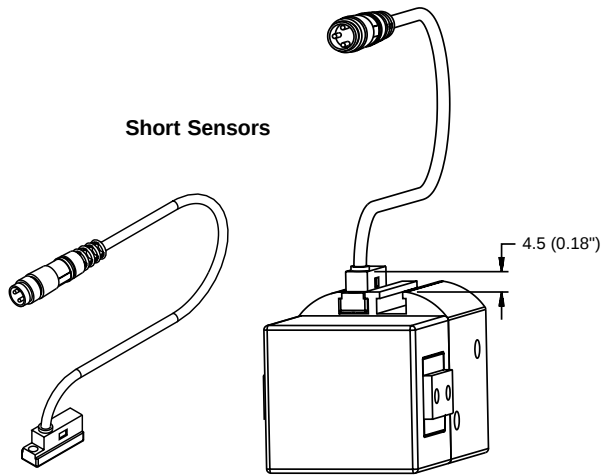
See Sensors section for specifications.

Standard Sensors



Standard sensors mount flush to the body. Sensor shown with connector. Lead wires also available.

Short Sensors



Fluorocarbon Seals (V)

Standard abrasion resistant nitrile seals should be used for general purpose applications with temperatures of -18° to 82°C (0° to 180°F). Fluorocarbon seals are recommended for high temperature applications up to 121°C (250°F). The items shown in the table should be considered when planning high temperature applications.

	Temperature Range
Magnets	-27° to 130°C (-16° to 266°F)
Bumpers	-27° to 90°C (-16° to 195°F)
Sensors	-25° to 75°C (-13° to 167°F)
Proximity Sensors	-25° to 70°C (-13° to 158°F)

30° Angle

GVC

GAA

P5G-HA

P5G-AA

P5G-RK

Model Code and Ordering Information

P5G – A A 4 B A N H B S – A

Global Pneumatic Grippers

P5G

Series

A – Automation

Type

A – 30° Angular

Size

3 – 16 mm

5 – 32 mm

4 – 25 mm

6 – 40 mm

Ports

B – M5 Female

3 – Prestolok Flow Control 4mm (5/32") tube diameter

Function

A – Standard

Spring Option

C – Spring Return

N – No Spring

Sensors

NN – No Sensors

PJ – Proximity Sensor Ready

Standard Hall Effect

HA – (2) NPN w/Plug*

HB – (2) PNP w/Plug*

HC – (1) NPN w/Plug*

HD – (1) PNP w/Plug*

HE – (2) NPN w/o Plug**

HF – (2) PNP w/o Plug**

HG – (1) NPN w/o Plug**

HK – (1) PNP w/o Plug**

Short Hall Effect

HV – (2) PNP w/Plug*

HY – (1) PNP w/Plug*

KB – (2) PNP w/o Plug**

KD – (1) PNP w/o Plug**

Standard Reed

RA – (2) w/Plug*

RB – (1) w/Plug*

RC – (2) w/o Plug**

RD – (1) w/o Plug**

Proximity

PA – (2) NPN Plug-in †

PB – (2) PNP Plug-in †

PC – (1) NPN Plug-in †

PD – (1) PNP Plug-in †

PE – (2) NPN Potted ‡

PF – (2) PNP Potted ‡

PG – (1) NPN Potted ‡

PK – (1) PNP Potted ‡

* 0.27m cable

** 3m cable

† 5m cable

‡ 6m lead

Seals

S – Standard

F – Fluorocarbon

Design Series

A – Current Design Series

Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-AA3	PSK-P5GAA3	PSK-P5GAA3-F
P5G-AA4	PSK-P5GAA4	PSK-P5GAA4-F
P5G-AA5	PSK-P5GAA5	PSK-P5GAA5-F
P5G-AA6	PSK-P5GAA6	PSK-P5GAA6-F

Features

Body

Permanently sealed, anodized aluminum to provide maximum corrosion resistance.

Fail Safe Option

Internal springs act in the closed position to ensure that the part remains clamped in the event of a power failure.

Seals

Self lubricating dynamic seals (Nitrile only)

Dowel Pin Holes

Press fit dowels located in gripper body and jaws.

Jaws

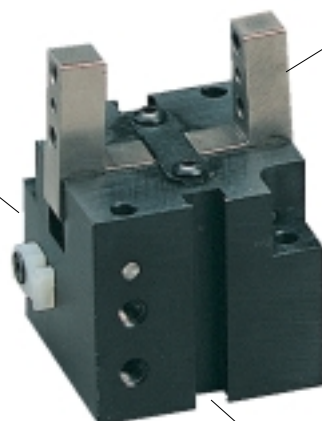
Available in short and long configurations with tapped through-holes and dowel pin holes.

Contaminant Tolerance

Sealed design resists internal contamination.

Sensors

Sensor grooves allow easy installation, adjustment of magneto resistive sensor. Magnetic piston is standard.



30° Angle

GVC

GAA

P5G-HA

P5G-AA

P5G-RK

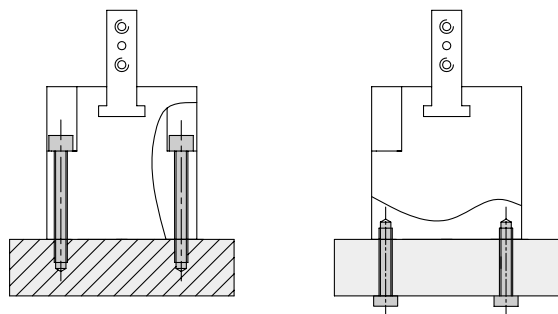
Operation

Operating Characteristic Double acting, spring closed
 Gripping Force @ 100 PSI 7 - 522 lbs
 Stroke -3° to +30°
 Operating Pressure Range 44 - 116 PSI (3 - 8 bar)

Mounting

Grippers can be mounted and operated in any orientation.

Gripper can be mounted on three faces and locates with dowel pin holes for accuracy.



Warning! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

Contents

P5G-RK1	162
P5G-RK2	163
P5G-RK3	164
P5G-RK4	165
P5G-RK5	166
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Dust Cover Option	167
Ordering Information	168
Seal Kits	168

Note: See model code and ordering information page for complete part number selection.

GRIP FORCE PER FINGER

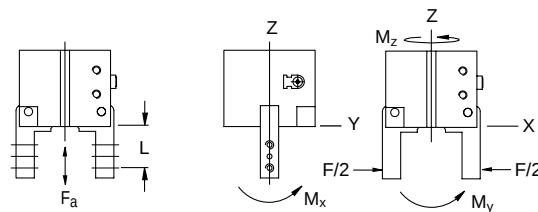
Y-axis: GRIP FORCE - F/2 (N lbs)

X-axis: TOOLING LENGTH - L (inches and mm)

Curves shown:

- 87 PSI [6 bar]
- 72.5 PSI [5 bar]

Tooling Length (L)	Grip Force (F/2) at 87 PSI [6 bar]	Grip Force (F/2) at 72.5 PSI [5 bar]
0.4 in (10 mm)	35 lbs	30 lbs
0.6 in (15 mm)	25 lbs	22 lbs
0.8 in (20 mm)	18 lbs	16 lbs
1.0 in (25 mm)	14 lbs	12 lbs
1.2 in (30 mm)	11 lbs	9 lbs
1.4 in (35 mm)	9 lbs	7 lbs
1.6 in (40 mm)	7.5 lbs	6 lbs
1.8 in (45 mm)	6.5 lbs	5.5 lbs
2.0 in (50 mm)	5.8 lbs	5 lbs
2.2 in (55 mm)	5.2 lbs	4.5 lbs
2.4 in (60 mm)	4.8 lbs	4 lbs



Load	Static	
Axial Forces (Fx)	7.64 lbs	34 N
Moment (Mx)	10.6 in-lbs	1.2 Nm
Moment (My)	10.6 in-lbs	1.2 Nm
Moment (Mz)	6.19 in-lbs	0.7 Nm

Technical drawing showing two views of a mechanical assembly with dimensions in mm.

Top View Dimensions:

- 2X M3 ∇ 3.5
- $\varnothing 2.5^{+0.03}_{-0.00}$ ∇ 5.0
- M4 ∇ 10.0
- 18.0
- 10.0
- 23.0
- 18.0
- 23.0

Side View Dimensions:

- 16
- 6.0
- 10
- $\varnothing 2.5$
- 19.0
- 27.5
- 9.0
- $18.0^{+0.09}_{-0.00}$ ∇ 1.5
- 50.5
- 35.0
- 10.0
- 6
- M5 ∇ 6.0 CLOSE
- M5 ∇ 6.0 OPEN
- 2X $\varnothing 3.1$
- 34
- 30.0
- 7.0
- 5.5
- 6.0
- 30.0



P5G-RK2



Total Grip Force (0.7 Mpa @ 25 mm)	27.3 lbs	121.8 N
Total Stroke (Degree)	-4 to +30	
Weight w/ flat jaw carrier	0.418 lbs	0.19 kg
Weight w/ square jaw carrier	0.44 lbs	0.2 kg
Bore Size	0.984 in	25 mm
Cylinder Volume	0.167 in ³	2.75 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

30° Angle

GVC

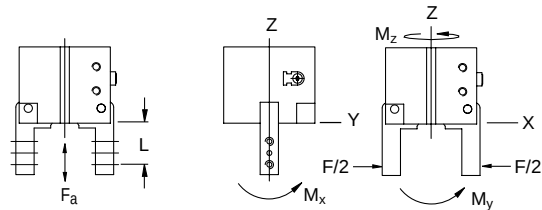
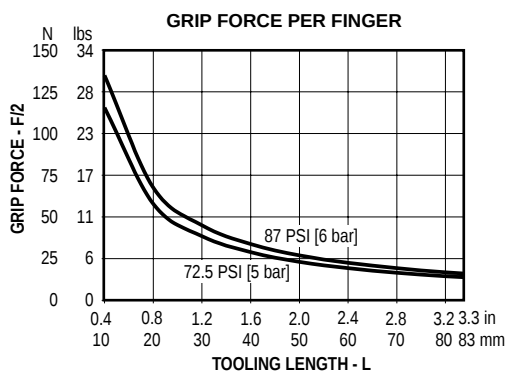
GAA

P5G-HA

P5G-AA

P5G-RK

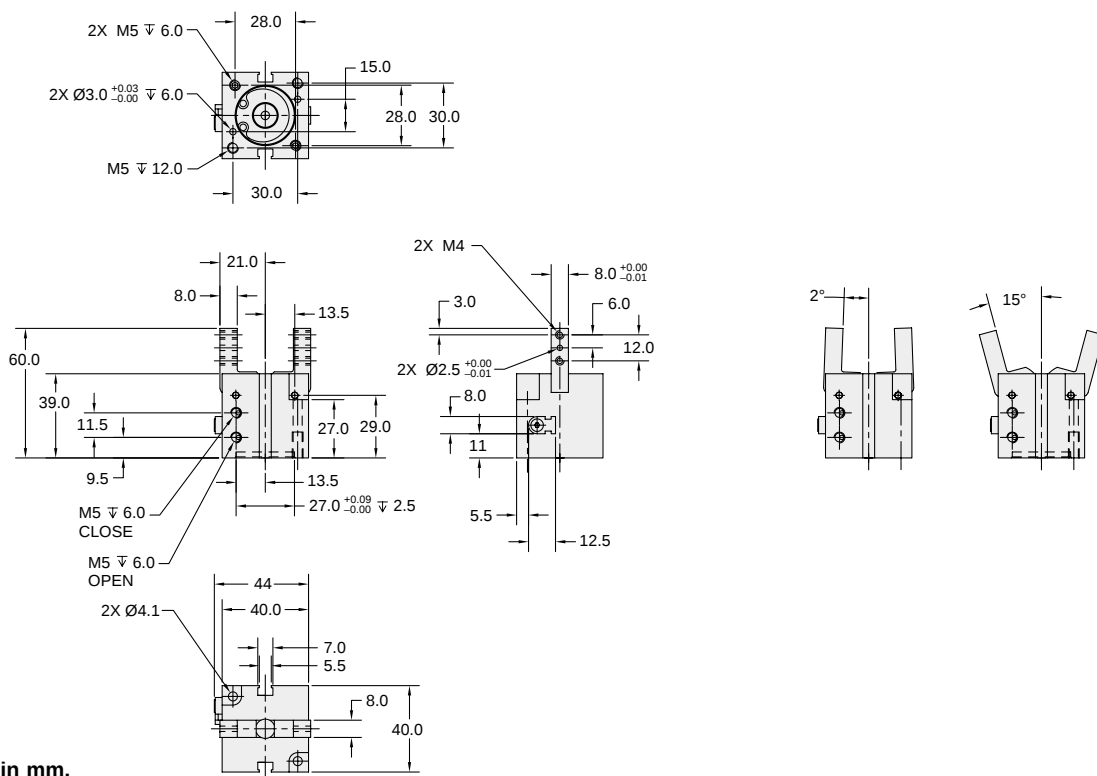
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fx)	35.9 lbs	160 N
Moment (Mx)	40.7 in-lbs	4.6 Nm
Moment (My)	40.7 in-lbs	4.6 Nm
Moment (Mz)	23.8 in-lbs	2.7 Nm

Dimensional Information



Dimensions in mm.

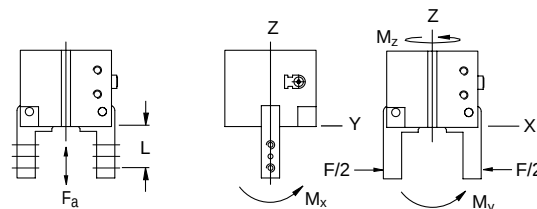
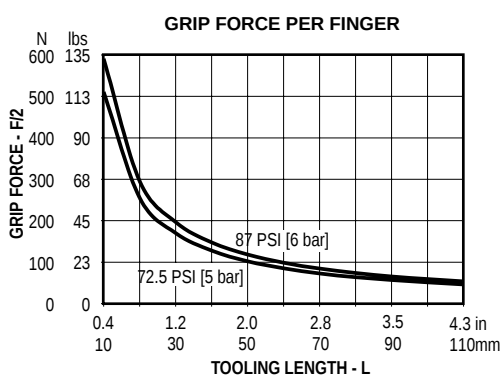
P5G-RK3



Total Grip Force (0.7 Mpa @ 25 mm)	123.8 lbs	551 N
Total Stroke (Degree)	-5 to +30	
Weight w/ flat jaw carrier	0.837 lbs	0.38 kg
Weight w/ square jaw carrier	0.925 lbs	0.42 kg
Bore Size	1.57 in	40 mm
Cylinder Volume	0.72 in ³	11.8 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

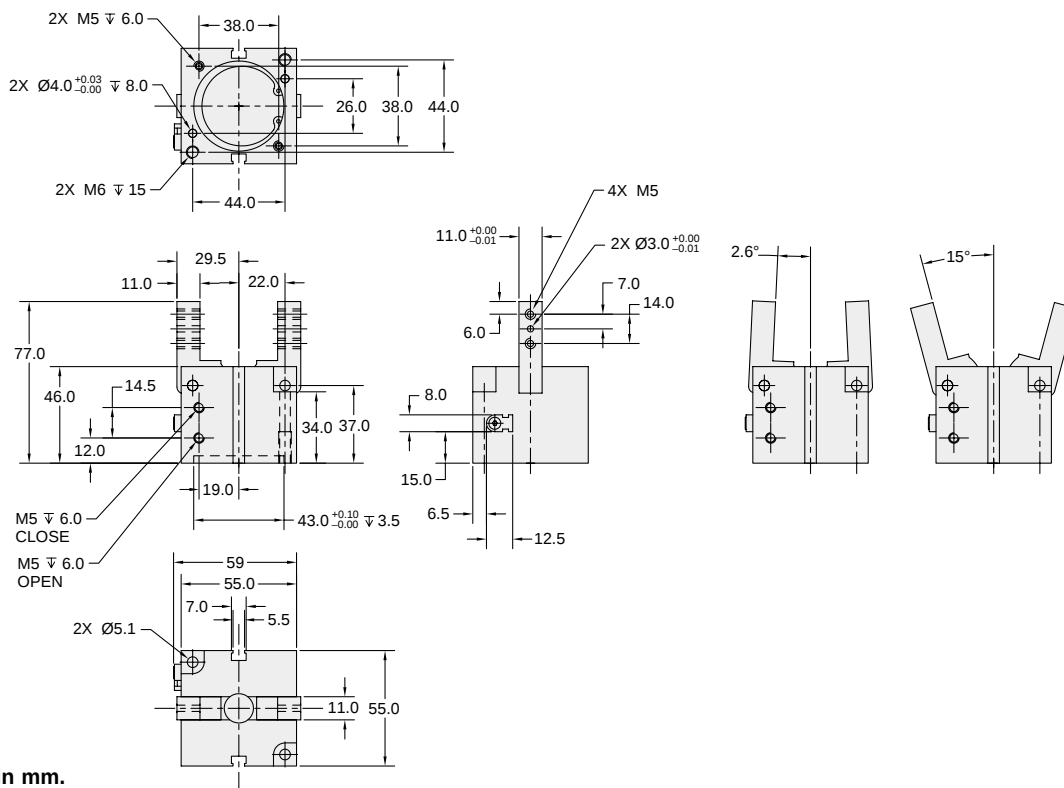
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fx)	58.45 lbs	260 N
Moment (Mx)	169 in-lbs	19.2 Nm
Moment (My)	169 in-lbs	19.2 Nm
Moment (Mz)	105 in-lbs	11.9 Nm

Dimensional Information



Dimensions in mm.

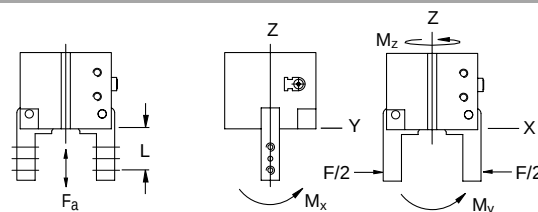
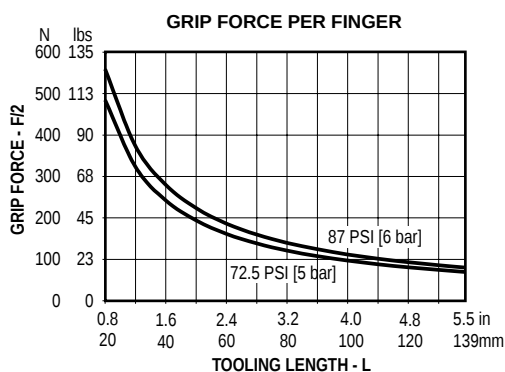
P5G-RK4



Total Grip Force (0.7 Mpa @ 25 mm)	234.7 lbs	1044 N
Total Stroke (Degree)	-13 to +30	
Weight w/ flat jaw carrier	1.43 lbs	0.65 kg
Weight w/ square jaw carrier	1.60 lbs	0.73 kg
Bore Size	1.968 in	50 mm
Cylinder Volume	1.476 in ³	24.2 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

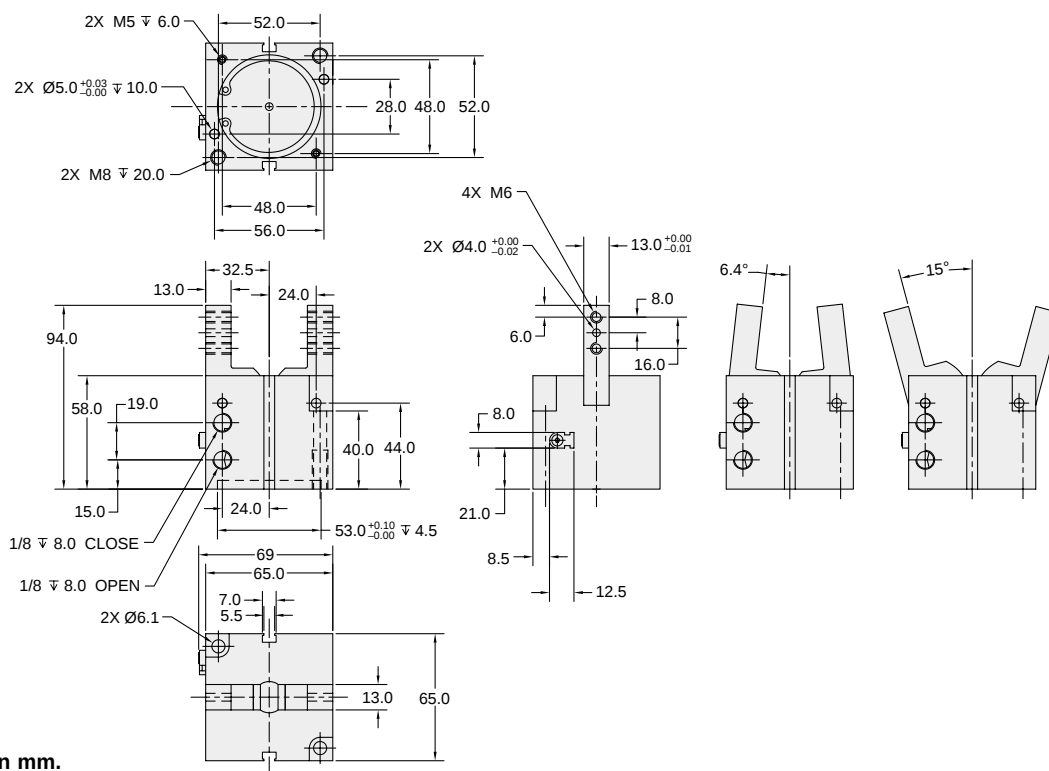
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fx)	107.9 lbs	480 N
Moment (Mx)	318.6 in-lbs	36 Nm
Moment (My)	318.6 in-lbs	36 Nm
Moment (Mz)	198.2 in-lbs	22.4 Nm

Dimensional Information



Dimensions in mm.

