

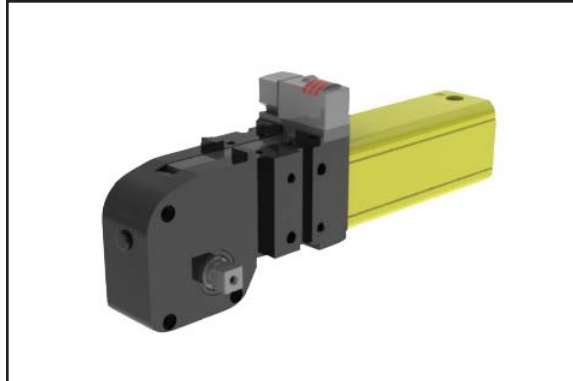
Section One

Clamps

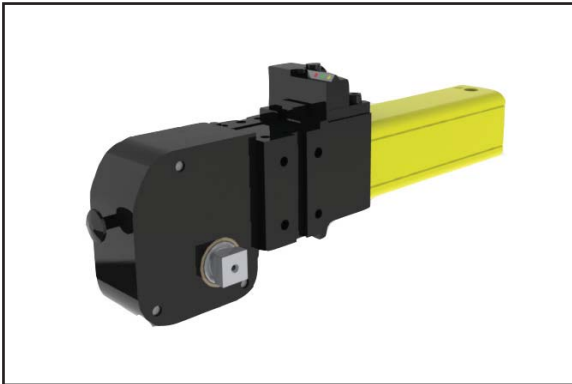
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EC32G Global Clamp *New!*



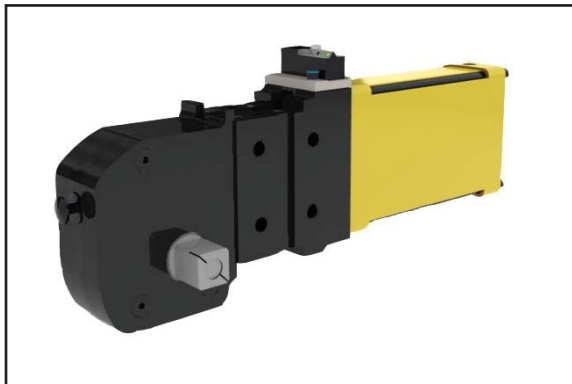
EC40G Global Clamp



EC50G Global Clamp



EC63G Global Clamp



EC91G Global Clamp *Improved!*



EC32G Global Clamp

New!

NORGREN CLAMPS

FEATURES

- ▶ Satisfies Global Mounting Standards:
 - Blade mounting and Foot mounting.
- ▶ Integral Sensing Switch - Low profile cartridge requires only one cable.
- ▶ Before center locking mechanism is wear compensating for ultimate position repeatability.
- ▶ Remains locked even after loss of air pressure.
- ▶ Manual release button to open mechanism without air pressure.
- ▶ Fixed orifice. Clamp does not require flow controls.
- ▶ Adjustable stroke plug. No need to replace cylinder tubes and tie rods to change stroke.
- ▶ Wishbone arm option.

TECHNICAL DATA

- ▶ Fluid: Compressed Air
 - Note: Air supply must be dry enough to prevent ice formation at temperatures below 2° C (35° F).
- ▶ Air Pressure:
 - Minimum 2.75 bar (40 psi)
 - Maximum 8 bar (120 psi)
- ▶ Air Filtration:
 - 40 Micron filter
- ▶ Operating Temperature:
 - 0° C (32° F) to 70° C (158° F)

MATERIALS

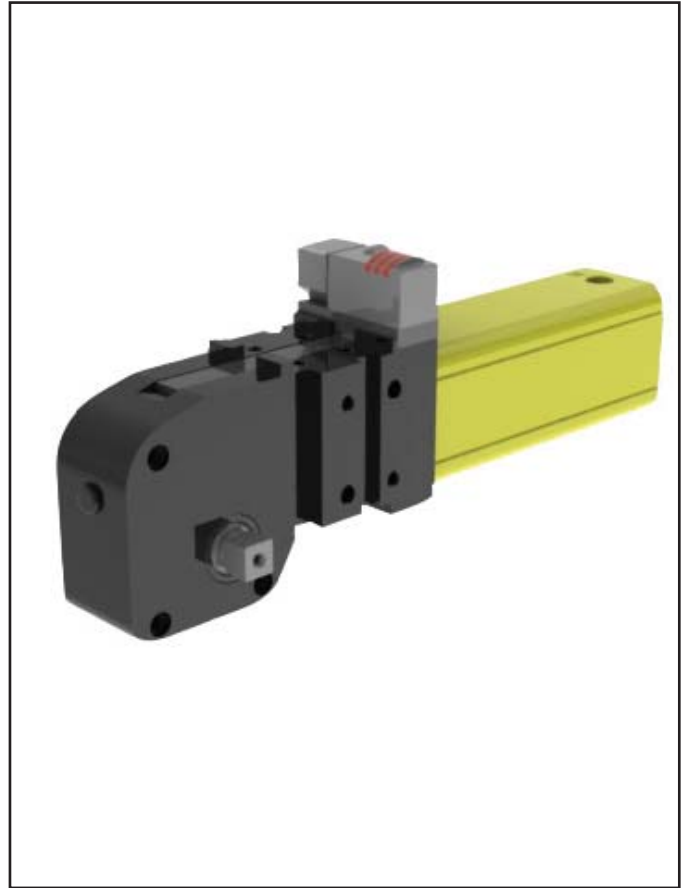
- ▶ Clamp Head: Aluminum/Steel
- ▶ Sensing Cover: Aluminum
- ▶ Cylinder Seals: Nitrile

SPECIFICATIONS

- ▶ Cylinder Bore Area: 1256 mm² (1.95 in²)
- ▶ Clamp Weight excluding arms: 1.41kg (3.1lbs)

Consult Application Charts for mass and velocity limitations.

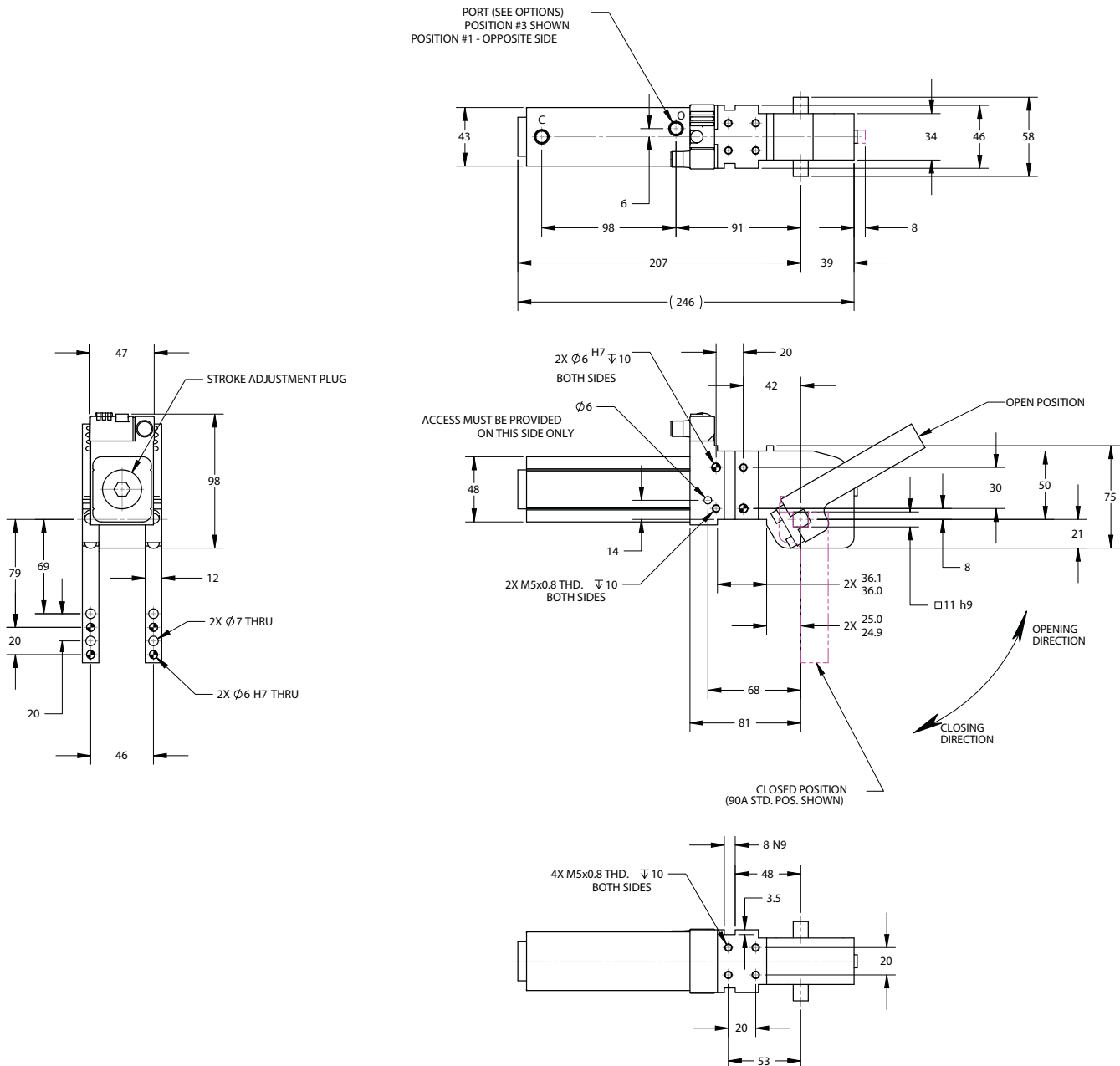
This product covered by one or more of the following U.S. patent numbers:
4,905,973; 5,575,462; 5,634,629;
5,829,112; 5,799,932
EC, SC, WC Series Clamps.



EC32G Clamp

Enclosed Global Clamp
Dimensions

NORGREN CLAMPS



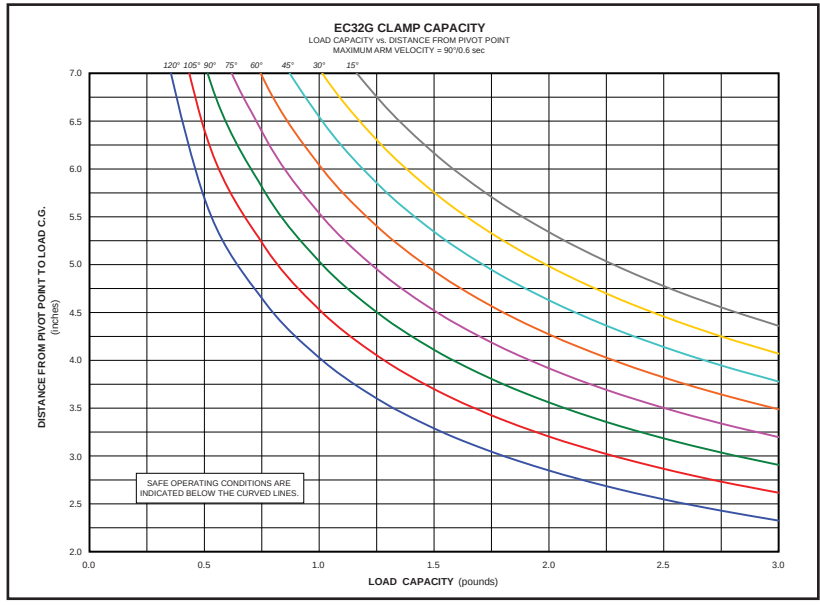
EC32G Clamp

Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

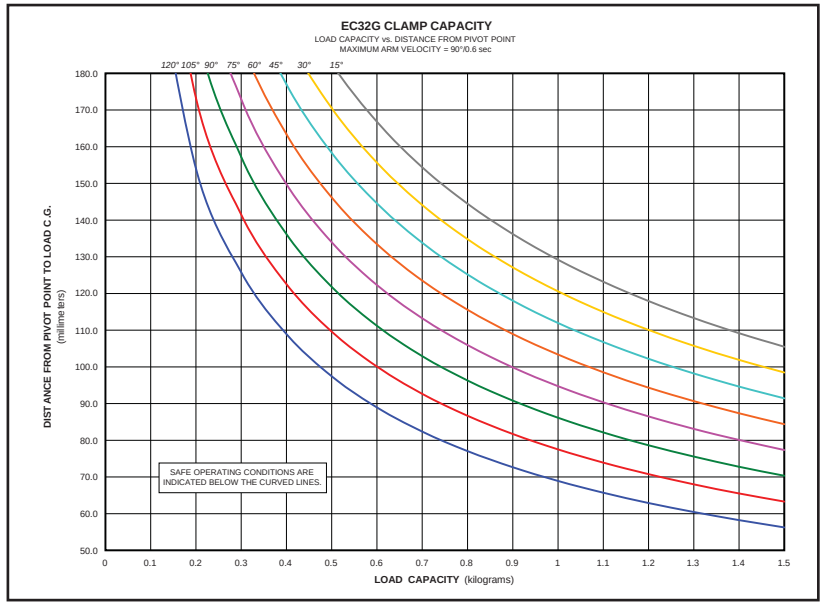
EC32G CLAMP CAPACITY - ENGLISH

LOAD CAPACITY VS. DISTANCE FROM PIVOT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC.



EC32G CLAMP CAPACITY - METRIC

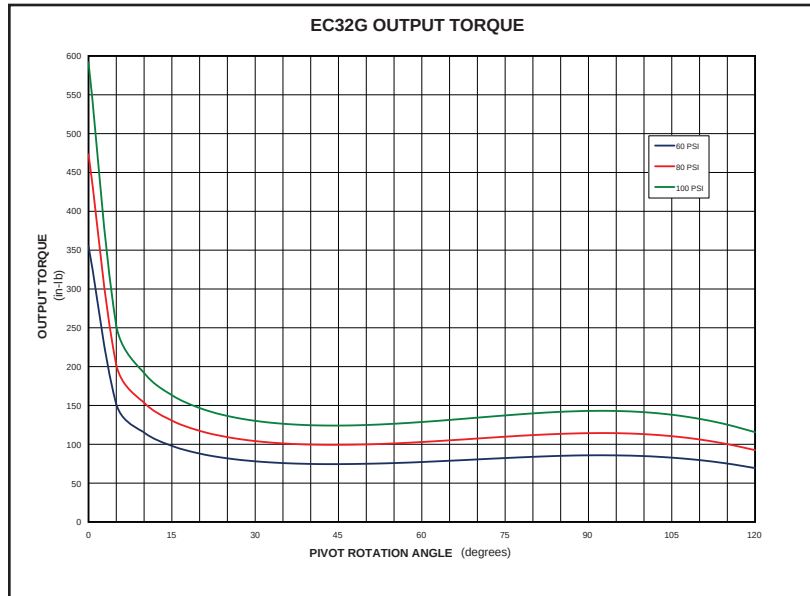
LOAD CAPACITY VS. DISTANCE FROM PIVOT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC.



EC32G Clamp

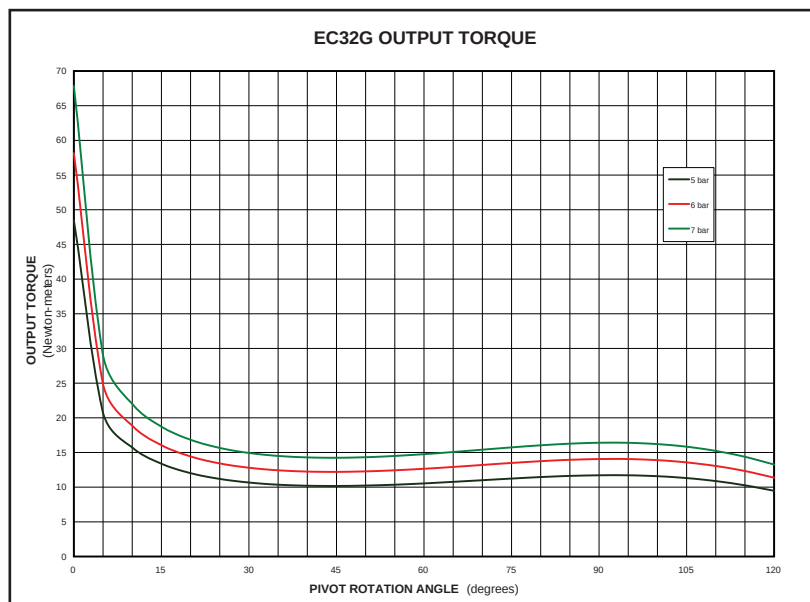
Enclosed Global Clamp
Application Charts

EC32G OUTPUT TORQUE - ENGLISH



NORGREN CLAMPS

EC32G OUTPUT TORQUE - METRIC

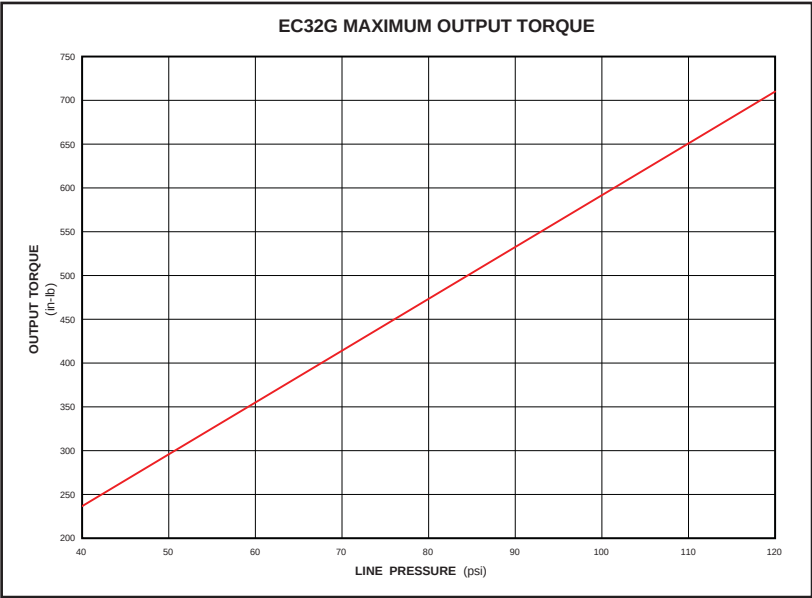


EC32G Clamp

Enclosed Global Clamp
Application Charts

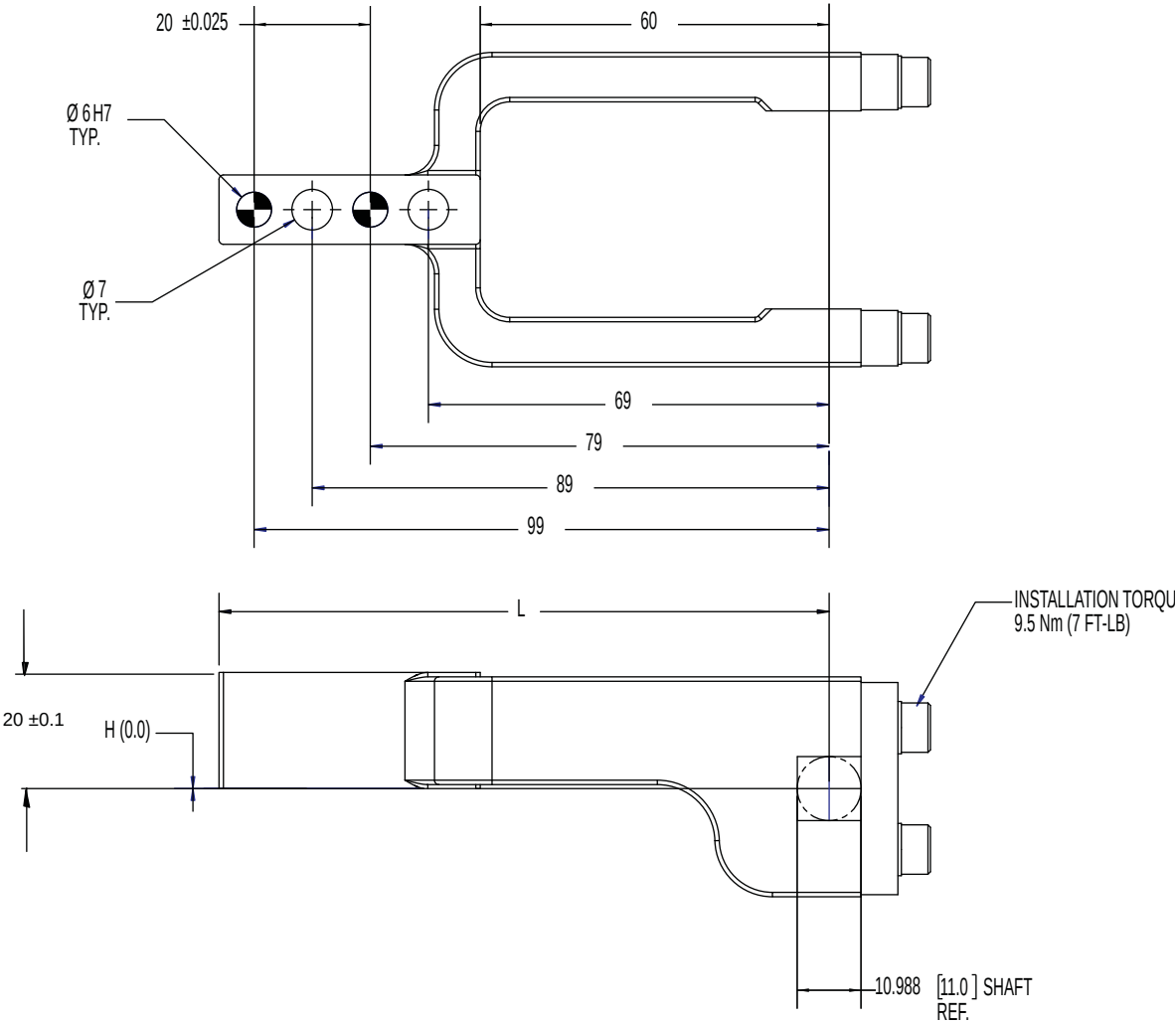
NORGREN CLAMPS

EC32G CYCLE TIMES MAXIMUM OUTPUT TORQUE



EC32G Clamp
Enclosed Global Clamp
Global Machined Wishbone Arm

NORGREN CLAMPS

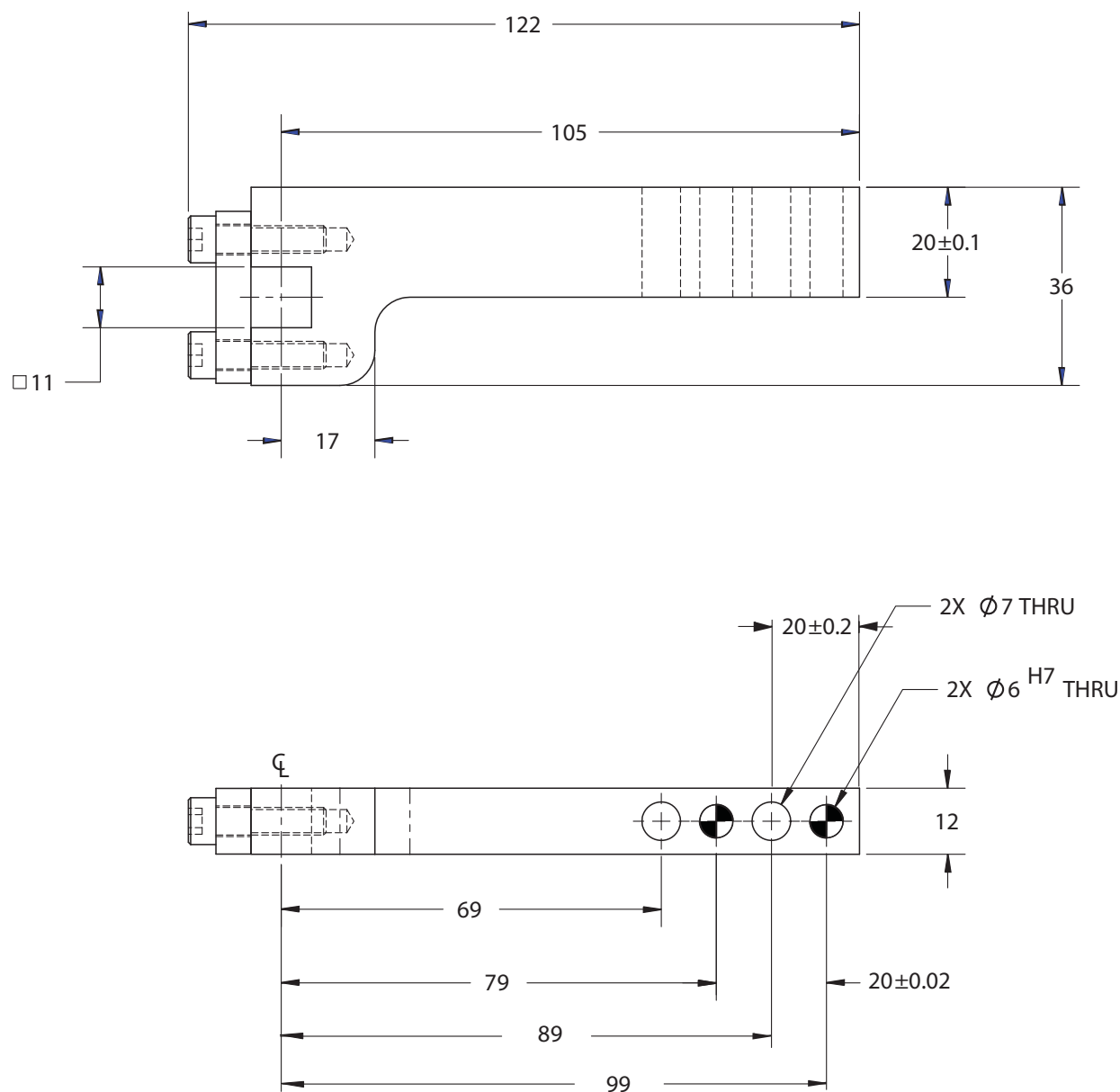


PART No.	"L"	OAL	ARM WEIGHT KG (LB)
WG3-00-105	105	110	0.3 (.67)

EC32G Clamp

Enclosed Global Clamp
Blank Blade Arm Options

NORGREN CLAMPS

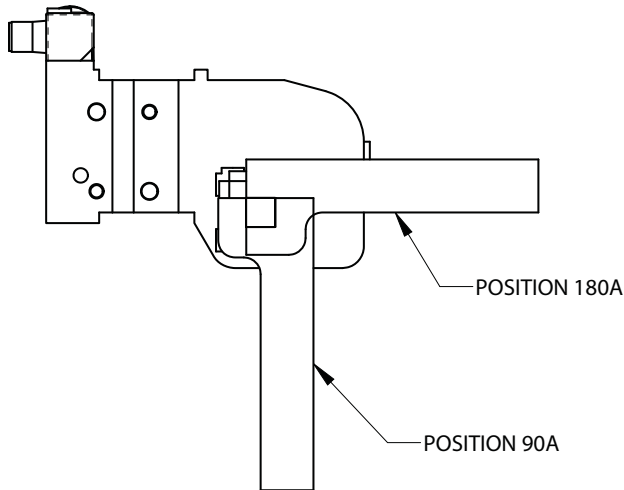


PART No.	"A"	OAL	ARM WEIGHT KG (LB)
P-EC32G- XM52M	90.0	122.0	.2 (.5)

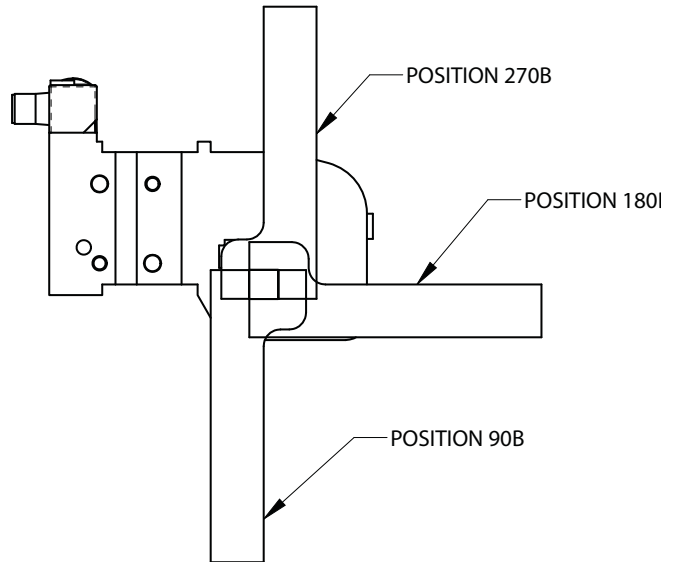
EC32G Clamp

Enclosed Global Clamp
Wishbone Arm Mounting Options

NORGREN CLAMPS



"A" - STANDARD ARM MOUNTING
CLOSED POSITION



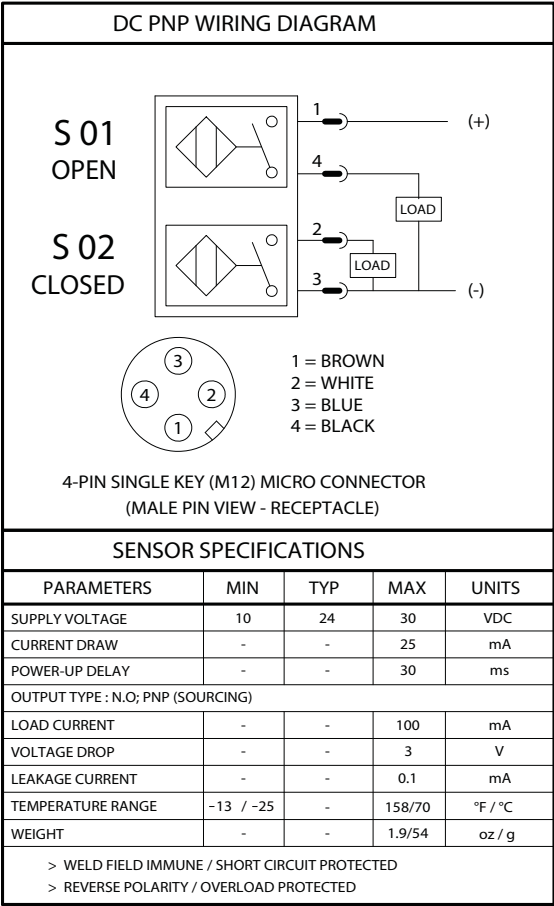
"B" - INVERTED ARM MOUNTING
CLOSED POSITION

MAXIMUM OPENING ANGLE (DEGREES)			
NORGREN ARM STYLE	MOUNTING POSITION	MOUNTING OPTION	
		A - STANDARD	B - INVERTED
ZERO OFFSET BLADE ARM	90	120	120
	180	90	120
	270	-	30
NOTE: STANDARD CLAMPS ARE AVAILABLE IN 15 DEGREE INCREMENTS ONLY. OTHER STROKES AVAILABLE UPON REQUEST.			

EC32G Clamp

Enclosed Global Clamp
Sensing Options

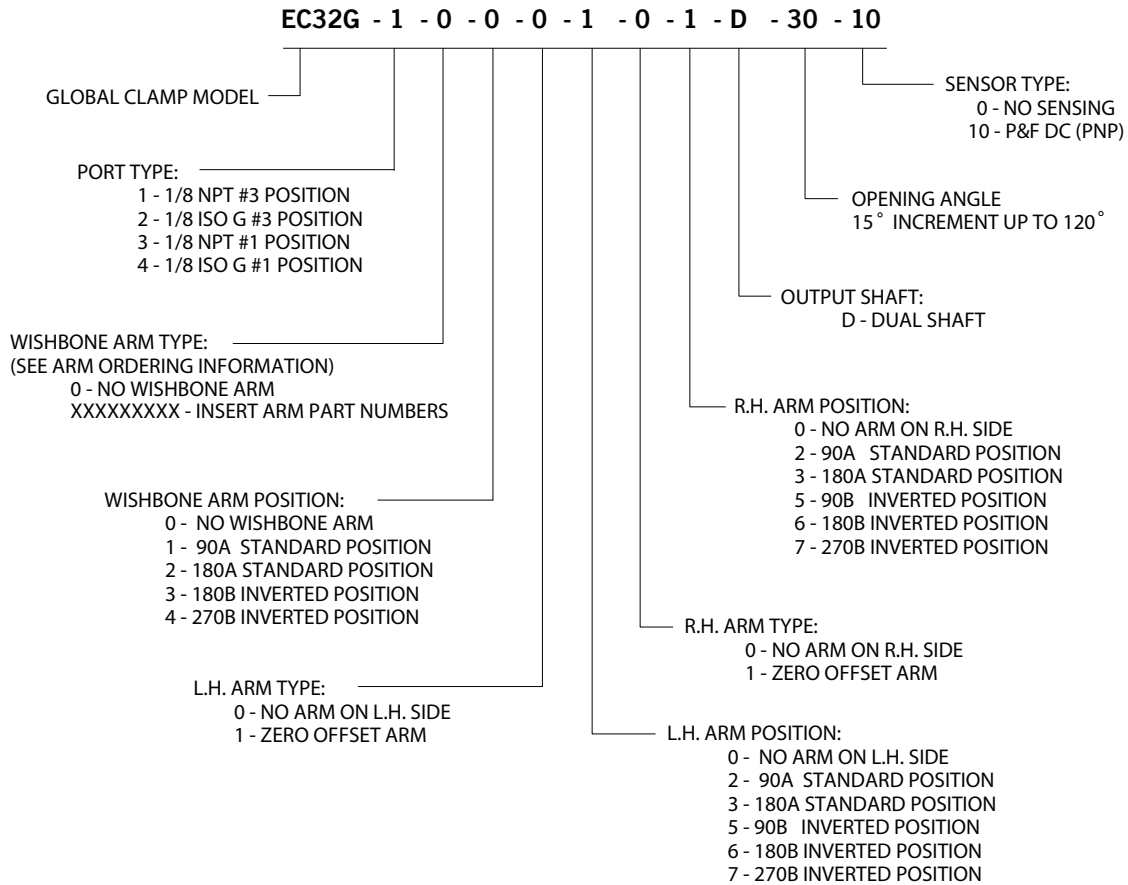
NORGREN CLAMPS



EC32G Clamp

Enclosed Global Clamp
Ordering Information

NORGREN CLAMPS



EC40G Global Clamp

FEATURES

- ▶ Satisfies Global Mounting Standards:
 - Blade mounting and Foot mounting.
- ▶ Integral Sensing Switch - Low profile cartridge requires only one cable.
- ▶ Before center locking mechanism is wear compensating for ultimate position repeatability.
- ▶ Remains locked even after loss of air pressure.
- ▶ Manual release button to open mechanism without air pressure.
- ▶ Fixed orifice. Clamp does not require flow controls.
- ▶ Adjustable stroke plug. No need to replace cylinder tubes and tie rods to change stroke.
- ▶ Wishbone arm options.

TECHNICAL DATA

- ▶ Fluid: Compressed Air
 - Note: Air supply must be dry enough to prevent ice formation at temperatures below 2° C (35° F).
- ▶ Air Pressure:
 - Minimum 2.75 bar (40 psi)
 - Maximum 8 bar (120 psi)
- ▶ Air Filtration:
 - 40 Micron filter
- ▶ Operating Temperature:
 - 0° C (32° F) to 70° C (158° F)

MATERIALS

- ▶ Clamp Head: Aluminum/Steel
- ▶ Sensing Cover: Steel
- ▶ Cylinder Seals: Nitrile

SPECIFICATIONS

- ▶ Cylinder Bore Area: 1256 mm² (1.95 in²)
- ▶ Clamp Weight excluding arms: 2.5 kg (5.6 lbs)

Consult Application Charts for mass and velocity limitations.

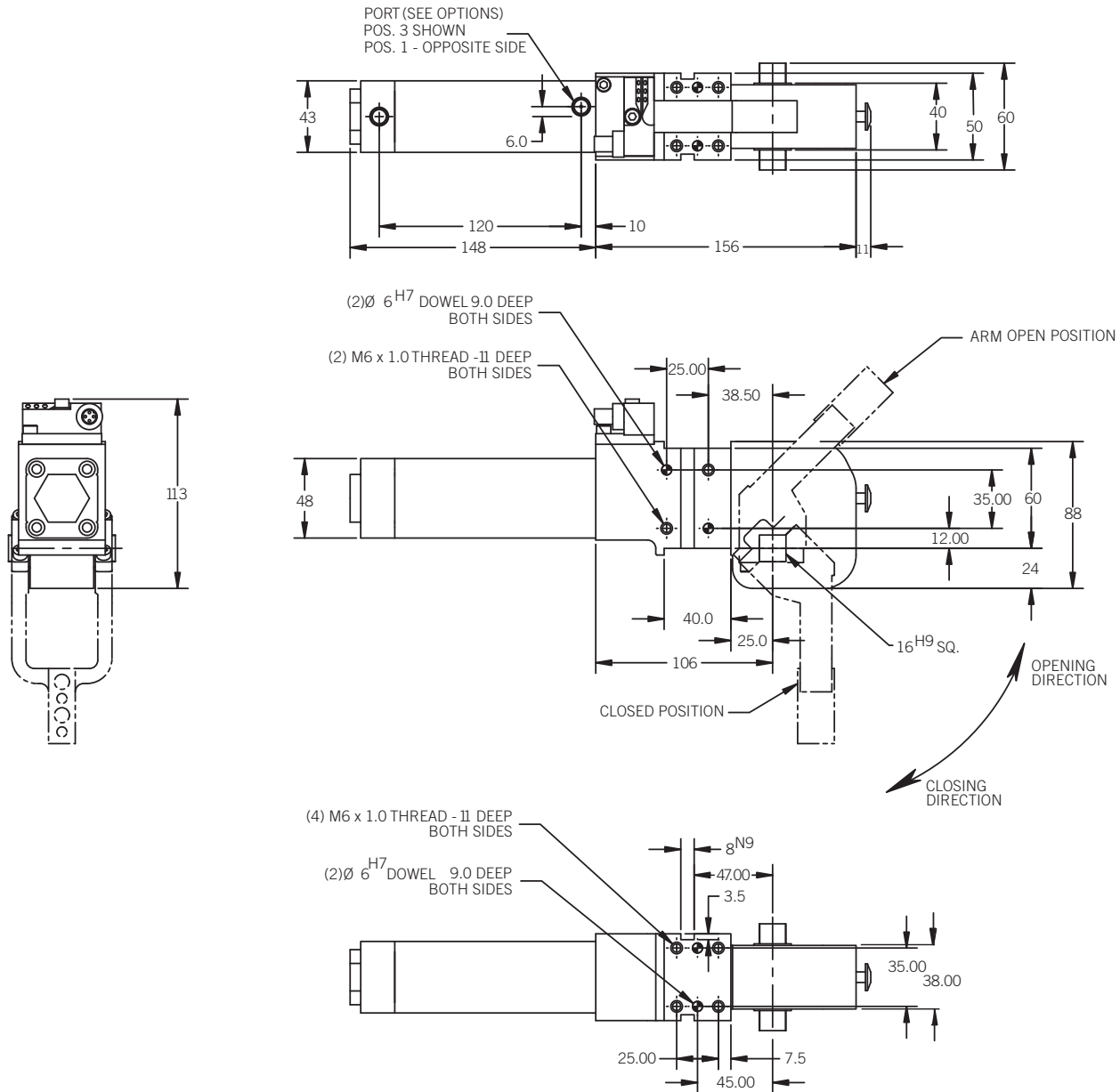
This product covered by one or more of the following U.S. patent numbers:
4,905,973; 5,575,462; 5,634,629;
5,829,112; 5,799,932
EC, SC, WC Series Clamps.



EC40G Clamp

Enclosed Global Clamp
Dimensions

NORGREN CLAMPS



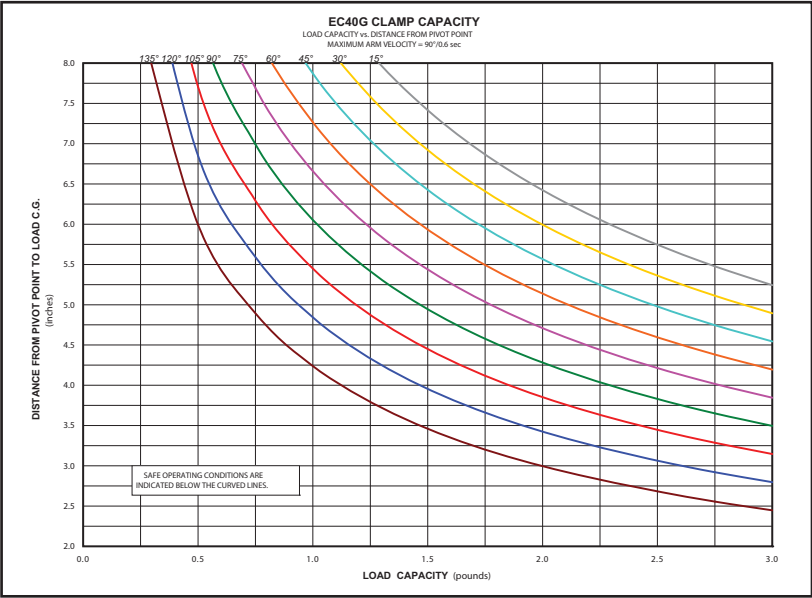
EC40G Clamp

Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

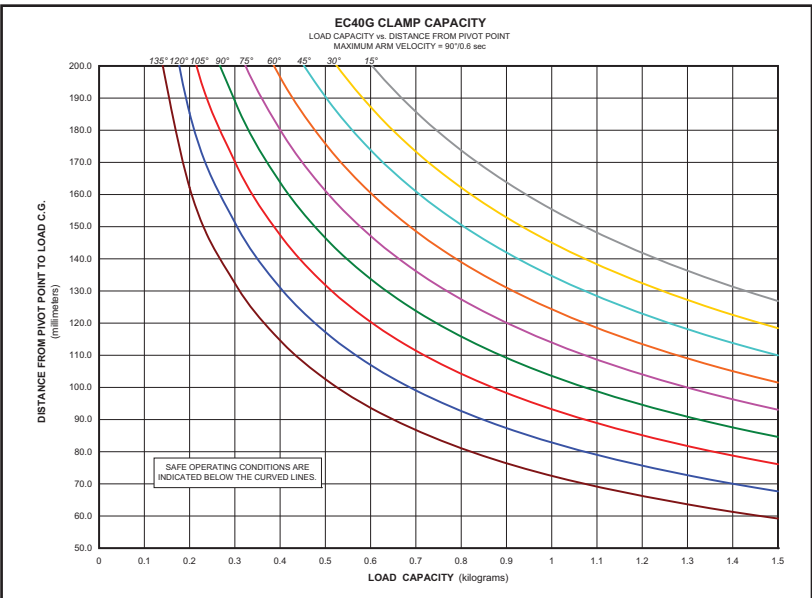
EC40G CLAMP CAPACITY - ENGLISH

LOAD CAPACITY VS. DISTANCE FROM PIVOT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC.



EC40G CLAMP CAPACITY - METRIC

LOAD CAPACITY VS. DISTANCE FROM PIVOT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC.

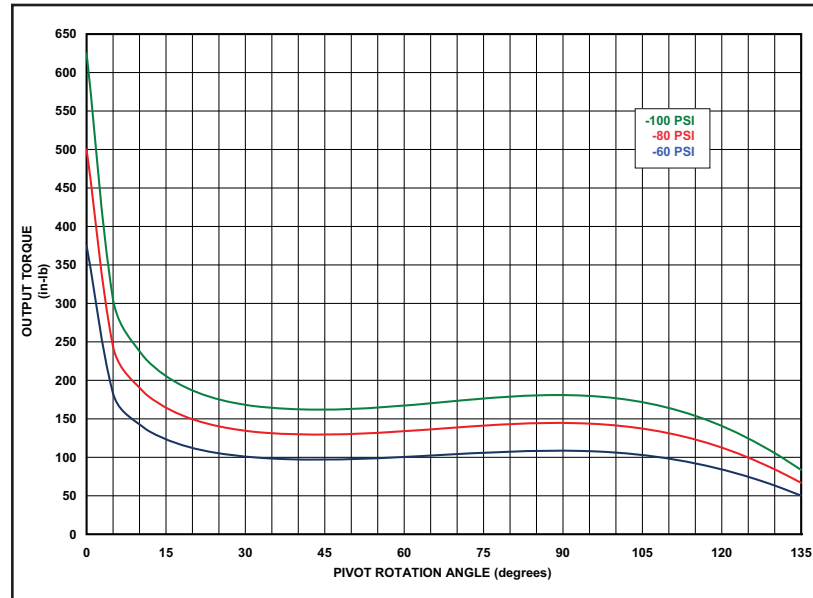


EC40G Clamp

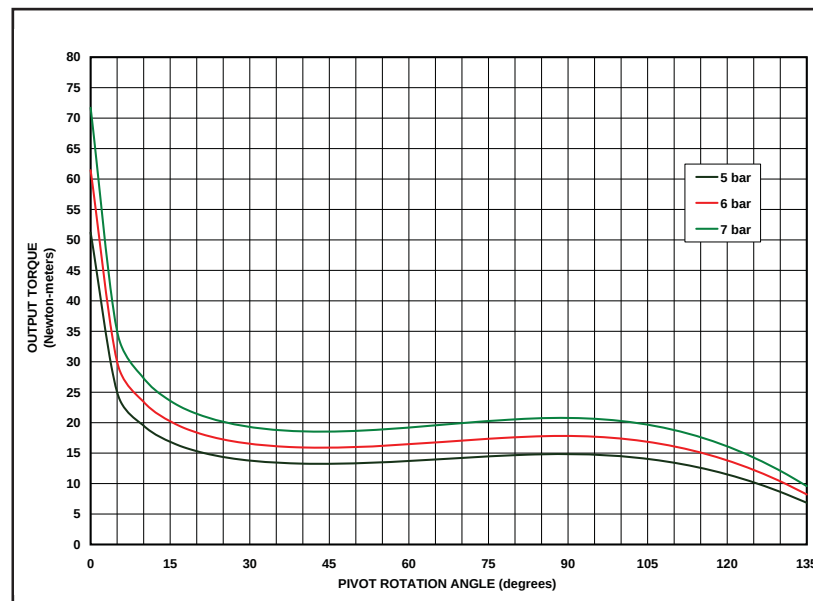
Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

EC40G OUTPUT TORQUE - ENGLISH



EC40G OUTPUT TORQUE - METRIC

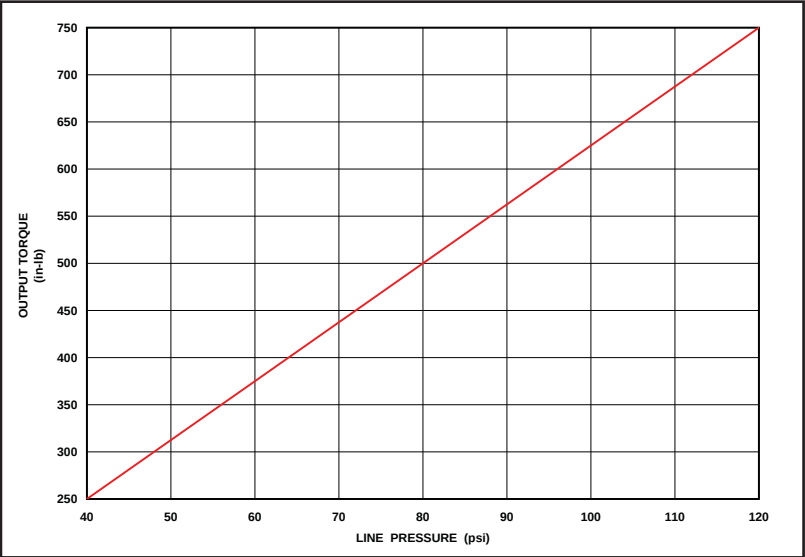


EC40G Clamp

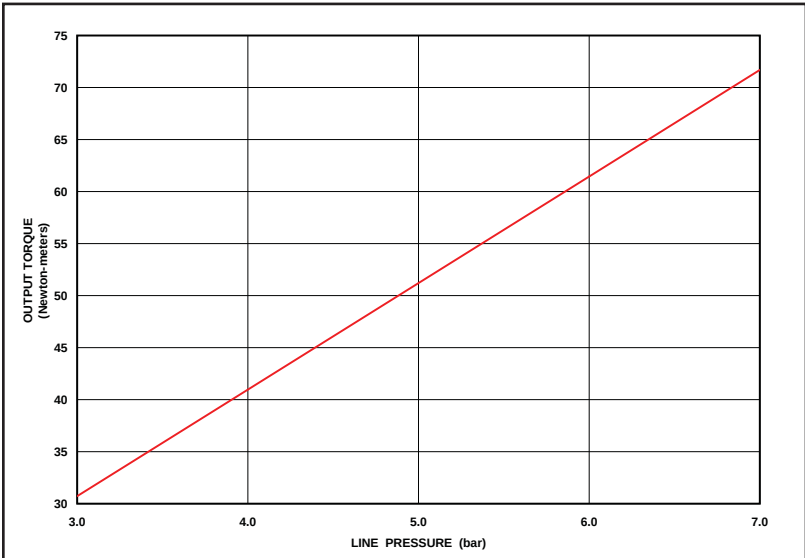
Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

EC40G MAXIMUM OUTPUT TORQUE - ENGLISH



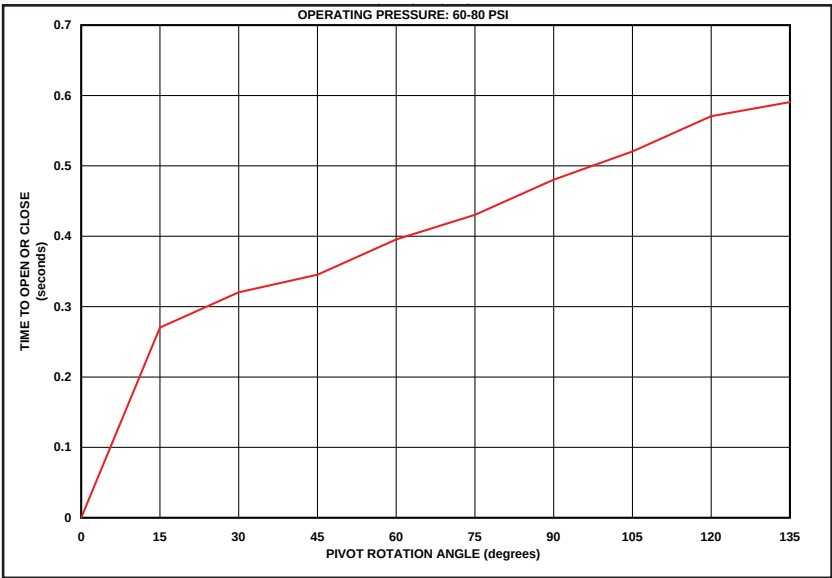
EC40G MAXIMUM OUTPUT TORQUE - METRIC



EC40G Clamp

Enclosed Global Clamp
Application Charts

EC40G CYCLE TIMES
FIXED ORIFICE PORTS
OPERATING PRESSURE: (4-6 BAR) 60-80 PSI



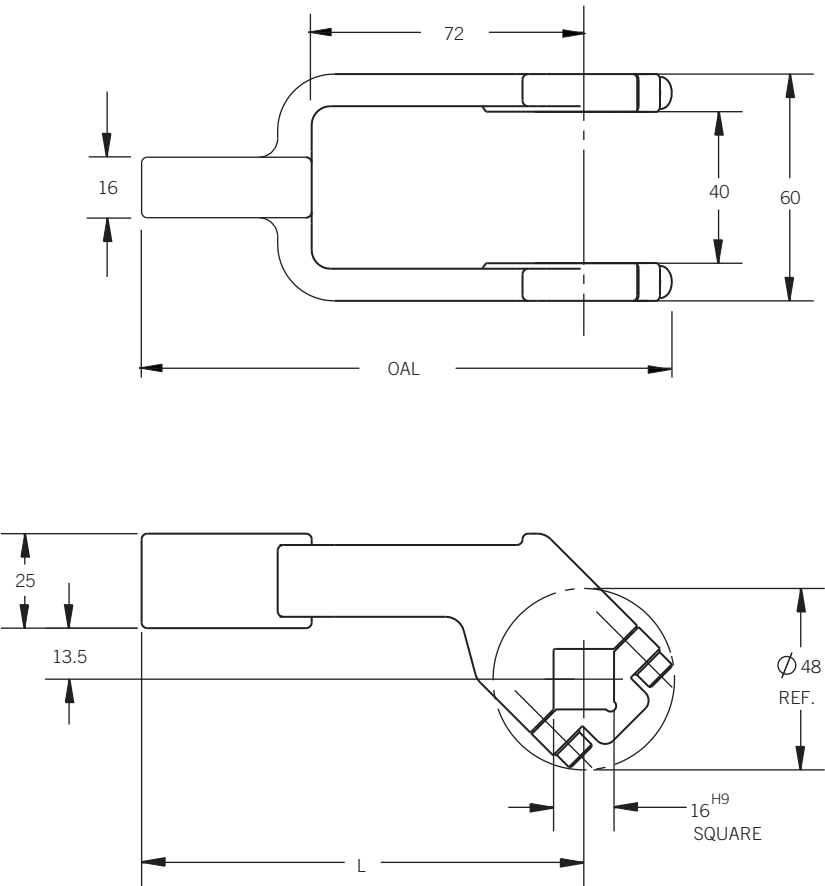
NORGREN CLAMPS

EC40G Clamp

Enclosed Global Clamp
Blank Wishbone Arm Options

NORGREN CLAMPS

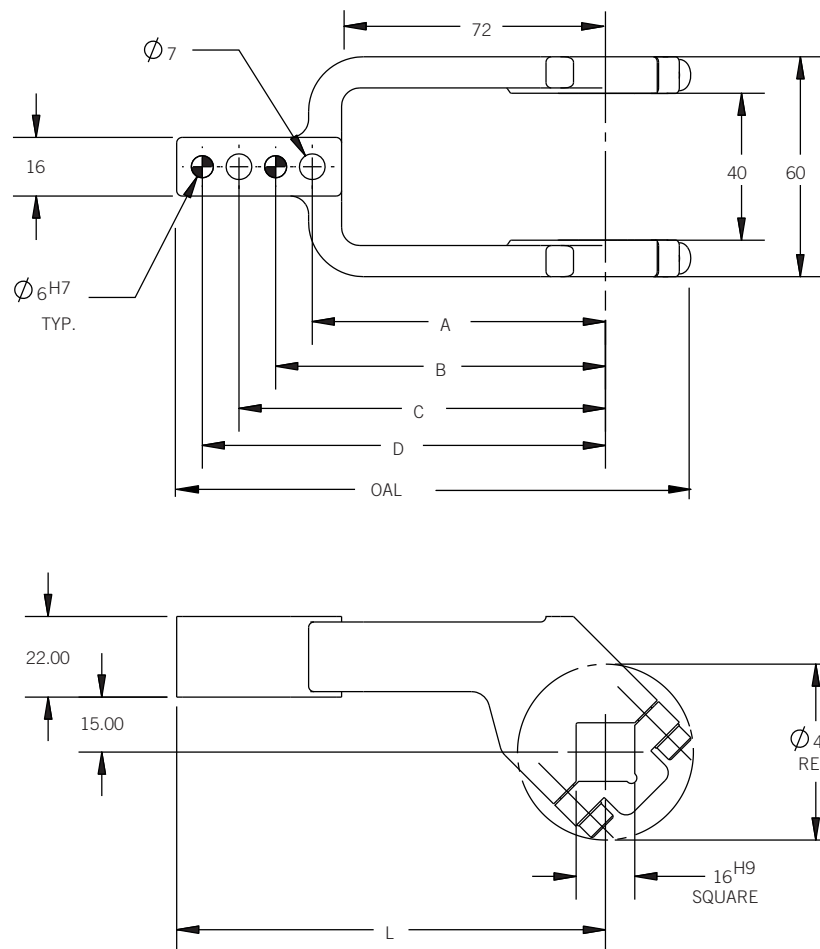
WA4 SERIES - 13.5 MM OFFSET (METRIC)



PART No.	"L"	OAL	ARM WEIGHT KG (LB)
WA4015117	117	141	0.4 (1.0)

EC40G Clamp
Enclosed Global Clamp
Euro Machined Wishbone Arm Options

WG4 SERIES - 15 MM OFFSET (METRIC)



NORGREN CLAMPS

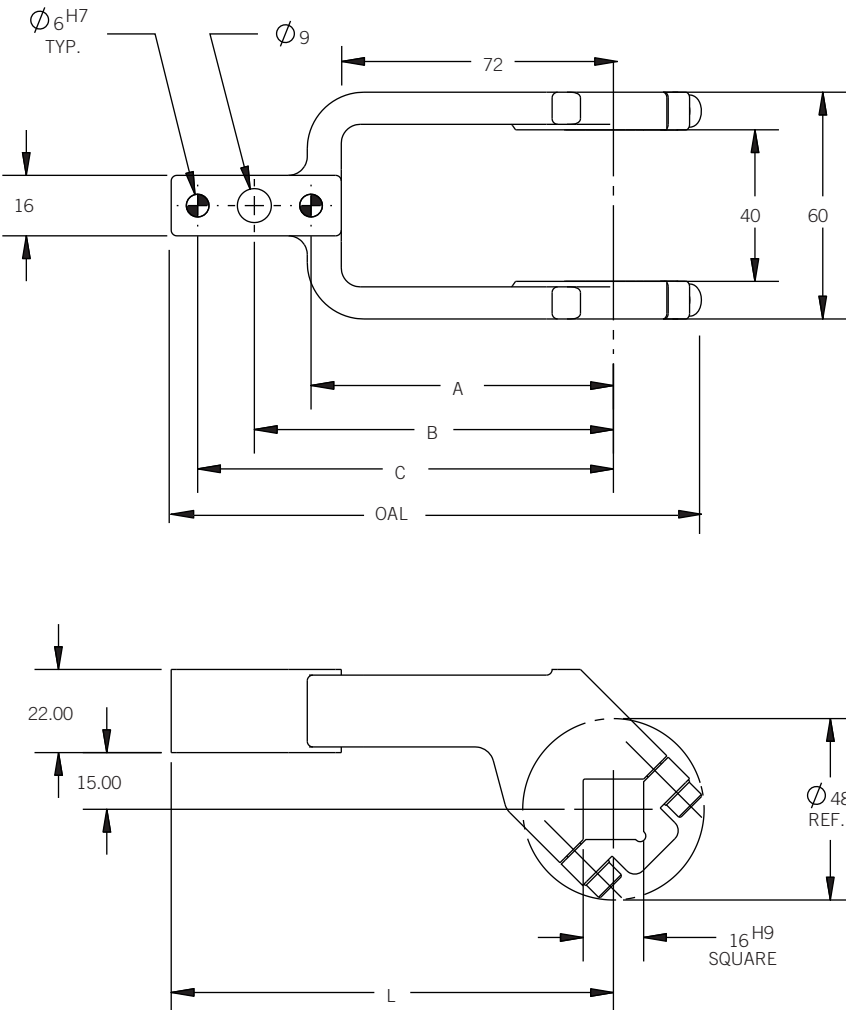
PART No.	"A"	"B" DOWEL	"C"	"D" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WG4015117	80	90	100	110	117	141	0.4 (1.0)

EC40G Clamp

Enclosed Global Clamp
Global Machined Wishbone Arm Options

NORGREN CLAMPS

WN4 SERIES - 15 MM OFFSET (METRIC)

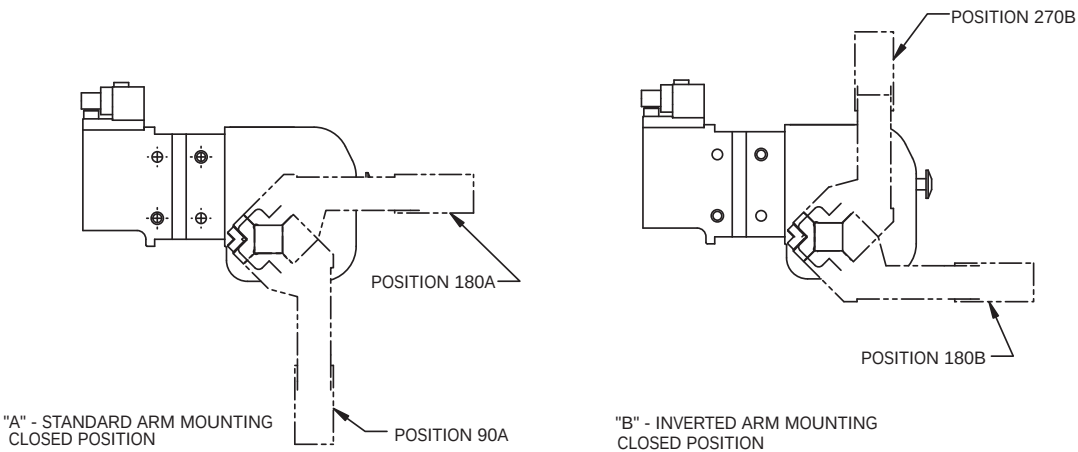


PART No.	"A" DOWEL	"B"	"C" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WN4015117	80	95	110	117	141	0.4 (1.0)

EC40G Clamp

Enclosed Global Clamp
Wishbone Arm Mounting Options

NORGREN CLAMPS



MAX. OPENING ANGLE, DEGREE			
NORGREN ARM STYLE	MOUNTING POSITION	MAXIMUM OPENING ANGLE	
		A-STANDARD	B-INVERTED
WISHBONE ARM 15MM OFFSET	90	135	-
	180	50	125
	270	-	35
NOTE: STANDARD CLAMPS ARE AVAILABLE IN 15 DEGREE INCREMENTS ONLY. OTHER STROKES AVAILABLE UPON REQUEST.			

EC40G Clamp

Sensing Options

NORGREN CLAMPS

SCHEMATIC FOR P&F OR TURCK SENSOR PNP

DC PNP WIRING DIAGRAM

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

**4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)**

SENSOR SPECIFICATIONS				
PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE: N.O.; PNP (SOURCING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / -25	-	158/70	°F/°C
WEIGHT	-	-	1.9/54	oz/g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

SCHEMATIC FOR TURCK DC SENSOR NPN

DC NPN WIRING DIAGRAM

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

**4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)**

SENSOR SPECIFICATIONS				
PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE: N.O.; NPN (SINKING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / -25	-	158/70	°F/°C
WEIGHT	-	-	1.9/54	oz/g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

SCHEMATIC FOR TURCK AC/DC SENSOR

AC/DC WIRING DIAGRAM

1 = RED/WHITE
2 = RED
3 = GREEN
4 = RED/YELLOW
5 = RED/BLACK

**5-PIN DUAL KEY (1/2-20) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)**

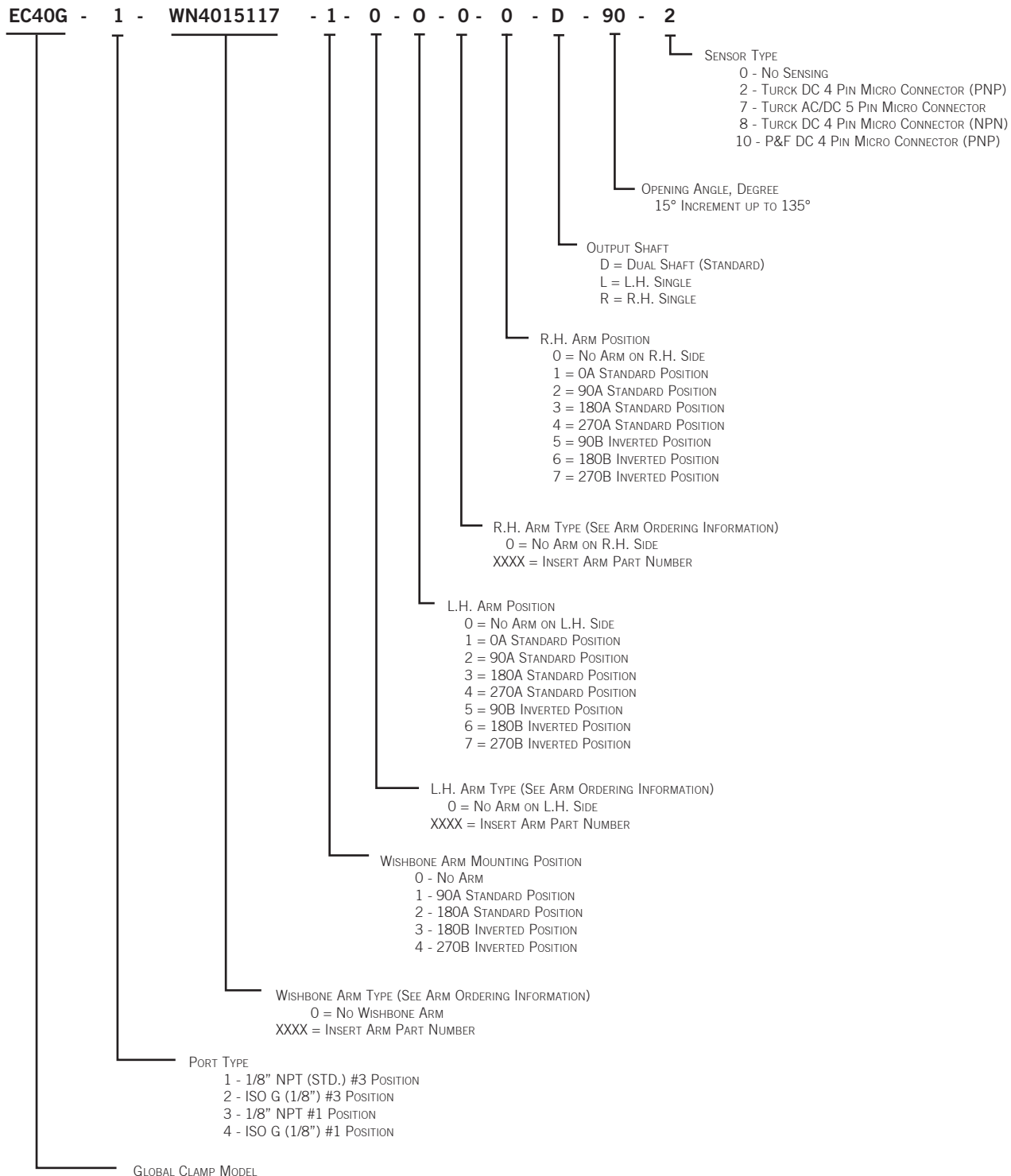
SENSOR SPECIFICATIONS				
PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10/20	24/120	300/250	VDC / VAC
OFF-STATE LEAKAGE CURRENT	-	-	1.7	mA
POWER-UP DELAY	-	-	60	ms
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	6	V
TEMPERATURE RANGE	-13 / -25	-	158/70	°F/°C
WEIGHT	-	-	1.8/52	oz/g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

EC40G Clamp

Enclosed Global Clamp
Ordering Information

NORGREN CLAMPS



EC50G Global Clamp

FEATURES

- ▶ Oval Cylinder - Low profile, non-rotating
- ▶ Satisfies Global Mounting and NAAMS Standards: Blade mounting and Foot mounting.
- ▶ Integral Sensing Switch - Low profile cartridge requires only one cable.
- ▶ Before center locking mechanism is wear compensating for ultimate position repeatability.
- ▶ Remains locked even after loss of air pressure.
- ▶ Manual release button to open mechanism without air pressure.
- ▶ Fixed orifice. Clamp does not require flow controls.
- ▶ Adjustable stroke plug. No need to replace cylinder tubes and tie rods to change stroke.
- ▶ Left, Right, Dual and Wishbone arm options.

TECHNICAL DATA

- ▶ Fluid: Compressed Air
Note: Air supply must be dry enough to prevent ice formation at temperatures below 2° C (35° F).
- ▶ Air Pressure:
Minimum 2.75 bar (40 psi)
Maximum 8 bar (120 psi)
- ▶ Air Filtration:
40 Micron filter
- ▶ Operating Temperature:
0° C (32° F) to 70° C (158° F)

MATERIALS

- ▶ Clamp Head: Aluminum/Steel
- ▶ Sensing Cover: Steel
- ▶ Cylinder Seals: Nitrile

SPECIFICATIONS

- ▶ Cylinder Bore Area: 1960 mm² (3.04 in²)
- ▶ Clamp Weight excluding arms: 3.15 kg (6.9 lbs.)
Consult Application Charts for mass and velocity limitations.

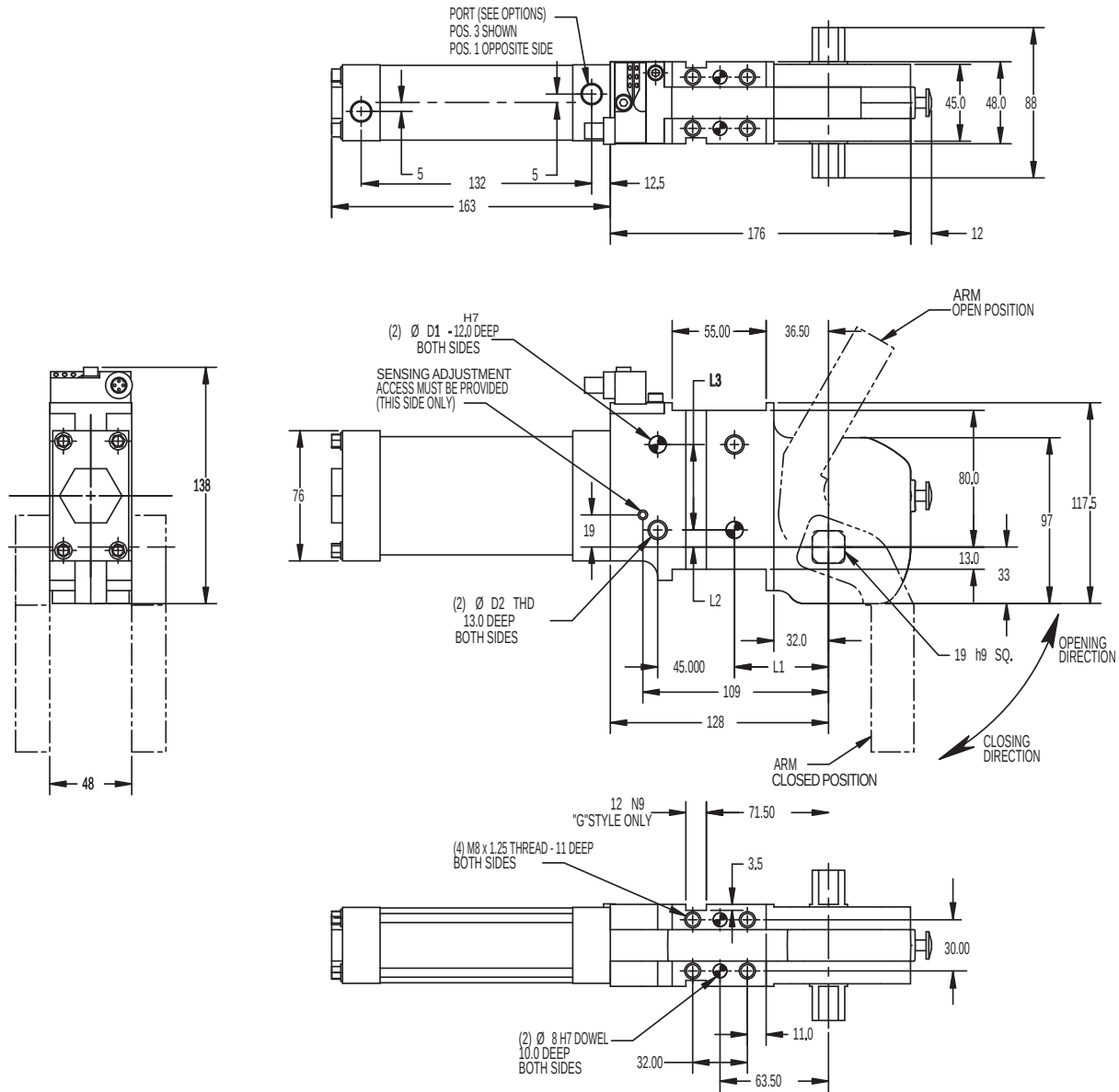
This product covered by one or more of the following U.S. patent numbers: 4,905,973; 5,575,462; 5,634,629; 5,829,112; 5,799,932; EC, SC, WC Series Clamps.



EC50G Clamp

Enclosed Global Clamp
Dimensions

NORGREN CLAMPS



MOUNTING STYLE	L1	L2	L3	D1	D2
G-Global	55.00	10.00	50.00	10 ^{H7}	M10 x 1.5
N-NAAMS	40.00	5.00	45.00	8 ^{H7}	M8 x 1.25

MOUNTING STYLE:
G - GLOBAL INCLUDES KEYWAY

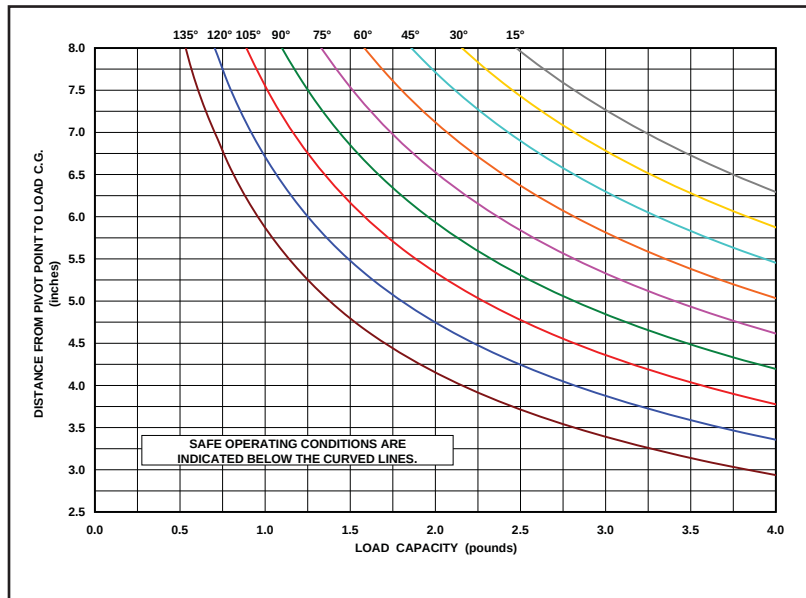
EC50G Clamp

Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

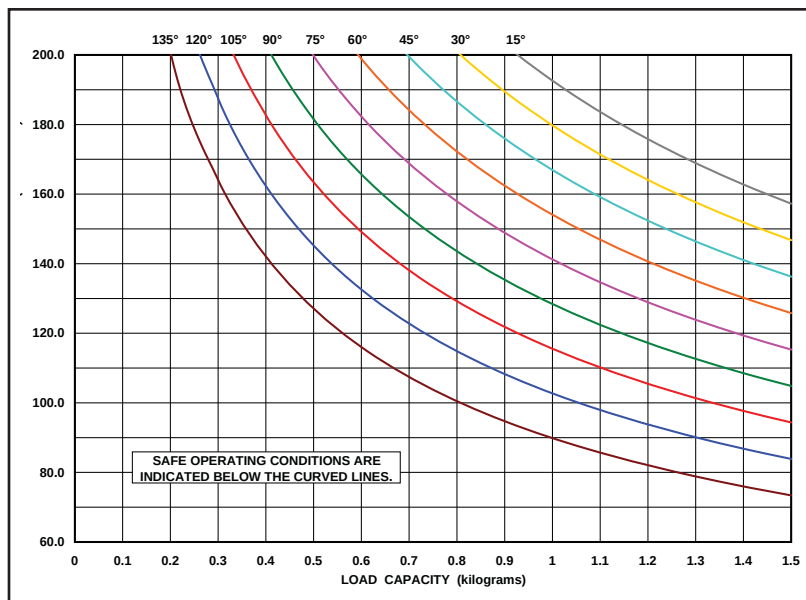
EC50G CLAMP CAPACITY - ENGLISH

LOAD CAPACITY VS. DISTANCE FROM PIVOT POINT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC



EC50G CLAMP CAPACITY - METRIC

LOAD CAPACITY VS. DISTANCE FROM PIVOT POINT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC

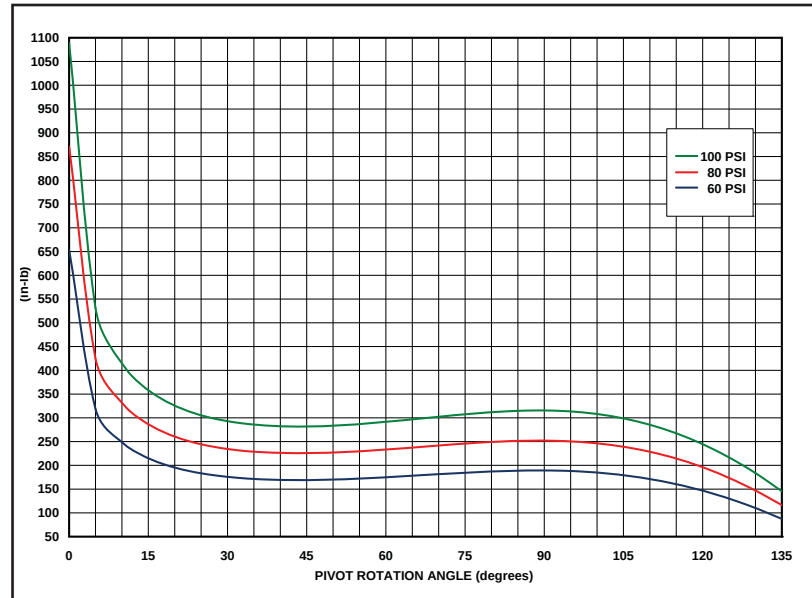


EC50G Clamp

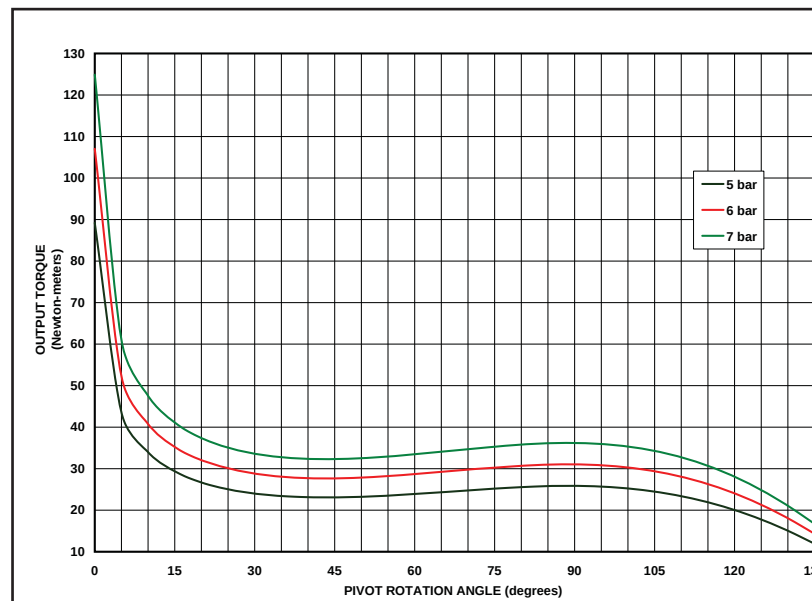
Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

EC50G OUTPUT TORQUE - ENGLISH



EC50G OUTPUT TORQUE - METRIC

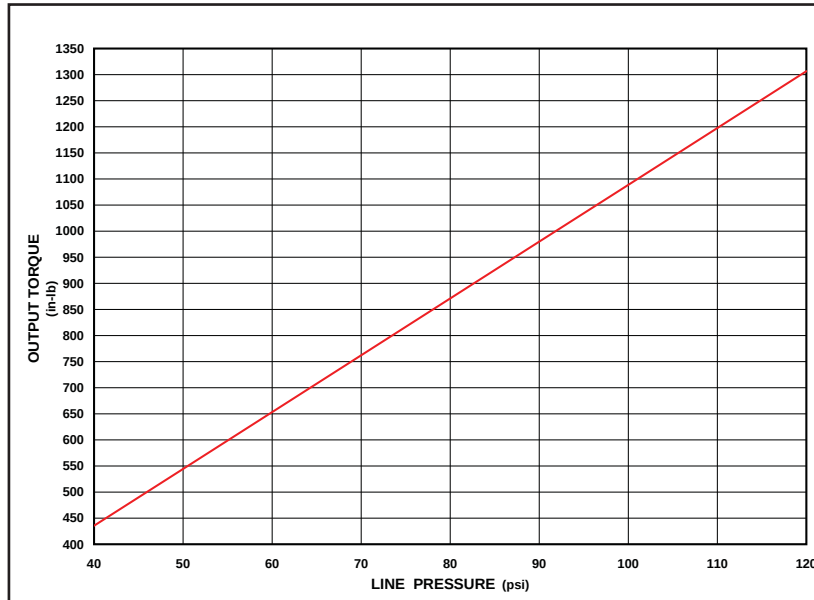


EC50G Clamp

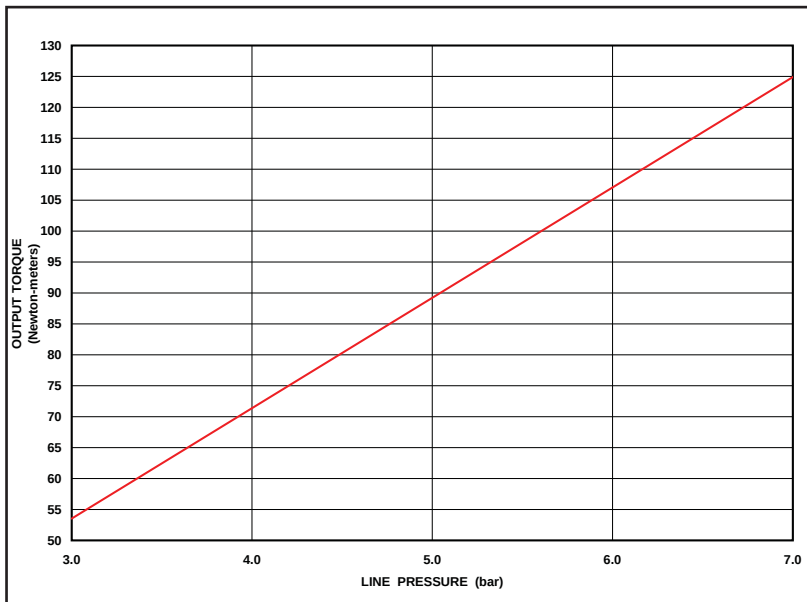
Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

EC50G MAXIMUM OUTPUT TORQUE - ENGLISH



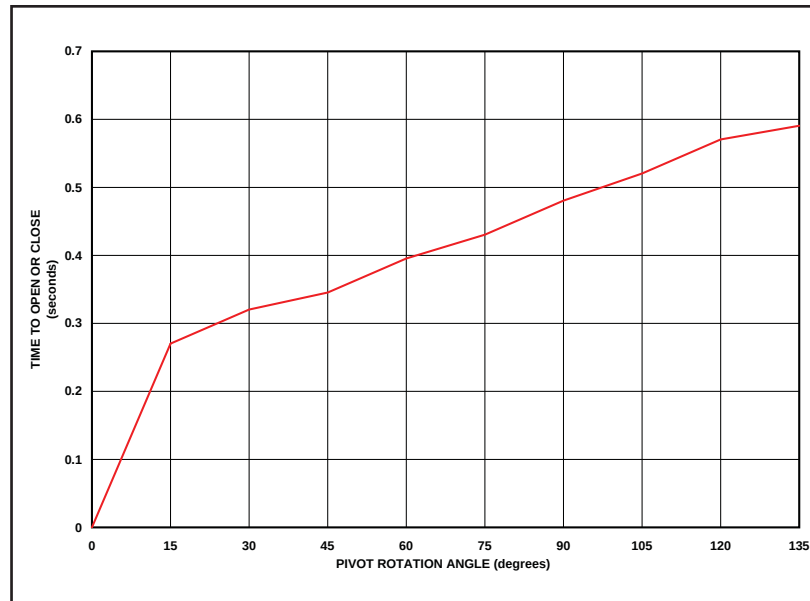
EC50G MAXIMUM OUTPUT TORQUE - METRIC



EC50G Clamp

Enclosed Global Clamp
Application Charts

EC50G CYCLE TIMES - FIXED ORIFICE PORTS OPERATING PRESSURE: (4-6 BAR) 60-80 PSI



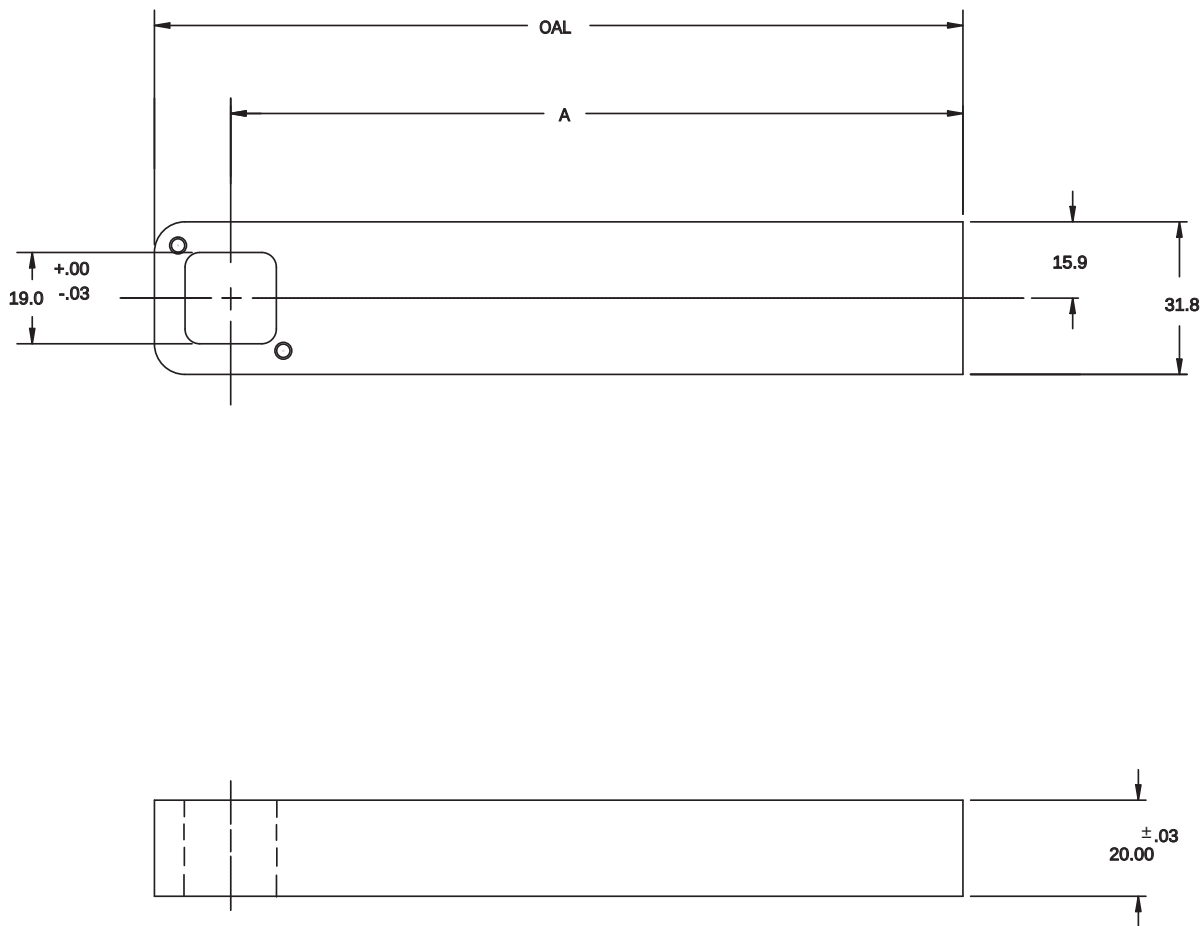
NORGREN CLAMPS

EC50G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XMG50A SERIES - STRAIGHT (METRIC)



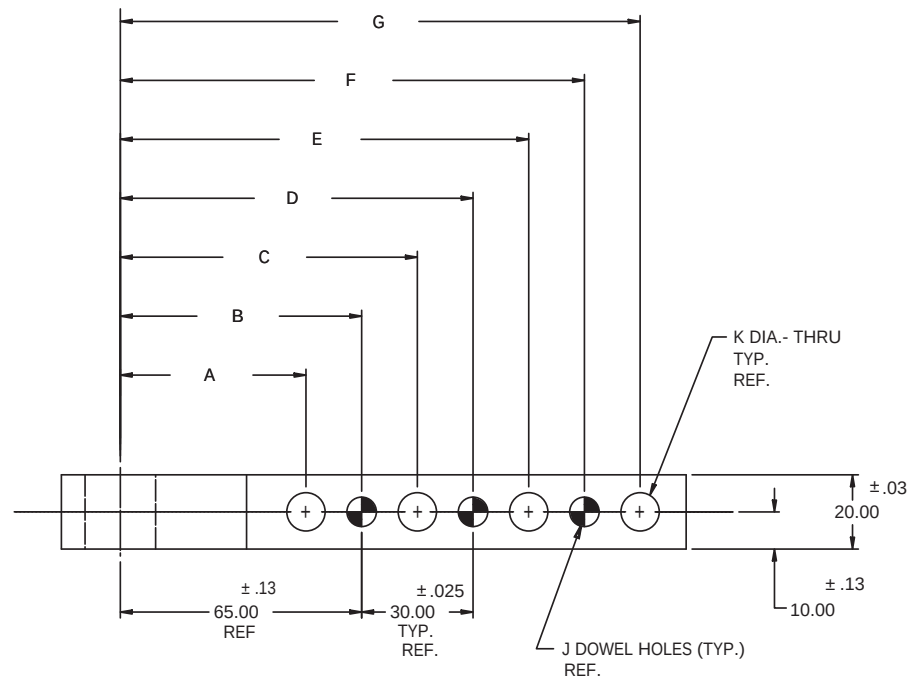
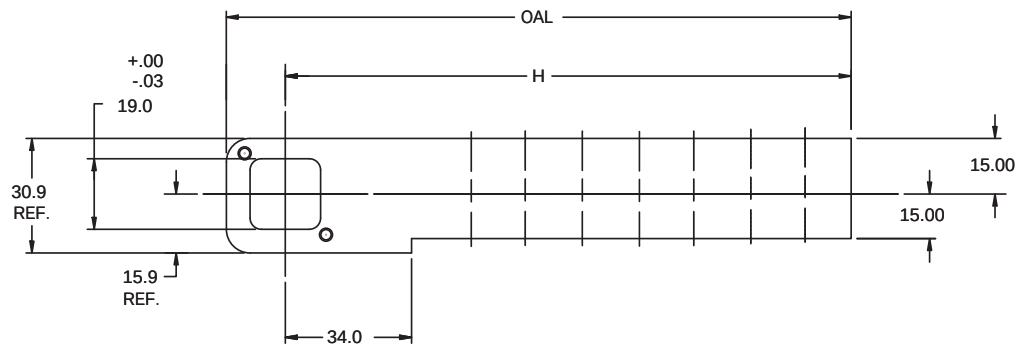
PART No.	NAAMS PART No.	"A"	OAL	ARM WEIGHT KG (LB)
P-EC50G-	XMG51A	ACA201M	90.0	106.0 .5 (1.1)
	XMG52A	ACA202M	102.0	136.0 .6 (1.3)
	XMG53A	ACA203M	150.0	166.0 .8 (1.8)

To order arms separately from a clamp, use P-EC50G with the Part Number or the NAAMS Part Number.

EC50G Clamp

Enclosed Global Clamp
NAAMS Machined Blade Arm Options

XMG50M SERIES - STRAIGHT (METRIC)



To order arms separately from a clamp, use P-EC50G with the Part Number or the NAAMS Part Number

PART No.	NAAMS PART No.	"A"	"B"	"C"	"D"	"E"	"F"	"G"	J	K	"H"	OAL	ARM WEIGHT
			DOWEL		DOWEL		DOWEL		DIA.	DIA.			KG (LB)
P-EC50G-	XMG57M	ACA206M	50.00	65.00	80.00	-	-	-	8 ^{F7}	11.0	90.0	106.0	.4 (0.9)
	XMG58M	ACA207M	50.00	65.00	80.00	95.00	110.00	-	8 ^{F7}	11.0	120.0	136.0	.5 (1.1)
	XMG59M	ACA208M	50.00	65.00	80.00	95.00	110.00	125.00	8 ^{F7}	11.0	150.0	166.0	.6 (1.3)
	XMG54M	ACA236M	50.00	65.00	80.00	-	-	-	6 ^{F7}	9.0	90.0	106.0	.4 (0.9)
	XMG55M	ACA237M	50.00	65.00	80.00	95.00	110.00	-	6 ^{F7}	9.0	120.0	136.0	.5 (1.1)
	XMG56M	ACA238M	50.00	65.00	80.00	95.00	110.00	125.00	6 ^{F7}	9.0	150.0	166.0	.6 (1.3)
	XM57M	ACA401M	50.00	65.00	80.00	-	-	-	8 ^{F7}	9.0	90.0	106.0	.4 (0.9)
	XM58M	ACA402M	50.00	65.00	80.00	95.00	110.00	-	8 ^{F7}	9.0	120.0	136.0	.5 (1.1)
	XM59M	ACA403M	50.00	65.00	80.00	95.00	110.00	125.00	8 ^{F7}	9.0	150.0	166.0	.6 (1.3)

NORGREN CLAMPS



EC50G Clamp

Rev. 001

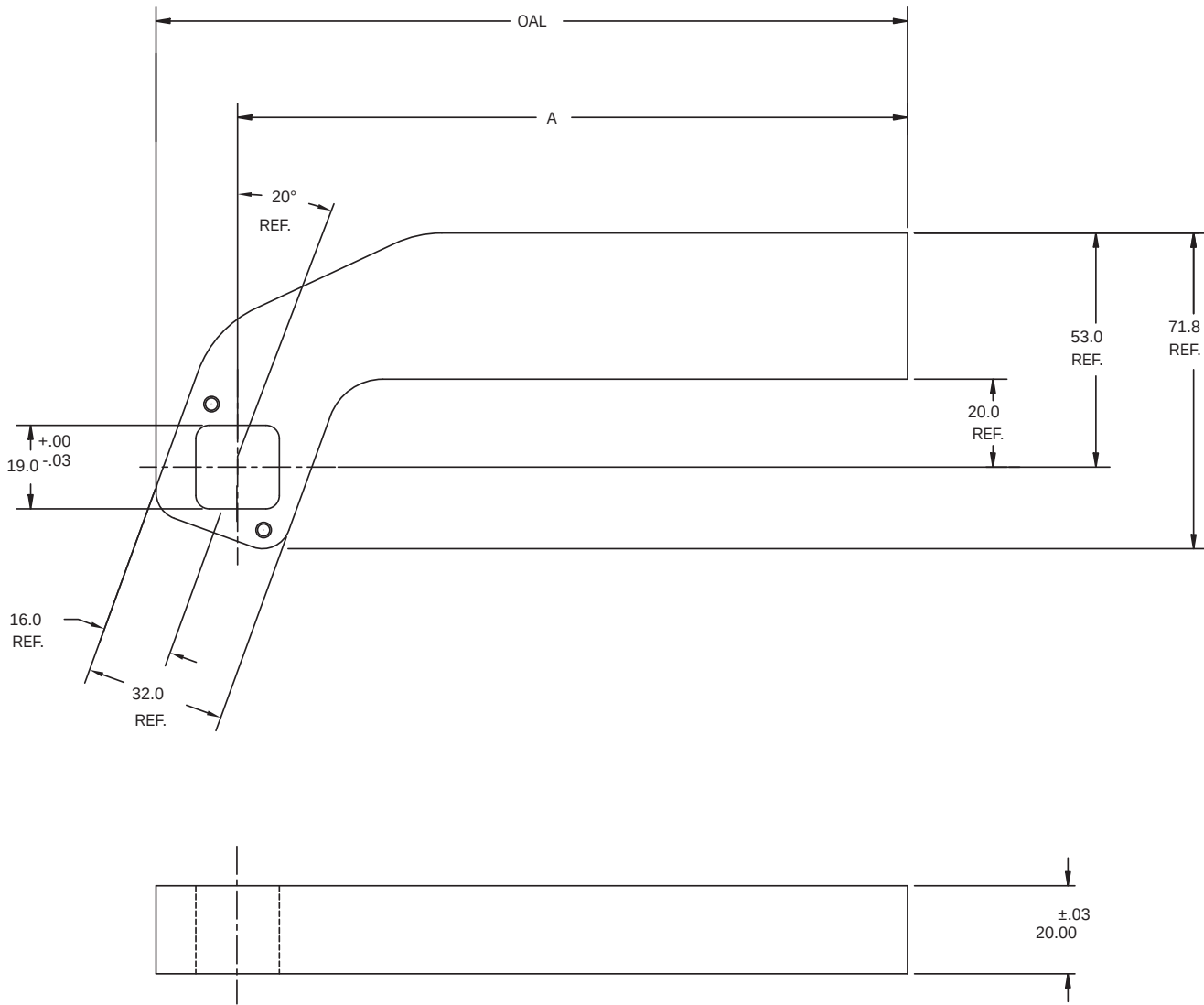
EC50G Clamp

Enclosed Global Clamp

NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XMG90A SERIES - 20 MM OFFSET (METRIC)



	PART No.	NAAMS PART No.	"A"	OAL	ARM WEIGHT Kg (LB)
P-EC50G-	XMG91A	ACA211M	90.0	109.0	.6 (1.3)
	XMG92A	ACA212M	120.0	139.0	.7 (1.5)
	XMG93A	ACA213M	150.0	169.0	.9 (2.0)

To order arms separately from a clamp, use P-EC50G with the Part Number or the NAAMS Part Number.

EC50G Clamp

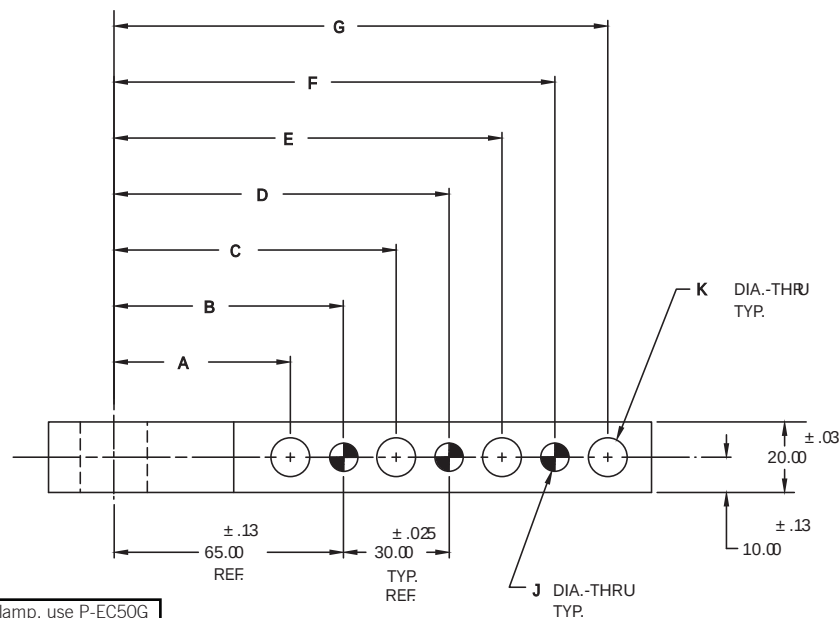
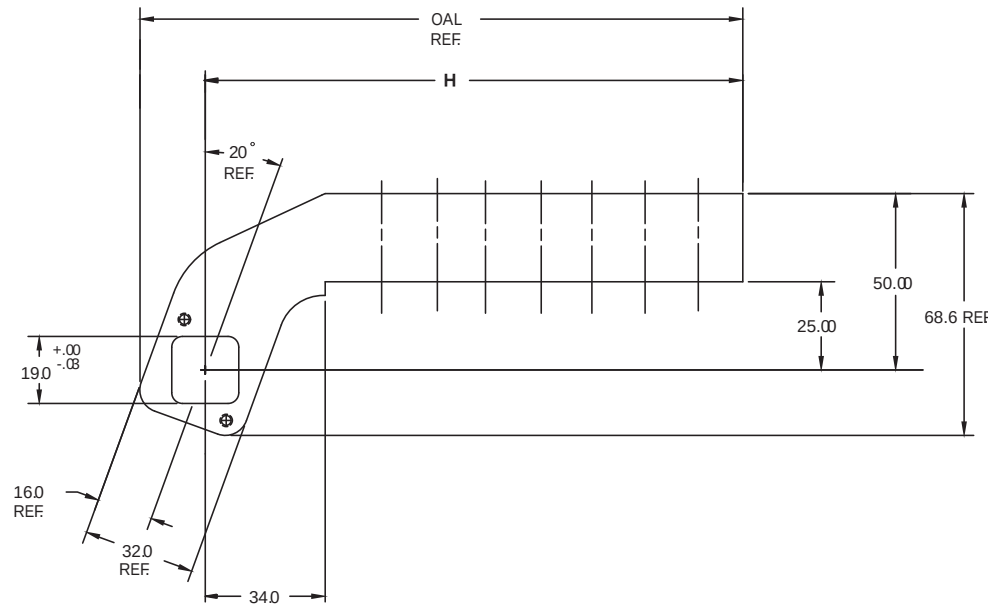
Rev. 001



EC50G Clamp

Enclosed Global Clamp
NAAMS Machined Blade Arm Options

NORGREN CLAMPS

XMG90M SERIES - 25 MM OFFSET (METRIC)

To order arms separately from a clamp, use P-EC50G with the Part Number *or* the NAAMS Part Number.

PART No.	NAAMS PART No.	"A"	"B" DOWEL	"C"	"D" DOWEL	"E"	"F" DOWEL	"G"	J DIA.	K DIA.	"H"	OAL	ARM WEIGHT Kg (LB)
P-EC50G-	XMG97M	ACA216M	50.00	65.00	80.00	-	-	-	8 ^{F7}	11.0	90.0	109.0	.5 (1.0)
	XMG98M	ACA217M	50.00	65.00	80.00	95.00	110.00	-	8 ^{F7}	11.0	120.0	139.0	.5 (1.2)
	XMG99M	ACA218M	50.00	65.00	80.00	95.00	110.00	125.00	8 ^{F7}	11.0	150.0	169.0	.6 (1.4)
	XMG94M	ACA246M	50.00	65.00	80.00	-	-	-	6 ^{F7}	9.0	90.0	109.0	.5 (1.0)
	XMG95M	ACA247M	50.00	65.00	80.00	95.00	110.00	-	6 ^{F7}	9.0	120.0	139.0	.5 (1.2)
	XMG96M	ACA248M	50.00	65.00	80.00	95.00	110.00	125.00	6 ^{F7}	9.0	150.0	169.0	.6 (1.4)
	XM97M	ACA411M	50.00	65.00	80.00	-	-	-	8 ^{F7}	9.0	90.0	109.0	.5 (1.0)
	XM98M	ACA412M	50.00	65.00	80.00	95.00	110.00	-	8 ^{F7}	9.0	120.0	139.0	.5 (1.2)
	XM99M	ACA413M	50.00	65.00	80.00	95.00	110.00	125.00	8 ^{F7}	9.0	150.0	169.0	.6 (1.4)



EC50G Clamp

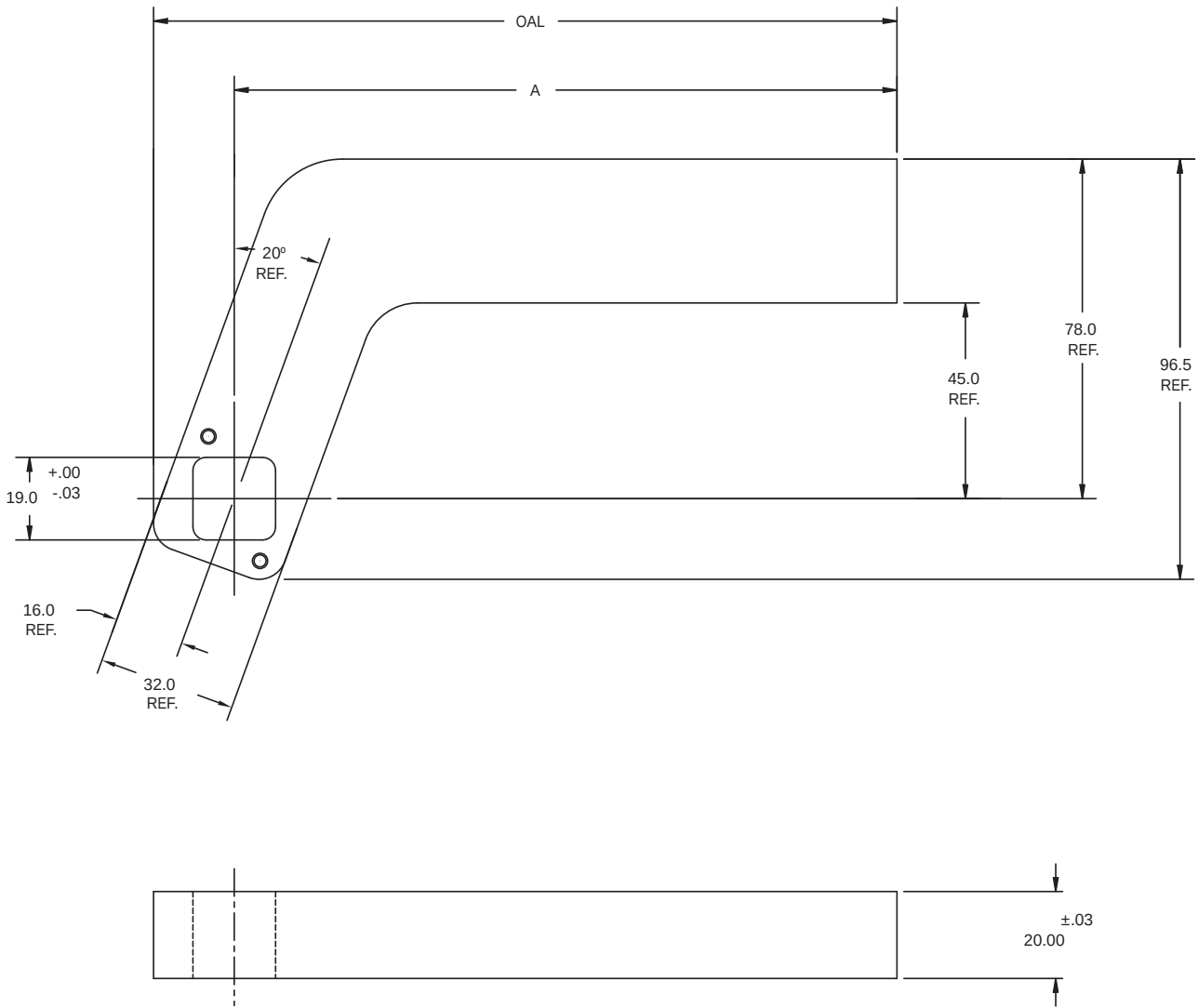
Rev. 001

EC50G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XMG40A SERIES - 45 MM OFFSET (METRIC)



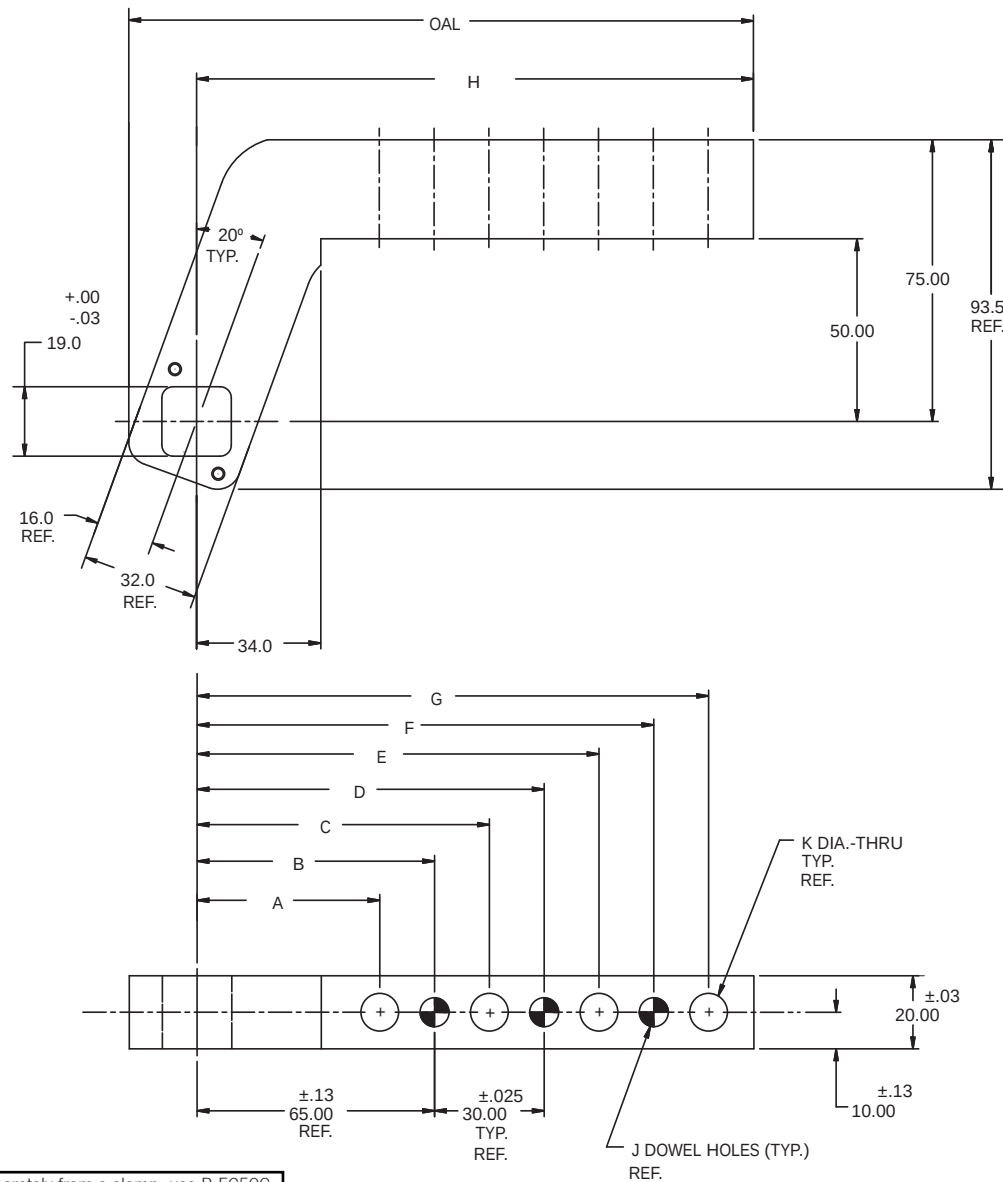
	PART No.	NAAMS PART No.	"A"	OAL	ARM WEIGHT Kg (LB)
P-EC50G-	XMG41A	ACA221M	90.0	109.0	0.7 (1.5)
	XMG42A	ACA222M	120.0	139.0	0.9 (2.0)
	XMG43A	ACA223M	150.0	169.0	1.0 (2.2)

To order arms separately from a clamp, use P-EC50G with the Part Number or the NAAMS Part Number.

EC50G Clamp

Enclosed Global Clamp

NAAMS Blade Machined Arm Mounting Options

XMG40M SERIES - 50 MM OFFSET (METRIC)

To order arms separately from a clamp, use P-EC50G with the Part Number *or* the NAAMS Part Number.

PART No.	NAAMS PART No.	"A"	"B" DOWEL	"C"	"D" DOWEL	"E"	"F" DOWEL	"G"	J DIA.	K DIA.	"H"	OAL	ARM WEIGHT Kg (LB)
P-EC50G-	XMG47M	ACA226M	50.00	65.00	80.00	-	-	-	8 ^{F7}	11.0	90.0	109.0	.6 (1.3)
	XMG48M	ACA227M	50.00	65.00	80.00	95.00	110.00	-	8 ^{F7}	11.0	120.0	139.0	.7 (1.5)
	XMG49M	ACA228M	50.00	65.00	80.00	95.00	110.00	125.00	8 ^{F7}	11.0	150.0	169.0	.8 (1.7)
	XMG44M	ACA256M	50.00	65.00	80.00	-	-	-	6 ^{F7}	9.0	90.0	109.0	.6 (0.3)
	XMG45M	ACA257M	50.00	65.00	80.00	95.00	110.00	-	6 ^{F7}	9.0	120.0	139.0	.7 (1.5)
	XMG46M	ACA258M	50.00	65.00	80.00	95.00	110.00	125.00	6 ^{F7}	9.0	150.0	169.0	.8 (1.7)
	XXM47M	ACA421M	50.00	65.00	80.00	-	-	-	8 ^{F7}	9.0	90.0	109.0	.6 (1.3)
	XXM48M	ACA422M	50.00	65.00	80.00	95.00	110.00	-	8 ^{F7}	9.0	120.0	139.0	.7 (1.5)
	XXM49M	ACA423M	50.00	65.00	80.00	95.00	110.00	125.00	8 ^{F7}	9.0	150.0	169.0	.8 (1.7)

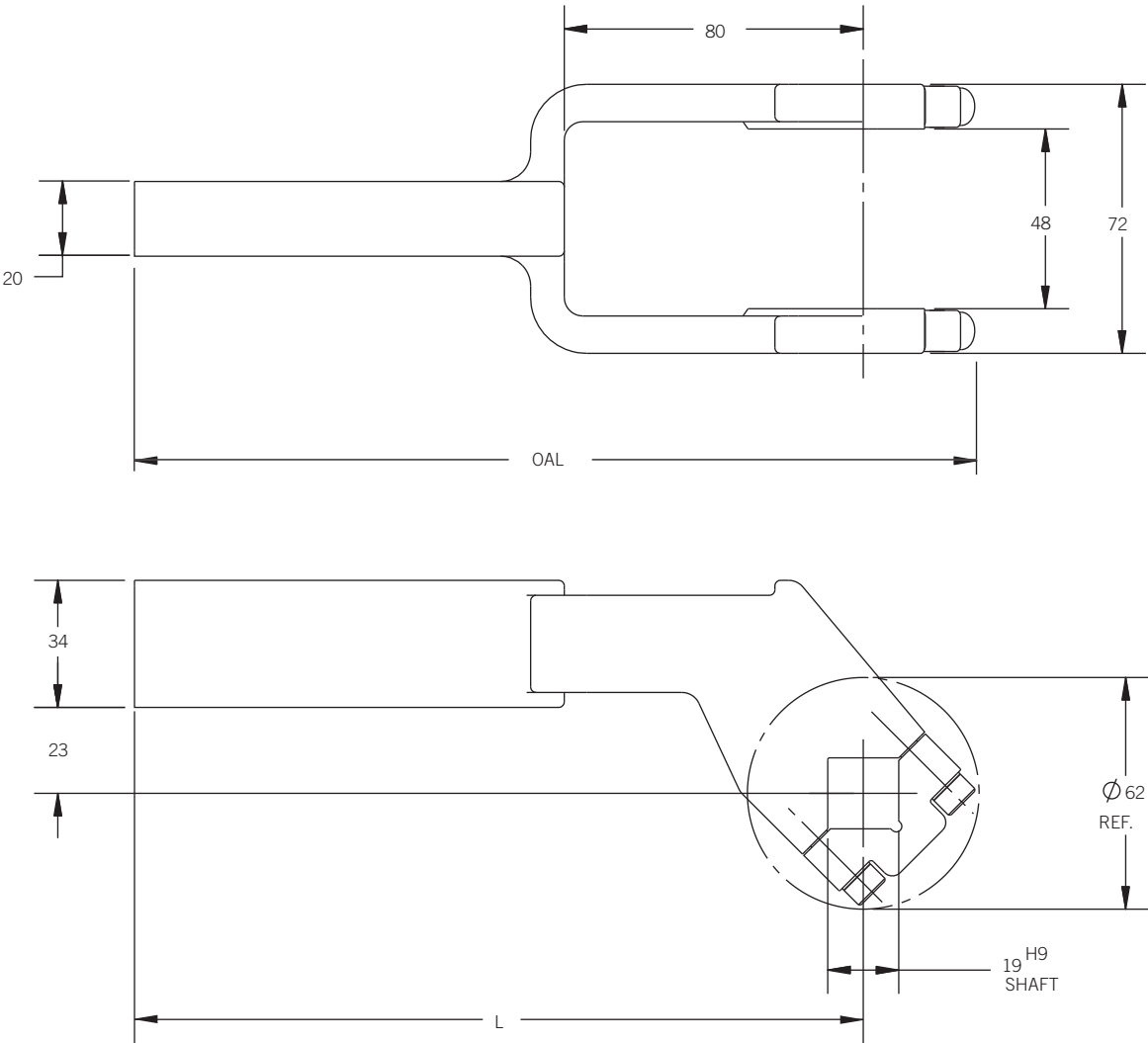
NORGREN CLAMPS

EC50G Clamp

Enclosed Global Clamp
Blank Wishbone Arm Mounting Options

NORGREN CLAMPS

WA5 SERIES - 23 MM OFFSET (METRIC)

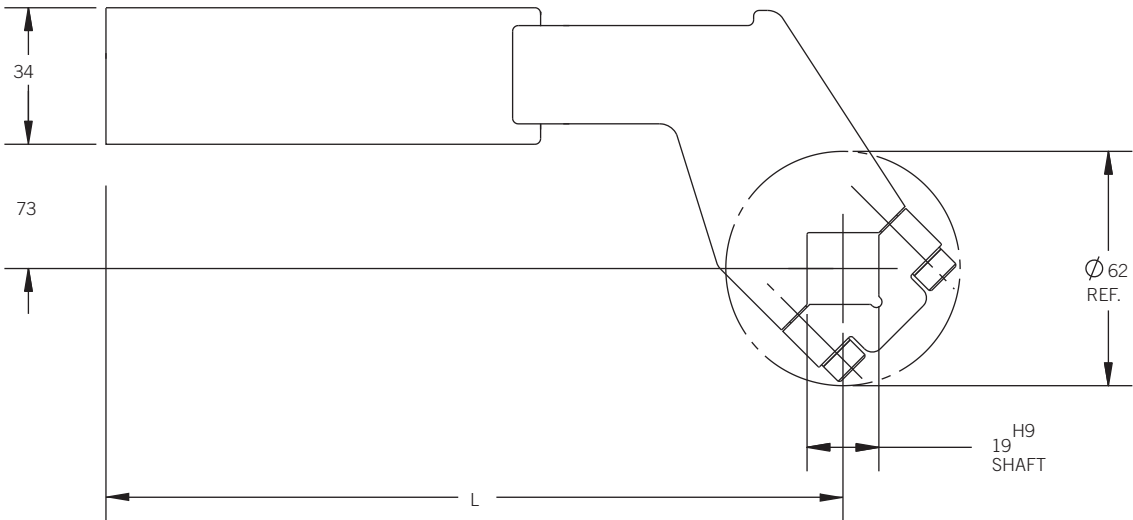
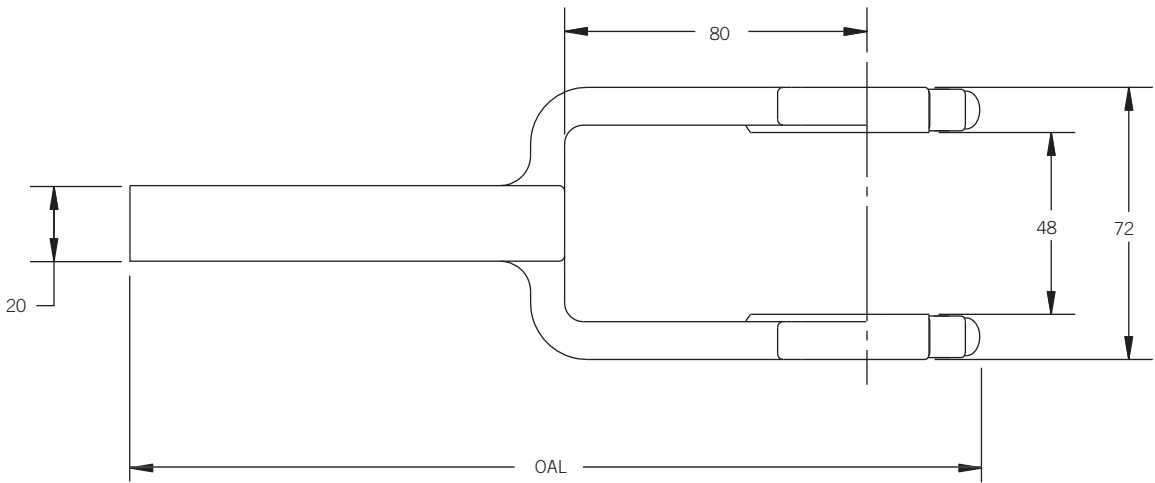


PART No.	"L"	OAL	ARM WEIGHT Kg (LB)
WA5025135	135	166	1.2 (2.6)
WA5025165	165	196	1.3 (2.8)
WA5025195	195	226	1.4 (3.0)

EC50G Clamp

Enclosed Global Clamp
Blank Wishbone Arm Mounting Options

WA5 SERIES - 73 MM OFFSET (METRIC)



PART No.	"L"	OAL	ARM WEIGHT Kg (LB)
WA5075135	135	166	1.2 (2.7)
WA5075165	165	196	1.4 (3.0)
WA5075195	195	226	1.6 (3.4)

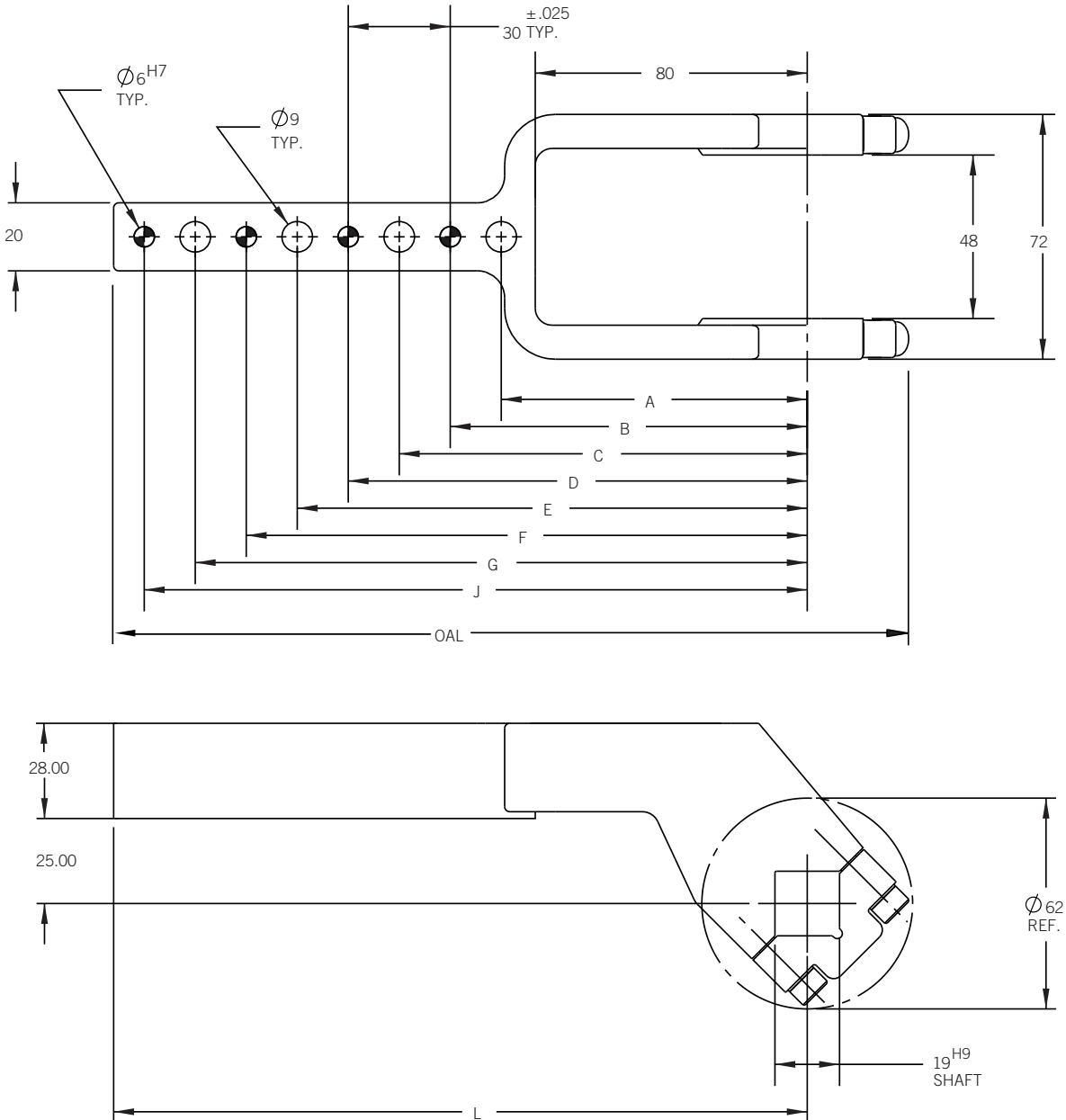
NORGREN CLAMPS

EC50G Clamp

Enclosed Global Clamp
Euro Machined Wishbone Arm Options

NORGREN CLAMPS

WG5 SERIES - 25 MM OFFSET (METRIC)



PART No.	"A"	"B" DOWEL	"C"	"D" DOWEL	"E"	"F" DOWEL	"G"	"J" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WG5025144	90	105	120	135	-	-	-	-	144	175	1.0 (2.2)
WG5025204	90	105	120	135	150	165	180	195	204	235	1.2 (2.7)

EC50G Clamp

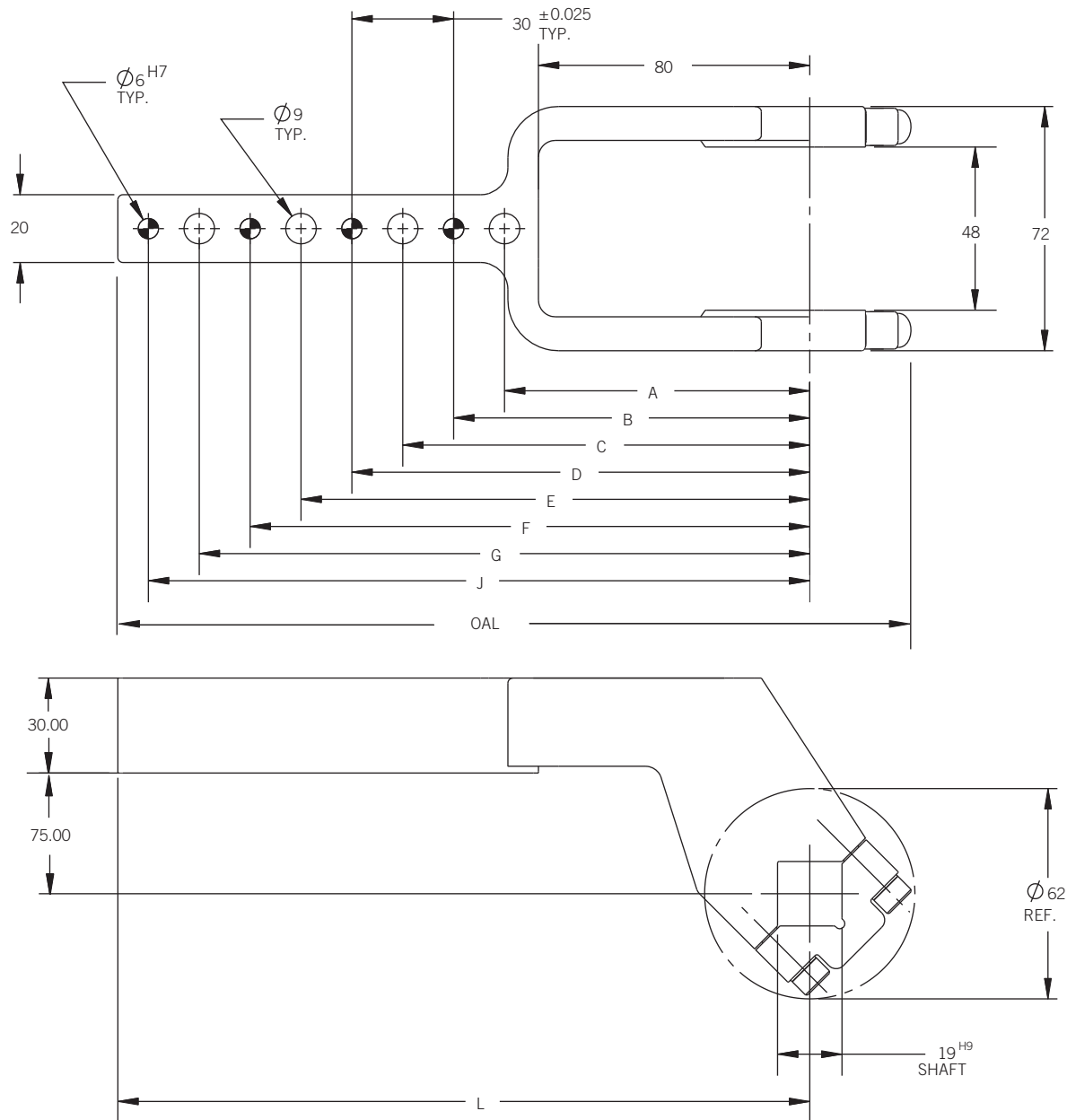
Rev. 001



EC50G Clamp

Enclosed Global Clamp
Euro Machined Wishbone Arm Options

WG5 SERIES - 75 MM OFFSET (METRIC)



NORGREN CLAMPS

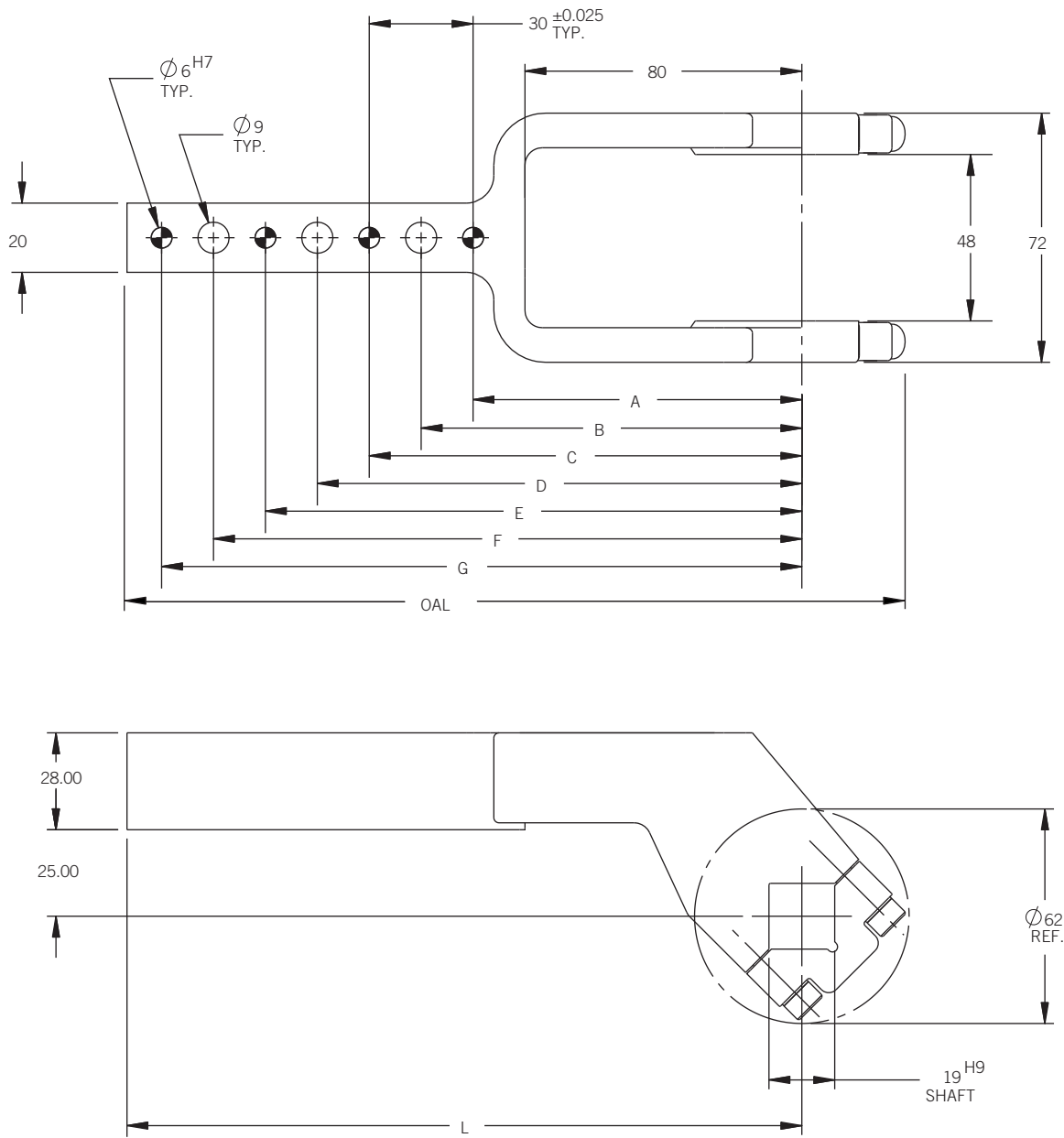
PART No.	"A"	"B" DOWEL	"C"	"D" DOWEL	"E"	"F" DOWEL	"G"	"J" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WG5075144	90	105	120	135	-	-	-	-	144	175	1.2 (2.6)
WG5075204	90	105	120	135	150	165	180	195	204	235	1.4 (3.1)

EC50G Clamp

Enclosed Global Clamp
Global Machined Wishbone Arm Options

NORGREN CLAMPS

WN5 SERIES - 25 MM OFFSET (METRIC)



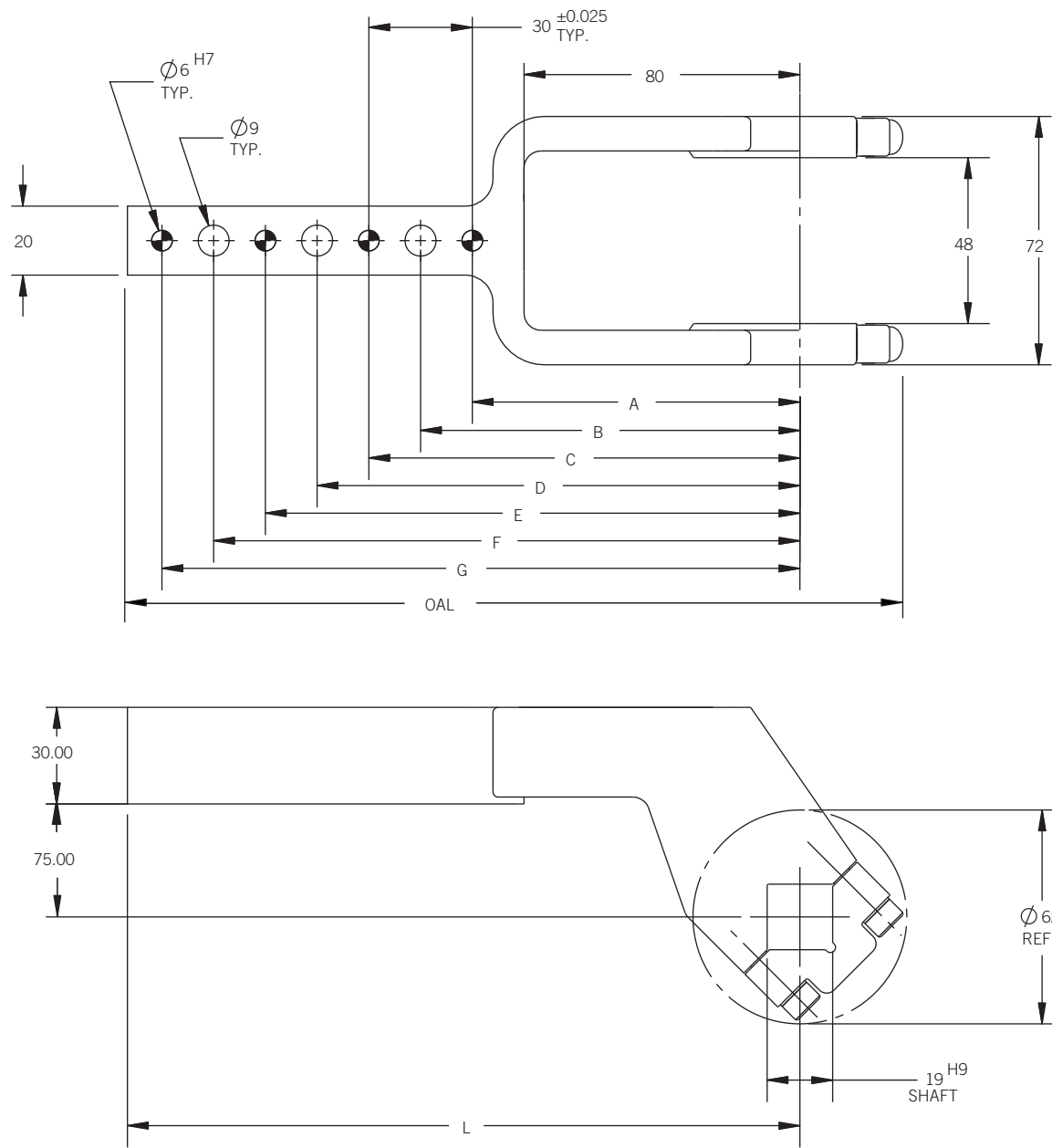
PART No.	"A" DOWEL	"B"	"C" DOWEL	"D"	"E" DOWEL	"F"	"G" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WN5025135	95	110	125	-	-	-	-	135	166	0.9 (2.0)
WN5025165	95	110	125	140	155	-	-	165	196	1.0 (2.2)
WN5025195	95	110	125	140	155	170	185	195	226	1.2 (2.6)

EC50G Clamp



EC50G Clamp
Enclosed Global Clamp
Global Machined Wishbone Arm Options

WN5 SERIES - 75 MM OFFSET (METRIC)

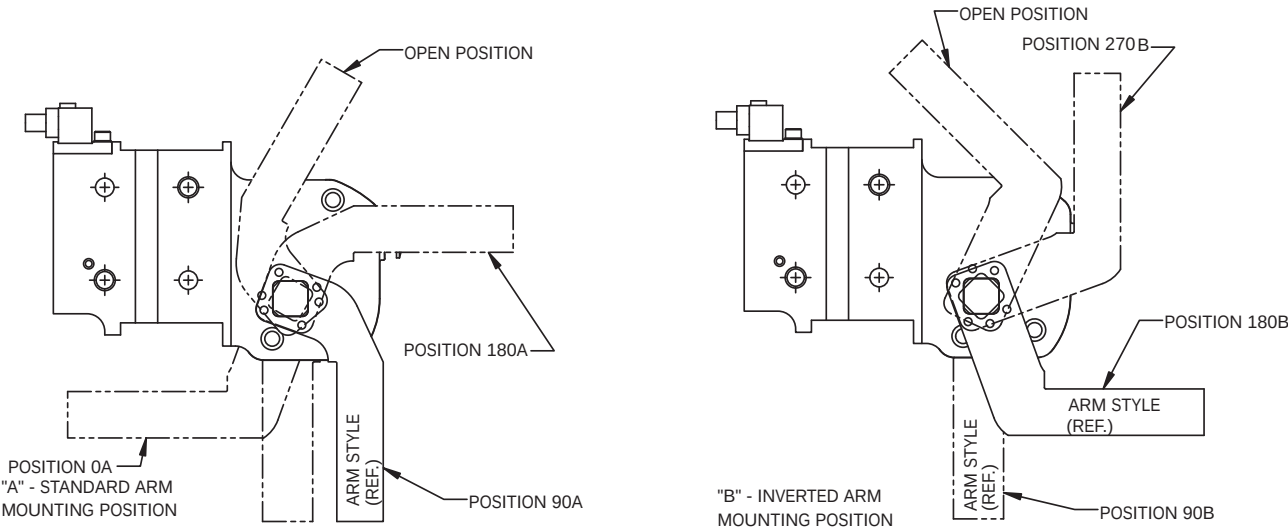


NORGREN CLAMPS

PART No.	"A" DOWEL	"B"	"C" DOWEL	"D"	"E" DOWEL	"F"	"G" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WN5075135	95	110	125	-	-	-	-	135	166	1.1 (2.4)
WN5075165	95	110	125	140	155	-	-	165	196	1.2 (2.7)
WN5075195	95	110	125	140	155	170	185	195	226	1.4 (3.0)

EC50G Clamp
Enclosed Global Clamp
Arm Mounting Options

NORGREN CLAMPS

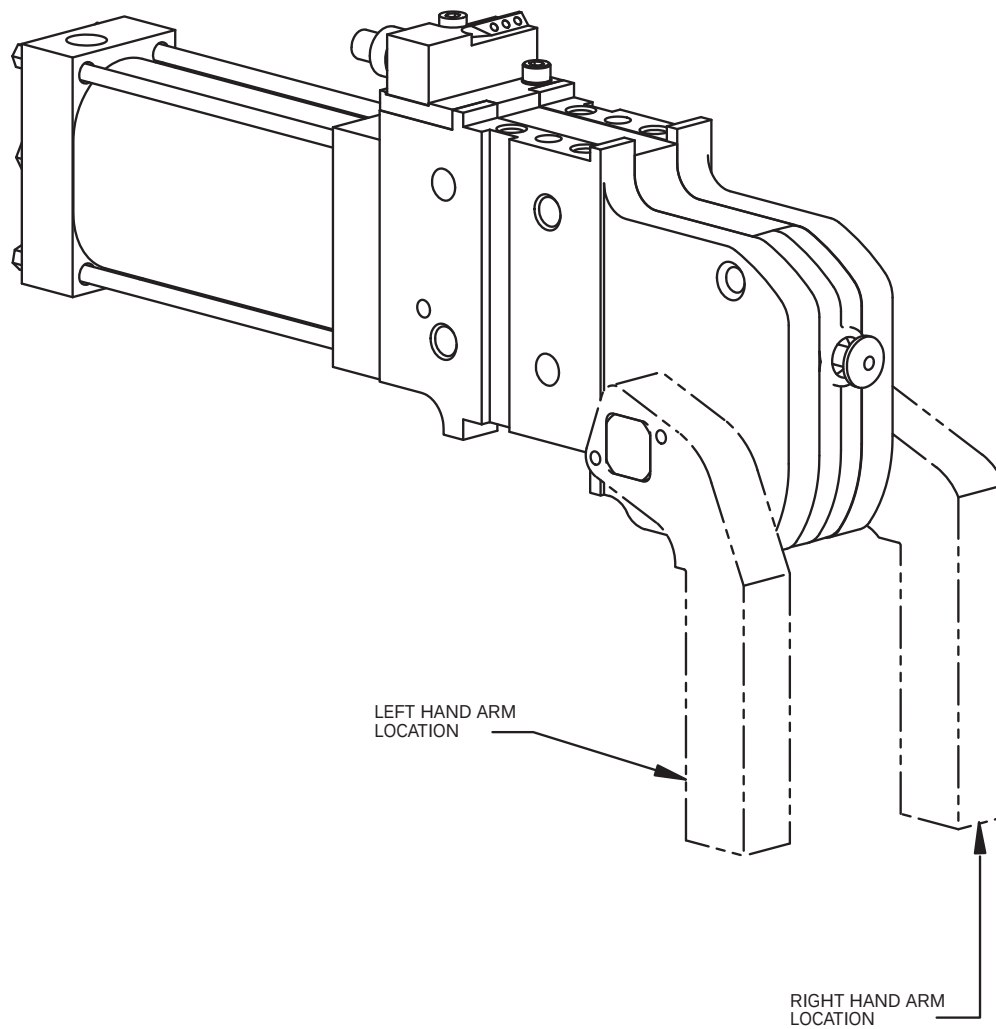


MAX. OPENING ANGLE, DEGREE			
NORGREN ARM STYLE	MOUNTING POSITION	MAXIMUM OPENING ANGLE	
		A-STANDARD	B-INVERTED
XMG40 SERIES BLADE ARM 50MM OFFSET	0	135	-
	90	120	-
	180	30	140
	270	-	50
XMG50 SERIES BLADE ARM 0MM OFFSET	0	-	-
	90	145	145
	180	100	100
	270	10	10
XMG90 SERIES BLADE ARM 25MM OFFSET	0	-	-
	90	135	-
	180	65	125
	270	-	35
WISHBONE ARM 25MM OFFSET	0	-	-
	90	135	-
	180	45	125
	270	-	35
WISHBONE ARM 75MM OFFSET	0	-	-
	90	135	-
	180	45	135
	270	-	70
NOTE: STANDARD CLAMPS ARE AVAILABLE IN 15 DEGREE INCREMENTS ONLY. OTHER STROKES AVAILABLE UPON REQUEST.			

EC50G Clamp

Enclosed Global Clamp
Arm Position Options

NORGREN CLAMPS

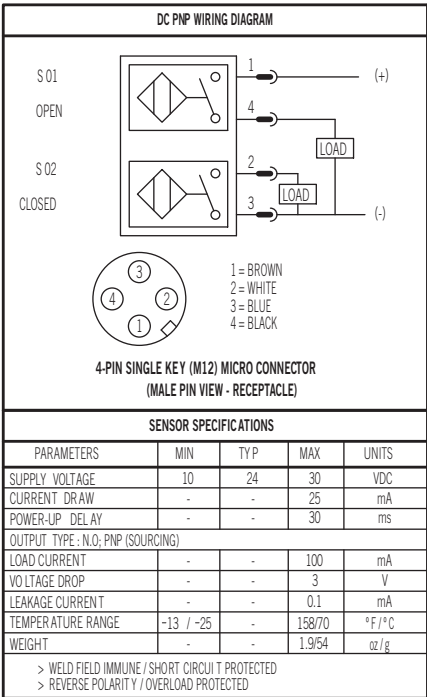


EC50G Clamp

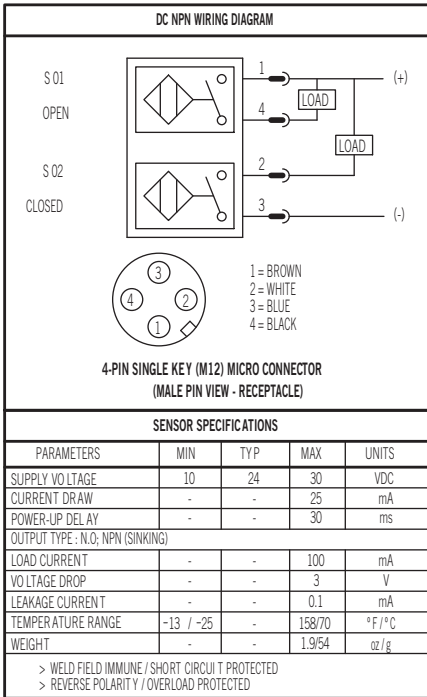
Enclosed Global Clamp
Sensing Options

NORGREN CLAMPS

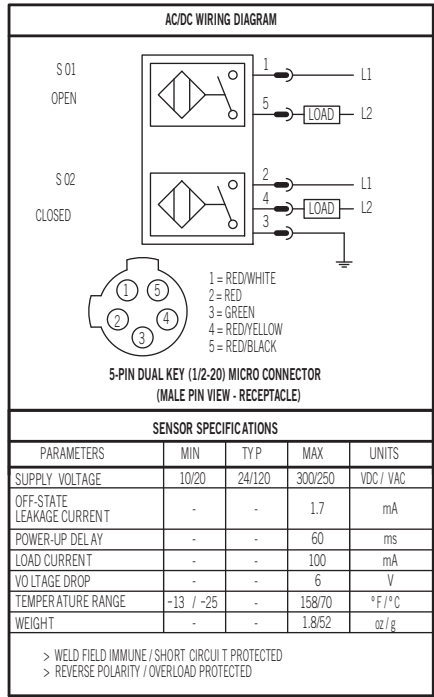
SCHEMATIC FOR P&F OR TURCK SENSOR PNP



SCHEMATIC FOR TURCK DC SENSOR NPN

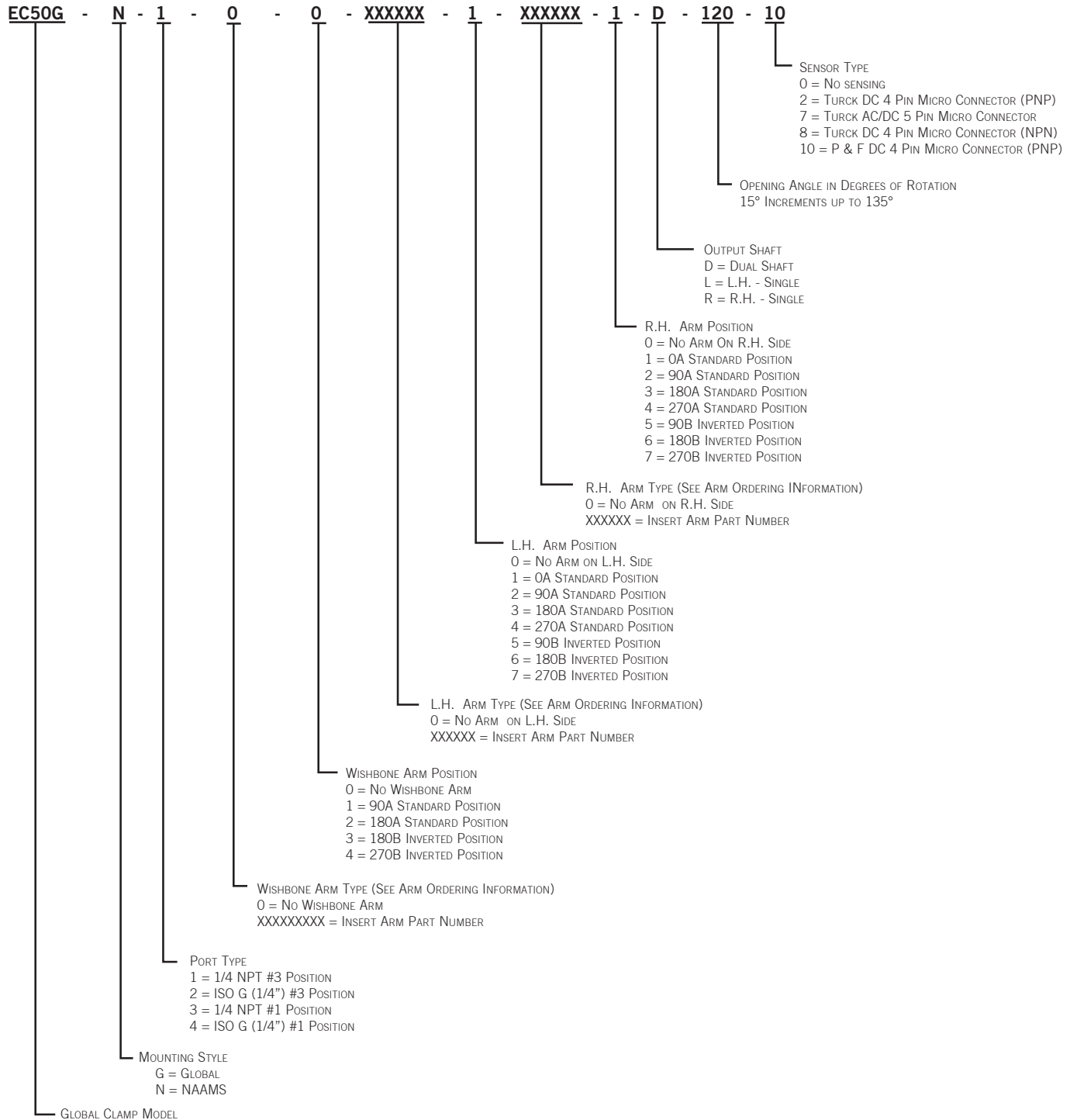


SCHEMATIC FOR TURCK AC/DC SENSOR



EC50G Clamp

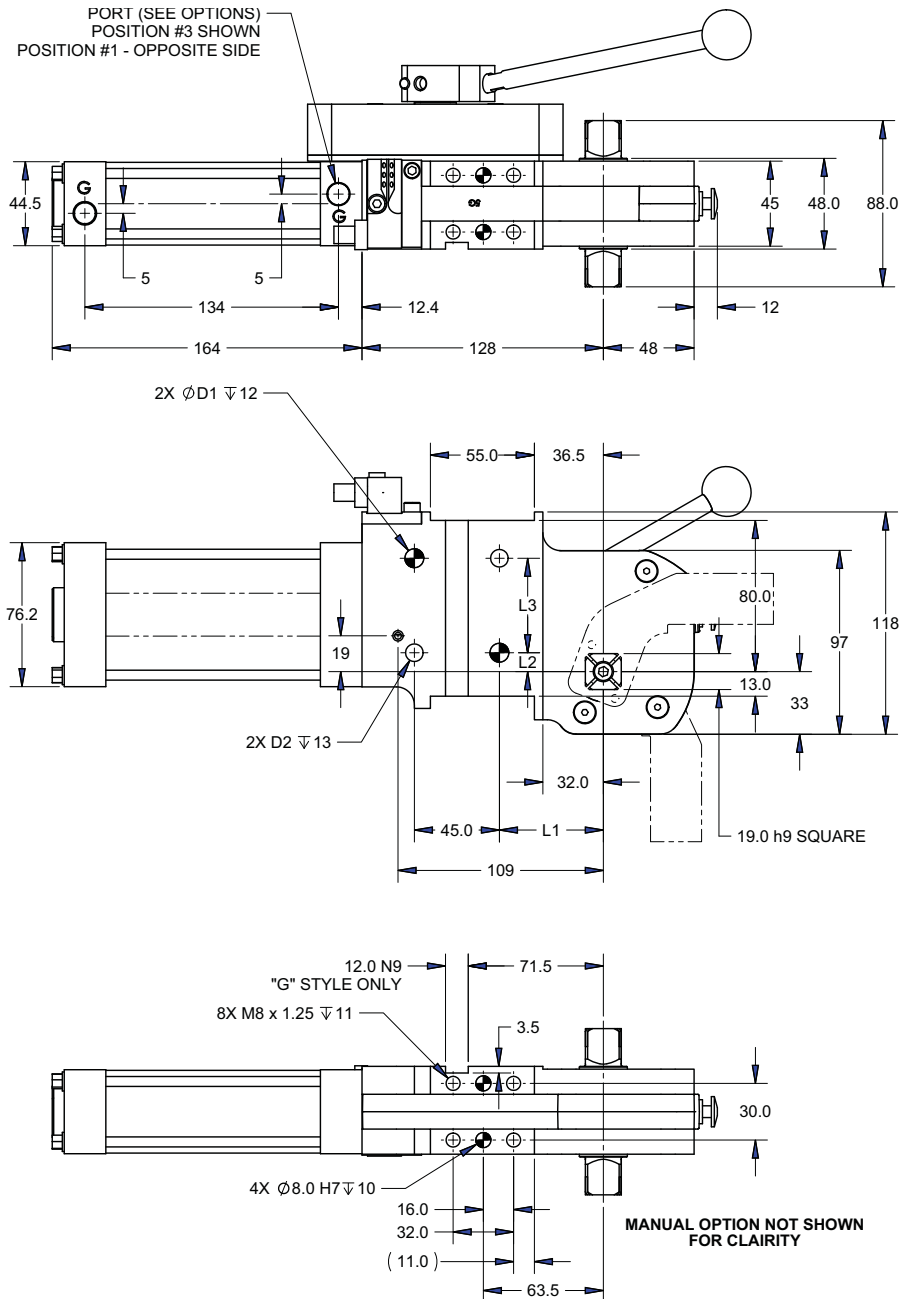
Enclosed Global Clamp
Ordering Information



NORGREN CLAMPS

EC50MG Clamp
Enclosed Manual Global Clamp
Dimensions

NORGREN CLAMPS

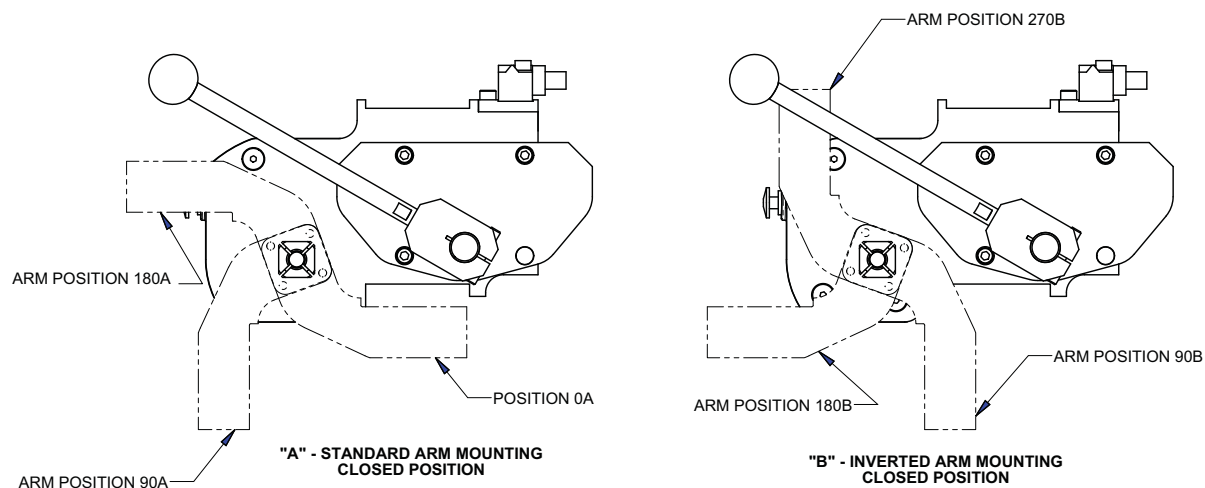


MOUNTING STYLE	L1	L2	L3	D1	D2
G - Global	±0.13	±0.03	±0.03	10 ^{H7}	M10 x 1.5
N - NAAMS	40.00	5.00	45.00	8 ^{H7}	M8 x 1.25

CYLINDER INFORMATION		
OPENING ANGLE (DEGREES)	CYLINDER STROKE	AREA
15	16.8	1960 mm² (3.040 in²)
30	25.7	
45	33.1	
60	40.2	
75	47.5	
90	55.2	
105	62.8	
120	69.6	

EC50MG Clamp

Enclosed Manual Global Clamp
Arm Mounting Options



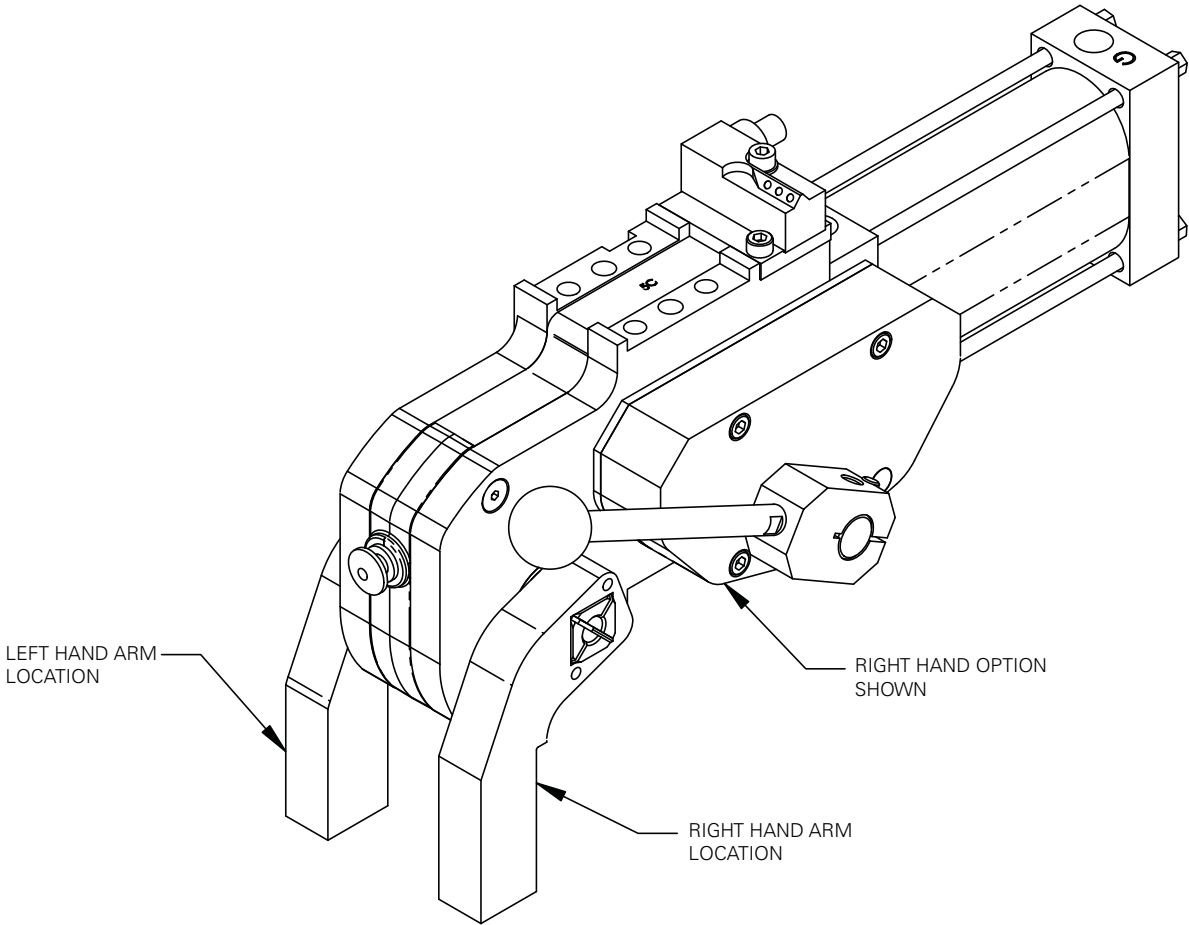
NORGREN CLAMPS

MAXIMUM ARM OPENING ANGLE DEGREES					
NORGREN ARM STYLES	ARM MOUNTING POSITION	CLAMP ARM SAME SIDE AS MANUAL OPTION		CLAMP ARM OPPOSITE MANUAL OPTION	
		A-STANDARD	B-INVERTED	A-STANDARD	B-INVERTED
XMG40 SERIES BLADE ARM 50mm OFFSET	0	120	-	120	-
	90	90	-	115	-
	180	-	120	25	120
	270	-	60	-	70
XMG50 SERIES BLADE ARM 0mm OFFSET	0	-	-	-	-
	90	120	120	120	120
	180	75	75	100	100
	270	-	-	10	10
XMG90 SERIES BLADE ARM 25mm OFFSET	0	120	-	120	-
	90	105	-	120	-
	180	15	120	60	120
	270	-	-	-	40
WISHBONE 25-144	0	-	-	-	-
	90	120	-	120	-
	180	30	105	65	120
	270	-	-	-	30
WISHBONE 75-204	0	-	-	-	-
	90	105	-	120	-
	180	15	105	65	120
	270	-	15	-	65

EC50MG Clamp

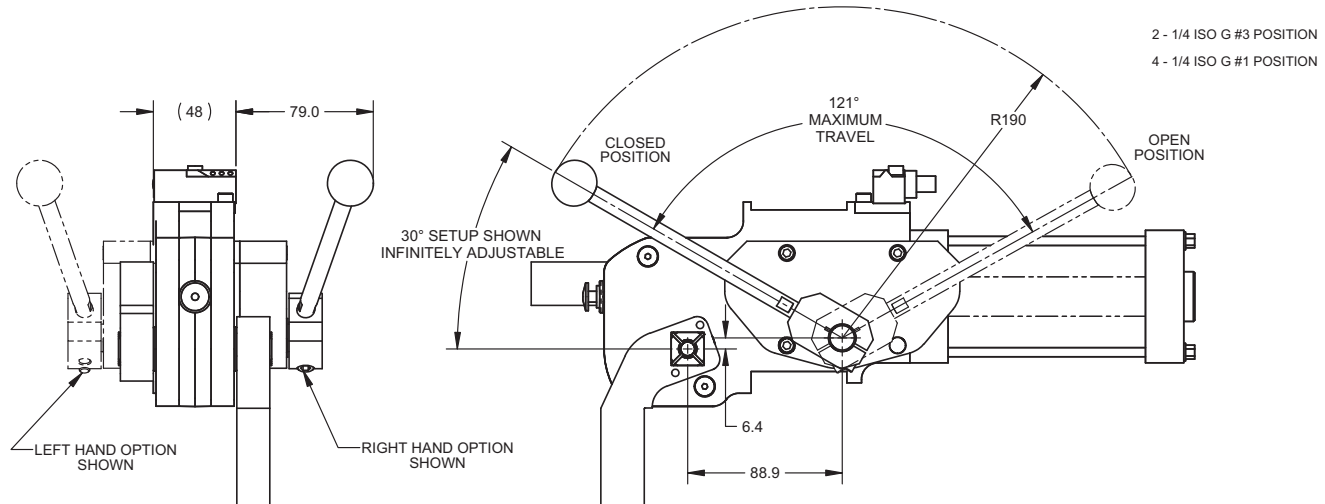
Enclosed Manual Global Clamp
Arm Position Options

NORGREN CLAMPS



EC50MG Clamp

Enclosed Manual Global Clamp
Manual Handle Configurations



NORGREN CLAMPS

HANDLE OPENING INFORMATION	
CLAMP ARM OPENING ANGLE (DEGREES)	HANDLE TRAVEL (DEGREES)
15	31
30	42
45	53
60	65
75	80
90	96
105	111
120	121

EC50MG Clamp

Enclosed Manual Global Clamp
Sensing Options

NORGREN CLAMPS

SCHEMATIC FOR P&F OR TURCK SENSOR PNP

DC PNP WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

SENSOR SPECIFICATIONS				
PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE : N.O; PNP (SOURCING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / -25	-	158/70	°F / °C
WEIGHT	-	-	1.9/54	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

SCHEMATIC FOR TURCK DC SENSOR NPN

DC NPN WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

SENSOR SPECIFICATIONS				
PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE : N.O; NPN (SINKING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / -25	-	158/70	°F / °C
WEIGHT	-	-	1.9/54	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

SCHEMATIC FOR TURCK AC/DC SENSOR

AC/DC WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED

1 = RED/WHITE
2 = RED
3 = GREEN
4 = RED/YELLOW
5 = RED/BLACK

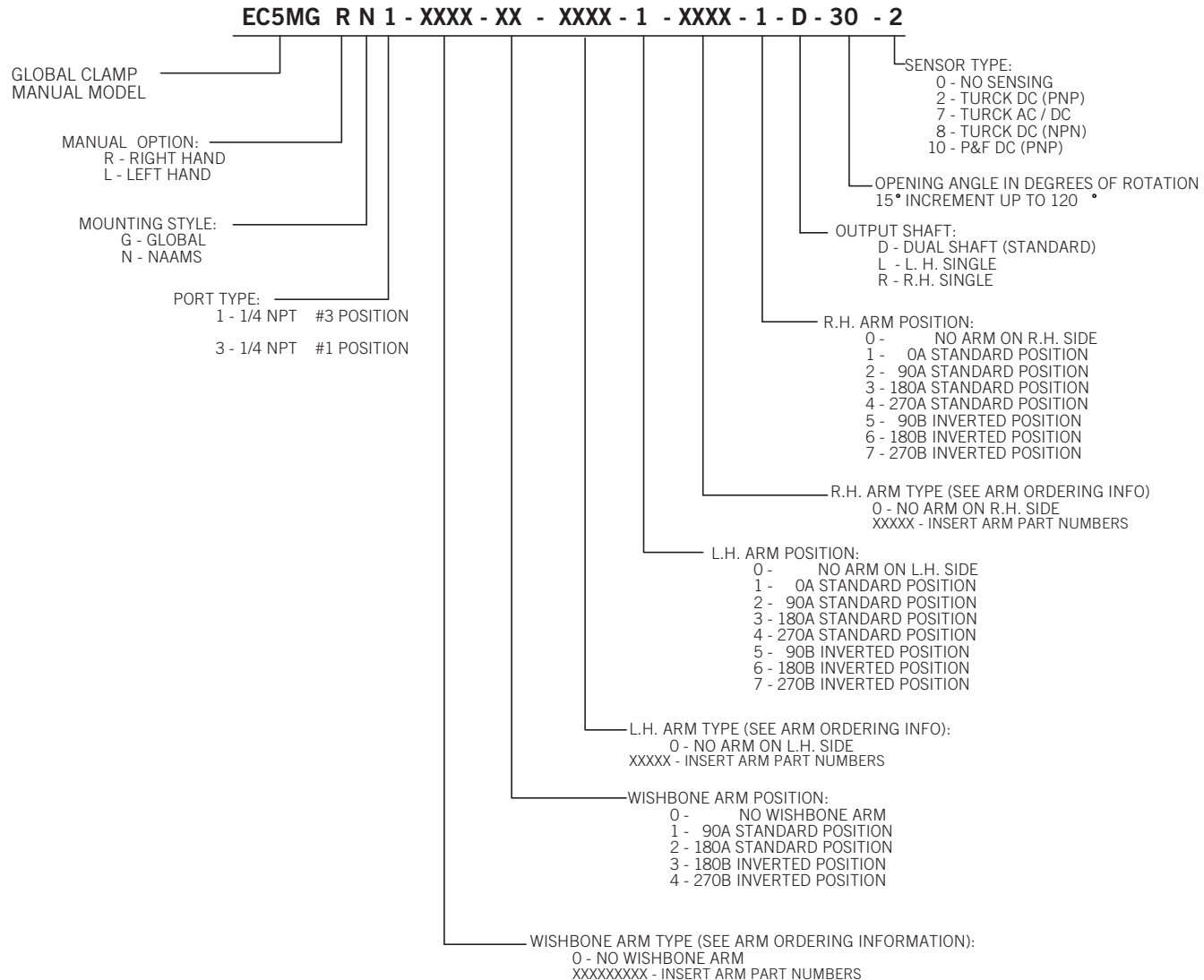
5-PIN DUAL KEY (1/2-20) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

SENSOR SPECIFICATIONS				
PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10/20	24/120	300/250	VDC / VAC
OFF-STATE LEAKAGE CURRENT	-	-	1.7	mA
POWER-UP DELAY	-	-	60	ms
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	6	V
TEMPERATURE RANGE	-13 / -25	-	158/70	°F / °C
WEIGHT	-	-	1.8/52	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

EC50MG Clamp

Enclosed Manual Global Clamp
Ordering Information



NORGREN CLAMPS

EC63G Global Clamp

FEATURES

- ▶ Oval Cylinder - Low profile, non-rotating
- ▶ Satisfies Global Mounting and NAAMS Standards:
 - Blade mounting and Foot mounting.
- ▶ Integral Sensing Switch - Low profile cartridge requires only one cable.
- ▶ Before center locking mechanism is wear compensating for ultimate position repeatability.
- ▶ Remains locked even after loss of air pressure.
- ▶ Manual release button to open mechanism without air pressure.
- ▶ Fixed orifice. Clamp does not require flow controls.
- ▶ Adjustable stroke plug. No need to replace cylinder tubes and tie rods to change stroke.
- ▶ Left, Right, Dual and Wishbone arm options.

TECHNICAL DATA

- ▶ Fluid: Compressed Air
 - Note: Air supply must be dry enough to prevent ice formation at temperatures below 2° C (35° F).
- ▶ Air Pressure:
 - Minimum 2.75 bar (40 psi)
 - Maximum 8 bar (120 psi)
- ▶ Air Filtration:
 - 40 Micron filter
- ▶ Operating Temperature:
 - 0° C (32° F) to 70° C (158° F)

MATERIALS

- ▶ Clamp Head: Aluminum/Steel
- ▶ Sensing Cover: Steel
- ▶ Cylinder Seals: Nitrile

SPECIFICATIONS

- ▶ Cylinder Bore Area: 3110 mm² (4.82 in²)
- ▶ Clamp Weight excluding arms:
 - 4.9 kg (10.7 lbs.)

Consult Application Charts for mass and velocity limitations.

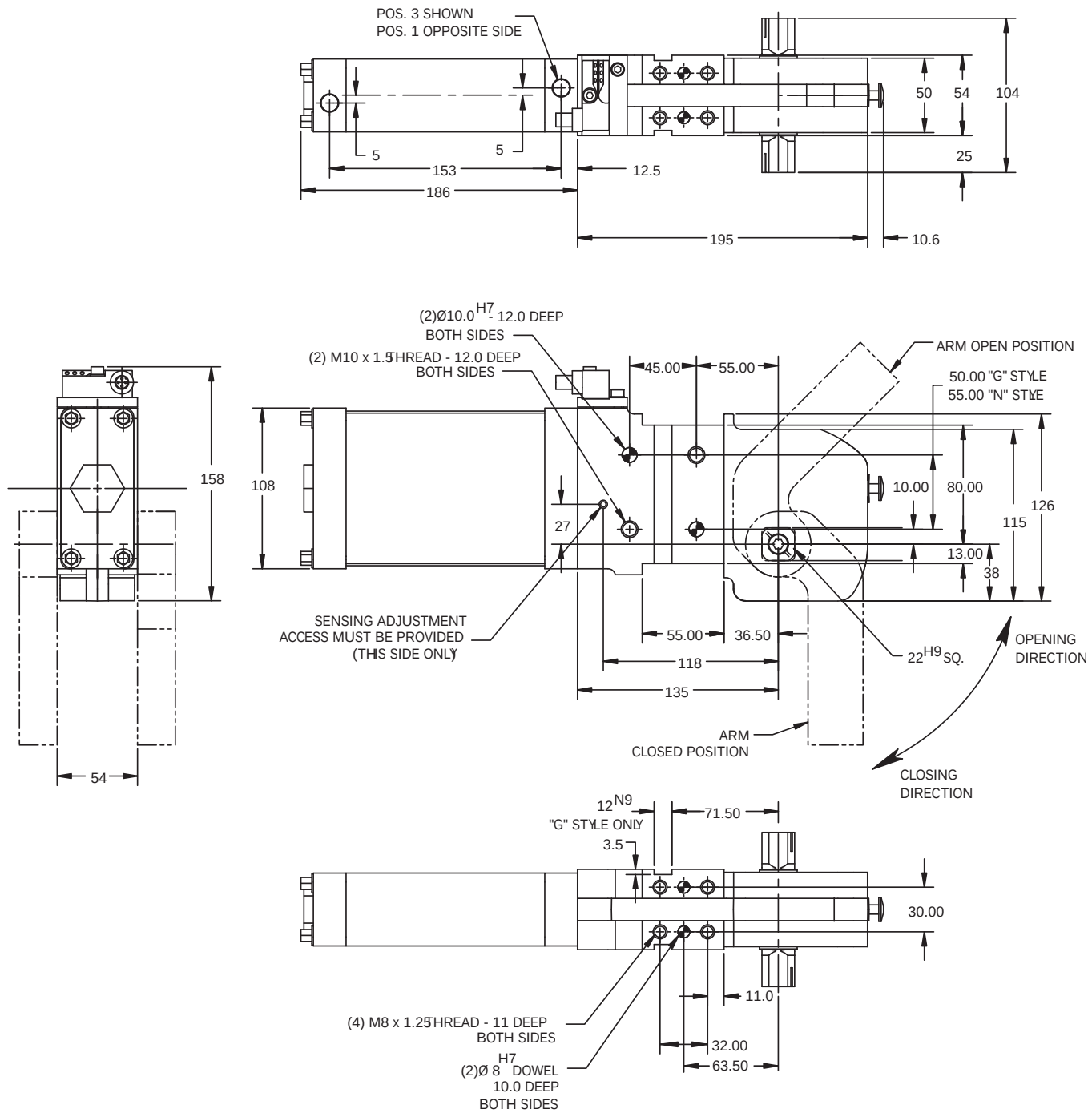
This product covered by one or more of the following U.S. patent numbers: 4,905,973; 5,575,462; 5,634,629, 5,829,112; 5,799,932 EC, SC, WC Series Clamps.



EC63G Clamp

Enclosed Global Clamp
63mm Dimensions

NORGREN CLAMPS



MOUNTING STYLE:
G-GLOBAL INCLUDES KEYWAY
N-NAAMS

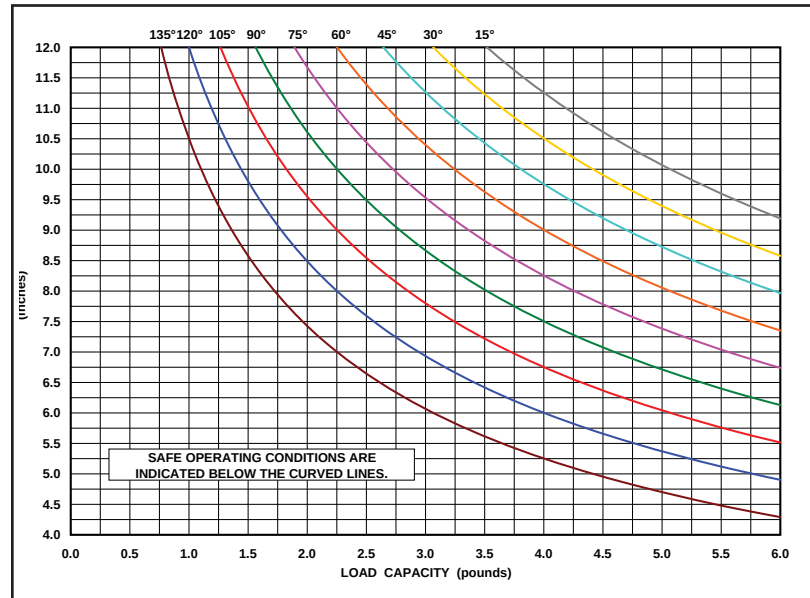
EC63G Clamp

Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

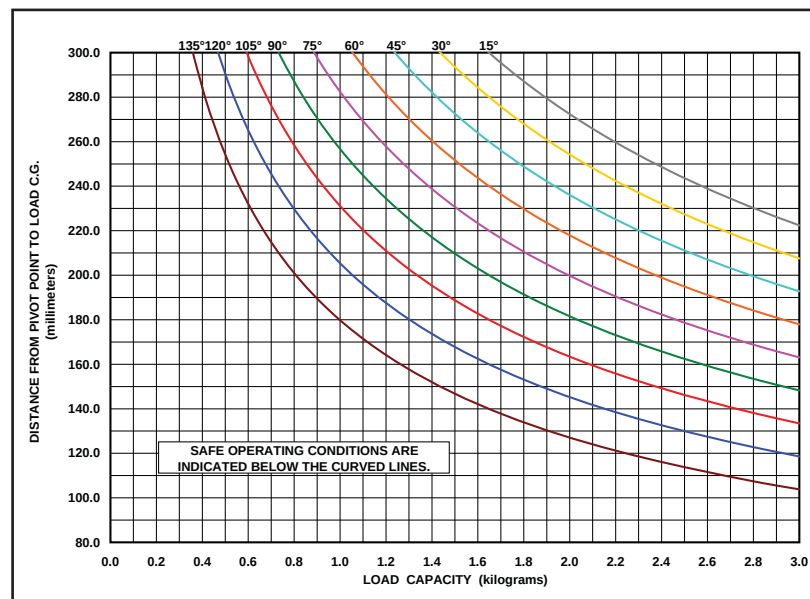
EC63G CLAMP CAPACITY - ENGLISH

LOAD CAPACITY VS. DISTANCE FROM PIVOT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC.



EC63G CLAMP CAPACITY - METRIC

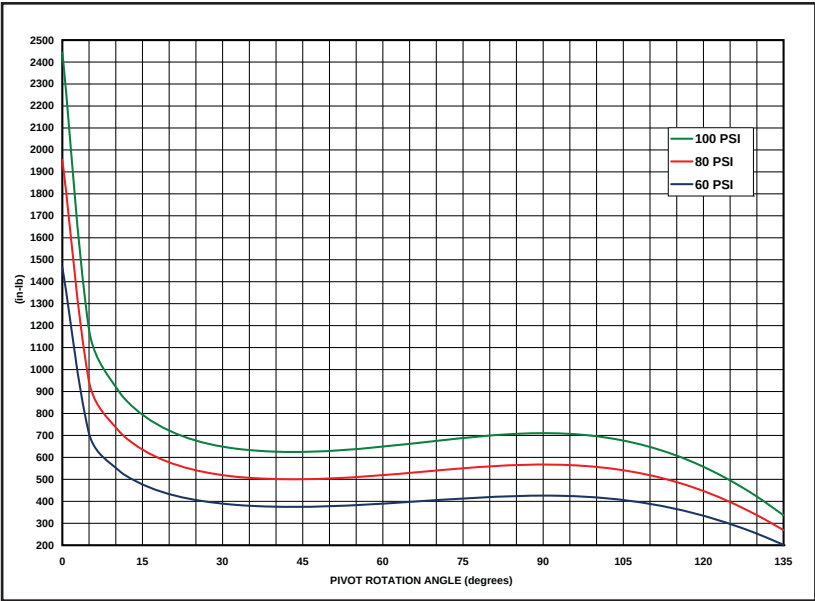
LOAD CAPACITY VS. DISTANCE FROM PIVOT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC.



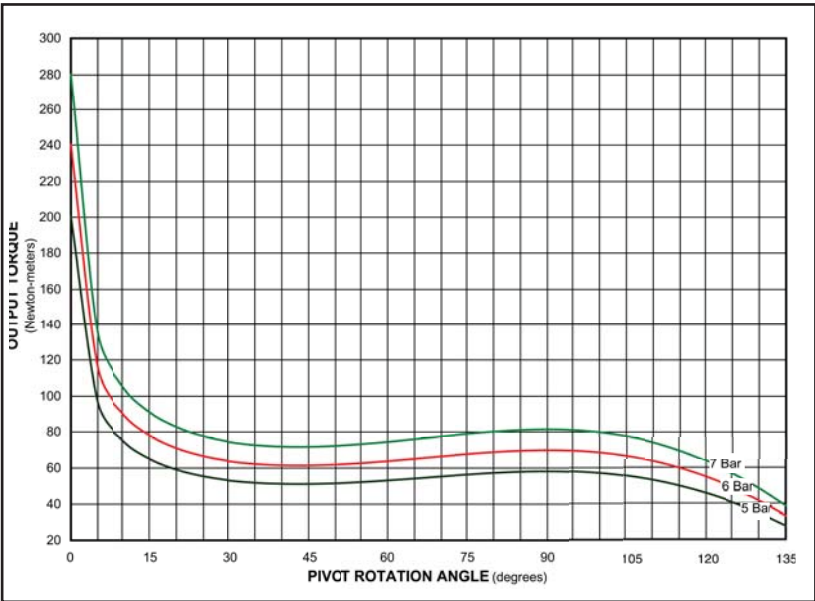
EC63G Clamp
Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

EC63G OUTPUT TORQUE - ENGLISH



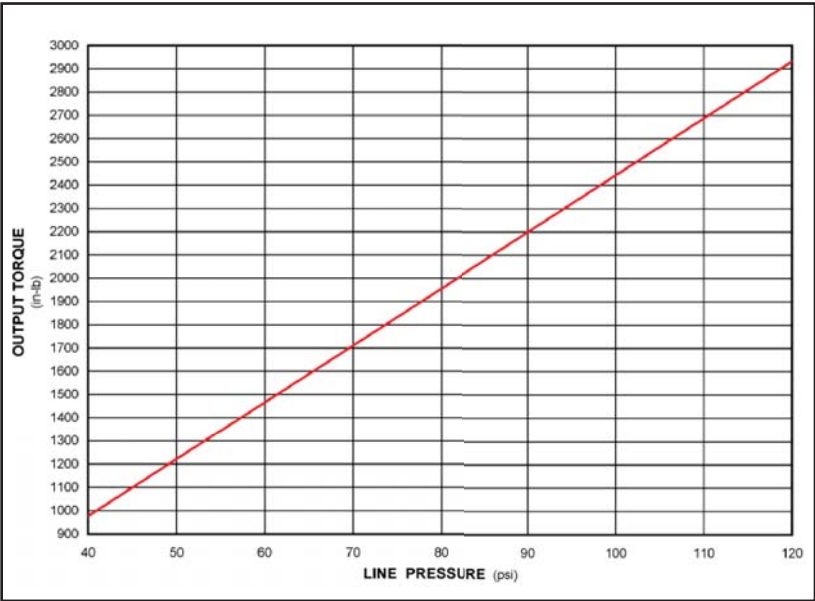
EC63G OUTPUT TORQUE - METRIC



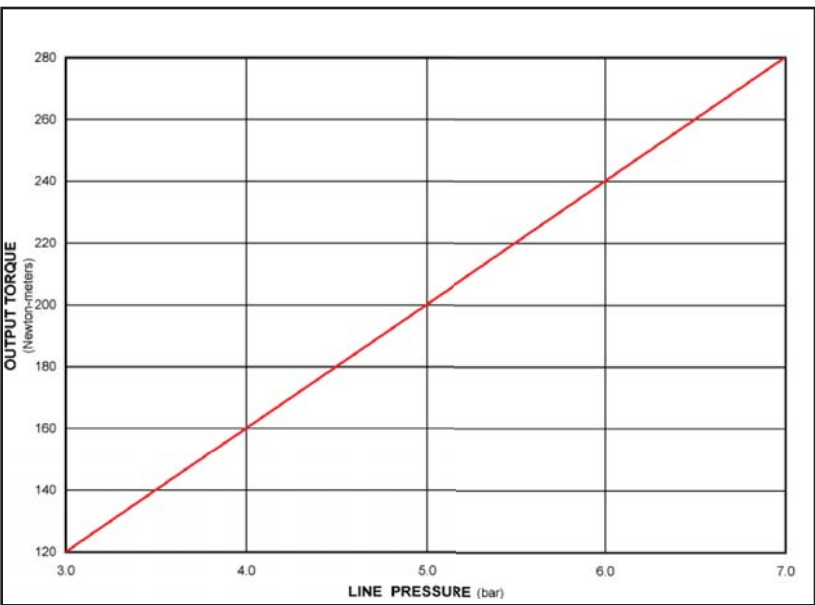
EC63G Clamp
Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

EC63G MAXIMUM OUTPUT TORQUE - ENGLISH



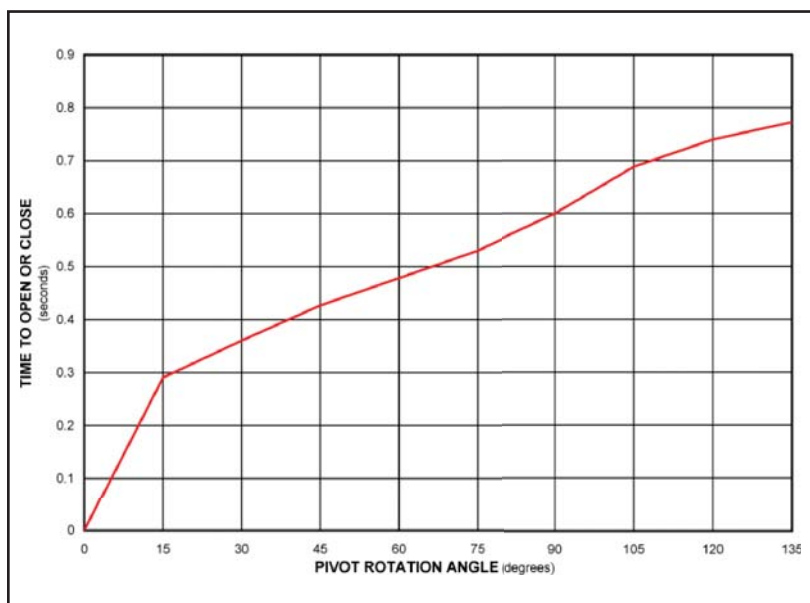
EC63G MAXIMUM OUTPUT TORQUE - METRIC



EC63G Clamp

Enclosed Global Clamp
Application Charts

EC63G CYCLE TIMES
FIXED ORIFICE PORTS
OPERATING PRESSURE: (4-6 BAR) 60-80 PSI



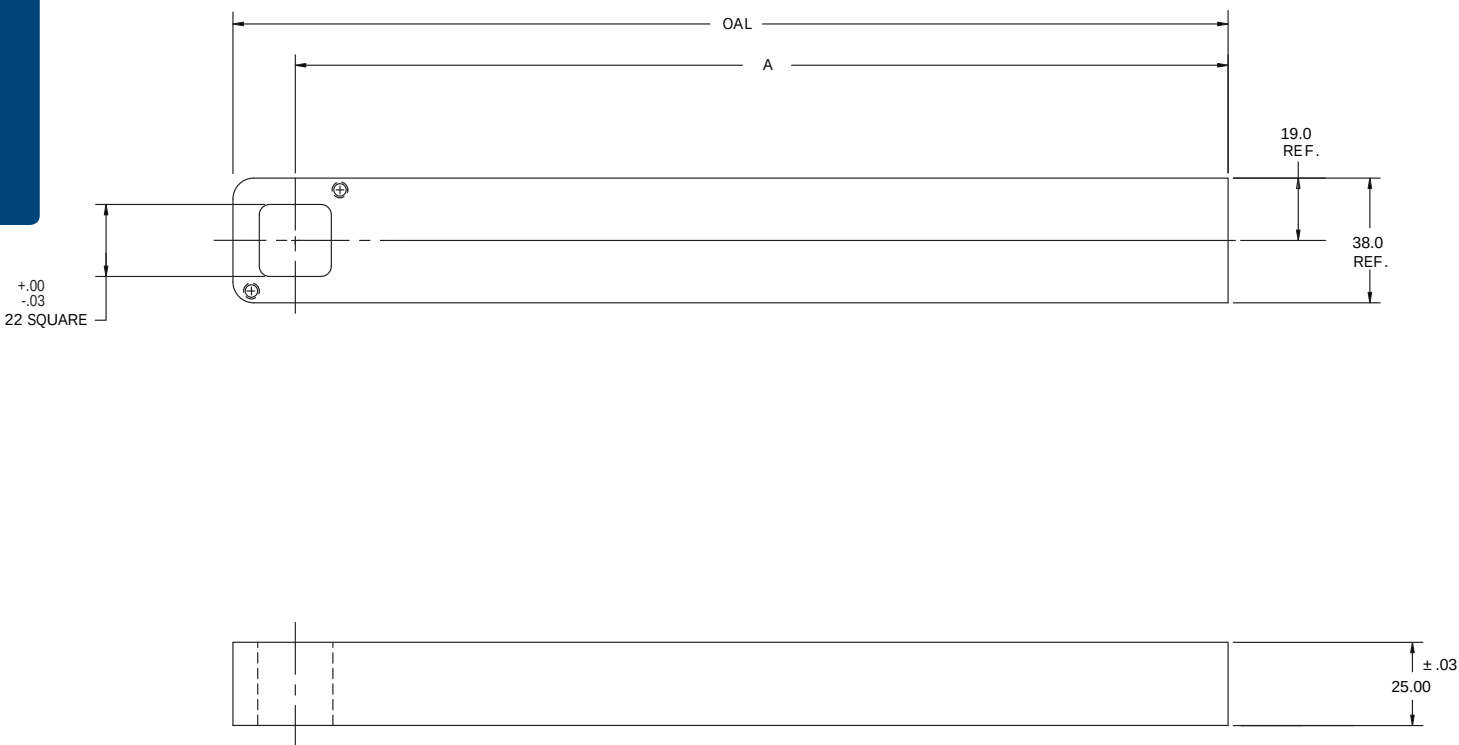
NORGREN CLAMPS

EC63G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XG50A SERIES - STRAIGHT (METRIC)



PART No.		NAAMS PART No.	"A" (MM)	OAL (MM)	ARM WEIGHT KG (LB)
P-EC63G-	XG51A	ACA001M	135.0	157.0	1.2 (2.6)
	XG52A	ACA002M	165.0	187.0	1.4 (3.1)
	XG53A	ACA003M	195.0	217.0	1.6 (3.5)
	XG54A	ACA004M	225.0	247.0	1.9 (4.2)
	XG55A	ACA005M	255.0	277.0	2.1 (4.6)
	XG56A	ACA006M	285.0	307.0	2.3 (5.1)

To order arms separately from a clamp, use P-EC63G with the Part Number *or* the NAAMS Part Number.