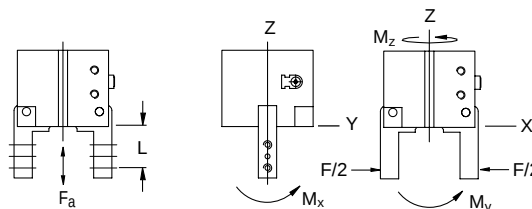
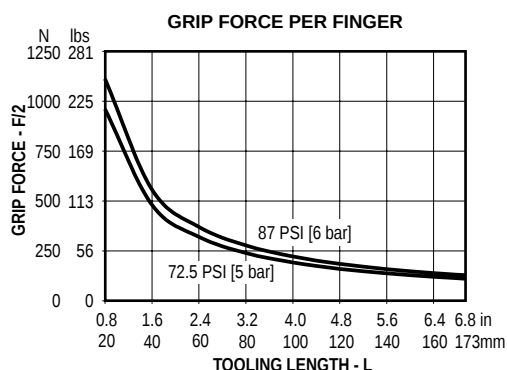
P5G-RK5



Total Grip Force (0.7 Mpa @ 25 mm)	521.5 lbs	2320 N
Total Stroke (Degree)	-13 to +30	
Weight w/ flat jaw carrier	2.57 lbs	1.17 kg
Weight w/ square jaw carrier	2.86 lbs	1.30 kg
Bore Size	2.48 in	63 mm
Cylinder Volume	3.27 in ³	53.6 cm ³
Repeatability	± 0.002 in	± 0.05 mm
Temperature Range	-4° to 158° F	-20° to 70° C
Pressure Range	43.5-116 psi	3-8 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

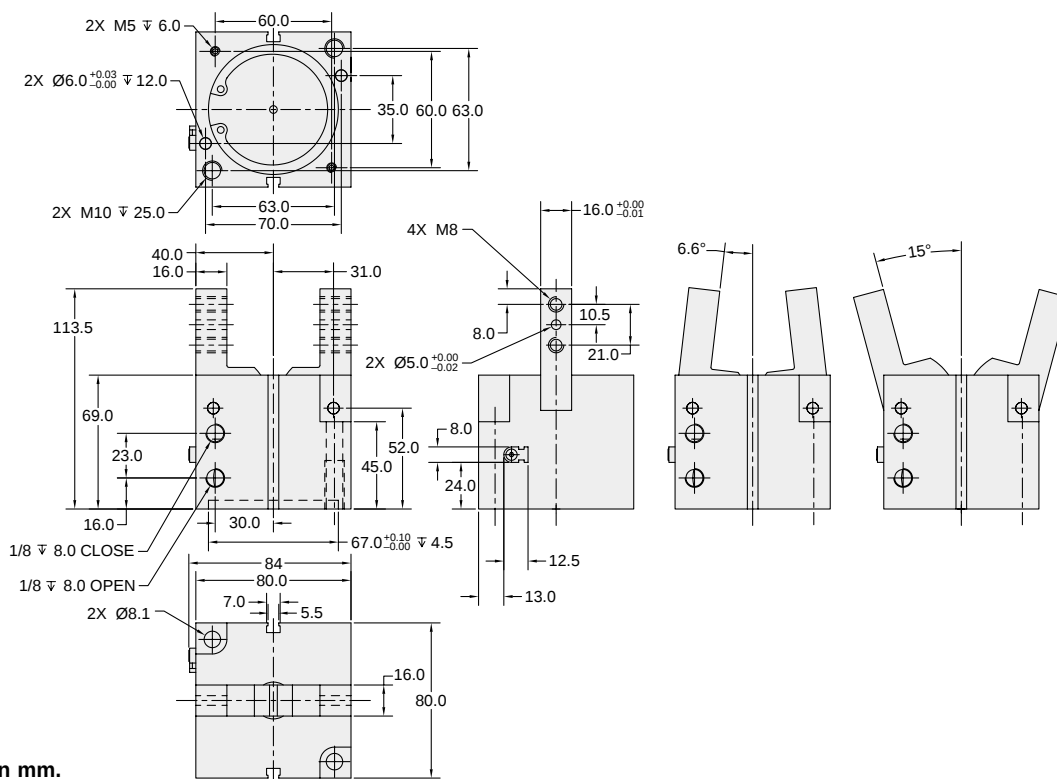
Loading Information



Maximum Loading Capacity

Static		
Axial Forces (Fx)	139.3 lbs	620 N
Moment (Mx)	647.8 in-lbs	73.2 Nm
Moment (My)	647.8 in-lbs	73.2 Nm
Moment (Mz)	393.8 in-lbs	44.5 Nm

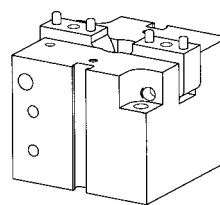
Dimensional Information



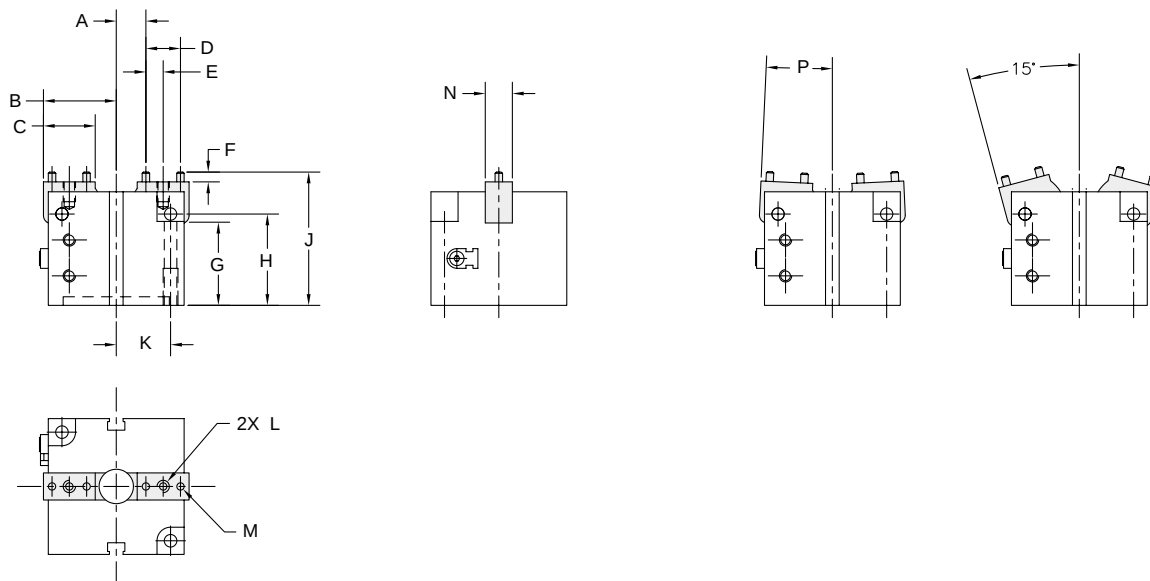
Dimensions in mm.

Jaw Style Option (K, C)

Two jaw styles are available, Long (K) and Short (C). The long style is standard and allows for mounting on the edge of the jaw. The short fingers allow for mounting on the face of the jaw. See dimensional information below for short fingers.



**Short Jaw
(C)**



Short Jaw Dimensions (mm)

Model	A	B	C	D	E	F	G	H	J	K	L	ØM	N	P
P5G-RC1	7	17.5	12	9	4.5	2.5	19	27.5	40	10	M3 x 5 dp	2	6	1.6°
P5G-RC2	9.5	23.5	16	12	6	3.5	27	29	45.5	13.5	M4 x 6.5 dp	2.5	8	2°
P5G-RC3	12	29.5	21	14	7	4	34	37	54	22	M5 x 8 dp	3	11	2.6°
P5G-RC4	13	32.5	23	16	8	5	40	44	68	24	M6 x 12 dp	4	13	6.4°
P5G-RC5	15.5	40	28	21	10.5	6	45	52	81	31	M8 x 15 dp	5	16	6.6°

Spring Assist Option (F)

The spring assist option allows for an automatic reset and jaw return. Selecting the spring assist option creates a single-acting gripper which may reduce the number of directional control valves needed to operate automated machinery. The spring assist option also allows the fingers to return to the closed position when pressure is lost during a power failure.

Size	Spring Force	
	lbs	N
1	2.2	10
2	5.6	25
3	17.9	80
4	24.7	110
5	40.4	180

Dust Cover (A)

A dust cover can be added to prevent machining chip contaminants from entering the working mechanism of the gripper. This dust cover is also ideal for dusty and dirty environments.

Model Code and Ordering Information

P5G	–	R	K	1	B	0	C	00	033
-----	---	---	---	---	---	---	---	----	-----

Type

P5G – Pneumatic Gripper

Series

R – Robotic

Jaw Style

K – Long Jaws (Standard)

C – Short Jaws

Size

1 – 16 mm Bore

2 – 25 mm Bore

3 – 40 mm Bore

4 – 50 mm Bore

5 – 63 mm Bore

Port Size

B – M5 holes for sizes 1, 2 and 3

C – G1/8 holes for sizes 4 and 5

Spring

0 – No Spring (Standard)

F – Spring Assist

Dust Cover

C – No Dust Cover (Standard)

A – Dust Cover

Function

00 – Standard

Angle

033 – Size 1

034 – Size 2

035 – Size 3

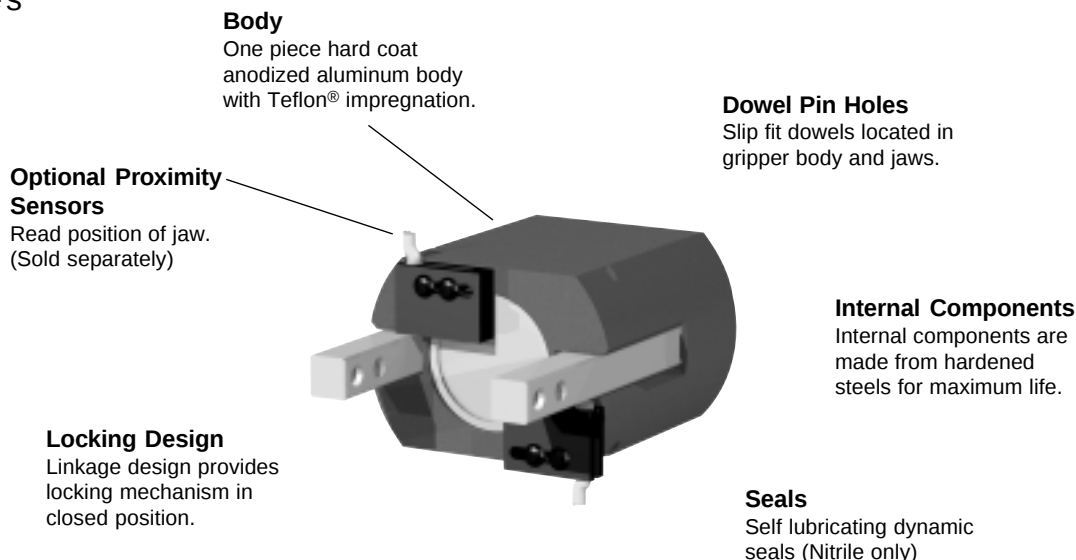
043 – Size 4

043 – Size 5

Seal Kits

Size	Nitrile Seal Kit
P5G-RK1	PSK-RK1
P5G-RK2	PSK-RK2
P5G-RK3	PSK-RK3
P5G-RK4	PSK-RK4
P5G-RK5	PSK-RK5

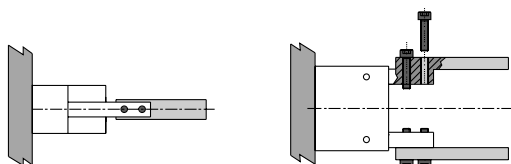
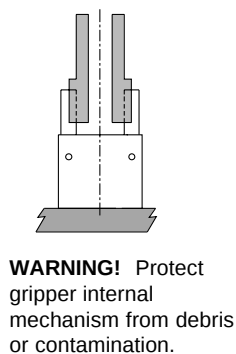
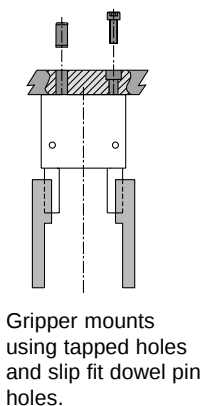
Features



Operation

Operating Characteristic	Double acting, locking linkage design
Gripping Force @ 100 PSI	62 - 220 lbs
Operating Pressure Range	40 - 100 PSI (3 - 7 bar)

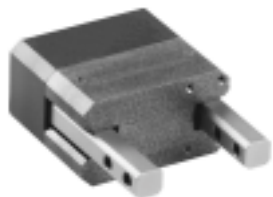
Mounting



Contents

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P5G-HA-15M

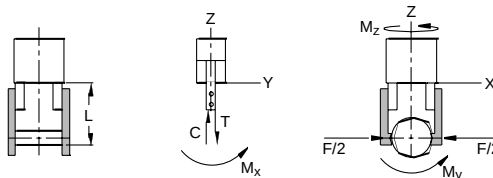
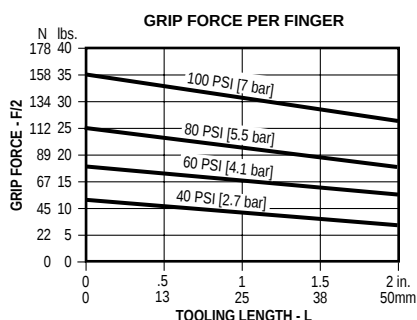


Total Grip Force (100 psi @ 1 in)	62 lbs	275.7 N
Total Stroke (Degree)	12	
Weight	0.31 lbs	0.14 kg
Bore Size	0.750 in	19.1 mm
Cylinder Volume	0.110 in ³	1.8 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

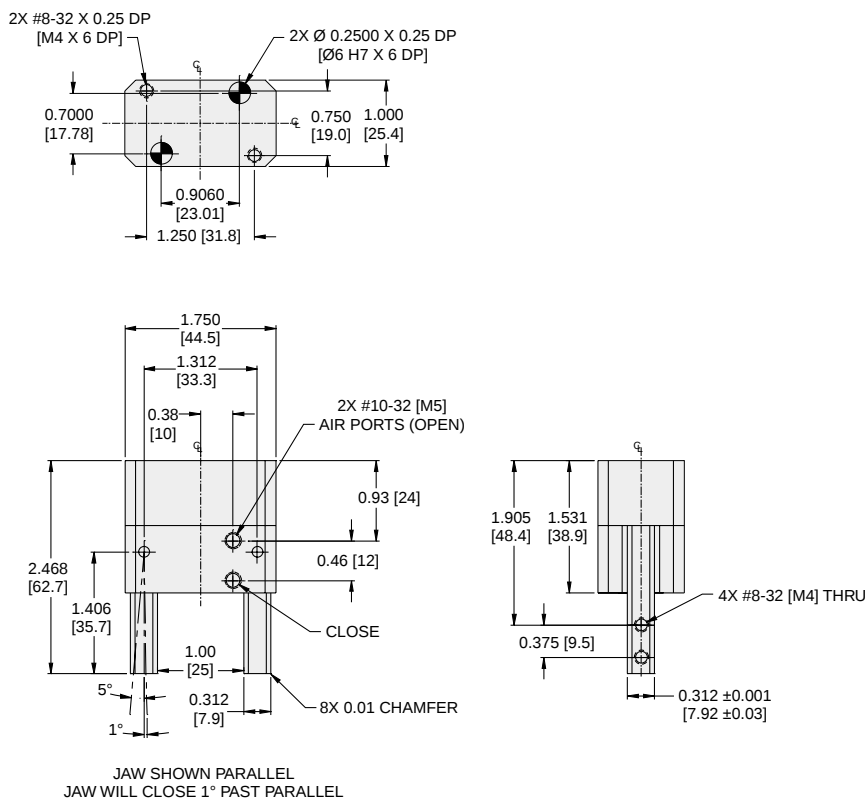
Loading Information



Maximum Loading Capacity

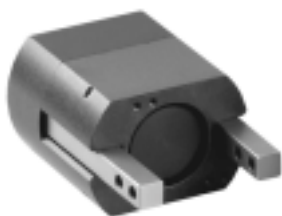
Load	Static		Dynamic	
Axial Forces (C,T)	50 lbs	222 N	20 lbs	89 N
Moment (Mx)	60 in-lbs	6.8 Nm	20 in-lbs	2.3 Nm
Moment (My)	120 in-lbs	13.6 Nm	40 in-lbs	4.5 Nm
Moment (Mz)	60 in-lbs	6.8 Nm	20 in-lbs	2.3 Nm

Dimensional Information



Dimensions in inch [mm].

P5G-HA-25M

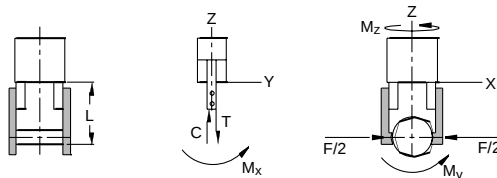
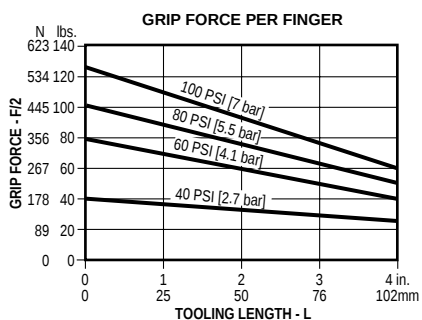


Total Grip Force (100 psi @ 1 in)	220 lbs	978.6 N
Total Stroke (Degree)	12	
Weight	1.06 lbs	0.48 kg
Bore Size	1.25 in	31.8 mm
Cylinder Volume	0.046 in ³	0.8 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range*	-30° to 180° F	-35° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature application

Note: See model code and ordering information page for complete part number selection.

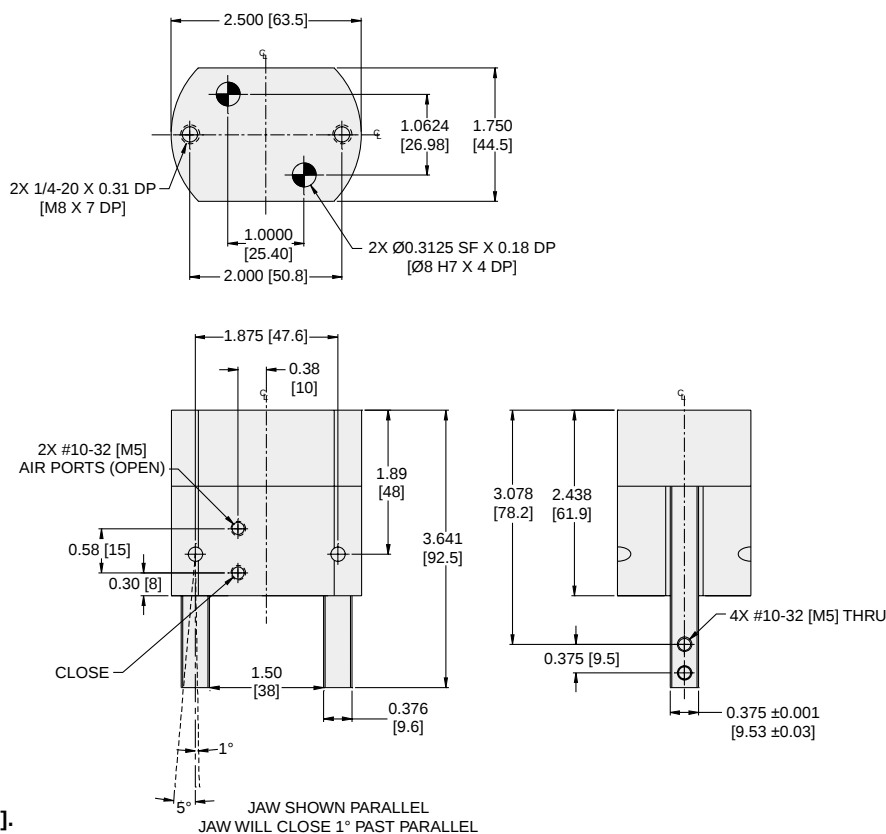
Loading Information



Maximum Loading Capacity

Load	Static		Dynamic	
Axial Forces (C,T)	150 lbs	667 N	50 lbs	222 N
Moment (Mx)	200 in-lbs	22.6 Nm	60 in-lbs	6.8 Nm
Moment (My)	300 in-lbs	33.9 Nm	75 in-lbs	8.5 Nm
Moment (Mz)	200 in-lbs	22.6 Nm	60 in-lbs	6.8 Nm

Dimensional Information



Dimensions in inch [mm].

Metric Unit (M)

The standard unit is manufactured with imperial mounting and porting. When this option is specified, the gripper incorporates metric threads and ports.

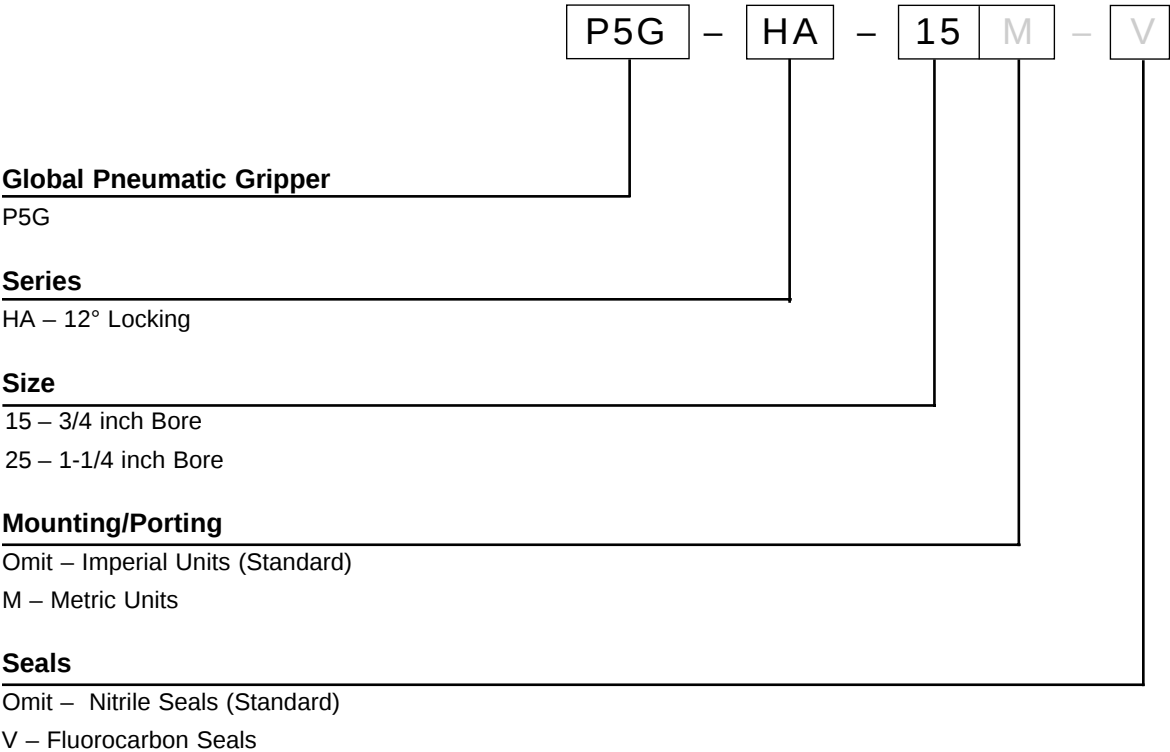
Reference dimensional drawings for more details.