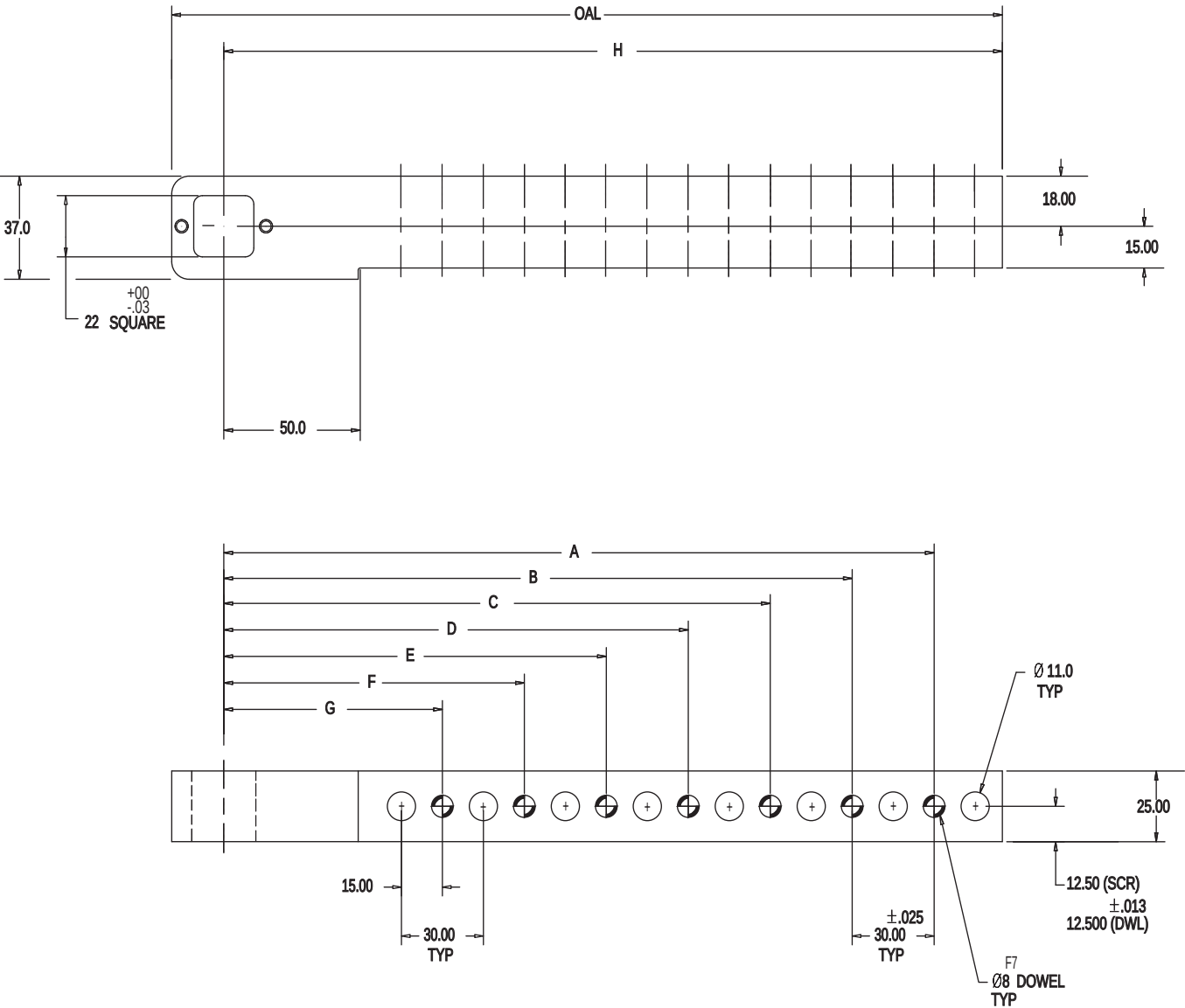
EC63G Clamp

Enclosed Global Clamp

NAAMS Machined Blade Arm Options

NORGREN CLAMPS

XG50M SERIES - STRAIGHT (METRIC)



PART No.	NAAMS PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H"	OAL	ARM WEIGHT KG (LB)
P-EC63G-	XG51M	ACA007M	110.00	80.00					135.00	157.0	1.0 (2.2)
	XG52M	ACA008M	140.00	110.00	80.00				165.00	187.0	1.2 (2.6)
	XG53M	ACA009M	170.00	140.00	110.00	80.00			195.00	217.0	1.4 (3.1)
	XG54M	ACA010M	200.00	170.00	140.00	110.00	80.00		225.00	247.0	1.5 (3.3)
	XG55M	ACA011M	230.00	200.00	170.00	140.00	110.00	80.00	255.00	277.0	1.7 (3.7)
	XG56M	ACA012M	260.00	230.00	200.00	170.00	140.00	110.00	285.00	307.0	1.9 (4.2)

To order arms separately from a clamp, use P-EC63G with the Part Number *or* the NAAMS Part Number.



EC63G Clamp

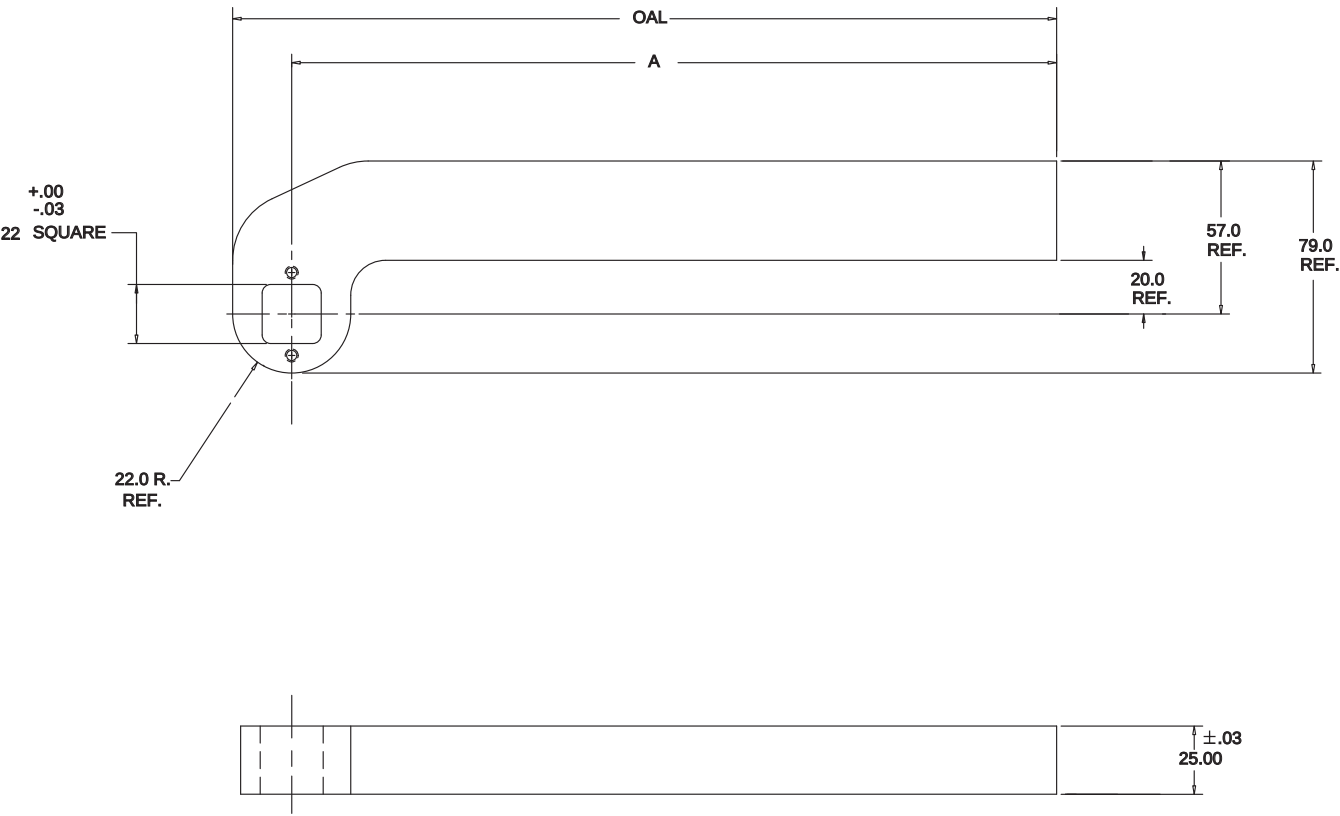
Rev. 001

EC63G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XG90A SERIES - 20 MM OFFSET (METRIC)



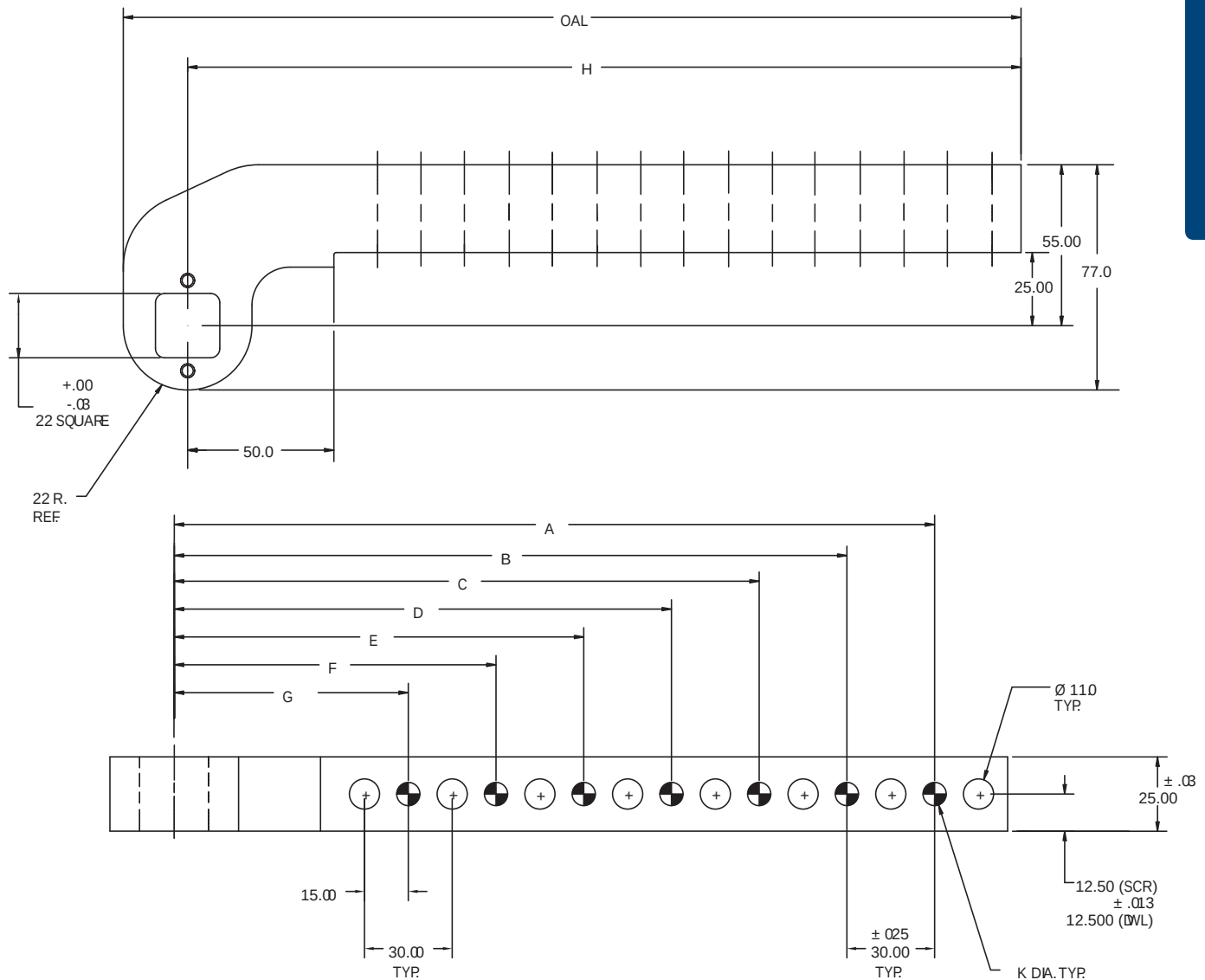
	PART No.	NAAMS PART No.	"A" (MM)	OAL (MM)	ARM WEIGHT KG (LB)
P-EC63G-	XG91A	ACA013M	135.0	157.0	1.3 (2.9)
	XG92A	ACA014M	165.0	187.0	1.6 (3.5)
	XG93A	ACA015M	195.0	217.0	1.8 (4.0)
	XG94A	ACA016M	225.0	247.0	2.0 (4.4)
	XG95A	ACA017M	255.0	277.0	2.2 (4.8)
	XG96A	ACA018M	285.0	307.0	2.4 (5.3)

To order arms separately from a clamp, use P-EC63G with the Part Number *or* the NAAMS Part Number.

EC63G Clamp

Enclosed Global Clamp
NAAMS Machined Blade Arm Options

XG90M SERIES - 25 MM OFFSET (METRIC)



PART No.	NAAMS PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H"	OAL	ARM WEIGHT KG (LB)
P-EC63G-	XG91M	ACA019M	110.00	80.00					135.00	157.0	1.1 (2.4)
	XG92M	ACA020M	140.00	110.00	80.00				165.00	187.0	1.3 (2.9)
	XG93M	ACA021M	170.00	140.00	110.00	80.00			195.00	217.0	1.5 (3.3)
	XG94M	ACA022M	200.00	170.00	140.00	110.00	80.00		225.00	247.0	1.6 (3.5)
	XG95M	ACA023M	230.00	200.00	170.00	140.00	110.00	80.00	255.00	277.0	1.7 (3.7)
	XG96M	ACA024M	260.00	230.00	200.00	170.00	140.00	110.00	285.00	307.0	2.0 (4.4)

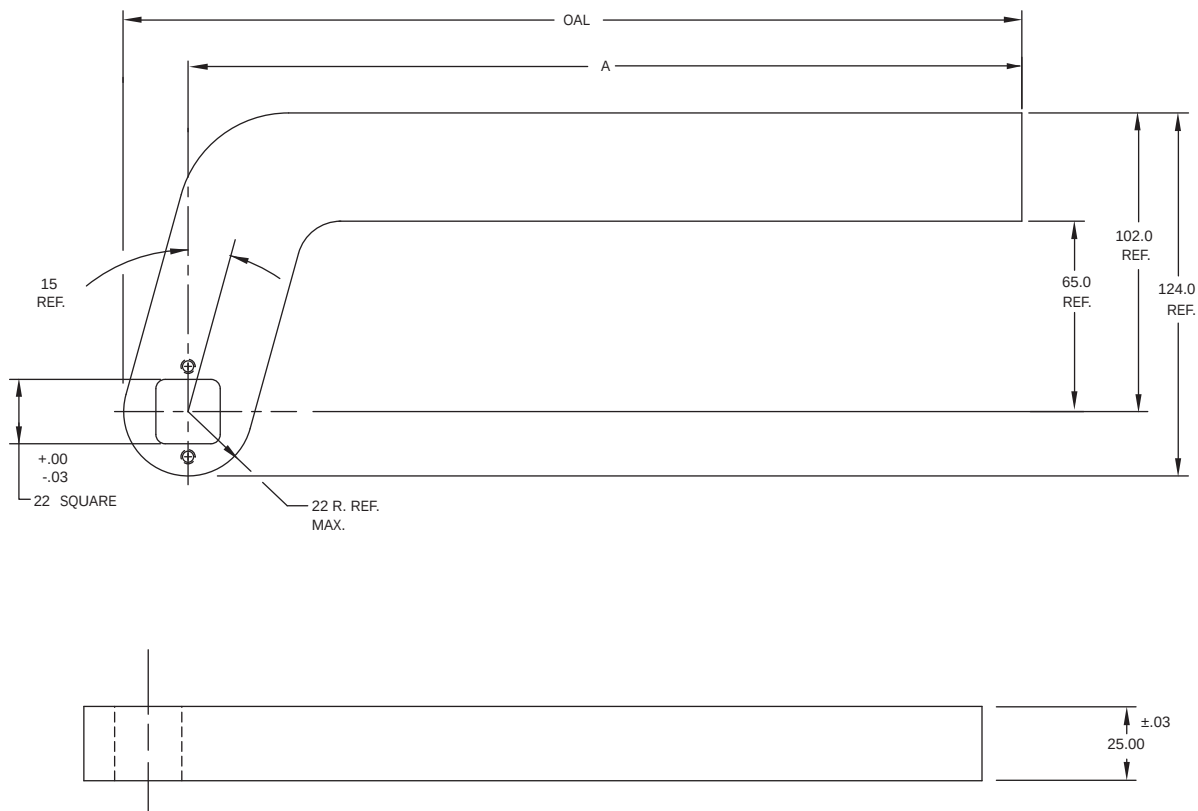
To order arms separately from a clamp, use P-EC63G with the Part Number or the NAAMS Part Number.

EC63G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XG40A SERIES - 65 MM OFFSET (METRIC)



	PART No.	NAAMS PART No.	"A" (MM)	OAL (MM)	ARM WEIGHT KG (LB)
P-EC63G-	XG41A	ACA025M	135.0	157.0	1.7 (3.7)
	XG42A	ACA026M	165.0	187.0	1.9 (4.2)
	XG43A	ACA027M	195.0	217.0	2.1 (4.6)
	XG44A	ACA028M	225.0	247.0	2.4 (5.3)
	XG45A	ACA029M	255.0	277.0	2.6 (5.7)
	XG46A	ACA030M	285.0	307.0	2.8 (6.2)

To order arms separately from a clamp, use P-EC63G with the Part Number or the NAAMS Part Number.

EC63G Clamp

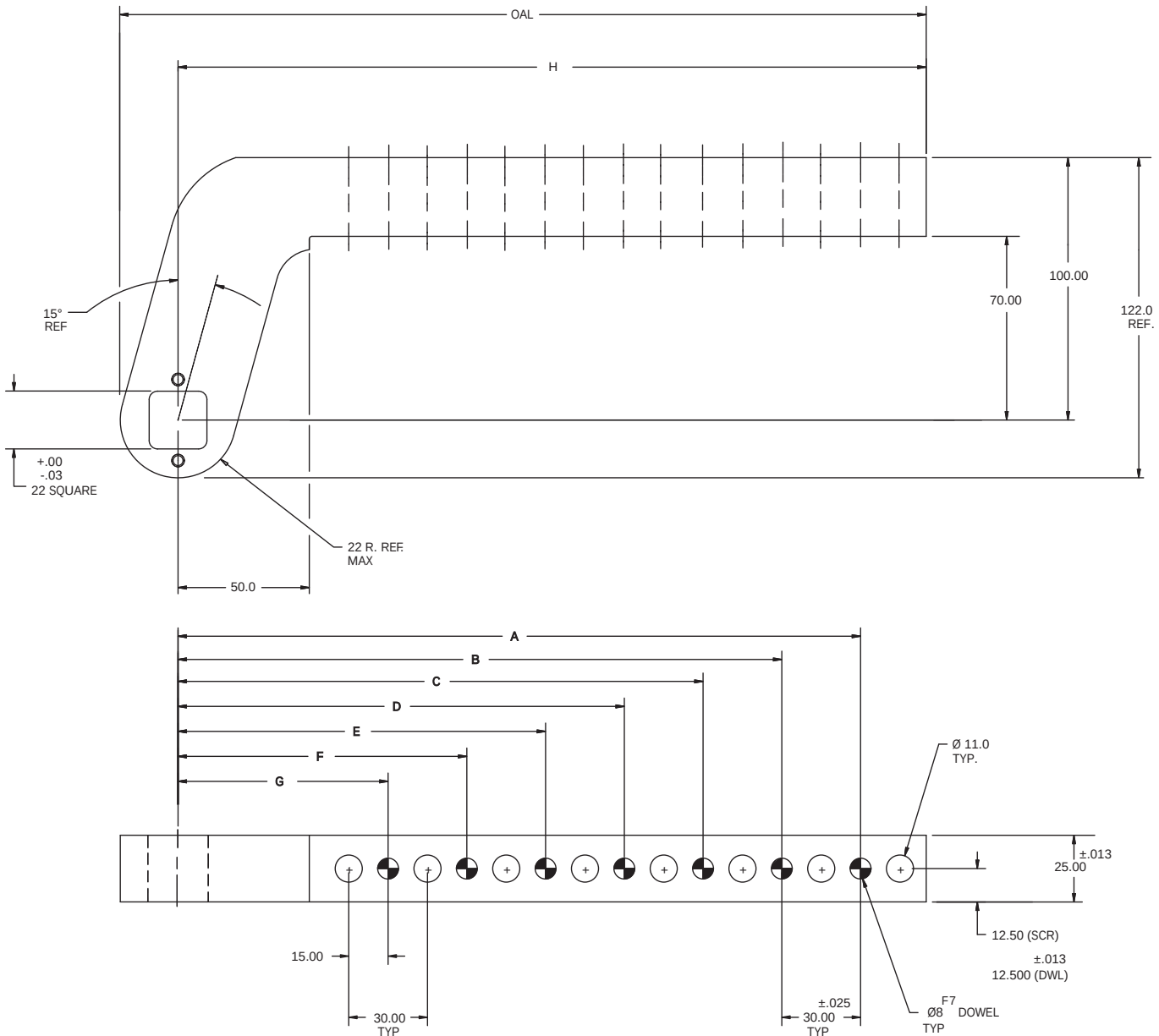
Rev. 001



EC63G Clamp

Enclosed Global Clamp
NAAMS Machined Blade Arm Options

XG40M SERIES - 70 MM OFFSET (METRIC)



	PART No.	NAAMS PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H"	OAL	ARM WEIGHT KG (LB)
P-EC63G-	XG41M	ACA031M	110.00	80.00						135.00	157.0	1.5 (3.3)
	XG42M	ACA032M	140.00	110.00	80.00					165.00	187.0	1.7 (3.7)
	XG43M	ACA033M	170.00	140.00	110.00	80.00				195.00	217.0	1.8 (4.0)
	XG44M	ACA034M	200.00	170.00	140.00	110.00	80.00			225.00	247.0	2.0 (4.4)
	XG45M	ACA035M	230.00	200.00	170.00	140.00	110.00	80.00		255.00	277.0	2.1 (4.6)
	XG46M	ACA036M	260.00	230.00	200.00	170.00	140.00	110.00	80.00	285.00	307.0	2.3 (5.1)

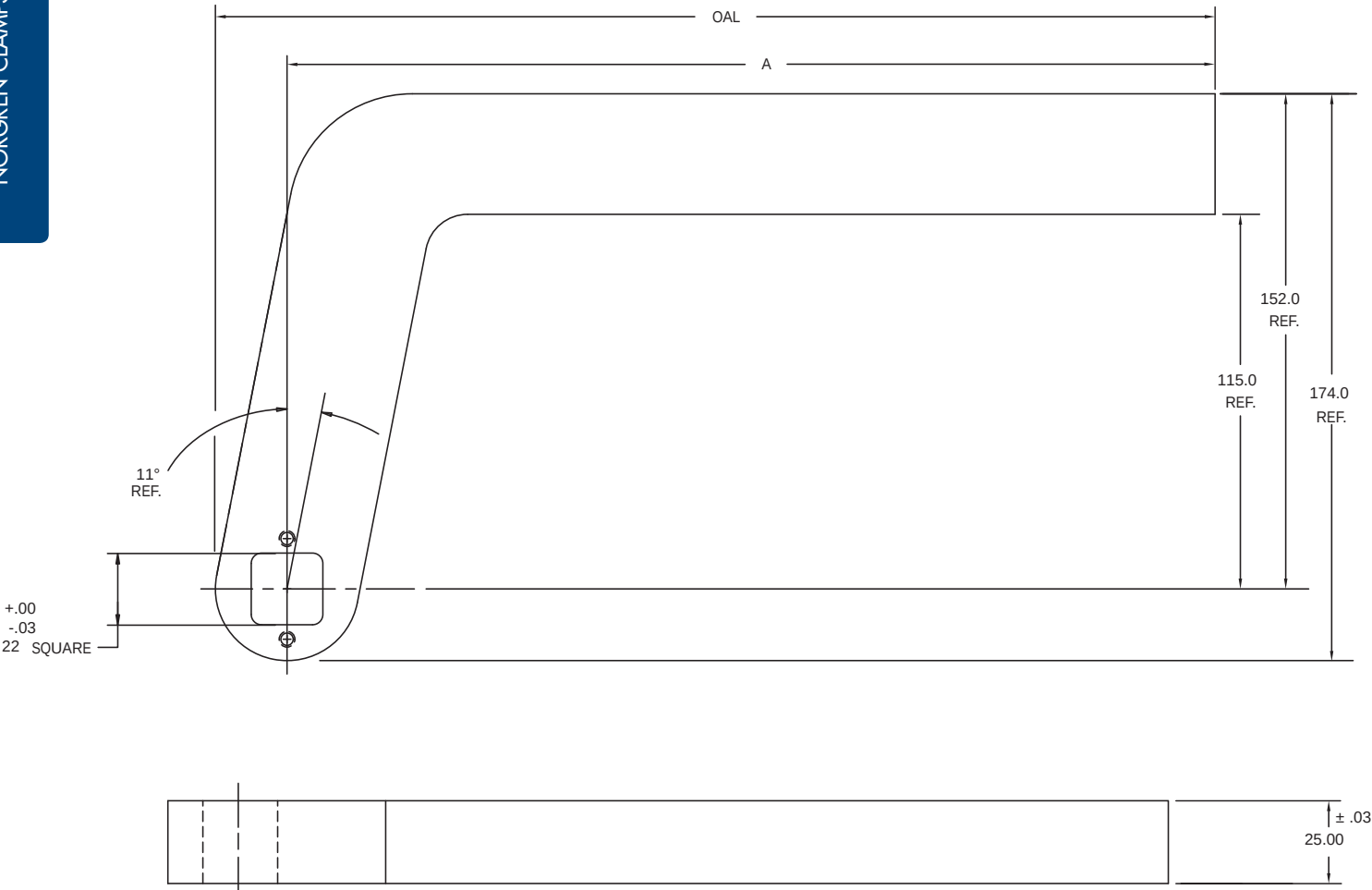
To order arms separately from a clamp, use P-EC63G with the Part Number *or* the NAAMS Part Number.

EC63G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XG60A SERIES - 115 MM OFFSET (METRIC)



	PART No.	NAAMS PART No.	"A" (MM)	OAL (MM)	ARM WEIGHT KG (LB)
P-EC63G-	XG61A	ACA037M	135.0	157.0	2.1 (4.6)
	XG62A	ACA038M	165.0	187.0	2.3 (5.1)
	XG63A	ACA039M	195.0	217.0	2.5 (5.5)
	XG64A	ACA040M	225.0	247.0	2.7 (5.9)
	XG65A	ACA041M	255.0	277.0	2.9 (6.4)
	XG66A	ACA042M	285.0	307.0	3.2 (7.0)

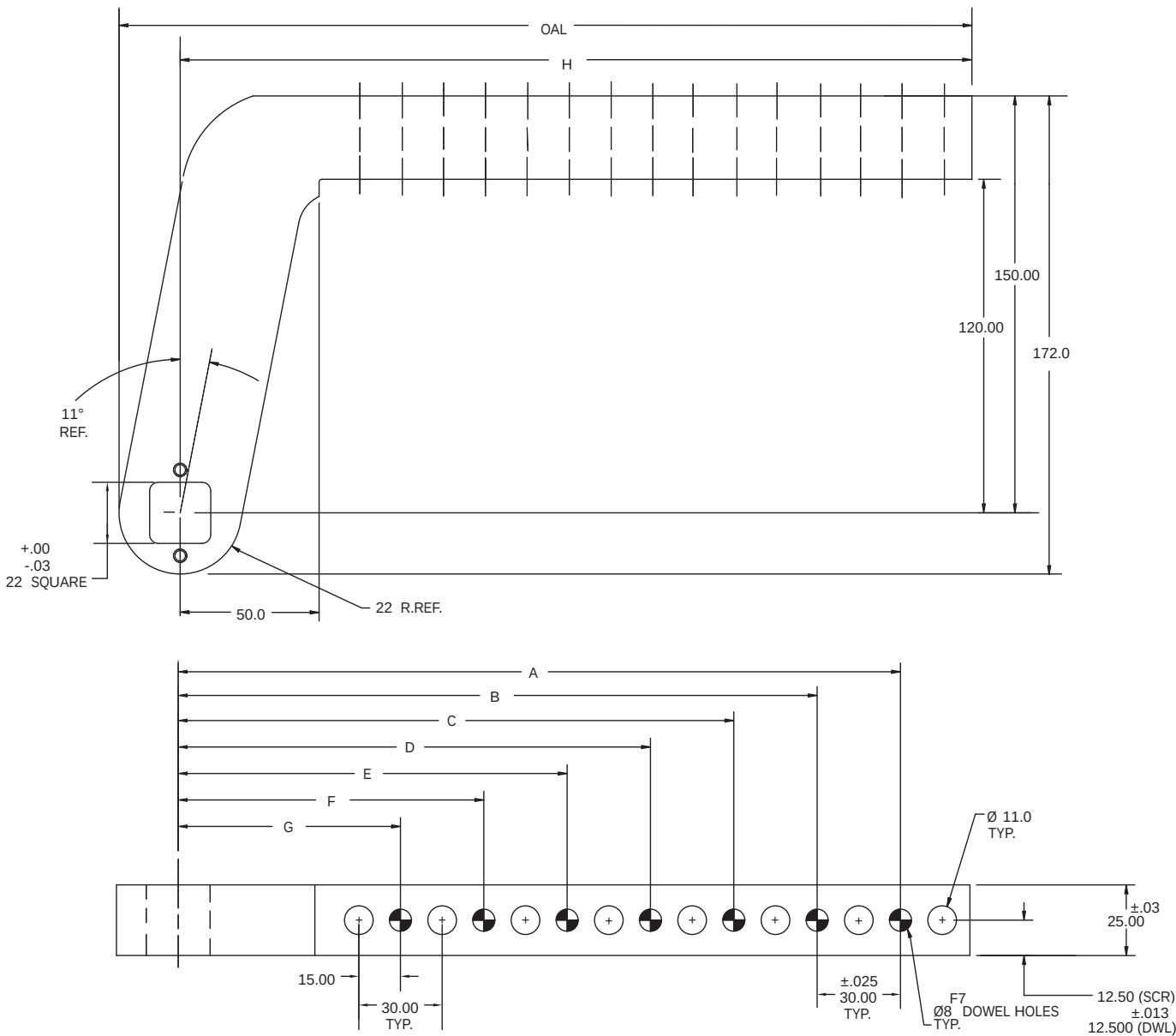
To order arms separately from a clamp, use P-EC63G with the Part Number *or* the NAAMS Part Number.

EC63G Clamp

Enclosed Global Clamp
NAAMS Machined Blade Arm Options

NORGREN CLAMPS

XG60M SERIES - 120 MM OFFSET (METRIC)



PART No.	NAAMS PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H"	OAL	ARM WEIGHT KG (LB)
P-EC63G-	XG61M	ACA043M	110.00	80.00					135.00	157.0	1.9 (4.2)
	XG62M	ACA044M	140.00	110.00	80.00				165.00	187.0	2.0 (4.4)
	XG63M	ACA045M	170.00	140.00	110.00	80.00			195.00	217.0	2.2 (4.8)
	XG64M	ACA046M	200.00	170.00	140.00	110.00	80.00		225.00	247.0	2.3 (5.1)
	XG65M	ACA047M	230.00	200.00	170.00	140.00	110.00	80.00	255.00	277.0	2.5 (5.5)
	XG66M	ACA048M	260.00	230.00	200.00	170.00	140.00	110.00	80.00	285.00	2.7 (5.9)

To order arms separately from a clamp, use P-EC63G with the Part Number or the NAAMS Part Number.

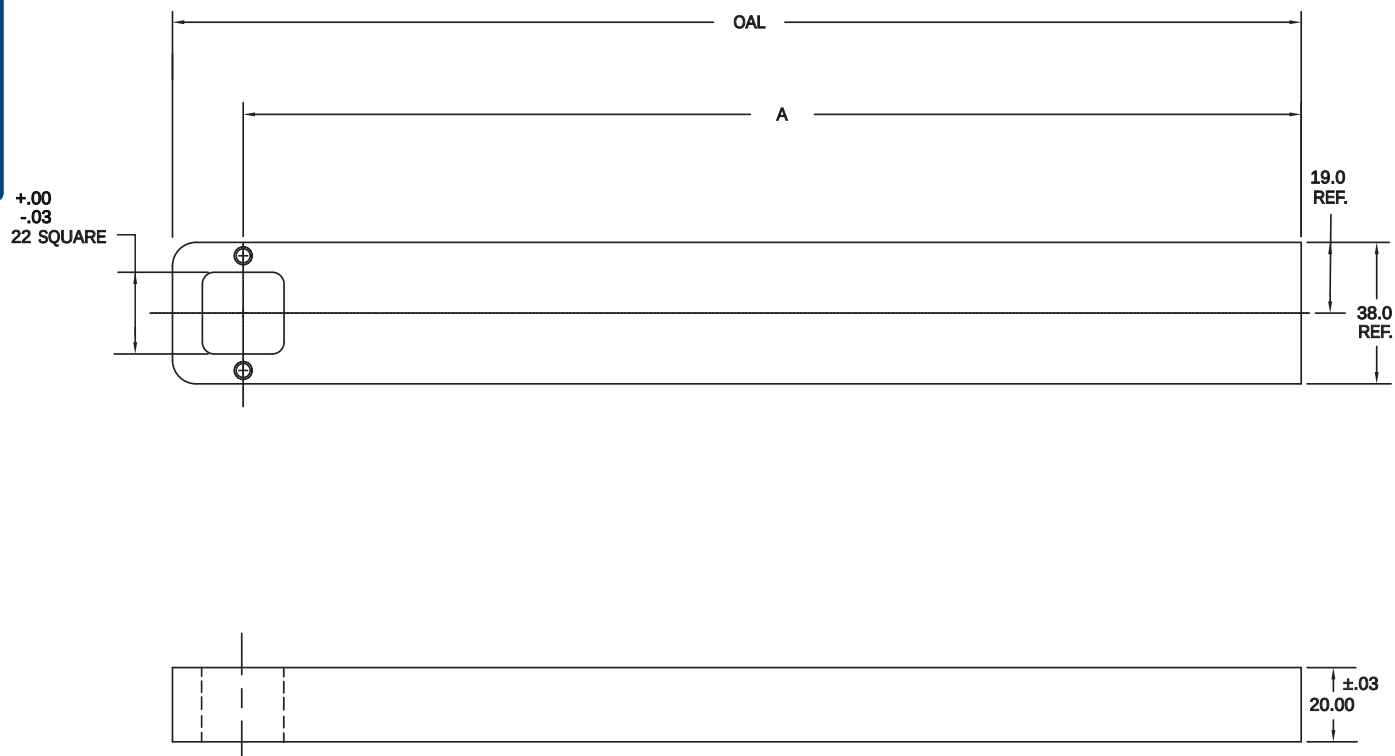


EC63G Clamp

Enclosed Global Clamp
Global Blank Blade Arm Options

NORGREN CLAMPS

XGM50A SERIES - STRAIGHT (METRIC)



	PART No.	GLOBAL PART No.	“A” (MM)	OAL (MM)	ARM WEIGHT KG (LB)
P-EC63G-	XGM51A	GCA001M	135.0	157.0	0.9 (2.0)
	XGM52A	GCA002M	165.0	187.0	1.1 (2.4)
	XGM53A	GCA003M	195.0	217.0	1.3 (2.9)
	XGM54A	GCA004M	225.0	247.0	1.5 (3.3)
	XGM55A	GCA005M	255.0	277.0	1.6 (3.5)
	XGM56A	GCA006M	285.0	307.0	1.8 (4.0)

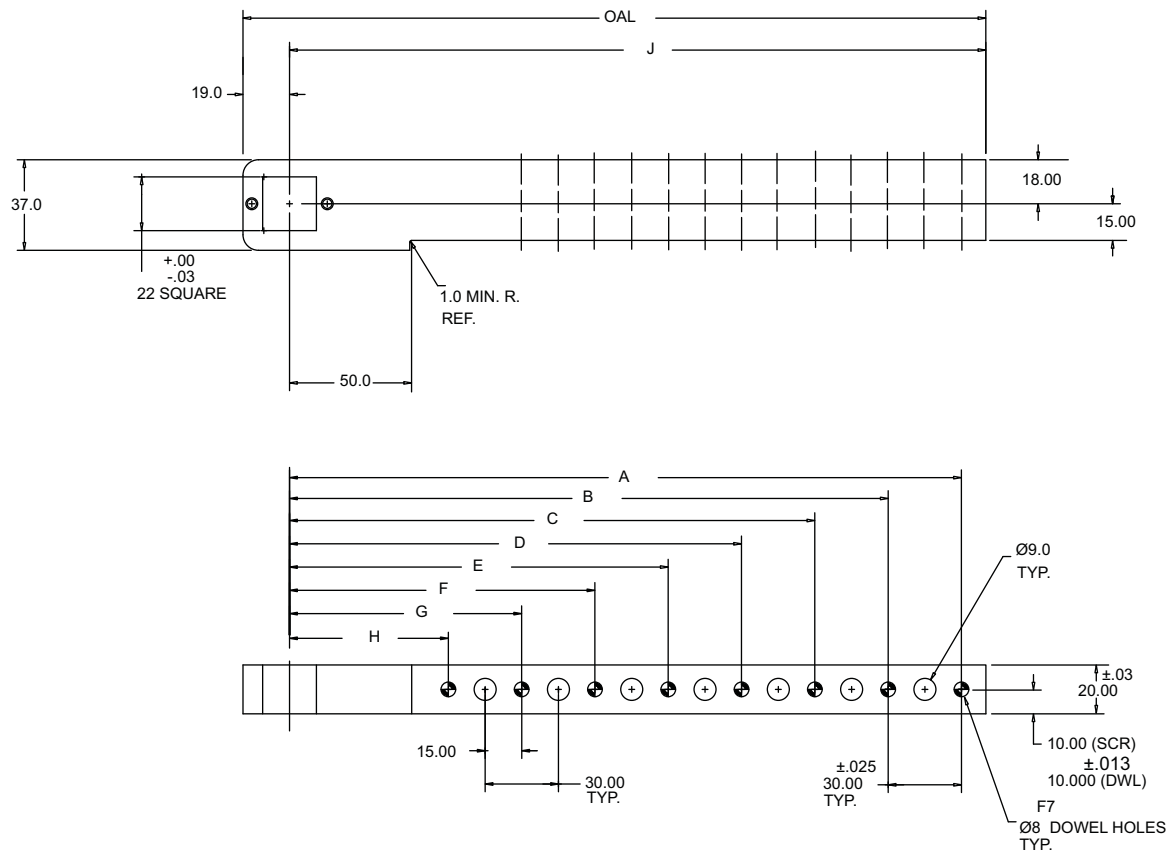
To order arms separately from a clamp, use P-EC63G with the Part Number *or* the Global Part Number.

EC63G Clamp

Rev. 001, Rev. 004



NORGREN CLAMPS



	PART No.	GLOBAL PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"J"	OAL	ARM WEIGHT KG (LB)
P-EC63G-	XGX51M	GCX007M	125.00	95.00	65.00						135.00	157.0	0.8 (1.8)
	XGX52M	GCX008M	155.00	125.00	95.00	65.00					165.00	187.0	0.9 (2.0)
	XGX53M	GCX009M	185.00	155.00	125.00	95.00	65.00				195.00	217.0	1.1 (2.4)
	XGX54M	GCX010M	215.00	185.00	155.00	125.00	95.00	65.00			225.00	247.0	1.2 (2.6)
	XGX55M	GCX011M	245.00	215.00	185.00	155.00	125.00	95.00	65.00		255.00	277.0	1.3 (2.9)
	XGX56M	GCX012M	275.00	245.00	215.00	185.00	155.00	125.00	95.00	65.00	285.00	307.0	1.5 (3.3)

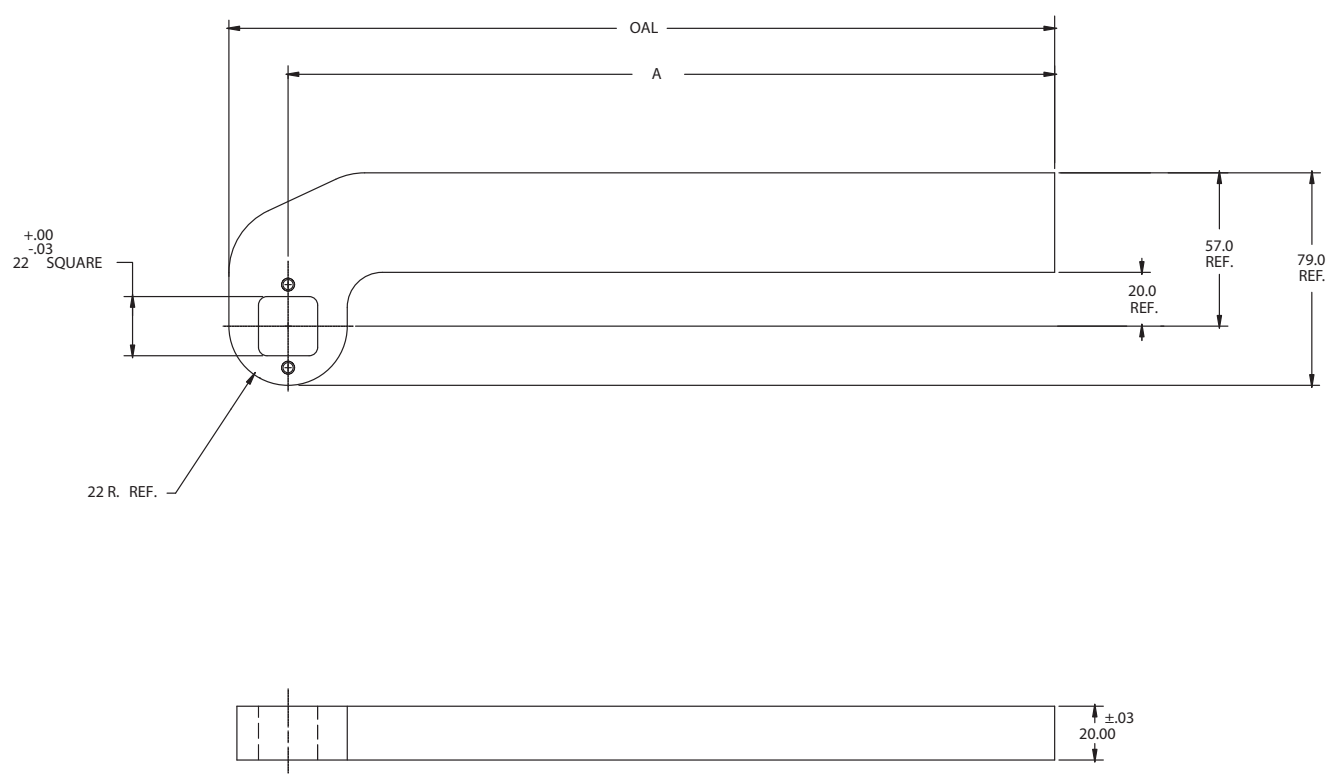


EC63G Clamp

Enclosed Global Clamp
Global Blank Blade Arm Options

NORGREN CLAMPS

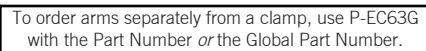
XGM90A SERIES - 20 MM OFFSET (METRIC)



	PART No.	GLOBAL PART No.	“A” (MM)	OAL (MM)	ARM WEIGHT KG (LB)
P-EC63G-	XGM91A	GCA013M	135.0	157.0	1.0 (2.2)
	XGM92A	GCA014M	165.0	187.0	1.3 (2.9)
	XGM93A	GCA015M	195.0	217.0	1.4 (3.1)
	XGM94A	GCA016M	225.0	247.0	1.6 (3.5)
	XGM95A	GCA017M	255.0	277.0	1.7 (3.7)
	XGM96A	GCA018M	285.0	307.0	1.9 (4.2)

To order arms separately from a clamp, use P-EC63G with the Part Number *or* the Global Part Number.

NORGREN CLAMPS

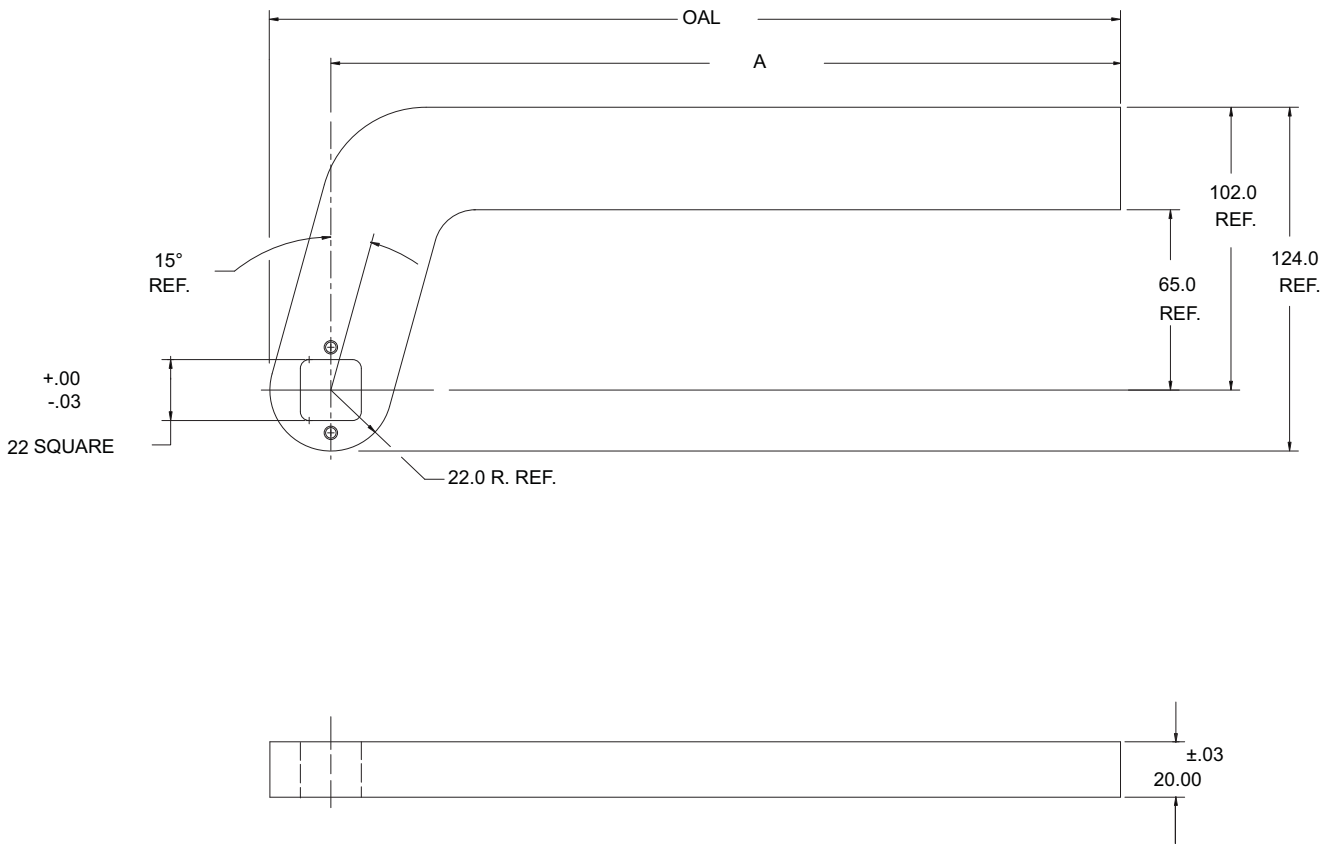


	PART No.	GLOBAL PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"J"	OAL	ARM WEIGHT KG (LB)
P-EC63G-	XGX91M	GCX019M	125.00	95.00	65.00						135.0	157.0	0.9 (2.0)
	XGX92M	GCX020M	155.00	125.00	95.00	65.00					165.0	187.0	1.0 (2.2)
	XGX93M	GCX021M	185.00	155.00	125.00	95.00	65.00				195.0	217.0	1.2 (2.6)
	XGX94M	GCX022M	215.00	185.00	155.00	125.00	95.00	65.00			225.0	247.0	1.3 (2.9)
	XGX95M	GCX023M	245.00	215.00	185.00	155.00	125.00	95.00	65.00		255.0	277.0	1.4 (3.1)
	XGX96M	GCX024M	275.00	245.00	215.00	185.00	155.00	125.00	95.00	65.00	285.0	307.0	1.6 (3.5)

EC63G Clamp
Enclosed Global Clamp
Global Blank Blade Arm Options

NORGREN CLAMPS

XGM40A SERIES - 65 MM OFFSET (METRIC)



	PART No.	GLOBAL PART NO.	"A" (MM)	OAL (MM)	ARM WEIGHT KG (LB)
P-EC63G-	XGM41A	GCA025M	135.0	157.0	1.3 (2.9)
	XGM42A	GCA026M	165.0	187.0	1.5 (3.3)
	XGM43A	GCA027M	195.0	217.0	1.7 (3.7)
	XGM44A	GCA028M	225.0	247.0	1.9 (4.2)
	XGM45A	GCA029M	255.0	277.0	2.0 (4.4)
	XGM46A	GCA030M	285.0	307.0	2.2 (4.8)

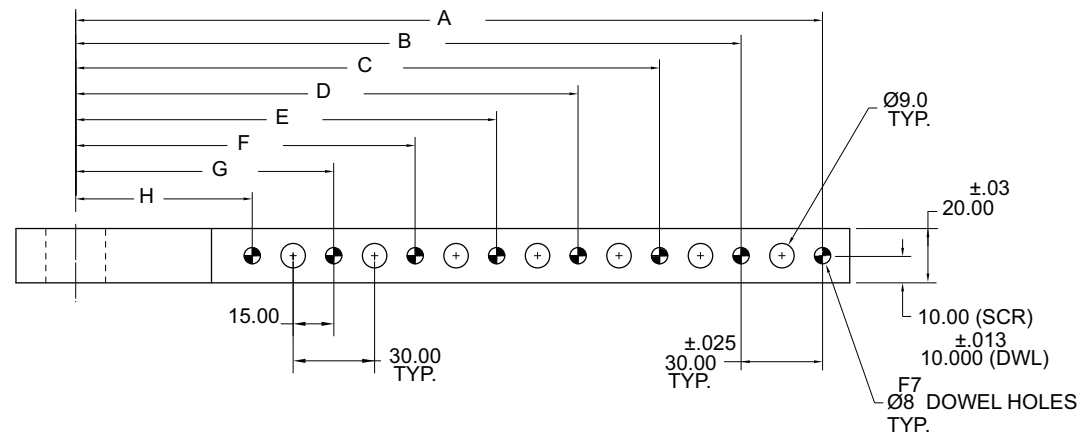
To order arms separately from a clamp, use P-EC63G with the Part Number or the Global Part Number.

EC63G Clamp

Rev. 001



NORGREN CLAMPS



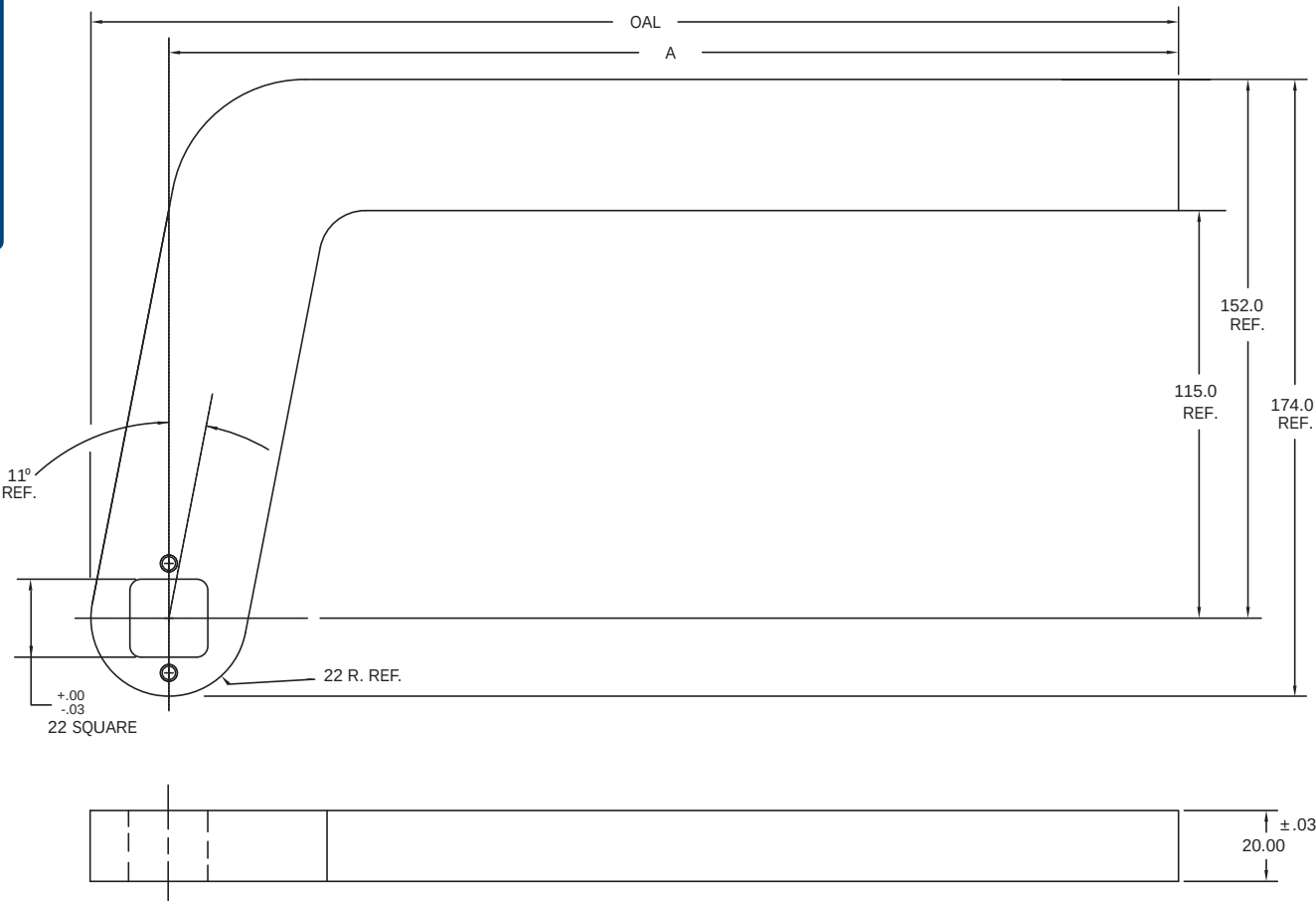
To order arms separately from a clamp, use P-EC63G with the Part Number *or* the Global Part Number.

EC63G Clamp

Enclosed Global Clamp
Global Blank Blade Arm Mounting Options

NORGREN CLAMPS

XGM60A SERIES - 115 MM OFFSET (METRIC)



	PART No.	GLOBAL PART No.	"A" (MM)	OAL (MM)	ARM WEIGHT KG (LB)
P-EC63G-	XGM61A	GCA037M	135.0	157.0	1.6 (3.5)
	XGM62A	GCA038M	165.0	187.0	1.8 (4.0)
	XGM63A	GCA039M	195.0	217.0	2.0 (4.4)
	XGM64A	GCA040M	225.0	247.0	2.1 (4.6)
	XGM65A	GCA041M	255.0	277.0	2.3 (5.1)
	XGM66A	GCA042M	285.0	307.0	2.5 (5.5)

To order arms separately from a clamp, use P-EC63G with the Part Number or the Global Part Number.

EC63G Clamp

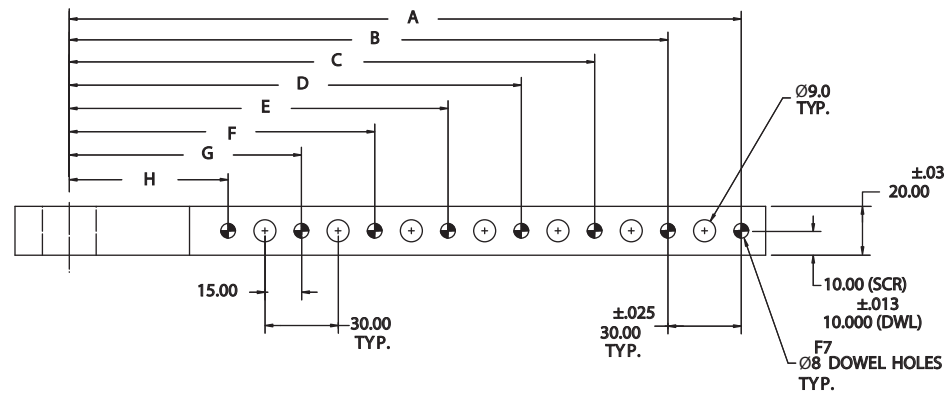
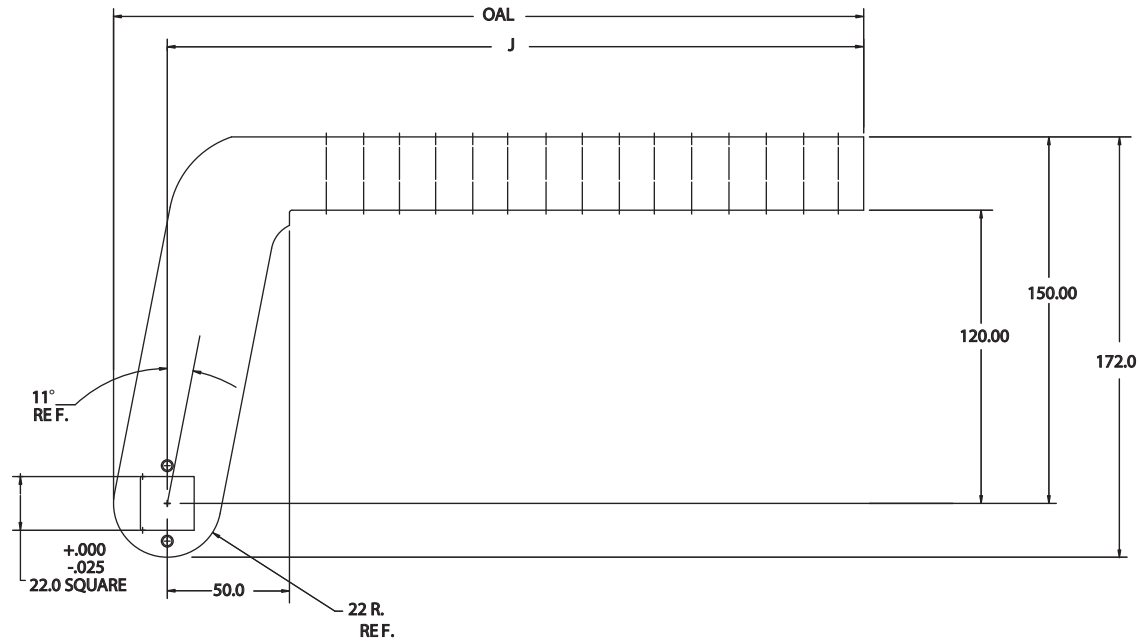
Rev. 001



EC63G Clamp

Enclosed Global Clamp
Global Machined Blade Arm Options

XGM60M SERIES - 120 MM OFFSET (METRIC)



PART No.	GLOBAL PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"J"	OAL	ARM WEIGHT KG (LB)
P-EC63G	XGX61M GCX043M	125.00	95.00	65.00						135.0	157.0	1.5 (3.3)
	XGX62M GCX044M	155.00	125.00	95.00	65.00					165.0	187.0	1.6 (3.5)
	XGX63M GCX045M	185.00	155.00	125.00	95.00	65.00				195.0	217.0	1.7 (3.7)
	XGX64M GCX046M	215.00	185.00	155.00	125.00	95.00	65.00			225.0	247.0	1.8 (4.0)
	XGX65M GCX047M	245.00	215.00	185.00	155.00	125.00	95.00	65.00		255.0	277.0	2.0 (4.4)
	XGX66M GCX048M	275.00	245.00	215.00	185.00	155.00	125.00	95.00	65.00	285.0	307.0	2.1 (4.6)

To order arms separately from a clamp, use P-EC63G with the Part Number or the Global Part Number.

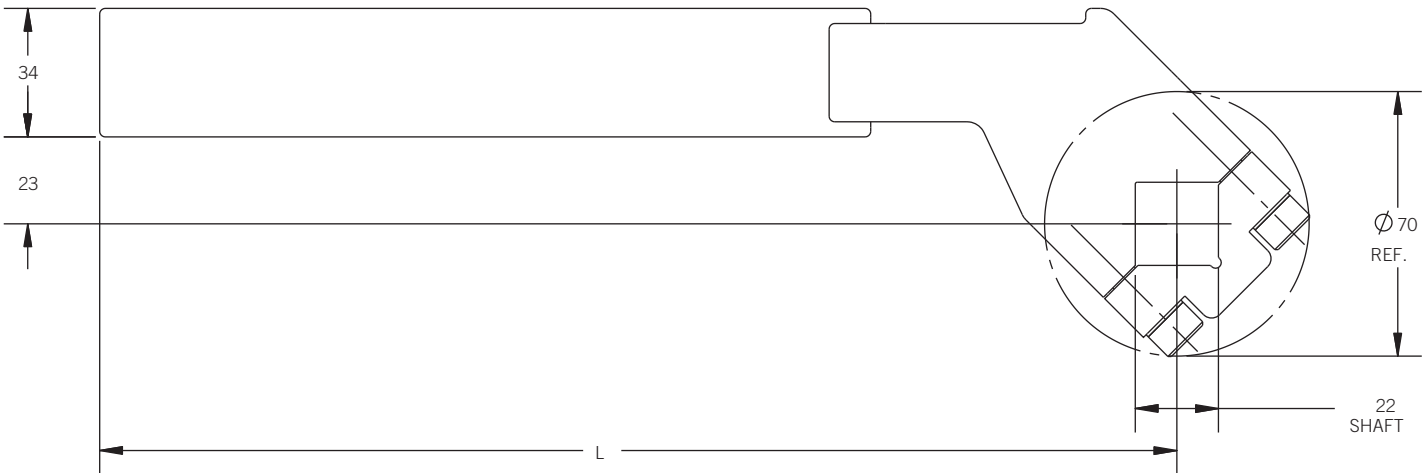
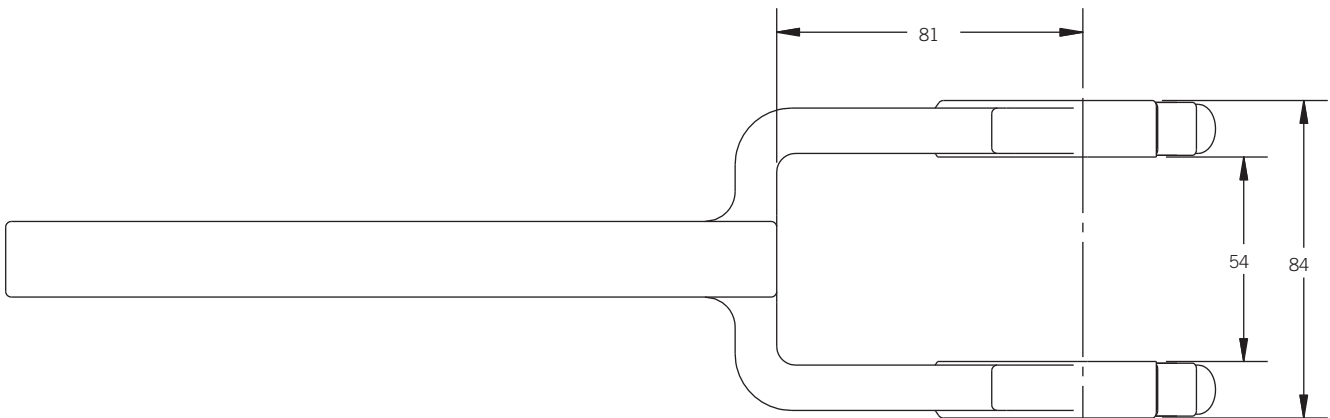
NORGREN CLAMPS

EC63G Clamp

Enclosed Global Clamp
Blank Wishbone Arm Options

NORGREN CLAMPS

WA6 SERIES - 23 MM OFFSET (METRIC)

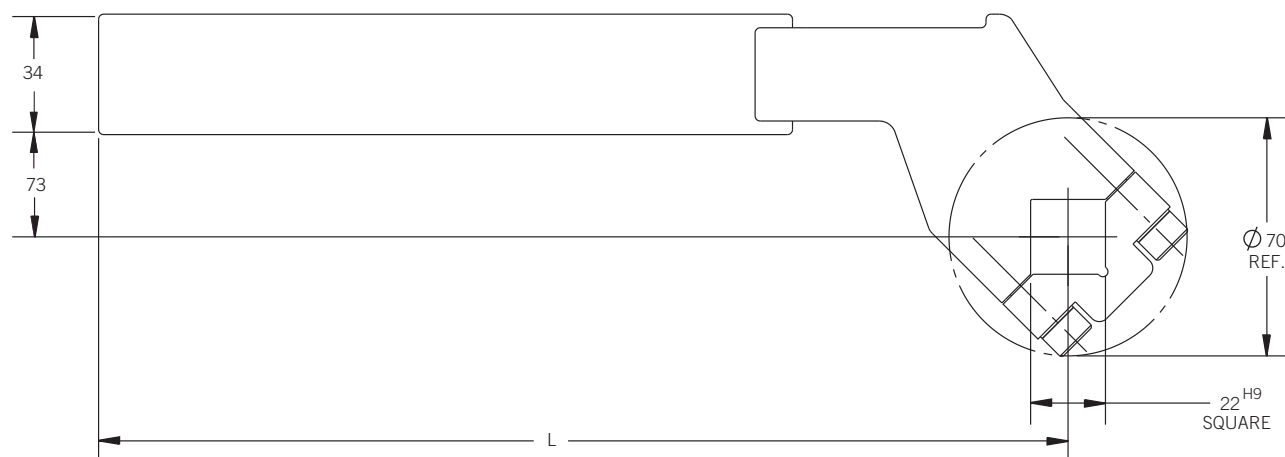
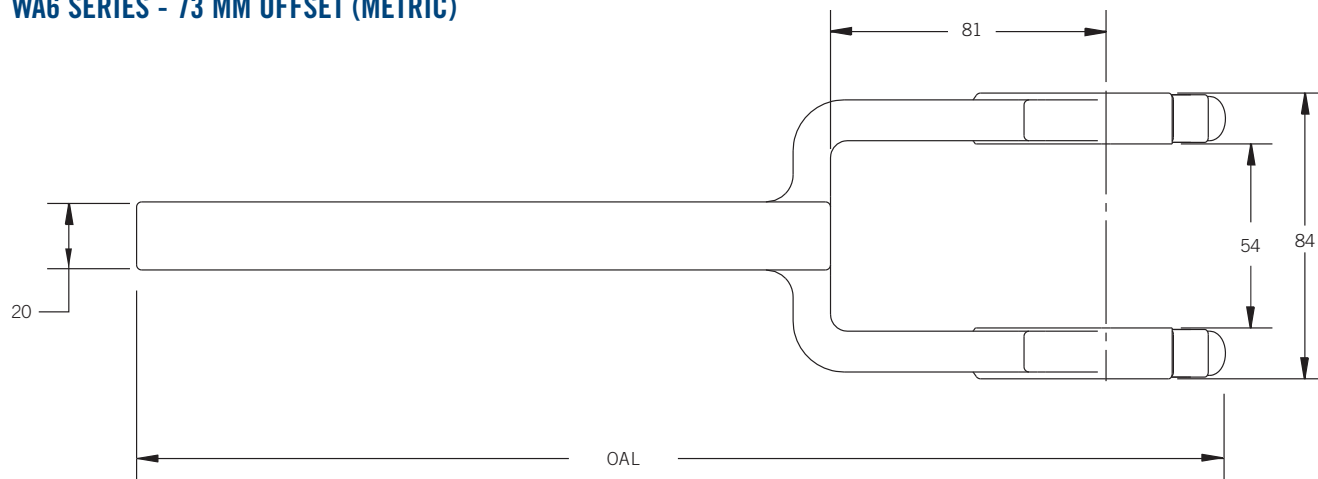


PART No.	"L"	OAL	ARM WEIGHT KG (LB)
WA6025135	135.0	170	1.4 (3.0)
WA6025165	165.0	200	1.6 (3.4)
WA6025195	195.0	230	1.7 (3.7)
WA6025225	225.0	260	1.9 (4.1)
WA6025255	255.0	290	2.0 (4.5)
WA6025285	285.0	320	2.2 (4.8)

EC63G Clamp

Enclosed Global Clamp
Blank Wishbone Arm Options

WA6 SERIES - 73 MM OFFSET (METRIC)



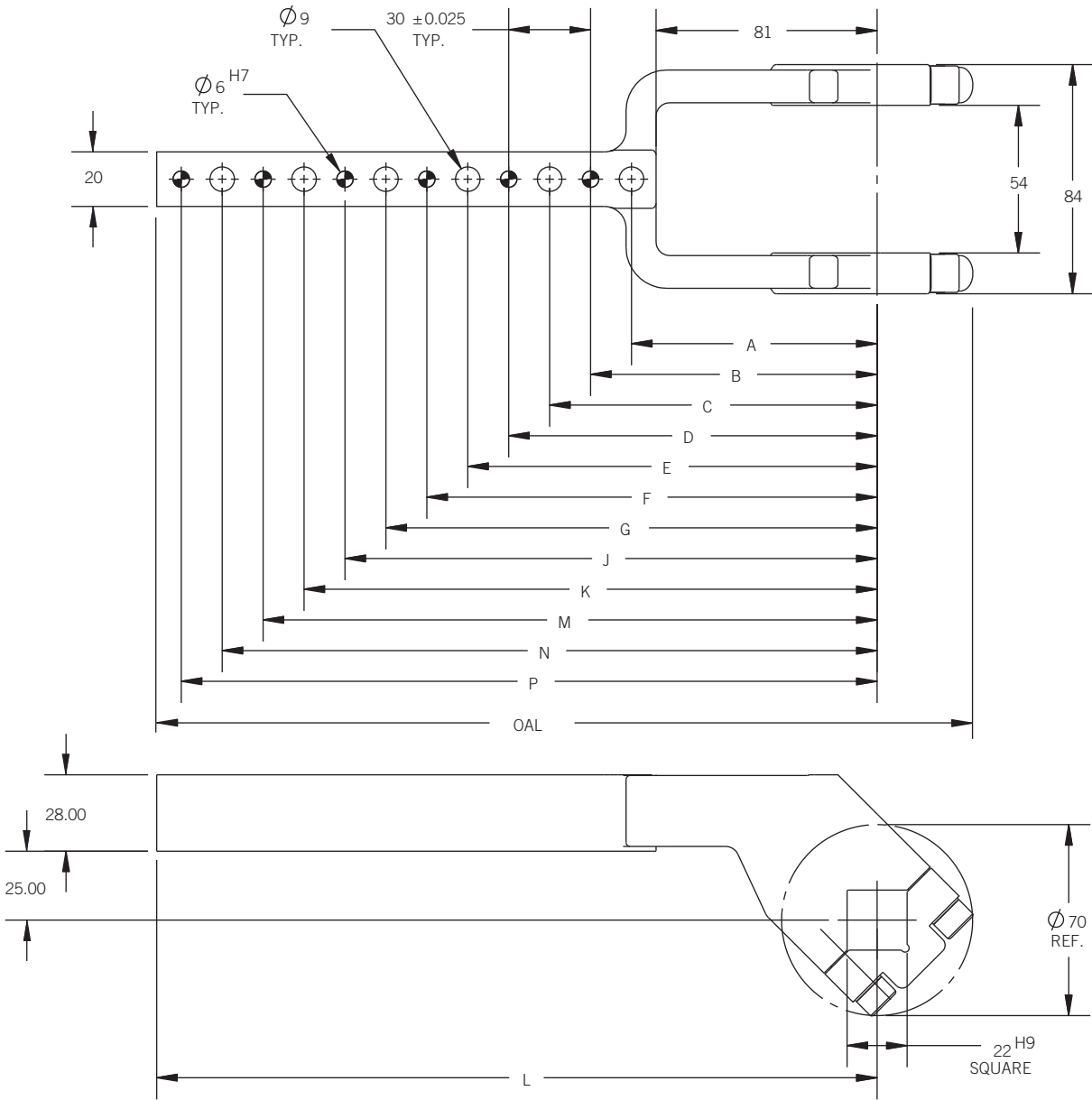
PART No.	"L"	OAL	ARM WEIGHT KG (LB)
WA6075135	135.0	170	1.6 (3.5)
WA6075165	165.0	200	1.8 (3.9)
WA6075195	195.0	230	1.9 (4.2)
WA6075225	225.0	260	2.1 (4.6)
WA6075255	255.0	290	2.3 (5.0)
WA6075285	285.0	320	2.4 (5.3)

EC63G Clamp

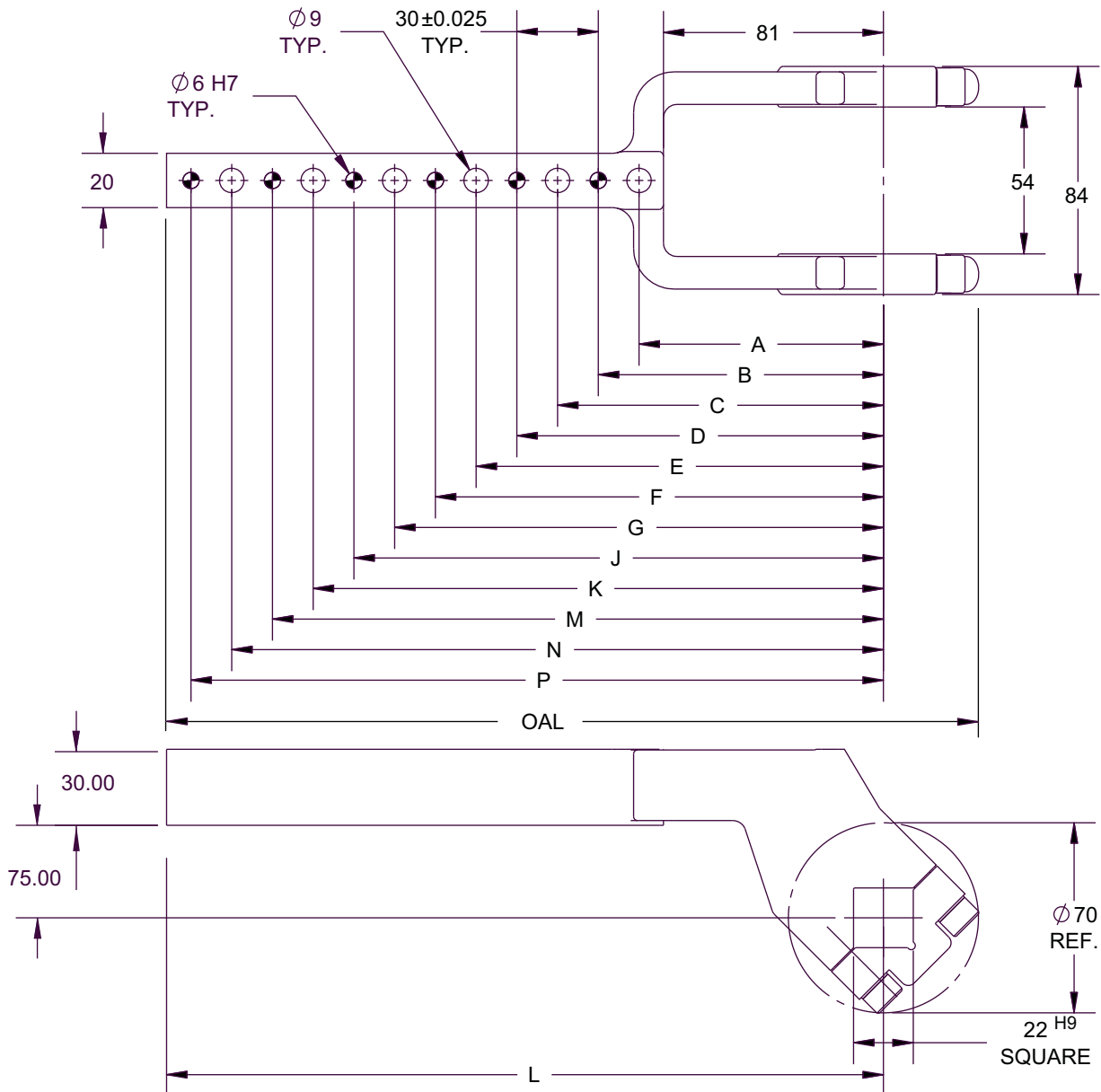
Enclosed Global Clamp
Euro Machined Wishbone Arm Options

NORGREN CLAMPS

WG6 SERIES - 25 MM OFFSET (METRIC)



PART No.	"A"	"B" DOWEL	"C"	"D" DOWEL	"E"	"F" DOWEL	"G"	"J" DOWEL	"K"	"M" DOWEL	"N"	"P" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WG6025144	90	105	120	135	-	-	-	-	-	-	-	-	144	179	1.3 (2.9)
WG6025204	90	105	120	135	150	165	180	195	-	-	-	-	204	239	1.6 (3.4)
WG6025264	90	105	120	135	150	165	180	195	210	225	240	255	264	299	1.8 (3.9)

EC63G ClampEnclosed Global Clamp
Euro Machined Wishbone Arm Options**WG6 SERIES - 75 MM OFFSET (METRIC)**

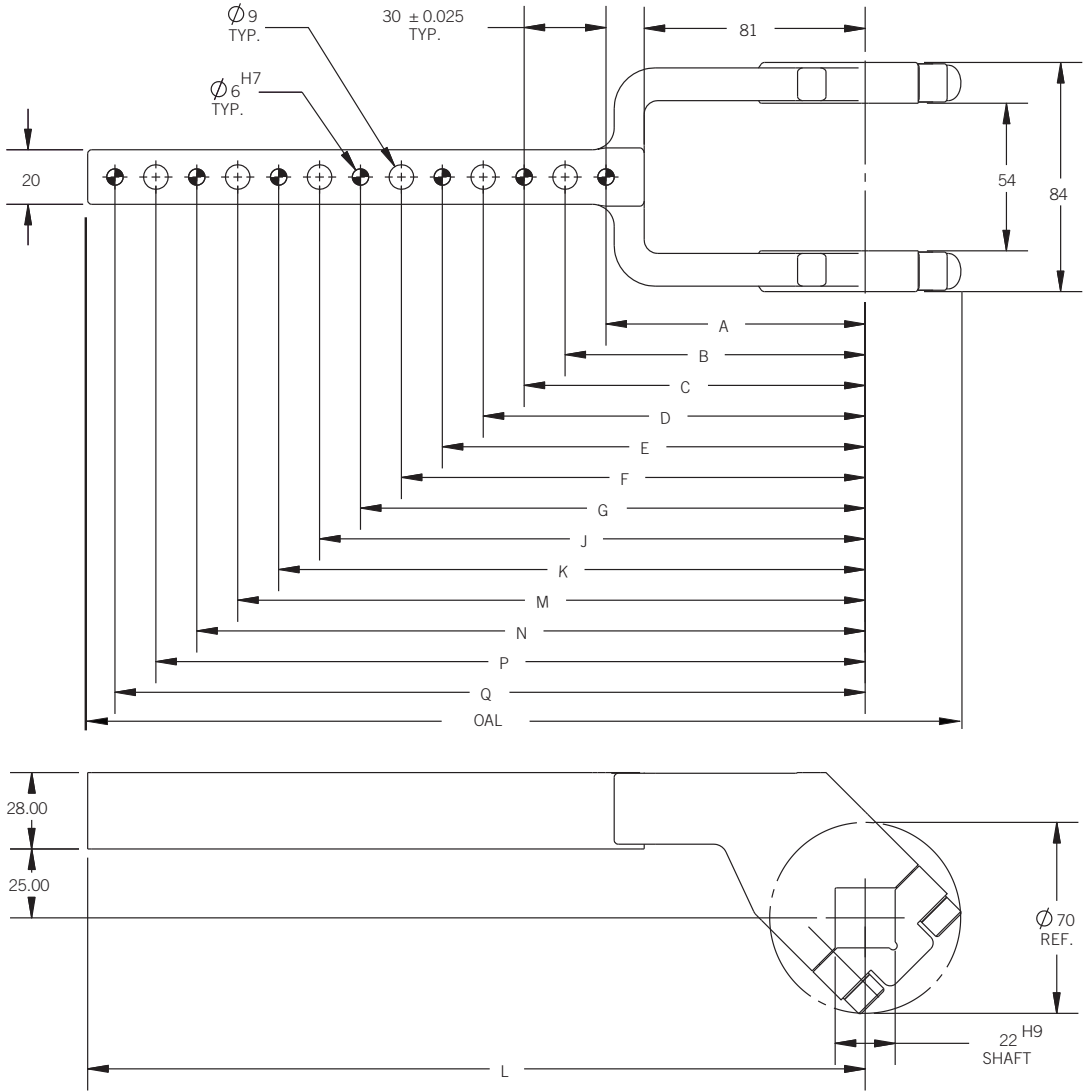
NORGREN CLAMPS

PART No.	"A"	"B" DOWEL	"C"	"D" DOWEL	"E"	"F" DOWEL	"G"	"J" DOWEL	"K"	"M" DOWEL	"N"	"P" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WG6075144	90	105	120	135	-	-	-	-	-	-	-	-	144	179	1.6 (3.5)
WG6075204	90	105	120	135	150	165	180	195	-	-	-	-	204	239	1.8 (4.0)
WG6075264	90	105	120	135	150	165	180	195	210	225	240	255	264	299	2.0 (4.5)

EC63G Clamp
Enclosed Global Clamp
Global Machined Wishbone Arm Options

NORGREN CLAMPS

WN6 SERIES - 25 MM OFFSET (METRIC)



PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"J" DOWEL	"K" DOWEL	"M" DOWEL	"N" DOWEL	"P" DOWEL	"Q" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WN6025135	95	110	125	-	-	-	-	-	-	-	-	-	-	135	170	1.3 (2.8)
WN6025165	95	110	125	140	155	-	-	-	-	-	-	-	-	165	200	1.4 (3.1)
WN6025195	95	110	125	140	155	170	185	-	-	-	-	-	-	195	230	1.5 (3.3)
WN6025225	95	110	125	140	155	170	185	200	215	-	-	-	-	225	260	1.6 (3.6)
WN6025255	95	110	125	140	155	170	185	200	215	230	245	-	-	255	290	1.7 (3.8)
WN6025285	95	110	125	140	155	170	185	200	215	230	245	260	275	285	320	1.8 (4.0)

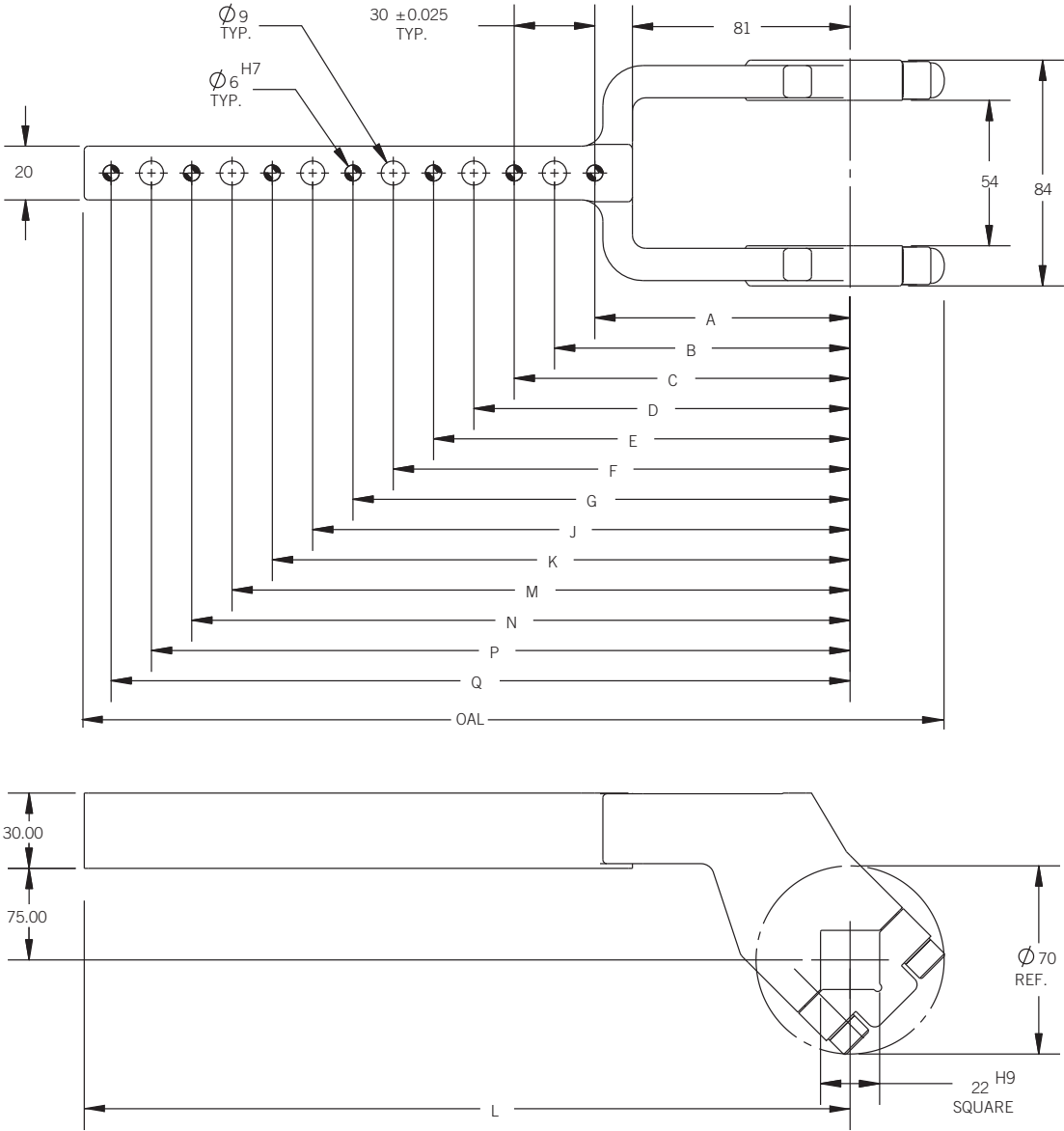
EC63G Clamp

Rev. 001



EC63G Clamp
Enclosed Global Clamp
Global Machined Wishbone Arm Options

WN6 SERIES - 75 MM OFFSET (METRIC)



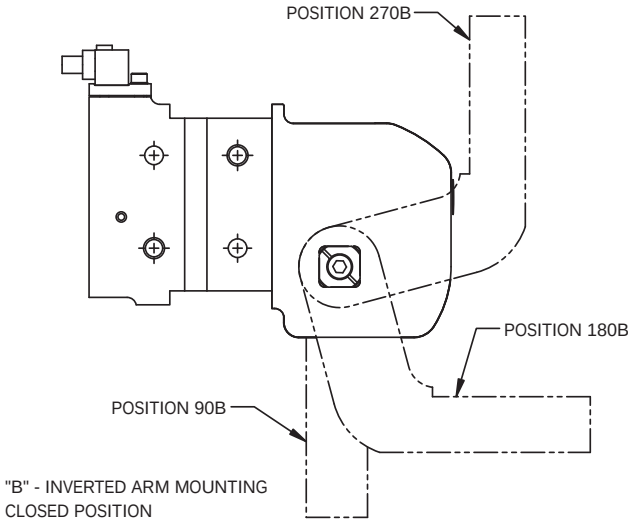
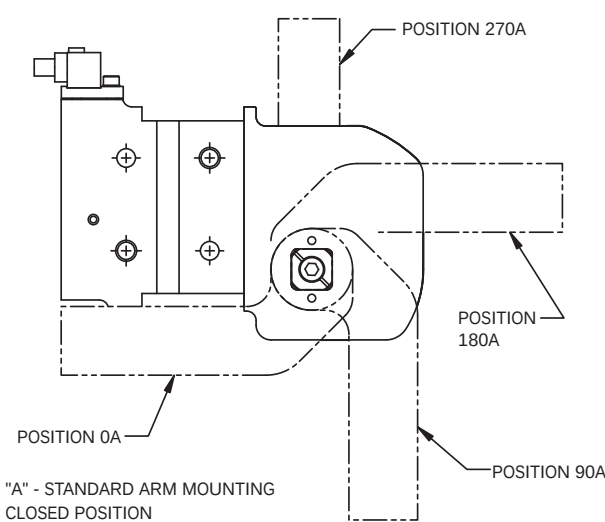
NORGREN CLAMPS

PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"J" DOWEL	"K" DOWEL	"M" DOWEL	"N" DOWEL	"P" DOWEL	"Q" DOWEL	"L"	OAL	ARM WEIGHT KG (LB)
WN6075135	95	110	125	-	-	-	-	-	-	-	-	-	-	135	170	1.6 (3.4)
WN6075165	95	110	125	140	155	-	-	-	-	-	-	-	-	165	200	1.7 (3.7)
WN6075195	95	110	125	140	155	170	185	-	-	-	-	-	-	195	230	1.8 (3.9)
WN6075225	95	110	125	140	155	170	185	200	215	-	-	-	-	225	260	1.9 (4.2)
WN6075255	95	110	125	140	155	170	185	200	215	230	245	-	-	255	290	2.0 (4.4)
WN6075285	95	110	125	140	155	170	185	200	215	230	245	260	275	285	320	2.1 (4.7)

EC63G Clamp

Enclosed Global Clamp
Arm Position Options

NORGREN CLAMPS

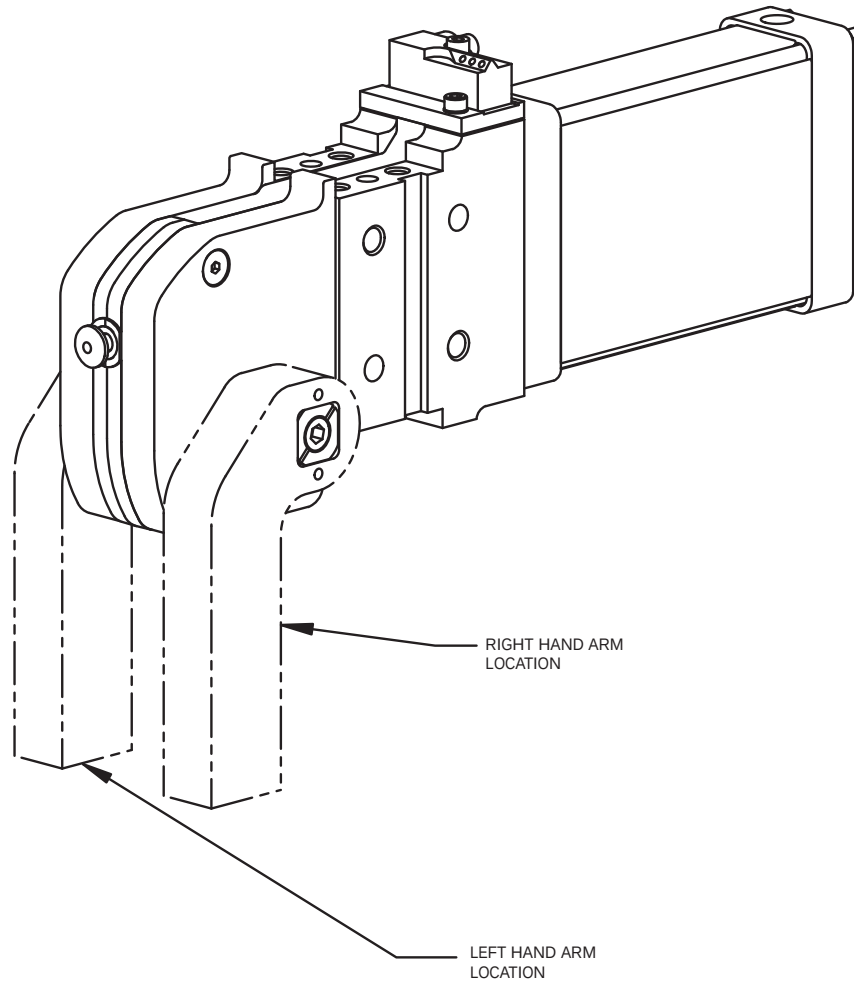


MAX. OPENING ANGLE, DEGREE			
NORGREN ARM STYLES	MOUNTING POSITION	MAXIMUM OPENING ANGLE	
		A-STANDARD	B-INVERTED
XG40 SERIES BLADE ARM 70MM OFFSET	0	135	-
	90	115	-
	180	25	135
	270	-	70
XG50 SERIES BLADE ARM 0MM OFFSET	0	-	-
	90	135	135
	180	100	100
	270	10	10
XG60 SERIES BLADE ARM 120MM OFFSET	0	135	-
	90	110	-
	180	20	135
	270	-	85
XG90 SERIES BLADE ARM 25MM OFFSET	0	135	-
	90	135	-
	180	60	130
	270	-	40
WISHBONE ARM 25MM OFFSET	0	-	-
	90	135	-
	180	65	120
	270	-	30
WISHBONE ARM 75MM OFFSET	0	-	-
	90	135	-
	180	65	135
	270	-	65

EC63G Clamp

Enclosed Global Clamp
Arm Mounting Options

NORGREN CLAMPS



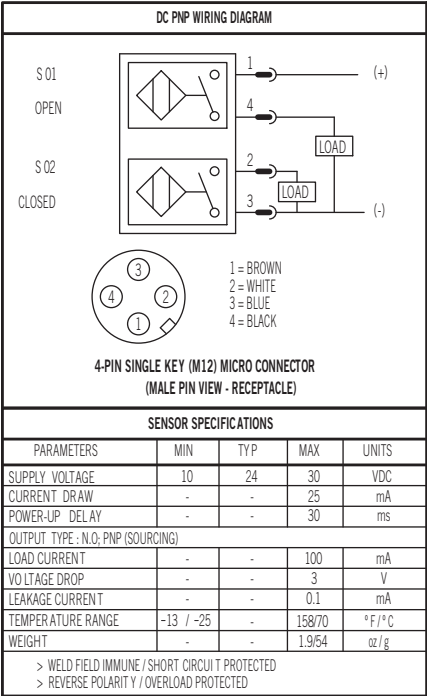
EC63G Clamp

Enclosed Global Clamp

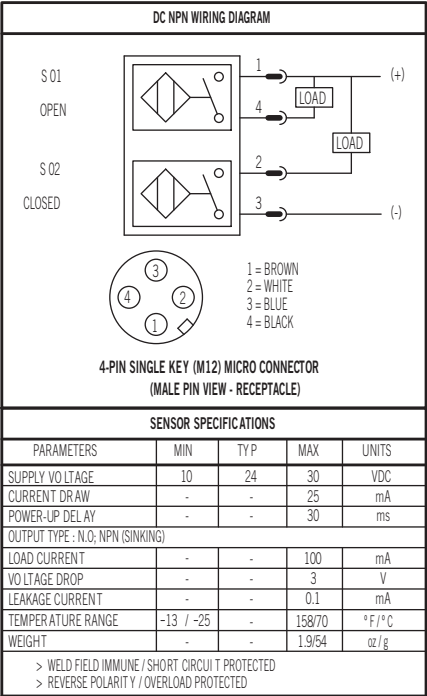
Sensing Options

NORGREN CLAMPS

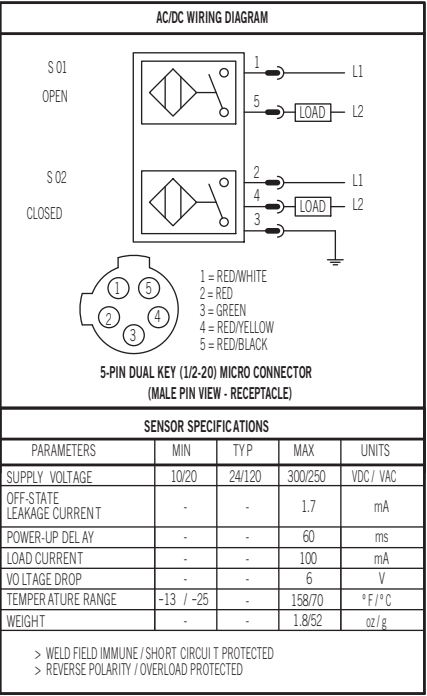
SCHEMATIC FOR P&F OR TURCK
SENSOR PNP



SCHEMATIC FOR TURCK DC
SENSOR NPN



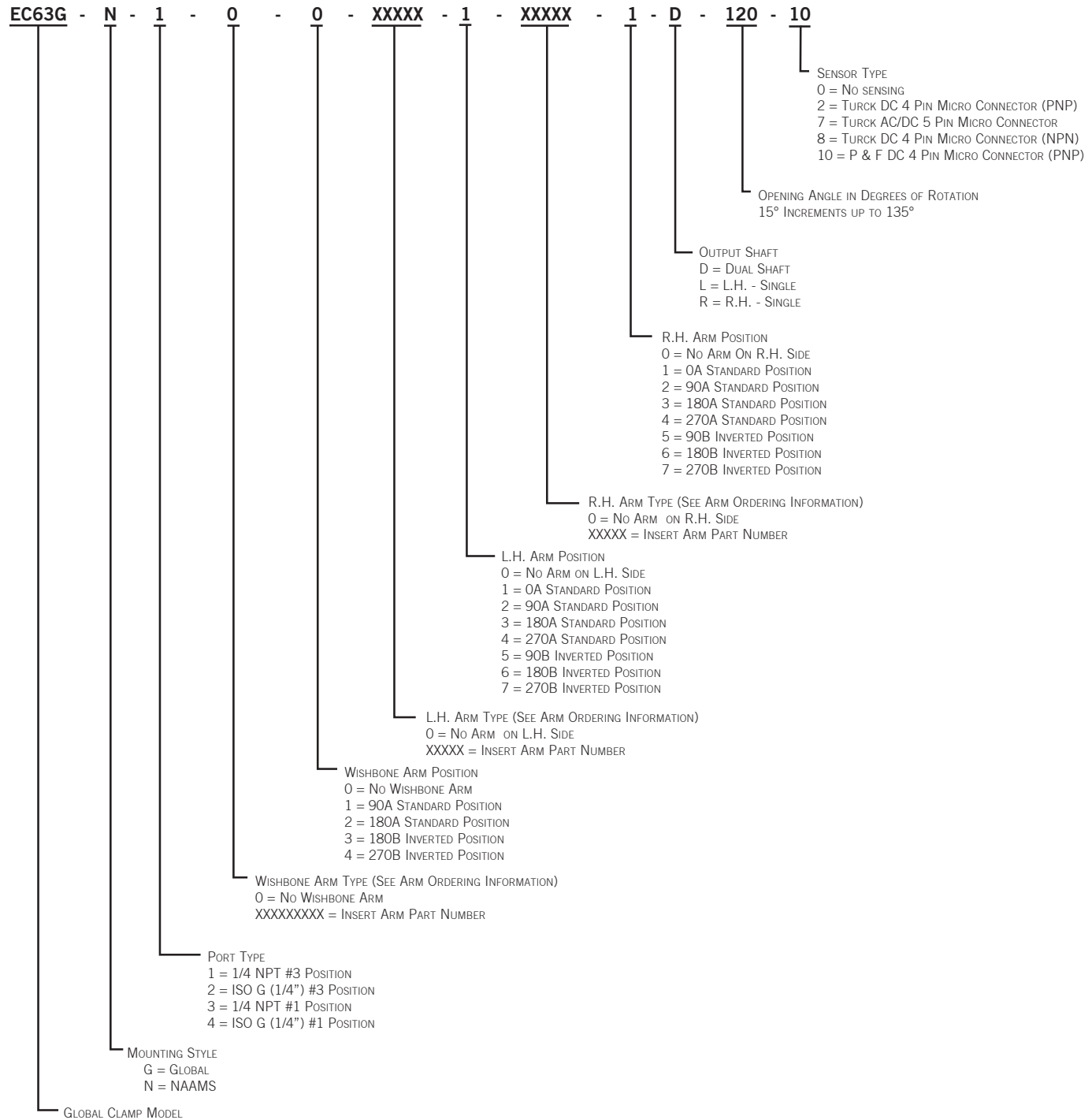
SCHEMATIC FOR TURCK AC/DC SENSOR



EC63G Clamp

Enclosed Global Clamp
Ordering Information

NORGREN CLAMPS

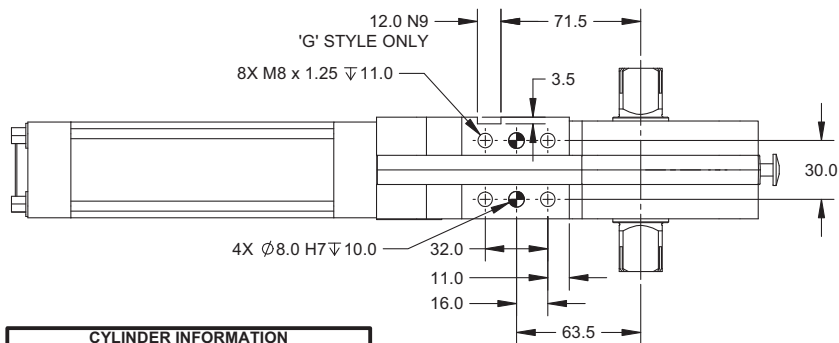
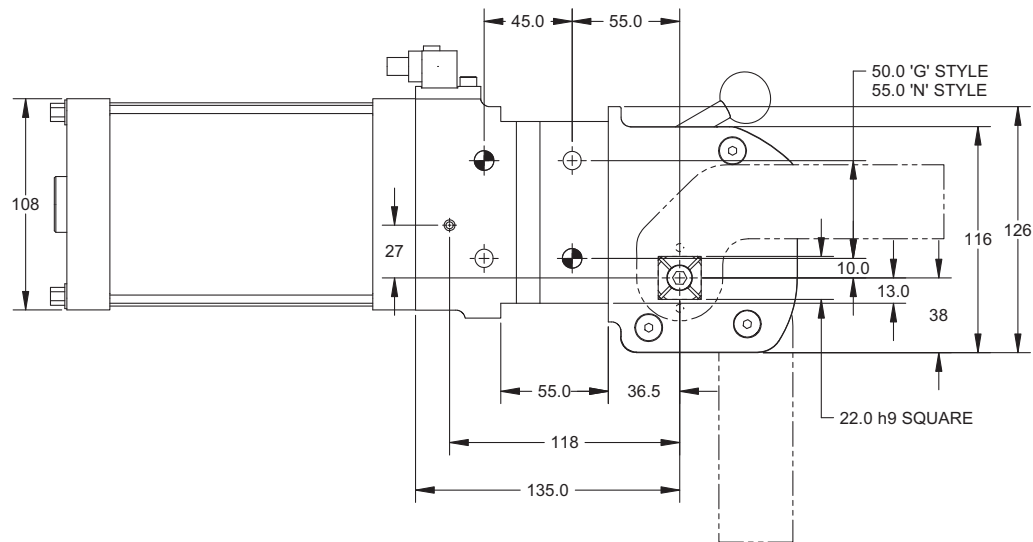
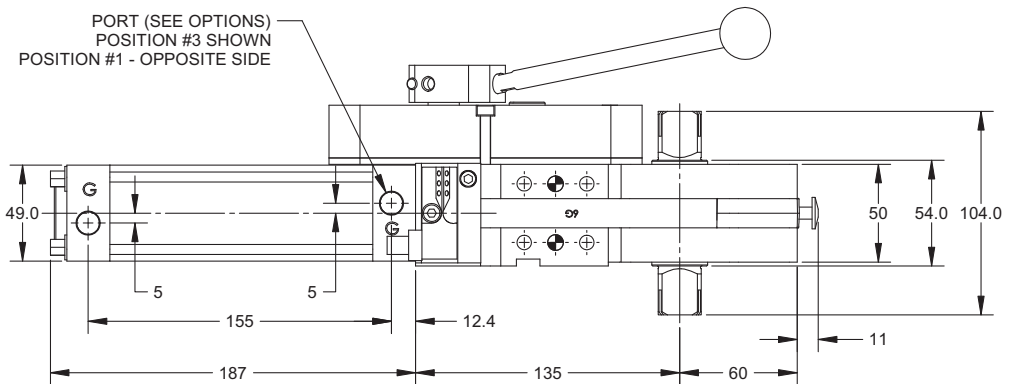


EC63MG Global Clamp

Enclosed Manual Global Clamp

Dimensions

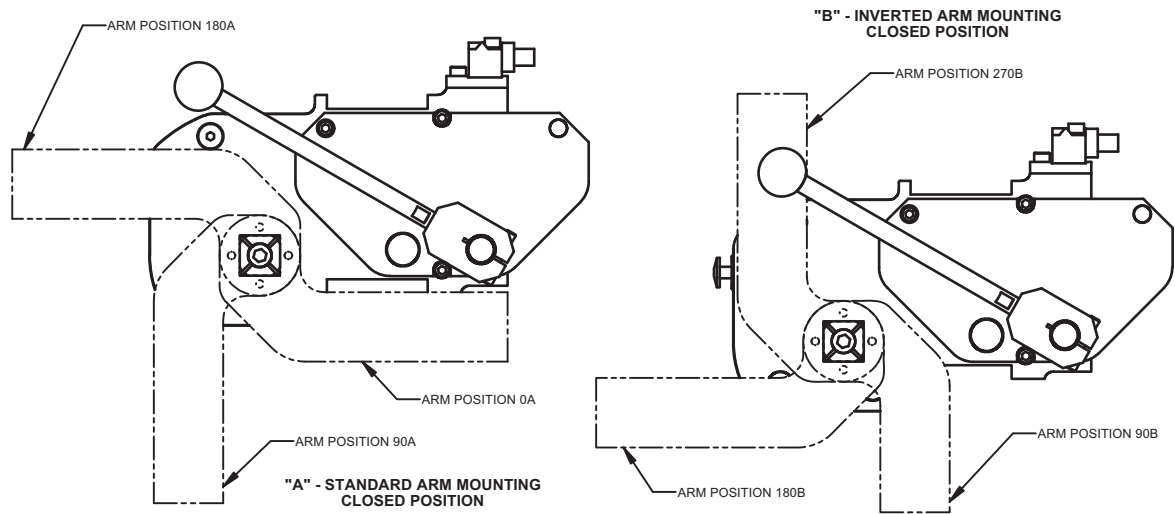
NORGREN CLAMPS



CYLINDER INFORMATION		
OPENING ANGLE (DEGREES)	CYLINDER STROKE	AREA
15	21.8	3110 mm ² (4.820 in ²)
30	32.8	
45	42.1	
60	51.3	
75	60.7	
90	70.3	
105	80.0	
120	88.9	

EC63MG Global Clamp

Enclosed Manual Global Clamp
Arm Mounting Options



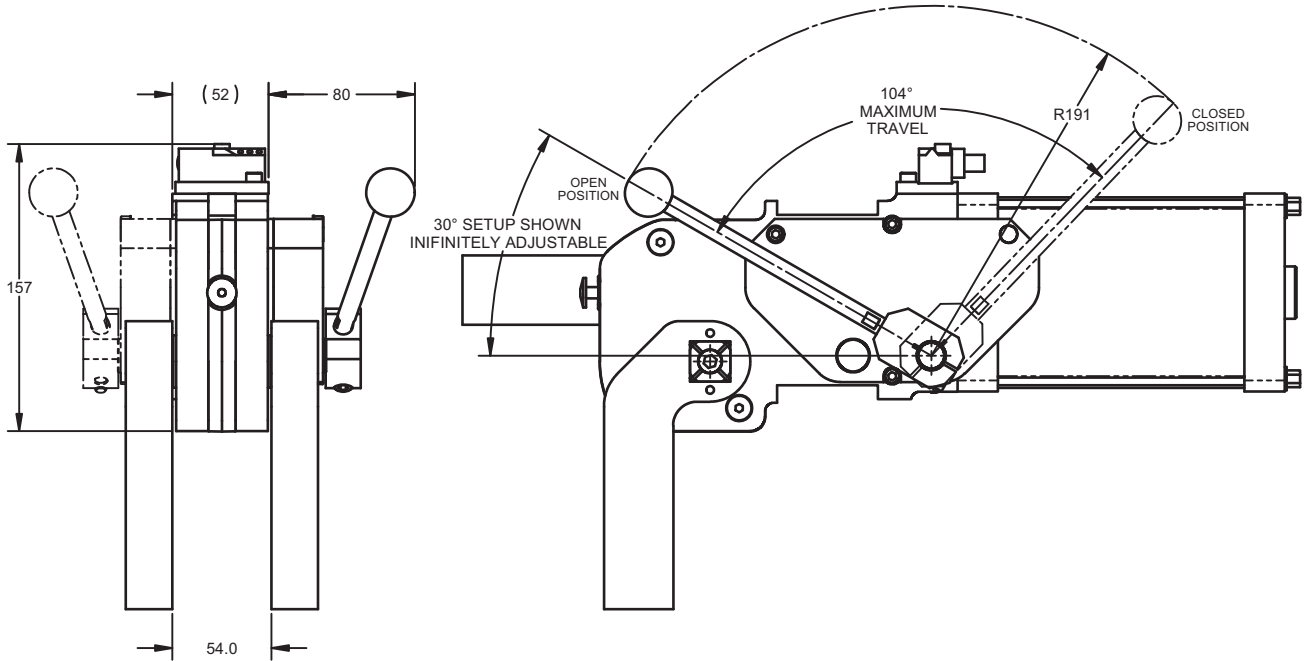
NORGREN CLAMPS

HANDLE OPENING INFORMATION	
CLAMP ARM OPENING ANGLE (DEGREES)	HANDLE TRAVEL (DEGREES)
15	30
30	40
45	47
60	56
75	65
90	77
105	90
120	104

EC63MG Global Clamp

Enclosed Manual Global Clamp
Handle Mounting Configurations

NORGREN CLAMPS

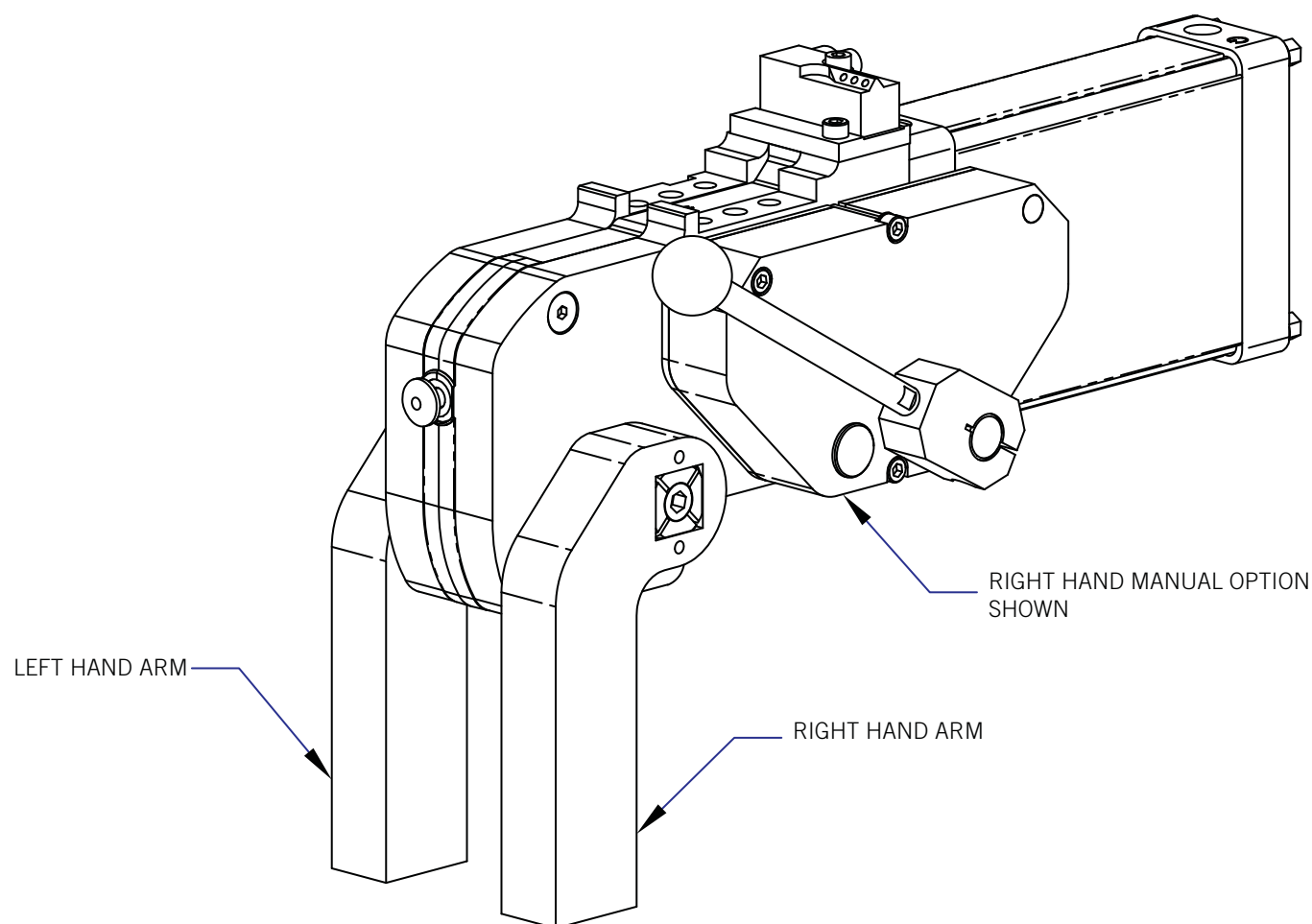


HANDLE OPENING INFORMATION	
CLAMP ARM OPENING ANGLE (DEGREES)	HANDLE TRAVEL (DEGREES)
15	30
30	40
45	47
60	56
75	65
90	77
105	90
120	104

EC63MG Global Clamp

Enclosed Manual Global Clamp
Arm Mounting Options

NORGREN CLAMPS



EC63MG Global Clamp

Enclosed Manual Global Clamp
Sensing Options

NORGREN CLAMPS

SCHEMATIC FOR P&F OR TURCK SENSOR PNP

DC PNP WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

SENSOR SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE : N.O. PNP (SOURCING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / +25	-	158/70	°F / °C
WEIGHT	-	-	1.9/54	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

SCHEMATIC FOR TURCK DC SENSOR NPN

DC NPN WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

SENSOR SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE : N.O. NPN (SINKING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / +25	-	158/70	°F / °C
WEIGHT	-	-	1.9/54	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

SCHEMATIC FOR TURCK AC/DC SENSOR

AC/DC WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED

1 = RED/WHITE
2 = RED
3 = GREEN
4 = RED/YELLOW
5 = RED/BLACK

5-PIN DUAL KEY (1/2-20) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

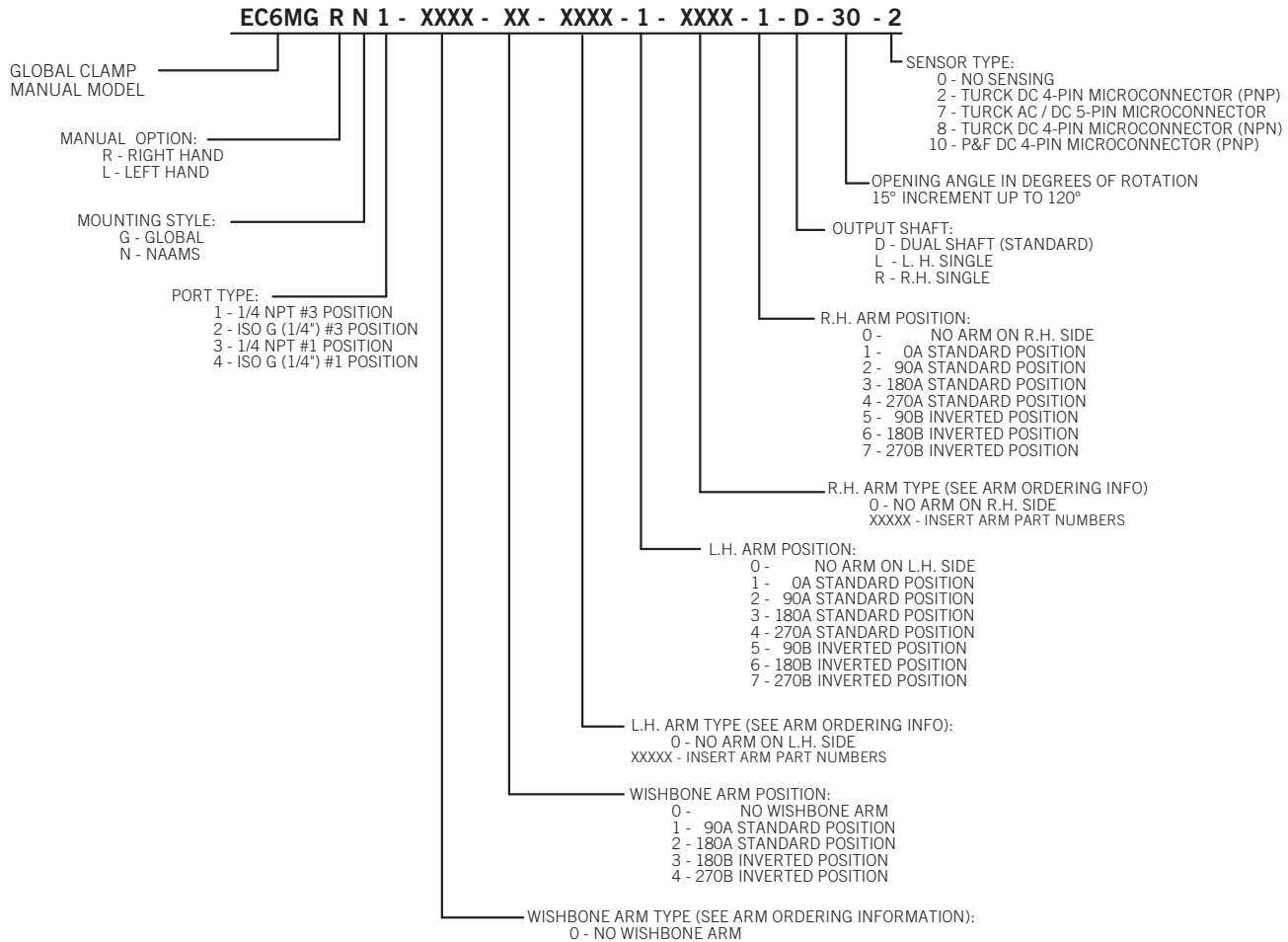
SENSOR SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10/20	24/120	300/250	VDC / VAC
OFF-STATE LEAKAGE CURRENT	-	-	1.7	mA
POWER-UP DELAY	-	-	60	ms
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	6	V
TEMPERATURE RANGE	-13 / +25	-	158/70	°F / °C
WEIGHT	-	-	1.8/52	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

EC63MG Global Clamp

Enclosed Manual Global Clamp
Ordering Information



NORGREN CLAMPS

EC91G Global Clamp

Improved!

NORGREN CLAMPS

FEATURES

- ▶ Oval Cylinder - Low profile, non-rotating
- ▶ Satisfies Global Mounting and NAAMS Standards: Blade mounting and Foot mounting.
- ▶ Integral Sensing Switch - Low profile cartridge requires only one cable.
- ▶ Before center locking mechanism is wear compensating for ultimate position repeatability.
- ▶ Remains locked even after loss of air pressure.
- ▶ Manual release button to open mechanism without air pressure.
- ▶ Adjustable stroke plug. No need to replace cylinder tubes and tie rods to change stroke
- ▶ Integral cushions to reduce impact at end positions

TECHNICAL DATA

- ▶ Fluid: Compressed Air
Note: Air supply must be dry enough to prevent ice formation at temperatures below 2° C (35° F).
- ▶ Air Pressure:
Minimum 2.75 bar (40 psi)
Maximum 8 bar (120 psi)
- ▶ Air Filtration:
40 Micron filter
- ▶ Operating Temperature:
0° C (32° F) to 70° C (158° F)

MATERIALS

- ▶ Clamp Head: Steel
- ▶ Sensing Cover: Steel
- ▶ Cylinder Seals: Nitrile

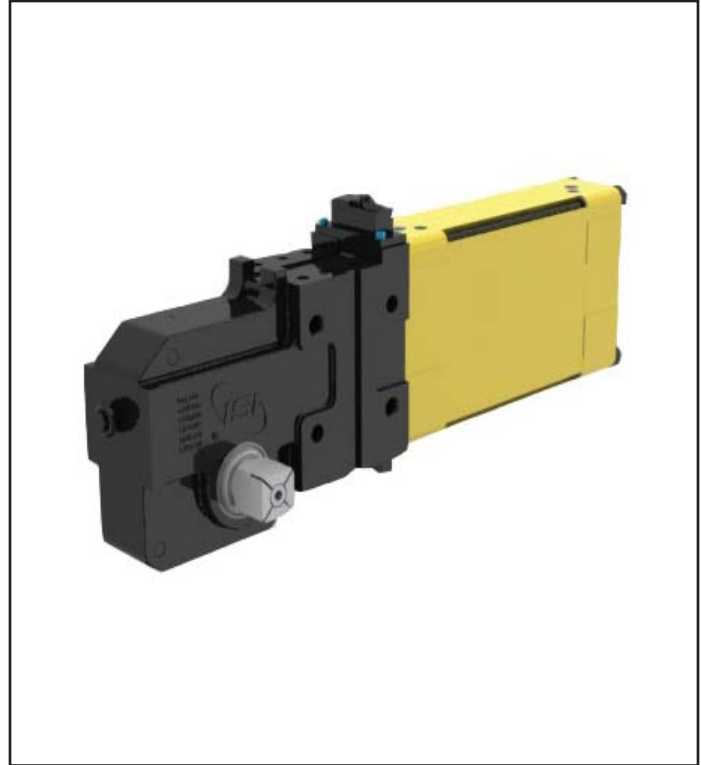
SPECIFICATIONS

- ▶ Cylinder Bore Area: 5720 mm² (8.86 in²)
- ▶ Clamp Weight excluding arms:
20.2 kg (44.5 lbs.)

Consult Application Charts for mass and velocity limitations.

Flow controls are required for this model.

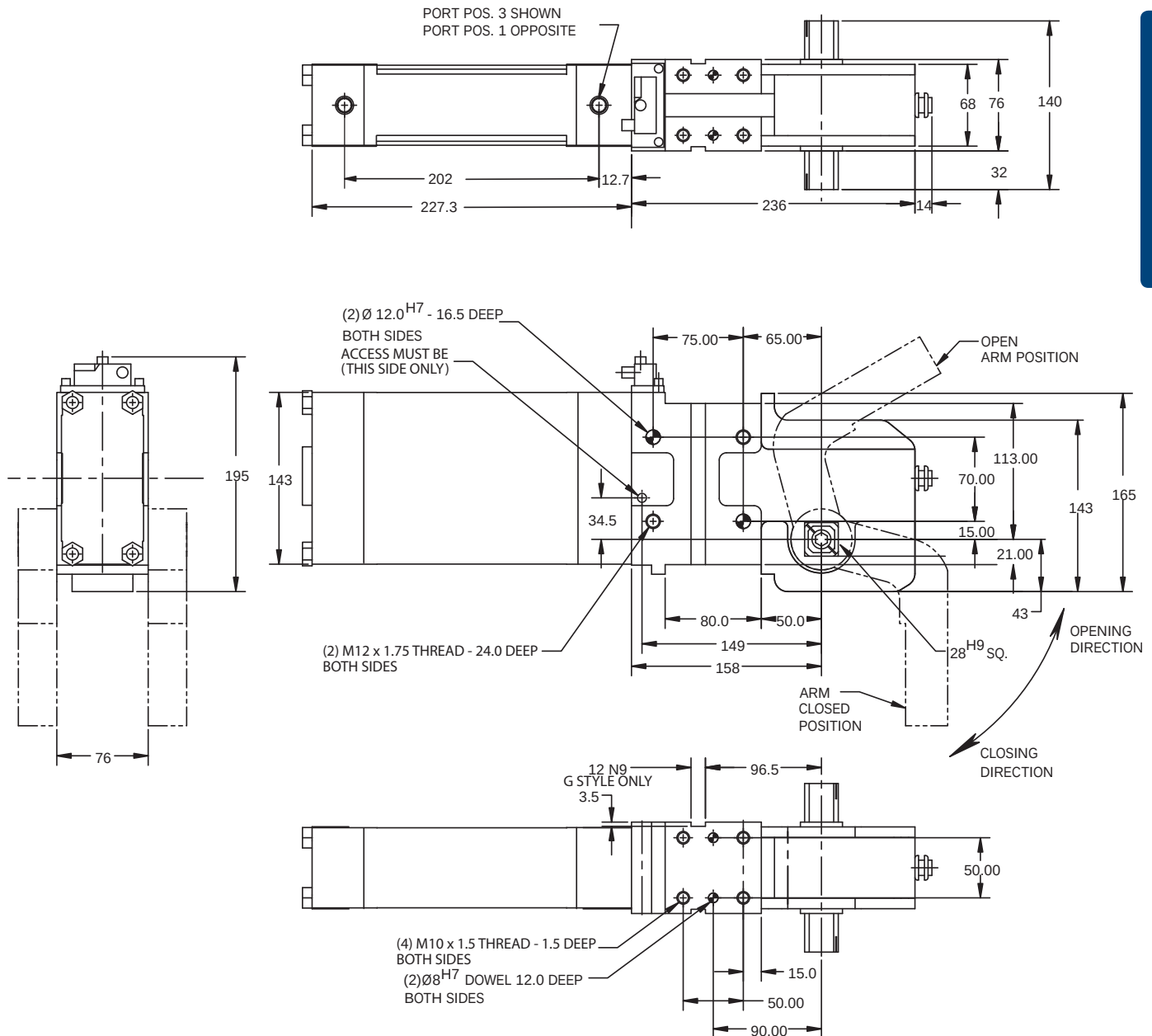
This product covered by one or more of the following U.S. patent numbers:
4,905,973; 5,575,462; 5,634,629;
5,829,112; 5,799,932
EC, SC, WC Series Clamps.



EC91G Clamp

Enclosed Global Clamp
Dimensions

NORGREN CLAMPS



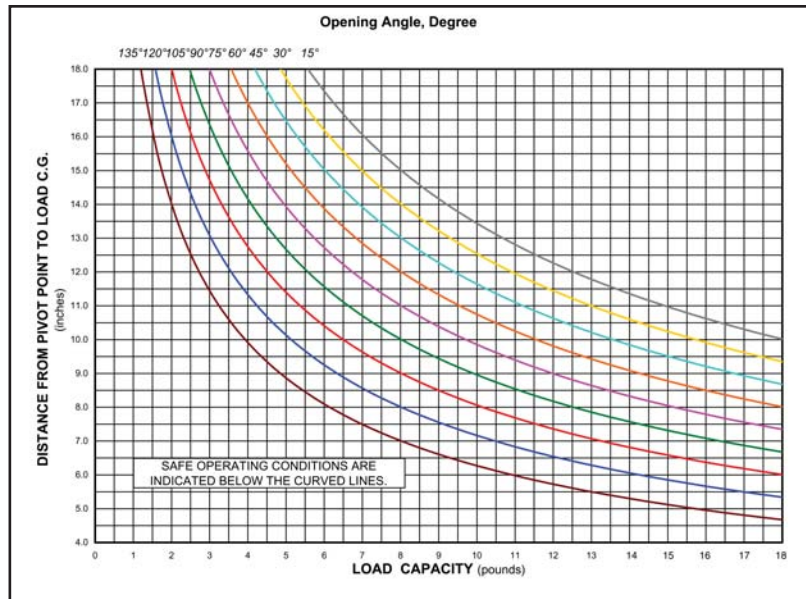
EC90/EC91G Clamp

Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

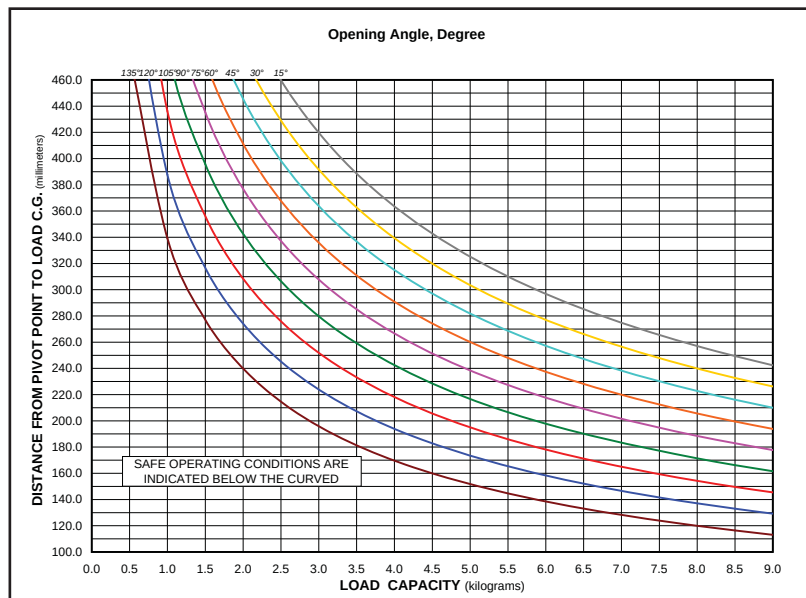
EC90G/EC91G CLAMP CAPACITY - ENGLISH

LOAD CAPACITY VS. DISTANCE FROM PIVOT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC.



EC90G/EC91G CLAMP CAPACITY - METRIC

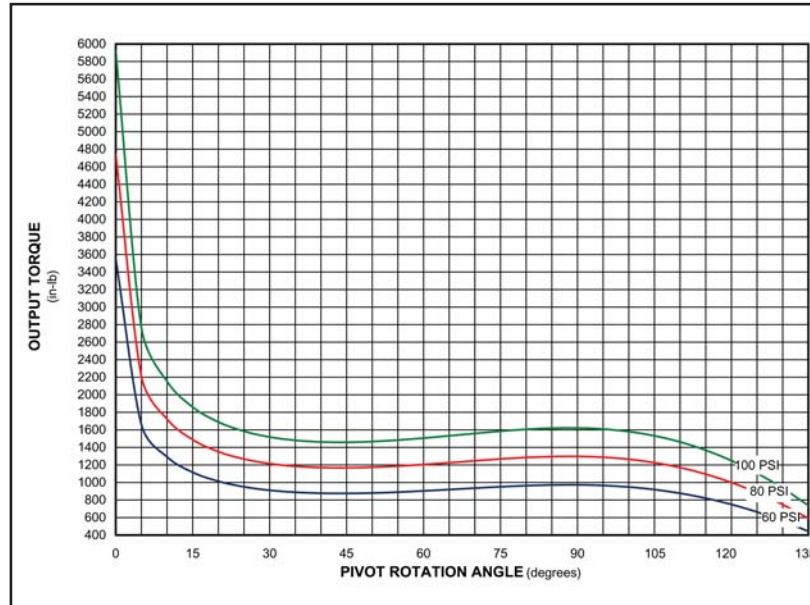
LOAD CAPACITY VS. DISTANCE FROM PIVOT / MAXIMUM ARM VELOCITY = 90°/0.6 SEC.



EC90G/EC91G Clamp

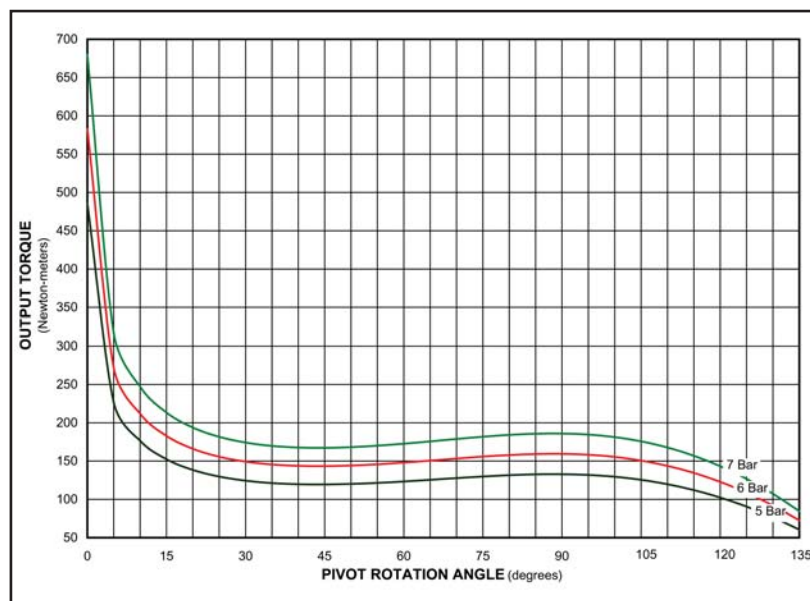
Enclosed Global Clamp
Application Charts

EC90G/EC91G OUTPUT TORQUE - ENGLISH



NORGREN CLAMPS

EC90G/EC91G OUTPUT TORQUE - METRIC



EC90G/EC91G Clamp

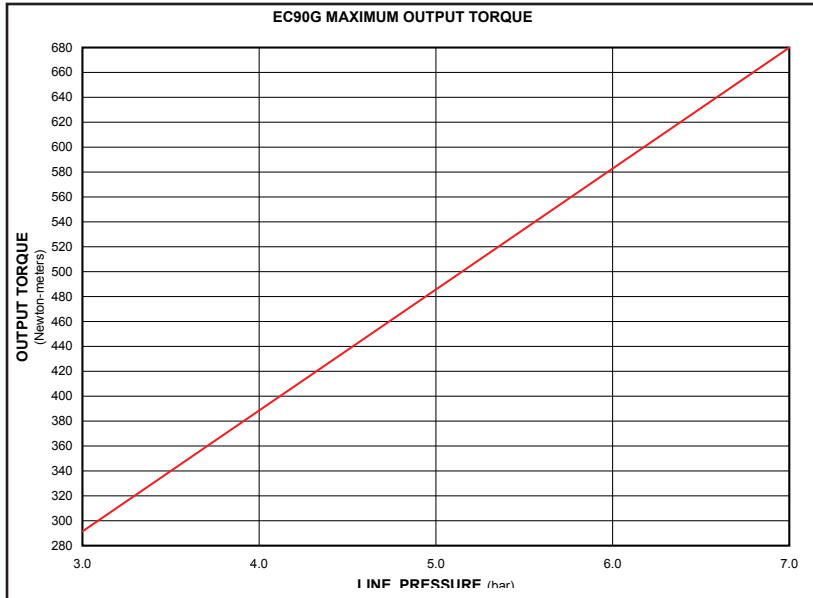
Enclosed Global Clamp
Application Charts

NORGREN CLAMPS

EC90G/EC91G MAXIMUM OUTPUT TORQUE - ENGLISH



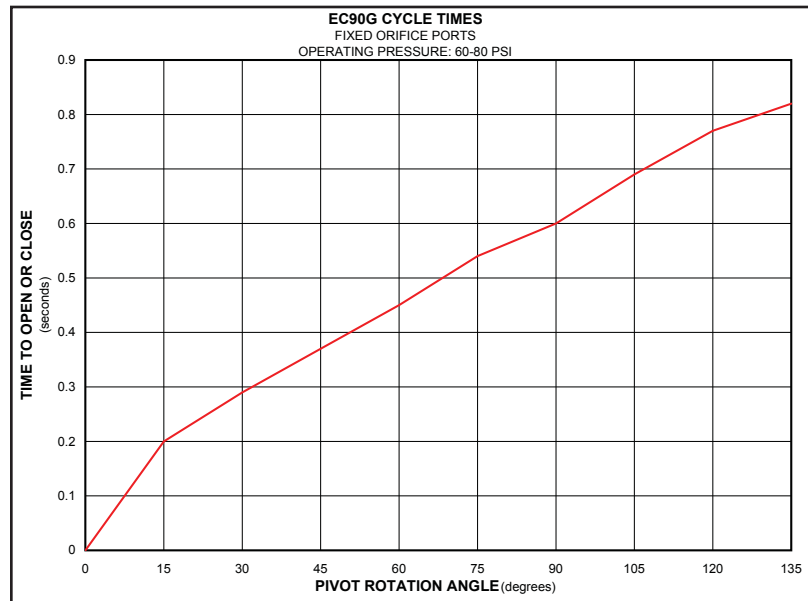
EC90G/EC91G MAXIMUM OUTPUT TORQUE - METRIC



EC90G/EC91G Clamp

Enclosed Global Clamp
Application Charts

EC90G/EC91G CYCLE TIMES FIXED ORIFICE PORTS OPERATING PRESSURE: (4-6 BAR) 60-80 PSI



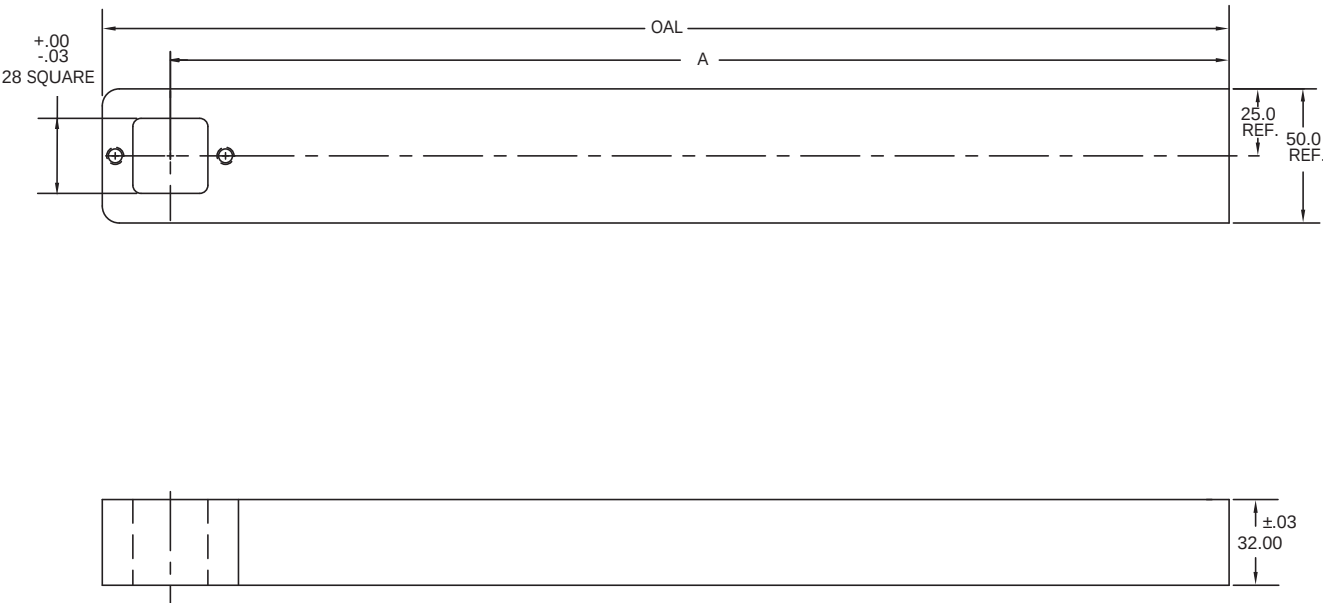
NORGREN CLAMPS

EC90G/EC91G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XG50A SERIES - STRAIGHT (METRIC)



	PART No.	NAAMS PART No.	"A"	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XG51A	ACA100M	155.0	180.4	2.1 (4.6)
	XG52A	ACA101M	185.0	210.4	2.5 (5.5)
	XG53A	ACA102M	215.0	240.4	2.9 (6.4)
	XG54A	ACA103M	245.0	270.4	3.2 (7.0)
	XG55A	ACA104M	275.0	300.4	3.6 (7.9)
	XG56A	ACA105M	305.0	330.4	4.0 (8.8)
	XG57A	ACA106M	335.0	360.4	4.4 (9.7)
	XG58A	ACA107M	365.0	390.4	4.7 (10.4)
	XG59A	ACA108M	395.0	420.4	5.1 (11.2)

To order arms separately from a clamp, use P-EC90G with the Part Number *or* the NAAMS Part Number.

EC91G Clamp

Rev. 001,005

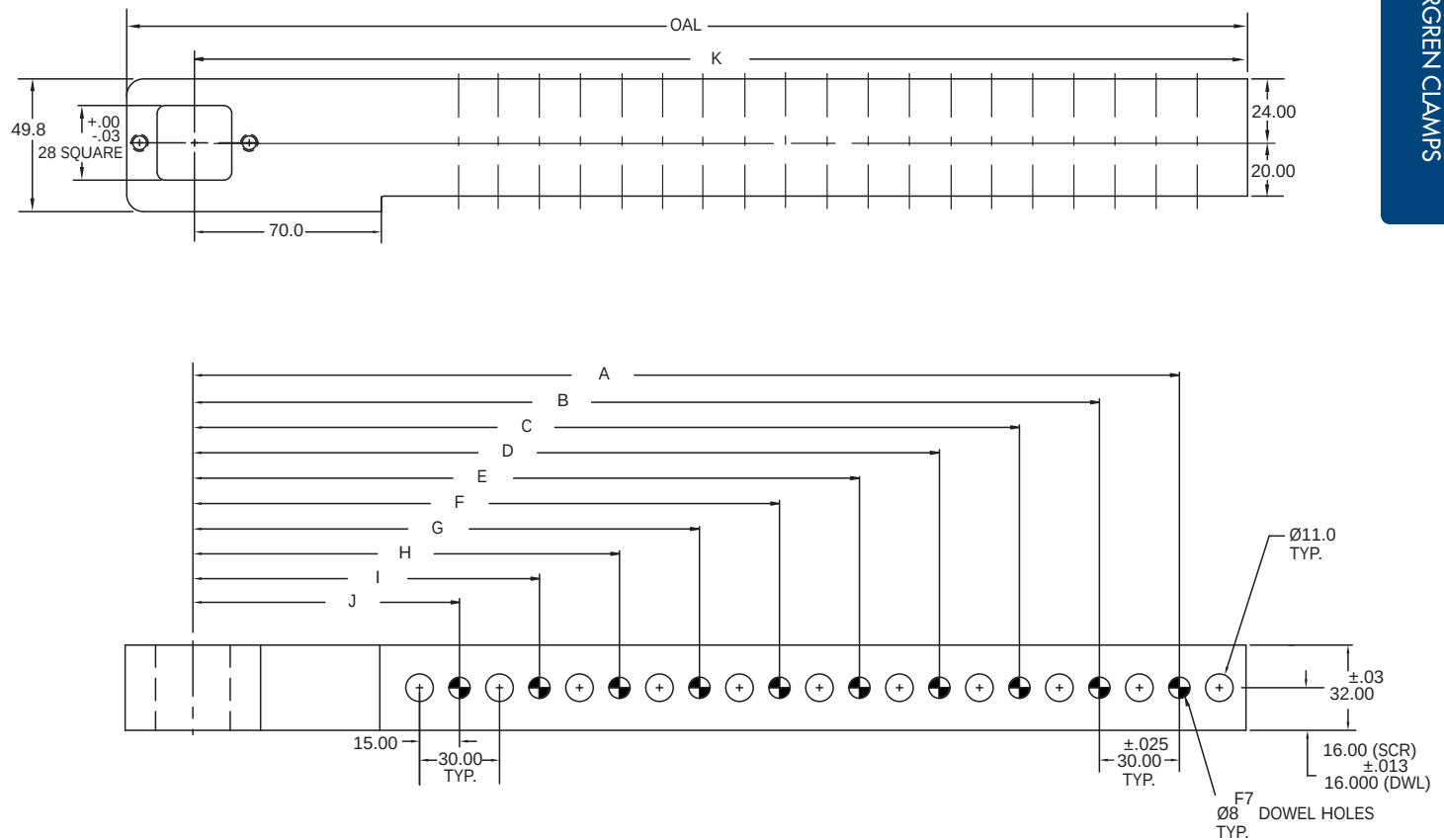


EC90G/EC91G Clamp

Enclosed Global Clamp
NAAMS Machined Blade Arm Options

XG50M SERIES - STRAIGHT (METRIC)

NORGREN CLAMPS



PART No.	NAAMS PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"I" DOWEL	"J" DOWEL	"K"	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XG51M ACA110M	130.00	100.00									155.0	180.4	1.9 (4.2)
	XG52M ACA111M	160.00	130.00	100.00								185.0	210.4	2.2 (4.8)
	XG53M ACA112M	190.00	160.00	130.00	100.00							215.0	240.4	2.5 (5.5)
	XG54M ACA113M	220.00	190.00	160.00	130.00	100.00						245.0	270.4	2.8 (6.2)
	XG55M ACA114M	250.00	220.00	190.00	160.00	130.00	100.00					275.0	300.4	3.1 (6.8)
	XG56M ACA115M	280.00	250.00	220.00	190.00	160.00	130.00	100.00				305.0	330.4	3.4 (7.5)
	XG57M ACA116M	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00			335.0	360.4	3.8 (8.4)
	XG58M ACA117M	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00		365.0	390.4	4.1 (9.0)
	XG59M ACA118M	370.00	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00	395.0	420.4	4.4 (9.7)

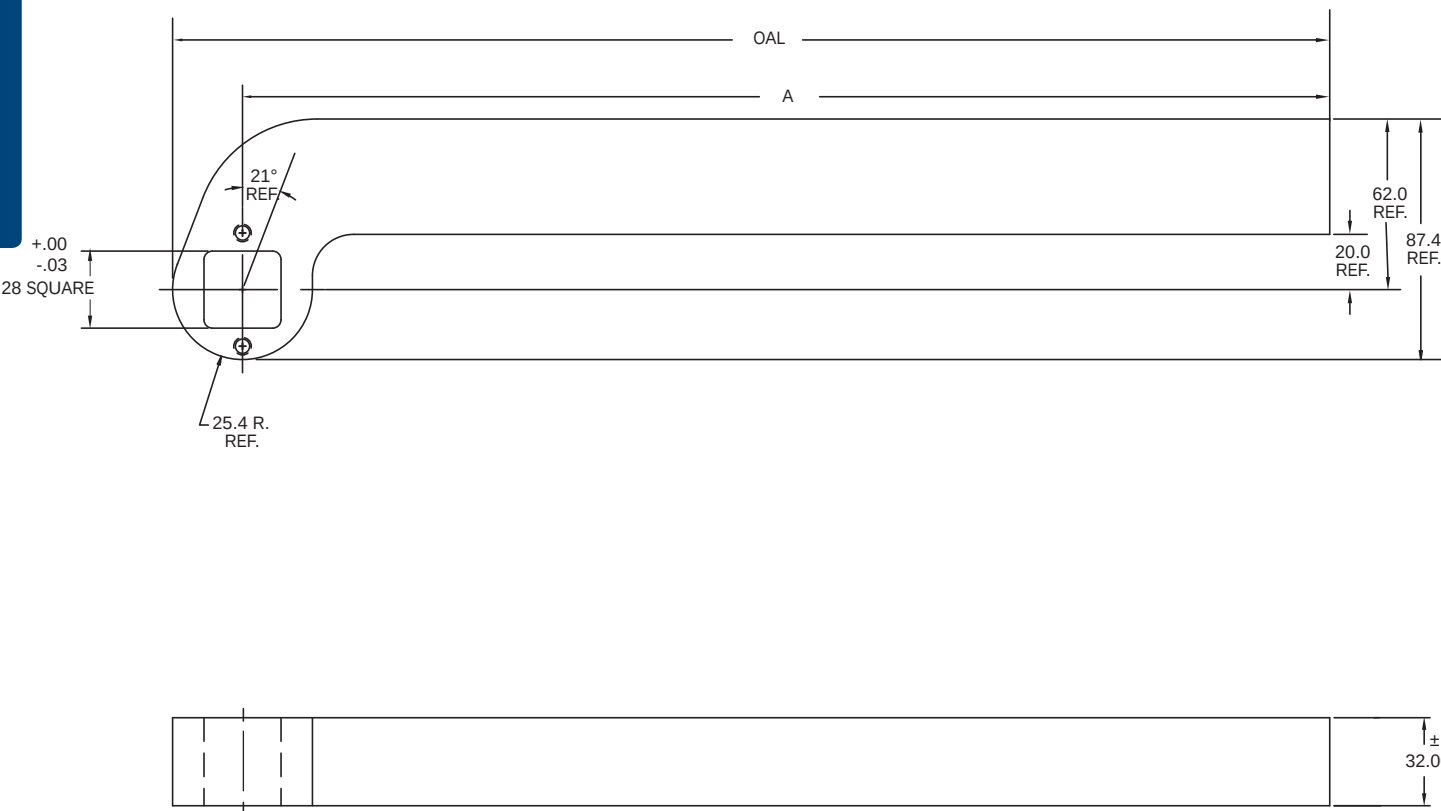
To order arms separately from a clamp, use P-EC90G with the Part Number or the NAAMS Part Number.

EC90G/EC91G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XG90A SERIES - 20 MM OFFSET (METRIC)



	PART No.	NAAMS PART No.	"A"	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XG91A	ACA120M	155.0	180.4	2.1 (4.5)
	XG92A	ACA121M	185.0	210.4	2.4 (5.2)
	XG93A	ACA122M	215.0	240.4	2.7 (5.9)
	XG94A	ACA123M	245.0	270.4	3.0 (6.6)
	XG95A	ACA124M	275.0	300.4	3.3 (7.3)
	XG96A	ACA125M	305.0	330.4	3.6 (8.0)
	XG97A	ACA126M	335.0	360.4	3.9 (8.7)
	XG98A	ACA127M	365.0	390.4	4.3 (9.4)
	XG99A	ACA128M	395.0	420.4	4.6 (10.1)

To order arms separately from a clamp, use P-EC90G with the Part Number or the NAAMS Part Number.

EC91G Clamp

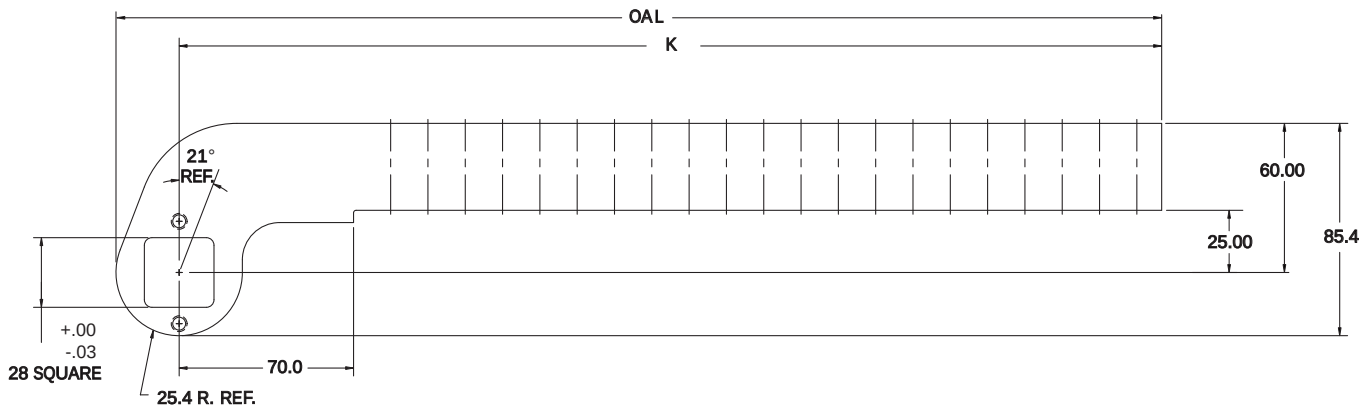
Rev. 001,005



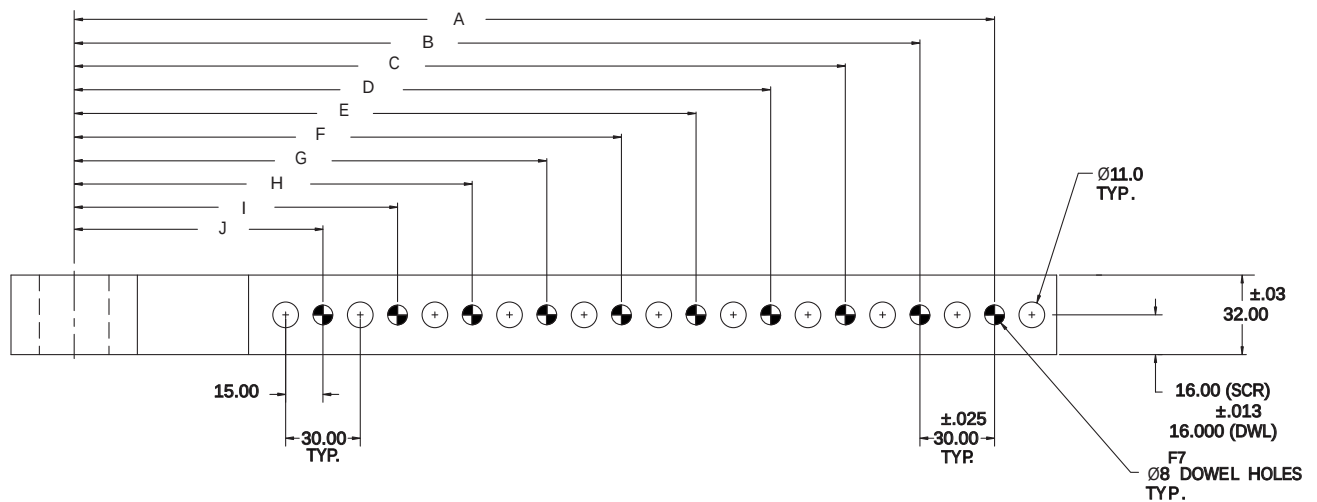
EC90G/EC91G Clamp

Enclosed Global Clamp
NAAMS Machined Blade Arm Options

XG90M SERIES - 25 MM OFFSET (METRIC)



NORGREN CLAMPS



PART No.	NAAMS PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"I" DOWEL	"J" DOWEL	"K"	OAL	ARM WEIGHT KG (LB)
P-EC90G	XG91M	ACA130M	130.00	100.00								155.0	180.4	2.1 (4.6)
	XG92M	ACA131M	160.00	130.00	100.00							185.0	210.4	2.3 (5.1)
	XG93M	ACA132M	190.00	160.00	130.00	100.00						215.0	240.4	2.6 (5.7)
	XG94M	ACA133M	220.00	190.00	160.00	130.00	100.00					245.0	270.4	2.8 (6.2)
	XG95M	ACA134M	250.00	220.00	190.00	160.00	130.00	100.00				275.0	300.4	3.1 (6.8)
	XG96M	ACA135M	280.00	250.00	220.00	190.00	160.00	130.00	100.00			305.0	330.4	3.3 (7.3)
	XG97M	ACA136M	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00		335.0	360.4	3.6 (8.0)
	XG98M	ACA137M	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00	365.0	390.4	3.8 (8.4)
	XG99M	ACA138M	370.00	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	395.0	420.4	4.1 (9.0)

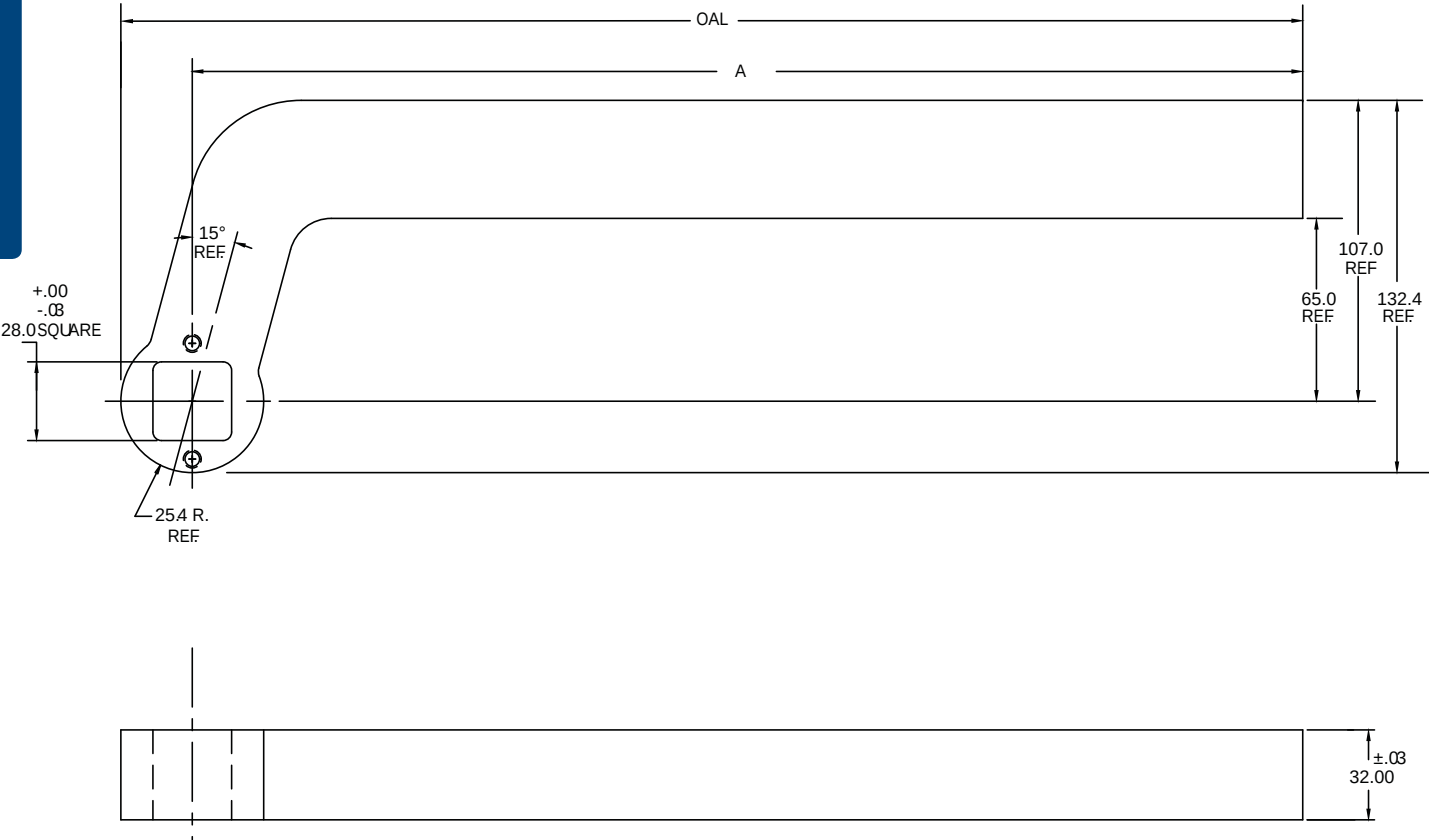
To order arms separately from a clamp, use P-EC90G with the Part Number *or* the NAAMS Part Number.

EC90G/EC91G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XG40A SERIES - 65 MM OFFSET (METRIC)



	PART No.	NAAMS PART No.	“A”	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XG41A	ACA140M	155.0	180.4	2.7 (6.0)
	XG42A	ACA141M	185.0	210.4	3.0 (6.6)
	XG43A	ACA142M	215.0	240.4	3.3 (7.3)
	XG44A	ACA143M	245.0	270.4	3.6 (8.0)
	XG45A	ACA144M	275.0	300.4	3.9 (8.6)
	XG46A	ACA145M	305.0	330.4	4.2 (9.3)
	XG47A	ACA146M	335.0	360.4	4.5 (10.0)
	XG48A	ACA147M	365.0	390.4	4.9 (11.0)
	XG49A	ACA148M	395.0	420.4	5.1 (11.2)

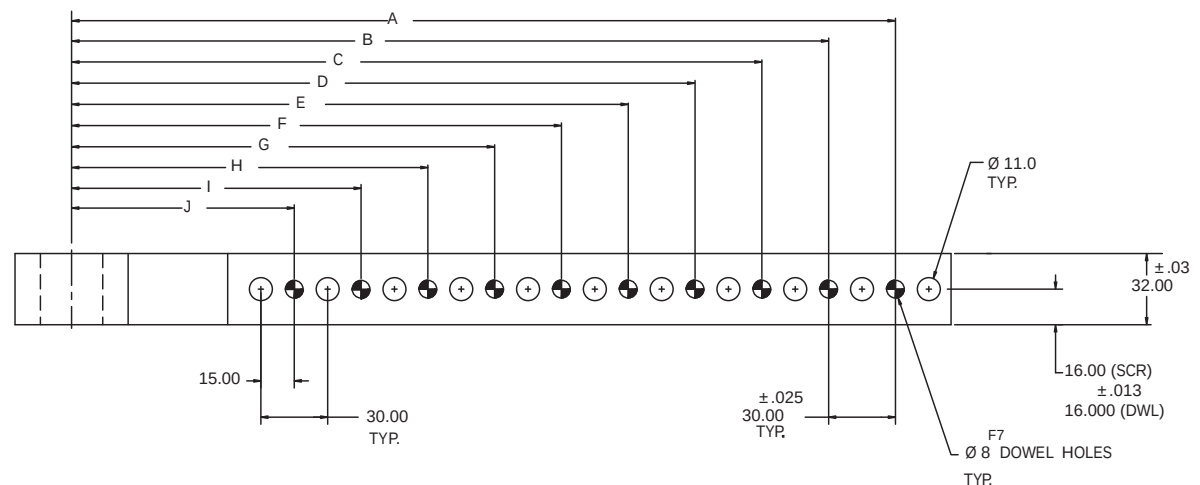
To order arms separately from a clamp, use P-EC90G with the Part Number or the NAAMS Part Number.

EC91G Clamp

Rev. 001,005



NORGREN CLAMPS



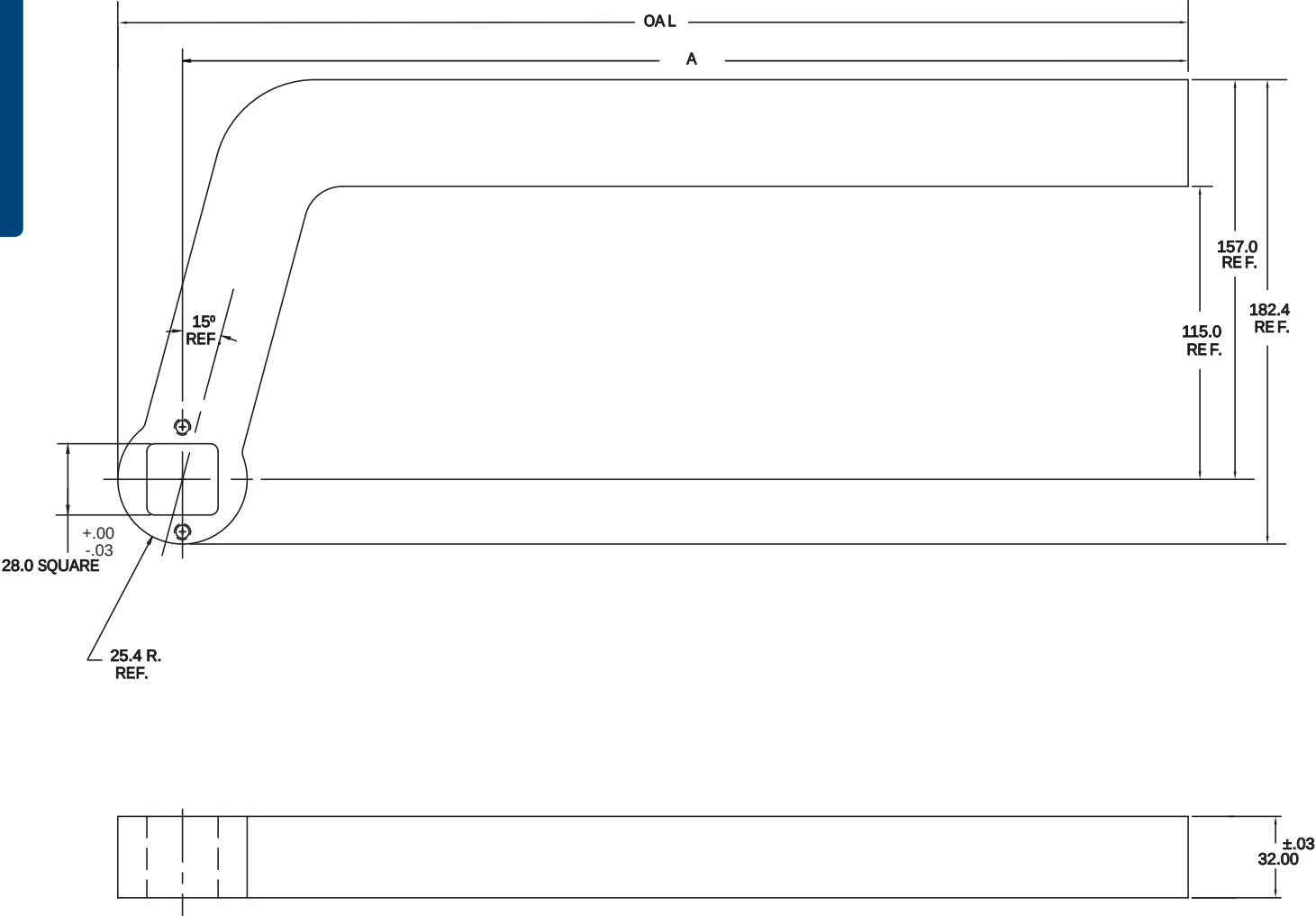
To order arms separately from a clamp, use P-EC90G with the Part Number *or* the NAAMS Part Number.

EC90G/EC91G Clamp

Enclosed Global Clamp
NAAMS Blank Blade Arm Options

NORGREN CLAMPS

XG60A SERIES - 115 MM OFFSET (METRIC)



	PART No.	NAAMS PART No.	“A”	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XG61A	ACA160M	155.0	180.4	3.0 (6.6)
	XG62A	ACA161M	185.0	210.4	3.4 (7.5)
	XG63A	ACA162M	215.0	240.4	3.7 (8.1)
	XG64A	ACA163M	245.0	270.4	4.0 (8.8)
	XG65A	ACA164M	275.0	300.4	4.3 (9.5)
	XG66A	ACA165M	305.0	330.4	4.6 (10.1)
	XG67A	ACA166M	335.0	360.4	4.9 (10.8)
	XG68A	ACA167M	365.0	390.4	5.2 (11.5)
	XG69A	ACA168M	395.0	420.4	5.6 (12.3)

To order arms separately from a clamp, use P-EC90G with the Part Number or the NAAMS Part Number.

EC91G Clamp

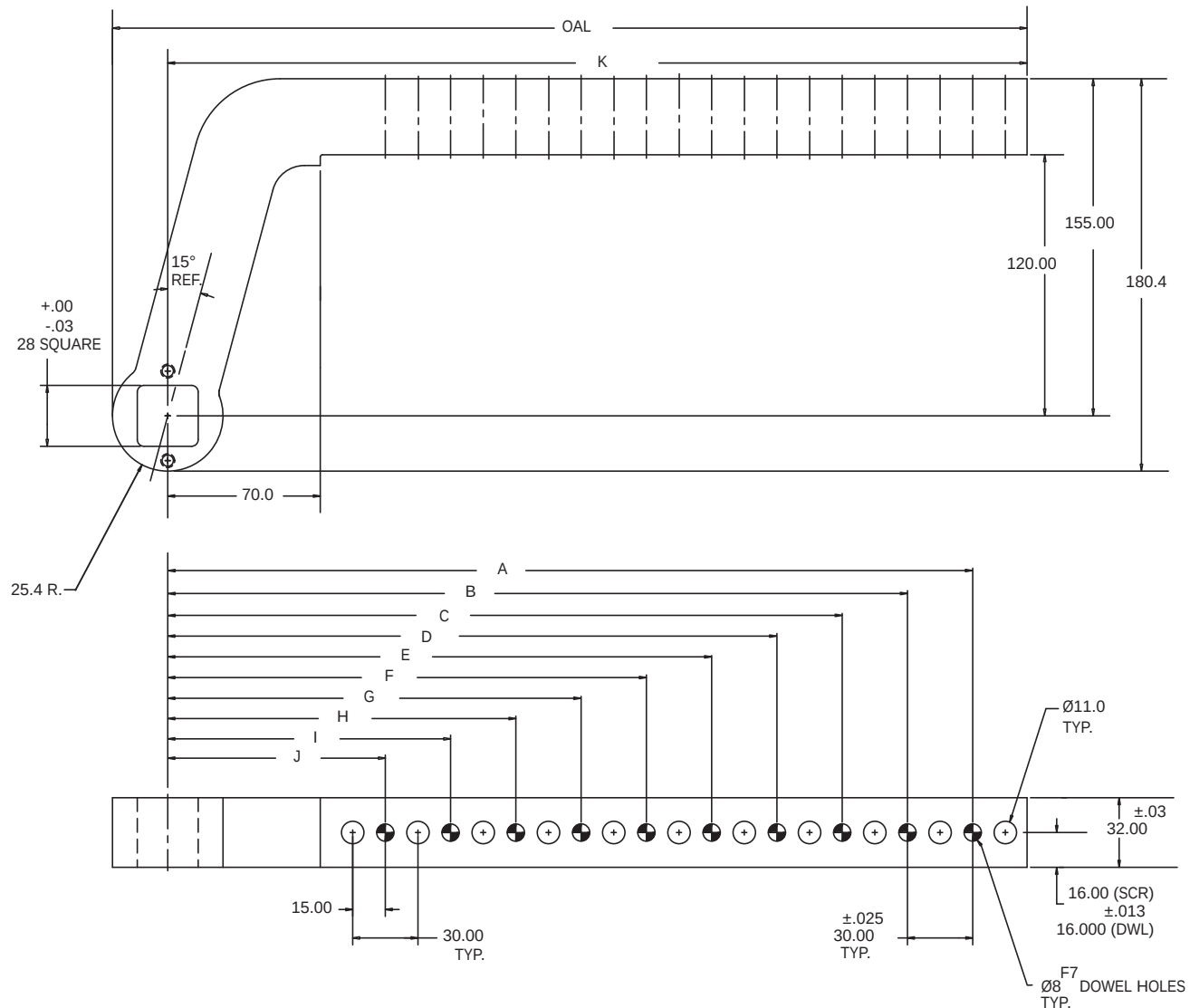
Rev. 001,005



EC90G/EC91G Clamp

Enclosed Global Clamp
NAAMS Machined Blade Arm Options

XG60M SERIES - 120 MM OFFSET (METRIC)



NORGREN CLAMPS

PART No.	NAAMS PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"I" DOWEL	"J" DOWEL	"K"	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XG61M ACA170M	130.00	100.00									155.0	180.4	2.8 (6.2)
	XG62M ACA171M	160.00	130.00	100.00								185.0	210.4	3.0 (6.6)
	XG63M ACA172M	190.00	160.00	130.00	100.00							215.0	240.4	3.3 (7.3)
	XG64M ACA173M	220.00	190.00	160.00	130.00	100.00						245.0	270.4	3.5 (7.7)
	XG65M ACA174M	250.00	220.00	190.00	160.00	130.00	100.00					275.0	300.4	3.8 (8.4)
	XG66M ACA175M	280.00	250.00	220.00	190.00	160.00	130.00	100.00				305.0	330.4	4.0 (8.8)
	XG67M ACA176M	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00			335.0	360.4	4.3 (9.5)
	XG68M ACA177M	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00		365.0	390.4	4.5 (9.9)
	XG69M ACA178M	370.00	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00	395.0	420.4	4.8 (10.6)

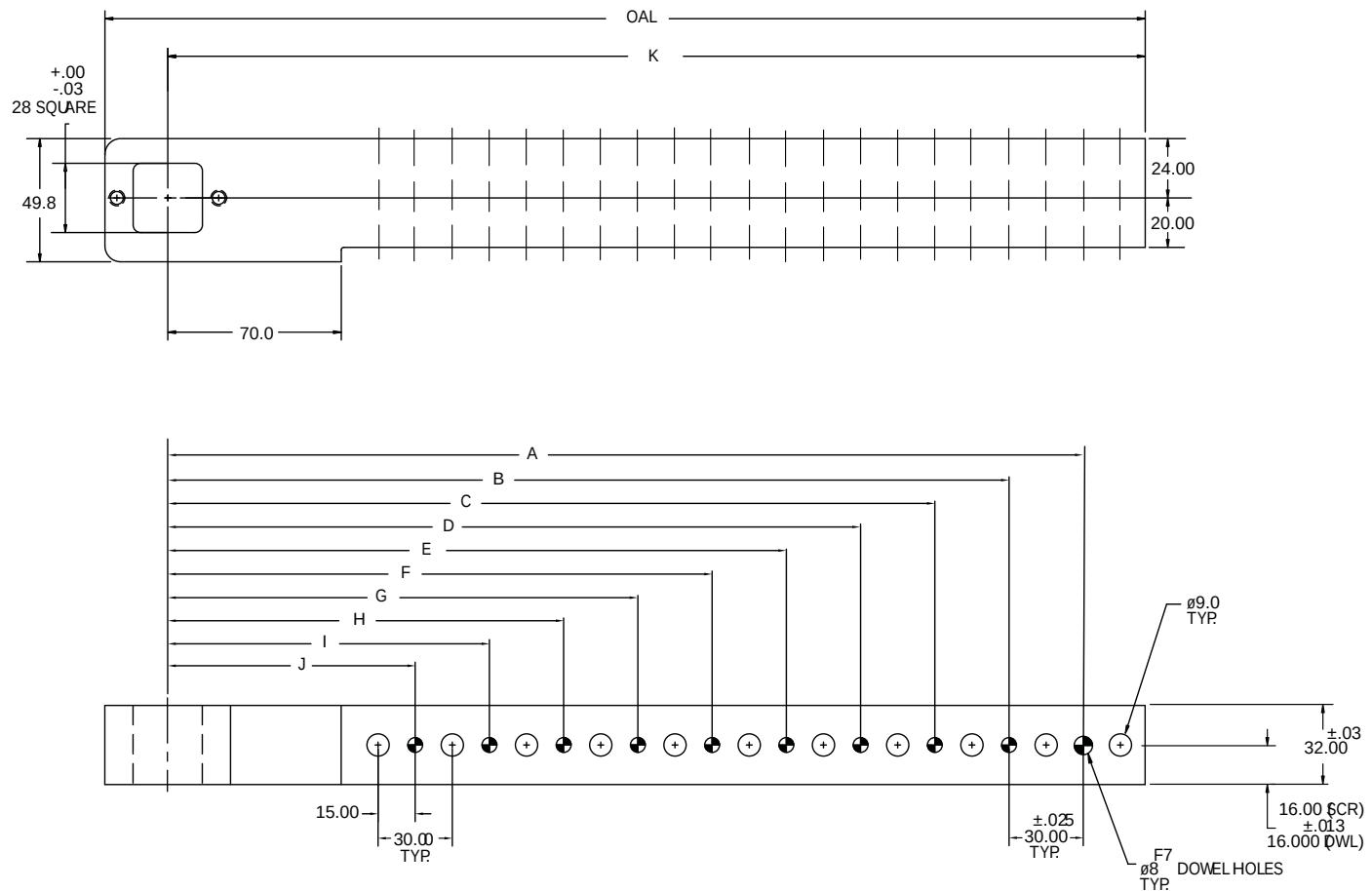
To order arms separately from a clamp, use P-EC90G with the Part Number or the NAAMS Part Number.



EC91G Clamp

Rev. 001,005

NORGREN CLAMPS



	PART No.	GLOBAL PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"I" DOWEL	"J" DOWEL	"K"	OAL	ARM KG (LB)	WEIGHT KG (LB)
P-EC90G-	XGX51M	GCX110M	130.00	100.00									155.0	180.4	1.9	(4.2)
	XGX52M	GCX111M	160.00	130.00	100.00								185.0	210.4	2.2	(4.8)
	XGX53M	GCX112M	190.00	160.00	130.00	100.00							215.0	240.4	2.5	(5.5)
	XGX54M	GCX113M	220.00	190.00	160.00	130.00	100.00						245.0	270.4	2.8	(6.2)
	XGX55M	GCX114M	250.00	220.00	190.00	160.00	130.00	100.00					275.0	300.4	3.1	(6.8)
	XGX56M	GCX115M	280.00	250.00	220.00	190.00	160.00	130.00	100.00				305.0	330.4	3.4	(7.5)
	XGX57M	GCX116M	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00			335.0	360.4	3.8	(8.4)
	XGX58M	GCX117M	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00		365.0	390.4	4.1	(9.0)
	XGX59M	GCX118M	370.00	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00	395.0	420.4	4.4	(9.7)

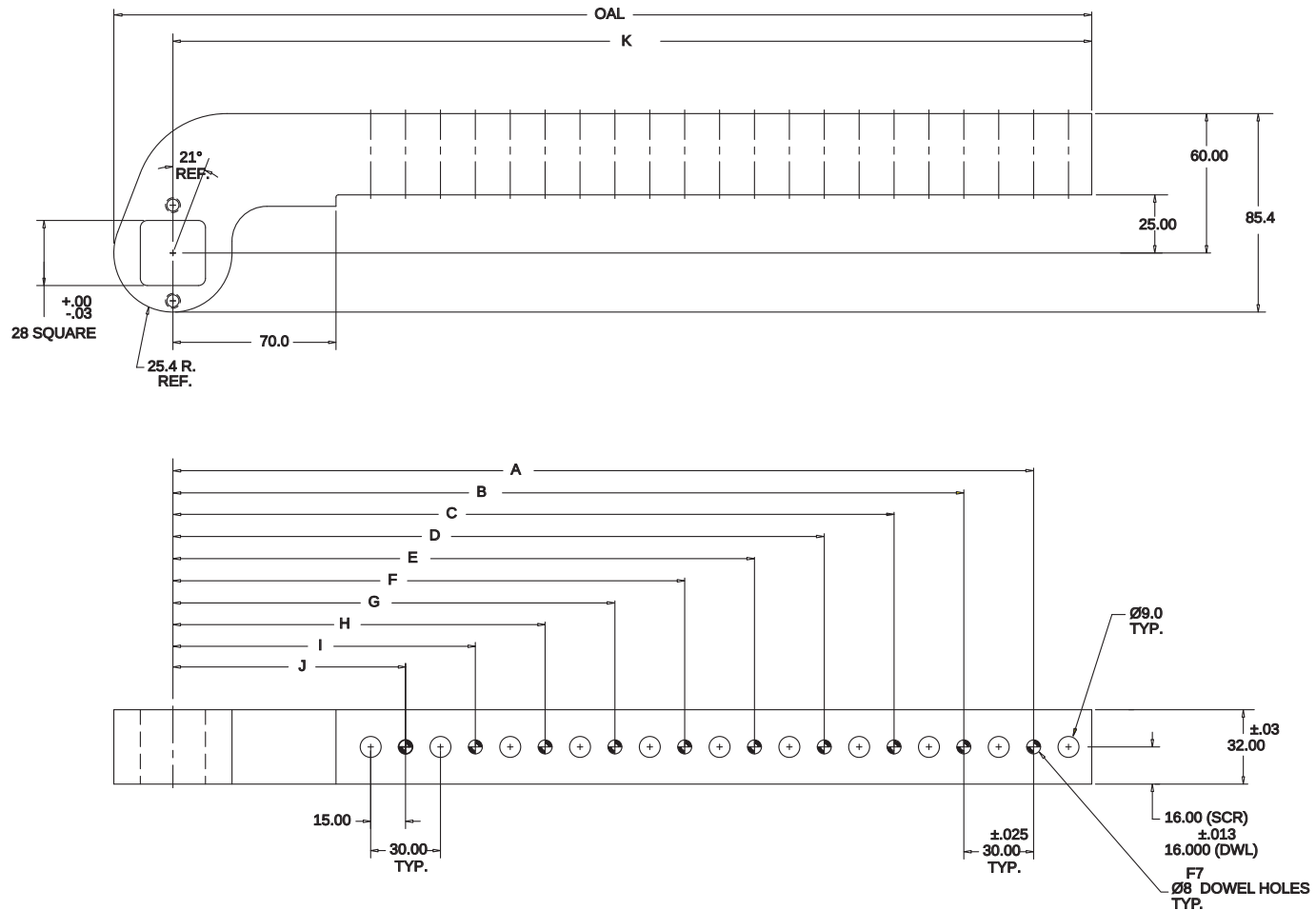
To order arms separately from a clamp, use P-EC90G with the Part Number *or* the Global Part Number.

EC90G/EC91G Clamp

Enclosed Global Clamp
Global Machined Blade Arm Options

XGM90M SERIES - 25 MM OFFSET (METRIC)

NORGREN CLAMPS



PART No.	GLOBAL PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"I" DOWEL	"J" DOWEL	"K"	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XGX91M	GCX130M	130.00	100.00								155.0	180.4	2.1 (4.6)
	XGX92M	GCX131M	160.00	130.00	100.00							185.0	210.4	2.3 (5.1)
	XGX93M	GCX132M	190.00	160.00	130.00	100.00						215.0	240.4	2.6 (5.7)
	XGX94M	GCX133M	220.00	190.00	160.00	130.00	100.00					245.0	270.4	2.8 (6.2)
	XGX95M	GCX134M	250.00	220.00	190.00	160.00	130.00	100.00				275.0	300.4	3.1 (6.8)
	XGX96M	GCX135M	280.00	250.00	220.00	190.00	160.00	130.00	100.00			305.0	330.4	3.3 (7.3)
	XGX97M	GCX136M	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00		335.0	360.4	3.6 (7.9)
	XGX98M	GCX137M	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00	365.0	390.4	3.8 (8.4)
	XGX99M	GCX138M	370.00	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	395.0	420.4	4.1 (9.0)

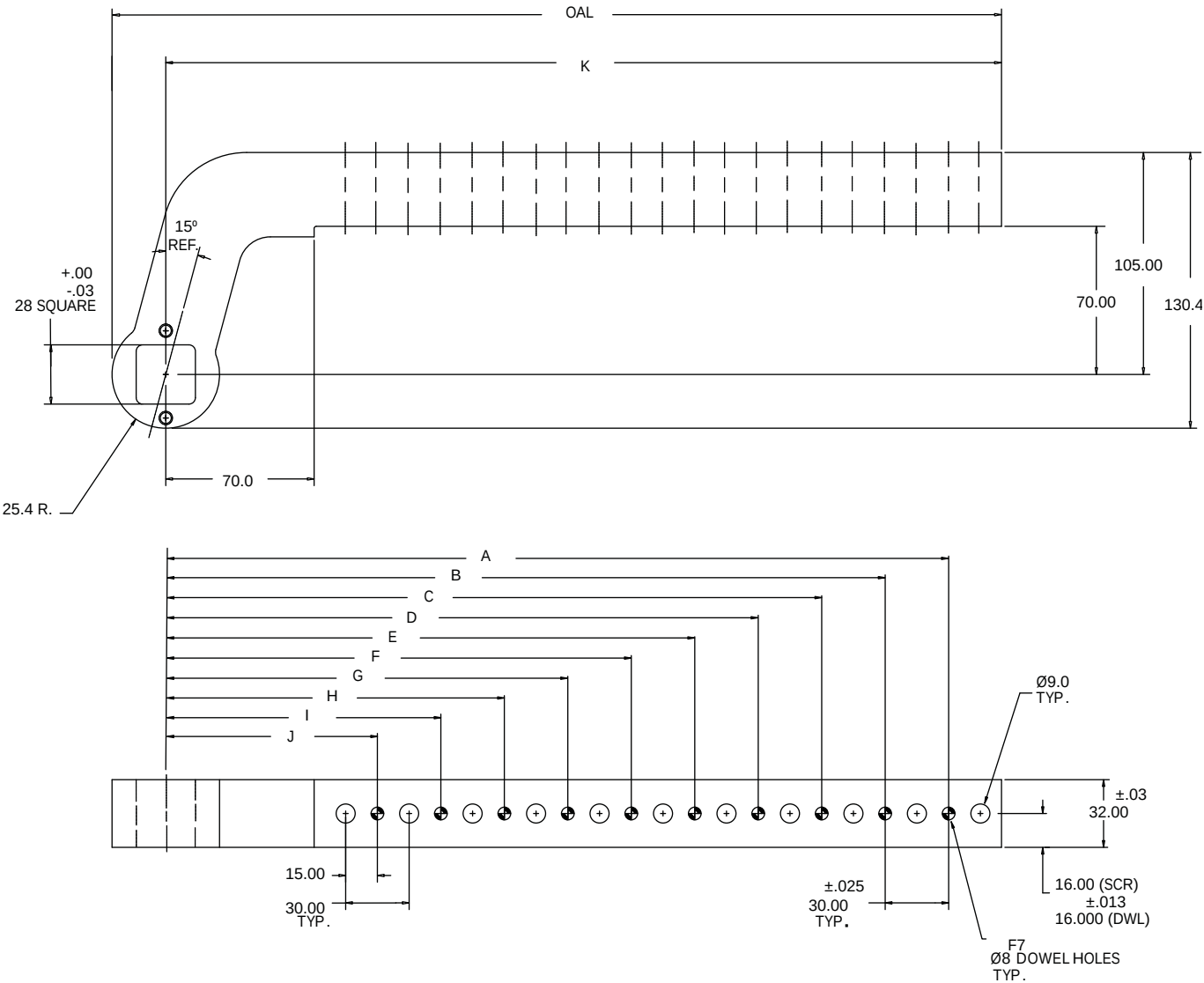
To order arms separately from a clamp, use P-EC90G with the Part Number *or* the Global Part Number.