Fluorocarbon Seals (V)

Standard nitrile seals should be used for general purpose applications with temperatures of -30° to 180° F (-35° to 80° C). Fluorocarbon seals are recommended for high temperature applications up to 250° F (120° C).

Seal Type	Temperature Range
Standard Buna-N	-30° to 180°F (-35 to 80°C)
Fluorocarbon	-20° to 250°F (-30° to 120°C)

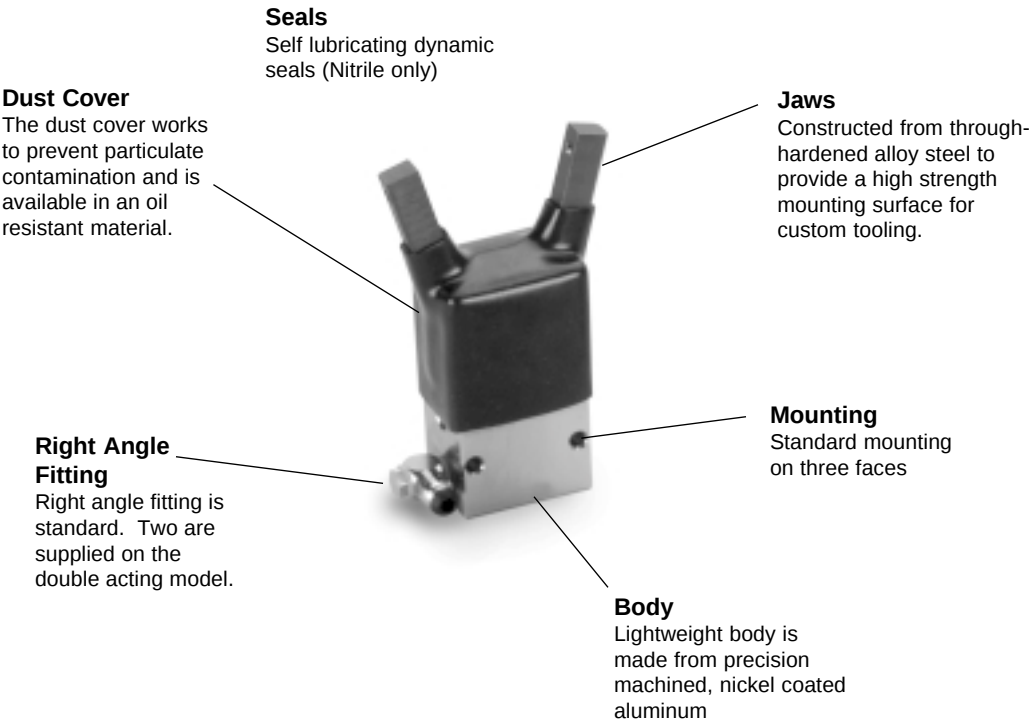
Model Code and Ordering Information



Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-HA-15	PSK-P5G-HA-5	PSK-P5G-HA-5V
P5G-HA-25	PSK-P5G-HA-6	PSK-P5G-HA-6V

Features

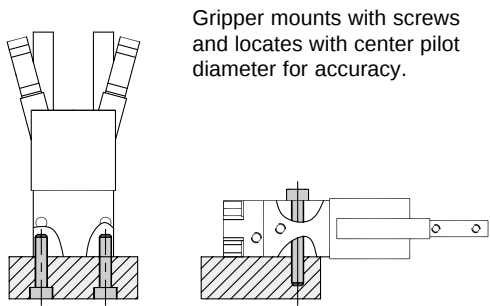


Operation

Operating Characteristic	Single or double acting, double piston option
Gripping Force @ 100 PSI	538 N (121 lbs)
Operating Pressure Range	20 - 145 PSI (1.5 - 10 bar)

Mounting

Grippers can be mounted and operated in any orientation.



Contents

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3H2-DN0100-D30

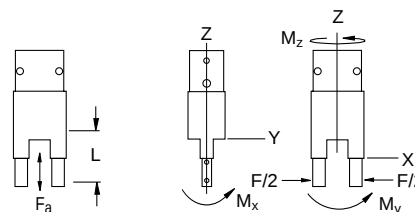
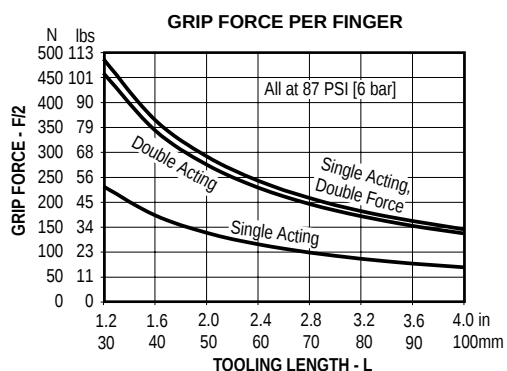


Total Grip Force (100 psi @ 2 in)*	121 lbs	538 N
Stroke (Degree)	30	
Weight	1.2 lbs	0.53 kg
Bore Size	1 in	25.4 mm
Cylinder Volume	3.85 in ³	15 cm ³
Repeatability	± 0.001 in	± 0.03 mm
Temperature Range	32° to 149° F	0° to 65° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Data represents double-acting option.

Note: See model code and ordering information page for complete part number selection.

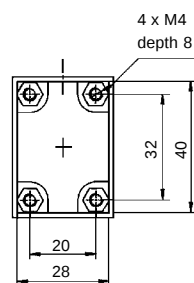
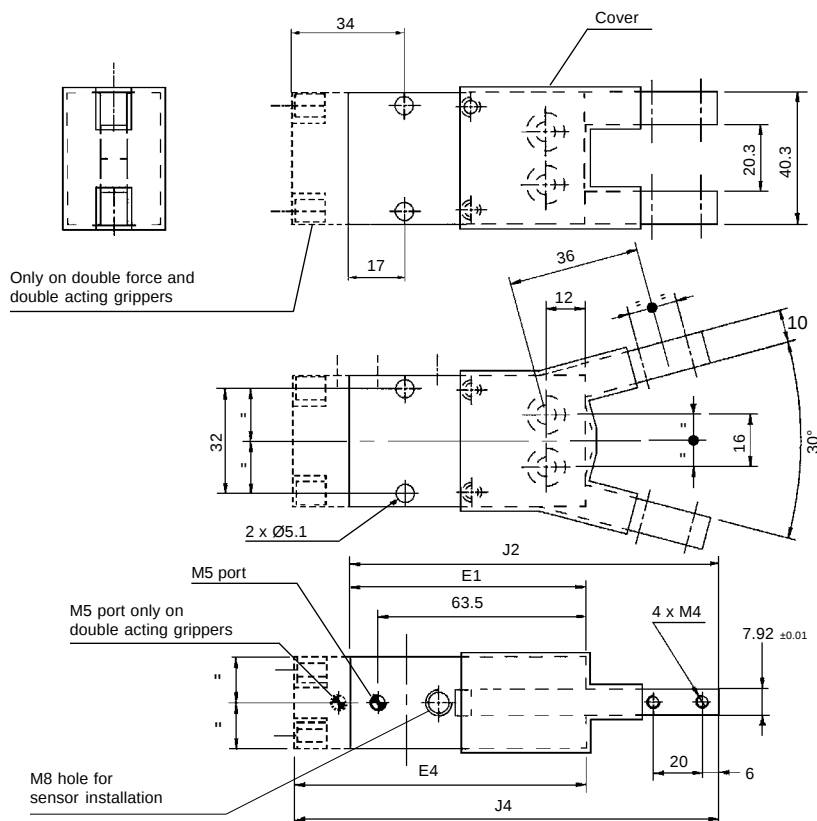
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	99 lbs	440 N
Moment (Mx)	239 in-lbs	27 Nm
Moment (My)	239 in-lbs	27 Nm
Moment (Mz)	177 in-lbs	20 Nm

Dimensional Information



Type	E1	E4	J2	J4
Single Acting	72	—	112.5	—
Single Acting, Double Force	—	89	—	129.5
Double Acting	—	89	—	129.5

Dimensions in mm.

Operating Options (S, B, D)

Three operating options are available.

- Single Acting (S)
- Single Acting, Double Force (B)
- Double Acting (D)

Single Acting

The single acting option allows for an automatic reset and jaw return to the open position. See loading information chart for effective gripper loading.

Double Force

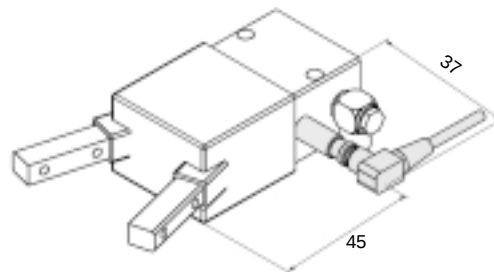
A unique two-piston design allows for increased gripping force. See loading information for effective gripper loading.

Protective Cover

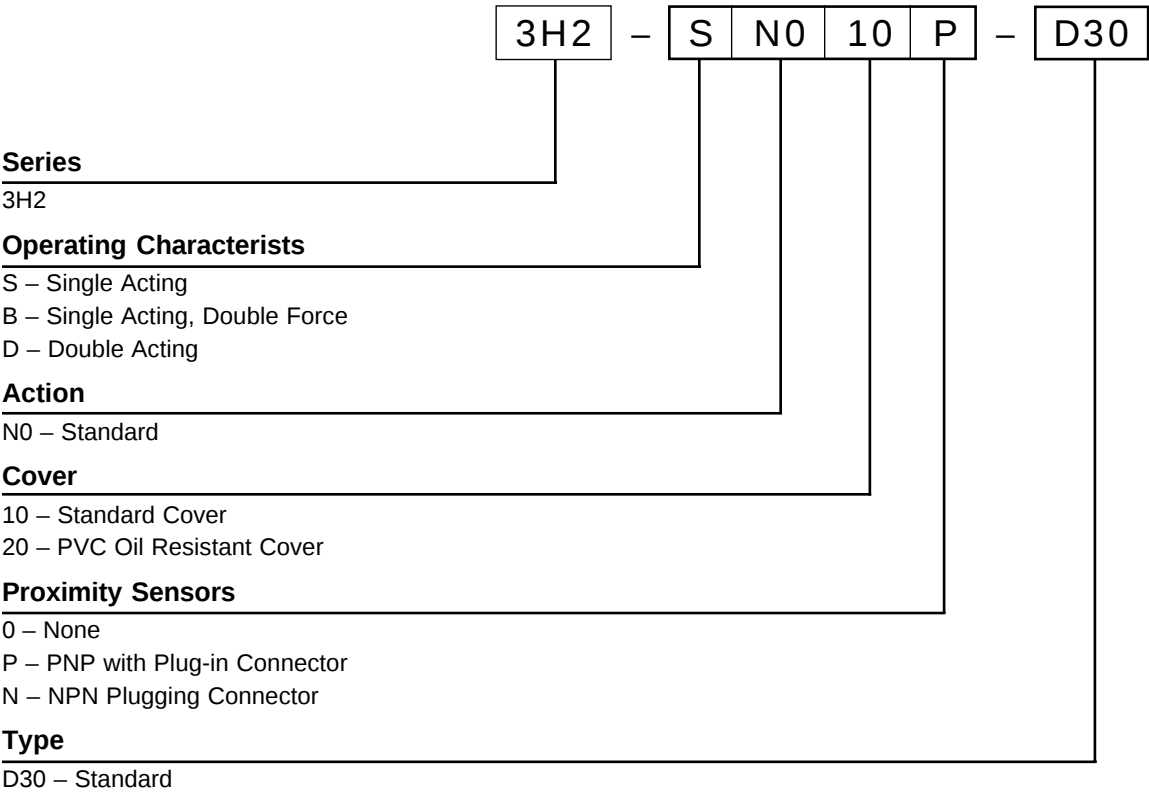
The protective cover prevents machining chips and other contaminants from entering the working mechanism of the gripper. The optional translucent PVC cover is ideal for applications where cutting fluid is present.

Proximity Sensor

Proximity sensors provide feedback on all positions of the gripper piston.



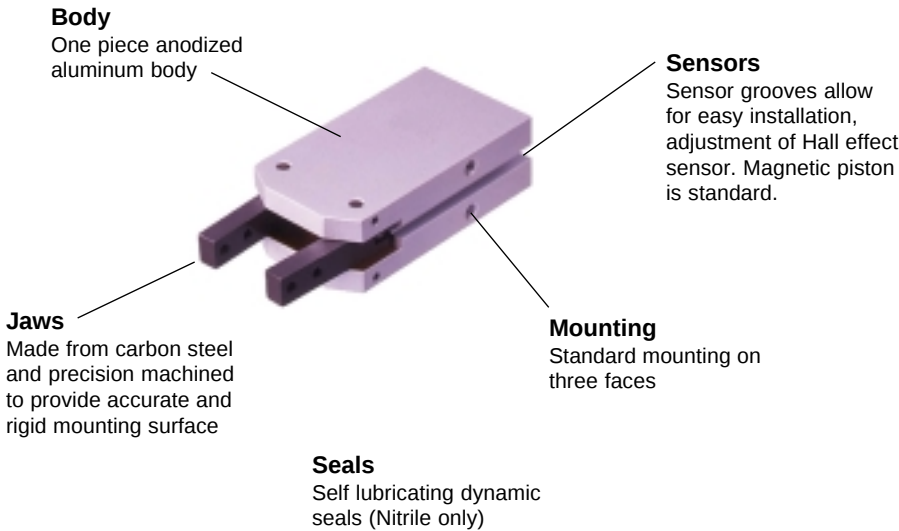
Model Code and Ordering Information



Seal Kit

Size	Nitrile Seal Kit
3H2	3H2R3

Features



Operation

Operating Characteristic Double acting
Gripping Force @ 100 PSI 22 - 240 N (5 - 53 lbs)
Stroke -6° to +180°
Operating Pressure Range 29 - 100 psi (2 - 7 bar)

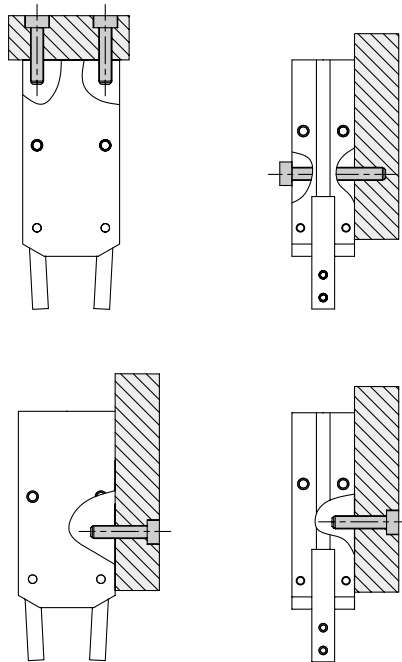
Not recommended for applications containing:

- Dirt or grit
- Machining chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Grippers can be mounted and operated in any orientation.

Gripper can be mounted on three faces. End mounting locates with center pilot diameter for accuracy. Side mounting locates with dowel pin holes for accuracy.



Warning!
Protect drive and bearing mechanism from falling debris when mounted with fingers up.

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180° Wide Angle

GVH

GAW

P5G-AW

P5G-RB

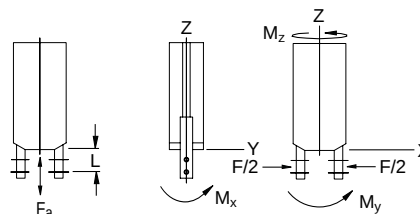
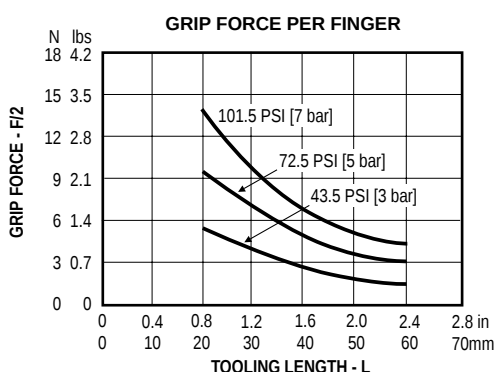
GVH-12



Total Grip Force (100 psi @ 1 in)	4.9 lbs	22 N
Stroke (Degree)	-6 to +180	
Weight	0.12 lbs	0.055 kg
Bore Size	0.47 in	12 mm
Cylinder Volume	0.11 in ³	1.76 cm ³
Repeatability	± 0.012 in	± 0.3 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	29-101.5 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

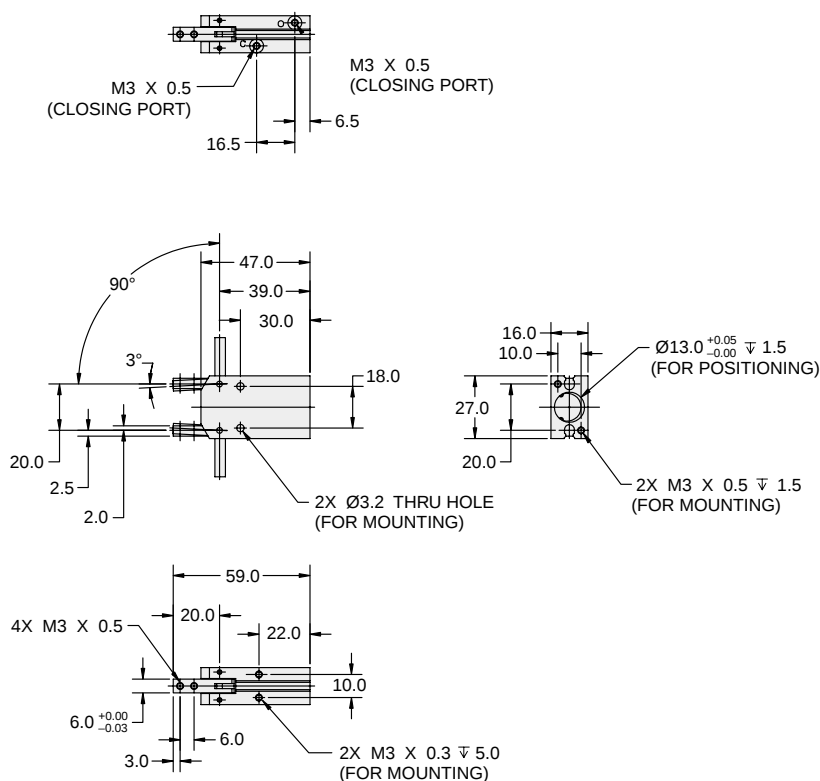
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	4 lbs	18 N
Moment (Mx)	9.7 in-lb	1.1 Nm
Moment (My)	2.7 in-lb	0.3 Nm
Moment (Mz)	62 in-lb	0.7 Nm

Dimensional Information



Dimensions in mm.

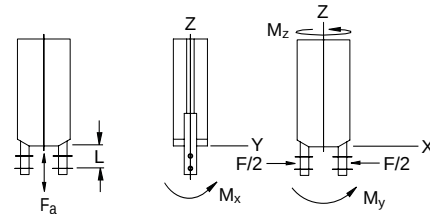
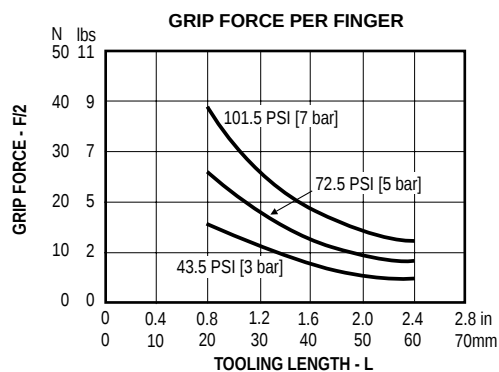
GVH-16



Total Grip Force (100 psi @ 1 in)	14.3 lbs	64 N
Stroke (Degree)	-6 to +180	
Weight	0.32 lbs	0.146 kg
Bore Size	0.62 in	16 mm
Cylinder Volume	0.27 in ³	4.50 cm ³
Repeatability	± 0.012 in	± 0.3 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	29-101.5 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

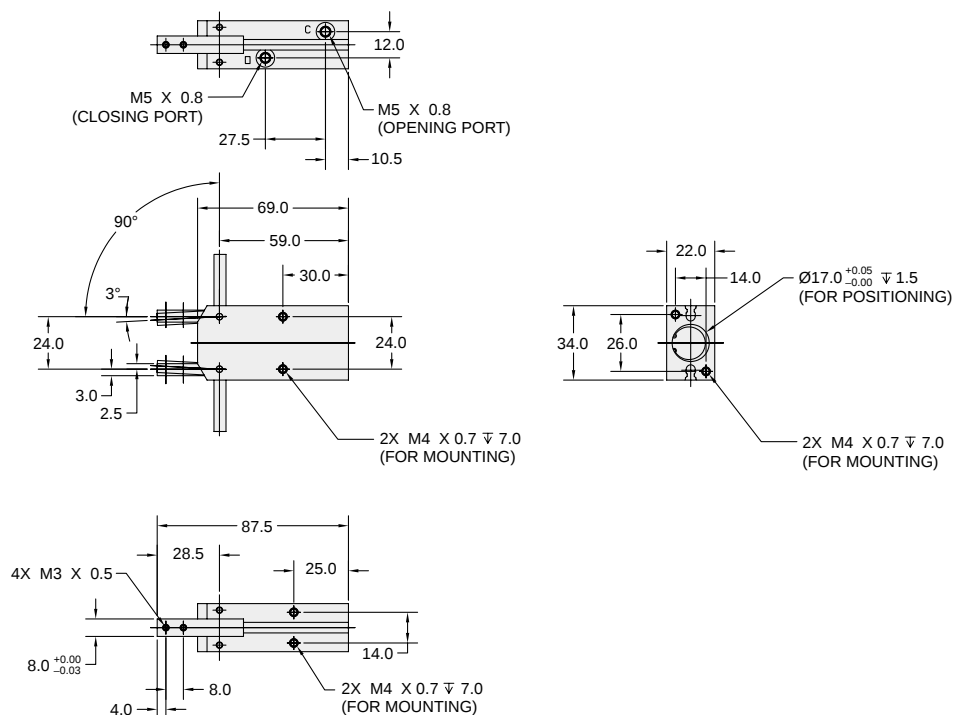
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	7 lbs	31.1 N
Moment (Mx)	18.6 in-lb	2.1 Nm
Moment (My)	6.2 in-lb	0.7 Nm
Moment (Mz)	10.6 in-lb	1.2 Nm

Dimensional Information



Dimensions in mm.

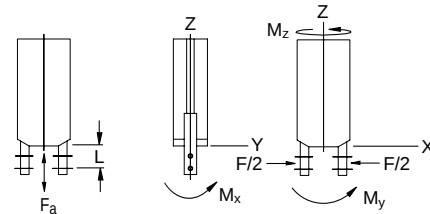
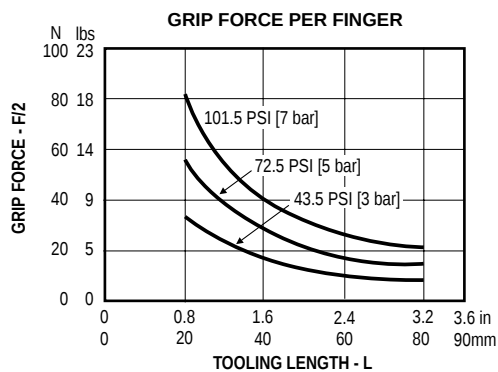
GVH-20



Total Grip Force (100 psi @ 1 in)	26.9 lbs	120 N
Stroke (Degree)	-6 to +180	
Weight	0.61 lbs	0.277 kg
Bore Size	0.78 in	20 mm
Cylinder Volume	0.46 in ³	7.54 cm ³
Repeatability	± 0.012 in	± 0.3 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	29-101.5 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

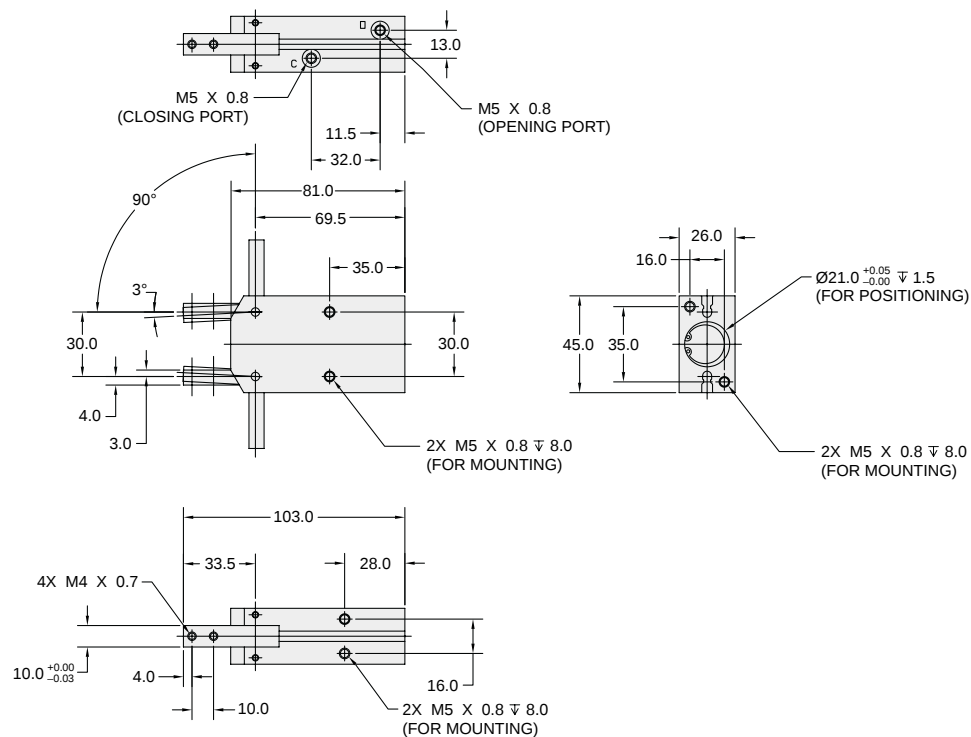
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	11 lbs	48.9 N
Moment (Mx)	29.2 in-lb	3.3 Nm
Moment (My)	10.6 in-lb	1.2 Nm
Moment (Mz)	16.8 in-lb	1.9 Nm

Dimensional Information



Dimensions in mm.

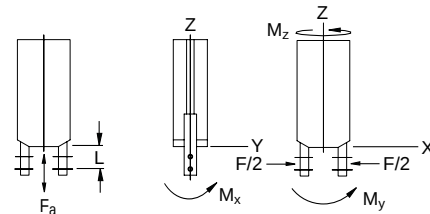
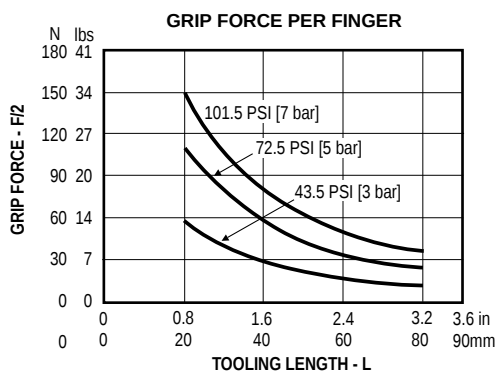
GVH-25



Total Grip Force (100 psi @ 1 in)	53.9 lbs	240 N
Stroke (Degree)	-6 to +180	
Weight	0.94 lbs	0.427 kg
Bore Size	0.98 in	25 mm
Cylinder Volume	0.92 in ³	15.01 cm ³
Repeatability	± 0.012 in	± 0.3 mm
Temperature Range	32° to 140° F	0° to 60° C
Pressure Range	29-101.5 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

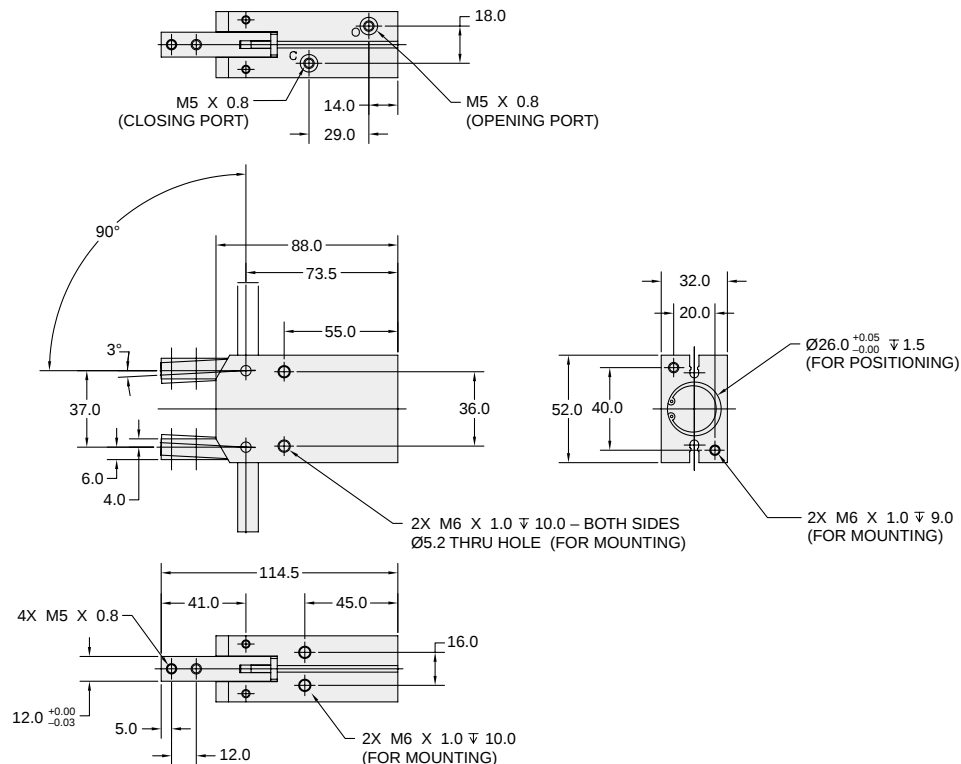
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	15 lbs	66 N
Moment (Mx)	33.6 in-lb	3.8 Nm
Moment (My)	15.0 in-lb	1.7 Nm
Moment (Mz)	21.2 in-lb	2.4 Nm

Dimensional Information



Dimensions in mm.

Model Code and Ordering Information

GVH – 12

Series

GVH

Size

12 – 12mm Bore

16 – 16mm Bore

20 – 20mm Bore

25 – 25mm Bore

Seal Kits

Size	Nitrile Seal Kit
GVH-12	PSK-GVH-12
GVH-16	PSK-GVH-16
GVH-20	PSK-GVH-20
GVH-25	PSK-GVH-25

Features

Internal Components

A hardened steel pin and self-lubricated bronze bearing support the gripper fingers, minimizing play after millions of cycles.

Ports

Standard 10-32 (M5) ports or optional Presto-lok right angle flow controls are available. The body can be rotated in the field in 90° increments to provide ports in other positions, simplifying plumbing and increasing design flexibility.

Bumpers

Polyurethane bumper pad absorbs shock and noise, thus permitting faster cycle times, increased production rates and longer life.

Seals

Self lubricating dynamic seals (Nitrile or Fluorocarbon)

Jaws

Fingers are made from steel for added strength and durability with through holes for easy addition of customer tooling.

Extruded Body

The hard coat anodized body is machined from a one-piece aluminum extrusion to provide a slick seal surface which guarantees long seal life and low breakaway pressures.

Mounting

Combination side and base tapped holes are standard and provide for design flexibility. The base mount includes a pilot diameter for alignment. Mounting kits are also available to interface with other automation components.

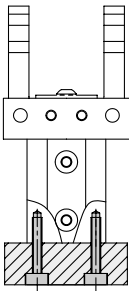


Operation

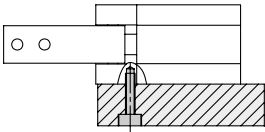
Operating Characteristic	Double acting
Gripping Force @ 100 PSI	12 - 27 lbs
Operating Pressure Range	10-100 psi (0.7 - 7 bar)

Mounting

Grippers can be mounted and operated in any orientation.



Body mounts with screws and locates with center pilot diameter for accuracy.



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WARNING! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

180° Wide Angle

GVH

GAW

P5G-AW

P5G-RB

GAW101

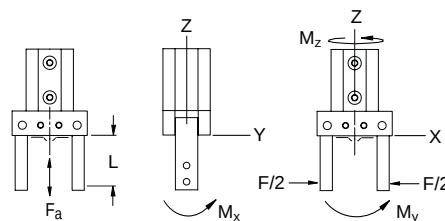
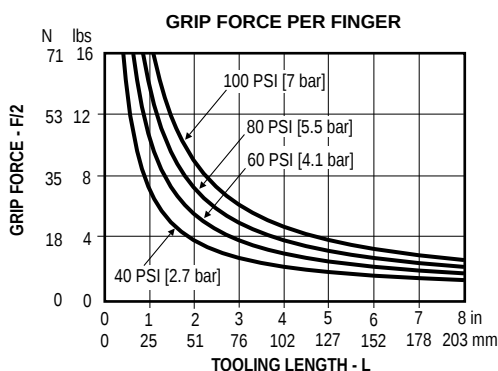


Total Grip Force (100 psi @ 1.5 in)	2.7 lbs	12 N
Stroke (Degree)	+5 to -180	
Weight	1.1 lbs	0.49 kg
Bore Size	1 in	25.4 mm
Cylinder Volume	0.745 in ³	12.1 cm ³
Repeatability	± 0.004 in	± 0.10 mm
Temperature Range*	0° to 180° F	17° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

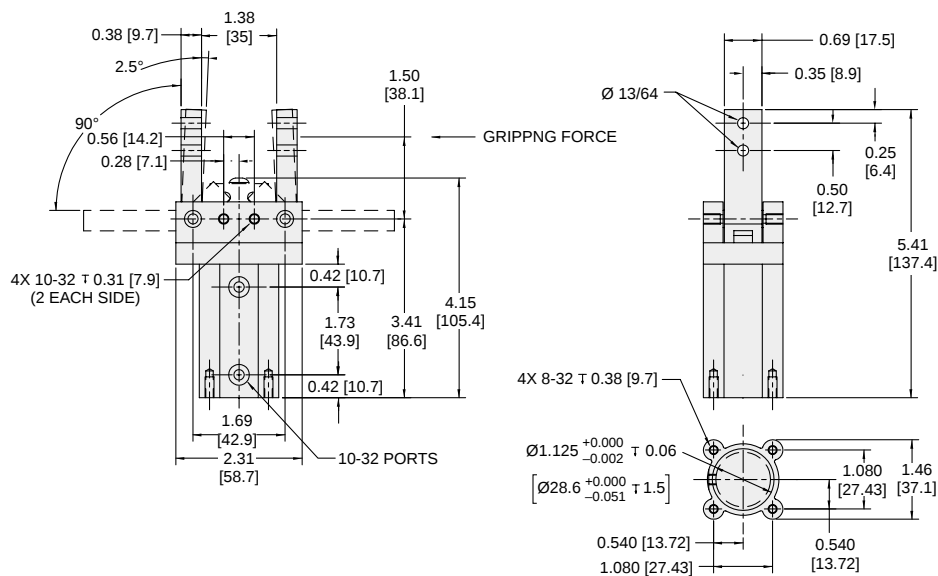
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	18 lbs	80 N
Moment (Mx)	22 in-lbs	2.5 Nm
Moment (My)	22 in-lbs	2.5 Nm
Moment (Mz)	12 in-lbs	1.4 Nm

Dimensional Information



Dimensions in inch [mm].

GAW151

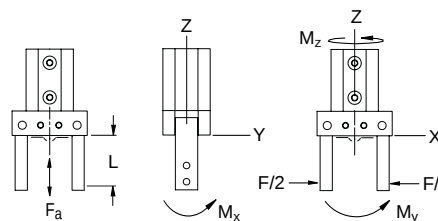
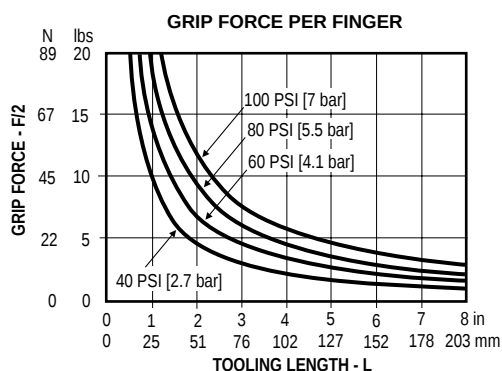


Total Grip Force (100 psi @ 1.5 in)	6.3 lbs	28 N
Stroke (Degree)	+5 to -180	
Weight	2 lbs	0.90 kg
Bore Size	1.5 in	38.1 mm
Cylinder Volume	1.804 in ³	29.4 cm ³
Repeatability	± 0.004 in	± 0.10 mm
Temperature Range*	0° to 180° F	17° to 80° C
Pressure Range	40-100 psi	3-7 bar
Filtration Requirement	40 micron (dry air)	

*Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

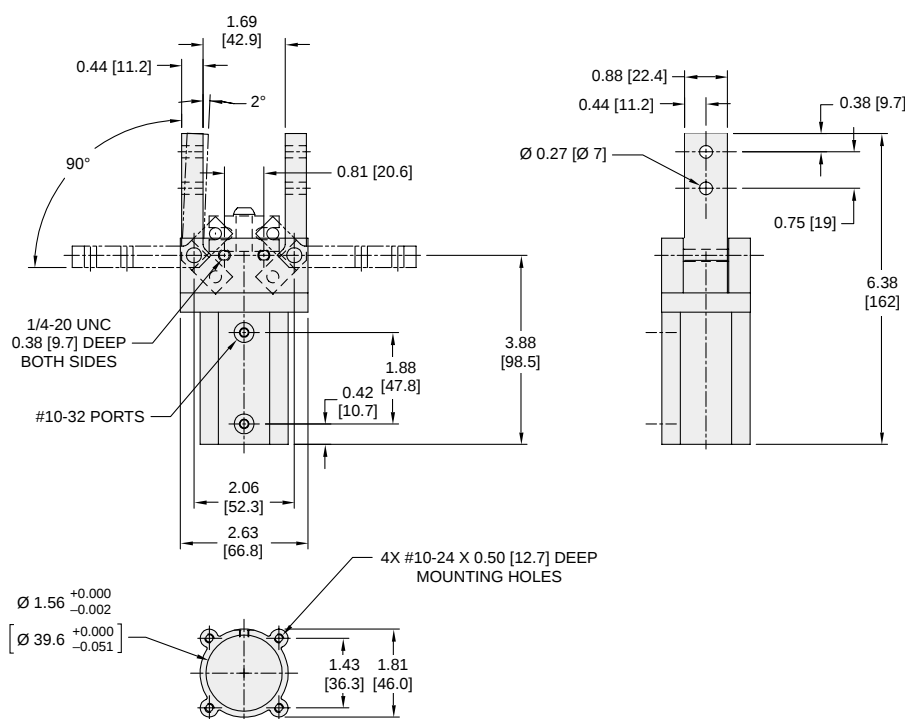
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	28 lbs	124 N
Moment (Mx)	30 in-lbs	3.4 Nm
Moment (My)	30 in-lbs	3.4 Nm
Moment (Mz)	17 in-lbs	2.0 Nm

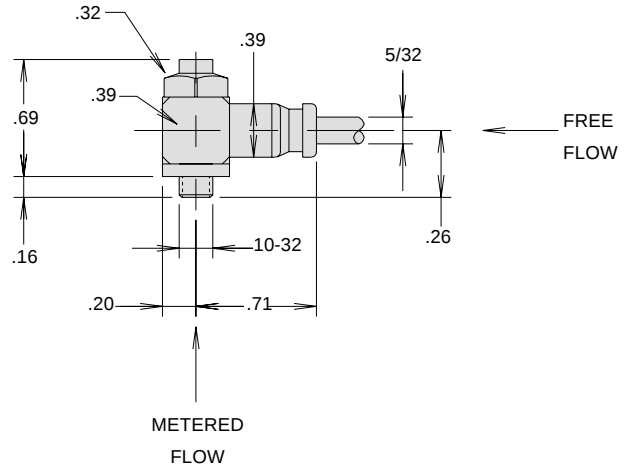
Dimensional Information



Dimensions in inch [mm].

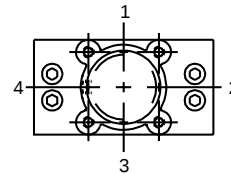
Right Angle Flow Control (P)

Right angle flow control valves allow precise adjustment of cylinder speed by metering exhaust air flow. Presto-Lok push-in ports provide 360° orientation capability.



Port Location (1, 2)

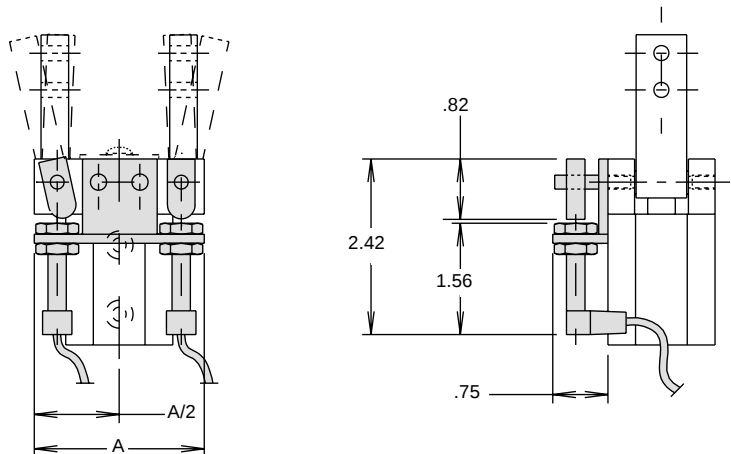
GA Series grippers are symmetrical. Ports position 1 is standard. Position 3 can be obtained by rotating the gripper 180°. Ports position 2 is an option. Position 4 is obtainable by ordering port position 2 and rotating 180°.



Proximity Sensor Bracket (J)

Proximity sensors sense the position of the flag that is attached to the gripper finger. The flag is held onto the gripper finger by a set screw. Loosening the set screw allows positioning of the flag to sense any position of the gripper finger. Care should be taken when adjusting the proximity sensor so that the flag does not physically contact the sensor. The distance from the flag to the sensor should be approximately 0.04 inches (1mm).

Order proximity sensors separately. See Sensors section for part numbers and sensor specifications.