EC90G/EC91G Clamp

Enclosed Global Clamp
Global Machined Blade Arm Options

NORGREN CLAMPS

XGM40M SERIES - 70 MM OFFSET (METRIC)



PART No.	GLOBAL PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"I" DOWEL	"J" DOWEL	"K"	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XGX41M	GCX150M	130.00	100.00								155.0	180.4	2.4 (5.3)
	XGX42M	GCX151M	160.00	130.00	100.00							185.0	210.4	2.6 (5.7)
	XGX43M	GCX152M	190.00	160.00	130.00	100.00						215.0	240.4	2.9 (6.4)
	XGX44M	GCX153M	220.00	190.00	160.00	130.00	100.00					245.0	270.4	3.1 (6.8)
	XGX45M	GCX154M	250.00	220.00	190.00	160.00	130.00	100.00				275.0	300.4	3.4 (7.5)
	XGX46M	GCX155M	280.00	250.00	220.00	190.00	160.00	130.00	100.00			305.0	330.4	3.6 (7.9)
	XGX47M	GCX156M	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00		335.0	360.4	3.9 (8.6)
	XGX48M	GCX157M	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00	365.0	390.4	4.1 (9.4)
	XGX49M	GCX158M	370.00	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	395.0	420.4	4.4 (9.7)

To order arms separately from a clamp, use P-EC90G with the Part Number or the Global Part Number.

EC91G Clamp

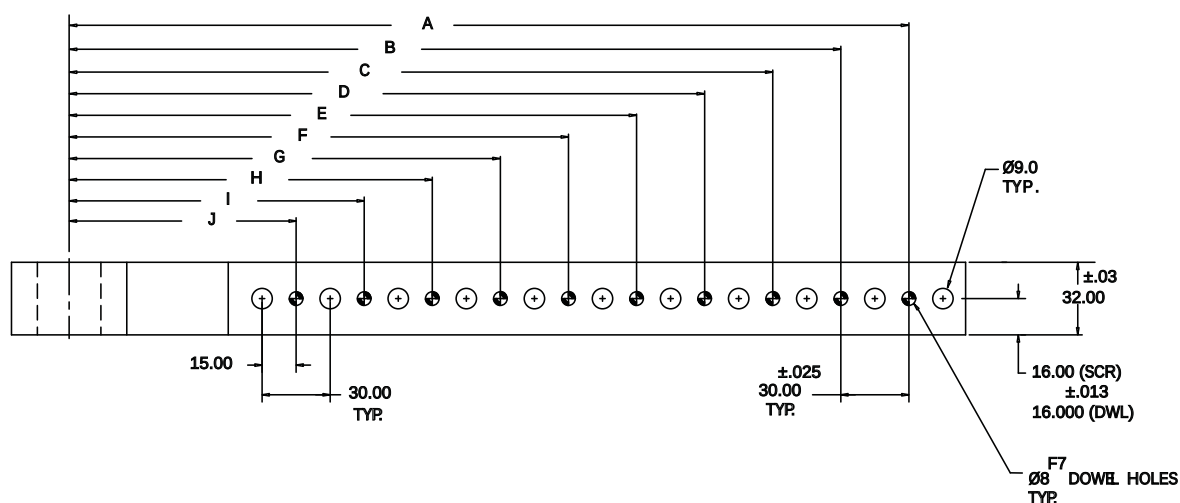
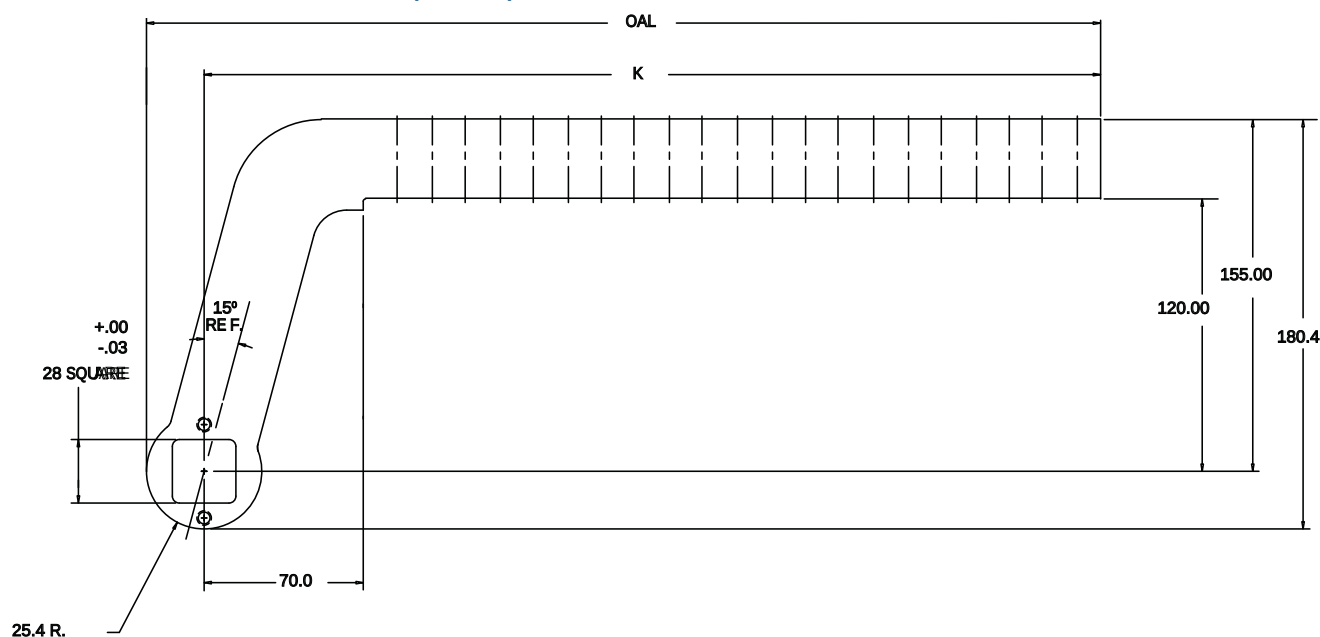
Rev. 001,005



EC90G/EC91G Clamp

Enclosed Global Clamp
Global Machined Blade Arm Options

XGM60M SERIES - 120 MM OFFSET (METRIC)



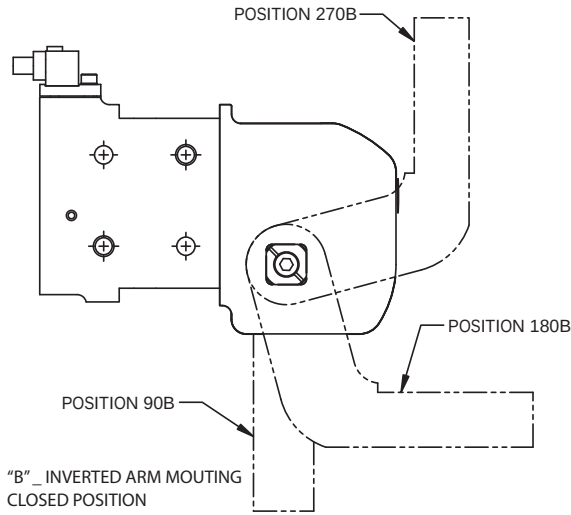
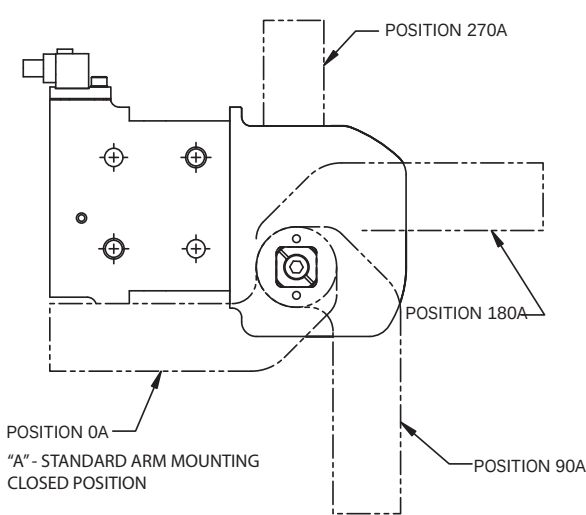
PART No.	GLOBAL PART No.	"A" DOWEL	"B" DOWEL	"C" DOWEL	"D" DOWEL	"E" DOWEL	"F" DOWEL	"G" DOWEL	"H" DOWEL	"I" DOWEL	"J" DOWEL	"K"	OAL	ARM WEIGHT KG (LB)
P-EC90G-	XGX61M GCX170M	130.00	100.00									155.0	180.4	2.8 (6.2)
	XGX62M GCX171M	160.00	130.00	100.00								185.0	210.4	3.0 (6.6)
	XGX63M GCX172M	190.00	160.00	130.00	100.00							215.0	240.4	3.3 (7.3)
	XGX64M GCX173M	220.00	190.00	160.00	130.00	100.00						245.0	270.4	3.5 (7.7)
	XGX65M GCX174M	250.00	220.00	190.00	160.00	130.00	100.00					275.0	300.4	3.8 (8.4)
	XGX66M GCX175M	280.00	250.00	220.00	190.00	160.00	130.00	100.00				305.0	330.4	4.0 (8.8)
	XGX67M GCX176M	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00			335.0	360.4	4.3 (9.5)
	XGX68M GCX177M	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00		365.0	390.4	4.5 (9.9)
	XGX69M GCX178M	370.00	340.00	310.00	280.00	250.00	220.00	190.00	160.00	130.00	100.00	395.0	420.4	4.8 (10.9)

To order arms separately from a clamp, use P-EC90G with the Part Number or the Global Part Number.

EC90G/EC91G Clamp

Enclosed Global Clamp
Global Arm Mounting Options

NORGREN CLAMPS

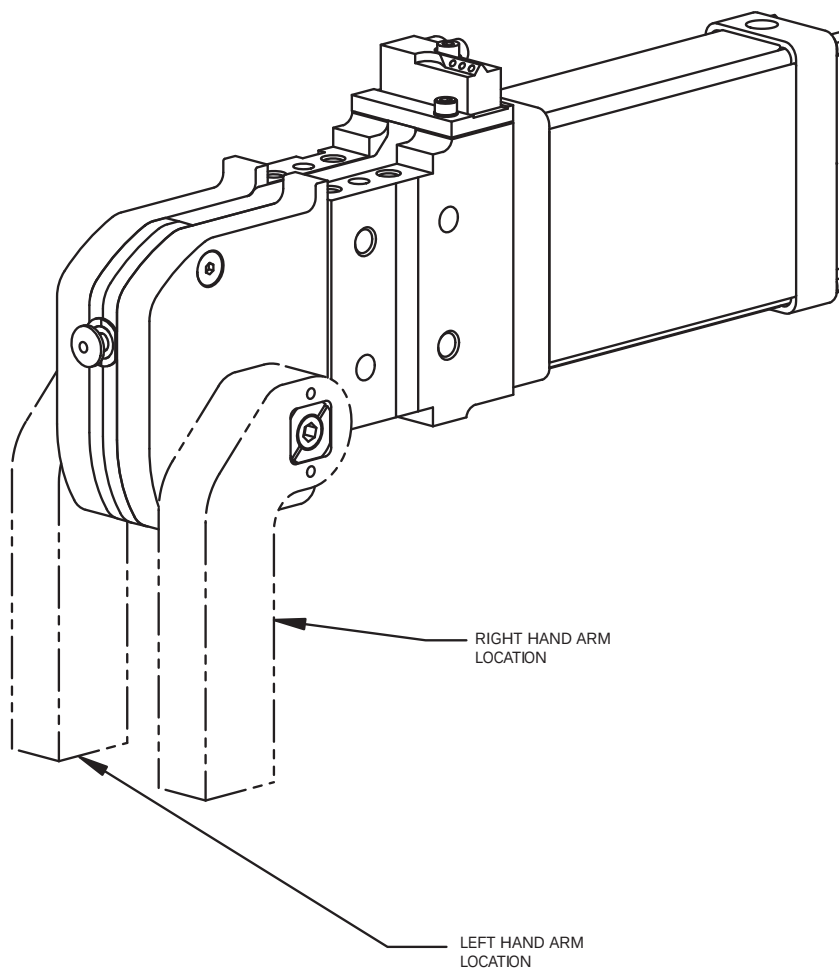


Max. Opening Angle, Degree			
NORGREN ARM STYLES	MOUNTING POSITION	MAXIMUM OPENING ANGLE	
		A-STANDARD	B-INVERTED
XG40 SERIES BLADE ARM 70MM OFFSET	0	135	-
	90	115	-
	180	35	135
	270	-	55
XG50 SERIES BLADE ARM 0MM OFFSET	0	-	-
	90	135	135
	180	100	100
	270	10	10
XG60 SERIES BLADE ARM 120MM OFFSET	0	135	-
	90	115	-
	180	25	135
	270	-	85
XG90 SERIES BLADE ARM 25MM OFFSET	0	-	-
	90	135	-
	180	60	120
	270	-	30

EC91G Clamp

Enclosed Global Clamp
Arm Position Options

NORGREN CLAMPS



EC91G Clamp

Sensing Switch Options

NORGREN CLAMPS

SCHEMATIC FOR P&F OR TURCK SENSOR PNP

DC PNP WIRING DIAGRAM

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

**4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)**

SENSOR SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE : N.O.; PNP (SOURCING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / -25	-	158/70	°F/°C
WEIGHT	-	-	1.9/54	oz/g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

SCHEMATIC FOR TURCK DC SENSOR NPN

DC NPN WIRING DIAGRAM

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

**4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)**

SENSOR SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE : N.O.; NPN (SINKING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / -25	-	158/70	°F/°C
WEIGHT	-	-	1.9/54	oz/g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

SCHEMATIC FOR TURCK AC/DC SENSOR

AC/DC WIRING DIAGRAM

1 = RED/WHITE
2 = RED
3 = GREEN
4 = RED/YELLOW
5 = RED/BLACK

**5-PIN DUAL KEY (1/2-20) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)**

SENSOR SPECIFICATIONS

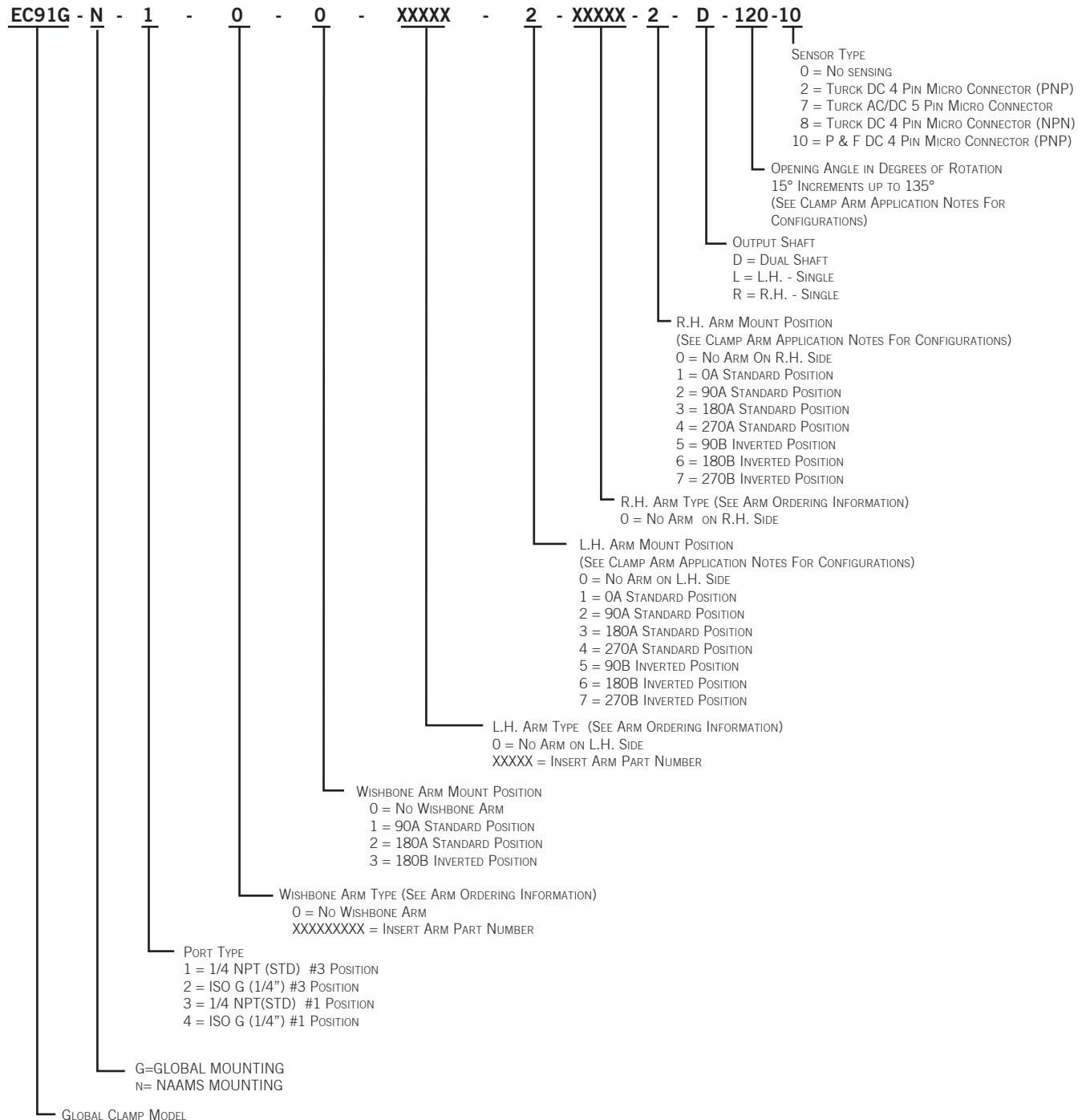
PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10/20	24/120	300/250	VDC / VAC
OFF-STATE LEAKAGE CURRENT	-	-	1.7	mA
POWER-UP DELAY	-	-	60	ms
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	6	V
TEMPERATURE RANGE	-13 / -25	-	158/70	°F/°C
WEIGHT	-	-	1.8/52	oz/g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

EC91G Clamp

Ordering Information

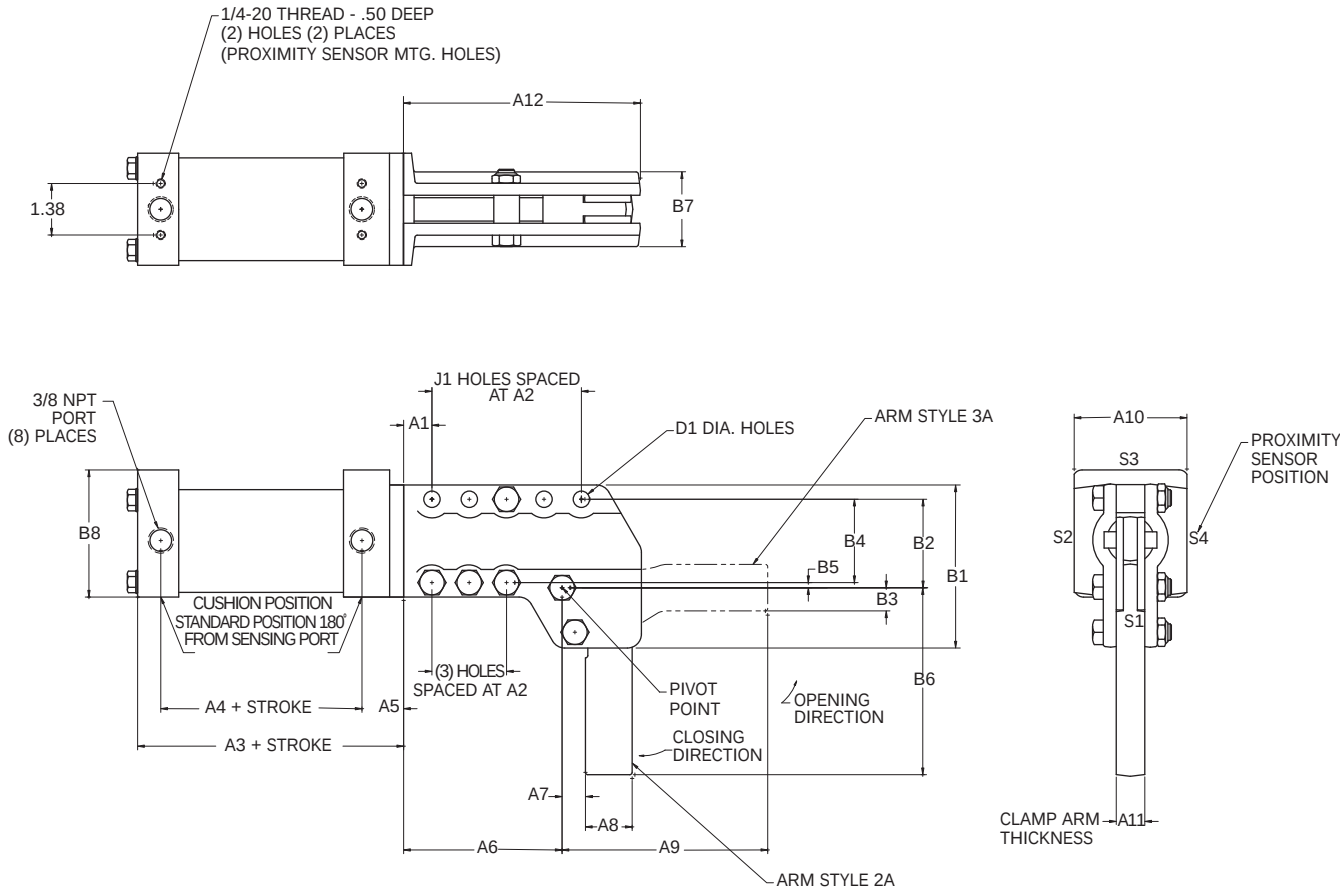
NORGREN CLAMPS



Clamps and Power Pivots

Power Wedge Clamp
FU Series Standard Clamp
Overall Dimensions

NORGREN CLAMPS



FU SERIES STANDARD OVERALL DIMENSION

CLAMP MODEL	A1	$\pm .001$ A2	A3	A4	A5	A6	A7	A8	A9	A10	$\pm .0005$ A11	A12
FU64	.750	.875	4.00	2.38	1.12	3.375	.44	.75	3.75	2.00	.4955	4.62
FU95	.813	.875	4.00	2.38	1.12	3.688	.56	1.12	4.50	2.50	.6205	5.50
FU106	.750	1.000	4.12	2.38	1.12	4.250	.62	1.25	5.50	3.00	.7455	6.28
FU128	1.125	1.250	4.88	2.81	1.50	5.250	1.00	1.5	7.00	3.75	.9955	8.00

DIMENSIONS IN INCHES

CLAMP MODEL	B1	B2	B3	B4	B5	B6	B7	B8
FU64	2.81	1.563	.38	1.500	.062	3.00	1.38	2.50
FU95	3.75	2.063	.56	1.875	.188	4.00	1.75	2.75
FU106	4.38	2.370	.62	2.250	.125	5.00	2.00	3.00
FU128	5.62	3.188	.75	2.875	.312	5.50	2.62	3.75

CLAMP MODEL	$\pm .001$ D1	J1	APPROXIMATE WEIGHT
FU64	.251	4	5 LBS
FU95	.3135	5	8 LBS
FU106	.4385	5	13 LBS
FU128	.501	5	22 LBS

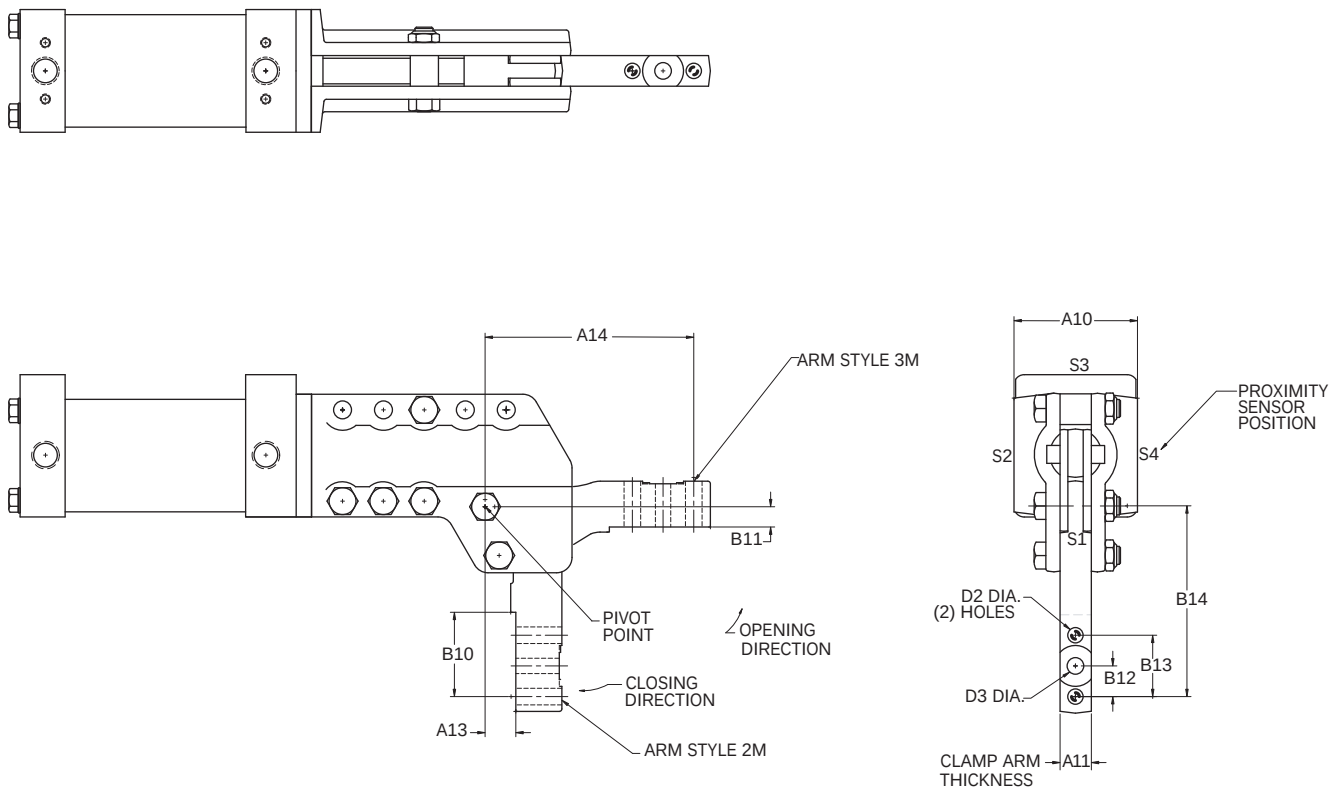
CLAMP MODEL	CYLINDER STROKE	STANDARD STROKE	ARM OPENING	ARM AVAILABILITY
FU64	3/4	OPTIONAL	32"	2A, 3A, 2M & 3M
	1	X	51"	2A, 3A, 2M & 3M
	1 1/2	X	88"	2A, 3A, 2M & 3M
	2	X	126"	2A & 2M
FU95	1	X	30"	2A, 3A, 2M & 3M
	1 1/2	X	57"	2A, 3A, 2M & 3M
	2	X	84"	2A, 3A, 2M & 3M
	2 1/2	X	110"	2A & 2M
FU106	1	X	25"	2A, 3A, 2M & 3M
	1 1/2	X	49"	2A, 3A, 2M & 3M
	2	X	73"	2A, 3A, 2M & 3M
	2 1/2	X	96"	2A, 3A, 2M & 3M
	3	X	121"	2A & 2M
FU128	1	OPTIONAL	14"	2A, 3A, 2M & 3M
	1 1/2	OPTIONAL	28"	2A, 3A, 2M & 3M
	2	X	46"	2A, 3A, 2M & 3M
	2 1/2	OPTIONAL	63"	2A, 3A, 2M & 3M
	3	X	80"	2A, 3A, 2M & 3M
	3 1/2	X	96"	2A, 3A, 2M & 3M
	4	X	114"	2A & 2M



Clamps and Power Pivots

Power Wedge Clamp
FU Series Standard Clamp with Machined Arm
Overall Dimensions

NORGREN CLAMPS



FU SERIES M OVERALL DIMENSIONS

CLAMP MODEL	A13	A14	B10	B11	B12	$\pm .0005$ B13	B14	$\pm .0002$ D2	D3	J1	APPROXIMATE WEIGHT
FU64	.562	3.500	1.125	.250	.438	.875	2.750	.2497	.266	4	5 LBS
FU95	.688	4.125	1.562	.439	.500	1.000	3.625	.3122	.344	5	8 LBS
FU106	.750	5.125	2.062	.500	.750	1.500	4.625	.3747	.406	5	13 LBS
FU128	1.125	6.625	2.062	.625	.750	1.500	5.125	.3747	.406	5	22 LBS

DIMENSIONS IN INCHES

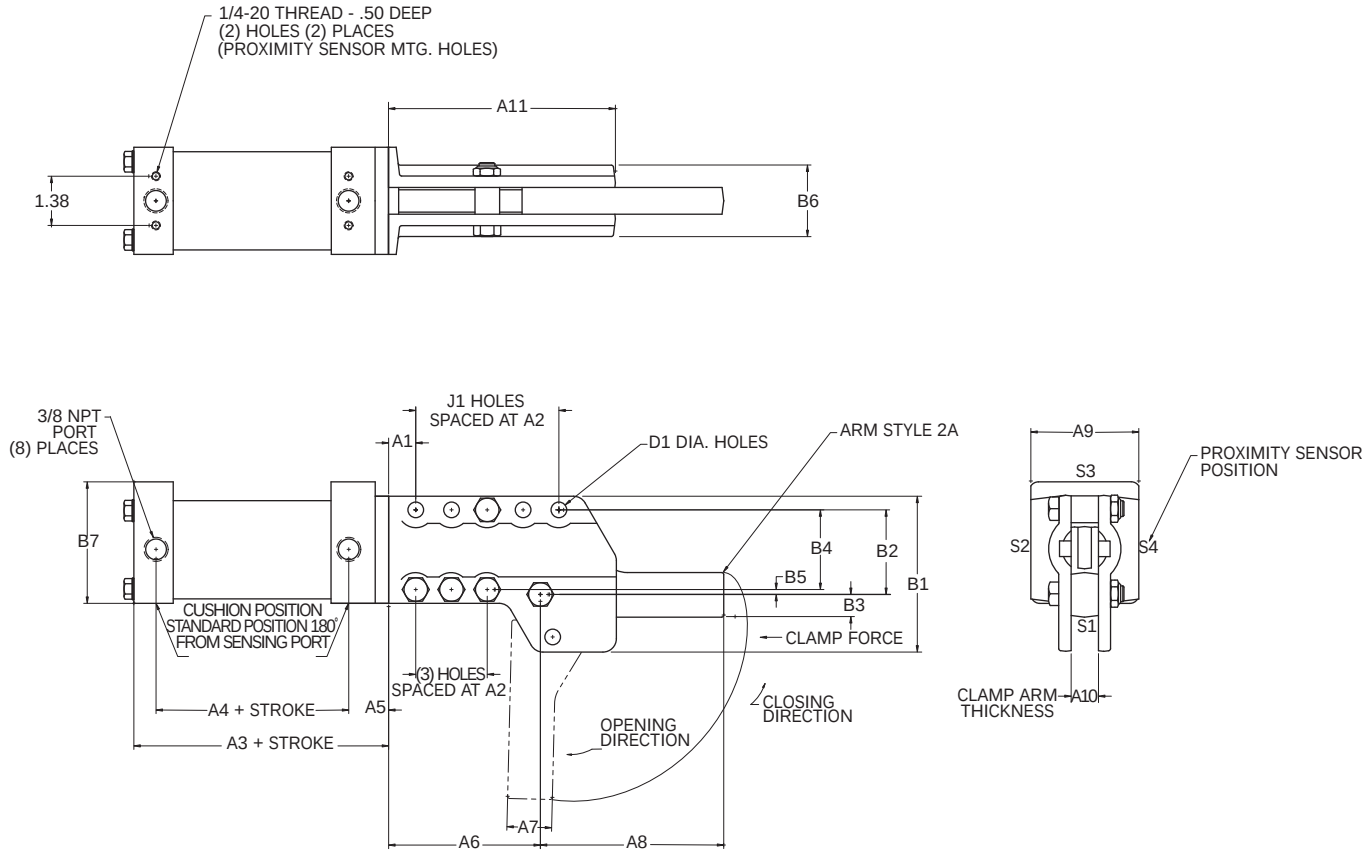
Clamps and Power Pivots

Power Wedge Clamp

FU Series • PBC • Pull Back Clamp Action

Overall Dimensions

NORGREN CLAMPS



FU SERIES PBC OVERALL DIMENSIONS

CLAMP MODEL	A1	±.001 A2	A3	A4	A5	A6	A7	A8	A9	±.0005 A10	A11
FU64PBC	.750	.875	4.00	2.38	1.12	3.375	.75	3.50	2.00	.4955	4.62
FU95PBC	.813	.875	4.00	2.38	1.12	3.688	1.12	4.20	2.50	.6205	5.520
FU106PBC	.750	1.00	4.12	2.38	1.12	4.250	1.25	5.11	3.00	.7455	6.342
FU128PBC	1.125	1.250	4.88	2.81	1.50	5.250	1.50	7.01	3.75	.9955	8.00

DIMENSIONS IN INCHES

CLAMP MODEL	B1	B2	B3	B4	B5	B6	B7
FU64PBC	2.81	1.563	.38	1.50	.062	1.38	2.50
FU95PBC	3.75	2.063	.56	1.875	.188	1.75	2.75
FU106PBC	4.38	2.37	.62	2.25	.125	2.00	3.00
FU128PBC	5.62	3.188	.75	2.875	.312	2.62	3.75

CLAMP MODEL	±.001 D1	J1	APPROXIMATE WEIGHT
FU64PBC	.251	4	5 LBS
FU95PBC	.3135	5	8 LBS
FU106PBC	.4385	5	13 LBS
FU128PBC	.501	5	22 LBS

CLAMP MODEL	CYLINDER STROKE	STANDARD STROKE	ARM OPENING	ARM AVAILABILITY
FU64PBC	3/4	OPTIONAL	27°	2M
	1	OPTIONAL	44°	2M
	1 1/2	X	82°	2M
FU95PBC	1	OPTIONAL	18°	2M
	1 1/2	OPTIONAL	41°	2M
	2	OPTIONAL	65°	2M
FU106PBC	2 1/2	X	86°	2M
	1	OPTIONAL	13°	2M
	1 1/2	OPTIONAL	31°	2M
	2	OPTIONAL	54°	2M
	2 1/2	OPTIONAL	74°	2M
FU128PBC	3	X	91°	2M
	1	OPTIONAL	8°	2M
	1 1/2	OPTIONAL	20°	2M
	2	OPTIONAL	35°	2M
	2 1/2	OPTIONAL	52°	2M
	3	OPTIONAL	68°	2M
	3 1/2	X	83°	2M

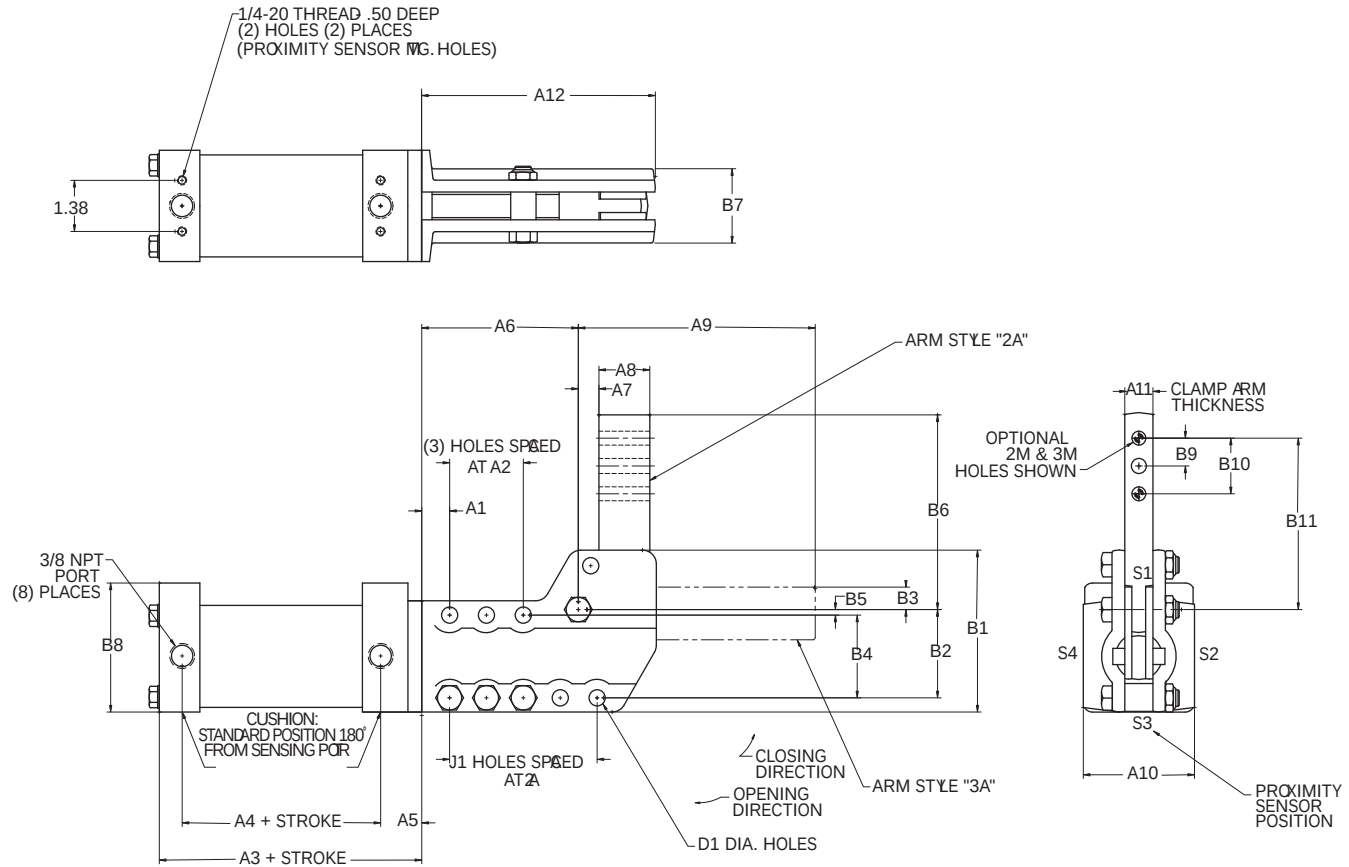
Clamps and Power Pivots

Power Wedge Clamp

FU Series • PPS • Power Pallet Stop

Overall Dimensions

NORGREN CLAMPS



FU SERIES PPS OVERALL DIMENSIONS

CLAMP MODEL	A1	±.001 A2	A3	A4	A5	A6	A7	A8	A9	A10	±.0005 A11	A12
FU95PPS	.813	.875	4.00	2.38	1.12	3.688	.51	1.14	5.125	2.50	.6205	5.520
FU106PPS	.750	1.00	4.12	2.38	1.12	4.250	.55	1.38	6.50	3.00	.7455	6.342
FU128PPS	1.125	1.250	4.88	2.81	1.50	5.250	.95	1.65	7.25	3.75	.9955	8.00

DIMENSIONS IN INCHES

CLAMP MODEL	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
FU95PPS	3.75	2.063	.49	1.874	.188	.188	1.75	2.75	.500	1.000	3.625
FU106PPS	4.38	2.37	.60	2.25	.125	5.25	2.00	3.00	.750	1.500	4.625
FU128PPS	5.62	3.188	.60	2.875	.312	5.50	2.62	3.75	.750	1.500	5.125

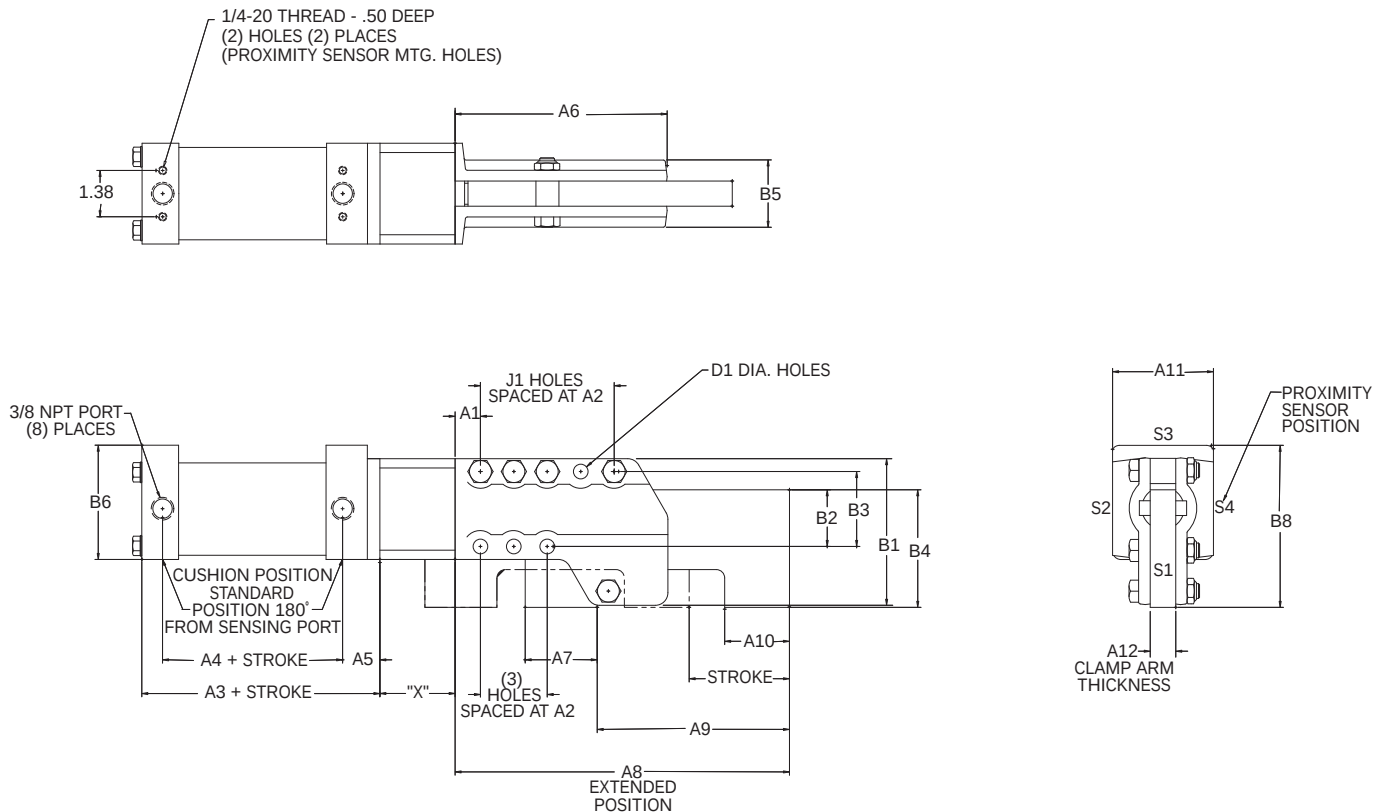
CLAMP MODEL	±.001 D1	±.002 D2	D3	J1	APPROXIMATE WEIGHT
FU95PPS	.3135	.3122	.344	5	8 LBS
FU106PPS	.4385	.3747	.406	5	13 LBS
FU128PPS	.501	.3747	.406	5	22 LBS

CLAMP MODEL	CYLINDER STROKE	ARM OPENING	ARM AVAILABILITY
FU95PPS	1	53°	2A, 3A, 2M & 3M
	1 1/2	74°	2A, 3A, 2M & 3M
	2	83°	2A, 3A, 2M & 3M
FU106PPS	1	48°	2A, 3A, 2M & 3M
	1 1/2	69°	2A, 3A, 2M & 3M
	2	81°	2A, 3A, 2M & 3M
	2 1/2	83°	2A, 3A, 2M & 3M
FU128PPS	1	34°	2A, 3A, 2M & 3M
	1 1/2	52°	2A, 3A, 2M & 3M
	2	67°	2A, 3A, 2M & 3M
	2 1/2	77°	2A, 3A, 2M & 3M
	3	83°	2A, 3A, 2M & 3M

Clamps and Power Pivots

Power Wedge Clamp
FU Series • FML • Forward Motion Locking
Overall Dimension

NORGREN CLAMPS



FU SERIES FML OVERALL DIMENSIONS

CLAMP MODEL	A1	±.001 A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	±.0005 A12
FU64FML	.750	.875	4.00	2.38	1.12	4.62	1.25	7.50	4.125	1.62	2.00	.4955
FU95FML	.813	.875	4.00	2.38	1.12	5.50	1.625	9.00	5.250	2.12	2.50	.6205
FU106FML	.750	1.00	4.12	2.38	1.12	6.28	2.125	10.00	5.750	1.94	3.00	.7455
FU128FML	1.125	1.250	4.88	2.81	1.50	8.00	2.25	13.81	7.000	2.94	3.75	.9955

DIMENSIONS IN INCHES

CLAMP MODEL	B1	B2	B3	B4	B5	B7	B8
FU64FML	2.81	1.13	1.500	2.25	1.38	2.50	2.87
FU95FML	3.75	1.44	1.875	3.00	1.75	2.75	4.00
FU106FML	4.38	1.69	2.250	3.50	2.00	3.00	4.50
FU128FML	5.62	2.13	2.875	4.44	2.62	3.75	5.62

CLAMP MODEL	±.001 D1	J1	APPROXIMATE WEIGHT
FU64FML	.251	4	5 LBS
FU95FML	.3135	5	8 LBS
FU106FML	.4385	5	13 LBS
FU128FML	.501	5	22 LBS

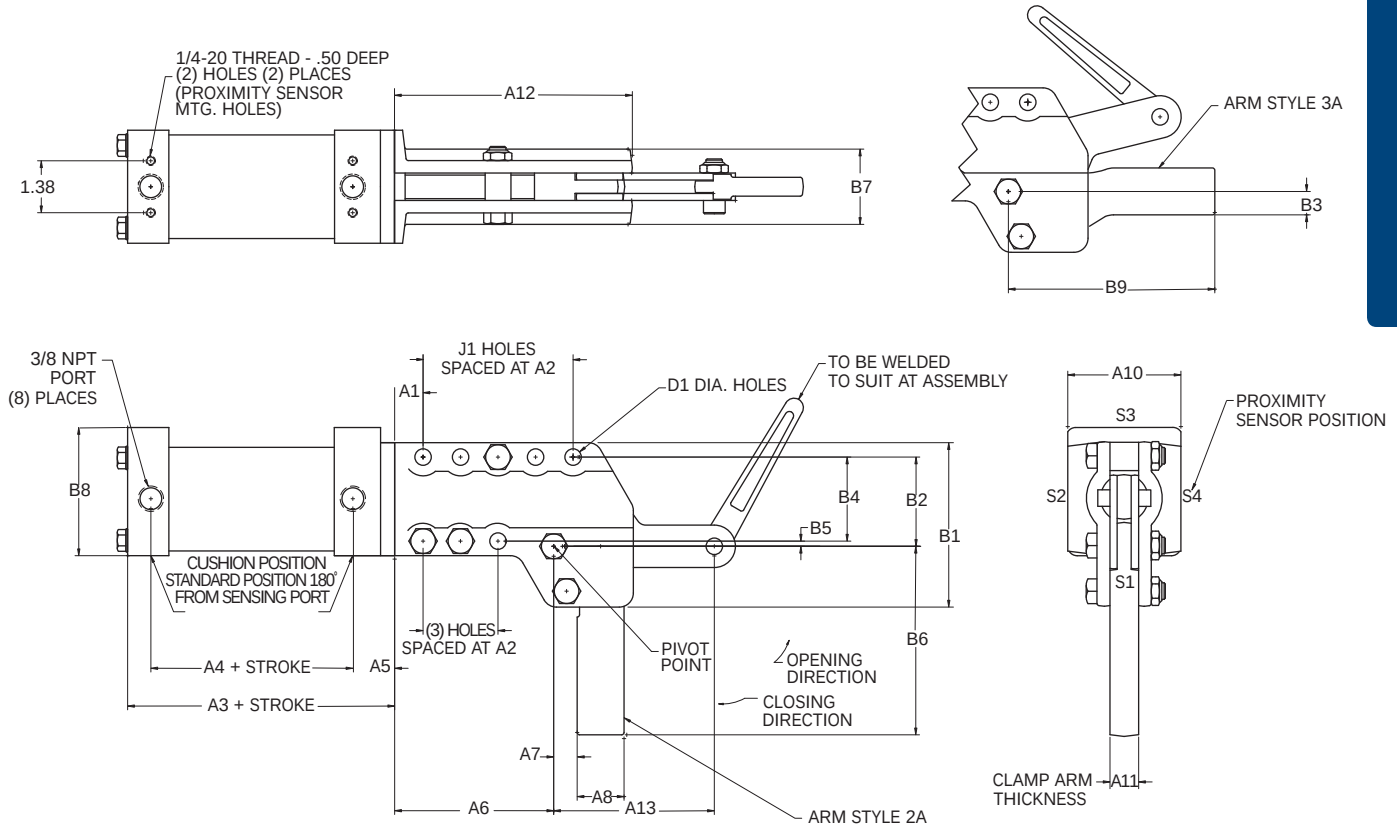
CLAMP MODEL	CYLINDER STROKE	STANDARD STROKE	DIMENSION "X"
FU64FML	3/4	X	1.00
	1	X	
	1 1/2	X	
	2	X	
FU95FML	1	X	1.12
	1 1/2	X	
	2	X	1.62
	2 1/2	X	
FU106FML	1	X	1.25
	1 1/2	X	
	2	X	
	2 1/2	X	1.75
	3	X	2.25
FU128FML	1	OPTIONAL	1.50
	1 1/2	OPTIONAL	
	2	X	
	2 1/2	OPTIONAL	
	3	X	2.00
	3 1/2	X	
	4	X	2.50

Clamps and Power Pivots

Power Wedge Clamp

FU Series • PAC • Power Assist

Overall Information



NORGREN CLAMPS

FU SERIES PAC OVERALL DIMENSION

CLAMP MODEL	A1	$\pm .001$ A2	A3	A4	A5	A6	A7	A8	A9	A10	$\pm .0005$ A11	A12	A13
FU64PAC	.750	.875	4.00	2.38	1.12	3.375	.44	.75	3.75	2.00	.4955	4.62	2.687
FU95PAC	.813	.875	4.00	2.38	1.12	3.688	.56	1.12	4.50	2.50	.6205	5.520	3.625
FU106PAC	.750	1.00	4.12	2.38	1.12	4.250	.62	1.25	5.50	3.00	.7455	6.342	4.250
FU128PAC	1.125	1.250	4.88	2.81	1.50	5.250	1.00	1.50	7.00	3.75	.9955	8.00	5.655

DIMENSIONS IN INCHES

CLAMP MODEL	B1	B2	B3	B4	B5	B6	B7	B8
FU64PAC	2.81	1.563	.38	1.50	.062	3.00	1.38	2.50
FU95PAC	3.75	2.063	.56	1.875	.188	4.00	1.75	2.75
FU106PAC	4.38	2.37	.62	2.25	.125	5.00	2.00	3.00
FU128PAC	5.62	3.188	.75	2.875	.312	5.50	2.62	3.75

CLAMP MODEL	$\pm .001$ D1	J1	APPROXIMATE WEIGHT
FU64PAC	.251	4	5 LBS
FU95PAC	.3135	5	8 LBS
FU106PAC	.4385	5	13 LBS
FU128PAC	.501	5	22 LBS

CLAMP MODEL	CYLINDER STROKE	STANDARD STROKE	ARM OPENING	ARM AVAILABILITY
FU64PAC	3/4	OPTIONAL	32°	2A, 3A, 2M & 3M
	1	X	51°	2A, 3A, 2M & 3M
FU95PAC	1	X	30°	2A, 3A, 2M & 3M
	1 1/2	X	57°	2A, 3A, 2M & 3M
FU106PAC	1	X	25°	2A, 3A, 2M & 3M
	1 1/2	X	49°	2A, 3A, 2M & 3M
	2	X	73°	2A, 3A, 2M & 3M
	2 1/2	X	97°	2A, 3A, 2M & 3M
FU128PAC	1	OPTIONAL	14°	2A, 3A, 2M & 3M
	1 1/2	OPTIONAL	28°	2A, 3A, 2M & 3M
	2	X	46°	2A, 3A, 2M & 3M
	2 1/2	OPTIONAL	63°	2A, 3A, 2M & 3M
	3	X	80°	2A, 3A, 2M & 3M
	3 1/2	OPTIONAL	96°	2A, 3A, 2M & 3M

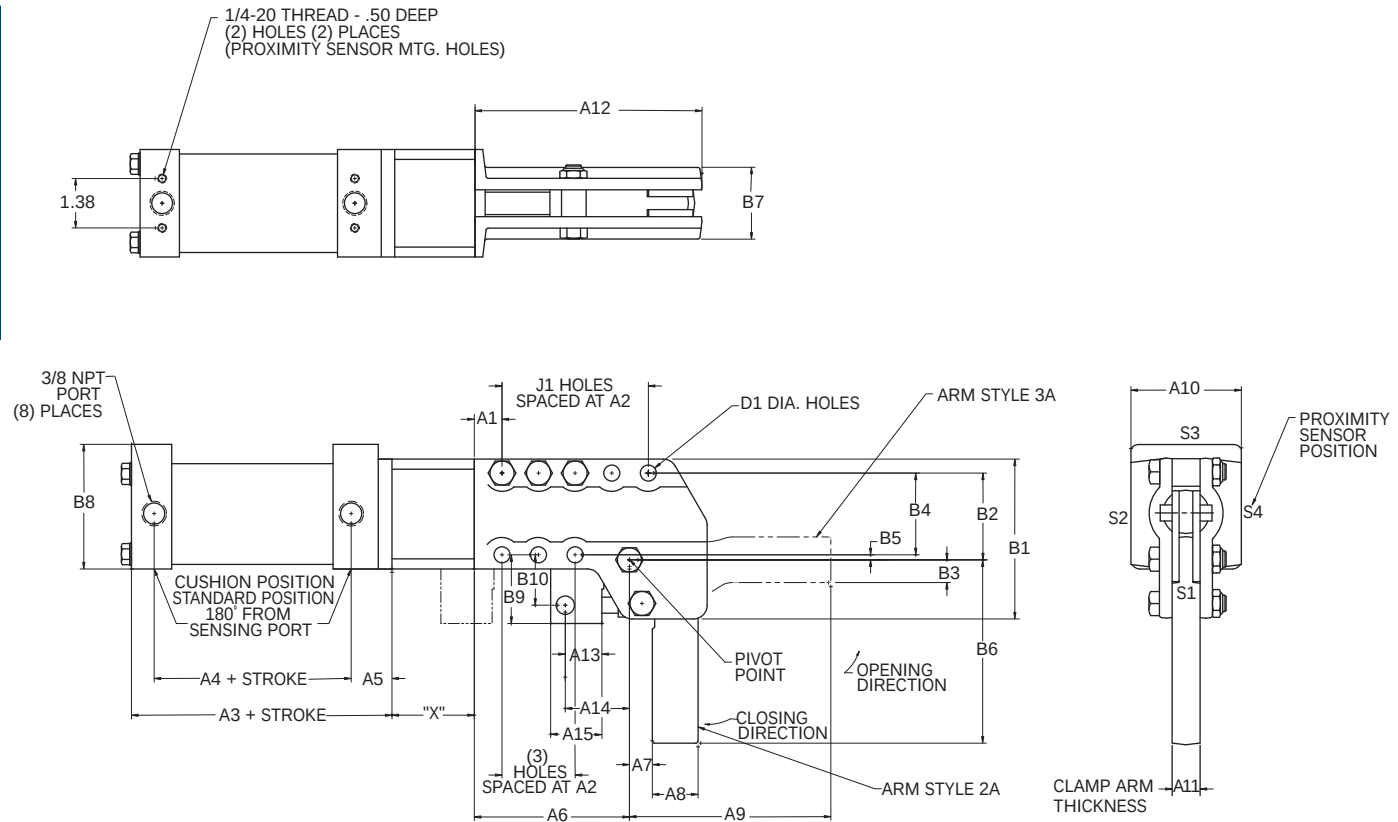
Clamps and Power Pivots

Power Wedge Clamp

FU Series • LRE • Linear Rod End

Overall Dimensions

NORGREN CLAMPS



Clamps and Power Pivots

Power Wedge Clamp

FU Series • LRE • Linear Rod End

Overall Dimensions

FU SERIES LRE OVERALL DIMENSIONS

CLAMP MODEL	A1	$\pm .001$ A2	A3	A4	A5	A6	A7	A8	A9	A10	$\pm .0005$ A11	A12	A13	A14	A15
FU64LRE	.750	.875	4.00	2.38	1.12	3.375	.44	.75	3.75	2.00	.4955	4.62	.605	1.125	.875
FU95LRE	.813	.875	4.00	2.38	1.12	3.688	.56	1.12	4.50	2.50	.6205	5.50	.656	1.250	.981
FU106LRE	.750	1.00	4.12	2.38	1.12	4.250	.62	1.25	5.50	3.00	.7455	6.28	1.00	1.750	1.403
FU128LRE	1.125	1.250	4.88	2.81	1.50	5.250	1.00	1.50	7.00	3.75	.9955	8.00	.875	1.62	1.433

DIMENSIONS IN INCHES

CLAMP MODEL	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
FU64LRE	2.81	1.563	.38	1.50	.062	3.00	1.38	2.50	1.18	.90
FU95LRE	3.75	2.063	.56	1.875	.188	4.00	1.75	2.75	1.56	1.25
FU106LRE	4.38	2.37	.62	2.25	.125	5.00	2.00	3.00	1.87	1.37
FU128LRE	5.62	3.188	.75	2.875	.312	5.50	2.62	3.75	2.31	1.81

CLAMP MODEL	$\pm .001$ D1	J1	APPROXIMATE WEIGHT
FU64LRE	.251	4	5 LBS [2.3 kg]
FU95LRE	.3135	5	8 LBS [3.6 kg]
FU106LRE	.4385	5	13 LBS [5.9 kg]
FU128LRE	.501	5	22 LBS [10.0 kg]

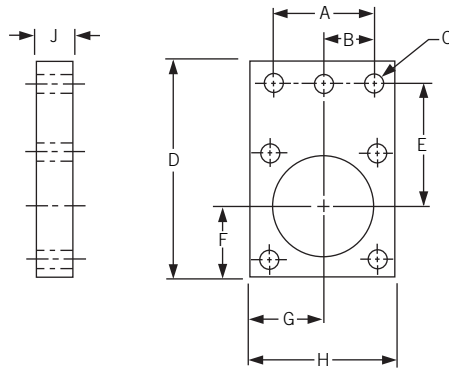
CLAMP MODEL	CYLINDER STROKE	STANDARD STROKE	ARM OPENING	ARM AVAILABILITY	DIMENSION "X"
FU64LRE	3/4	OPTIONAL	32°	2A, 3A, 2M & 3M	1.00
	1	X	51°	2A, 3A, 2M & 3M	
	1 1/2	X	88°	2A, 3A, 2M & 3M	
	2	X	126°	2A & 2M	
FU95LRE	1	X	30°	2A, 3A, 2M & 3M	1.12
	1 1/2	X	57°	2A, 3A, 2M & 3M	
	2	X	84°	2A, 3A, 2M & 3M	1.62
	2 1/2	X	110°	2A & 2M	
FU106LRE	1	X	25°	2A, 3A, 2M & 3M	1.25
	1 1/2	X	49°	2A, 3A, 2M & 3M	
	2	X	73°	2A, 3A, 2M & 3M	
	2 1/2	X	96°	2A, 3A, 2M & 3M	1.75
	3	X	121°	2A & 2M	2.25
FU128LRE	1	OPTIONAL	14°	2A, 3A, 2M & 3M	1.50
	1 1/2	OPTIONAL	28°	2A, 3A, 2M & 3M	
	2	X	46°	2A, 3A, 2M & 3M	
	2 1/2	OPTIONAL	63°	2A, 3A, 2M & 3M	
	3	X	80°	2A, 3A, 2M & 3M	2.00
	3 1/2	X	96°	2A, 3A, 2M & 3M	
	4	X	114°	2A & 2M	2.50

NORGREN CLAMPS

Clamps and Power Pivots

Power Wedge Clamp
FU Series Mounting Style
Overall Dimensions

NORGREN CLAMPS

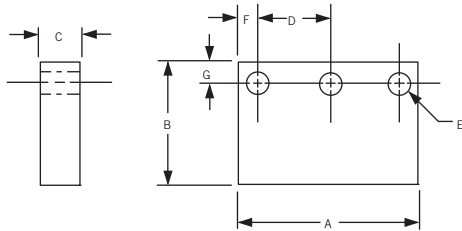


"TB" TANG BASE OVERALL DIMENSIONS

Model No.	A	B	C	D	E	F	G	H	J
FU64	1.500	.750	.2500/.2510	3.00	1.750	1.00	1.00	2.00	.500
FU95	1.750	.875	.3125/.3135	3.75	2.125	1.25	1.25	2.50	.625
FU106	2.000	1.000	.4375/.4385	4.50	2.625	1.50	1.50	3.00	.750
FU128	2.500	1.250	.5000/.5010	5.75	3.250	1.88	1.75	3.50	1.000

Dimensions in inches

To order the "TB" Tang Base with your power clamp, specify: TB1, TB2, TB3 or TB4. The number refers to the location on the power clamp. See FU Series Mounting illustration.



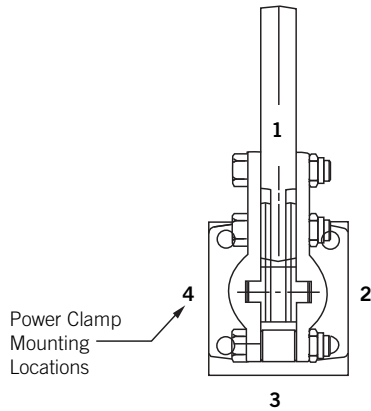
"RB" RISER BLOCK OVERALL DIMENSIONS

Model No.	A	B	C	D	E	F	G
FU64	2.25	1.50	.500/.498	.875	.2500/.2510	.250	.250
FU95	2.50	2.00	.625/.623	.875	.3125/.3135	.375	.375
FU106	3.00	2.25	.750/.748	1.000	.4375/.4385	.500	.375
FU128	3.50	3.00	1.000/.998	1.250	.5000/.5010	.500	.500

Dimensions in inches

To order the "RB" Riser Block with your power clamp, specify: RB1 or RB3. The number refers to the location on the power clamp. See FU Series Mounting illustration.

FU SERIES MOUNTING

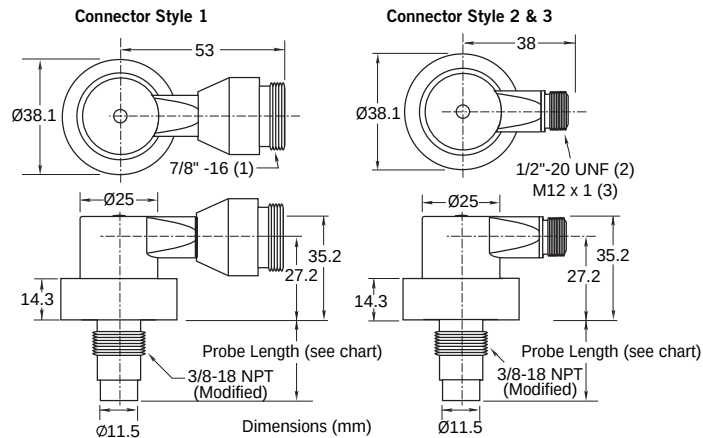


Clamps and Power Pivots

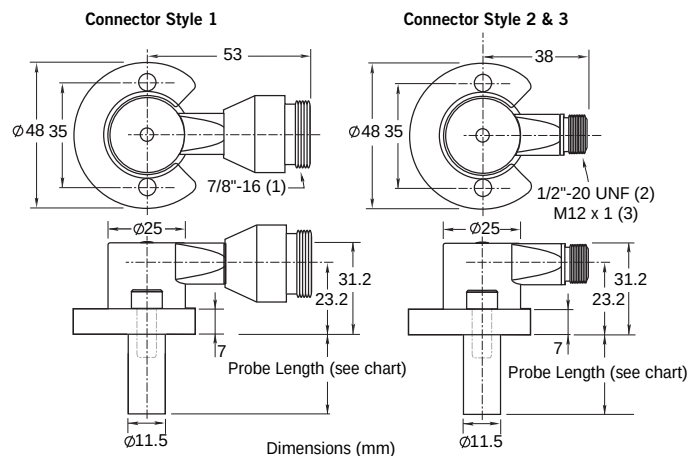
Power Wedge Clamp
Electrical Connector Information

NORGREN CLAMPS

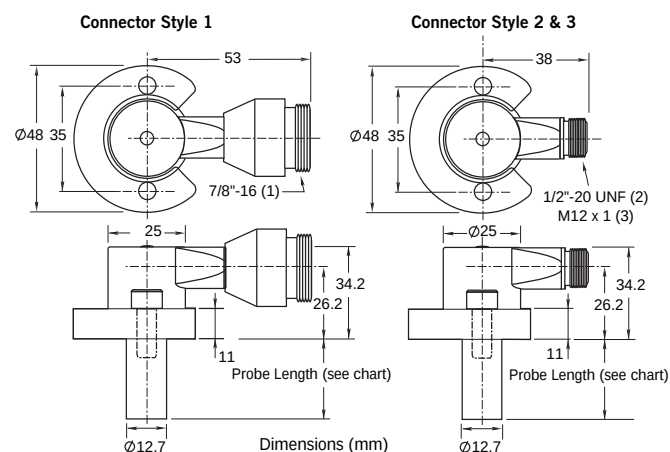
C = CANISTER MOUNTED TYPE • 250PSI RATING



F = FLANGE MOUNTED TYPE • 250PSI RATING

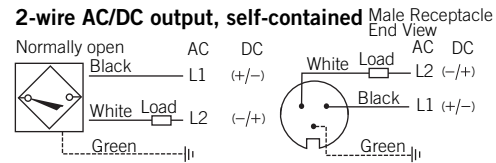


H = FLANGE MOUNTED TYPE • 3000PSI RATING



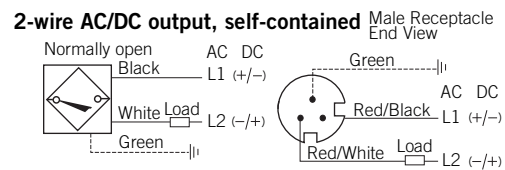
OPTION 1 OPERATING VOTAGE • MINI

Mini Connectors



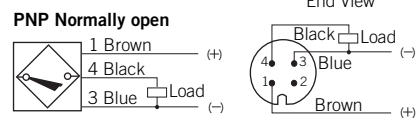
OPTION 2 OPERATING VOTAGE • MICRO

Micro Connectors



OPTION 3 OPERATING VOTAGE • MICRO

3-wire DC output, self-contained



FU SERIES MOUNTING

Probe Length	Corresponding Cylinder Bore Size
S = 1.025	1.5", 2.0", 2.5", 3.25"
T = 1.250	4.0"
U = 2.062	5.0", 6.0"
V = 2.875	8.0"

All dimensions in inches

Clamps and Power Pivots

Power Wedge Clamp

Proximity Sensor Technical Information

PROXIMITY SENSOR TECHNICAL INFORMATION

ELECTRICAL OUTPUT 2-Wire AC/DC		ELECTRICAL OUTPUT 3-Wire DC
SENSING RANGE		2.0 mm or 3.0 mm (to standard target)
REDUCTION FACTOR		
Stainless Steel	.85	.70
Aluminum	.40	.32
STANDARD TARGET		10 x 10 x 1 mm Ferrous
REPEATABILITY		0.01 mm (70F) • 0.3 mm (-14 F to +158 F)
HYSTERESIS		About 3%
0.5 mm (-14 F to +158 F) Target moves transversely to sensor		
VOLTAGE RANGE		10-30 VDC
20V-250V AC/DC		
LEAKAGE CURRENT		—
1.7 mA		
VOLTAGE DROP (Across sensor)		2.0 VDC
7 V		
SWITCHING FREQUENCY		20 Hz
20 Hz		
RESPONSE TIME		
While Target Moves Into Range		20 mS
During Power-up		80 mS
MAKE		—
3A		
LOAD CURRENT		200 mA
300 mA		
SHORT CIRCUIT PROTECTED		YES
YES		
OVERLOAD PROTECTED		YES
YES		
SHORT CIRCUIT — OFF CURRENT		>200 mA
>300 mA		
INDICATOR LIGHTS:		
Power ON	LED (green)	LED (green)
Output ON	LED (red or yellow)	LED (yellow)
Short or Overload Condition	Both LEDs (flashing with a frequency of 2 Hz)	—
AMBIENT TEMPERATURE		-14 F to +158 F
SHOCK RESISTANCE		30 G T 11 MS
VIBRATION STRESS		f55 Hz @ 11 mS
IMMUNITY TO:		
Welding	AC — resistance welding 300 mT (45000 A RMS) DC — welding 25000A	
Radio Transmitted Fields	from 10 MHz-800 MHz • 10 V/m field strength	
Electrical Noise	-ICS-230	—
HOUSING MATERIAL		Aluminum
PROTECTION (IEC)		IP65
CPS-C (250psi)	BHM Connection	CP-S-C-1
	Micro Connection	CP-S-C-2
CPS-F (250psi)	BHM Connection	CP-S-F-1
	Micro Connection	CP-S-F-2
CPS-H (3000psi)	BHM Connection	CP-S-H-1
	Micro Connection	*CP-S-H-2

*Special Order — Consult Norgren for Delivery.

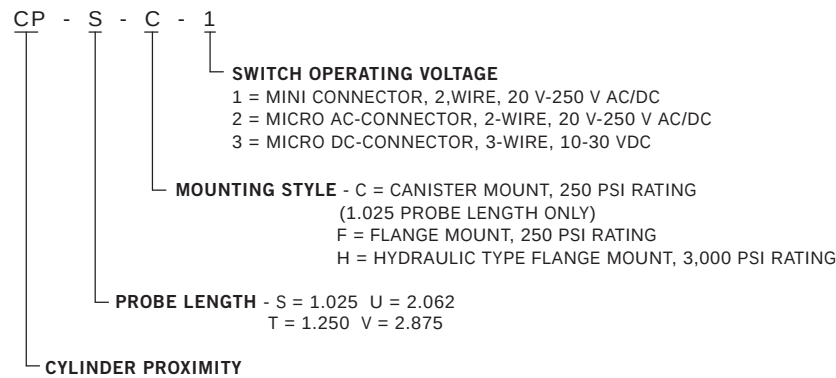
Clamps and Power Pivots

Power Wedge Clamp

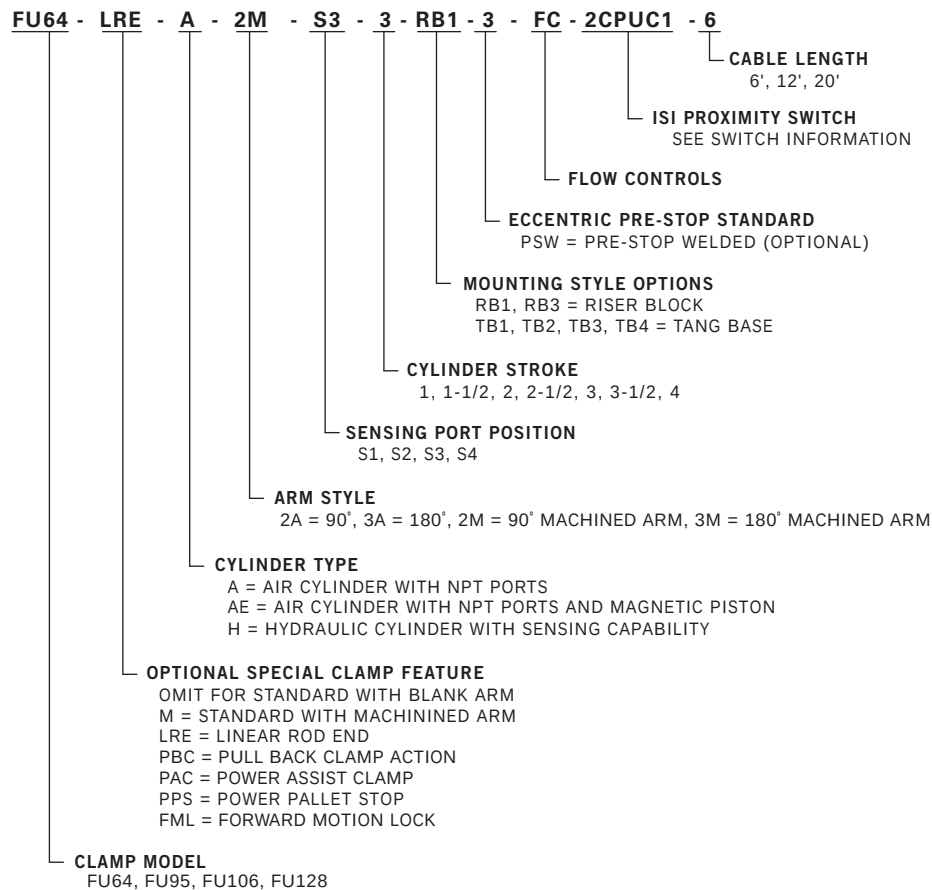
FU Series and Proximity Sensor Ordering Information

NORGREN CLAMPS

PROXIMITY SENSOR ORDERING INFORMATION



FU SERIES ORDERING INFORMATION



Clamps and Power Pivots

Power Pivot Rotate and Dump Unit

FEATURES

- ▶ Eight pivot rotations available 15° through 120° in 15° increments.
- ▶ Shock absorber package absorbs inertia at both ends of stroke.
- ▶ Shock package is available in right or left hand mounting.
- ▶ Adjustable pre-stop assures accuracy and repeatability of saddle bracket.
- ▶ Top, bottom and side mounting surfaces.
- ▶ Robust tapered roller bearings.
- ▶ Two dowels and 4 tapped holes provided for mounting to tooling.
- ▶ Five Saddle positions available for mounting tooling.

TECHNICAL DATA

- ▶ Fluid: Compressed air
- ▶ Air Pressure:
 - Minimum 2.75 bar (40 psi)
 - Maximum 10 bar (150 psi)
- ▶ Operating Temperature:
 - 25° C (-13° F) to 70° C (158° F)
- ▶ Air Filtration:
 - 40 Micron
 - * Air supply must be dry enough to prevent ice formation at temperatures below 2° C (35° F).

MATERIALS

- ▶ Clamp Head: Steel
- ▶ Seals: Carboxylated Nitrile / Urethane

Consult design charts for mass and velocity limitations.

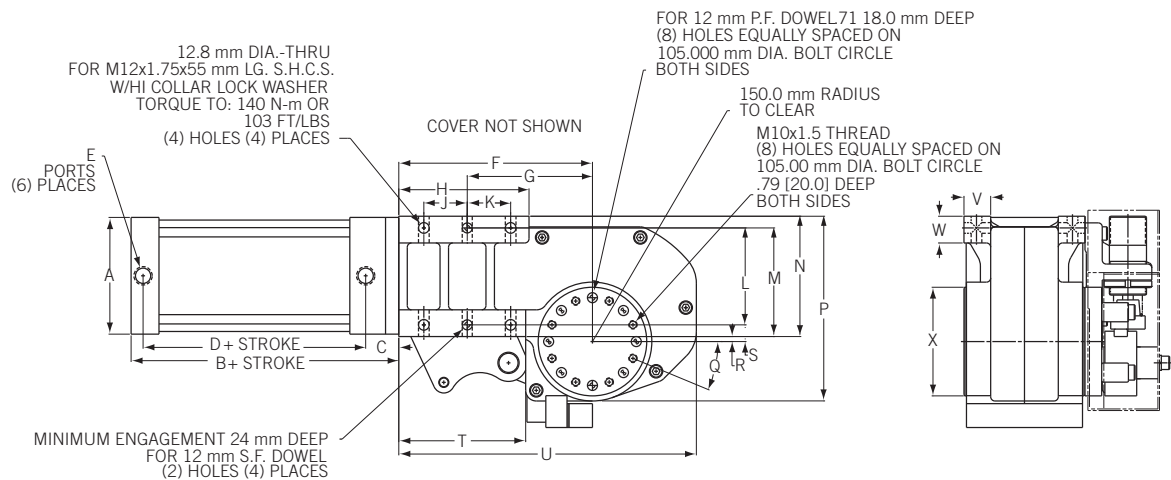
Flow controls are required for proper operation.



Clamps and Power Pivots

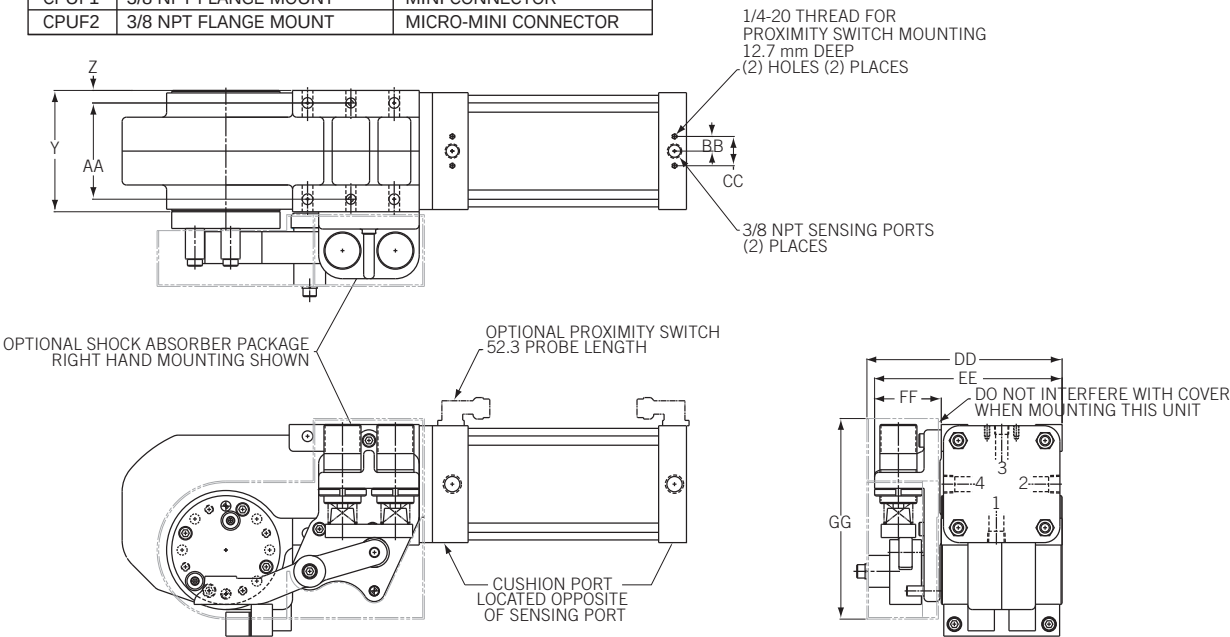
Power Pivot Rotate and Dump Unit
PP51 Overall Dimensions

NORGREN CLAMPS



PROXIMITY SENSOR TECHNICAL DATA

5" BORE CYLINDER		
SWITCH MOUNTING STYLE		RECEPTACLE
CPUF1	3/8 NPT FLANGE MOUNT	MINI CONNECTOR
CPUF2	3/8 NPT FLANGE MOUNT	MICRO-MINI CONNECTOR



PP51 OVERALL DIMENSIONS

CYLINDER BORE (INCH)	CYLINDER AREA ROD END	CYLINDER AREA BLIND END	A	B	C	D	E	SENSING SWITCH PROBE LENGTH
5.00 IN.	18.85 SQ. IN.	19.64 SQ. IN.	140 mm	130 mm	40 mm	76 mm	1/2 NPT	52.37 mm

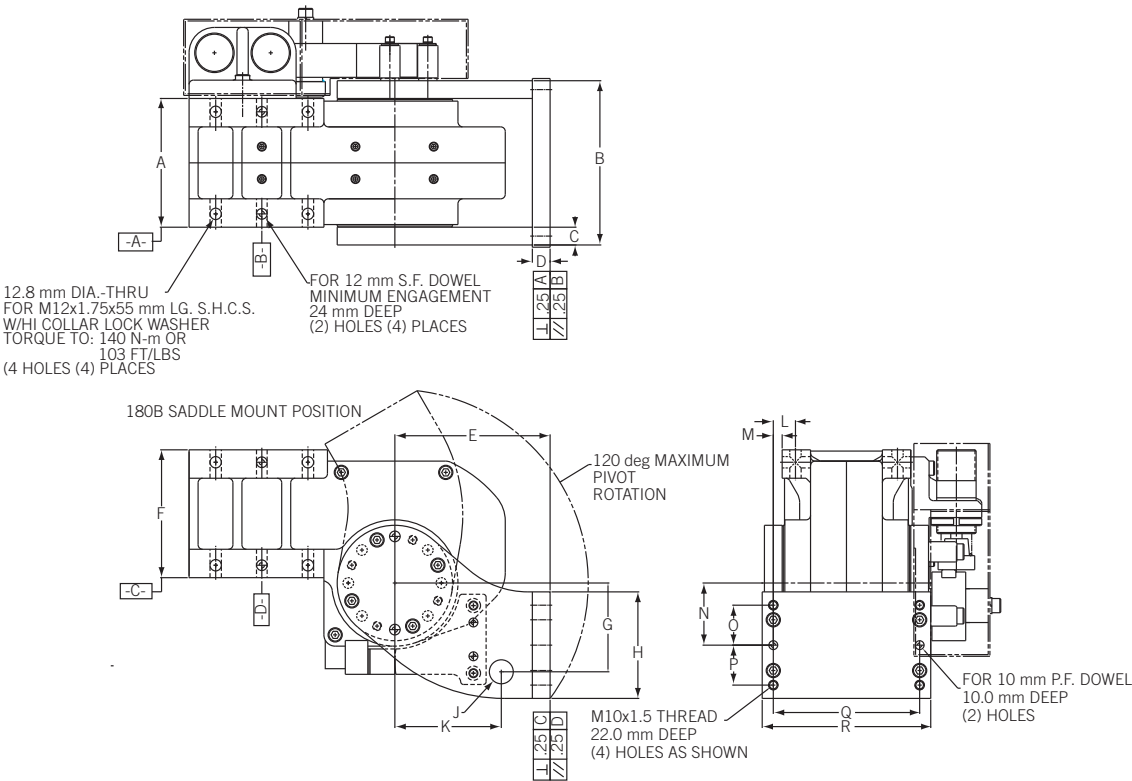
DIMENSIONS (mm)																
F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
232.0	150.0	156.0	52.0	52.0	116.0	130.0	144.0	221.0	22.5	6.0	20.0	152.0	356.5	32.0	32.0	130.0
AA	BB	CC	DD	EE	FF	GG										
115.0	17.5	35.0	234.2	225.0	80.0	239.7										



Clamps and Power Pivots

Power Pivot Rotate and Dump Unit
PP51 Saddle Mount and Mounting Dimensions

NORGREN CLAMPS

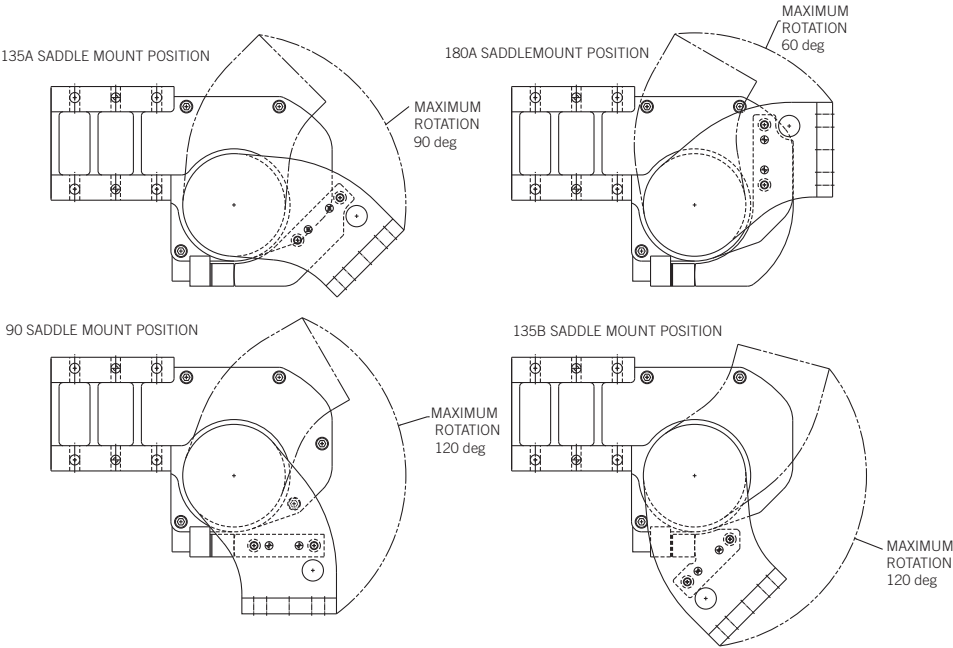


PP51 SADDLE MOUNT AND MOUNTING DIMENSIONS

DIMENSIONS (mm)															
A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
145.0	185.0	20.0	20.0	175.0	144.0	100.0	120.0	27.0	120.0	25.0	10.0	70.0	45.0	45.0	190.0

ROTATION / STROKE

PIVOT ROTATION	CYLINDER STROKE
15 deg	45 mm
30 deg	68 mm
45 deg	87 mm
60 deg	106 mm
75 deg	126 mm
90 deg	147 mm
105 deg	168 mm
120 deg	188 mm



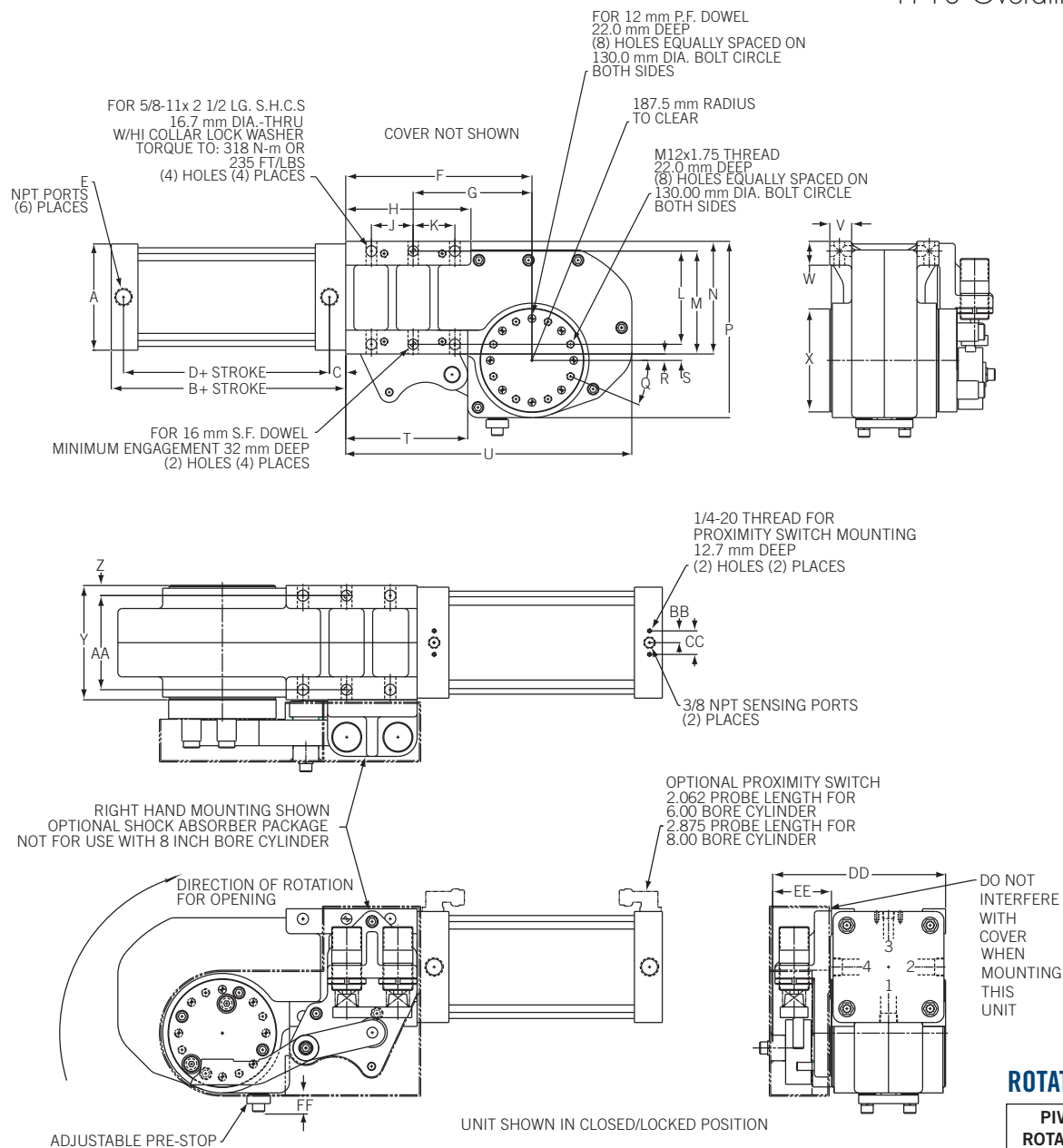
PP51 Power Pivots



Clamps and Power Pivots

Power Pivot Rotate and Dump Unit
PP10 Overall Dimensions

NORGREN CLAMPS



PP10 OVERALL DIMENSIONS

CYLINDER BORE	CYLINDER AREA ROD END	CYLINDER AREA BLIND END	A	B	C	D	E	SENSING SWITCH PROBE LENGTH
6.00	26.79 SQ. IN.	28.27 SQ. IN.	165 mm	127 mm	25 mm	83 mm	3/4 NPT	52.37 mm
8.00	48.79 SQ. IN.	50.27 SQ. IN.	216 mm	155 mm	86 mm	51 mm	3/4 NPT	73.03 mm

DIMENSIONS (mm)

F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z
290.0	185.0	195.0	65.0	65.0	145.0	160.0	175.0	274.0	22.5	10.0	25.0	190.0	445.5	34.0	37.0	160.0	170.0	15.0
AA	BB	CC	DD	EE	FF													
140.0	17.5	35.0	257.5	87.5	28.0													

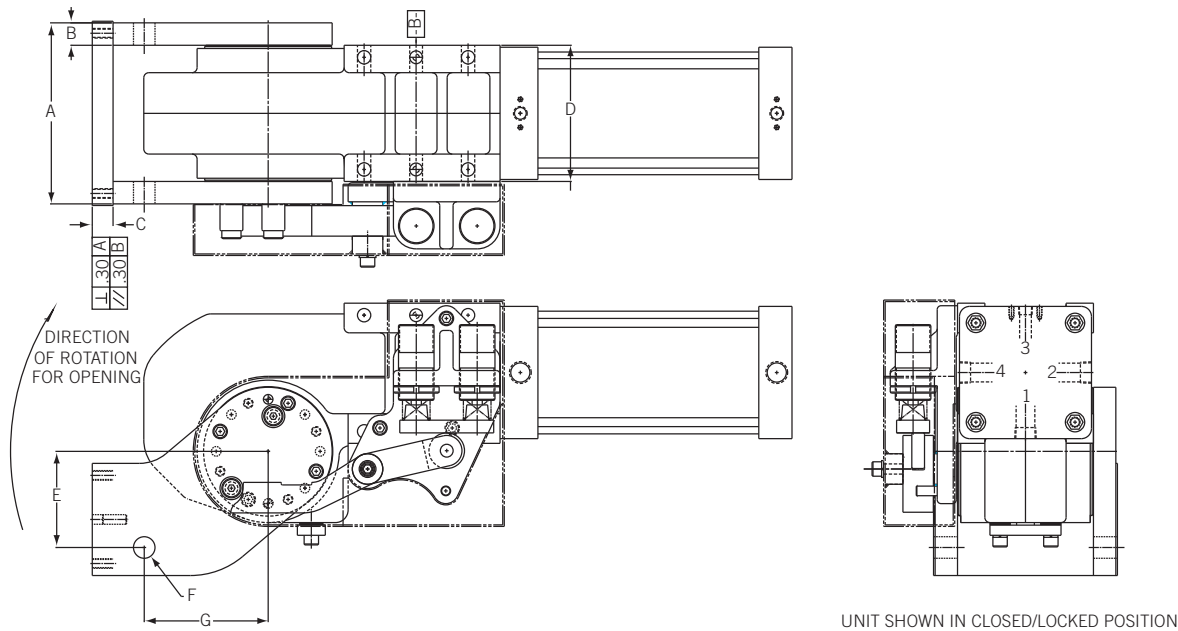
ROTATION / STROKE

PIVOT ROTATION	CYLINDER STROKE
15 deg	55 mm
30 deg	84 mm
45 deg	108 mm
60 deg	132 mm
75 deg	157 mm
90 deg	183 mm
105 deg	210 mm
120 deg	234 mm

Clamps and Power Pivots

Power Pivot Rotate and Dump Unit
PP10 Saddle Mount and Mounting Dimensions

NORGREN CLAMPS

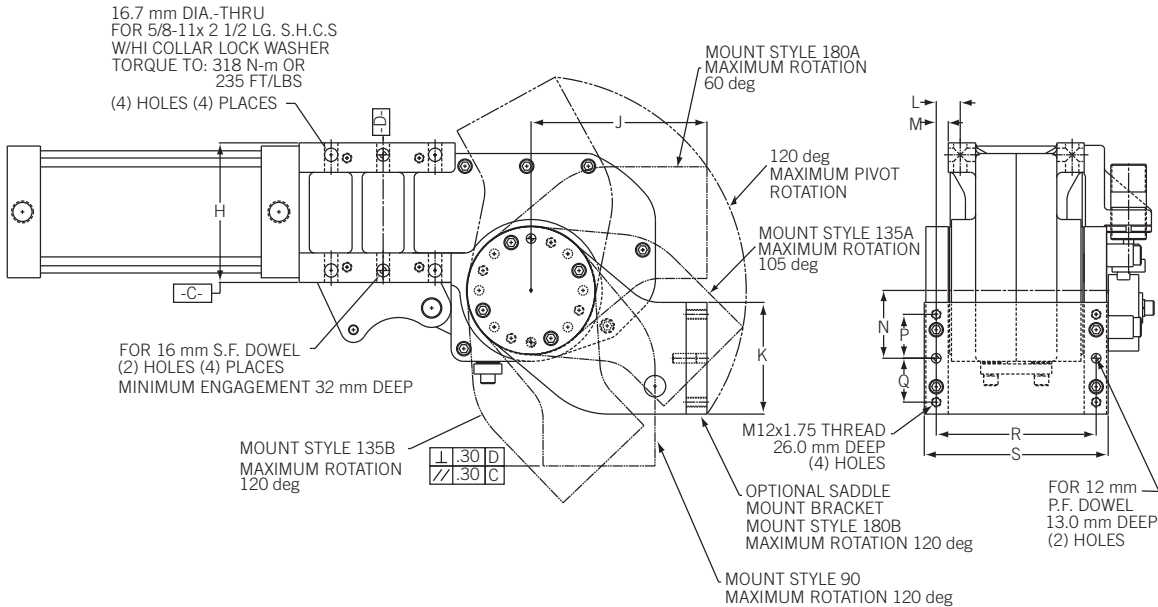


PP10 6" BORE SENSOR INFORMATION

6" BORE CYLINDER	
SWITCH MOUNTING STYLE	RECEPTACLE
CPUF1 3/8 NPT FLANGE MOUNT	MINI CONNECTOR
CPUF2 3/8 NPT FLANGE MOUNT	MICRO-MINI CONNECTOR

PP10 8" BORE SENSOR INFORMATION

8" BORE CYLINDER	
SWITCH MOUNTING STYLE	RECEPTACLE
CPVF1 3/8 NPT FLANGE MOUNT	MINI CONNECTOR
CPVF2 3/8 NPT FLANGE MOUNT	MICRO-MINI CONNECTOR



PP10 6" SADDLE MOUNT AND MOUNTING DIMENSIONS

DIMENSIONS (mm)																
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
226.0	28.0	26.0	170.0	120.0	27.0	155.0	175.0	220.0	140.0	30.0	15.0	85.0	55.0	55.0	200.0	230.0

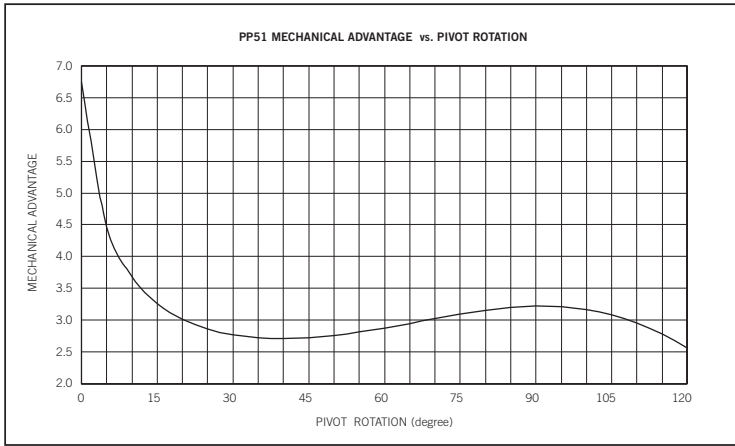
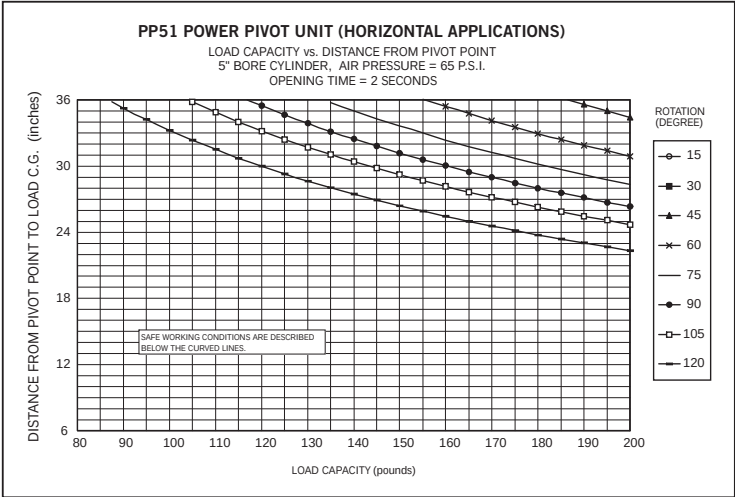
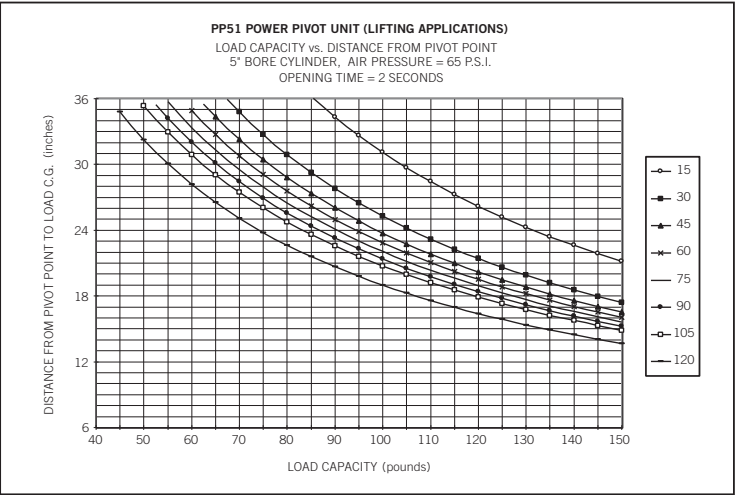
PP10 Power Pivots



Clamps and Power Pivots

Power Pivot Rotate and Dump Unit
PP51 Application Charts

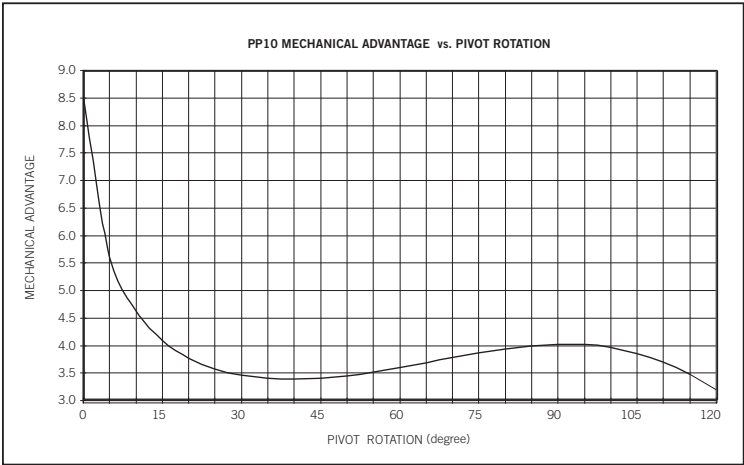
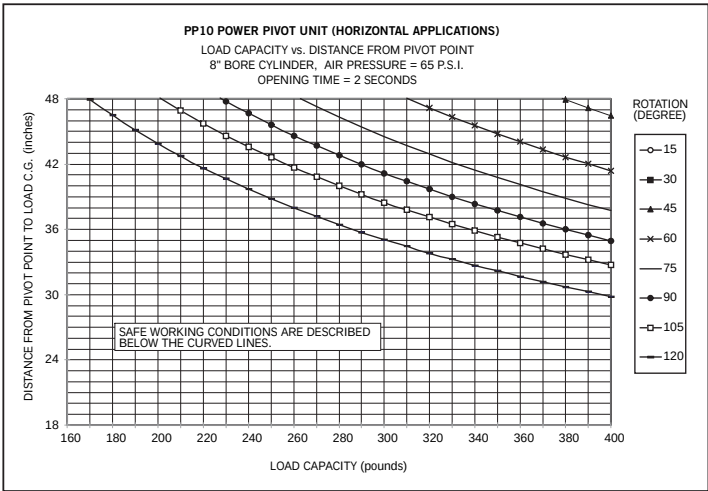
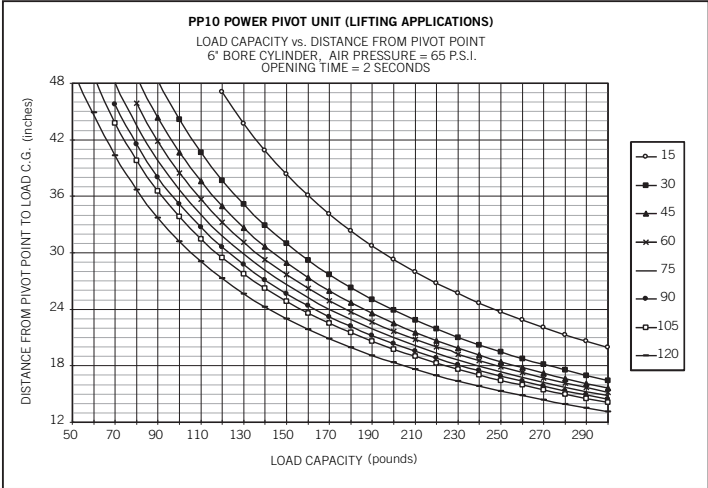
NORGREN CLAMPS



Clamps and Power Pivots

Power Pivot Rotate and Dump Unit
PP10 Application Charts

NORGREN CLAMPS



Clamps and Power Pivots

Power Pivot Rotate and Dump Unit

POWER PIVOT APPLICATION VERIFICATION SHEET

Calculate and combine the following three formulas to determine the torque requirements for your application. Consideration should be made to determine the minimum line pressure available and the maximum velocity anticipated. Failure to specify the correct values will result in the power pivot not functioning to specification and/or increased cycle time.

Torque Required to Move Load:

Torque Required (in-lbs) = TA + TF + TL

$$TA = \frac{D^2 \times W \times O}{T^2 \times 1382} = \boxed{} \times \boxed{} \times \boxed{} = \boxed{} \text{ TA}$$

$$\boxed{} \times \boxed{} = \boxed{} \text{ TF}$$

$$TF = .20 \times W \times D = 0.20 \times \boxed{} \times \boxed{} = \boxed{} \text{ TF}$$

$$TL = W \times D = \boxed{} \times \boxed{} = \boxed{} \text{ TL}$$

See Notes 2 & 3

TOTAL TORQUE REQUIRED TO MOVE LOAD (in-lbs.) = TA + TF + TL =

POWER PIVOT TORQUE CAPACITY (in-lbs.) = CA*LP*MA

$$\boxed{} \times 65 \text{ psi} \times \boxed{} = \boxed{} \text{ 0}$$

CA=Cylinder Area (sq.in.) LP=Line Pressure (psi) MA=Mechanical Advantage Capacity

NOTES:

1. Application torque requirement must not exceed power pivot torque capacity.
2. Consider orientation of load relative to floor and unit pivot point when calculating application torque requirements.
3. Calculate TL for lifting applications only.

WHERE:

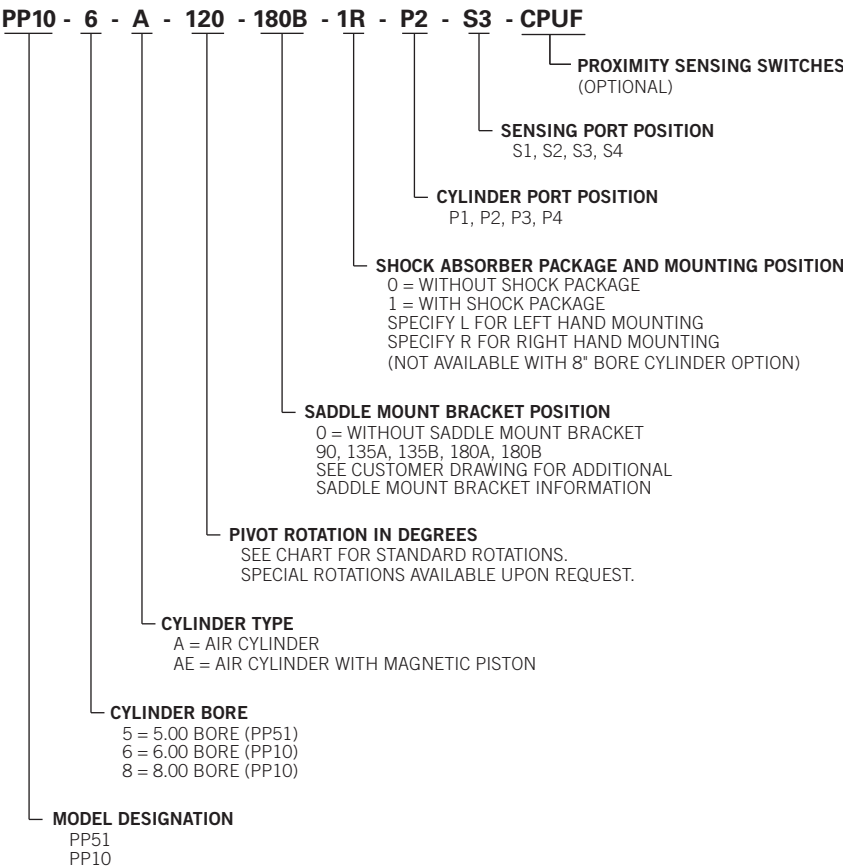
TA = Acceleration Torque (in-lbs.)
 TF = Friction Torque (in-lbs.)
 TL = Lifting Torque (in-lbs.)
 W = Tooling Weight (pounds)
 O = Pivot Rotation (degrees)
 D = Distance from Pivot to Center of Mass of Tooling (inches)
 T = Time to Open or Close (seconds)

Clamps and Power Pivots

Power Pivot Rotate and Dump Unit
PP51/PP10 Ordering Information

NORGREN CLAMPS

POWER PIVOT ORDERING INFORMATION



"0" DENOTES OMISSION OF ANY OPTION.

New!

Clamps and Power Pivots

Power Pivot and Dump Unit

FEATURES

- ▶ Enclosed design
- ▶ Integral sensing switch - Low profile cartridge requires only one cable
- ▶ Global blade mounting
- ▶ Fixed orifices eliminate flow controls
- ▶ Cycle rates up to 6 cycles per hour
- ▶ Integrated lockout holes
- ▶ Low cost alternative to Power Pivots and dump units for tip dress applications only
- ▶ Optional cycling brake
- ▶ 30°, 60° and 90° opening angles available
- ▶ Available with optional tooling

TECHNICAL DATA

- ▶ Fluid: Compressed air
Note: Air supply must be dry enough to prevent ice formation at temperatures below 35°F [2°]
- ▶ Air Pressure:
Minimum 4.0 bar (60 psi)
Maximum 5.5 bar (80 psi)
- ▶ Operating Temperature:
32° F (0° C) to 158° F (70° C)
- ▶ Air Filtration:
40 Micron

MATERIALS

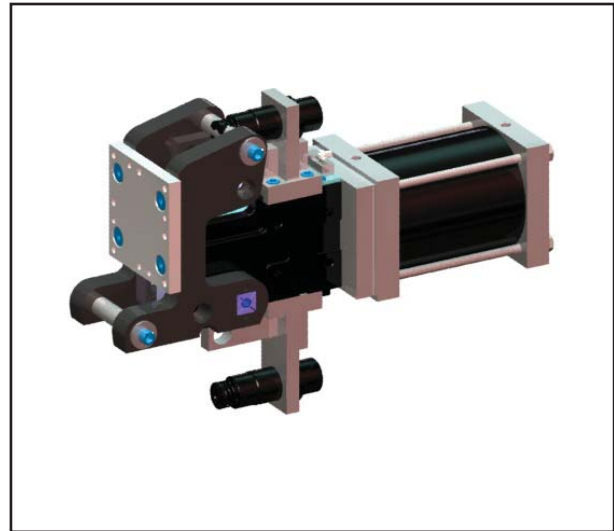
- ▶ Clamp Head: Steel
- ▶ Cylinder: Aluminum/Steel
- ▶ Cylinder Seals: Nitrile

SPECIFICATIONS

- ▶ Cylinder Bore: ø6.0" [ø152.4]
- ▶ Cylinder Area: 28.3 in² [182.4cm²]
- ▶ Unit Speed - 45°/sec.

UNIT WEIGHT

- ▶ 110 lbs [50kg] without cycling brake
- ▶ 140 lbs [64kg] with cycling brake

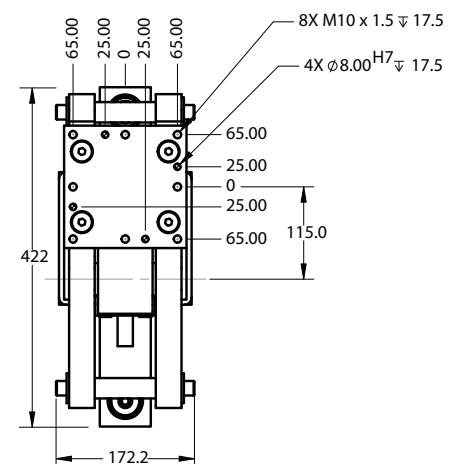
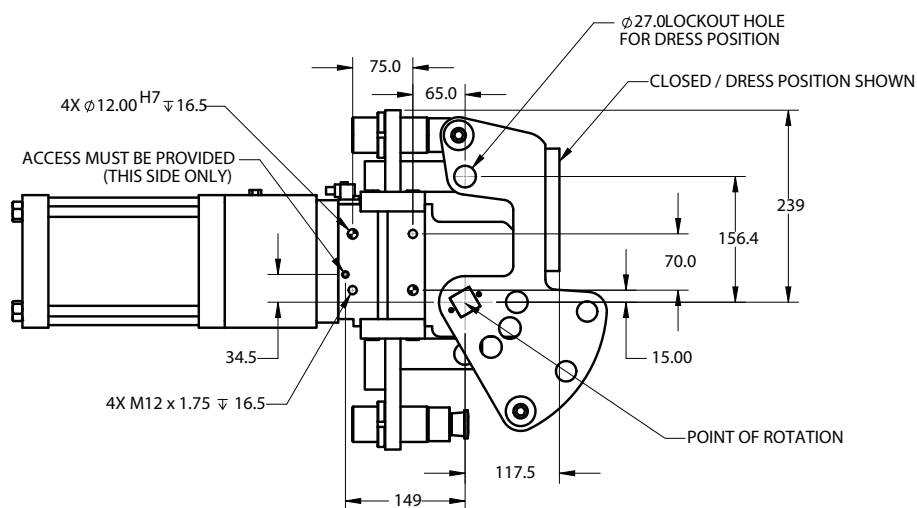
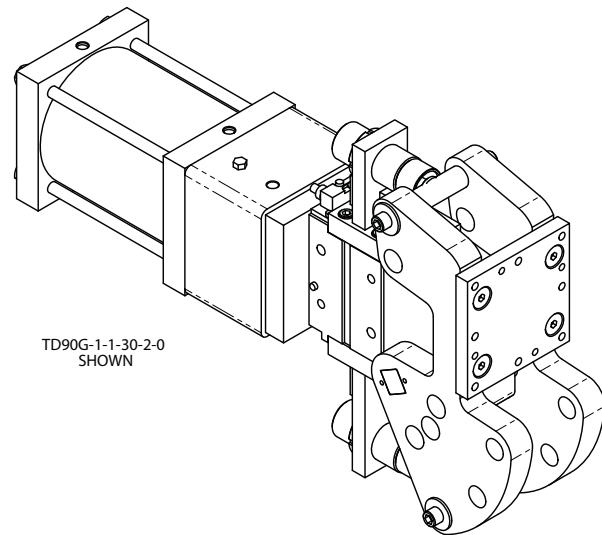
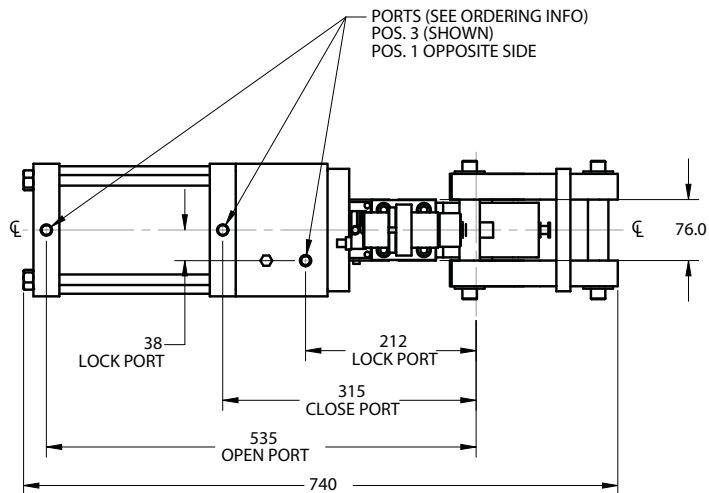


NORGREN CLAMPS

Clamps and Power Pivots

TD90G Tip Dress Pivot With Cycling Brake
Overall Dimensions

NORGREN CLAMPS



Weight: 140 lbs [64kg]

Note:

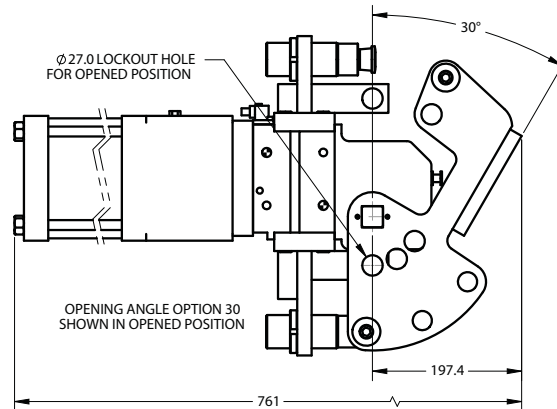
For applications requiring the tip dresser to be lifted, mount the TD90G and tooling so the tip dresser is rotated in the "lifting" direction indicated as shown. See application examples for mounting illustrations.



Clamps and Power Pivots

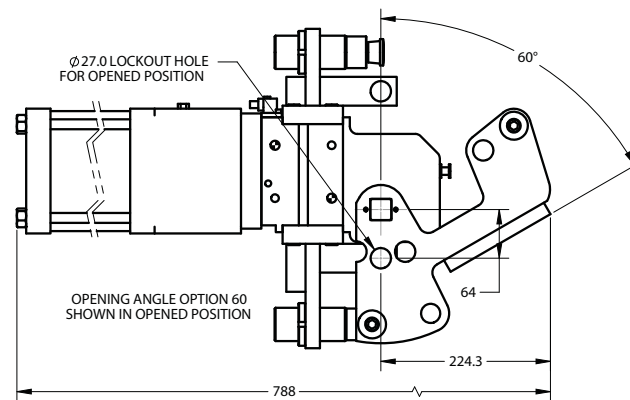
TD90G Tip Dress Pivot With Cycling Brake
Opening Position Dimensions

NORGREN CLAMPS



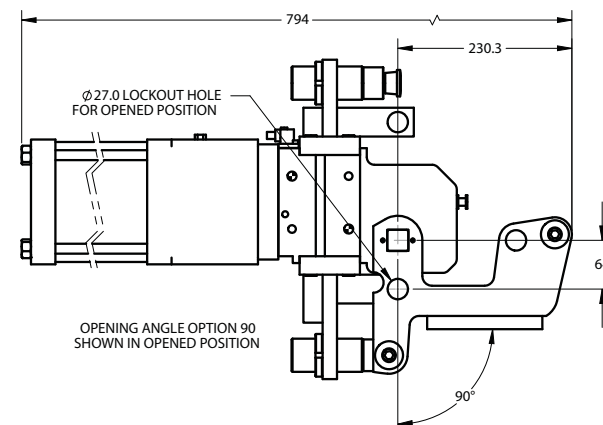
Opening Angle Option 30°

**Closing/Dress/
Lifting Direction**



Opening Angle Option 60°

**Closing/Dress/
Lifting Direction**



Opening Angle Option 90°

**Closing/Dress/
Lifting Direction**

Note:

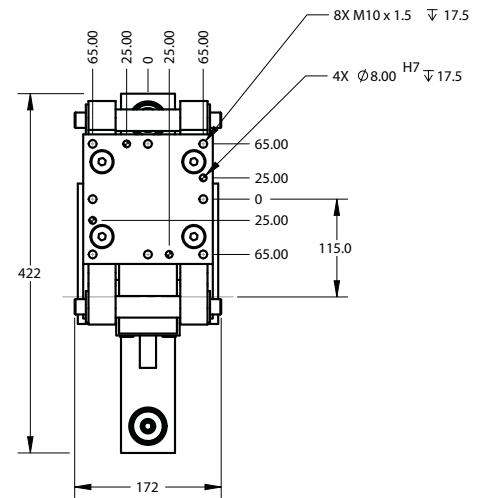
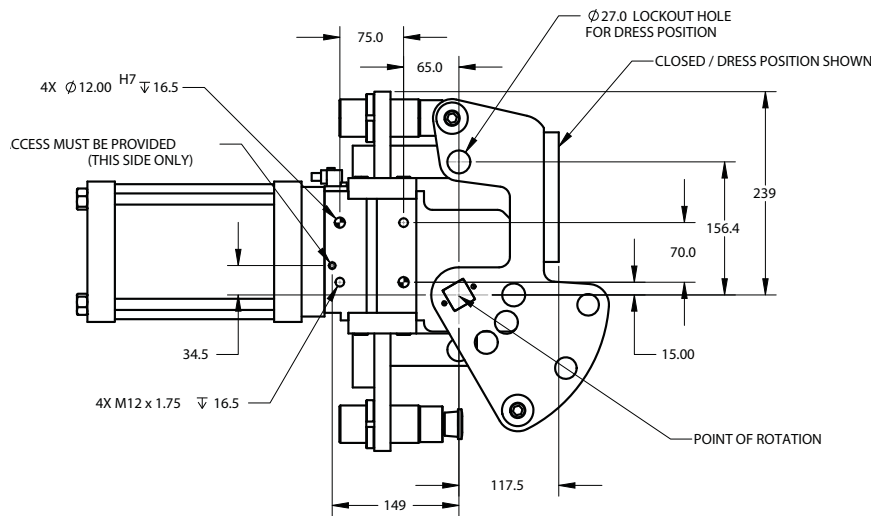
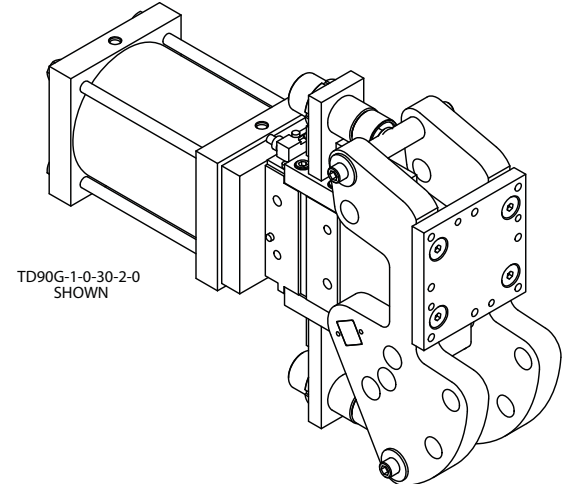
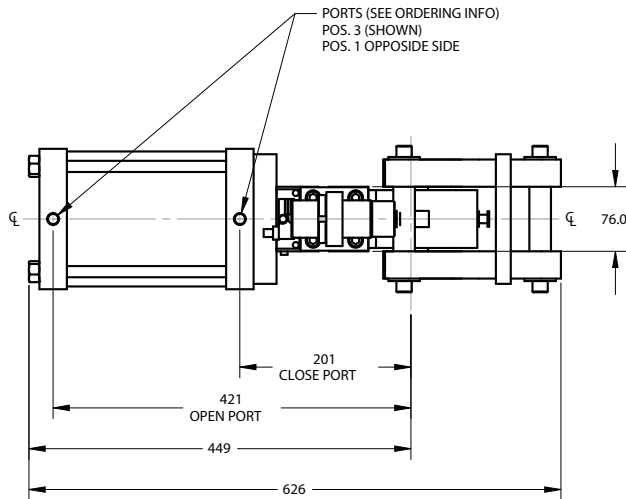
For applications requiring the tip dresser to be lifted, mount the TD90G and tooling so the tip dresser is rotated in the "lifting" direction indicated as shown. See application examples for mounting illustrations.

Clamps and Power Pivots

TD90G Tip Dress Pivot

Overall Dimensions

NORGREN CLAMPS



Weight: 110 lbs [50kg]

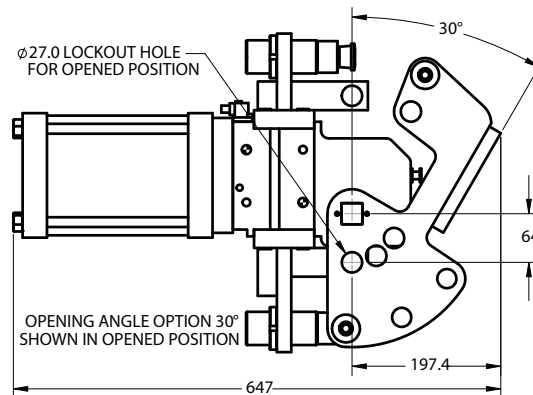
Note:

For applications requiring the tip dresser to be lifted, mount the TD90G and tooling so the tip dresser is rotated in the "lifting" direction indicated as shown. See application examples for mounting illustrations.



Clamps and Power Pivots

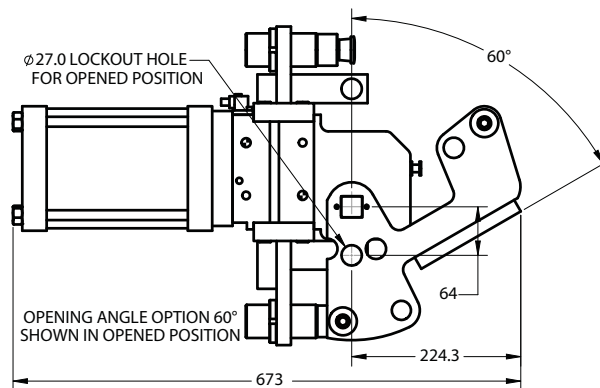
TD90G Tip Dress Pivot
Opening Position Dimensions



Opening Angle Option 30°

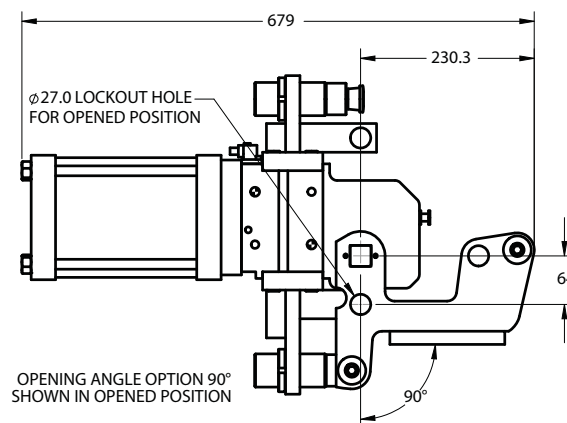
**Closing/Dress/
Lifting Direction**

NORGREN CLAMPS



Opening Angle Option 60°

**Closing/Dress/
Lifting Direction**



Opening Angle Option 90°

**Closing/Dress/
Lifting Direction**

Note:

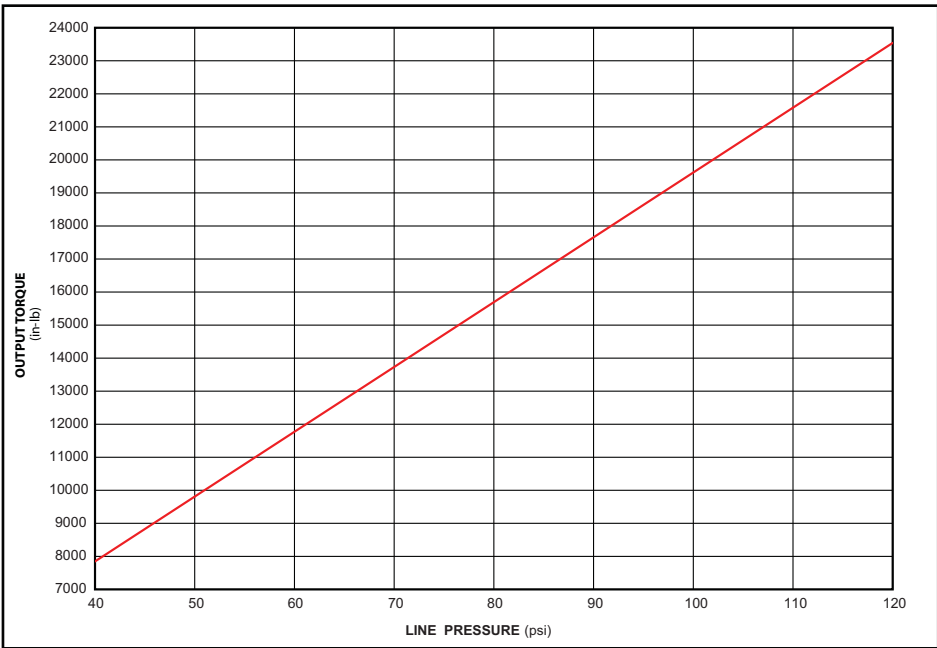
For applications requiring the tip dresser to be lifted, mount the TD90G and tooling so the tip dresser is rotated in the "lifting" direction indicated as shown. See application examples for mounting illustrations.

Clamps and Power Pivots

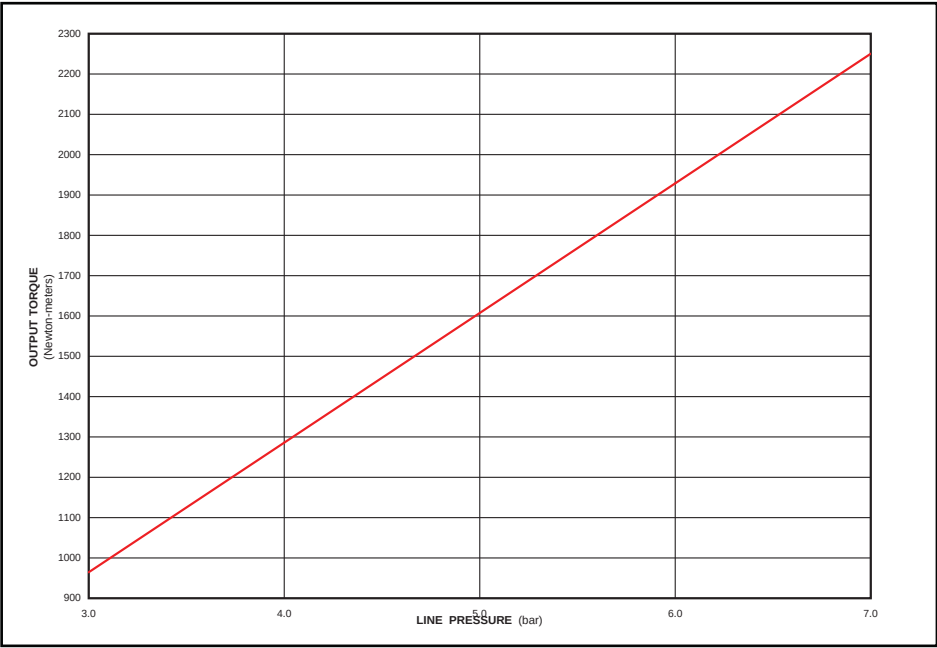
TD90G Tip Dress Pivot
Application Charts

NORGREN CLAMPS

TD90G MAXIMUM OUTPUT TORQUE - ENGLISH



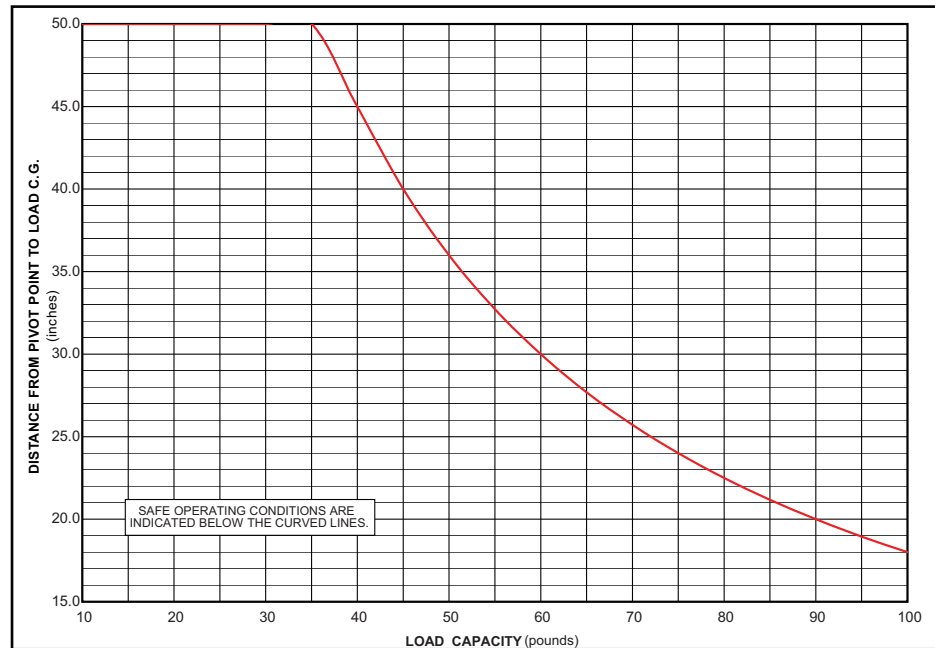
TD90G MAXIMUM OUTPUT TORQUE - METRIC



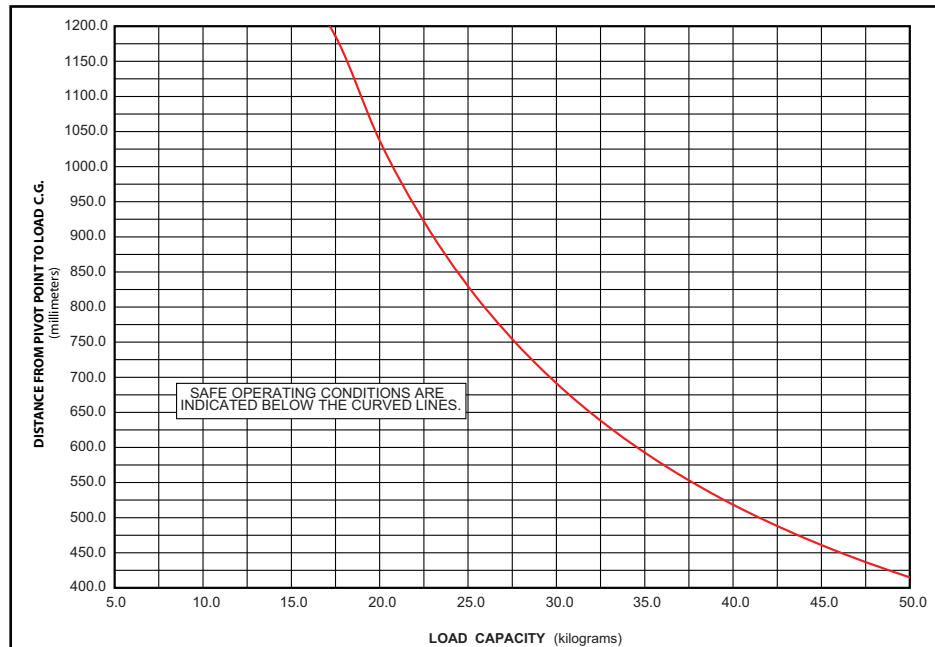
Clamps and Power Pivots

TD90G Tip Dress Pivot
Application Charts

TD90G PIVOT CAPACITY - ENGLISH LOAD CAPACITY VS. DISTANCE FROM PIVOT POINT MAXIMUM ARM VELOCITY=45°/SEC



TD90G PIVOT CAPACITY - METRIC LOAD CAPACITY VS. DISTANCE FROM PIVOT POINT MAXIMUM ARM VELOCITY=45°/SEC



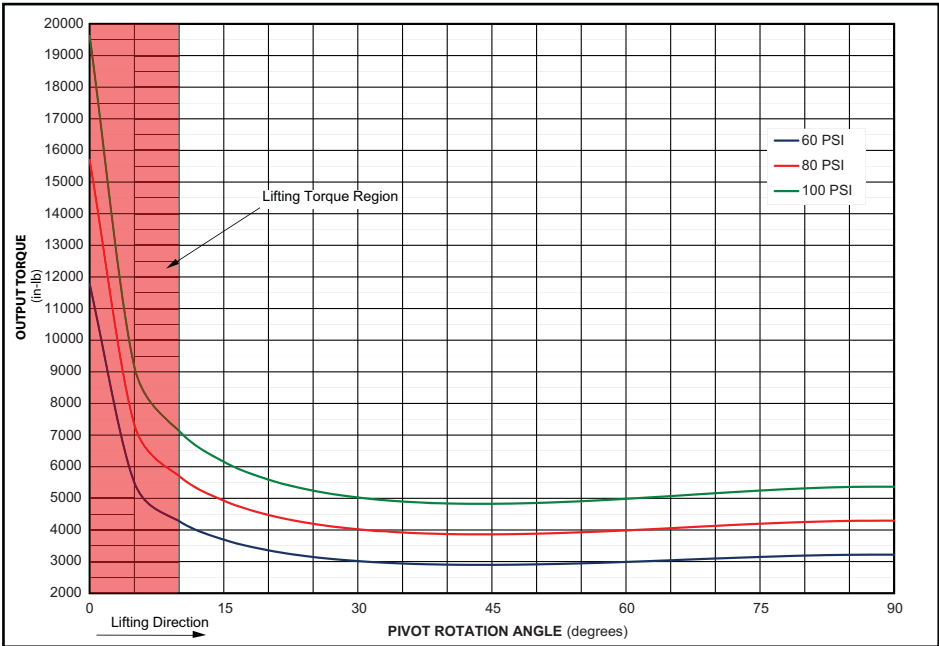
NORGREN CLAMPS

Clamps and Power Pivots

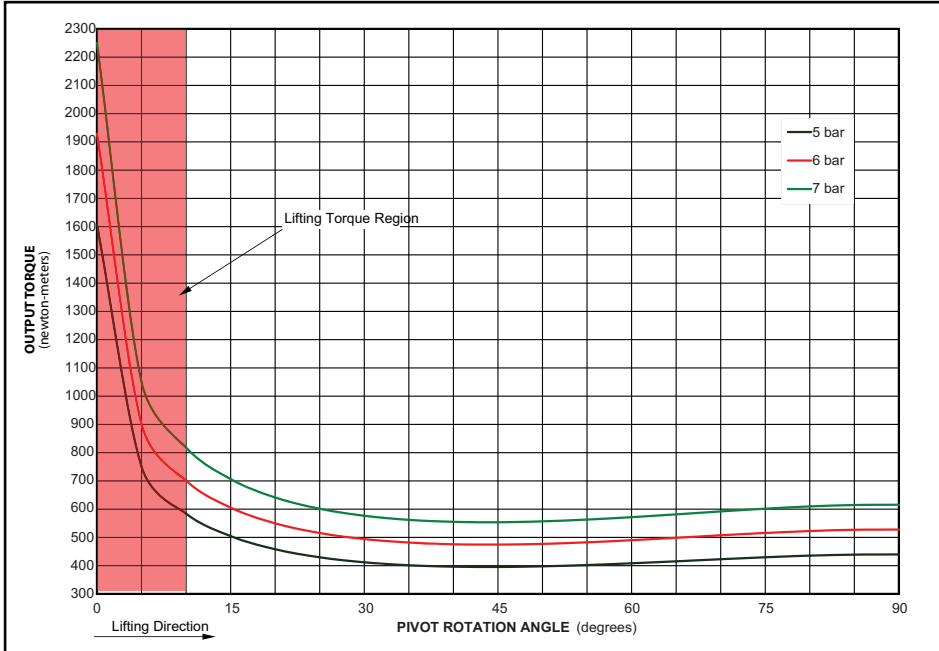
TD90G Tip Dress Pivot
Application Charts

NORGREN CLAMPS

TD90G MAXIMUM OUTPUT TORQUE - ENGLISH



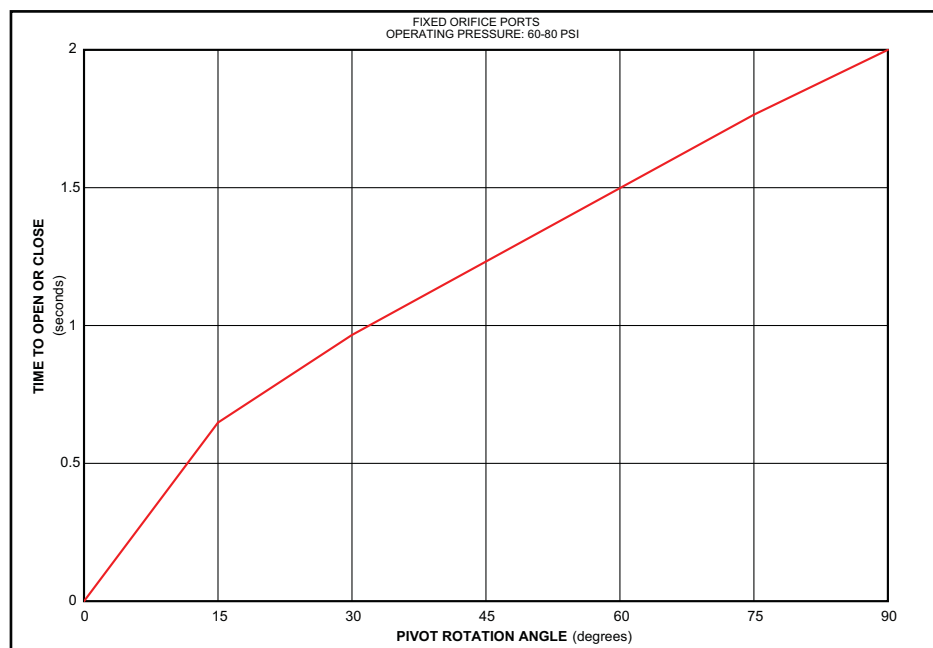
TD90G MAXIMUM OUTPUT TORQUE - METRIC



Clamps and Power Pivots

TD90G Tip Dress Pivot
Application Charts

TD90G CYCLE TIMES



NORGREN CLAMPS

Clamps and Power Pivots

TD90G Tip Dress Pivot
Sensing Options

NORGREN CLAMPS

DC PNP WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED/DRESS

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

SENSOR SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE : N.O.; PNP (SOURCING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / -25	-	158/70	°F / °C
WEIGHT	-	-	1.9/54	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

AC/DC WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED/DRESS

1 = RED/WHITE
2 = RED
3 = GREEN
4 = RED/YELLOW
5 = RED/BLACK

5-PIN DUAL KEY (1/2-20) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

SENSOR SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10/20	24/120	300/250	VDC / VAC
OFF-STATE LEAKAGE CURRENT	-	-	1.7	mA
POWER-UP DELAY	-	-	60	ms
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	6	V
TEMPERATURE RANGE	-13 / -25	-	158/70	°F / °C
WEIGHT	-	-	1.8/52	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

DC NPN WIRING DIAGRAM

S 01 OPEN

S 02 CLOSED/DRESS

1 = BROWN
2 = WHITE
3 = BLUE
4 = BLACK

4-PIN SINGLE KEY (M12) MICRO CONNECTOR
(MALE PIN VIEW - RECEPTACLE)

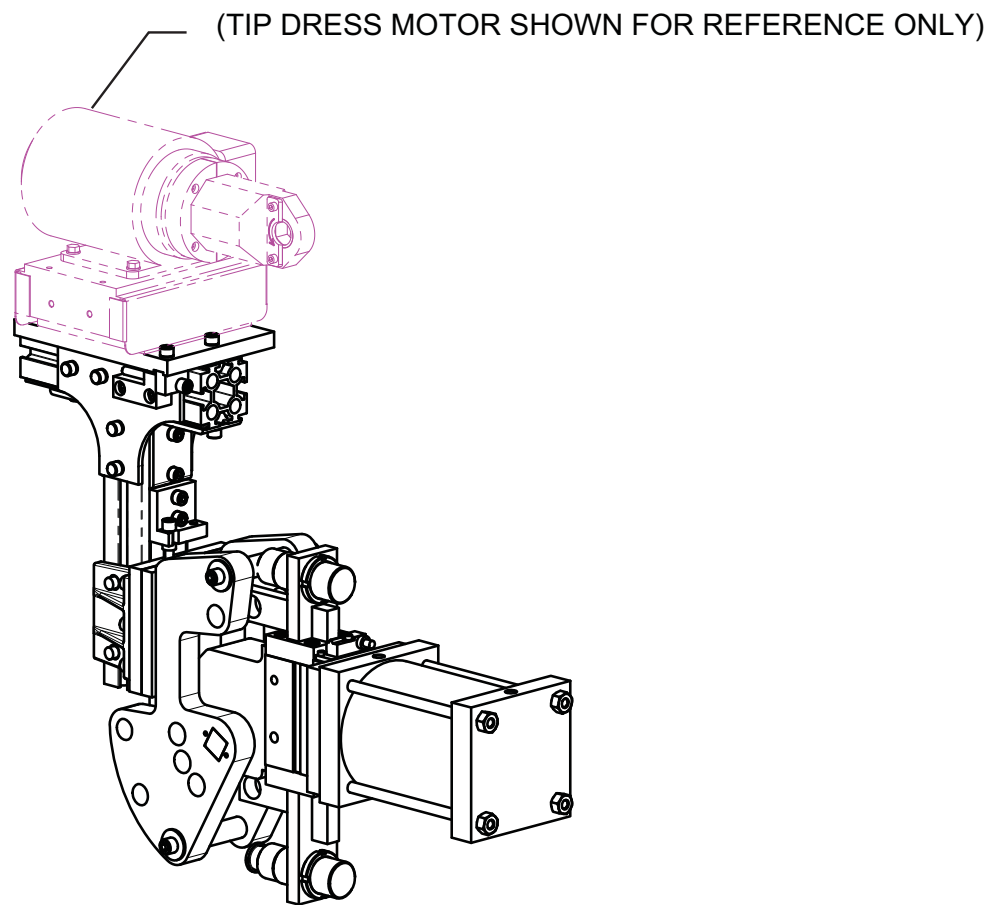
SENSOR SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	10	24	30	VDC
CURRENT DRAW	-	-	25	mA
POWER-UP DELAY	-	-	30	ms
OUTPUT TYPE : N.O.; NPN (SINKING)				
LOAD CURRENT	-	-	100	mA
VOLTAGE DROP	-	-	3	V
LEAKAGE CURRENT	-	-	0.1	mA
TEMPERATURE RANGE	-13 / -25	-	158/70	°F / °C
WEIGHT	-	-	1.9/54	oz / g

> WELD FIELD IMMUNE / SHORT CIRCUIT PROTECTED
> REVERSE POLARITY / OVERLOAD PROTECTED

Clamps and Power Pivots

TD90G Tip Dress Pivot
Tooling Option 2



NORGREN CLAMPS

TD90G-1-0-30-10-2

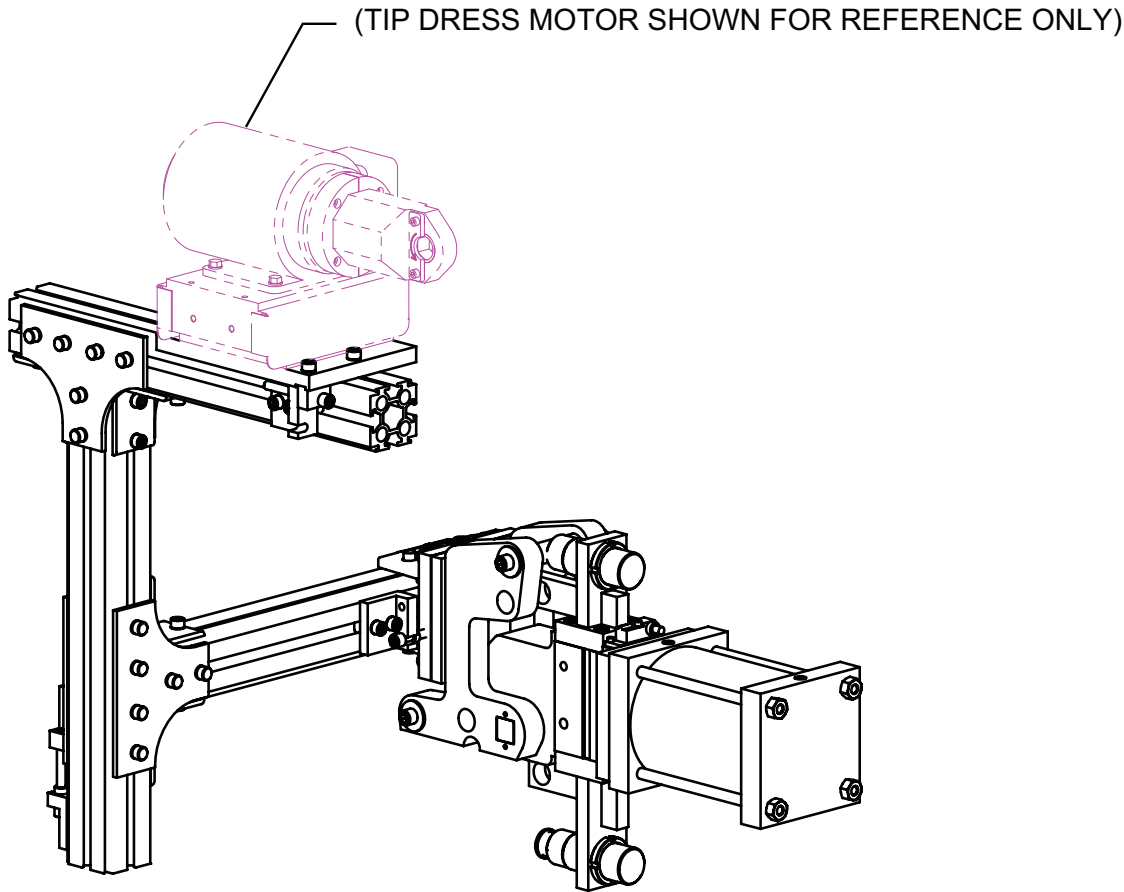
KIT ORDERING NUMBER: TD90G-KIT-2		
PART No.	QTY.	DESCRIPTION
TD90G-SM-600	1	SADDLE MOUNT TOOLING
TD90G-TP-600	1	TIE PLATE TOOLING
TD90G-MM-1	1	MOTOR MOUNT PLATE
ALL ITEMS ABOVE ARE INCLUDED IN THIS KIT. SEPARATE PART NUMBERS ARE FOR SPARES.		

21.7 lbs [9.8 kg] total weight

Clamps and Power Pivots

TD90G Tip Dress Pivot
Tooling Option 3

NORGREN CLAMPS



TD90G-1-0-90-10-3

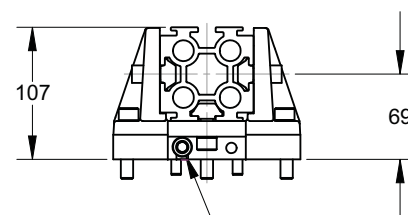
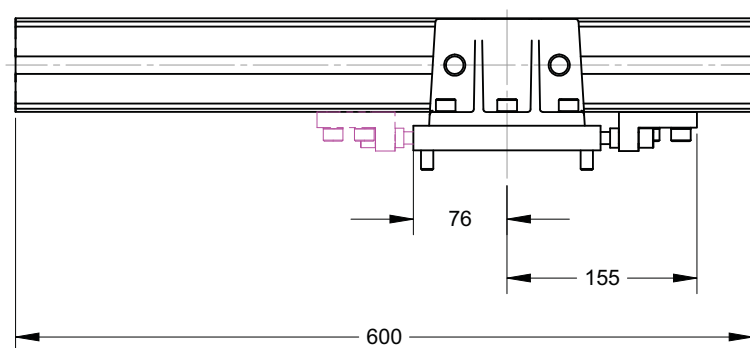
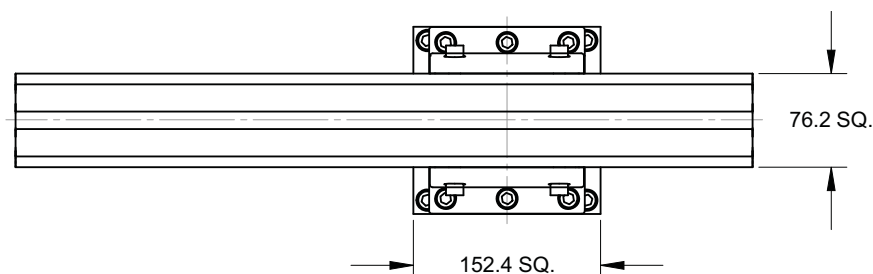
KIT ORDERING NUMBER: TD90G-KIT-3		
PART No.	QTY.	DESCRIPTION
TD90G-SM-600	1	SADDLE MOUNT TOOLING
TD90G-TP-600	2	TIE PLATE TOOLING
TD90G-MM-1	1	MOTOR MOUNT PLATE
ALL ITEMS ABOVE ARE INCLUDED IN THIS KIT. SEPARATE PART NUMBERS ARE FOR SPARES.		

29.7 lbs [13.4 kg] total weight

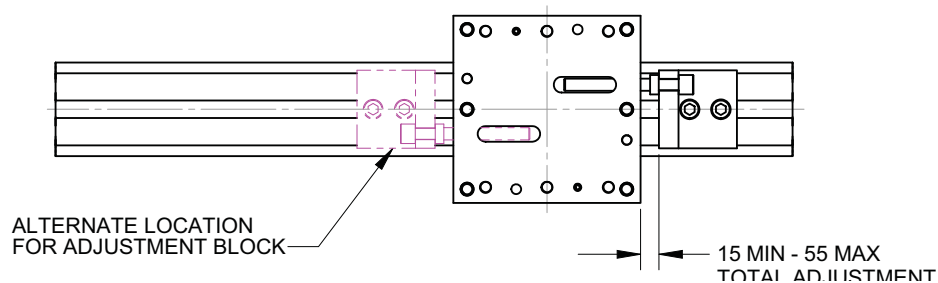
Clamps and Power Pivots

TD90-G Tip Dress Pivot
Saddle Mount Tooling Dimensions
TD90G-SM-600

NORGREN CLAMPS



USE 8mm HEX WRENCH



Saddle Mount Tooling - 7.7 lbs [3.50kg]
Extrusion - 0.38 lbs/inch [6.80 grams/mm]

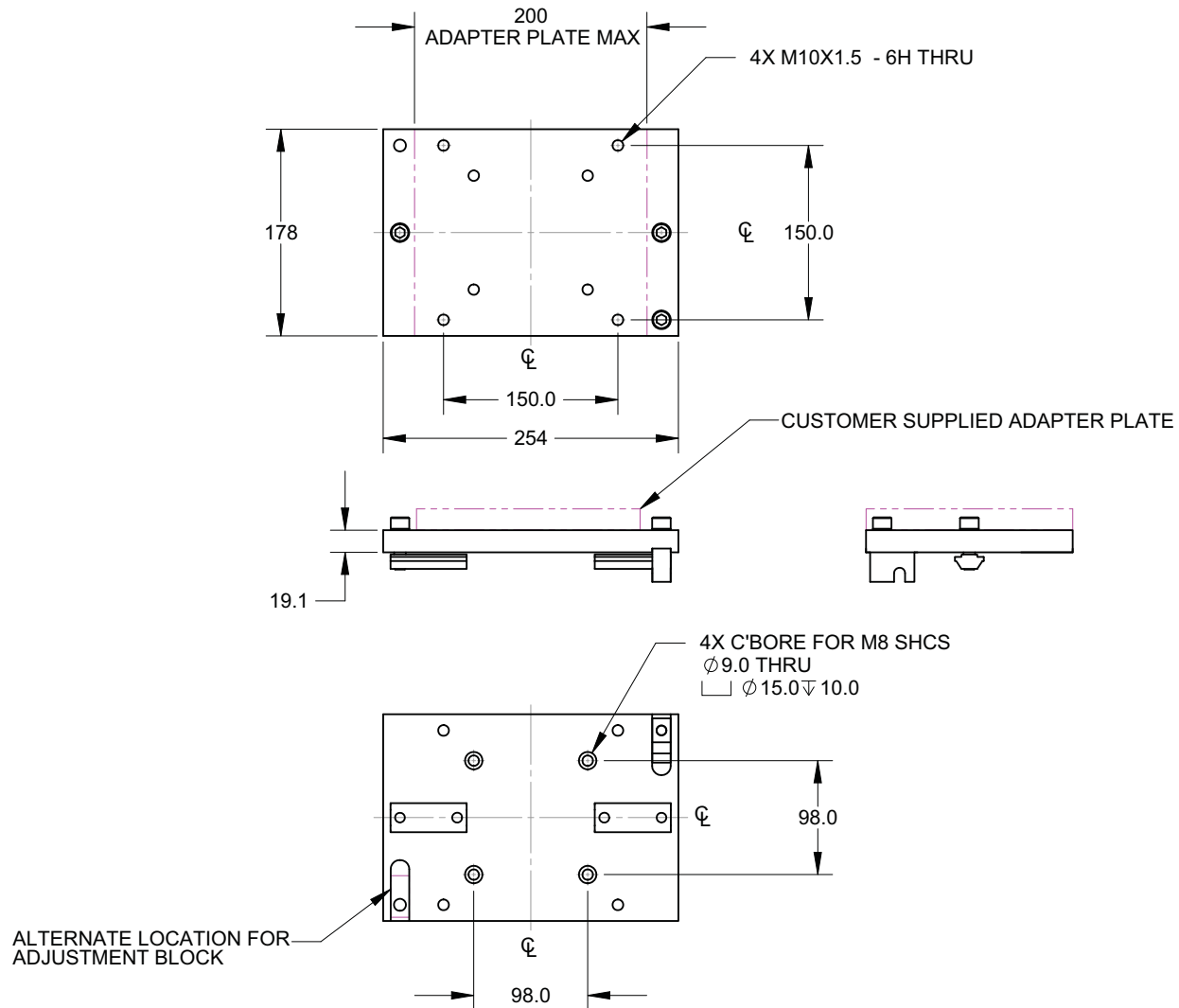
Clamps and Power Pivots

TD90G Tip Dress Pivot

Motor Mount Plate Dimensions

TD90G-MM-1

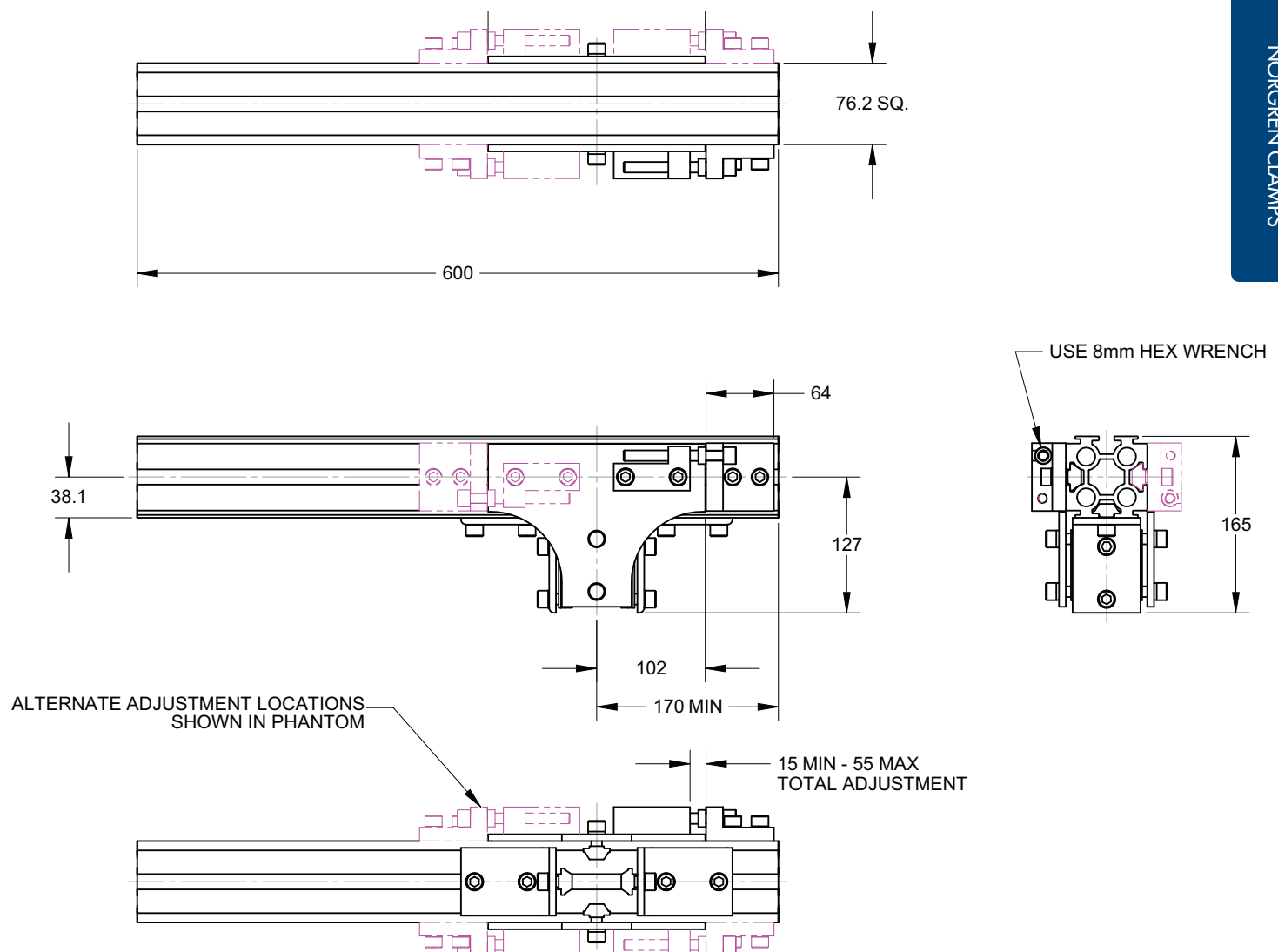
NORGREN CLAMPS



Weight: 6.0 lbs [2.70 kg]

Clamps and Power Pivots

TD90-G Tip Dress Pivot
Tie Plate Tooling Dimensions
TD90G-TP-600

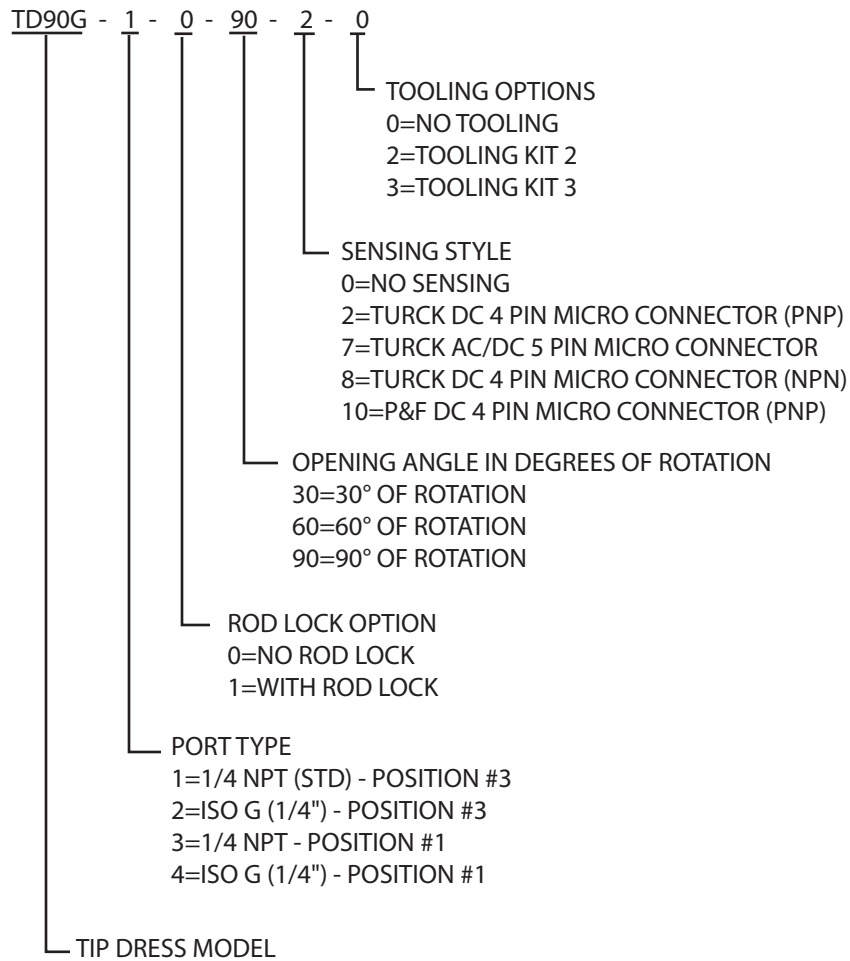


Tie Plate Assembly - 8.0 lbs [3.60kg]
Extrusion - 0.38 lbs/inch [6.80 grams/mm]

Clamps and Power Pivots

TD90G Tip Dress Pivot
Ordering Information

NORGREN CLAMPS



Revision Chart

Rev Level	Section	Revision Description(s)	Page(s) Affected	Date
001	Clamp	"Dowel" headings in wrong columns. Moved "dowel" heading to proper columns.	23	02/08/07
001	Clamp	Dimensions in columns B and C reversed. Moved to correct column.	25	02/08/07
001	Clamp	Removed "dowel" heading from "L" column.	28, 29	02/08/07
001	Clamp	One "X" added to R.H. and L.H. of ordering string callout.	35	02/08/07
001	Clamp	Wrong picture and data. Replaced picture and data.	53	02/08/07
001	Clamp	Wrong picture. Replaced picture.	55	02/08/07
001	Clamp	Added clamp arm part number to chart at bottom of each page.	21-25; 42-57; 74-85	02/08/07
001	Clamp	Wrong picture. Replaced picture.	31	02/08/07
001	Clamp	Re-worded "arm style" in chart.	32, 64, 86	02/08/07
001	Clamp	Added the number "1" to port position callout in top view of drawing.	37	02/08/07
001	Clamp	Wrong picture. Replaced picture.	61	02/08/07
001	Clamp	Incorrect weight in chart at bottom of page. Weight was 7.8lbs changed to 1.8lbs.	62	02/08/07
001	Clamp	Incorrect chart. Replaced chart.	72	02/08/07
002	Clamp	Replaced EC40G Capacity charts with updated charts	4	05/14/07
003	Clamp	Added EC50MG and EC60MG Manual clamp	36-41, 74-79	05/30/07
005	Clamp	Added EC591G clamp Added and removed callouts on FU Series PPs Dimension Dwg.	Index, 1, 80-101, 105	12/08

Revision Chart

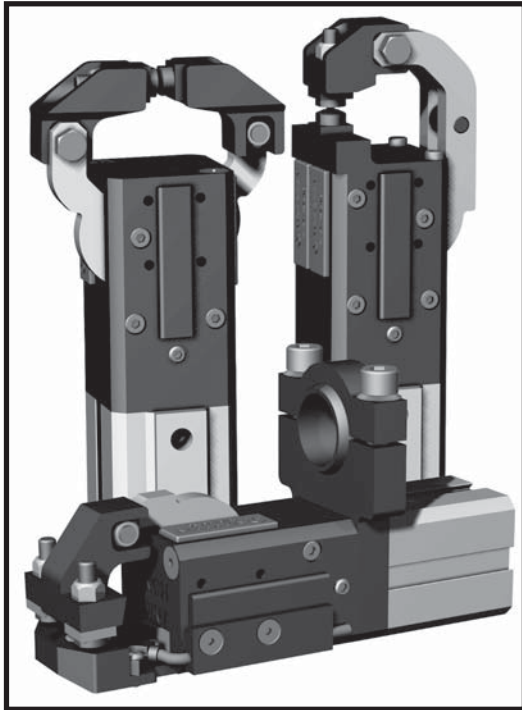
NORGREN CLAMPS

Rev Level	Section	Revision Description(s)	Page(s) Affected	Date
005	Clamp	Updated charts for EC50G clamp arms: XMG40M, XMG50M & XMG90M. EC63G clamp arms: XGM40M, XGM50M, XGM60M, XGM90M. EC90/91G clamp arms: XGM40M, XGM50M, XGM60M, XGM90M.		02/09

Description	Part No.	Page No.	Description	Part No.	Page No.
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GC3A and GC4A Overall Dimensions		5	Jaw Style Overall Dimensions	GH2, MGH2	63
GC3A and GC4A Tip Mounting Information		6	Jaw Style Overall Dimensions	GH3, MGH3	64
GC3A and GC4A Maximum Grip Force Charts		7	Jaw Style Overall Dimensions	GH4, MGH4	65
GC3F and GC4F Overall Dimensions		8	Jaw Style Overall Dimensions	GH5, MPGH5	66
GC3F and GC4F Tip Mounting Information		9	Jaw Style Overall Dimensions	GH6, MGH6	67
GC3F and GC4F Maximum Grip Force Charts		11	Jaw Style Overall Dimensions	GH9, MGH9	68
GC3T and GC4T Overall Dimensions		12	Jaw Style Overall Dimensions	GH10, MGH10	69
GC3T and GC4T Technical Information		13	Jaw Style Overall Dimensions	GHA0	70
GC3T and GC4T Maximum Force Charts		14	Jaw Style Overall Dimensions	VH1	71
Tip/Tip Spacer Options		15	Jaw Style Overall Dimensions	VH2	72
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Poz-e-Lok Mount Options		17	PG1M Dimensions and Mounting Options		75
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Rod Mounts 1.50 in / 40 mm		19	Proximity Sensor Technical and Ordering Information		78
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Grip-Lok Rear Flange Mount Option		21			
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Ordering Information		25			
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GL400 and GL500 Technical Information		28			
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Jaw Style Overall Dimensions	J7, J8	33			
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Continuity Sensing Data		57			
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GC Series Modular Gripper

Cam-Action Pneumatic Gripper



FEATURES

- ▶ Modular configuration.
- ▶ 360° Swivel gripper head for unlimited adjustment.
- ▶ Flange and orbital rod mounts.
- ▶ Field changeable jaw openings.
- ▶ Field changeable single or double point tips.
- ▶ Fixed or adjustable tip inserts.
- ▶ Optional side plate proximity sensing.

MATERIALS

- ▶ Gripper Head:
Hardcoat Anodized Aluminum
- ▶ Sensing Cover:
Aluminum
- ▶ Jaw Bumpers:
Glass Filled Nylon
- ▶ Tip Inserts:
Heat Treated Tool Steel
- ▶ Gripper Arms:
Heat Treated Alloy Steel

CYLINDER INFORMATION

- ▶ Compact Cylinder:
16 mm Rod Diameter
- ▶ Size 3 GC Grippers:
32 mm Cylinder Bore
28 mm Stroke
- ▶ Size 4 GC Grippers:
40 mm Cylinder Bore
35 mm Stroke

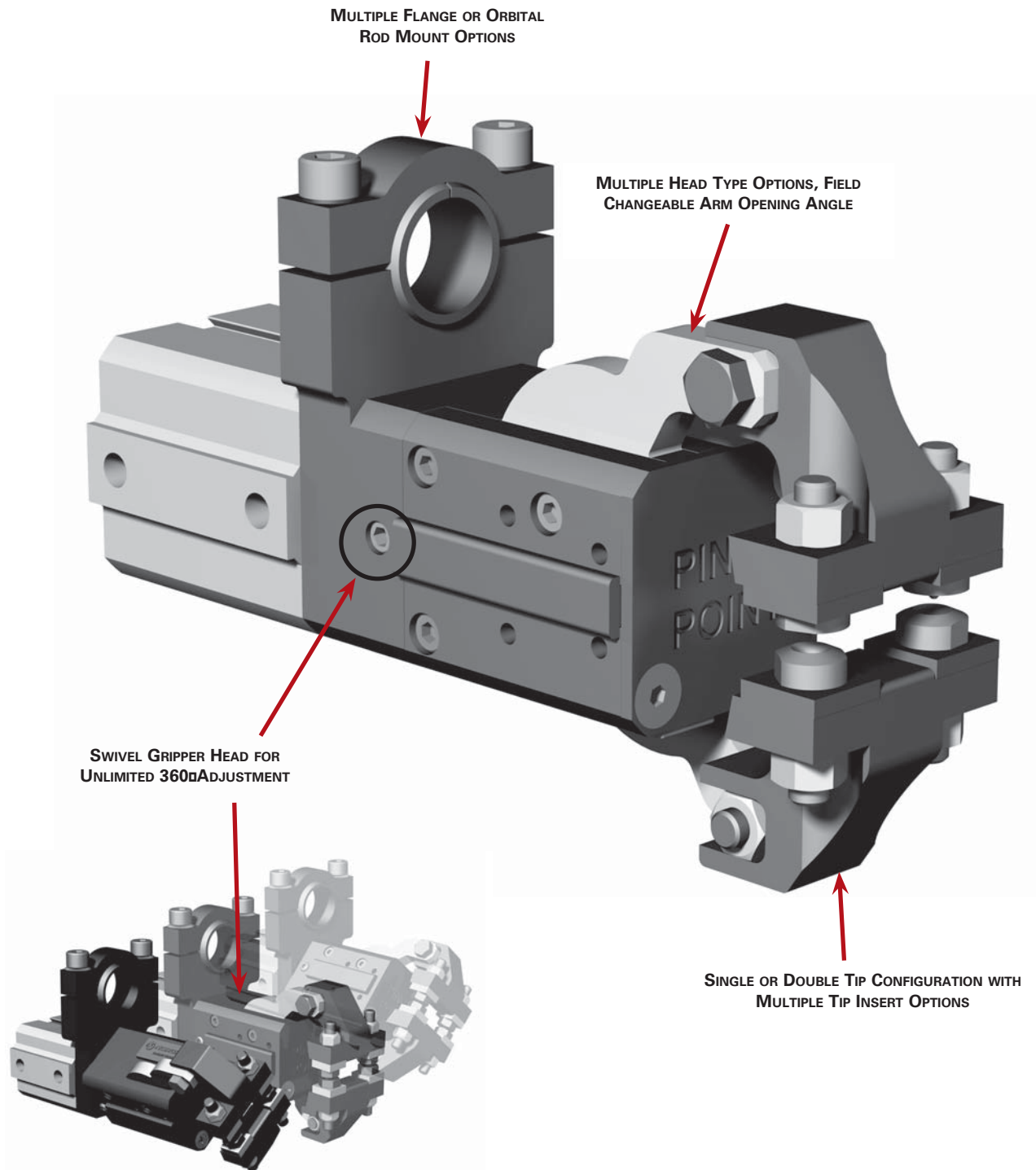
OPERATING DATA

- ▶ Fluid:
Compressed air
- ▶ Air Pressure:
Minimum 40 psi (2.76 bar)
Maximum 116 psi (8 bar)
- ▶ Operating Temperature:
25° F (-4° C) to 170° F (77° C)
- ▶ Air Consumption:
32 mm: 1.96 in3 [32.20 cm³]
- ▶ Air Filtration:
40 Micron*
* Air supply must be dry enough to prevent ice formation at temperatures below 35° F (2° C)

GC Series Modular Gripper

Cam-Action Pneumatic Gripper

NORGREN GRIPPERS



GC Series Modular Gripper

Cam-Action Pneumatic Gripper

NORGREN GRIPPERS

JAW STYLE OPTIONS



ANGULAR GRIPPER

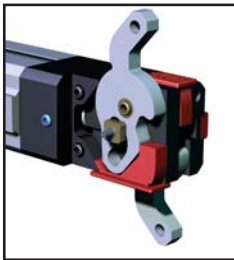


FLANGE GRIPPER

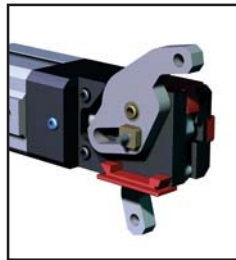


TRANSFER PRESS GRIPPER

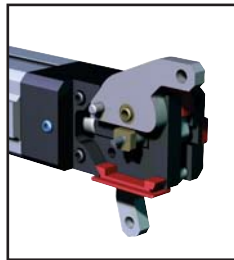
ARM OPENING OPTIONS



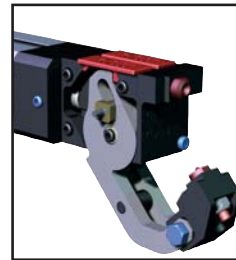
DUAL ARM OPENING



DROP AWAY ARM OPENING



FIXED ARM OPENING



FLANGE ARM OPENING

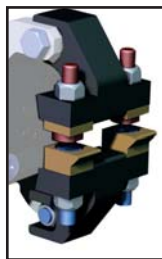


TRANSFER ARM OPENING

TIP OPTIONS



SINGLE TIP

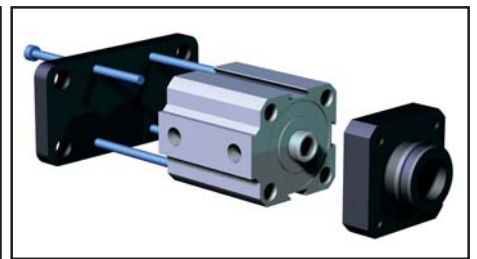


DOUBLE TIP

MOUNTING OPTIONS



HORIZONTAL ROD MOUNTS



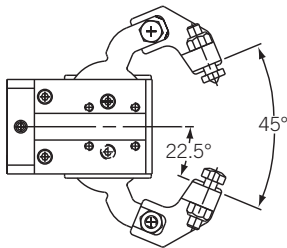
REAR FLANGE MOUNTS

GC Series Modular Gripper

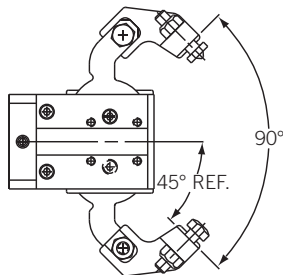
Cam-Action Pneumatic Gripper

Size 3 and 4 Head Type Options

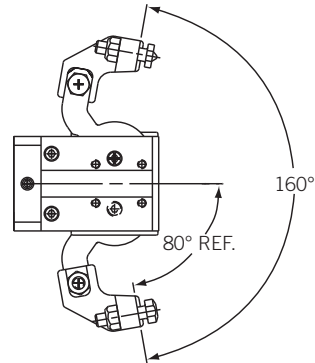
HEAD TYPE OPTIONS WITH ARM OPENING ANGLES



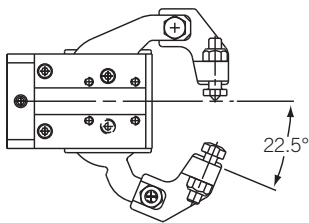
HEAD TYPE OPTION A1



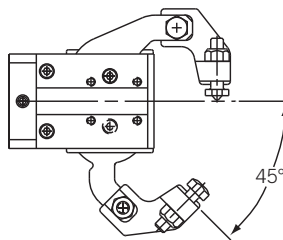
HEAD TYPE OPTION A2



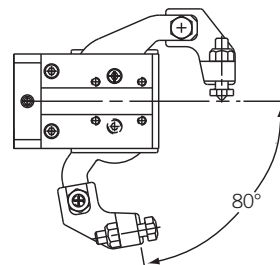
HEAD TYPE OPTION A3



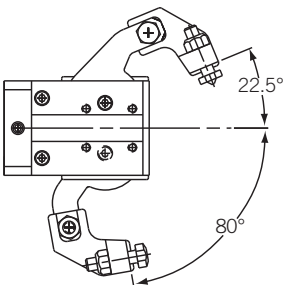
HEAD TYPE OPTION U1 or L1



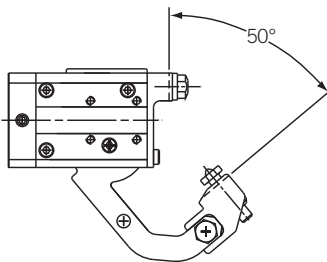
HEAD TYPE OPTION U2 or L2



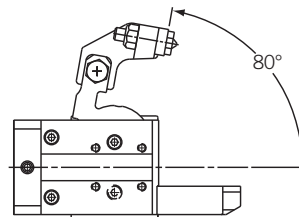
HEAD TYPE OPTION U3 or L3



HEAD TYPE OPTION D1

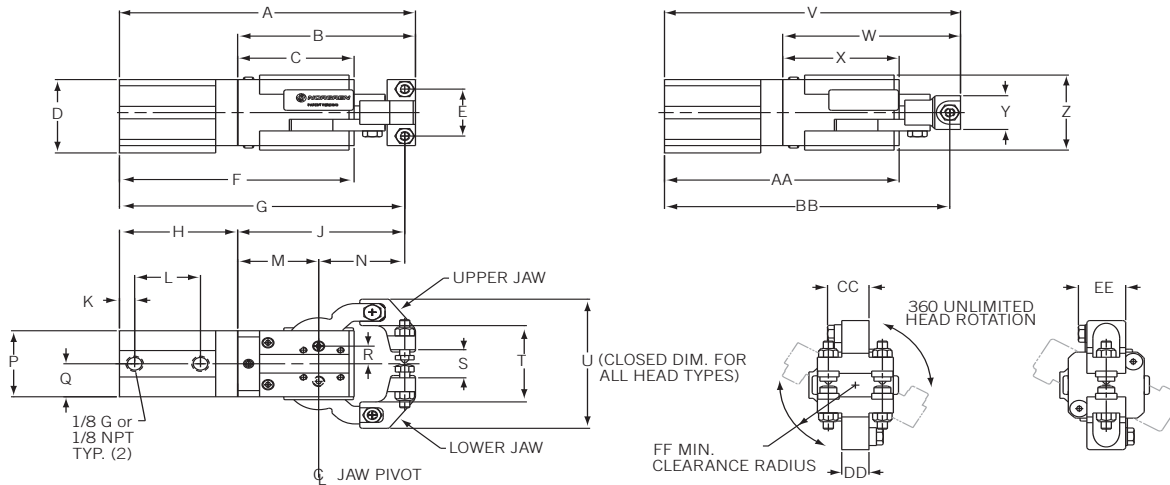


HEAD TYPE OPTION F1



HEAD TYPE OPTION T1 OR T2

GC Series Modular Gripper

Cam-Action Pneumatic Angular Gripper
GC3A and GC4A Overall Dimensions

NORGREN GRIPPERS

GC3 ANGULAR GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
6.90	4.15	2.72	1.97	1.26	5.47	6.65	2.76	3.90	.35	1.54	1.89	2.01	1.77	.89	.47
S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	WEIGHT (LBS)	
.75	2.05	3.46	6.90	4.15	2.72	.91	2.01	5.47	6.65	.97	.63	1.10	1.76	1.73	

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
175.4	105.4	69.0	50.0	32.0	139.0	169.0	70.0	99.0	9.0	39.0	48.0	51.0	45.0	22.5	12.0
S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	WEIGHT (KG)	
19.2	52.0	88.01	75.4	105.4	69.0	23.0	51.1	139.0	169.0	24.6	16.1	28.0	44.7	.78	

GC4 ANGULAR GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
9.39	5.14	3.23	2.32	1.42	7.48	9.01	4.25	4.76	.39	1.83	2.28	2.48	2.17	1.08	.59
S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	WEIGHT (LBS)	
.90	2.76	4.49	9.39	5.14	3.23	1.22	2.41	7.48	9.01	1.39	.87	1.41	2.29	3.02	

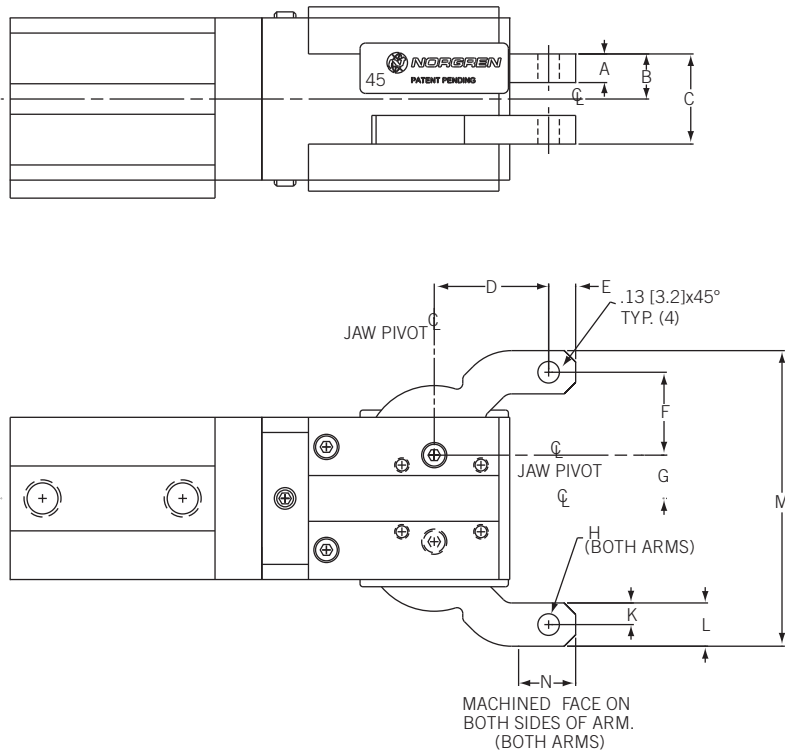
DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
238.0	130.5	82.0	59.0	36.0	189.5	228.5	107.5	121.0	10.0	46.5	58.0	63.0	55.0	27.5	15.0
S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	WEIGHT (KG)	
22.9	70.0	114.0	238.0	130.5	82.0	31.0	61.1	189.5	228.5	35.3	22.0	35.8	58.2	1.37	

GC Series Modular Gripper

Cam-Action Pneumatic Angular Gripper
GC3A and GC4A Tip Mounting Information

NORGREN GRIPPERS



GC3 ANGULAR GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M
.311	.497	.994	1.252	.295	.905	.471	3.23	.236	.234	.474	.625
.309	.493	.986	1.254	.300	.907	.473		.237	.238	.470	

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M
7.89	12.63	25.25	31.80	7.50	22.97	11.97	82.0	5.99	5.95	12.05	15.88
7.84	12.53	25.05	31.85	7.62	23.03	12.03		6.02	6.05	11.95	

GC3 TECHNICAL NOTES

- 1) Maximum custom jaw moment not to exceed 1.5 in lbs [0.17 N-m] for each arm.
- 2) Maximum loading offset distance from center line of gripper head: 2.0 in [50 mm].
- 3) Maximum grip force values may be adversely affected if location of inserts on custom jaws exceeds design envelope.

GC4 ANGULAR GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M
.373	.595	1.190	1.475	.373	1.219	.590	4.21	.315	.293	.593	.813
.371	.591	1.182	1.477	.378	1.221	.592		.316	.297	.589	

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M
9.47	15.10	30.23	37.47	9.47	30.97	14.97	107.0	8.00	7.45	15.05	20.65
9.42	15.00	30.03	37.53	9.60	31.03	15.03		8.03	7.55	14.95	

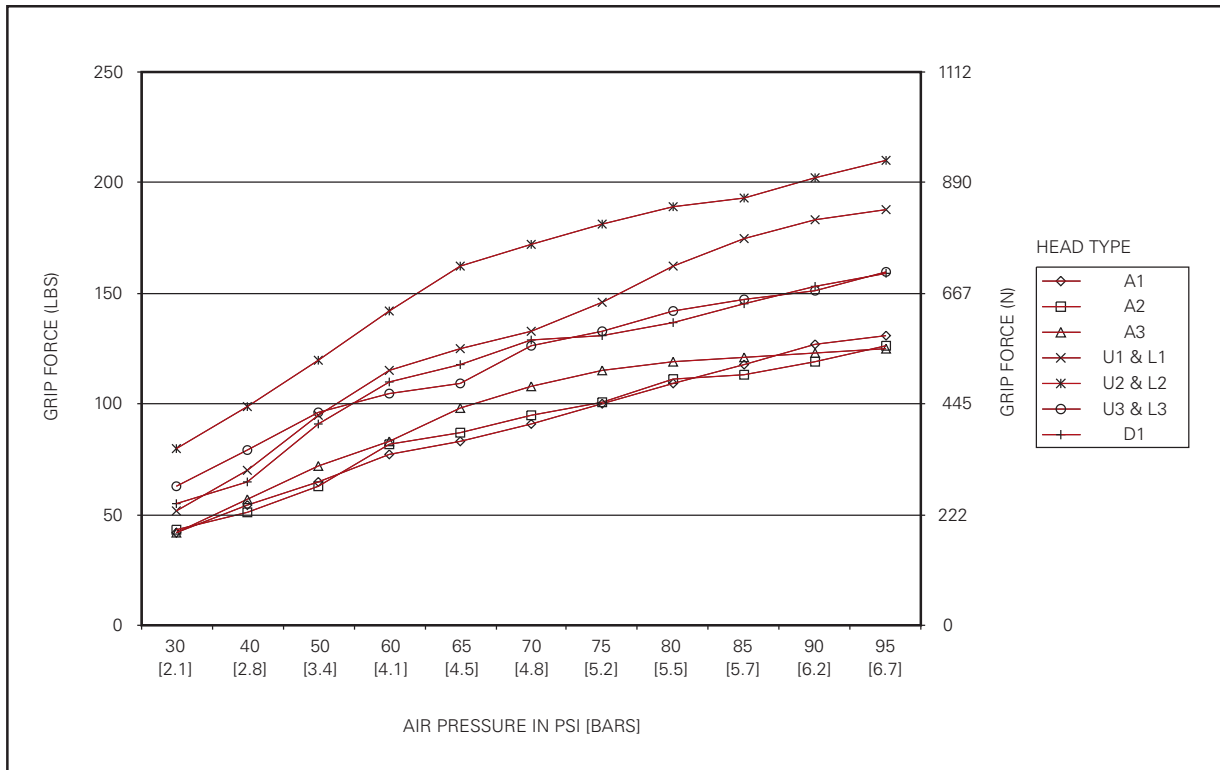
GC4 TECHNICAL NOTES

- 1) Maximum custom jaw moment not to exceed 2.0 in lbs [0.23 N-m] for each arm.
- 2) Maximum loading offset distance from center line of gripper head: 3.0 in [75 mm].
- 3) Maximum grip force values may be adversely affected if location of inserts on custom jaws exceeds design envelope.