Dimensions

Model	A, inch (mm)
GAW10	2.51 (63.7)
GAW15	2.63 (66.8)

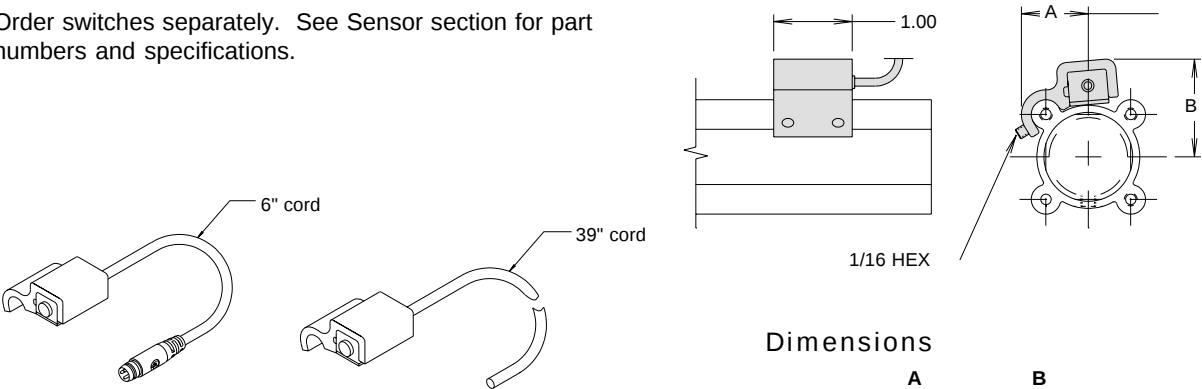
Magnetic Piston (M)

This option prepares the actuator for use with reed and Hall Effect switches. The "M" option should be specified to provide a magnet on the cylinder piston.

Order switches separately. See Sensors section for part numbers and specifications.

Hall Effect and Reed Switches

Order switches separately. See Sensor section for part numbers and specifications.



Dimensions

Model	A	B
	inch(mm)	inch (mm)
GAW10	0.84 (21.3)	1.22 (31.0)
GAW15	0.99 (25.2)	1.46 (37.1)

Fluorocarbon Seals (V)

Standard abrasion resistant nitrile seals should be used for general purpose applications with temperatures of 0 to 180°F.

Fluorocarbon seals are recommended for high temperature applications up to 250°F.

Option	Temperature Range (°F)
Bumpers	0 to 200
Piston Magnets	0 to 165
Switches	14 to 140
Proximity Sensor	-13 to 158

180° Wide Angle

GVH

GAW

P5G-AW

P5G-RB

Model Code and Ordering Information

	GA	W	15	1	P	-	A	2	1	J	V	-	A
--	----	---	----	---	---	---	---	---	---	---	---	---	---

Series
GA

Type
W - Wide Open (180°)

Size
10 - 1 in. bore
15 - 1.5 in. bore

Opening Characteristics
1 - Double acting (STD)

Flow Controls
Omit - None
P - Right angle flow control (both)

Mounting
A - Rear and side tapped holes (STD)

Port Type
2 - 10-32 (STD)
8 - Presto-Lok right angle flow control

Port Location
1 - Position 1 (STD)
2 - Position 2

Switches
Omit - None
J - Bracket for proximity sensor option*
M - Magnetic piston for reed and Hall Effect switch option*

Seals
Omit - Nitrile (STD)
V - Fluorocarbon

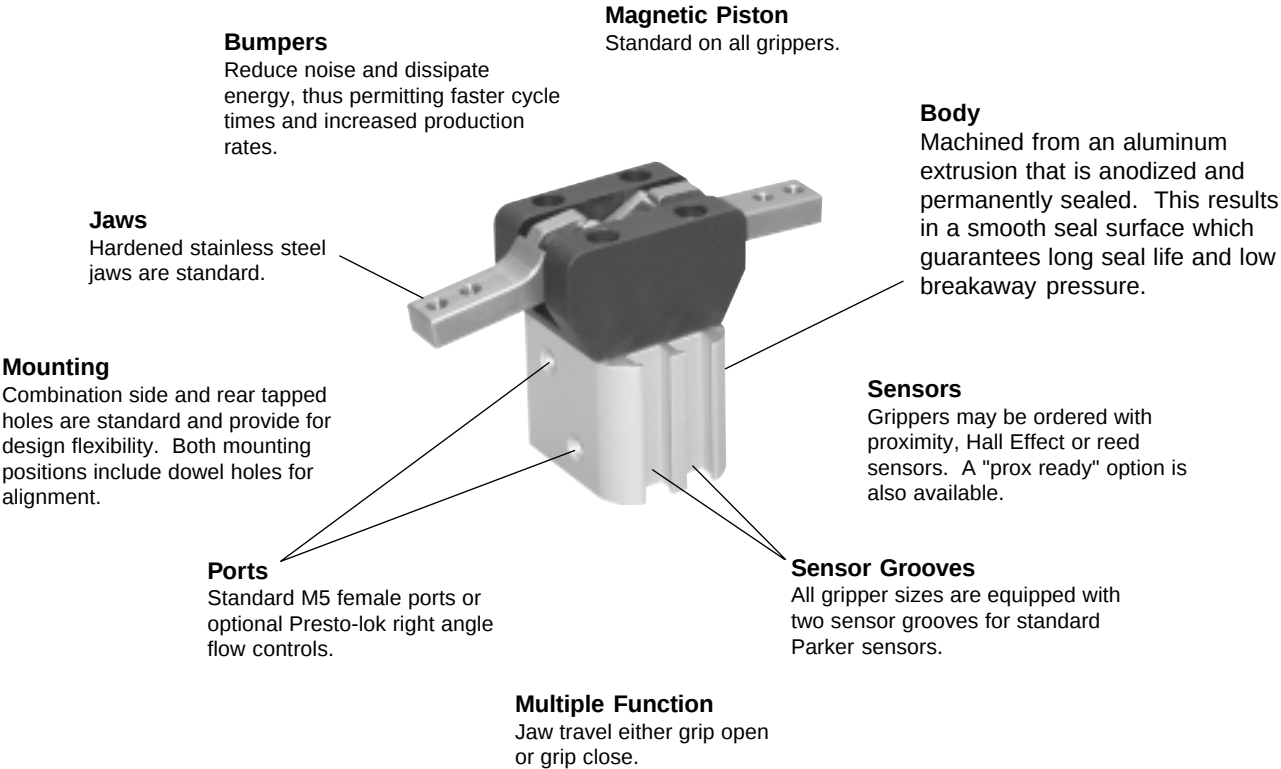
Design Series
A - Current Design Series

* Proximity sensor, Hall Effect, and reed switches to be ordered separately.

Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
GAW10	PSK-G10	PSK-G10V
GAW15	PSK-G15	PSK-G15V

Features



Operation

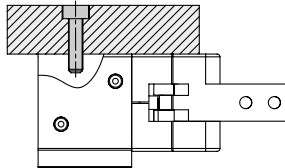
Operating Characteristic Double acting, wide opening
Gripping Force @ 100 PSI 11 - 134 lbs
Stroke -5° to +180°
Operating Pressure Range 40 - 100 PSI (3 - 7 bar)

Not recommended for applications containing:

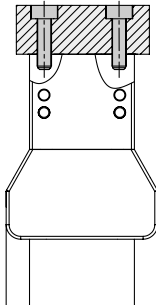
- Dirt or grit
- Machining chips
- Environments with loose particulate
- Mechanism lubricant that could cause contamination

Mounting

Gripper mounts with screws and locates with dowel pin holes for accuracy.



Gripper mounts with screws and locates with center pilot diameter for accuracy.



Warning! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

Contents

P5G-AW3	190
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180° Wide Angle

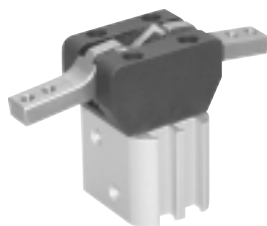
GVH

GAW

P5G-AW

P5G-RB

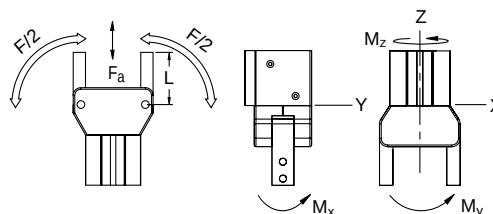
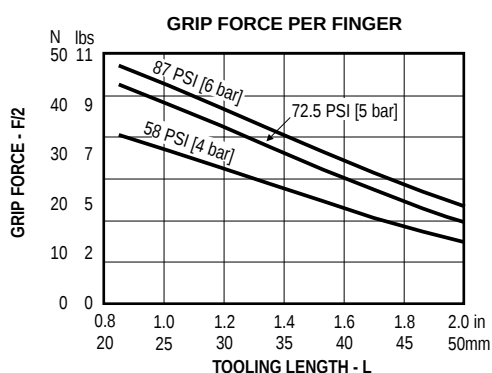
P5G-AW3



Total Grip Force (100 psi @ 25 mm)	13.9 lbs	62 N
Stroke (Degree)	-5 to +180	
Weight	0.29 lbs	0.13 kg
Bore Size	0.62 in	16 mm
Cylinder Volume	0.11 in ³	1.807 cm ³
Repeatability	±0.001 in	±0.03 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	
* Fluorocarbon seals available for high temperature applications		

Note: See model code and ordering information page for complete part number selection.

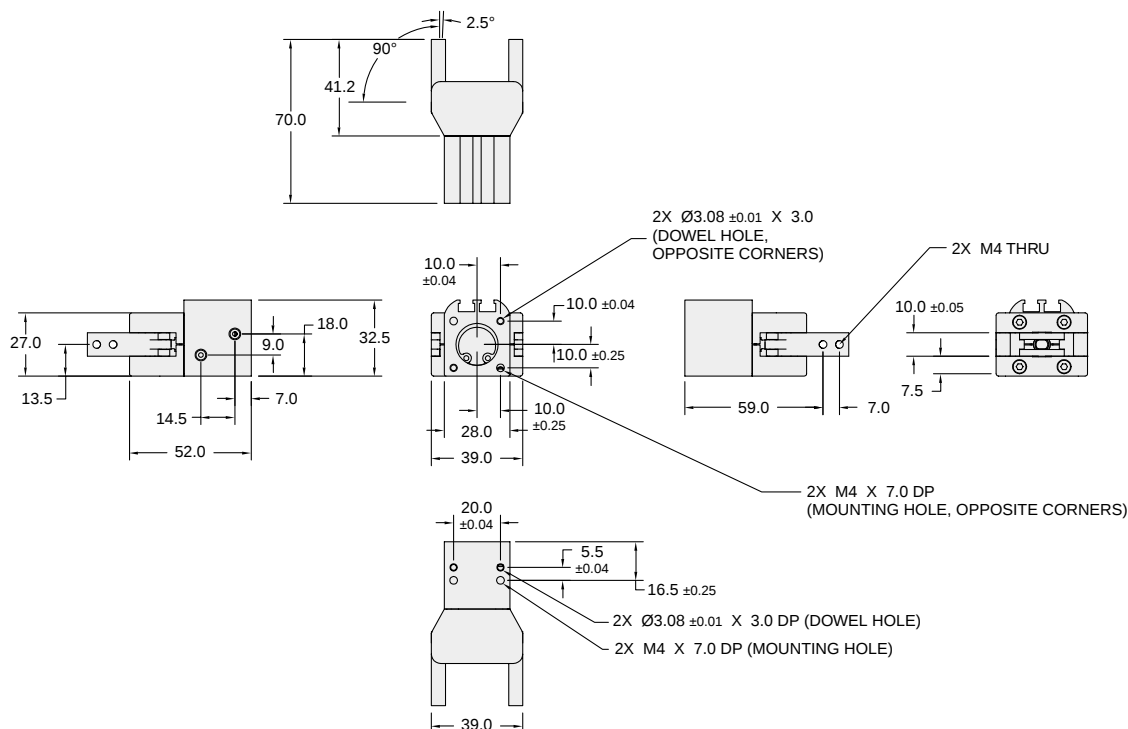
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	20.1 lbs	88 N
Moment (Mx)	38.7 in-lbs	4.3 Nm
Moment (My)	38.7 in-lbs	4.3 Nm
Moment (Mz)	37.8 in-lbs	4.2 Nm

Dimensional Information



Dimensions in mm.

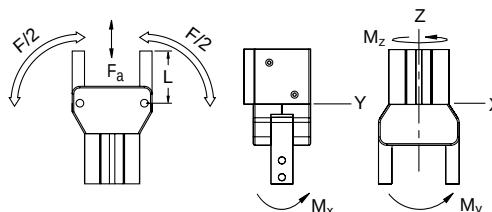
Total Grip Force (100 psi @ 30 mm)	38.5 lbs	171.6 N
Stroke (Degree)	-5 to +180	
Weight	0.61 lbs	0.27 kg
Bore Size	0.98 in	25 mm
Cylinder Volume	0.35 in ³	5.702 cm ³
Repeatability	±0.001 in	±0.03 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	0.3-7 bar
Filtration Requirement	40 micron (dry air)	

Note: See model code and ordering information page for complete part number selection.

GRIP FORCE PER FINGER

The graph plots Grip Force (Fz) in Newtons (N) and Pounds (lbs) on the Y-axis against Tooling Length (L) in inches (in) and millimeters (mm) on the X-axis. Three curves represent different pressure levels: 87 PSI [6 bar], 72.5 PSI [5 bar], and 58 PSI [4 bar]. All curves show a decrease in grip force as tooling length increases.

Tooling Length (L)	Grip Force (Fz) at 87 PSI [6 bar]	Grip Force (Fz) at 72.5 PSI [5 bar]	Grip Force (Fz) at 58 PSI [4 bar]
1.2 in (30 mm)	~17 N (4 lbs)	~14 N (3.1 lbs)	~11 N (2.5 lbs)
1.6 in (40 mm)	~14 N (3.1 lbs)	~11 N (2.5 lbs)	~9 N (2 lbs)
2.0 in (50 mm)	~11 N (2.5 lbs)	~9 N (2 lbs)	~7 N (1.6 lbs)
2.4 in (60 mm)	~9 N (2 lbs)	~7 N (1.6 lbs)	~6 N (1.3 lbs)
2.8 in (70 mm)	~8 N (1.8 lbs)	~6 N (1.3 lbs)	~5 N (1.1 lbs)



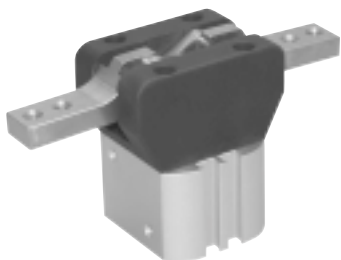
Loading Capacity	Static	
Axial Forces (Fa)	40 lbs	175 N
Moment (Mx)	49.5 in-lbs	5.5 Nm
Moment (My)	49.5 in-lbs	5.5 Nm
Moment (Mz)	37.8 in-lbs	4.5 Nm

Technical drawing of a mechanical part, showing multiple views and dimensions. The drawing includes the following views and dimensions:

- Top View:** Shows a rectangular base with a central circular feature. Dimensions include a total width of 51.75, a central width of 36.0, and a distance of 13.0 from the center to the edge. A 2.5° chamfer is indicated on the top edge.
- Front View:** Shows the profile of the part. Dimensions include a total height of 86.5, a base height of 41.2, and a top width of 41.2. A 90° angle is indicated on the top edge.
- Side View:** Shows the side profile. Dimensions include a total width of 63.5, a base width of 17.0, and a central width of 19.0. A 24.5 height is indicated for the central section.
- Detail View (Top Left):** Shows a close-up of the central circular feature. Dimensions include a diameter of 13.0 ± 0.04, a distance of 13.0 ± 0.04 from the center to the edge, and a distance of 13.0 ± 0.25 from the center to the edge. A 2X Ø4.08 ± 0.01 X 4.0 (DOWEL HOLE, OPPOSITE CORNERS) is indicated.
- Detail View (Top Right):** Shows a close-up of the side profile. Dimensions include a total width of 72.5, a base width of 10.0, and a distance of 13.0 ± 0.05 from the center to the edge. A 2X M5 THRU is indicated.
- Detail View (Bottom):** Shows a close-up of the bottom profile. Dimensions include a total width of 51.75, a central width of 26.0 ± 0.04, and a distance of 6.0 ± 0.04 from the center to the edge. A 20.0 ± 0.25 height is indicated. A 2X Ø4.08 ± 0.01 X 4.0 DP (DOWEL HOLE) and a 2X M4 X 7.0 DP (MOUNTING HOLE) are indicated.



P5G-AW5

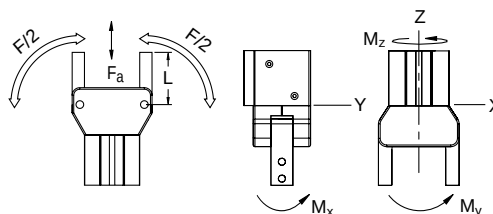
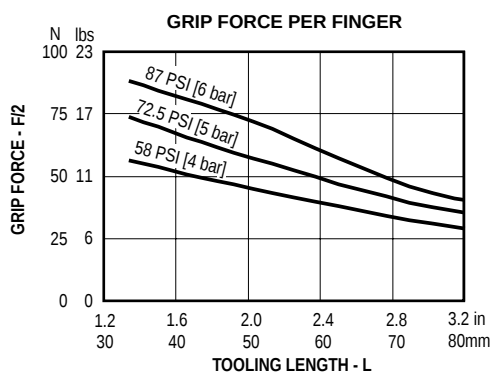


Total Grip Force (100 psi @ 30 mm)	46.9 lbs	208.8 N
Stroke (Degree)	-5 to +180	
Weight	0.92 lbs	0.41 kg
Bore Size	1.25 in	32 mm
Cylinder Volume	0.66 in ³	10.758 cm ³
Repeatability	±0.001 in	±0.03 mm
Temperature Range*	-4° to 180° F	-20° to 82° C
Pressure Range	4-100 psi	.3-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorocarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

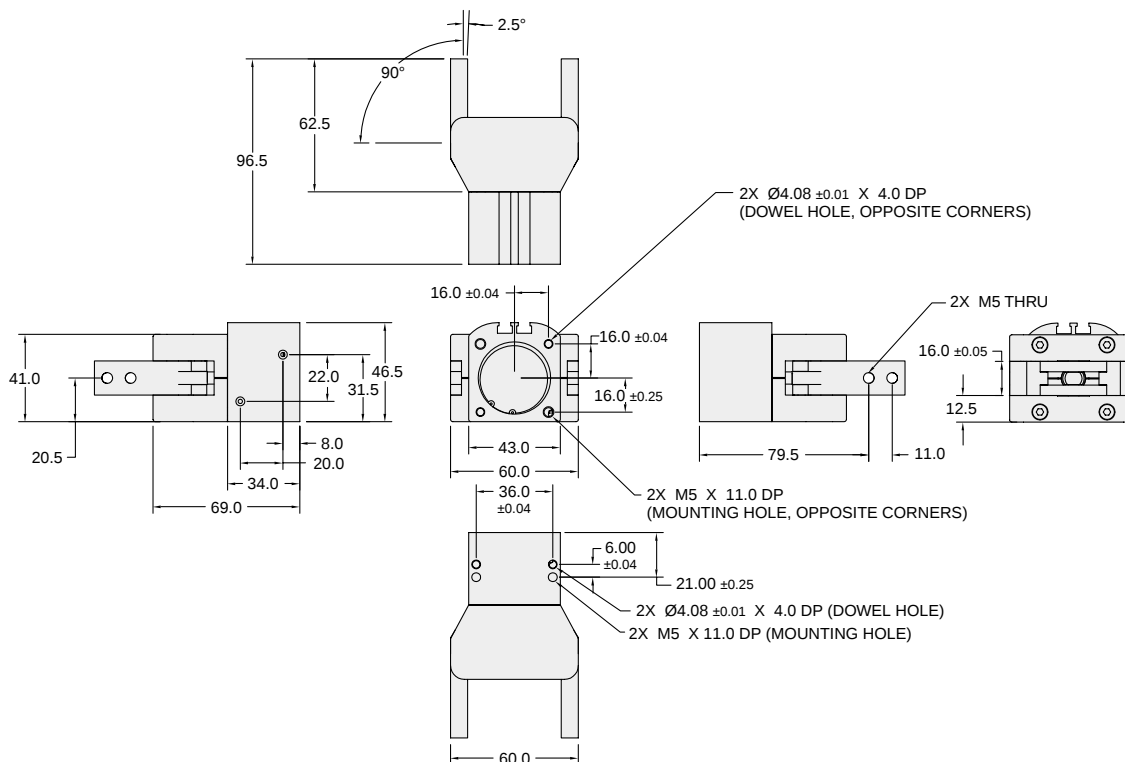
Loading Information



Maximum Loading Capacity

Loading Capacity	Static	
Axial Forces (Fa)	69.9 lbs	306 N
Moment (Mx)	76.4 in-lbs	8.5 Nm
Moment (My)	80.9 in-lbs	9 Nm
Moment (Mz)	53.1 in-lbs	5.9 Nm

Dimensional Information

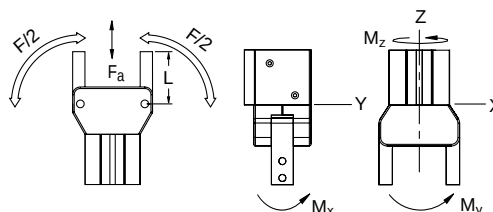


Dimensions in mm.

Note: See model code and ordering information page for complete part number selection.

GRIP FORCE PER FINGER

Tooling Length - L (in)	Tooling Length - L (mm)	87 PSI [6 bar] (F2)	72.5 PSI [5 bar] (F2)	58 PSI [4 bar] (F2)
1.6	40	125	100	75
2.0	50	100	80	60
2.4	60	85	70	55
2.8	70	80	65	50
3.2	80	75	60	48
3.6	90	70	55	45
4.0	100mm	65	50	40



Loading Capacity	Static	
Axial Forces (Fa)	110.1 lbs	482 N
Moment (Mx)	116.9 in-lbs	13 Nm
Moment (My)	123.2 in-lbs	13.7 Nm
Moment (Mz)	75.5 in-lbs	8.4 Nm

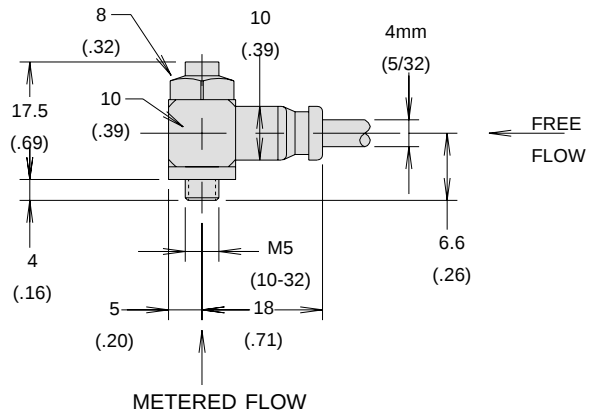
[illegible]

Dimensions in mm.

Right Angle Flow Control (3)

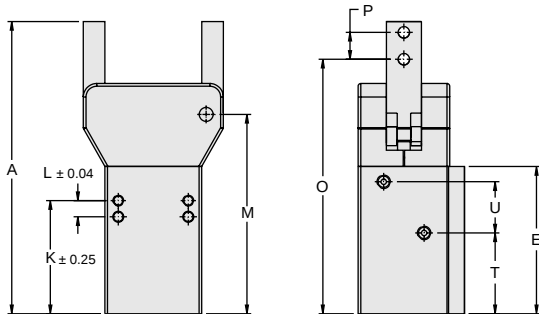
Right angle flow control valves allow precise adjustment of speed by metering exhaust air flow. Presto-Lok push-in ports provide 360° orientation capability.

When using the 180° gripper, it is suggested to slow the finger motion to prevent high inertial loads.



Spring Return (C)

The spring return option allows for an automatic reset and jaw return. Selecting the spring return option creates a single-acting gripper component that may reduce the number of directional control valves needed to operate automated machinery.



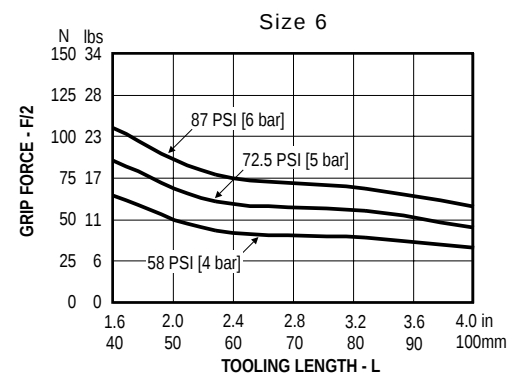
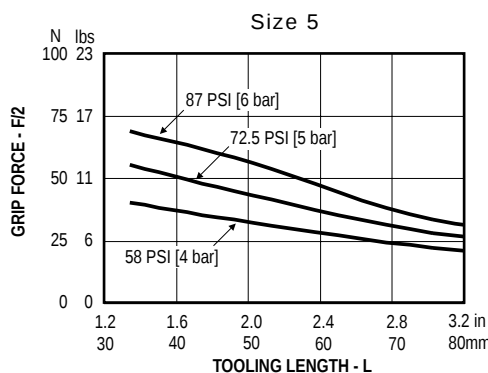
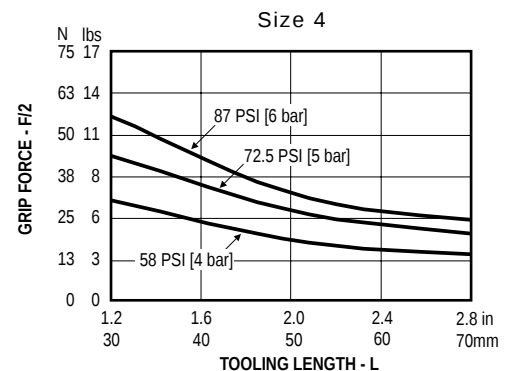
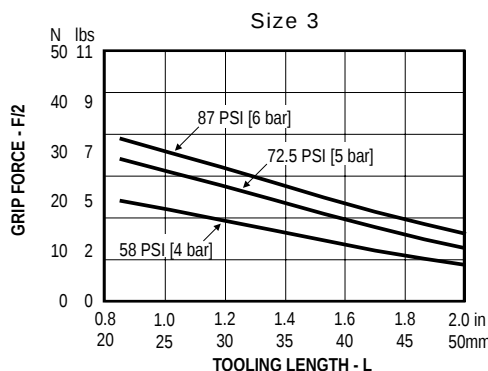
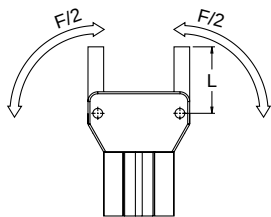
Dimensions

Spring return will increase body length.

Size	A	E	K	L	M	O	P	T	U
3	86	44.7	32.5	5.5	59.3	75	7	23	14.5
4	108.5	54.7	42	6	74.5	94.5	10	30	19
5	116.5	54	41	6	77	99.5	11	28	20
6	131	60.2	46	8	85	113	12	33	22

Gripping Force

The total grip force is defined as the sum of the forces applied by both jaws. Distance (L) is the distance from the pivot of the gripper to the center of the contact on the workpiece.



Stroke Adjust (A, B, D, F, G)

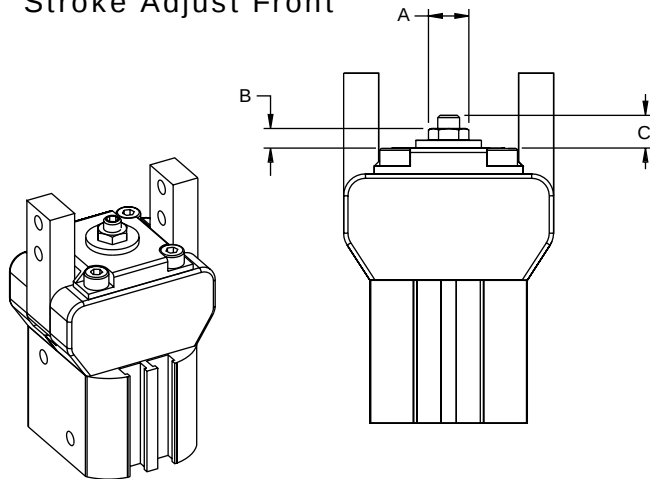
Use the stroke adjust option when exact travel distances are needed. Fully adjustable internal stops permit precise stopping locations anywhere within the jaw travel. The stroke adjust option is available in two configurations:

- Stroke adjust front
- Stroke adjust rear

This gives the machine designer the flexibility to create the best possible design within limited space requirements.

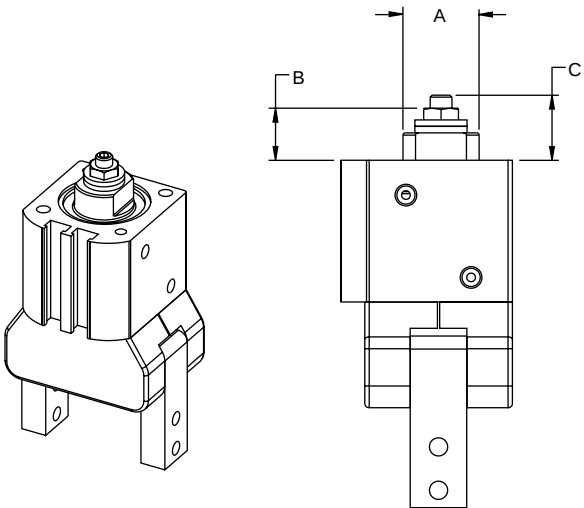
NOTE: Stroke adjust rear is not available with spring return.

Stroke Adjust Front



Size	Style	A	B	C
3	180°	8	3	11.5
4	180°	9.5	4.5	14.5
5	180°	9.5	4.5	16
6	180°	9.5	4.5	14.5

Stroke Adjust Rear



Size	Style	A	B	C (Max)
3	180°	10.5	10	14.5
4	180°	15	11.5	19
5	180°	20	14	21.5
6	180°	24	12.5	21.5

NOTE: Stroke adjust rear not available with spring return.

Adjustment Tools

Gripper Size	Socket Stroke Adjuster		Nut	
	Size	Wrench	Size	Wrench
3	M4	2 mm	M4	7 mm
4	M5	2.5 mm	M5	8 mm
5	M5	2.5 mm	M5	8 mm
6	M5	2.5 mm	M5	8 mm

All dimensions in mm

180° Wide Angle

GVH

GAW

P5G-AW

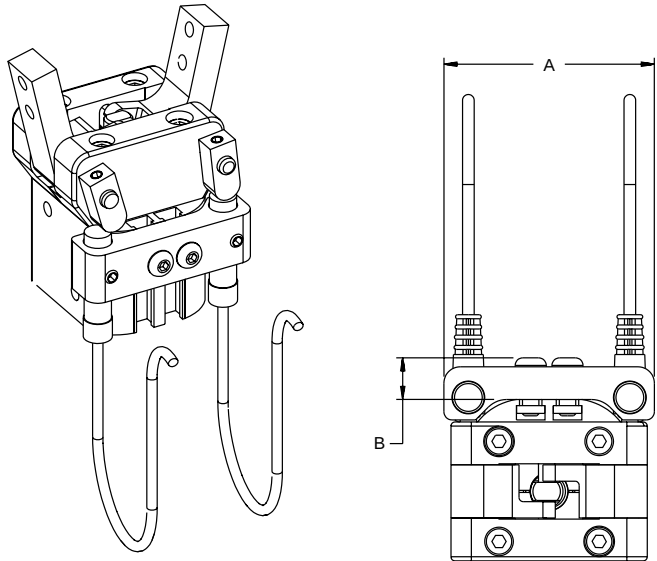
P5G-RB

Proximity Sensors
Prox Ready (PJ)

Proximity sensors provide feedback on the position of the gripper fingers by sensing the metal screw that is attached to the gripper jaw. The sensor is adjustable along the full travel of the steel screw and is held in place by the set screw.

Care should be taken when adjusting the sensor so that the adjustable screw does not physically contact the sensor. Distance from the screw to the sensor should be approximately 1 mm (0.04 inches).

See Sensors section for sensor specifications.



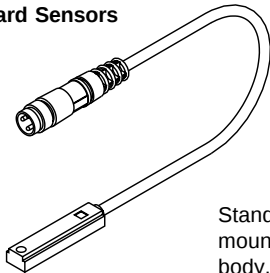
Size	A	B
3	42	10.3
4	51.5	10.2
5	59	10.2
6	66	10.2

Reed and Hall Effect Sensors

Reed or Hall effect sensors mount in the sensor mounting grooves located in the gripper body. A magnetic piston is standard for ease of field addition of sensors.

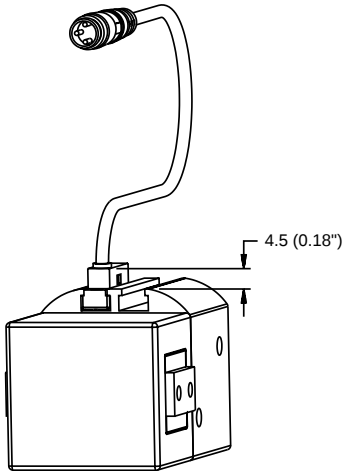
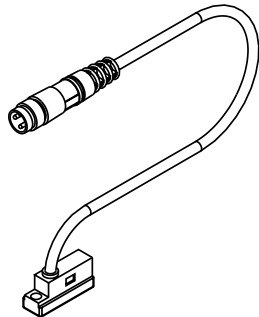
See Sensors section for specifications.

Standard Sensors



Standard sensors mount flush to the body. Sensor shown with connector. Lead wires also available.

Short Sensors



Fluorocarbon Seals (V)

Standard abrasion resistant nitrile seals should be used for general purpose applications with temperatures of -18° to 82°C (0° to 180°F). Fluorocarbon seals are recommended for high temperature applications up to 121°C (250°F). The items shown in the table should be considered when planning high temperature applications.

	Temperature Range
Magnets	-27° to 130°C (-16° to 266°F)
Bumpers	-27° to 90°C (-16° to 195°F)
Sensors	-25° to 75°C (-13° to 167°F)
Proximity Sensors	-25° to 70°C (-13° to 158°F)

Model Code and Ordering Information

P5G – A W 4 B A N H B S – A

Global Pneumatic Grippers

P5G

Series

A – Automation

Type

W – 180° Angular

Size

3 – 16 mm

5 – 32 mm

4 – 25 mm

6 – 40 mm

Ports

3 – Prestolok Flow Control 4mm (5/32") tube diameter

Function

A – Standard

Spring/Stroke Adjust Options

A – Spring Return, Stroke Adjust Front

C – Spring Return

F – No Spring, Stroke Adjust Front

G – No Spring, Stroke Adjust Rear

N – No Option (Standard)

Sensors

NN – No Sensors

PJ – Proximity Sensor Ready

Standard Hall Effect

HA – (2) NPN w/Plug*

HB – (2) PNP w/Plug*

HC – (1) NPN w/Plug*

HD – (1) PNP w/Plug*

HE – (2) NPN w/o Plug**

HF – (2) PNP w/o Plug**

HG – (1) NPN w/o Plug**

HK – (1) PNP w/o Plug**

Short Hall Effect

HV – (2) PNP w/Plug*

HY – (1) PNP w/Plug*

KB – (2) PNP w/o Plug**

KD – (1) PNP w/o Plug**

Standard Reed

RA – (2) w/Plug*

RB – (1) w/Plug*

RC – (2) w/o Plug**

RD – (1) w/o Plug**

Proximity

PA – (2) NPN Plug-in †

PB – (2) PNP Plug-in †

PC – (1) NPN Plug-in †

PD – (1) PNP Plug-in †

PE – (2) NPN Potted ‡

PF – (2) PNP Potted ‡

PG – (1) NPN Potted ‡

PK – (1) PNP Potted ‡

* 0.27m cable

** 3m cable

† 5m cable

‡ 6m lead

Seals

S – Standard

F – Fluorocarbon

Design Series

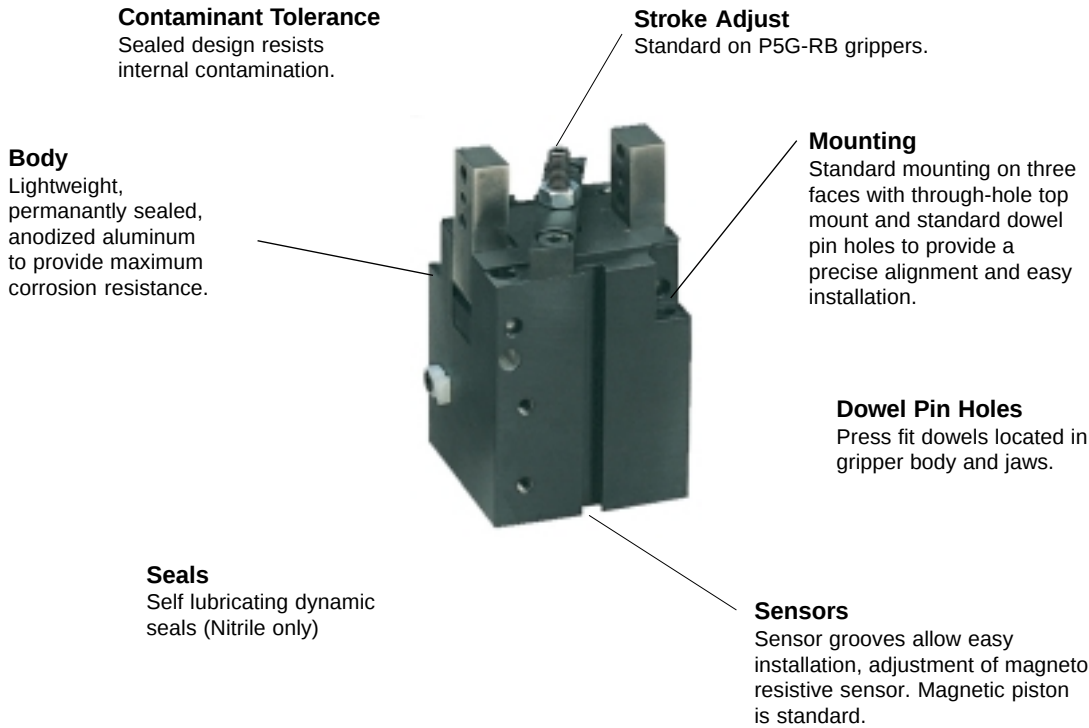
A – Current Design Series

Seal Kits

Size	Nitrile Seal Kit	Fluorocarbon Seal Kit
P5G-AW3	PSK-P5GAW3	PSK-P5GAW3-F
P5G-AW4	PSK-P5GAW4	PSK-P5GAW4-F
P5G-AW5	PSK-P5GAW5	PSK-P5GAW5-F
P5G-AW6	PSK-P5GAW6	PSK-P5GAW6-F

Notes

Features

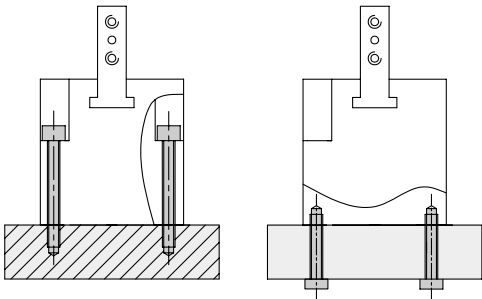


Operation

Operating Characteristic	Double acting, spring closed
Gripping Force @ 100 PSI	62 - 632 N (13.8 to 142 lbs)
Stroke	-3° to +180°
Operating Pressure Range	29-100 PSI (2-7 bar)

Mounting

Gripper can be mounted on three faces and locates with dowel pin holes for accuracy.



Warning! Protect drive and bearing mechanism from falling debris when mounted with fingers up.

Contents

P5G-RB1	200
P5G-RB2	201
P5G-RB3	202
Jaw Options	203
Spring Assist Option	203
Dust Cover Option	203
Ordering Information	204
Seal Kits	204

180° Wide Angle

GVH

GAW

P5G-AW

P5G-RB

P5G-RB1

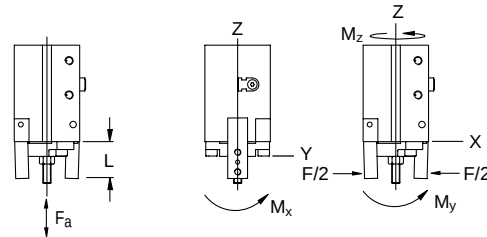
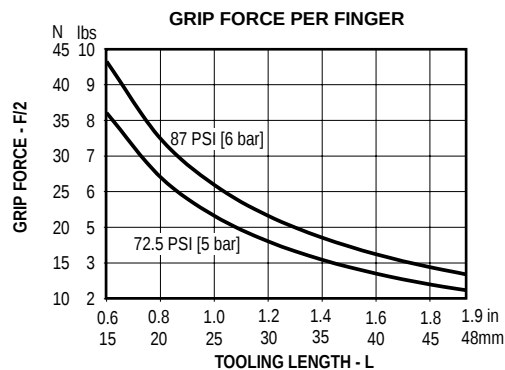


Total Grip Force (0.7 Mpa @ 25 mm)	13.8 lbs	61.4 N
Total Stroke (Degree)	-3 to +180	
Weight w/ square jaw carrier	0.264 lbs	0.12 kg
Bore Size	0.6299 in	16 mm
Cylinder Volume	0.222 in ³	3.65 cm ³
Repeatability	±0.003 in	±0.1 mm
Temperature Range*	-4° to 158° F	-20° to 70° C
Pressure Range	29-100 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

* Flourcarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

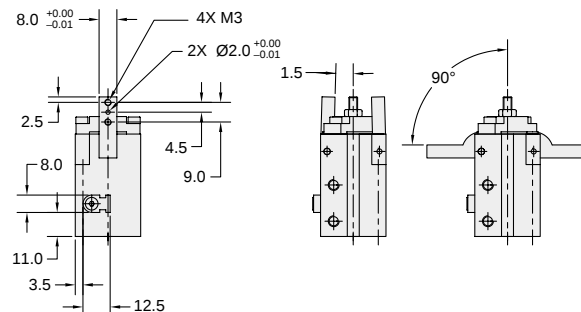
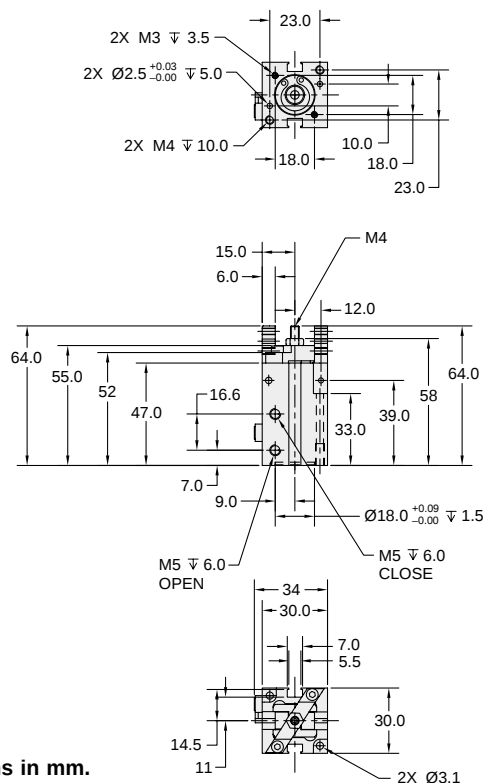
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fx)	11.2 lbs	50 N
Moment (Mx)	17.7 in-lbs	2 Nm
Moment (My)	17.7 in-lbs	2 Nm
Moment (Mz)	11.5 in-lbs	1.3 Nm

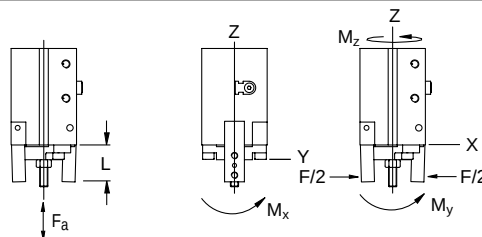
Dimensional Information



Dimensions in mm.

* Fluorocarbon seals available for high temperature applications

Loading Information



Load	Static	
Axial Forces (Fx)	44.9 lbs	200 N
Moment (Mx)	53.1 in-lbs	6 Nm
Moment (My)	53.1 in-lbs	6 Nm
Moment (Mz)	38.9 in-lbs	4.4 Nm

Technical drawing of a mechanical assembly, showing multiple views and dimensions in mm.