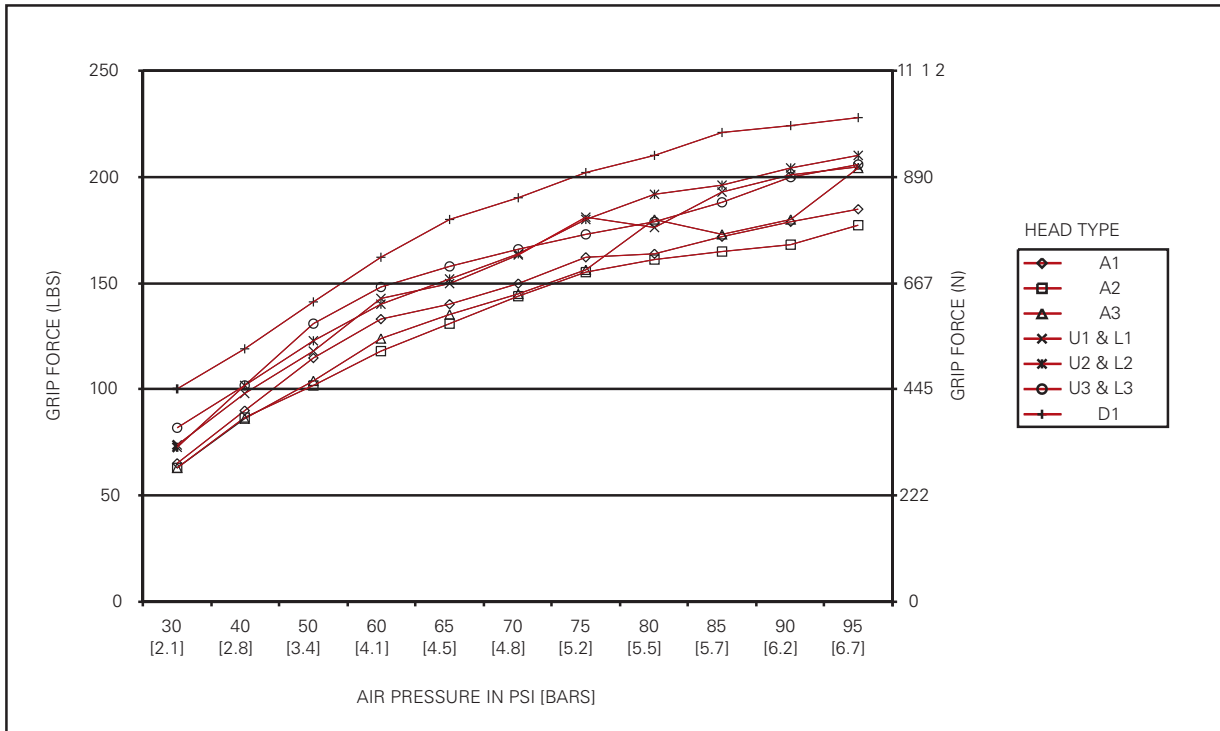
GC Series Modular Gripper

Cam-Action Pneumatic Angular Gripper
GC3A and GC4A Maximum Grip Force Charts

GC3A MAXIMUM GRIP FORCE



GC4A MAXIMUM GRIP FORCE

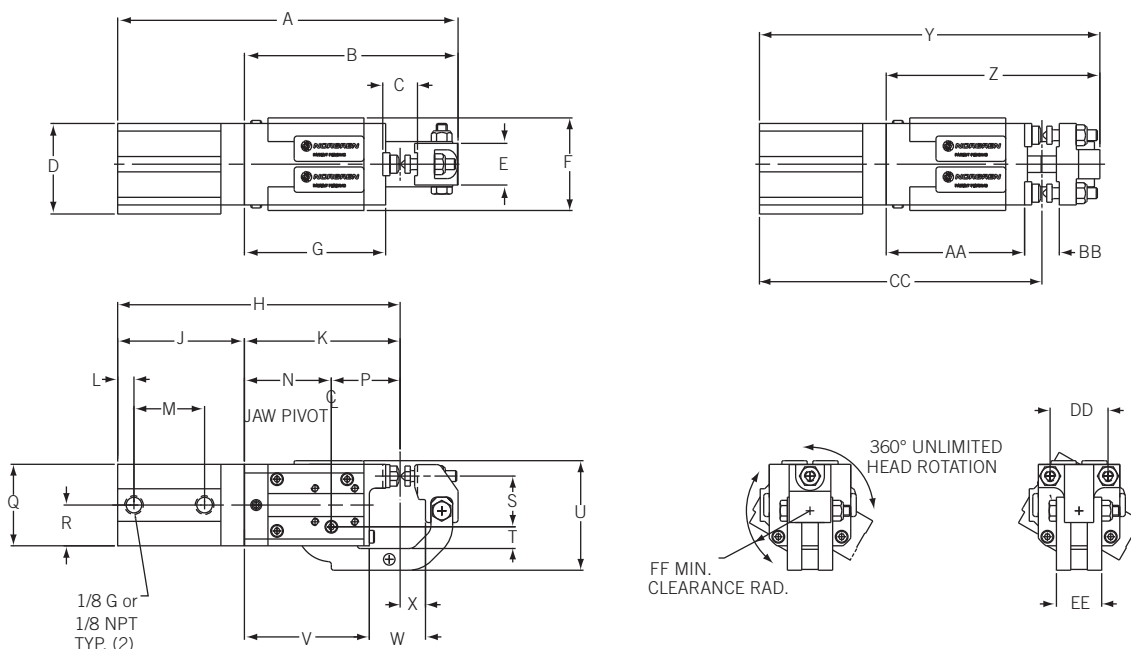


GC Series Modular Gripper

Cam-Action Pneumatic Flange Gripper

GC3F and GC4F Overall Dimensions

NORGREN GRIPPERS



GC3 FLANGE GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
7.40	4.65	.75	1.97	.91	2.01	3.07	6.14	2.76	3.39	.35	1.54	1.89	1.50	1.77	.89	1.10	.47	2.38

V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	WEIGHT (LBS)
2.72	1.22	.55	7.40	4.65	3.01	.75	6.14	1.26	.98	1.38	2.00

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
188.0	118.0	19.2	50.0	23.0	51.1	78.0	156.0	70.0	86.0	9.0	39.0	48.0	38.0	45.0	22.5	28.0	12.0	60.5

V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	WEIGHT (KG)
69.0	31.0	14.0	188.0	118.0	76.4	19.2	156.0	32.0	25.0	35.1	.91

GC4 FLANGE GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
9.80	5.55	.90	2.32	1.22	2.41	3.82	8.42	4.25	4.17	.39	1.83	2.28	1.89	2.17	1.08	1.31	.55	2.89

V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	WEIGHT (LBS)
3.23	1.44	.49	9.80	5.55	3.72	.90	8.42	1.42	1.18	1.83	3.83

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
248.6	141.1	22.9	59.0	31.0	61.1	96.9	213.5	107.5	106.0	10.0	46.5	58.0	48.0	55.0	27.5	33.2	14.0	73.5

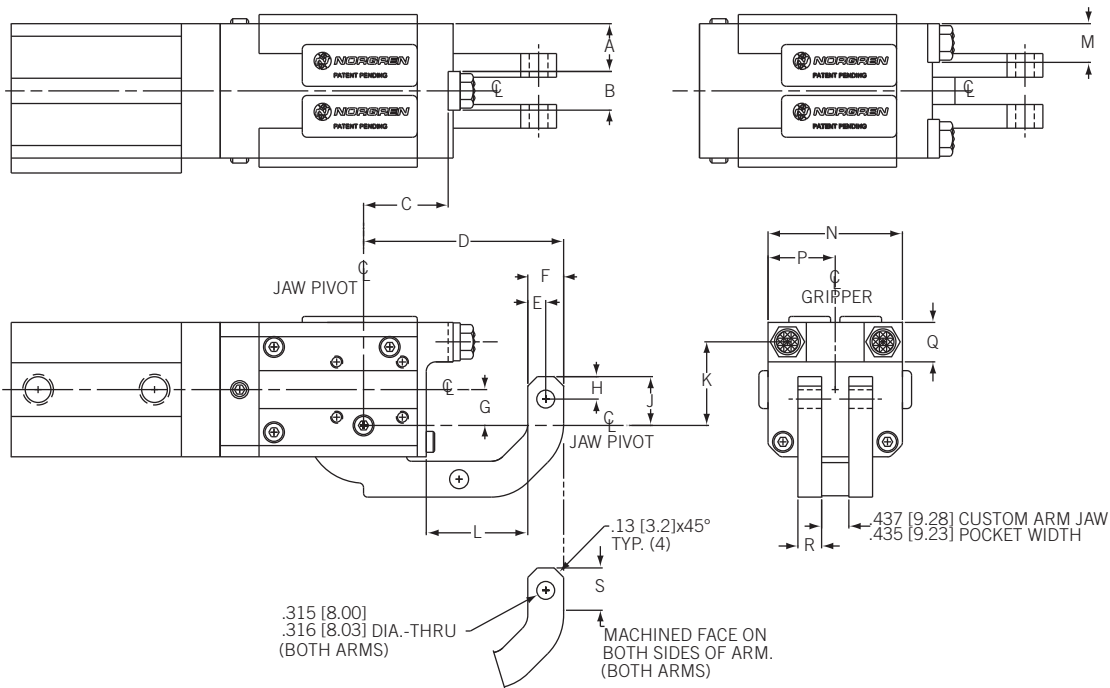
V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	WEIGHT (KG)
82.0	36.5	12.5	248.6	141.1	94.5	22.9	213.5	36.0	30.0	46.5	1.74

GC Series Pneumatic Grippers



GC Series Modular Gripper

Cam-Action Pneumatic Flange Gripper
GC3F and GC4F Tip Mounting Information



NORGREN GRIPPERS

GC3 FLANGE GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
.63	.505 .510	1.116	2.638	.234 .238	.474 .470	.471 .473	.295 .300	.644	1.10	1.34	.505 .510	1.77	.89	.52	.311 .309	.558

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
16.0	12.83 12.95	28.34	67.00	5.95 6.05	12.05 11.95	11.97 12.03	7.50 7.62	16.35	28.0	34.0	12.83 12.95	45.0	22.5	13.2	7.89 7.84	14.17

GC4 FLANGE GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
.71	.755 .760	1.432 1.442	3.115	.293 .297	.593 .589	.590 .592	.329 .334	.831	1.31	1.58	.755 .760	2.17	1.08	.75	.373 .371	.773

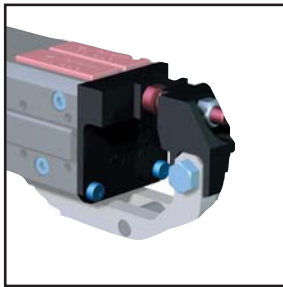
DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
18.0	19.18 19.30	36.38 36.63	79.13	7.45 7.55	15.05 14.95	14.97 15.03	8.36 8.49	21.12	33.3	40.1	19.18 19.30	55.0	27.5	19.0	9.47 9.42	19.63

GC Series Modular Gripper

Cam-Action Pneumatic Flange Gripper

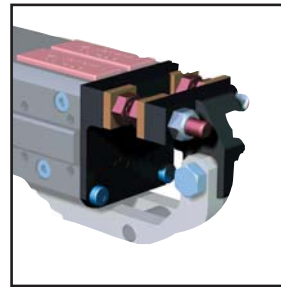
GC3F and GC4F Tip Mounting Information



**SINGLE TIP
(TIP STYLE A SHOWN)**

GC3 TECHNICAL NOTES

- ▶ Maximum custom jaw weight not to exceed 0.50 lbs [0.23 kg]
- ▶ Maximum loading offset distance from center line of gripper head: 2.0 in [50 mm]
- ▶ Maximum grip force values may be adversely affected if location of inserts on custom jaws exceeds design envelope.



**DOUBLE TIP
(TIP STYLE B SHOWN)**

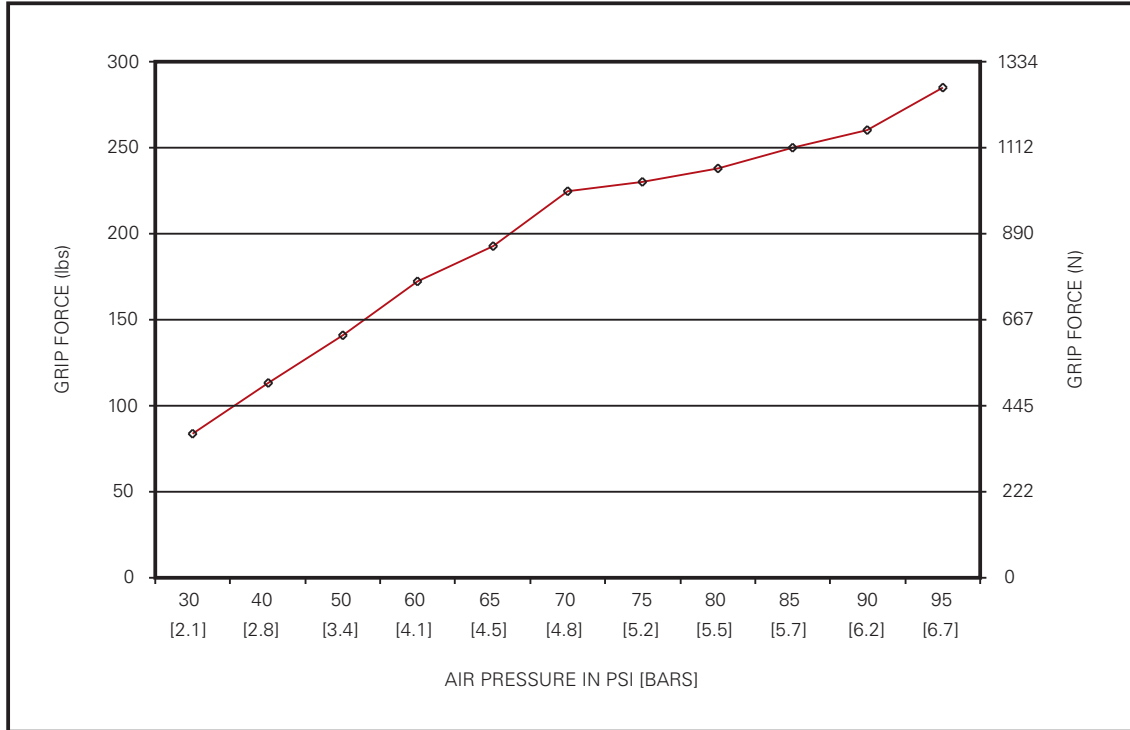
GC4 TECHNICAL NOTES

- ▶ Maximum custom jaw weight not to exceed 0.66 lbs [0.30 kg]
- ▶ Maximum loading offset distance from center line of gripper head: 3.0 in [75 mm]
- ▶ Maximum grip force values may be adversely affected if location of inserts on custom jaws exceeds design envelope.

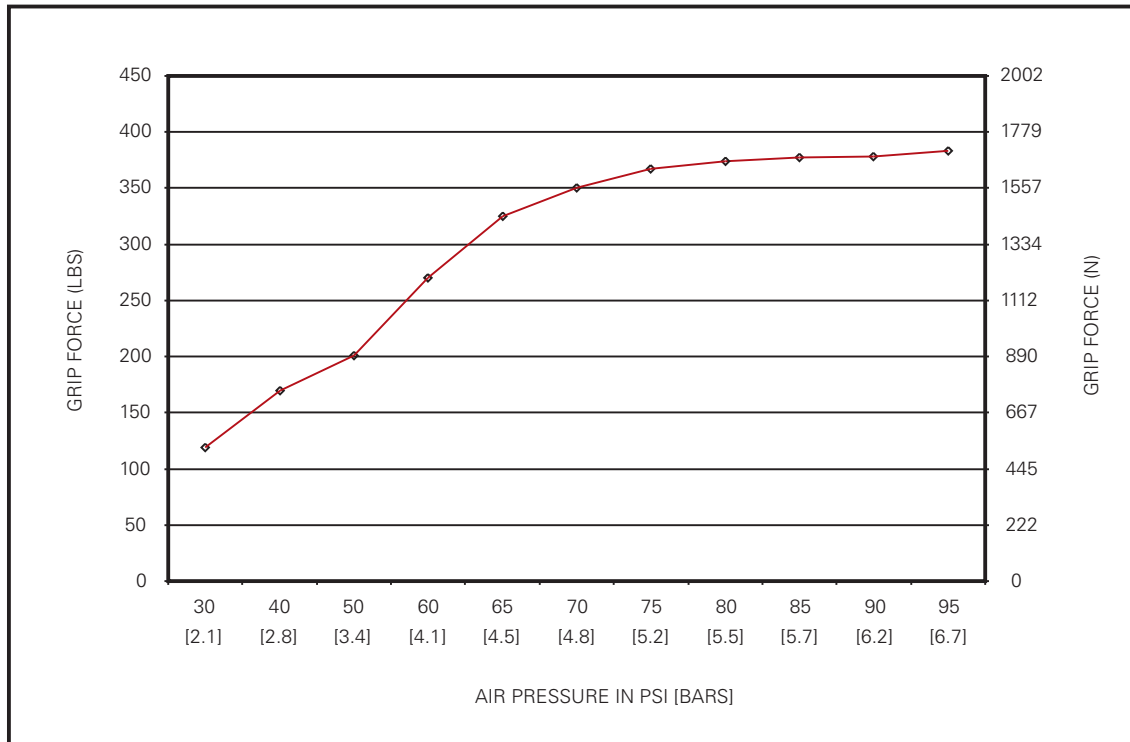
GC Series Modular Gripper

Cam-Action Pneumatic Flange Gripper
GC3F and GC4F Maximum Grip Force Charts

GC3F MAXIMUM GRIP FORCE



GC4F MAXIMUM GRIP FORCE

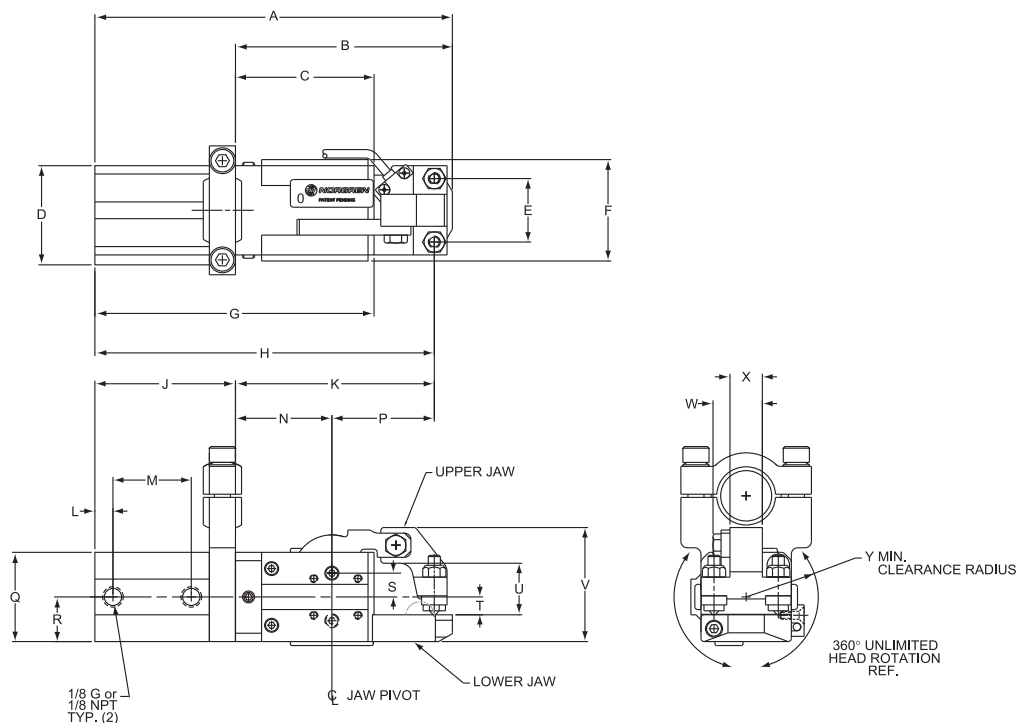


GC Series Modular Gripper

Cam-Action Pneumatic Transfer Press Gripper

GC3T and GC4T Overall Dimensions

NORGREN GRIPPERS



GC3 TRANSFER GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
7.01	4.25	2.72	1.97	1.26	2.01	5.47	6.65	2.76	3.90	.35	1.54	1.89	2.01	1.77	.89	.47
T	U	V	W	X	Y	WEIGHT (LBS)										
.35	1.02	2.26	.97	.63	1.41	2.03										

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
178.0	108.0	69.0	50.0	32.0	51.1	139.0	169.0	70.0	99.0	9.0	39.0	48.0	51.0	45.0	22.5	12.0
T	U	V	W	X	Y	WEIGHT (KG)										
9.0	26.0	57.5	24.6	16.1	35.8	.92										

GC4 TRANSFER GRIPPER

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
8.41	5.16	3.23	2.32	1.42	2.17	6.48	8.01	3.25	4.76	.39	1.83	2.28	2.48	2.17	1.08	.59
T	U	V	W	X	Y	WEIGHT (LBS)										
.46	1.38	2.87	1.14	.87	1.63	3.37										

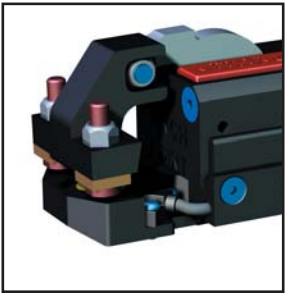
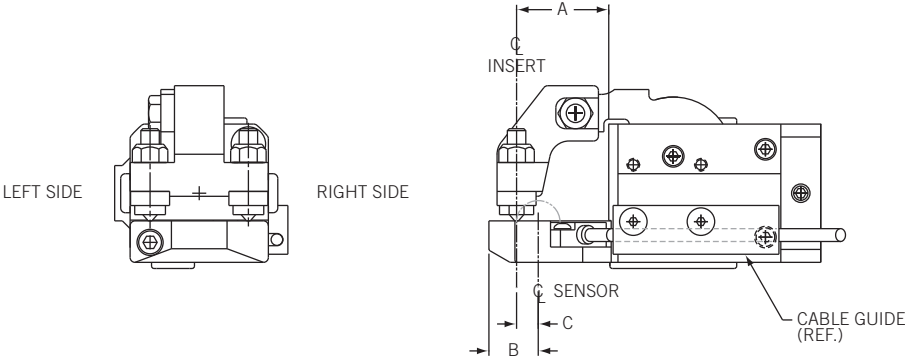
DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
213.5	131.0	82.0	59.0	36.0	55.0	164.5	203.5	82.5	121.0	10.0	46.5	58.0	63.0	55.0	27.5	15.0
T	U	V	W	X	Y	WEIGHT (KG)										
11.6	35.0	72.9	29.0	22.0	41.3	1.53										

GC Series Modular Gripper

Cam-Action Pneumatic Transfer Press Gripper
GC3T and GC4T Technical Information

NORGREN GRIPPERS



GC3

DIMENSIONS (INCHES)

A	B	C
1.18	.63	.28

DIMENSIONS (MM)

A	B	C
30.0	16.0	7.1

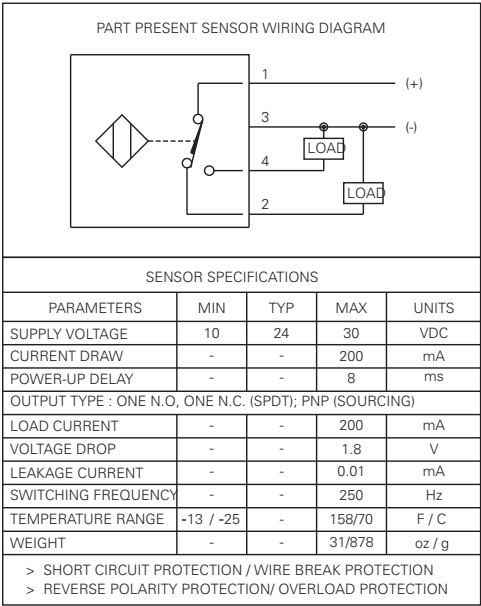
GC4

DIMENSIONS (INCHES)

A	B	C
1.54	.67	.28

DIMENSIONS (MM)

A	B	C
39.0	17.0	7.1

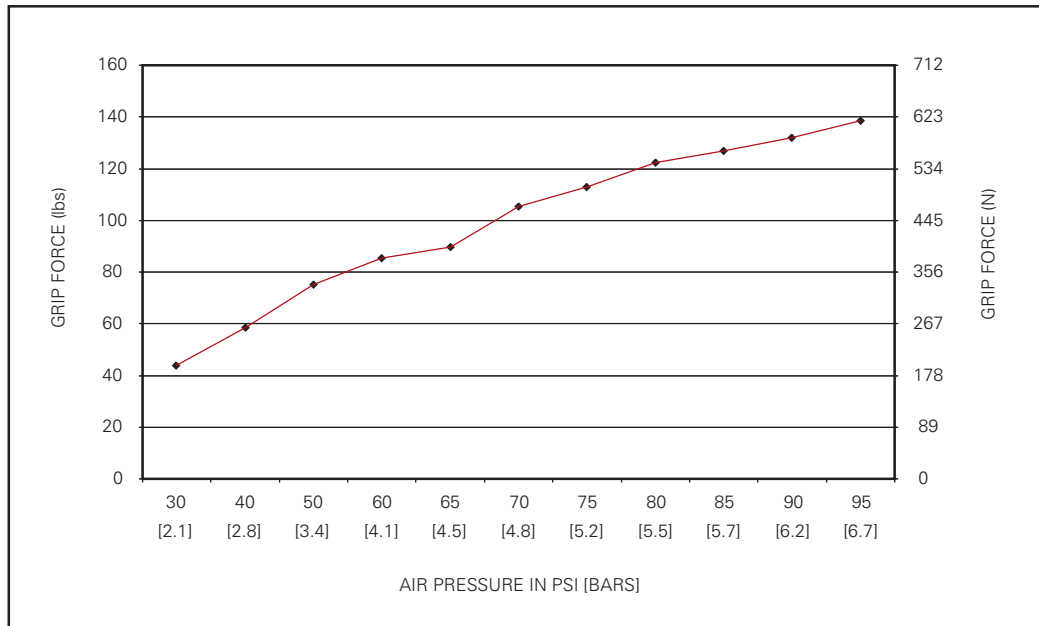


GC Series Modular Gripper

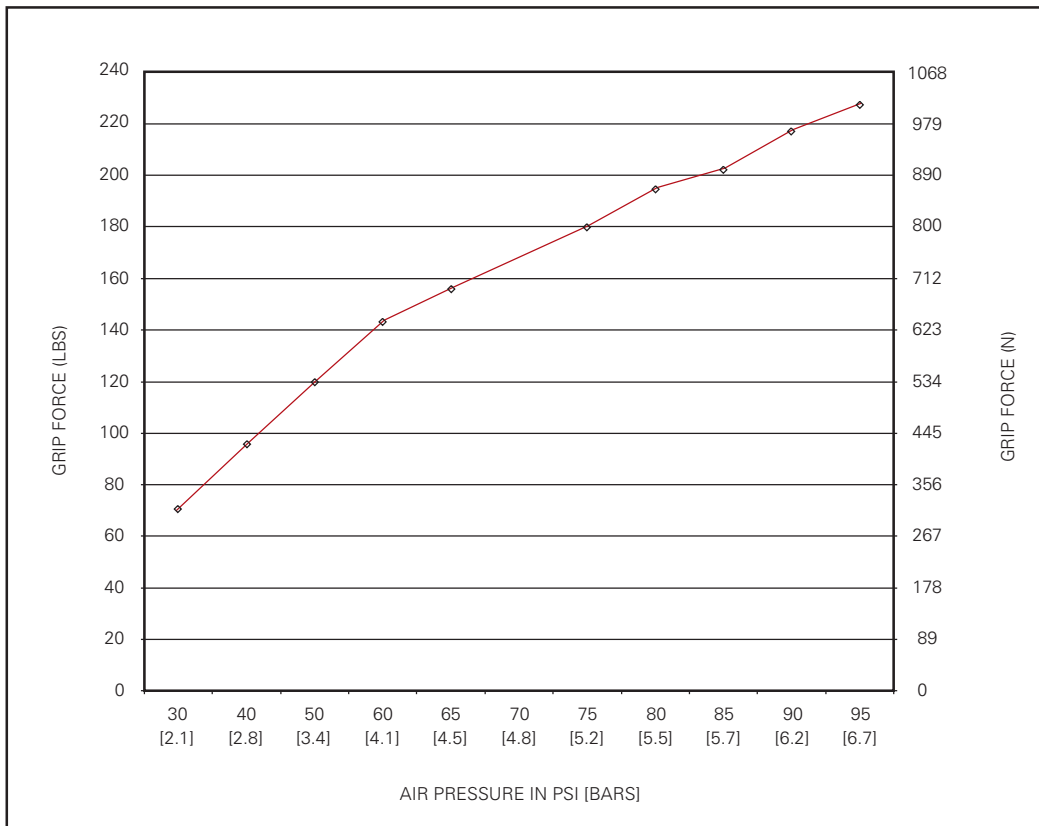
Cam-Action Pneumatic Transfer Press Gripper
GC3T and GC4T Maximum Force Charts

NORGREN GRIPPERS

GC3T MAXIMUM GRIP FORCE



GC4T MAXIMUM GRIP FORCE

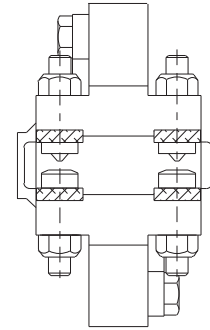
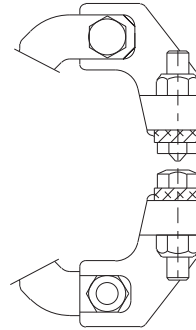
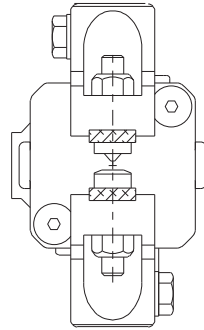
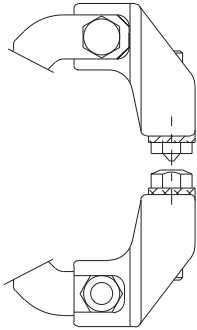


GC Series Modular Gripper

Cam-Action Pneumatic Gripper

Tip/Tip Spacer Options

GC TIP OPTIONS



Tip Option A
Single

Weight per GC3 Tip = .20 LBS [.09 KG]

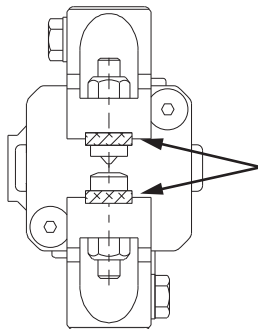
Weight per GC4 Tip = .46 LBS [.21 KG]

Tip Option B
Double

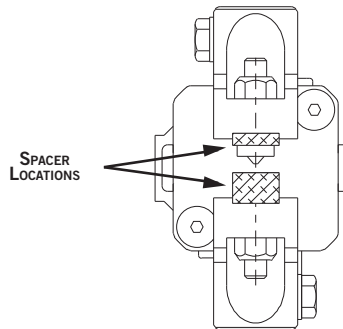
Weight per GC3 Tip = .32 LBS [.15 KG]

Weight per GC4 Tip = .56 LBS [.25 KG]

GC SPACER OPTIONS



REGULAR



CHISEL

SPACER
LOCATIONS

SPACERS FOR
TIP OPTIONS
A AND B

OPTION 1:
BLACK



RECOMMENDED FOR PANEL OR PART
THICKNESSES OF 0.00 MM - 1.25 MM

OPTION 2:
SILVER



RECOMMENDED FOR PANEL OR PART
THICKNESSES OF 1.25 MM - 2.50 MM

OPTION 3:
GOLD



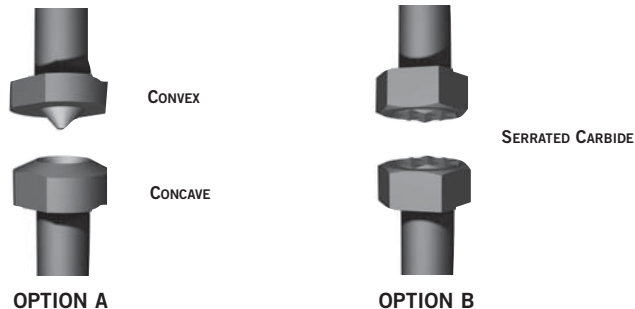
RECOMMENDED FOR PANEL OR PART
THICKNESSES OF 2.50 MM - 3.75 MM

GC Series Modular Gripper

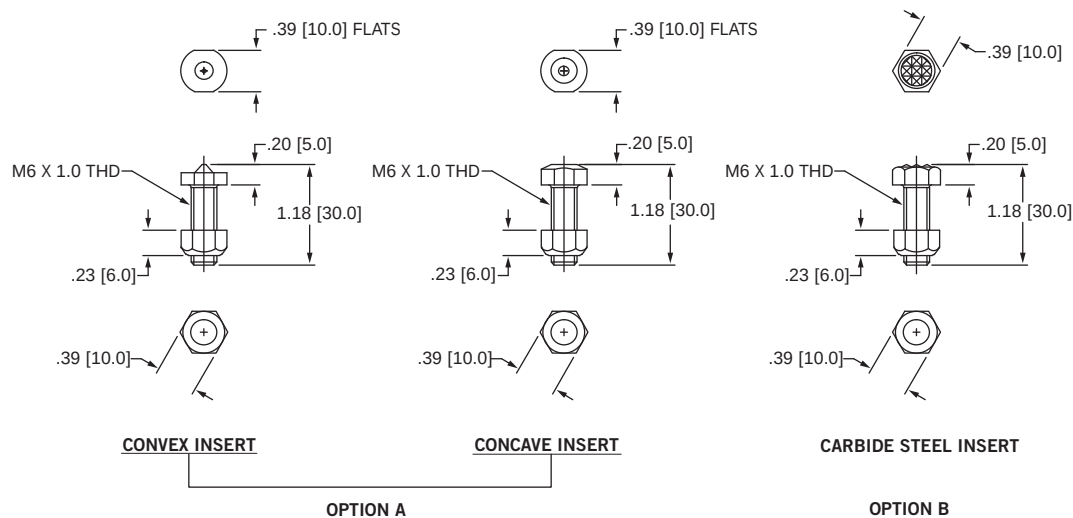
Cam-Action Pneumatic Gripper

Tip Insert Options

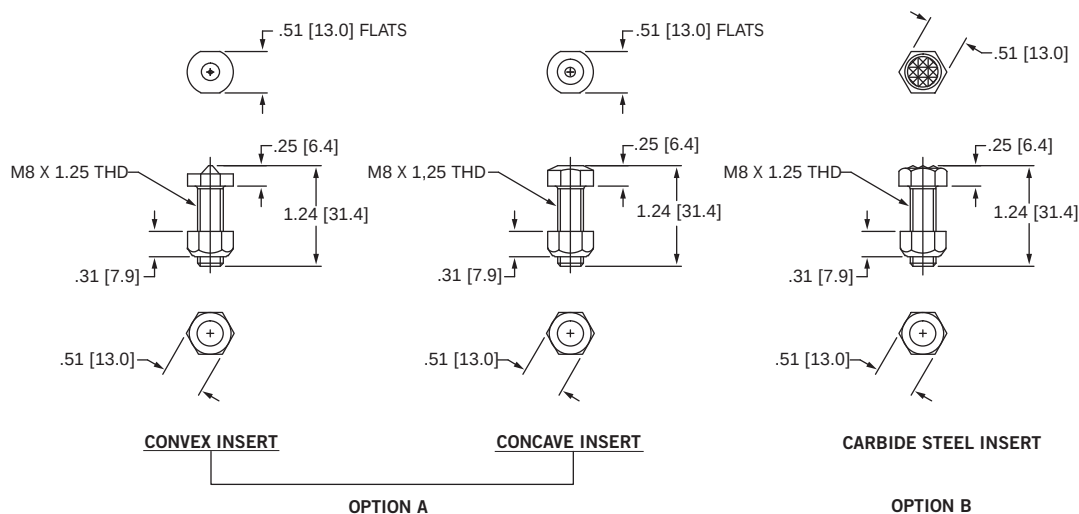
GC INSERT OPTIONS



GC3 TIP INSERT DIMENSIONS



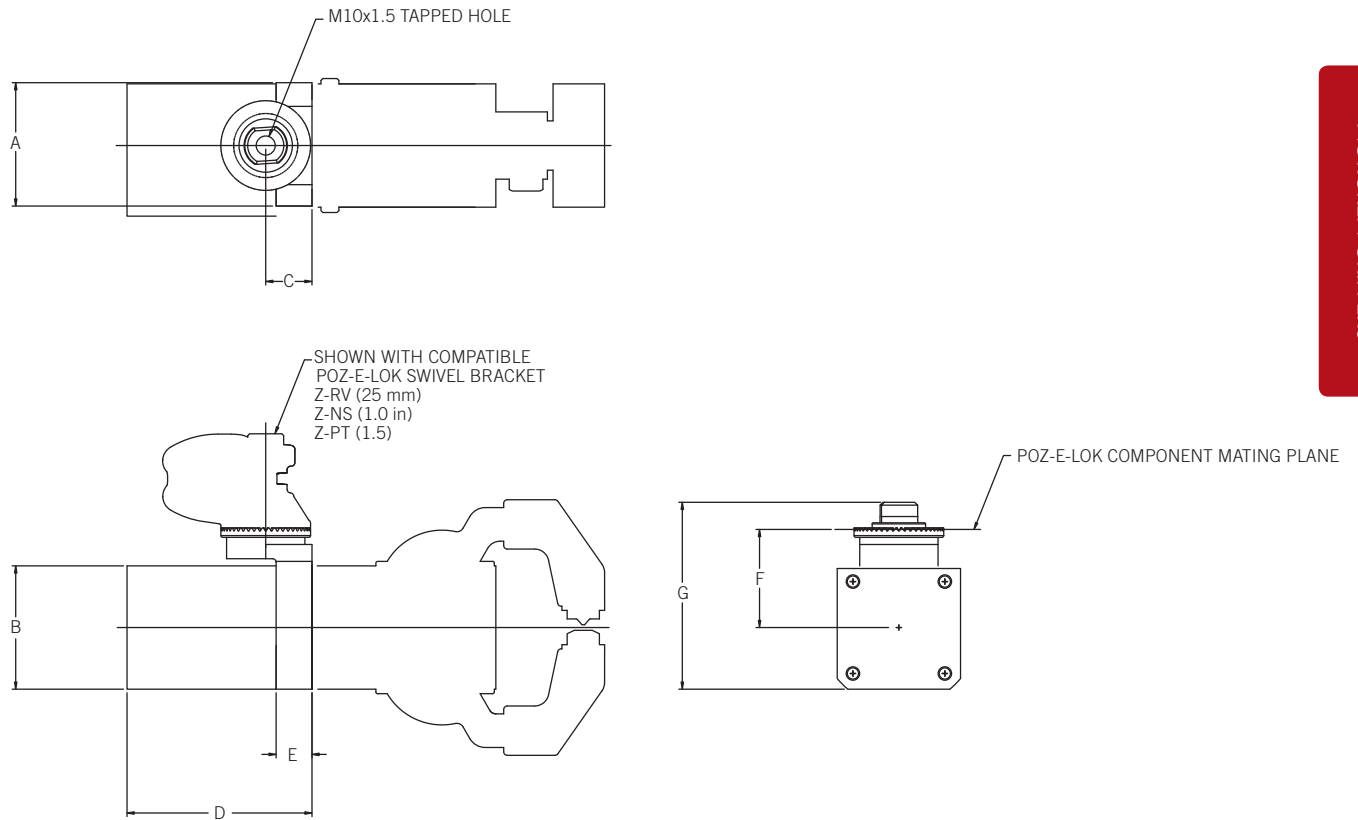
GC4 TIP INSERT DIMENSIONS



GC Series Modular Gripper

Cam-Action Pneumatic Gripper
Poz-e-Lok Mount Options

NORGREN GRIPPERS



GC3 POZ-E-LOK MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	WEIGHT (LBS)
1.77	1.77	.82	2.76	.51	1.53	2.89	.89

DIMENSIONS (MM)

A	B	C	D	E	F	G	WEIGHT (KG)
45.0	45.0	20.8	70.0	13.0	38.7	73.4	.41

GC4 POZ-E-LOK MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	WEIGHT (LBS)
2.17	2.17	.82	4.25	.63	1.72	3.28	.99

DIMENSIONS (MM)

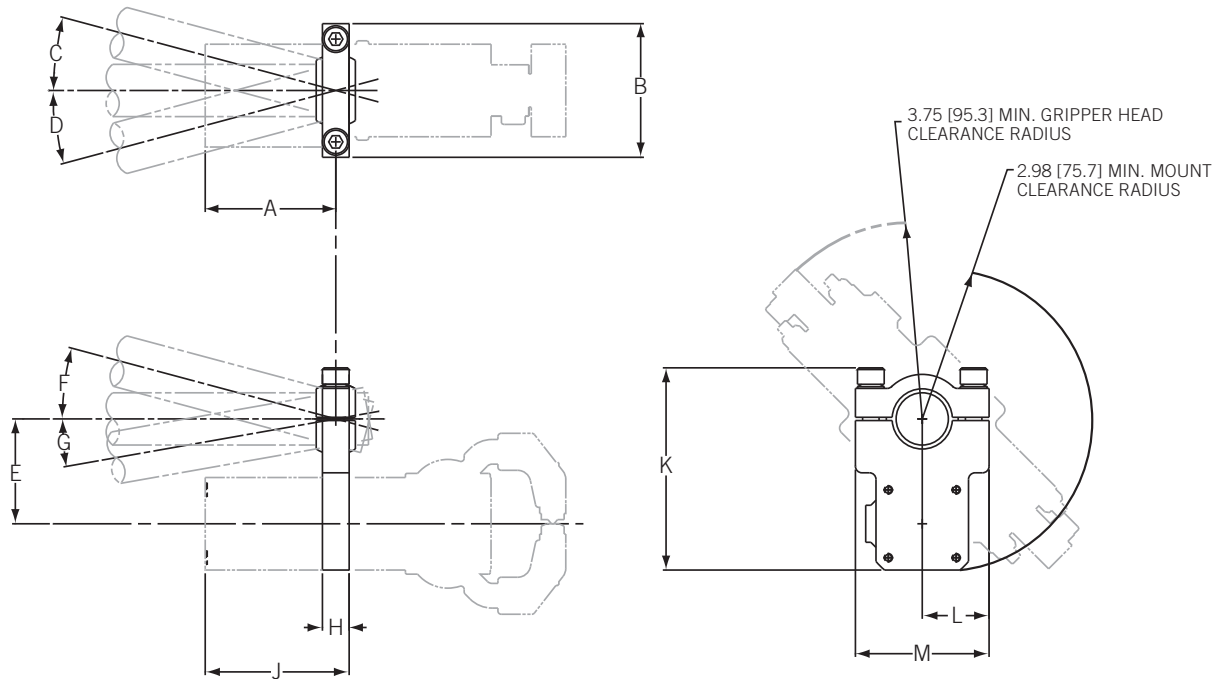
A	B	C	D	E	F	G	WEIGHT (KG)
55.0	55.0	20.8	107.5	16.0	43.7	83.4	.45

GC Series Modular Gripper

Cam-Action Pneumatic Gripper

1.00 in/25 mm Rod Mount Option

NORGREN GRIPPERS



GC3 1.00 IN/25 MM ROD MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	WEIGHT (LBS)
2.50	2.56	15°	15°	2.01	15°	10°	.51	2.76	3.87	1.28	2.56	.56

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	WEIGHT (KG)
63.5	65.0	15°	15°	51.0	15°	10°	13.0	70.0	98.3	32.5	65.0	.25

GC4 1.00 IN/25 MM ROD MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	M	WEIGHT (LBS)
3.93	2.56	15°	15°	2.17	15°	10°	.63	4.25	4.23	1.28	2.56	.87

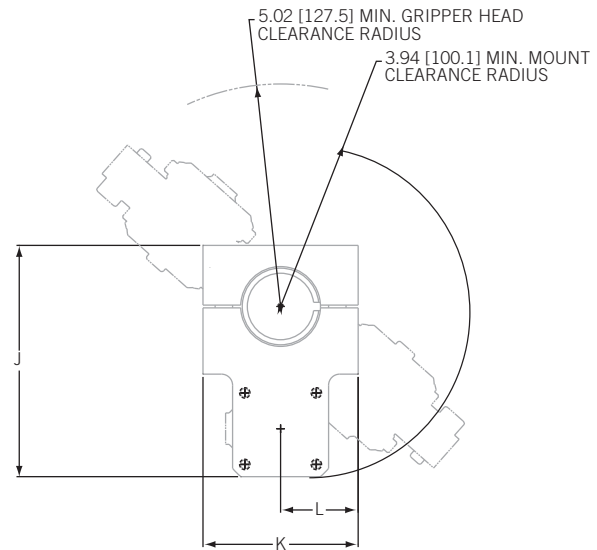
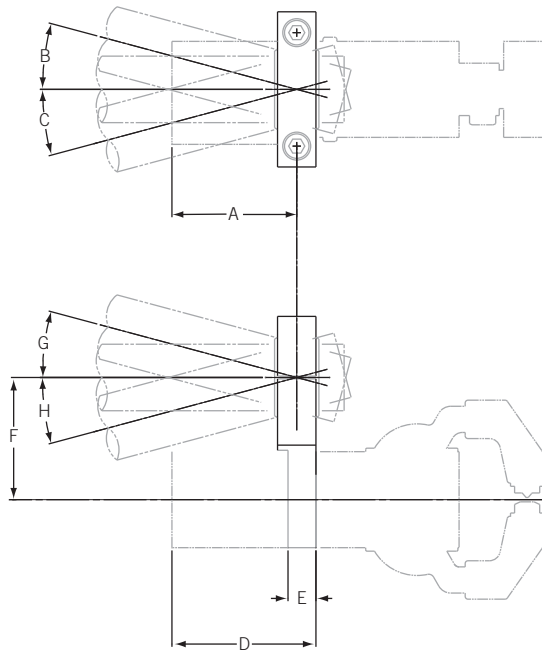
DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	M	WEIGHT (KG)
99.5	65.0	15°	15°	55.0	15°	10°	16.0	107.5	107.3	32.5	65.0	.39

GC Series Modular Gripper

Cam-Action Pneumatic Gripper
1.50 in/40 mm Rod Mount Options

NORGREN GRIPPERS



GC4 1.5 IN/40 MM HORIZONTAL ROD MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	L	WEIGHT (LBS)
3.81	15°	15°	4.25	.63	2.76	15°	15°	5.22	3.50	1.75	1.15

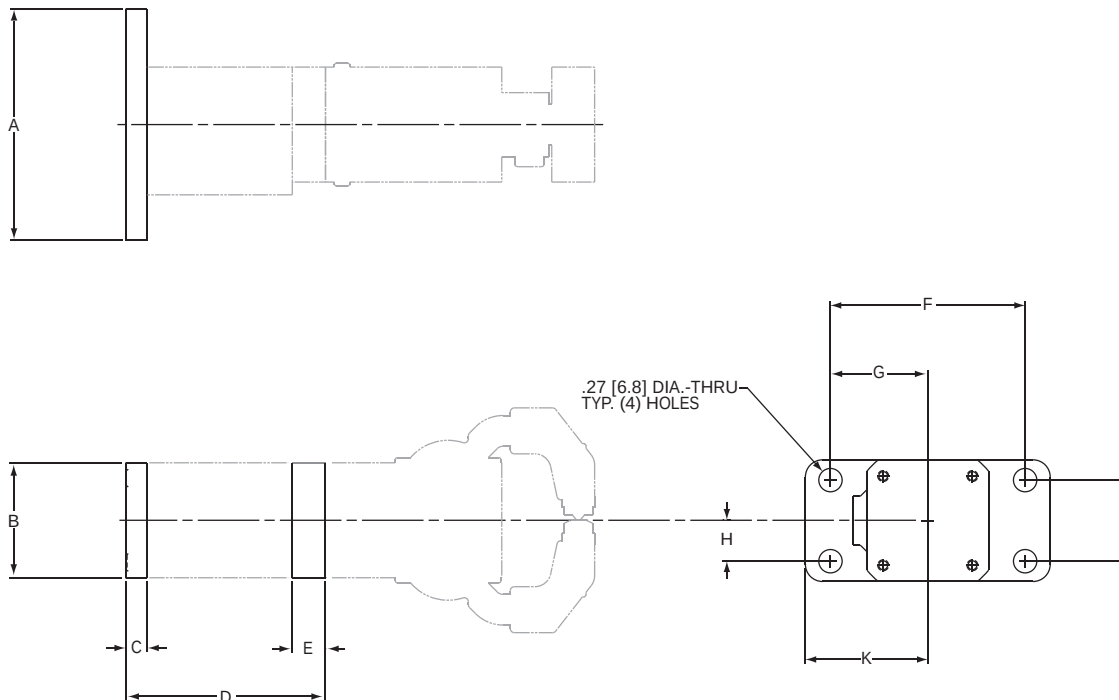
DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	L	WEIGHT (KG)
96.5	15°	15°	107.5	16.0	70.0	15°	15°	132.5	88.9	44.5	.52

GC Series Modular Gripper

Cam-Action Pneumatic Gripper
Rear Flange Mount Option

NORGREN GRIPPERS



GC3 REAR FLANGE MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	WEIGHT (LBS)
3.57	1.77	.31	3.07	.51	2.83	1.42	.60	1.18	1.78	.63

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	WEIGHT (KG)
90.6	45.0	8.0	78.0	13.0	72.0	36.0	15.3	30.0	45.3	.28

GC4 REAR FLANGE MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	WEIGHT (LBS)
4.33	2.17	.41	3.66	.63	3.54	1.77	.75	1.50	2.17	.92

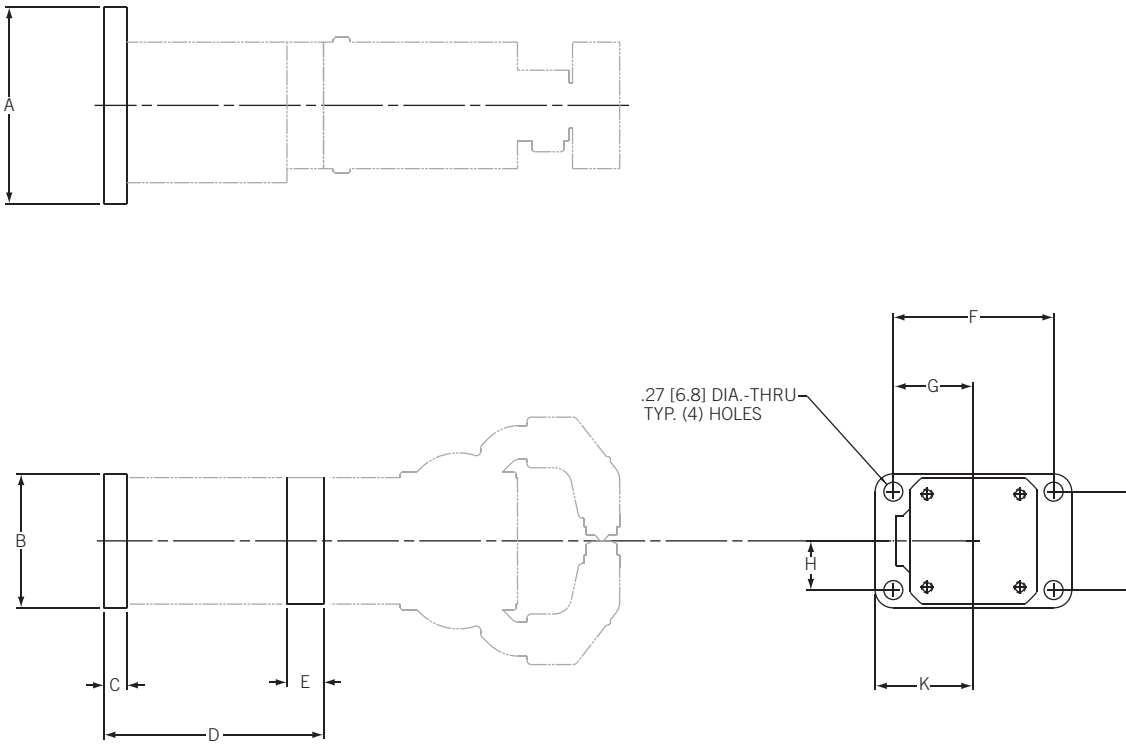
DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	WEIGHT (KG)
110.0	55.0	10.5	93.0	16.0	90.0	45.0	19.0	38.0	55.0	.42

GC Series Modular Gripper

Cam-Action Pneumatic Gripper
Grip-Lok Rear Flange Mount Option

NORGREN GRIPPERS



GC3 GL400 REAR FLANGE MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	WEIGHT (LBS)
2.75	1.88	.31	3.07	.51	2.24	1.12	.69	1.38	1.38	.47

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K	WEIGHT (KG)
69.9	47.6	8.0	78.0	13.0	57.0	28.5	17.5	35.0	35.0	.21

GC4 GL500 REAR FLANGE MOUNT

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K	WEIGHT (LBS)
3.75	2.50	.41	3.66	.63	2.99	1.50	.94	1.89	1.87	.90

DIMENSIONS (MM)

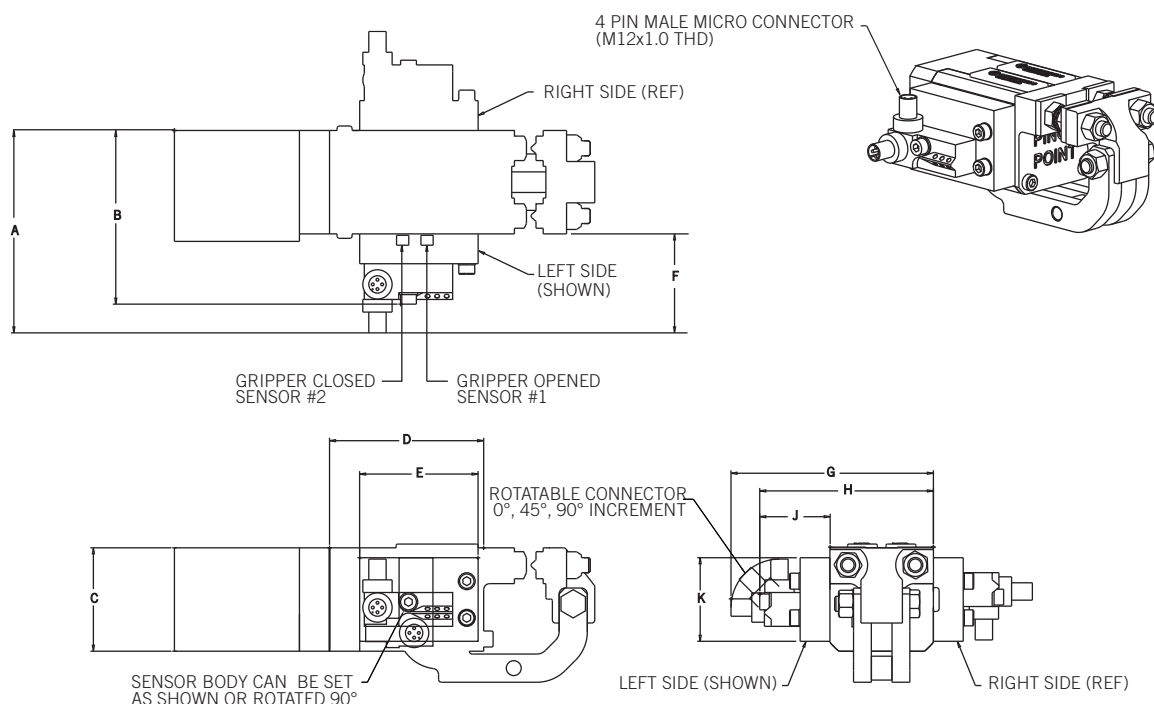
A	B	C	D	E	F	G	H	J	K	WEIGHT (KG)
95.3	63.5	10.5	93.0	16.0	76.0	38.0	24.0	48.0	47.6	.41

GC Series Modular Gripper

Cam-Action Pneumatic Gripper

DC Proximity Switch Option

NORGREN GRIPPERS



GC3 OVERALL DIMENSIONS

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K
4.21	4.05	1.77	2.60	2.48	2.44	4.21	4.05	2.28	1.75

DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K
106.9	102.9	45.0	66.0	63.0	61.9	106.9	102.9	57.9	44.4

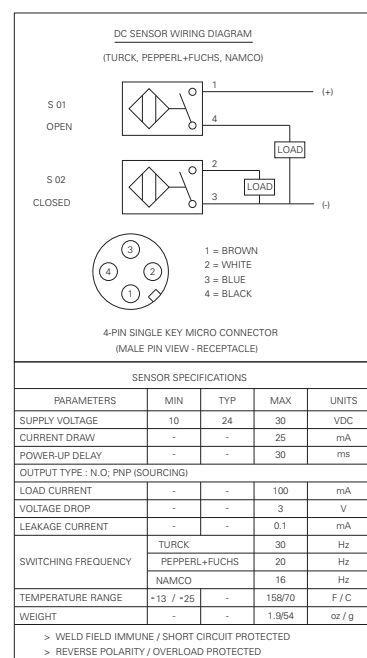
GC4 OVERALL DIMENSIONS

DIMENSIONS (INCHES)

A	B	C	D	E	F	G	H	J	K
4.60	4.45	2.17	3.23	2.48	1.75	4.24	3.64	1.47	2.28

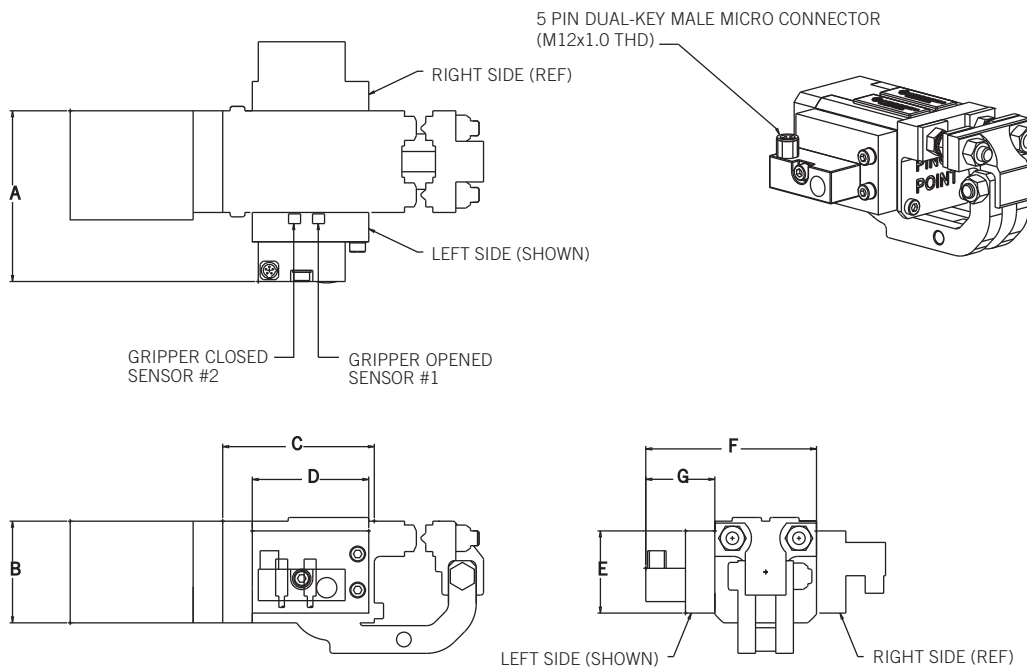
DIMENSIONS (MM)

A	B	C	D	E	F	G	H	J	K
116.9	112.9	55.0	82.0	63.0	44.4	61.9	116.9	112.9	57.9



GC Series Modular Gripper

Cam-Action Pneumatic Gripper
AC/DC Proximity Switch Option



NORGREN GRIPPERS

GC3 OVERALL DIMENSIONS

DIMENSIONS (INCHES)

A	B	C	D	E	F	G
3.99	1.77	2.60	2.48	1.75	3.99	2.22

DIMENSIONS (MM)

A	B	C	D	E	F	G
101.4	45.0	66.0	63.0	44.4	101.4	56.4

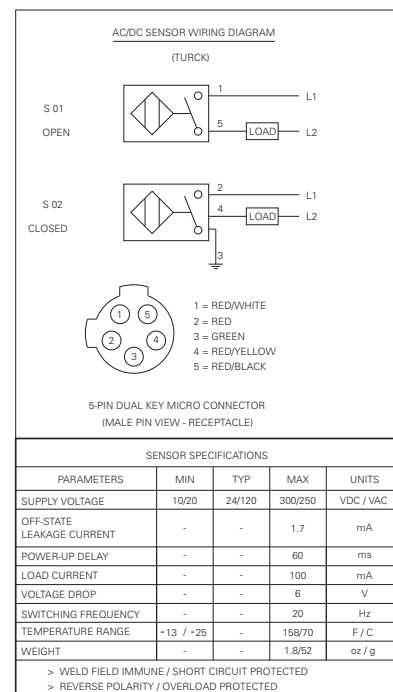
GC4 OVERALL DIMENSIONS

DIMENSIONS (INCHES)

A	B	C	D	E	F	G
4.39	2.17	3.23	2.48	1.75	4.39	2.22

DIMENSIONS (MM)

A	B	C	D	E	F	G
111.4	55.0	82.0	63.0	44.4	111.4	56.4

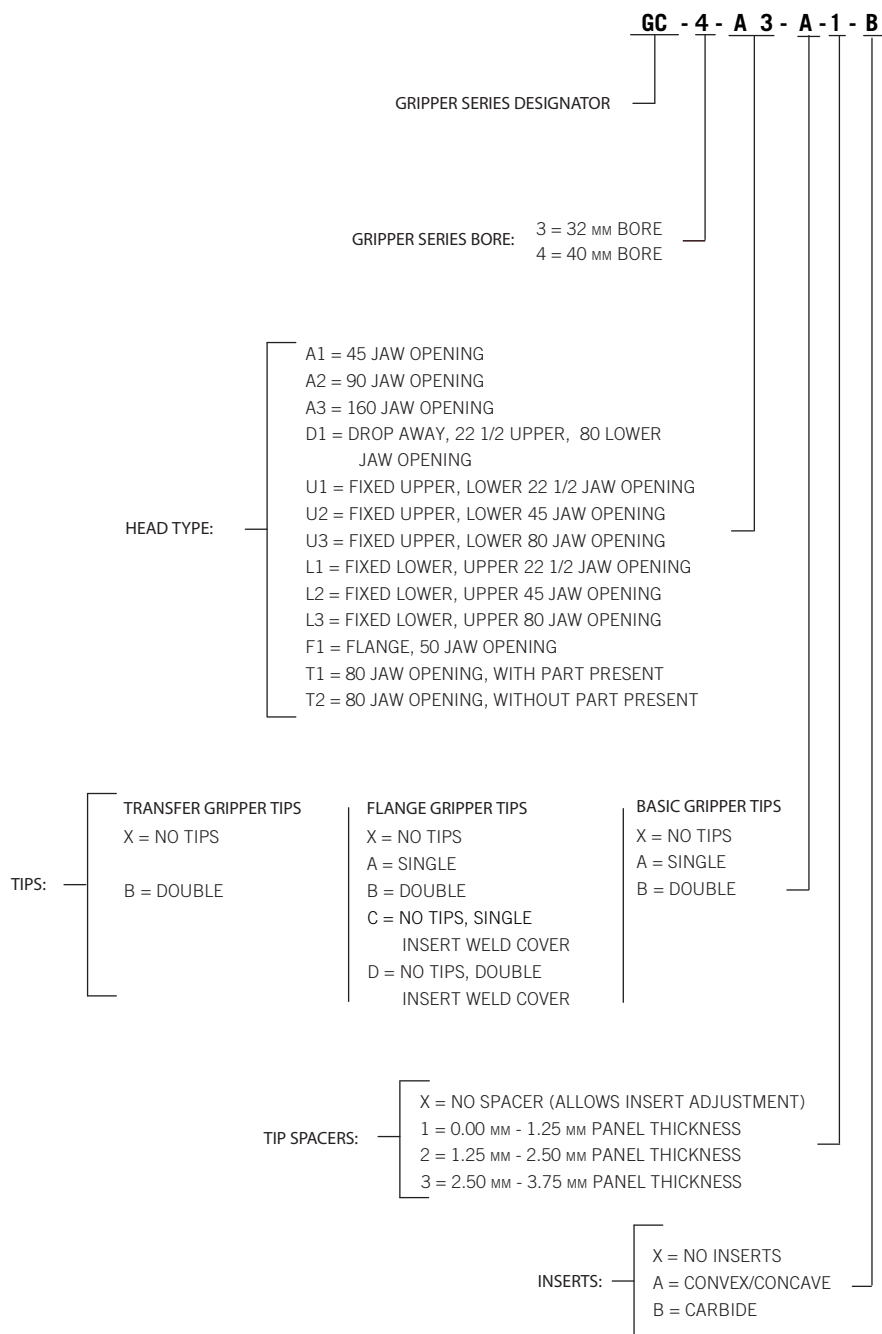


GC Series Modular Gripper

Cam-Action Pneumatic Gripper

Ordering Information

NORGREN GRIPPERS



GC Series Modular Gripper

Cam-Action Pneumatic Gripper
Ordering Information

NORGREN GRIPPERS

X - A - 1 - A

CYLINDER:

X = NO CYLINDER
A = CYLINDER WITH 1/8 150-G PORTS
B = CYLINDER WITH 1/8 NPT PORTS
C = CYLINDER WITH 1/8 BSPT PORTS

MOUNT TYPE:

X = NO MOUNT
1 = 1.00 ROD MOUNT
2 = 25 mm ROD MOUNT
3 = REAR FLANGE MOUNT
4 = GL4 00 SERIES GRIPPER REAR FLANGE MOUNT (GC3 ONLY)
4 = 1.50 INCH ROD MOUNT (GC4 ONLY)
5 = 40 mm ROD MOUNT (GC4 ONLY)
6 = GL5 00 SERIES GRIPPER REAR FLANGE MOUNT (GC4 ONLY)
8 = POZ-E-LOK ADAPTER MOUNT

SENSOR TYPE:

X = NO PROXIMITY SENSING
A = P&F DC 4 PIN MICRO CONNECTOR (PNP) (LEFT HAND SIDE)
B = P&F DC 4 PIN MICRO CONNECTOR (PNP) (RIGHT HAND SIDE)
C = P&F DC 4 PIN MICRO CONNECTOR (PNP) (LEFT HAND SIDE)
D = P&F DC 4 PIN MICRO CONNECTOR (PNP) (RIGHT HAND SIDE)
E = TURCK DC 4 PIN MICRO CONNECTOR (PNP) (LEFT HAND SIDE)
F = TURCK DC 4 PIN MICRO CONNECTOR (PNP) (RIGHT HAND SIDE)
G = TURCK AC/DC 5 PIN MICRO CONNECTOR (PNP) (LEFT HAND SIDE)
H = TURCK AC/DC 5 PIN MICRO CONNECTOR (PNP) (RIGHT HAND SIDE)
ZL = SENSING READY LEFT SIDE
ZR = SENSING READY RIGHT SIDE

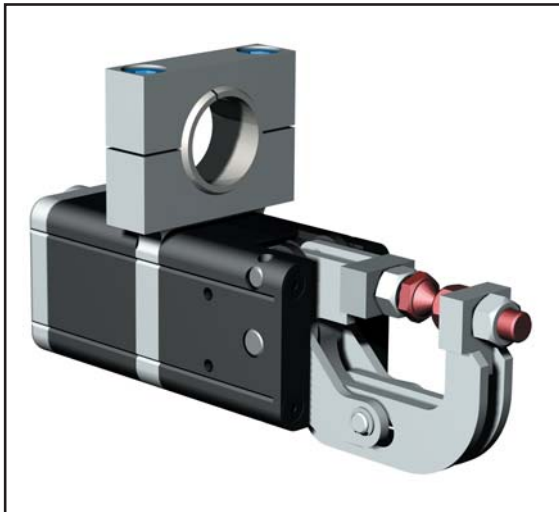
X = FUTURE OPTION AVAILABILITY

Contact Norgren Automotive for more information on Sensor offerings.
Right hand side proximity sensing options not available on the T1 and T2
Transfer Grippers.

GL Series Gripper

Link-Driven Pneumatic Gripper

NORGREN GRIPPERS



FEATURES

- ▶ Multiple jaw/insert styles let you custom configure Grip-Lok to your specific application. Custom jaw styles and opening angles available on request.
- ▶ Patented internal shock absorbers dampen the mechanism's internal action and extend Grip-Lok's work life.
- ▶ Integral air manifold reduces Grip-Lok's overall size and weight by combining air-handling functions into body of gripper.
- ▶ Compact size, high grip force, ultra light weight put more gripping power into smaller spaces, while reducing load-induced wear on automation.

MATERIALS

- ▶ Gripper Exterior:
Hardcoat Anodized Aluminum
- ▶ Jaw Inserts:
Heat Treated S-5 Tool Steel
- ▶ Gripper Arms:
Heat Treated Alloy Steel

OPERATING DATA

- ▶ Fluid: Compressed air
- ▶ Air Pressure:
Min. 40 psi (2.76 bar)
Max. 116 psi (8 bar)
- ▶ Operating Temperature:
25° F (-4° C) to 170° F (77° C)
- ▶ Air Filtration:
40 Micron*
* Air supply must be dry enough to prevent ice formation at temperatures below 35° F (2° C)



J1
GRIPPER JAW
SINGLE INSERT
43° OPENING

J1FU - FIXED UPPER, J1FL - FIXED LOWER JAW

J2
GRIPPER JAW
DOUBLE INSERT
43° OPENING

J2FU - FIXED UPPER, J2FL - FIXED LOWER JAW



J3
CHISEL JAW
SINGLE INSERT
43° OPENING

J3FL - FIXED LOWER JAW

J4
CHISEL JAW
DOUBLE INSERT
43° OPENING

J4FL - FIXED LOWER JAW



J7
DROP AWAY
SINGLE INSERT

J8
DROP AWAY
DOUBLE INSERT



J9
PARALLEL MOTION
OUTSIDE DIAMETER

J9X - METRIC JAW

J10
PARALLEL MOTION
INSIDE DIAMETER

J10X - METRIC JAW



J12F
FIXED UPPER JAW
SINGLE INSERT
FLANGE GRIPPER

J11F
FIXED UPPER JAW
DOUBLE INSERT
FLANGE GRIPPER



J28
DOUBLE INSERT
90° OPENING
FIXED LOWER JAW GRIPPER



J91
SINGLE INSERT
90° OPENING
GRIPPER

J90
DOUBLE INSERT
90° OPENING
GRIPPER



J181
SINGLE INSERT
180° OPENING
GRIPPER

J180
DOUBLE INSERT
180° OPENING
GRIPPER



C2A
GRIPPER CLAMP
90° ARM

C3A
GRIPPER CLAMP
STRAIGHT ARM



GL Series Gripper

Link-Driven Pneumatic Gripper

GL400 and GL500 Technical Information

NORGREN GRIPPERS



GL500

BORE SIZE:
2.00 IN.
(51 MM)



GL400

BORE SIZE:
1.50 IN.
(38 MM)

GRIPPER MODEL GL 400

CLAMP FORCE (POUNDS)

AIR PRESSURE APPLIED	J1 J2	J3 J4	J7 J8	J9 J10	J11F J12F	C2A	C3A	J28	J90-91 J180-181
60 psi	120.0	120.0	71.0	27.0	94.0	57.0	52.0	73.0	73.0
70 psi	140.0	140.0	81.0	31.0	113.0	68.0	61.0	85.0	85.0
80 psi	160.0	160.0	104.0	36.0	139.0	78.0	70.0	97.0	97.0
90 psi	180.0	180.0	120.0	40.0	153.0	89.0	79.0	109.0	109.0

CLAMP FORCE (NEWTONS)

AIR PRESSURE APPLIED	J1 J2	J3 J4	J7 J8	J9 J10	J11F J12F	C2A	C3A	J28	J90-91 J180-181
4.1 bars	533.8	533.8	315.8	120.1	418.1	253.5	231.3	324.7	324.7
4.8 bars	622.7	622.7	360.3	137.9	502.6	302.5	271.3	378.1	378.1
5.5 bars	711.7	711.7	462.6	160.1	618.3	346.9	311.4	431.4	431.4
6.2 bars	800.6	800.6	533.8	177.9	680.5	395.9	351.4	484.8	484.8

GRIPPER MODEL GL 500

CLAMP FORCE (POUNDS)

AIR PRESSURE APPLIED	J1 J2	J3 J4	J7 J8	J9 J10	J11F J12F	C2A	C3A	J28	J90-91 J180-181
60 psi	254.0	254.0	104.0	62.0	121.0	123.0	106.0	127.0	127.0
70 psi	296.0	296.0	118.0	70.0	145.0	140.0	120.0	148.0	148.0
80 psi	339.0	339.0	144.0	82.0	171.0	160.0	139.0	169.0	169.0
90 psi	380.0	380.0	176.0	91.0	183.0	180.0	156.0	190.0	190.0

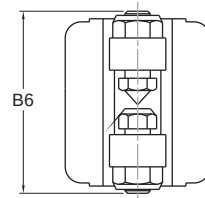
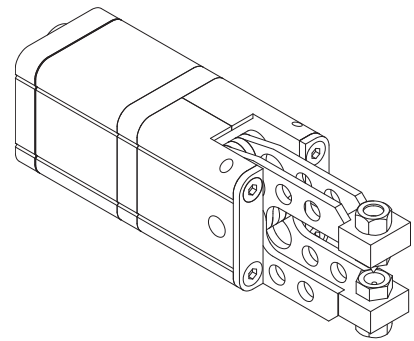
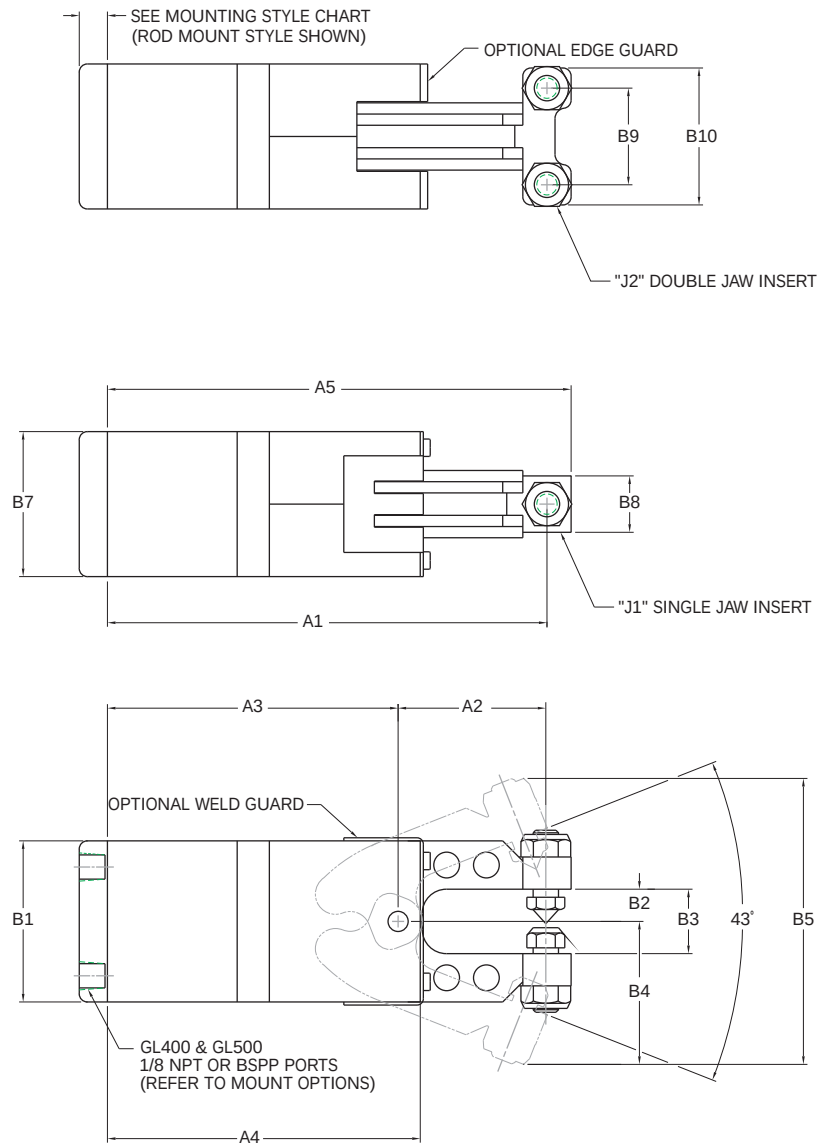
CLAMP FORCE (NEWTONS)

AIR PRESSURE APPLIED	J1 J2	J3 J4	J7 J8	J9 J10	J11F J12F	C2A	C3A	J28	J90-91 J180-181
4.1 bars	1129.8	1129.8	462.6	275.8	538.2	547.1	471.5	564.9	564.9
4.8 bars	1316.6	1316.6	524.9	311.4	645.0	622.7	533.8	658.3	658.3
5.5 bars	1507.8	1507.8	640.5	364.7	760.6	711.7	618.3	751.7	751.7
6.2 bars	1690.2	1690.2	782.8	404.8	814.0	800.6	693.9	845.1	845.1

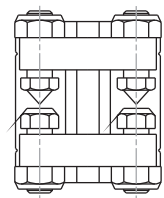
GL Series Gripper

Link-Driven Pneumatic Gripper
J1 /J2 Jaw Style Overall Dimensions

NORGREN GRIPPERS



"J1" JAW STYLE
(SINGLE INSERT)



"J2" JAW STYLE
(DOUBLE INSERT)

NOTE:

SEE GRIPPER MOUNTING OPTIONS FOR
ADDITIONAL INFORMATION.

GL Series Gripper

Link-Driven Pneumatic Gripper

J1/J2 Jaw Style Overall Dimensions

OVERALL DIMENSIONS

GRIPPER MODEL	A1	A2	A3	A4	A5
GL400-J1	5.55 [141.0]	2.13 [54.2]	3.42 [86.9]	3.73 [94.7]	5.86 [148.8]
GL400-J2	5.55 [141.0]	2.13 [54.2]	3.42 [86.9]	3.73 [94.7]	5.86 [148.8]
GL500-J1	6.83 [173.5]	2.31 [58.7]	4.52 [114.7]	4.86 [123.4]	7.20 [182.9]
GL500-J2	6.83 [173.5]	2.31 [58.7]	4.52 [114.7]	4.86 [123.4]	7.20 [182.9]

GRIPPER MODEL	B1	B2	B3	B4	B5	B6
GL400-J1	1.88 [47.6]	.37 [9.5]	.75 [19.1]	1.90 [48.3]	3.79 [96.3]	2.30 [58.5]
GL400-J2	1.88 [47.6]	.37 [9.5]	.75 [19.1]	1.90 [48.3]	3.79 [96.3]	2.30 [58.5]
GL500-J1	2.50 [63.5]	.50 [12.7]	1.00 [25.4]	2.22 [56.4]	4.44 [112.8]	2.82 [71.8]
GL500-J2	2.50 [63.5]	.50 [12.7]	1.00 [25.4]	2.22 [56.4]	4.44 [112.8]	2.82 [71.8]

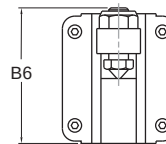
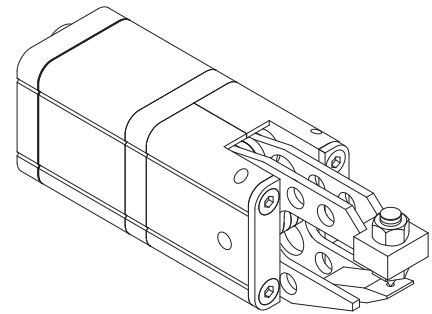
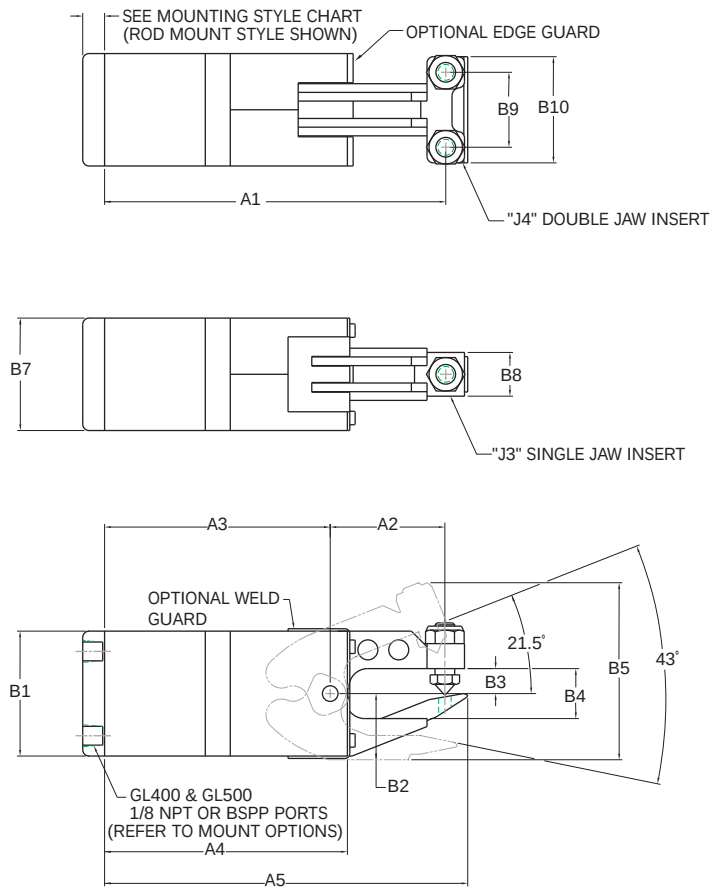
GRIPPER MODEL	B7	B8	B9	B10
GL400-J1	1.69 [42.9]	.75 [19.0]	-	-
GL400-J2	1.69 [42.9]	-	1.00 [25.4]	1.56 [39.7]
GL500-J1	2.25 [57.1]	.88 [22.2]	-	-
GL500-J2	2.25 [57.1]	-	1.50 [38.1]	2.13 [54.0]

GRIPPER MOUNTING STYLE		
GRIPPER MODEL	ROD MOUNT	FLANGE MOUNT
GL400	.50 [12.7]	.76 [19.3]
GL500	.44 [11.2]	.76 [19.3]

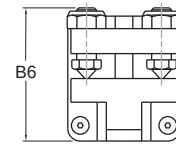
GRIPPER MODEL	APPROX. WEIGHT
GL400	2.20 lbs. [0.998 kg]
GL500	4.40 lbs. [1.996 kg]

GL Series Gripper

Link-Driven Pneumatic Gripper
J3/J4 Jaw Style Overall Dimensions



"J3" JAW STYLE
(SINGLE INSERT)



"J4" JAW STYLE
(DOUBLE INSERT)

NOTE: SEE GRIPPER MOUNTING OPTIONS FOR
ADDITIONAL INFORMATION.

GL Series Gripper

Link-Driven Pneumatic Gripper

J3/J4 Jaw Style Overall Dimensions

OVERALL DIMENSIONS

GRIPPER MODEL	A1	A2	A3	A4	A5
GL400-J3	5.55 [141.0]	2.13 [54.2]	3.42 [86.9]	3.73 [94.7]	5.87 [149.1]
GL400-J4	5.55 [141.0]	2.13 [54.2]	3.42 [86.9]	3.73 [94.7]	5.87 [149.1]
GL500-J3	6.83 [173.5]	2.31 [58.7]	4.52 [114.7]	4.86 [123.4]	7.27 [184.7]
GL500-J4	6.83 [173.5]	2.31 [58.7]	4.52 [114.7]	4.86 [123.4]	7.27 [184.7]

GRIPPER MODEL	B1	B2	B3	B4	B5	B6
GL400-J3	1.88 [47.6]	1.15 [29.2]	.37 [9.5]	.75 [19.0]	3.04 [77.3]	2.14 [54.2]
GL400-J4	1.88 [47.6]	1.15 [29.2]	.37 [9.5]	.75 [19.0]	3.04 [77.3]	2.09 [53.0]
GL500-J3	2.50 [63.5]	1.32 [33.5]	.50 [12.7]	1.00 [25.4]	3.54 [90.0]	2.71 [68.9]
GL500-J4	2.50 [63.5]	1.32 [33.5]	.50 [12.7]	1.00 [25.4]	3.54 [90.0]	2.66 [67.7]

GRIPPER MODEL	B7	B8	B9	B10
GL400-J3	1.69 [42.9]	.75 [19.0]	-	-
GL400-J4	1.69 [42.9]	-	1.00 [25.4]	1.56 [39.7]
GL500-J3	2.25 [57.1]	.88 [22.2]	-	-
GL500-J4	2.25 [57.1]	-	1.50 [38.1]	2.13 [54.0]

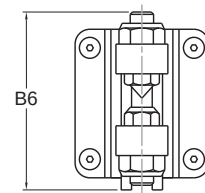
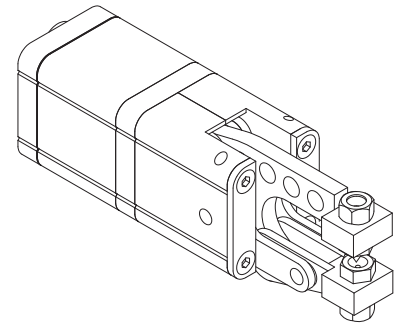
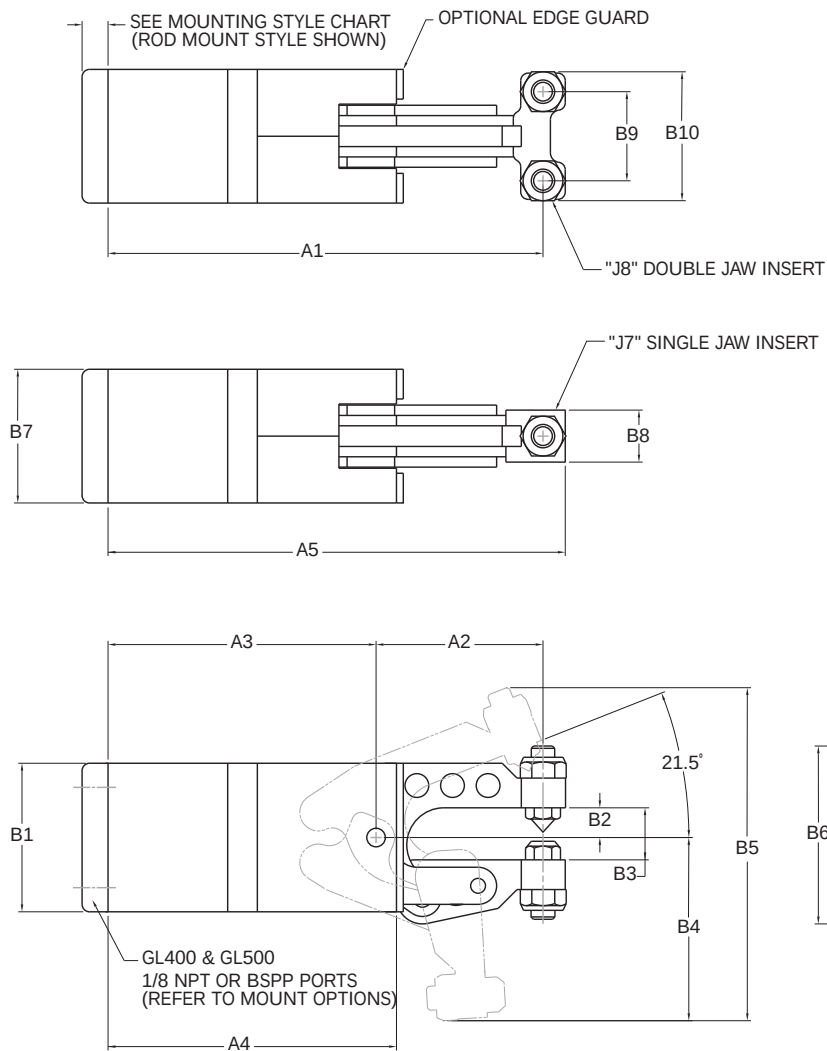
GRIPPER MOUNTING STYLE		
GRIPPER MODEL	ROD MOUNT	FLANGE MOUNT
GL400	.50 [12.7]	.76 [19.3]
GL500	.44 [11.2]	.76 [19.3]

GRIPPER MODEL	APPROX. WEIGHT
GL400	2.20 lbs. [0.998 kg]
GL500	4.40 lbs. [1.996 kg]

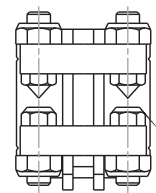
GL Series Gripper

Link-Driven Pneumatic Gripper
J7/J8 Jaw Style Overall Dimensions

NORGREN GRIPPERS



"J7" JAW STYLE
(SINGLE INSERT)



"J8" JAW STYLE
(DOUBLE INSERT)

NOTE:
SEE GRIPPER MOUNTING OPTIONS FOR
ADDITIONAL INFORMATION.

GL Series Gripper

Link-Driven Pneumatic Gripper

J7/J8 Jaw Style Overall Dimensions

OVERALL DIMENSIONS

GRIPPER MODEL	A1	A2	A3	A4	A5
GL400-J7	5.55 [141.0]	2.12 [53.9]	3.42 [86.9]	3.73 [94.7]	5.86 [148.8]
GL400-J8	5.55 [141.0]	2.12 [53.9]	3.42 [86.9]	3.73 [94.7]	5.86 [148.8]
GL500-J7	7.33 [186.2]	2.81 [71.44]	4.52 [114.7]	4.86 [123.4]	7.70 [195.6]
GL500-J8	7.33 [186.2]	2.81 [71.44]	4.52 [114.7]	4.86 [123.4]	7.70 [195.6]

GRIPPER MODEL	B1	B2	B3	B4	B5	B6
GL400-J7	1.88 [47.6]	.38 [9.7]	.69 [17.5]	2.34 [59.4]	4.23 [107.5]	2.25 [57.0]
GL400-J8	1.88 [47.6]	.38 [9.7]	.69 [17.5]	2.34 [59.4]	4.23 [107.5]	2.25 [57.0]
GL500-J7	2.50 [63.5]	.50 [12.7]	.88 [22.2]	3.08 [78.3]	5.61 [142.4]	2.99 [76.0]
GL500-J8	2.50 [63.5]	.50 [12.7]	.88 [22.2]	3.08 [78.3]	5.61 [142.4]	2.99 [76.0]

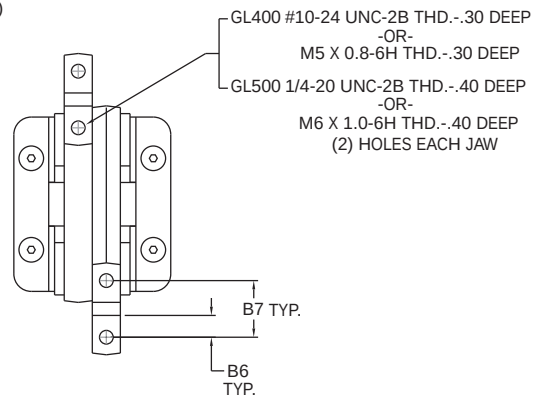
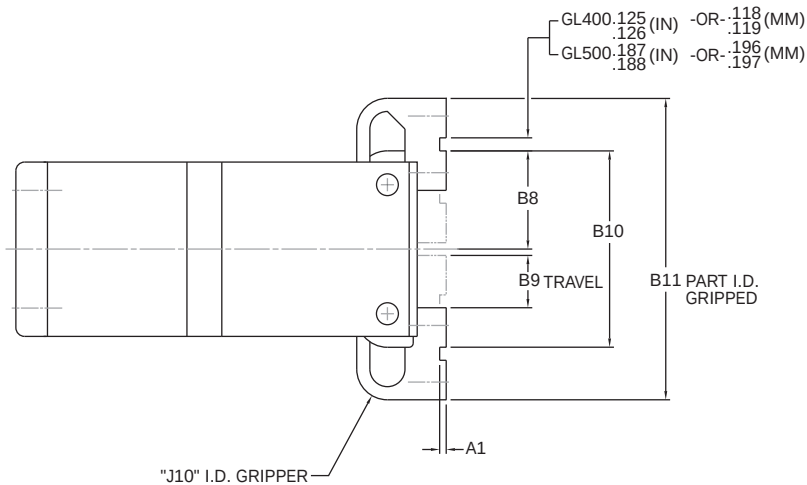
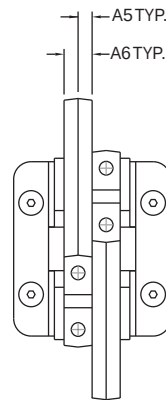
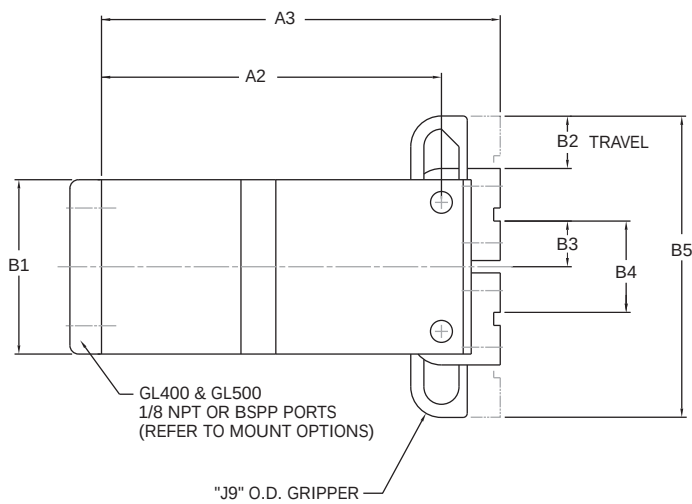
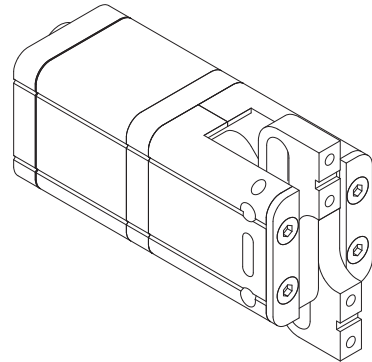
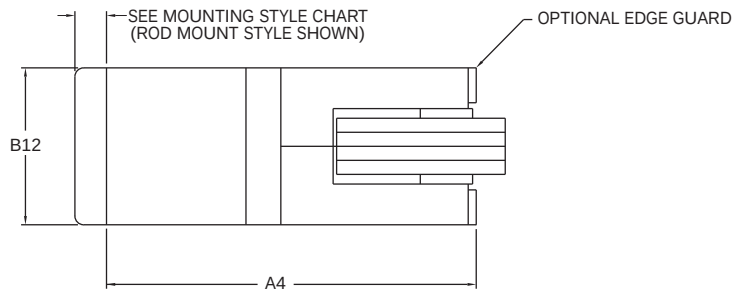
GRIPPER MODEL	B7	B8	B9	B10
GL400-J7	1.69 [42.9]	.75 [19.0]	-	-
GL400-J8	1.69 [42.9]	-	1.00 [25.4]	1.56 [39.7]
GL500-J7	2.25 [57.1]	.88 [22.2]	-	-
GL500-J8	2.25 [57.1]	-	1.50 [38.1]	2.17 [55.1]

GRIPPER MOUNTING STYLE			GRIPPER MODEL	APPROX. WEIGHT
GRIPPER MODEL	ROD MOUNT	FLANGE MOUNT		
GL400	.50 [12.7]	.76 [19.3]	GL400	2.20 lbs. [0.998 kg]
GL500	.44 [11.2]	.76 [19.3]	GL500	4.40 lbs. [1.996 kg]

GL Series Gripper

Link-Driven Pneumatic Gripper
J9/J10 Jaw Style Overall Dimensions

NORGREN GRIPPERS



NOTE: SEE GRIPPER MOUNTING OPTIONS FOR ADDITIONAL INFORMATION.

GL Series Gripper

Link-Driven Pneumatic Gripper

J9/J10 Jaw Style Overall Dimensions

OVERALL DIMENSIONS

GRIPPER MODEL	A1	A2	A3	A4	A5	A6
GL400-J9	.062 [1.57]	3.64 [92.5]	4.28 [108.7]	4.04 [102.6]	.151 [3.83]	.302/.301 [7.68/7.66]
GL400-J10	.062 [1.57]	3.64 [92.5]	4.28 [108.7]	4.04 [102.6]	.151 [3.83]	.302/.301 [7.68/7.66]
GL500-J9	.094 [2.39]	4.88 [124.0]	5.73 [145.5]	5.32 [135.1]	.202 [5.13]	.404/.403 [10.26/10.24]
GL500-J10	.094 [2.39]	4.88 [124.0]	5.73 [145.5]	5.32 [135.1]	.202 [5.13]	.404/.403 [10.26/10.24]

GRIPPER MODEL	B1	B2	B3	B4	B5	B6
GL400-J9	1.88 [47.6]	.562 [14.27]	.50 [12.7]	1.00 [25.4]	3.24 [82.3]	.24 [6.1]
GL400-J10	1.88 [47.6]	-	-	-	-	.24 [6.1]
GL500-J9	2.50 [63.5]	.750 [19.05]	.65 [16.6]	1.31 [33.3]	4.32 [109.7]	.31 [7.9]
GL500-J10	2.50 [63.5]	-	-	-	-	.31 [7.9]

GRIPPER MODEL	B7	B8	B9	B10	B11	B12
GL400-J9	.609 [15.47]	-	-	-	-	1.69 [42.9]
GL400-J10	.609 [15.47]	1.06 [27.0]	.562 [14.27]	2.12 [53.9]	3.24 [82.3]	1.69 [42.9]
GL500-J9	.812 [20.62]	-	-	-	-	2.25 [57.2]
GL500-J10	.812 [20.62]	1.41 [35.7]	.750 [19.05]	2.81 [71.5]	4.32 [109.7]	2.25 [57.2]

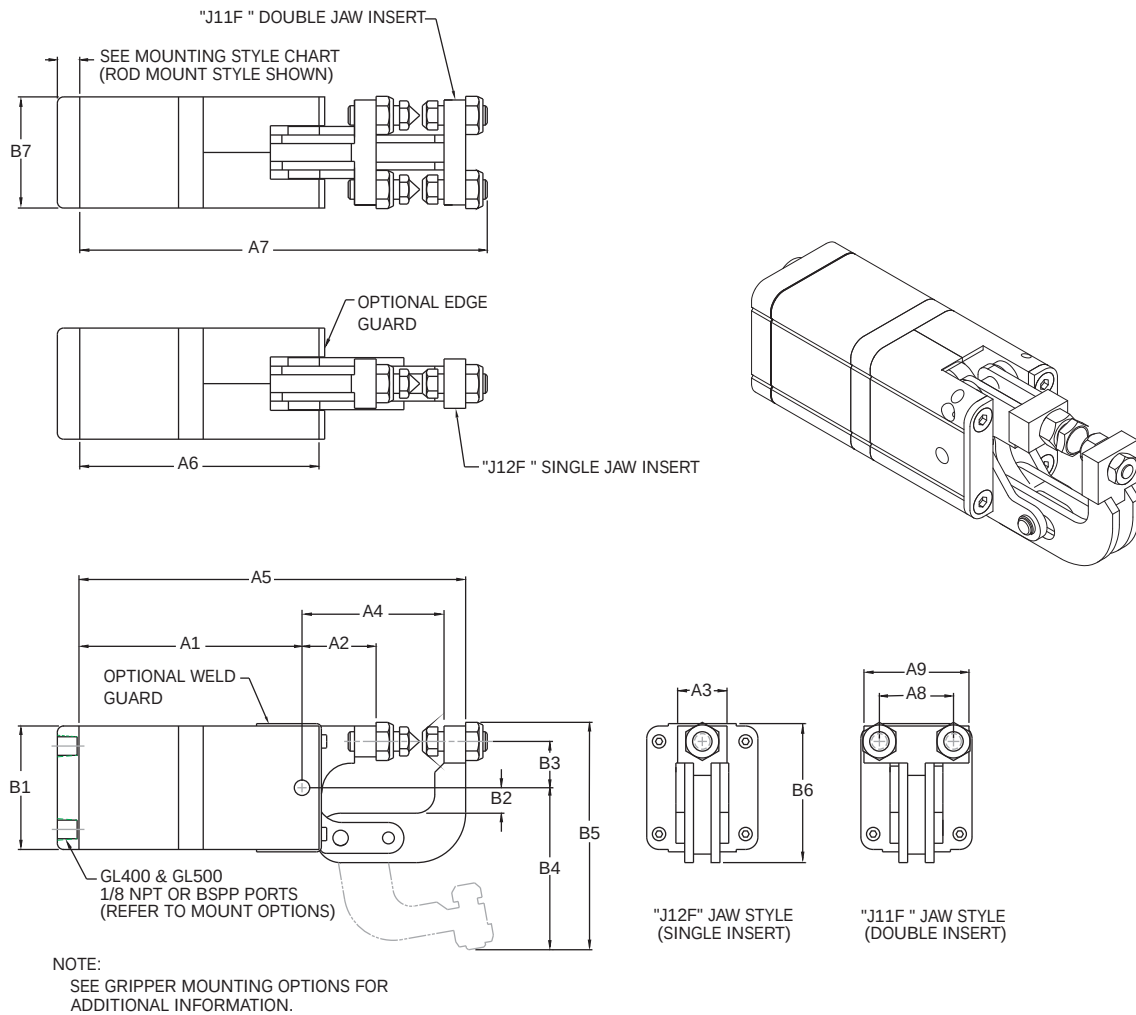
GRIPPER MOUNTING STYLE		
GRIPPER MODEL	ROD MOUNT	FLANGE MOUNT
GL400	.50 [12.7]	.76 [19.3]
GL500	.44 [11.2]	.76 [19.3]

GRIPPER MODEL	APPROX. WEIGHT
GL400	2.20 lbs. [0.998 kg]
GL500	4.40 lbs. [1.996 kg]

GL Series Gripper

Link-Driven Pneumatic Gripper
J11/J12 Jaw Style Overall Dimensions

NORGREN GRIPPERS



GL Series Gripper

Link-Driven Pneumatic Gripper

J11/J12 Jaw Style Overall Dimensions

OVERALL DIMENSIONS

GRIPPER MODEL	A1	A2	A3	A4	A5	A6	A7	A8	A9
GL400-J11F	3.42 [86.9]	1.21 [30.7]	-	2.24 [57.0]	5.98 [151.9]	3.73 [94.7]	6.32 [160.5]	1.38 [34.9]	2.00 [50.8]
GL400-J12F	3.42 [86.9]	1.21 [30.7]	.75 [19.1]	2.24 [57.0]	5.98 [151.9]	3.73 [94.7]	6.32 [160.5]	-	-
GL500-J11F	4.52 [114.7]	1.50 [38.1]	-	2.88 [73.0]	7.83 [198.9]	4.86 [123.4]	8.26 [209.8]	1.50 [38.1]	2.13 [54.0]
GL500-J12F	4.52 [114.7]	1.50 [38.1]	1.00 [25.4]	2.88 [73.0]	7.83 [198.9]	4.86 [123.4]	8.26 [209.8]	-	-

GRIPPER MODEL	B1	B2	B3	B4	B5	B6	B7
GL400-J11F	1.88 [47.6]	.38 [9.7]	.687 [17.46]	2.82 [71.6]	3.79 [96.3]	2.07 [52.7]	1.69 [42.9]
GL400-J12F	1.88 [47.6]	.38 [9.7]	.687 [17.46]	2.82 [71.6]	3.79 [96.3]	2.07 [52.7]	1.69 [42.9]
GL500-J11F	2.50 [63.5]	.52 [13.1]	.938 [23.81]	3.28 [83.3]	4.60 [116.8]	2.84 [72.1]	2.25 [57.1]
GL500-J12F	2.50 [63.5]	.52 [13.1]	.938 [23.81]	3.28 [83.3]	4.60 [116.8]	2.84 [72.1]	2.25 [57.1]

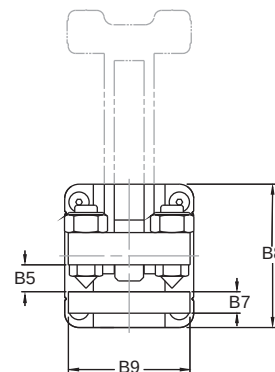
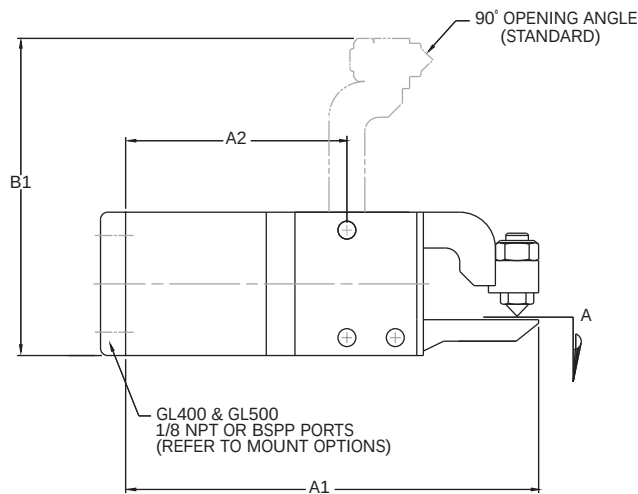
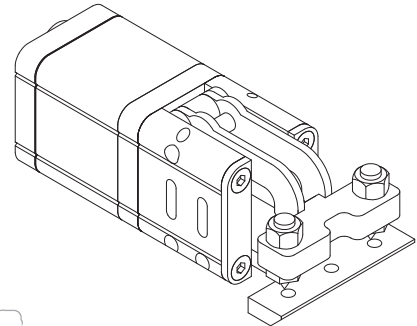
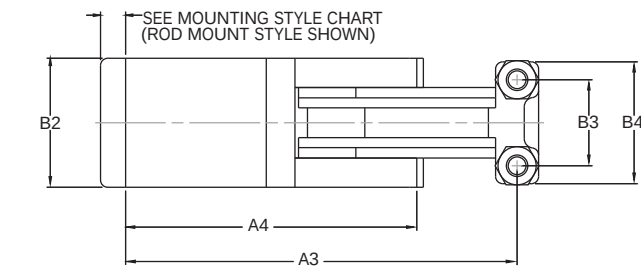
GRIPPER MOUNTING STYLE		
GRIPPER MODEL	ROD MOUNT	FLANGE MOUNT
GL400	.50 [12.7]	.76 [19.3]
GL500	.44 [11.2]	.76 [19.3]

GRIPPER MODEL	APPROX. WEIGHT
GL400	2.20 lbs [0.998 kg]
GL500	4.40 lbs [1.996 kg]

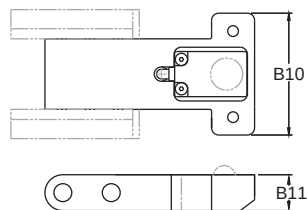
GL Series Gripper

Link-Driven Pneumatic Gripper
J28 Jaw Style Overall Dimensions

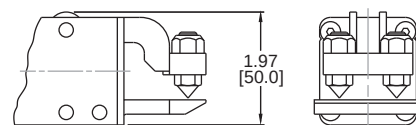
NORGREN GRIPPERS



NOTE:
SEE GRIPPER MOUNTING OPTIONS FOR
ADDITIONAL INFORMATION.



VIEW "A"
LOWER JAW WITH SENSING CAPABILITY
J28-S: PART PRESENT SENSOR INCLUDED IN LOWER JAW
J28-WOS: PART PRESENT SENSOR READY (SENSOR NOT INCL.)



GL400-J28
(NO PART PRESENT SENSING)

GL Series Gripper

Link-Driven Pneumatic Gripper

J28 Jaw Style Overall Dimensions

OVERALL DIMENSIONS

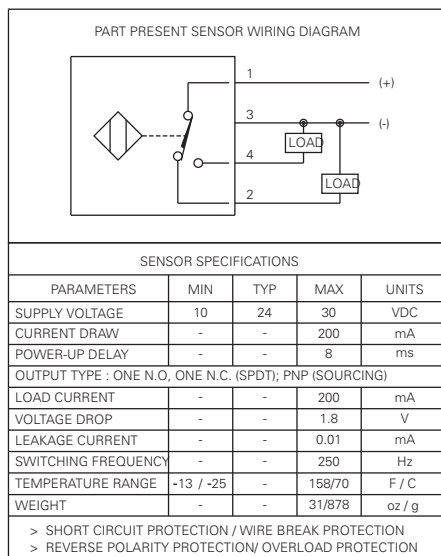
GRIPPER MODEL	A1	A2	A3	A4
GL400-J28	5.35 [135.9]	2.91 [74.0]	5.03 [127.8]	3.80 [96.5]
GL500-J28	7.20 [182.9]	3.86 [98.0]	6.83 [173.5]	5.08 [129.0]

GRIPPER MODEL	B1	B2	B3	B4	B5	B6
GL400-J28	3.24 [82.3]	4.09 [103.9]	1.69 [42.9]	1.00 [25.4]	1.56 [39.6]	.44 [11.1]
GL500-J28	4.42 [112.3]	5.53 [140.5]	2.25 [57.1]	1.50 [38.1]	2.12 [53.8]	.47 [11.9]

GRIPPER MODEL	B7	B8	B9	B10	B11
GL400-J28	.25 [6.3]	1.88 [47.7]	1.88 [47.7]	1.88 [47.7]	.50 [12.7]
GL500-J28	.38 [9.5]	2.50 [63.5]	2.12 [53.8]	2.12 [53.8]	.63 [15.9]

GRIPPER MOUNTING STYLE		
GRIPPER MODEL	ROD MOUNT	FLANGE MOUNT
GL400	.50 [12.7]	.76 [19.3]
GL500	.44 [11.2]	.76 [19.3]

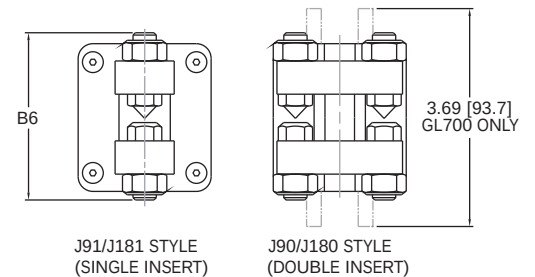
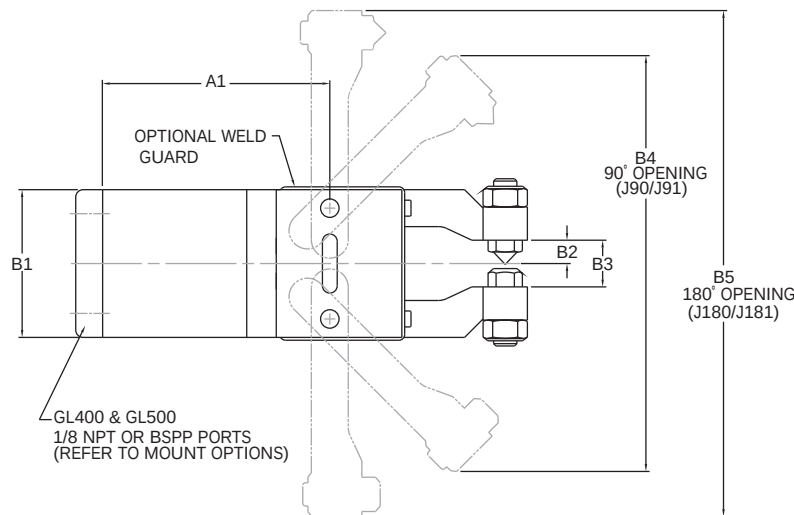
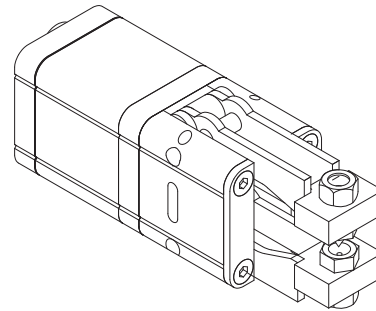
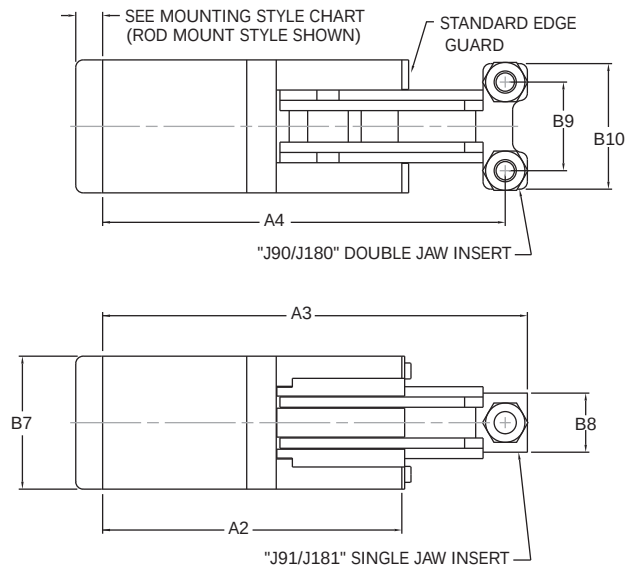
GRIPPER MODEL	APPROX. WEIGHT
GL400	2.20 lbs. [0.998 kg]
GL500	4.40 lbs. [1.996 kg]



GL Series Gripper

Link-Driven Pneumatic Gripper

J90/J91/J180/J181 Jaw Style Overall Dimensions



NOTE:
SEE GRIPPER MOUNTING OPTIONS FOR
ADDITIONAL INFORMATION.

NORGREN GRIPPERS

GL Series Gripper

Link-Driven Pneumatic Gripper

J90/J91/J180/J181 Jaw Style Overall Dimensions

OVERALL DIMENSIONS

GRIPPER MODEL	A1	A2	A3	A4
GL400-J90/180	2.91 [74.0]	3.80 [96.52]	5.35 [135.9]	5.03 [127.8]
GL400-J91/181	2.91 [74.0]	3.80 [96.52]	5.35 [135.9]	5.03 [127.8]
GL500-J90/180	3.85 [97.8]	5.08 [129.0]	7.20 [182.9]	6.83 [173.5]
GL500-J91/181	3.85 [97.8]	5.08 [129.0]	7.20 [182.9]	6.83 [173.5]

GRIPPER MODEL	B1	B2	B3	B4	B5
GL400-J90/180	1.88 [47.6]	.37 [9.5]	.75 [19.1]	5.23 [132.8]	6.30 [160.1]
GL400-J91/181	1.88 [47.6]	.37 [9.5]	.75 [19.1]	5.23 [132.8]	6.30 [160.1]
GL500-J90/180	2.50 [63.5]	.39 [10.0]	.79 [20.1]	7.04 [178.7]	8.56 [217.5]
GL500-J91/181	2.50 [63.5]	.39 [10.0]	.79 [20.1]	7.04 [178.7]	8.56 [217.5]

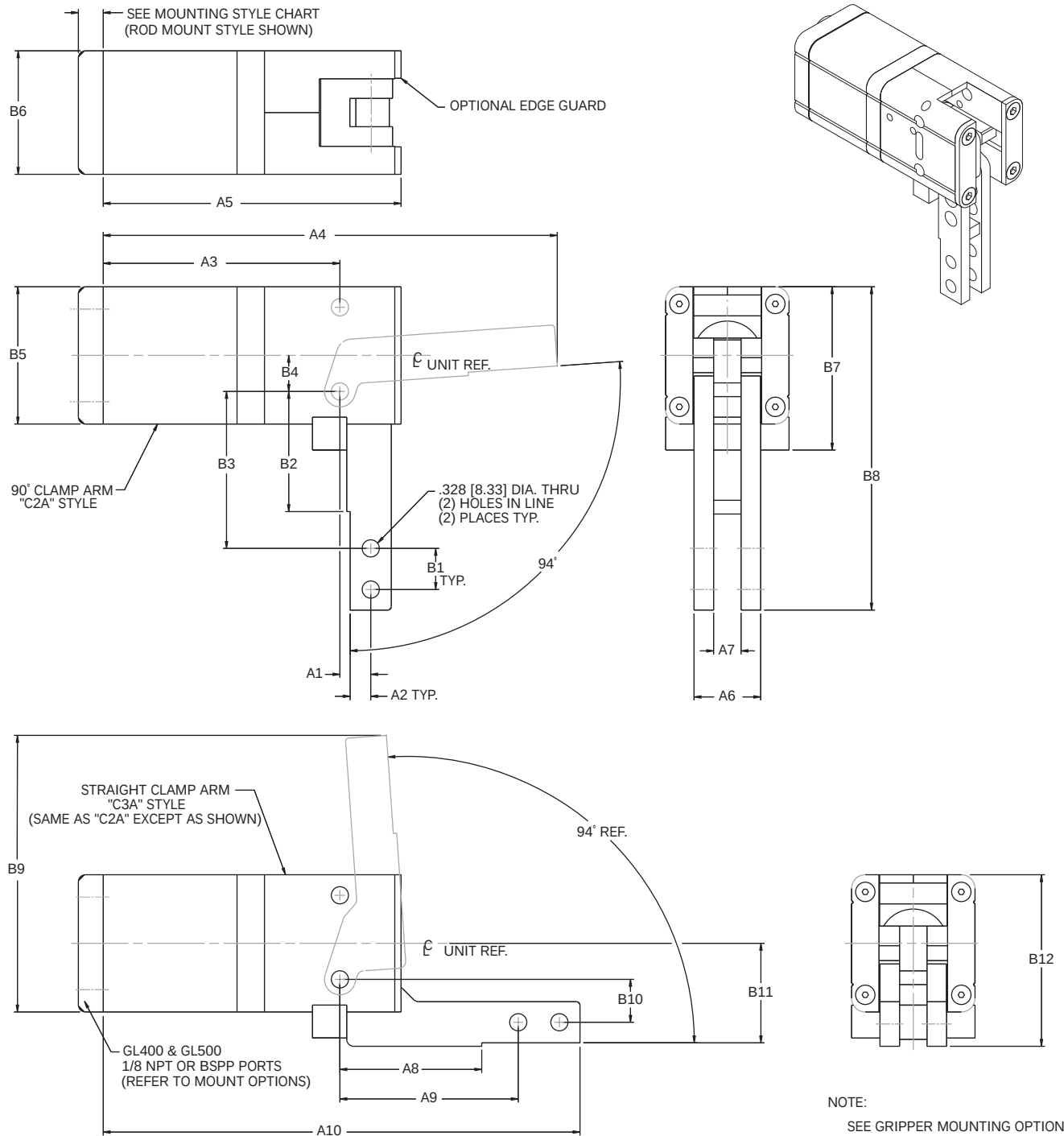
GRIPPER MODEL	B6	B7	B8	B9	B10
GL400-J90/180	2.30 [58.5]	1.69 [42.9]	-	1.00 [25.4]	1.56 [39.6]
GL400-J91/181	2.30 [58.5]	1.69 [42.9]	.75 [19.1]	-	-
GL500-J90/180	2.83 [71.9]	2.25 [57.1]	-	1.50 [38.1]	2.13 [54.0]
GL500-J91/181	2.83 [71.9]	2.25 [57.1]	1.00 [25.4]	-	-

GRIPPER MOUNTING STYLE		
GRIPPER MODEL	ROD MOUNT	FLANGE MOUNT
GL400	.50 [12.7]	.76 [19.3]
GL500	.44 [11.2]	.76 [19.3]

GRIPPER MODEL	APPROX. WEIGHT
GL400	2.20 lbs [0.998 kg]
GL500	4.40 lbs [1.996 kg]

GL Series Gripper

Link-Driven Pneumatic Gripper
C2A/C3A Jaw Style Overall Dimensions



NORGREN GRIPPERS

GL Series Gripper

Link-Driven Pneumatic Gripper

C2A/C3A Jaw Style Overall Dimensions

OVERALL DIMENSIONS

GRIPPER MODEL	A1	A2	A3	A4	A5
GL400-C2A	.422 [10.71]	.281 [7.14]	3.31 [84.1]	6.30 [160.0]	4.28 [108.7]
GL400-C3A	-	.281 [7.14]	3.31 [84.1]	-	4.28 [108.7]
GL500-C2A	.562 [14.28]	.375 [9.53]	4.33 [110.0]	8.29 [210.6]	5.44 [138.2]
GL500-C3A	-	.375 [9.53]	4.33 [110.0]	-	5.44 [138.2]

GRIPPER MODEL	A6	A7	A8	A9	A10
GL400-C2A	.78 [19.8]	.310/.313 [7.87/7.95]	-	-	-
GL400-C3A	.78 [19.8]	.310/.313 [7.87/7.95]	2.03 [51.5]	2.422 [61.52]	6.59 [167.4]
GL500-C2A	1.21 [30.8]	.500/.498 [12.70/12.65]	-	-	-
GL500-C3A	1.21 [30.8]	.500/.498 [12.70/12.65]	2.58 [65.6]	3.250 [82.55]	8.70 [221.0]

GRIPPER MODEL	B1	B2	B3	B4	B5	B6
GL400-C2A	.563 [14.29]	1.75 [44.4]	2.145 [54.47]	.493 [12.52]	1.88 [47.8]	1.69 [42.9]
GL400-C3A	.563 [14.29]	-	-	.493 [12.52]	1.88 [47.8]	1.69 [42.9]
GL500-C2A	.750 [19.05]	2.19 [55.6]	2.859 [72.63]	.657 [16.69]	2.50 [63.5]	2.25 [57.2]
GL500-C3A	.750 [19.05]	-	-	.657 [16.69]	2.50 [63.5]	2.25 [57.2]

GRIPPER MODEL	B7	B8	B9	B10	B11	B12
GL400-C2A	2.19 [55.6]	4.43 [112.5]	-	-	-	-
GL400-C3A	2.19 [55.6]	-	3.77 [95.9]	.543 [13.79]	1.32 [33.5]	2.30 [58.5]
GL500-C2A	2.98 [75.6]	5.89 [149.6]	-	-	-	-
GL500-C3A	2.98 [75.6]	-	5.04 [128.0]	.781 [19.85]	1.81 [46.1]	3.13 [79.4]

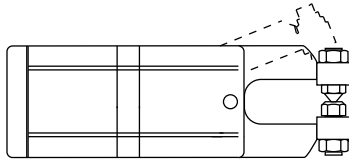
GRIPPER MOUNTING STYLE		
GRIPPER MODEL	ROD MOUNT	FLANGE MOUNT
GL400	.50 [12.7]	.76 [19.3]
GL500	.44 [11.2]	.76 [19.3]

GRIPPER MODEL	APPROX. WEIGHT
GL400	2.20 lbs [0.998 kg]
GL500	4.40 lbs [1.996 kg]

GL Series Gripper

Link-Driven Pneumatic Gripper
Fixed Jaw and Jaw Tip Options

GRIP-LOK FIXED JAW OPTION

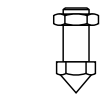


Example: Fixed lower jaw

The fixed jaw option allows one jaw to be "fixed" in the closed position (FL=lower, FU=upper) while still allowing the other jaw to travel through its normal range.

NORGREN GRIPPERS

JAW TIP OPTION



PT1
Steel
Convex Insert



PT2
Steel
Concave Insert



PT5
Carbide
Hexagon,
Serrated Insert



PT6
Steel
Hexagon Insert



PT3
40 Durometer Shore
A
Urethane
Round Insert



PT4
70 Durometer
Shore A
Urethane
Round Insert



PT1/PT2: Concave and convex contact points (hardened tool steel) are the standard of the sheet metal industry.



PT5: Carbide serrated insert, hexagon contact point for heavier, thicker metal parts or multiple thicknesses of sheet metal.



PT6: Steel hexagon jaw insert for heavier, thicker metal parts or multiple thicknesses of sheet metal.



PT3/PT4: 40 or 70 Durometer, special urethane compound and triple ring contact provides a non-marking contact point for Class A surfaces of all types with an extremely high anti-breakaway force.



NOTE: PT1/PT2 SUPPLIED STANDARD

Refer to customer drawings for contact point availability per jaw style.

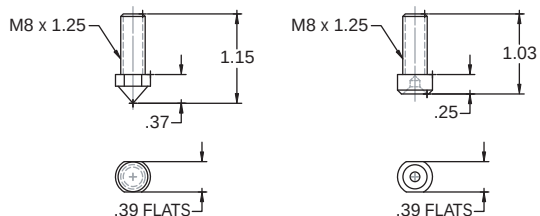
GL Series Gripper

Link-Driven Pneumatic Gripper

Jaw Tip Options Overall Dimensions

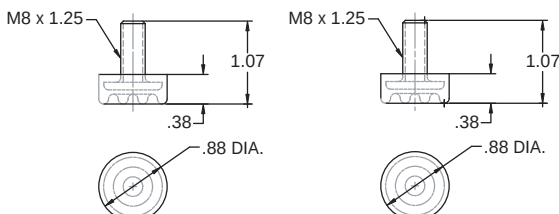
NORGREN GRIPPERS

GL400 JAW TIP OPTIONS



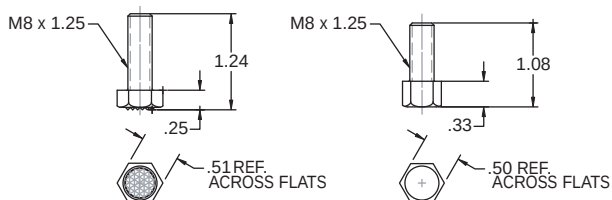
PT1
CONVEX INSERT

PT2
CONCAVE INSERT



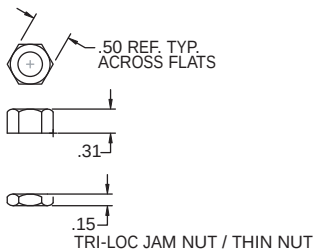
PT3
40 DUROMETER
SHORE "A"

PT4
70 DUROMETER
SHORE "A"



PT5
CARBIDE BIT
STEEL HEXAGON INSERT

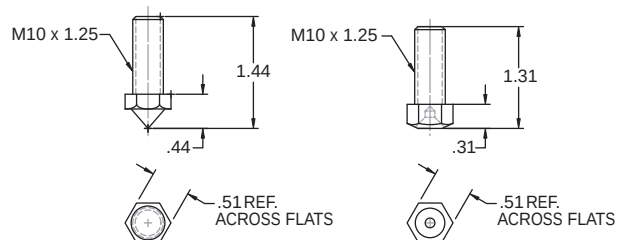
PT6
STEEL HEXAGON



GL400 NUT SELECTION

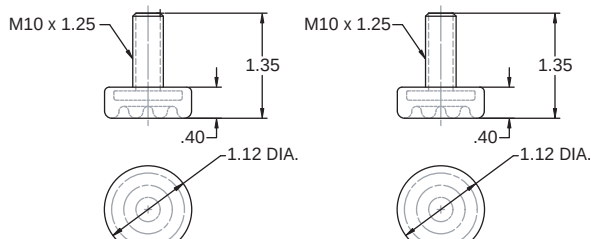
(THIN NUT AND SERRATED SAFETY WASHER ARE TO BE USED WITH THE URETHANE INSERTS ONLY)

GL500 JAW TIP OPTIONS



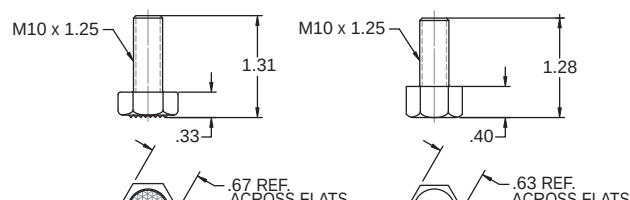
PT1
CONVEX INSERT

PT2
CONCAVE INSERT



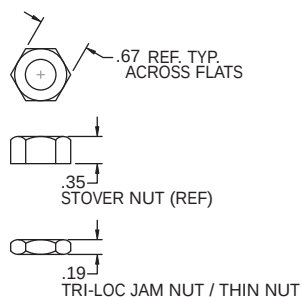
PT3
40 DUROMETER
SHORE "A"

PT4
70 DUROMETER
SHORE "A"



PT5
CARBIDE BIT
STEEL HEXAGON INSERT

PT6
STEEL HEXAGON



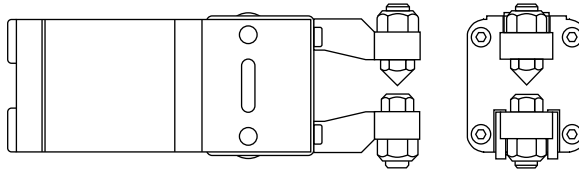
GL500 NUT SELECTION

(THIN NUT AND SERRATED SAFETY WASHER ARE TO BE USED WITH THE URETHANE INSERTS ONLY)

GL Series Gripper

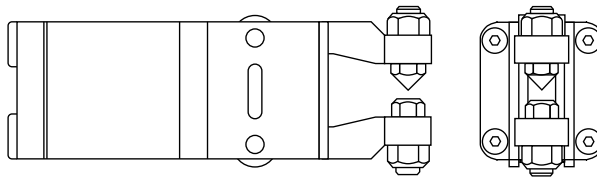
Link-Driven Pneumatic Gripper
Guard Options

GRIP-LOK WELD GUARD OPTION



- 18 GA stainless steel
- Enveloping cover
- Designed to minimize contamination
- Recommended for welding applications
(J1-4, 11F-12F, 90-91 & 180-181 jaw styles only)

GRIP-LOK EDGE GUARD OPTION



- .12 inch (3 mm) thick hardened steel
- Face-mounted / flush surface
- Designed to aid in part locating and for use as gauging surface
- Standard on J90-91, J180-181 & J28 jaw styles

GL Series Gripper

Link-Driven Pneumatic Gripper
Mount Styles

GRIP-LOK MOUNT STYLES



ROD MOUNT (POSITIONS 1 & 3)
1.0 IN, 25 MM, 1.25 IN, 1.5 IN, 40 MM



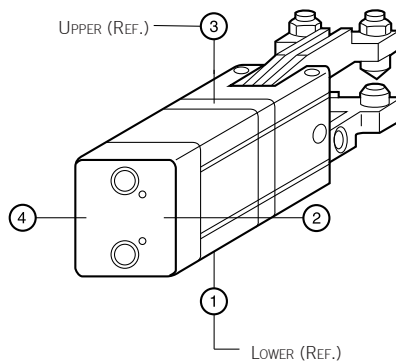
REAR FLANGE MOUNT
HORIZONTAL AND VERTICAL



ROD MOUNT (POSITIONS 2 & 4)
1.0 IN, 25 MM, 1.25 IN, 1.5 IN, 40 MM

All mounts are also available as a retrofit.

GRIP-LOK MOUNT POSITIONS



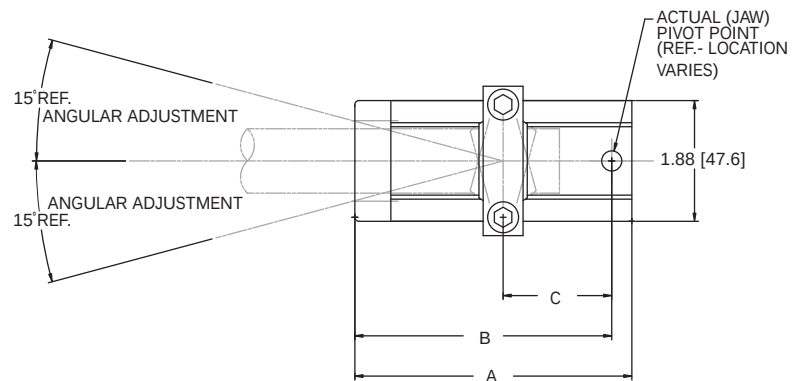
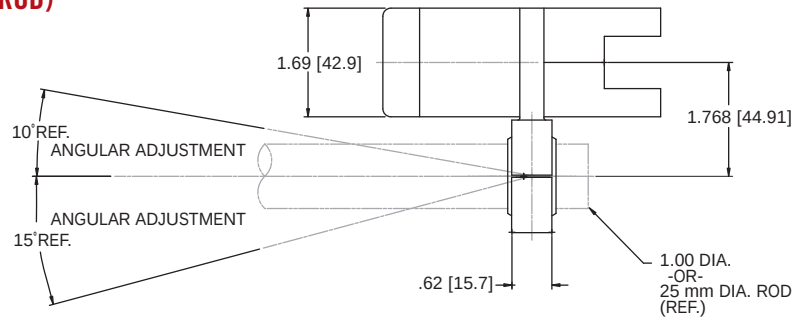
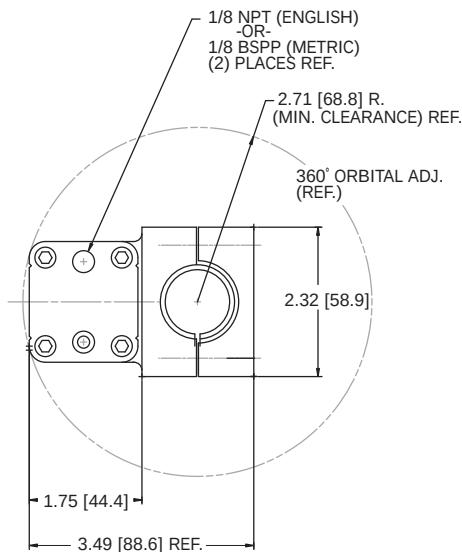
Pointed inserts will always be located on the gripper's upper jaw.

GL Series Gripper

Link-Driven Pneumatic Gripper
GL400 Mount Style Options

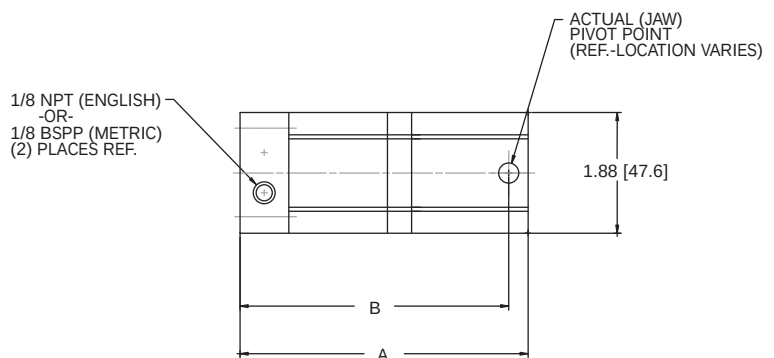
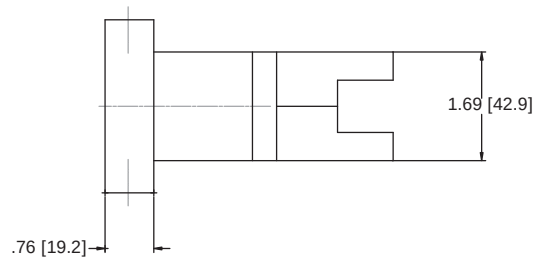
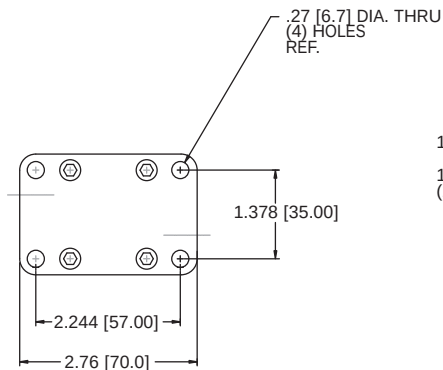
GL400/M4 DIMENSIONS (1.0 IN AND 25 MM ROD)

JAW STYLE OPTION	A	B	C
J1-J8, J11F-J12F	4.23 [107.4]	3.92 [99.5]	1.687 [42.86]
J9-J10	4.42 [112.2]	4.15 [105.5]	1.922 [48.81]
C2A-C3A	4.66 [118.4]	3.82 [96.9]	1.261 [32.03]
J90-91, J180-181, J28	4.30 [109.3]	3.41 [86.6]	.856 [21.74]



GL400/M5 DIMENSIONS (REAR FLANGE)

JAW STYLE OPTION	A	B
J1-J8, J11F-J12F	4.49 [114.0]	4.18 [106.1]
J9-J10	4.68 [118.8]	4.41 [112.1]
C2A-C3A	4.92 [125.0]	4.08 [103.5]
J90-91, J180-181, J28	4.56 [115.9]	3.67 [93.2]



MOUNT STYLE M5

GL Series Gripper

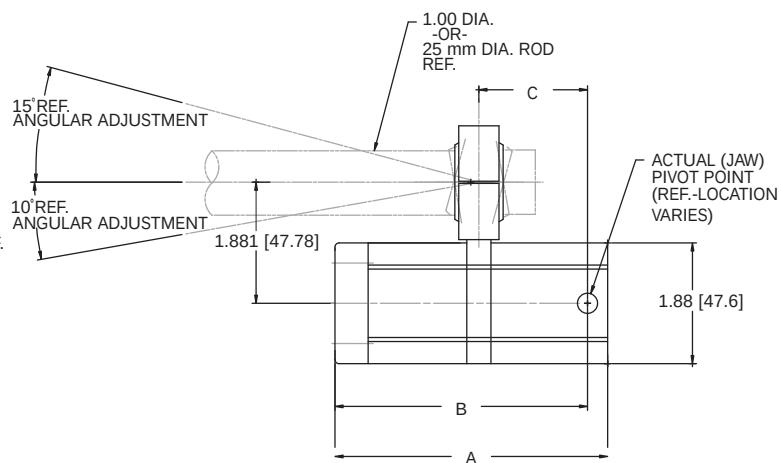
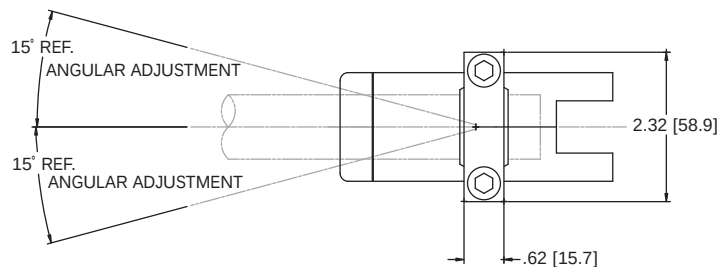
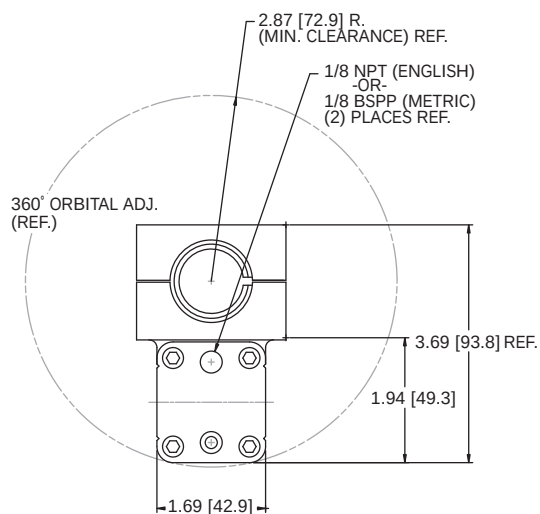
Link-Driven Pneumatic Gripper

GL400 Mount Style Options

NORGREN GRIPPERS

GL400/M6 DIMENSIONS (1.0 IN AND 25 MM ROD)

JAW STYLE OPTION	A	B	C
J1-J8, J11F-J12F	4.23 [107.4]	3.92 [99.5]	1.687 [42.86]
J9-J10	4.42 [112.2]	4.15 [105.5]	1.922 [48.81]
C2A-C3A	4.66 [118.4]	3.82 [96.9]	1.261 [32.03]
J90-91, J180-181, J28	4.30 [109.3]	3.41 [86.6]	.856 [21.74]

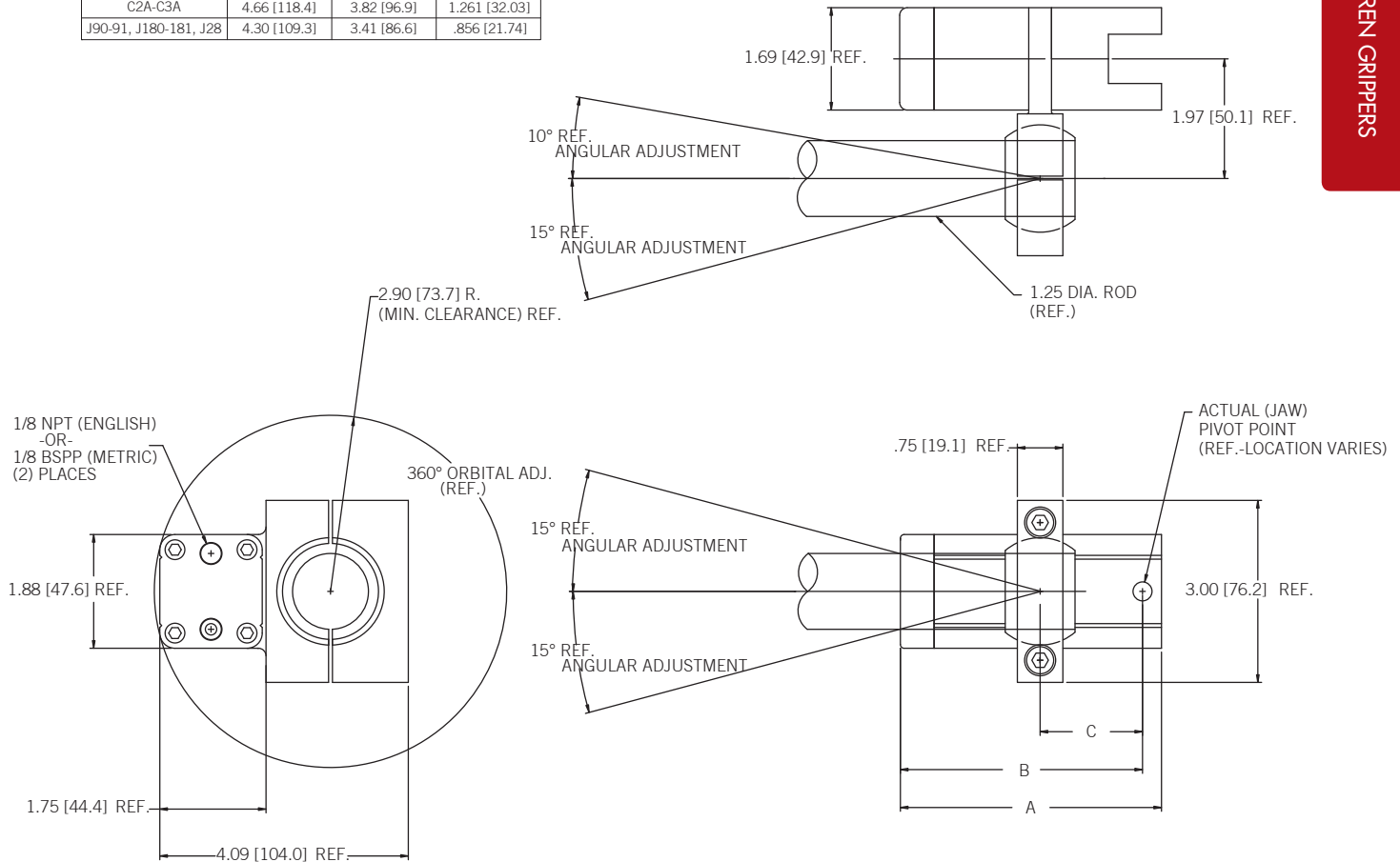


GL Series Gripper

Link-Driven Pneumatic Gripper
GL400 Mount Style Options

GL400/FA DIMENSIONS (1.25 ROD)

JAW STYLE OPTION	A	B	C
J1-J8, J11F-J12F	4.23 [107.4]	3.92 [99.5]	1.687 [42.86]
J9-J10	4.42 [112.2]	4.15 [105.5]	1.922 [48.81]
C2A-C3A	4.66 [118.4]	3.82 [96.9]	1.261 [32.03]
J90-91, J180-181, J28	4.30 [109.3]	3.41 [86.6]	.856 [21.74]



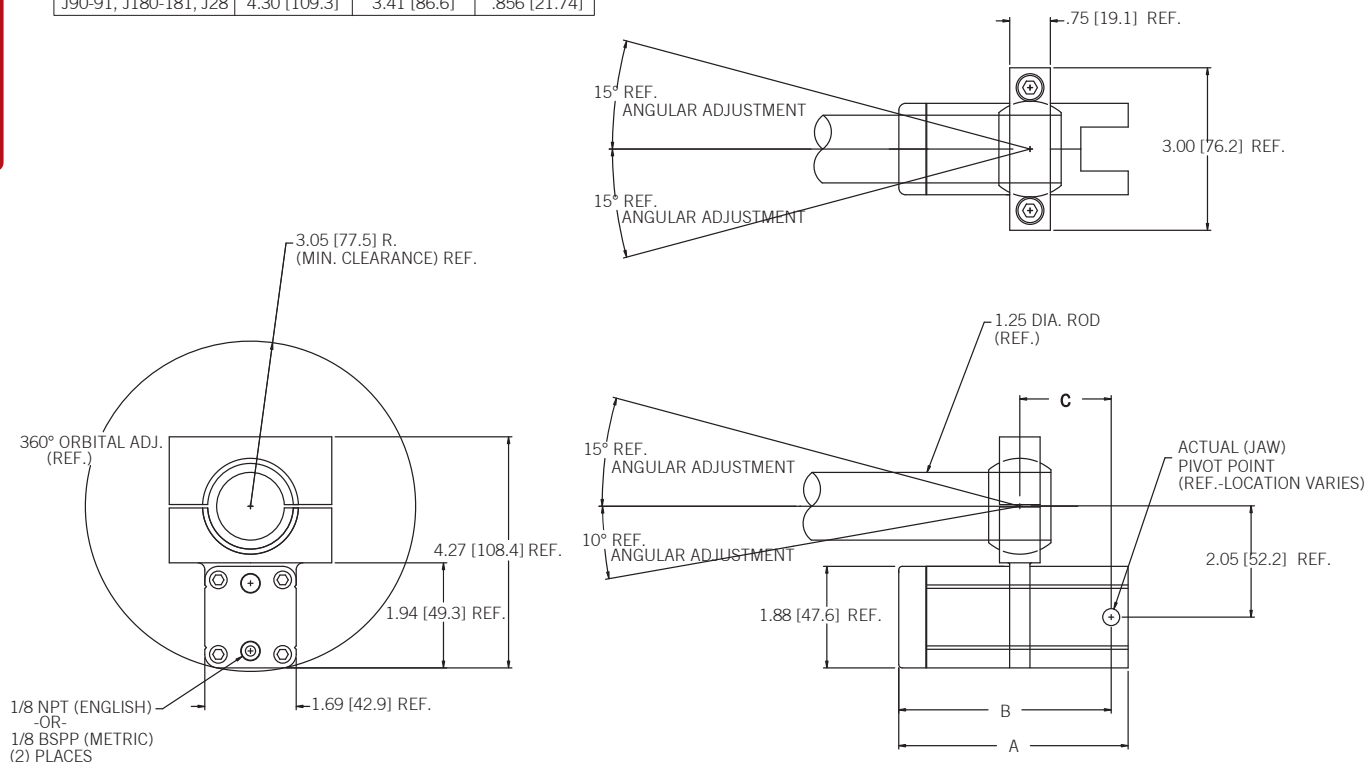
GL Series Gripper

Link-Driven Pneumatic Gripper
GL400 Mount Style Options

NORGREN GRIPPERS

GL400/FB DIMENSIONS (1.25 ROD)

JAW STYLE OPTION	A	B	C
J1-J8, J11F-J12F	4.23 [107.4]	3.92 [99.5]	1.687 [42.86]
J9-J10	4.42 [112.2]	4.15 [105.5]	1.922 [48.81]
C2A-C3A	4.66 [118.4]	3.82 [96.9]	1.261 [32.03]
J90-91, J180-181, J28	4.30 [109.3]	3.41 [86.6]	.856 [21.74]

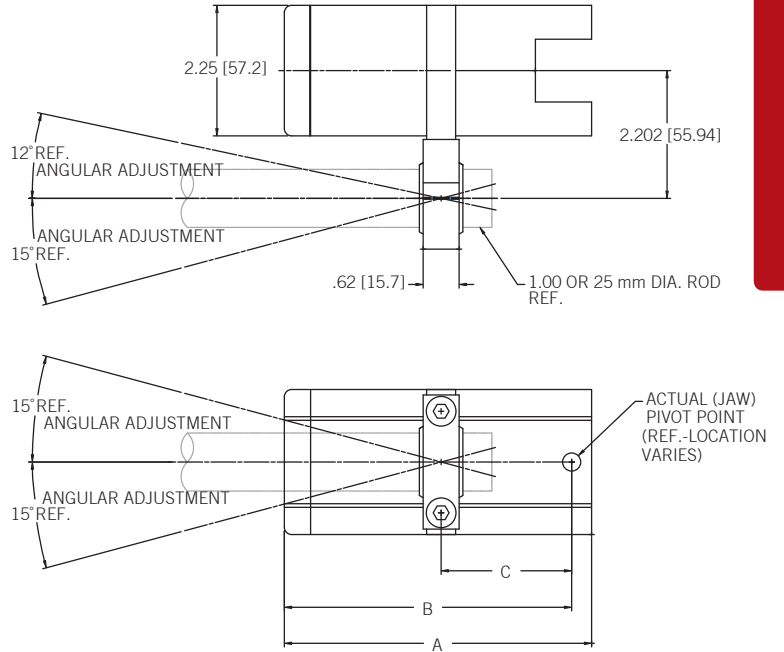
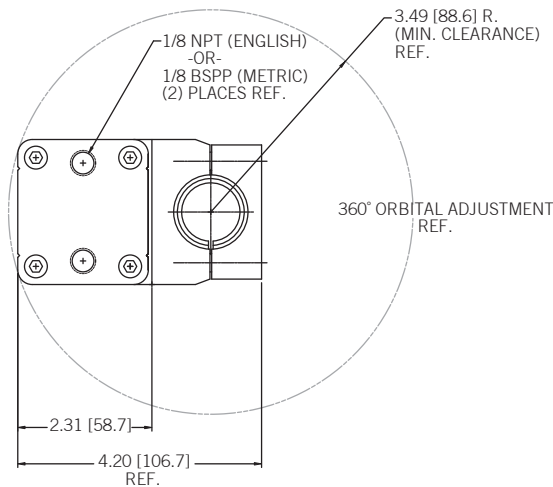


GL Series Gripper

Link-Driven Pneumatic Gripper
GL500 Mount Style Options

GL500/M4 DIMENSIONS (1.0 IN AND 25 MM)

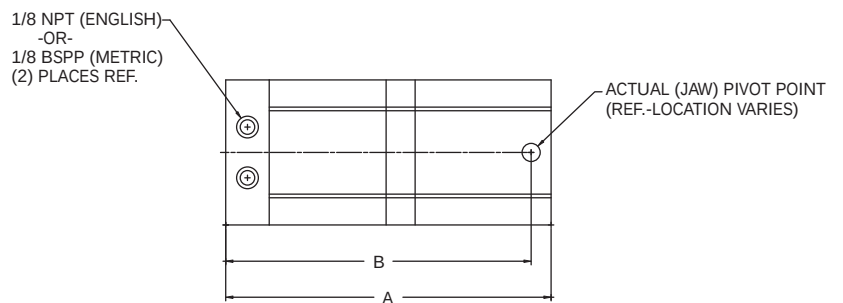
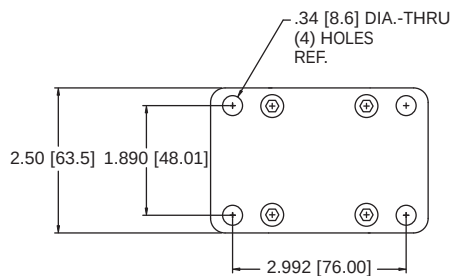
JAW STYLE OPTION	A	B	C
J1-J8 / J11F-J12F	5.30 [134.5]	4.95 [125.8]	2.250 [57.15]
J9 / J10	5.64 [143.2]	5.33 [135.3]	2.625 [66.68]
C2A-C3A	5.77 [146.4]	4.77 [121.0]	1.625 [41.28]
J28 / J90 / J180 J91 / J181	5.52 [140.1]	4.30 [109.1]	1.156 [29.36]



NORGREN GRIPPERS

GL500/M5 DIMENSIONS (REAR FLANGE)

JAW STYLE OPTION	A	B
J1-J8 / J11F-J12F	5.62 [142.6]	5.27 [133.9]
J9 / J10	5.96 [151.4]	5.65 [143.4]
C2A-C3A	6.08 [154.6]	5.08 [129.2]
J28 / J90 / J180 J91 / J181	5.84 [148.2]	4.62 [117.2]



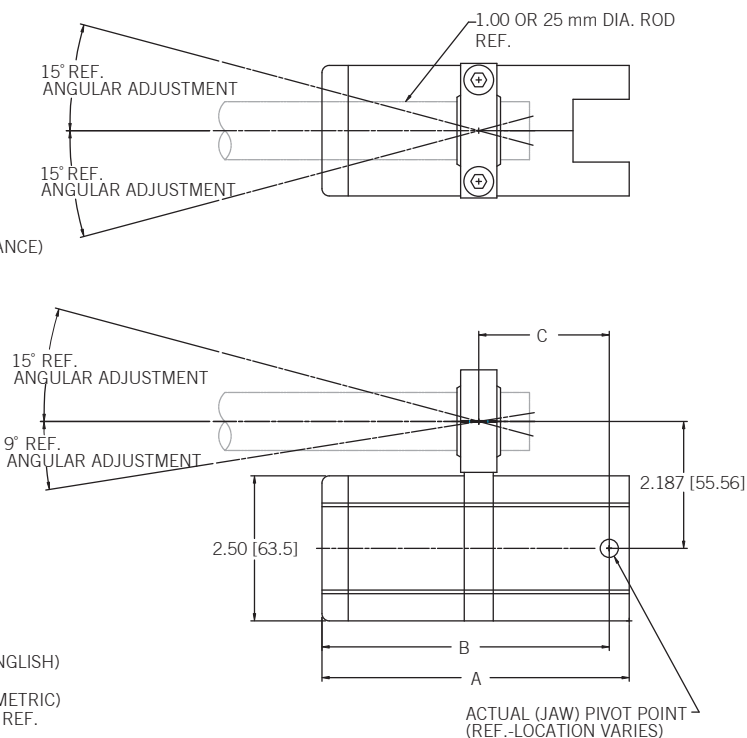
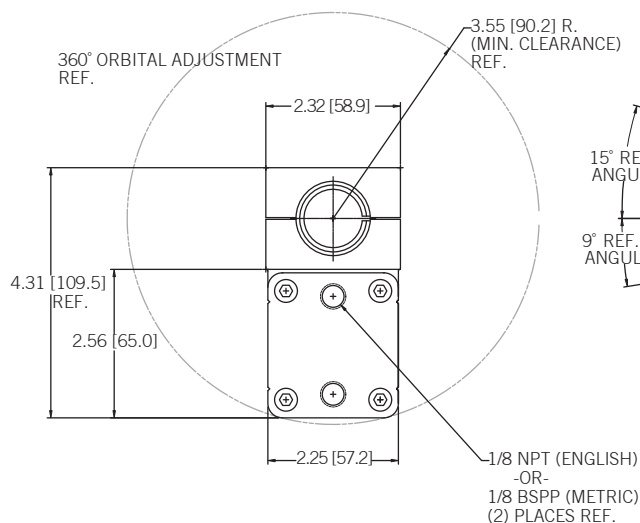
GL Series Gripper

Link-Driven Pneumatic Gripper
GL500 Mount Style Options

NORGREN GRIPPERS

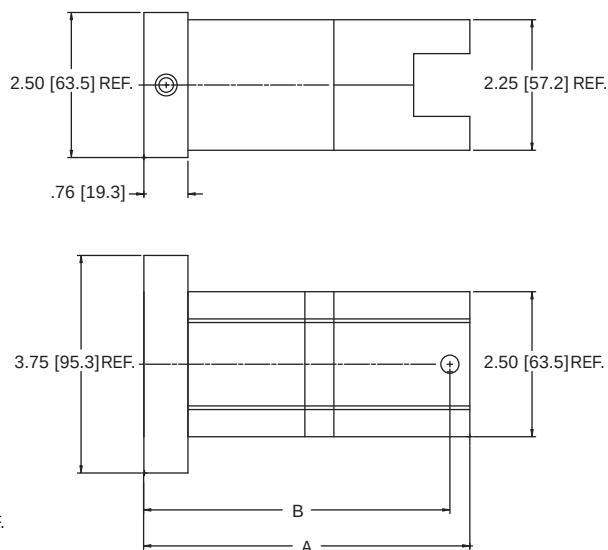
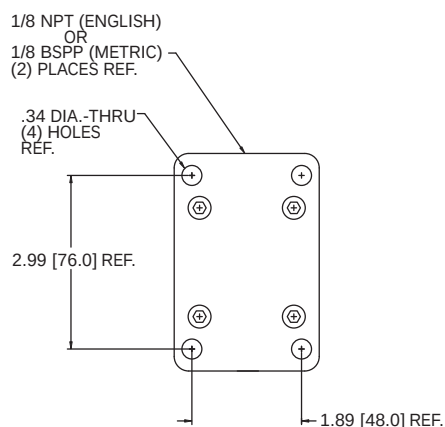
GL500/M6 DIMENSIONS (1.0 IN AND 25 MM ROD)

JAW STYLE OPTION	A	B	C
J1-J8 / J11F-J12F	5.30 [134.5]	4.95 [125.8]	2.250 [57.15]
J9 / J10	5.64 [143.2]	5.33 [135.3]	2.625 [66.68]
C2A-C3A	5.77 [146.4]	4.77 [121.0]	1.625 [41.28]
J28 / J90 / J180 J91 / J181	5.52 [140.1]	4.30 [109.1]	1.156 [29.36]



GL500/M12 DIMENSIONS (REAR FLANGE)

JAW STYLE OPTION	A	B
J1-J8 / J11F-J12F	5.62 [142.6]	5.27 [133.9]
J9 / J10	5.96 [151.4]	5.65 [143.4]
C2A-C3A	6.08 [154.6]	5.08 [129.2]
J28 / J90 / J180 J91 / J181	5.84 [148.2]	4.62 [117.2]

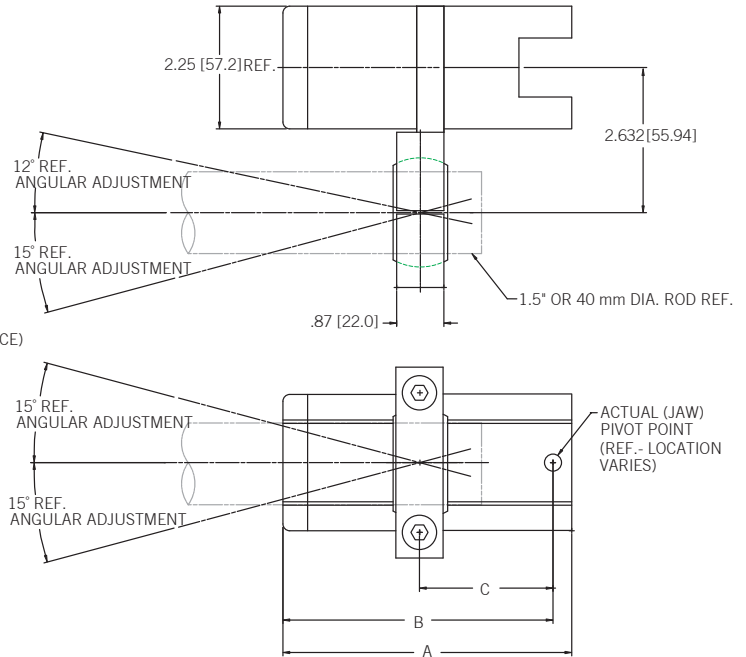
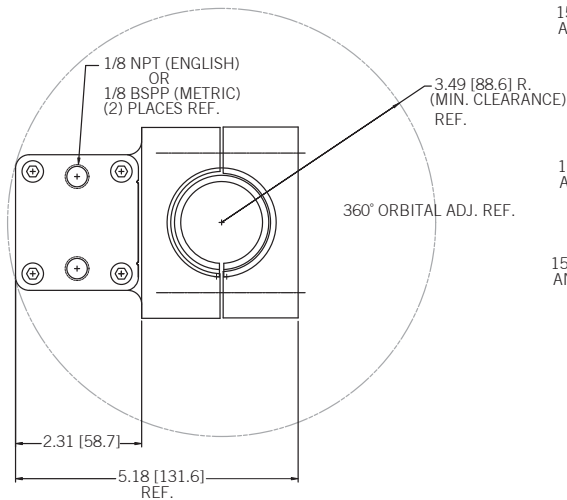


GL Series Gripper

Link-Driven Pneumatic Gripper
GL500 Mount Style Options

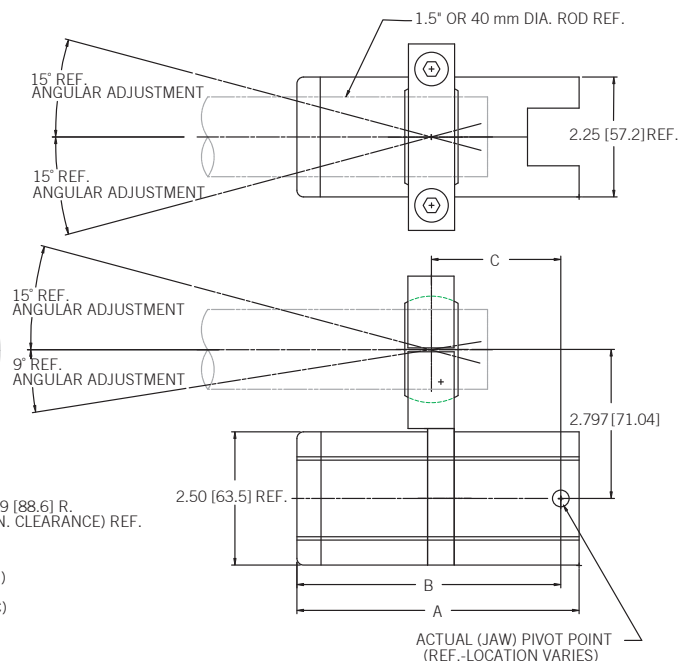
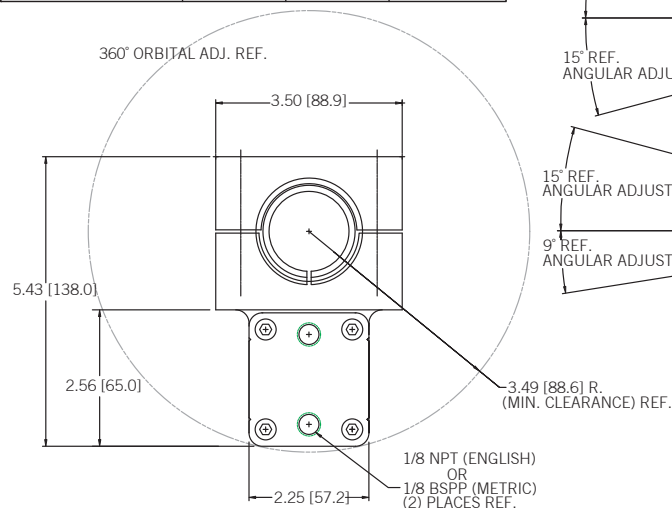
GL500/M13 DIMENSIONS (1.5 IN AND 40 MM ROD)

JAW STYLE OPTION	A	B	C
J1-J8 / J11F-J12F	5.30 [134.5]	4.95 [125.8]	2.433 [61.79]
J9 / J10	5.64 [143.2]	5.33 [135.3]	2.808 [71.32]
C2A-C3A	5.77 [146.4]	4.77 [121.0]	1.808 [45.92]
J28 / J90 / J180 J91 / J181	5.52 [140.1]	4.30 [109.1]	1.339 [34.01]



GL500/M14 DIMENSIONS (REAR FLANGE)

JAW STYLE OPTION	A	B	C
J1-J8 / J11F-J12F	5.30 [134.5]	4.95 [125.8]	2.433 [61.79]
J9 / J10	5.64 [143.2]	5.33 [135.3]	2.808 [71.32]
C2A-C3A	5.77 [146.4]	4.77 [121.0]	1.808 [45.92]
J28 / J90 / J180 J91 / J181	5.52 [140.1]	4.30 [109.1]	1.339 [34.01]

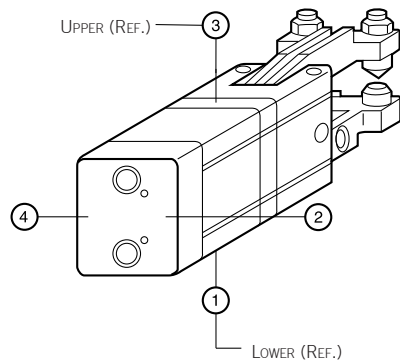


GL Series Modular Gripper

Link-Driven Pneumatic Gripper

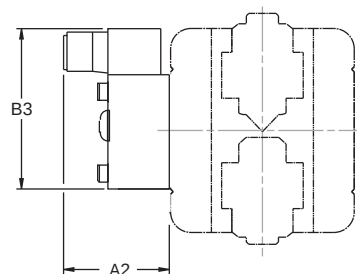
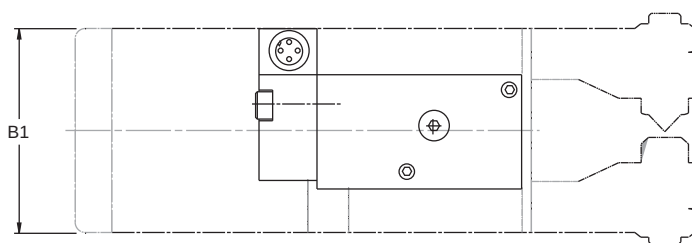
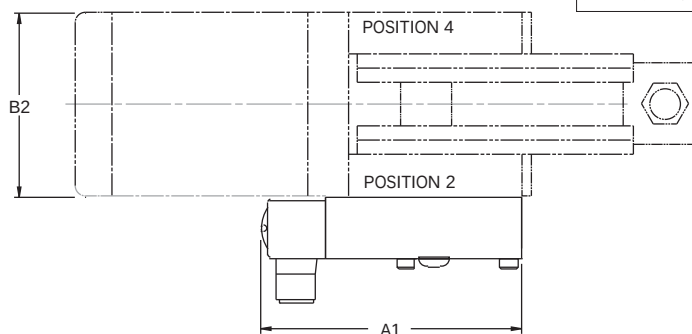
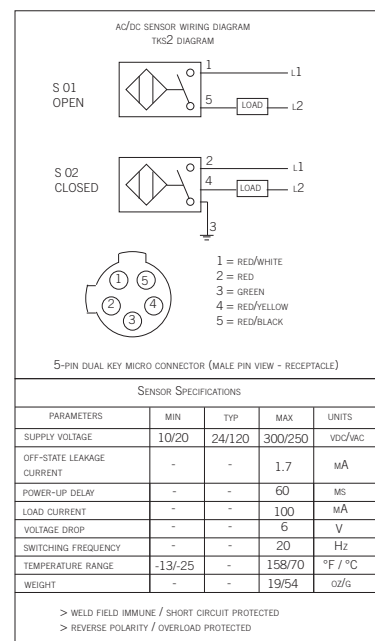
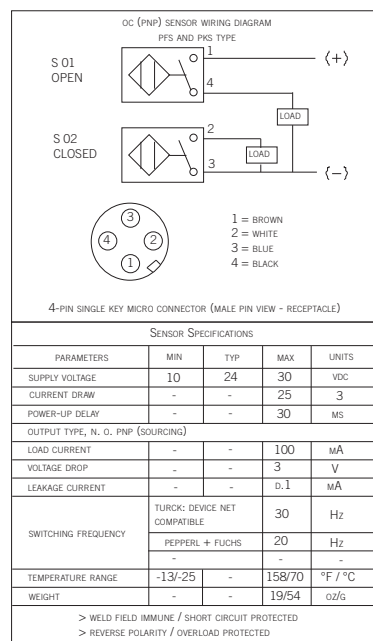
Jaw Open/Closed Proximity Sensor Information

GRIP-LOK SENSOR POSITION



Pointed inserts will always be located on the gripper's upper jaw.

SENSOR ELECTRICAL INFORMATION

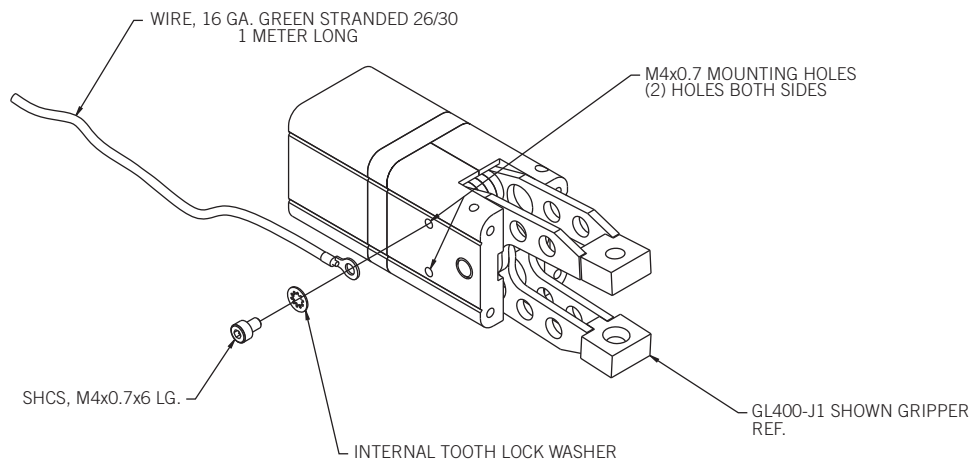
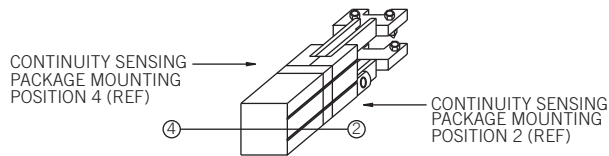


GL400 & GL500 SENSOR DIMENSIONS

GRIPPER MODEL	A1	A2	B1	B2	B3
GL400	3.39 [86.2]	1.30 [33.0]	1.88 [47.6]	1.69 [42.9]	1.95 [49.5]
GL500	3.39 [86.2]	1.30 [33.0]	2.50 [63.5]	2.25 [57.15]	1.95 [49.5]

GL Series Gripper

Continuity Sensing Data



GL Series Gripper

Link-Driven Pneumatic Gripper
Ordering Information

GL500 - J11F - 1 - A

GRIP-LOK® MODEL

GL400 = 400 SERIES

GL500 = 500 SERIES

JAW STYLE

J1 = SINGLE INSERT / 43° TOTAL OPEN
J2 = DOUBLE INSERT / 43° TOTAL OPEN
J1FU = SINGLE INSERT / FIXED NARROW (UPPER)
J1FL = SINGLE INSERT / FIXED WIDE (LOWER)
J2FU = DOUBLE INSERT / FIXED NARROW (UPPER)
J2FL = DOUBLE INSERT / FIXED WIDE (LOWER)
J3 = SINGLE INSERT / CHISEL JAW (LOWER)
J4 = DOUBLE INSERT / CHISEL JAW (LOWER)
J3FL = SINGLE INSERT / FIXED CHISEL JAW (LOWER)
J4FL = DOUBLE INSERT / FIXED CHISEL JAW (LOWER)
J7 = SINGLE INSERT / DROP-AWAY JAW (LOWER)
J8 = DOUBLE INSERT / DROP-AWAY JAW (LOWER)
J9 = PARALLEL O.D. GRIP / ENGLISH JAW
J9X = PARALLEL O.D. GRIP / METRIC JAW
J10 = PARALLEL I.D. GRIP / ENGLISH JAW
J10X = PARALLEL I.D. GRIP / METRIC JAW
J11F = DOUBLE INSERT / FIXED NARROW (UPPER)
J12F = SINGLE INSERT / FIXED NARROW (UPPER)
J90 = DOUBLE INSERT / 90° TOTAL OPEN
J91 = SINGLE INSERT / 90° TOTAL OPEN
J180 = DOUBLE INSERT / 180° TOTAL OPEN
J181 = SINGLE INSERT / 180° TOTAL OPEN
J90FU = DOUBLE INSERT / FIXED NARROW (UPPER)
J90FL = DOUBLE INSERT / FIXED WIDE (NARROW)
J91FU = SINGLE INSERT / FIXED NARROW (UPPER)
J91FL = SINGLE INSERT / FIXED WIDE (LOWER)
J180FU = DOUBLE INSERT / FIXED NARROW (UPPER)
J180FL = DOUBLE INSERT / FIXED WIDE (LOWER)
J181FU = SINGLE INSERT / FIXED NARROW (UPPER)
J181FL = SINGLE INSERT / FIXED WIDE (LOWER)
J28 = DOUBLE INSERT / FIXED CHISEL JAW (LOWER)
J28-S = DOUBLE INSERT / FIXED CHISEL JAW W/SWITCH
J28-WOS = DOUBLE INSERT / FIXED CHISEL JAW W/O SWITCH
C2 A = CLAMP GRIPPER / 90° (CLOSED) ARM
C3 A = CLAMP GRIPPER / STRAIGHT (CLOSED) ARM

INSERT STYLE

X = NO INSERTS
1 = PT1 (CONVEX) UPPER
PT2 (CONCAVE) LOWER
2 = PT1 (CONVEX)
3 = PT3 (40 DURO URETHANE)
4 = PT4 (70 DURO URETHANE)
5 = PT5 (CARBIDE HEX INSERT)
6 = PT6 (STEEL HEX)

NOT APPLICABLE WITH JAW STYLES

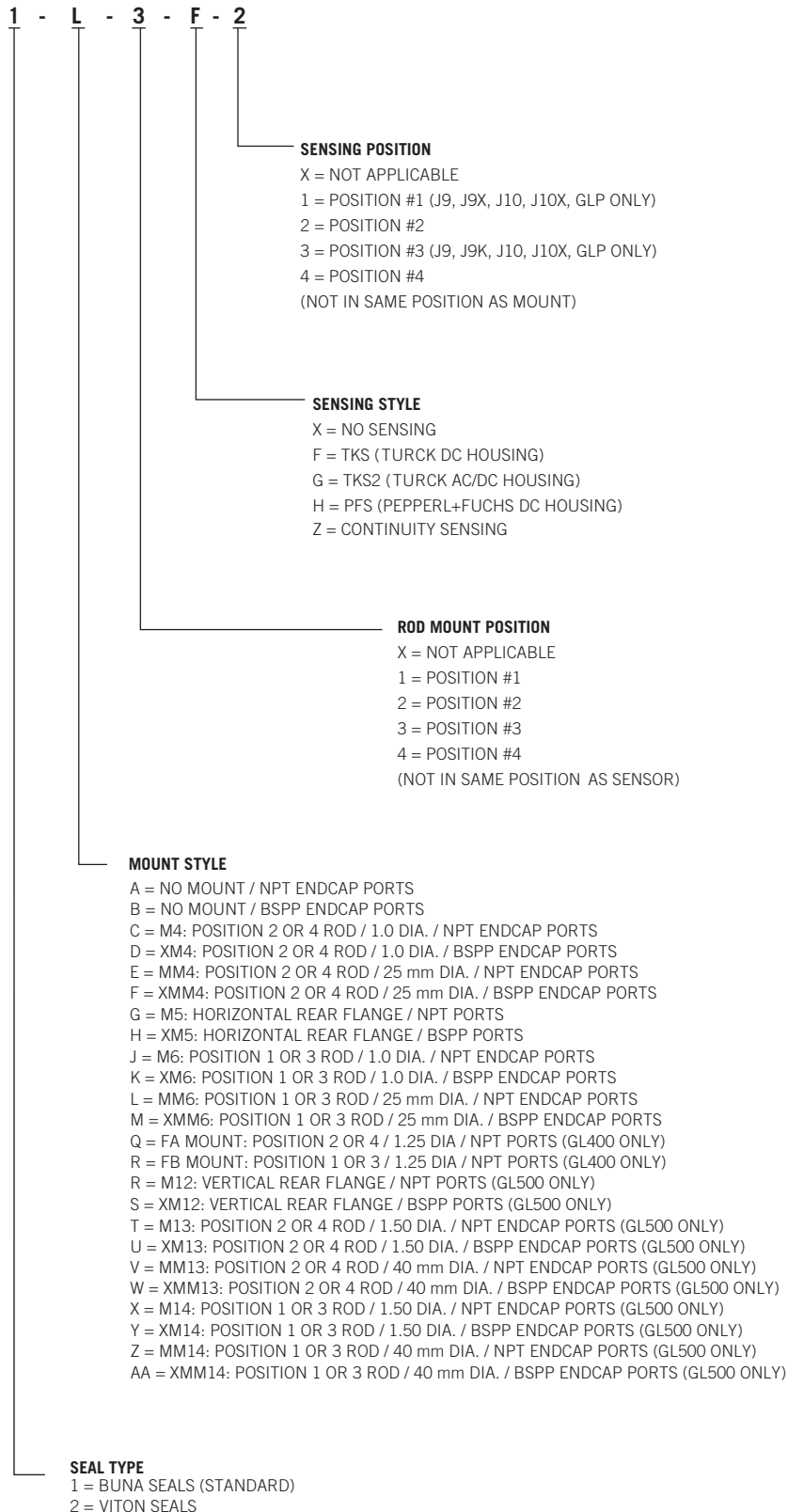
J9, J9X, J10, J10X, C2A, C3A

GUARD TYPE

X = NO GUARDS
A = WELD GUARDS (CANNOT BE ORDERED ON J9, J10, J9X, J10X, C2A, C3A, J28)
B = EDGE GUARDS (STANDARD ON ALL J90, J180, J28, JAW STYLES)

GL Series Gripper

Link-Driven Pneumatic Gripper
Ordering Information



GH, MGH and MPGH Series Gripper Heads

Pneumatic Gripper Heads
Features and Materials

NORGREN GRIPPERS



FEATURES

- ▶ Two series sizes.
- ▶ Over fifty gripper head configuration.
- ▶ Two or four point gripping.
- ▶ Jaws operate in unison with the capability of one jaw being fixed in closed position.
- ▶ T-slot rod ends for quick head change.
- ▶ Mounting pattern allows positioning in 90 increments.
- ▶ Design Features forged body and links with hardened steel pivots, gripper points, and concave contacts for severe industrial applications.

MATERIALS

- ▶ Gripper Exterior:
Hardcoat Anodized Aluminum
- ▶ Jaw Inserts:
Heat Treated Alloy Tool Steel
- ▶ Gripper Arms:
Heat Treated Alloy Steel

GH, MGH and MPGH Series Gripper Heads

Pneumatic Gripper Heads
Series Styles, Compatibility Matrix, and Grip Forces

SERIES STYLES

Jaw Styles	MGH and MPGH Series		GH Series	
	Single Insert	Double Insert	Single Insert	Double Insert
Regular Jaw	MGH1	MGH2	GH1	GH2
Lower Chisel Jaw	MGH3	MGH4	GH3	GH4
Vertical Gripping Jaw	MPGH6	MPGH3	GH6	GH3
Parallel Motion Jaw	MGH9	MGH10	GH9	GH10
Custom Jaws	N/A		GHA0	
Vacuum Jaws	N/A		VH1	VH2

COMPATIBILITY MATRIX

Gripper Series	MGH and MPGH Series		GH Series	
Quick Change Adaptors	QCNM		QCSM	
Rotate Units (90°/180°)	AGHRMGH		AGHR	
Rotate Units (Variable)	_____		RAU4	
Actuating Units	MAU2		AU2A	AU4LA
			AU4	AU4G
Cylinders	LPAC200	PGM1	LPAC250	PG25
Cylinder Proximity Sensors	_____	CP5	_____	CP5

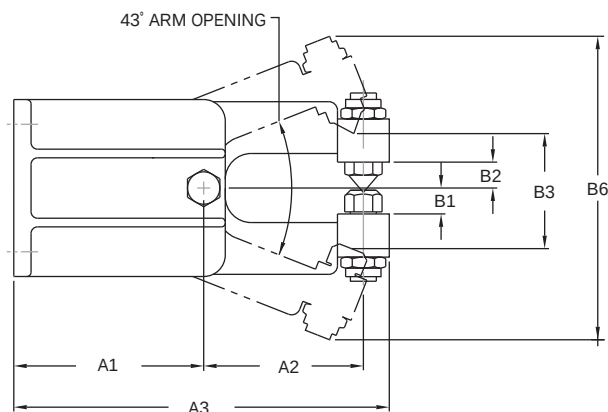
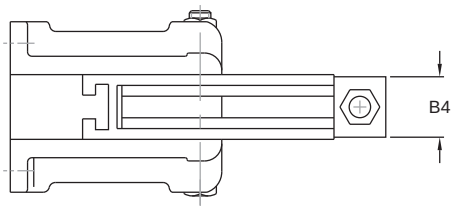
GRIP FORCES

Gripper Series	Jaw Styles	Grip Forces @ 80 psi
MGH Series	1-6	250 lbs
GH Series	1-6	400 lbs
MGH Series	9 & 10	65 lbs
GH Series	9 & 10	95 lbs

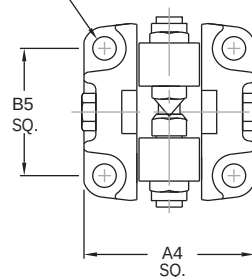
GH, MGH and MPGH Series Gripper Heads

Regular Jaw, Single Insert Gripper Heads
GH1 and MGH1 Overall Dimensions

NORGREN GRIPPERS



.34 DIA. THRU
(4) HOLES

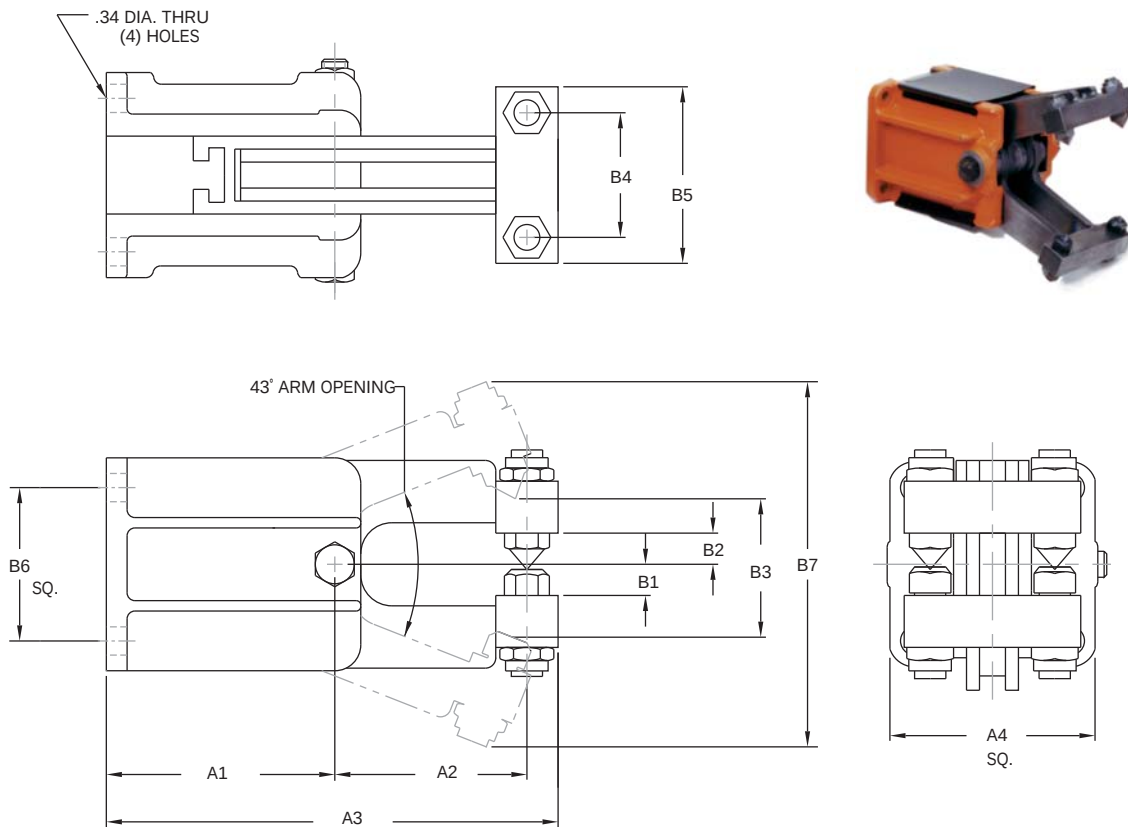


GH1 AND MGH1 DIMENSIONS CHART

GRIPPER MODEL	A1	A2	A3	A4	B1	B2	B3	B4	B5	B6	WEIGHT
GH1	3.94	3.50	7.94	3.38	.34	.47	2.62	1.25	2.625	5.38	7.0
MGH1	2.75	2.31	5.44	2.50	.38	.38	1.68	.88	1.840	4.38	4.7

GH, MGH and MPGH Series Gripper Heads

Regular Jaw, Double Insert Gripper Heads
GH2 and MGH2 Overall Dimensions



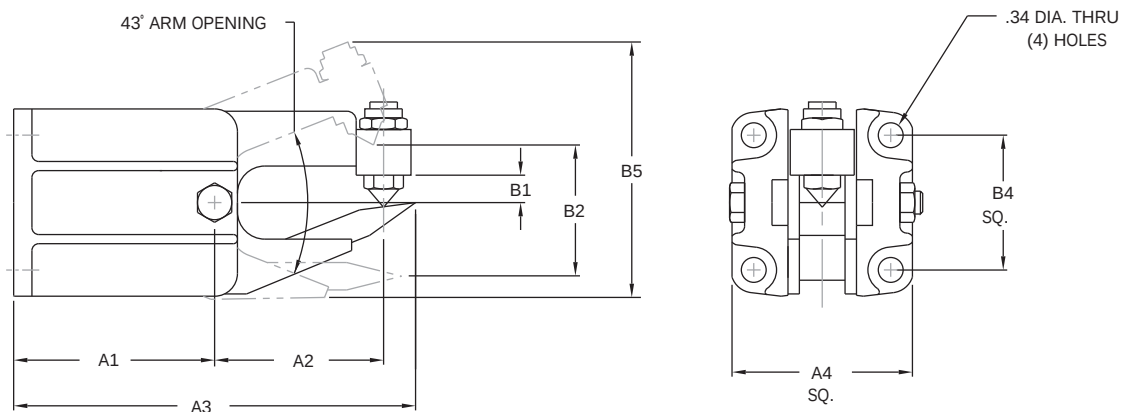
NORGREN GRIPPERS

GH2 AND MGH2 DIMENSIONS CHART

GRIPPER MODEL	A1	A2	A3	A4	B1	B2	B3	B4	B5	B6	B7	WEIGHT (lbs)
GH2	3.94	3.50	7.81	3.38	.34	.47	2.62	2.25	2.88	2.625	5.30	7.0
MGH2	2.75	2.31	5.44	2.50	.38	.38	1.68	1.50	2.12	1.840	4.39	4.7

GH, MGH and MPGH Series Gripper Heads

Lower Chisel Jaw, Single Insert Gripper Heads
GH3 and MGH3 Overall Dimensions

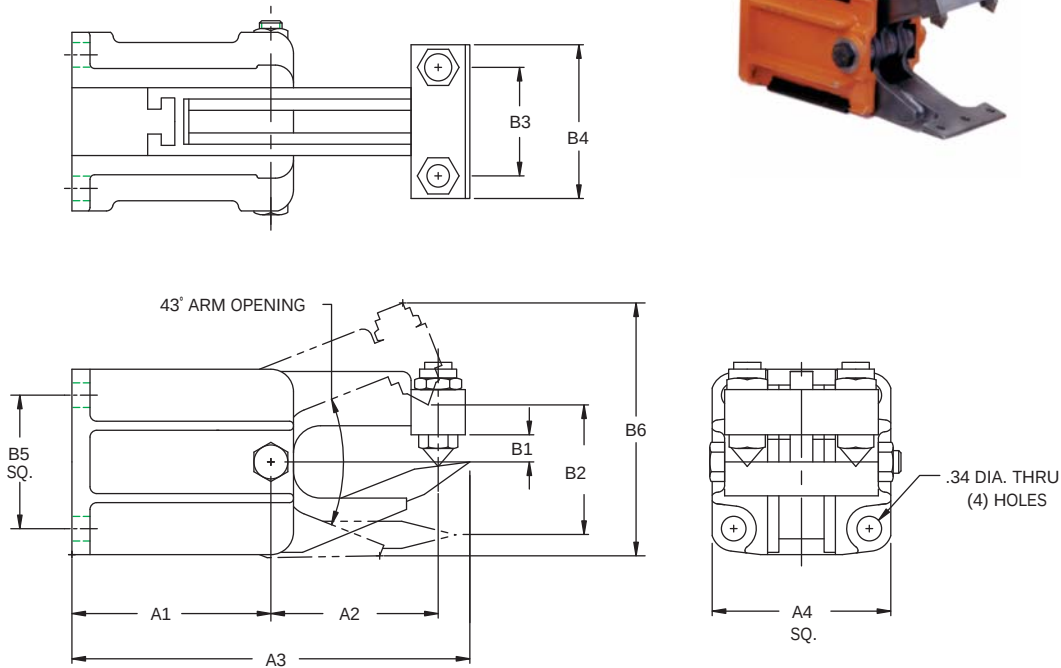


GH3 AND MGH3 DIMENSIONS CHART

GRIPPER MODEL	A1	A2	A3	A4	B1	B2	B3	B4	B5	WEIGHT (lbs)
GH3	3.94	3.50	7.88	3.38	.47	2.75	1.00	2.625	4.43	7.0
MGH3	2.75	2.31	5.50	2.50	.38	1.81	.88	1.840	3.50	4.7

GH, MGH and MPGH Series Gripper Heads

Lower Chisel Jaw, Double Insert Gripper Heads
GH4 and MGH4 Overall Dimensions



NORGREN GRIPPERS

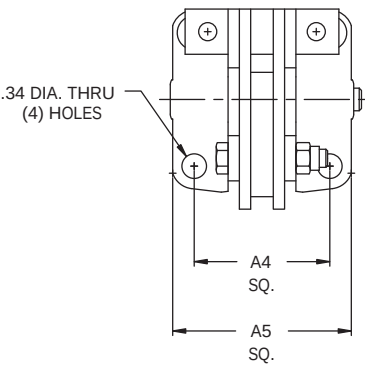
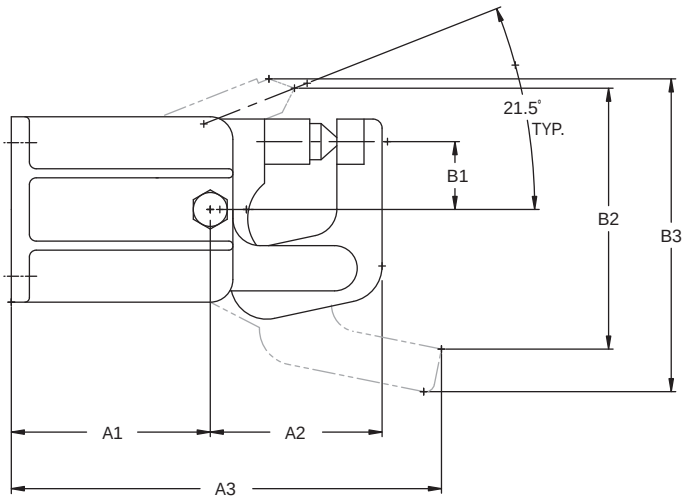
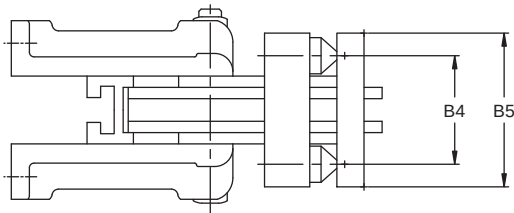
GH4 AND MGH4 DIMENSIONS CHART

GRIPPER MODEL	A1	A2	A3	A4	B1	B2	B3	B4	B5	B6	WEIGHT (lbs)
GH4	3.94	3.50	7.88	3.38	.47	2.75	2.25	2.88	2.625	4.43	7.0
MGH4	2.75	2.31	5.50	2.50	.38	1.81	1.50	2.12	1.840	3.50	4.7

GH, MGH and MPGH Series Gripper Heads

Vertical Gripping Jaw, Double Insert Gripper Heads
GH5 and MPGH5 Overall Dimensions

NORGREN GRIPPERS

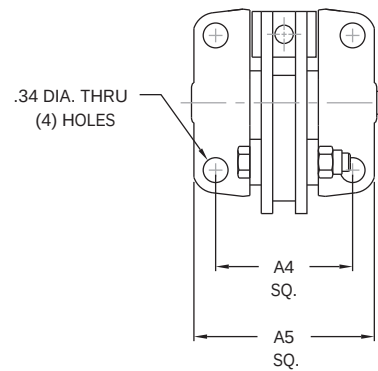
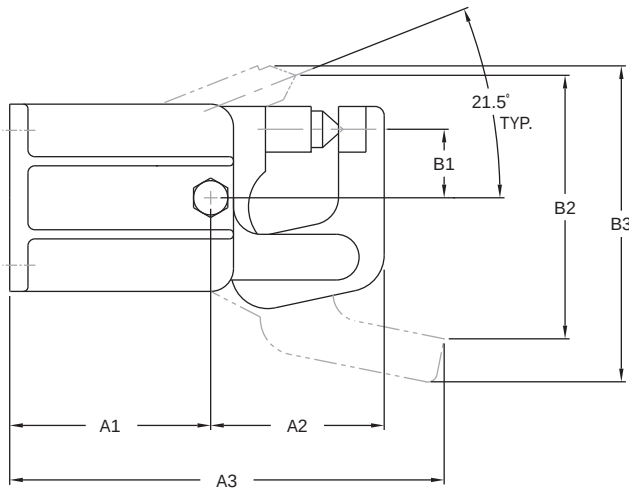
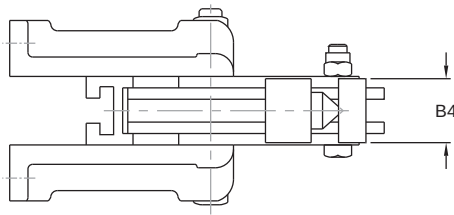


GH5AND MGH5 DIMENSIONS CHART

GRIPPER MODEL	A1	A2	A3	A4	A5	B1	B2	B3	B4	WEIGHT (lbs)
GH6	3.94	3.50	8.75	2.625	3.38	1.00	4.25	5.25	1.00	8.0
MPGH6	2.75	2.38	5.94	1.840	2.50	.94	3.62	4.32	.88	5.0

GH, MGH and MPGH Series Gripper Heads

Vertical Gripping Jaw, Single Insert Gripper Heads
GH6 and MGH6 Overall Dimensions



NORGREN GRIPPERS

GH6 AND MGH6 DIMENSIONS CHART

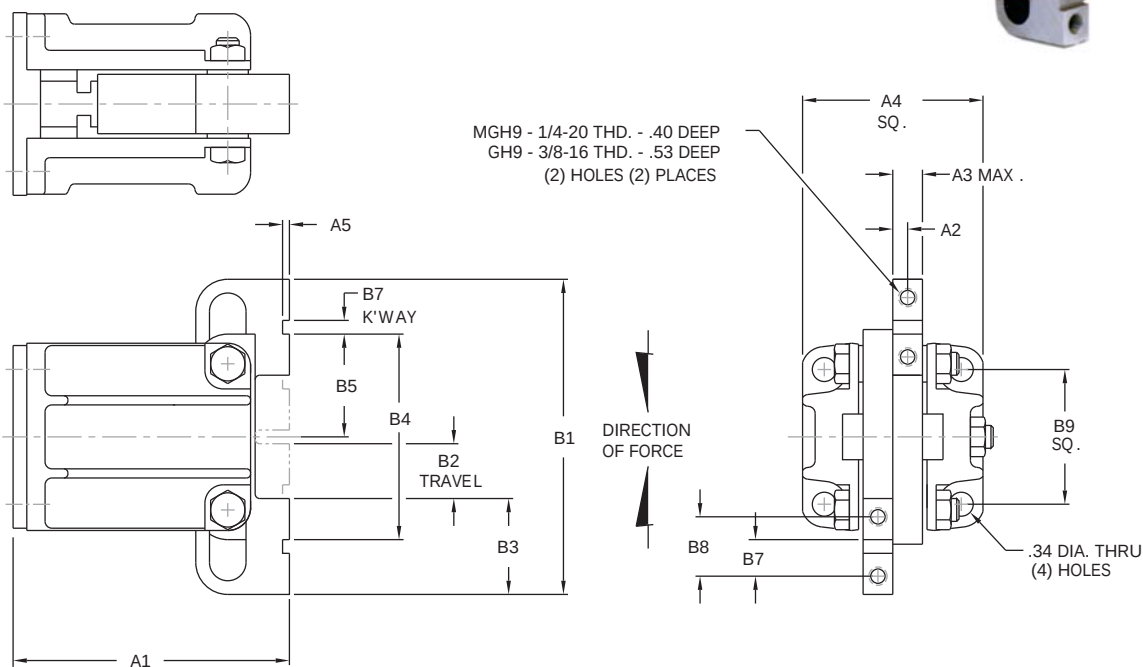
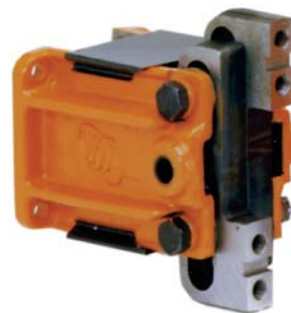
GRIPPER MODEL	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	WEIGHT (lbs)
GH5	3.94	3.50	8.75	2.625	3.38	1.00	4.25	5.17	2.00	2.62	8.0
MPGH5	2.75	2.38	5.94	1.840	2.50	.94	3.62	4.32	1.50	2.12	5.0

GH, MGH and MPGH Series Gripper Heads

Parallel Motion Jaw (O.D.) Gripper Heads

GH9 and MGH9 Overall Dimensions

NORGREN GRIPPERS

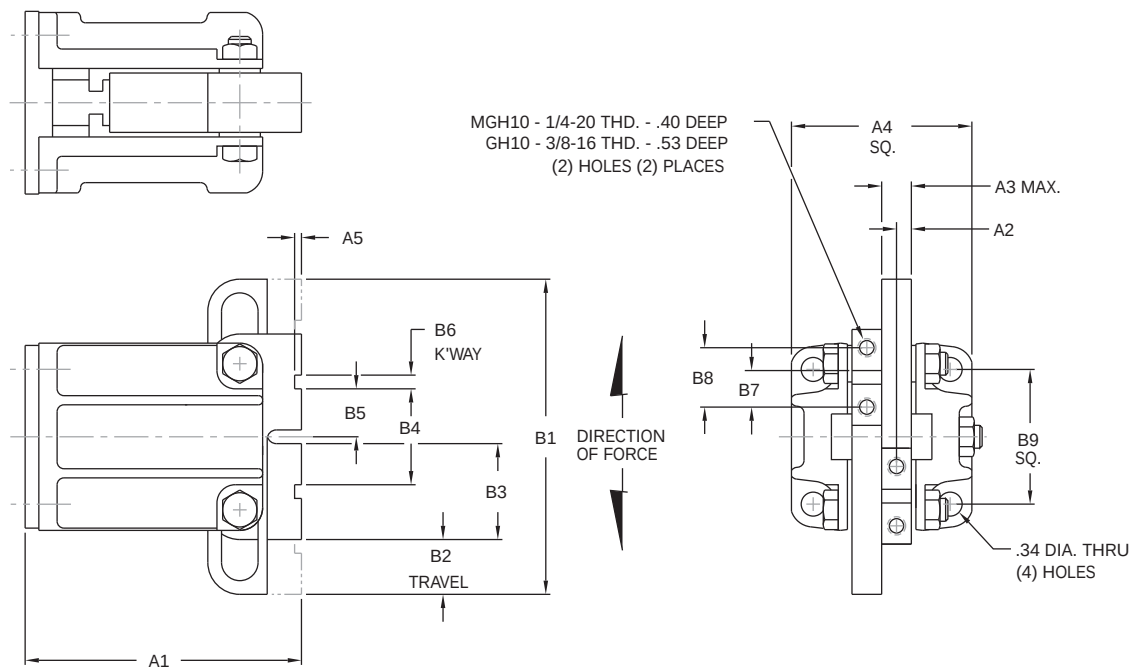


GH9 AND MGH9 DIMENSIONS CHART

GRIPPER MODEL	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	B8	B9	WEIGHT (lbs)
GH9	5.44	.316	.633	3.38	.125	5.88	1.06	1.68	1.82	.91	.250/.251	.547	.844	2.625	6.0
MGH9	3.78	.200	.403	2.50	.094	4.31	.75	1.32	2.81	1.41	.187/.188	.500	.812	1.840	4.4

GH, MGH and MPGH Series Gripper Heads

Parallel Motion Jaw (I.D.) Gripper Head
GH10 and MGH10 Overall Dimensions



NORGREN GRIPPERS

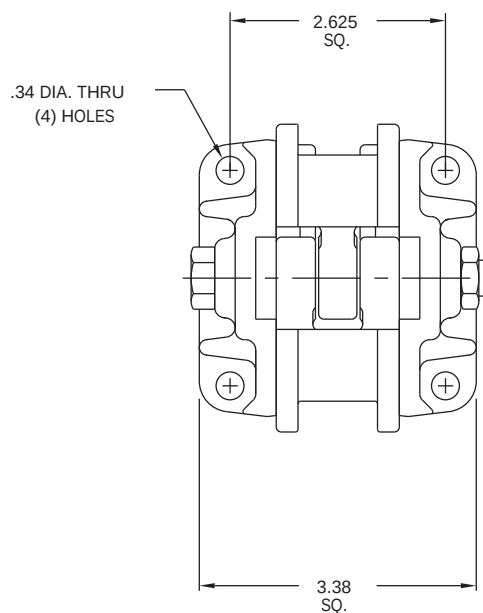
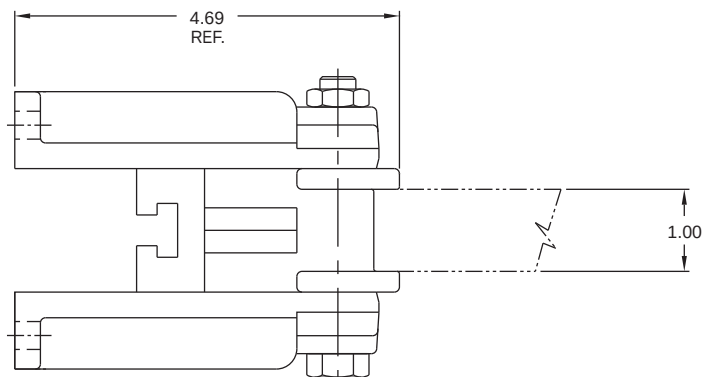
GH10 AND MGH10 DIMENSIONS CHART

GRIPPER MODEL	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	B8	B9	WEIGHT (lbs)
GH10	5.44	.316	.633	3.38	.125	5.88	1.06	1.68	1.81	.91	.250/.251	.547	.844	2.625	6.0
MGH10	3.78	.200	.403	2.50	.094	4.31	.75	1.32	1.31	.66	.187/.188	.500	.812	1.840	4.4

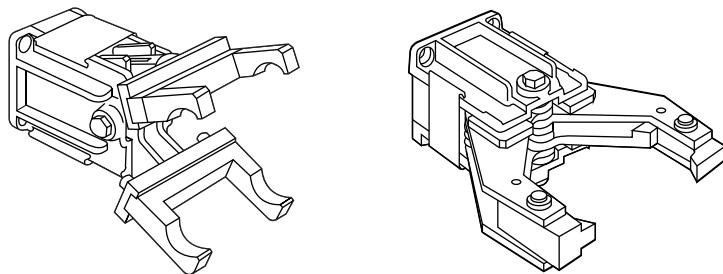
GH, MGH and MPGH Series Gripper Heads

Custom Jaw Gripper Heads
GHAO Overall Dimensions

NORGREN GRIPPERS



Two examples of the many GHAO customized uses:



Weight : 6 lbs

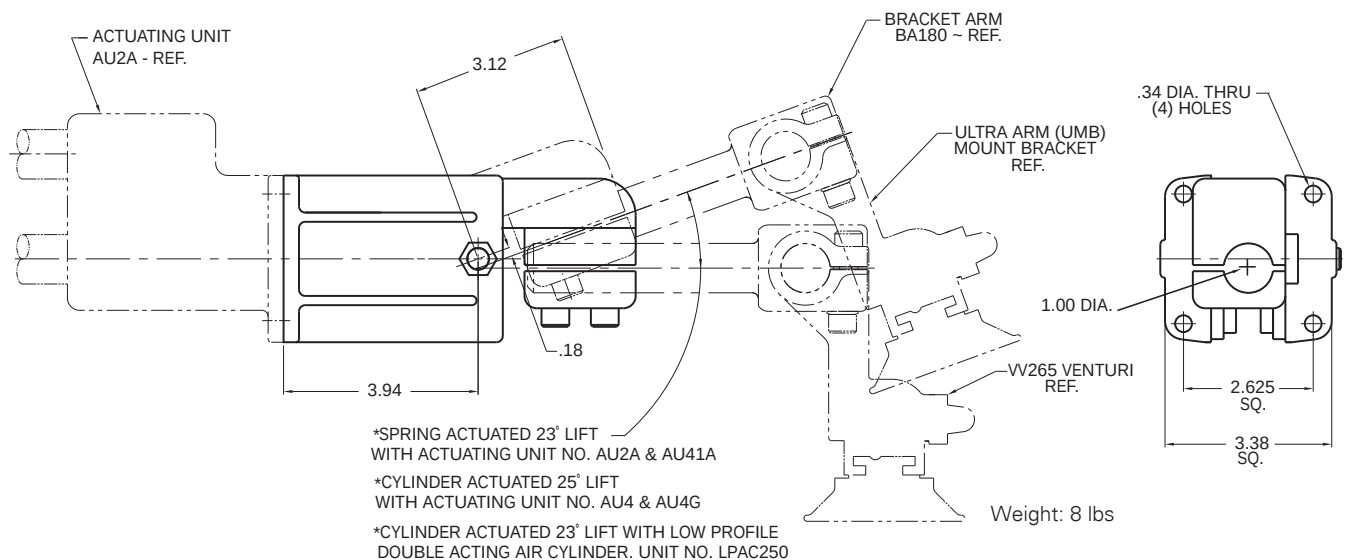
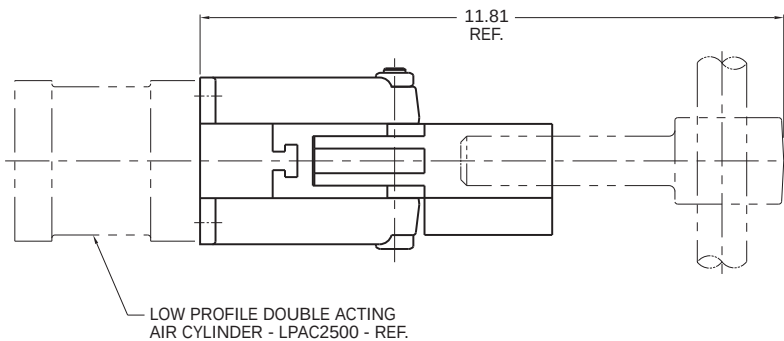
GH/MGH/MPGH Gripper Heads



GH, MGH and MPGH Series Gripper Heads

Angular Motion Vacuum Gripper Heads
VH1 Overall Dimensions

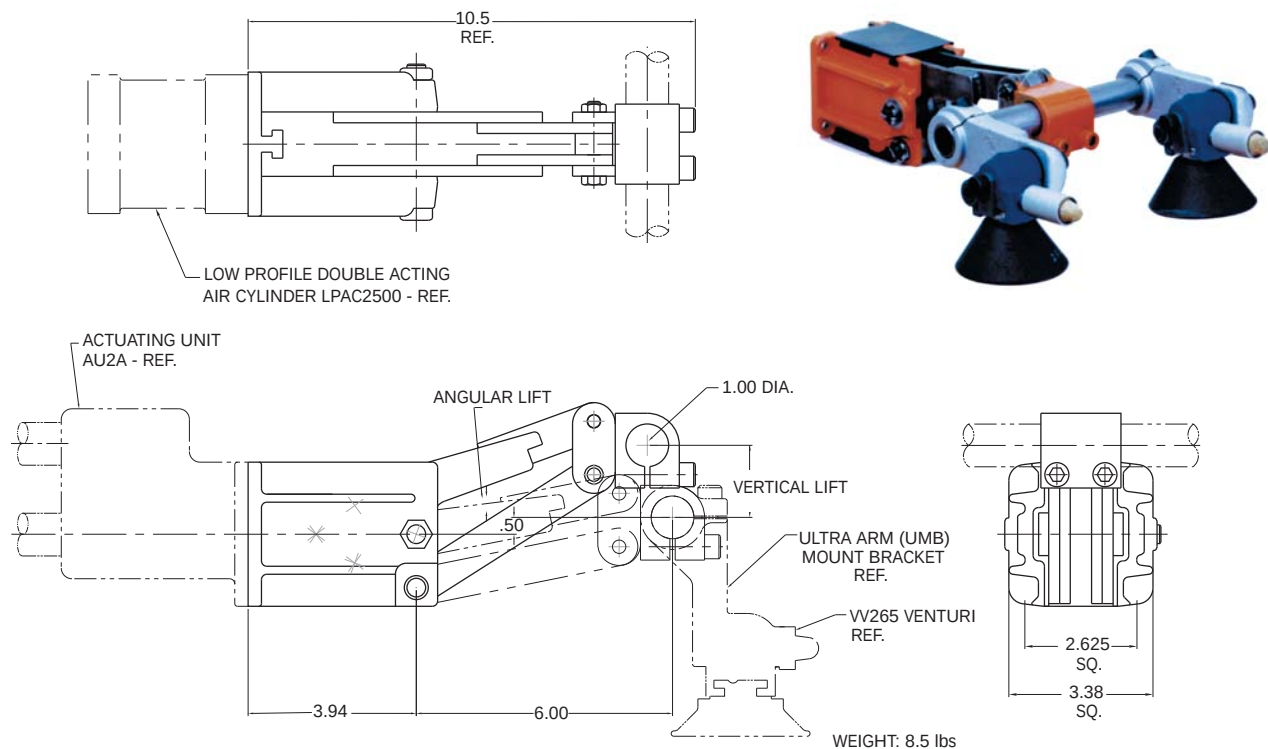
NORGREN GRIPPERS



GH, MGH and MPGH Series Gripper Heads

Parallel Motion Vacuum Gripper Heads
VH2 Overall Dimensions

NORGREN GRIPPERS

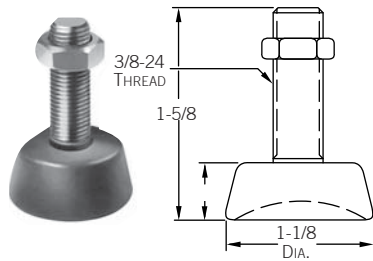


UNIT NAME AND NUMBER	ANGULAR LIFT	VERTICAL LIFT
ACTUATING UNIT AU2A AND AU41A (SPRING ACTUATED)	20°	1.68
ACTUATING UNIT AU4 AND AU4G (CYLINDER ACTUATED)	25°	2.00
LOW PROFILE DOUBLE ACTING AIR CYLLINDER UNIT LPAC250	22°	1.75

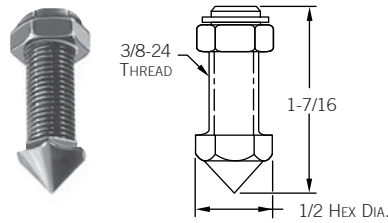
GH, MGH and MPGH Series Gripper Heads

Contact Points, Quick-Change Adapter, and Low-Profile Cylinder
Overall Dimensions

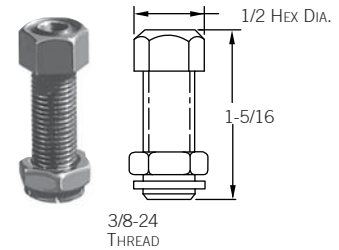
CONTACT POINT INSERTS



VC1 AND VCU1 GRIPPING CUP JAW INSERTS



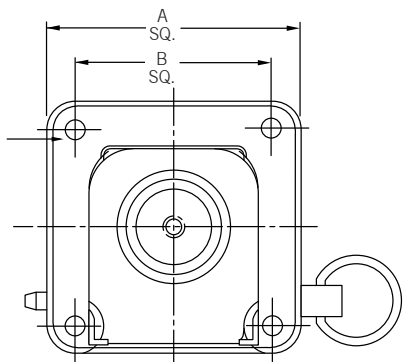
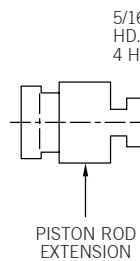
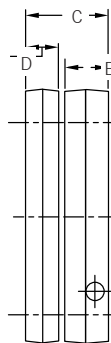
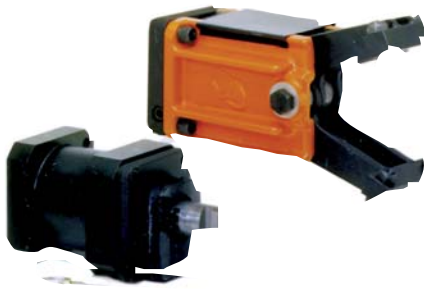
PT1 CONVEX JAW INSERTS



PT2 CONCAVE JAW INSERTS

NORGREN GRIPPERS

QCMM (MINI) / QCSM (STANDARD) QUICK-CHANGE ADAPTER OVERALL DIMENSIONS



QCMM AND QCSM DIMENSIONS CHART

DIMENSIONS (INCHES)

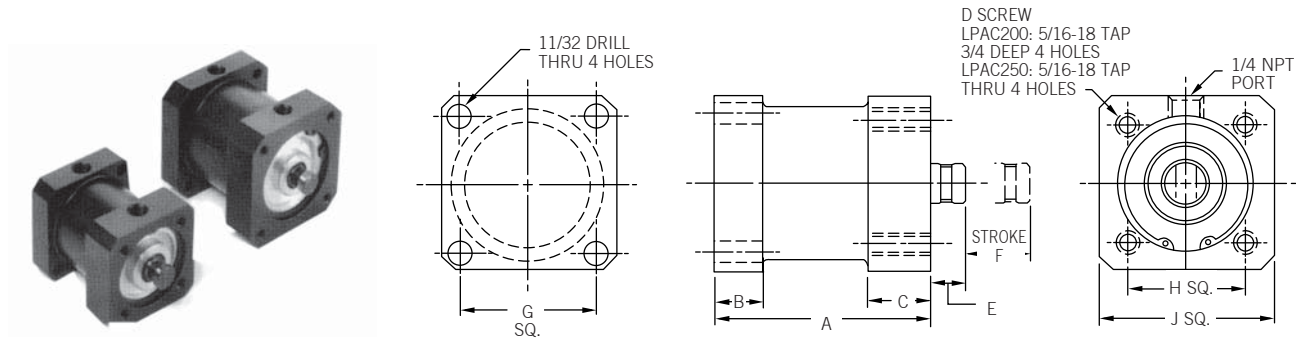
MODEL	A	B	C	D	E	WEIGHT
QCMM	2-1/2	1-27/32	1-1/8	7/16	5/8	3/4 LBS
QCSM	3-3/8	2-5/8	1-1/8	7/16	5/8	1-1/4 LBS

GH, MGH and MPGH Series Gripper Heads

LPAC200 / LPAC250 Low-Profile Cylinder
Overall Dimensions

NORGREN GRIPPERS

LPAC200 (MINI) / LPAC250 (STANDARD) LOW-PROFILE CYLINDER OVERALL DIMENSIONS

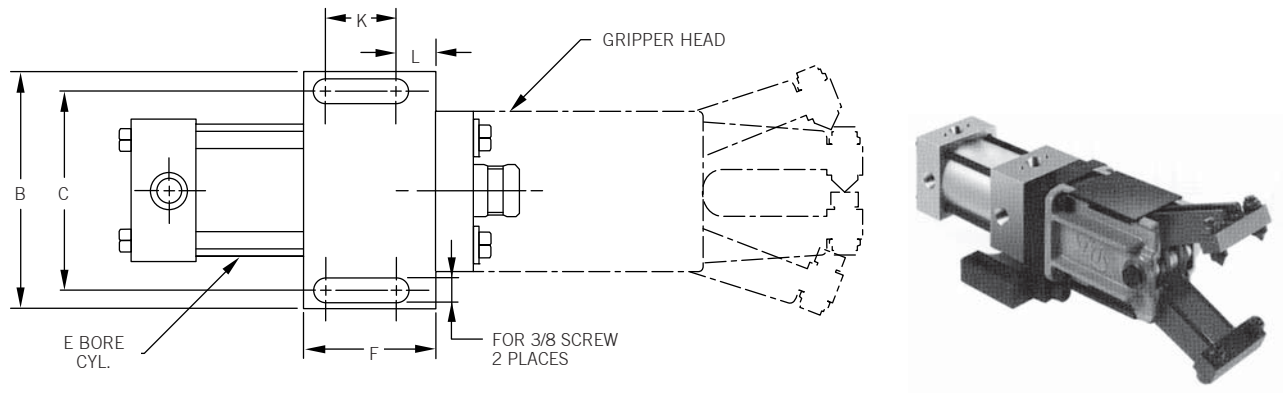


LPAC200 AND LPAC250 DIMENSIONS CHART

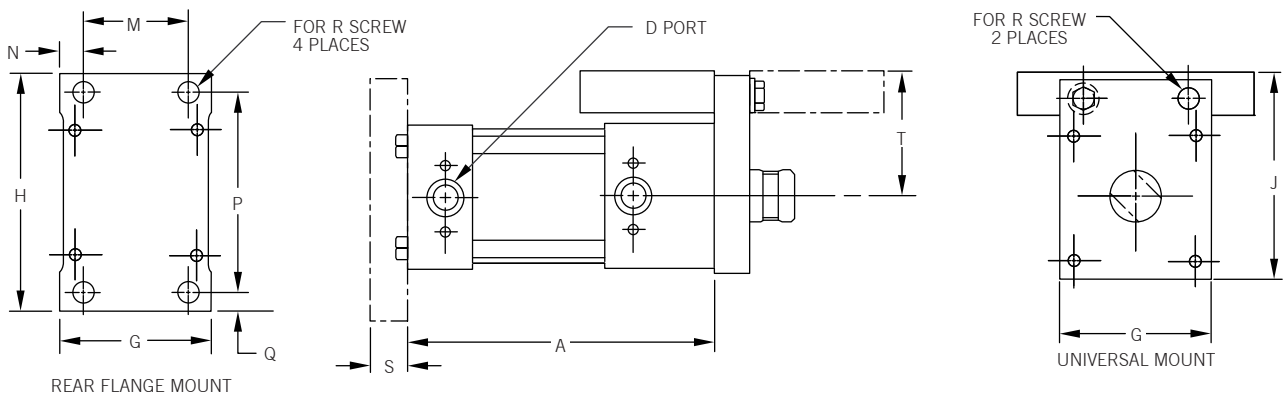
DIMENSIONS (INCHES)										
MODEL	A	B	C	D	E	F	G	H	J	WEIGHT
LPAC200	3-3/8	3/4	1	5/16	1/2	1	2-1/8	1-27/32	2-3/4	2-1/2 LBS
LPAC250	3-3/4	3/4	1	5/16	9/16	1-3/8	2-5/8	2-5/8	3-1/2	4 LBS

GH, MGH and MPGH Series Gripper Heads

PG1M (Mini) / (Standard) Post-Grip Cylinder
Overall Dimensions and Mounting Options



NORGREN GRIPPERS



PG MOUNTS OVERALL DIMENSIONS CHART

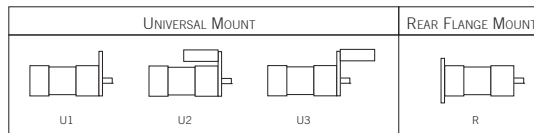
DIMENSIONS ARE IN INCHES

MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	WEIGHT
PG1M	5-7/8	4-1/2	3-3/4	3/8 NPT	2	2-3/4	3	5	3-7/8	1-3/4	1/2	2	1/2	4-1/4	3/8	3/8	1/2	2-5/8	8 LBS
PG2S	6-1/2	5	4-1/4	3/8 NPT	2-1/2	2-13/16	3-1/4	5	4-1/8	1-5/8	3/4	2-1/4	1/2	4-1/4	3/8	3/8	3/4	2-5/8	13 LBS

ORDERING INFORMATION

PG2S - ER
 R = Rear Flange Mount
 U1 = Universal Mount
 U2 = Universal Mount
 U3 = Universal Mount
 Model Number

MOUNTING OPTIONS



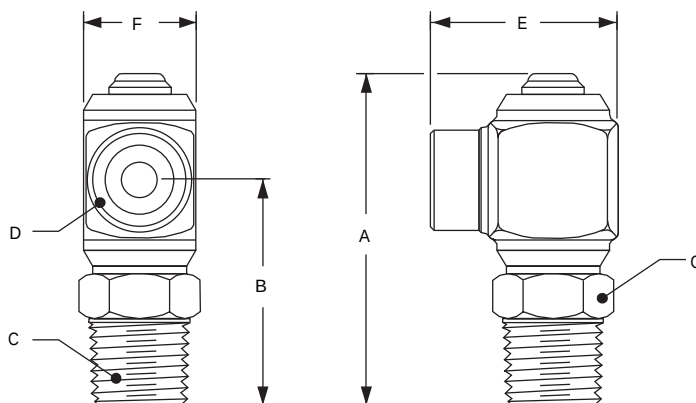
Note: Norgren recommends that flow controls be used in conjunction with pneumatic cylinders.

GH, MGH and MPGH Series Gripper Heads

Pneumatic Flow Control

Overall Dimensions and Technical Information

NORGREN GRIPPERS



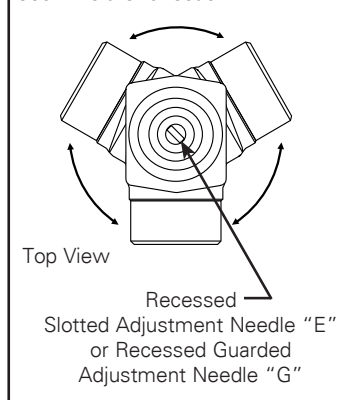
FLOW CONTROL DIMENSIONS CHART

Model	A	B	C	D	E	F	G	
RA12F2M-E (or G)	64.5	41.4			39.1	23.8		mm
	2.54	1.63	1/4 NPT	1/4 NPT	1.54	.94	7/8	in
RA12F3M-E (or G)	65.5	42.4			39.9	23.8		mm
	5.58	1.67	3/8 NPT	1/4 NPT	1.57	.94	7/8	in
RA23F4M-E (or G)	70.1	47.5			39.8	23.8		mm
	2.76	1.87	1/2 NPT	3/8 NPT	1.57	.94	7/8	in
RA23F3M-E (or G)	65.5	42.4			39.9	23.8		mm
	2.58	1.67	3/8 NPT	3/8 NPT	1.57	.94	7/8	in
RA23P3M-E (or G)	65.5	42.4			39.9	23.8		mm

FLOW SPECIFICATIONS

CONTROLLED FLOW		FREE FLOW
psi	Max. SCFM	SCFM
40	0-23	37-60
60	0-31	50-81
80	0-40	63-103
100	0-45	77-122

Flow control's outer sleeve rotates 360° in either direction

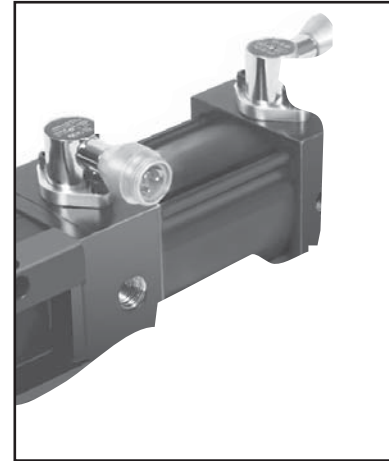
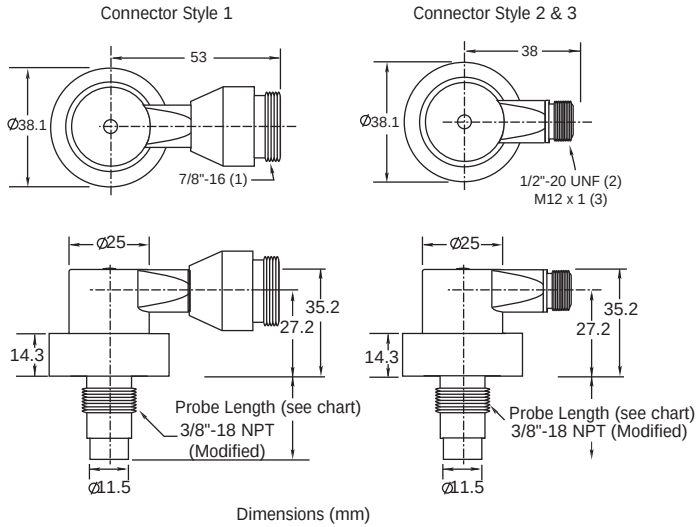


Changing the flow on G-Series flow controls requires using the RA-2 adjustment tool. This tool is available through Norgren or your local distributor.

GH, MGH and MPGH Series Gripper Heads

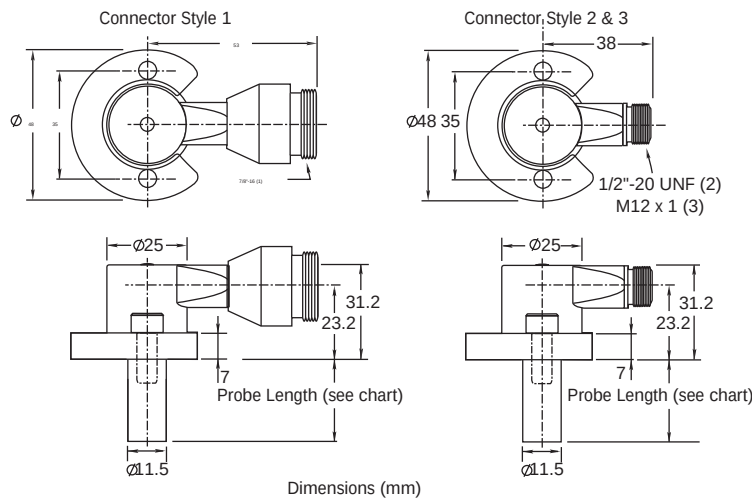
Proximity Sensor Overall Dimensions and Connection Information

C=CANISTER MOUNTED TYPE • 250PSI RATING

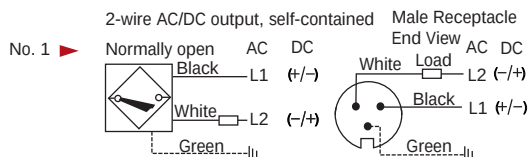


NORGREN GRIPPERS

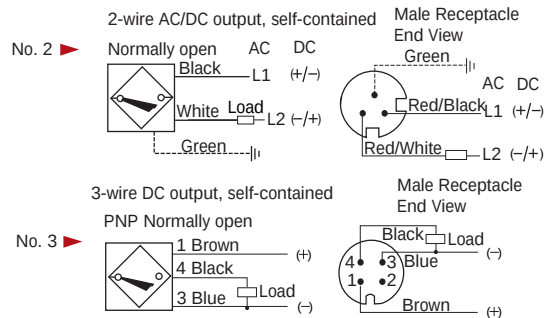
F=FLANGE MOUNTED TYPE • 250PSI RATING



Mini Connectors



Micro Connectors



GH, MGH and MPGH Series Gripper Heads

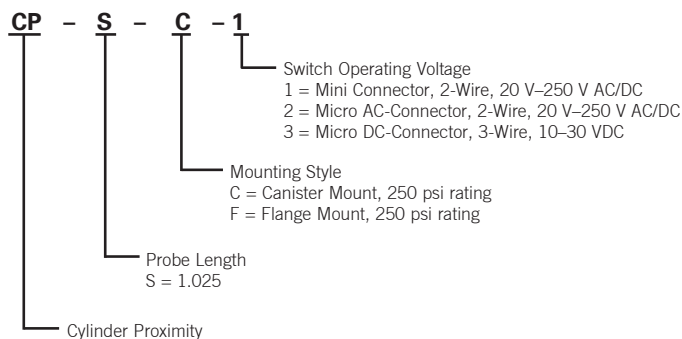
Proximity Sensor Technical and Ordering Information

PROXIMITY SWITCH TECHNICAL INFORMATION

ELECTRICAL OUTPUT 2-Wire AC/DC		ELECTRICAL OUTPUT 3-Wire DC
SENSING RANGE	2.0 mm or 3.0 mm (to standard target)	
REDUCTION FACTOR		
Stainless Steel	.85	.70
Aluminum	.40	.32
STANDARD TARGET	10 x 10 x 1 mm Ferrous	
REPEATABILITY	0.5 mm (-14F to +158F) 0.01 mm (70F) • 0.3 mm (-14F to +158F)	
HYSTERESIS	Target moves transversely to sensor	About 3%
VOLTAGE RANGE	20 V-250 V AC/DC	10-30 VDC
LEAKAGE CURRENT	1.7 mA	—
VOLTAGE DROP (Across sensor)	7 V	2.0 VDC
SWITCHING FREQUENCY	20 Hz	20 Hz
RESPONSE TIME		
While Target Moves Into Range	20 mS	20 mS
During Power-up	80 mS	80 mS
MAKE	3A	—
LOAD CURRENT	300 mA	200 mA
SHORT CIRCUIT PROTECTED	YES	YES
OVERLOAD PROTECTED	YES	YES
SHORT CIRCUIT—OFF CURRENT	>300 mA	>200 mA
INDICATOR LIGHTS:		
Power ON	LED (green)	LED (green)
Output ON	LED (red or yellow)	LED (yellow)
Short or Overload Condition	Both LEDs (flashing with a frequency of 2 Hz)	—
AMBIENT TEMPERATURE	-14F to +158F	
SHOCK RESISTANCE	30 G T 11 MS	
VIBRATION STRESS	f55 Hz @ 11 mS	
IMMUNITY TO:		
Welding	AC — resistance welding 300 mT (45000 A RMS) DC — welding 25000 A	
Radio Transmitted Fields	from 10 MHz-800 MHz • 10 V/m field strength	
Electrical Noise	-ICS-230	—
HOUSING MATERIAL	Aluminum	
PROTECTION (IEC)	IP65	
CPS-C (250psi)	BHM Connection Micro Connection	CP-S-C-1 CP-S-C-2
CPS-F (250psi)	BHM Connection Micro Connection	CP-S-F-1 CP-S-F-2
CPS-H (3000psi)	BHM Connection Micro Connection	CP-S-H-1 CP-S-H-2
		*NA CP-S-C-3 *NA CP-S-F-3 *NA CP-S-H-3

*Special Order – Consult Norgren for Delivery.

PROXIMITY SWITCH ORDERING INFORMATION FOR PG1M/PG2S



GH/MGH/MPGH Gripper Heads



Tooling: Pressroom

Pressroom Tooling

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Description

Part No.

Page No.

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Poz-e-Lok™ Modular Tooling

FLEXIBILITY WITH ASSURANCE

- ▶ Poz-e-Lok™ Modular Tooling System
 - Swivel Bracket Mounts
 - Swivel Brackets
 - Swivel Bracket Arms
 - Swivel Cup Mount
 - Swivel Proximity Mounts
 - Poz-e-Lok™ Z-Nest™ Components
- ▶ Point-to-Point (Polar) Design
 - Lighter ergonomic end effector allows for fewer parts and stronger operating performance.
- ▶ Modular Steel Components with Face-to-Face Locking Teeth
 - Increased resistance to damage, provides faster recovery times
 - The option to weld components in final assembly position on the steel boom offers improved stability.
- ▶ Ease of Assembly
 - Easy-to-use single bolt size requires only one wrench for the entire assembly.
 - Standard off the shelf boom are available in steel or aluminum worldwide.
 - Adjust into desired position and locks into place.
- ▶ Adjustable
 - Single-Axis and Multi-Axis configurations for design flexibility.
 - Single-Axis Mounts rotate 360° in 7.5° increments.
 - Multi-Axis Mounts rotate 360° on perpendicular axis using 7.5° increments.
- ▶ Newly Designed 5-Axis Swivel Bracket Arm
 - Enables vacuum cup to be repositioned and locked in 3D space through flexible wrist action and boom-mounted multi-axis swivel arms.
- ▶ Compatible with Existing Components
 - Poz-e-Lok™ is designed to be compatible with Norgren Automotive products, including vacuum cups, grippers, Quik-Set®, and Robo-Set® mounts and adapters.

Covered by Patent No's 6,619,875; and 6,409,411. Additional patents may also apply.



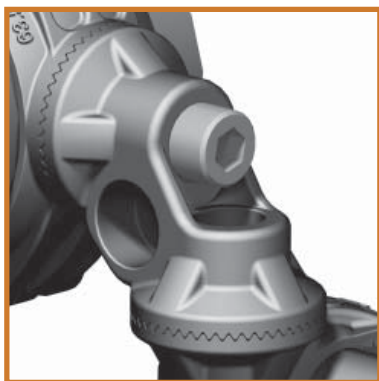
NORGREN TOOLING

Poz-e-Lok™ Modular Tooling

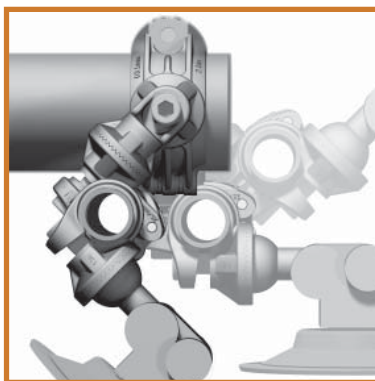
Introduction of Functionality

NORGREN TOOLING

Poz-e-Lok™ Modular Tooling System is designed to offer a great deal of flexibility for point-to-point contact to the part. This allows for direct connection from the boom to the cup with one tube. By using additional swivel components a greater range of flexibility can be achieved.



Inter-locking teeth offers adjustability with assurance.



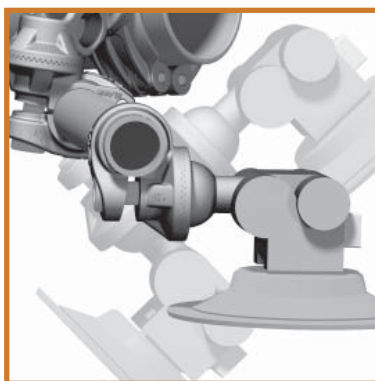
360° Radial adjustment in 7.5° increments directly from the boom.



360° Radial adjustment in 7.5° increments of the arm rod, from the boom.



Infinite linear adjustment along the boom.



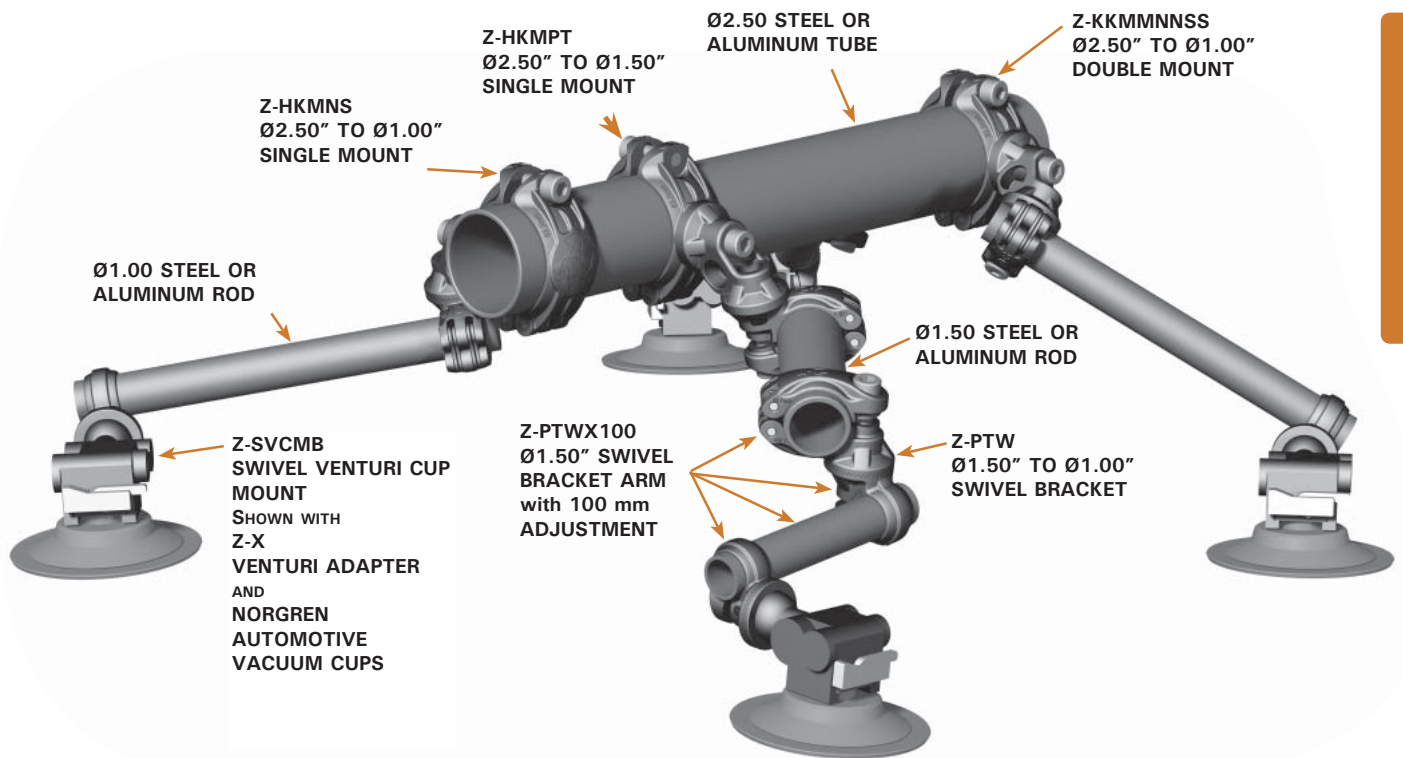
Infinite radial adjustment around the arm rod allows precise angular placement.



360° Radial adjustment in 7.5° increments for final cup adjustability with teeth-locking assurance.

Poz-e-Lok™ Modular Tooling

Example of a Poz-e-Lok End-of-Arm Tool

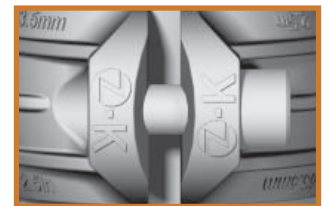


NORGREN TOOLING

Poz-e-Lok™ Modular Tooling System shown with Z-PTW Ø1.50\" to Ø1.00\" Swivel Bracket with two Swivel Venturi Vacuum Cup Mounts on a Ø1.00\" boom rod.



Poz-e-Lok™ tooling assemblies consist of parts cast with the Poz-e-Lok™ \"Z\" logo followed by a letter to identify each part. The parts are also cast with the diameter sizes in both english and metric when applicable.



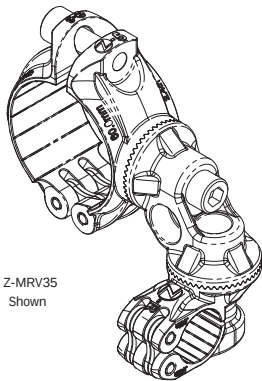
Identifying an assembly is as easy as taking note of the letters on each of the parts within the assembly. The collection of these letters make up the ordering information for that assembly. The combination of the letters in the ordering information makes ordering replacement parts simple and virtually error-proof.



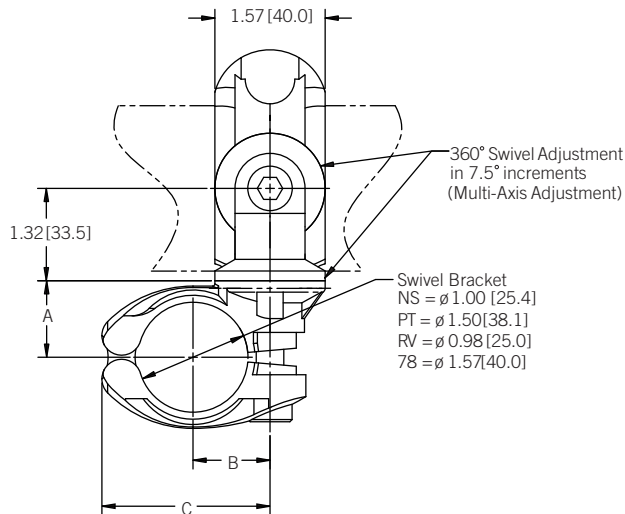
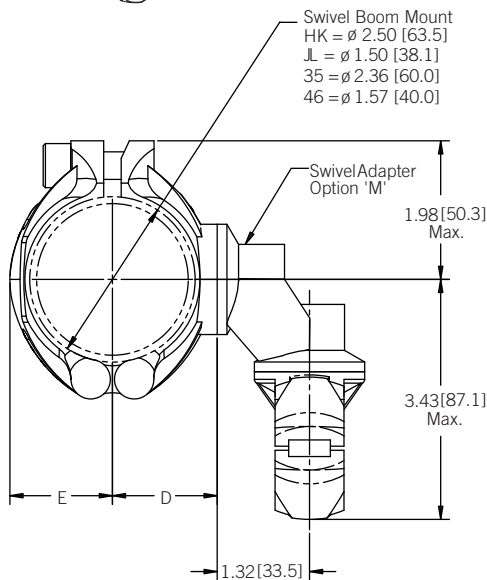
Poz-e-Lok™ Modular Tooling

Single Multi-Axis Swivel Boom Mount

NORGREN TOOLING



Z-MRV35
Shown



ORDERING INFORMATION

Z - H K - M - RV

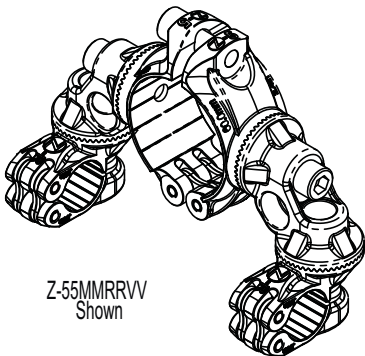
- SWIVEL BRACKET
NS = 1.0 INCH
PT = 1.5 INCH
RV = 25 MILLIMETERS
78 = 40 MILLIMETERS
- SWIVEL ADAPTER
M = 90° SWIVEL BOOM ADAPTER
- SWIVEL BOOM MOUNT
HK = 2.5 INCH
JL = 1.5 INCH SINGLE
35 = 60 MILLIMETERS
46 = 40 MILLIMETERS
- POZ-E-LOK
MULTI-AXIS SINGLE BOOM MOUNT

MATERIAL: STEEL

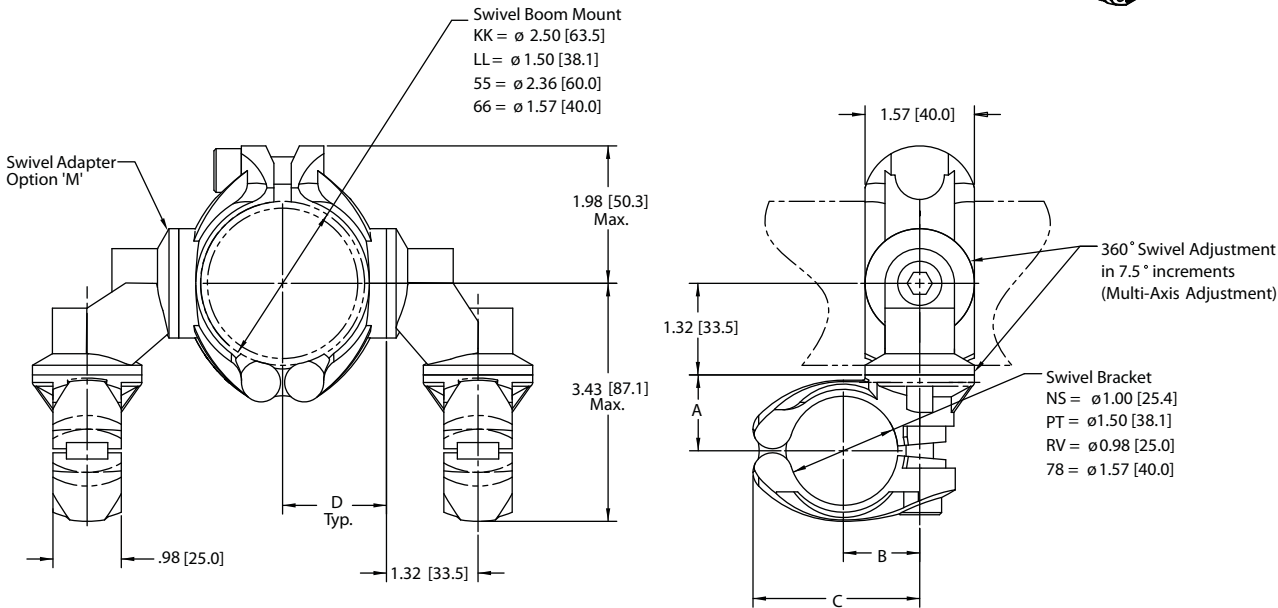
PART NO.	A	B	C	D	E	WEIGHT - LBS [KG]
Z-HK	-	-	-	1.50 [38.0]	1.54 [39.2]	1.09 [0.5]
Z-JL	-	-	-	1.00 [25.4]	1.04 [26.5]	0.86 [0.4]
Z-35	-	-	-	1.50 [38.0]	1.46 [37.2]	1.10 [0.5]
Z-46	-	-	-	1.00 [25.4]	1.08 [27.4]	0.84 [0.4]
Z-NS	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	-	-	0.56 [0.3]
Z-PT	1.09 [27.7]	1.06 [27.0]	2.32 [58.9]	-	-	0.68 [0.3]
Z-RV	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	-	-	0.56 [0.3]
Z-78	1.09 [27.7]	1.10 [27.9]	2.40 [61.0]	-	-	0.69 [0.3]

Poz-e-Lok™ Modular Tooling

Double Multi-Axis Swivel Boom Mount



NORGREN TOOLING



ORDERING INFORMATION

Z - K K M R V R V

SWIVEL BRACKET
NS = 1.0 INCH
PT = 1.5 INCH
RV = 25 MILLIMETERS
78 = 40 MILLIMETERS

SWIVEL ADAPTER
MM = 90° SWIVEL BOOM ADAPTER

SWIVEL BOOM MOUNT
KK = 2.5 INCH DOUBLE
LL = 1.5 INCH DOUBLE
55 = 60 MILLIMETERS DOUBLE
66 = 40 MILLIMETERS DOUBLE

POZ-E-LOK
MULTI-AXIS DOUBLE BOOM MOUNT

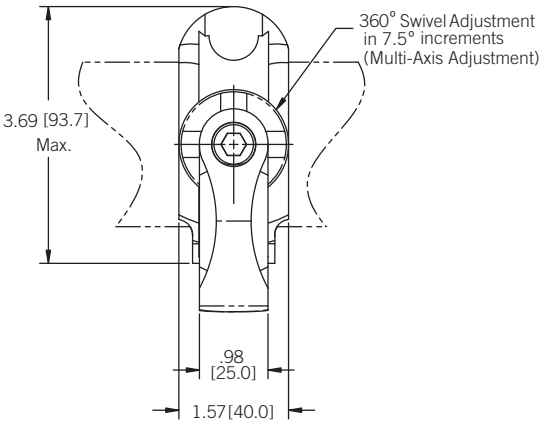
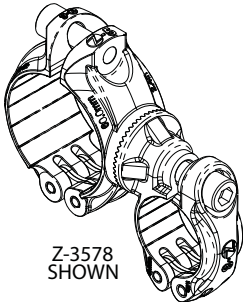
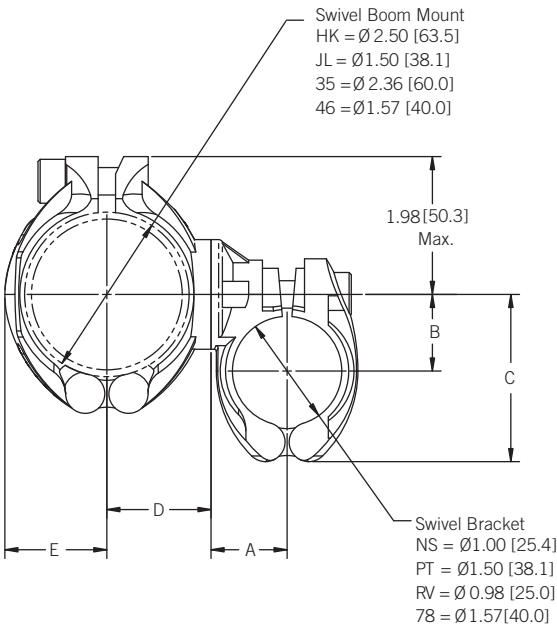
MATERIAL: STEEL

PART NO.	A	B	C	D	WEIGHT - LBS (KG)
Z-KK	-	-	-	1.50 [38.0]	1.14 [0.5]
Z-LL	-	-	-	1.00 [25.4]	0.90 [0.4]
Z-55	-	-	-	1.50 [38.0]	1.20 [0.5]
Z-66	-	-	-	1.00 [25.4]	0.87 [0.4]
Z-NS	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	-	0.56 [0.3]
Z-PT	1.09 [27.7]	1.06 [27.0]	2.32 [58.9]	-	0.68 [0.3]
Z-RV	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	-	0.56 [0.3]
Z-78	1.09 [27.7]	1.10 [27.9]	2.40 [61.0]	-	0.69 [0.3]
Z-MM	-	-	-	-	1.10 [0.5]

Poz-e-Lok™ Modular Tooling

Single Swivel Boom Mount

NORGREN TOOLING



ORDERING INFORMATION

Z - 3 5 7 8

SWIVEL BRACKET
NS = 1.0 INCH
PT = 1.5 INCH
RV = 25 MILLIMETERS
78 = 40 MILLIMETERS

SWIVEL BOOM MOUNT
HK = 2.5 INCH SINGLE
JL = 1.5 INCH SINGLE
35 = 60 MILLIMETER SINGLE
46 = 40 MILLIMETER SINGLE

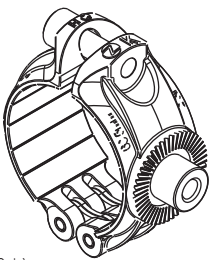
POZ-E-LOK
SINGLE SWIVEL BOOM MOUNT

MATERIAL: STEEL

PART NO.	A	B	C	D	E	WEIGHT - LBS [KG]
Z-HK	-	-	-	1.50 [38.0]	1.54 [39.2]	1.09 [0.5]
Z-JL	-	-	-	1.00 [25.4]	1.04 [26.5]	0.86 [0.4]
Z-35	-	-	-	1.50 [38.0]	1.46 [37.2]	1.10 [0.5]
Z-46	-	-	-	1.00 [25.4]	1.08 [27.4]	0.84 [0.4]
Z-NS	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	-	-	0.56 [0.3]
Z-PT	1.09 [27.7]	1.06 [27.0]	2.32 [58.9]	-	-	0.68 [0.3]
Z-RV	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	-	-	0.56 [0.3]
Z-78	1.09 [27.7]	1.10 [27.9]	2.40 [61.0]	-	-	0.69 [0.3]

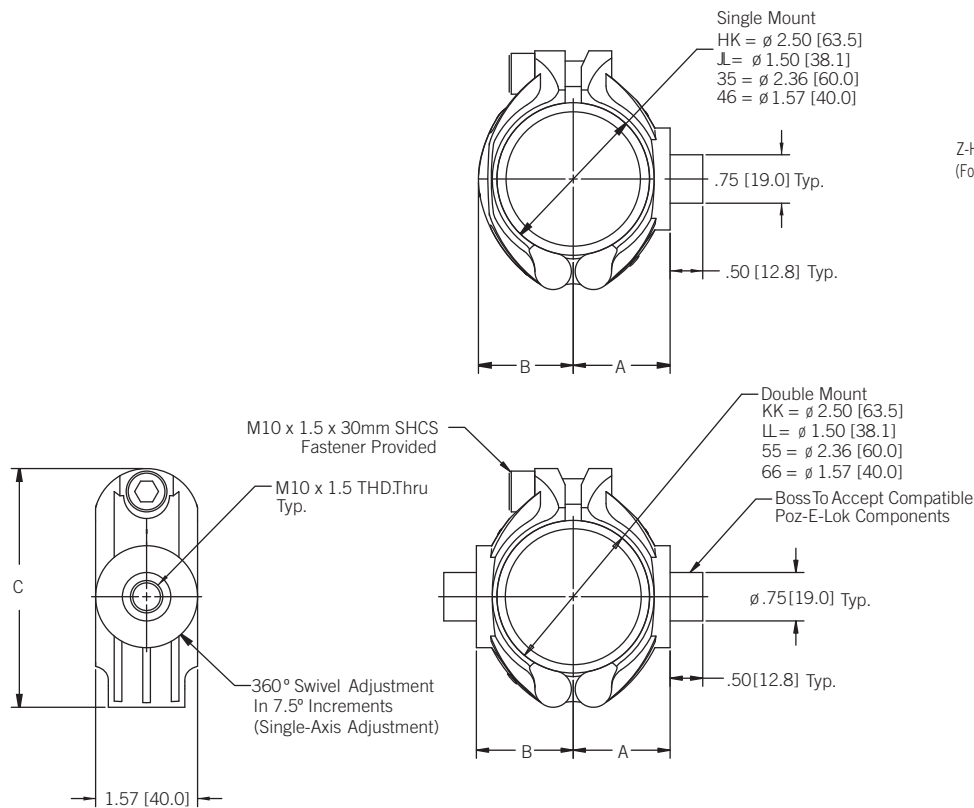
Poz-e-Lok™ Modular Tooling

Swivel Boom Mount

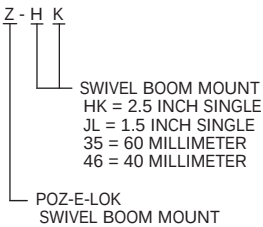


Z-HK Shown
(For Reference Only)

NORGREN TOOLING



ORDERING INFORMATION



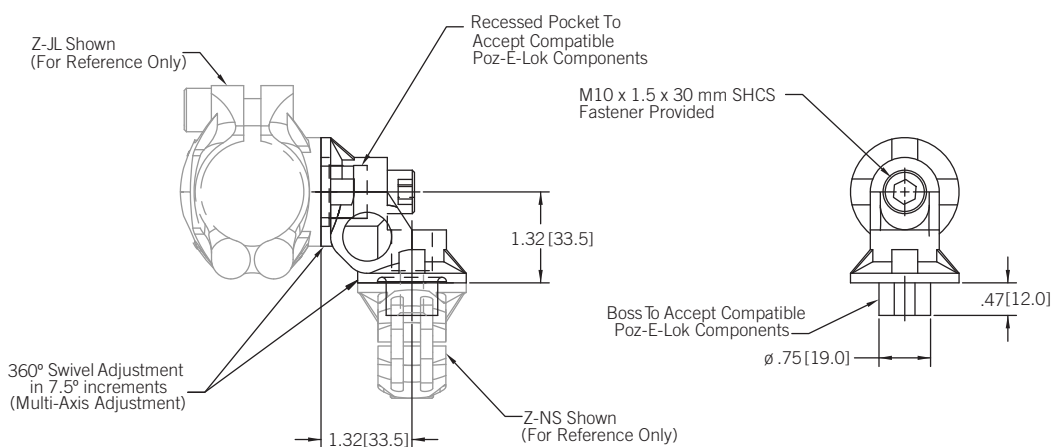
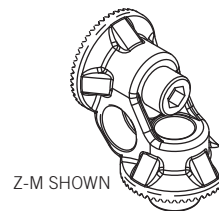
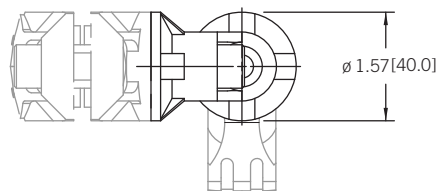
MATERIAL: STEEL

PART NO.	A	B	C	WEIGHT - LBS [KG]
Z-HK	1.50 [38.0]	1.54 [39.2]	3.76 [95.4]	1.09 [0.5]
Z-KK	1.50 [38.0]	1.50 [38.0]	3.76 [95.4]	1.14 [0.5]
Z-JL	1.00 [25.4]	1.04 [26.5]	2.80 [71.2]	0.86 [0.4]
Z-LL	1.00 [25.4]	1.00 [25.4]	2.80 [71.2]	0.90 [0.4]
Z-35	1.50 [38.0]	1.46 [37.2]	3.69 [93.7]	1.10 [0.5]
Z-55	1.50 [38.0]	1.50 [38.0]	3.69 [93.7]	0.55 [0.2]
Z-46	1.00 [25.4]	1.08 [27.4]	2.84 [72.2]	0.84 [0.4]
Z-66	1.00 [25.4]	1.00 [25.4]	2.84 [72.2]	0.87 [0.4]

Poz-e-Lok™ Modular Tooling

Swivel Adapter

NORGREN TOOLING

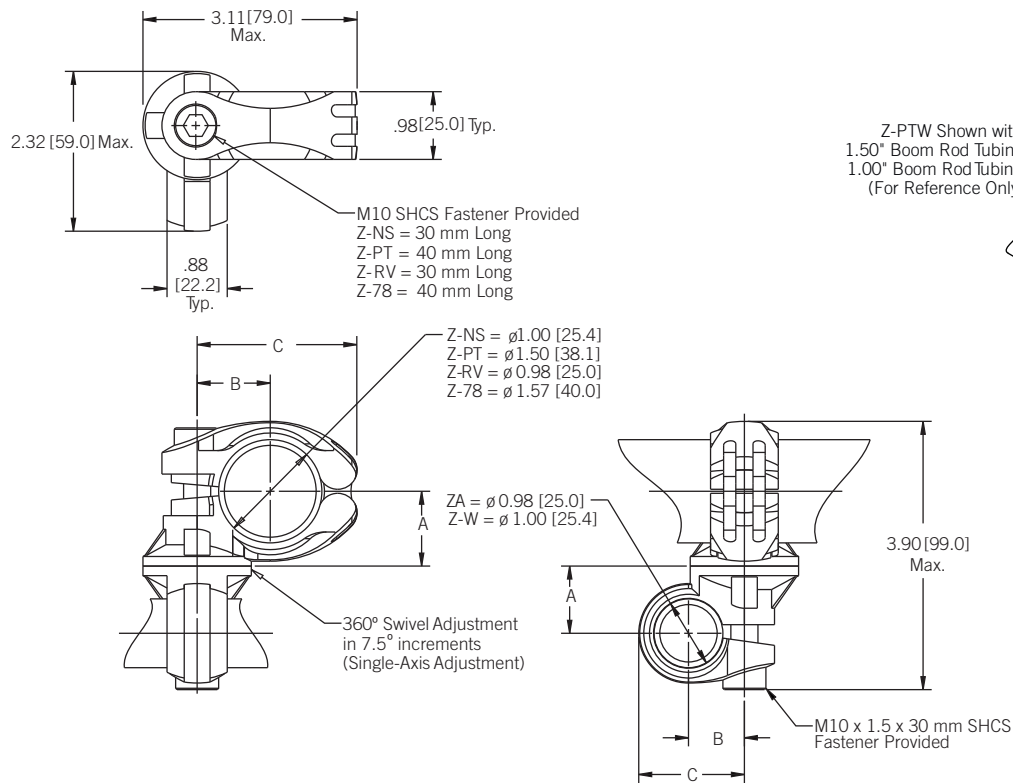


ORDERING INFORMATION

Z - M
 SWIVEL ADAPTER
 POZ-E-LOK
 SWIVEL BRACKET
 MATERIAL: STEEL

Poz-e-Lok™ Modular Tooling

Swivel Bracket



NORGREN TOOLING

ORDERING INFORMATION

Z - P - T - W

SWIVEL BRACKET
A = 25 MILLIMETER
W = 1.0 INCH

SWIVEL BOOM MOUNT
NS = 1.0 INCH
PT = 1.5 INCH
RV = 25 MILLIMETER
78 = 40 MILLIMETER

POZ-E-LOK
SWIVEL BRACKET

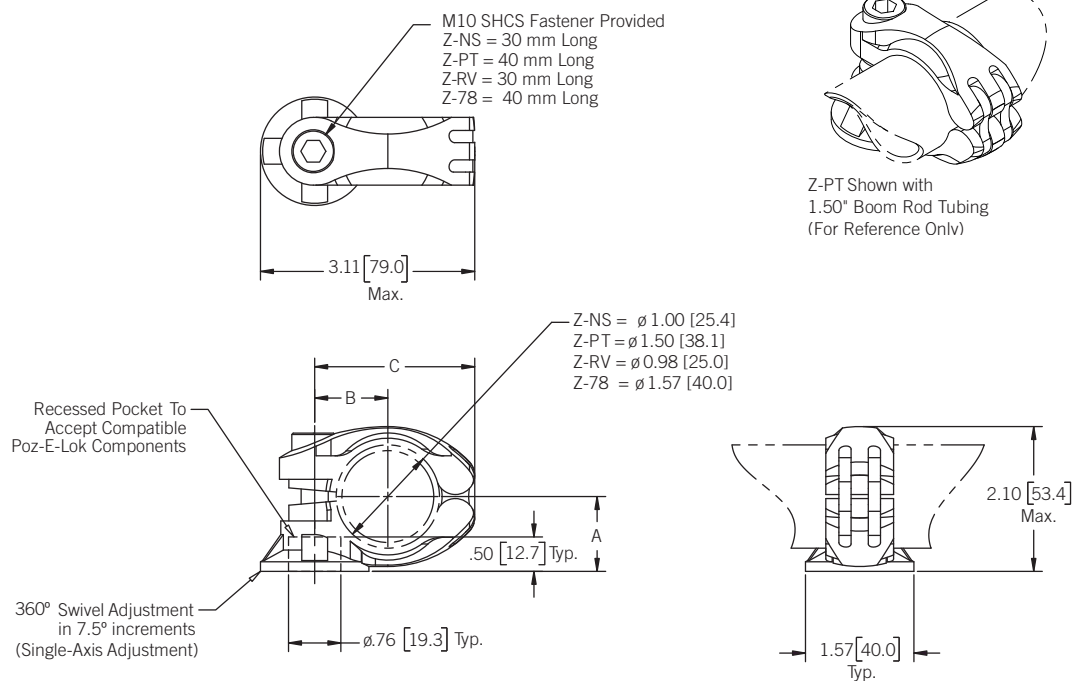
MATERIAL: STEEL

PART NO.	A	B	C	WEIGHT - LBS [KG]
Z-NS	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	0.56 [0.3]
Z-PT	1.09 [27.7]	1.06 [27.0]	2.32 [58.9]	0.68 [0.3]
Z-RV	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	0.56 [0.3]
Z-78	1.09 [27.7]	1.10 [27.0]	2.40 [61.0]	0.69 [0.3]
Z-A	0.98 [24.8]	0.81 [20.6]	1.54 [39.0]	0.48 [0.2]
Z-W	0.98 [24.8]	0.81 [20.6]	1.54 [39.0]	0.48 [0.2]

Poz-e-Lok™ Modular Tooling

Swivel Bracket

NORGREN TOOLING



ORDERING INFORMATION

Z - P T
SWIVEL BRACKET
NS = 1.0 INCH
PT = 1.5 INCH
RV = 25 MILLIMETER
78 = 40 MILLIMETER

POZ-E-LOK
SWIVEL BRACKET

MATERIAL: STEEL

PART NO.	A	B	C	WEIGHT - LBS [KG]
Z-NS	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	0.56 [0.3]
Z-PT	1.09 [27.7]	1.06 [27.0]	2.32 [58.9]	0.68 [0.3]
Z-RV	0.89 [22.5]	0.81 [20.6]	1.81 [45.9]	0.56 [0.3]
Z-78	1.09 [27.7]	1.10 [27.0]	2.40 [61.0]	0.69 [0.3]

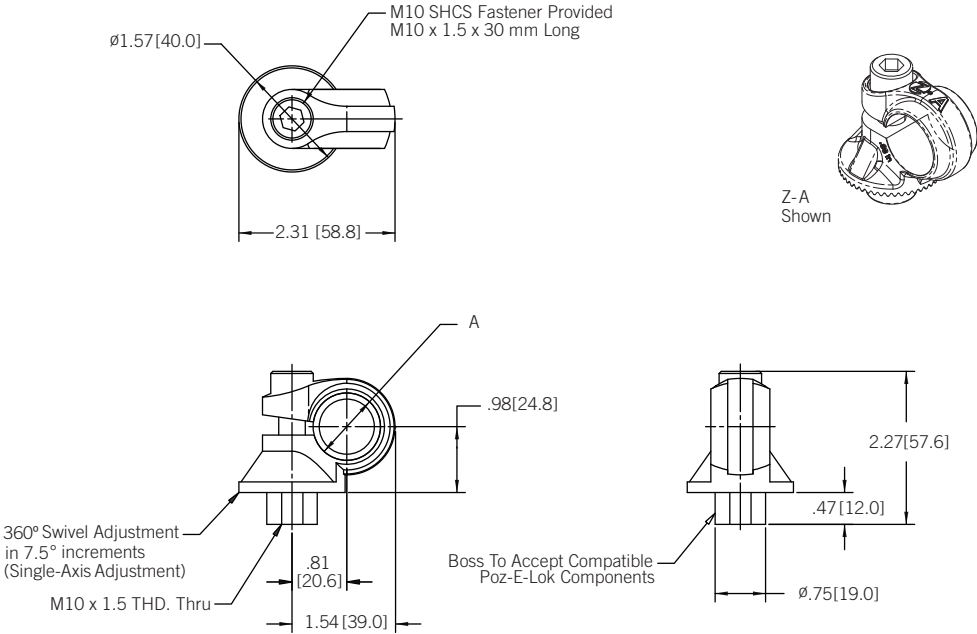
THIS PART CONNECTS WITH

Part No.
GC3-MB
GC4-MB

Poz-e-Lok™ Modular Tooling

Swivel Bracket Mount

NORGREN TOOLING



ORDERING INFORMATION

Z - A
ROD SIZE
A = 25 MILLIMETER
W = 1.0 INCH
POZ-E-LOK
SWIVEL BRACKET MOUNT
MATERIAL: STEEL

PART NO.	A	WEIGHT - LBS [KG]
Z-A	0.98 [25.0]	0.48 [0.2]
Z-W	1.00 [25.4]	0.48 [0.2]

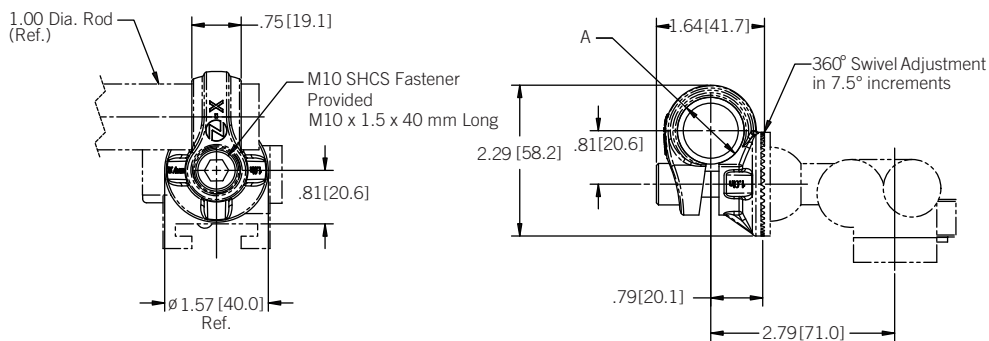
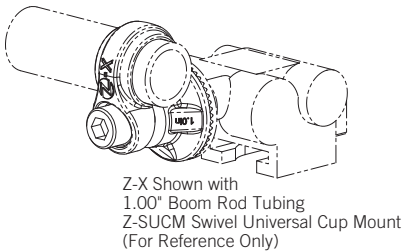
THIS PART CONNECTS WITH

Part No.
Z-NS
Z-PT
Z-RV
Z-78

Poz-e-Lok™ Modular Tooling

Swivel Mount Adapter

NORGREN TOOLING



ORDERING INFORMATION

Z - X
└─ ROD SIZE
 E = 25 MILLIMETER
 X = 1.0 INCH
└─ POZ-E-LOK
 SWIVEL MOUNT ADAPTER
MATERIAL: STEEL

PART NO.	A	WEIGHT - LBS [KG]
Z-X	1.00 [25.4]	0.34 [0.2]
Z-E	0.98 [25.0]	0.34 [0.2]

THIS PART CONNECTS WITH

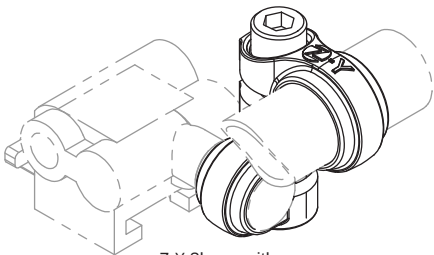
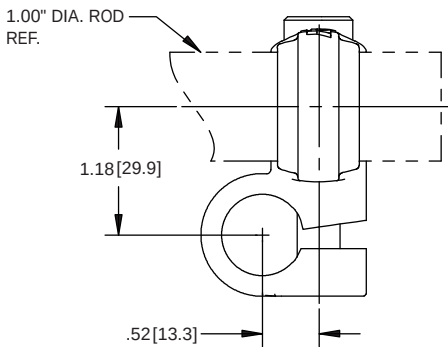
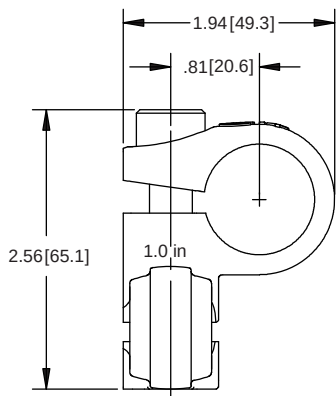
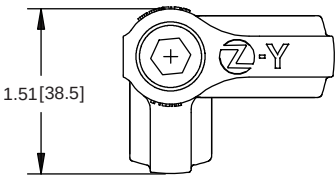
Part No.
Z-SUCM
Z-SVCMB
Z-SPSM

THIS PART DOES NOT CONNECT WITH

Part No.
Z-A
Z-W

Poz-e-Lok™ Modular Tooling

Core Venturi Adapter



Z-Y Shown with
1.00" Boom Tubing and
Z-CUCM Cup Mount
(For Reference Only)

NORGREN TOOLING

ORDERING INFORMATION

Z - Y
└─ ROD SIZE
 U = 25 MILLIMETER
 Y = 1.0 INCH
└─ POZ-E-LOK
 CORE VENTURI ADAPTER
MATERIAL: STEEL

PART NO.	A	WEIGHT - LBS [KG]
Z-U	0.98 [25.0]	0.46 [0.2]
Z-Y	1.00 [25.4]	0.46 [0.2]

THIS PART CONNECTS WITH

Part No.
Z-CVCMB
Z-CUCM

Poz-e-Lok™ Modular Tooling

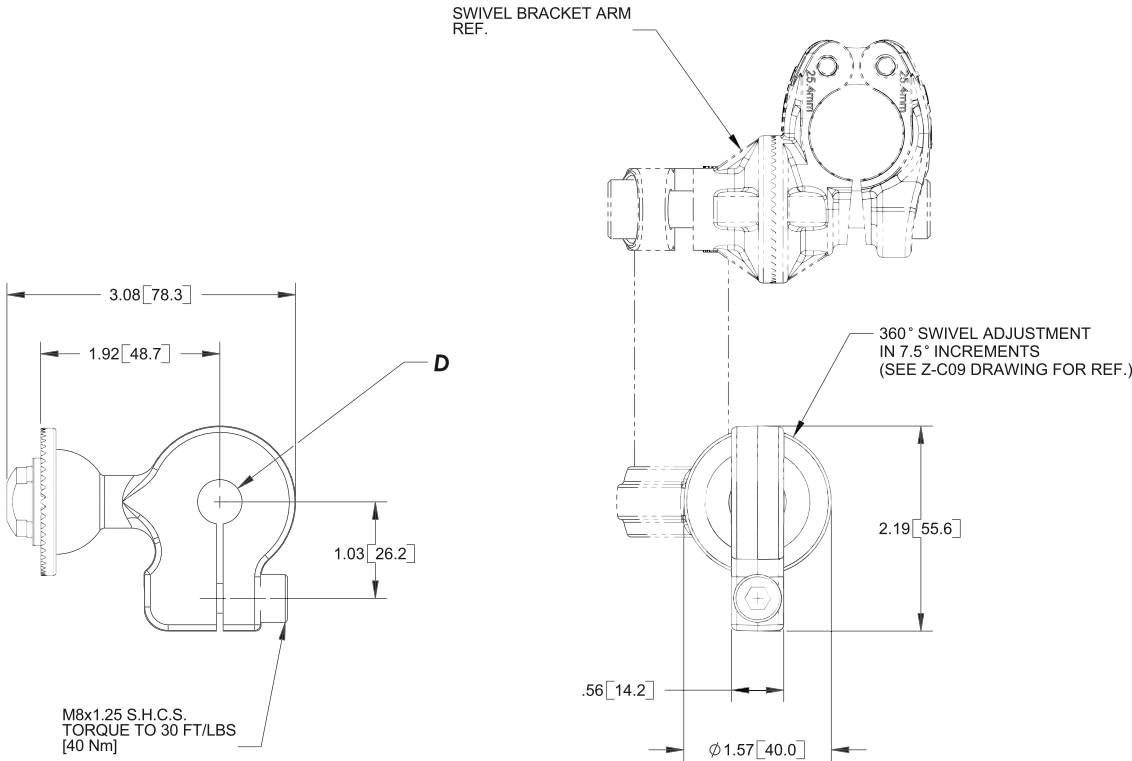
Compatibility Matrix

NORGREN TOOLING

Poz-E-Lok Compatibility Matrix	BOOM MOUNTS								ADAPTER	SWIVELS				SWIVEL BRACKET MOUNTS		VENTURI ADAPTERS	
	Z-HK	Z-KK	Z-JL	Z-LL	Z-35	Z-55	Z-46	Z-66		Z-M	Z-NS	Z-PT	Z-R V	Z-78	Z-A	Z-W	Z-X
BOOM MOUNTS	Z-HK									✓	✓	✓	✓				
	Z-KK								✓	✓	✓	✓	✓				
	Z-JL								✓	✓	✓	✓	✓				
	Z-LL								✓	✓	✓	✓	✓				
	Z-35								✓	✓	✓	✓	✓				
	Z-55								✓	✓	✓	✓	✓				
Z-46								✓	✓	✓	✓	✓					
Z-66									✓	✓	✓	✓	✓				
ADAPTER	Z-M	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓				
SWIVELS	Z-NS	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓		
	Z-PT	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓		
	Z-RV	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓		
	Z-78	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓		
SWIVEL BRACKET MOUNTS	Z-A									✓	✓	✓	✓				
	Z-W									✓	✓	✓	✓				
VENTURI ADAPTERS	Z-X																
	Z-Y																

Poz-e-Lok™ Modular Tooling
Swivel Proximity Switch Mount
Z-SPSM-12 Overall Dimensions

NORGREN TOOLING



ORDERING INFORMATION

Z - XSPSM
└ SWIVEL PROXIMITY SWITCH MOUNT
└ POZ-E-LOK

MATERIAL: ALUMINUM/STEEL
WEIGHT: 0.3 LBS [0.14 KG]

PART NO.	D	WEIGHT
Z-SPSM-12	12 mm	.29 lbs [.13 kg]
Z-SPSM-18	18 mm	.28 lbs [.13 kg]
Z-SPSM-25	25 mm	.26 lbs [.12 kg]
Z-SPSM-30	30 mm	.24 lbs [.11 kg]

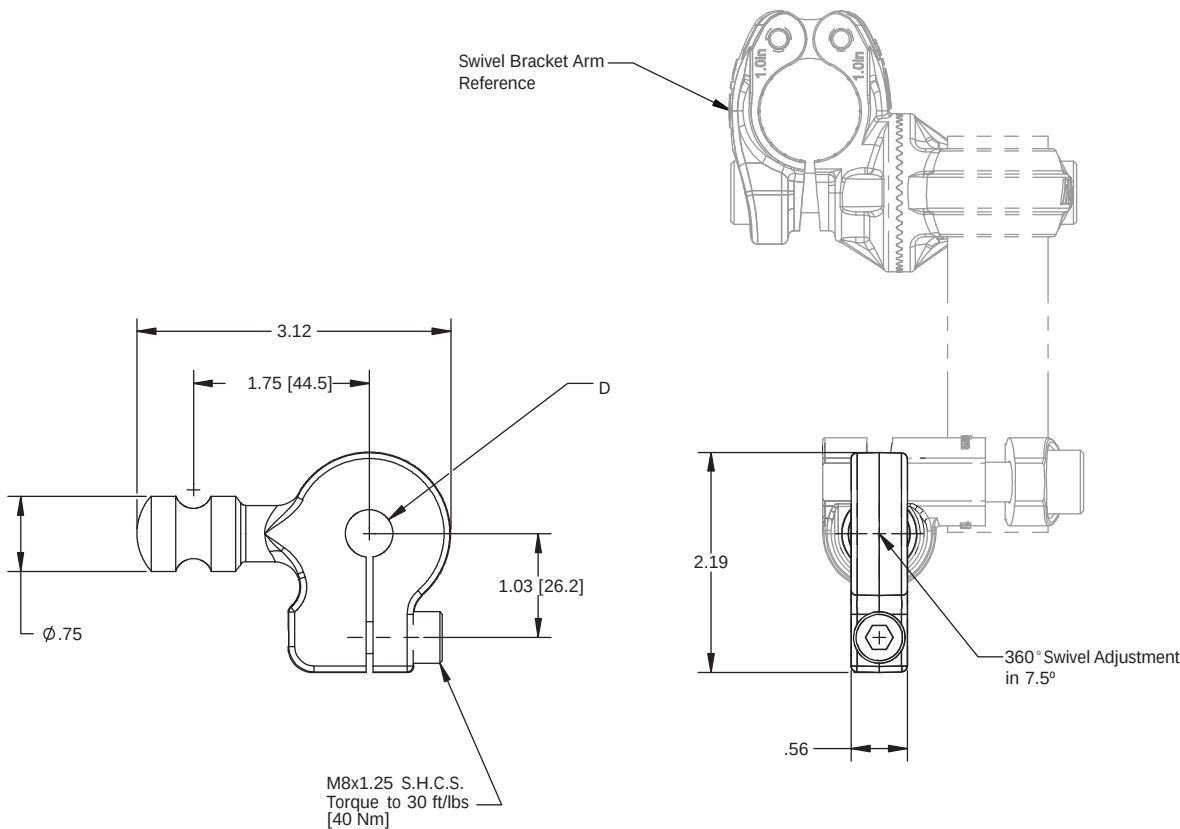
THIS PART CONNECTS WITH

Z-X
Z-E
Z-PT
Z-NS
Z-RV
Z-78

Poz-e-Lok™ Modular Tooling

Core Proximity Switch Mount
Z-CPSM-12 Overall Dimensions

NORGREN TOOLING



ORDERING INFORMATION

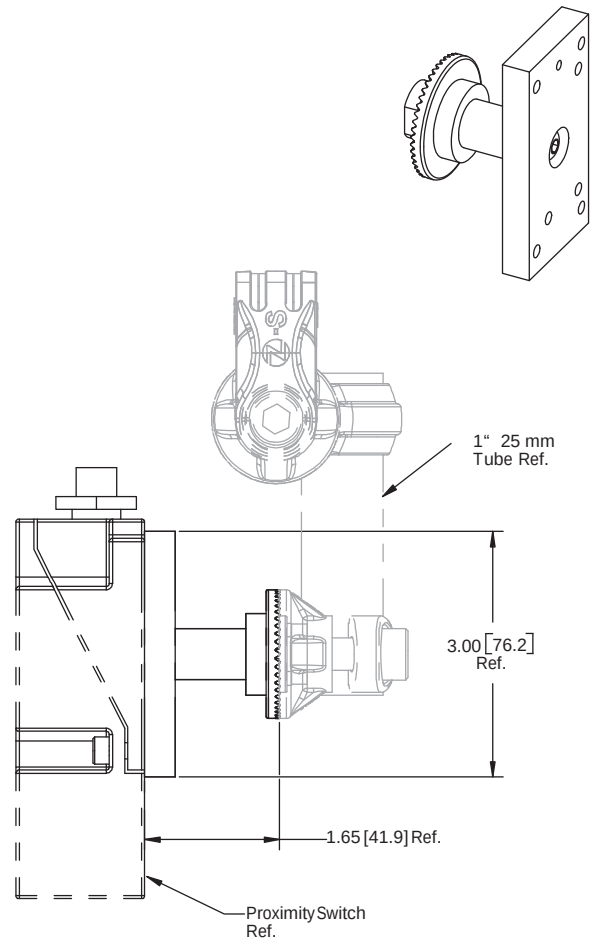
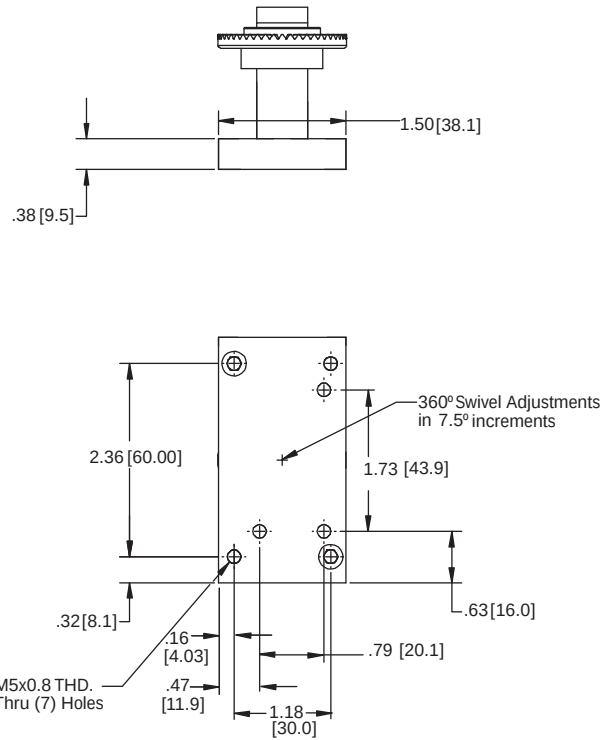
Z - CPSM - 12
└─ DIAMETER OF PROXIMITY SWITCH
└─ SWIVEL PROXIMITY SWITCH MOUNT
└─ POZ-E-LOK

PART NO.	D	WEIGHT
Z-CPSM-12	12 mm	0.22
Z-CPSM-18	18 mm	0.20
Z-CPSM-25	25 mm	0.18
Z-CPSM-30	30 mm	0.17

MATERIAL: ALUMINUM/STEEL
WEIGHT: SEE CHART

Poz-e-Lok™ Modular Tooling

Swivel Proximity Switch Mount Plate
Z-XSPSM Overall Dimensions



ORDERING INFORMATION

Z - XSPSM
SWIVEL PROXIMITY SWITCH MOUNT
POZ-E-LOK

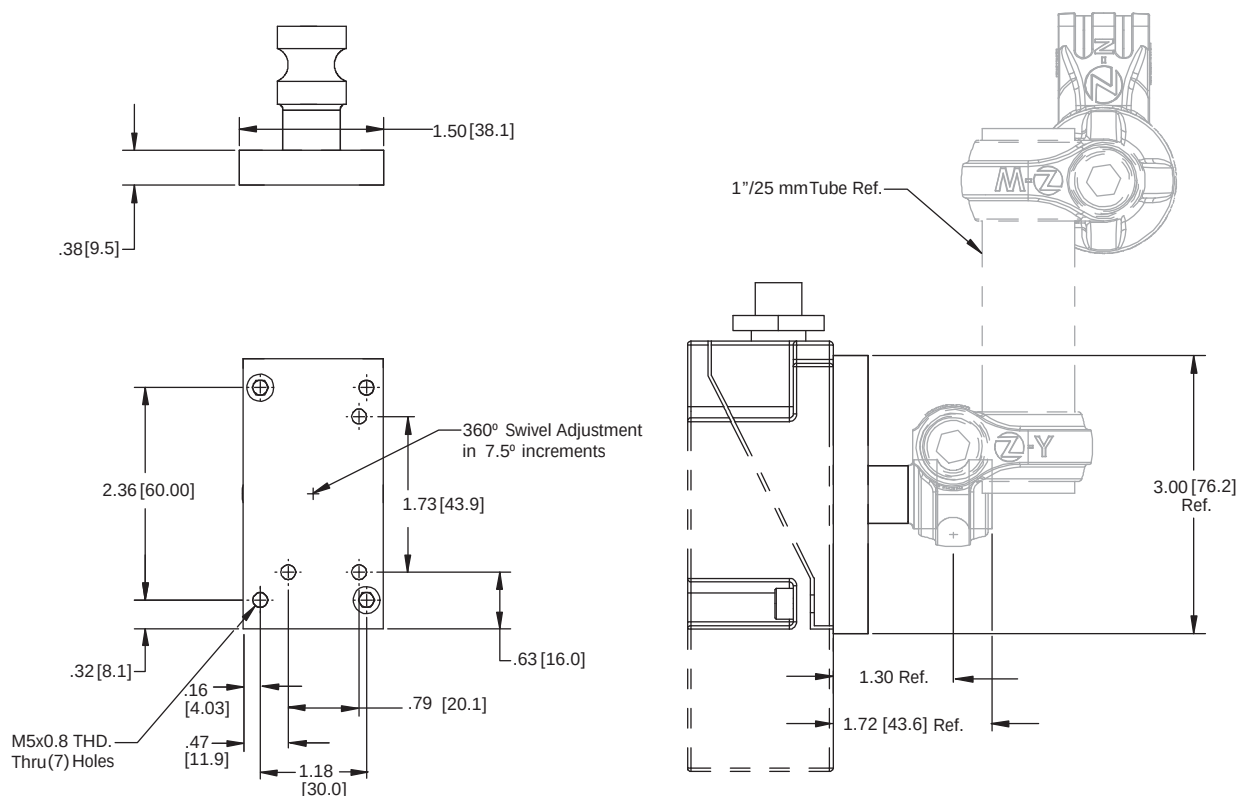
MATERIAL: ALUMINUM/STEEL
WEIGHT: 0.3 LBS [0.14 KG]

Poz-e-Lok™ Modular Tooling

Core Proximity Switch Mount Plate

Z-XCPSM Overall Dimensions

NORGREN TOOLING



ORDERING INFORMATION

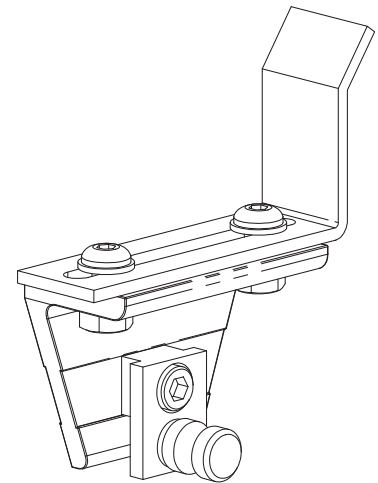
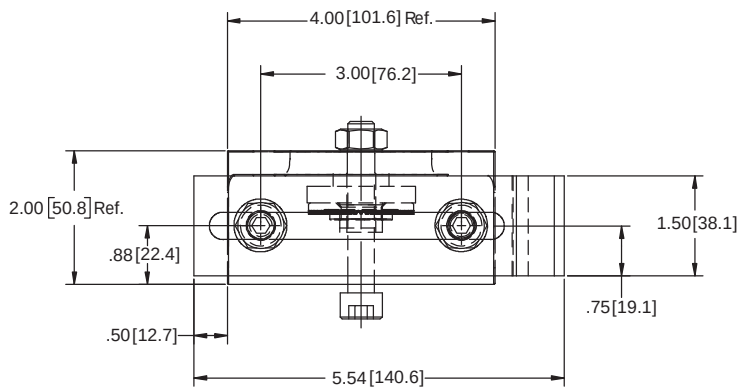
Z - XCPSM
 └ SWIVEL PROXIMITY SWITCH MOUNT
 └ POZ-E-LOK

MATERIAL: ALUMINUM/STEEL
 WEIGHT: 0.22 LBS [0.10 KG]

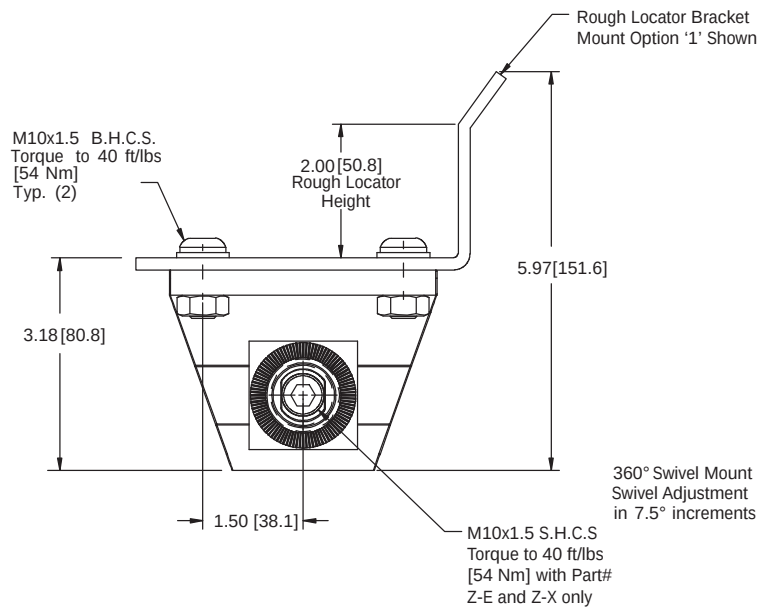
Poz-e-Lok™ Modular Tooling

Z-Nest™ Core Angle Bracket Mount

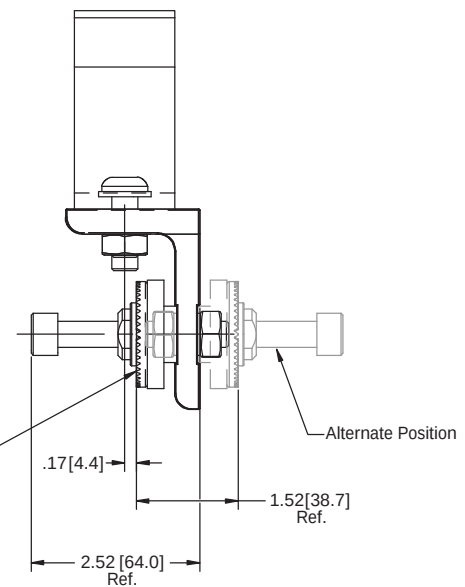
Z-CAMB4 Overall Dimensions



NORGREN TOOLING



360° Swivel Mount
Swivel Adjustment
in 7.5° increments



ORDERING INFORMATION

Z - CAMB4 - 1
 LOCATOR OPTIONS
 0 = NONE
 1 = 2" HEIGHT - 90° ANGLE (290)
 2 = 6" HEIGHT - 90° ANGLE (690)
 CORE ANGLE MOUNT BRACKET
 POZ-E-LOK

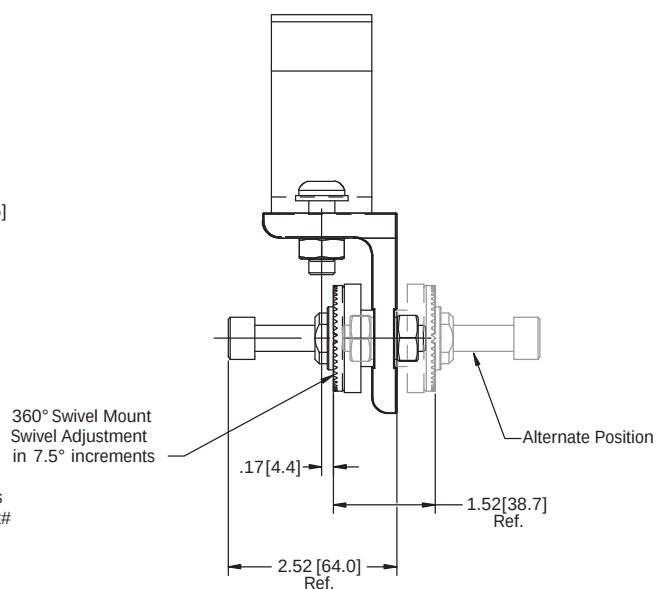
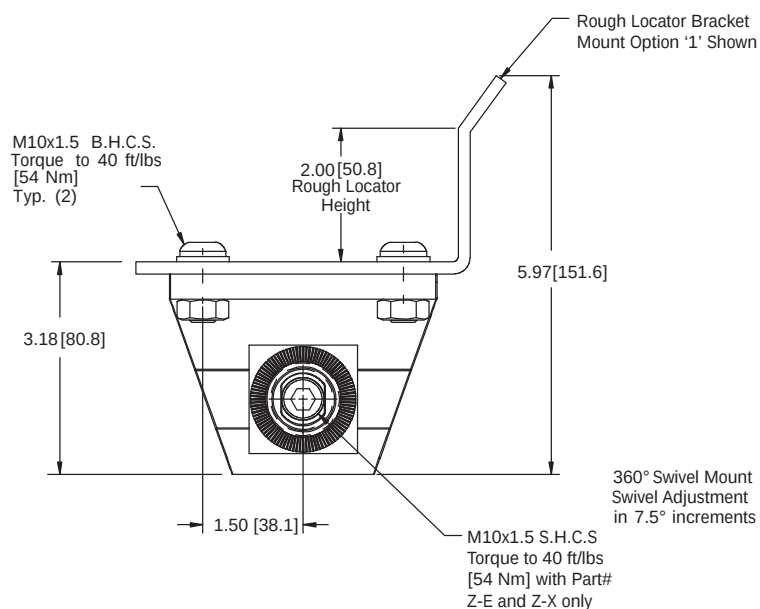
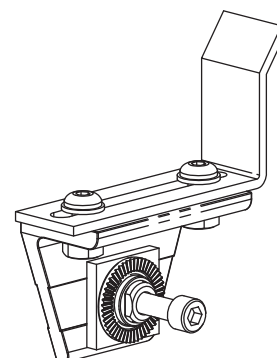
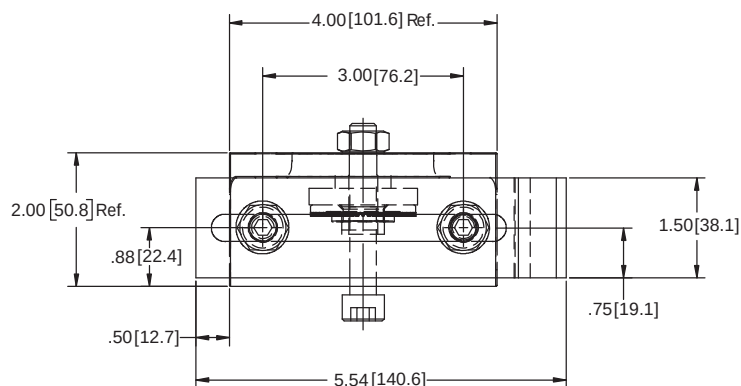
MATERIAL: ALUMINUM/STEEL
 WEIGHT: 1.3 LBS [0.6 KG]

Poz-e-Lok™ Modular Tooling

Z-Nest™ Swivel Angle Bracket Mount

Z-SAMB4 Overall Dimensions

NORGREN TOOLING



ORDERING INFORMATION

Z - SAMB4 - 1

SWIVEL ANGLE MOUNT BRACKET

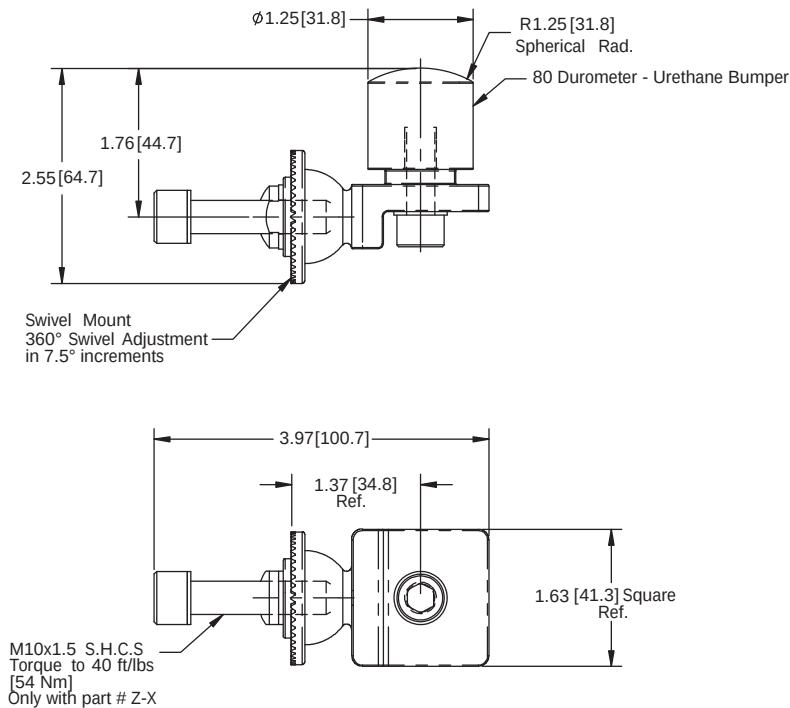
POZ-E-LOK

MATERIAL: ALUMINUM/STEEL
WEIGHT: 0.3 LBS [0.14 KG]

Poz-e-Lok™ Modular Tooling

Z-Nest™ Horizontal Bumper Assembly
Z-SHBA Overall Dimensions

NORGREN TOOLING

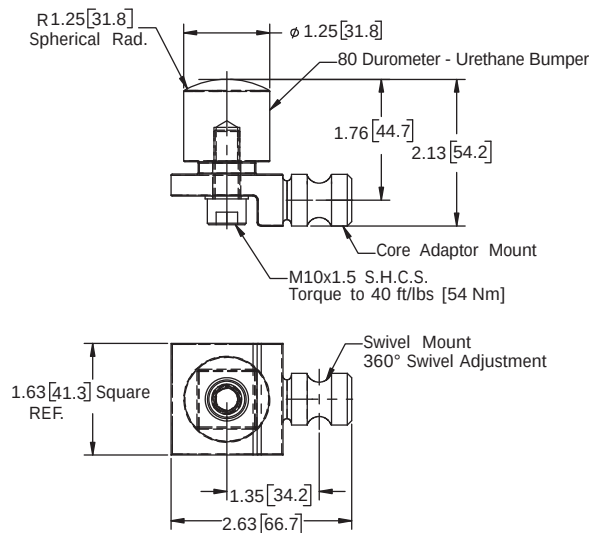


ORDERING INFORMATION

Z - SHBA
SWIVEL HORIZONTAL BUMPER ASSEMBLY
POZ-E-LOK

MATERIAL: STEEL/URETHANE
WEIGHT: 0.4 LBS [0.9 KG]

Z-CHBA Overall Dimensions



ORDERING INFORMATION

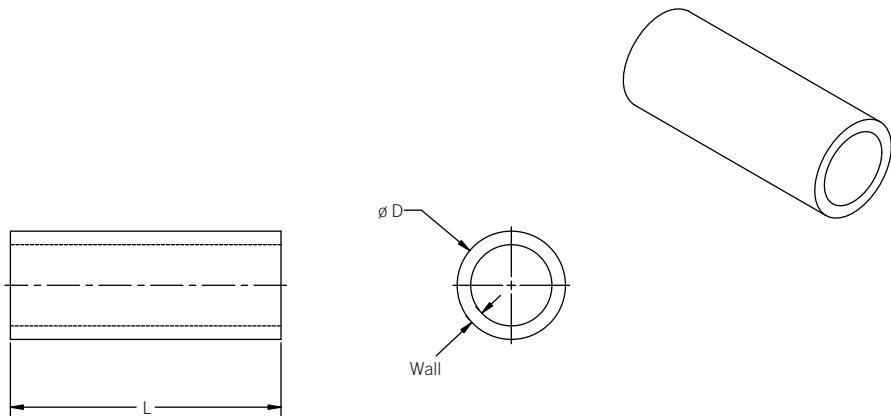
Z - CHBA
CORE HORIZONTAL BUMPER ASSEMBLY
POZ-E-LOK

MATERIAL: STEEL/URETHANE
WEIGHT: 0.24 LBS [0.11 KG]

Poz-e-Lok™ Modular Tooling

Boom Rod Tubing

NORGREN TOOLING



ORDERING INFORMATION

Z - 25MM - S - L

TUBING LENGTH IN MILLIMETERS

MATERIAL
S = STEEL
A = ALUMINUM

25MM = Ø25 mm
40MM = Ø40 mm
60MM = Ø60 mm
10 = Ø1.00 in
15 = Ø1.50 in
25 = Ø2.50 in

POZ-E-LOK
BOOM ROD TUBING

English Tubing

PART NO.	Ø D	D ± TOLERANCE	WALL	LENGTH L	WEIGHT - LBS/FT [KG/M]
Z-10-A	1.00 [25.4]	0.005 [0.13]	0.25 [6.4]	100 - 900 in 50 mm increments	0.69 [1.03]
Z-10-S		0.002 [0.05]	0.11 [2.8] (12 Ga.)		1.03 [1.54]
Z-15-A	1.50 [38.1]	0.012 [0.30]	0.20 [5.0]	100 - 1200 in 100 mm increments	1.15 [1.72]
Z-15-S		0.002 [0.05]	0.10 [2.5] (14 Ga.)		1.26 [1.87]
Z-25-A	2.50 [63.5]	0.015 [0.38]	0.20 [5.0]	100 - 1500 in 300 mm increments	2.07 [3.09]
Z-25-S		0.004 [0.10]	0.10 [2.5] (14 Ga.)		2.14 [3.20]

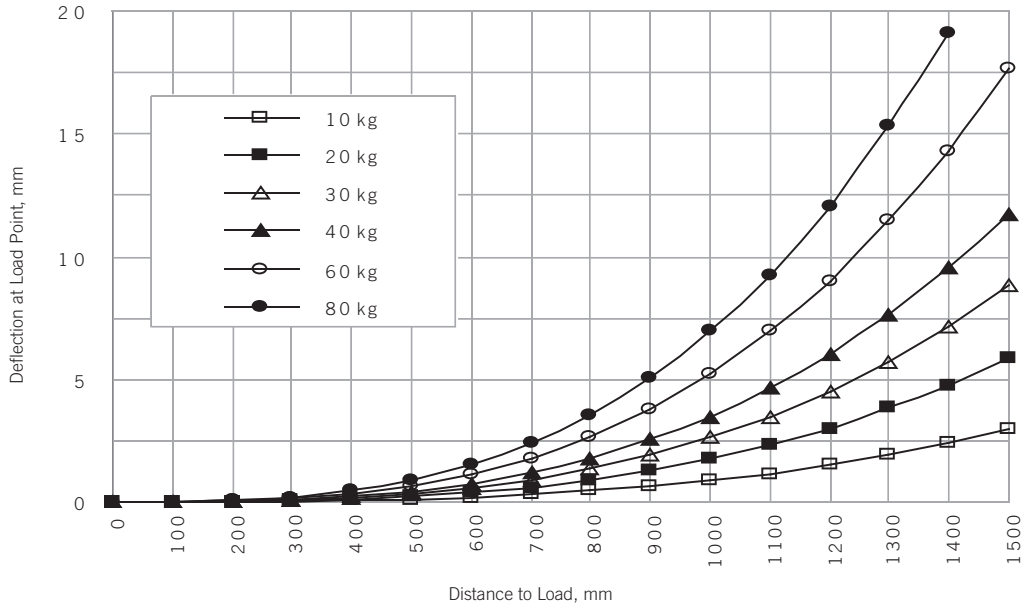
Metric Tubing

PART NO.	Ø D	D ± TOLERANCE	WALL	LENGTH L	WEIGHT - LBS/FT [KG/M]
Z-25MM-A	0.98 [25.0]	0.005 [0.13]	0.24 [6.2]	100 - 900 in 50 mm increments	0.66 [0.99]
Z-25MM-S		0.003 [0.08]	0.10 [2.5]		1.93 [1.38]
Z-40MM-A	1.57 [40.0]	0.006 [0.15]	0.20 [5.0]	100 - 1200 in 100 mm increments	1.00 [1.49]
Z-40MM-S			0.10 [2.5]		1.55 [2.31]
Z-60MM-A	2.36 [60.0]	0.015 [0.38]	0.20 [5.0]	100 - 1500 in 300 mm increments	1.57 [2.34]
Z-60MM-S		0.010 [0.25]	0.10 [2.5]		2.38 [3.55]

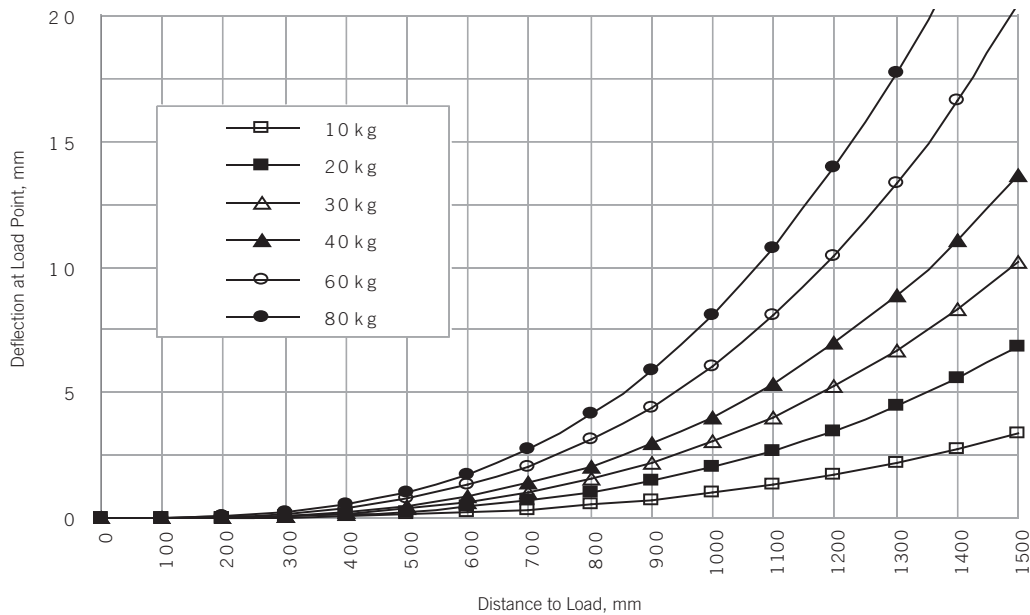
Poz-e-Lok™ Modular Tooling

2.50" Boom Tubing
Deflection Charts

2.50 INCH DIAMETER STEEL TUBING (Z-25-S)



2.50 INCH DIAMETER ALUMINUM TUBING (Z-25-A)

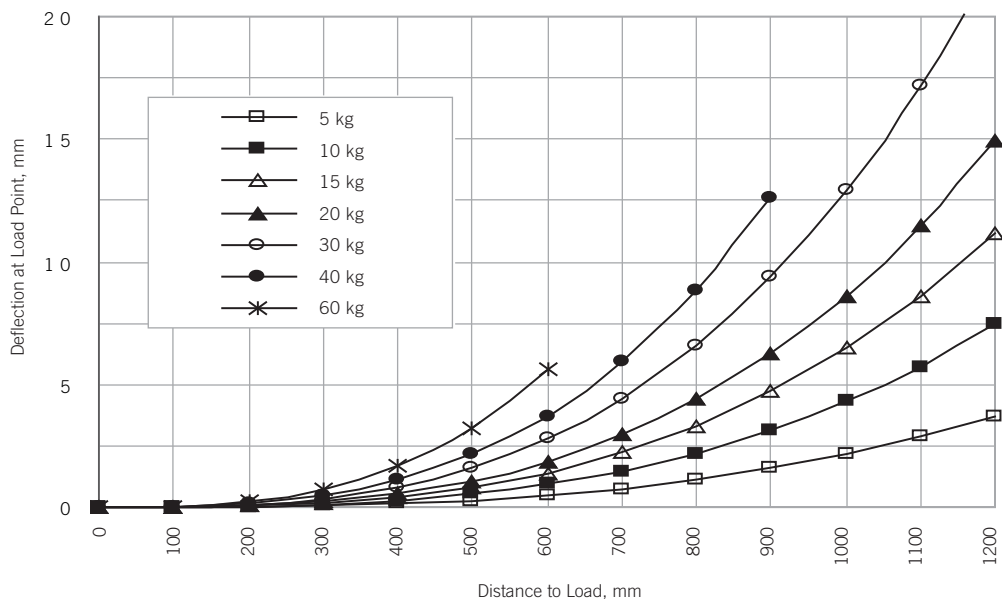


Poz-e-Lok™ Modular Tooling

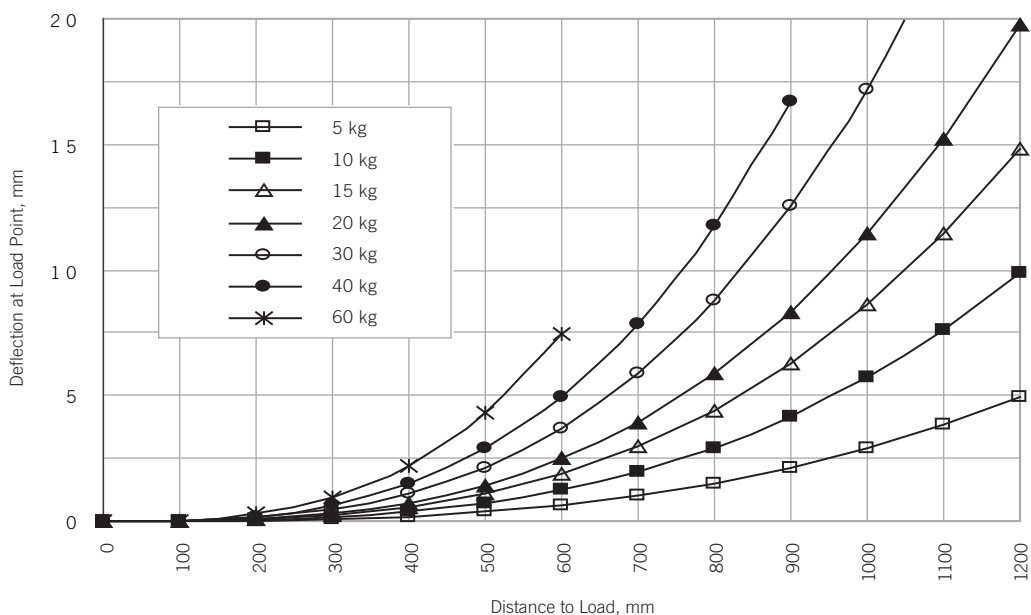
1.50" Boom Tubing

Deflection Charts

1.50 INCH DIAMETER STEEL TUBING (Z-15-S)



1.50 INCH DIAMETER ALUMINUM TUBING (Z-15-A)

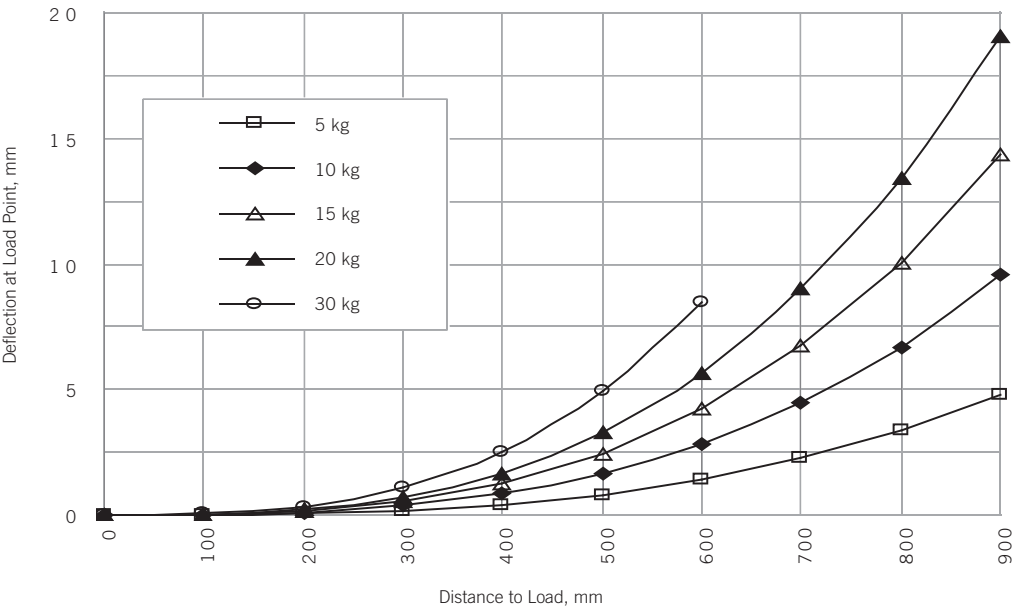


Poz-e-Lok™ Modular Tooling

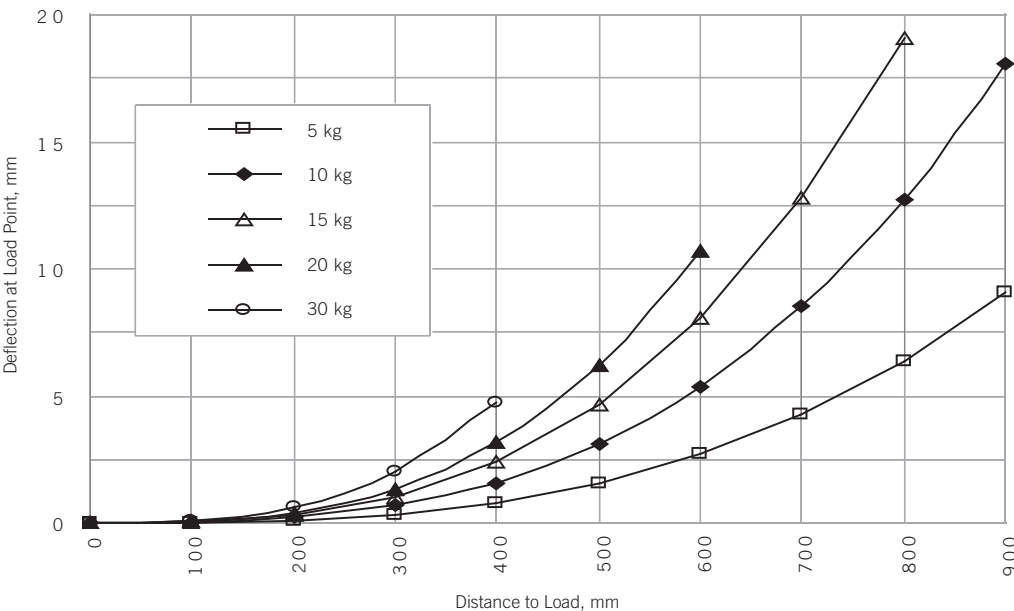
1.00" Boom Tubing
Deflection Charts

NORGREN TOOLING

1.00 INCH DIAMETER STEEL TUBING (Z-10-S)



1.00 INCH DIAMETER ALUMINUM TUBING (Z-10-A)

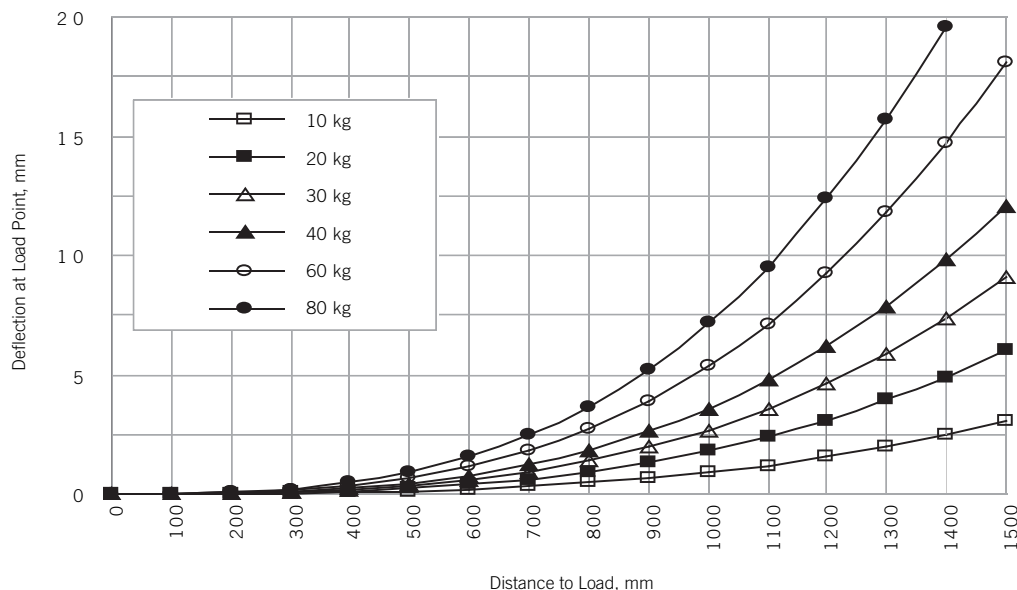


Poz-e-Lok™ Modular Tooling

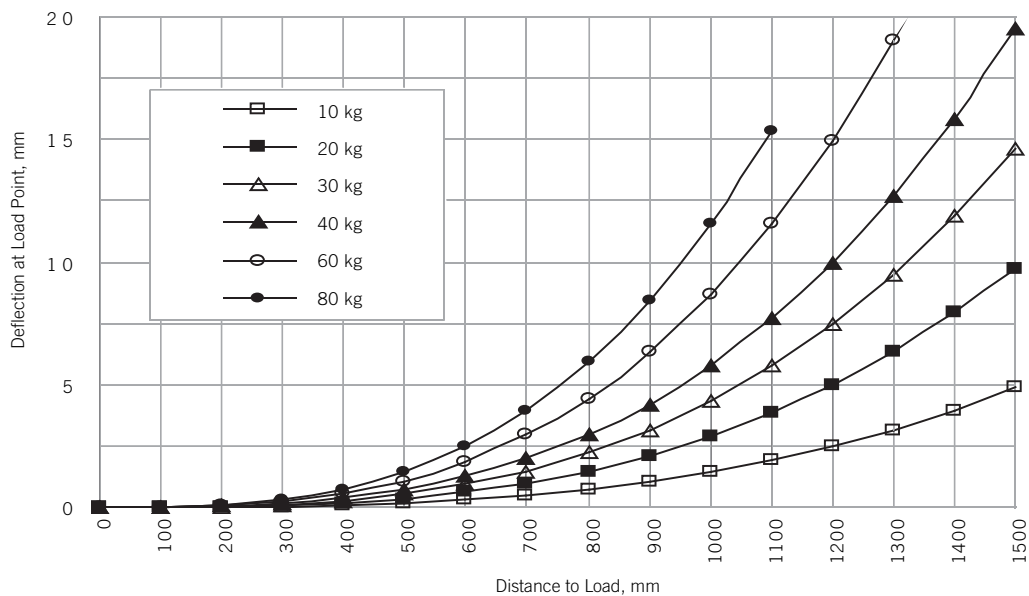
60 mm Boom Tubing

Deflection Charts

60 MM DIAMETER STEEL TUBING (Z-60 MM-S)



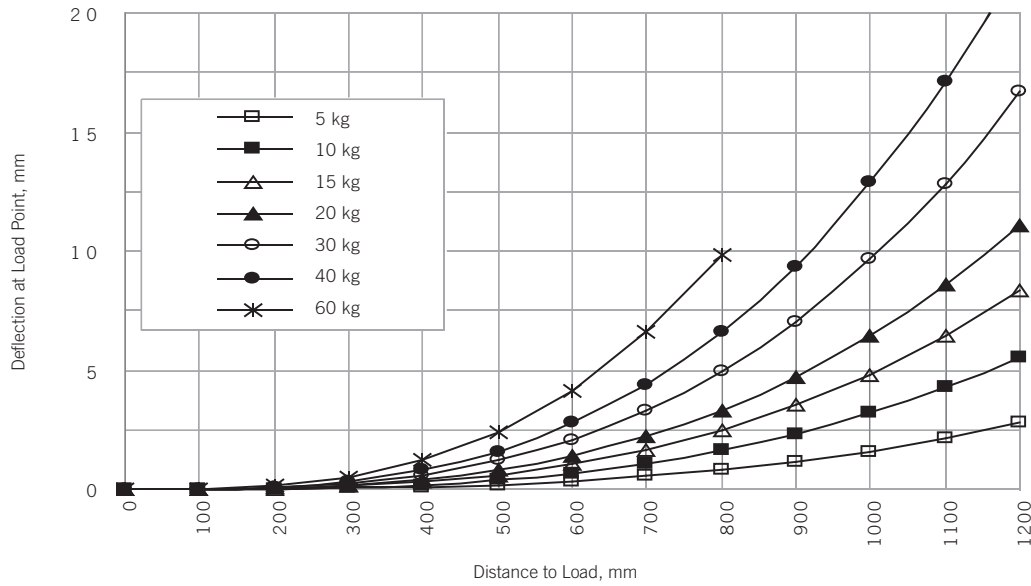
60 MM DIAMETER ALUMINUM TUBING (Z-60 MM-A)



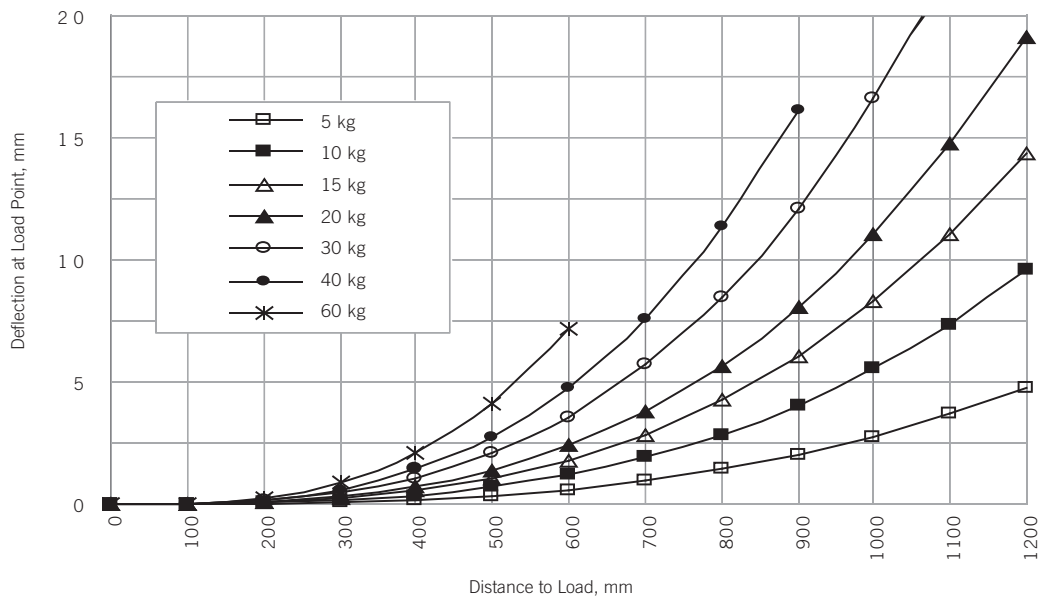
Poz-e-Lok™ Modular Tooling

40 mm Boom Tubing
Deflection Charts

40 MM DIAMETER STEEL TUBING (Z-40 MM-S)



40 MM DIAMETER ALUMINUM TUBING (Z-40 MM-A)

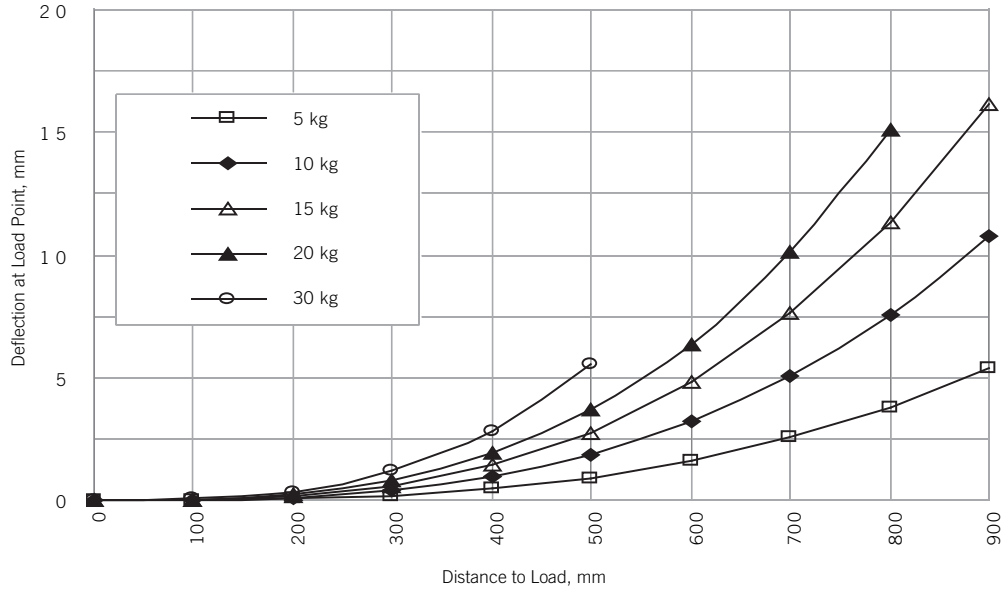


Poz-e-Lok™ Modular Tooling

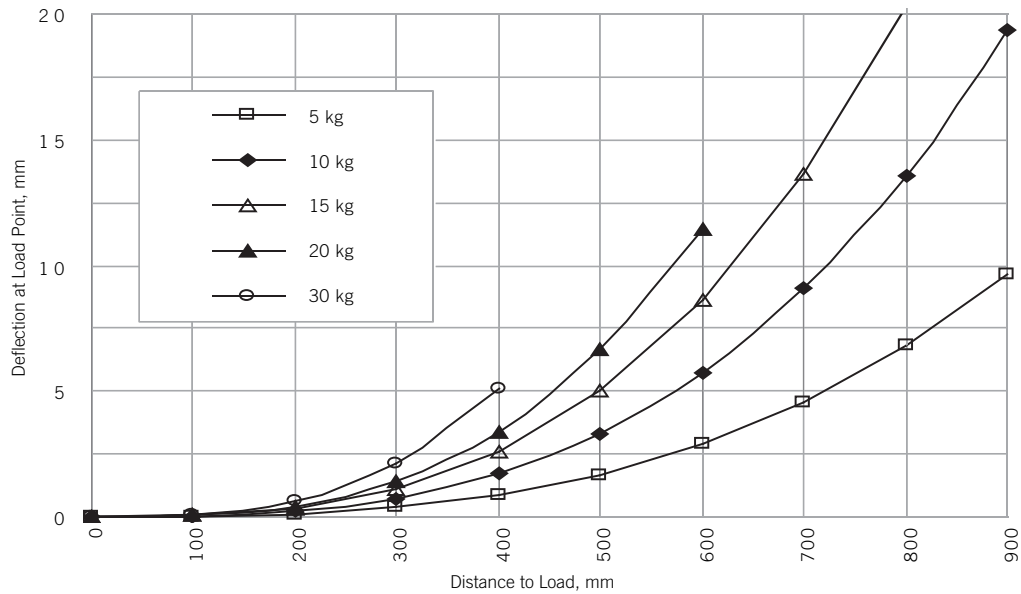
25 mm Boom Tubing

Deflection Charts

25 MM DIAMETER STEEL TUBING (Z-25 MM-S)

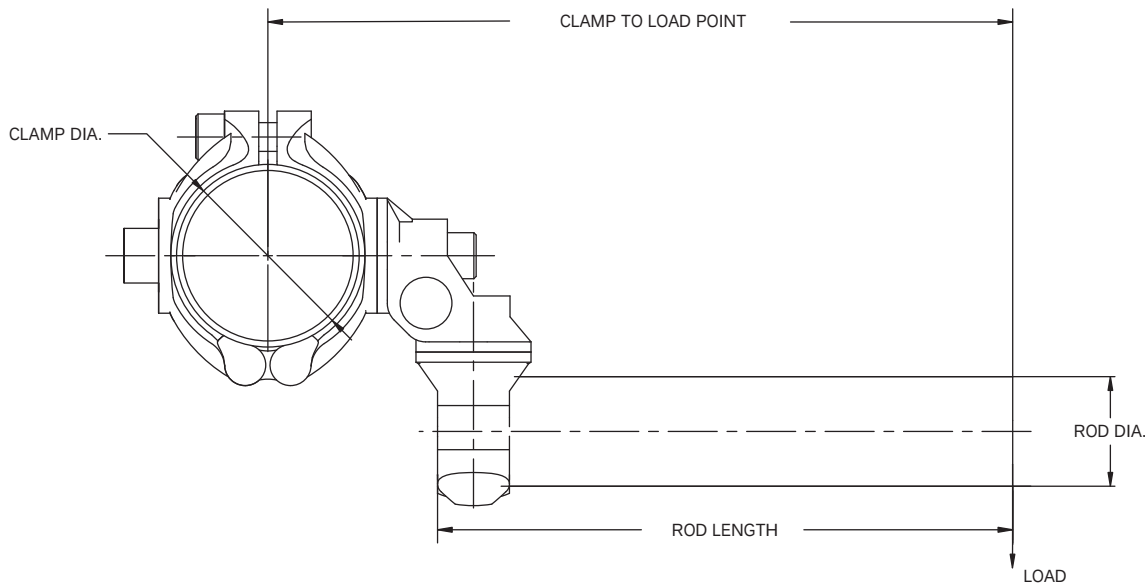


25 MM DIAMETER ALUMINUM TUBING (Z-25 MM-A)

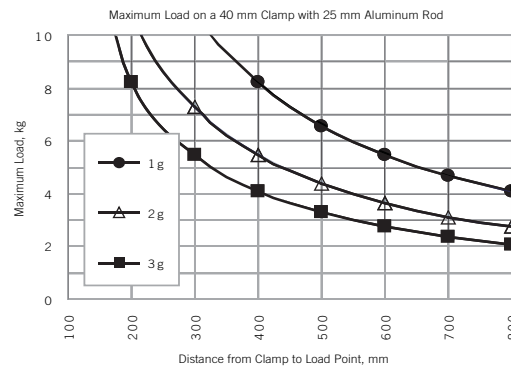
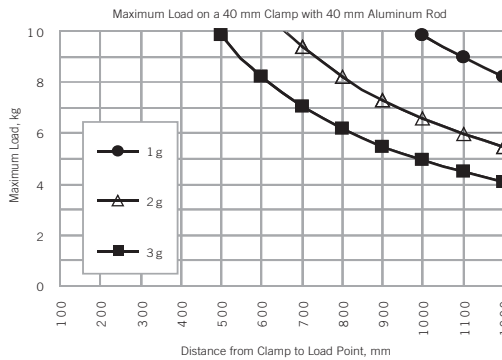
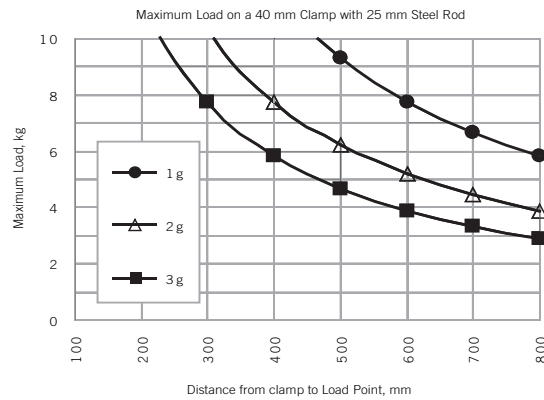
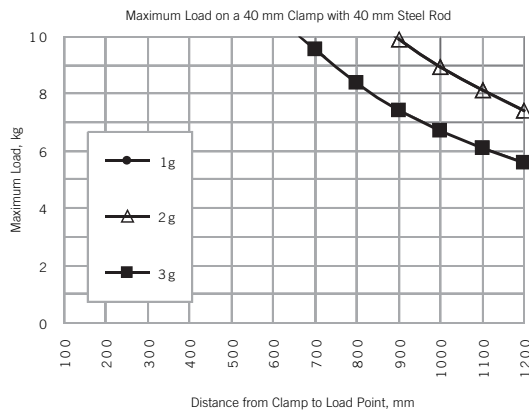


Poz-e-Lok™ Modular Tooling

40 mm Swivel Boom Mount
Moment Load Charts



NORGREN TOOLING



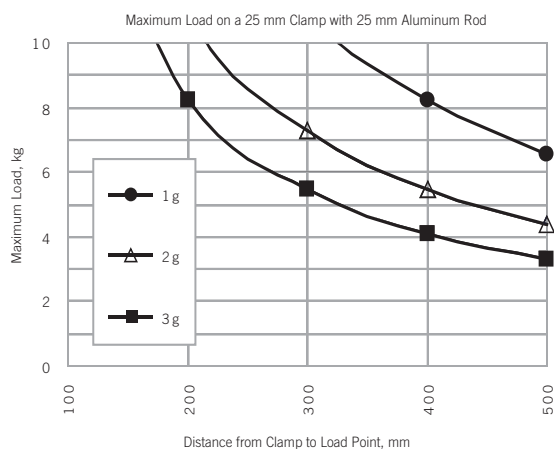
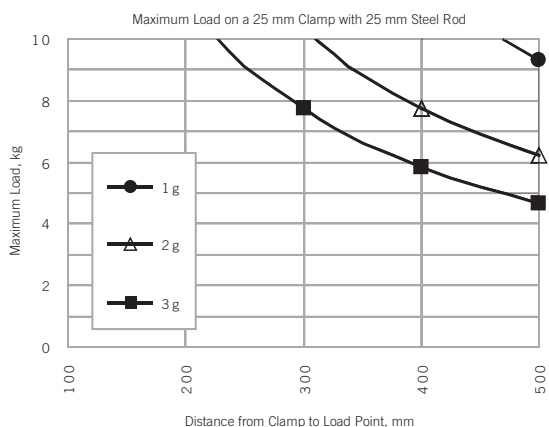
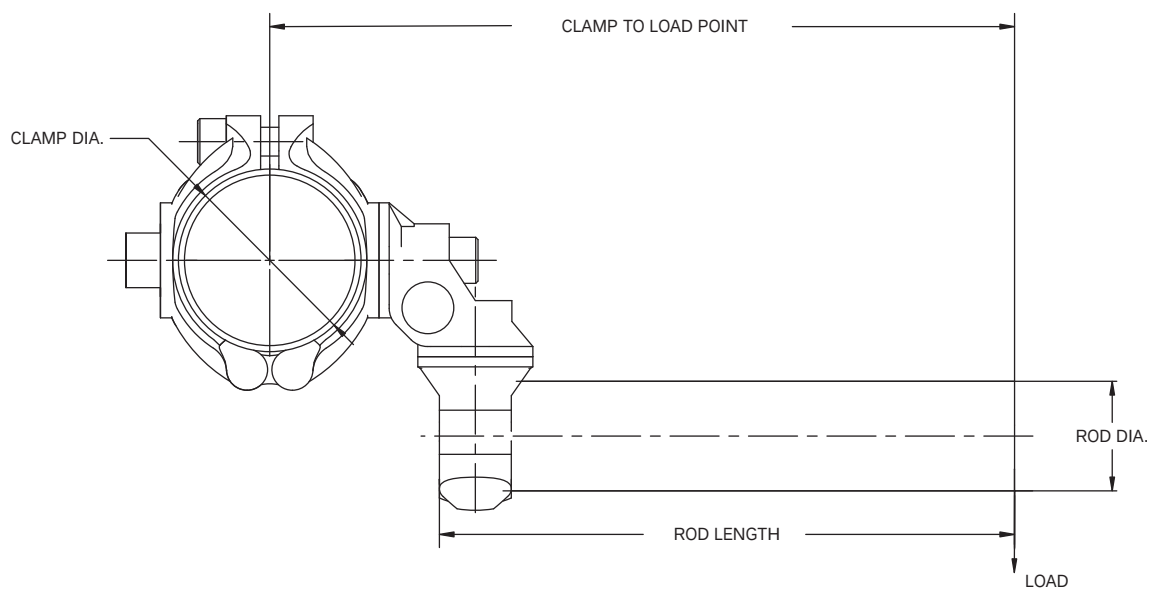
Note: 1g, 2g and 3g denotes your automation's acceleration rate. Moment load charts are to be used as general tooling application guidelines. Please use discretion if automation equipment operates with excessive vibration and/or acceleration.

Poz-e-Lok™ Modular Tooling

25 mm Swivel Boom Mount

Moment Load Charts

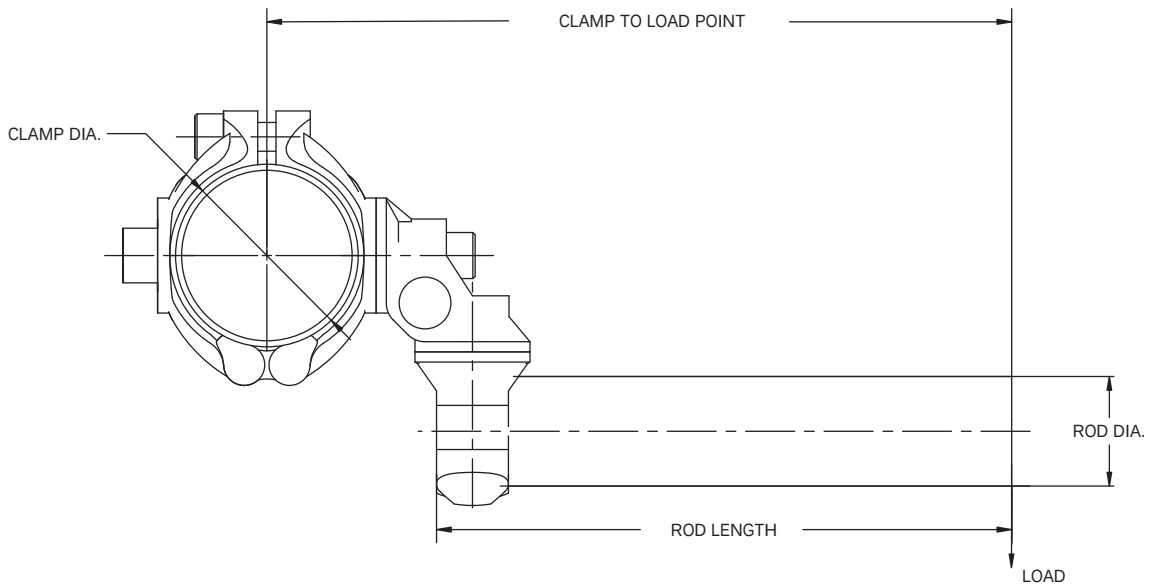
NORGREN TOOLING



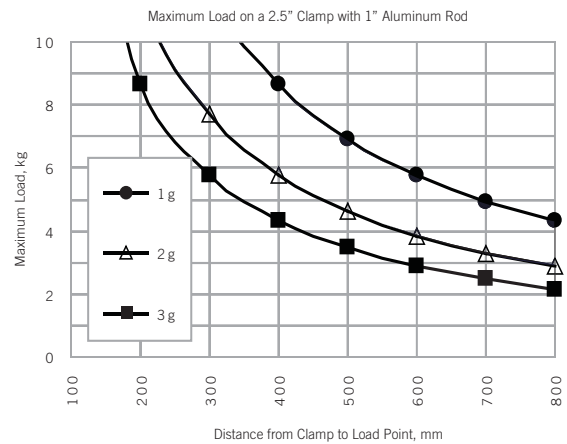
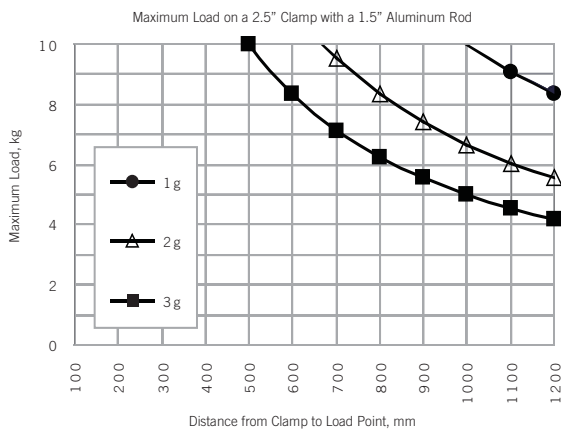
Note: 1g, 2g and 3g denotes your automation's acceleration rate. Moment load charts are to be used as general tooling application guidelines. Please use discretion if automation equipment operates with excessive vibration and/or acceleration.

Poz-e-Lok™ Modular Tooling

1.50" Swivel Boom Mount
Moment Load Charts



NORGREN TOOLING



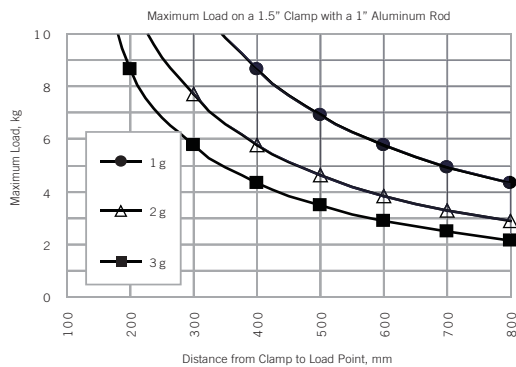
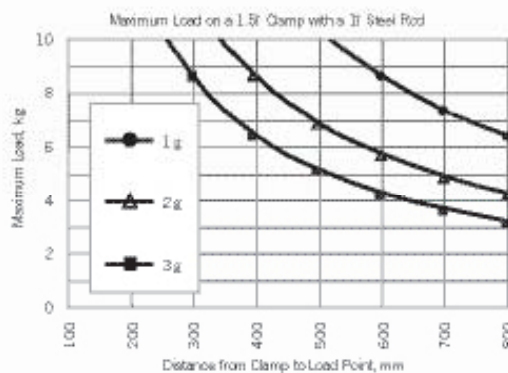
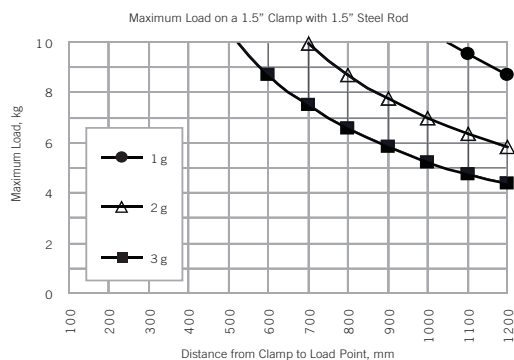
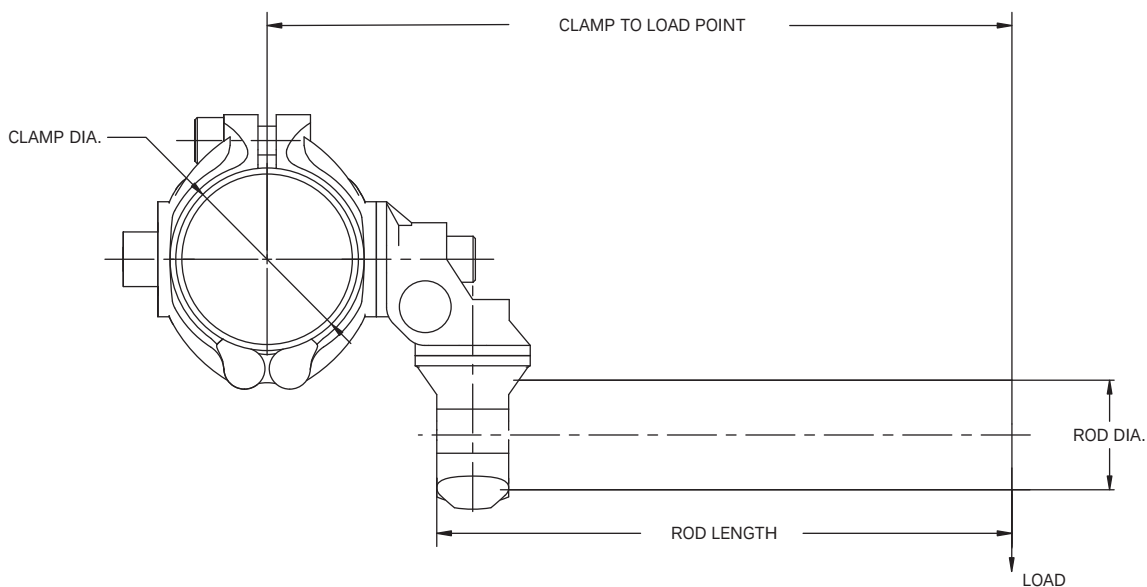
Note: 1g, 2g and 3g denotes your automation's acceleration rate. Moment load charts are to be used as general tooling application guidelines. Please use discretion if automation equipment operates with excessive vibration and/or acceleration.

Poz-e-Lok™ Modular Tooling

1.50" Swivel Boom Mount

Moment Load Charts

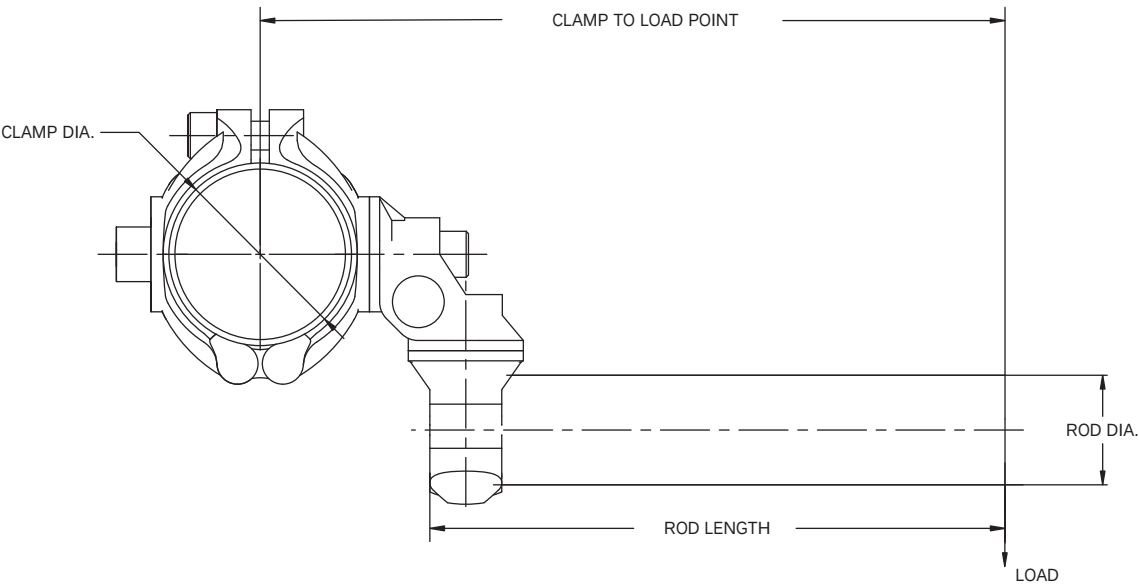
NORGREN TOOLING



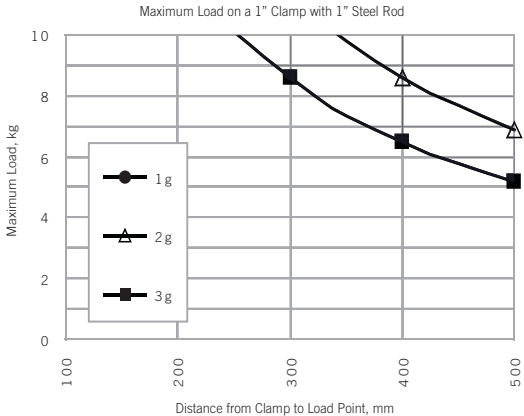
Note: 1g, 2g and 3g denotes your automation's acceleration rate. Moment load charts are to be used as general tooling application guidelines. Please use discretion if automation equipment operates with excessive vibration and/or acceleration.

Poz-e-Lok™ Modular Tooling

1.0" Swivel Boom Mount
Moment Load Charts



NORGREN TOOLING



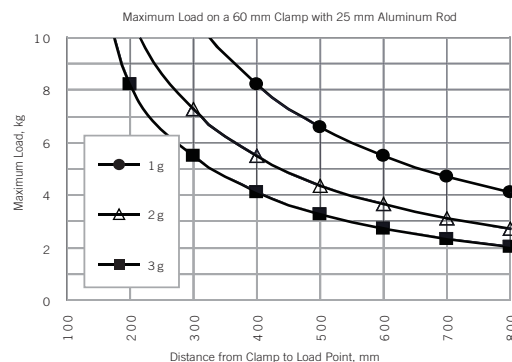
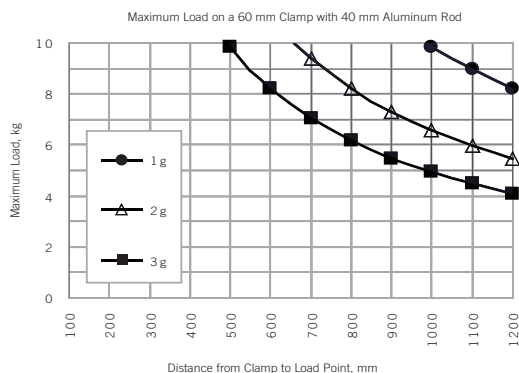
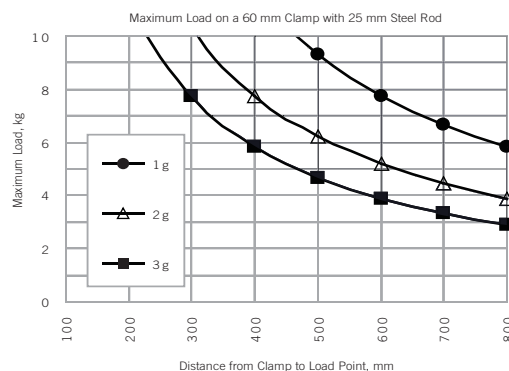
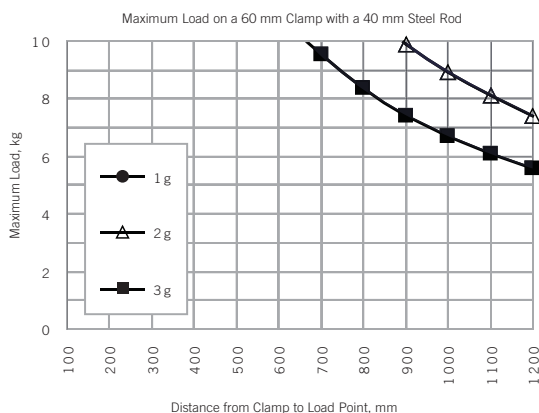
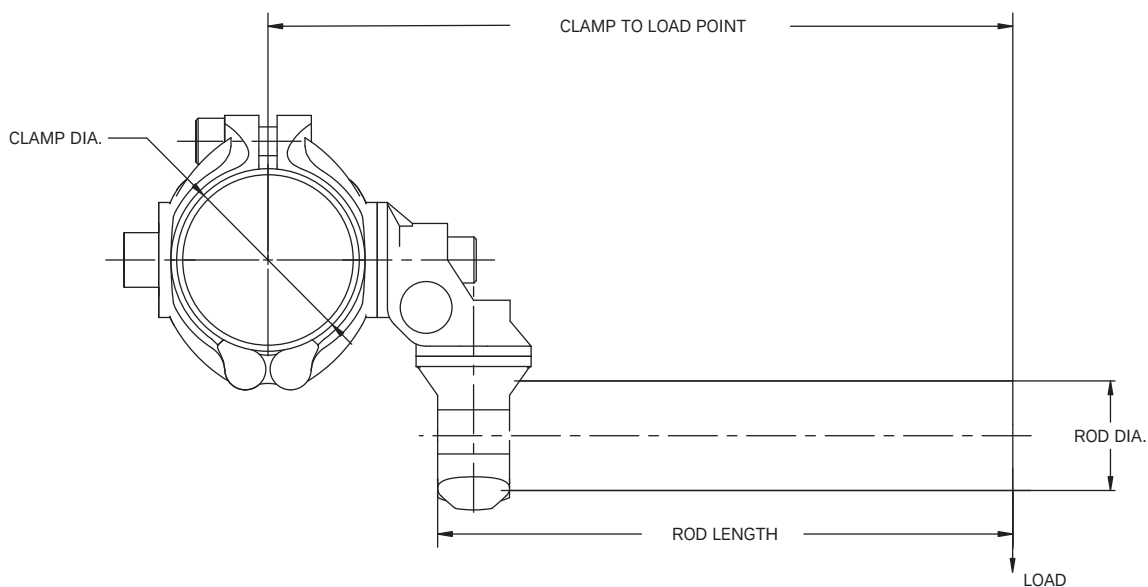
Note: 1g, 2g and 3g denotes your automation's acceleration rate. Moment load charts are to be used as general tooling application guidelines. Please use discretion if automation equipment operates with excessive vibration and/or acceleration.

Poz-e-Lok™ Modular Tooling

60 mm Swivel Boom Mount

Moment Load Charts

NORGREN TOOLING



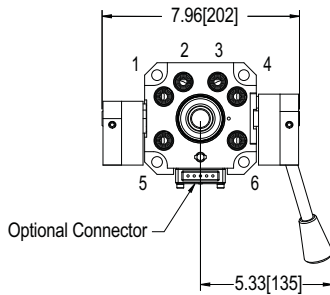
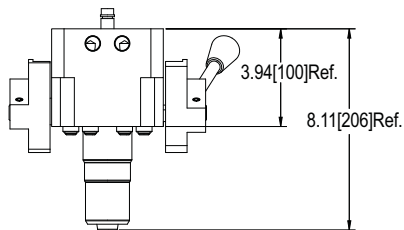
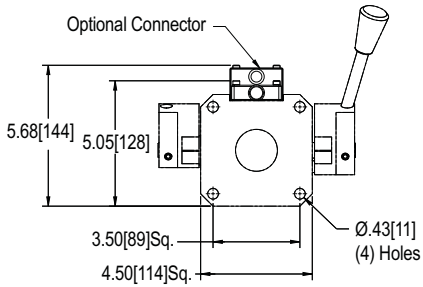
Note: 1g, 2g and 3g denotes your automation's acceleration rate. Moment load charts are to be used as general tooling application guidelines. Please use discretion if automation equipment operates with excessive vibration and/or acceleration.

Tooling: Press Room

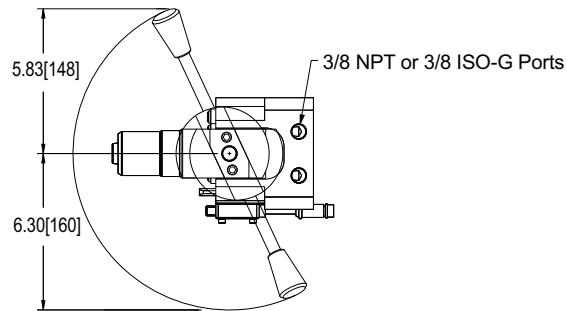
Lok-n-Load Master Mount

LLMM

NORGREN TOOLING



Air Connection Positions



ORDERING INFORMATION

LLMM-4-A-E5

ELECTRICAL OPTION:
E0 = NO ELECTRICAL CONNECTOR
E5 = 5 PIN ELECTRICAL CONNECTOR
E20 = 20 PIN CONNECTOR

PORTING OPTION:
A = 3/8 NPT
B = 3/8 ISO-G

OF PORTS:
0 = 0 PORTS
4 = 4 PORTS (1 THRU 4)
6 = 6 PORTS (1 THRU 6)

LOK-N-LOAD MASTER MOUNT

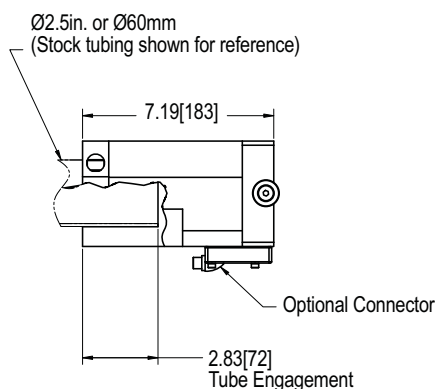
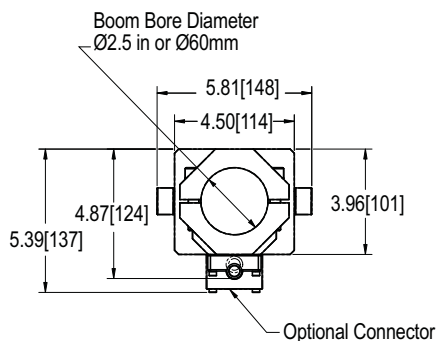
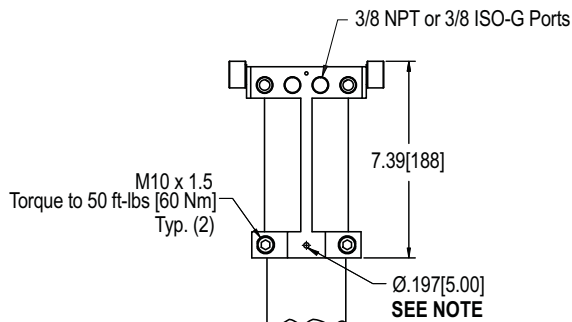
MATERIAL: ALUMINUM AND STEEL
WEIGHT: 15.7 LBS (7.1KG)

* SEE LOK-N-LOAD DATA SHEET FOR
ADDITIONAL INFORMATION.

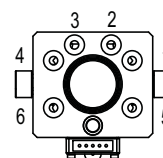
Lok-n-Load Tooling Adapter

LLTA

NORGREN TOOLING



Air Connection Positions



ORDERING INFORMATION

LLTA-25-A-E5

ELECTRICAL OPTION:
E0 = NO ELECTRICAL CONNECTOR
E5 = 5 PIN ELECTRICAL CONNECTOR
E20 = 20 PIN CONNECTOR
EC20NC = 20 PIN CONNECTOR WITHOUT CABLE

PORTING OPTION:

A = 3/8 NPT
B = 3/8 ISO-G

BOOM BORE SIZE OPTION:

25 = Ø2.5 INCH
60 = Ø60MM

LOK-N-LOAD TOOLING ADAPTER

MATERIAL: ALUMINUM, STEEL and BRONZE
WEIGHT: 6.0 LBS (2.7KG)

NOTES:

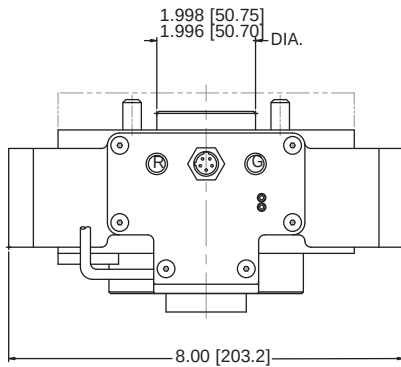
1. HOLE TO BE USED TO CROSS-PIN BOOM/TUBE TO ADAPTER FOR BODY ASSEMBLY APPLICATIONS.

2. 5MM ROLL PIN OR DOWEL RECOMMENDED.

* SEE LOK-N-LOAD DATA SHEET FOR ADDITIONAL INFORMATION.

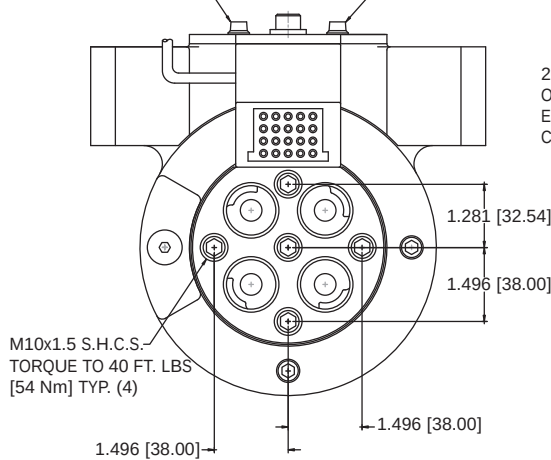
Mounts & Adapters

Robo-Set™ Quad Automatic Tool Changer
RSQAC Overall Dimensions



UNLOCKED INDICATOR LIGHT
GLOWS RED WHEN UNIT IS
UNLOCKED

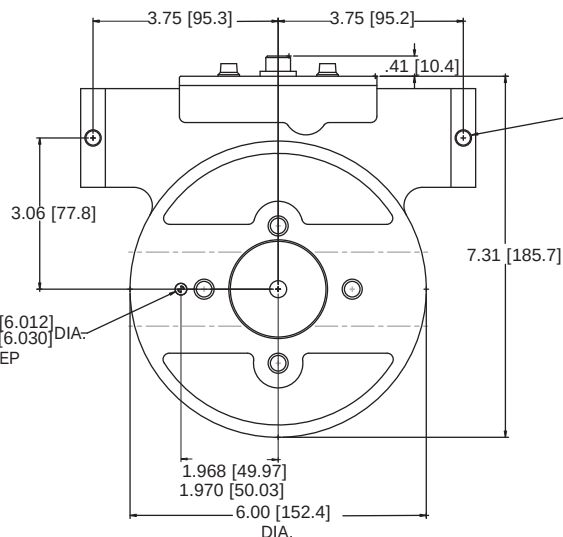
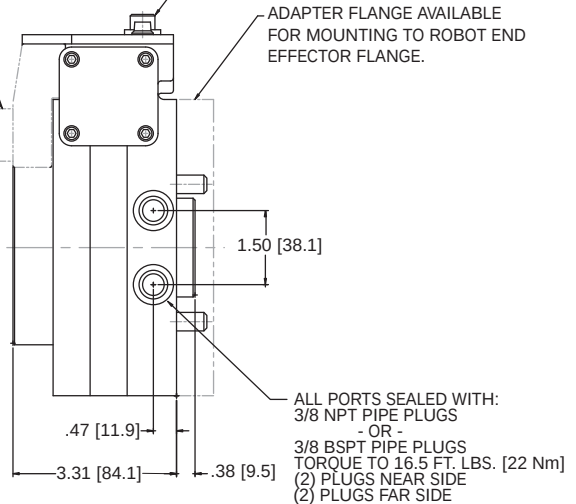
LOCKED INDICATOR LIGHT
GLOWS GREEN WHEN UNIT
IS LOCKED



20 PIN (FEMALE)
OPTIONAL #RSQ-420
ELECTRICAL
CONNECTOR

5-PIN MICRO AC CONNECTOR
M12 x 1 THD.

ADAPTER FLANGE AVAILABLE
FOR MOUNTING TO ROBOT END
EFFECTOR FLANGE.