Top View:

- 4X M5 X 6.0
- 4X Ø3.0^{+0.03}_{-0.00} ▽ 6.0
- 28.0, 30.0, 15.0, 28.0

Front View (Left):

- 20.0, 16.0, 8.0
- M5
- 81.5, 68.0, 64, 59.0, 21.0, 73, 45.0, 48.5
- 9.5, Ø27.0^{+0.09}_{-0.00} ▽ 2.5
- 13.5
- M5 ▽ 6.0 OPEN
- M5 ▽ 6.0 CLOSE

Front View (Right):

- 12.0^{+0.00}_{-0.01}
- 4X M4
- 2X Ø2.50^{+0.00}_{-0.01}
- 1.5°
- 4.0, 6.0, 12.0
- 20.0, 8.0, 7.0, 12.5

Bottom View:

- 44, 40.0, 7.0, 5.5
- 19.0, 15.5, 12.0, 40.0
- 2X Ø4.1

Side View (Right):

- 90°

Dimensions in mm.

P5G-RB3

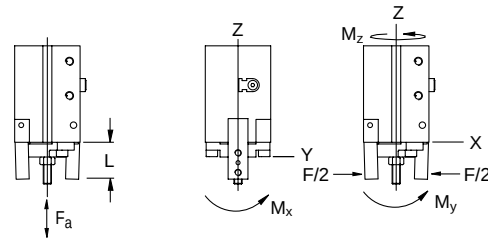
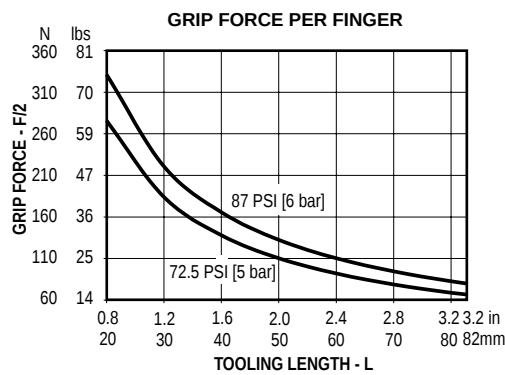


Total Grip Force (0.7 Mpa @ 25 mm)	142 lbs	632.2 N
Total Stroke (Degree)	-3 to +180	
Weight w/ square jaw carrier	1.43 lbs	0.65 kg
Bore Size	1.57 in	40 mm
Cylinder Volume	2.2 in ³	36.1 cm ³
Repeatability	±0.003 in	±0.1 mm
Temperature Range*	-4° to 158° F	-20° to 70° C
Pressure Range	29-100 psi	2-7 bar
Filtration Requirement	40 micron (dry air)	

* Fluorcarbon seals available for high temperature applications

Note: See model code and ordering information page for complete part number selection.

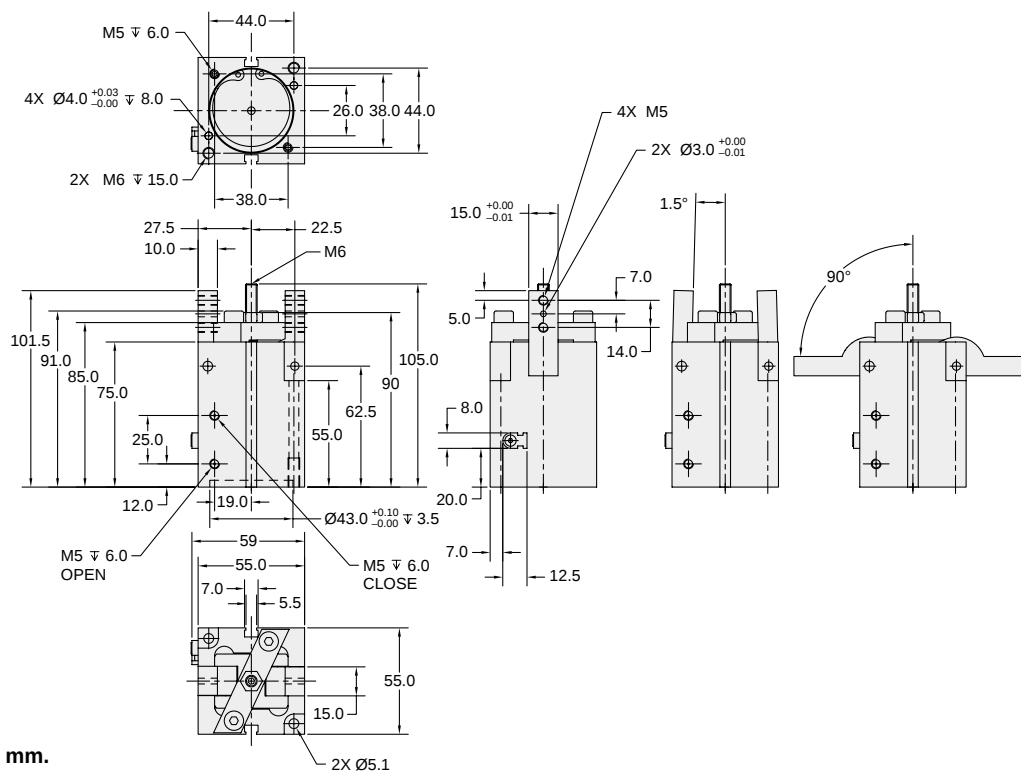
Loading Information



Maximum Loading Capacity

Load	Static	
Axial Forces (Fx)	71.9 lbs	320 N
Moment (Mx)	159.3 in-lbs	18 Nm
Moment (My)	159.3 in-lbs	18 Nm
Moment (Mz)	146 in-lbs	16.5 Nm

Dimensional Information



Dimensions in mm.

Dust Cover (K)

A dust cover can be added to prevent machining chip contaminants from entering the working mechanism of the gripper. This dust cover is also ideal for dusty and dirty environments

Reed and Hall Effect Sensors

Reed or Hall effect sensors mount in the sensor mounting grooves located in the gripper body. A magnetic piston is standard for ease of field addition of sensors.

180° Wide Angle	GVH
	GAW
	P5G-AW
	P5G-RB

Model Code and Ordering Information

P5G	–	R	B	1	3	R	K	00	180
-----	---	---	---	---	---	---	---	----	-----

Type

P5G – Pneumatic Gripper

Series

R – Robotic

Jaw Style

B – Long Jaws (Standard)

Size

1 – 16mm Bore

2 – 25mm Bore

3 – 40mm Bore

Flow Controls

3 – Flow Controls (Standard)

Operation

R – Double Acting (Standard)

Dust Cover

M – No Dust Cover (Standard)

K – Dust Cover

Function

00 – Standard

Angle

180 – Standard

Seal Kits

Size	Nitrile Seal Kit
P5G-RB1	PSK-P5G-RB1
P5G-RB2	PSK-P5G-RB2
P5G-RB3	PSK-P5G-RB3

Reed Switches	Switches and Sensors
Hall Effect Sensors	
Proximity Sensors	
Cordsets	Cordsets

Reed
Hall Effect
Proximity

This selection guide is a model number quick reference for the ordering of sensors as spare parts or for field installation. Switches/sensors are available only for the series listed.

Detailed specifications and part numbers for sensors and mounting brackets are given by series beginning on page 208. Look for the series name in the gray bars above each section.

Cordsets are sold separately on page 217.

Hall Effect Sensors

Hall Effect sensors are available only for the series listed below.

Parallel Grippers

Series	Sensor Type/ Gripper Size	PNP				NPN			
		Quick Connect	1m Flying Leads	3m Flying Leads	10m Flying Leads	Quick Connect	1m Flying Leads	3m Flying Leads	10m Flying Leads
GPCR	Flush Mount Right Angle		ZE135A ZE235A	ZE135B ZE235B					
GPT		SWH-2PC	SWH-2P			SWH-2NC	SWH-2N		
P5G-RH		P8S-SPTHXD		P8S-SPELXD	P8S-SPETXD	P8S-TNSHX			P8S-SNETX
P5G-AP	Flush Mount Right Angle	P8S-TPSHX P8S-SPTHXD		P8S-TPFLX P8S-SPELXD	P8S-TPFTX P8S-SPETXD	P8S-TNSHX P8S-SNTHX		P8S-TNFLX P8S-SNELX	P8S-TNFTX P8S-SNETX
GPEL	Flush Mount Right Angle		ZE135A ZE235A	ZE135B ZE235B					
GPD L	Flush Mount Right Angle		ZE135A ZE235A	ZE135B ZE235B					
GPK	Flush Mount Right Angle		ZE135A ZE235A	ZE135B ZE235B					
P5G-HPL		P8S-HHSP-006				P8S-HHSN-006			
P5G-HPC	Sizes 315-331 Sizes 344-368	P8S-HHSP-008 P8S-HHSP-006				P8S-HHSN-008 P8S-HHSP-006			

* 6 meter cable length

** 1 meter cable length

*** 3 meter cable length

Angular Grippers

Series	Sensor Type/ Gripper Size	PNP				NPN			
		Quick Connect	1m Flying Leads	3m Flying Leads	10m Flying Leads	Quick Connect	1m Flying Leads	3m Flying Leads	10m Flying Leads
GVC	Flush Mount Right Angle		ZE135A ZE235A						
GAA		SWH-2PC	SWH-2P			SWH-2NC	SWH-2N		
P5G-AA	Flush Mount Right Angle	P8S-TPSHX P8S-SPTHXD		P8S-TPFLX P8S-SPELXD	P8S-TPFTX P8S-SPETXD	P8S-TNSHX P8S-SNTHX		P8S-TNFLX P8S-SNELX	P8S-TNFTX P8S-SNETX
P5G-RK	Right Angle	P8S-SPTHXD		P8S-SPELXD	P8S-SPETXD	P8S-TNSHX			P8S-SNETX
P5G-HA	Cam (except size 10)	P8S-HHSP-008				P8S-HHSN-008			
GVH	Flush Mount Right Angle		ZE135A ZE235A						
GAW		SWH-2PC	SWH-2P			SWH-2NC	SWH-2N		
P5G-AW	Flush Mount Right Angle	P8S-TPSHX P8S-SPTHXD		P8S-TPFLX P8S-SPELXD	P8S-TPFTX P8S-SPETXD	P8S-TNSHX P8S-SNTHX		P8S-TNFLX P8S-SNELX	P8S-TNFTX P8S-SNETX
P5G-RB	Right Angle	P8S-SPTHXD		P8S-SPELXD	P8S-SPETXD	P8S-TNSHX			P8S-SNETX

Reed Switches

Reed switches are available only for the series listed below.

Series	Sensor Type	Quick Connect	1m Flying Leads	3m Flying Leads	10m Flying Leads
GPT		SWR-2C	SWR-2		
P5G-A*	Flush Mount Right Angle	P8S-TRSHX P8S-SRTHX		P8S-TRFLX P8S-SRELX	P8S-TRFTX P8S-SRETX
P5G-R*		P8S-SRTHX		P8S-SRELX	P8S-SRETX
GAA		SWR-2C	SWR-2		
GAW		SWR-2C	SWR-2		

*All types – parallel, 30° and 180° angular

Proximity Sensors

Proximity sensors are available only for the series listed below.

Parallel Grippers

Series	Sensor Type/ Gripper Size	PNP			NPN			
		Threaded Connector	6m Flying Leads	Plug-in 5m Cable	Threaded Connector	Plug-in 5m Cable	1m Flying Leads	6m Flying Leads
GPR	Left (Grey) Right (Black)						PA8FI PA8F	
P5G-HP	Sizes 5-15 Sizes 17-30	P8S-HISP-013 P8S-HISP-011			P8S-HISN-013 P8S-HISN-011			
GPT		SWP-1P			SWP-1N			
P5G-AP			B8769-P*	B8769-N*		9878006*		B8769-N*
P5G-HP-P		P8S-HISP-014			P8S-HISN-014			
P5G-HPW	Sizes 250-500 Sizes 625-750	P8S-HISP-014 P8S-HISP-011			P8S-HISN-014 P8S-HISN-011			
P5G-HPB		P8S-HISP-017			P8S-HISN-017			

* Cable included to achieve overall length

Angular Grippers

Series	Sensor Type/ Gripper Size	PNP			NPN			
		Threaded Connector	6m Flying Leads	Plug-in 5m Cable	Threaded Connector	Plug-in 5m Cable	1m Flying Leads	6m Flying Leads
GAA		SWP-1P			SWP-1N			
P5G-AA			B8769-P*	B8769-N*		9878006*		B8769-N*
P5G-HA	Locking (Size 15) Locking (Size 25)	P8S-HISP-013 P8S-HISP-014			P8S-HISN-013 P8S-HISN-014			
3H2	Right Angle	9878034			9878035			
GAW		SWP-1P			SWP-1N			
P5G-AW			B8769-P*	B8769-N*		9878006*		B8769-N*

* Cable included to achieve overall length

For Use with GA/GP Series

Specifications

Switching Logic:	Normally Open, SPST
Voltage Rating:	85-125 VAC or 6-30 VDC*
Power Rating:	10 Watts AC or DC/Resistive Load 5 Watts AC or DC/Inductive Load
Switching Current Range:	30-200 mA/Resistive Load (PC, Sequencer) 30-100 mA/Inductive Load (Relay)
Switching Frequency:	300 Hz Maximum
Breakdown Voltage:	1.8kVACrms for 1 sec., lead to case
Min. Current for LED:	18mA
Operating Temperature:	14 to 140°F (-10 to 60°C)
Enclosure Protection:	Meets IEC IP67, fully encapsulated
Lead Wire:	2 conductor, 22 Gauge
Lead Wire Length:	39 in (1 m)
Vibration Resistance:	10-55 Hz, 1.5mm double amplitude

* Polarity is restricted for DC operation

(+) to brown

(-) to blue

If these connections are reversed, the contacts will close but the LED will not light.

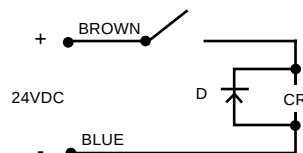
Switch Part Numbers

Part Number	Connection
SWR-2C	6 inch quick connect
SWR-2	39 inch flying leads

**PROTECTION CIRCUIT
(INDUCTIVE LOADS)**

(Required for proper operation 24VDC)

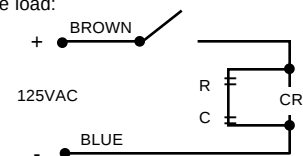
Select a diode with a breakdown voltage and current rating according to the load. Place a diode in parallel to the load with the polarity as indicated:



CR: Relay coil (under 0.5W coil rating)

(Recommended for longer switch life 125VAC)

Select a resistor and capacitor according to the load. Place a resistor and capacitor in parallel to the load:



CR: Relay coil (under 2W coil rating)

R: Resistor under 1 K ohm

C: Capacitor 0.1 μF

For Use with P5G-A, P5G-R Series

Specifications

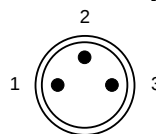
Type	Reed
Output Function	Normally Open
Operating Voltage	10 - 120 VAC
	10 - 30 VDC
Continuous Current	≤100 mA
Response Sensitivity	3 mT
Switching Frequency	400 Hz
Voltage Drop	≤3 V
Ripple	≤10% of Operating Voltage
Delay Time (24V)	Approx. 20 ms
Time Delay before Availability	≤2 ms
Hysteresis	≤1.0 mm
Repeatability	≤0.2 mm
EMC	EN 60 947-5-2
Reverse Polarity Protection	Yes
Enclosure Rating	IP 67
Shock and Vibration Stress	30g, 11 ms, 10 to 55 Hz, 1 mm
Ambient Temperature Range	-25° to +75°C (-13° to 167°F)
Housing Material	PA 12, Black
Connector Cable	PVC
Connector	PUR cable with 8 mm connector

! *Contact suppression is strongly recommended for reed switch applications with inductive loads (solenoids) or cable lengths in excess of 5 m (16.4 ft).*

Reed switches exhibit a 3V voltage drop. This voltage drop will be cumulative for switches in series, eg. 12 V for 4 switches.

Note: *It is not necessary to order switches separately for the P5G-A or P5G-R Series grippers. Consult model code page for each series.*

WIRING CONNECTION



Pin	Wire	Function
1	Brown	10-30 VDC
2	Black	Output signal
3	Blue	Not Used

Flush Mount Part Numbers

Part Number	Connection
P8S-TRSHX	.27m lead w/connector
P8S-TRFLX	3m flying leads
P8S-TRFTX	10m flying leads

Right Angle Part Numbers

Part Number	Connection
P8S-SRTHX	.27m lead w/connector
P8S-SRELX	3m flying leads
P8S-SRETX	10m flying leads

For Use with GA/GP Series

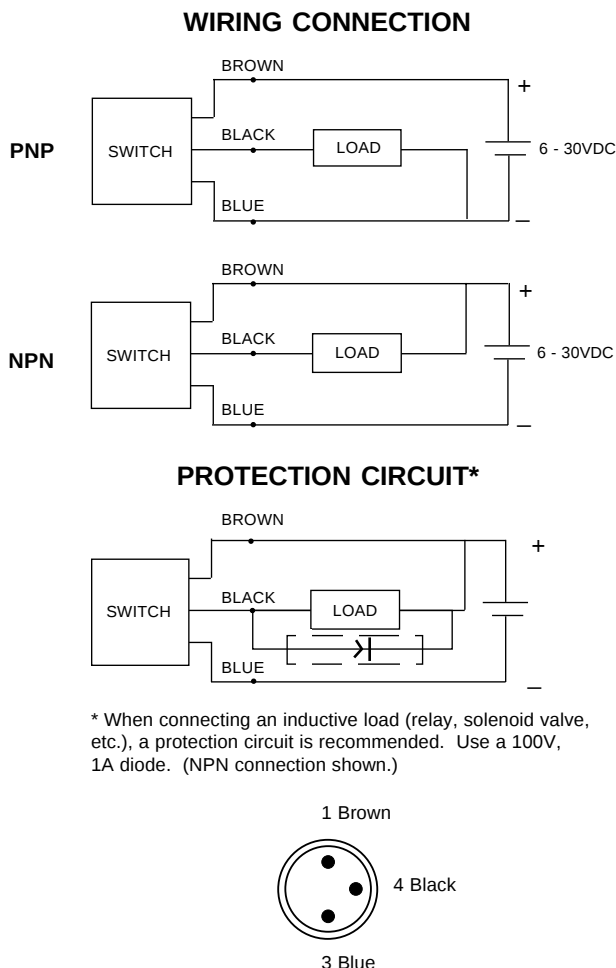
Specifications

Type Solid State (PNP or NPN)
 Switching Logic Normally Open
 Supply Voltage Range 6 - 30VDC
 Current Output Range Up to 100 mA at 5 VDC,
 Up to 200 mA at 12 VDC and 24 VDC
 Current Consumption 7 mA at 5 VDC, 15 mA at 12 VDC,
 and 30 mA at 24 VDC
 Switching Frequency 1000 Hz Maximum
 Residual Voltage 1.5V Maximum
 Leakage Current 10uA Maximum
 Breakdown Voltage 1.8kVACrms for 1 sec., lead to case
 Min. Current for LED 1mA
 Operating Temperature 14 to 140°F (-10 to 60°C)
 Enclosure Protection Meets IEC IP67, fully encapsulated
 Lead Wire 3 conductor, 24 gauge
 Lead Wire Length 39 in (1 m)
 Vibration Resistance 10-55 Hz, 1.5mm double amplitude

Sensor Part Numbers

Part Number	Function	Connection
SWH-2PC	PNP	6 inch male quick connect
SWH-2P	PNP	39 inch flying leads
SWH-2NC	NPN	6 inch male quick connect
SWH-2N	NPN	39 inch flying leads

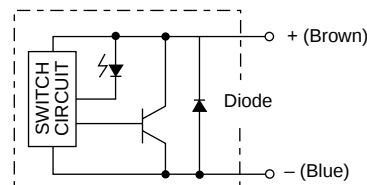
Note: Sensors with male quick connect option require female cordsets. Order separately from page 217.



For Use with GPCR, GPDL, GPEL, GPK, GVC and GVH Series

Specifications

Load Voltage DC 10-28V
 Load Current 4-20 mA
 Internal Voltage Drop 4.5V max.
 Leak Current 1 mA max. (DC24V)
 Mean Response Time less than 1 ms
 Insulation Resistance min. 1000 MO at 500 VDC
 (end part of case, lead wire)
 Withstand Voltage 500VAC (50/60 Hz) 1 min
 (end part of case, lead wire)
 Shock Resistance 294.2 m/s²
 Vibration Resistance double amplitude 1.5mm, 10-55 Hz
 Temperature Range -10° to 60°C (no freezing allowed)
 Wiring Method PCCV 0.2mm², 3 wire OD 2.6mm
 Protection Grade IP67, JIS C0920
 Indicator Lamp red LED (turn on at "ON")
 Connection Type Flying leads



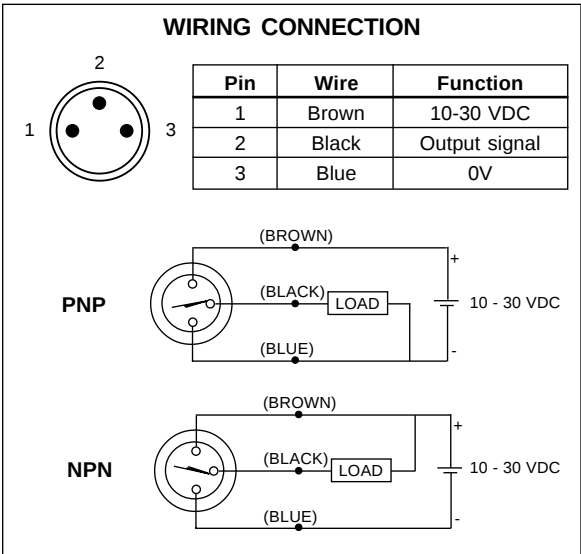
Sensor Part Numbers

Part Number	Wire Direction	Connection
ZE135A	Horizontal	1m lead wire
ZE235A	Vertical	1m lead wire
ZE135B	Horizontal	3m lead wire
ZE235B	Vertical	3m lead wire

For Use with P5G-A, P5G-R Series

Specifications

Type	Electronic
Output Function	Normally Open
Switching Output	PNP/NPN
Operating Voltage	10 - 30VDC
Continuous Current	≤150 mA
Response Sensitivity	3 mT
Switching Frequency	5 kHz
Power Consumption	15 mA
Voltage Drop	≤2 V
Ripple	≤10% of Operating Voltage
Time Delay before Availability	≤2 ms
Hysteresis	≤1.5 mm
Repeatability	≤0.2 mm
EMC	EN 60 947-5-2
Short -circuit Protection	Yes
Power-up Pulse Supression	Yes
Reverse Polarity Protection	Yes
Enclosure Rating	IP 67
Shock and Vibration Stress	30g, 11 ms, 10 to 55 Hz, 1 mm
Ambient Temperature Range	-25° to +75°C (-13° to 167°F)
Housing Material	PA 12, Black
Connector Cable	PVC
Connector	PUR cable with 8 mm connector



Right Angle Part Numbers

Part Number	Function	Connection
P8S-SPTHXD	PNP	.27m lead w/connector
P8S-SPELXD	PNP	3m flying leads
P8S-SPETXD	PNP	10m flying leads
P8S-SNTHX	NPN	.27m lead w/connector
P8S-SNELX	NPN	3m flying leads
P8S-SNETX	NPN	10m flying leads

Flush Mount Part Numbers

Part Number	Function	Connection
P8S-TPSHX	PNP	.27m lead w/connector
P8S-TPFLX	PNP	3m flying leads
P8S-TPFTX	PNP	10m flying leads
P8S-TNSHX	NPN	.27m lead w/connector
P8S-TNFLX	NPN	3m flying leads
P8S-TNFTX	NPN	10m flying leads

Note: It is not necessary to order sensors separately for the P5G-A or P5G-R Series grippers. Consult model code page for each series.