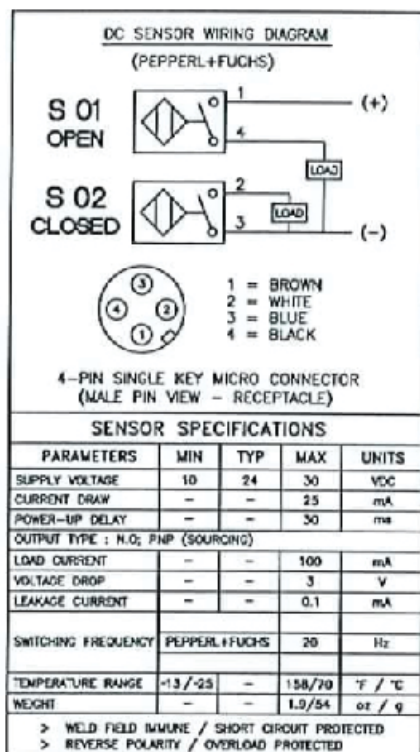
ALL PORTS SEALED WITH:
1/8 NPT PIPE PLUGS
- OR -
1/8 BSPT PIPE PLUGS
TORQUE TO 6 FT. LBS. [8 Nm]
(2) PLUGS

Mounts & Adapters

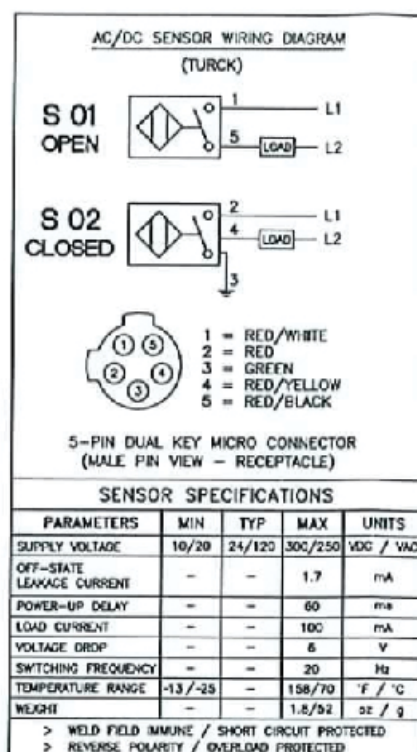
Robo-Set™ Quad Automatic Tool Changer
RSQAC Ordering Information

CONNECTOR INFORMATION

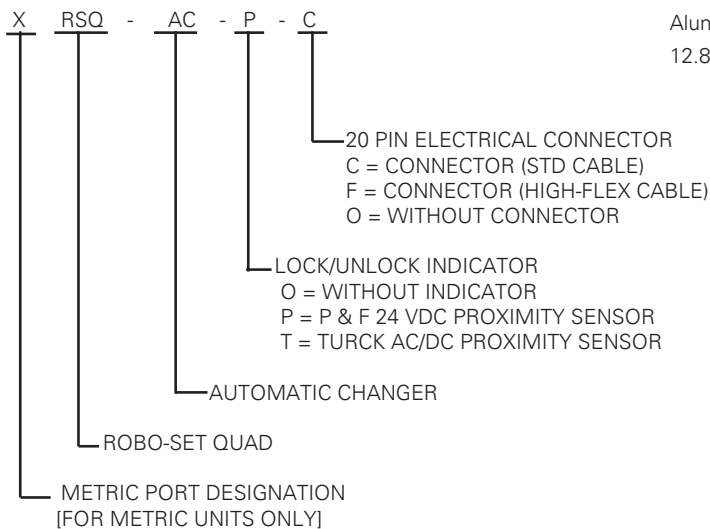
SCHEMATIC FOR PNP SENSOR



SCHEMATIC FOR AC/DC SENSOR



ORDERING INFORMATION



MATERIAL AND WEIGHT

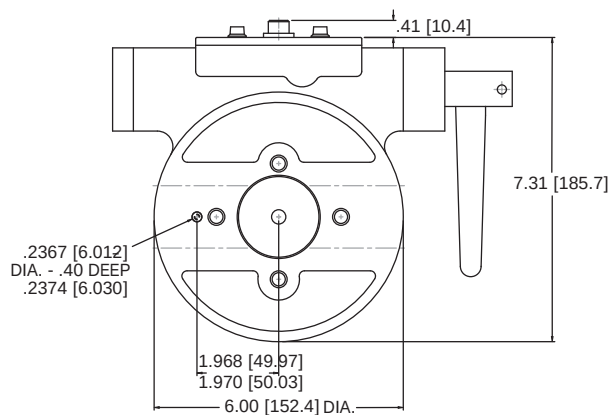
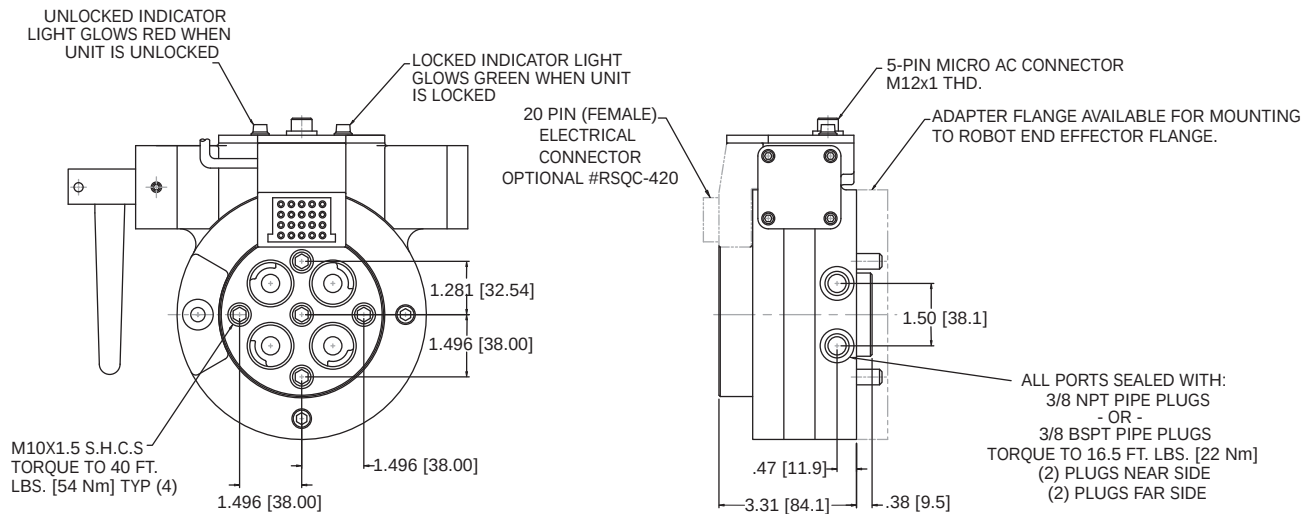
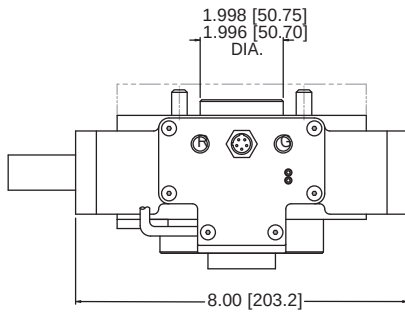
Aluminum/Steel
12.88 LBS [5.8 KG]

THIS PRODUCT CONNECTS WITH

TA2A
RS2AM

Mounts & Adapters

Robo-Set™ Quad Manual Tool Changer
RSQMC Overall Dimensions



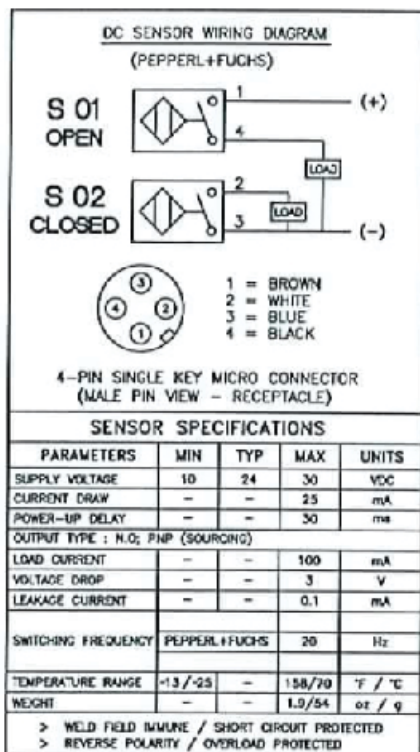
Mounts & Adapters

Robo-Set™ Quad Manual Tool Changer

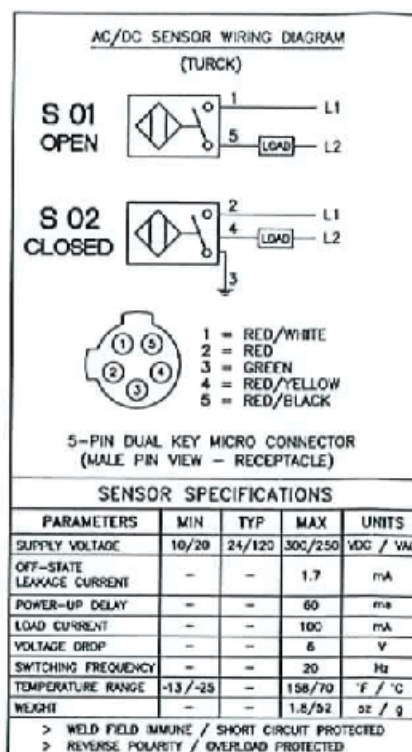
RSQMC Ordering Information

CONNECTOR INFORMATION

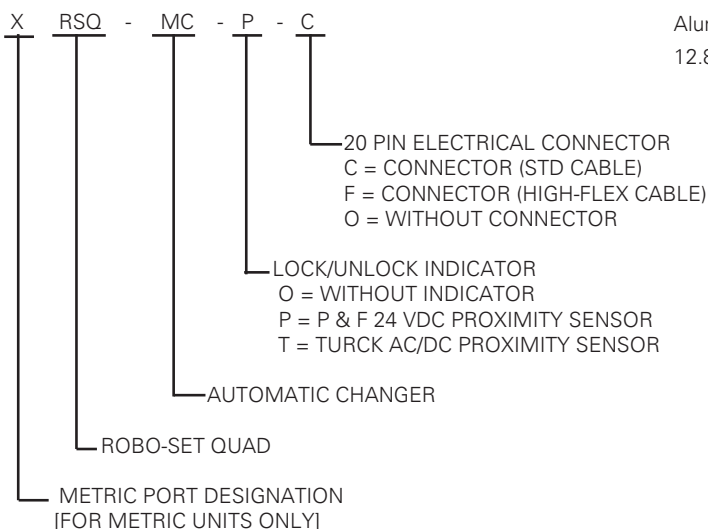
SCHEMATIC FOR PNP SENSOR



SCHEMATIC FOR AC/DC SENSOR



ORDERING INFORMATION



MATERIAL AND WEIGHT

Aluminum/Steel
12.88 LBS [5.8 KG]

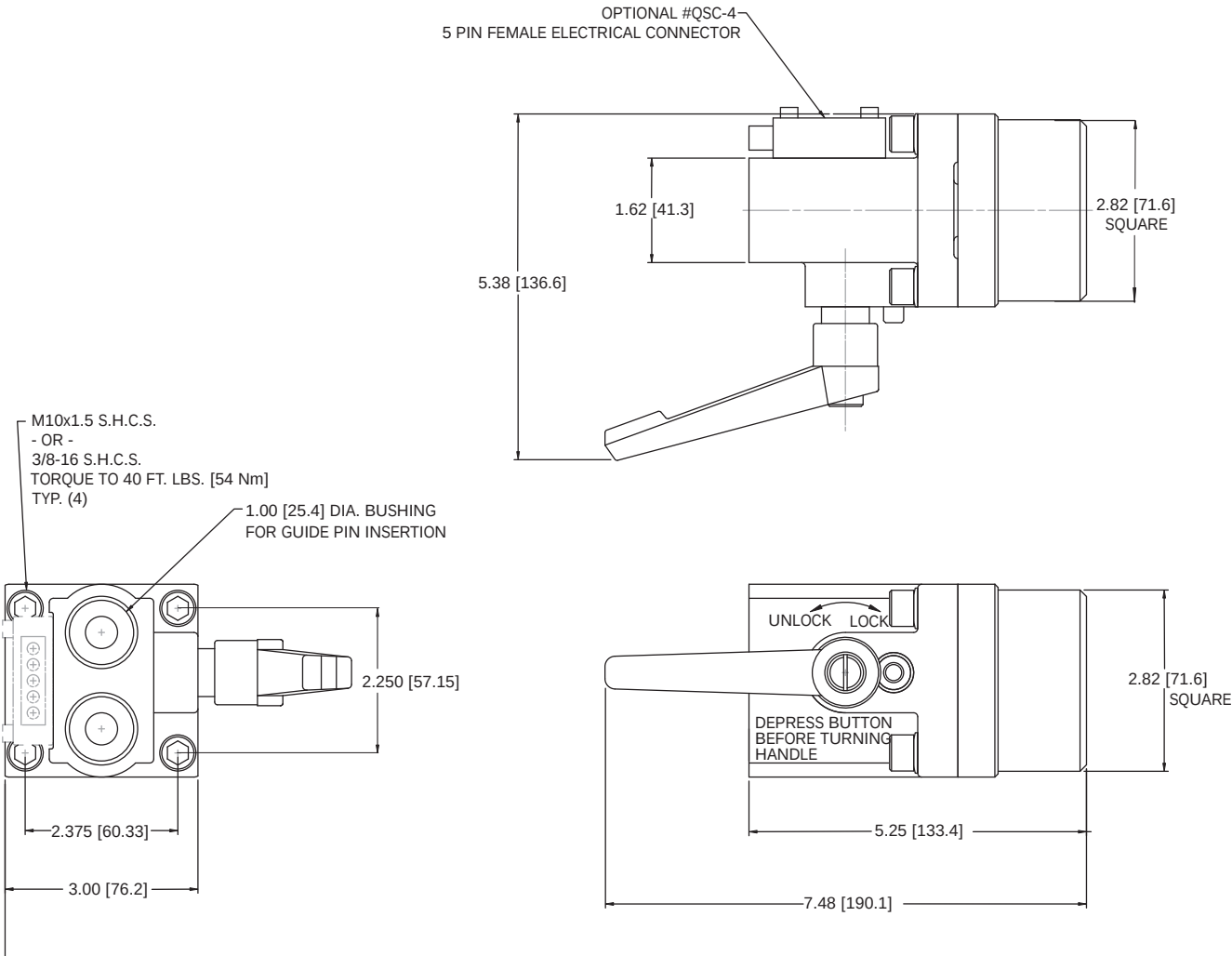
THIS PRODUCT CONNECTS WITH

TA2A
RS2AM

Mounts & Adapters

Quik-Set™ Master Mount with Rear Flange
QSMR-RF Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - QSMR - RF - C

5 PIN (FEMALE) ELECTRICAL CONNECTOR
1 = CONNECTOR WITH 6 FT STD. CABLE
0 = NO CONNECTOR
RF = REAR FLANGE MOUNT (SQUARE)

QUICK SET MASTER MOUNT

METRIC FASTENER DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Steel
4.0 LBS [1.8kg]

THIS PRODUCT CONNECTS WITH

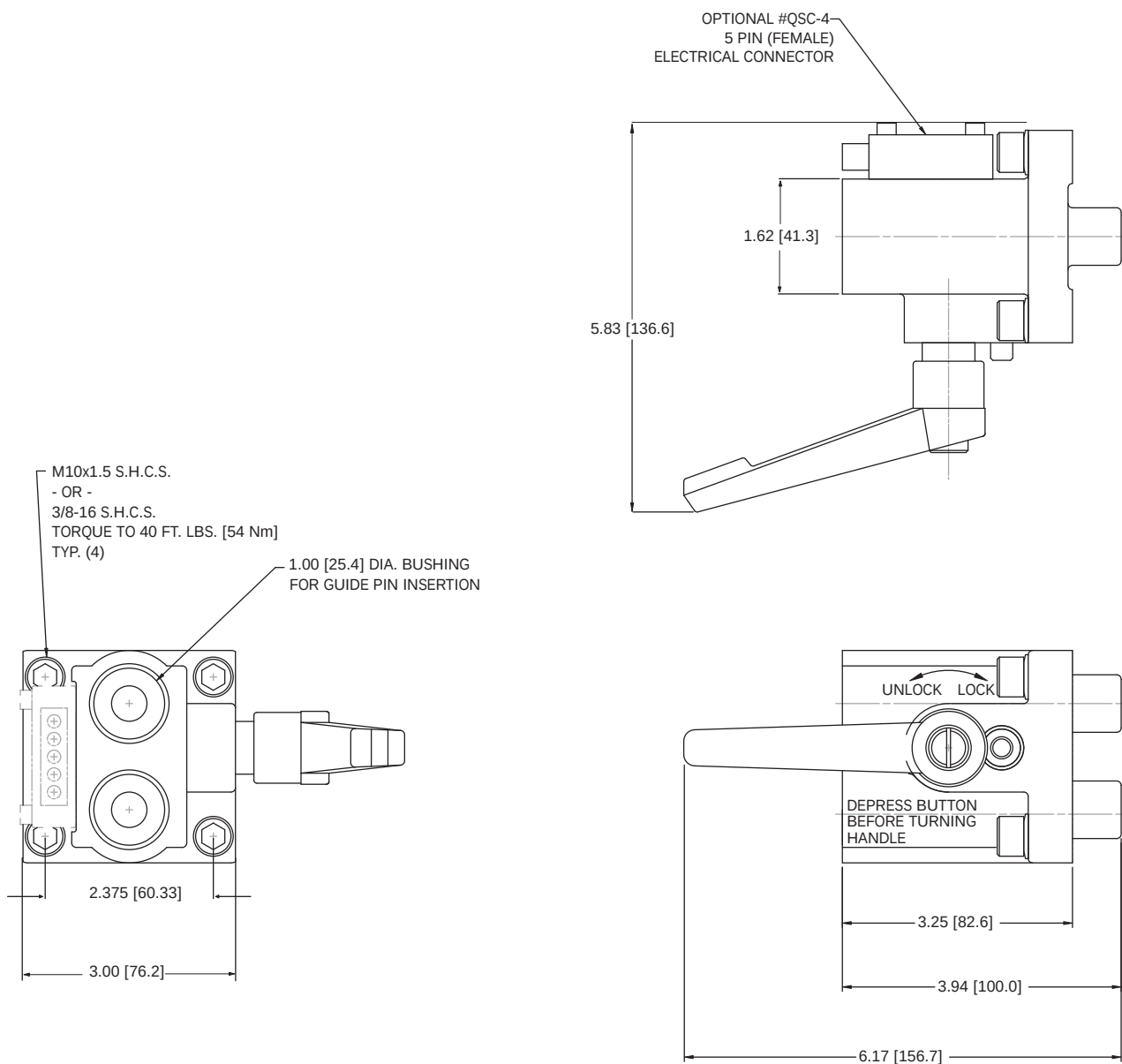
QSAMZ
TA1A

Mounts & Adapters

Quik-Set™ Master Mount without Rear Flange

QSMM-RF2 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - QSMM - RF2 - C

— METRIC FASTENER DESIGNATION
(LEAVE BLANK FOR ENGLISH)

— QUIK SET MASTER MOUNT

RF2 = MASTER MOUNT ONLY

C = CONNECTOR WITH 6 FT. STD. CABLE
0 = NO CONNECTOR

5 PIN (FEMALE) ELECTRICAL CONNECTOR

MATERIAL AND WEIGHT

Steel
4.0 LBS [1.8KG]

THIS PRODUCT CONNECTS WITH

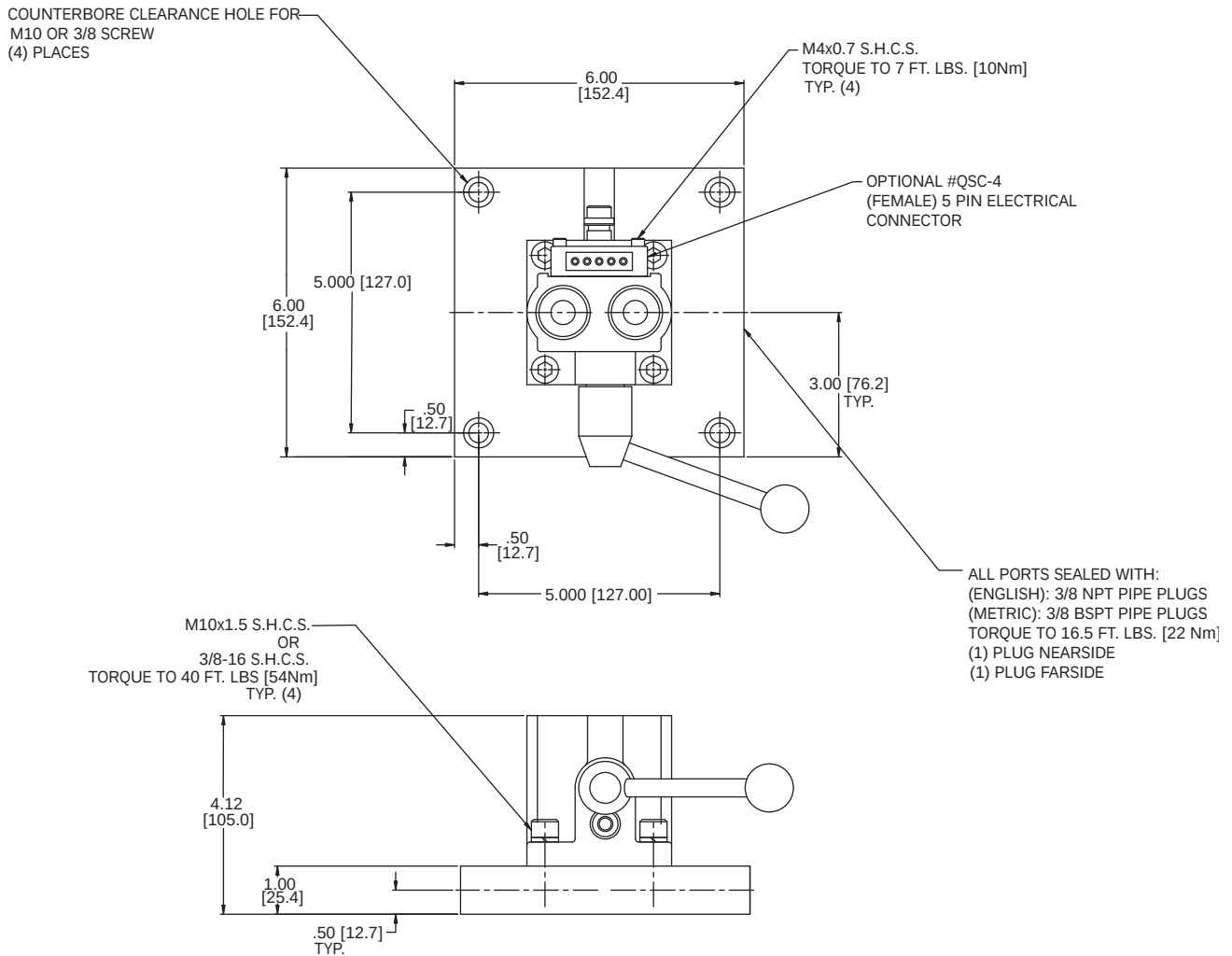
QSAM2
TA1A

Mounts & Adapters

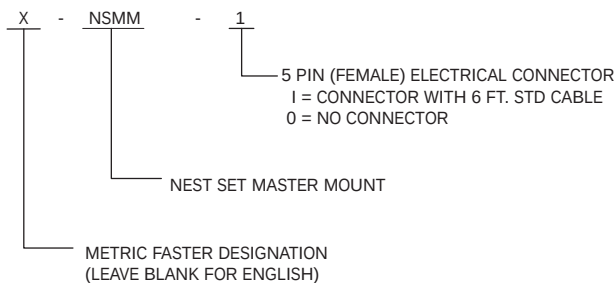
Master Mount

NSMM Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

Cast Aluminum
7.19 LBS [3.3 KG]

THIS PRODUCT CONNECTS WITH

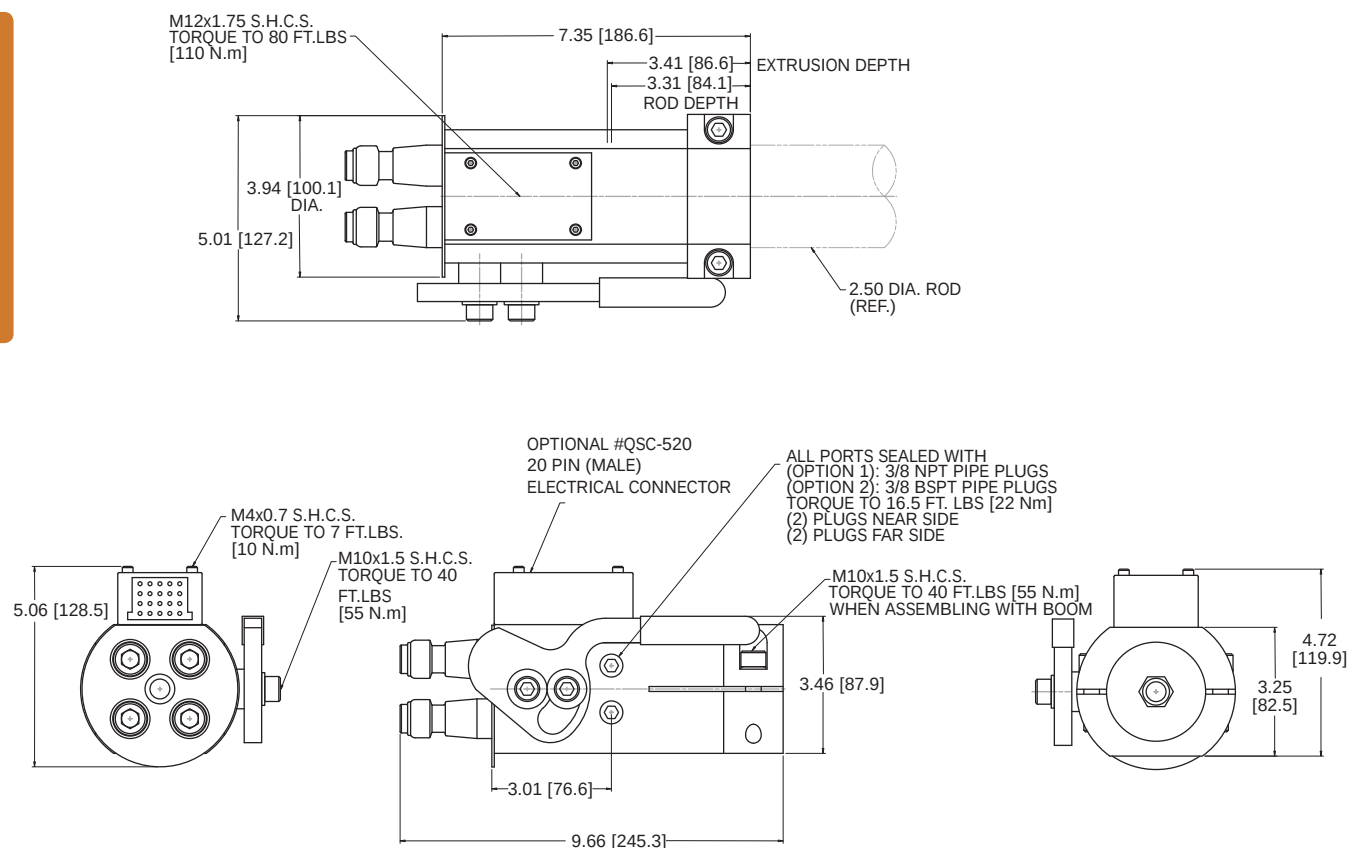
NSAM
QSAMZ

Mounts & Adapters

2.50" Diameter Four Channel Tool Adapter

TA2A Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TA2A - A - 1 - C

MODEL DESIGNATION

ADAPTER TYPE
A = TE2A END EFFECTOR
B = 2.50 DIA. ROUND BUBING

PORT TYPE
1 = NPT PORT
2 = BSPT PORT

20 PIN MALE ELECTRICAL CONNECTOR
C = CONNECTOR WITH 6 FT. STD. CABLE
CNC = QSC-520-NC CONNECTOR WITHOUT CABLE
O = NO CONNECTOR

MATERIAL AND WEIGHT

Aluminum/Steel
8.75 LBS [4.0 KG] with connector
8.25 LB [3.8 KG] without connector

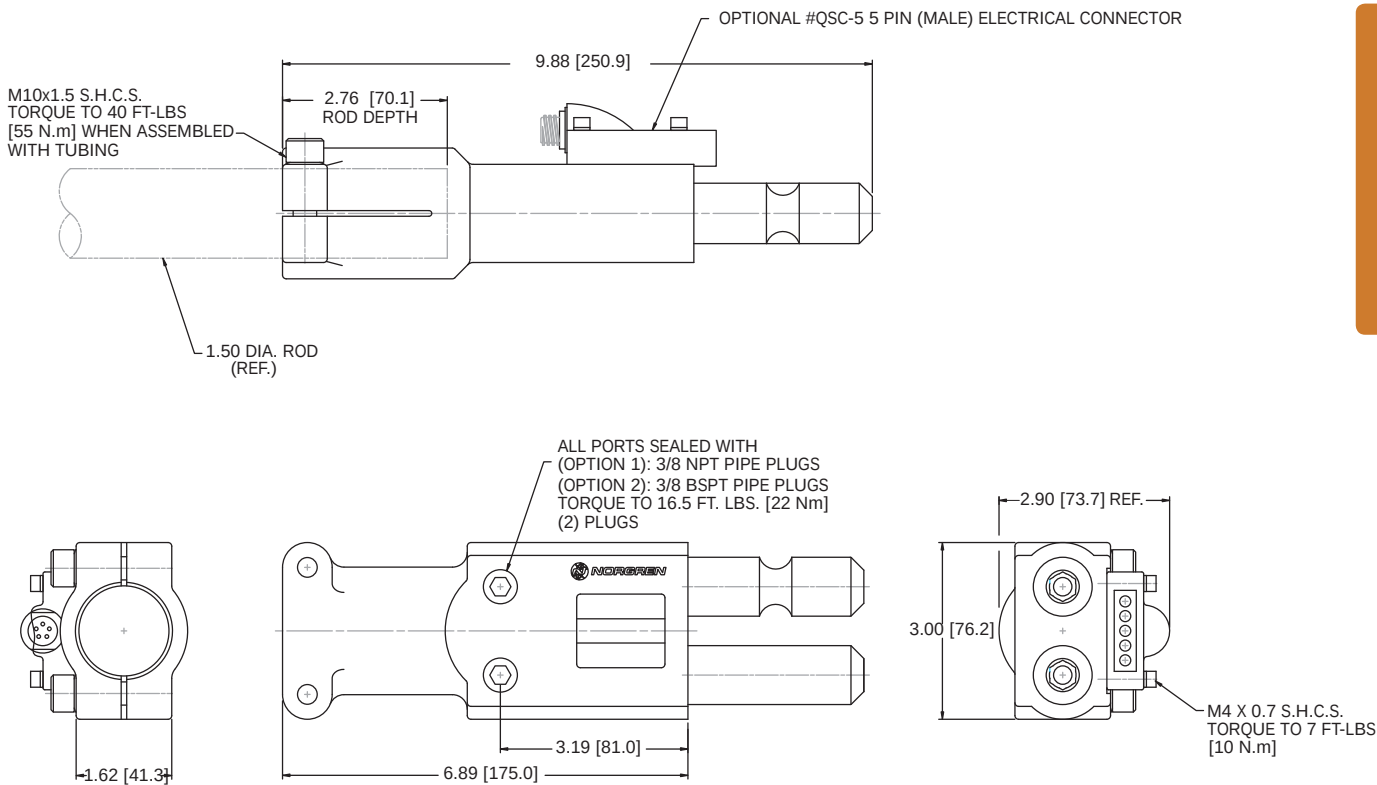
THIS PRODUCT CONNECTS WITH

Z-25-X
TE2S
TE2A

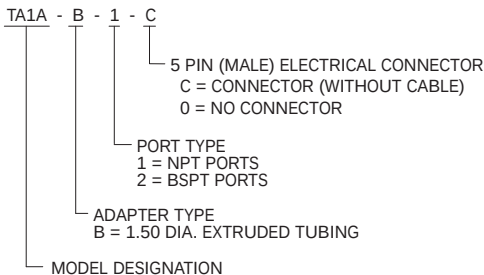
Mounts & Adapters

1.50" Diameter Two Channel Tool Adapter with Porting
TA1A Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

Cast Aluminum/Steel
3.60 LBS [1.6 KG] without connector
3.80 LBS [1.8 KG] with connector

THIS PRODUCT CONNECTS WITH

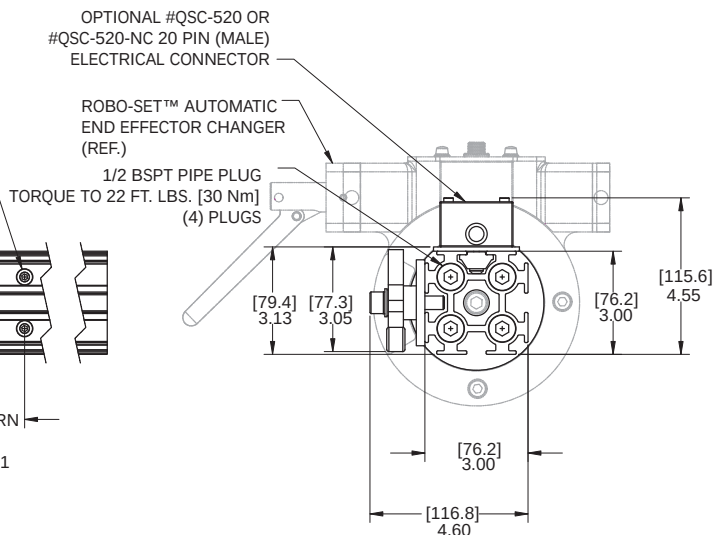
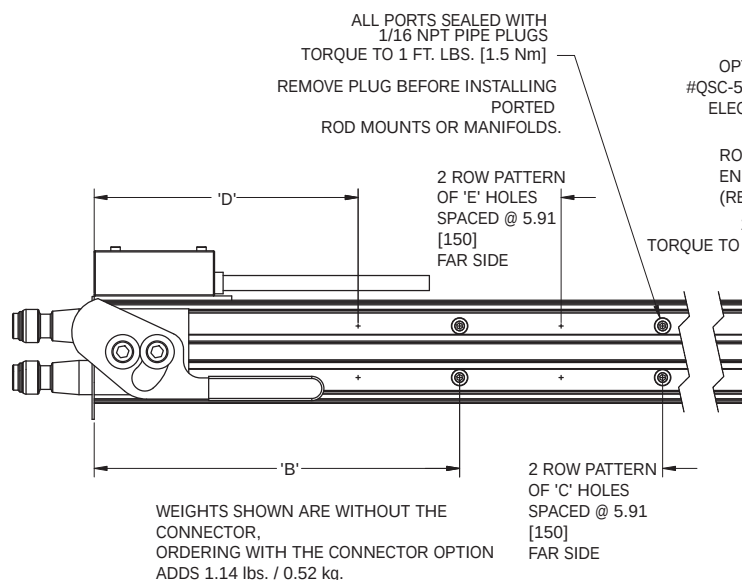
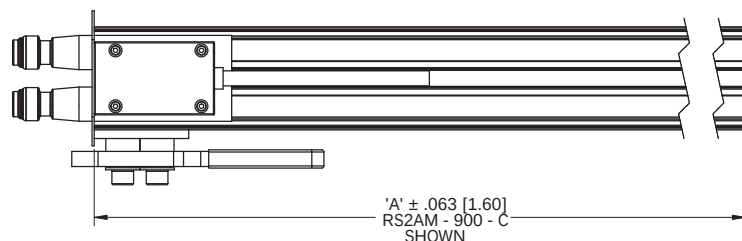
Z-15-X
TE1S
TE1A

Mounts & Adapters

Four Channel Adapter Boom

RS2AM Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

RS2AM - 900 - CWP

WP = WITHOUT GUIDE PINS

20 PIN (MALE) ELECTRICAL CONNECTOR
C = CONNECTOR WITH 6 FT. STD. CABLE
0 = NO CONNECTOR
CNC = CONNECTOR WITHOUT CABLE
(FOR BOOM I.D. ONLY)

ADAPTER BOOM LENGTH
(SEE CHART ON PAGE 58)

ROBO-SET2 ADAPTER BOOM

MATERIAL AND WEIGHT

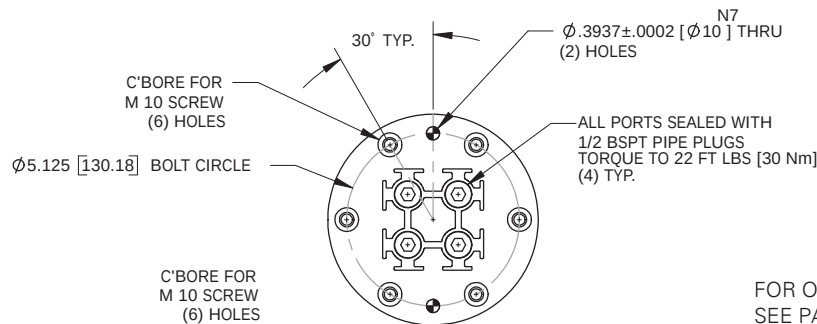
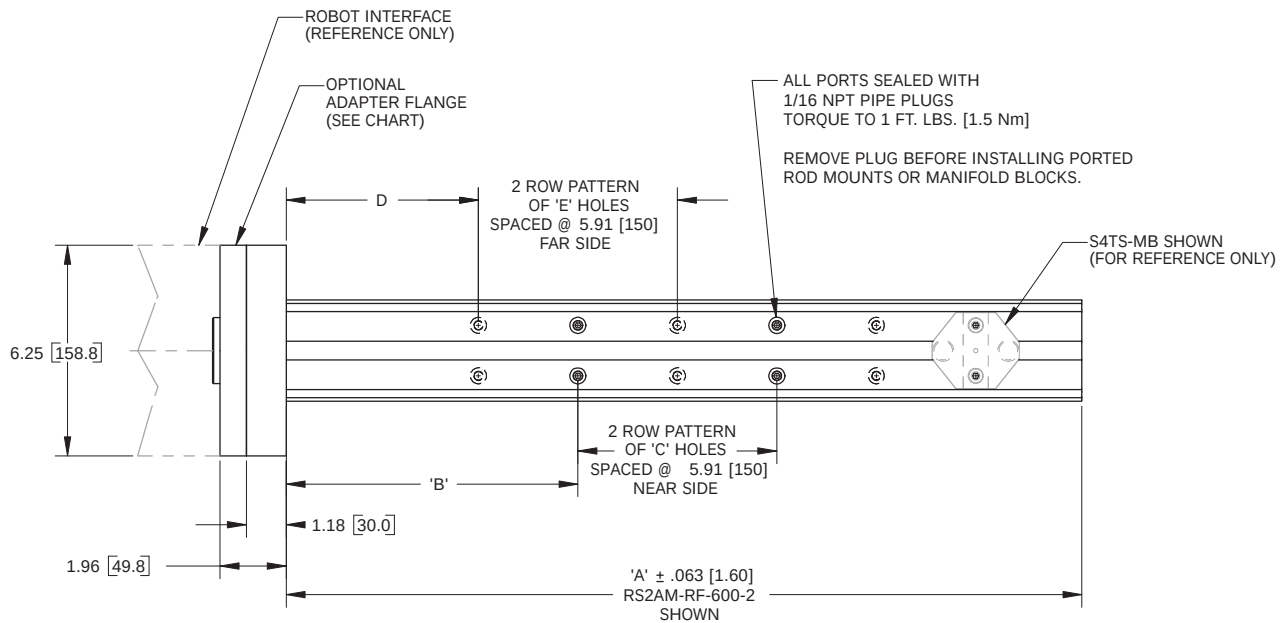
Extruded Aluminum with Steel Pins
Weight: See Chart on page 58

THIS PRODUCT CONNECTS WITH

RSQ-AC
RSQ-MC
QSHRM
QSVRM
S4TS-FRM

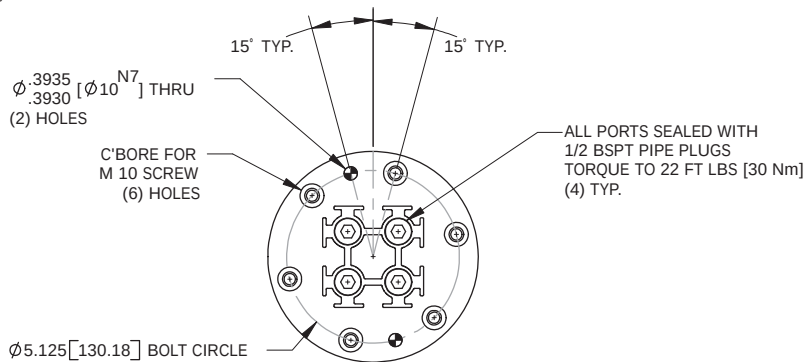
Mounts & Adapters

RS2AM-RF Overall Dimensions



FOR ORDERING INFORMATION
SEE PAGE 58

RS2AM-RF-600-2 SHOWN WITH
MANIFOLD BLOCK S4TS-MB
(FOR REFERENCE ONLY)



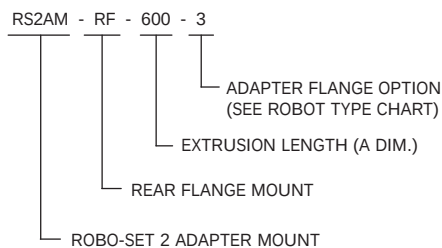
Mounts & Adapters

RS2AM-RF Ordering Information

STANDARD LENGTHS										WEIGHT Lbs	WEIGHT Kg
BOOM LENGTH (mm)	A		B		C	D		E	F		
600	[600]	23.62	[220]	8.66	3	[145]	5.71	3	12	15.09	6.84
900	[900]	35.43	[270]	10.63	4	[195]	7.68	5	18	18.91	8.58
1200	[1200]	47.24	[320]	12.60	6	[245]	9.65	7	26	22.74	10.31
1500	[1500]	59.06	[370]	14.57	8	[295]	11.62	8	32	26.56	12.05
CONTACT NORGREN SALES FOR SPECIAL LENGTHS											

ROBOT MODEL NO.	ROBOT TYPE	VIEW	ADAPTER FLANGE
-1	ABB 4.3 6004E	2	S4RFAF-1
-2	ABB IRB 3000	1	S4RFAF-2
-3	ASSURANCE TECH. QC100	2	S4RFAF-3
-4	KUKA 761/125/1500	1	S4RFAF-4
-5	COMAU SMART-3 6.75XL	2	S4RFAF-5
-6	ASEA/ABB 6004E	1	S4RFAF-6
-7	FANUC S420-F (STANDARD FLANGE)	1	S4RFAF-7
-8	FANUC S420-F (ISO FLANGE)	2	S4RFAF-8
-9	NACHI SA100/SA130/SA160/SA200	2	S4RFAF-9
-10	KAWASAKI ZX165 U	2	S4RFAF-10

ORDERING INFORMATION



MATERIAL: ALUMINUM & STEEL
WEIGHT: SEE CHART

MATERIAL AND WEIGHT

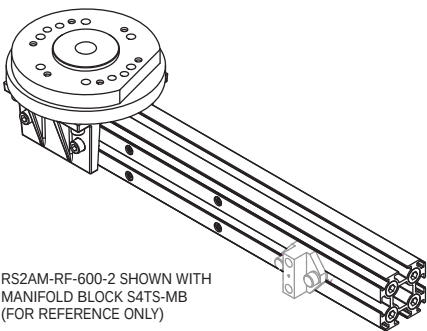
Cast Aluminum
Weight: See Chart

THIS PRODUCT CONNECTS WITH

QSHRM
QSVRM
S4TS-FRM

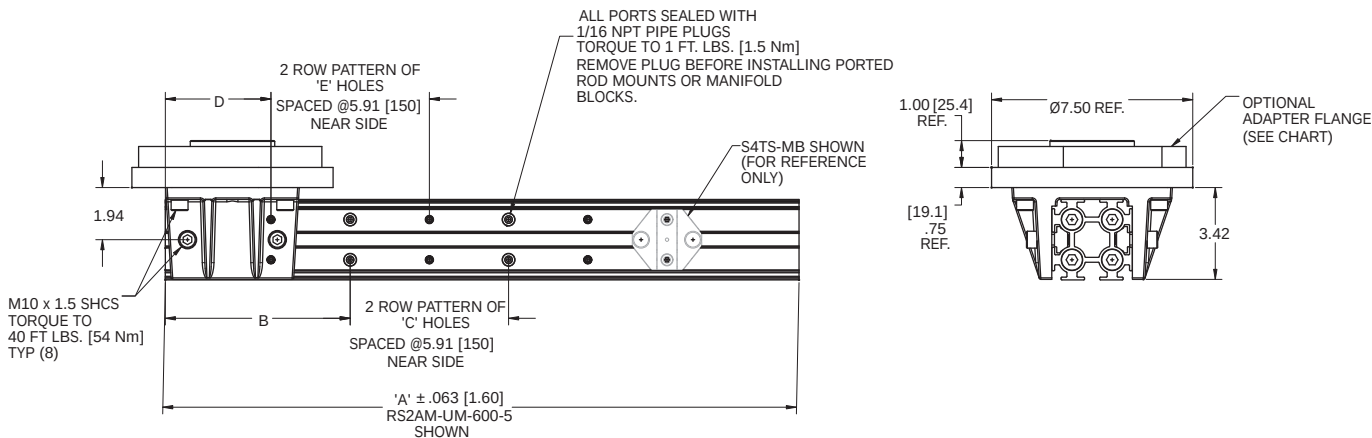
Mounts & Adapters

RS2AM-UM Overall Dimensions and Ordering Information



RS2AM-RF-600-2 SHOWN WITH
MANIFOLD BLOCK S4TS-MB
(FOR REFERENCE ONLY)

NORGREN TOOLING



ORDERING INFORMATION

RS2AM - UM - 600 - 5
ADAPTER FLANGE OPTION
(SEE CHART)
EXTRUSION LENGTH (A DIM.)
UNIVERSAL MOUNT BRACKET
ROBO-SET 2 ADAPTER MOUNT

MATERIAL AND WEIGHT

Cast Aluminum
Weight: See Chart

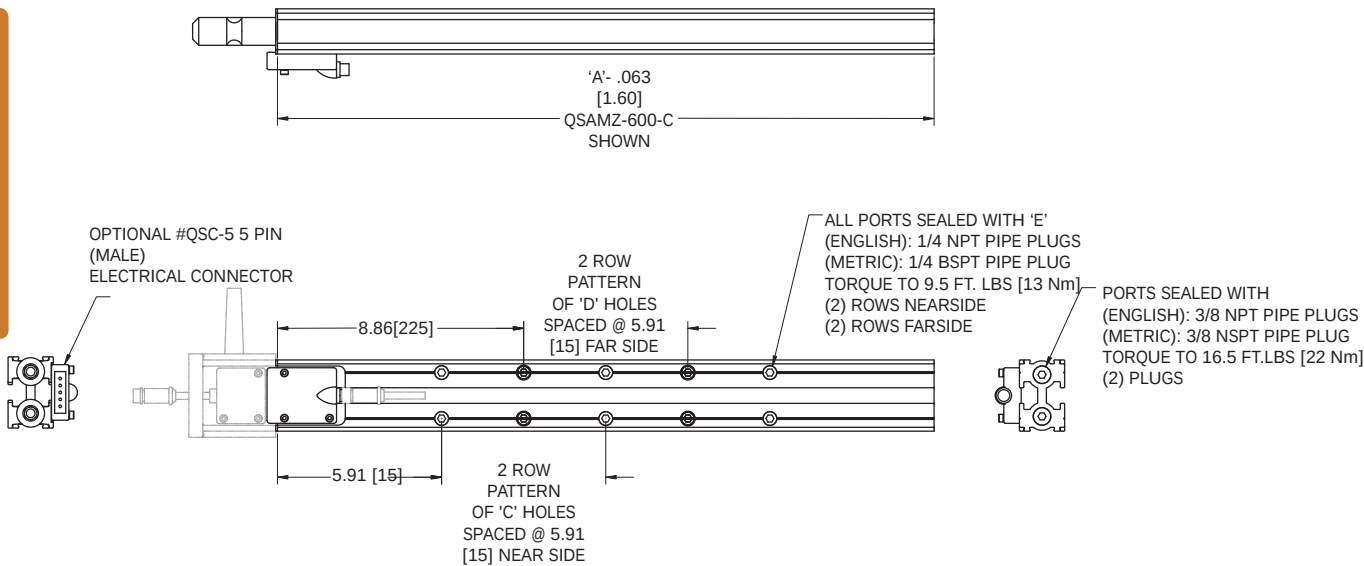
THIS PRODUCT CONNECTS WITH

TRS25 Spline Rod p143-152

Modular Tooling Solutions

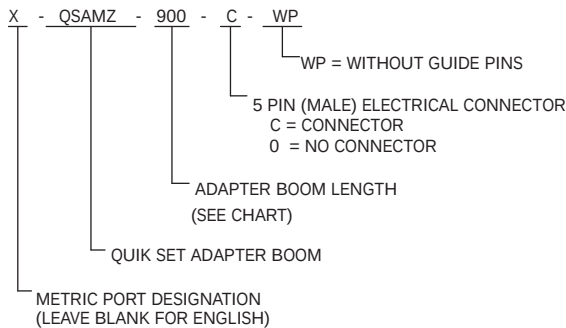
Two Channel Adapter Boom
QSAMZ Overall Dimensions and Ordering Information

NORGREN TOOLING



STANDARD LENGTHS						WEIGHT Lbs	WEIGHT Kg
BOOM LENGTH [mm]	A [in.]	C	D	E			
[300]	[300] 11.81	1	1	4		4.52	2.1
[450]	[450] 17.71	2	2	8		5.93	2.7
[600]	[600] 23.62	3	3	12		7.34	3.3
[900]	[900] 35.43	5	5	20		10.16	4.6
[1200]	[1200] 47.24	7	7	28		12.98	5.9
CONTACT NORGREN SALES FOR SPECIAL LENGTHS							

ORDERING INFORMATION



MATERIAL AND WEIGHT

Extruded Aluminum with Steel Pins
Weight: See Chart

THIS PRODUCT CONNECTS WITH

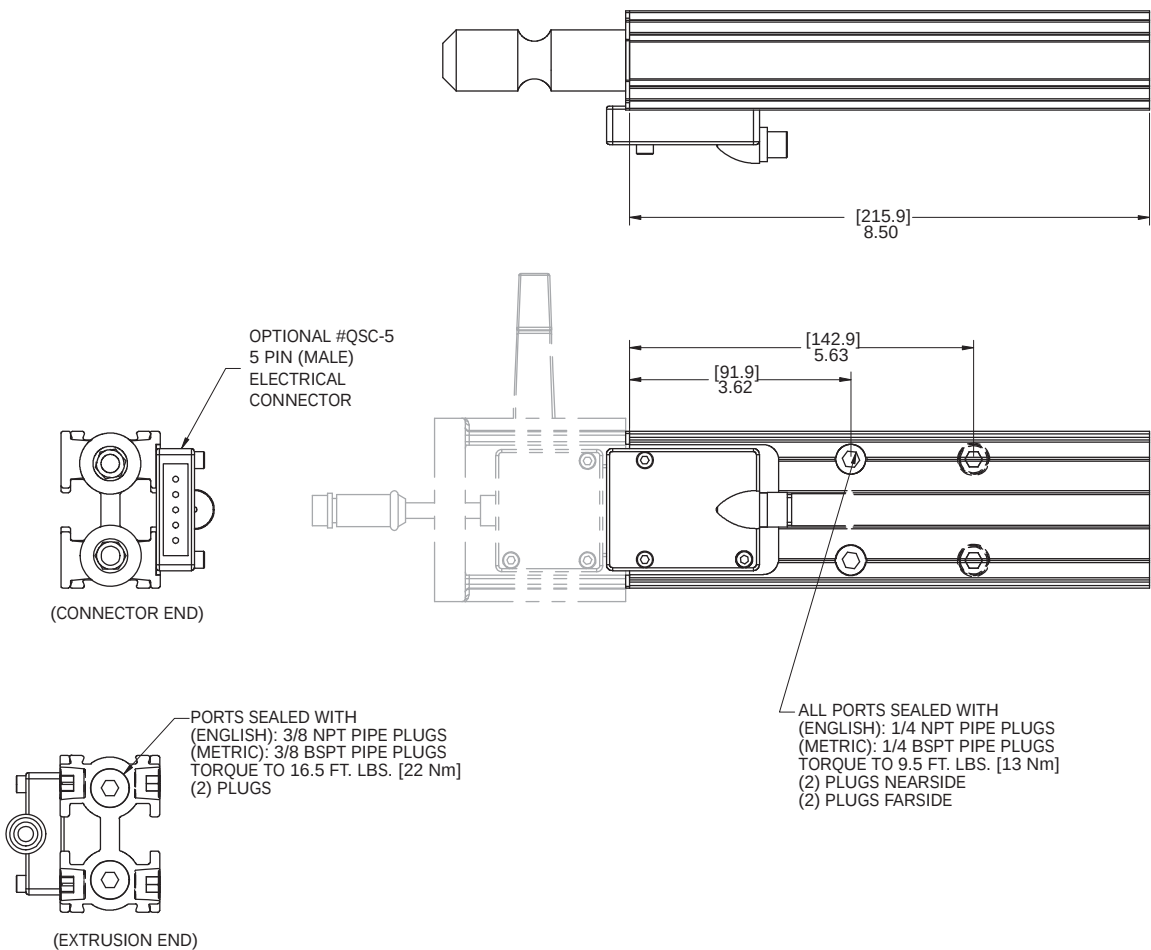
QSMM
NSMM
QSHRM
QSVRM

Mounts & Adapters

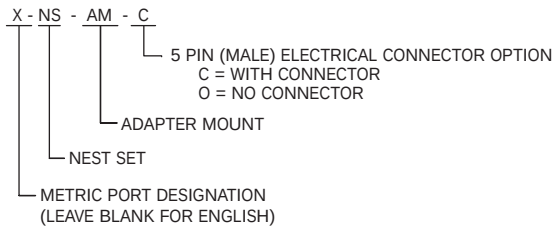
Adapter Mount

NSAM Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

Extruded Aluminum
with Steel Pins
3.19 LBS [1.5 KG]

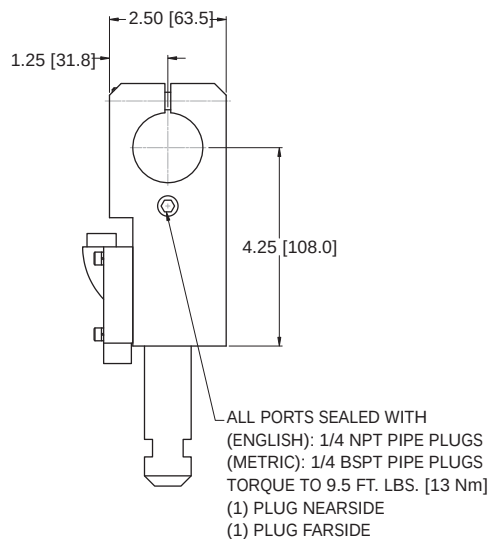
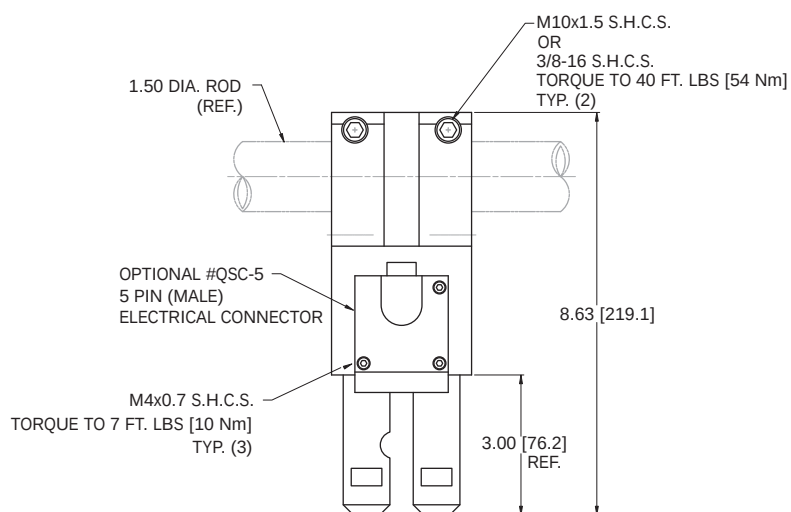
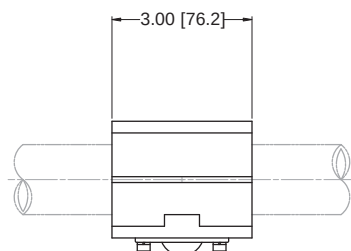
THIS PRODUCT CONNECTS WITH

NSMM
QSMM
QSHRM
QSVRM

Mounts & Adapters

1.50" Diameter Tubing Adapter

NSTA Overall Dimension and Ordering Information



ORDERING INFORMATION

X - NSTA - 1

1 - 5 PIN (MALE) ELECTRICAL CONNECTOR
I = CONNECTOR
O = NO CONNECTOR

NEST SET TUBE ADAPTER

METRIC FASTENER AND PORTING DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Aluminum with Steel Pins
4.48 LBS [2.0 KG]

THIS PRODUCT CONNECTS WITH

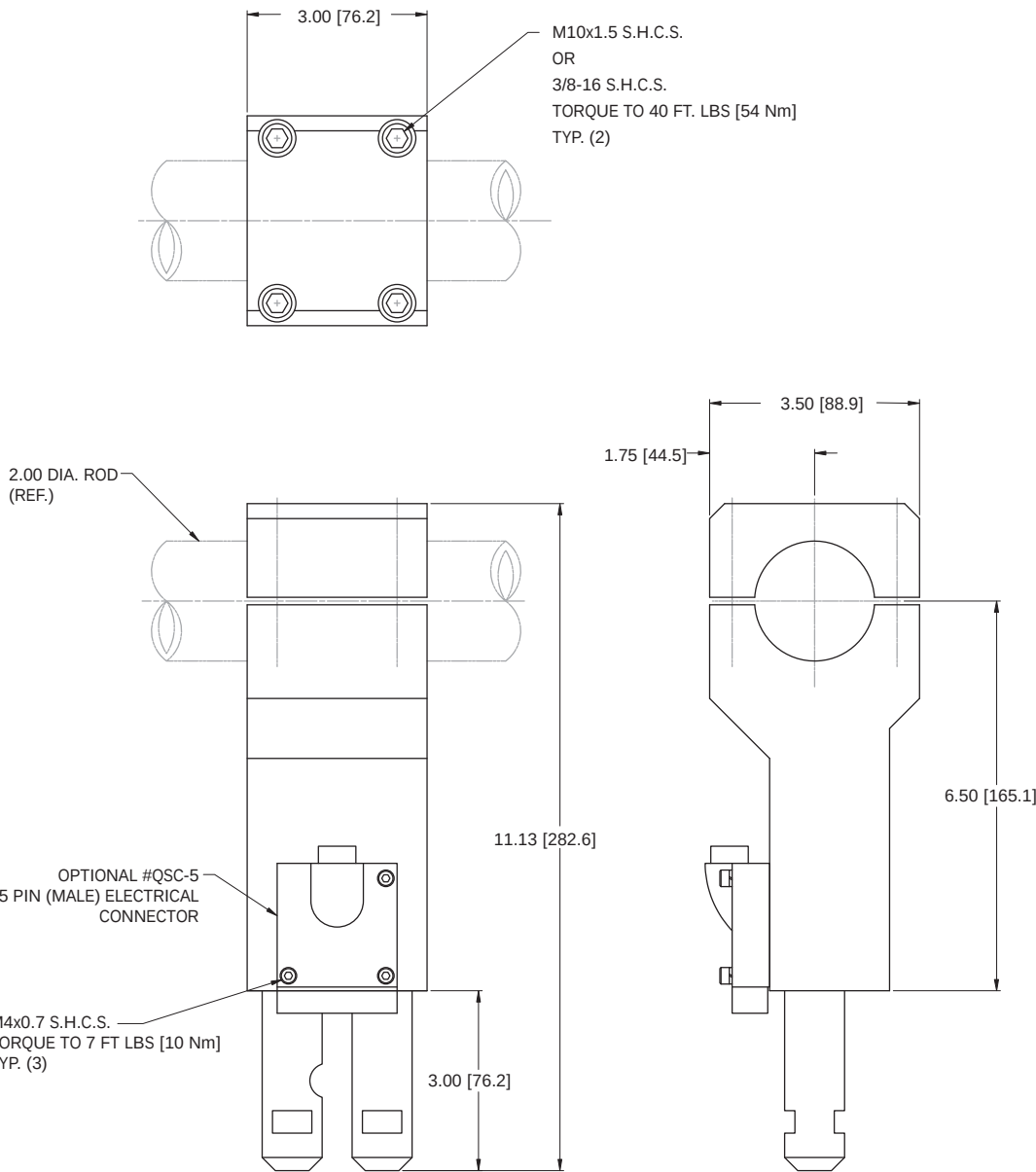
NSMM
QSMM
TE1S
TE1A
Z-10-X

Mounts & Adapters

2.00" Diameter Tubing Adapter

NSTA20 Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - NSTA20 - 1
1 = 5 PIN (MALE) ELECTRICAL CONNECTOR
0 = NO CONNECTOR
NEST SET TUBE ADAPTER (2.00" DIA)
METRIC FASTENER AND PORTING DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Aluminum with Steel Pins
6.25 LBS [2.8 KG]

THIS PRODUCT CONNECTS WITH

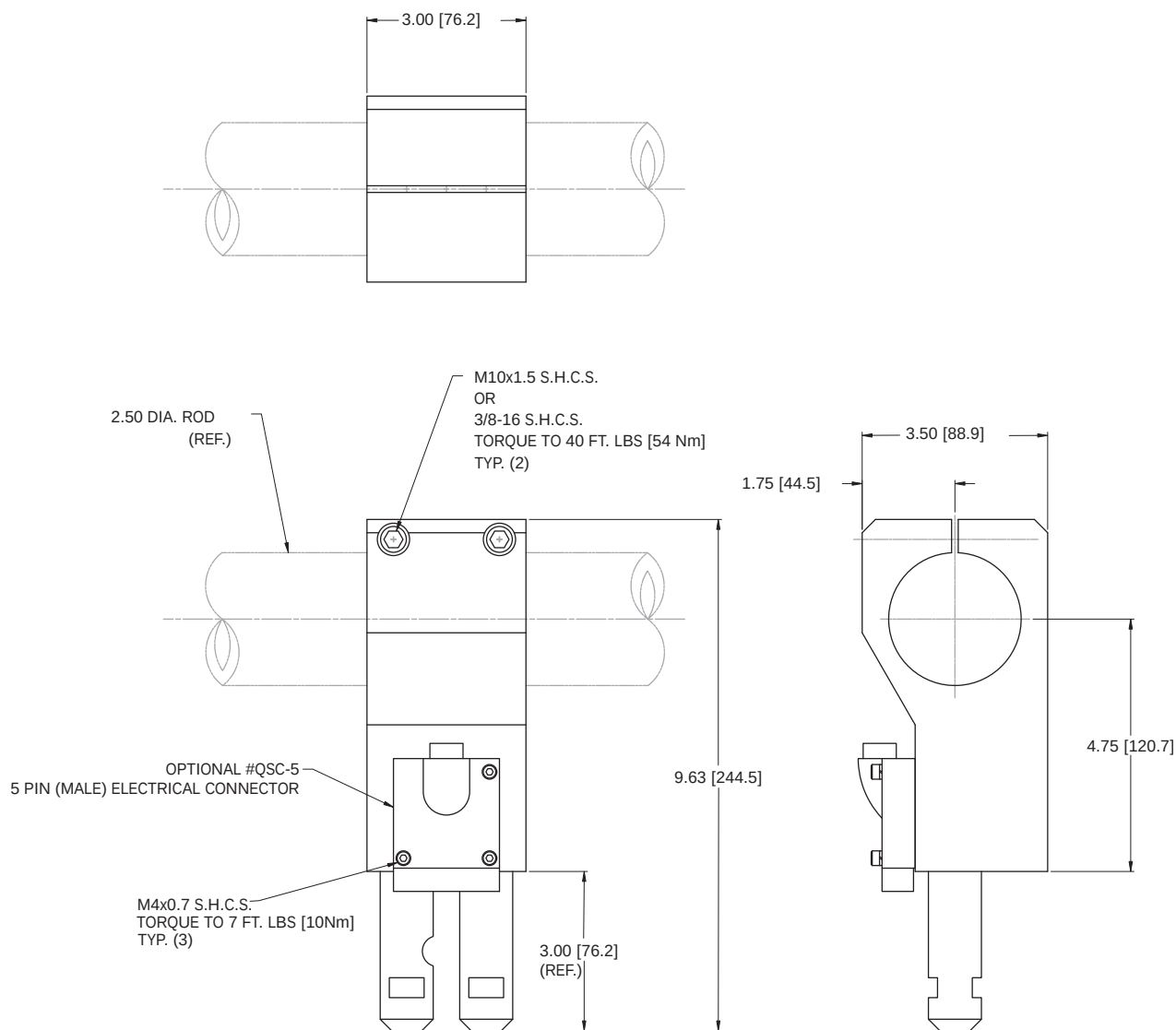
NSMM
QSMM

Mounts & Adapters

2.50" Diameter Tubing Adapter

NSTA25 Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - NSTA25 - 1
 1 = 5 PIN (MALE) ELECTRICAL CONNECTOR
 0 = NO CONNECTOR
 NEST-SET TUBE ADAPTOR (2.50" DIA.)
 METRIC FASTENER AND PORTING DESIGNATION

MATERIAL AND WEIGHT

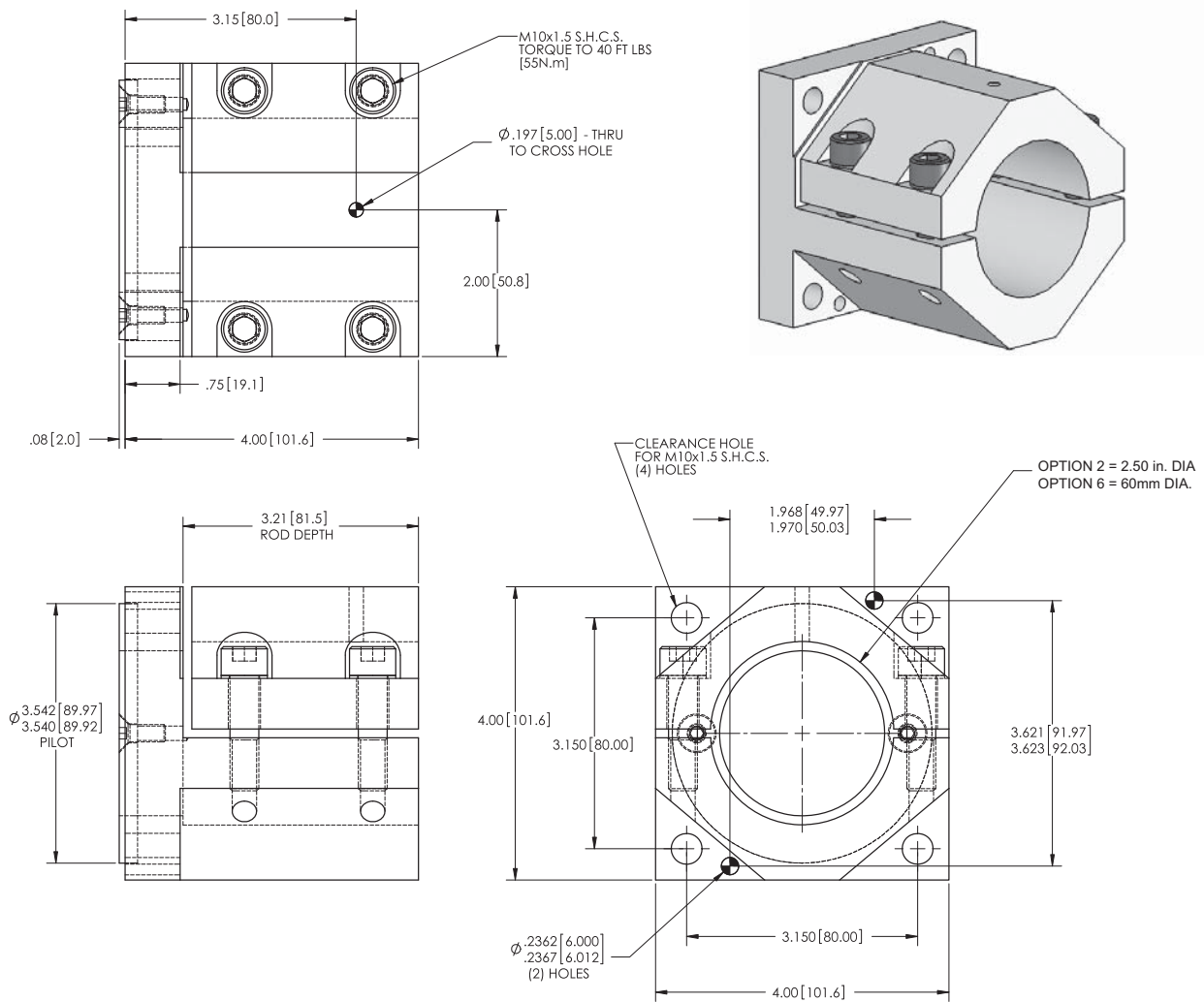
Aluminum with Steel Pins
 5.51 LBS [2.5 KG]

THIS PRODUCT CONNECTS WITH

NSMM
 QSMM
 TE2S
 TE2A
 Z-25-X

Mounts & Adapters

60mm/2.50" Diameter Tooling Flange Mount
TF2E Overall Dimensions and Ordering Information



ORDERING INFORMATION

TF 2 E - NP
OMIT PILOT
ON MOUNTING SURFACE
END MOUNT
2 = 2.50in DIA.
6 = 60mm DIA.
TOOLING FLANGE

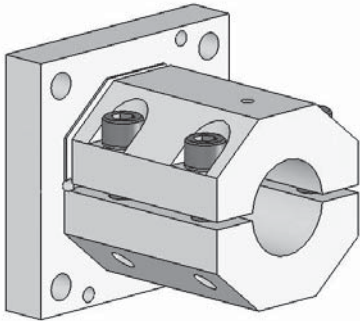
MATERIAL AND WEIGHT

Aluminum
Weight: 3.14 LBS [1.43 KG]

THIS PRODUCT CONNECTS WITH

Z-25-X
TE2S
TE2A
Z-60mm-X

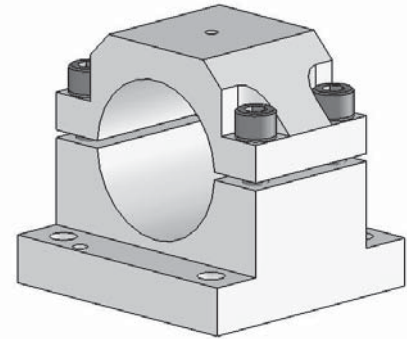
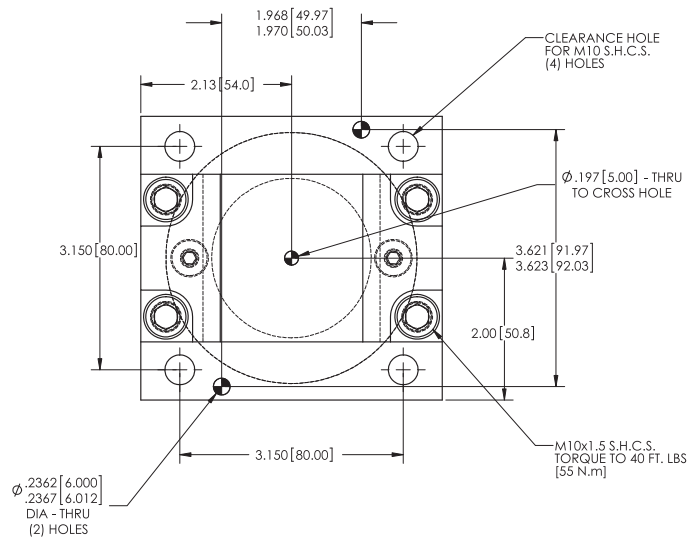
40mm/1.50" Diameter Tooling Flange Mount TF1E Overall Dimensions and Ordering Information



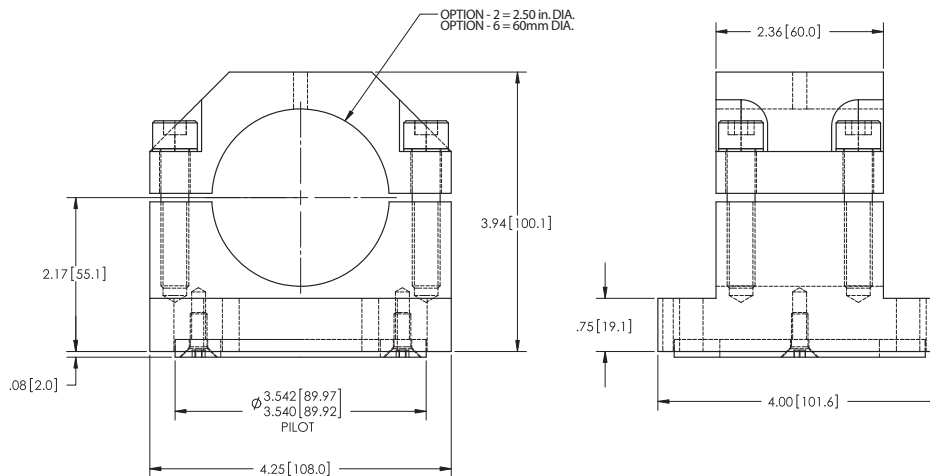
Z-15-X
TE1A
Z-40mm-X

Mounts & Adapters

60mm/2.50" Diameter Saddle Flange Mount
TF2S Overall Dimensions and Ordering Information



NORGREN TOOLING



ORDERING INFORMATION

TF 2 S - NP
 OMIT PILOT ON MOUNTING SURFACE
 SADDLE MOUNT
 2 = 2.50in DIA.
 6 = 60mm DIA.
 TOOLING FLANGE

MATERIAL AND WEIGHT

Aluminum
 2.81 LBS (1.27KG)

THIS PRODUCT CONNECTS WITH

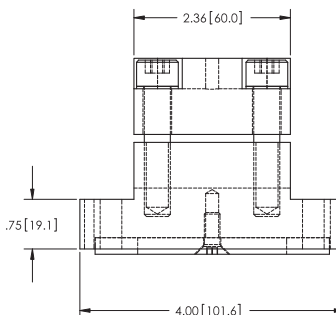
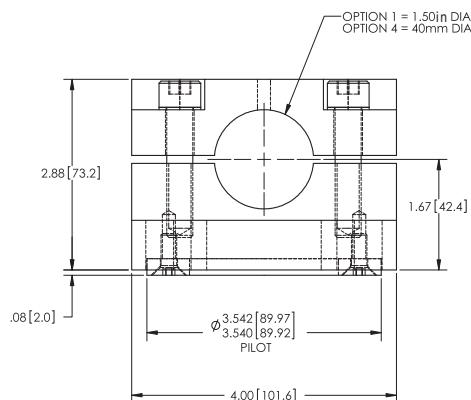
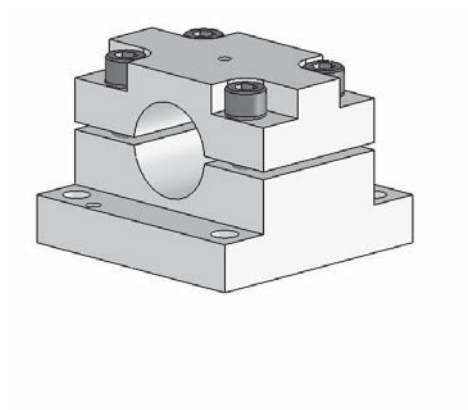
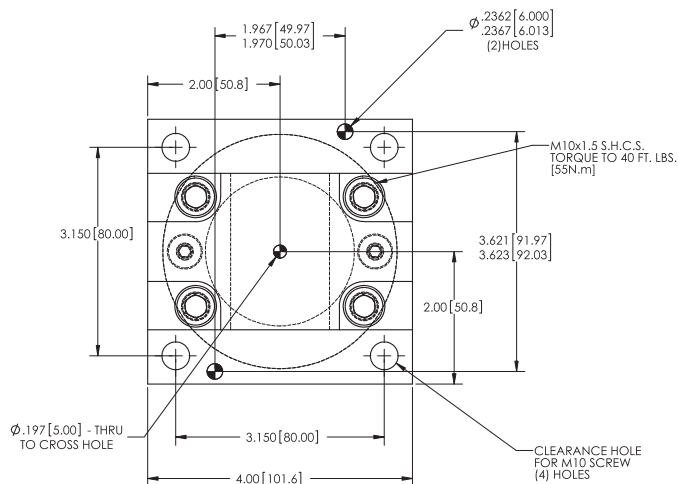
Z-25-X
 TE2S
 TE2A
 Z-60mm-X

Mounts & Adapters

1.50"/40mm Diameter Saddle Flange Mount

TF1S Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TF 1 S - NP
 OMIT PILOT ON MOUNTING SURFACE
 SADDLE MOUNT
 1 = 1.50in DIA.
 4 = 40mm DIA.
 TOOLING FLANGE

MATERIAL AND WEIGHT

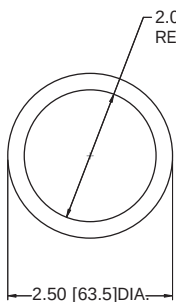
Aluminum
 2.80LBS (1.27KG)

THIS PRODUCT CONNECTS WITH

Z-15-X
 TE1S
 TE1A
 Z-40mm-X

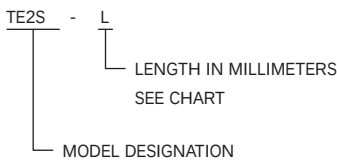
Boom Tubing

2.50" Diameter Boom Tubing
TE2S Overall Dimensions and Ordering Information



NORGREN TOOLING

ORDERING INFORMATION

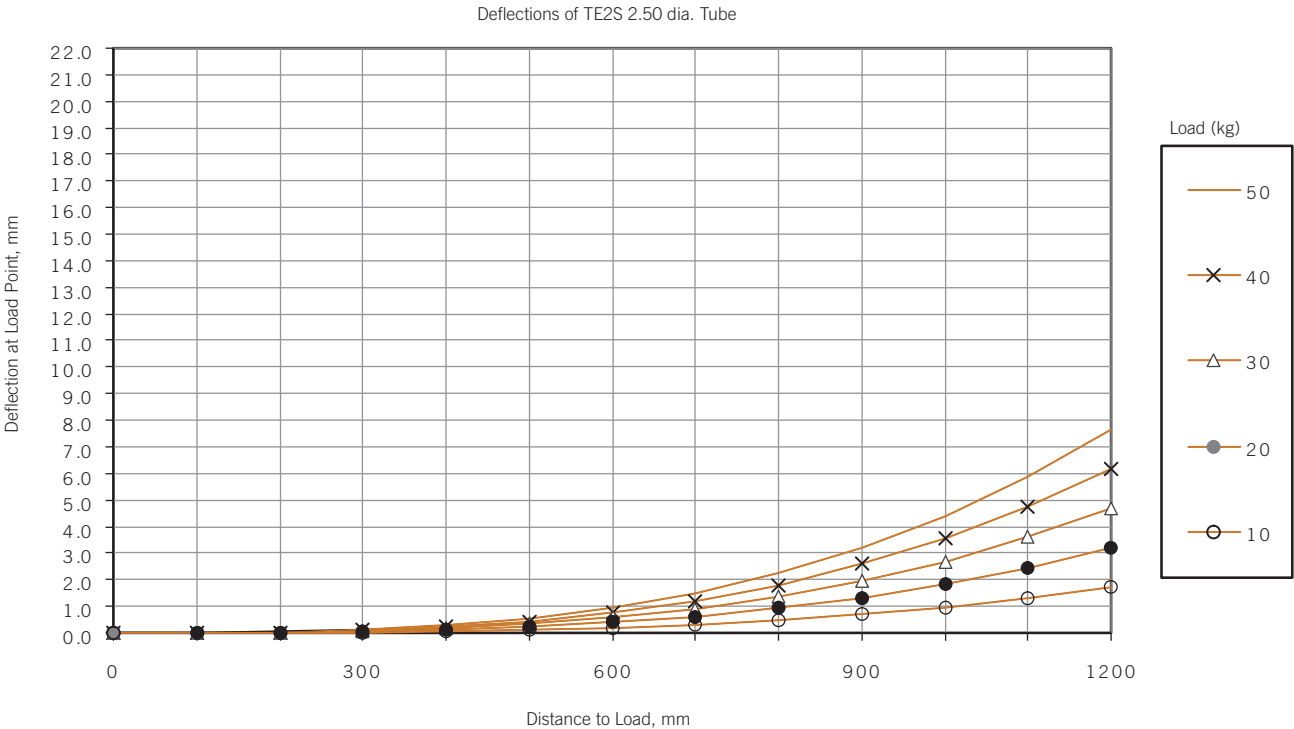


MATERIAL AND WEIGHT

Aluminum Tubing

PART NO.	A	WEIGHT
TE2S-600	23.62 [600.0]	4.10 LBS. [1.86 KG]
TE2S-900	35.43 [900.0]	6.15 LBS. [2.80 KG]
TE2S-1200	47.24 [1200.0]	8.20 LBS. [3.73 KG]
TE2S-1500	59.06 [1500.0]	10.25 LBS. [4.66 KG]
TE2S-1800	70.87 [1800.0]	12.30 LBS. [5.59 KG]
TE2S-3600	141.73 [3600.0]	24.60 LBS. [11.18 KG]

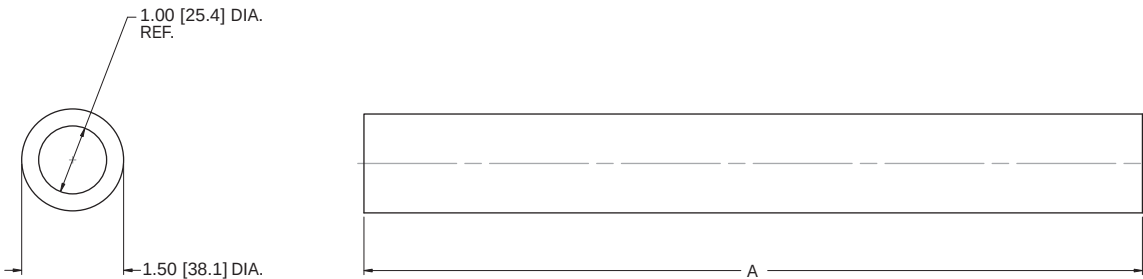
THIS PRODUCT CONNECTS WITH



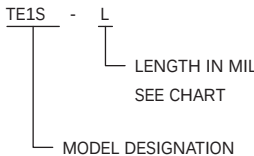
Boom Tubing

1.50" Diameter Boom Tubing
TE1S Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



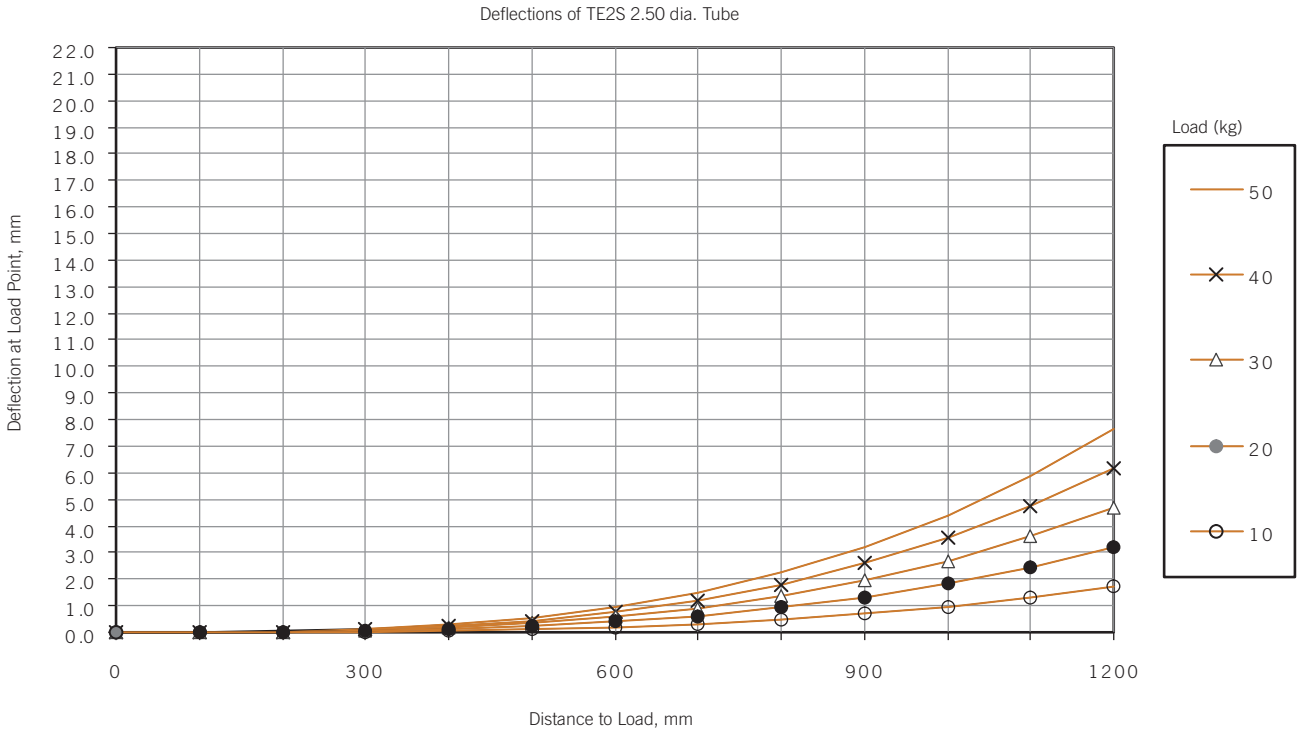
MATERIAL AND WEIGHT

Aluminum Tubing

PART NO.	A	WEIGHT
TE1S-300	11.81 [300.0]	1.15 LBS. [0.52 KG]
TE1S-600	23.62 [600.0]	2.30 LBS. [1.05 KG]
TE1S-900	35.43 [900.0]	3.45 LBS. [1.57 KG]
TE1S-1200	47.24 [1200.0]	4.60 LBS. [2.09 KG]
TE1S-1500	59.06 [1500.0]	5.75 LBS. [2.62 KG]

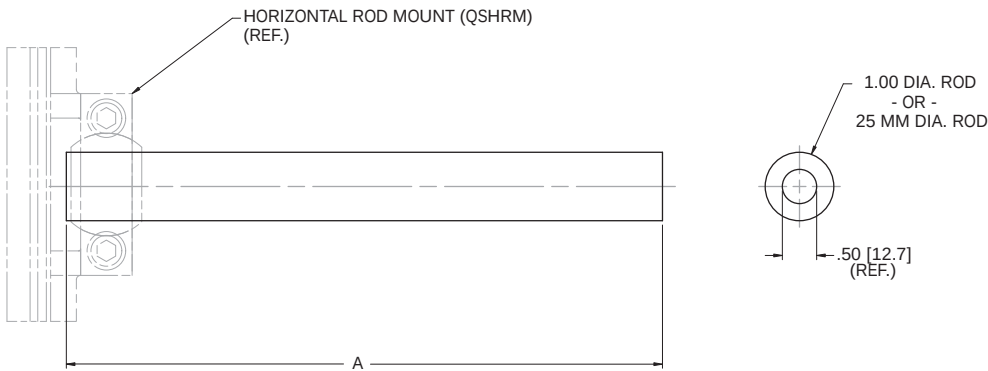
THIS PRODUCT CONNECTS WITH

TA1A
TF1E
TF1S



Boom Tubing

1.00" and 25 mm Diameter Horizontal Boom Rod
QSHBR Overall Dimensions and Ordering Information



NORGREN TOOLING

ORDERING INFORMATION

X - QSHBR - 300	
	TUBING LENGTH
	75-75 mm ROD
	100 - 100 mm ROD
	150 - 150 mm ROD
	200 - 200 mm ROD
	250 - 250 mm ROD
	300 - 300 mm ROD
	350 - 350 mm ROD
	400 - 400 mm ROD
	450 - 450 mm ROD
	500 - 500 mm ROD
	550 - 550 mm ROD
	600 - 650 mm ROD
	650 - 650 mm ROD
	700 - 700 mm ROD
	750 - 750 mm ROD
	800 - 800 mm ROD
	850 - 850 mm ROD
	900 - 900 mm ROD
	QUIK SET BOOM ROD
	METRIC DIAMETER DESIGNATION

MATERIAL AND WEIGHT

Aluminum Tubing
0.69 LBS FT [1.6 KG/m]

THIS PRODUCT CONNECTS WITH

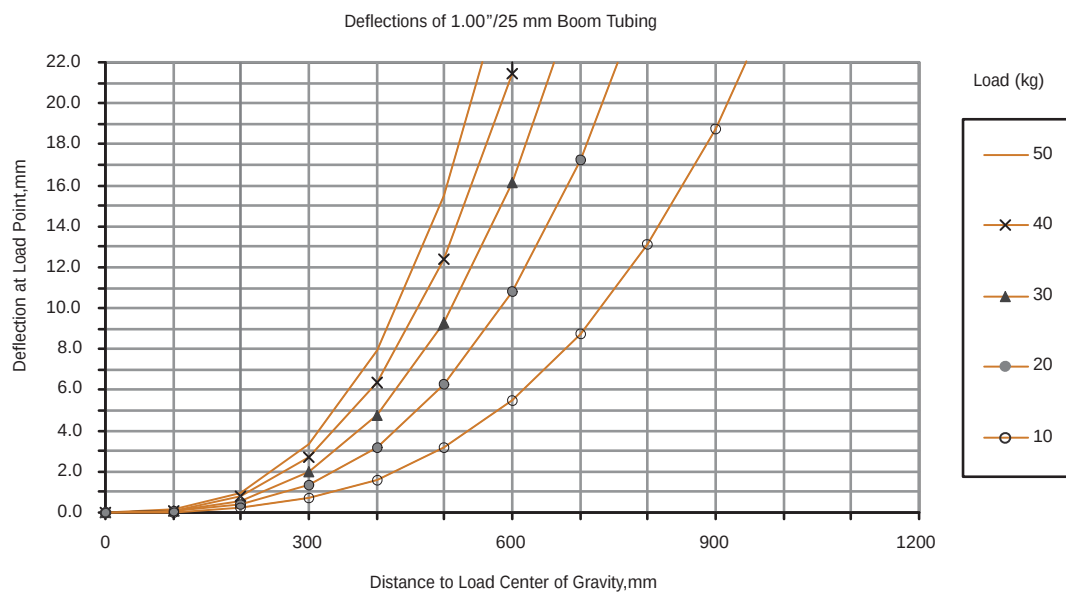
- TM1A
- TM2A
- TM1C
- TM2C
- TM1D
- TM1F
- TM2F
- BRMB-90-90-1
- RS2HM
- RS2VM
- QSHRM
- QSVRM
- BA180
- UMB

Boom Tubing

1.00" and 25 mm Diameter Horizontal Boom Rod

QSHBR Deflection Charts

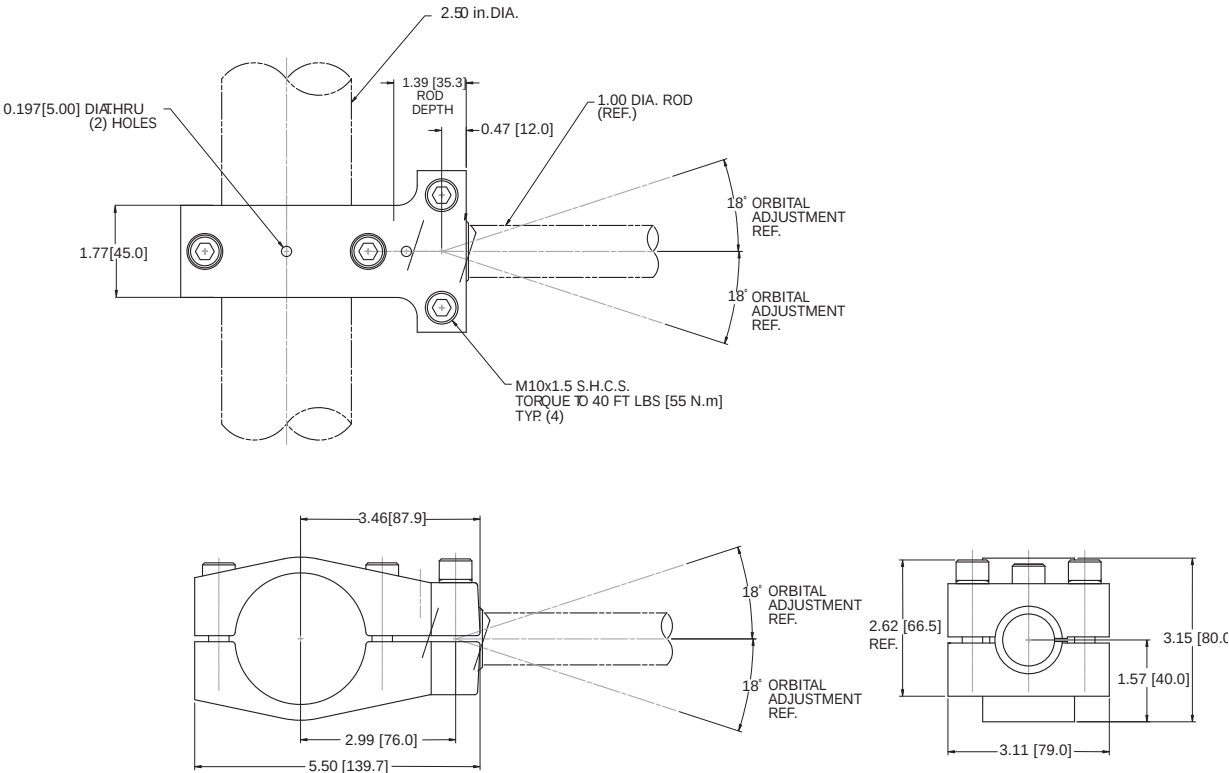
NORGREN TOOLING



Modular Tooling Solutions

2.50" to 1.00" Diameter Orbital Arm Single Rod Mount
TM2A Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM2A
└ MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum
Weight: 1.77 LBS [0.8 KG]

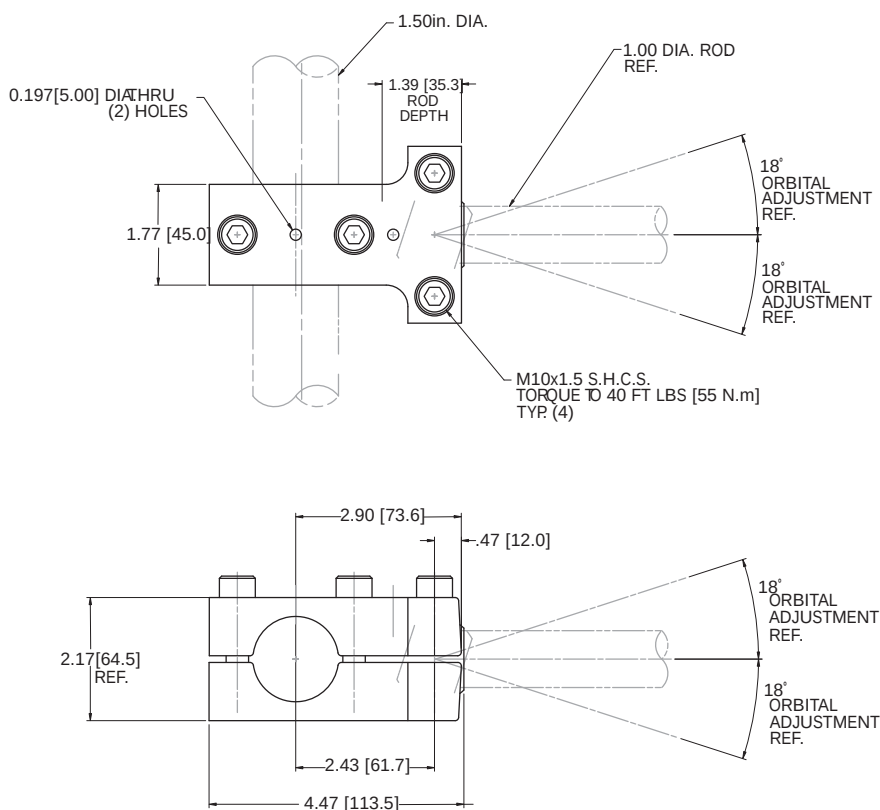
THIS PRODUCT CONNECTS WITH

TE2S
QSHBR

Modular Tooling Solutions

1.50" to 1.00" Diameter Orbital Arm Single Rod Mount
TM1A Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM1A

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum
1.56 LBS [0.7 KG]

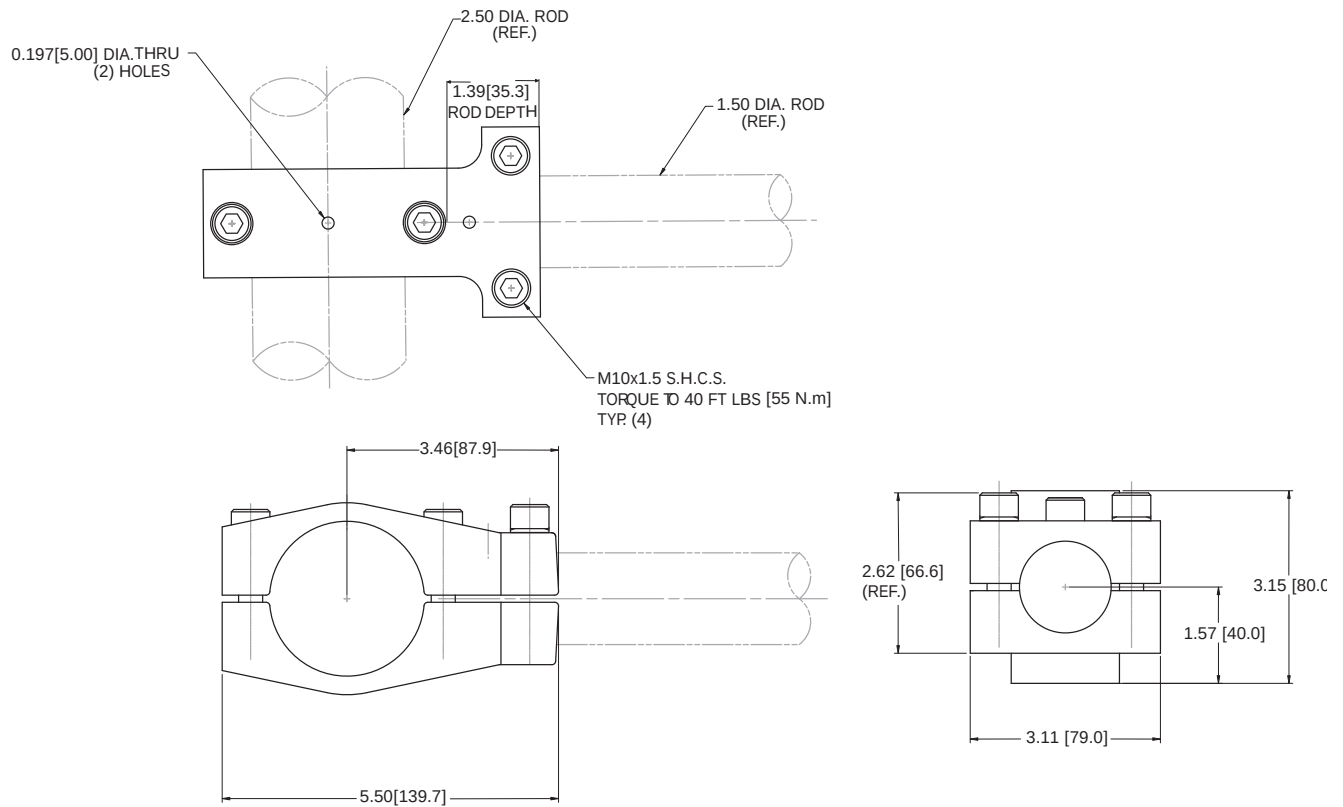
THIS PRODUCT CONNECTS WITH

TE1S
QSHBR

Modular Tooling Solutions

2.50" to 1.50" Diameter Fixed Arm Single Rod Mount
TM2B Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM2B
MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum
1.77 LBS [0.8 KG]

THIS PRODUCT CONNECTS WITH

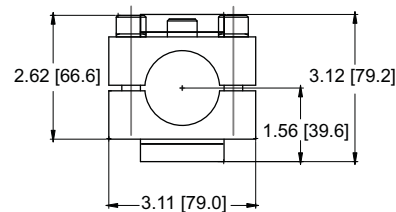
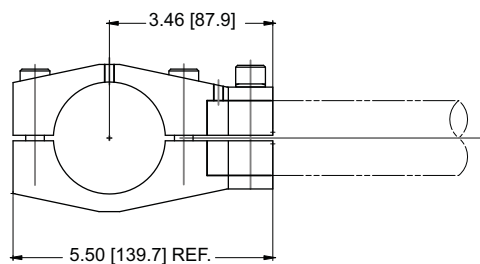
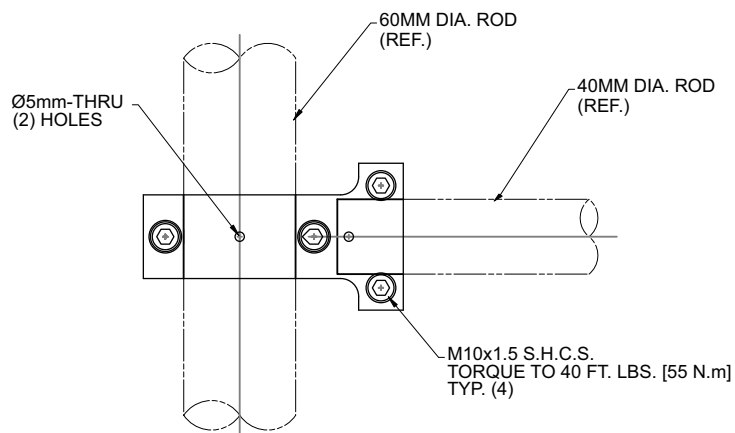
TE2S
TE1S

Modular Tooling Solutions

60mm to 40mm Diameter Fixed Arm Single Rod Mount

TM6B Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM6B
MODEL DESIGNATION

MATERIAL AND WEIGHT

Aluminum
1.60 LBS [0.73 KG]

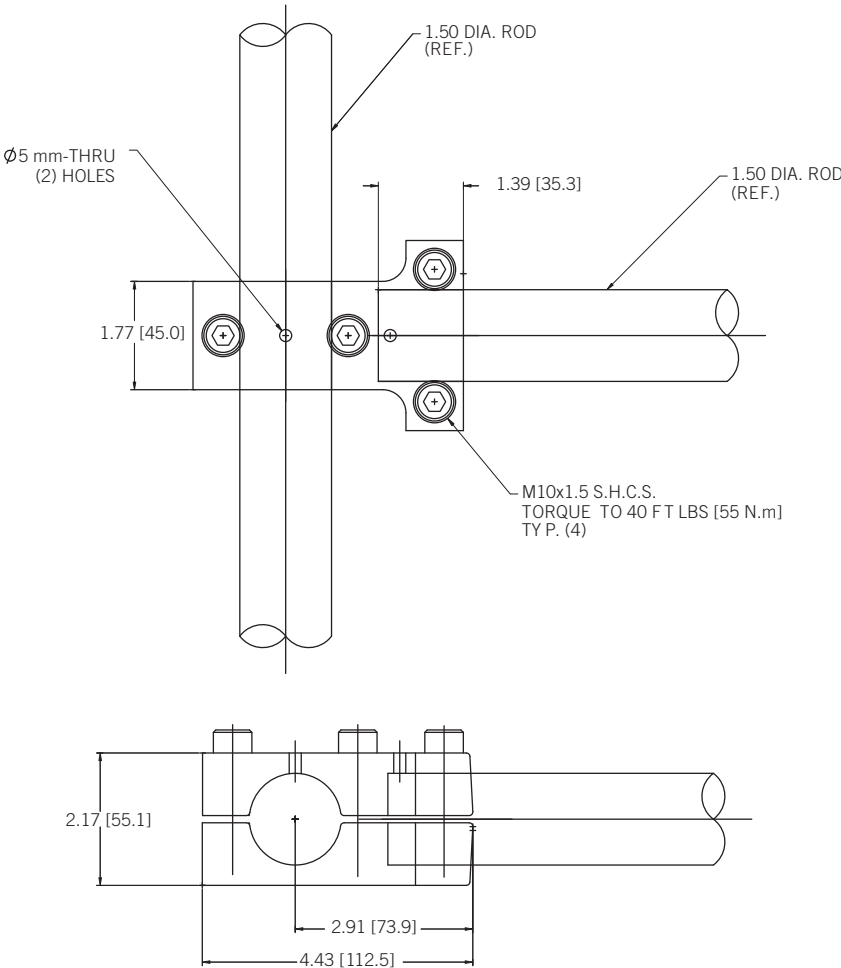
THIS PRODUCT CONNECTS WITH

Z-40mm-X
Z-60mm-X

Modular Tooling Solutions

1.50" to 1.50" Diameter Fixed Arm Single Rod Mount
TM1B Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM1B
└ MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum
1.56 LBS [0.7 KG]

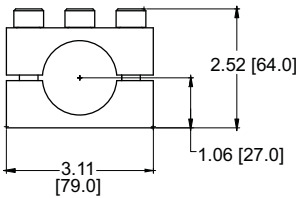
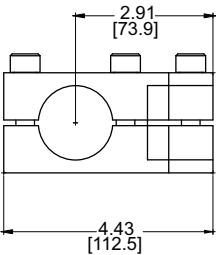
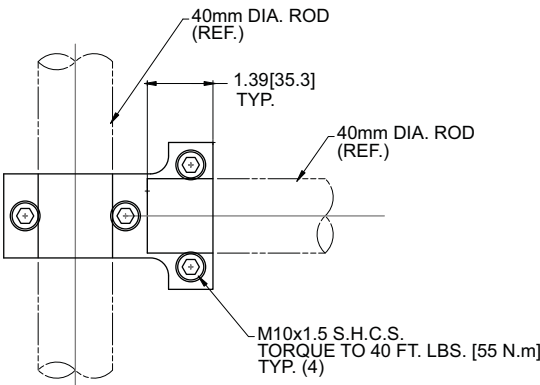
THIS PRODUCT CONNECTS WITH

TE1S

Modular Tooling Solutions

40mm to 40mm Fixed Arm Single Rod Mount
TM4B Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM4B
MODEL DESIGNATION

MATERIAL AND WEIGHT

Aluminum
1.64 LBS [0.74 KG]

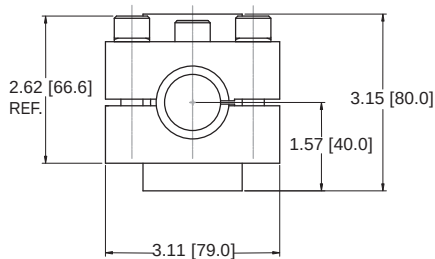
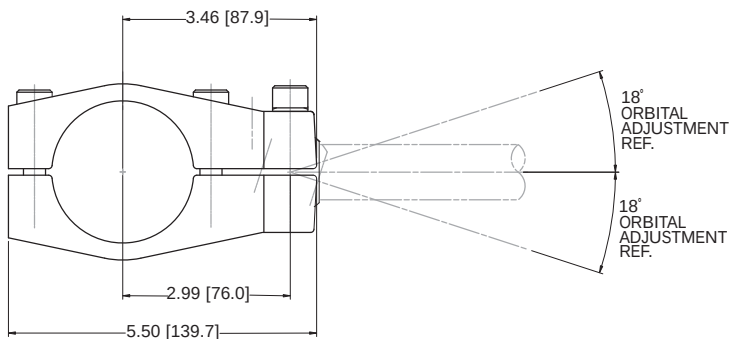
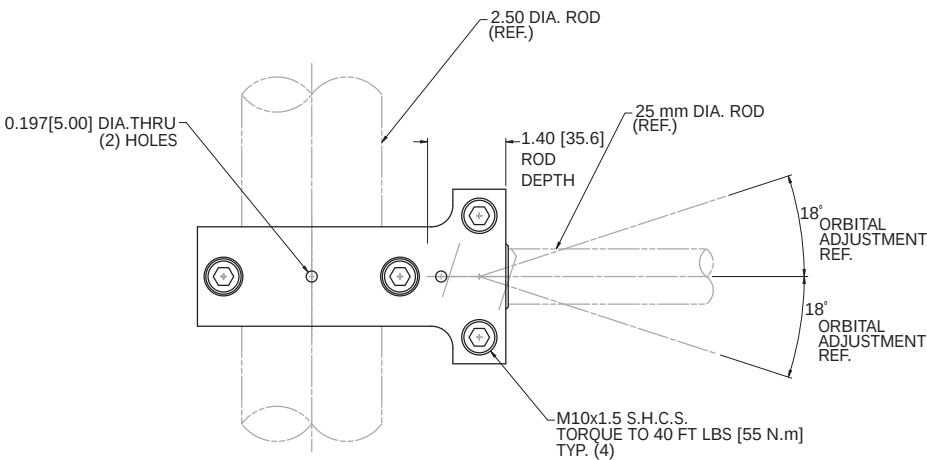
THIS PRODUCT CONNECTS WITH

Z-40mm-X

Modular Tooling Solutions

2.50" to 25 mm Diameter Orbital Arm Single Rod Mount
TM2C Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM2C
MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum
1.77 LBS [0.8 KG]

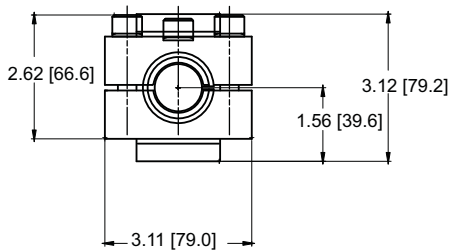
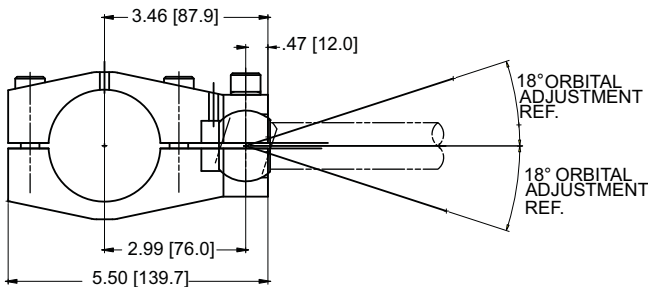
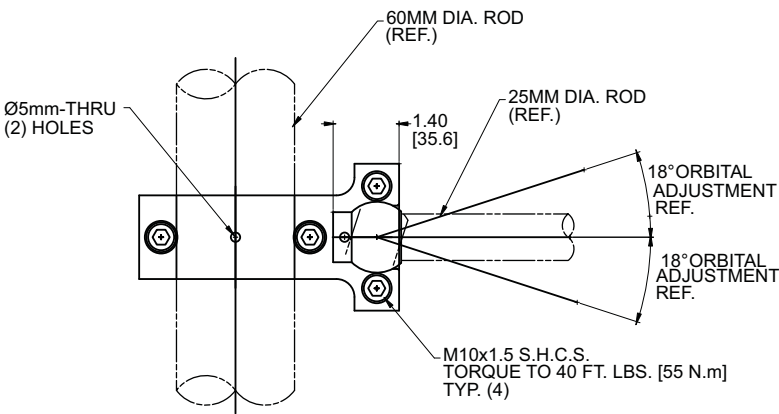
THIS PRODUCT CONNECTS WITH

TE2S
XQSHBR

Modular Tooling Solutions

60mm to 25mm Diameter Orbital Arm Single Rod Mount
TM6C Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM6C
MODEL DESIGNATION

MATERIAL AND WEIGHT

Aluminum
1.77 LBS [0.80 KG]

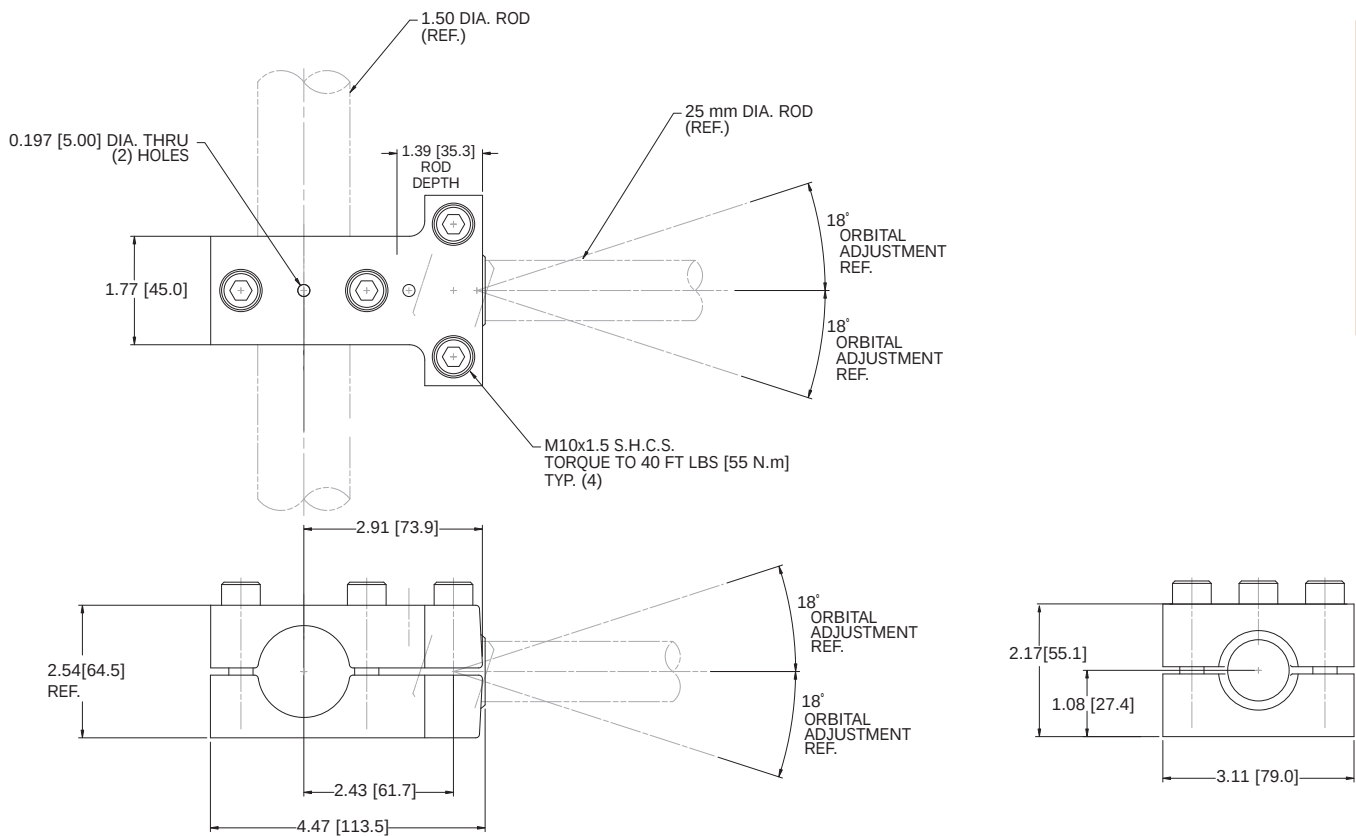
THIS PRODUCT CONNECTS WITH

Z-60mm-X
XQSHBR

Modular Tooling Solutions

1.50" to 25 mm Diameter Orbital Arm Single Rod Mount
TM1C Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM1C
MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum
1.56 LBS [0.7 KG]

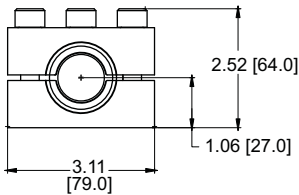
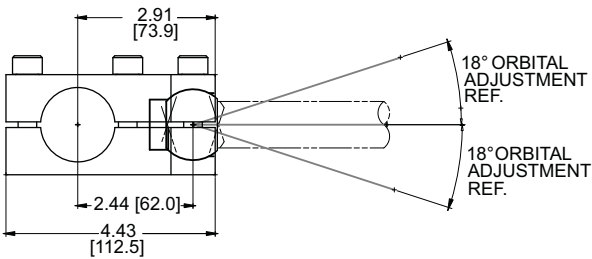
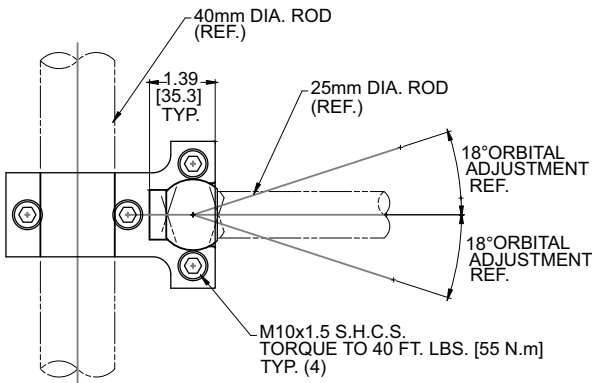
THIS PRODUCT CONNECTS WITH

TE1S
XQSHBR

Modular Tooling Solutions

40mm to 25mm Diameter Orbital Arm Single Rod Mount
TM4C Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM4C
MODEL DESIGNATION

MATERIAL AND WEIGHT

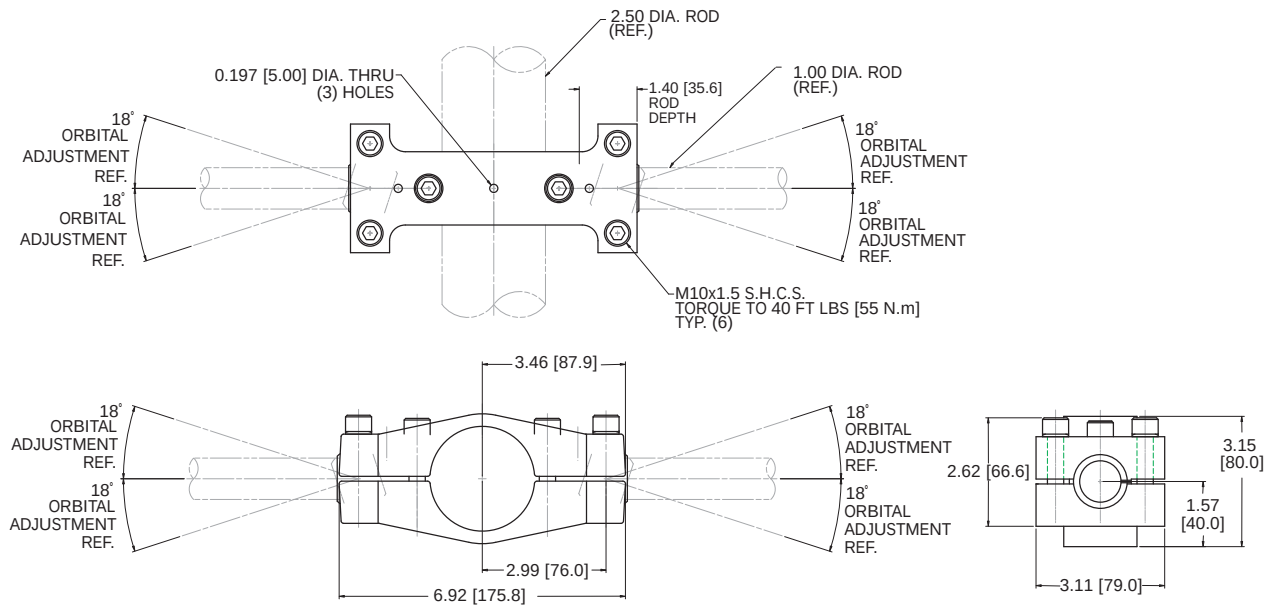
Aluminum
1.64 LBS [0.74 KG]

THIS PRODUCT CONNECTS WITH

Z-40mm-X
XQSHBR

Modular Tooling Solutions

2.50" to 1.00" Diameter Orbital Arm Double Rod Mount
TM2D Overall Dimensions and Ordering Information



ORDERING INFORMATION

TM2D
MODEL DESIGNATION

MATERIAL AND WEIGHT

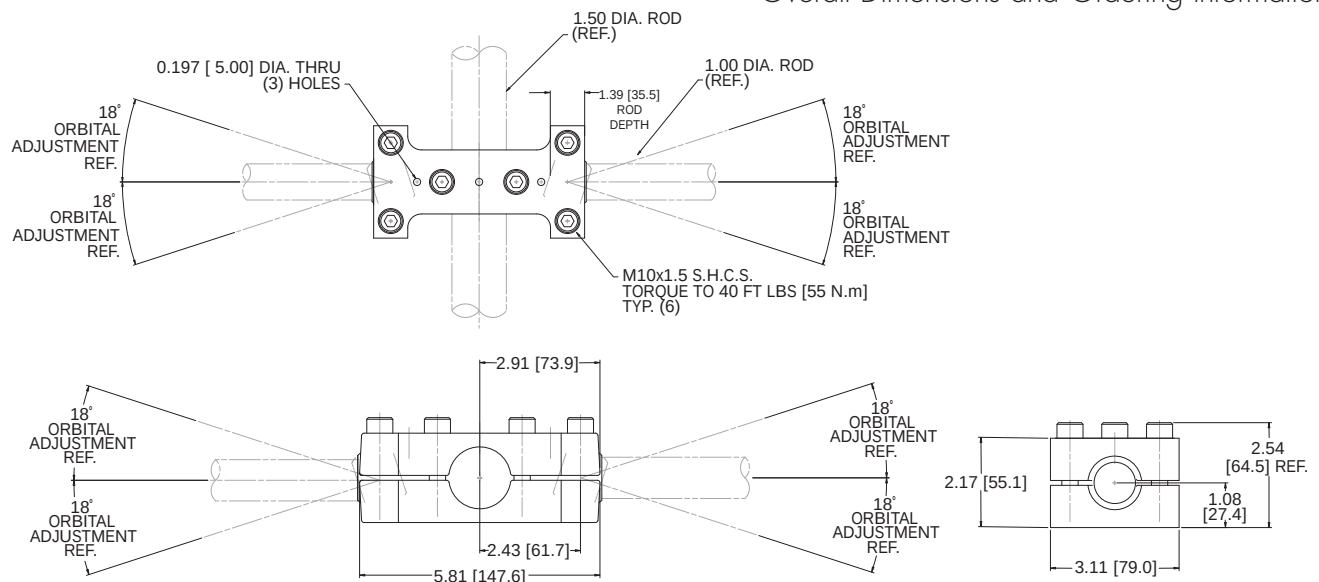
Cast Aluminum
1.56 LBS [0.7 KG]

THIS PRODUCT CONNECTS WITH

TE2S
TE1S

TM1D 1.50" to 1.00" Diameter Orbital Arm Double Rod Mount

Overall Dimensions and Ordering Information



ORDERING INFORMATION

TM1D
MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum
1.56 LBS [0.7 KG]

THIS PRODUCT CONNECTS WITH

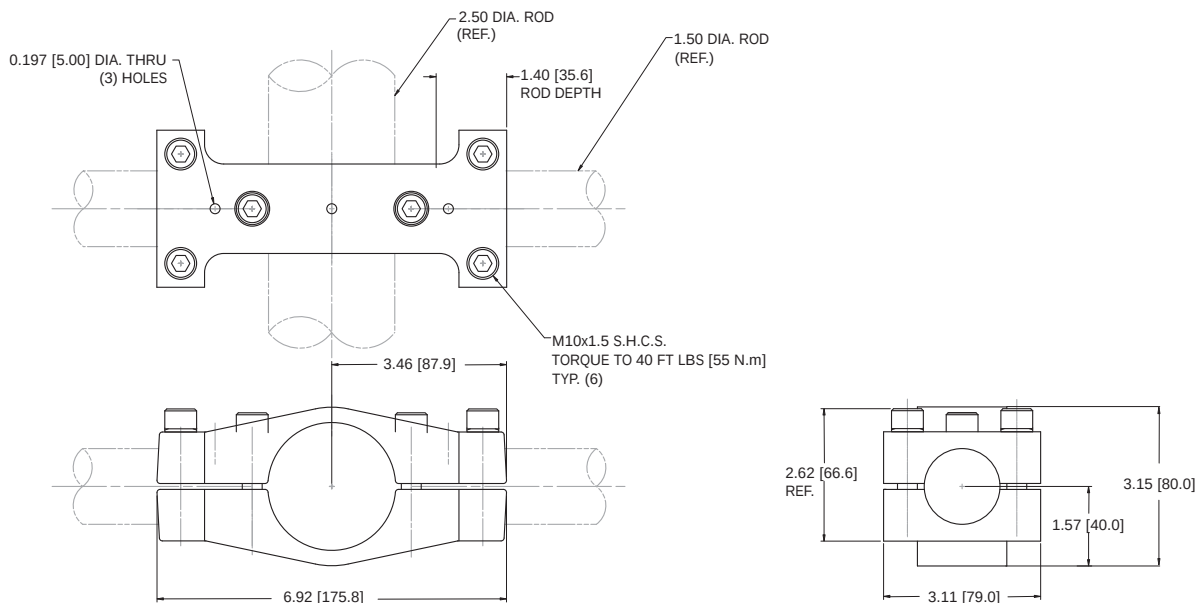
TE1S
QSHBR

Modular Tooling Solutions

2.50" to 1.50" Diameter Fixed Arm Double Rod Mount

TM2E Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM2E
MODEL DESIGNATION

MATERIAL AND WEIGHT

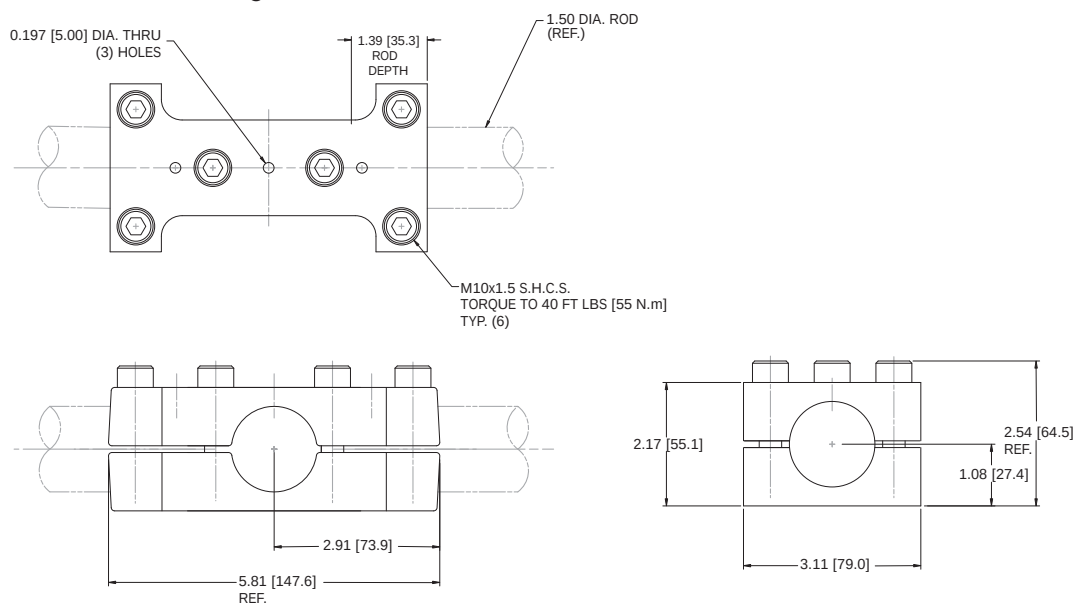
Cast Aluminum
1.56 LBS [0.7 KG]

THIS PRODUCT CONNECTS WITH

TE2S
TE1S

TM1E 1.50" to 1.50" Diameter Fixed Arm Double Rod Mount

Overall Dimensions and Ordering Information



ORDERING INFORMATION

TM1E
MODEL DESIGNATION

MATERIAL AND WEIGHT

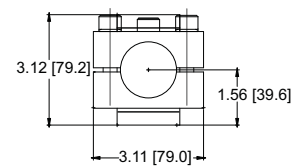
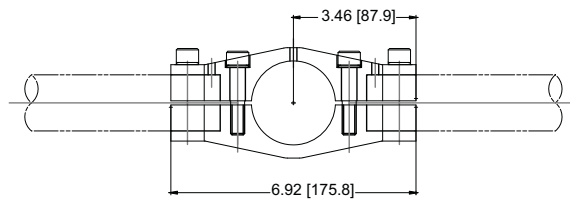
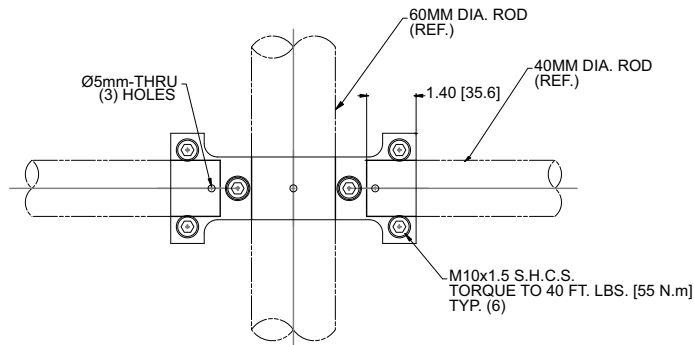
Cast Aluminum
1.56 LBS [0.7 KG]

THIS PRODUCT CONNECTS WITH

TE1S

Modular Tooling Solutions

60mm to 40mm Diameter Fixed Arm Double Rod Mount
TM6E Overall Dimensions and Ordering Information



ORDERING INFORMATION

TM6E
MODEL DESIGNATION

MATERIAL AND WEIGHT

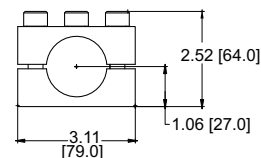
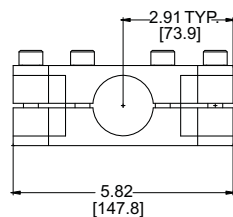
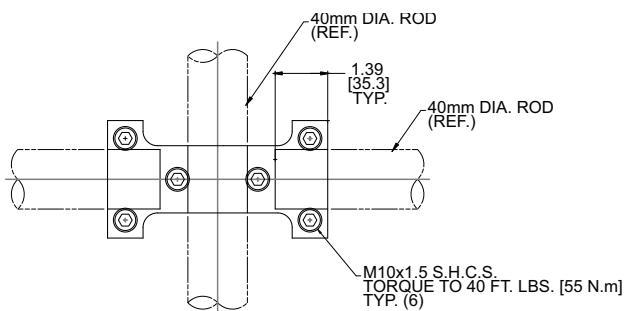
Aluminum
2.19 LBS [0.99 KG]

THIS PRODUCT CONNECTS WITH

Z-40mm-X
Z-60mm-X

TM4E 40mm to 40mm Diameter Fixed Arm Double Tooling Mount

Overall Dimensions and Ordering Information



ORDERING INFORMATION

TM4E
MODEL DESIGNATION

MATERIAL AND WEIGHT

Aluminum
2.36 LBS [1.07 KG]

THIS PRODUCT CONNECTS WITH

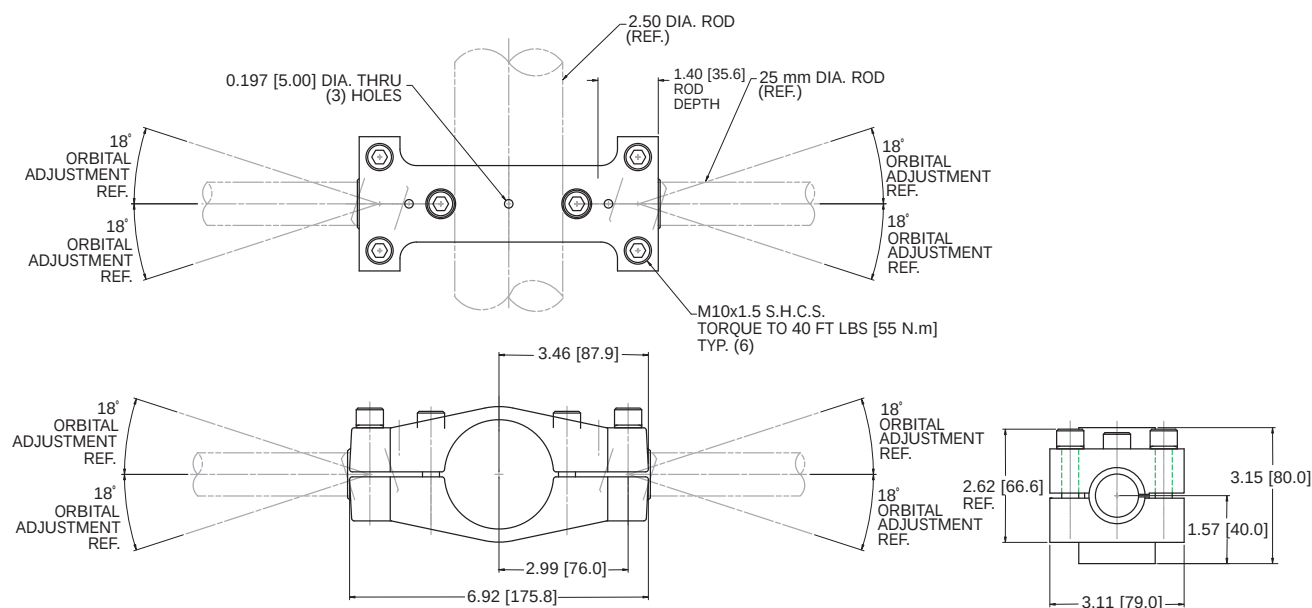
Z-40mm-X

Modular Tooling Solutions

2.50" to 25 mm Diameter Orbital Arm Double Rod Mount

TM2F Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TM2F

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum

1.56 LBS [0.7 KG]

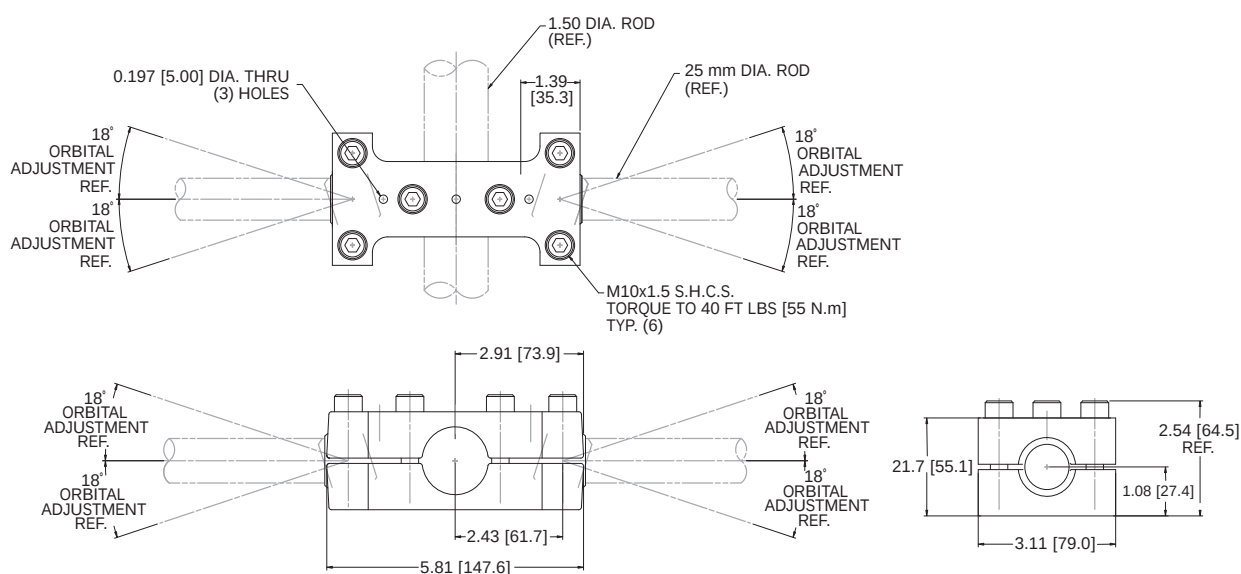
THIS PRODUCT CONNECTS WITH

TF2S

XQSHBR

TM1F 1.50" to 25 mm Diameter Orbital Arm Double Rod Mount

Overall Dimensions and Ordering Information



ORDERING INFORMATION

TM1F

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum

1.56 LBS (0.7 KG)

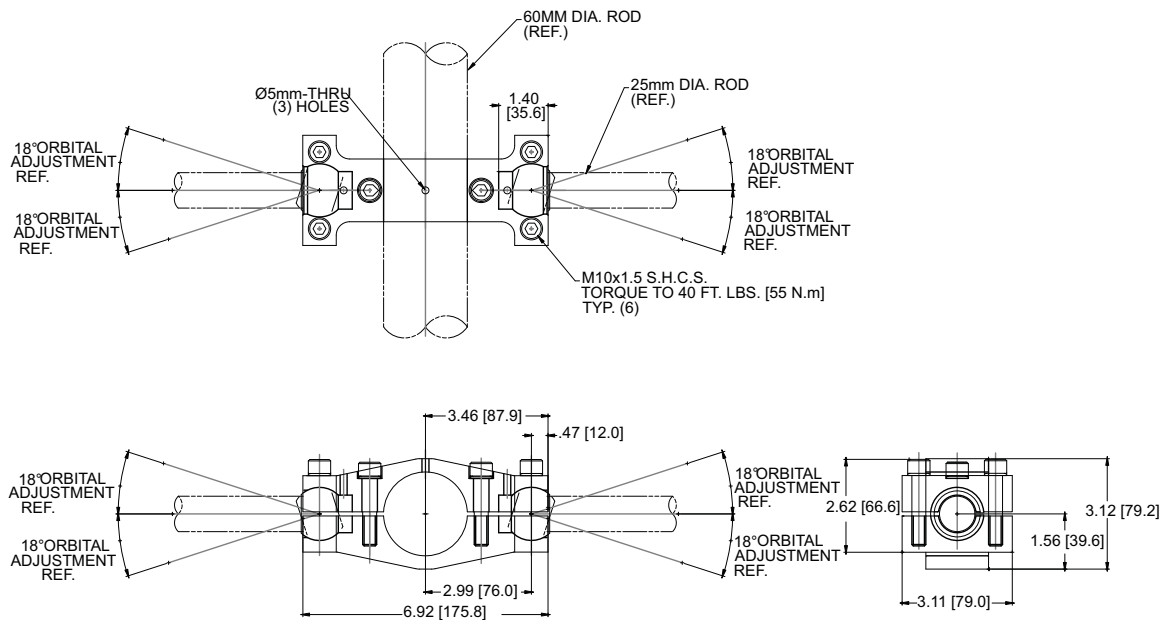
THIS PRODUCT CONNECTS WITH

TF1S

XQSHBR

Modular Tooling Solutions

60mm to 25mm Diameter Orbital Arm Double Rod Mount
TM6F Overall Dimensions and Ordering Information



ORDERING INFORMATION

TM6F
MODEL DESIGNATION

MATERIAL AND WEIGHT

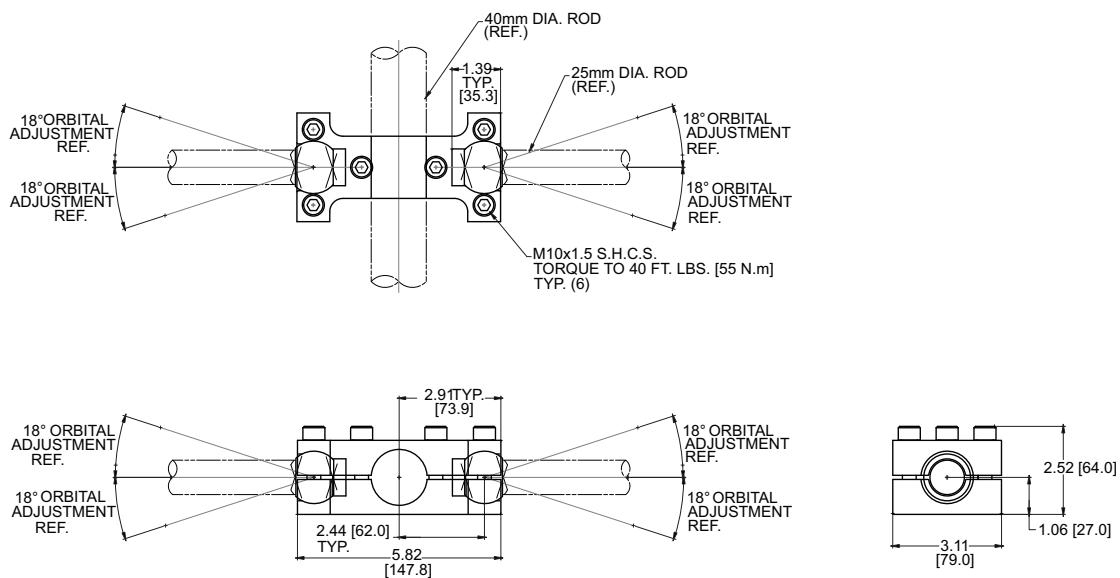
Cast Aluminum
1.56 LBS [0.7 KG]

THIS PRODUCT CONNECTS WITH

Z-60mm-X
XQSHBR

TM4F 40mm to 25mm Diameter Double Boom Mount

Overall Dimensions and Ordering Information



ORDERING INFORMATION

TM4F
MODEL DESIGNATION

MATERIAL AND WEIGHT

Aluminum
2.36 LBS (1.07 KG)

THIS PRODUCT CONNECTS WITH

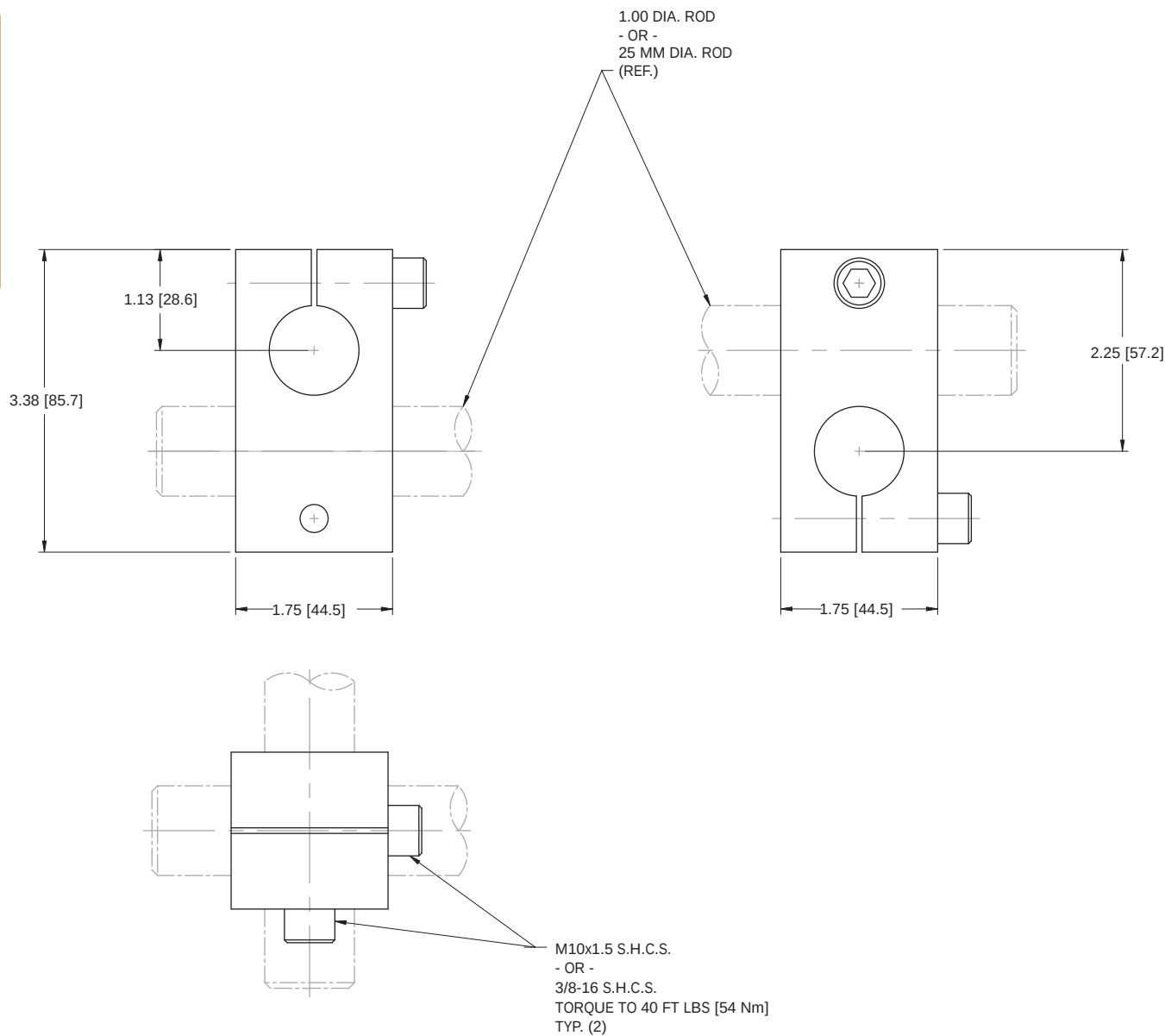
Z-40mm-X
XQSHBR

Modular Tooling Solutions

90° Boom Rod Mount Bracket

BRMB-90-90-1 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - BRMB-90-90 - 1

— ROD/BORE DIAMETER
1 = 1 INCH
25 = 25mm

— MODEL DESIGNATION

— METRIC FASTENER DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Aluminum
0.88 LBS [0.4 KG]

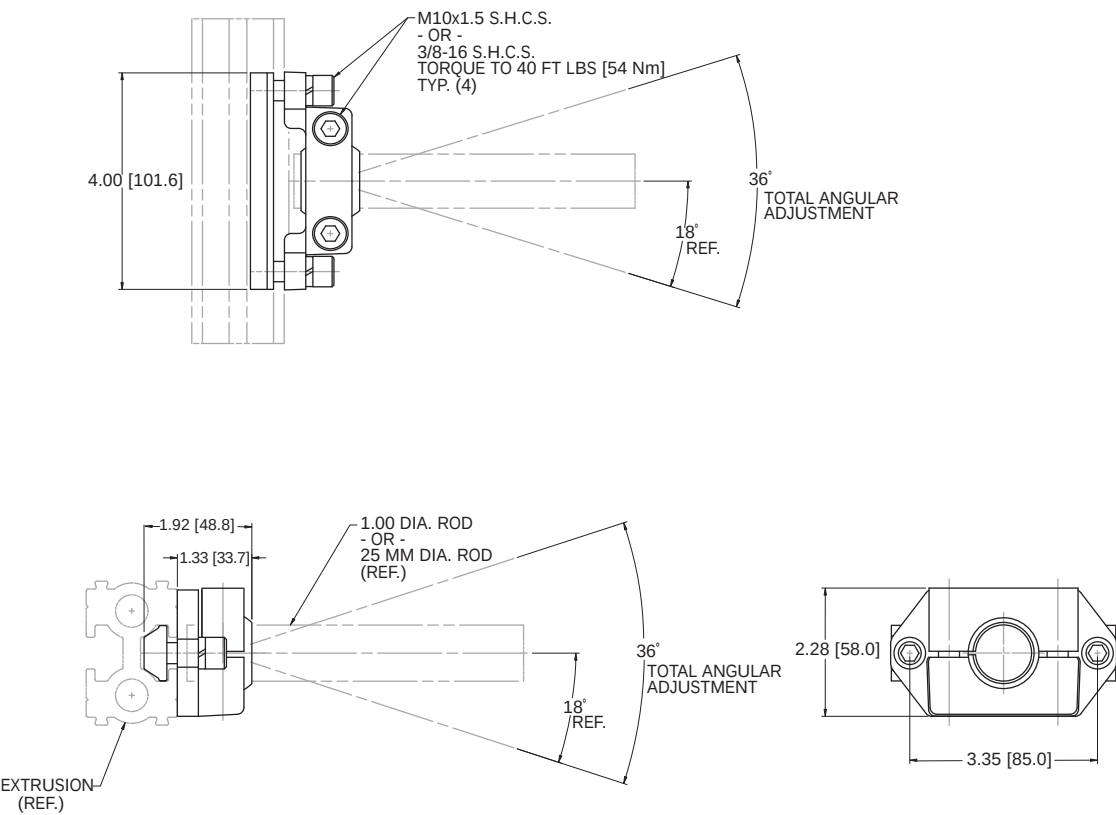
THIS PRODUCT CONNECTS WITH

QSHBR
XQSHBR

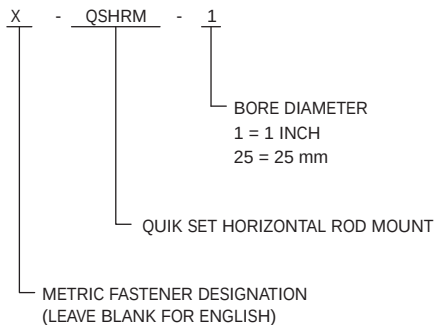
Modular Tooling Solutions

Orbital Horizontal Rod Mount (Non-Ported)
QSHRM Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

Aluminum
1.05 LBS [0.5 KG]

THIS PRODUCT CONNECTS WITH

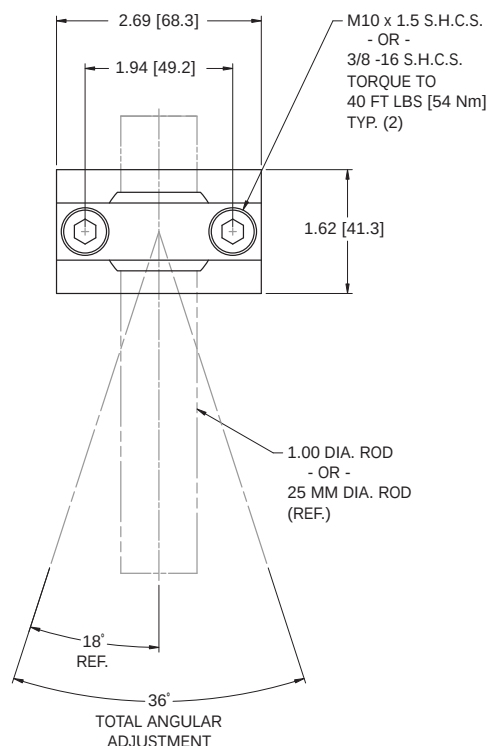
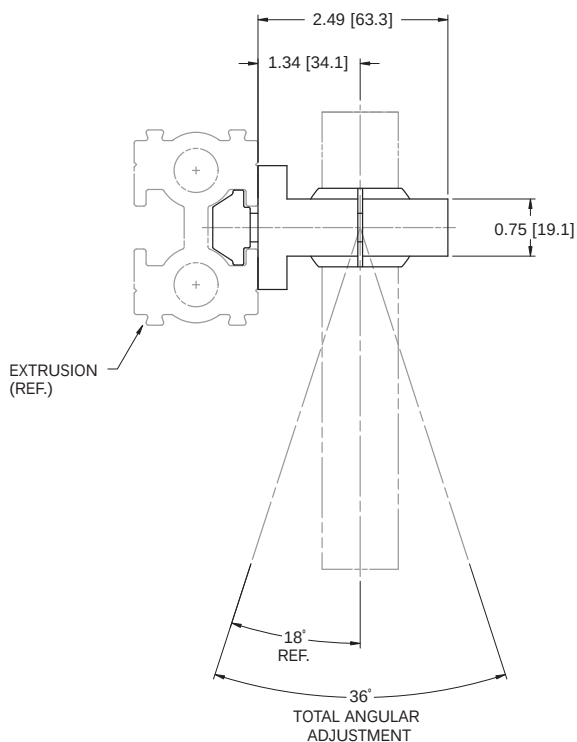
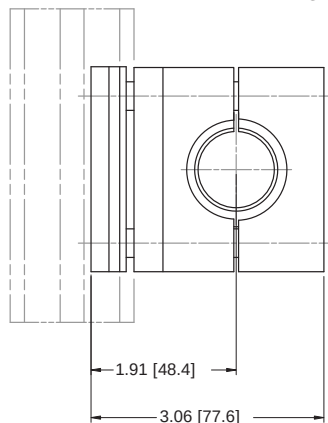
RS2AM-RF
RS2AM-UM
RS2AM
QSHBR

Modular Tooling Solutions

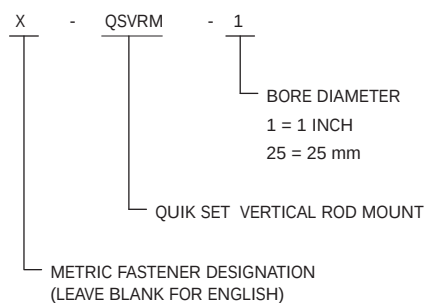
Orbital Vertical Rod Mount (Non-Ported)

QSVRM Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

Cast Aluminum
Weight: See Chart

THIS PRODUCT CONNECTS WITH

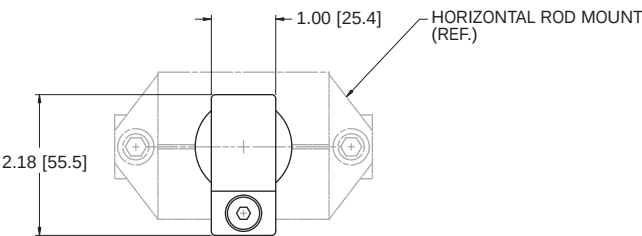
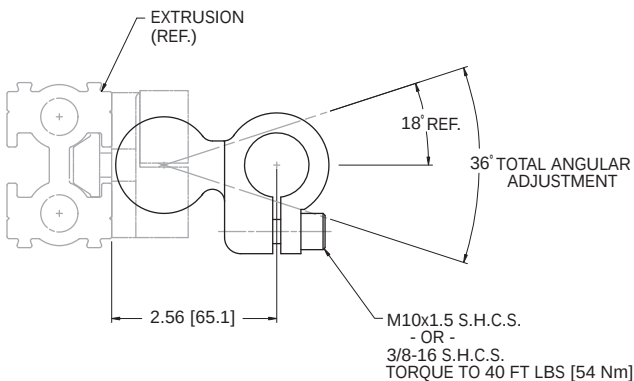
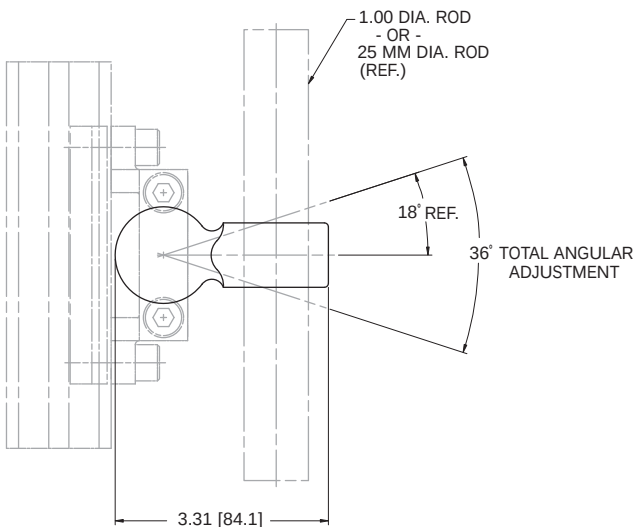
RS2AM
QSHBR
RS2AM-RF
RS2AM-UM

Modular Tooling Solutions

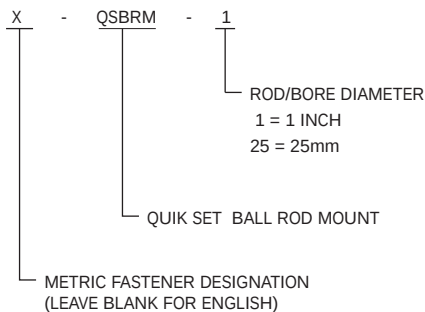
Orbital Boom Rod Mount

QSBRM Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

Aluminum

THIS PRODUCT CONNECTS WITH

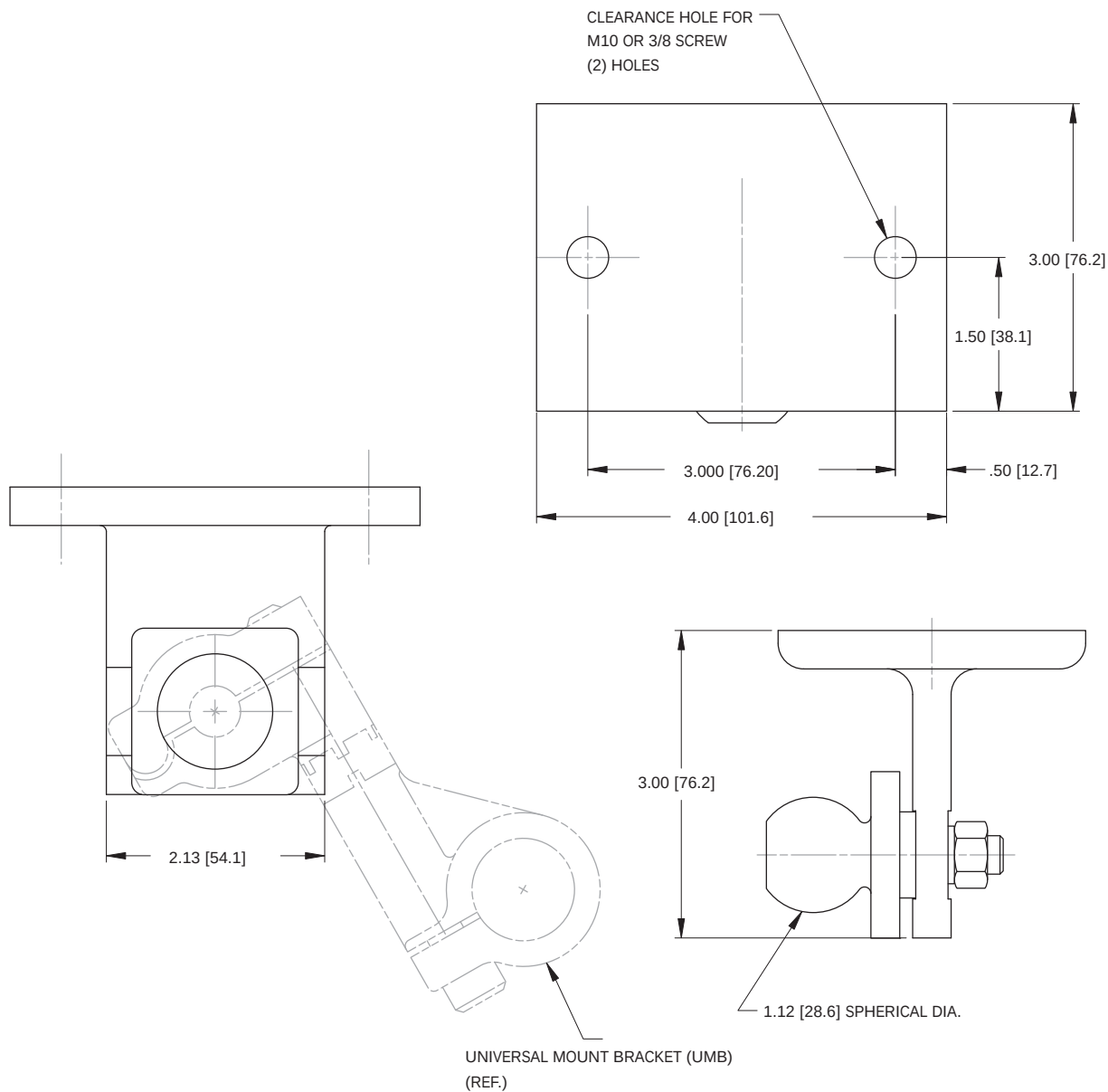
- RS2HM
- RS2VM
- QSHRM
- QSVRM
- QSHBR

Modular Tooling Solutions

Fiberglass Mount Bracket

NS-FGMB Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - NS - FGMB
 FIBERGLASS MOUNT BRACKET
 NEST-SET
 METRIC FASTENER DESIGNATION
 (LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Aluminum
 0.89 LBS [0.4 KG]

THIS PRODUCT CONNECTS WITH

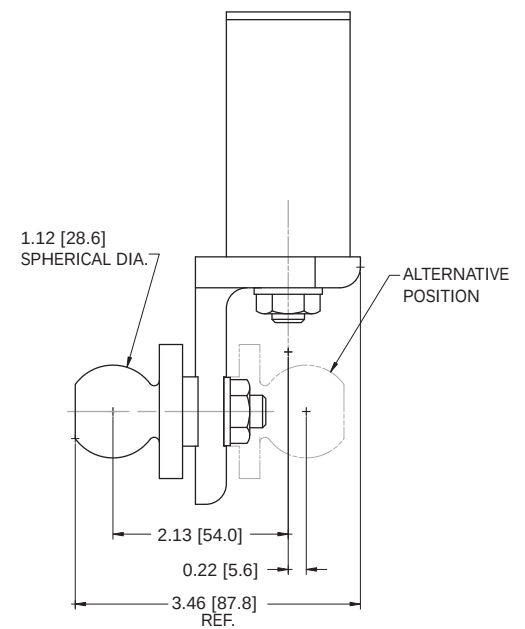
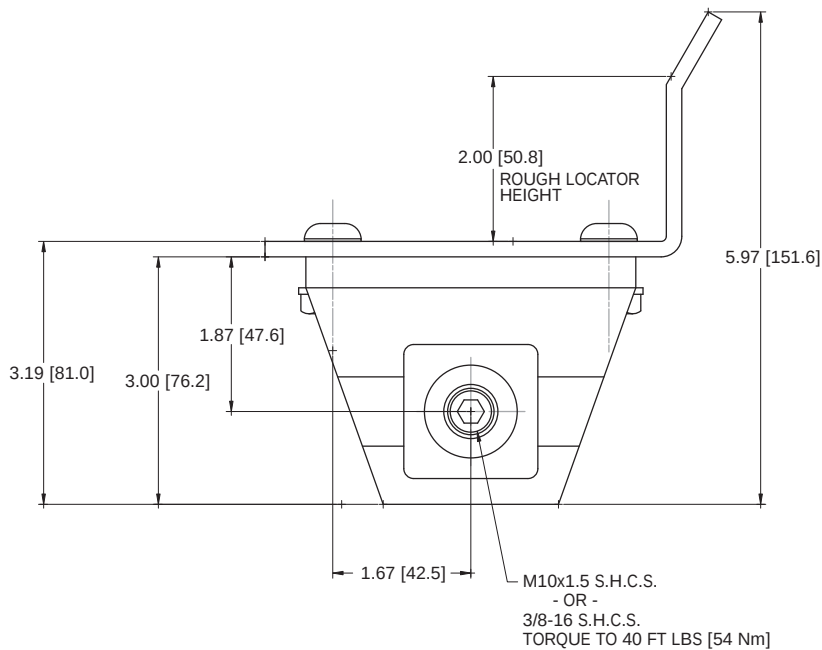
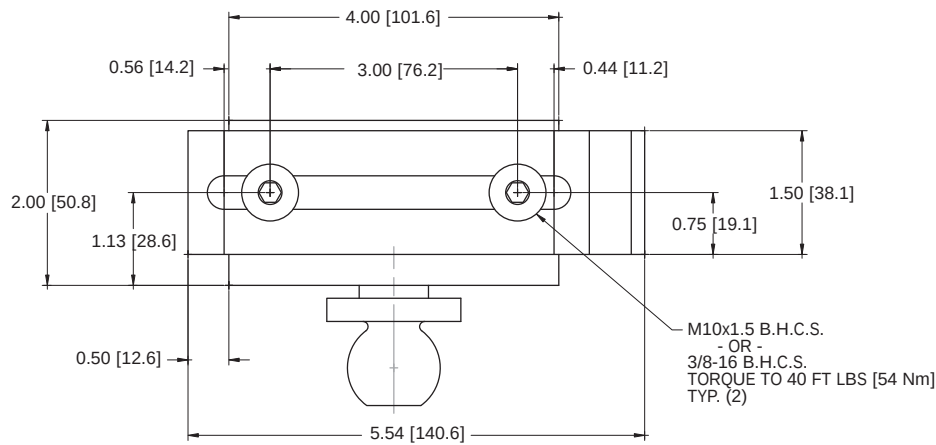
UMB
 TB1A

Modular Tooling Solutions

Angle Mount Bracket

NS-AMB4 Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - NS - AMB4 - 1

ROUGH LOCATOR OPTION
 0 = NONE
 1 = 2" HEIGHT - 90° ANGLE (290)
 2 = 6" HEIGHT - 90° ANGLE (690)

ANGLE MOUNT BRACKET

NEST SET

METRIC FASTENER DESIGNATION
 (LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Aluminum with Steel Locator
 0.79lbs [0.4 kg]

THIS PRODUCT CONNECTS WITH

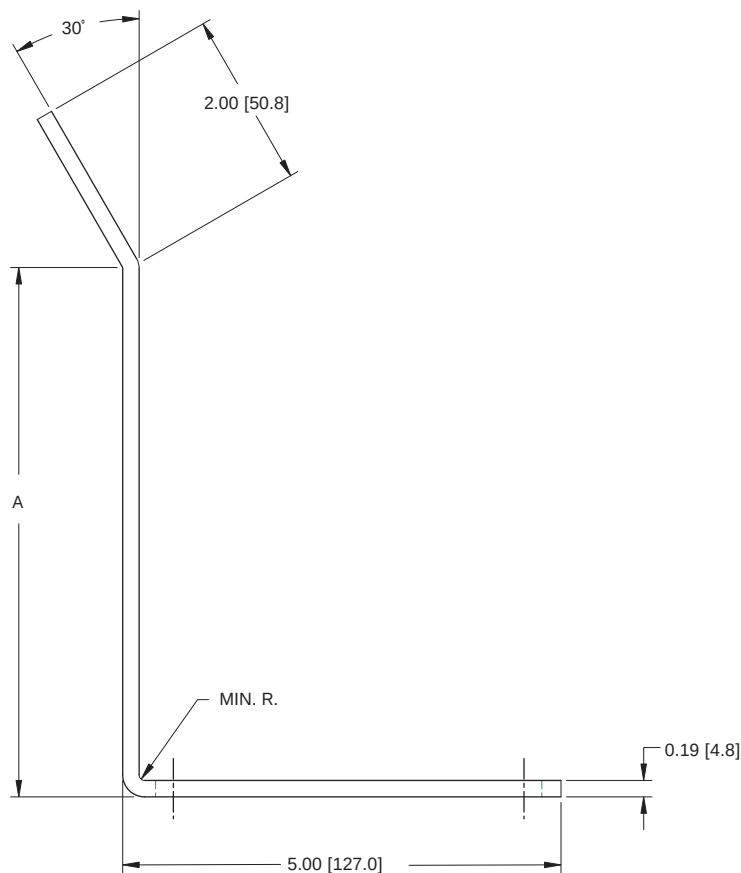
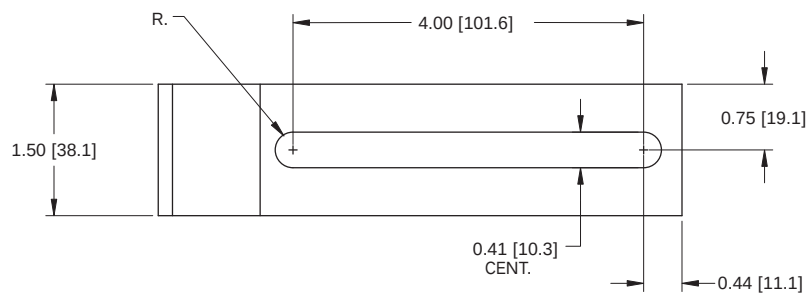
UMB
 TB1A

Modular Tooling Solutions

Rough Locator Bracket

NS-RL Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

NS-RL - 690

ROUGH LOCATOR LENGTH 'A'
290 = 2.00 [50.8] HEIGHT
690 = 6.00 [152.4] HEIGHT

NEST SET ROUGH LOCATOR

MATERIAL AND WEIGHT

Steel
0.79 lbs [0.4 kg]

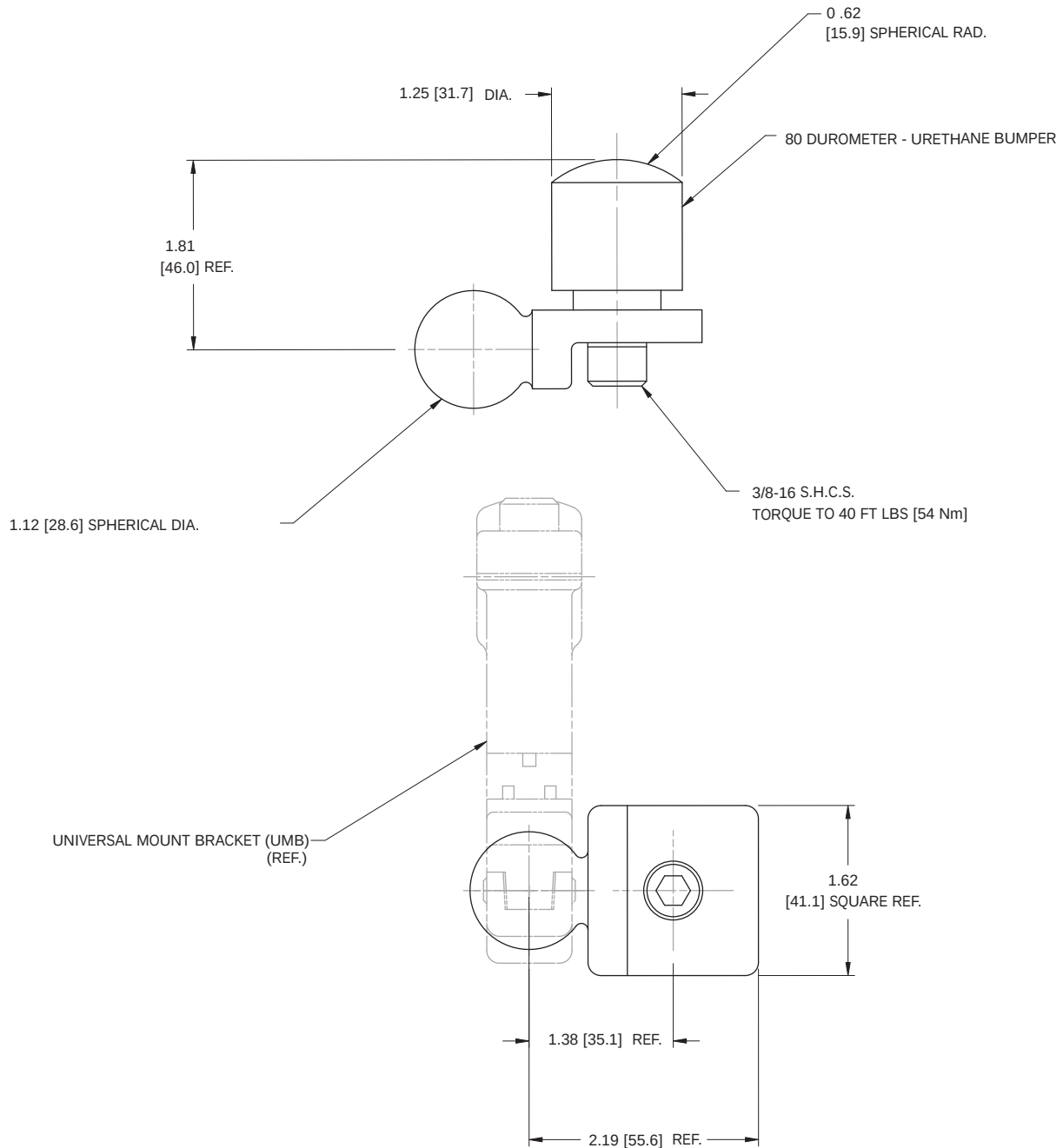
THIS PRODUCT CONNECTS WITH

NS-AMB4

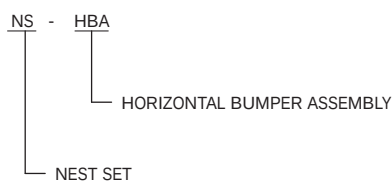
Modular Tooling Solutions

Horizontal Bumper Assembly

NS-HBA Overall Dimension and Ordering Information



ORDERING INFORMATION



MATERIAL AND WEIGHT

Aluminum with Urethane
0.38 lbs [0.2 kg]

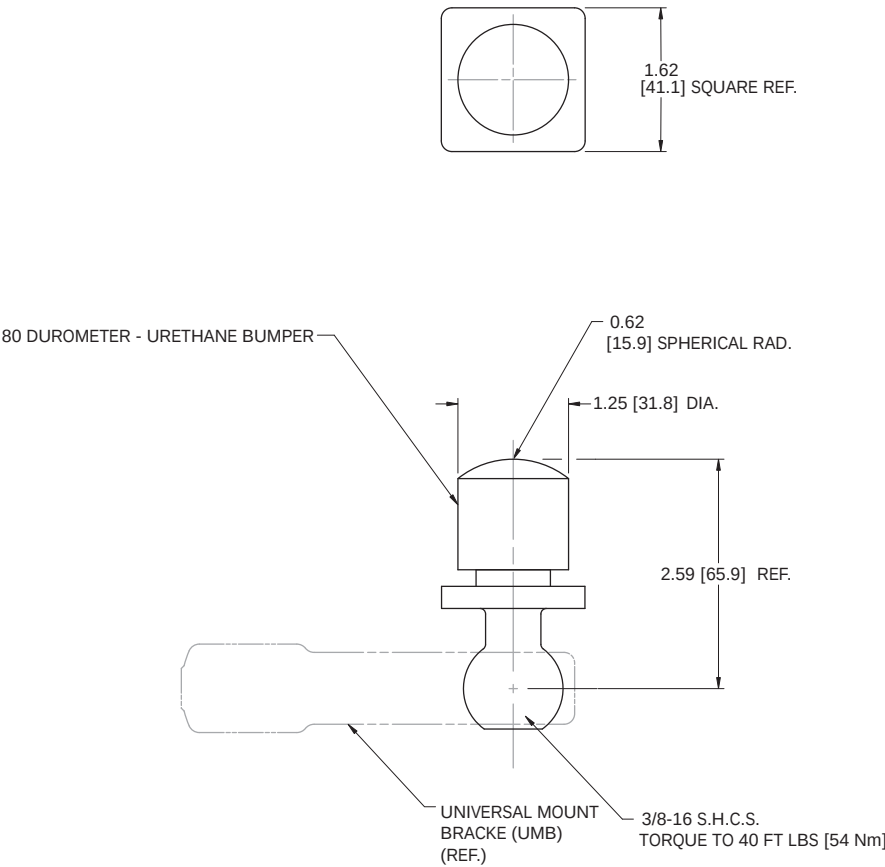
THIS PRODUCT CONNECTS WITH

UMB
TBIA

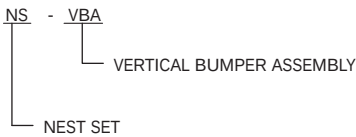
Modular Tooling Solutions

Vertical Bumper Assembly
NS-VBA Overall Dimension and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

Aluminum with Urethane
0.34 lbs [0.2 kg]

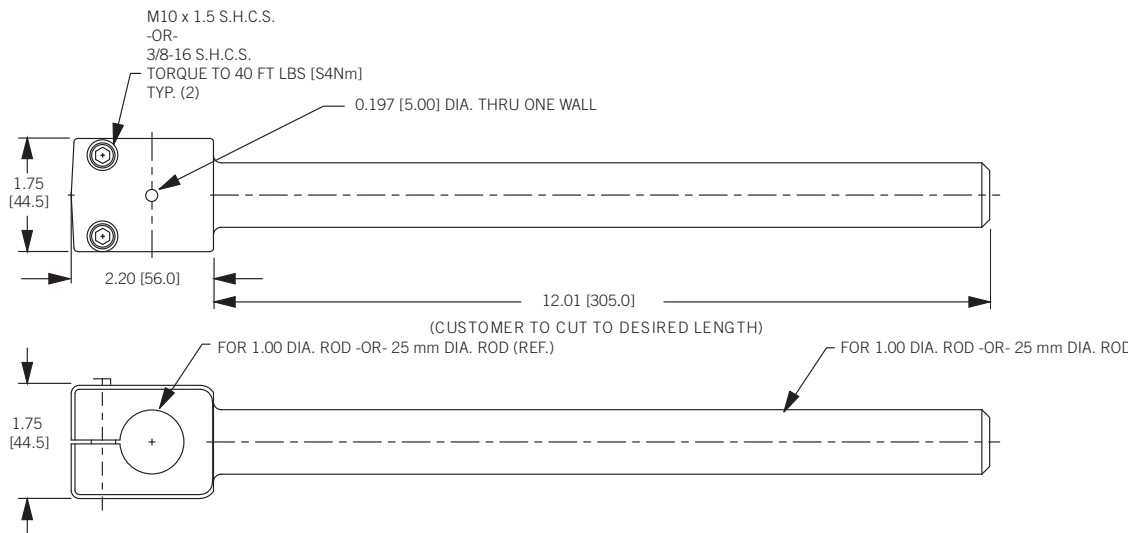
THIS PRODUCT CONNECTS WITH

UMB
TB1A

Modular Tooling Solutions

Bracket Arm

BA180 Overall Dimensions and Ordering Information



ORDERING INFORMATION

X B A180 - 1
ROD DIAMETER
1 = 1 INCH
25 = 25 mm
BRACKET ARM
METRIC FASTENER DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

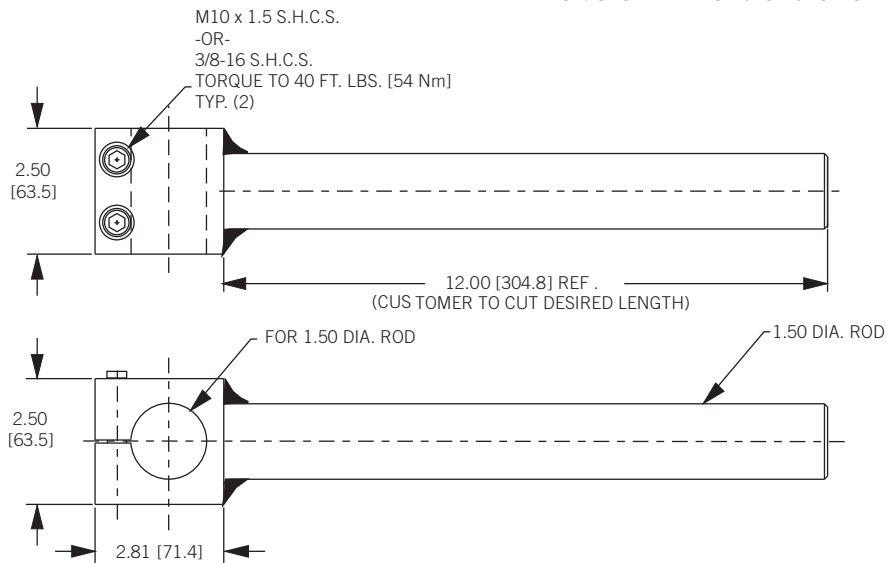
Aluminum
1.53 LBS [0.7 KG]

THIS PRODUCT CONNECTS WITH

QSHBR
UMB

BA280

Overall Dimensions and Ordering Information



ORDERING INFORMATION

X - BA280
MODEL DESIGNATION
METRIC FASTENER DESIGNATION

MATERIAL AND WEIGHT

Aluminum
2.50 lbs [1.1 kg]

THIS PRODUCT CONNECTS WITH

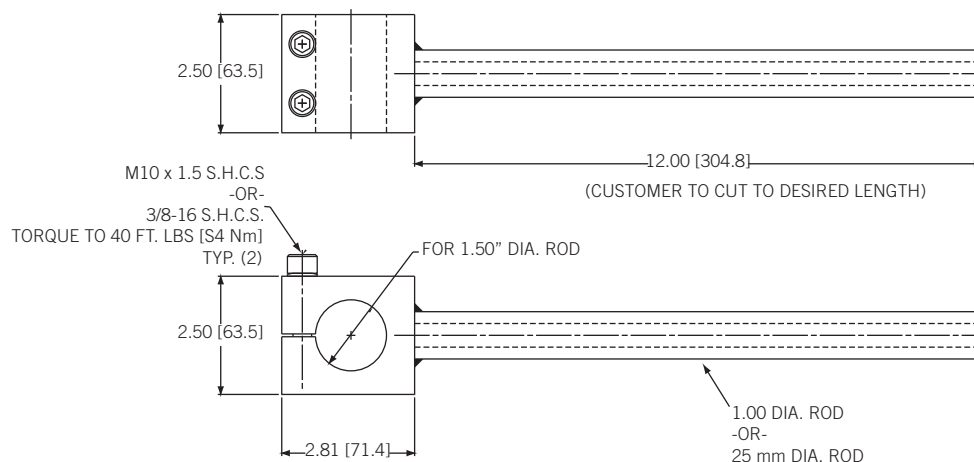
TE1S
TB1A

Modular Tooling Solutions

Bracket Arm

BA281 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - BA281 - 1
 ROD DIAMETER
 1 = 1 INCH
 25 = 25 mm
 BRACKET ARM
 METRIC FASTENER DESIGNATION
 (LEAVE BLANK FOR ENGLISH)

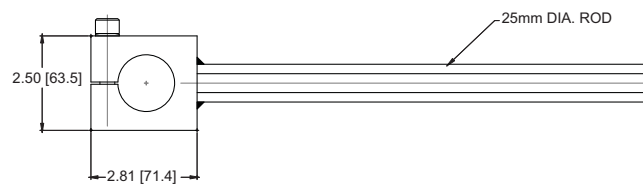
MATERIAL AND WEIGHT

Aluminum
 2.08 LBS [0.9KG]

THIS PRODUCT CONNECTS WITH

TE1S
 UMB

40mm to 25mm Bracket Arm
BA481 Overall Dimensions and Ordering Information



X - B A481 - 25

└─ ROD DIAMETER
25 = 25 mm

└─ MODEL DESTINATION

└─ METRIC FASTENER DESIGNATION
(LEAVE BLANK FOR ENGLISH)

Aluminum/Steel Fasteners
2.08 LBS [0.9KG]

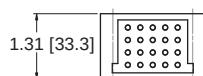
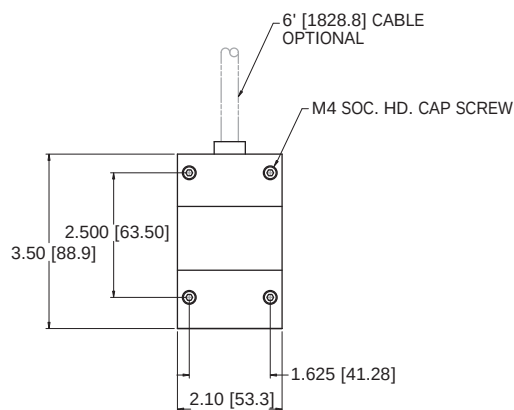
Z-40mm-X
UMB

Mounts & Adapters

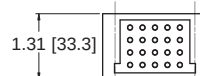
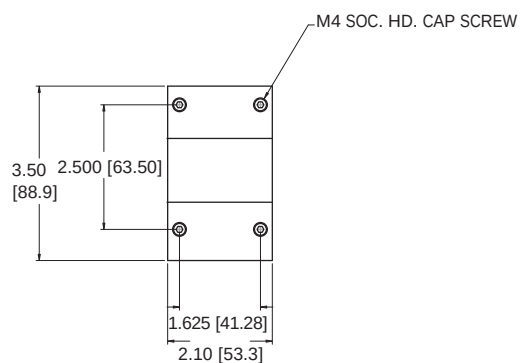
Quik-Set™ 20-Pin Electrical Connector

QSC-x20 Overall Dimensions and Ordering Information

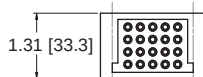
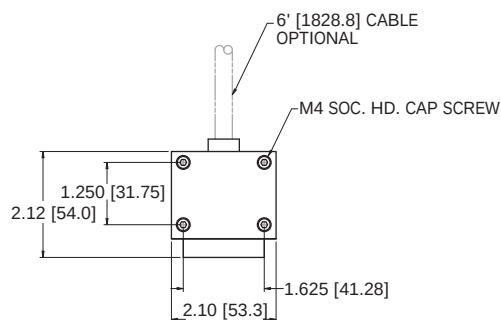
NORGREN TOOLING



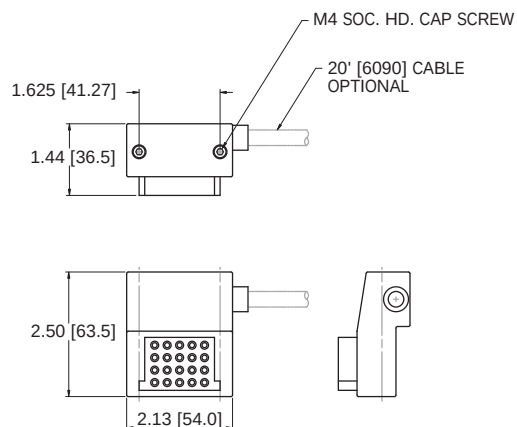
QSC - 520
PROGRAMMABLE FOR
ADAPTOR MOUNT IDENTIFICATION



QSC - 520 - NC
PROGRAMMABLE FOR
ADAPTOR MOUNT IDENTIFICATION

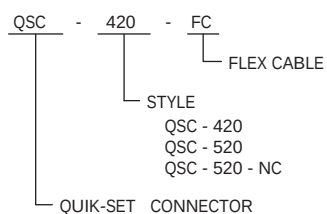


QSC - 420



RSQC - 420
FOR ROBO SET QUAD AUTO CHANGER

ORDERING INFORMATION



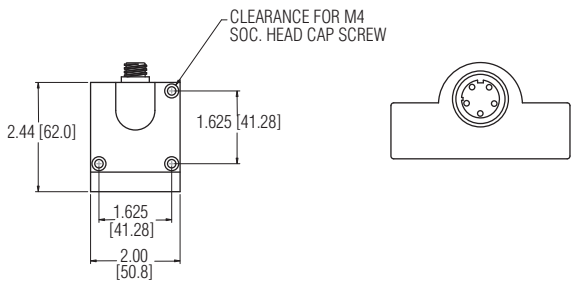
MATERIAL AND WEIGHT

PART NO.	WEIGHT
QSC-420	1 lb 2 oz / 495 g
QSC-520	1 lb 4 oz / 563 g
QSC-520-NC	8 oz / 211 g

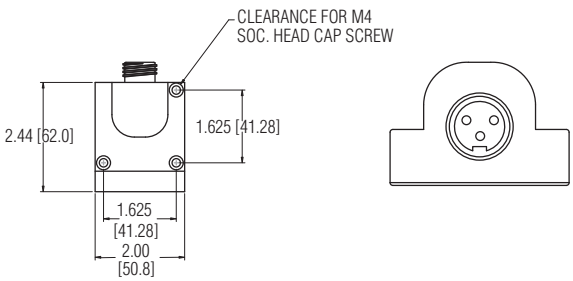
Mounts & Adapters

Quik-Set™ 5-Pin Electrical Connection
QSC-x Overall Dimensions and Ordering Information

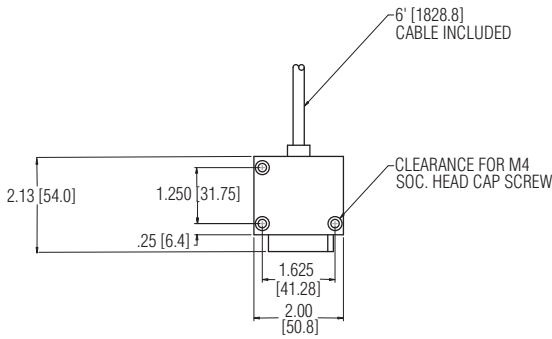
NORGREN TOOLING



QSC - 5
OR
QSC - 5B
BRAD HARRISON 3 PIN FEMALE
MINI RECEPTACLE TYPE
INCLUDES PINS #2 AND #4 JUMPERED

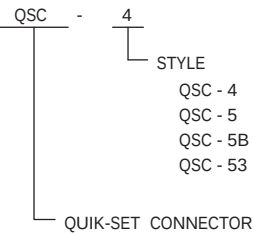


QSC - 53
INCLUDES PINS #2 AND #4 JUMPERED
INTERNALLY WITH ONLY A 3 PIN RECEPTACLE



QSC - 4

ORDERING INFORMATION



MATERIAL AND WEIGHT

PART NO.	WEIGHT
QSC-4	3 oz / 72 g
QSC-5	3 oz / 86 g
QSC-5B	3 oz / 86 g
QSC-53	4 oz / 115 g

UMB Ultra Arm Flip Top *New!*

NORGREN TOOLING

FEATURES

- ▶ Hinged cap and bracket allows easy attachment to rod.
- ▶ 1 inch or 25 mm rod clamp diameters available.
- ▶ Attaches to standard off the shelf 1 inch or 25 mm rod.
- ▶ 360 degree rotation adjustment around Z-axis rod in 30 degree increments.
- ▶ Ball mount clamp allows 360 degrees orbital adjustment and 54 degrees of angular adjustment.
- ▶ Optional core mount easily adapts to apple core style cup mounts and venturies to provide an orbital style adjustment. The core mount provides 30 degrees of angular adjustment.
- ▶ Six different english and metric lengths available.
- ▶ Available with metric or english fasteners.

TECHNICAL DATA

- ▶ Bolt Torque: 54 N•m (40 ft.lbs)

MATERIALS

- ▶ Clamp: Aluminum
- ▶ Fastener: Steel
- ▶ Pins: Steel

SPECIFICATIONS

- ▶ Weight: Reference chart
- ▶ Clamp diameters: 25 mm and 1.0 inch



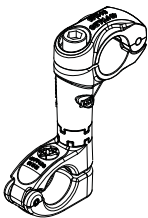
TABLE OF CONTENTS

- ▶ UMB without Core Mount Option - English 93
- ▶ UMB without Core Mount Option - Metric 94
- ▶ UMB with Core Mount Option - English 95
- ▶ UMB with Core Mount Option - Metric. 96

Ultra Arm Flip Top - English Length

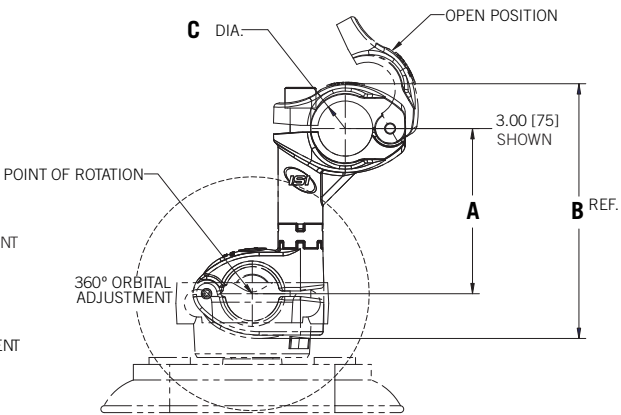
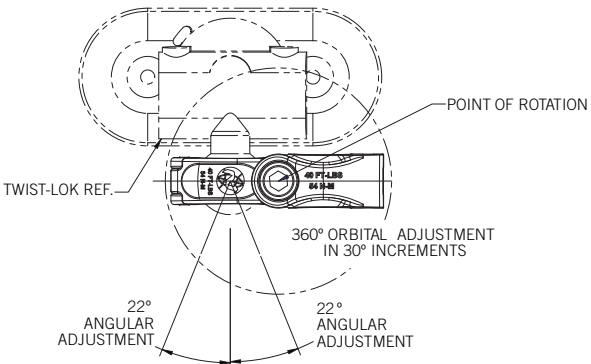
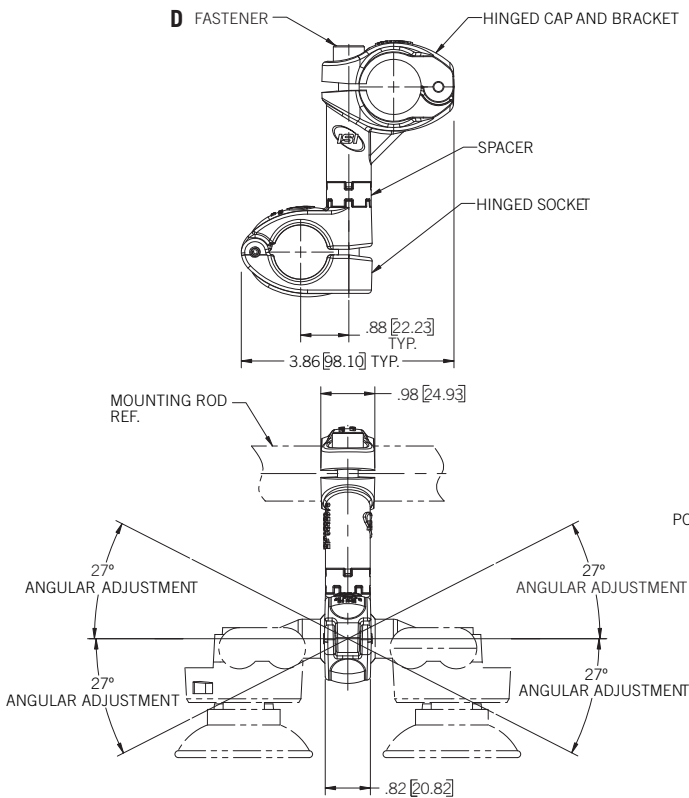
New!

UMB Without Core Mount Option
Overall Dimensions



UMB-1-105
WITH BALL MOUNT

NORGREN TOOLING



ORDERING INFORMATION

UMB - 1 - 3 - -

C = CORE MOUNT
BLANK - STD BALL MOUNT

LENGTH (A)

ROD/BORE DIAMETER
1 = 1 INCH

FLIP TOP - ULTRA ARM
WITH ENGLISH FASTENER

MATERIAL AND WEIGHT

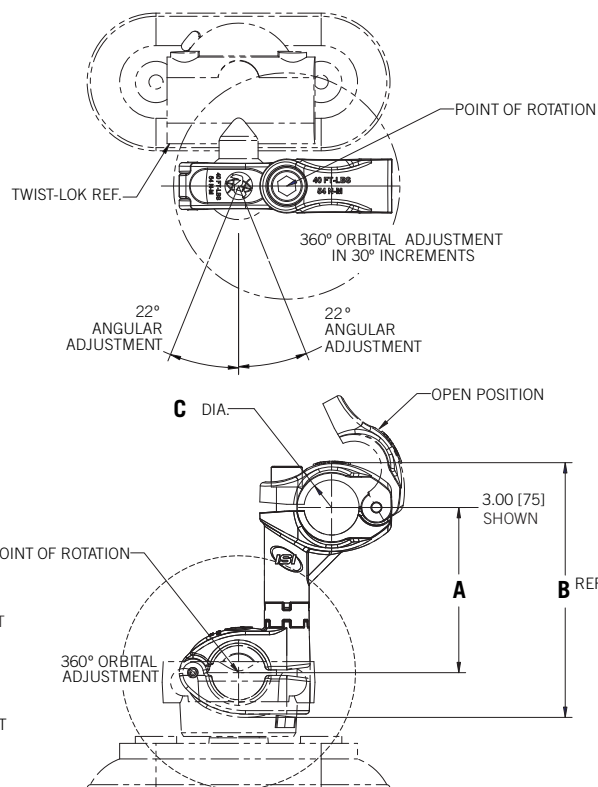
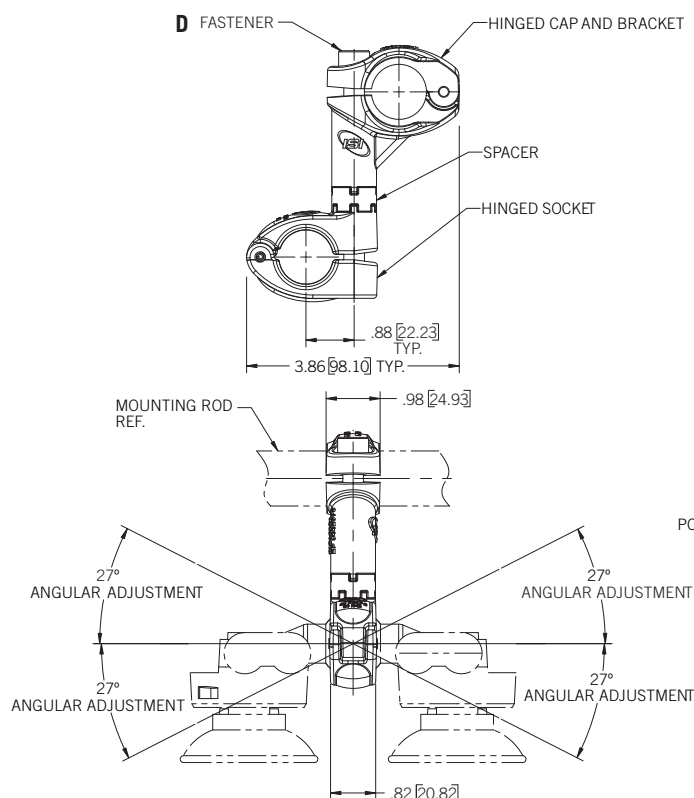
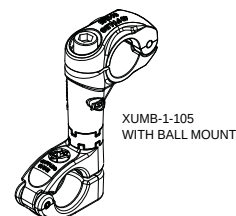
PART NO.	A mm (INCH)	B mm (INCH)	C DIA. INCH	D	Weight kg (lb)
UMB-1-3	76. (3.0)	117. (4.6)	1.00	3/8-16	0.24 (.52)
UMB-1-4	101. (4.0)	143. (5.6)	1.00	3/8-16	0.26 (.58)
UMB-1-5	127. (5.0)	168. (6.6)	1.00	3/8-16	0.29 (.64)
UMB-1-6	152. (6.0)	198. (7.6)	1.00	3/8-16	0.32 (.70)
UMB-1-7	177. (7.0)	219. (8.6)	1.00	3/8-16	0.35 (.76)
UMB-1-8	203. (8.0)	244. (9.6)	1.00	3/8-16	0.37 (.82)

Ultra Arm Flip Top - Metric Length

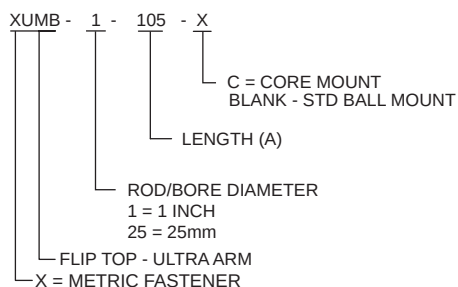
UMB Without Core Mount Option

Overall Dimensions

New!



ORDERING INFORMATION



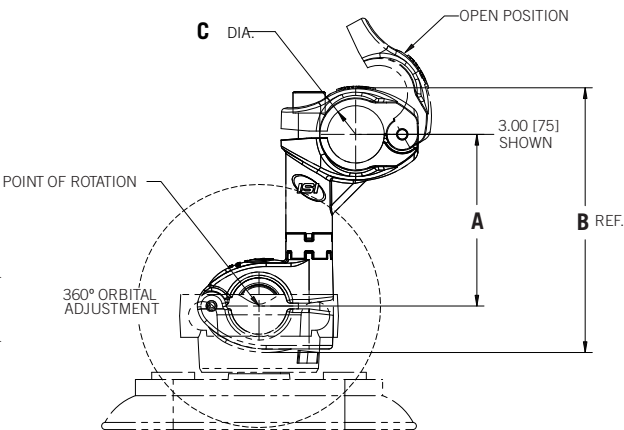
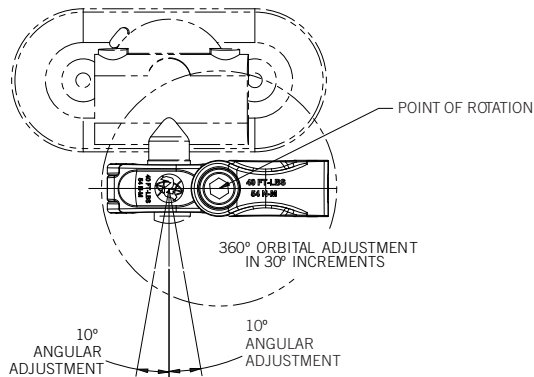
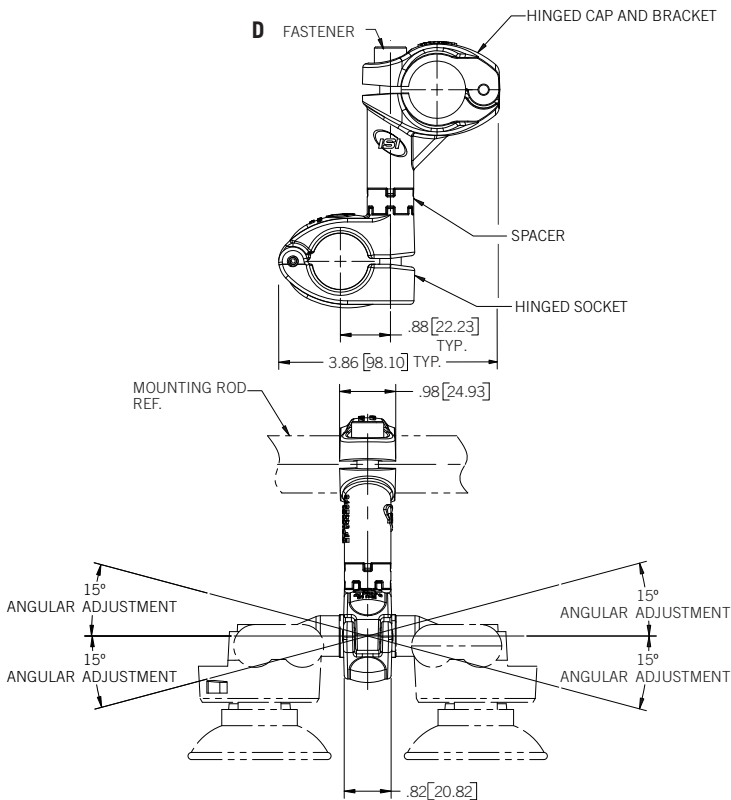
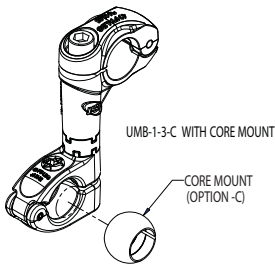
MATERIAL AND WEIGHT

PART NO.	A mm (INCH)	B mm (INCH)	C DIA.	D	Weight kg (lb)
XUMB-1-75	75 (2.95)	117 (4.61)	1.00	M10x1.5	0.24 (.52)
XUMB-1-105	105 (4.13)	147 (5.79)	1.00	M10x1.5	0.26 (.58)
XUMB-1-125	125 (4.92)	169 (6.65)	1.00	M10x1.5	0.29 (.64)
XUMB-1-155	155 (6.10)	197 (7.75)	1.00	M10x1.5	0.32 (.70)
XUMB-1-175	175 (6.88)	217 (8.54)	1.00	M10x1.5	0.35 (.76)
XUMB-1-205	205 (8.07)	247 (9.72)	1.00	M10x1.5	0.37 (.82)
XUMB-25-75	75 (2.95)	117 (4.61)	25mm	M10x1.5	0.24 (.52)
XUMB-25-105	105 (4.13)	147 (5.79)	25mm	M10x1.5	0.26 (.58)
XUMB-25-125	125 (4.92)	169 (6.65)	25mm	M10x1.5	0.29 (.64)
XUMB-25-155	155 (6.10)	197 (7.75)	25mm	M10x1.5	0.32 (.70)
XUMB-25-175	175 (6.88)	217 (8.54)	25mm	M10x1.5	0.35 (.76)
XUMB-25-205	205 (8.07)	247 (9.72)	25mm	M10x1.5	0.37 (.82)

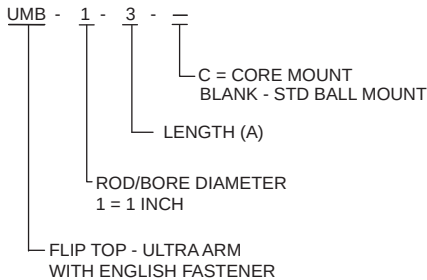
Ultra Arm Flip Top - English Length

New!

UMB With Core Mount Option
Overall Dimensions



ORDERING INFORMATION



MATERIAL AND WEIGHT

PART NO.	A mm (INCH)	B mm (INCH)	C DIA. INCH	D	Weight kg (lb)
UMB-1-3-C	76. (3.0)	117. (4.6)	1.00	3/8-16	0.24 (.52)
UMB-1-4-C	101. (4.0)	143. (5.6)	1.00	3/8-16	0.26 (.58)
UMB-1-5-C	127. (5.0)	168. (6.6)	1.00	3/8-16	0.29 (.64)
UMB-1-6-C	152. (6.0)	198. (7.6)	1.00	3/8-16	0.32 (.70)
UMB-1-7-C	177. (7.0)	219. (8.6)	1.00	3/8-16	0.35 (.76)
UMB-1-8-C	203. (8.0)	244. (9.6)	1.00	3/8-16	0.37 (.82)

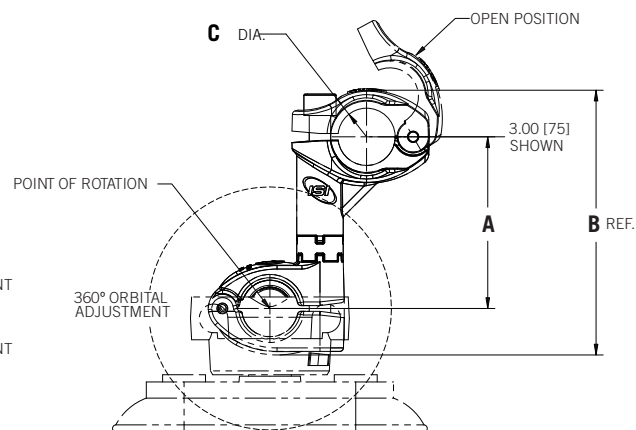
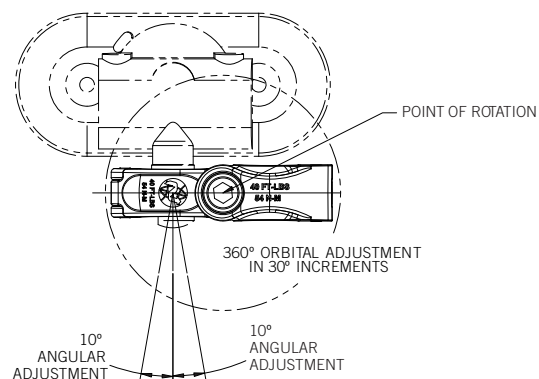
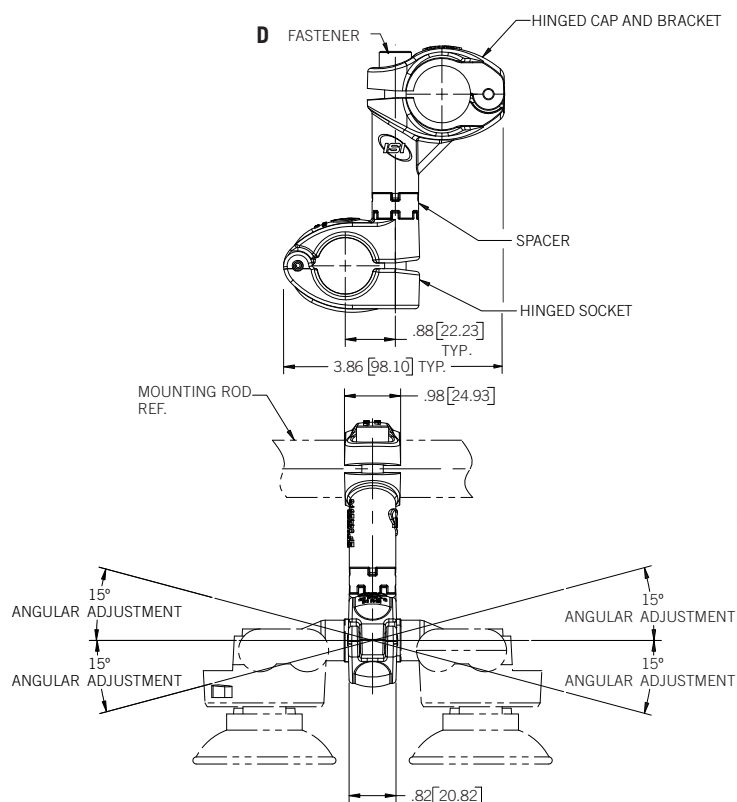
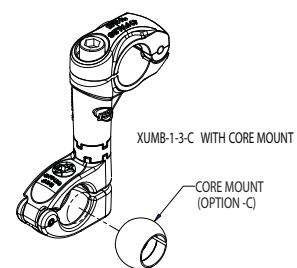
Ultra Arm Flip Top - Metric Length

UMB With Core Mount Option

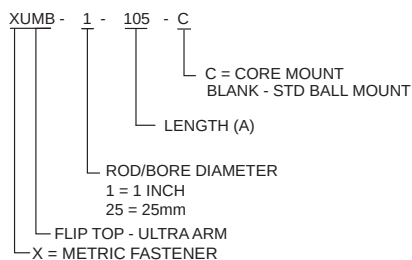
Overall Dimensions

New!

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

PART NO.	A mm (INCH)	B mm (INCH)	C DIA.	D	Weight kg (lb)
XUMB-1-75-C	75 (2.95)	117 (4.61)	1.00	M10x1.5	0.24 (.52)
XUMB-1-105-C	105 (4.13)	147 (5.79)	1.00	M10x1.5	0.26 (.58)
XUMB-1-125-C	125 (4.92)	169 (6.65)	1.00	M10x1.5	0.29 (.64)
XUMB-1-155-C	155 (6.10)	197 (7.75)	1.00	M10x1.5	0.32 (.70)
XUMB-1-175-C	175 (6.88)	217 (8.54)	1.00	M10x1.5	0.35 (.76)
XUMB-1-205-C	205 (8.07)	247 (9.72)	1.00	M10x1.5	0.37 (.82)
XUMB-25-75-C	75 (2.95)	117 (4.61)	25mm	M10x1.5	0.24 (.52)
XUMB-25-105-C	105 (4.13)	147 (5.79)	25mm	M10x1.5	0.26 (.58)
XUMB-25-125-C	125 (4.92)	169 (6.65)	25mm	M10x1.5	0.29 (.64)
XUMB-25-155-C	155 (6.10)	197 (7.75)	25mm	M10x1.5	0.32 (.70)
XUMB-25-175-C	175 (6.88)	217 (8.54)	25mm	M10x1.5	0.35 (.76)
XUMB-25-205-C	205 (8.07)	247 (9.72)	25mm	M10x1.5	0.37 (.82)

Rev Level	Section	Revision Description(s)	Page(s) Affected	Date
001	PressRoom	Removed the "receptacle View 2X size" note in top (2) views	103	12/19/07
001	PressRoom	Replaced drawings with new drawings to reflect pilot hole	65-68	12/19/07
001	PressRoom	TM6B, TM4B, TM6C, TM4C, TM6E, TM4E, TM6F and TM4F added	76, 78, 80, 82, 85, 87	12/19/07
002	PressRoom	Added part no. and weight chart	61,62	01/23/08
002	PressRoom	Removed Z-SVCMB, Z-CVCMB-CD1, Z-SUCM and Z-CUCM	15-22	01/23/08
003	PressRoom	Removed CM1 and CW1	35, 36, 44, 45	04/09/08
003	PressRoom	Added Lok-n-Load LLMM and LLTA	35, 36	04/09/08
003	PressRoom	Corrected chart callout from (Z-25-S) to (Z-25-A).	23	04/09/08
004	PressRoom	Corrected ordering string	40, 44	12/12/08
005	PressRoom	Removed UA2, added UMB	92-96	1/05/09
006	Press Room	Changed charts and ordering info in RSQAC	38	03/16/09
006	Press Room	Changed charts and ordering info in RSQMC	40	03/16/09

Tooling: Body and Assembly

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25 mm Multi-Axis Transition Mount	TMNL-MA25	4
40 mm Single-Axis Transition Mount	TMNL-SA40	5
25 mm Single-Axis Transition Mount	TMNL-SA25	6
40 mm to 40 mm Transition Bracket	TBNL-4040	7
40 mm to 25 mm Transition Bracket	TBNL-4025	8
25 mm to 25 mm Transition Bracket	TBNL-2525	9
40 mm Multi-Axis Clamp Mount	CMNL-MA40	10
40 mm Single-Axis Clamp Mount	CMNL-SA40	11
40 mm Multi-Axis Locating Pin Mount	PLNL-MA40	12
40 mm Single-Axis Locating Pin Mount	PLNL-SA40	13
40 mm Multi-Axis Clamp Compliance Mount	TMNL-CM40-C	14
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Six Channel Aluminum Extrusion Saddle Mount	TES6-SM	20
Tooling Accessory Solutions		
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Series Four™ Extrusion		
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Tooling Mounting Solutions		
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Body & Assembly Modular Tooling

Specifically engineered for the demanding automotive body and assembly welding environment.

- ▶ **NorLok Tooling System**
 - Aluminum Extrusion
 - Spline Rod Extrusion
 - Transition Mount
 - Universal Spline Rod Bracket
 - NAAMS Clamp Mount and Pin Mount
 - GC Gripper Mount
- ▶ **Easy to build and set up**
 - Adjust into desired position and lock into place
 - One wrench size (8 mm) for all adjustments
 - Reference calibration marks aid crash recovery maintenance
 - Extrusion provides flat surface for mounting and cabling
 - Extrusion available with or without porting (English & Metric)
- ▶ **Lightweight & Robust**
 - Series Six Extrusion designed to achieve rigidity and weight savings
 - Eliminates heavy spreader bars
 - Hollow Spline Rod for additional weight savings
- ▶ **Adjustable**
 - Single-Axis and Multi-Axis configurations for design flexibility
 - Single-Axis Mounts rotate 360° in 7.5° increments
 - Multi-Axis Mounts rotate 360° on perpendicular axis using 7.5° increments
 - Spline Rods adjust radially in 15° increments
 - Compatible with most Norgren products
- ▶ **Cost Effective**
 - Saves on build time
 - Less cost than comparable system utilizing spreader bars
 - Spline rod length available in 100 mm increments
 - Boom extrusion length available in 300 mm increments
- ▶ **Pneumatic Connections**
 - Series Six Extrusion ported and non-ported available (English and Metric)
 - Series Four Extrusion ported and non-ported available (English and Metric)
 - Flex-Set Extrusion ported and non-ported available (English and Metric)



NORLOK – ADJUST AND LOCK

- ▶ **Material**
 - Mounts & Brackets: Cast aluminum
 - Boom Extrusion: Extruded aluminum

NorLok™ Modular Tooling

SERIES SIX EXTRUSION – TES6

WEIGHT: NON-PORTED = 8.8 LBS PER FT (13.3 KG/M)

PORTED = 9.3 LBS PER FT (14.0 KG/M)

- ▶ Six air passages
- ▶ Lengths 600 mm (2 ft) to 3600 mm (12 ft) in standard 300 mm increments
- ▶ Four mounting surfaces – two vertical and two at 30°
- ▶ Available with NPT or BSPT porting or without porting

SERIES SIX SADDLE MOUNT – TES6–SM

WEIGHT: 11 LBS (5.0 KG)

- ▶ Cast aluminum construction
- ▶ Designed to be a main interface to robot or lifter
- ▶ Suitable for mounting auxiliary accessories such as valve stacks or J-boxes
- ▶ Uses mount nuts for ease of repositioning



SERIES FOUR EXTRUSION – S4TS

WEIGHT: NON-PORTED = 4.5 LBS PER FT (6.7 KG/M)

PORTED = 4.8 LBS PER FT (7.2 KG/M)

- ▶ Four air passages
- ▶ Lengths 300 mm (1 ft), to 3600 mm (12 ft) in standard 300 mm increments
- ▶ 4 mounting surfaces - two vertical and two horizontal available with NPT or BSPT or without porting



SERIES FOUR SADDLE MOUNT–S4TS–SM

WEIGHT: 3.0 LBS (1.4 KG)

- ▶ Cast aluminum
- ▶ Uses mount nuts for ease of repositioning
- ▶ Designed to be a main interface to robot or lifter
- ▶ Suitable for mounting auxiliary accessories such as valve stacks or J-boxes

FLEX-SET EXTRUSION – FS

WEIGHT: NON-PORTED = 2.8 LBS PER FT (4.1 KG/M)

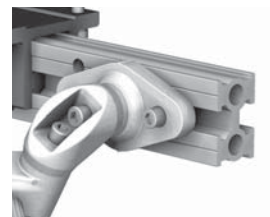
PORTED = 2.9 LBS PER FT (4.3 KG/M)

- ▶ Two air passages
- ▶ Lengths 300 mm (1 ft) to 3600 mm (12 ft) in standard 300 mm increments
- ▶ 2 mounting surfaces - two vertical
- ▶ Available with NPT or BSPT porting or without porting

FLEX-SET SADDLE MOUNT–FS–UM

WEIGHT: 2.1 LBS (0.9 KG)

- ▶ Cast aluminum
- ▶ Uses mount nuts for ease of repositioning
- ▶ Suitable for mounting auxiliary accessories such as valve stacks or J-boxes

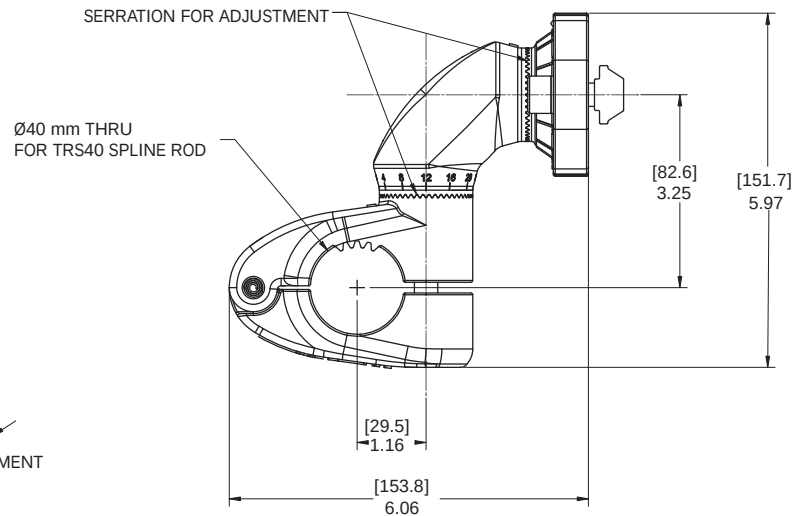
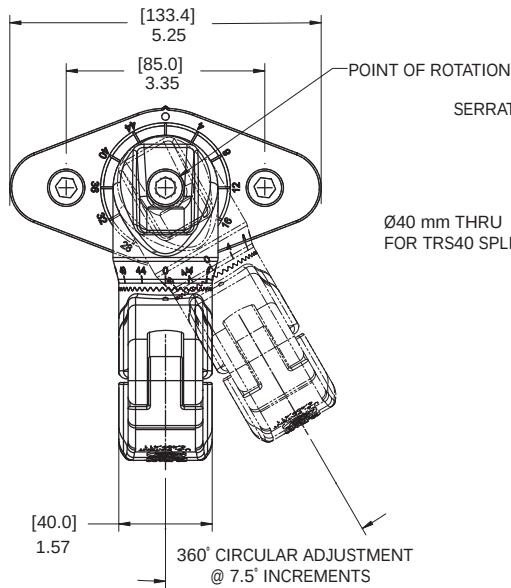
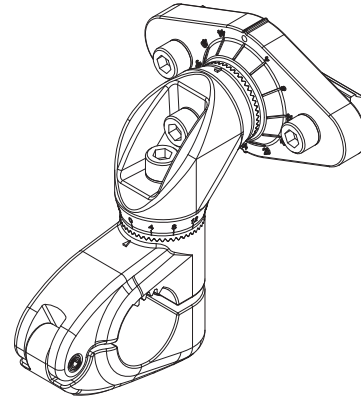
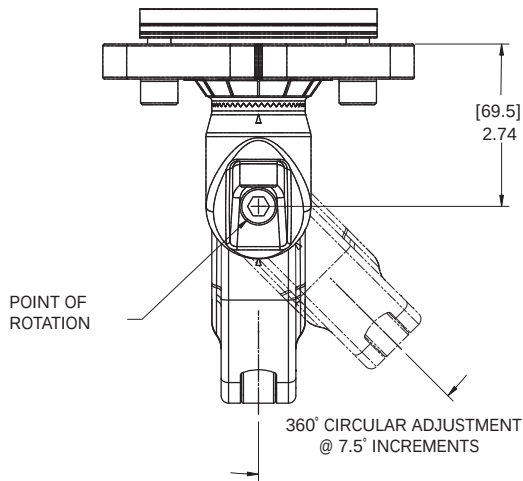


NorLok™ Modular Tooling

40 mm Multi-Axis Transition Mount

TMNL-MA40 Overall Dimensions and Ordering Information

NORGREN TOOLING



NOTE:
ALL FASTENERS ARE SIZE M10
TORQUE ALL FASTENERS TO 40 FT-LBS (54 N-m)

ORDERING INFORMATION

TMNL-MA40

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 2.9 lbs [1.3 kg]

THIS PRODUCT CONNECTS WITH

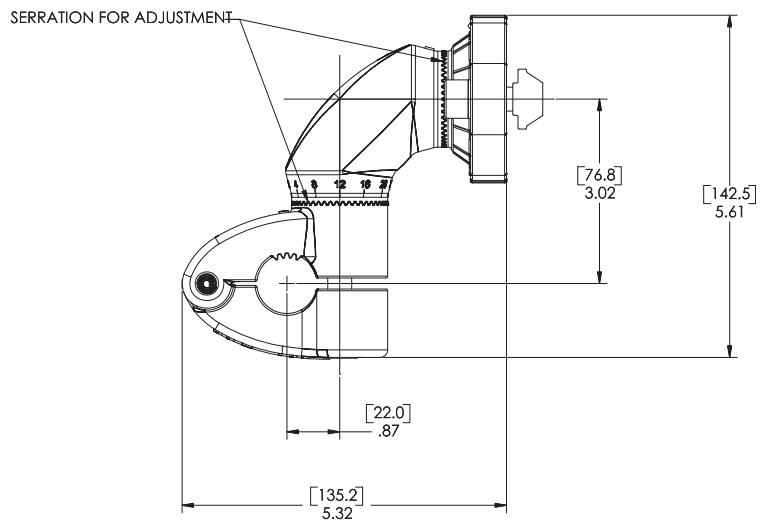
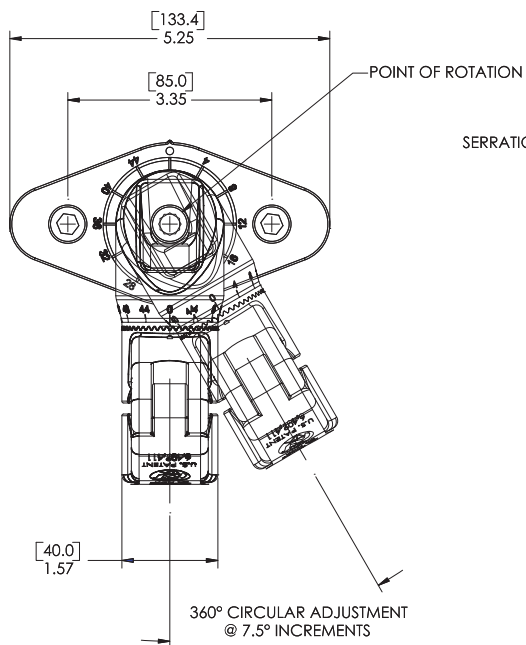
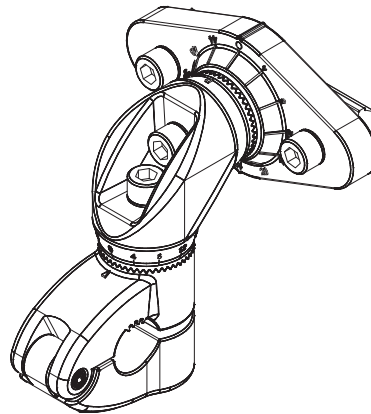
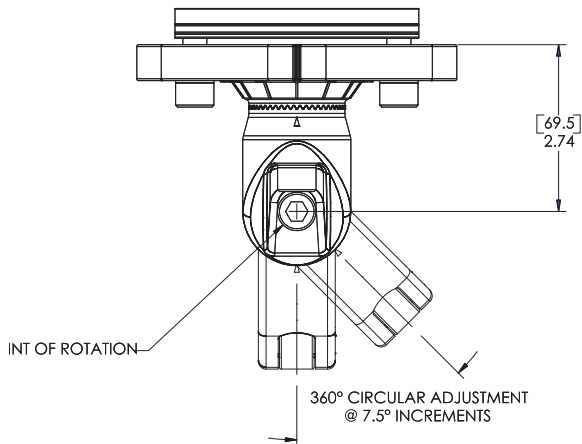
TES6
S4TS
FS
TRS40

NorLok™ Modular Tooling

25 mm Multi-Axis Transition Mount

TMNL-MA25 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TMNL-MA25

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 2.7 lbs [1.2 kg]

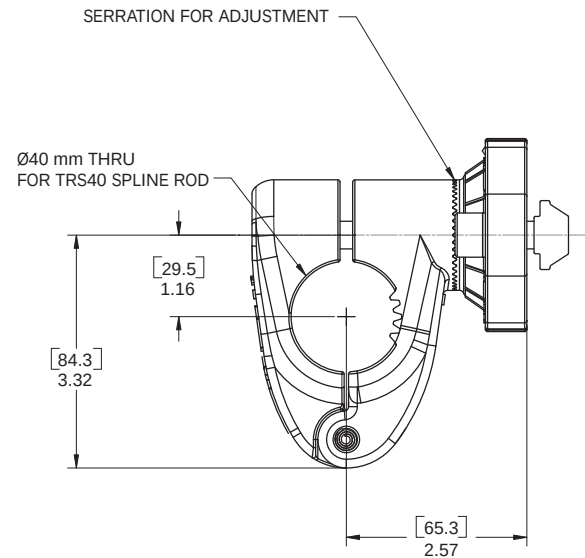
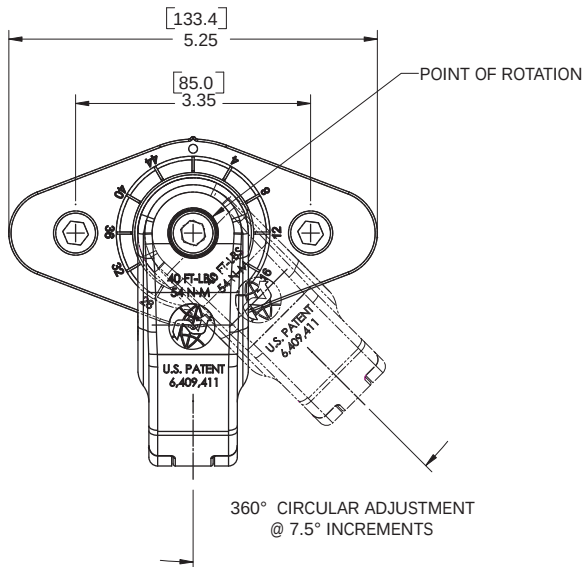
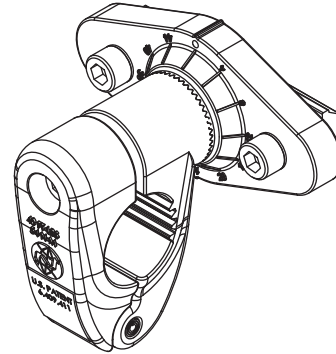
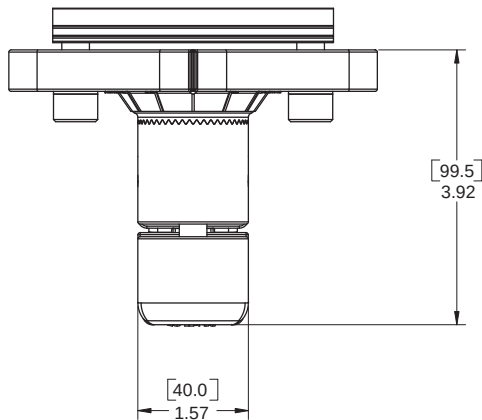
THIS PRODUCT CONNECTS WITH

TES6
S4TS
FS
TRS25

NorLok™ Modular Tooling

40 mm Single-Axis Transition Mount

TMNL-SA40 Overall Dimensions and Ordering Information



NOTE:
ALL FASTENERS ARE SIZE M10
TORQUE ALL FASTENERS TO 40 FT-LBS (54 N-m)

ORDERING INFORMATION

TMNL-SA40

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 2.2 lbs [1.0 kg]

THIS PRODUCT CONNECTS WITH

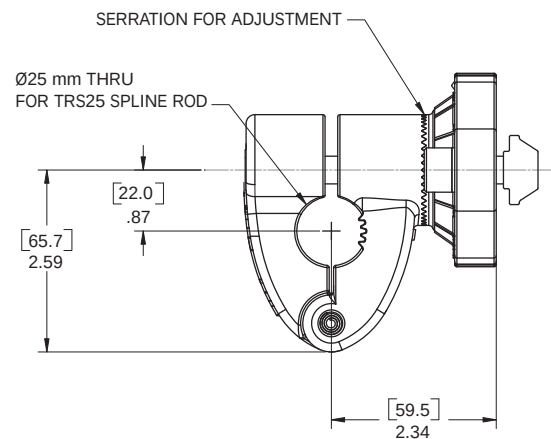
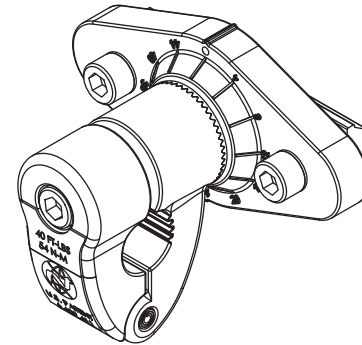
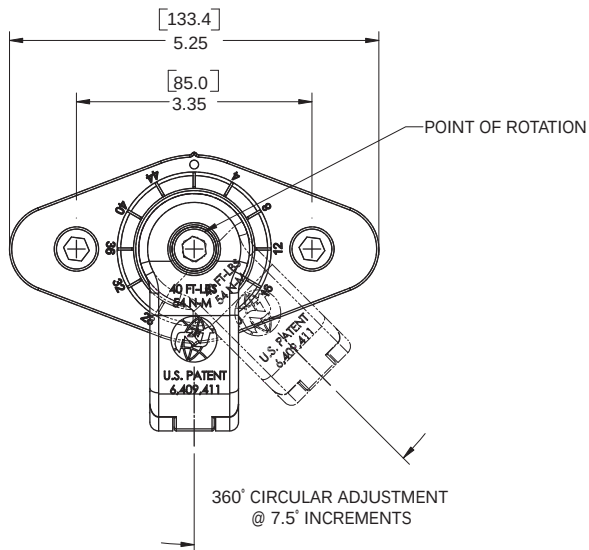
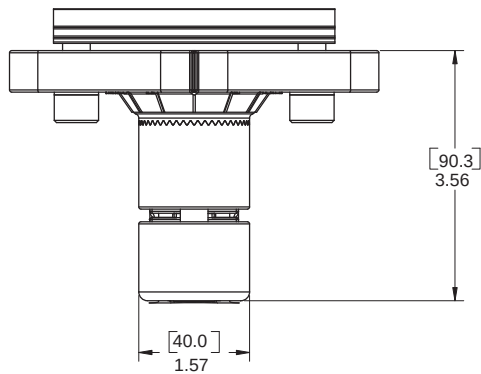
TES6
S4TS
FS
TRS40

NorLok™ Modular Tooling

25 mm Single-Axis Transition Mount

TMNL-SA25 Overall Dimensions and Ordering Information

NORGREN TOOLING



NOTE:
ALL FASTENERS ARE SIZE M10
TORQUE ALL FASTENERS TO 40 FT-LBS (54 N-m)

ORDERING INFORMATION

TMNL-SA25

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 2.0 lbs [0.9 kg]

THIS PRODUCT CONNECTS WITH

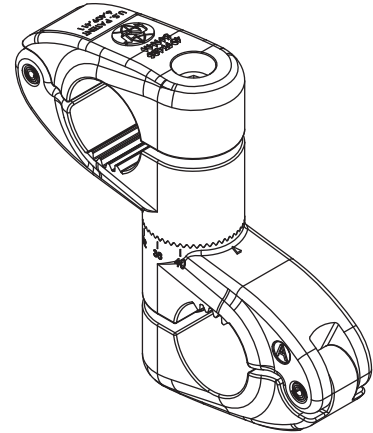
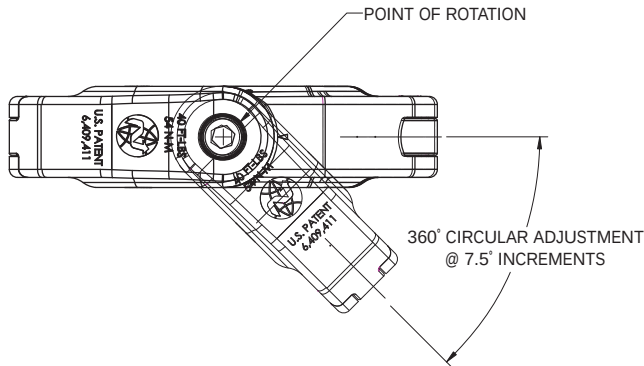
TES6
S4TS
FS
TRS25

NorLok™ Modular Tooling

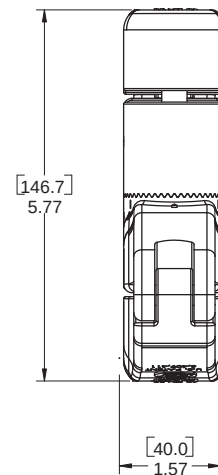
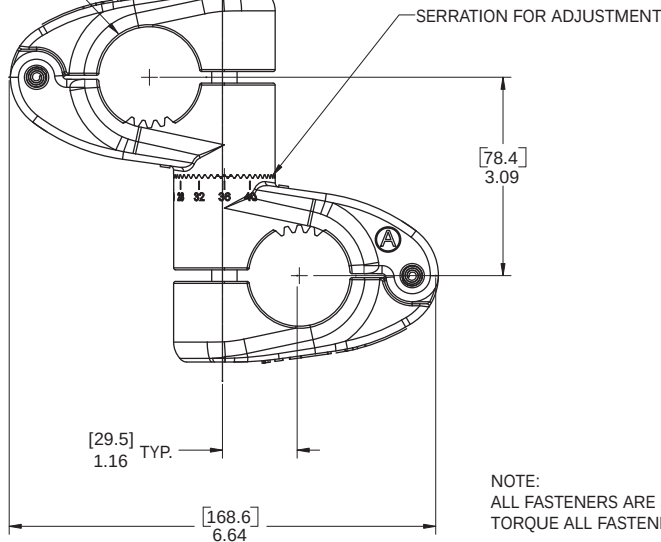
40 mm to 40 mm Transition Bracket

TBNL-4040 Overall Dimensions and Ordering Information

NORGREN TOOLING



Ø40 mm THRU
FOR TRS40 SPLINE ROD
(2) TYP.



NOTE:
ALL FASTENERS ARE SIZE M10
TORQUE ALL FASTENERS TO 40 FT-LBS (54 N-m)

ORDERING INFORMATION

TBNL-4040

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 2.2 lbs [1.0 kg]

THIS PRODUCT CONNECTS WITH

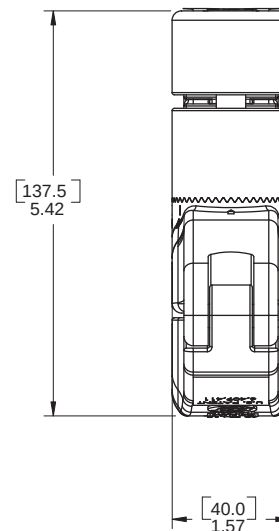
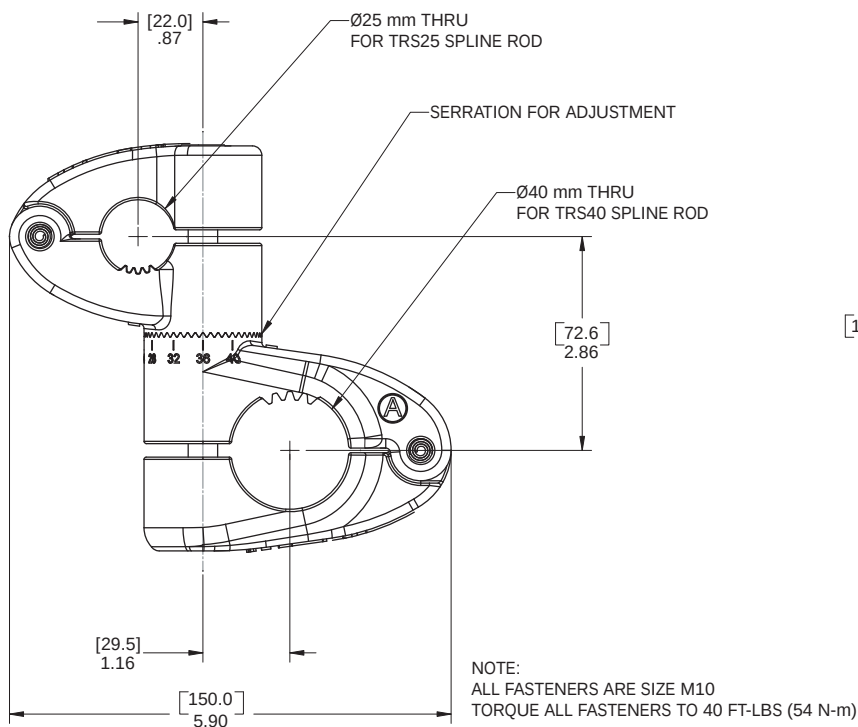
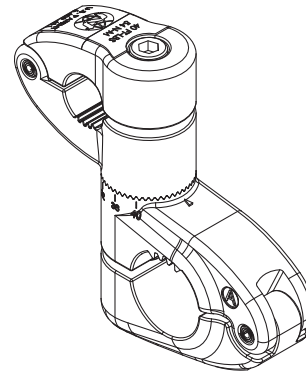
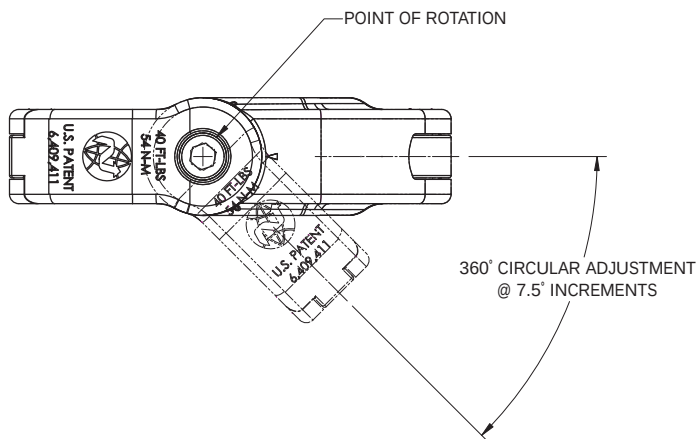
TRS40

NorLok™ Modular Tooling

40 mm to 25 mm Transition Bracket

TBNL-4025 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TBNL-4025

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 2.0 lbs [0.9 kg]

THIS PRODUCT CONNECTS WITH

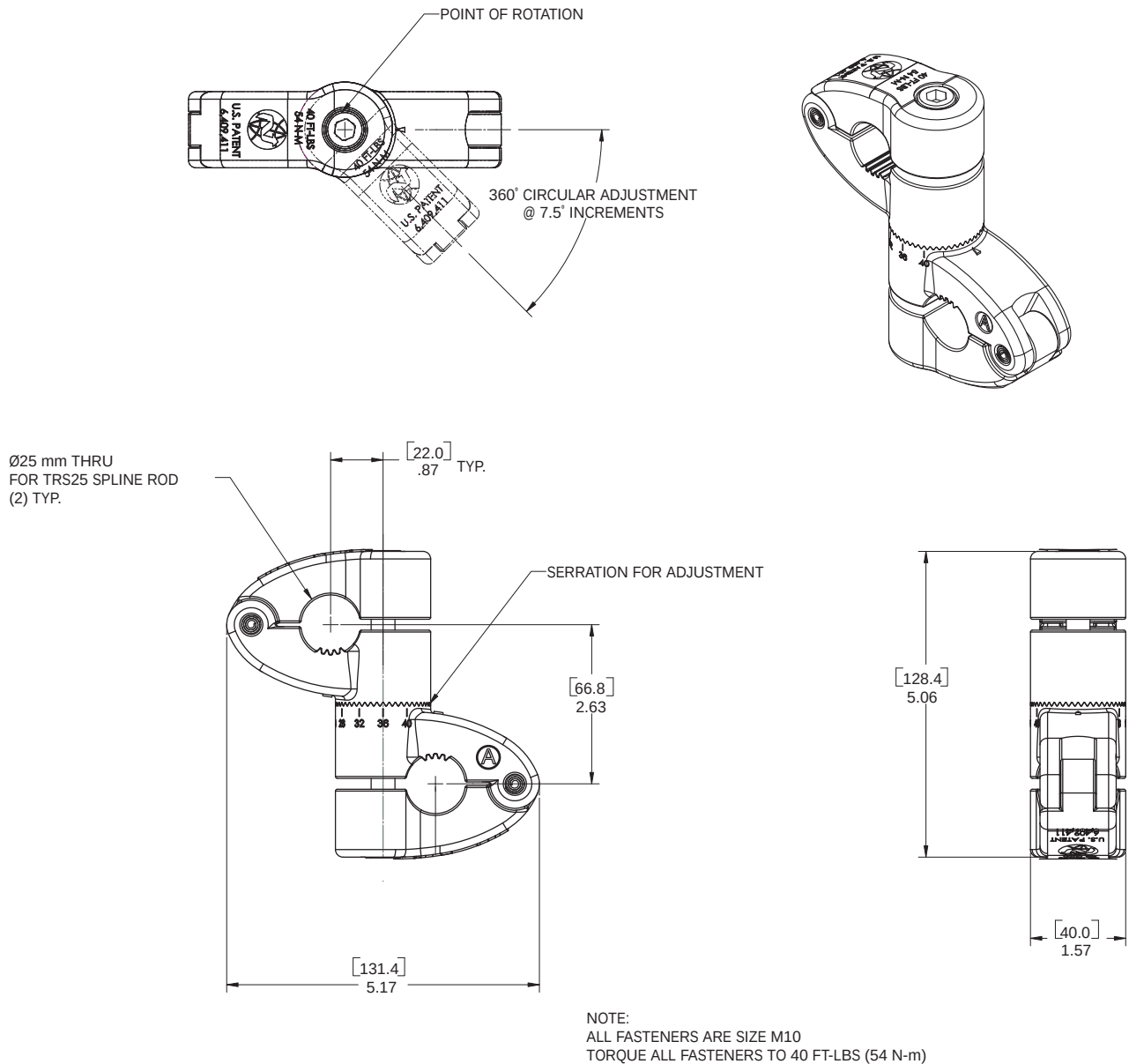
TRS40
TRS25

NorLok™ Modular Tooling

25 mm to 25 mm Transition Bracket

TBNL-2525 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TBNL-2525

MODEL DESIGNATION

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware

Weight: 1.7 lbs [0.7 kg]

THIS PRODUCT CONNECTS WITH

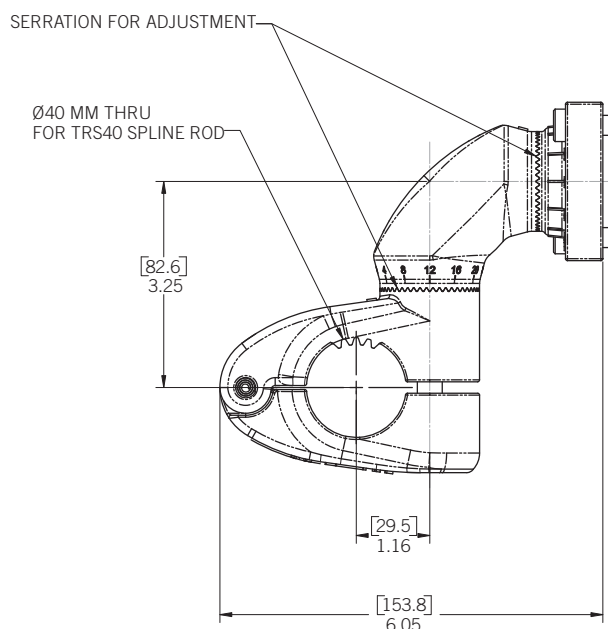
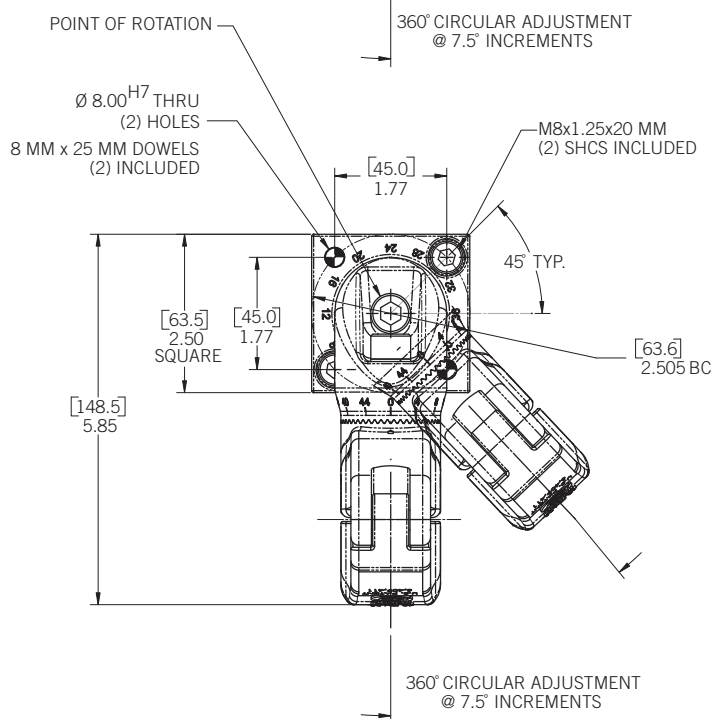
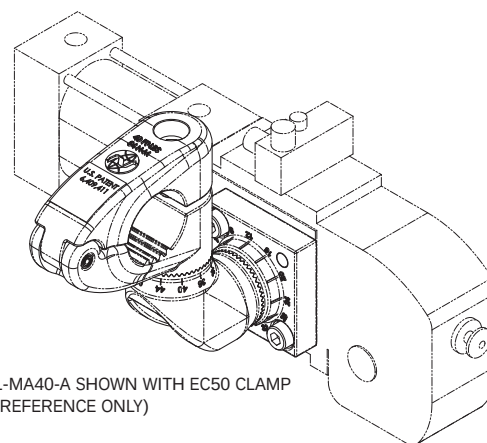
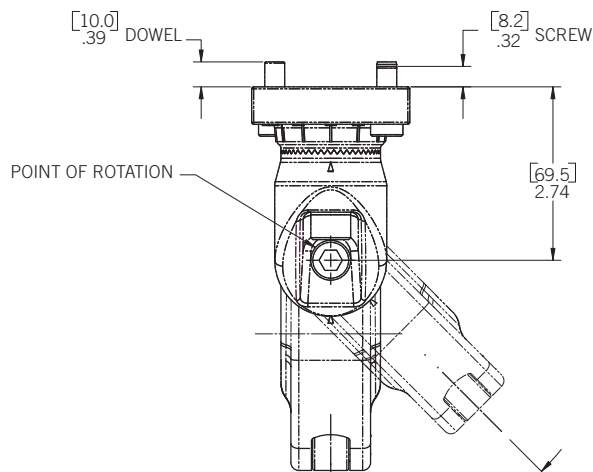
TRS25

NorLok™ Modular Tooling

40 mm Multi-Axis Clamp Mount

CMNL-MA40 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

CMNL-MA40-A
 CLAMP MOUNTING STYLE
 A - NAAMS
 AXIS OF ADJUSTABILITY
 MA40 - MULTIPLE AXIS
 NORLOK CLAMP MOUNT

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
 Weight: 1.7 lbs [0.7 kg]

THIS PRODUCT CONNECTS WITH

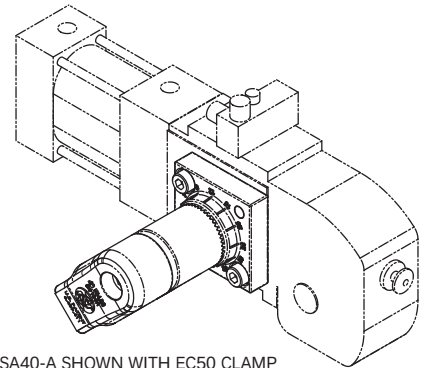
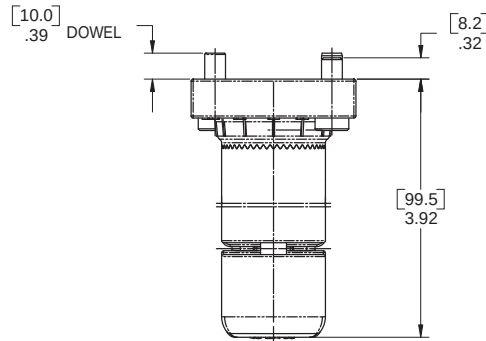
TRS40
 EC50 Clamp NAAMS MOUNTING OPTION

NorLok™ Modular Tooling

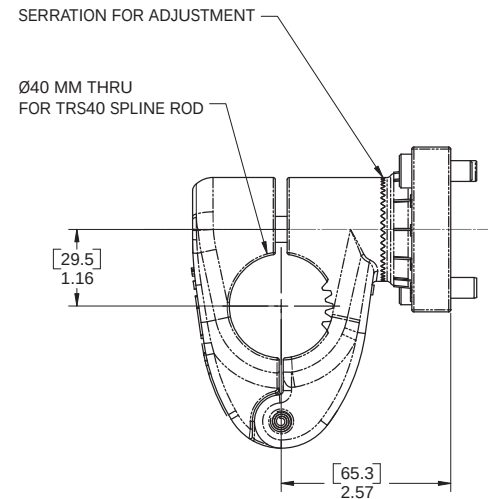
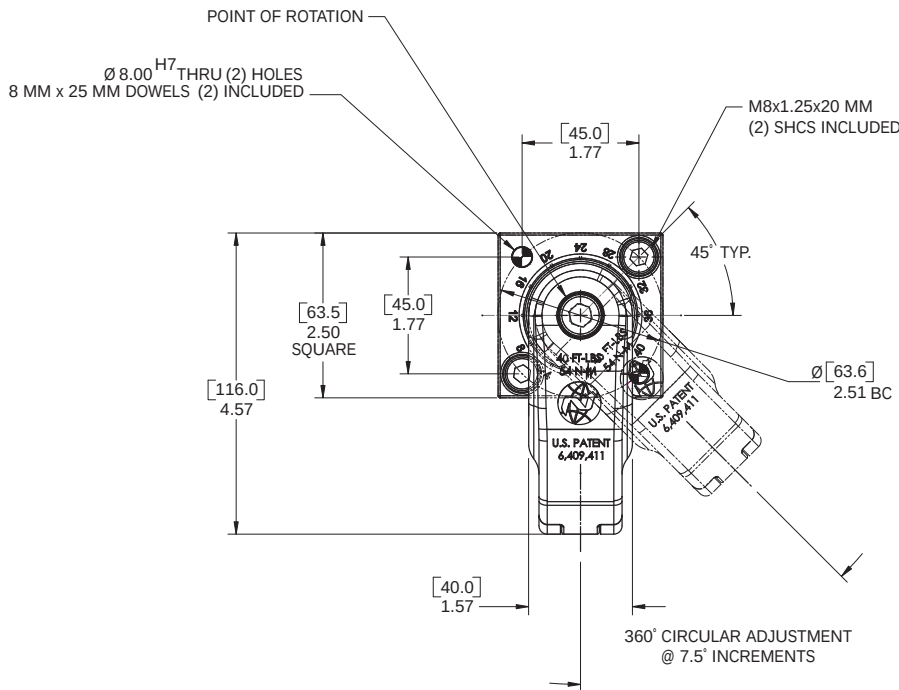
40 mm Single-Axis Clamp Mount

CMNL-SA40 Overall Dimensions and Ordering Information

NORGREN TOOLING



CMNL-SA40-A SHOWN WITH EC50 CLAMP
(FOR REFERENCE ONLY)



ORDERING INFORMATION

CMNL-SA40-A
CLAMP MOUNTING STYLE
A - NAAMS
AXIS OF ADJUSTABILITY
SA40 - SINGLE AXIS
NORLOK CLAMP MOUNT

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 1.3 lbs [1.4 kg]

THIS PRODUCT CONNECTS WITH

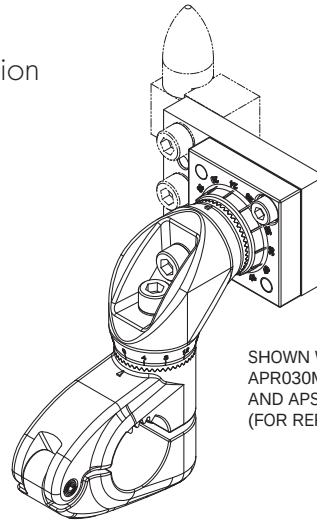
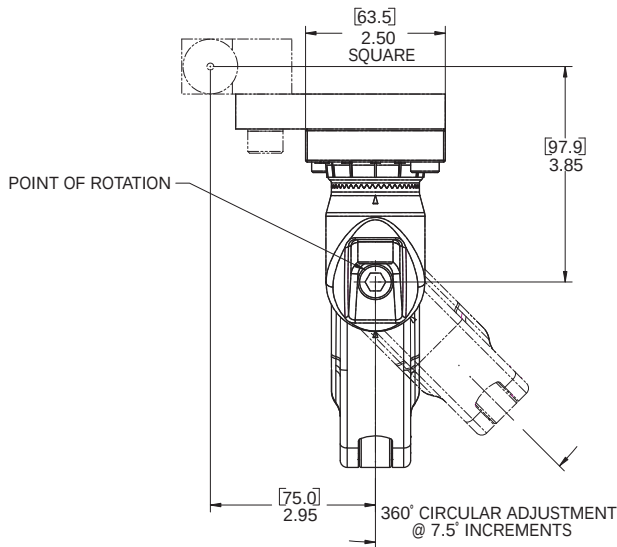
TRS40
EC50 Clamp NAAMS Mounting Option

NorLok™ Modular Tooling

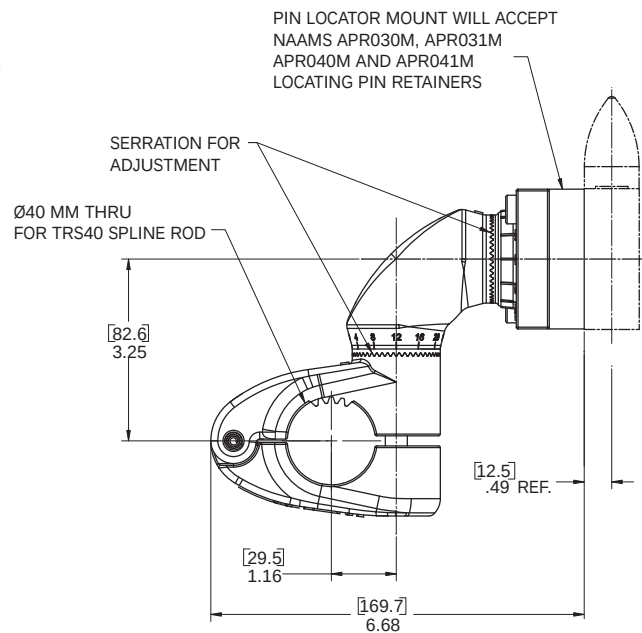
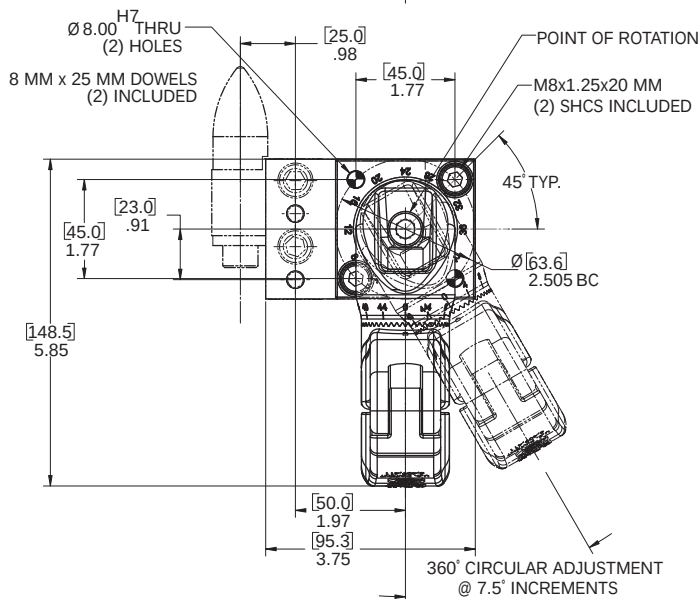
40 mm Multi-Axis Locating Pin Mount

PLNL-MA40 Overall Dimensions and Ordering Information

NORGREN TOOLING



SHOWN WITH NAAMS FULL METRIC
APR030M LOCATING PIN RETAINER
AND APS251M LOCATING PIN
(FOR REFERENCE ONLY)



NOTE:
TORQUE ALL M10 FASTENERS TO 40 FT-LBS (54 N-m)
TORQUE ALL M8 FASTENERS TO 30 FT-LBS (40 N-m)

ORDERING INFORMATION

PLNL- MA40
— AXIS OF ADJUSTABILITY
MA40 - MULTIPLE AXIS
— NORLOK PIN LOCATOR MOUNT

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 2.5 lbs [1.1 kg]

THIS PRODUCT CONNECTS WITH

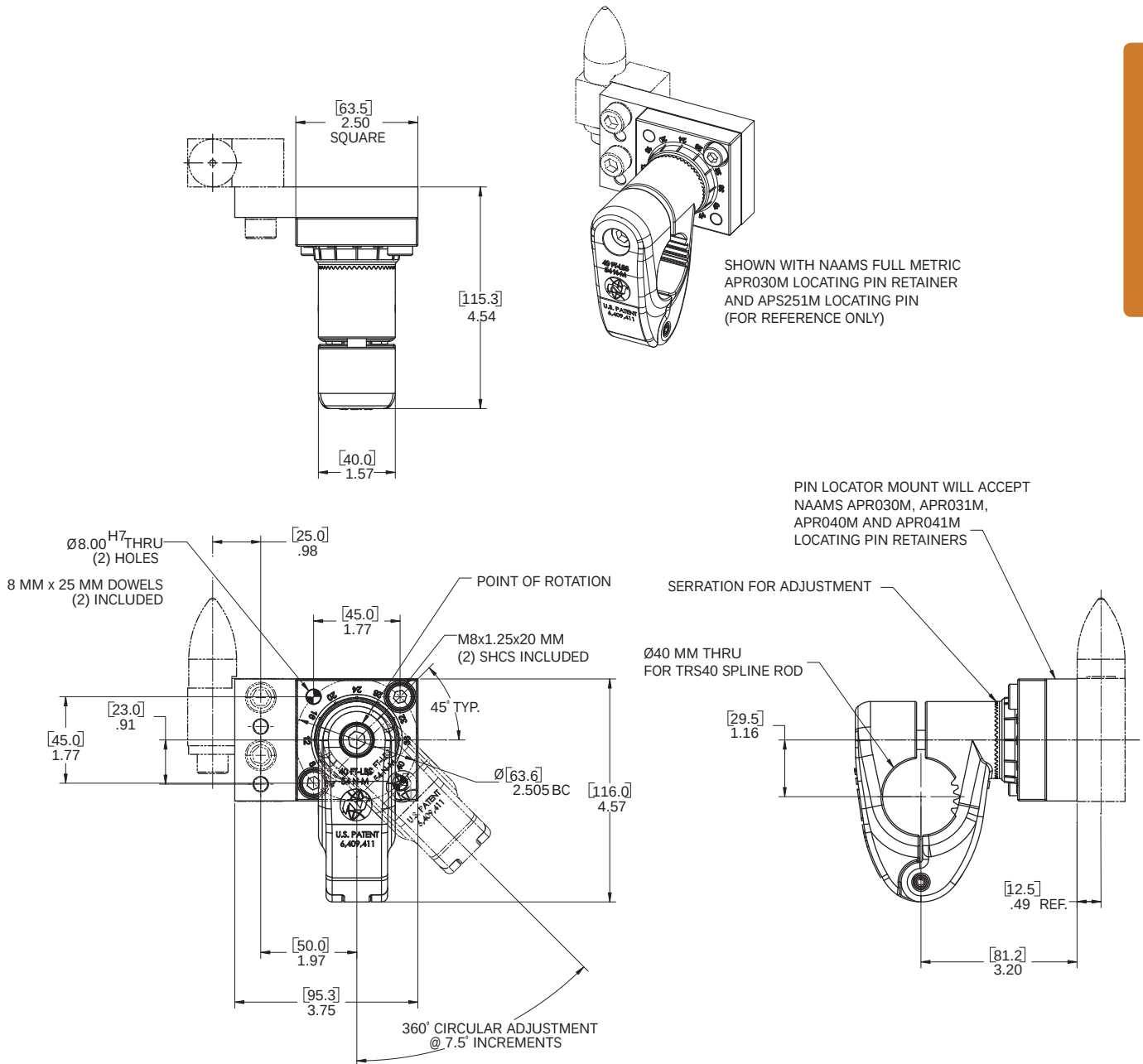
TRS40
NAAMS PIN RETAINER

NorLok™ Modular Tooling

40 mm Single-Axis Locating Pin Mount

PLNL-SA40 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

PLNL- SA40
— AXIS OF ADJUSTMENT
SA40 - SINGLE AXIS
— NORLOK PIN LOCATOR MOUNT

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 1.8 lbs [0.8 kg]

THIS PRODUCT CONNECTS WITH

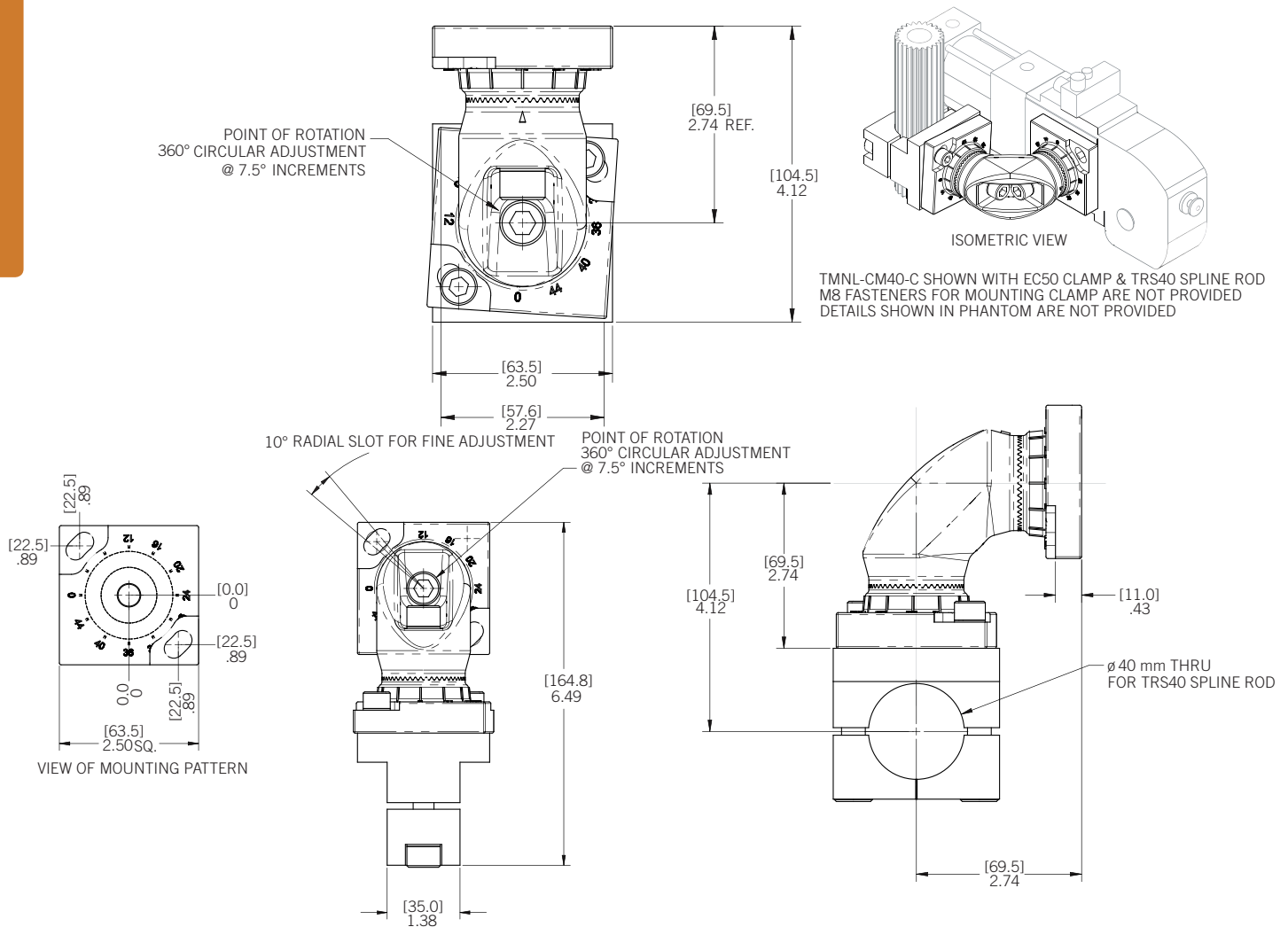
TRS40
NAAMS PIN RETAINER

NorLok™ Modular Tooling

40 mm Multi-Axis Clamp Compliance Mount

TMNL-CM40-C Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TMNL - CM40 - C
MOUNT TYPE
P - PIN LOCATOR
C - CLAMP (50mm)
CM40 - COMPLIANCE MOUNT 40mm
NORLOK TOOLING MOUNT

MATERIAL AND WEIGHT

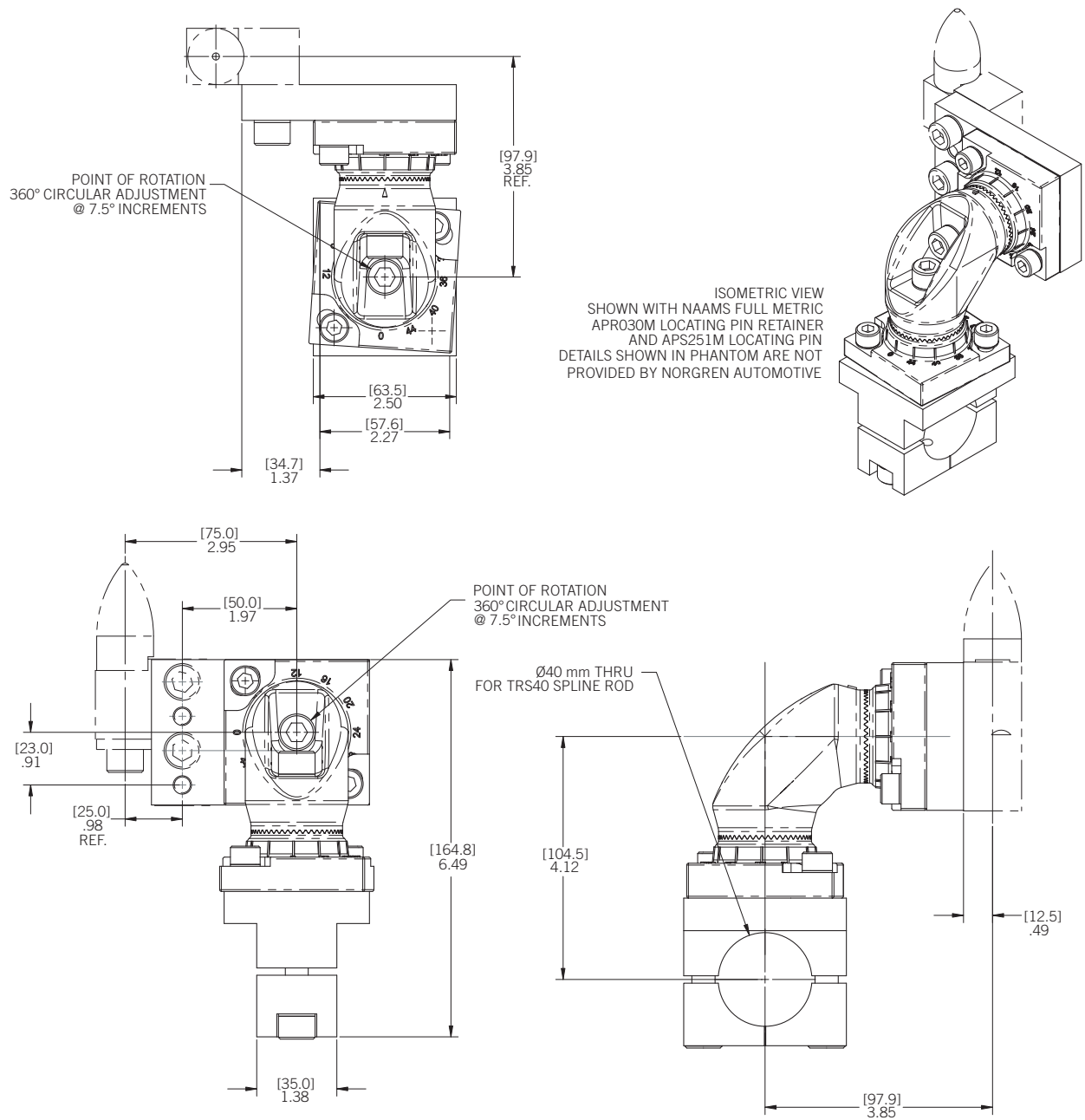
Cast Aluminum and Steel Hardware
Weight: 2.5 lbs [1.1 kg]

THIS PRODUCT CONNECTS WITH

TRS40
EC50 NAAMS MOUNTING OPTION

NorLok™ Modular Tooling

40 mm Multi-Axis Pin Locator Compliance Mount
TMNL-CM40-P Overall Dimensions and Ordering Information



ORDERING INFORMATION

TMNL-CM40-P
MOUNT TYPE
P - PIN LOCATOR
COMPLIANCE MOUNT & SIZE
CM40 - COMPLIANCE MOUNT
NORLOK TOOLING MOUNT

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 2.5 lbs [1.1 kg]

THIS PRODUCT CONNECTS WITH

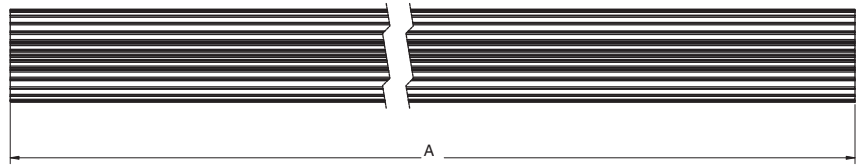
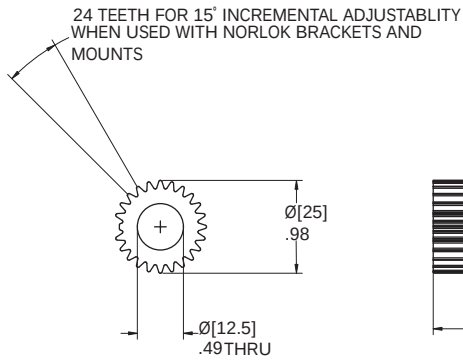
TRS40
NAAMS Pin Retainer

NorLok™ Modular Tooling

25 mm Spline Rod

TRS25 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TRS25 - A	
└─ LENGTH IN MILLIMETERS	
300 = 300 mm	
400 = 400 mm	
500 = 500 mm	
600 = 600 mm	
700 = 700 mm	
800 = 800 mm	
900 = 900 mm	
└─ MODEL DESIGNATION	

MATERIAL AND WEIGHT

Extruded Aluminum
Weight: 0.5 lbs/ft [0.8 kg/m]

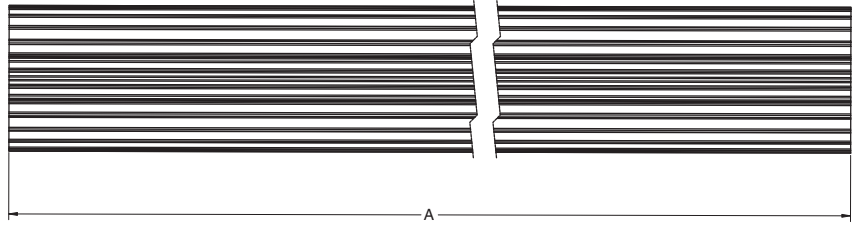
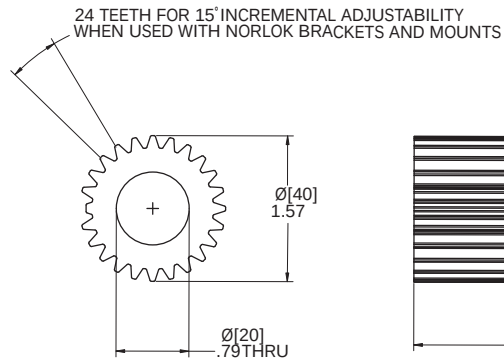
THIS PRODUCT CONNECTS WITH

TMNL - MA25
TMNL - SA25
TBNL - 4025
TBNL - 2525
UMB

NorLok™ Modular Tooling

40 mm Spline Rod

TRS40 Overall Dimensions and Ordering Information



ORDERING INFORMATION

TRS40 - A	
—	LENGTH IN MILLIMETERS
	300 = 300 mm
	400 = 400 mm
	500 = 500 mm
	600 = 600 mm
	700 = 700 mm
	800 = 800 mm
	900 = 900 mm
	1000 = 1000 mm
	1100 = 1100 mm
	1200 = 1200 mm
	1300 = 1300 mm
	1400 = 1400 mm
	1500 = 1500 mm
—	MODEL DESIGNATION

MATERIAL AND WEIGHT

Extruded Aluminum
Weight: 1.4 lbs/ft [2.1 kg/m]

THIS PRODUCT CONNECTS WITH

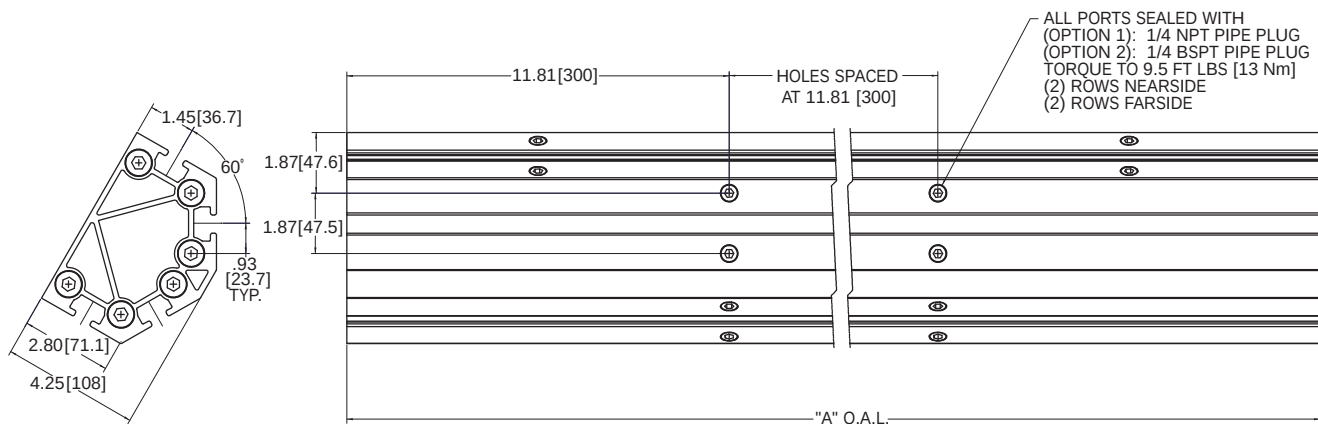
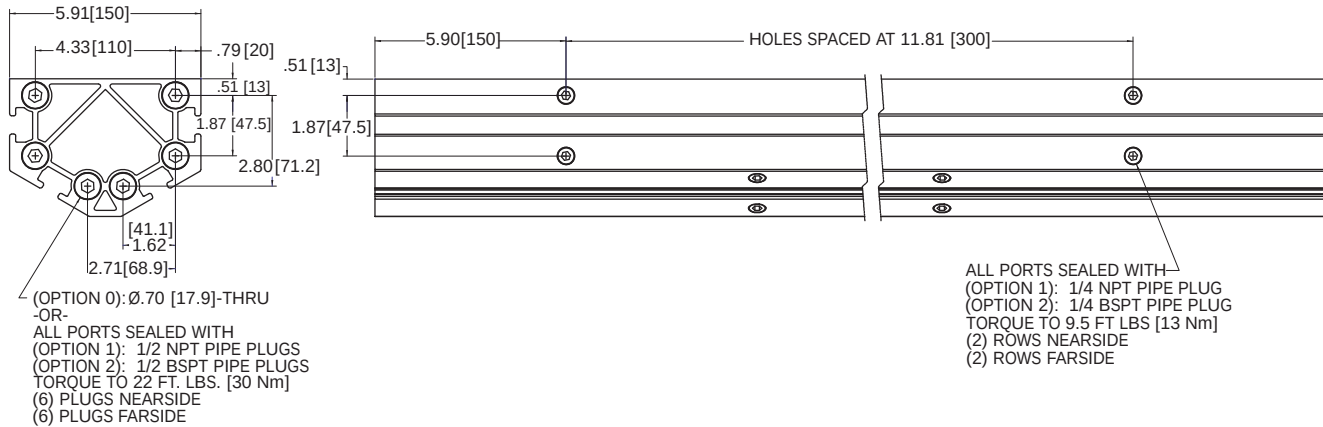
TMNL - MA40
TMNL - SA40
TBNL - 4040
TBNL - 4025
CMNL - MA40 - A
CMNL - SA40 - A
PLNL - MA40
PLNL - SA40
TMNL - CM40 - C
TMNL - CM40 - P
TB1A

Series Six™ Extrusion

Six Channel Aluminum Extrusion

TES6 Overall Dimensions

NORGREN TOOLING



ORDERING INFORMATION

TES6-1800-1
PORTING OPTIONS
0 - BLANK (NO PORTING)
1 - NPT PORTING
2 - BSPT PORTING
LENGTH IN MILLIMETERS
600 mm - 3600 mm O.A.L.
(300 mm INCREMENTS)
TOOLING EXTRUSION SERIES 6

MATERIAL AND WEIGHT

Extruded Aluminum

Weight:

Non-Ported:
8.81 lbs per ft (13.3 kg/m)

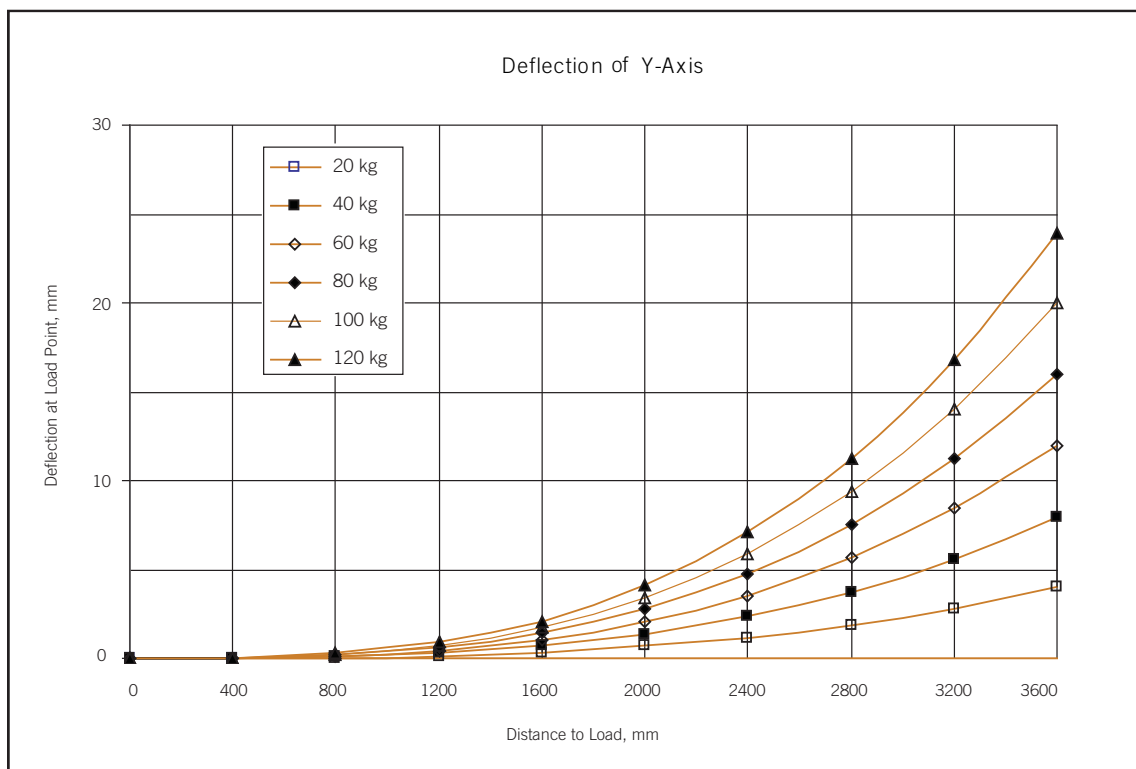
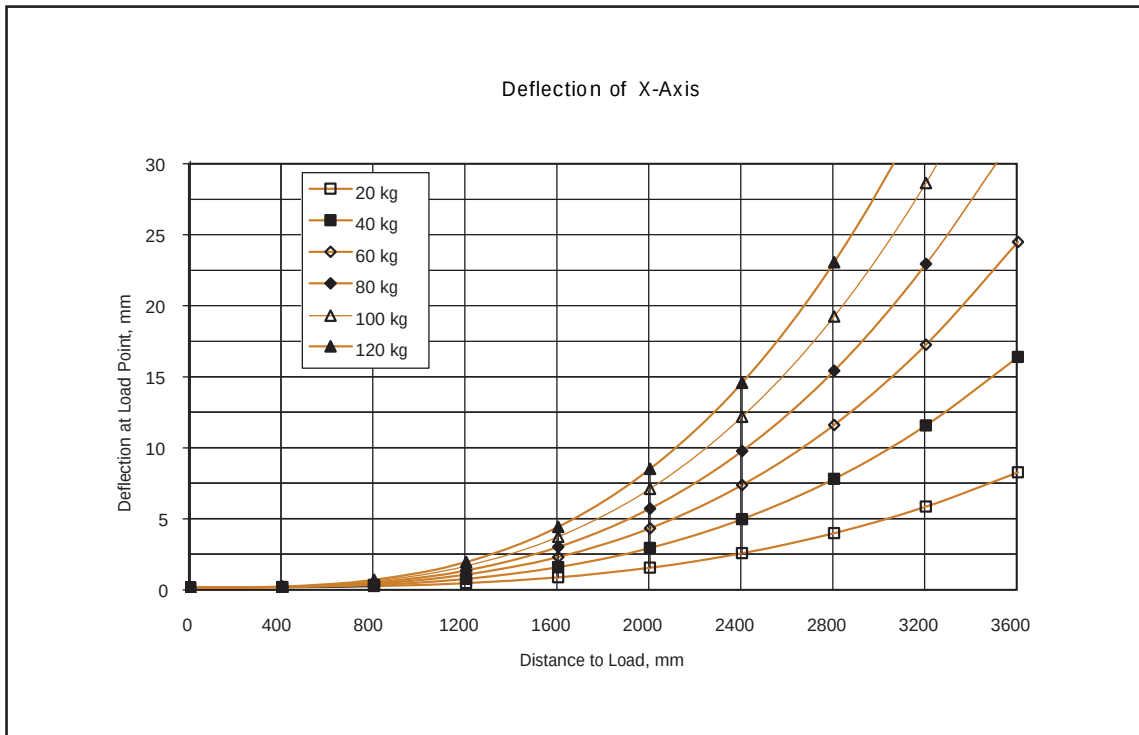
Ported:
9.3 lbs per ft (14.0 kg/m)

THIS PRODUCT CONNECTS WITH

TES6-SM
TBS6
TAS6-S4-1
TAS6-FS-RH/LH
TMNL-MA40
TMNL-MA25
TMNL-SA40
TMNL-SA25

Series Six™ Extrusion

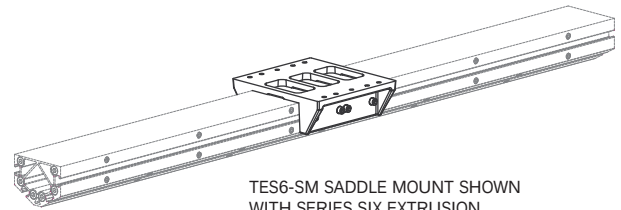
Six Channel Aluminum Extrusion
TES6 Deflection Charts



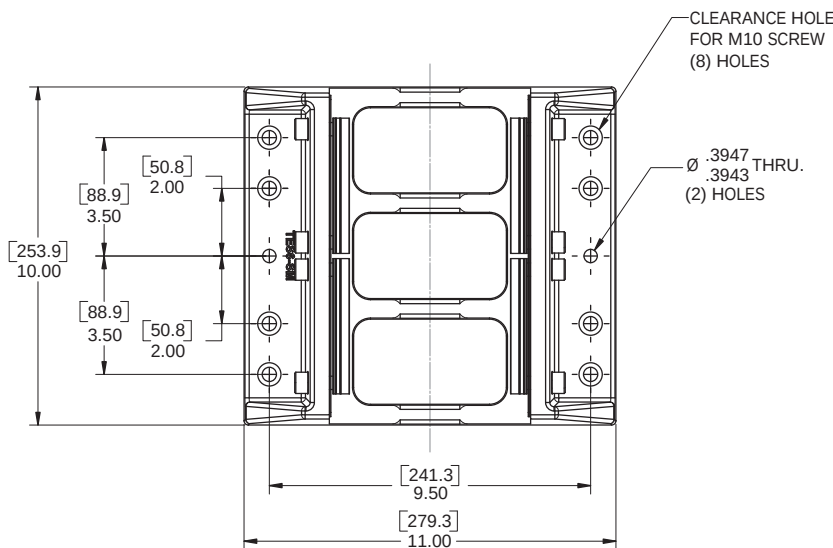
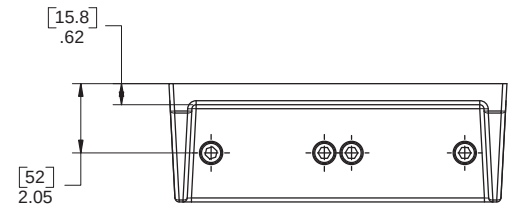
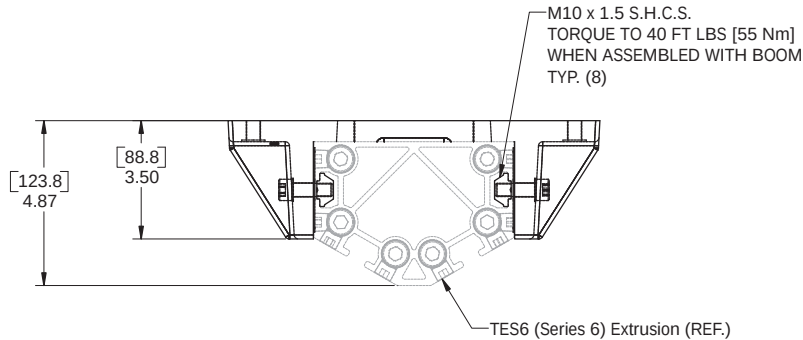
Series Six™ Tooling

Six Channel Aluminum Extrusion Saddle Mount
TES6-SM Overall Dimensions and Ordering Information

NORGREN TOOLING



TES6-SM SADDLE MOUNT SHOWN
WITH SERIES SIX EXTRUSION
(FOR REFERENCE ONLY)



NOTE:
ALL FASTENERS ARE SIZE M10
TORQUE ALL FASTENERS TO 40 FT-LBS (54N-m)

ORDERING INFORMATION

TES6 - SM
SADDLE MOUNT
TOOLING EXTRUSION SERIES 6

MATERIAL AND WEIGHT

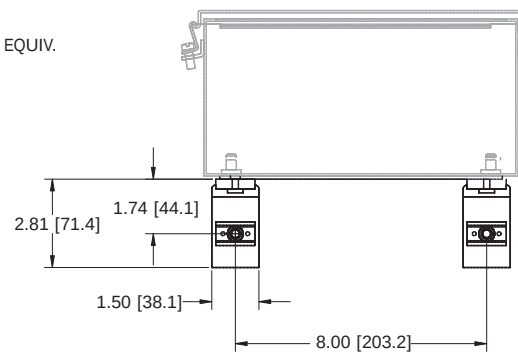
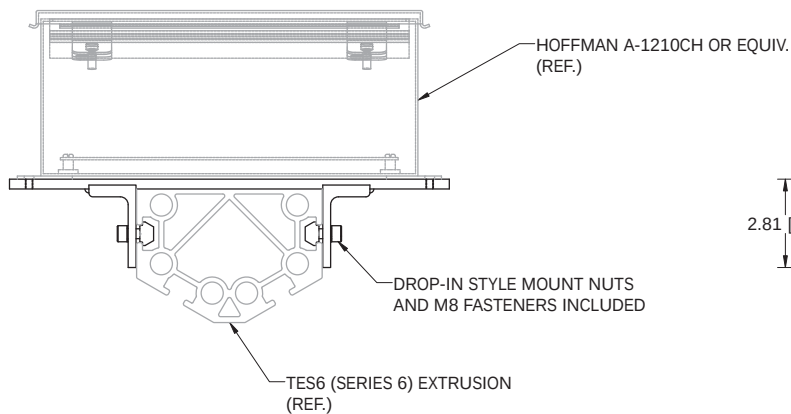
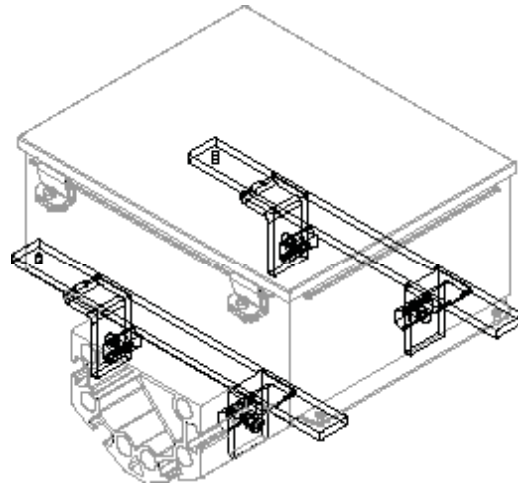
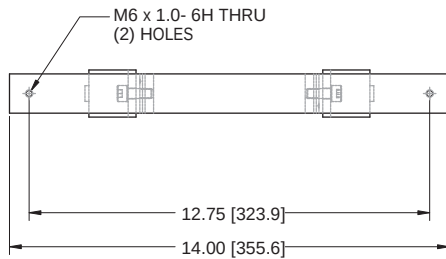
Cast Aluminum and Steel Hardware
Weight: 11.0 lbs [5.0 kg]

THIS PRODUCT CONNECTS WITH

TES6

Tooling Accessory Solutions

Six Channel Aluminum Extrusion Mounting Brackets for 10 x 12 Junction Box
TBS6-JB1 Overall Dimensions and Ordering Information



NOTE:
FASTENERS ARE SIZE M8
TORQUE FASTENERS TO 30 FT-LBS (40 N-m)

ORDERING INFORMATION

TBS6-JB1

MODEL DESIGNATION

APPROX. WEIGHT OF BRACKETS AND
J-BOX IS 20 LBS.

TBS6-JB1 INCLUDES 2 BRACKETS FOR
MOUNTING ONE 12 x 10 ENCLOSURE

MATERIAL AND WEIGHT

Steel

Weight: 5.2 lbs [2.4 kg]

THIS PRODUCT CONNECTS WITH

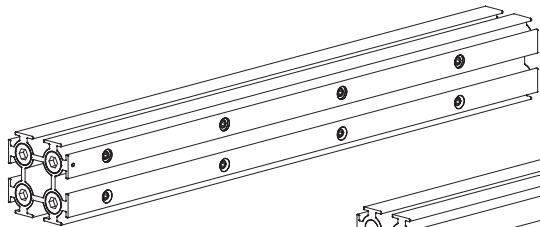
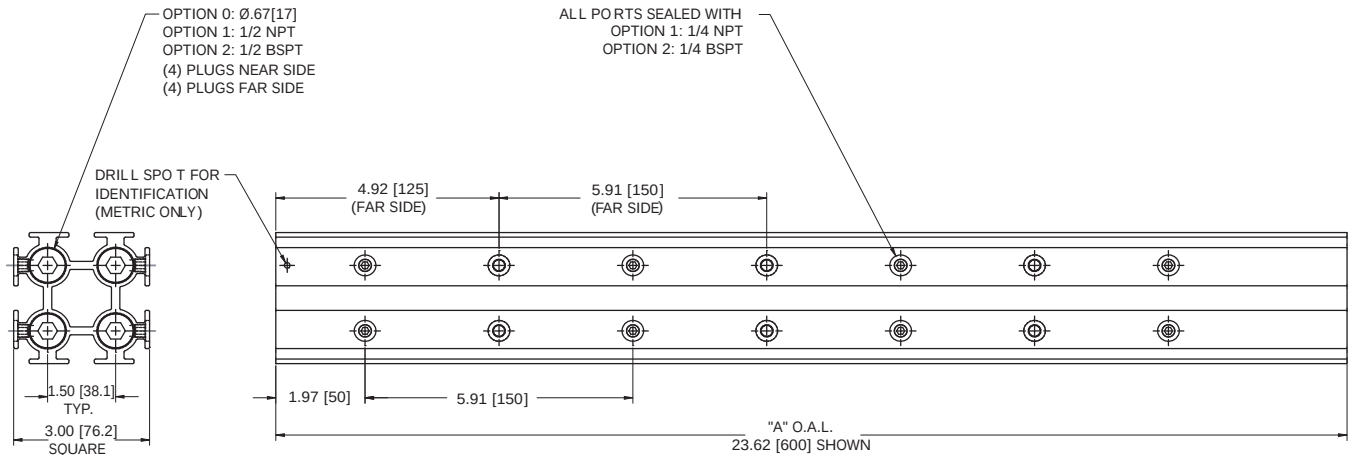
TES6

Series Four™ Extrusion

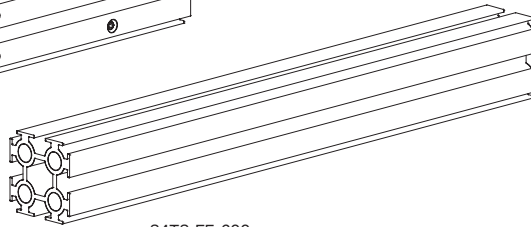
Four Channel Aluminum Extrusion

S4TS Overall Dimensions and Ordering Information

NORGREN TOOLING

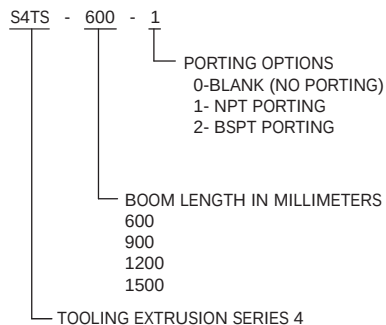


X-S4TS-F-600
SHOWN



S4TS-FE-600
SHOWN

ORDERING INFORMATION



MATERIAL AND WEIGHT

Extruded Aluminum

Weight:

Non-Ported
 4.5 lbs per ft [6.7 kg/m]

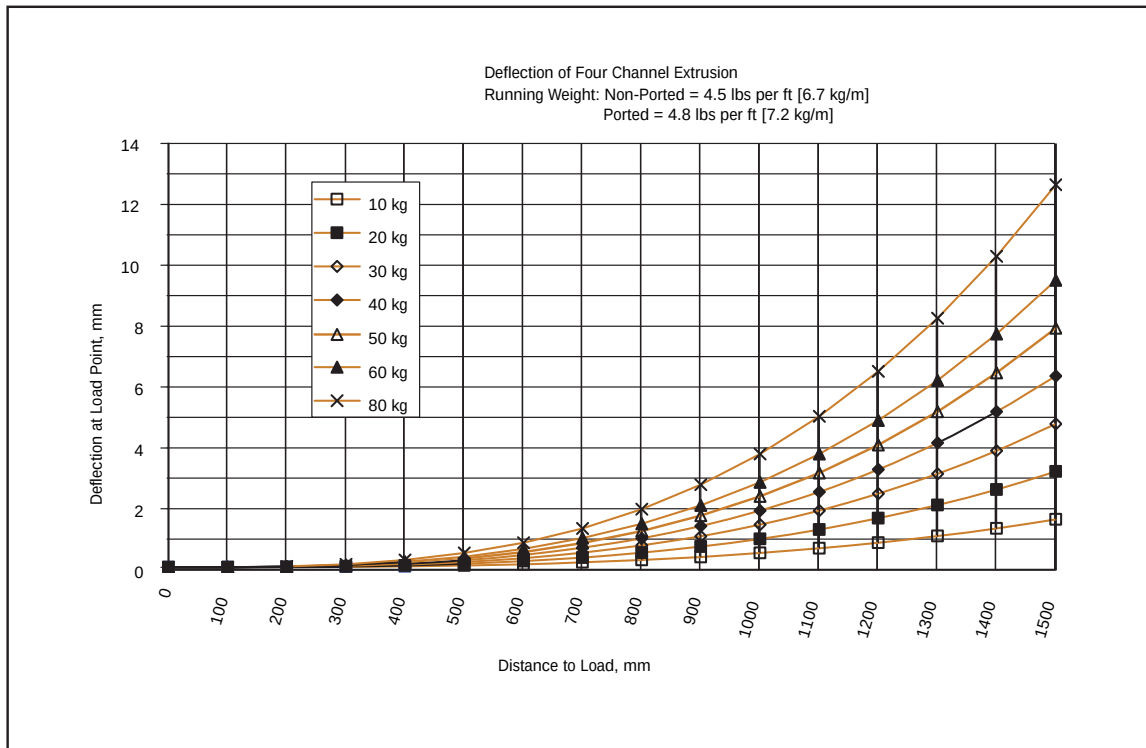
Ported
 4.8 lbs per ft [7.2 kg/m]

THIS PRODUCT CONNECTS WITH

S4TS-SM
 TAS6-S4-1
 TAS6-FS-RH/LH
 TMNL-MA40
 TMNL-MA25
 TMNL-SA40
 TMNL-SA25

Series Four™ Extrusion

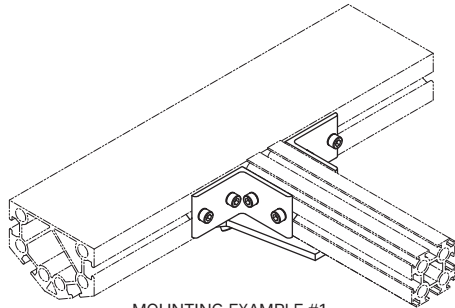
Four Channel Aluminum Extrusion
S4TS Deflection Chart



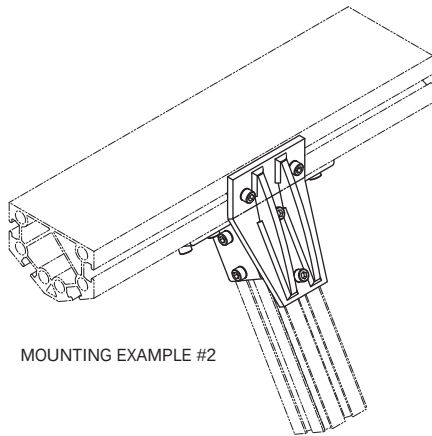
Tooling Mounting Solutions

Six Channel to Four Channel Extrusion Brace Mount Adapter
TAS6-S4-1 Overall Dimensions and Ordering Information

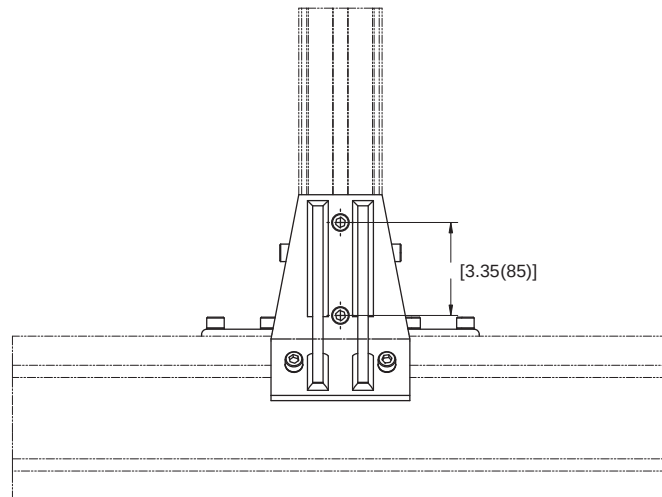
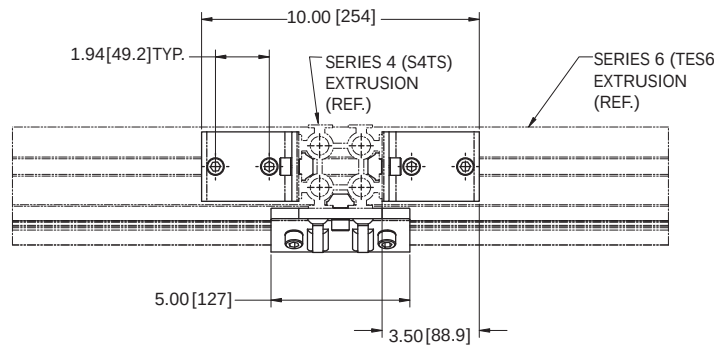
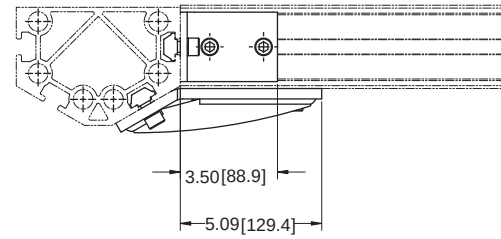
NORGREN TOOLING



MOUNTING EXAMPLE #1



MOUNTING EXAMPLE #2



ORDERING INFORMATION

TAS6-S4-1

MODEL DESIGNATION

MATERIAL AND WEIGHT

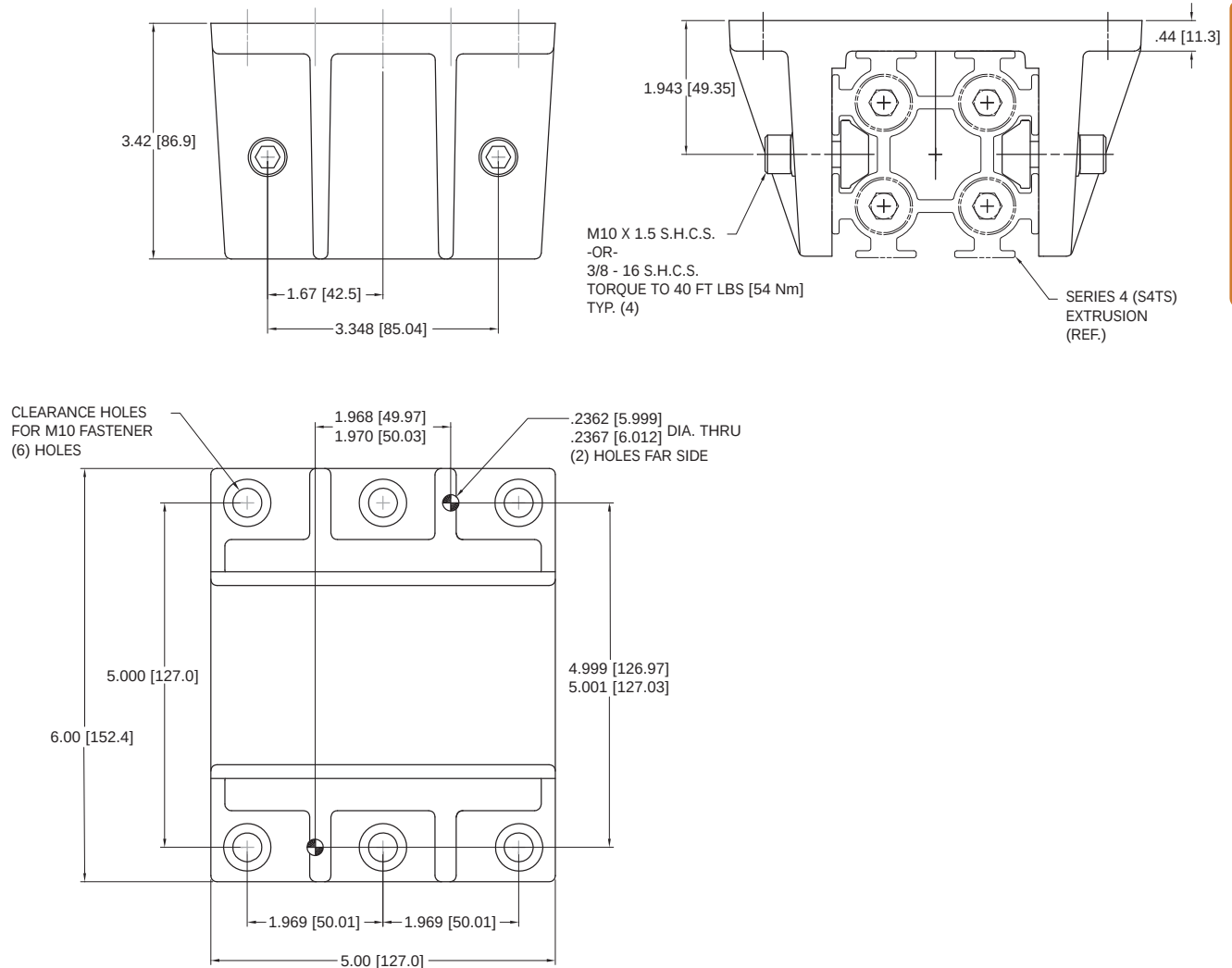
Aluminum and Steel Hardware
Weight: 4.6 lbs [2.1 kg]

THIS PRODUCT CONNECTS WITH

TES6
S4TS

Series Four™ Extrusion

Four Channel Aluminum Extrusion Saddle Mount S4TS-SM Overall Dimensions and Ordering Information



ORDERING INFORMATION

X - S4TS - SM

— SADDLE MOUNT BRACKET

— SERIES FOUR TOOLING SYSTEM

— METRIC FASTENER DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Cast Aluminum and Steel Hardware
Weight: 3.0 lbs [1.4 kg]

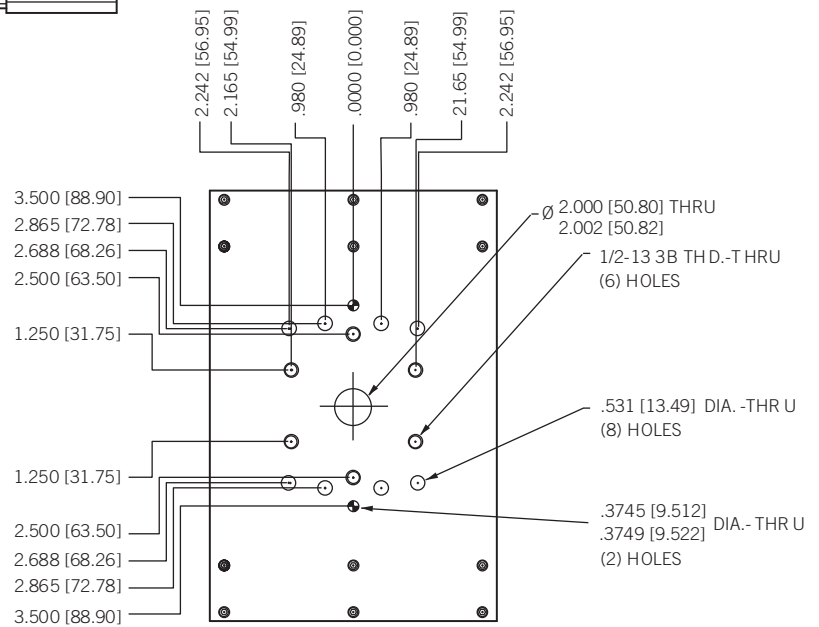
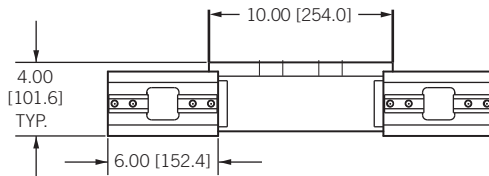
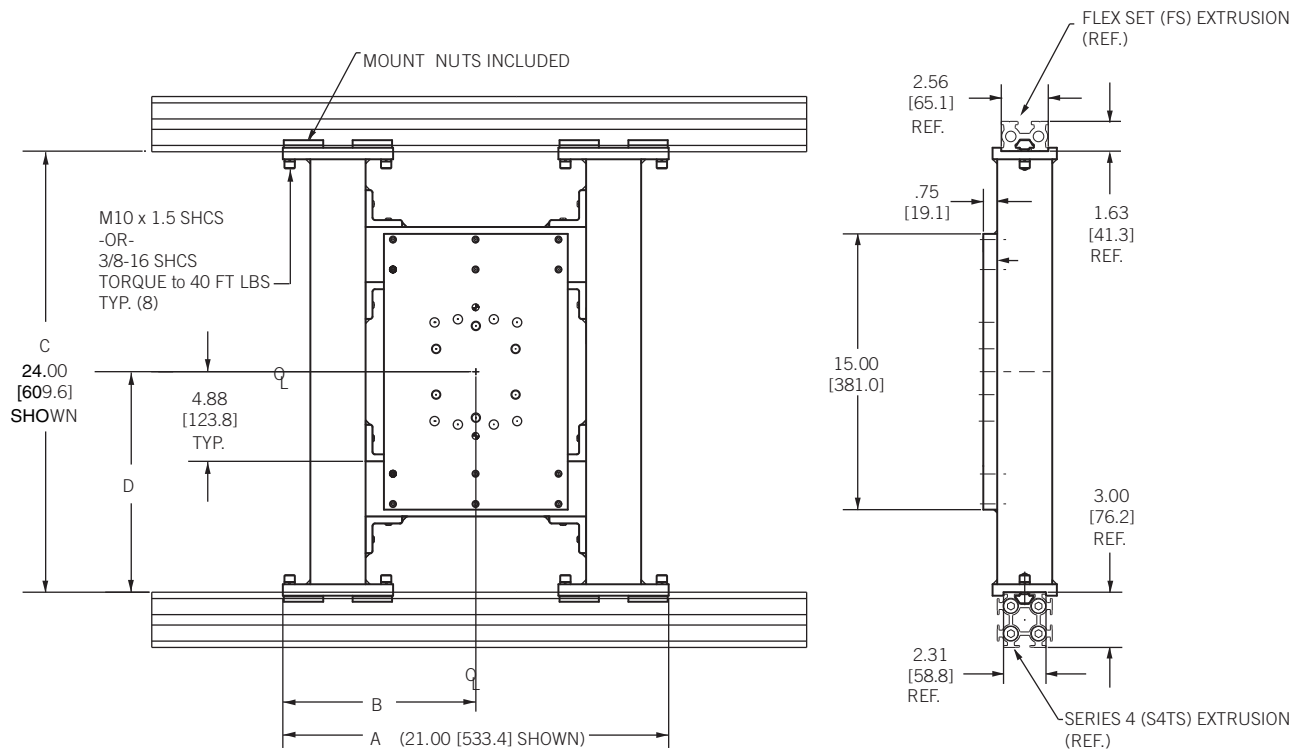
THIS PRODUCT CONNECTS WITH

S4TS

Tooling Mounting Solutions

Heavy Duty Spreader Bar
HDSB Overall Dimensions

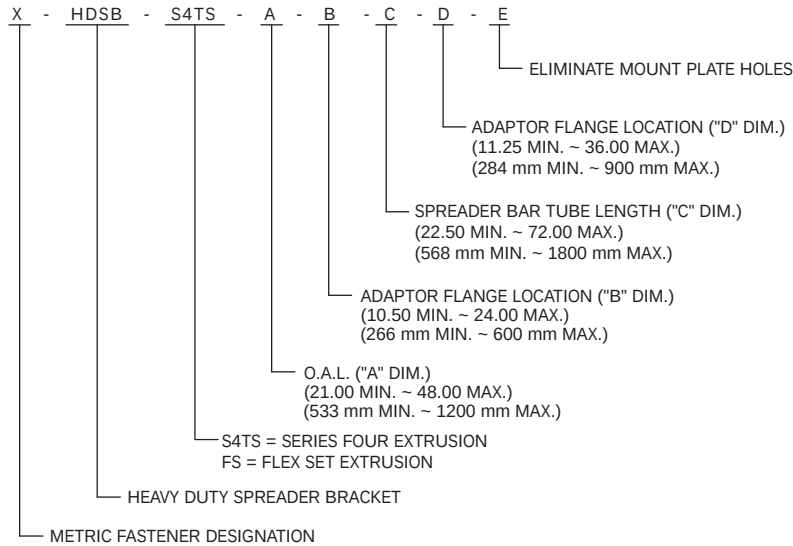
NORGREN TOOLING



Tooling Mounting Solutions

Heavy Duty Spreader Bar
HDSB Ordering Information

ORDERING INFORMATION



MATERIAL AND WEIGHT

Welded Aluminum Construction with Steel Hardware

Weight: 36 lbs [16.3 kg] for min. dimensions

*Add .02 lbs for each additional 25 mm added to Dim "A" and Dim "C."

THIS PRODUCT CONNECTS WITH

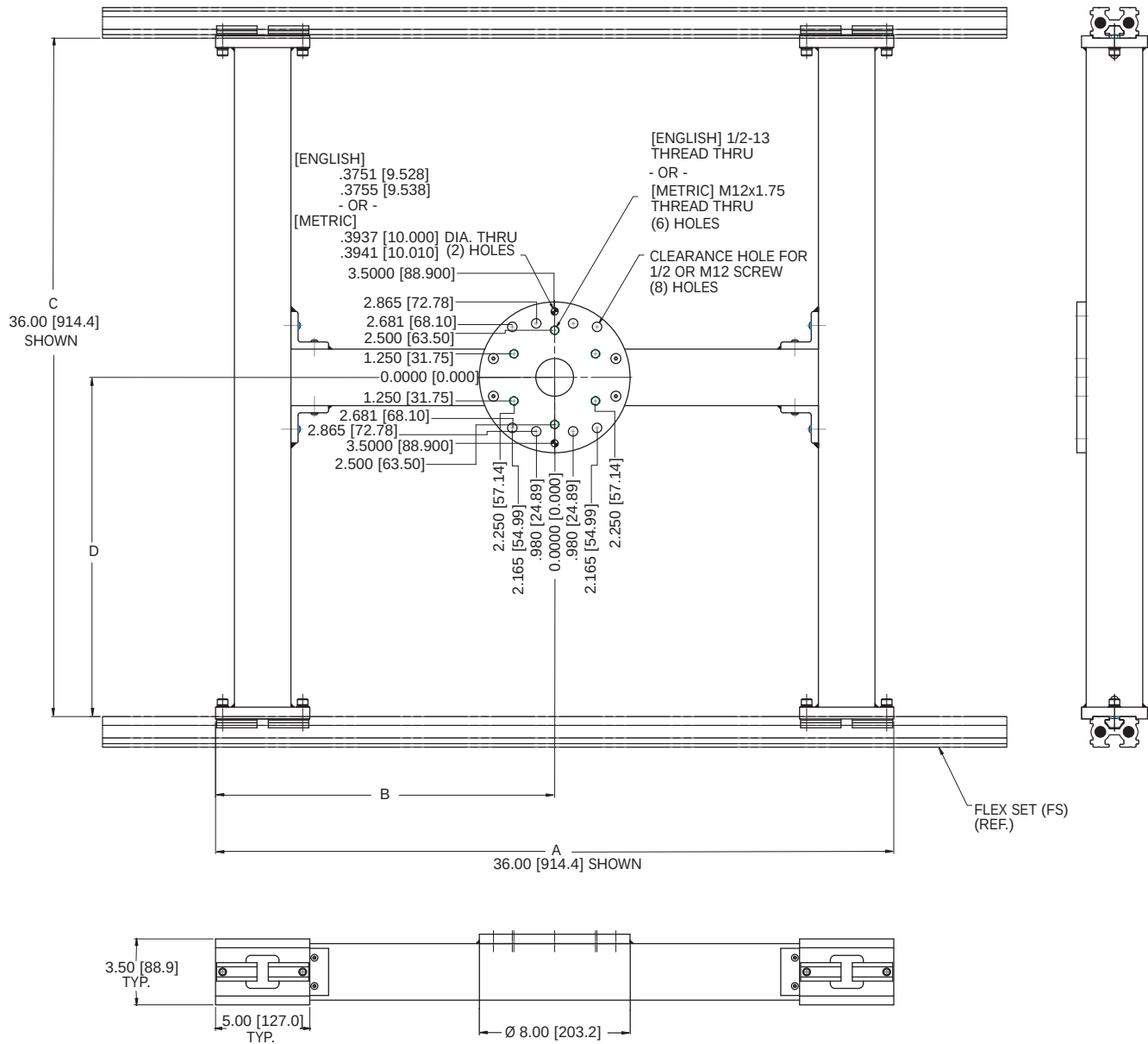
S4TS

FS

Tooling Mounting Solutions

Flex-Set Light Duty Spreader Bar
FSSB Overall Dimensions

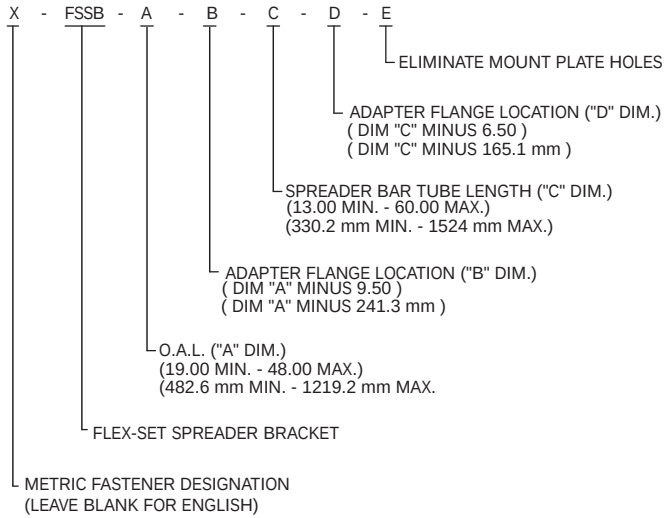
NORGREN TOOLING



Tooling Mounting Solutions

Light Duty Spreader Bar
FSSB Ordering Information

ORDERING INFORMATION



MATERIAL AND WEIGHT

Welded Aluminum with Steel Hardware

Weight: 27.75 lbs [12.6 kg]

*Add .25 lbs for each 25 mm added to Dim
"A" and Dim "C"

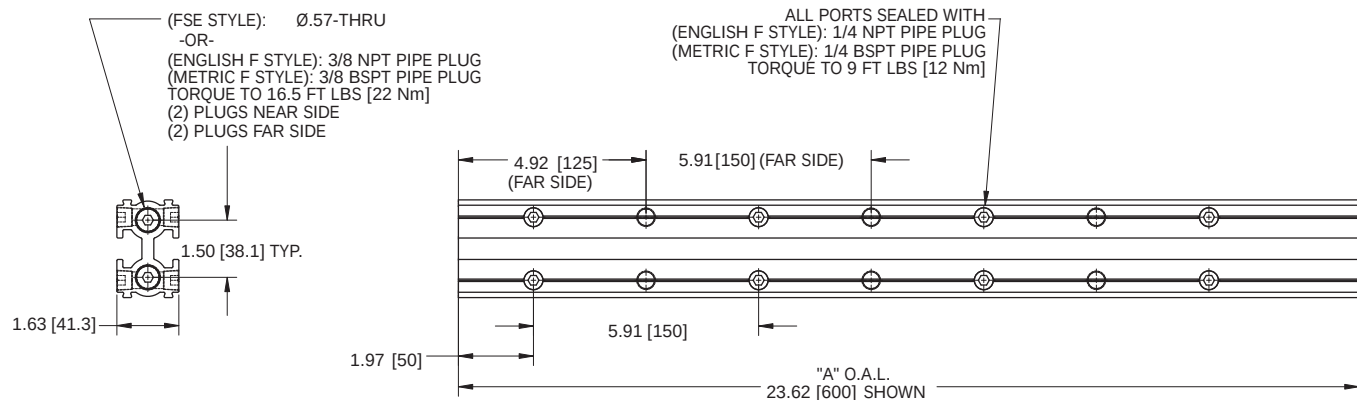
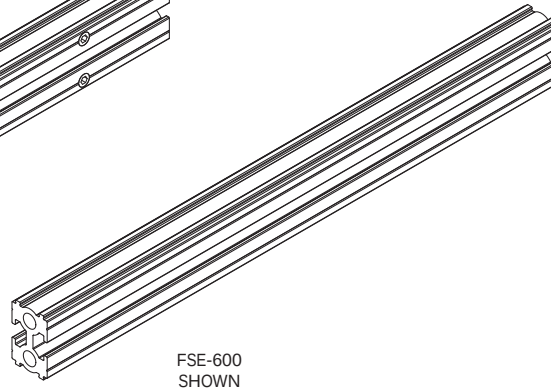
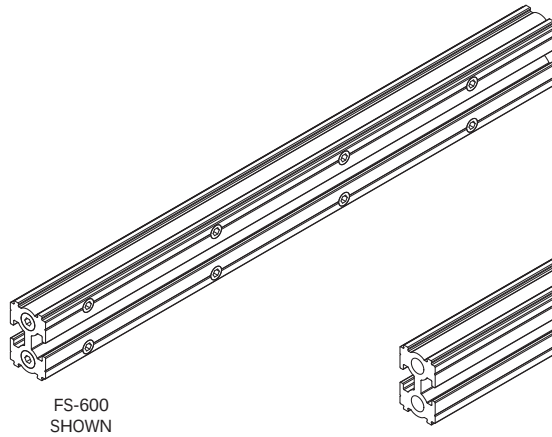
THIS PRODUCT CONNECTS WITH

FS

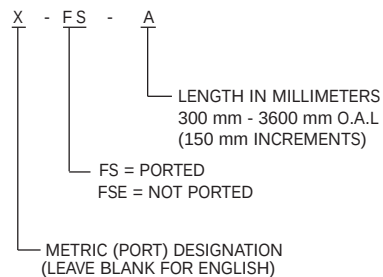
NORGREN TOOLING

Tooling Mounting Solutions

Two Channel Aluminum Extrusion
FS Overall Dimensions and Ordering Information



ORDERING INFORMATION



MATERIAL AND WEIGHT

Extruded Aluminum
Weight:
Non-Ported = 2.8 lbs per ft [4.1 kg/m]
Ported = 2.9 lbs per ft [4.3 kg/m]

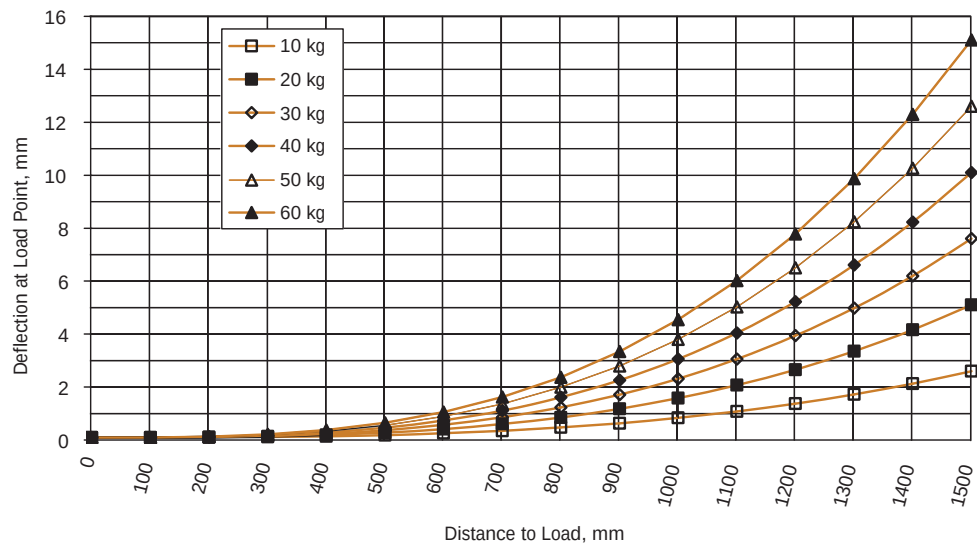
THIS PRODUCT CONNECTS WITH

FS-UM-1
TAS6-FS-RH/LH
TMNL-MA40
TMNL-MA25
TMNL-SA40
TMNL-SA25

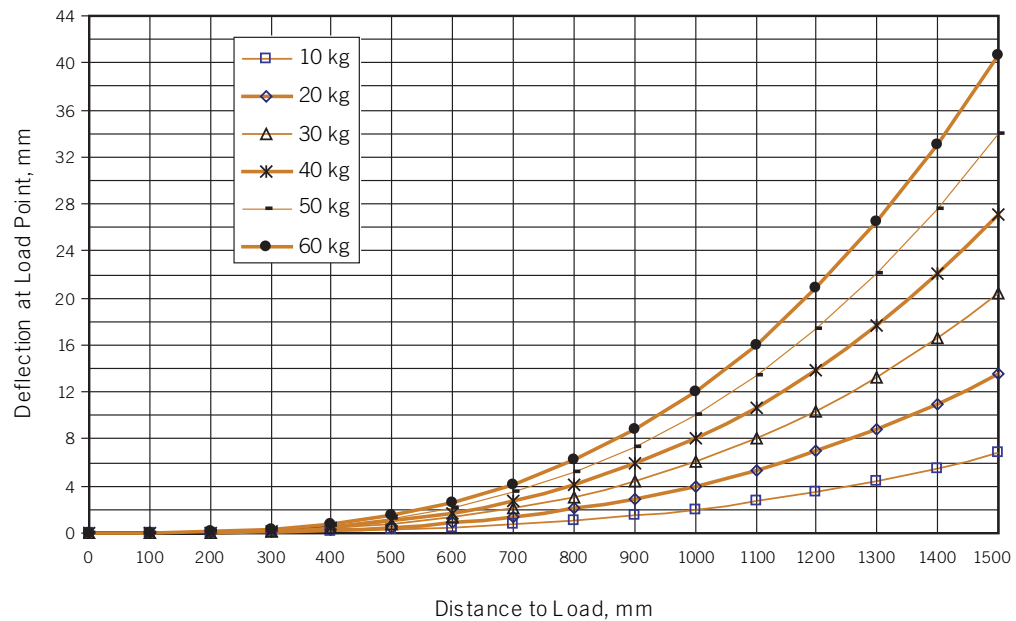
Flex Set™ Extrusion

Two Channel Aluminum Extrusion
FS Deflection Charts

Deflection of X-Axis



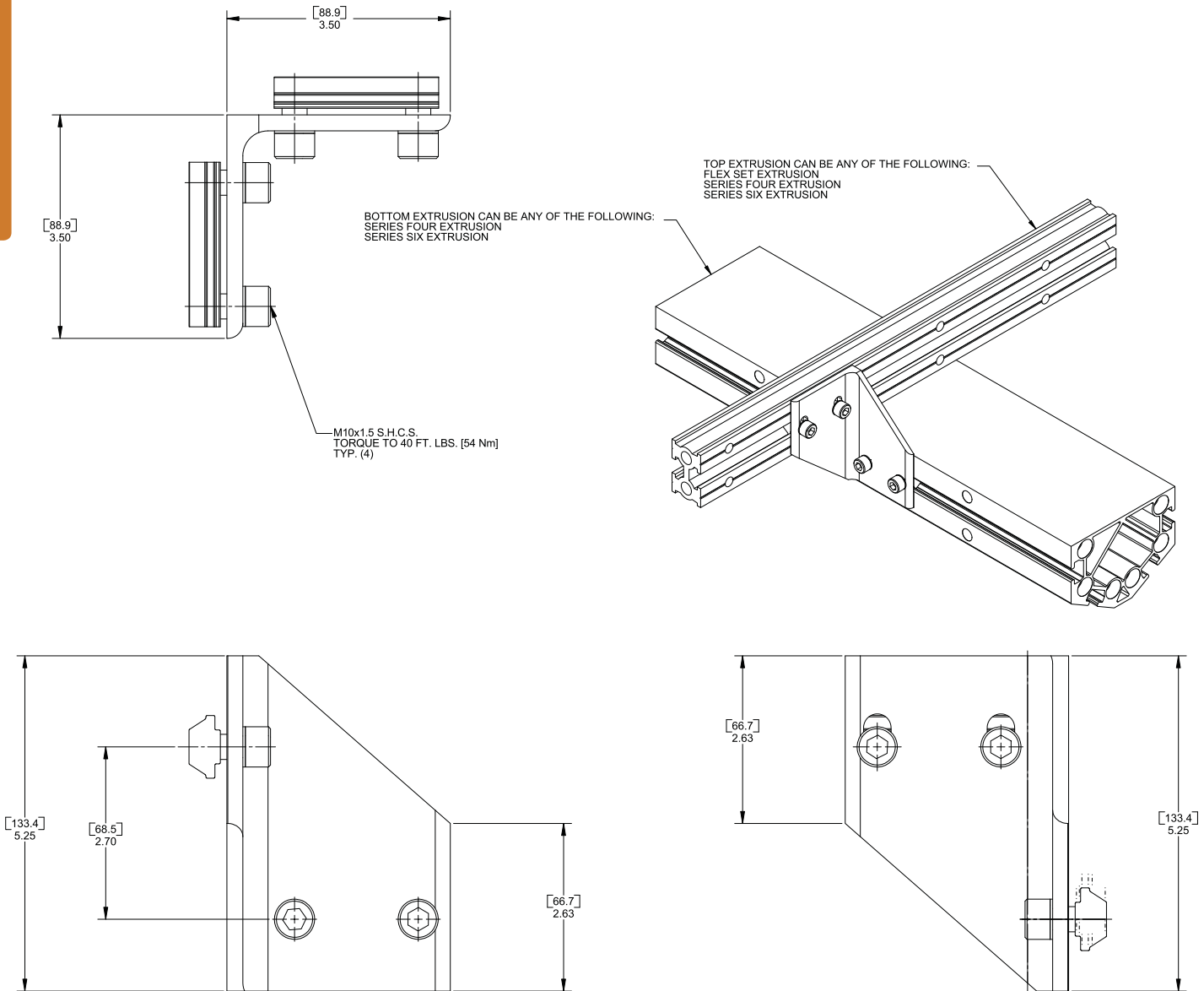
Deflection of Y-Axis



Tooling Mounting Solutions

Six Channel to Four/Two Channel Extrusion Mount Bracket (Left)
TAS6-FS-LH Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

TAS6-FS-LH

MODEL DESIGNATION

MUST USE AT LEAST (2) TAS6-FS-(LH/RH)
PER EACH EXTRUSION CROSS MEMBER

MATERIAL AND WEIGHT

Extruded Aluminum and Steel
Hardware

Weight: 1.4 lbs [0.6 kg]

THIS PRODUCT CONNECTS WITH

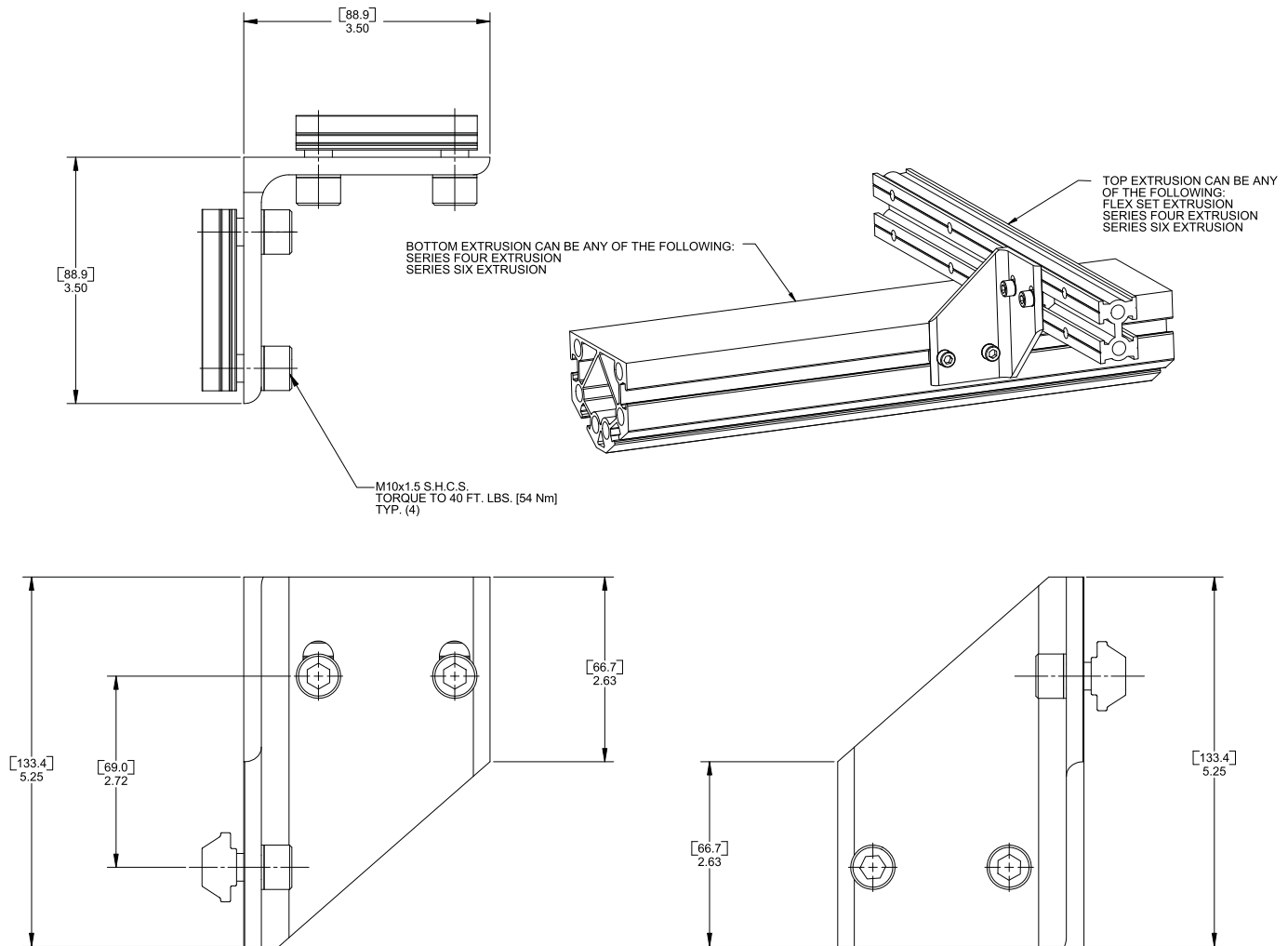
TES6

S4TS

FS

Tooling Mounting Solutions

Six Channel to Four/Two Channel Extrusion Mount Bracket (right)
TAS6-FS-RH Overall Dimensions and Ordering Information



ORDERING INFORMATION

TAS6-FS-RH

MODEL DESIGNATION

MUST USE AT LEAST (2) TAS6-FS-(LH/RH)
PER EACH EXTRUSION CROSS MEMBER

MATERIAL AND WEIGHT

Extruded Aluminum and Steel
Hardware

Weight: 1.4 lbs [0.6 kg]

THIS PRODUCT CONNECTS WITH

TES6

S4TS

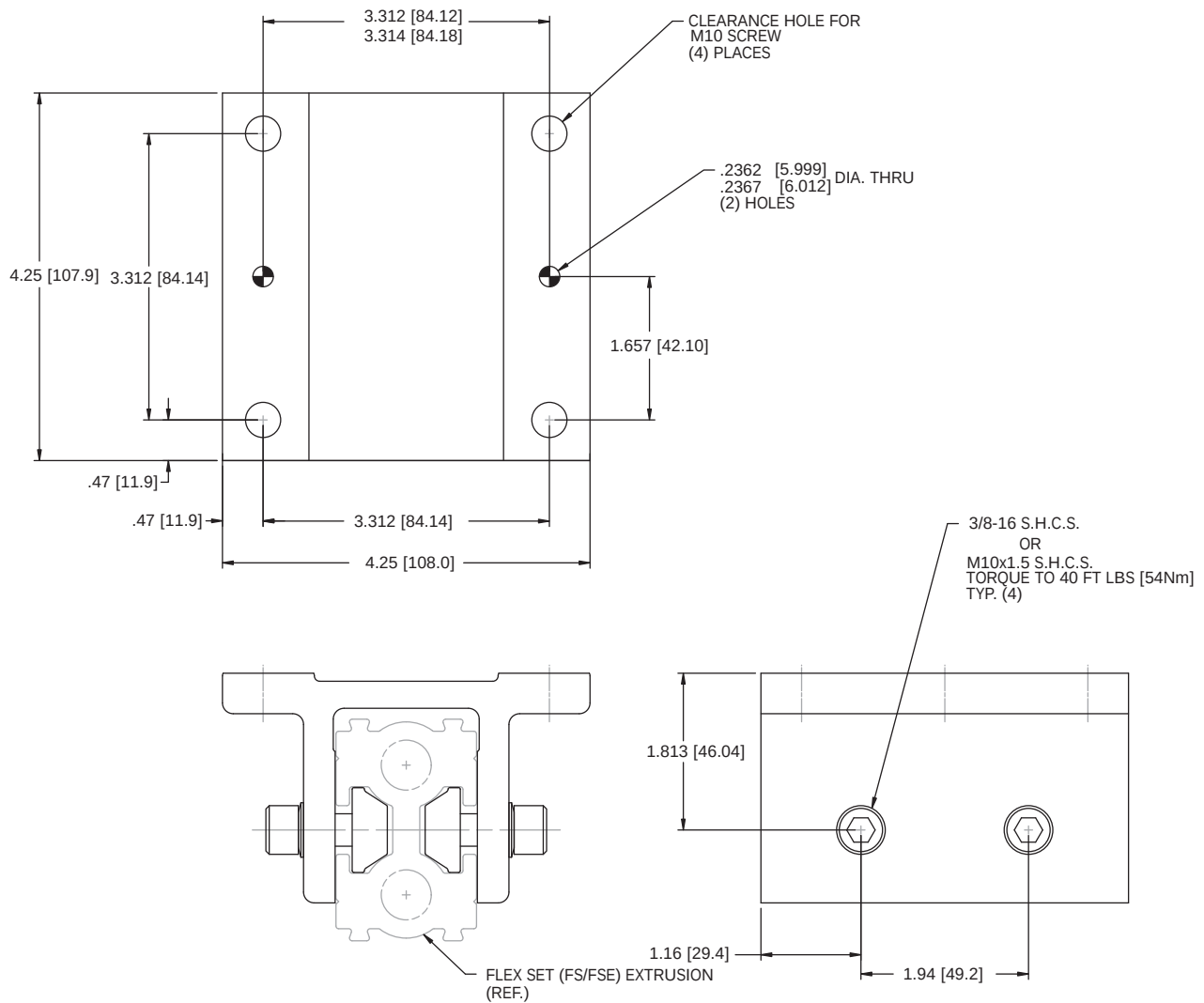
FS

Flex Set™ Extrusion

Two Channel Aluminum Extrusion Saddle Mount

FS-UM-1 Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - FS - UM-1
 ———— UNIVERSAL MOUNT BRACKET
 ———— FLEX SET TOOLING SYSTEM
 ———— METRIC FASTENER DESIGNATION
 (LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Cast Aluminum and Steel
 Hardware
 Weight: 2.1 lbs [0.9 kg]

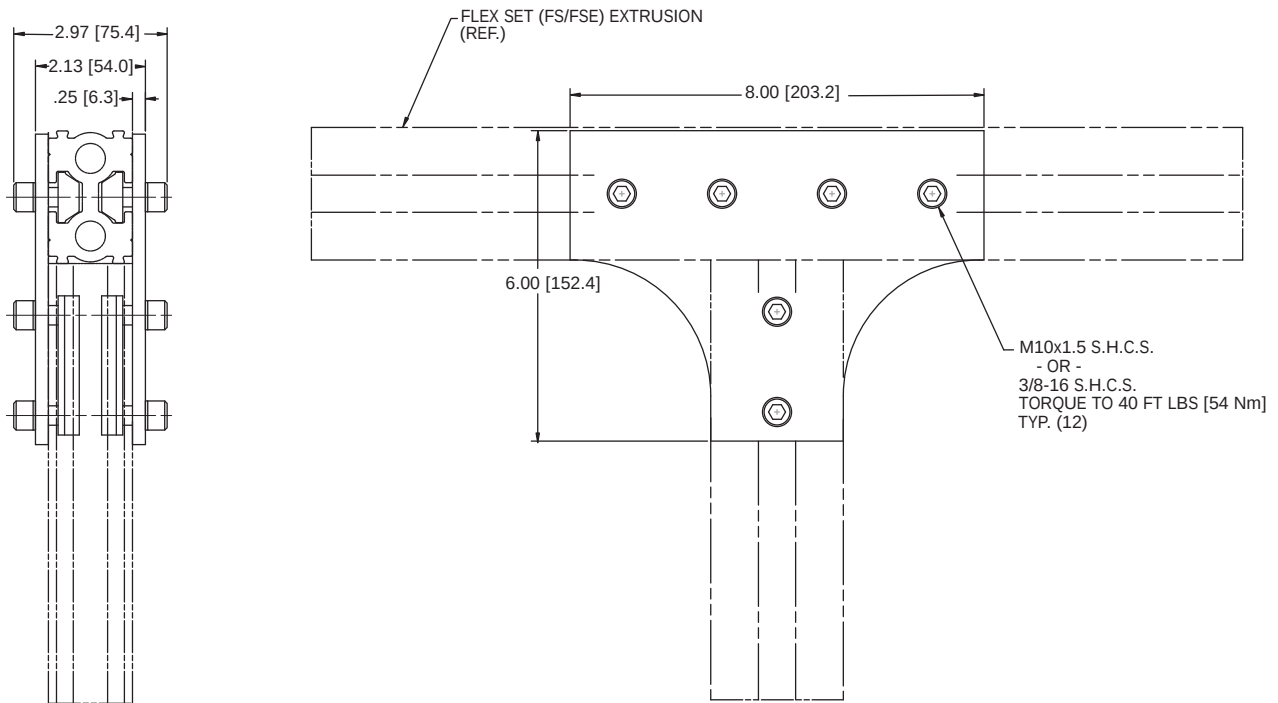
THIS PRODUCT CONNECTS WITH

FS
 FSE

Tooling Mounting Solutions

Nest-Set 90° T-Plates
NS-90-TP Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - NS - 90 - TP
 |
 | "T" PLATE (PAIR)
 |
 | 90°
 |
 | NEST-SET
 |
 | METRIC FASTENER DESIGNATION
 | (LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Aluminum and Steel Hardware
 Weight: 3.5 lbs [1.6 kg]

THIS PRODUCT CONNECTS WITH

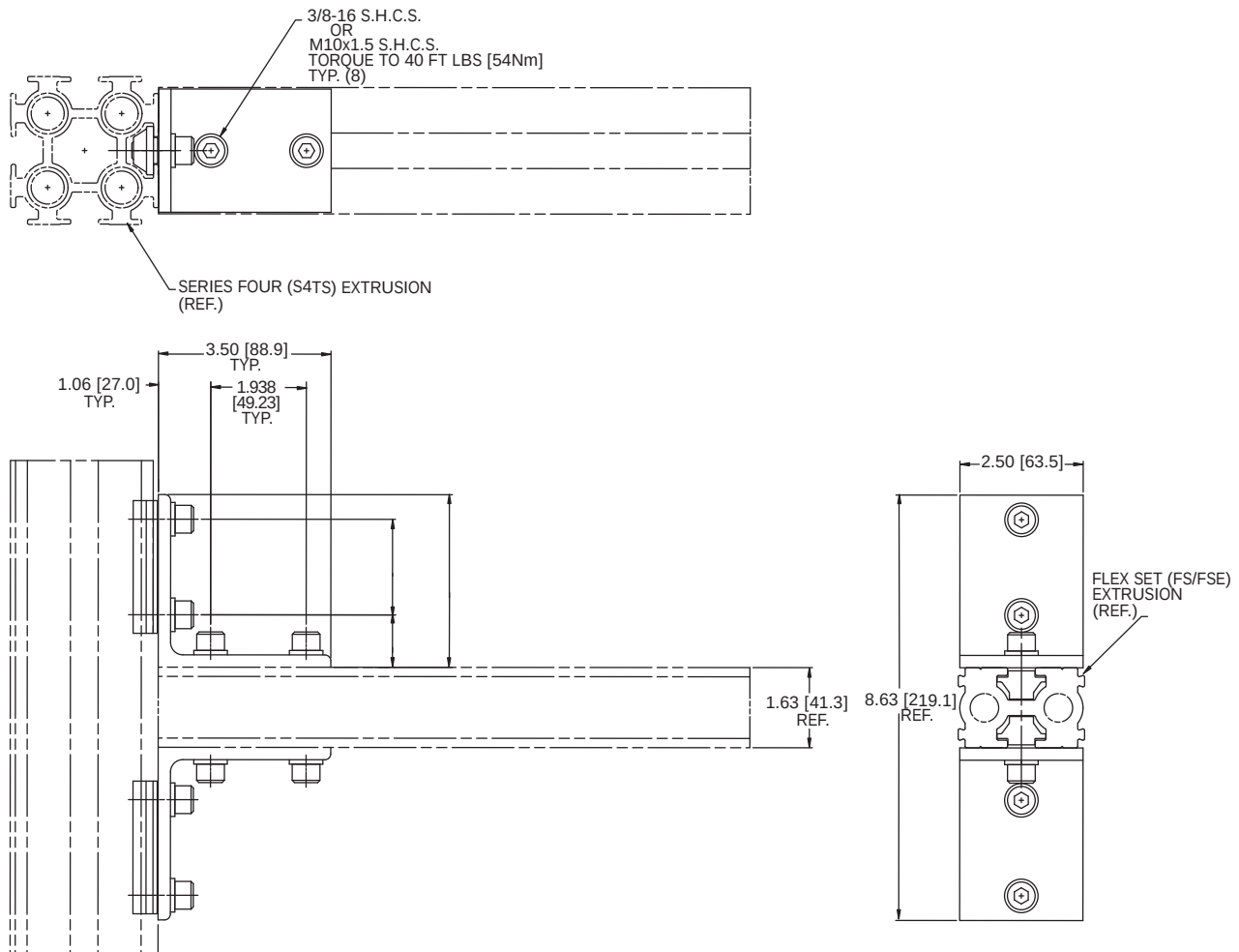
S4TS
 FS

Tooling Mounting Solutions

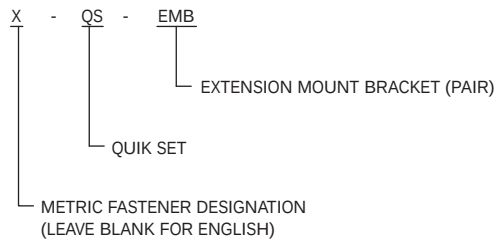
Quik-Set Extension Mount Brackets

QS-EMB Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION



MATERIAL AND WEIGHT

Aluminum and Steel
Weight: 2.13 lbs [1.0 kg]

THIS PRODUCT CONNECTS WITH

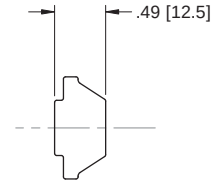
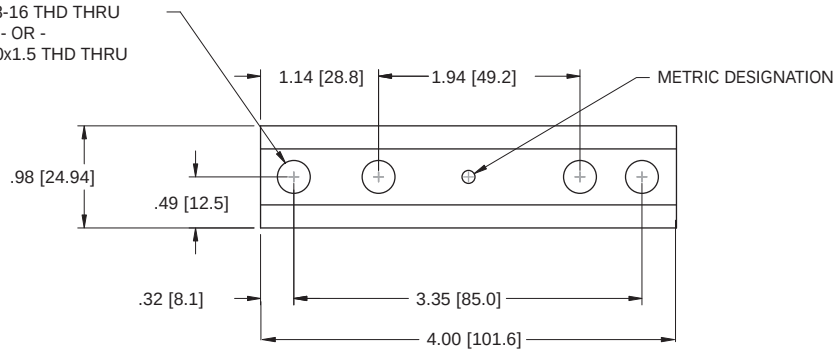
S4TS
FS

Tooling Accessory Solutions

Extrusion Mount Nuts

QSHM-8 and QSVRM-1 Overall Dimensions and Ordering Information

(ENGLISH): 3/8-16 THD THRU
- OR -
(METRIC): M10x1.5 THD THRU
(4) HOLES



NORGREN TOOLING

ORDERING INFORMATION

P - X - QSHM-8

QUIK SET HORIZONTAL MOUNT NUT

METRIC FASTENER DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Steel

Weight: 0.40 lbs [0.2 kg]

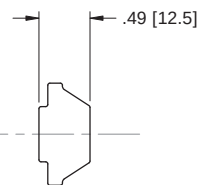
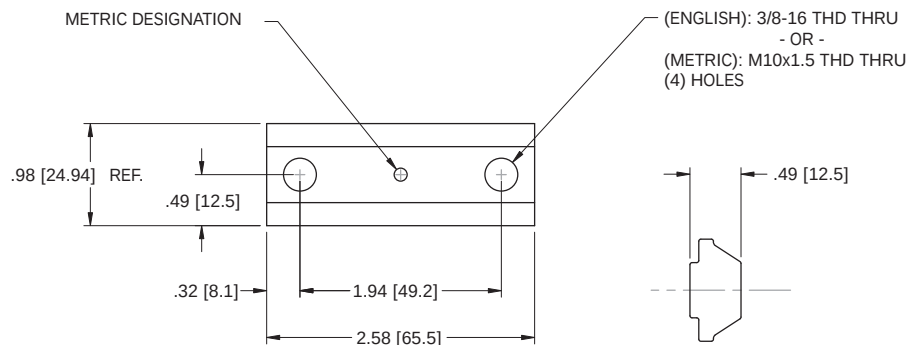
THIS PRODUCT CONNECTS WITH

TES6

S4TS

FS

METRIC DESIGNATION



ORDERING INFORMATION

P - X - QSVRM-1

QUIK SET VERTICAL MOUNT NUT

METRIC FASTENER DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Steel

Weight: 0.25 lbs [0.1 kg]

THIS PRODUCT CONNECTS WITH

TES6

S4TS

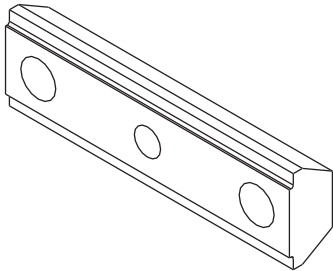
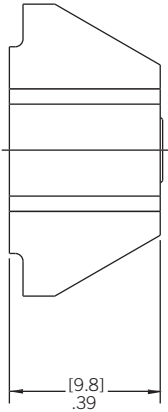
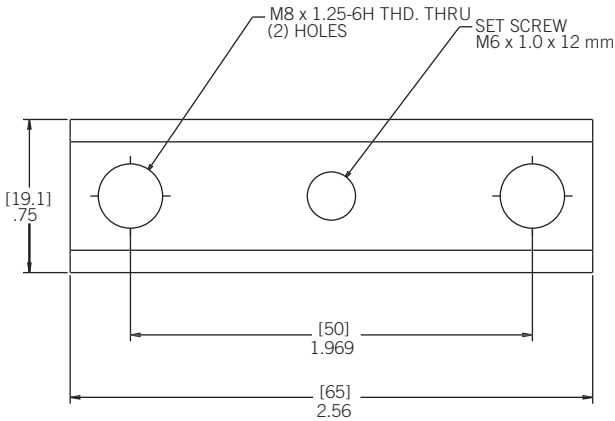
FS

FSE

Tooling Accessory Solutions

Extrusion Drop-In Mount Nut
TMDN Overall Dimensions and Ordering Information

NORGREN TOOLING



NOTE:
TO BE USED FOR MOUNTING
OF JUNCTION BOXES AND
VALVES PACKS ONLY.

ORDERING INFORMATION

TMDN-1
TOOLING MOUNT DROP-IN NUT

MATERIAL AND WEIGHT

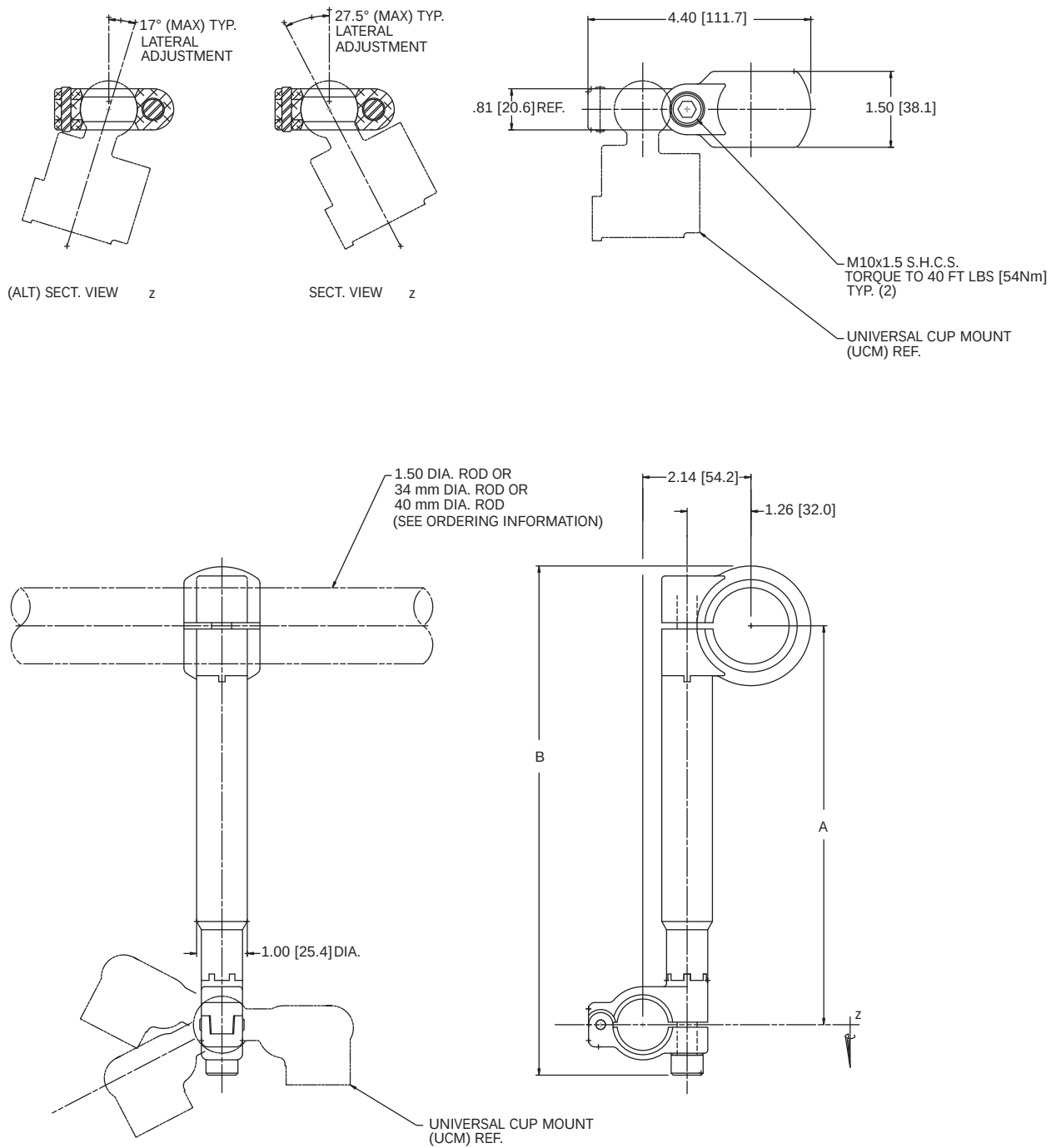
Aluminum and Steel
Weight: .16 lbs [0.1 kg]

THIS PRODUCT CONNECTS WITH

TES6
S4TS
FS

Tooling Accessory Solutions

Heavy Duty Ultra Arm
TB1A Overall Dimensions



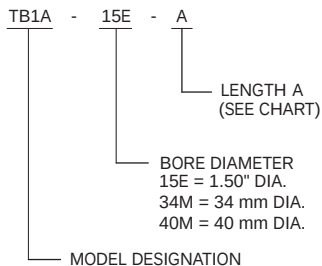
NORGREN TOOLING

Tooling Accessory Solutions

Heavy Duty Ultra Arm
TB1A Ordering Information

MODEL No.	A	B	WEIGHT (LBS)	WEIGHT (KG)
TB1A-15E-100	100 mm	155 mm	.73	.33
TB1A-34M-100				
TB1A-40M-100				
TB1A-15E-200	200 mm	255 mm	1.04	.47
TB1A-34M-200				
TB1A-40M-200				
TB1A-15E-250	250 mm	305 mm	1.14	.52
TB1A-34M-250				
TB1A-40M-250				
TB1A-15E-300	300 mm	355 mm	1.34	.61
TB1A-34M-300				
TB1A-40M-300				
TB1A-15E-350	350 mm	405 mm	1.44	.66
TB1A-34M-350				
TB1A-40M-350				
TB1A-15E-400	400 mm	455 mm	1.65	.75
TB1A-34M-400				
TB1A-40M-400				
TB1A-15E-450	450 mm	505 mm	1.75	.79
TB1A-34M-450				
TB1A-40M-450				
TB1A-15E-500	500 mm	555 mm	1.95	.89
TB1A-34M-500				
TB1A-40M-500				
TB1A-15E-550	550 mm	605 mm	2.05	.93
TB1A-34M-550				
TB1A-40M-550				
TB1A-15E-600	600 mm	655 mm	2.26	1.02
TB1A-34M-600				
TB1A-40M-600				

ORDERING INFORMATION



MATERIAL AND WEIGHT

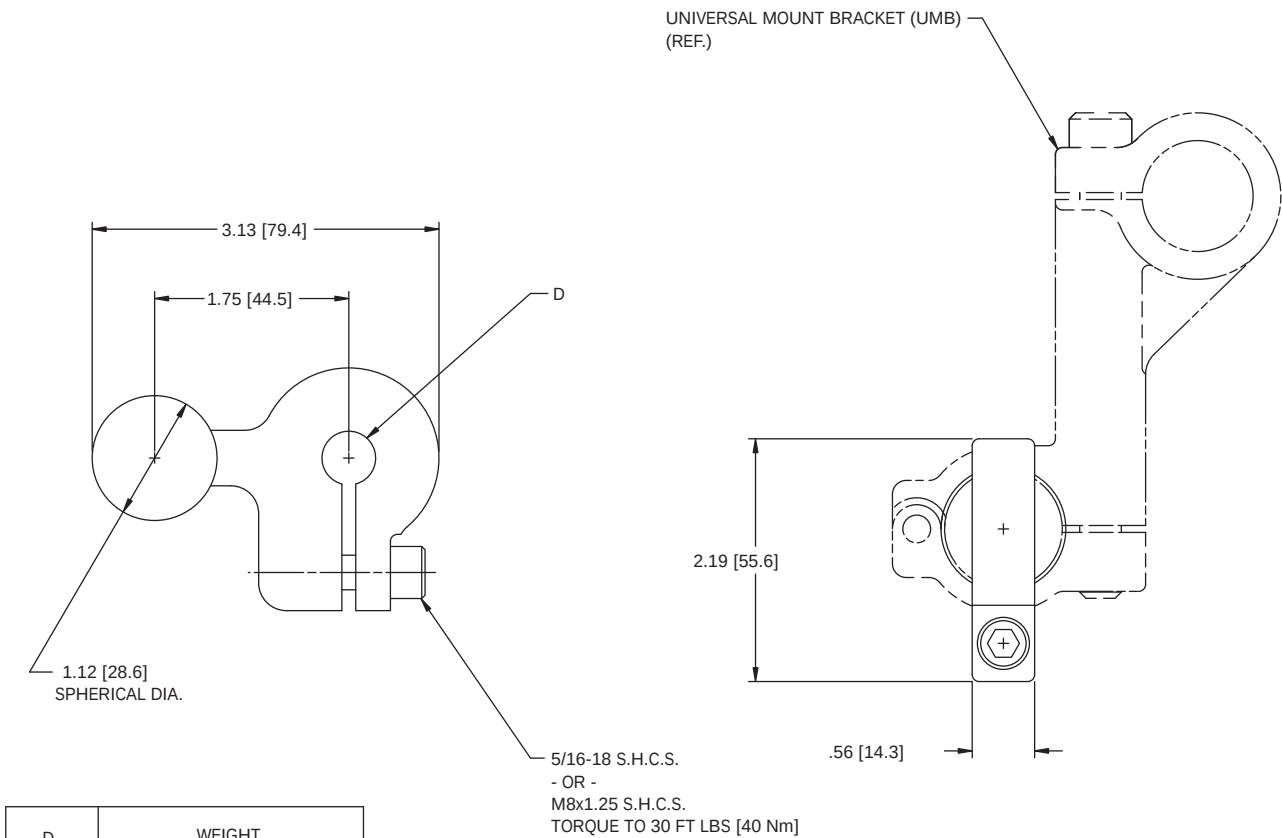
Aluminum and Steel Hardware
See Chart for Weight

THIS PRODUCT CONNECTS WITH

TRS40
QS-PSM
UCM
VV265

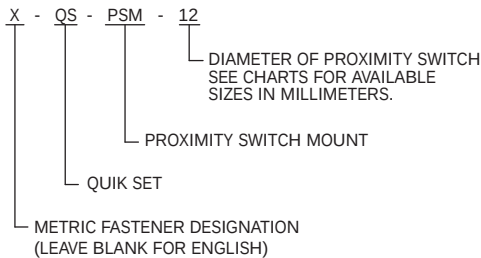
Tooling Accessory Solutions

Round Proximity Sensor Mount QS-PSM Overall Dimensions and Ordering Information



NORGREN TOOLING

ORDERING INFORMATION



MATERIAL AND WEIGHT

Aluminum and Steel Hardware
See Chart for Weight

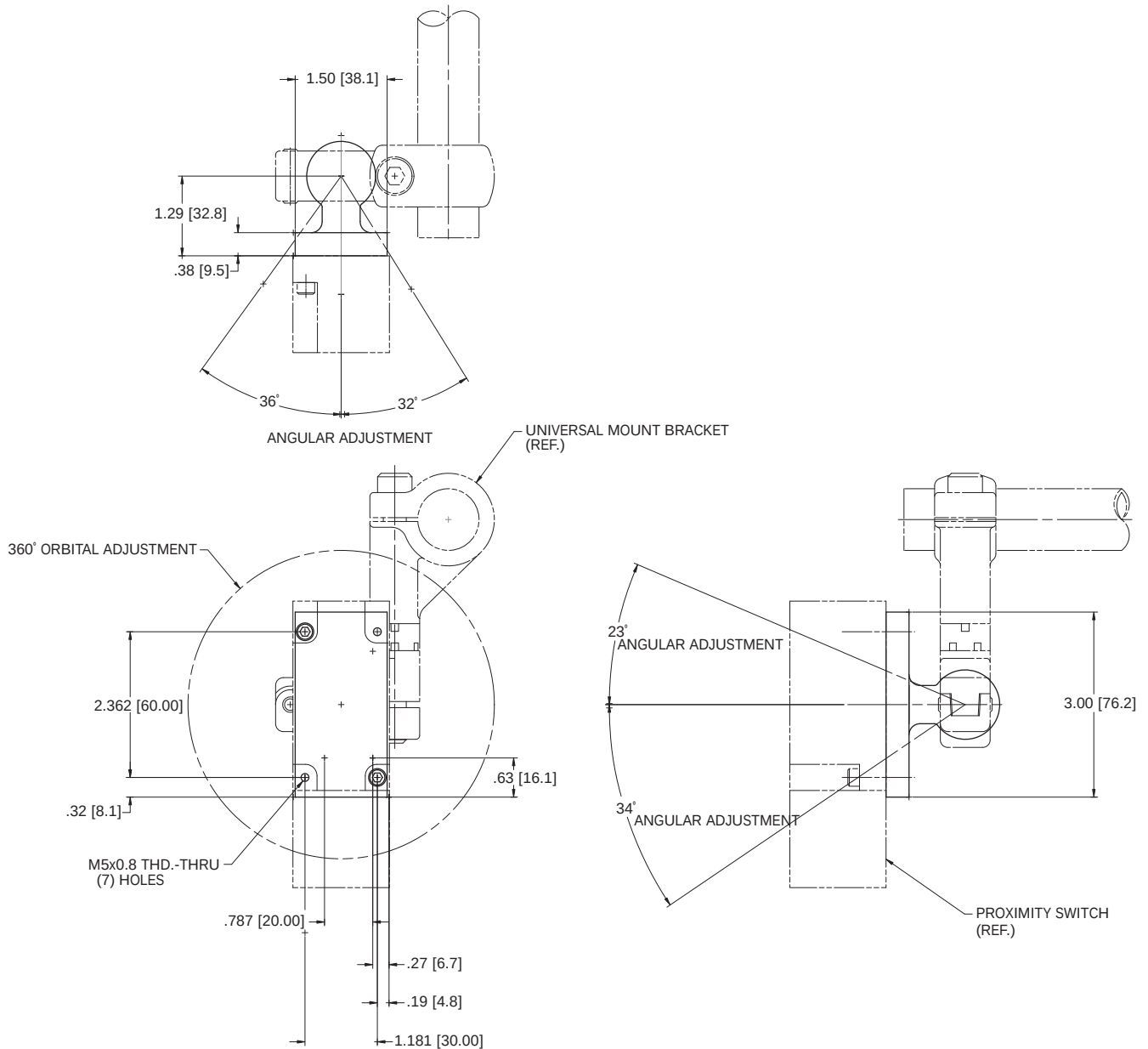
THIS PRODUCT CONNECTS WITH

UMB
TB1A

Tooling Accessory Solutions

Square Proximity Sensor Mount Plate
QS-PSM Overall Dimensions and Ordering Information

NORGREN TOOLING



ORDERING INFORMATION

X - QS - PSM
 |
 | - PROXIMITY SWITCH MOUNT
 |
 | - QUIK SET
 |
 | - METRIC THREAD DESIGNATION
 | (CANNOT ORDER ENGLISH)

MATERIAL AND WEIGHT

Aluminum
 Weight: 0.25 lbs [0.1 kg]

THIS PRODUCT CONNECTS WITH

UMB
 TB1A

Rev Level	Section	Revision Description	Page #'s Affected	Date
002	Body & Assembly	Ordering string part number incorrect.	6	04/09/08
003	Body & Assembly	Ordering string part number incorrect.	6,8	12/15/08

Description	Part No.	Page No.
Cup Mounts		
Twist Lok Features and Specifications		2
Mounting Options		3
Circuit Type Schematics		4
Cross Reference Charts		5
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Basic Venturi	TLBB	7
Reversible Ports Checked Venturi	TLBC	8
Reversible Ports Un-Checked Venturi	TLBD	9
Checked Venturi	TLBE	10
Un-Checked Venturi	TLBF	11
Single Port Venturi <i>New!</i>	TLBG	12
Cup Adapter	TLCA	13
Flange Mount	TLFA	14
Flange Mount Basic Venturi	TLFB	15
Reversible Flange Mount Checked Venturi	TLFC	16
Reversible Flange Mount Un-Checked Venturi	TLFD	17
Flanged Checked Venturi	TLFE	18
Flanged Unchecked Venturi	TLFF	19
Flange Single Port Venturi <i>New!</i>	TLFG	20
Pogo Mount	TLPE	21
Threaded Post Mounting Options		22
Threaded Post Circuit Type Schematics		23
Threaded Post Ported Adapter	TPBA	24
Threaded Post Basic Venturi	TPBB	25
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Spring Loaded Venturi Cup Mount	VLMSL	27
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Twist Lok Cup Mount

Venturi and Adaptable Cup Mount
Twist Lok Features and Specifications

FEATURES

- * ► Improved twist & lock functionality
- * ► Accepts industry standard Vac-Lok® vacuum cups
- * ► Hassle-Free vacuum cup insertion and removal
- * ► Reduced downtime compared to existing cup adapters and threaded cup mount designs
- * ► Variety of mounting configurations available
 - Models available with left hand/right hand field reversible ports
- * ► Universal porting accepts most common fitting types (NPT, ISO G and others)
 - Models available with cleanable & replaceable venturi design which eliminates the need to remove hoses and fittings for maintenance
- * ► Efficient and optimized venturi Ø.040 in. (1.0mm)
- * ► Quick vacuum & blowoff response
- * ► Low air consumption
- * ► Quiet operation below industry noise exposure standards
- * ► Optional sensing port available on all models
 - Models available with internal check valve for minimal air consumption

TECHNICAL DATA

- Fluid: Compressed Air
 - Note: Air supply must be dry enough to prevent ice formation at temperatures below 2° C (35°F)
- Air Pressure:
 - Minimum 2.4 bar (35 psi)
 - Maximum 5.5 bar (80 psi)
- Air Filtration:
 - 40 Micron filter
- Operating Temperature:
 - Consult product characteristic tables

MATERIALS

- Body: Aluminum/Steel
- Seals: Viton and Buna

SPECIFICATIONS

- Venturi orifice jet size: Ø0.04 in (1mm)
- Consult Application Charts and Product Characteristic tables for additional information

This product covered by one or more of the following patent numbers:
6,213,521 4,828,306 4,957,318
EP0442976



Single Port Twist Lok

FEATURES

- Less piping
- Simplified valve scheme
- No blow-off required
- Quick exhaust for instant part release
- Use with existing control valve
- Manual override option releases vacuum for easy cup adjustment
- Integrated silencer with manual override option
- Patent Pending design

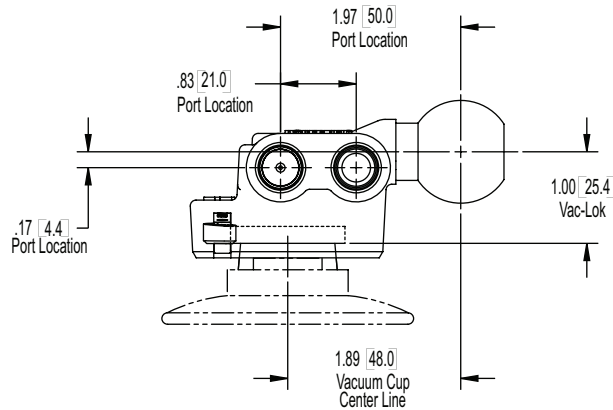
*Denotes additional Single Port Twist Lok features

Twist Lok Cup Mounts

Mouting Options

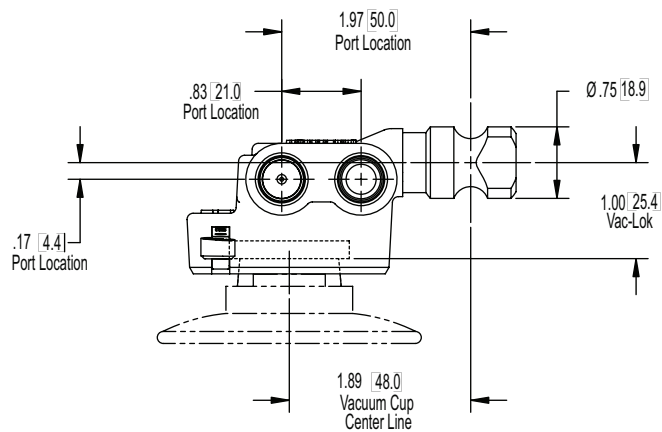
MOUNT TYPE "B"

Ball Mount



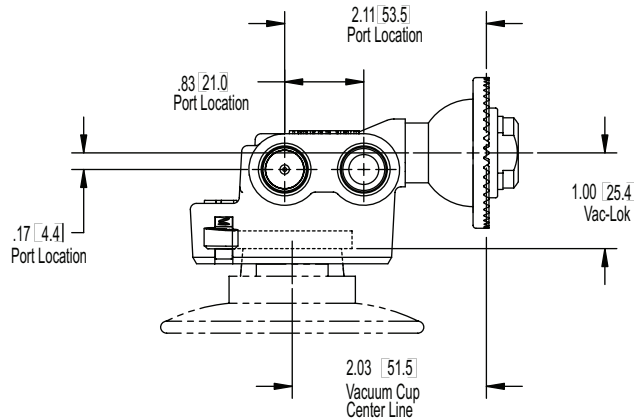
MOUNT TYPE "S"

Swivel/Core Mount



MOUNT TYPE "Z"

Poz-e-lok Mount



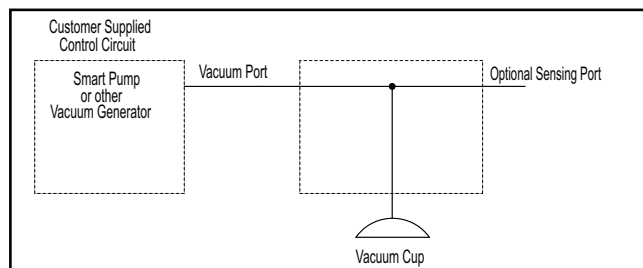
MOUNT TYPE "F"

Flange Mount

Note: Flange mount data sheets can be found on pages 14-20

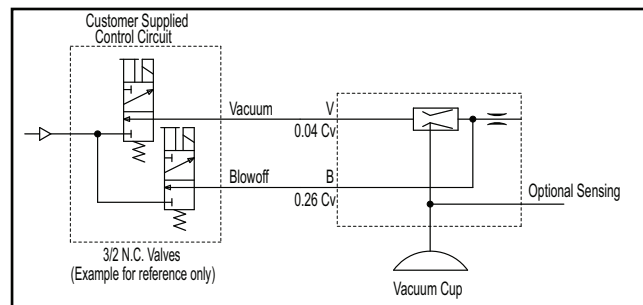
Twist Lok Cup Mounts

Circuit Type Schematics



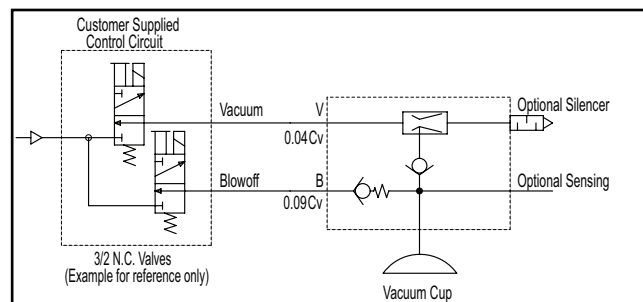
CIRCUIT TYPE "A"

Ported Adapter



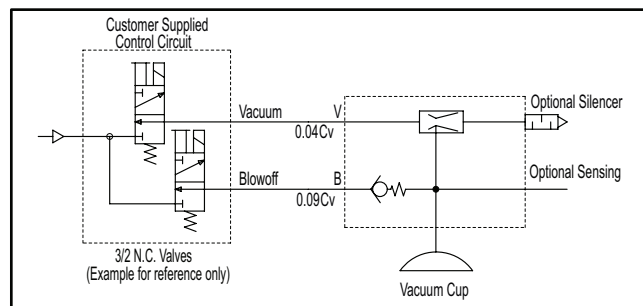
CIRCUIT TYPE "B"

Basic Venturi



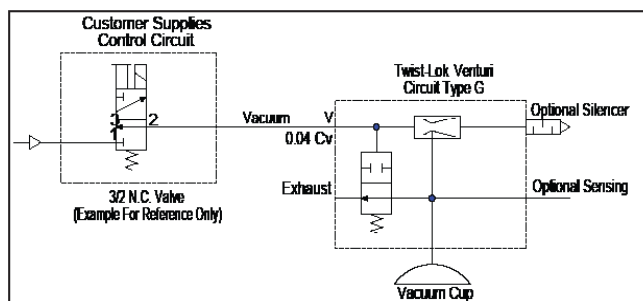
CIRCUIT TYPE "C" AND "E"

Checked Venturi



CIRCUIT TYPE "D" AND "F"

Un-Checked Venturi



CIRCUIT TYPE "G"

Single Line Venturi

Twist Lok Cup Mounts

Cross Reference Chart

Checked Venturi			
Mount Type	Options	Twist Lok Circuit C	Cross Reference
B Ball	None	TLBE-0	VV265C-3 XVV265C-3
	Silencer	TLBE-1	VV265C-3-4 XVV265C-3-4
	Sensing	TLBE-2	VV265C-3-5 XVV265C-3-5
	Silencer & Sensing	TLBE-3	VV265C-3-4-5 XVV265C-3-4-5
F Flange	None	TLFE-0	VB265C-3 XVB265C-3
	Silencer	TLFE-1	VB265C-3-4 XVB265C-3-4
	Sensing	TLFE-2	VB265C-3-5 XVB265C-3-5
	Silencer & Sensing	TLFE-3	VB265C-3-4-5 XVB265C-3-4-5

Unchecked Venturi			
Mount Type	Options	Twist Lok Circuit D	Cross Reference
B Ball	None	TLBF-0	VV265C-2 XVV265C-2
	Silencer	TLBF-1	VV265C-2-4 XVV265C-2-4
	Sensing	TLBF-2	VV265C-2-5 XVV265C-2-5
	Silencer & Sensing	TLBF-3	VV265C-2-4-5 XVV265C-2-4-5
F Flange	None	TLFF-0	VB265C-2 XVB265C-2
	Silencer	TLFF-1	VB265C-2-4 XVB265C-2-4
	Sensing	TLFF-2	VB265C-2-5 XVB265C-2-5
	Silencer & Sensing	TLFF-3	VB265C-2-4-5 XVB265C-2-4-5

Ported Adapters (Cup Mounts)			
Mount Type	Options	Twist Lok Circuit A	Cross Reference
B Ball	None	TLBA-0	UCM XUCM
	Sensing	TLBA-2	NA
F Flange	None	TLFA-0	UCMB XUCMB
	Sensing	TLFA-2	UCMB-S XUCMB-S

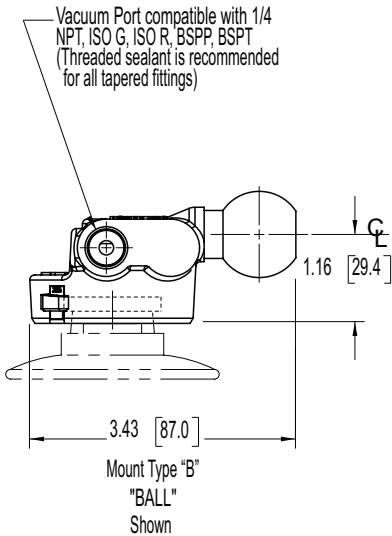
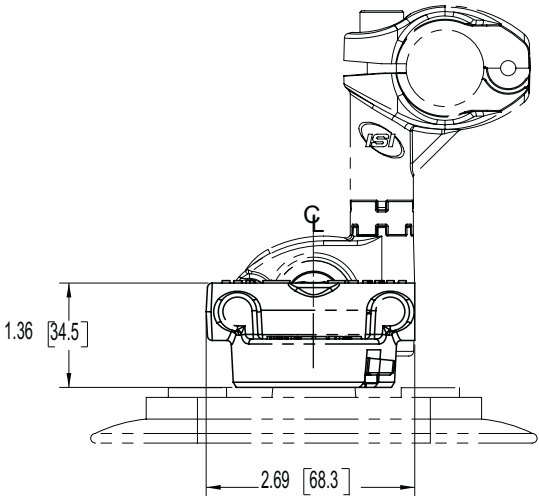
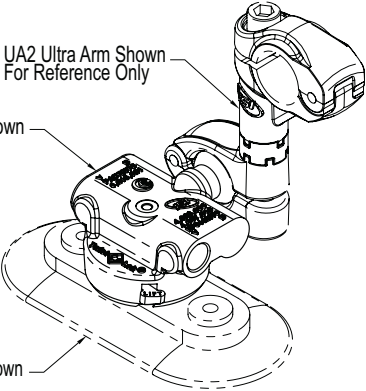
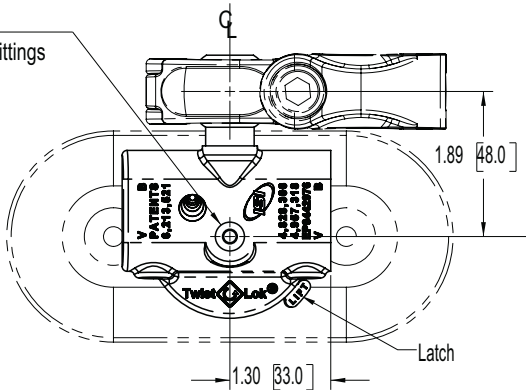
Twist Lok Cup Mounts

Ported Adapter
TLBA

Replaces UCM/XUCM Universal Cup Mount

NORGREN VACUUM

Optional Sensor Port
Compatible with M5 & 10-32 Fittings



ORDERING INFORMATION

TLBA-0
— OPTIONS
0=NO OPTIONS
2=SENSING PORT
— CIRCUIT TYPE
A=PORTED ADAPTER
— MOUNT TYPE OPTIONS
B=BALL
S=SWIVEL/CORE
Z=POZ-E-LOK
— TWIST LOK

MATERIAL AND WEIGHT

Aluminum
Weight: 0.5 lbs [0.1 kg]

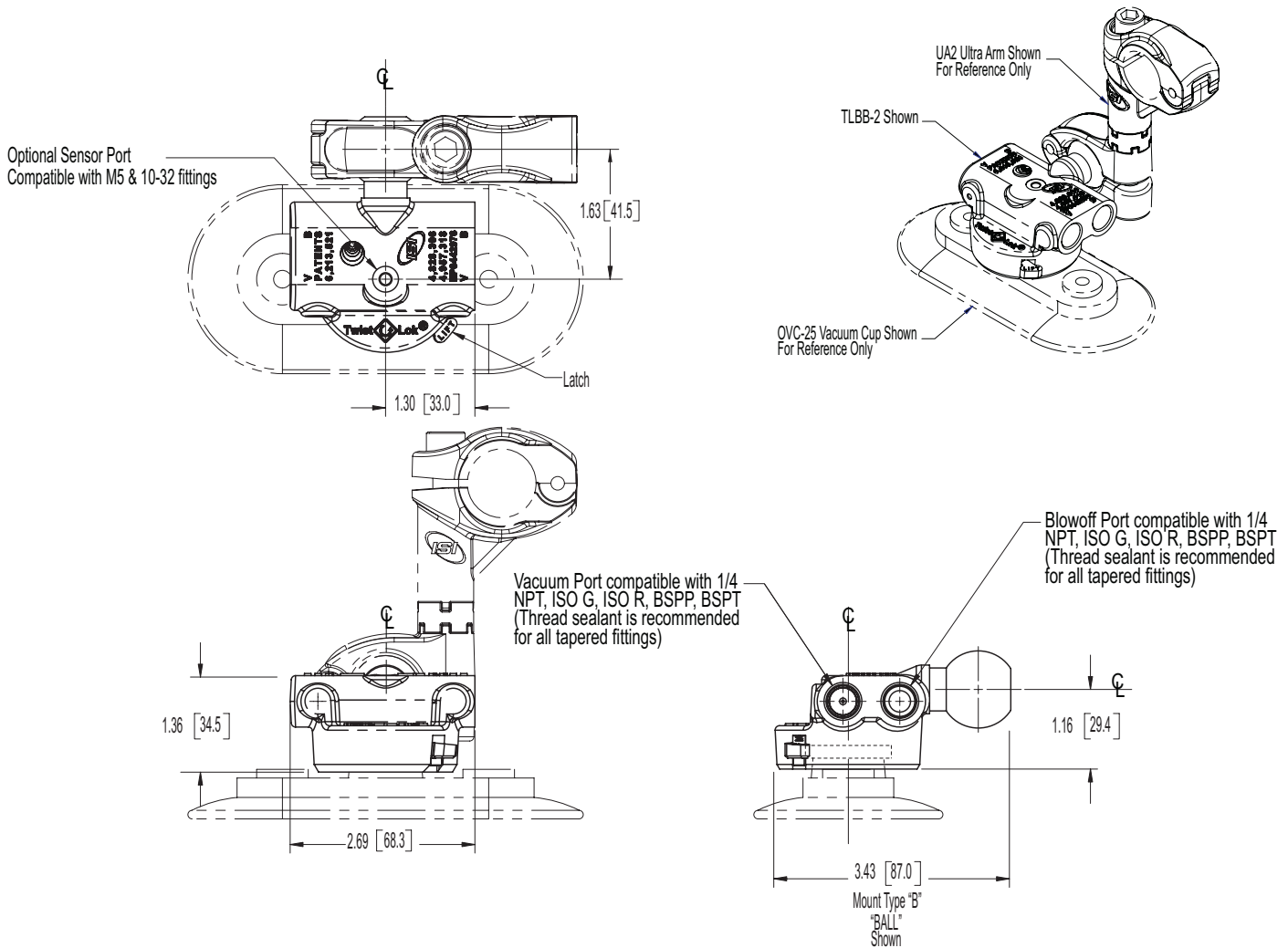
PRODUCT CHARACTERISTICS

Parameter	Value	Unit
Operating Pressure	Vacuum to 120 [8.3]	psi [bar]
Operating Temperature	-40-300 [-40-149]	°F [°C]

Twist Lok Cup Mounts

Basic Venturi
TLBB

NORGREN VACUUM



ORDERING INFORMATION

TLBB-0

— OPTIONS
0=NO OPTIONS
2=SENSING PORT

— CIRCUIT TYPE
B=BASIC VENTURI

— MOUNT TYPE OPTIONS
B=BALL
S=SWIVEL/CORE
Z=POZ-E-LOK

— TWIST LOK

MATERIAL AND WEIGHT

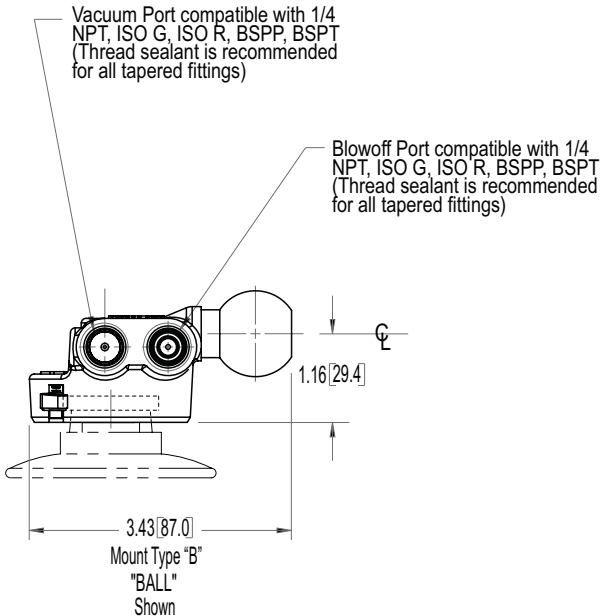
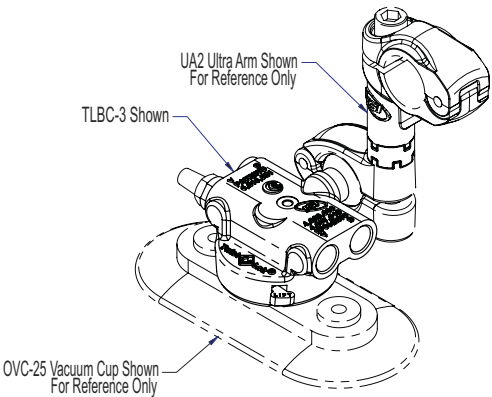
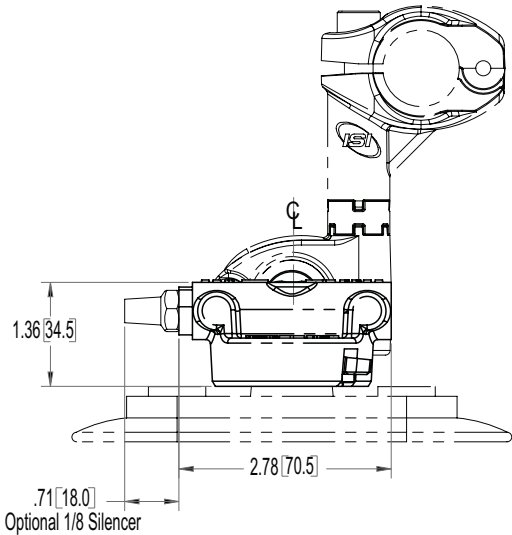
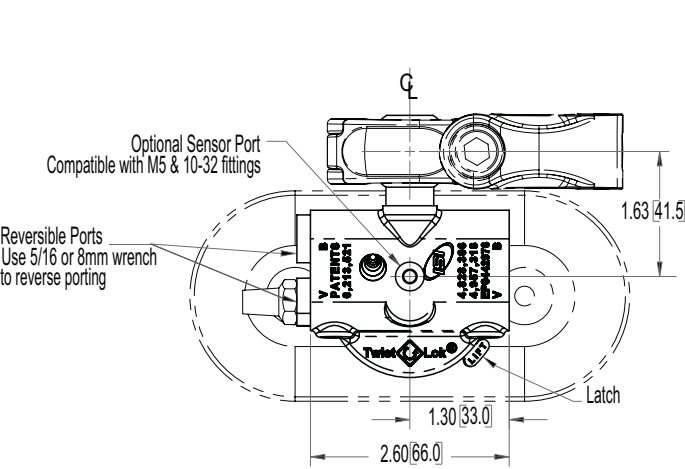
Aluminum, Brass, Buna
Weight: 0.5 lbs [0.2 kg]

PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	in Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	mS/in ³ [mS/cm ³] 0 TO 20"Hg (average over operating range)
	Blowoff	10 [0.6]	mS/in ³ [mS/cm ³] 20 TO 0"Hg (average over operating range)
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min] @ 60 psi (Ø .040" [1.0mm])
	Blowoff	0.26 Cv or 9.6 [271.8]	SCFM [L/min] @ 60 psi (Ø .116" [2.9mm])
Noise Level	78	dB(A)	
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

Reversible Ports Checked Venturi
TLBC

NORGREN VACUUM



ORDERING INFORMATION

- TLBC-0
- OPTIONS
 - 0=NO OPTIONS
 - 1=SILENCER
 - 2=SENSING PORT
 - 3=SILENCER & SENSING PORT
 - CIRCUIT TYPE
 - C=REVERSIBLE PORTS &
CHECKED VENTURI
 - MOUNT TYPE OPTIONS
 - B=BALL
 - S=SWIVEL/CORE
 - Z=POZ-E-LOK
 - TWIST LOK

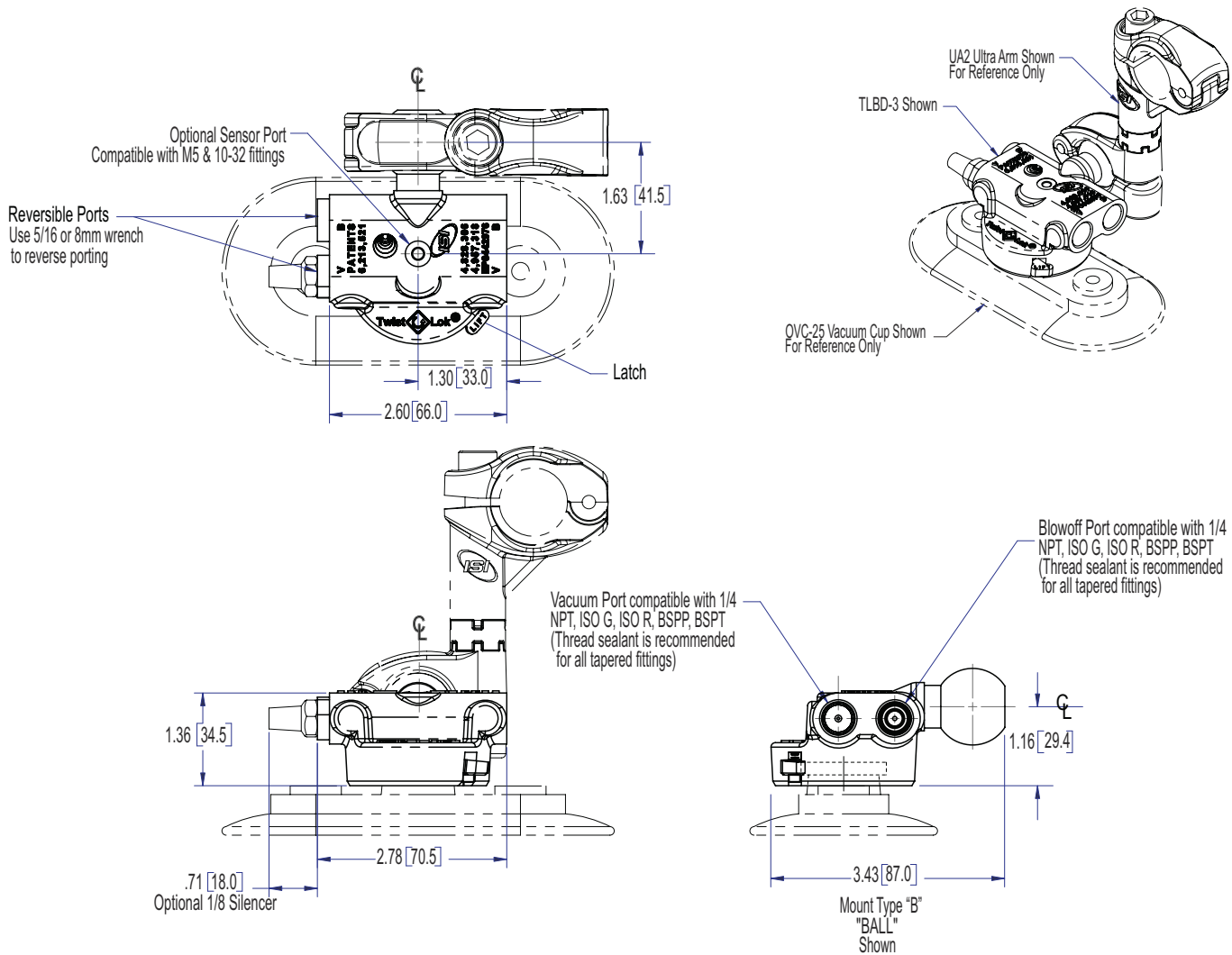
MATERIAL AND WEIGHT

Aluminum, Brass, Viton, Buna
Weight: 0.5 lbs [0.2 kg]

PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	in Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	65 [4.0]	0 TO 20%g (average over operating range)
	Blowoff	5 [0.3]	20 TO 0%g (average over operating range)
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	@ 60 psi (0.040" [1.0mm])
	Blowoff	0.09 Cv or 3.8 [107.6]	@ 60 psi (0.063" [1.6mm])
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	dB(A)
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

Reversible Ports Unchecked Venturi
TLBD



ORDERING INFORMATION

TLBD-0

OPTIONS
0=NO OPTIONS
1=SILENCER
2=SENSING PORT
3=SILENCER & SENSING PORT

CIRCUIT TYPE
D=REVERSIBLE PORTS
UNCHECKED VENTURI

MOUNT TYPE OPTIONS
B=BALL
S=SWIVEL/CORE
Z=POZ-E-LOK

TWIST LOK

MATERIAL AND WEIGHT

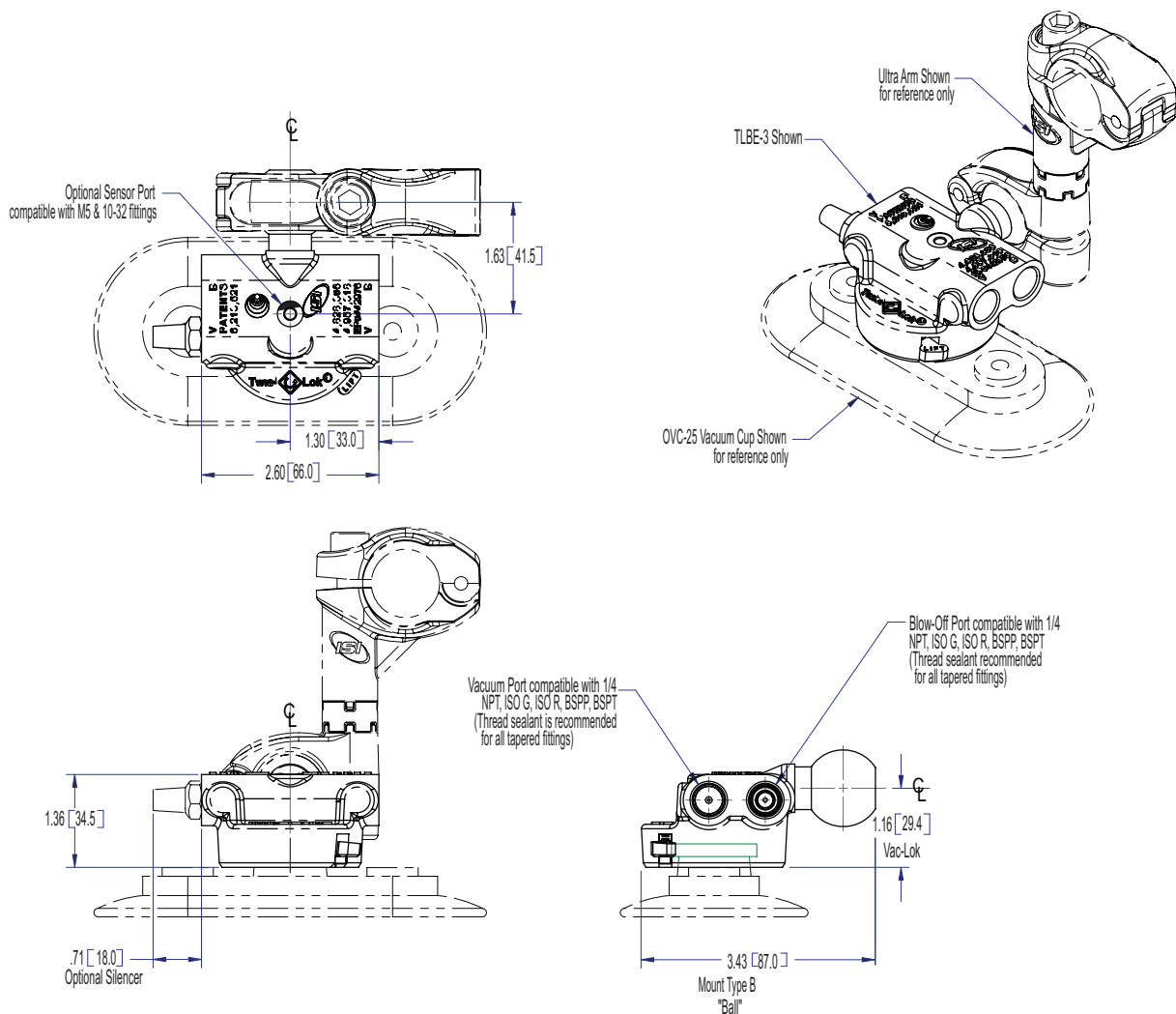
Aluminum, Brass, Buna
Weight: 0.5 lbs [0.2 kg]

PRODUCT CHARACTERISTICS				
Parameter		Value	Unit	Notes
Operating Pressure		35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum		26.0 [88.0]	in Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	mS/in ³ [mS/cm ³]	0 TO 20"Hg (average over operating range)
	Blowoff	5 [0.3]	mS/in ³ [mS/cm ³]	20 TO 0"Hg (average over operating range)
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min]	@ 60 psi (Ø .040" [1.0mm])
	Blowoff	0.09 Cv or 3.8 [107.6]	SCFM [L/min]	@ 60 psi (Ø .063" [1.6mm])
Noise Level	With Silencer	78	dB(A)	
	Without Silencer	87	dB(A)	
Operating Temperature		32-122 [0-50]	° F [° C]	

Twist Lok Cup Mounts

Checked Venturi
TLBE

NORGREN VACUUM



ORDERING INFORMATION

MATERIAL AND WEIGHT

TLBE-0

OPTIONS

- 0=NO OPTIONS
- 1=SILENCER
- 2=SENSING PORT
- 3=SILENCER & SENSING PORT

CIRCUIT TYPE

- E=CHECKED VENTURI

MOUNT TYPE OPTIONS

- B=BALL
- S=SWIVEL/CORE
- Z=POZ-E-LOK

TWIST LOK

Aluminum, Brass, Viton, Steel
Weight: 0.5 lbs [0.2 kg]

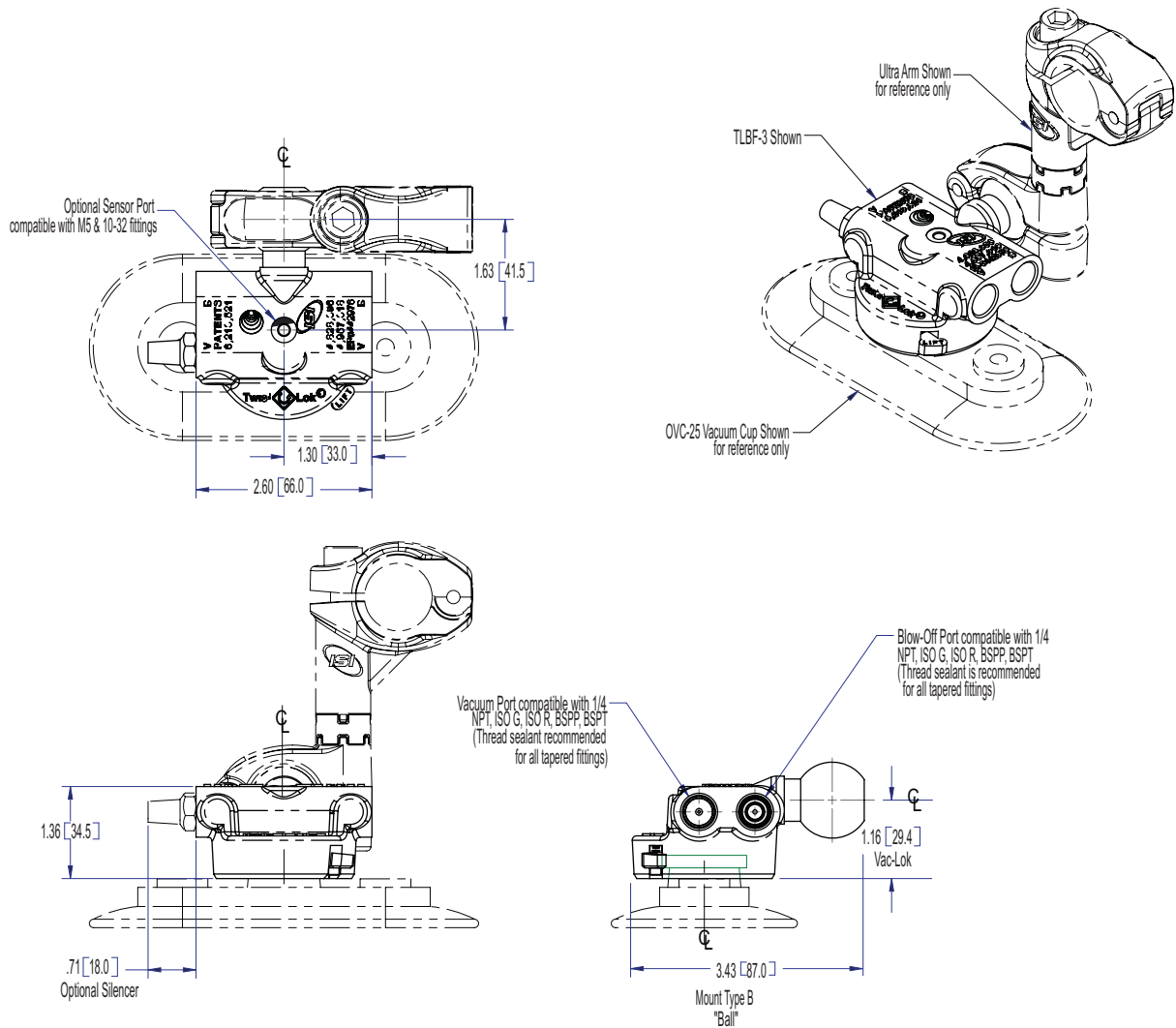
PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	65 [4.0]	mS/in ² [mS/cm ²]
	Blowoff	5 [0.3]	mS/in ² [mS/cm ²]
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min]
	Blowoff	0.09 Cv or 3.8 [107.6]	SCFM [L/min]
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	dB(A)
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

Un-Checked Venturi

TLBF

NORGREN VACUUM



ORDERING INFORMATION

TLBF-0

OPTIONS

- 0=NO OPTIONS
- 1=SILENCER
- 2=SENSING PORT
- 3=SILENCER & SENSING PORT

CIRCUIT TYPE

- F=UN-CHECKED VENTURI

MOUNT TYPE OPTIONS

- B=BALL
- S=SWIVEL/CORE
- Z=POZ-E-LOK

TWIST LOK

MATERIAL AND WEIGHT

Aluminum, Brass, Viton, Steel

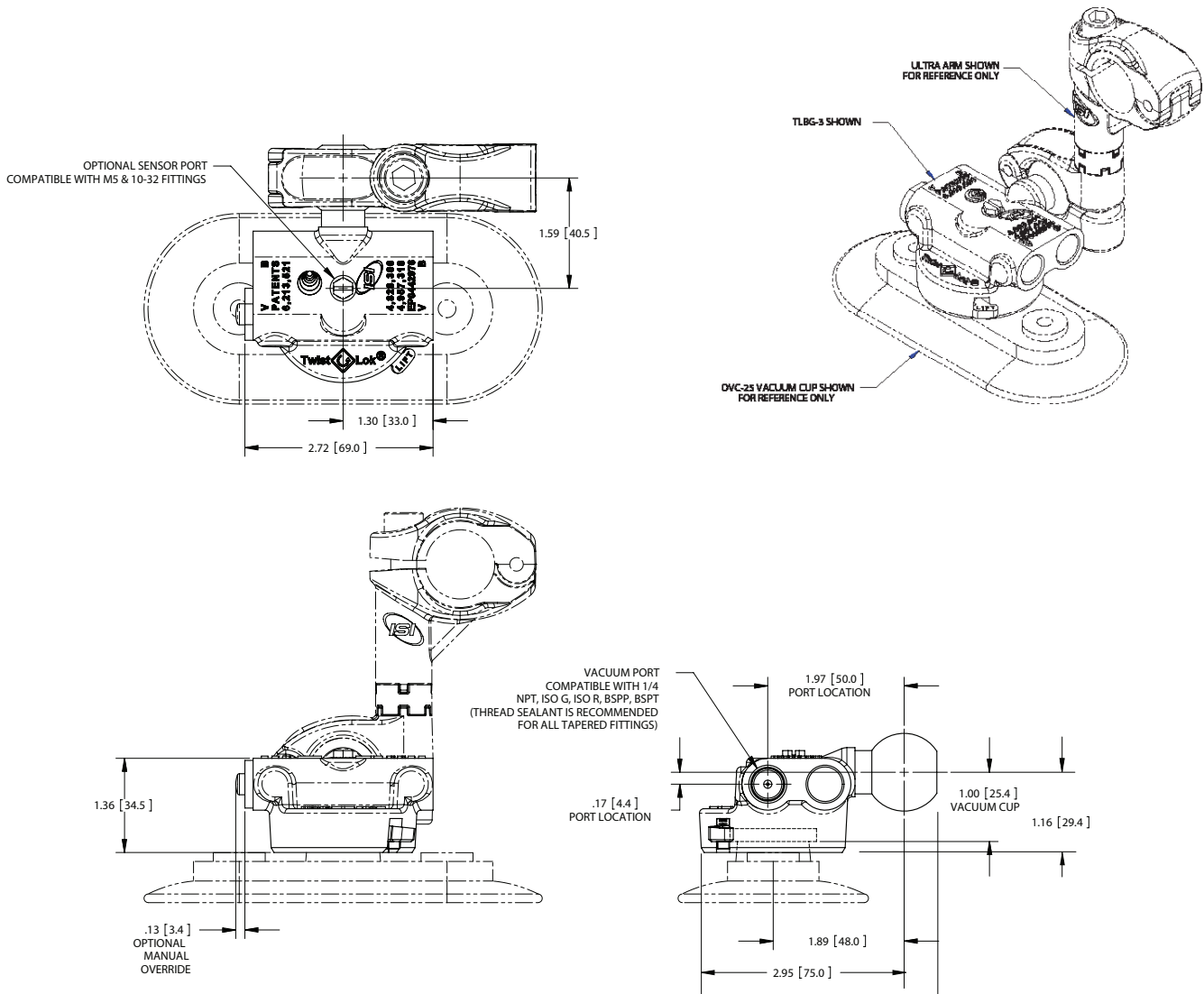
Weight: 0.5 lbs [0.2 kg]

PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	mS/in ² [mS/cm ²]
	Blowoff	5 [0.3]	mS/in ² [mS/cm ²]
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min]
	Blowoff	0.09 Cv or 3.8 [107.6]	SCFM [L/min]
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	dB(A)
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

Single Port Venturi
TLBG

New!