For Use with HPC Series (Sizes 315-331) and 30° P5G-HA Series

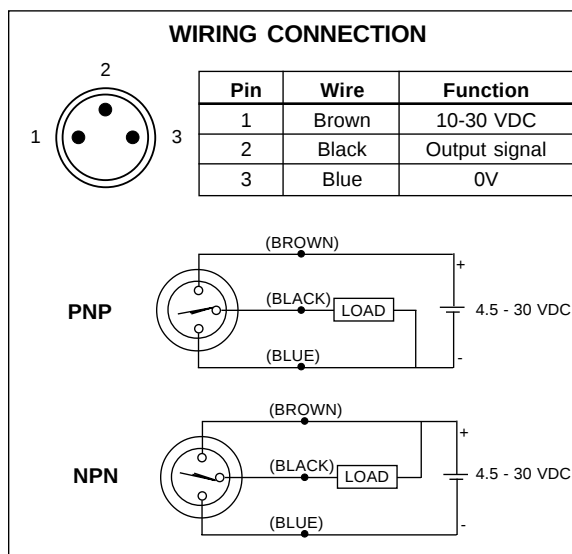
Specifications

Switching Logic	Normally Open, Normally Closed
Voltage Rating	4.5 - 30 VDC
Current Consumption	26 mA @ 24V
Max. Switching Current	200 mA
Voltage Drop	1.5 V
Operating Temperature Range	14 to 158°F
Enclosure Protection	IP67
Connection Type	Flying leads
Lead Wire Length	6.0 inches

Sensor Part Numbers

Order sensor and cable separately. Mounting kit not required.

Description	Part Number
NPN Sensor with Quick Disconnect	P8S-HHSN-008
PNP Sensor with Quick Disconnect	P8S-HHSP-008



For Use with P5G-HPL Series

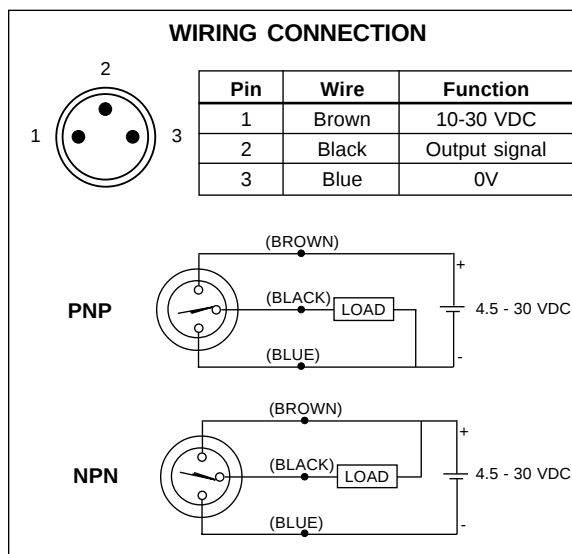
Specifications

Switching Logic	Normally Open, Normally Closed
Voltage Rating	4.5 - 30 VDC
Current Consumption	7 mA @ 24V
Max. Switching Current	50 mA
Voltage Drop	0.5 V max.
Response Frequency	1 kHz
Operating Temperature Range	14 to 158°F
Enclosure Protection	IP67
Connection Type	Flying leads
Lead Wire Length	200mm

Sensor Part Numbers

Order sensor, cable and mounting kit separately.

Description	Part Number
NPN Sensor with Quick Disconnect	P8S-HHSN-006
PNP Sensor with Quick Disconnect	P8S-HHSP-006



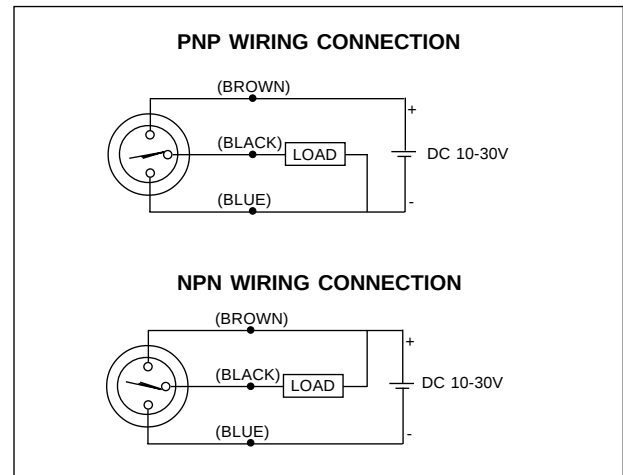
Sensor Mounting Kits

Size	Sensor Mounting Hardware Kit
P5G-HPL-1	P5G-HSMK-008
P5G-HPL-2	P5G-HSMK-008
P5G-HPL-3	P5G-HSMK-008
P5G-HPL-4	P5G-HSMK-008

For Use with GA and GP Series

Electrical Specifications

Voltage	10-30 VDC (3 wire) PNP or NPN
Current	7mA at 24 VDC
Outlet Current	130mA
Switching Speed	1000Hz
Switching Distance	Steel = 1.0 mm (0.039 in) Brass = 0.7 mm (0.028 in) Aluminum = 0.4 mm (0.016 in)
Overload Protection	Triggered at 170mA
Reverse Polarity Protection	Incorporated
Temp. Range	-13 to 158°F (-25 to 70°C)
Enclosure	Meets NEMA 1,3,4,6,13 and IEC IP67, fully encapsulated

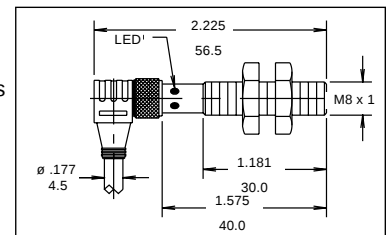


Sensor Part Numbers

Part Number	Description
SWP-1P	PNP with threaded connector
SWP-1N	NPN with threaded connector

PLUG-IN SENSOR

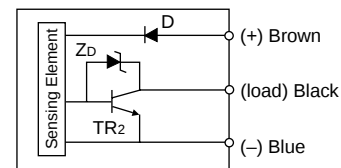
A threaded right angle cordset is included as standard. The cordset contains two LEDs: 1- power, 2 - target indication. Cordset length is 20 ft. (6m).



For Use with GPR Series

Specifications

Application	Relay, PLC, IC Circuit
Type of Contact	NPN transistor, Open Collector
Power Consumption	15 mA Max
Switch Current	100 mA Max
Load Voltage	12 to 24 VDC $\pm$ 10% (Ripple p-p, less than 10%)
Internal Voltage drop	less than 1 V at 100 mA input
Leak Current	5 μ A Max
Mean Response Time	1 msec
Temperature Range	-10 to 55° C
Protection Grade	IP67
Indicator Lamp	Red LED (turn on at "ON")
Lead wire length	1 meter



D = Diode for reverse polarity
 ZD = Zener diode for surge suppression
 TR2 = NPN Transistor

Sensor Part Numbers
 (as spare parts)

Part Number	Description
PB8F	Black
PB8FI	Gray

Sensor & Mounting Kit Part Numbers
 (includes sensor and mounting hardware)

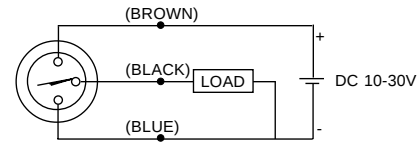
Size	Part Number
GPR1	PA1GP2
GPR3	PA3GP2
GPR10	PA10GP2

For Use with P5G-A Series

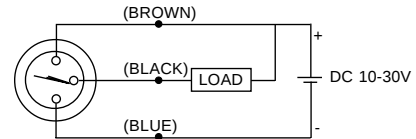
Electrical Specifications

Voltage	10-30 VDC (3 wire)
	PNP or NPN
Current	7mA at 24 VDC
Outlet Current	130mA
Switching Speed	1000Hz
Switching Distance	Steel = 1.0 mm (0.039 in)
	Brass = 0.7 mm (0.028 in)
	Aluminum = 0.4 mm (0.016 in)
Overload Protection	Triggered at 170mA
Reverse Polarity Protection	Incorporated
Temp. Range	-25° to 70°C (-13° to 158°F)
Enclosure	Meets NEMA 1,3,4,6,13 and IEC IP67, fully encapsulated

PNP WIRING CONNECTION

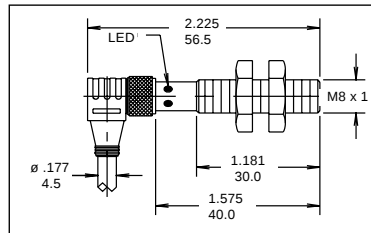


NPN WIRING CONNECTION



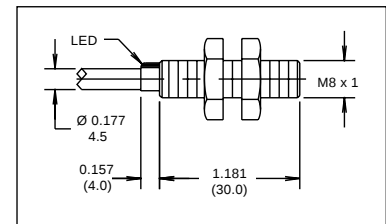
PLUG-IN SENSOR

A threaded right angle cordset is included as standard. The cordset contains two LEDs: 1- power, 2 - target indication. Cordset length is 20 ft. (6m).



POTTED-IN SENSOR

Lead type sensor with 20 ft. (6m) cord length



Note: It is not necessary to order proximity sensors separately for the P5G-A grippers. Consult model code pages to order with gripper.

For Use with P5G-HPB Series

Electrical Specifications

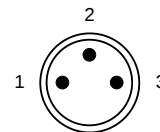
Switching Logic	Normally Open, Normally Closed
Voltage Rating	9 - 30 VDC
Current Consumption	15 mA Max
Load Current	200 mA Max
Voltage Drop	1.6 V
Operating Temperature Range	-13 to 176° F
Enclosure Protection	IP67
Response Frequency	2 kHz
Sensing Range	2.0 mm
NEMA Rating	6

Sensors and Mounting Kits

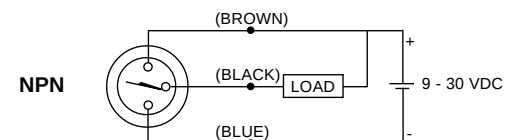
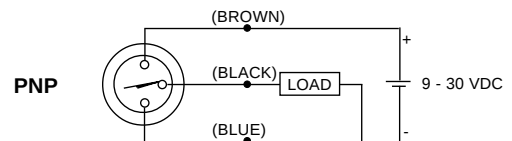
Order sensor, cable and mounting kit separately.

Description	Part Number
12mm NPN Sensor with Quick Disconnect	P8S-HISN-017
12mm PNP Sensor with Quick Disconnect	P8S-HISP-017
Sensor Mounting Kit	P5G-HSMK-078

WIRING CONNECTION



Pin	Wire	Function
1	Brown	10-30 VDC
2	Black	Output signal
3	Blue	0V



For Use with P5G-HA-15 and P5G-HP Series (Sizes 5-15)

Electrical Specifications

Switching Logic	Normally Open, Normally Closed
Voltage Rating	5 - 24 VDC
Current Consumption	10 mA Max
Load Current	100 mA Max
Voltage Drop	1.0 V
Operating Temperature Range	-13 to 158° F (-25 to 70°C)
Enclosure Protection	IP64
Lead Wire Length	6 inches
Response Frequency	1 kHz
Sensing Range	0.5 mm
NEMA Rating	3

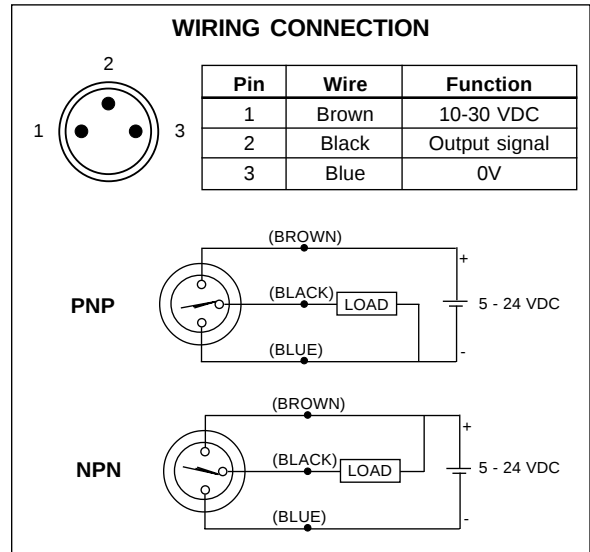
Sensor Part Numbers

Order sensor, cable and mounting kit separately.

Description	Part Number
NPN Sensor with Quick Disconnect	P8S-HISN-013
PNP Sensor with Quick Disconnect	P8S-HISP-013

P5G-HA-15 Sensor Mounting Kit

Size	Sensor Mounting Hardware Only
P5G-HA-15	P5G-HSMK-018



P5G-HP Sensor Mounting Kits

Size	Sensor Mounting Hardware Only
P5G-HP5	P5G-HSMK-001
P5G-HP10	P5G-HSMK-002
P5G-HPS11/11D	P5G-HSMK-003
P5G-HPS12/12D	P5G-HSMK-003
P5G-HPS15/15D	P5G-HSMK-003

For Use with P5G-HP Series (Sizes 17-19) and P5G-HPW Series (Sizes 625-750)

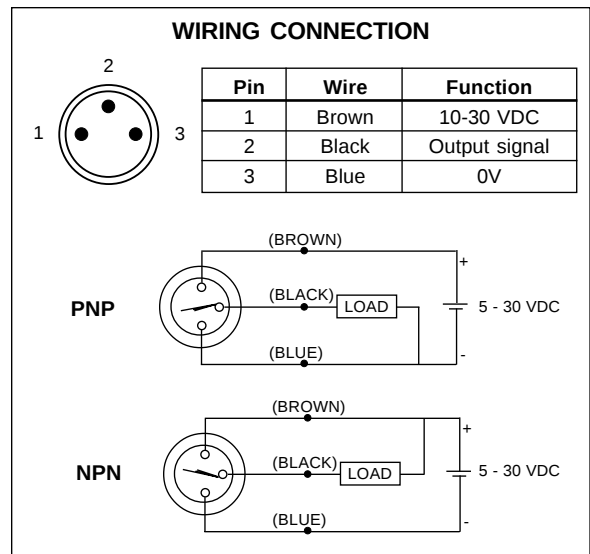
Electrical Specifications

Switching Logic	Normally Open, Normally Closed
Voltage Rating	5-30 VDC
Current Consumption	15 mA Max
Load Current	200 mA Max
Voltage Drop	1 V Max
Operating Temperature Range	-13 to 135° F (-25 to 70°C)
Enclosure Protection	IP67
Lead Wire Length	200 mm
Response Frequency	800-1000 Hz
Sensing Range	1.5 mm
NEMA Rating	6

Sensor Part Numbers

Order sensor, cable and mounting kit separately.

Description	Part Number
NPN Sensor with Quick Disconnect	P8S-HISN-011
PNP Sensor with Quick Disconnect	P8S-HISP-011



P5G-HP Sensor Mounting Kits

Model	Sensor Mounting Hardware Only
P5G-HPS17/17D	P5G-HSMK-072
P5G-HPS18/18D	P5G-HSMK-072
P5G-HPS19/19D	P5G-HSMK-073

P5G-HPW Sensor Mounting Kits

Model	Sensor Mounting Hardware Only
P5G-HPW-625-1	P5G-HSMK-074
P5G-HPW-625-2	P5G-HSMK-074
P5G-HPW-750	P5G-HSMK-014

For Use with P5G-HA-25, P5G-HP-P and P5G-HPW Series (Size 250-500)

Electrical Specifications

Switching Logic	Normally Open, Normally Closed
Voltage Rating	10-30 VDC
Current Consumption	18 mA Max
Load Current	100 mA Max
Voltage Drop	2.5 V Max
Operating Temperature Range	-13 to 167° F
Enclosure Protection	IP67
Lead Wire Length	200 mm
Response Frequency	2.0-3.0 kHz
Sensing Range	0.8 mm
NEMA Rating	6

Sensor Part Numbers

Order sensor, cable and mounting kit separately.

Description	Part Number
NPN Sensor with Quick Disconnect	P8S-HISN-014
PNP Sensor with Quick Disconnect	P8S-HISP-014

P5G-HA-25 Sensor Mounting Kit

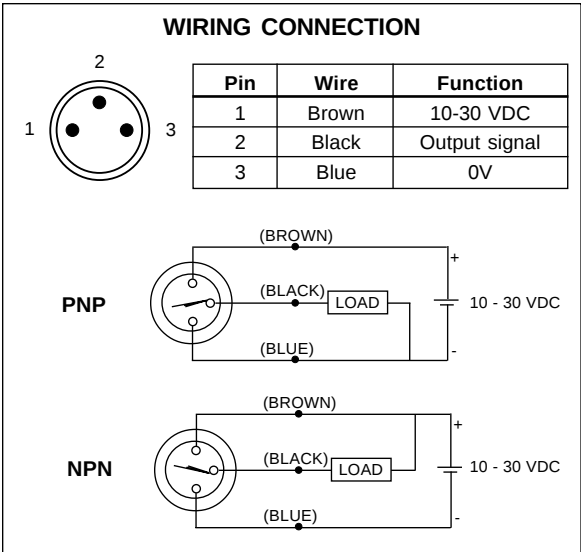
Size	Sensor Mounting Hardware Only
P5G-HA-25	P5G-HSMK-019

P5G-HP-P Sensor Mounting Kits

Size	Sensor Mounting Hardware Only
P5G-HP-50P	P5G-HSMK-003
P5G-HP-100P	P5G-HSMK-004
P5G-HP-25P	P5G-HSMK-004
P5G-HP-35P	P5G-HSMK-023
P5G-HP-40P	P5G-HSMK-023
P5G-HP-43P	P5G-HSMK-023

P5G-HPW Sensor Mounting Kits

Size	Sensor Mounting Hardware Only
P5G-HPW-250	P5G-HSMK-009
P5G-HPW-375-1	P5G-HSMK-010
P5G-HPW-375-2	P5G-HSMK-011
P5G-HPW-500-1	P5G-HSMK-012
P5G-HPW-500-2	P5G-HSMK-013



Cordset with Female Quick Connect
(order separately)

Specifications

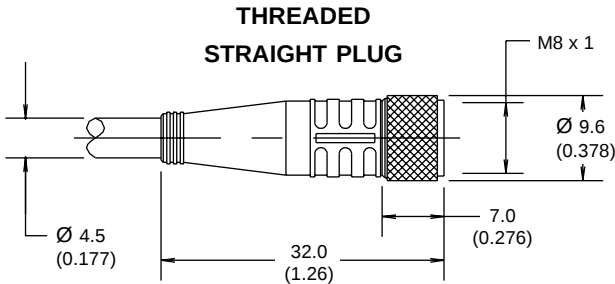
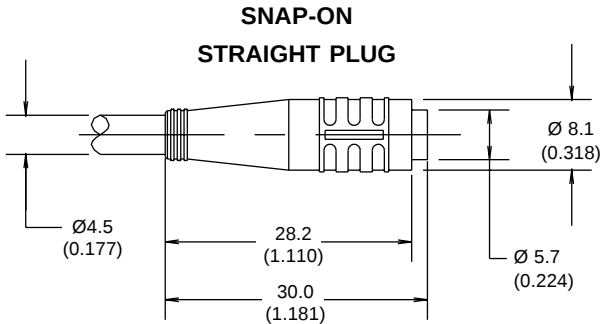
Connector	Oil resistant polyurethane body material, PA 6 (Nylon) contact carrier, spacings to VDE 0110 Group C, (30 VAC / 36 VDC)
Contacts	Gold plated beryllium copper, machined from solid stock
Coupling Method	Snap-Lock or chrome plated brass nut
Cord Construction	Oil resistant black PUR jacket, non-wicking, non-hygroscopic, 300V. Cable end is stripped and tinned.
Conductors	Extra high flex stranding, PVC insulation
Temperature	-40 to 90°C (-40 to 194°F)
Protection	NEMA 1,3,4,6P and IEC IP67
Cable Length	6 m (20 ft)

Part Numbers

A female connector is available for all Hall Effect and reed sensors with the male quick connect option. The male plug will accept a snap-on or threaded connector. Parker's cordset part numbers and other manufacturer's part numbers are listed below:

Manufacturer	Threaded Connector	Snap-on Connector
Parker	B8786	B8785
Brad Harrison	45310-102	45300-102
Lumberg	RKMV3-G1/5m	RKM3-G1/5m
Hirschman	—	ELKA-K308PUR014
Turck	PKG 3M-6/S90	PKG 3-6/S90

Cordsets



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4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from Parker Hannifin Corporation. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.**

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7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

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9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter 'Intellectual Property Rights'). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Right.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgements resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter 'Events of Force Majeure'). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder of this Agreement may be brought by either party more than two (2) years after the cause of action accrues.