ORDERING INFORMATION

TLBG-0

OPTIONS
0 - NO OPTIONS
1 - SILENCER
2 - SENSING
3 - SILENCER & SENSING

CIRCUIT TYPE
6 - SINGLE LINE VENTURI

MOUNT TYPE
B - BALL
S - SWIVEL / CORE
Z - PUZZLE-LOK

TWIST-LOK

MATERIAL AND WEIGHT

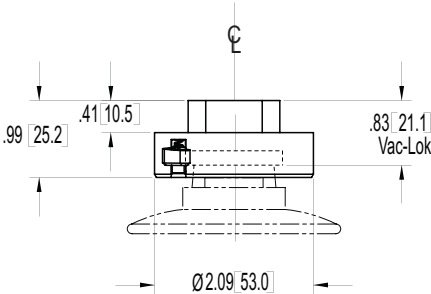
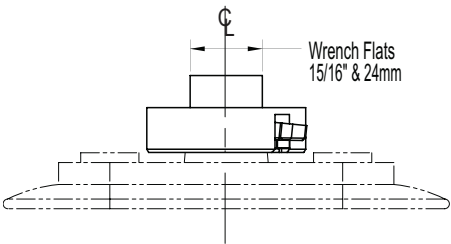
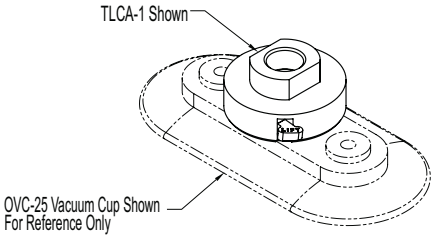
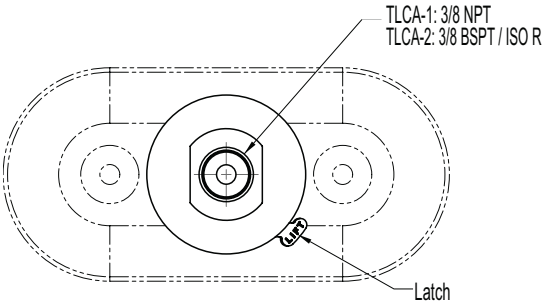
Aluminum, Brass, Nitrile, Steel
Weight: 0.5 lbs [0.2 kg]

PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	
Maximum Vacuum	26.0 [88.0]	"Hg [kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	65 [4.0]	0 TO 20" Hg (average over operating range) For vacuum pugs up to 9.5in ³ volume.
	Exhaust	20	
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min] @ 60 psi (±.040" [1.0mm])
	Exhaust	0	
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

Cup Adapter
TLCA

NORGREN VACUUM



ORDERING INFORMATION

TLCA - 1
MOUNTING OPTIONS
1=NPT MOUNTING
2=BSPT/ISO R MOUNTING
TWIST LOK

MATERIAL AND WEIGHT

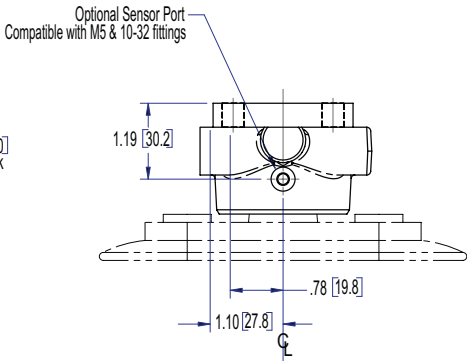
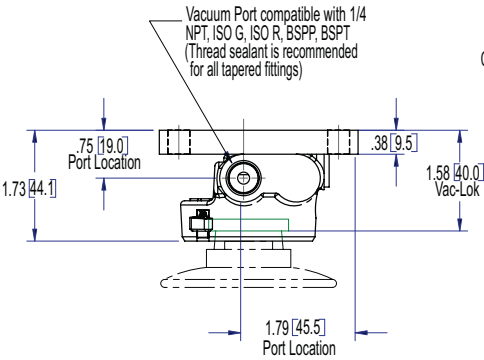
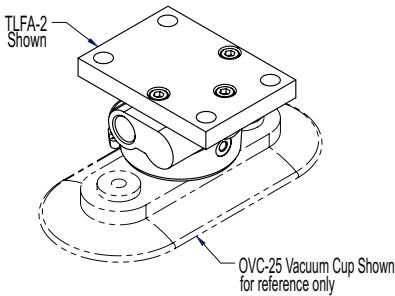
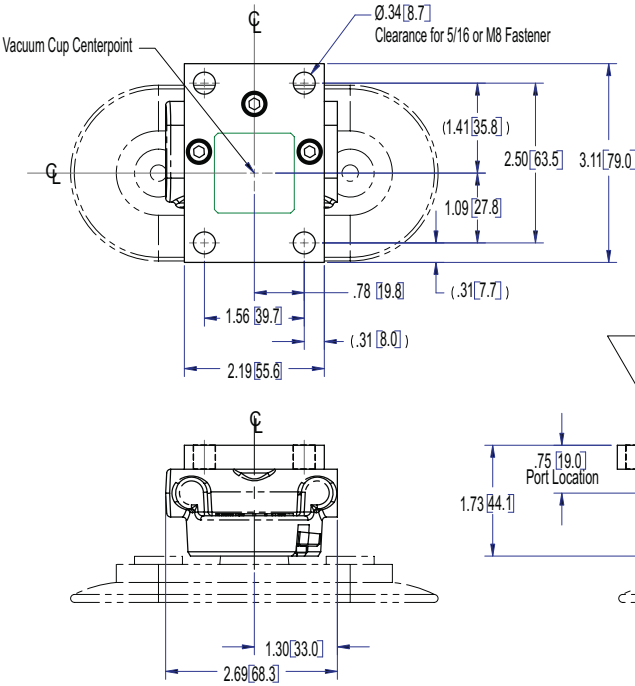
Aluminum, Brass
Weight: 0.2 lbs [0.1 kg]

PRODUCT CHARACTERISTICS		
Pressure	Value	Unit
Operating Pressure	Vacuum to 120 [8.3]	psi [bar]
Operating Temperature	-40-300 [-40-149]	° F [° C]

Twist Lok Cup Mounts

Flange Mount
TLFA

NORGREN VACUUM



ORDERING INFORMATION

TLFA-0
OPTIONS
0=NO OPTIONS
2=SENSING PORT
CIRCUIT TYPE
A=PORTED ADAPTER
MOUNT TYPE OPTION
F=FLANGE
TWIST LOK

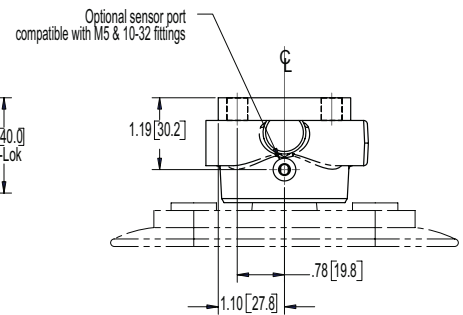
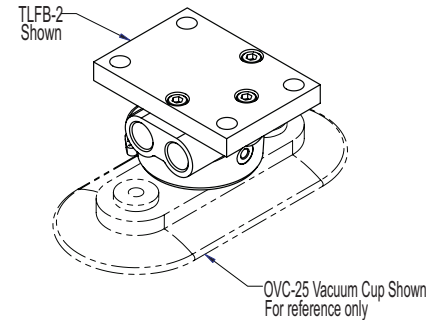
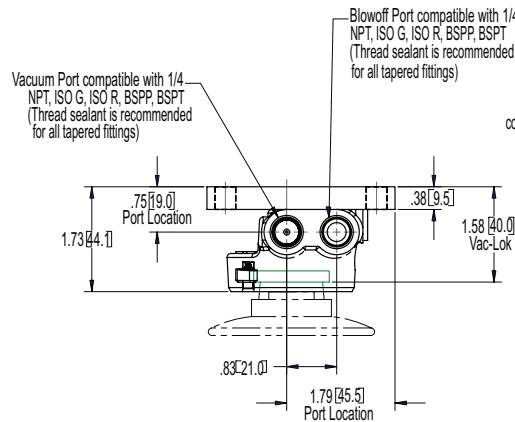
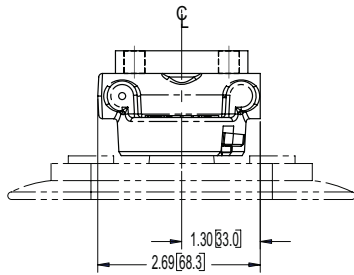
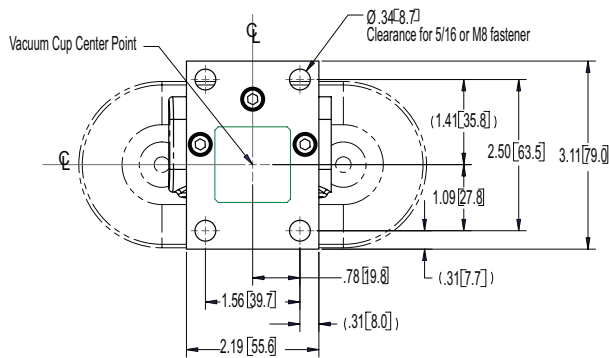
MATERIAL AND WEIGHT

Aluminum, Brass
Weight: 0.8 lbs [0.4 kg]

PRODUCT CHARACTERISTICS		
Parameter	Value	Unit
Operating Pressure	Vacuum to 120 [8.3]	psi [bar]
Operating Temperature	-40-300 [-40-149]	°F [°C]

Twist Lok Cup Mounts

Flange Mount
Basic Venturi TLFB



ORDERING INFORMATION

TLFB-0
OPTIONS
0=NO OPTIONS
2=SENSING PORT
CIRCUIT TYPE
B=BASIC VENTURI
MOUNT TYPE OPTION
F=FLANGE
TWIST LOK

MATERIAL AND WEIGHT

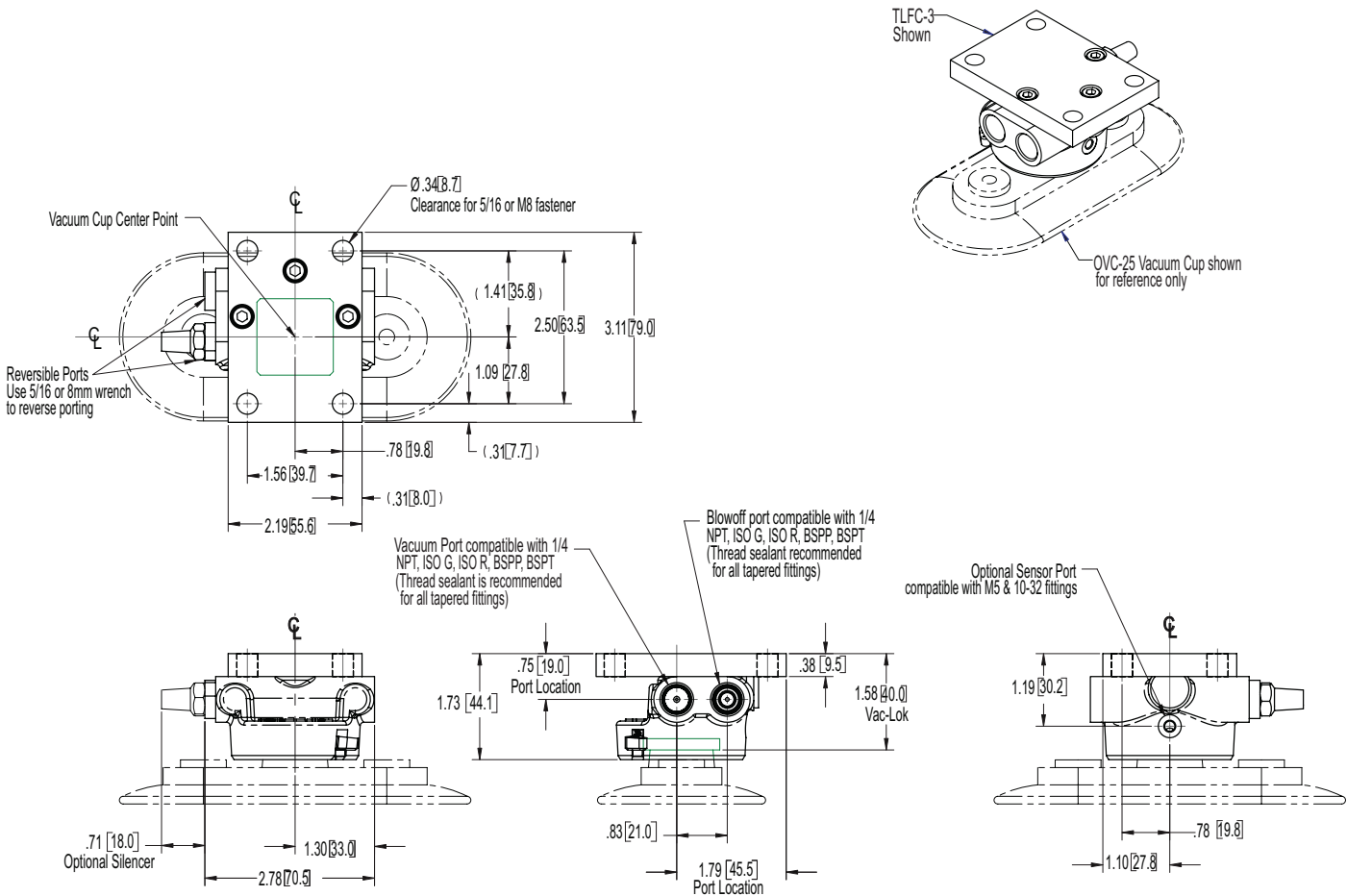
Aluminum, Brass, Buna
Weight: 0.8 lbs [0.4 kg]

PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	in Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	0 TO 20" Hg (average over operating range)
	Blowoff	10 [0.6]	20 TO 0" Hg (average over operating range)
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	@ 60 psi ($\varnothing$.040" [1.0mm])
	Blowoff	0.26 Cv or 9.6 [271.8]	@ 60 psi ($\varnothing$.116" [2.9mm])
Noise Level	78	dB(A)	
Operating Temperature	32-122 [0-50]	° F [° C]	

Twist Lok Cup Mounts

Flange Mount

Reversible Ports Checked Venturi TLFC



ORDERING INFORMATION

TLFC-0

OPTIONS

- 0=NO OPTIONS
- 1=SILENCER
- 2=SENSING PORT
- 3=SILENCER AND SENSING PORT

CIRCUIT TYPE

- C=REVERSIBLE PORTS
- CHECKED VENTURI

MOUNT TYPE OPTION

- F=FLANGE

TWIST LOK

MATERIAL AND WEIGHT

Aluminum, Brass, Viton, Buna

Weight: 0.8 lbs [0.4 kg]

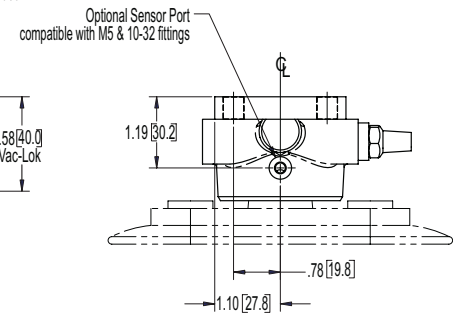
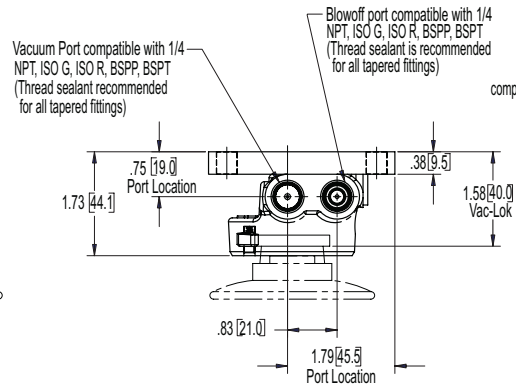
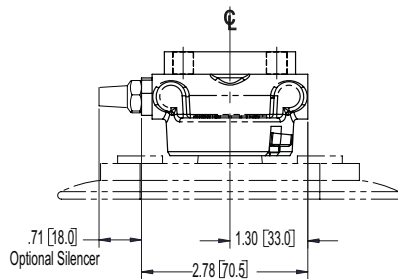
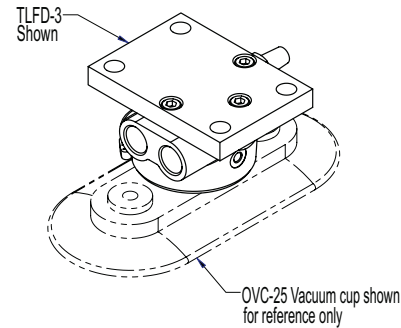
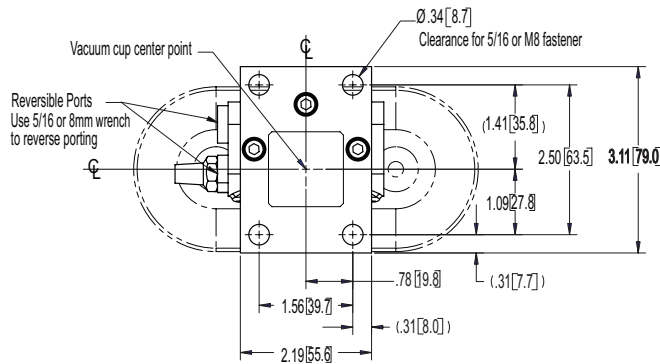
PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	mS/in ³ [mS/cm ³] 0 TO 20"Hg (average over operating range)
	Blowoff	5 [0.3]	mS/in ³ [mS/cm ³] 20 TO 0"Hg (average over operating range)
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min] @ 60 psi (Ø .040" [1.0mm])
	Blowoff	0.09 Cv or 3.8 [107.6]	SCFM [L/min] @ 60 psi (Ø .063" [1.6mm])
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	dB(A)
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

Flange Mount

Reversible Ports Unchecked Venturi TLFD

NORGREN VACUUM



ORDERING INFORMATION

MATERIAL AND WEIGHT

TLFD-0
 OPTIONS
 0=NO OPTIONS
 1=SILENCER
 2=SENSING PORT
 3=SILENCER AND SENSING PORT
 CIRCUIT TYPE
 D=REVERSIBLE PORTS
 UN-CHECKED VENTURI
 MOUNT TYPE OPTION
 F=FLANGE
 TWIST LOK

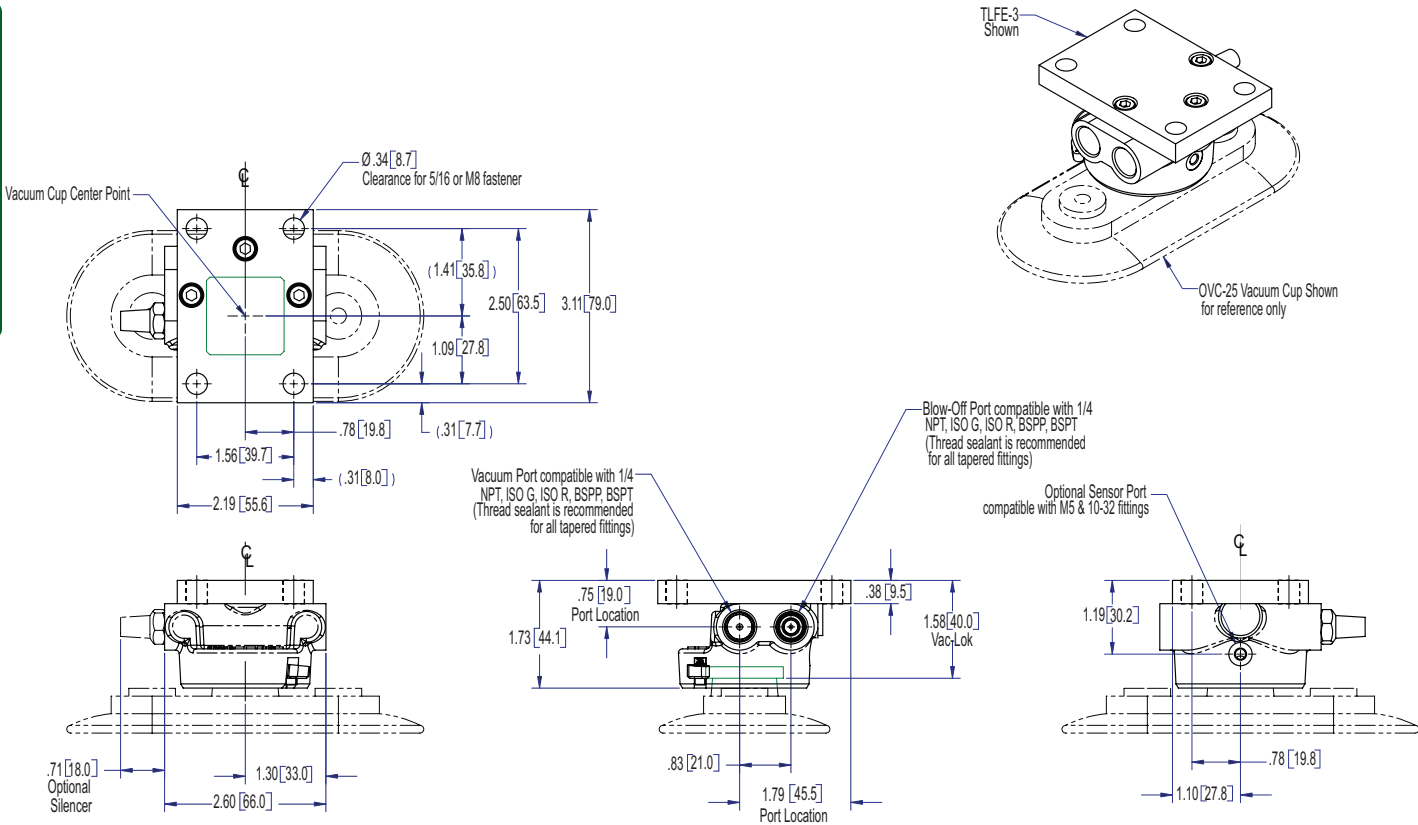
Aluminum, Brass, Viton, Buna
 Weight: 0.8 lbs [0.4 kg]

PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	in Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	mS/in ³ [mS/cm ³] (average over operating range)
	Blowoff	5 [0.3]	mS/in ³ [mS/cm ³] (average over operating range)
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min] (@ 60 psi (0 .040" [1.0mm])
	Blowoff	0.09 Cv or 3.8 [107.6]	SCFM [L/min] (@ 60 psi (0 .063" [1.6mm])
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	dB(A)
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

Flange Mount Checked Venturi
TLFE

NORGREN VACUUM



ORDERING INFORMATION

TLFE-0

OPTIONS

- 0=NO OPTIONS
- 1=SENCER
- 2=SENSING PORT
- 3=SENCER AND SENSING PORT

CIRCUIT TYPE

- E=CHECKED VENTURI

MOUNT TYPE OPTION

- F=FLANGE

TLFE-0

MATERIAL AND WEIGHT

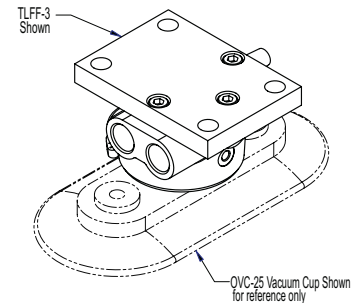
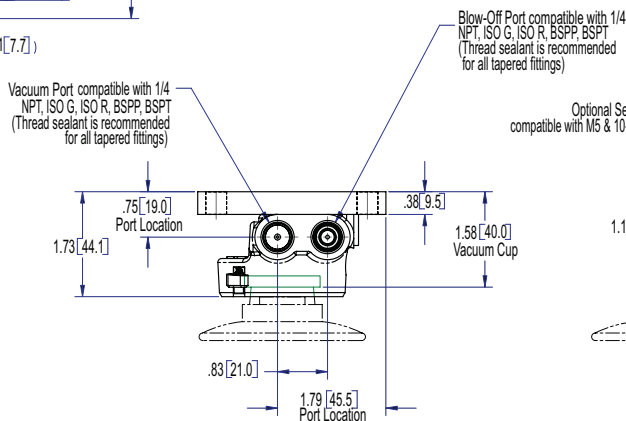
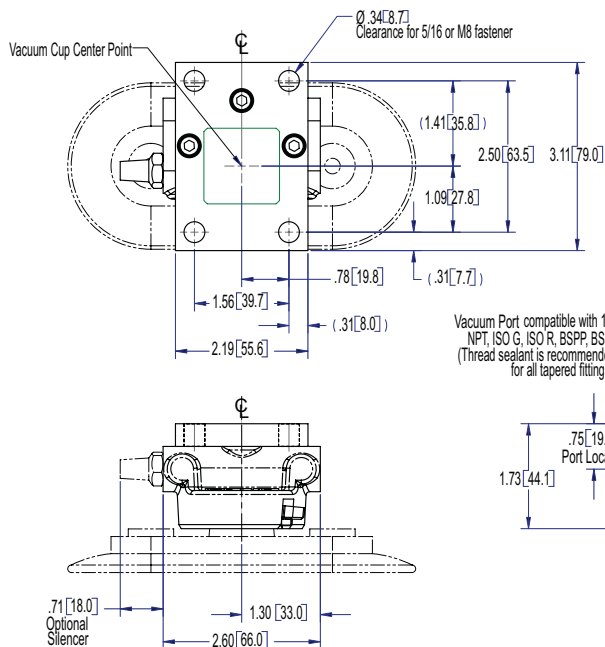
Aluminum, Brass, Viton, Buna
Weight: 0.8 lbs [0.4 kg]

PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	65 [4.0]	mS/in ² [mS/cm ²]
	Blowoff	5 [0.3]	mS/in ² [mS/cm ²]
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min]
	Blowoff	0.09 Cv or 3.8 [107.6]	SCFM [L/min]
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	dB(A)
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

Flange Mount Unchecked Venturi

TLFF



ORDERING INFORMATION

TLFF-0

OPTIONS

- 0=NO OPTIONS
- 1=SILENCER
- 2=SENSING PORT
- 3=SILENCER AND SENSING PORT

CIRCUIT TYPE

- F=UN-CHECKED VENTURI

MOUNT TYPE OPTION

- F=FLANGE

TWIST LOK

MATERIAL AND WEIGHT

Aluminum, Brass, Viton

Weight: 0.8 lbs [0.4 kg]

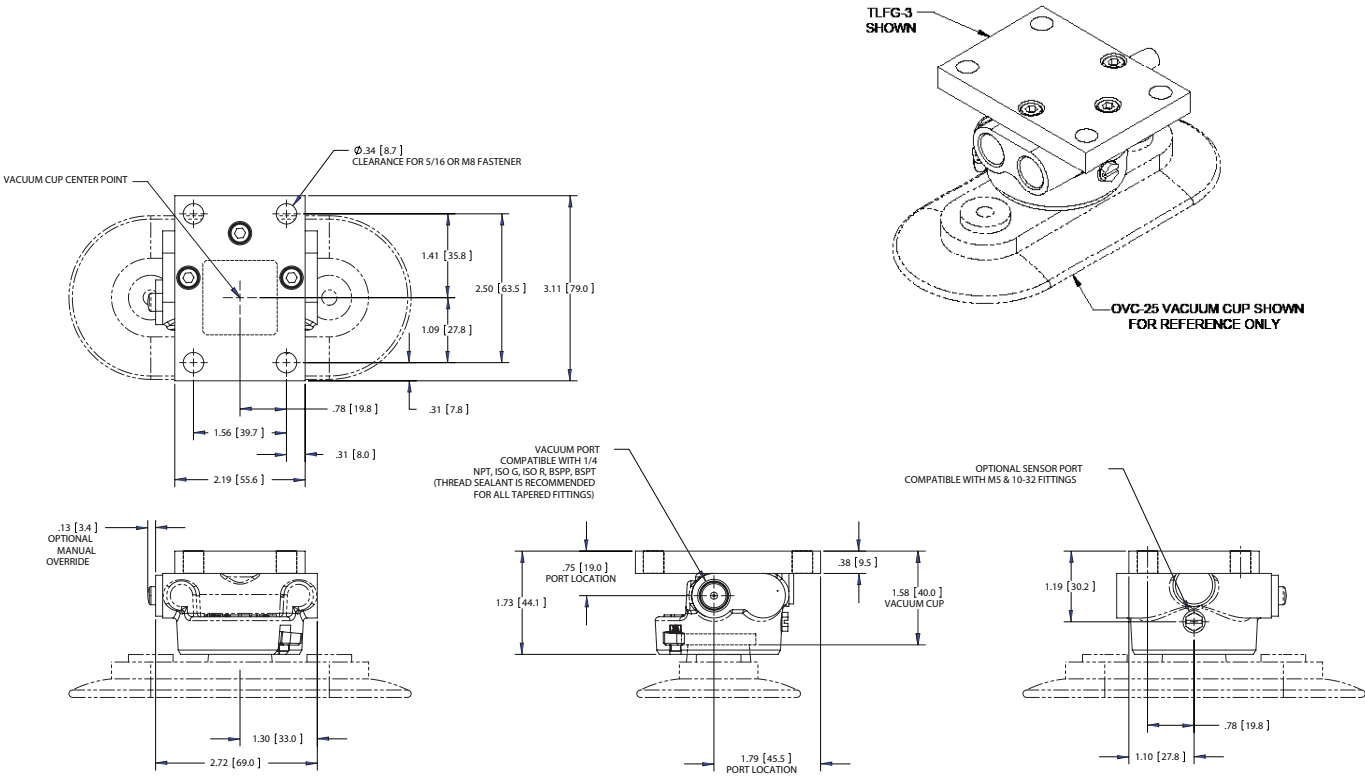
PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	mS/in ² [mS/cm ²]
	Blowoff	5 [0.3]	mS/in ² [mS/cm ²]
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min]
	Blowoff	0.09 Cv or 3.8 [107.6]	SCFM [L/min]
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	dB(A)
Operating Temperature	32-122 [0-50]	°F [°C]	

Twist Lok Cup Mounts

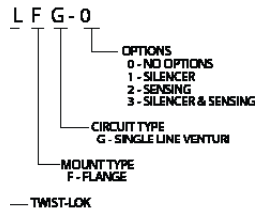
Flange Single Port Venturi
TLFG

New!

NORGREN VACUUM



ORDERING INFORMATION MATERIAL AND WEIGHT



Aluminum, Brass, Nitrile, Steel
Weight: 0.8 lbs [0.3 kg]

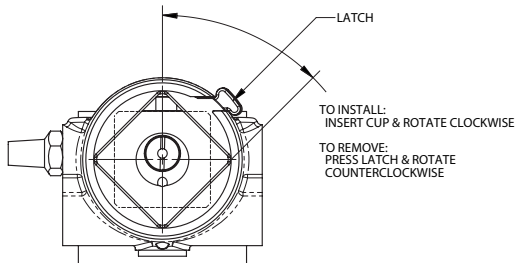
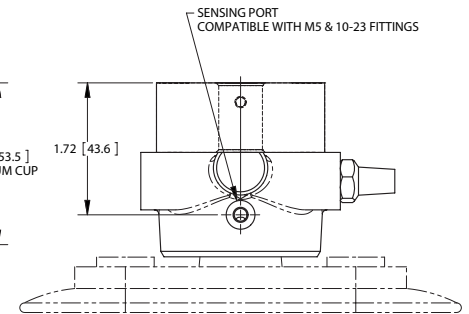
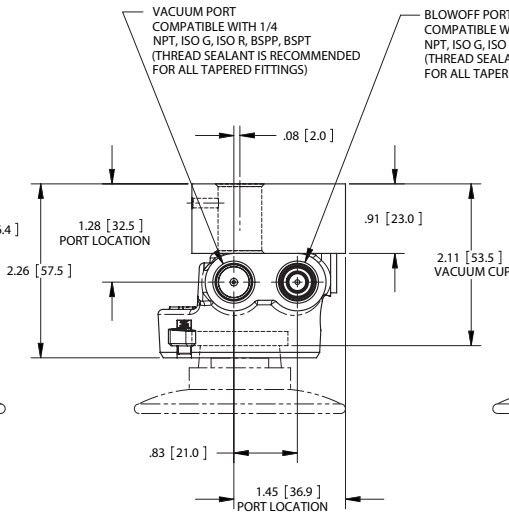
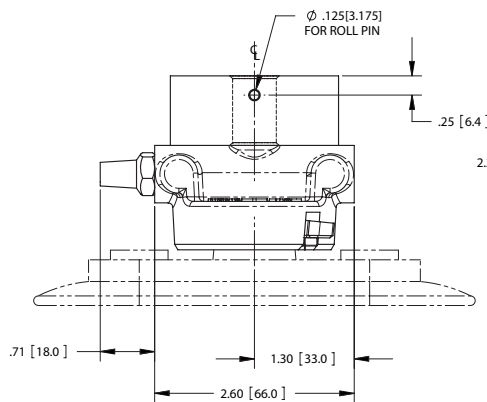
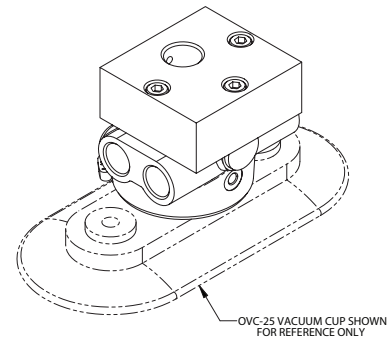
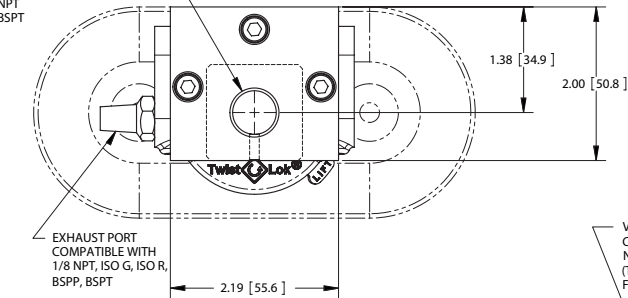
PRODUCT CHARACTERISTICS				
Parameter		Value	Unit	Notes
Operating Pressure		35-80 [2.4-5.5]	psi [bar]	
Maximum Vacuum		26.0 [84.0]	"Hg [kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	65 [4.0]	ms/in ³ [ms/cm ³]	Ø10 291kg [percentage over operating range]
	Exhaust	20	ms	For vacuum cups up to 9.5in ² volume.
Air Consumption	Vacuum	0.04 C or 1.6 [45.3]	SCFM [L/min]	④ 68 psi (5.0MPa) (1.0mm)
	Exhaust	0	SCFM [L/min]	
Noise Level	With Silencer	70	dB(A)	
	Without Silencer	87	dB(A)	
Operating Temperature		32-122 [0-50]	F [C]	

Twist Lok Cup Mounts

Pogo Mount
TLPE

NORGREN VACUUM

SEE ORDERING INFORMATION
5: 5/8-18 UNF ∇ .91
6: M16x2.0 THD ∇ .91
7: 3/8 NPT
8: 3/8 BSPT



ORDERING INFORMATION

MATERIAL AND WEIGHT

TLPE - 5

Aluminum, Brass, Viton
Weight: 0.8 lbs [0.4 kg]

OPTIONS

5 - SILENCER, SENSING & 5/8-18 UNF MOUNT
6 - SILENCER, SENSING & M16 x 2.0 THREAD MOUNT

7 - SILENCER, SENSING & 3/8 NPT MOUNT

CIRCUIT TYPE

E = CHECKED VENTURI

MOUNT TYPE

P = POGP (HPCM)

— TWIST-LOK

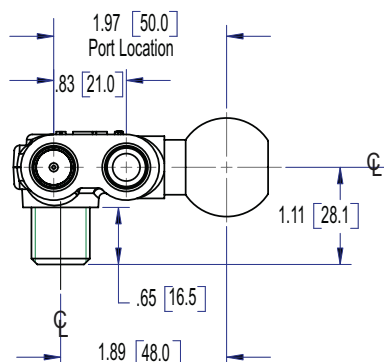
PRODUCT CHARACTERISTICS

Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	mS/in ² [mS/cm ²]
	Blowoff	5 [0.3]	mS/in ² [mS/cm ²]
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min]
	Blowoff	0.09 Cv or 3.8 [107.6]	SCFM [L/min]
Noise Level	With Silencer	78	dB(A)
	Without Silencer	87	dB(A)
Operating Temperature	32-122 [0-50]	°F [°C]	

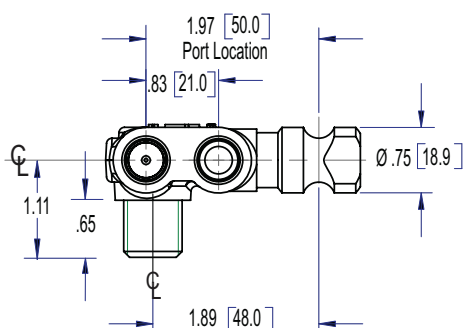
Threaded Post Cup Mounts

Mounting Options

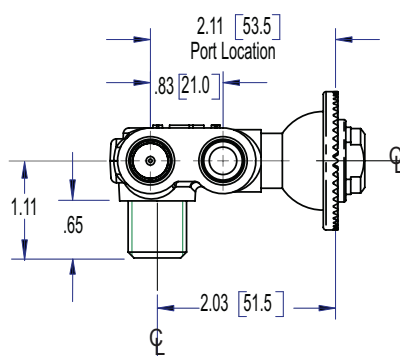
**Mount Type “B”
Ball Mount**



**Mount Type “S”
Swivel/Core Mount**



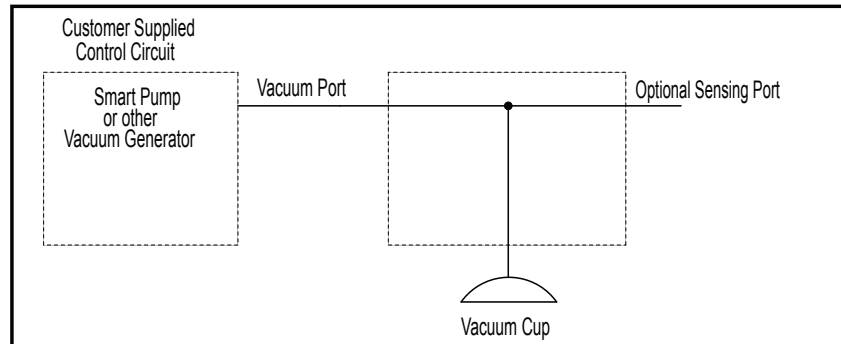
**Mount Type “Z”
Poz-E-Lok Mount**



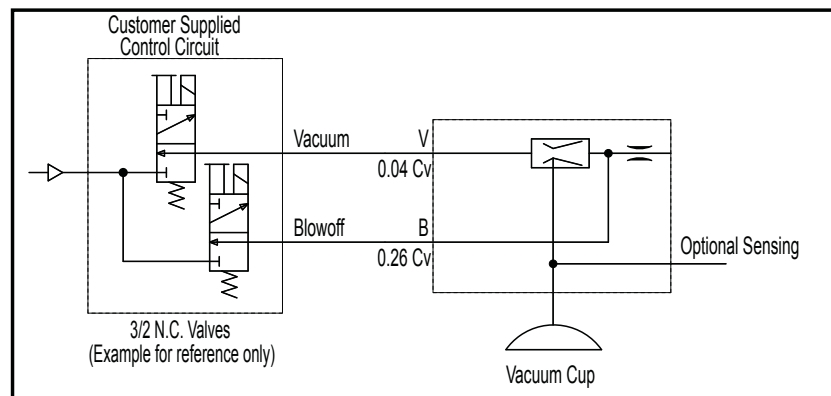
Threaded Post Cup Mounts

Circuit Type Schematics

Circuit Type “A” Ported Adapter



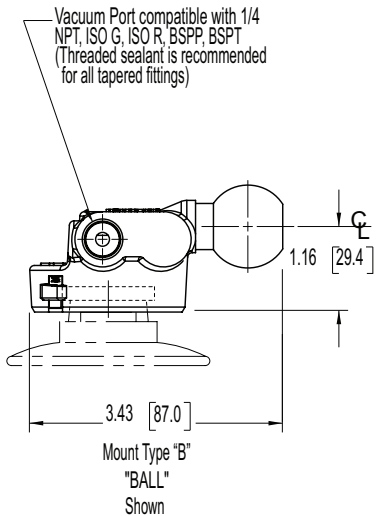
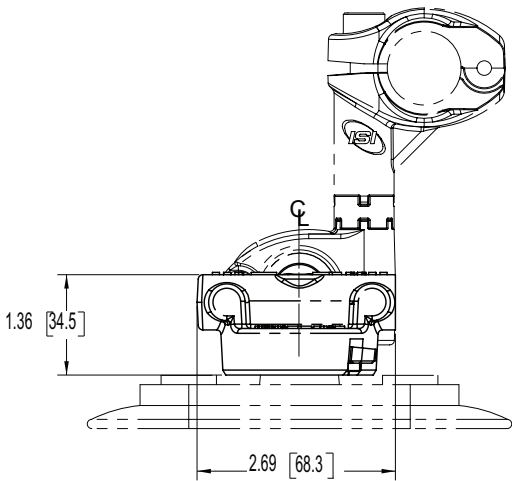
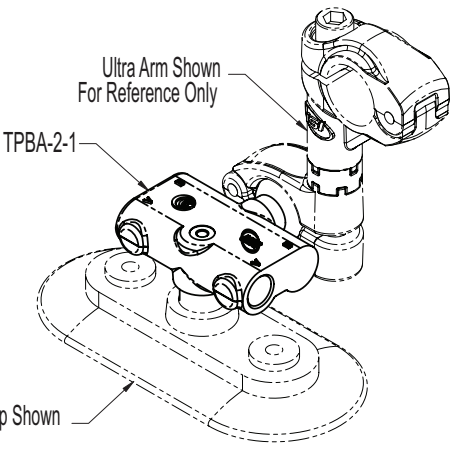
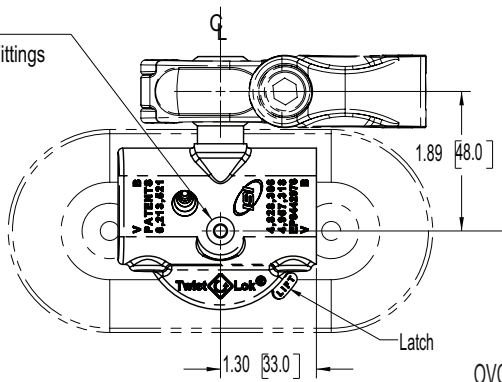
Circuit Type “B” Basic Venturi



Threaded Post Cup Mounts

Ported Adapter
TPBA

Optional Sensor Port
Compatible with M5 & 10-32 Fittings



ORDERING INFORMATION

TPBA-0-1
POST THREAD OPTION
1 = NPT
OPTIONS
0 = NO OPTIONS
2 = SENSING PORT
CIRCUIT TYPE
A=PORTED ADAPTER
MOUNT TYPE
B=BALL
S=SWIVEL
Z=POZ-E-LOK
THREADED POST

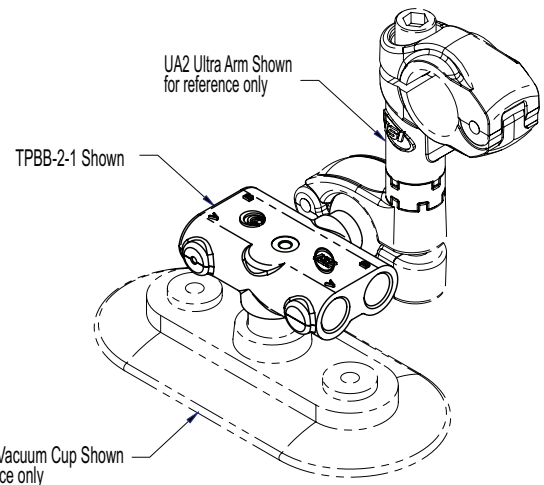
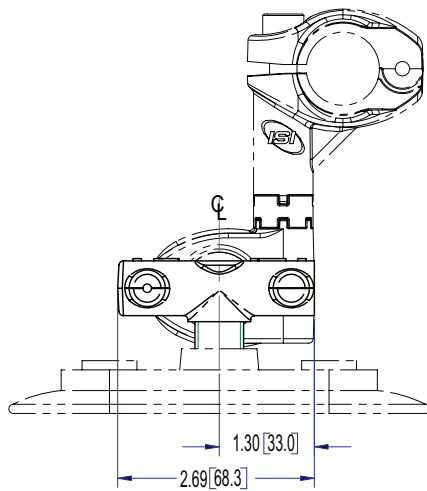
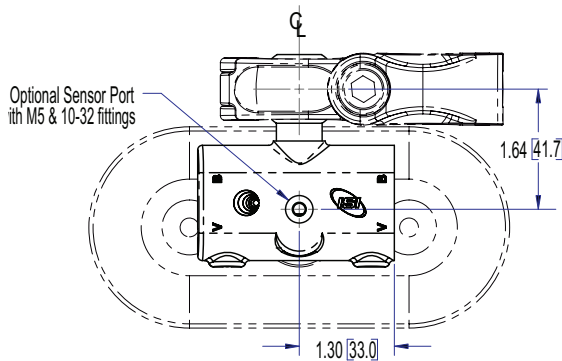
MATERIAL AND WEIGHT

Aluminum
Weight: 0.4 lbs [0.2 kg]

PRODUCT CHARACTERISTICS		
Parameter	Value	Unit
Operating Pressure	Vacuum to 120 [8.3]	psi [bar]
Operating Temperature	-40-300 [-40-149]	°F [°C]

Threaded Post Cup Mounts

Threaded Post Basic Venturi
TPBB



Vacuum port compatible with 1/4 NPT, ISO G, ISO R, BSPP, BSPT (Thread sealant is recommended for all tapered fittings)

Blowoff Port compatible with 1/4 NPT, ISO G, ISO R, BSPP, BSPT (Thread sealant is recommended for all tapered fittings)

Post Thread
Option 1: 3/8 NPT
Option 2: 3/8 BSPT / ISO R

1.89 [48.0]
Mount Type "B"
"Ball" shown

1.11 [28.1] TYP.

ORDERING INFORMATION

TPBB-0-1
 POST THREAD OPTION
 1 = NPT
 2 = BSPT/ISO R
 OPTIONS
 0 = NO OPTIONS
 2 = SENSING PORT
 CIRCUIT TYPE
 B=BASIC VENTURI
 MOUNT TYPE
 B=BALL
 S=SWIVEL
 Z=POZ-E-LOK
 THREADED POST

MATERIAL AND WEIGHT

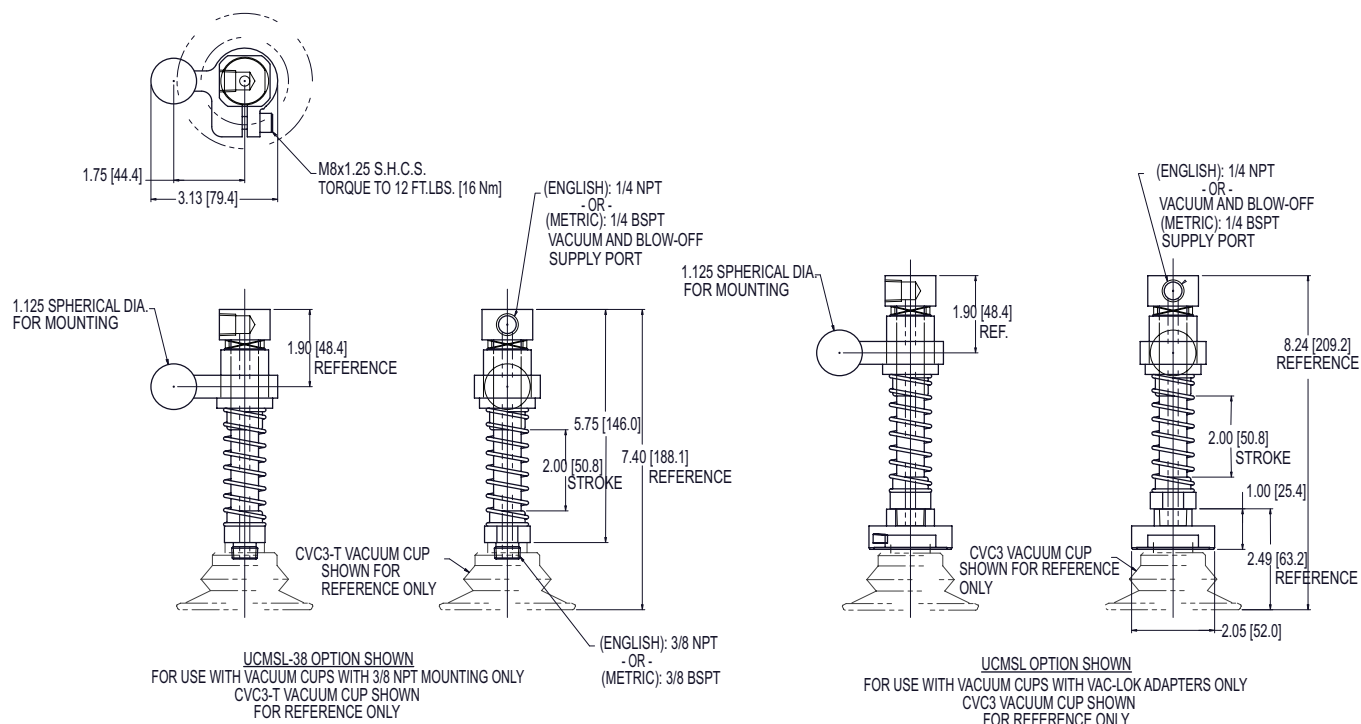
Aluminum, BUNA
 Weight: 0.4 lbs [0.2 kg]

PRODUCT CHARACTERISTICS			
Parameter	Value	Unit	Notes
Operating Pressure	35-80 [2.4-5.5]	psi [bar]	Blowoff cracking pressure 30-35 psi [2.1-2.4 bar]
Maximum Vacuum	26.0 [88.0]	in Hg [-kPa]	65-70 psi [4.5-4.8 bar]
Response	Vacuum	60 [3.7]	mS/in³ [mS/cm³] 0 TO 20"Hg (average over operating range)
	Blowoff	10 [0.6]	mS/in³ [mS/cm³] 20 TO 0"Hg (average over operating range)
Air Consumption	Vacuum	0.04 Cv or 1.6 [45.3]	SCFM [L/min] @ 60 psi (@ .040" [1.0mm])
	Blowoff	0.26 Cv or 9.6 [271.8]	SCFM [L/min] @ 60 psi (@ .116" [2.9mm])
Noise Level	78	dB(A)	
Operating Temperature	32-122 [0-50]	°F [°C]	

Spring Loaded Vacuum Cup Mount

Orbital Ball Style Cup Mount

UCMSL Overall Dimensions and Ordering Information



ORDERING INFORMATION

X - MSIC - 38 - H

SPRING FORCE (H OR L)
 H = .9 lb (3.89 N) INSTALLED
 10.2 lb (45.4 N) @ MID-STROKE
 20.5 lb (86.9 N) @ END OF STROKE
 L = .8 lb (3.6 N) INSTALLED
 2.8 lb (12.3 N) @ MID-STROKE
 4.7 lb (21.1 N) @ END OF STROKE

UCMSL-38 = SPRING LOADED CUP MOUNT
WITH 1/4 NPT VACUUM AND BLOW-OFF SUPPLY PORT
AND 3/8 NPT VACUUM CUP MOUNT

UCMSL = SPRING LOADED CUP MOUNT
WITH 1/4 NPT VACUUM AND BLOW-OFF SUPPLY PORT
AND VAC-LOK CUP ADAPTER MOUNT FOR USE WITH
VACUUM CUPS WITH VAC-LOK ADAPTERS ONLY

X = METRIC PORT DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Aluminum/Steel

Weight: UCMSL-38 1.00 lbs [0.4 kg]
 UCMSL 1.25 lbs [0.6 kg]

THIS PRODUCT CONNECTS WITH

Tooling Section

UMB

TB1A

VLPV

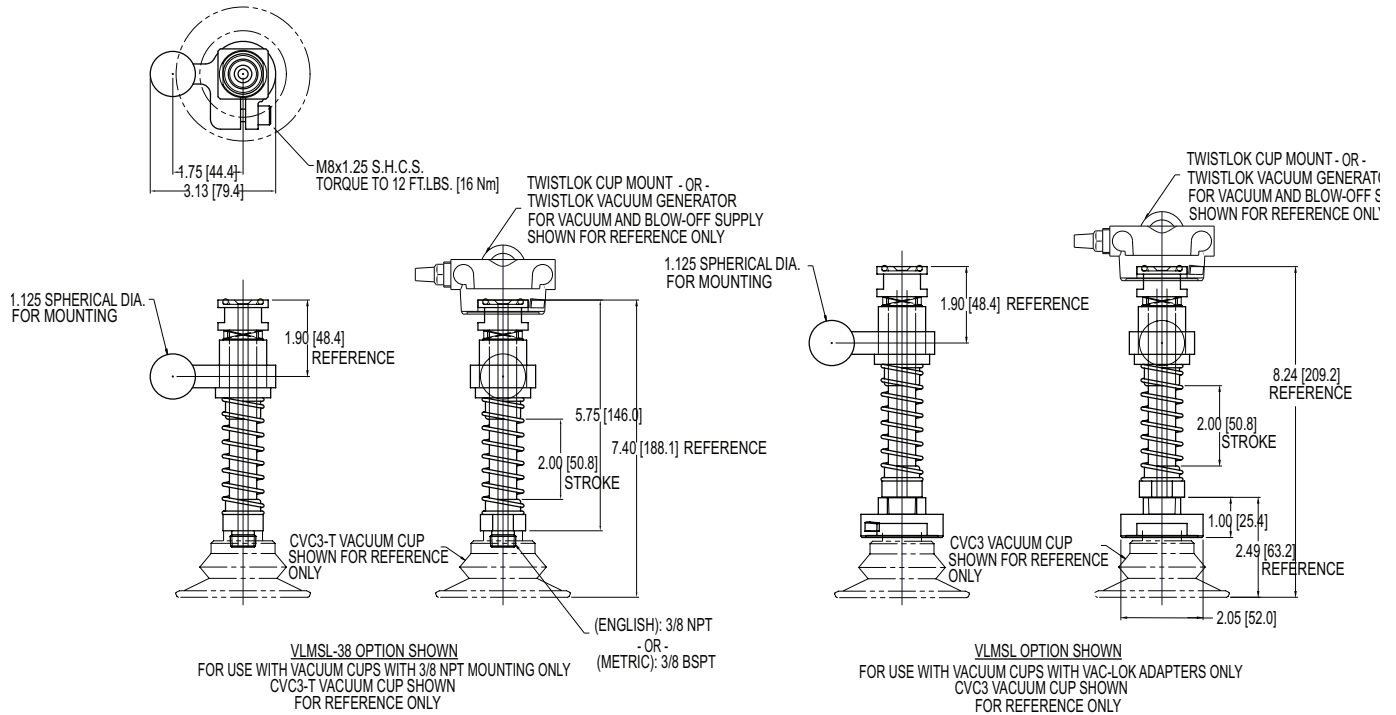
Vacuum Cups with/without Vac-Lok Adapter



Spring Loaded Venturi Cup Mount

Orbital Ball Style Cup Mount

VLMSL Overall Dimensions and Ordering Information



ORDERING INFORMATION

X - VLMSL - H38 -

SPRING FORCE (H OR L)

H = .9 lb (3.89 N) INSTALLED
10.2 lb (45.4 N) @ MID-STROKE
20.5 lb (86.9 N) @ END OF STROKE

L = .8 lb (3.6 N) INSTALLED
2.8 lb (12.3 N) @ MID-STROKE
4.7 lb (21.1 N) @ END OF STROKE

VLMSL-38 ~ SPRING LOADED CUP MOUNT WITH VAC-LOK ADAPTER FOR MOUNTING TWISTLOK (OR UNIVERSAL) CUP MOUNT AND 3/8 NPT VACUUM CUP MOUNT

VLMSL ~ SPRING LOADED CUP MOUNT WITH VAC-LOK ADAPTER FOR MOUNTING TWISTLOK (OR UNIVERSAL) CUP MOUNT AND VAC-LOK CUP ADAPTER MOUNT FOR USE WITH VACUUM CUPS WITH VAC-LOK ADAPTERS ONLY

X = METRIC PORT DESIGNATION (LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

Aluminum

Weight: VLMSL-38 1.00 lbs [0.4 kg]
VLMSL 1.25 lbs [0.6 kg]

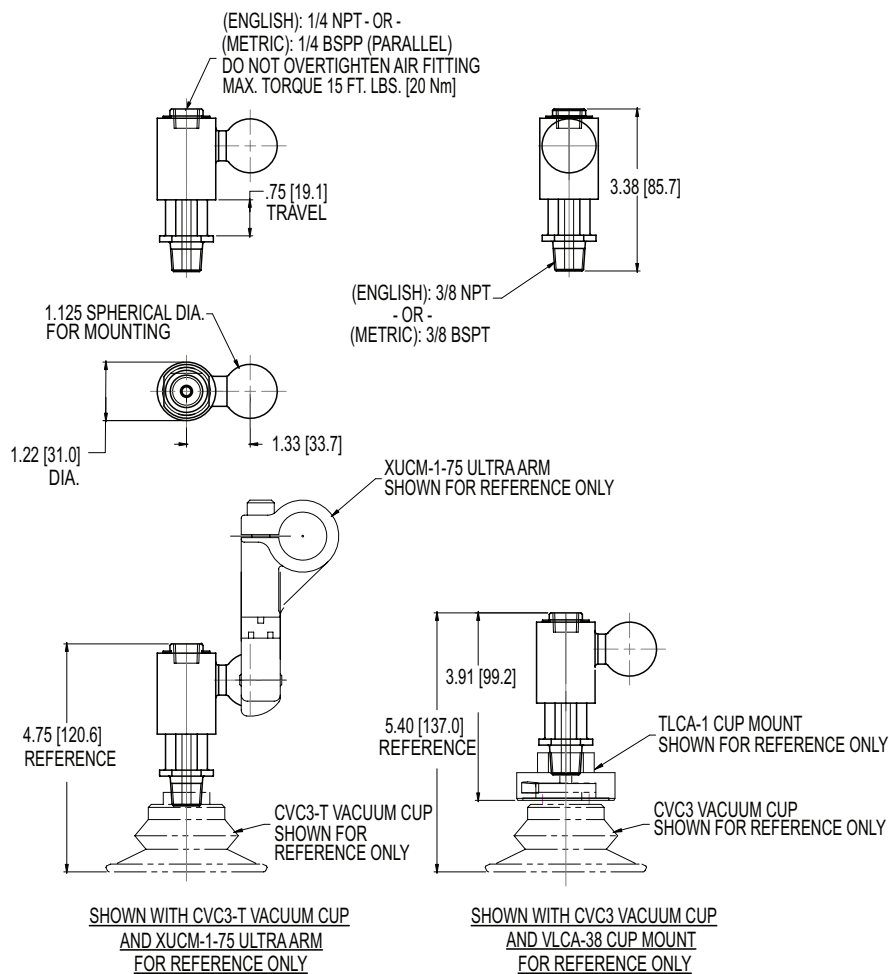
THIS PRODUCT CONNECTS WITH

UMB
TB1A
VLPV
Vacuum Cups with Vac-Lok Adapter

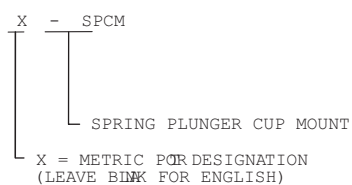
Spring Plunger Vacuum Cup Mount

Orbital Ball Style Cup Mount

SPCM Overall Dimensions and Ordering Information



ORDERING INFORMATION



SPRING FORCES
EXTENDED = 1.6 LBS [7.1 N]
COMPRESSED = 5.8 LBS [25.8 N]

MATERIAL AND WEIGHT

Aluminum
Weight: 1.00 lbs [0.4 kg]

THIS PRODUCT CONNECTS WITH

UMB
TB1A
Twist Lok
Vacuum Cups without Vac-Lok Adapter

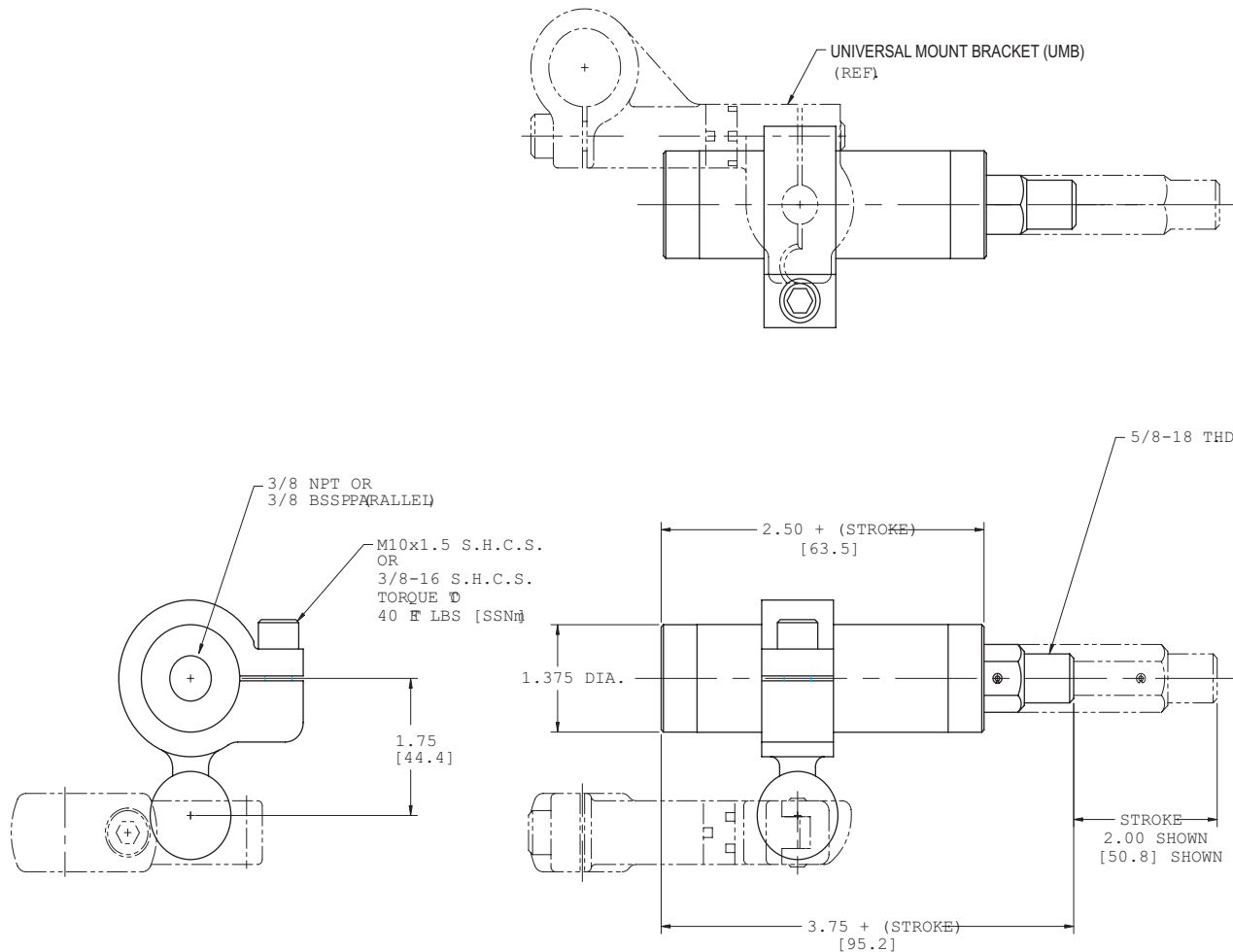


Stroking Mount Spring Return Cylinder

Orbital Ball Style Cup Mount

SMSR Overall Dimensions and Ordering Information

NORGREN VACUUM



ORDERING INFORMATION

X - SMSR - N - 1

STROKE
1 = 1 INCH
2 = 2 INCH
3 = 3 INCH
4 = 4 INCH

PORT TYPE
N = NPT STYLE
B = BSPT STYLE

STROKING MOUNT SPRING RETURN CYLINDER

X = METRIC PORT DESIGNATION
(LEAVE BLANK FOR ENGLISH)

MATERIAL AND WEIGHT

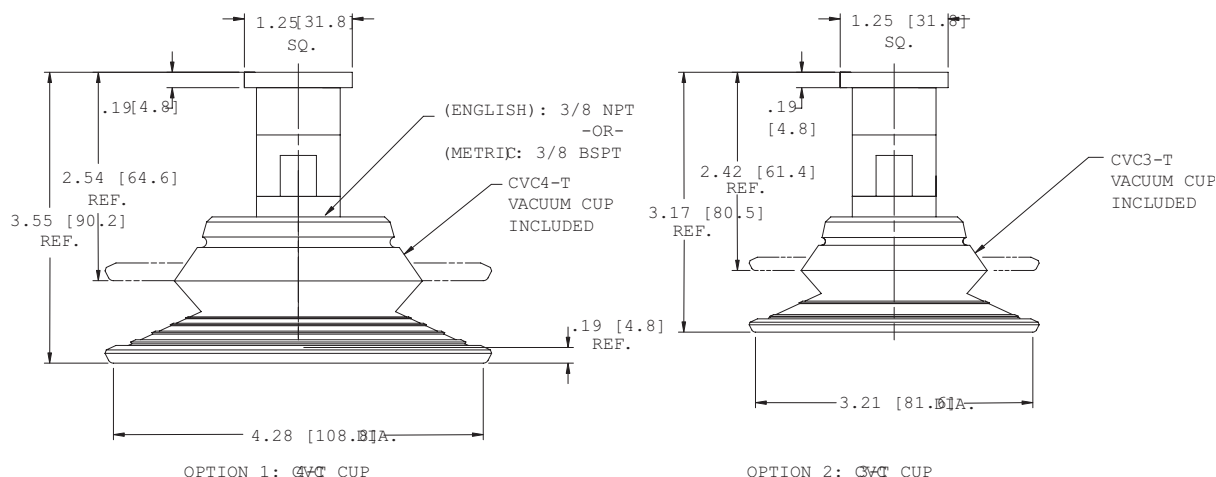
Aluminum
Weight: 1.00 lbs [0.4 kg]

THIS PRODUCT CONNECTS WITH

UMB
TB1A
HPCM-V
HPCM-U
Vacuum Cups with Vac-Lok Adapter

Vac-Lok Cup Plunger Valve

VLPV Overall Dimensions and Ordering Information



ORDERING INFORMATION

X VLPV-1

CUP STYLE
1 = FOR 4" CUP (VAC. CUP NOT INCL)
2 = FOR 3" CUP (VAC. CUP NOT INCL)
3 = CVC4-T
4 = CVC3-T

VAC-LOK PLUNGER VALVE

METRIC MODEL DESIGNATION

MATERIAL AND WEIGHT

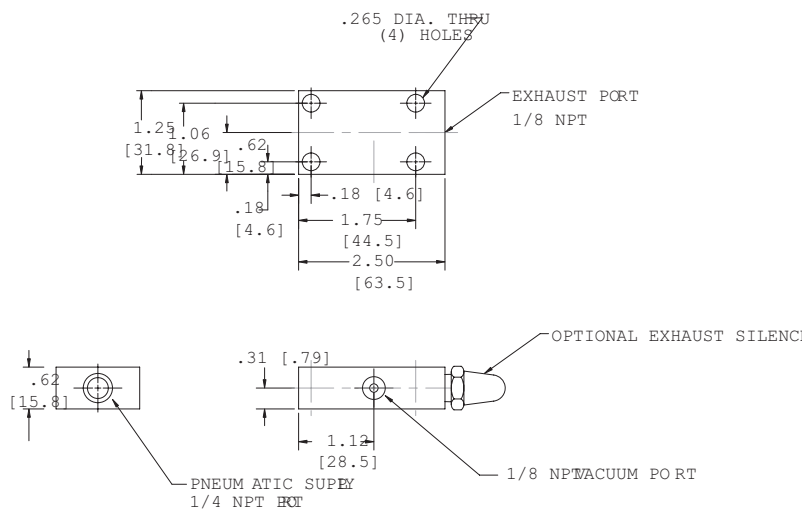
Aluminum and Urethane
Weight: 0.25 lbs [0.1 kg]

THIS PRODUCT CONNECTS WITH

UCMB
UCMSL
VLMSL
TWIST LOK

Vacuum Manifold Block

VB92T Overall Dimensions and Ordering Information



ORDERING INFORMATION

VB92T - B - S

EXHAUST SILENCER†

B = .078 ORFICE
C = .040 ORFICE

VACUUM MANIFOLD BLOCK

†-OMIT IF NOT REQUIRED

MATERIAL AND WEIGHT

Aluminum 0.20 lbs (0.09 kg)

VB92T Vacuum Generators

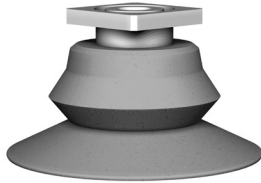


NORGREN
Click logo to return home

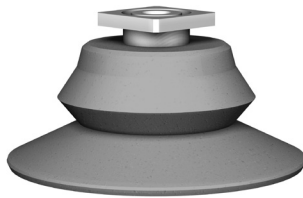
Vacuum Cups at a Glance

Size and Capacity with Safety Factor

DESTACKER VACUUM CUPS



CVCS-5-DS-D (3")
Cap: 35 lbs [15.9 kg]
Vol: 3.6 in³ [59.0 cm³]

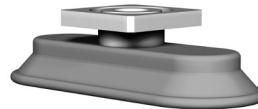


CVCS-4-DS-D (4")
Cap: 60 lbs [27.2 kg]
Vol: 7.3 in³ [120.3 cm³]

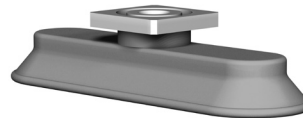
OVAL VACUUM CUPS



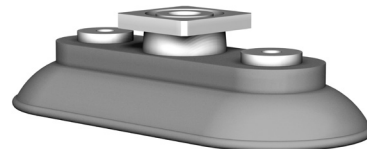
XOVCS15 (1" x 2")
Cap: 6 lbs [2.7 kg]
Vol: 0.1 in³ [2.3 cm³]



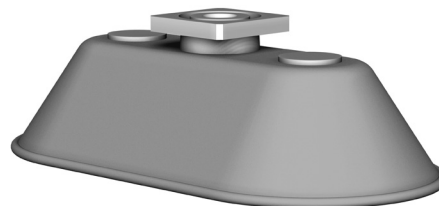
OVCS13 (1" x 3")
Cap: 21 lbs [9.5 kg]
Vol: 1.4 in³ [22.7 cm³]



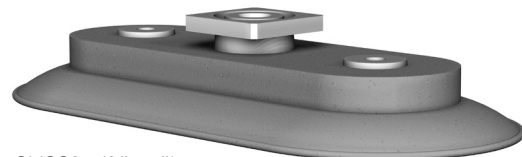
OVCS16 (1" x 6")
Cap: 30 lbs [13.6 kg]
Vol: 2.1 in³ [34.1 cm³]



OVC25/OVCS25 (2" x 5")
Cap: 52 lbs [23.6 kg]
Vol: 3.6 in³ [59.0 cm³]



OVC36/OVCS36 (3" x 6")
Cap: 75 lbs [34.0 kg]
Vol: 9.4 in³ [154.3 cm³]



OVCS37 (3" x 7")
Cap: 99 lbs [44.9 kg]
Vol: 5.7 in³ [93.1 cm³]

CONVOLUTED VACUUM CUPS



XCVC10 (1")
Cap: 3 lbs [1.3 kg]
Vol: 0.6 in³ [9.1 cm³]



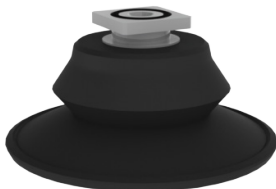
CVC15 (1.5")
Cap: 5 lbs [2.3 kg]
Vol: 1.0 in³ [15.9 cm³]



CVC2 (2")
Cap: 10 lbs [4.5 kg]
Vol: 2.2 in³ [36.3 cm³]

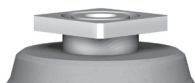


CVC3 (3")
Cap: 21 lbs [9.5 kg]
Vol: 3.6 in³ [59.0 cm³]



CVC4 (4")
Cap: 38 lbs [17 kg]
Vol: 7.3 in³ [120.3 cm³]

VAC-LOK ADAPTER



Norgren Vacuum Cups automatically include the Vac-Lok Adapter



Norgren Vacuum Cups can also be ordered with a threaded port.

ROUND VACUUM CUPS



VC1 (1")
Cap: 4 lbs [1.8 kg]
Vol: 0.1 in³



VCS2/VC2 (2")
Cap: 16 lbs [7.2 kg]
Vol: 1.4 in³ [22.7 cm³]



VCS25 (2.5")
Cap: 24 lbs [10.1 kg]
Vol: 1.8 in³



VCS3/VC3 (3")
Cap: 35 lbs [15.9 kg]
Vol: 4.0 in³ [65.8 cm³]



VCS4/VC4 (4")
Cap: 62 lbs [28.1 kg]
Vol: 8.7 in³ [143.0 cm³]



VCS5/VC5 (5")
Cap: 98 lbs [44.4 kg]
Vol: 17.5 in³ [286.7 cm³]

Vacuum Cups at a Glance



NORGREN
Click logo to return home

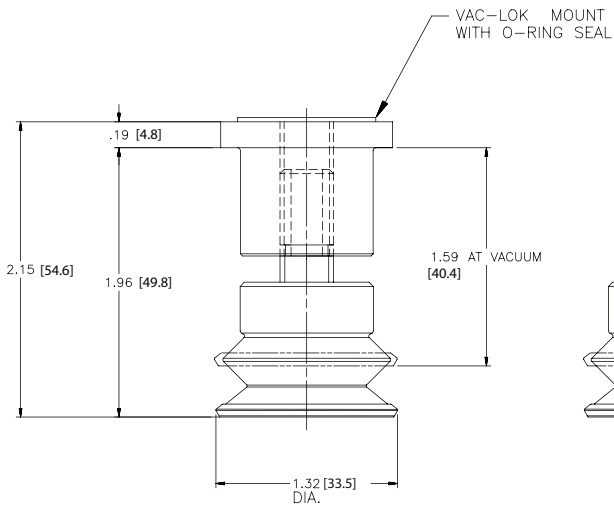
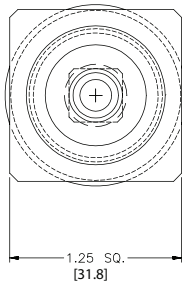
Improved!

Convuluted Vacuum Cups

CVC10 Overall Dimensions and Ordering Information

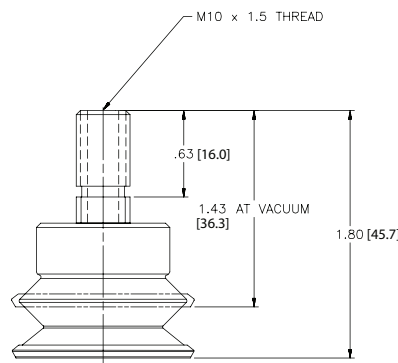


NORGREN VACUUM



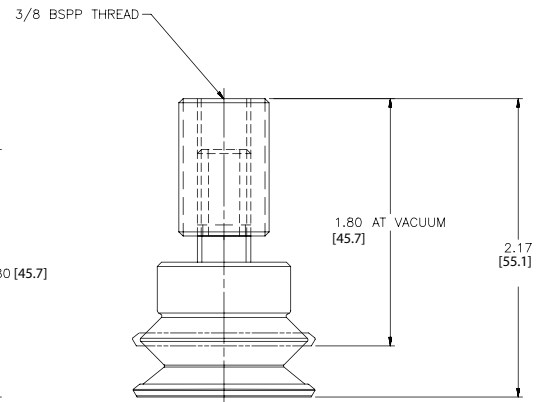
ORDERING No.
METRIC
XCVC10

WEIGHT: .168 oz [47.6g]



ORDERING No.
METRIC
XCVC10-T

WEIGHT: .56 oz [15.9g]



ORDERING No.
METRIC
XCVC10-PN

WEIGHT: .88 oz [24.9g]

XCVC10 - T

Omit this designator to order cup with Vac-Lok mount
T = 10M Thread Insert
PN = 3/8 BSPP Thread Stud

Model Number

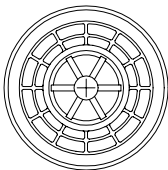
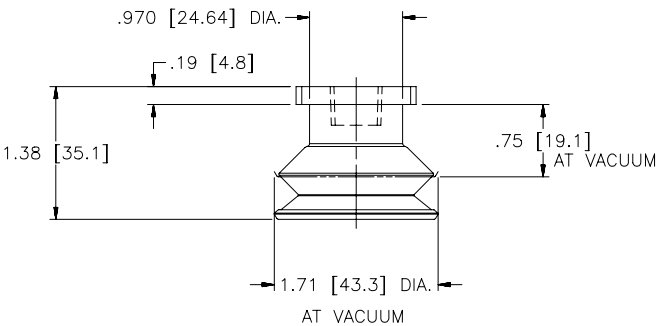
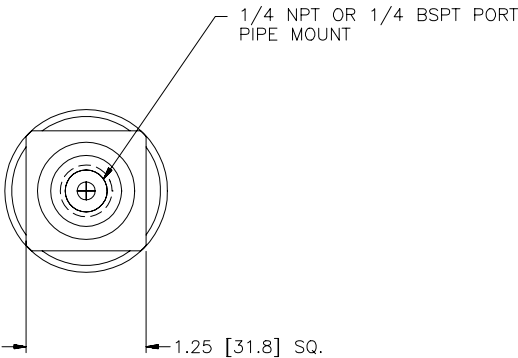
Insert Material: Brass/Aluminum
Threaded Stud Material: Steel
Vac-Lok Material: Aluminum

Ordering No.	Material	Durometer	Mount Style
XCVC10	Urethane	45 Shore A	Vac-Lok
XCVC10-T	Urethane	45 Shore A	M10 Thread
XCVC10-PN	Urethane	45 Shore A	3/8 BSPP Thread Stud

Convuluted Vacuum Cups

CVC15 Overall Dimensions and Ordering Information

Improved!



Ordering No.	Material	Durometer	Mount Style
CVC15	Urethane	45 Shore A	Vac-Lok 1/4 NPT
XCVC15	Urethane	45 Shore A	Vac-Lok 1/4 BSPT

X CVC15

Model Number
CVC15=Urethane

Metric Designation

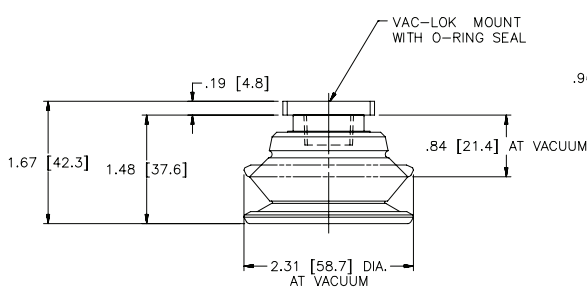
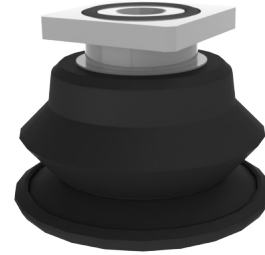
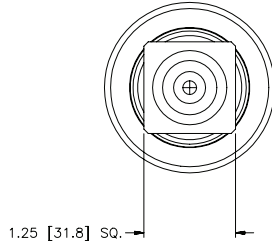
Insert Material: Brass/Aluminum
Weight: 1.12 oz [31.8g]

Improved!

Convuluted Vacuum Cups

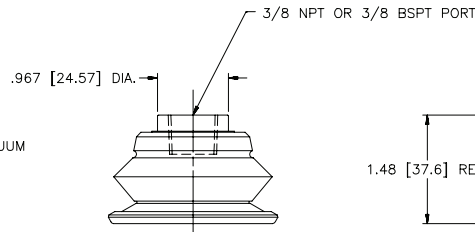
CVC2 Overall Dimensions and Ordering Information

NORGREN VACUUM



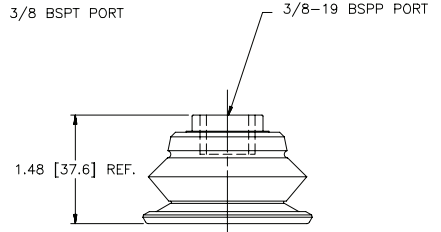
ORDERING No.
ENGLISH METRIC
CVC2 XCVC2

WEIGHT: 3.14 oz. [89.0g]



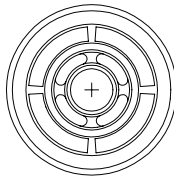
ORDERING No.
ENGLISH METRIC
CVC2-T XCVC2-T

WEIGHT: 2.26 oz. [64.1 g]



ORDERING No.
METRIC
XCVC2-T

WEIGHT: 2.26 oz. [64.1 g]



Ordering No.	Material	Durometer	Mount Style
CVC2-35	Urethane	45 Shore A	Vac-Lok
CVC2-35T	Urethane	45 Shore A	3/8 NPT Pipe Thread
XCVC2-35	Urethane	45 Shore A	3/8 NPT Pipe Thread
XCVC2-35T	Urethane	45 Shore A	Vac-Lok
XCVC2-35P	Urethane	45 Shore A	3/8 NPT Pipe Thread

X CVC2 - T

Omit this designator to order cup with Vac-Lok mount
P = Pipe Mount (3/8 BSPP Port METRIC ONLY)
T = Pipe Mount (3/8 NPT Port ENGLISH ONLY,
3/8 BSPT Port METRIC ONLY)

Vacuum Cup Model
CVC2 = Urethane

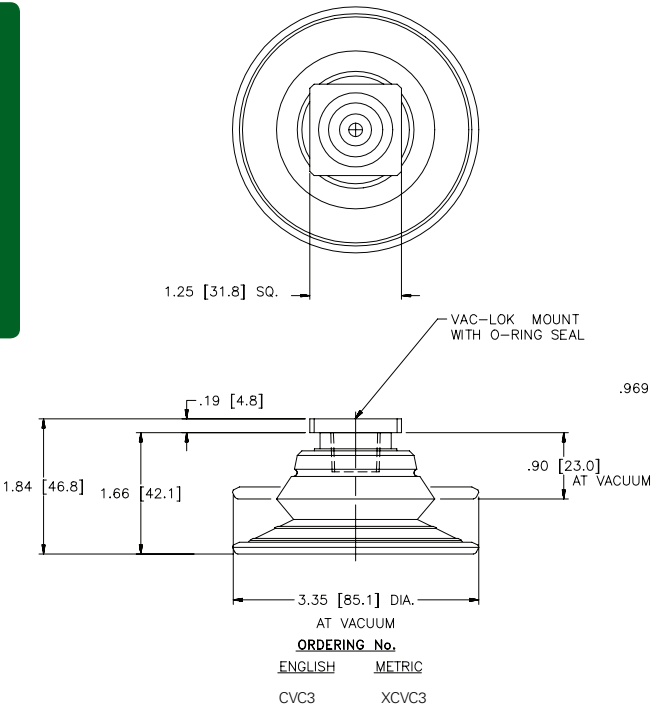
Metric Designation

Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum

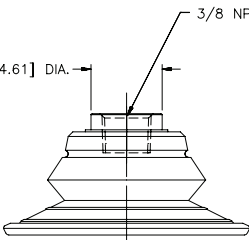
Convuluted Vacuum Cups

CVC3 Overall Dimensions and Ordering Information

Improved!

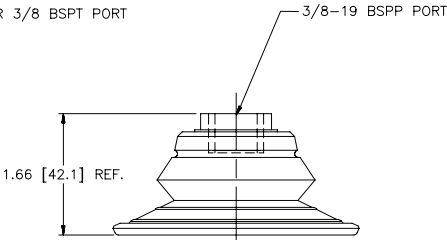


WEIGHT: 3.78 oz. [107.2g]



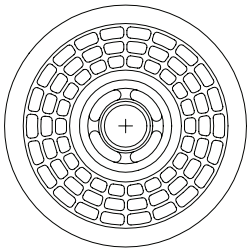
ORDERING No.
ENGLISH METRIC
CVC3-T XCVC3-T

WEIGHT: 3.22 oz. [91.3g]



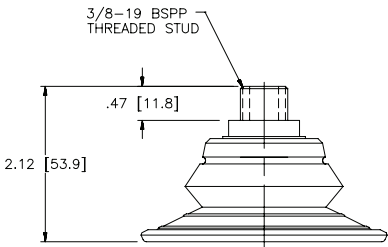
ORDERING No.
METRIC
XCVC3-P

WEIGHT: 3.22 oz. [91.3g]



ORDERING No.
METRIC
XCVC3-PN

WEIGHT: 3.54 oz. [100.3g]



X CVC3 - T

Omit this Designator to Order Cup with Vac-Lok Mount
P = Pipe Mount (3/8 BSPP PORT METRIC only)
T = Pipe Mount (3/8 NPT PORT ENGLISH only, 3/8 BSPT PORT METRIC only)
PN = Threaded Stud (3/8 BSPP METRIC Only)

Model Number
CVC3 = Urethane

Metric Designation

Insert Material: Brass/Aluminum
Threaded Stud Material: Steel
Vac-Lok Material: Aluminum

Ordering No.	Material	Durometer	Mount Style
CVC3-35	Urethane	35 Shore A	Vac-Lok
CVC3-3T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XCVC3	Urethane	35 Shore A	Vac-Lok
XCVC3-3T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XCVC3-3P	Urethane	35 Shore A	3/8 BSPP Pipe Thread
XCVC3-3PN	Urethane	35 Shore A	3/8 BSPP Pipe Threaded Stud

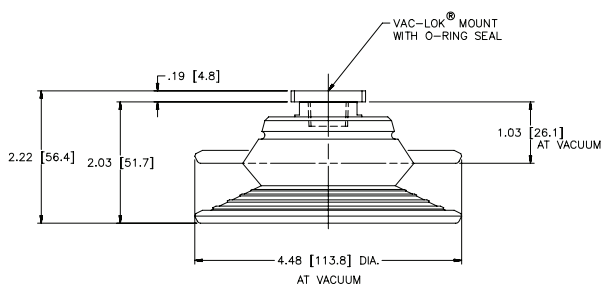
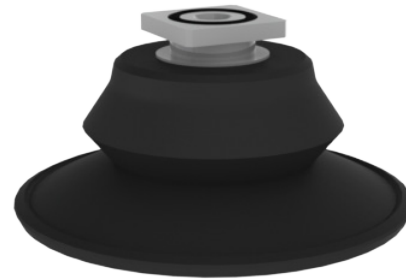
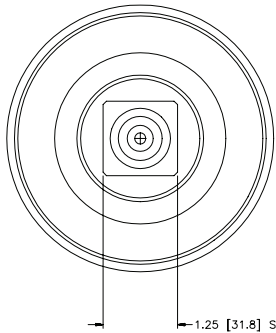
Convuluted Vacuum Cups

Improved!

Convuluted Vacuum Cups

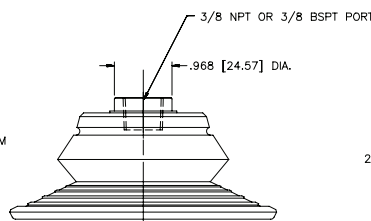
CVC4 Overall Dimensions and Ordering Information

NORGREN VACUUM

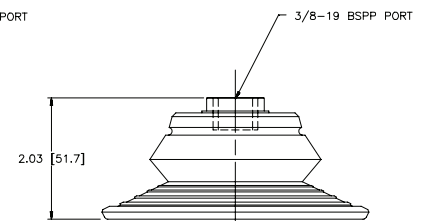


ORDERING No.
ENGLISH METRIC
 CVC4 XCVC4

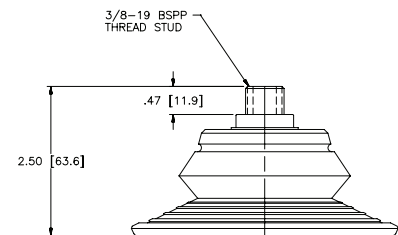
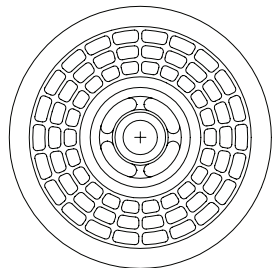
WEIGHT: 6.64 oz. [188.21g]



ORDERING No.
ENGLISH METRIC
 CVC4-T XCVC4-T
 WEIGHT: 6.08 oz. [172.4g]



ORDERING No.
METRIC
 XCVC4-P
 WEIGHT: 6.08 oz. [172.4g]



ORDERING No.
METRIC
 XCVC4-35PN
 WEIGHT: 6.49 oz. [184g]

X CVC4 - T

Omit this Designator to Order Cup with Vac-Lok Mount
 P = Pipe Mount (3/8 BSPP PORT METRIC only, 35 Durometer Only)
 T = Pipe Mount (3/8 NPT PORT ENGLISH only,
 3/8 BSPT PORT METRIC only)
 PN = Threaded Stud (3/8 BSPP METRIC Only)

Model Number
 CVC4 = Urethane

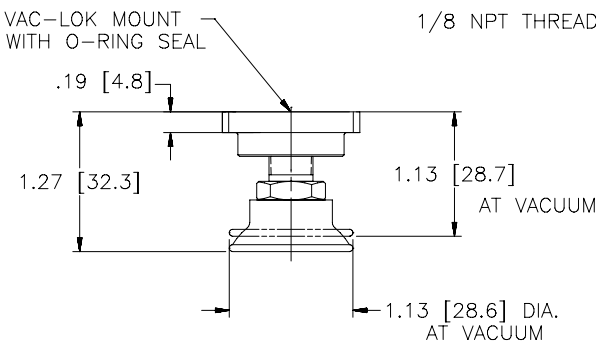
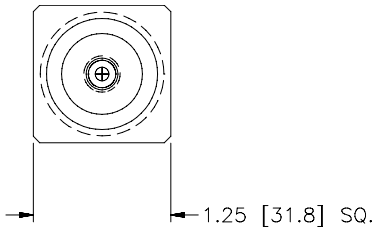
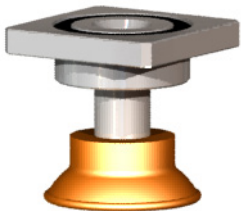
Metric Designation

Ordering No.	Material	Durometer	Mount Style
CVC4	Urethane	45 Shore A	Vac-Lok
CVC4-T	Urethane	45 Shore A	3/8 NPT Pipe Thread
XCVC4	Urethane	45 Shore A	Vac-Lok
XCVC4-T	Urethane	45 Shore A	3/8 BSPT Pipe Thread
XCVC4-P	Urethane	45 Shore A	3/8 BSPP Pipe Thread
XCVC4-PN	Urethane	45 Shore A	3/8 BSPP Pipe Threaded Stud

Insert Material: Brass/Aluminum
 Threaded Stud Material: Steel
 Vac-Lok Material: Aluminum

Round Vacuum Cups

VC1 Overall Dimensions and Ordering Information

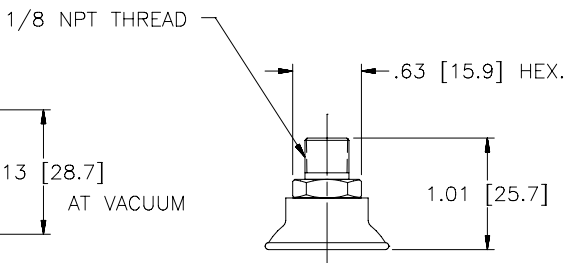


ORDERING No.

ENGLISH

VC1

WEIGHT: 1.20 oz [34g]

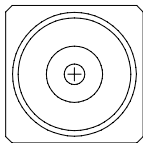


ORDERING No.

ENGLISH

VC1T

WEIGHT: .64 oz [18g]



VC1 - T

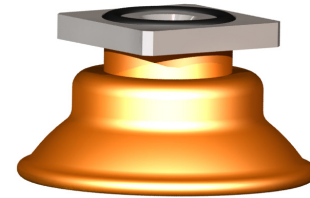
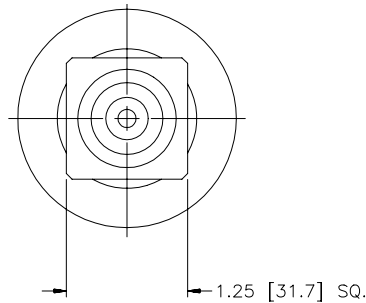
Omit This Designator to Order Cup with Vac-Lok Mount

Model Number
VC1 = 50-55 Durometer (Neoprene)
Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum

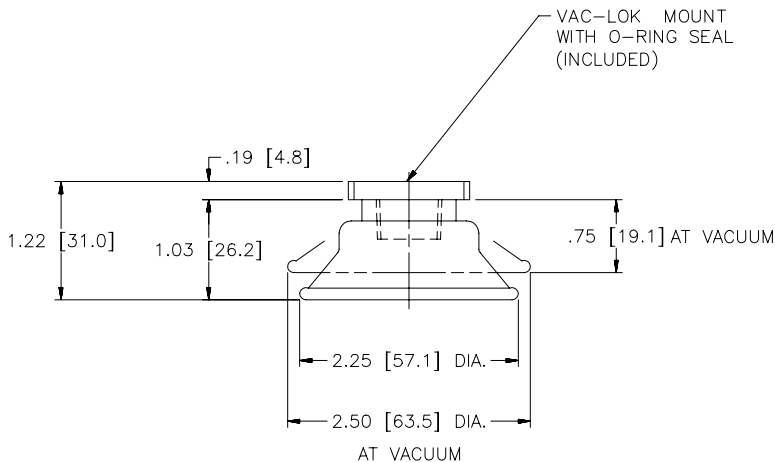
Ordering No.	Material	Durometer	Mount Style
VC1	Neoprene	50 Shore A	Vac-Lok
VC1T	Neoprene	50 Shore A	1/8 NPT Pipe Thread Stud

Round Vacuum Cups

VC2 Overall Dimensions and Ordering Information

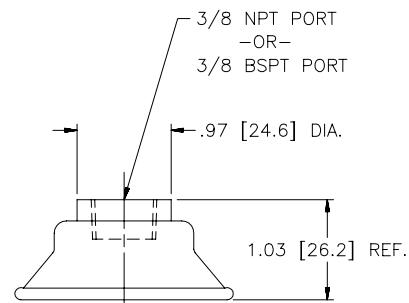


NORGREN VACUUM



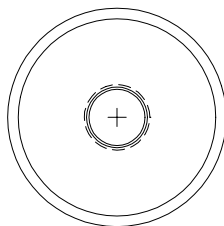
ORDERING No.	
ENGLISH	METRIC
VC2	XVC2
VCS2	XVCS2

WEIGHT: 2.82 oz. [79.9g]



ORDERING No.	
ENGLISH	METRIC
VC2T	XVC2T
VCS2T	XVCS2T

WEIGHT: 2.26 oz. [64.1g]



X VC2 - T

Omit This Designator to Order Cup with Vac-Lok Mount
T = Pipe Mount (3/8 NPT Port English or 3/8 BSPT Port Metric)

Vacuum Cup Model
VC2 = Neoprene
VCS2 = Urethane

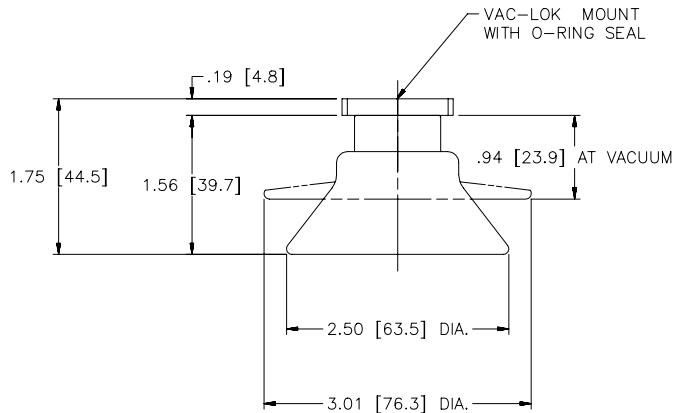
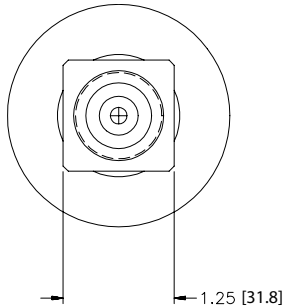
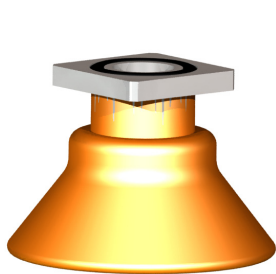
Metric Designation

Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum

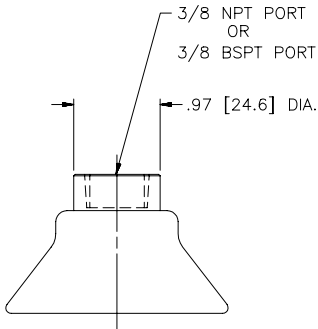
Ordering No.	Material	Durometer	Mount Style
VC2	Neoprene	40 Shore A	Vac-Lok
VS2T	Neoprene	40 Shore A	3/8 NPT Pipe Thread
VCS2	Urethane	35 Shore A	Vac-Lok
VCS2T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XVC2	Neoprene	40 Shore A	Vac-Lok
XVC2T	Neoprene	40 Shore A	3/8 NPT Pipe Thread
XVCS2	Urethane	35 Shore A	Vac-Lok
XVCS2T	Urethane	35 Shore A	3/8 BSPT Pipe Thread

Round Vacuum Cups

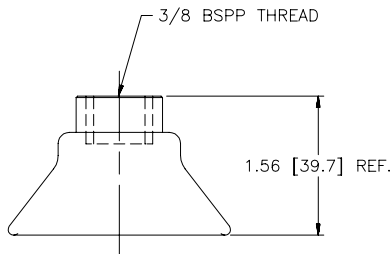
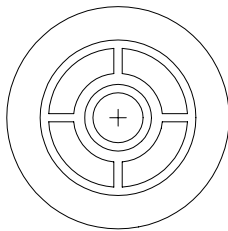
VCS25 Overall Dimensions and Ordering Information



MODEL No.
VCS25
XVCS25
WEIGHT: 3.14 oz. [89.0g]



MODEL No.
VCS25T
XVCS25T
WEIGHT: 2.58 oz. [73.1 g]



MODEL No.
XVCS25P
WEIGHT: 2.58 oz. [73.1 g]

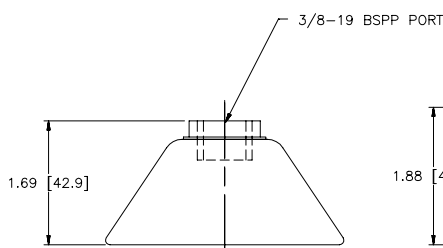
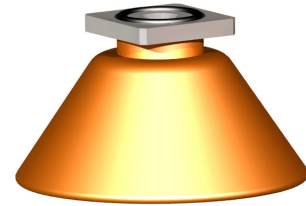
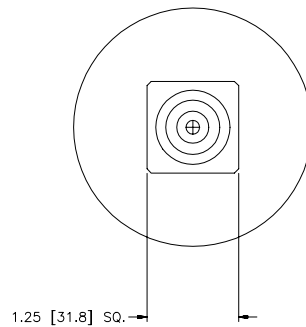
X VCS25 - T
Omit This Designator to Order Cup with Vac-Lok Mount
T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC
P = Pipe Mount (3/8 BSPP Port METRIC Only)
Vacuum Cup Model
VCS2 = Urethane
Metric Designation
Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum

Ordering No.	Material	Durometer	Mount Style
VCS25	Urethane	35 Shore A	Vac-Lok
VCS25T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XVCS25	Urethane	35 Shore A	Vac-Lok
XVCS25T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XVCS25P	Urethane	35 Shore A	3/8 BSPP Pipe Thread

Round Vacuum Cups

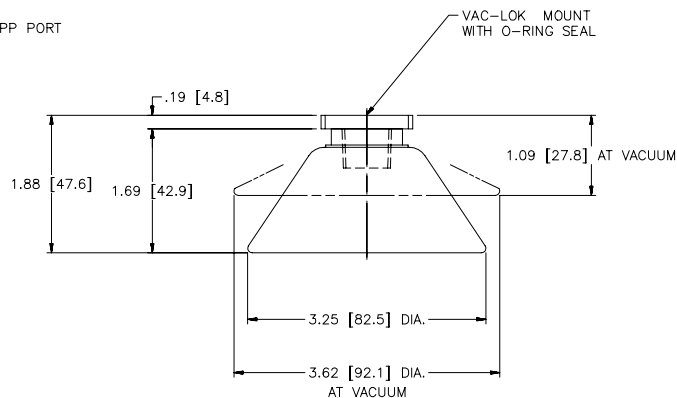
Round Vacuum Cups

VC3 Overall Dimensions and Ordering Information



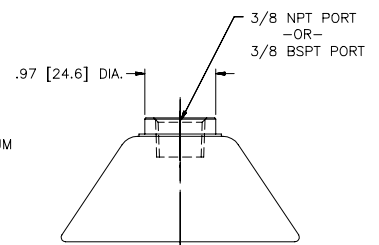
ORDERING No.
METRIC
XVCS3P

WEIGHT: 4.18 oz. [118.5g]



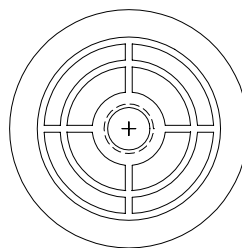
ORDERING No.
ENGLISH METRIC
VC3 XVC3
VCS3 XVCS3

WEIGHT: 4.66 oz. [132.1g]



ORDERING No.
ENGLISH METRIC
VC3T XVC3T
VCS3T XVCS3T

WEIGHT: 4.18 oz. [118.5g]



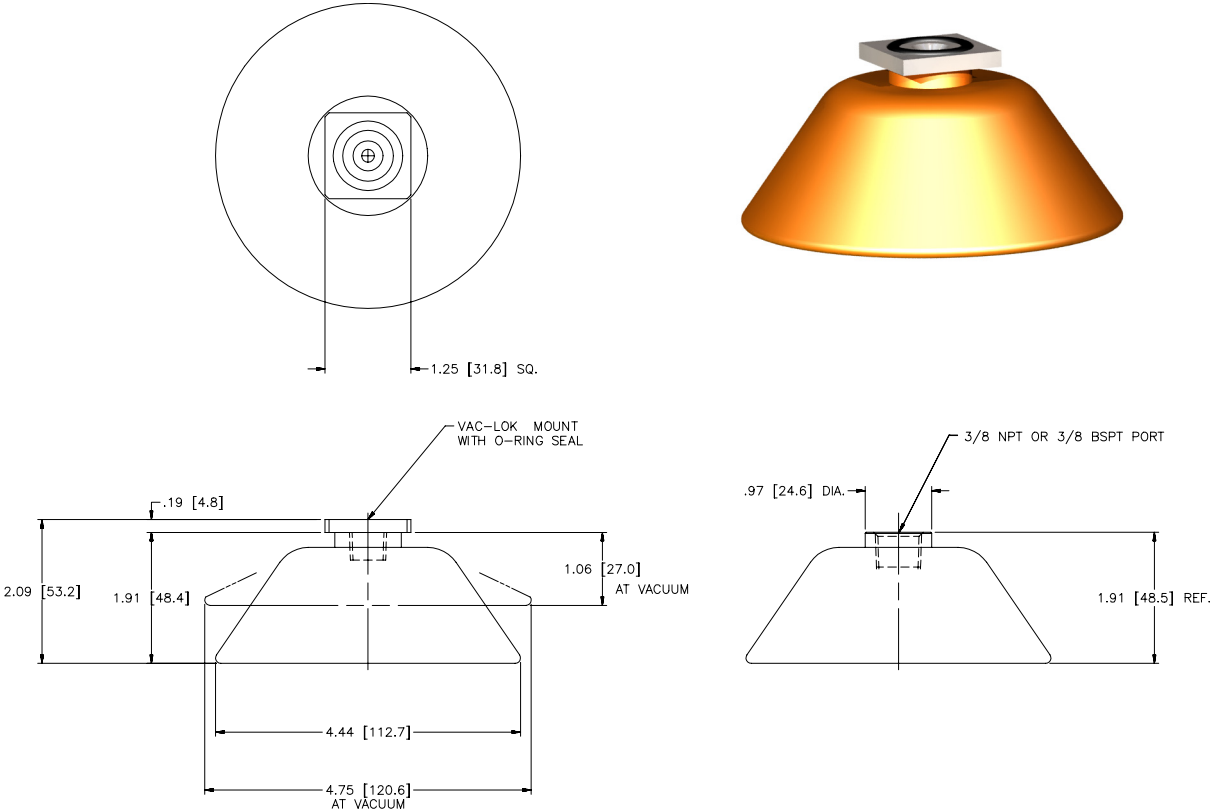
X VC3 - T
Omit This Designator to Order Cup with Vac-Lok Mount
T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC
P = Pipe Mount (3/8 BSPP Port METRIC Only)
Vacuum Cup Model
VC3 = Neoprene
VCS3 = Urethane
Metric Designation

Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum

Ordering No.	Material	Durometer	Mount Style
VC3	Neoprene	40 Shore A	Vac-Lok
VS3T	Neoprene	40 Shore A	3/8 NPT Pipe Thread
VCS3	Urethane	35 Shore A	Vac-Lok
VCS3T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XVC3	Neoprene	40 Shore A	Vac-Lok
XVC3T	Neoprene	40 Shore A	3/8 BSPT Pipe Thread
XVCS3	Urethane	35 Shore A	Vac-Lok
XVCS3T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XVCS3P	Urethane	35 Shore A	3/8 BSPP Pipe Thread

Round Vacuum Cups

VC4 Overall Dimensions and Ordering Information

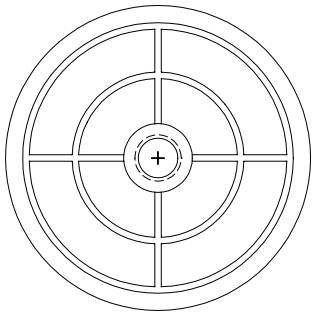


ORDERING No.	
ENGLISH	METRIC
VC4	XVC4
VCS4	XVCS4

WEIGHT: 7.46 oz [211.5g]

ORDERING No.	
ENGLISH	METRIC
VC4T	XVC4T
VCS4T	XVCS4T

WEIGHT: 6.98 oz [197.9g]



X VC4 - T

Omit This Designator to Order Cup with Vac-Lok Mount
T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC)

Vacuum Cup Model
VC4 = Neoprene
VCS4 = Urethane

Metric Designation

Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum

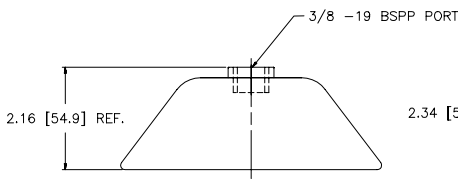
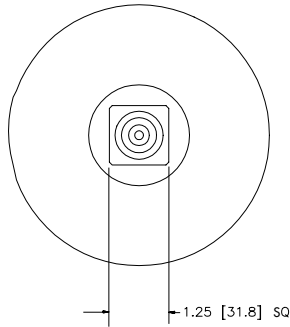
Ordering No.	Material	Durometer	Mount Style
VC4	Neoprene	40 Shore A	Vac-Lok
VC4T	Neoprene	40 Shore A	3/8 NPT Pipe Thread
VCS4	Urethane	35 Shore A	Vac-Lok
VCS4T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XVC4	Neoprene	40 Shore A	Vac-Lok
XVC4T	Neoprene	40 Shore A	3/8 BSPT Pipe Thread
XVCS4	Urethane	35 Shore A	Vac-Lok
XVCS4T	Urethane	35 Shore A	3/8 BSPT Pipe Thread

Round Vacuum Cups

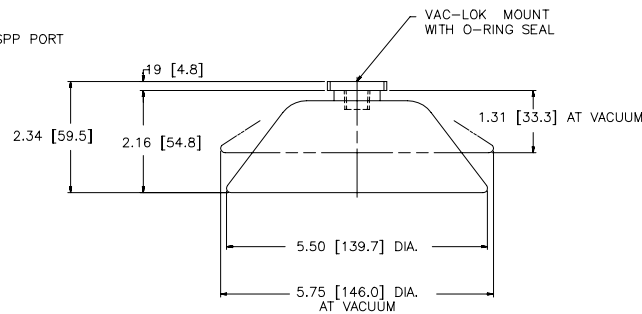
Round Vacuum Cups

VC5 Overall Dimensions and Ordering Information

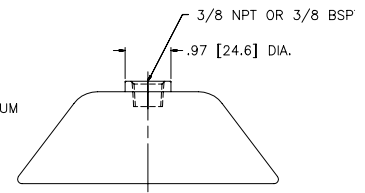
NORGREN VACUUM



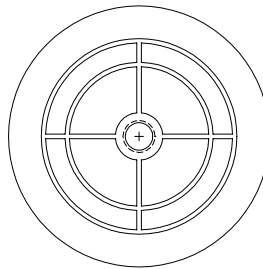
ORDERING No.
METRIC
XVCS5P
WEIGHT: 13.28 oz [376.5g]



ORDERING No.
ENGLISH **METRIC**
VC5 XVC5
VCS5 XVCS5
WEIGHT: 13.8oz [392.4g]



ORDERING No.
ENGLISH **METRIC**
VC5T XVC5T
VCS5T XVCS5T
WEIGHT: 13.28 oz [376.5g]



X VC5 - T
Omit This Designator to Order Cup with Vac-Lok Mount
T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC)
P = Pipe Mount (3/8 BSPP Port METRIC Only)
Vacuum Cup Model
VC5 = Neoprene
VCS5 = Urethane
Metric Designation

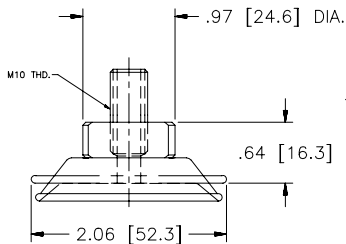
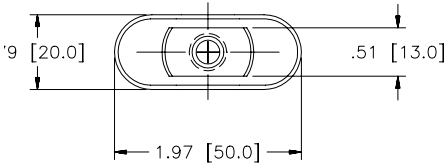
Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum

Ordering No.	Material	Durometer	Mount Style
VC5	Neoprene	40 Shore A	Vac-Lok
VS5T	Neoprene	40 Shore A	3/8 NPT Pipe Thread
VC54	Urethane	35 Shore A	Vac-Lok
VCS5T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XVC5	Neoprene	40 Shore A	Vac-Lok
XVC5T	Neoprene	40 Shore A	3/8 BSPT Pipe Thread
XVCS5	Urethane	35 Shore A	Vac-Lok
XVCS5T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XVCS5T	Urethane	35 Shore A	3/8 BSPP Pipe Thread

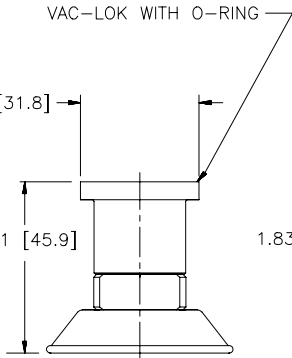
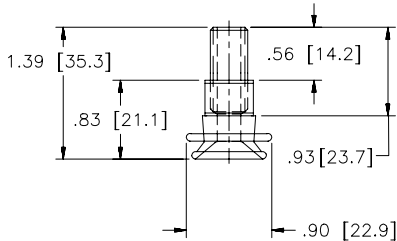
Oval Vacuum Cups

OVSC15 Overall Dimensions and Ordering Information

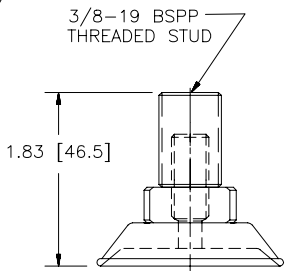
NORGREN VACUUM



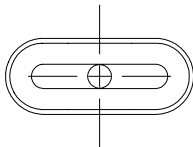
ORDERING No.
XOVCS-15T
WEIGHT: 1.68 oz [.048g]



ORDERING No.
XOVCS-15
WEIGHT: 1.68 oz [.048g]



ORDERING No.
XOVCS-15PN
WEIGHT: 1.68 oz [.048g]

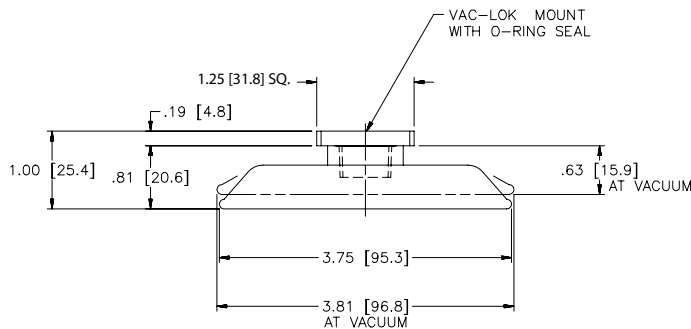
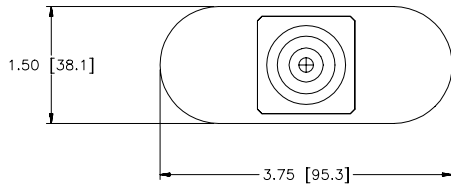
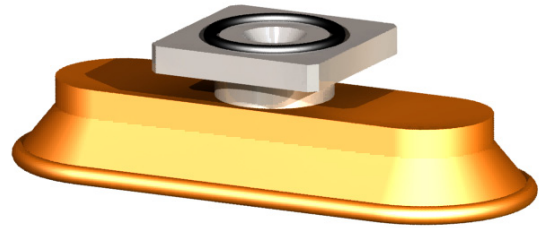


XOVCS15 - T
Omit This Designator to Order Cup with Vac-Lok Mount
T = M10 Thread Insert
PN = 3/8 BSPP Thread Stud
Model Number
Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum
Threaded Stud: Steel

Ordering No.	Material	Durometer	Mount Style
XOVCS-15	Urethane	35 Shore A	Vac-Lok
XOVCS-15T	Urethane	35 Shore A	M10 Thread Stud
XOVCS-15PN	Urethane	35 Shore A	3/8-19 BSPP Thread Stud

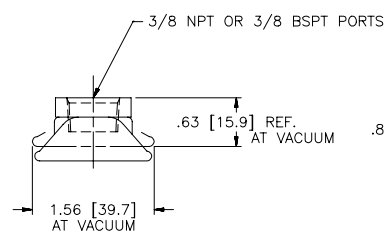
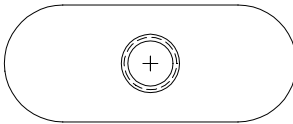
Oval Vacuum Cups

OVSC13 Overall Dimensions and Ordering Information



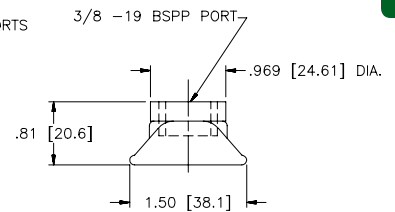
ORDERING No.
ENGLISH **METRIC**
 OVCS13 XOVC13

WEIGHT: 2.00 oz [56.7g]



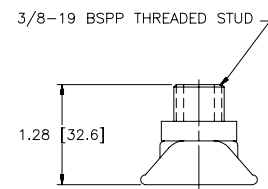
ORDERING No.
ENGLISH **METRIC**
 OVCS13T XOVC13T

WEIGHT: 1.44 oz [40.8g]



ORDERING No.
METRIC
 XOVC13P

WEIGHT: 1.44 oz [40.8g]



ORDERING No.
METRIC
 XOVC13PN
 WEIGHT: 1.76 oz [49.9g]

X OVCS13 - T
 Omit This Designator to Order Cup with Vac-Lok Mount
 T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC)
 P = Pipe Mount (3/8 BSPP Port METRIC Only)
 PN = Threaded Stud (3/8 BSPP METRIC Only)

Vacuum Cup Model
 OVCS13 = Urethane

Metric Designation

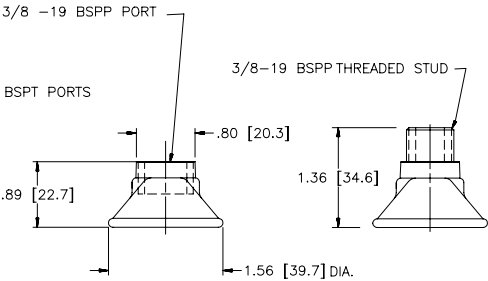
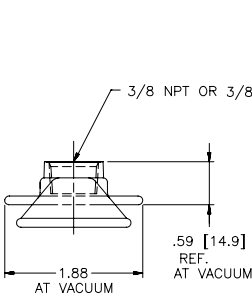
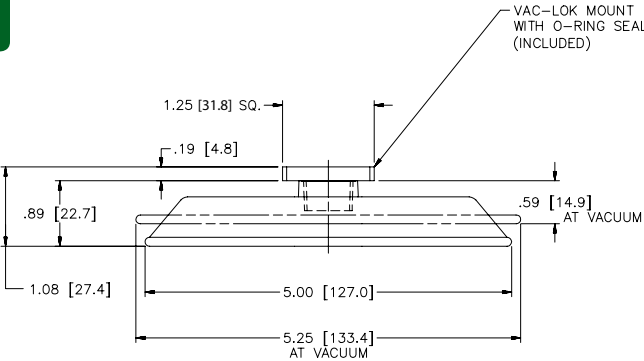
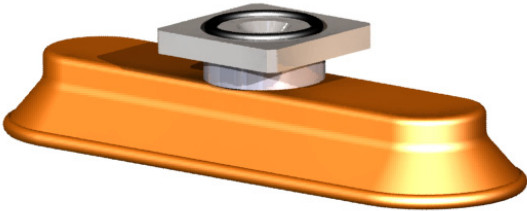
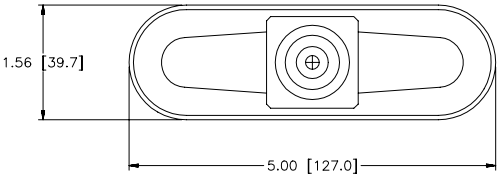
Insert Material: Brass/Aluminum
 Vac-Lok Material: Aluminum
 Threaded Stud: Steel

Ordering No.	Material	Durometer	Mount Style
OVCS13	Urethane	35 Shore A	Vac-Lok
OVCS13T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XOVCS13	Urethane	35 Shore A	Vac-Lok
XOVCS13T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XOVCS13P	Urethane	35 Shore A	3/8 BSPP Pipe Thread
XOVCS13PN	Urethane	35 Shore A	3/8 BSPP Pipe Threaded Stud

Oval Vacuum Cups

OVSC16 Overall Dimensions and Ordering Information

NORGREN VACUUM

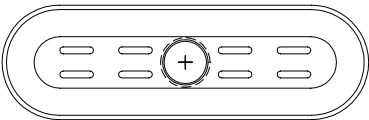


ORDERING No.
ENGLISH **METRIC**
OVCS16 XOVC16
WEIGHT: 2.56 oz [72.6g]

ORDERING No.
ENGLISH **METRIC**
OVCS16T XOVC16T
WEIGHT: 2.00 oz [56.7g]

ORDERING No.
METRIC
XOVCS16P
WEIGHT: 2.00 oz [56.7g]

ORDERING No.
METRIC
XOVCS16PN
WEIGHT: 2.32 oz [65.8g]

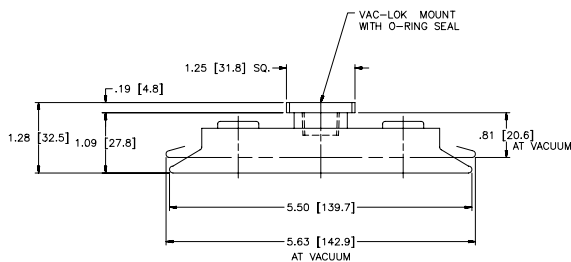
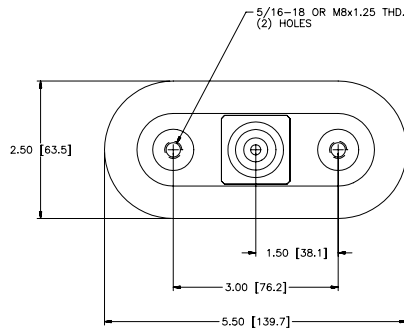


X OVCS16 - T
Omit This Designator to Order Cup with Vac-Lok Mount
T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC)
P = Pipe Mount (3/8 BSPP Port METRIC Only)
PN = Threaded Stud (3/8 BSPP METRIC Only)
Vacuum Cup Model
Metric Designation
Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum
Threaded Stud: Steel

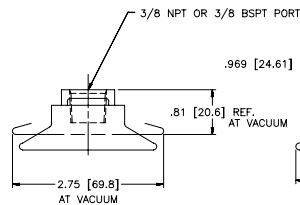
Ordering No.	Material	Durometer	Mount Style
OVSC16	Urethane	35 Shore A	Vac-Lok
OVCS16T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XOVCS16	Urethane	35 Shore A	Vac-Lok
XOVCS16T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XOVCS16P	Urethane	35 Shore A	3/8 BSPP Pipe Thread
XOVCS16PN	Urethane	35 Shore A	3/8 BSPP Pipe Threaded Stud

Oval Vacuum Cups

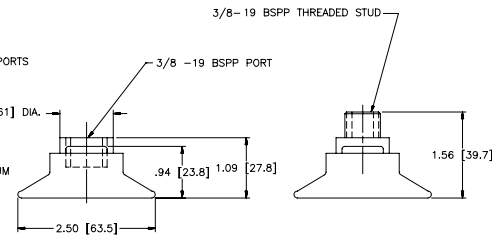
OVSC25 Overall Dimensions and Ordering Information



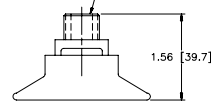
ORDERING No.
ENGLISH OVC25
METRIC XOVC25
OVCS25
WEIGHT: 5.76 oz [163.3g]



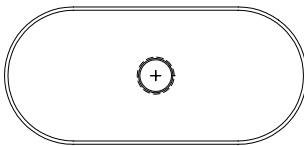
ORDERING No.
ENGLISH OVC25T
METRIC XOVC25T
OVCS25T
WEIGHT: 6.32 oz [179.2g]



ORDERING No.
METRIC XOVC25P
WEIGHT: 6.32 oz [179.2g]



ORDERING No.
METRIC XOVC25PN
WEIGHT: 6.64 oz [188.2g]

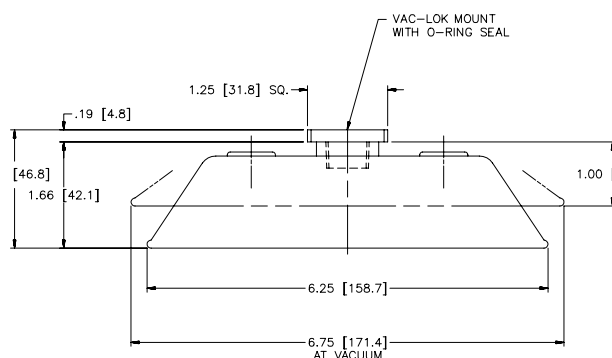
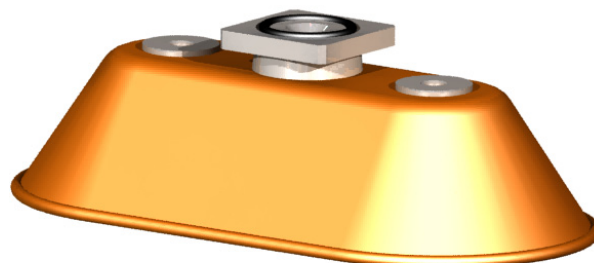
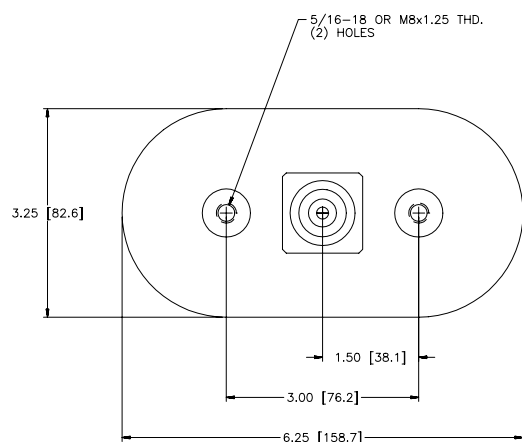


X OVCS25 - T
 Omit This Designator to Order Cup with Vac-Lok Mount
 T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC)
 P = Pipe Mount (3/8 BSPP Port METRIC Only)
 PN = Threaded Stud (3/8 BSPP METRIC Only)
 Vacuum Cup Model
 OVC25 = Neoprene
 OVCS25 = Urethane
 Metric Designation
 Insert Material: Brass/Aluminum
 Vac-Lok Material: Aluminum
 Threaded Stud: Steel

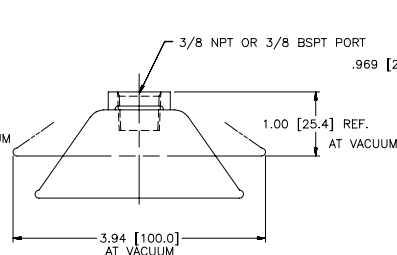
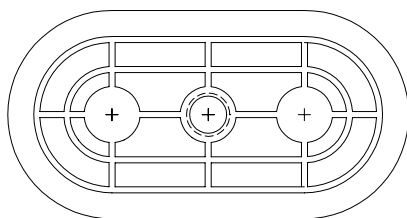
Ordering No.	Material	Durometer	Mount Style
OVC25	Neoprene	45 Shore A	Vac-Lok
OVC25T	Neoprene	45 Shore A	3/8 NPT Pipe Thread
OVCS25	Urethane	35 Shore A	Vac-Lok
OVCS25T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XOVC25	Neoprene	45 Shore A	Vac-Lok
XOVC25T	Neoprene	45 Shore A	3/8 BSPT Pipe Thread
XOVCS25	Urethane	35 Shore A	Vac-Lok
XOVCS25T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XOVCS25P	Urethane	35 Shore A	3/8 BSPP Pipe Thread
XOVCS25PN	Urethane	35 Shore A	3/8 BSPP Pipe Thread

Oval Vacuum Cups

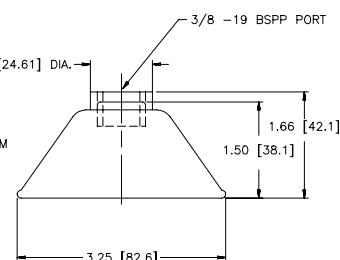
OVC36 Overall Dimensions and Ordering Information



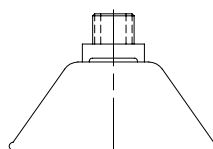
ORDERING No.
 ENGLISH METRIC
 OVC36 XOVC36
 OVCS36 XOVC36P
 WEIGHT: 8.08 oz [229.1g]



ORDERING No.
 ENGLISH METRIC
 OVC36T XOVC36T
 OVCS36T XOVC36T
 WEIGHT: 7.52 oz [213.2g]



ORDERING No.
 METRIC
 XOVC36P
 WEIGHT: 7.52 oz [213.2g]



ORDERING No.
 METRIC
 XOVC36PN
 WEIGHT: 7.84 oz [222.3g]

X OVC36 - T

Omit This Designator to Order Cup with Vac-Lok Mount
 T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC)
 P = Pipe Mount (3/8 BSPP Port METRIC Only)
 PN = Threaded Stud (3/8 BSPP METRIC Only)

Vacuum Cup Model
 OVC36 = Neoprene
 OVCS36 = Urethane

Metric Designation

Insert Material: Brass/Aluminum

Vac-Lok Material: Aluminum

Threaded Stud: Steel

Oval Vacuum Cups

Ordering No. Material Durometer Mount Style

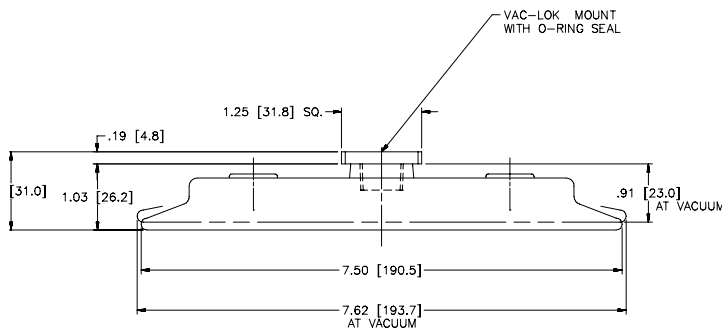
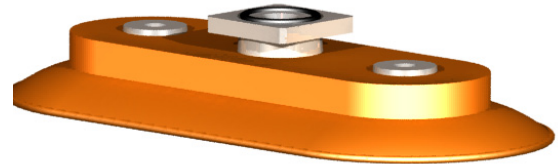
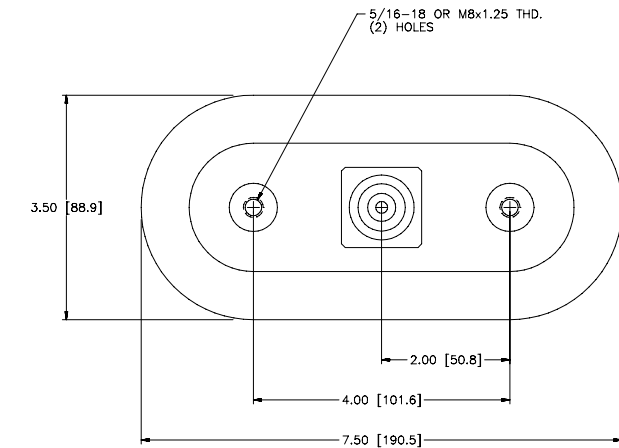
OVC36	Neoprene	45 Shore A	Vac-Lok
OVC365T	Neoprene	45 Shore A	3/8 NPT Pipe Thread
OVCS36	Urethane	35 Shore A	Vac-Lok
OVCS36T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XOVC36	Neoprene	45 Shore A	Vac-Lok
XOVC36T	Neoprene	45 Shore A	3/8 BSPT Pipe Thread
XOVCS36	Urethane	35 Shore A	Vac-Lok
XOVCS36T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XOVCS365P	Urethane	35 Shore A	3/8 BSPP Pipe Thread
XOVCS36PN	Urethane	35 Shore A	3/8 BSPP Pipe Threaded



NORGREN
 Click logo to return home

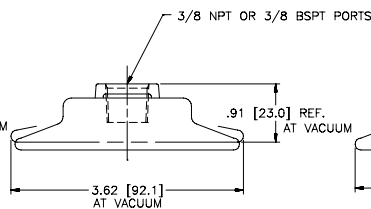
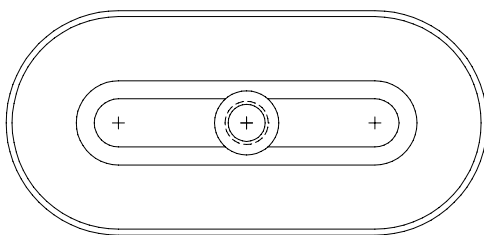
Oval Vacuum Cups

OVCS37 Overall Dimensions and Ordering Information



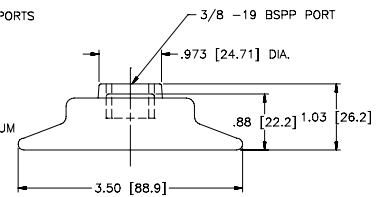
ORDERING No.
ENGLISH OVCS37
METRIC XOVC37

WEIGHT: 12.32 oz [349.3g]



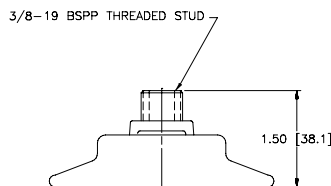
ORDERING No.
ENGLISH OVCS37T
METRIC XOVC37T

WEIGHT: 11.76 oz [333.4g]



ORDERING No.
METRIC XOVC37P

WEIGHT: 11.76 oz [333.4g]



ORDERING No.
METRIC XOVC37PN

WEIGHT: 12.08 oz [342.5g]

X OVCS37 - T

Omit This Designator to Order Cup with Vac-Lok Mount
 T = Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC)
 P = Pipe Mount (3/8 BSPP Port METRIC Only)
 PN = Threaded Stud (3/8 BSPP METRIC Only)

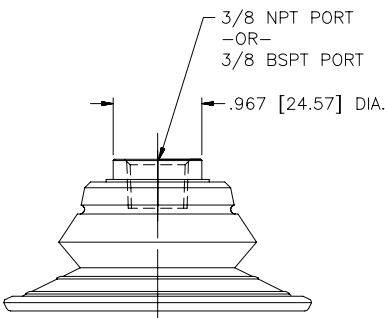
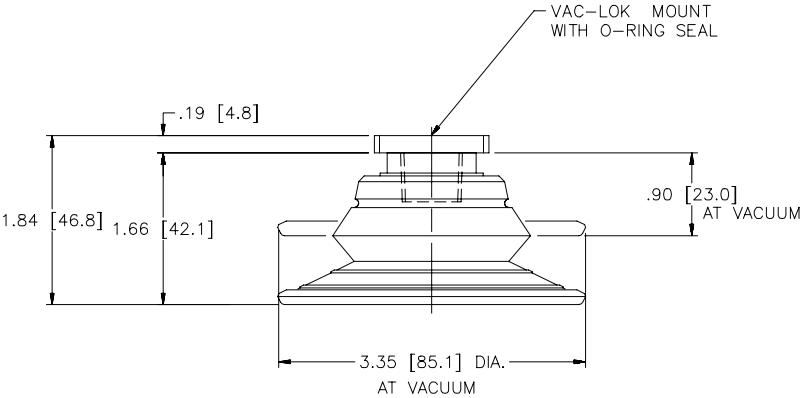
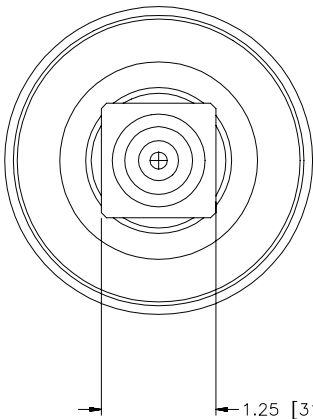
Vacuum Cup Model
 OVCS37 = Urethane

Metric Designation
 Insert Material: Brass/Aluminum
 Vac-Lok Material: Aluminum
 Threaded Stud: Steel

Ordering No.	Material	Durometer	Mount Style
OVCS37	Urethane	35 Shore A	Vac-Lok
OVCS37T	Urethane	35 Shore A	3/8 NPT Pipe Thread
XOVC37	Urethane	35 Shore A	Vac-Lok
XOVC37T	Urethane	35 Shore A	3/8 BSPT Pipe Thread
XOVC37P	Urethane	35 Shore A	3/8 BSPP Pipe Thread
XOVC37PN	Urethane	35 Shore A	3/8 BSPP Pipe Thread Stud

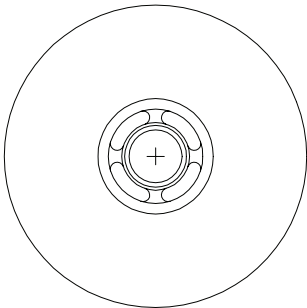
Destacker Vacuum Cups

XCVCS3 Overall Dimensions and Ordering Information



ORDERING No.
ENGLISH
CVCS-3-DS-D
WEIGHT: 3.54 oz. [100.3g]

ORDERING No.
ENGLISH METRIC
CVCS-3-DS XCVCS3-DS
WEIGHT: 3.22 oz. [91.3g]

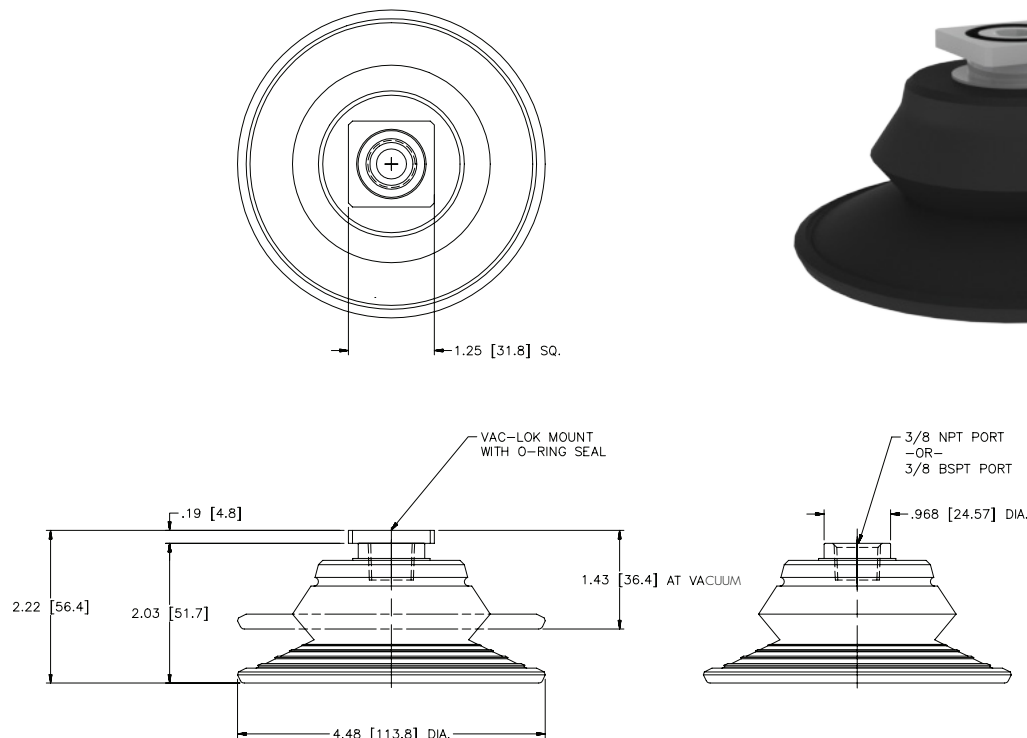


X CVCS-3 - DS - D
D = Vac-Lok
DS = Destacker Cup Designator
Model Number
Metric (Only 3/8 BSPT Port)
Insert Material: Brass/Aluminum
Vac-Lok Material: Aluminum

Ordering No.	Material	Durometer	Mount Style
CVCS-3-35-DS-D	Urethane	45 Shore A	Vac-Lok
CVCS-3-35-DS	Urethane	45 Shore A	3/8 NPT Pipe Thread
XCVCS-3-35-DS	Urethane	45 Shore A	3/8 BSPT Pipe Thread

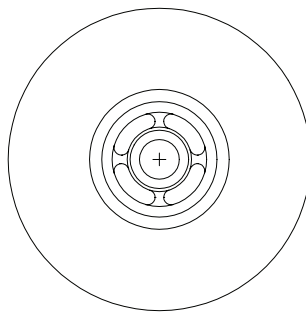
Destacker Vacuum Cups

XCVCS4 Overall Dimensions and Ordering Information



ORDERING No.
ENGLISH
 CVCS-4-DS-D
 WEIGHT: 6.40 oz. [181.4g]

ORDERING No.
ENGLISH
 CVCS-4-DS
METRIC
 XCVCS-4-DS
 WEIGHT: 5.84 oz. [165.6g]

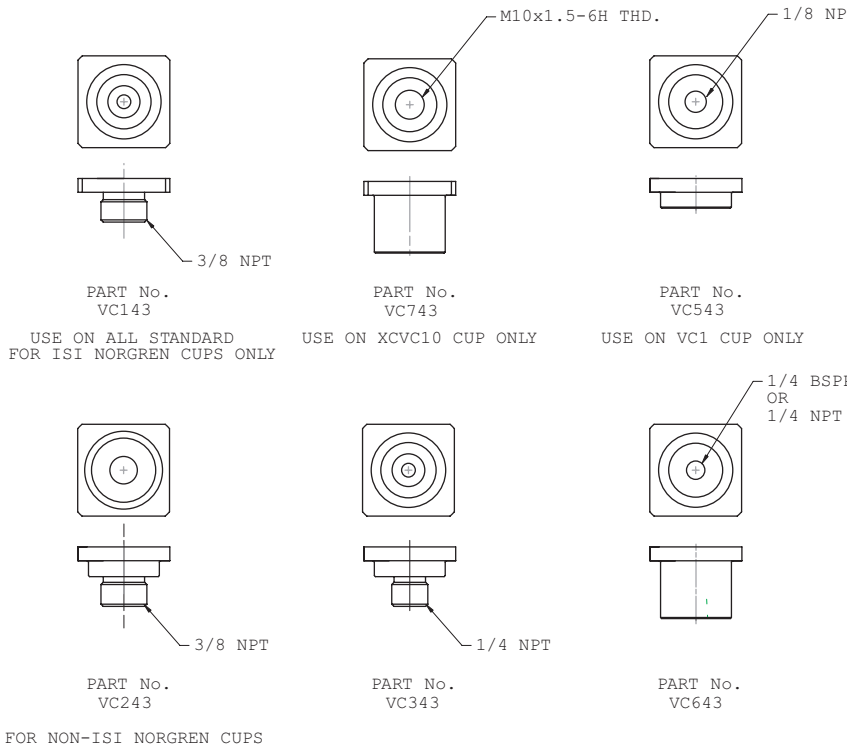


X CVCS-4 - DS - D
 D = Vac-Lok
 DS = Destacker Cup Designator
 Model Number
 Metric (Only 3/8 BSPT Port)
 Insert Material: Brass/Aluminum
 Vac-Lok Material: Aluminum

Ordering No.	Material	Durometer	Mount Style
CVCS-4-DS-D	Urethane	45 Shore A	Vac-Lok
CVCS-4-DS	Urethane	45 Shore A	3/8 NPT Pipe Thread
XCVCS-4-DS	Urethane	45 Shore A	3/8 BSPT Pipe Thread

Vacuum Cup Adapters

Ordering Information



***NOTE:**
ALL ADAPTERS COME WITH O-RING
THIS PRODUCT CONNECTS WITH VACUUM CUPS
WITHOUT VAC-LOK ADAPTER.

VMS Series Smart Pump - Vacuum Management System

Dual Channel Vacuum Generator
VMS2110 & VMS2310 w/DeviceNet
Features and Technical Data

FEATURES

- ▶ Electro-pneumatic vacuum management system with everything to develop and control vacuum in one product.
- ▶ Dual channel vacuum control.
- ▶ Twin multi-stage vacuum generators.
- ▶ Selectable vacuum level.
- ▶ Automatic vacuum level monitoring.
- ▶ Part present level selection and output signals.
- ▶ Direct connection to PLC.
- ▶ Forced blow-off assures part separation
- ▶ Quick change filter and silencer.
- ▶ Solenoid manual overrides.

MODELS AVAILABLE

- ▶ **VMS 2110** Vacuum level settings and part present switchpoints are independently adjustable. Both functions are controlled by two five-position switches on the control module. One switch controls the vacuum levels for both channels, the other controls the part present switchpoints for both channels.
- ▶ **VMS 2310** Norgren Automotive also offers a DeviceNet compatible Smart Pump. Please Contact your Norgren Automotive sales representative for more information.

MATERIALS AND WEIGHT

Body: Aluminum
Seals: Viton®, polyurethane, Buna-N
Weight: 10 lbs [4.5 kg]



TECHNICAL DATA

Vacuum Level Range:

12.0 – 20.0" Hg [40.6 – 67.7 -kPa]

Vacuum Flow:

16 SCFM @ 62 psig [453 l/min @ 4.3 bar]

Evacuation Response Time:

1 ft³ to 20" Hg in less than 20 seconds
[28 liters to 51 -kPa in less than 20 seconds]

Vacuum Hysteresis Range:

0.5 – 2.0" Hg [1.7 – 6.8 -kPa]

Vacuum Status Indicators:

One LED per solenoid to indicate active valve
One LED per channel to indicate part present

Air Consumption:

20 SCFM @ 50 psig [566 l/min @ 3.4 bar] (both channels operating)

Supply Pressure Range:

45 – 100 psig [3.1 – 6.9 bar]

Fluid (Air Preparation):

Lubricated or Non-Lubricated, Air filtered to 40 micron

Operating Temperature:

32 – 122° F [0 – 50° C] (Air supply must be dry enough to avoid ice formation at temperatures below 35° F [2° C].)

Port Specifications:

Supply Pressure Ports: 2 Places – 1/4" NPT/BSPT
Vacuum Ports Channel 1 & 2: 1 Place – 1/4" NPT/BSPT
2 Places – 3/8" NPT/BSPT

Note: See order information to specify NPT or BSPT porting.

Power Required:

	120 VAC Models	24 VDC Models
Supply Voltage	120 VAC 50/60 Hz	24 VDC
Supply Power	12 Watts	12 Watts

Control Inputs – 1 control and 1 forced blow-off per channel (sourced):

Optical Isolation	1500 V	1500 V
Min. Turn On Voltage	80 VAC	17 VDC
Max. Turn Off Voltage	35 VAC	9 VDC
Input Impedance	34 K Ohms	6.5 K Ohms

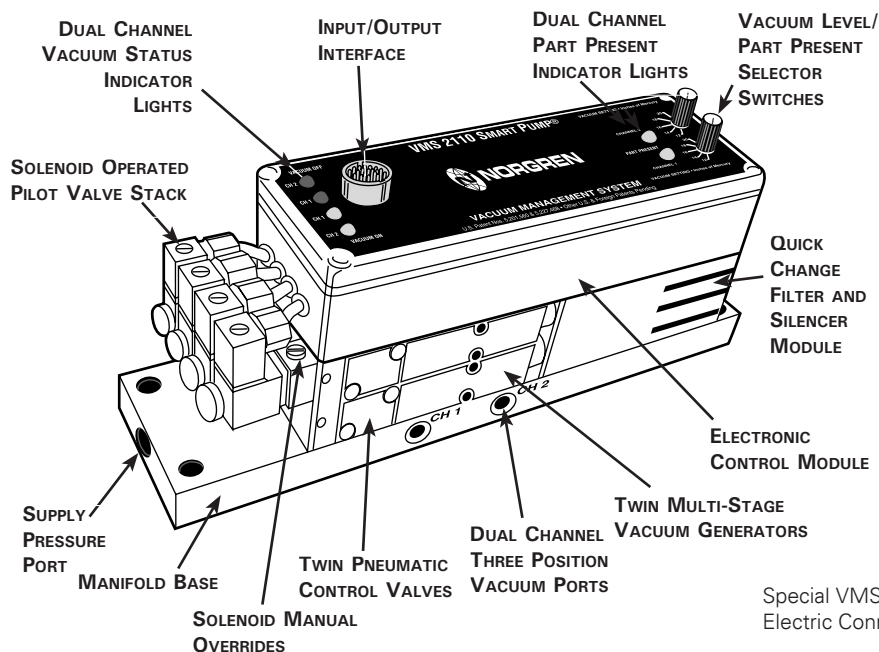
VMS Series Smart Pump - Vacuum Management System

Dual Channel Vacuum Generator

VMS2110 & VMS2310 w/DeviceNet

Features and Overall Dimensions

NORGREN VACUUM

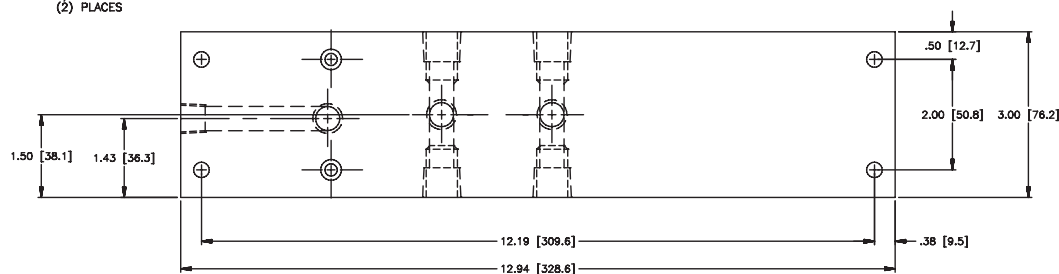
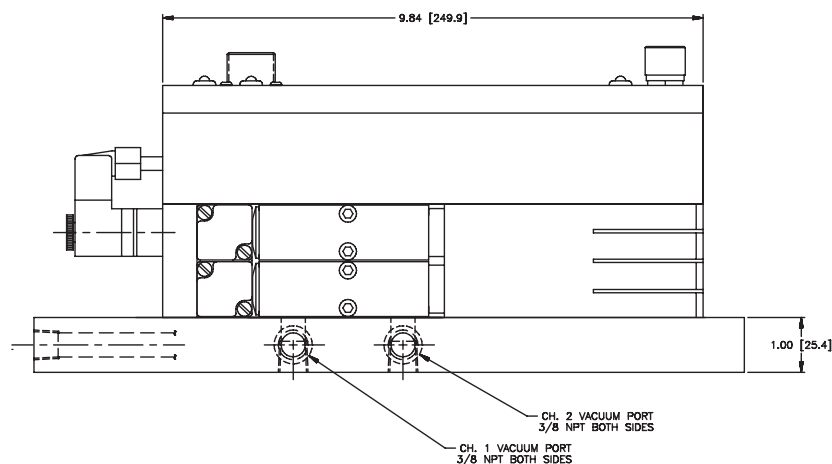
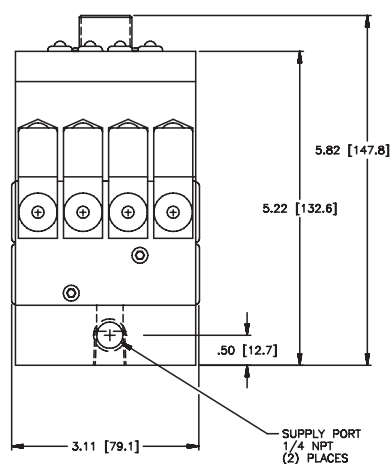
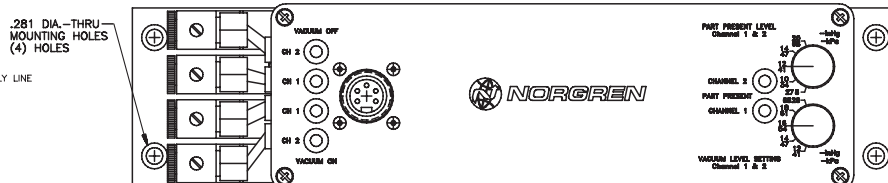
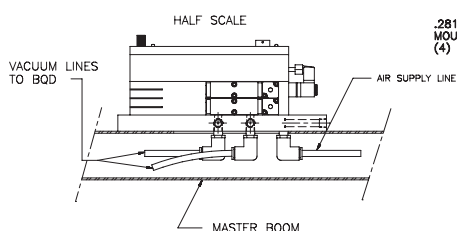


ADDITIONAL INFORMATION

A WORD ABOUT VACUUM EFFICIENCY...

Determining required vacuum level, response time and line pressure is necessary to size an efficient vacuum system. Line pressure is directly related to air consumption (flow), and in many cases, vacuum level. Response time is affected by vacuum level, volume and vacuum flow rate. Maximum efficiency will be achieved when vacuum level, response time, line pressure and air consumption are at a minimum to complete a task.

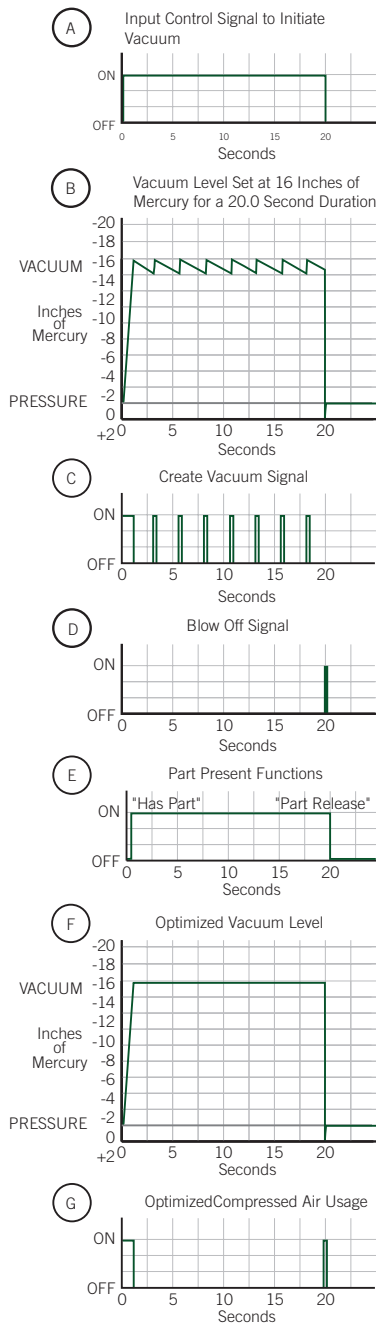
Special VMS Smart Pump Cable Required for VMS2110.
Electric Connection (see pg.27 for ordering info)



VMS Smart Pump Vacuum Management

VMS Series Smart Pump - Vacuum Management System

Dual Channel Vacuum Generator
VMS2110 & VMS2310 w/DeviceNet
Function Outline



SMART PUMP FUNCTION OUTLINE

The illustrations on the left are a graphic representation of the function of a Smart Pump. For this example we have selected a vacuum level of 16 inches of mercury for a 20 second duration.

Illustration "A" shows the "Vacuum On" signal switching on at 0 seconds, and remaining on for 20 seconds.

Illustration "B" shows the vacuum created by the Smart Pump. At 0 seconds the system is given the vacuum on signal and develops 16 inches of mercury. After the desired amount of vacuum has been reached, the Smart Pump switches off the vacuum generators and monitors the vacuum levels. Depending on how well the system is sealed, some vacuum leakage may occur. This graph shows a system that loses 2 inches of vacuum every 2.5 seconds. When the vacuum level drops 2 inches below the preset amount, the vacuum generators are switched on again until the preset amount of vacuum has been reached. The Smart Pump will continue this function until the time limit for the "Vacuum On" cycle has been reached.

Illustration "C" shows the "Vacuum On" function. The vacuum generators are switched on until the preset vacuum level is reached. The vacuum generators are then cycled on and off to compensate for any loss until the "Vacuum On" signal is turned off. This represents the amount of compressed air that Smart Pump would use in this example.

Illustration "D" shows the automatic vacuum blow off function. Compressed air is channeled into the vacuum system to ensure vacuum blow off and part release. This is initiated by dropping the "Vacuum On" signal and toggling the blow off signal on/off.

Illustration "E" shows the part present output signals. As the vacuum is cycled on, the indicator turns on when the part present signal switch point is reached. The indicator remains on until the part present signal switch point indicates the part has been released.

Illustration "F" shows a well sealed system maintaining the preset amount of vacuum for 20 seconds.

Illustration "G" shows the corresponding compressed air consumption for vacuum formation and automatic blow off on a well sealed system using Smart Pump.

Please note: Vacuum development time and ability to hold vacuum are completely dependent on the volume of the system (vessel) to be evacuated, the line pressure and system integrity.

EVACUATION PERFORMANCE

With both channels coupled, the VMS2110 will evacuate the 1 ft³ at sea level to 20 "Hg in 10 seconds @ 60 psi inlet pressure. A single channel will evacuate 1 ft³ at sea level to 20 inches of mercury in 20 seconds @ 60 psi inlet pressure.

BLOW-OFF PERFORMANCE

The VMS2110 will blow-off 1 ft³ from 20 "Hg to atmosphere in 3 seconds. Maximum blow-off pressure is 10 to 20 psi with ports blocked. Maximum blow-off flow is 9.5 SCFM @ 1 psi. Blow-off pressure is not recommended when operating any other types of pneumatic devices. Always reference the user's manual first.

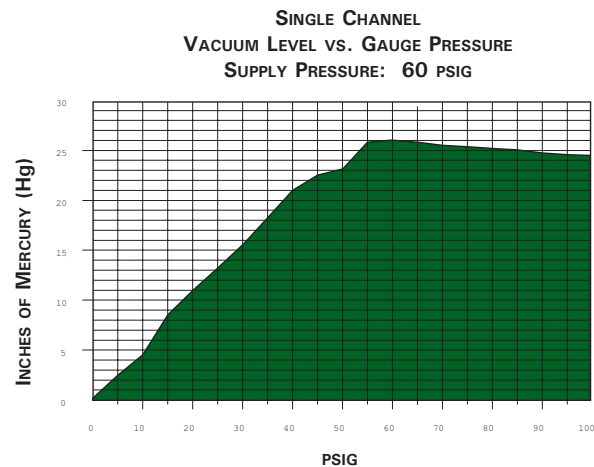
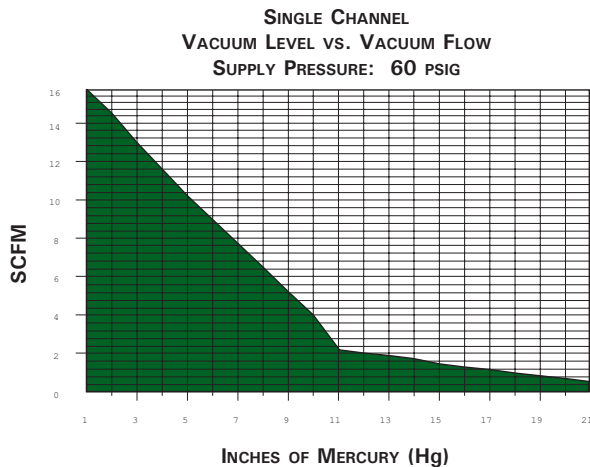
VMS Series Smart Pump - Vacuum Management System

Dual Channel Vacuum Generator

VMS2110 & VMS2310 w/DeviceNet

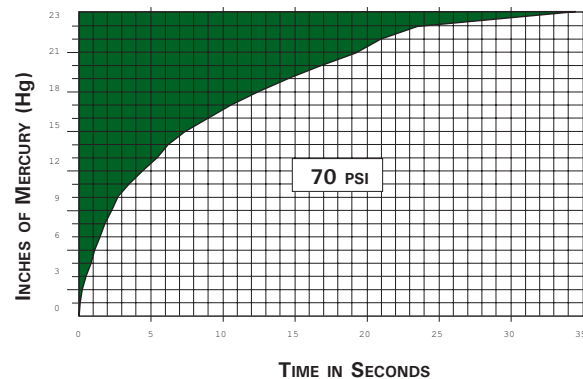
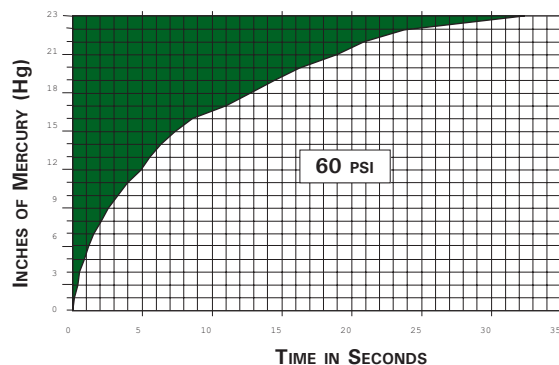
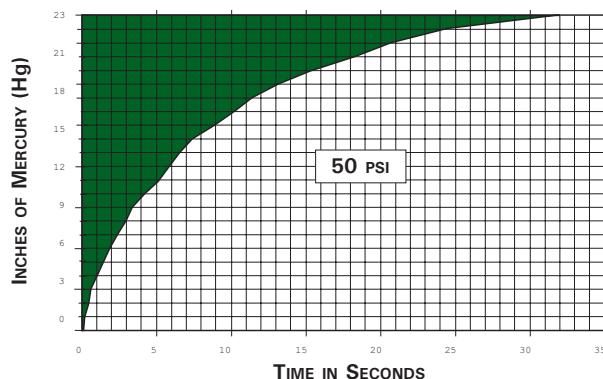
Vacuum Level Comparison and Response Time

SINGLE CHANNEL VACUUM LEVEL COMPARISON



All figures corrected to 29.92" Hg @ sea level.

SINGLE CHANNEL VACUUM LEVEL RESPONSE TIME VOLUME: ONE CUBIC FOOT



Part-Present Signal Switch Points

VACUUM LEVEL SETTING

12.0" Hg
14.0" Hg
16.0" Hg
18.0" Hg
20.0" Hg

SELECTABLE PART-PRESENT SWITCH POINTS

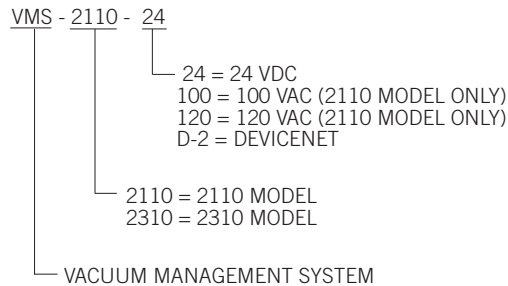
8.0" Hg
10.0" Hg
12.0" Hg
14.0" Hg
18.0" Hg



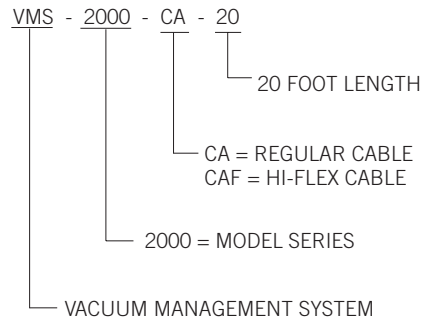
VMS Series Smart Pump - Vacuum Management System

Dual Channel Vacuum Generator
VMS2110 & VMS2310 w/DeviceNet
Ordering Information

VMS Smart Pump ORDERING INFORMATION



VMS Smart Pump Cable ORDERING INFORMATION



VMAA Modular Smart Pump

Single Channel Vacuum Generator
Features and Technical Data

FEATURES

- ▶ High vacuum flow
- ▶ Low air consumption
- ▶ Wide-operating pressure range
- ▶ Modular construction provides application flexibility:
 - High performance jet modules
 - Vacuum and blow-off valves
 - Internal silencer
 - Integrated vacuum sensor
 - Selection of electronic controls
- ▶ Reduced installation cost:
 - No need for air regulator
 - Only one air connection, one vacuum connection, and one electrical connection.
 - Integrated feedback eliminates the need for proximity switch.
- ▶ Industry standard electrical cable:
 - Reduced maintenance cost
 - External vacuum filter
 - Reliable check valve design
 - Captive hardware
 - Easy jet removal for cleaning
- ▶ Reduced operating cost:
 - Patented internal technology
 - Fast vacuum response
 - Automatic air saving in vacuum mode.
 - Automatic air saving in blow-off mode.
- ▶ Intuitive programming interface:
 - Digital display
 - Programmable vacuum, feedback and blow-off delay.
 - Selectable display units (kPa or Hg)
 - Automatic Calibration
 - Error indicators
- ▶ Automatic blow-off function:
 - Eliminates the worry of sticking vacuum cups.
 - Conserves air automatically
 - No PLC timing to worry about



TECHNICAL DATA

- ▶ Vacuum Level Range:
 - 0 - 86 kPa (0 - 25.5" Hg)
 - Maximum vacuum level attained at: 5 bar (72.5 psig)
- ▶ Vacuum Flow:
 - 565 l/m @ 5 bar
 - (20 scfm @ 72.5 psig)
- ▶ Response Time (at sea level):
 - Evacuates 28 liters to 50.8 -kPa (1 cu.ft. to 15" Hg) in: 5.8 seconds (single jet module) at 6 bar (87 psig); 3.3 seconds (dual jet module) at 6 bar (87 psig).
- ▶ Supply Pressure:
 - Minimum 2.4 bar (35 psig)
 - Maximum 6.9 bar (100 psig)
- ▶ Supply Requirements:
 - (per jet module): 280 l/m @ 5 bar (9.1 scfm at 72.5 psi)
- ▶ Fluid: Lubricated or non-lubricated air filtered to 40 micron
- ▶ Vacuum filter: 180 micron
- ▶ Operating Temperature:
 - 0 - 50° C (32-120° F)
 - *Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35° F).

TECHNICAL DATA

- ▶ Noise Level:
 - 78 dBa (single channel)
 - 82 dBa (Dual Jet Module)
- ▶ Mounting:
 - Integral bracket provided for preferred vertical mounting
- ▶ Electrical Connections:
 - 5 Pin M12, Male, Single key micro connector
- ▶ Pneumatic Connections:
 - Vacuum Port: 3/4 ISO 'G' (BSPP)
 - Pressure Inlet: 3/8 ISO 'G'
 - Gauge Port: 1/8 NPT
 - *The unit will operate in any orientation, but must be mounted upright to achieve these environmental ratings.

MATERIALS

- ▶ Body:
 - Aluminum and zinc die-castings
- ▶ Jet housings:
 - Polycarbonate
- ▶ Seals:
 - Viton®, Polyurethane, Buna-N
- ▶ Weatherproofing:
 - NEMA 4X, IP66.



VMAA Modular Smart Pump

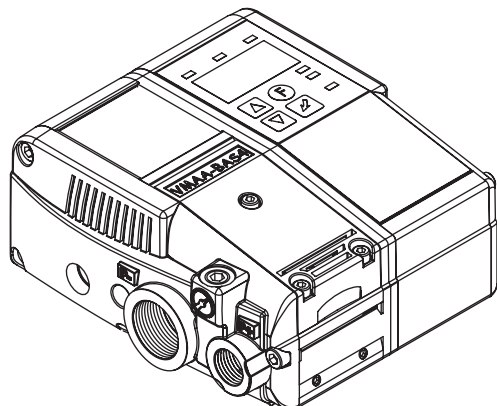
Single Channel Vacuum Generator

Model Comparison Chart

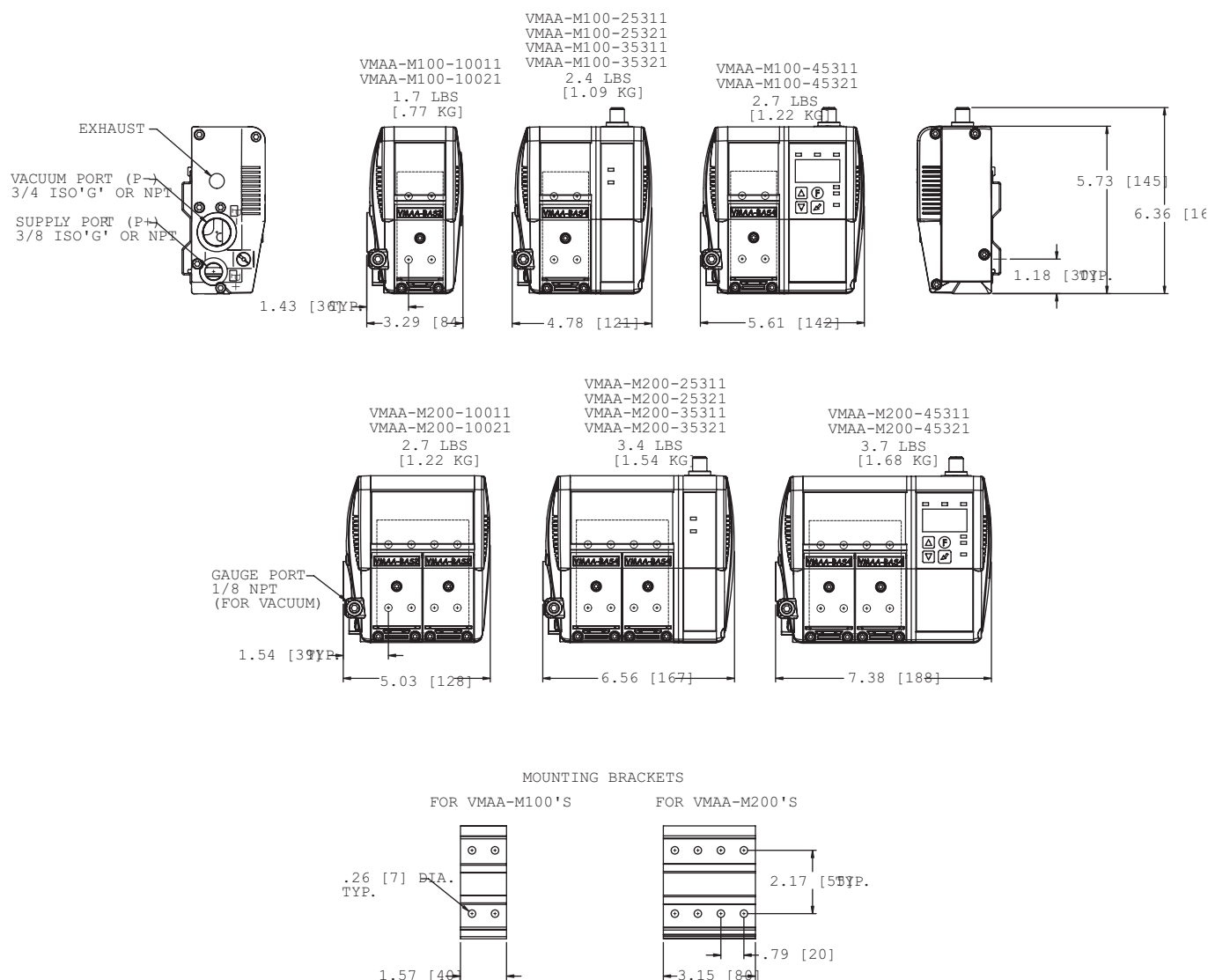
	Model #	# of Jet modules	Function	Electrical Control	Connector	Sound Level	Weight
	VMAA-M100-10011 (ISO-G Porting) VMAA-M100-10021 (NPT Porting)	1	Primary vacuum generator No check valve or blow-off function	None	None	78 dBa	1.7 lbs [.77 kg]
	Model #	# of Jet modules	Function	Electrical Control	Connector	Sound Level	Weight
	VMAA-M200-10011 (ISO-G Porting) VMAA-M200-10021 (NPT Porting)	2	Primary vacuum generator No check valve or blow-off function	None	None	82 dBa	2.7 lbs [1.22 kg]
	Model #	# of Jet modules	Function	Electrical Control	Connector	Sound Level	Weight
	VMAA-M100-25311 (ISO-G Porting) VMAA-M100-25321 (NPT Porting)	1	Solenoid controlled vacuum and blow-off	24 VDC	5-Pin Single-Key M12 Connector	78 dBa	2.4 lbs [1.09 kg]
	Model #	# of Jet modules	Function	Electrical Control	Connector	Sound Level	Weight
	VMAA-M200-25311 (ISO-G Porting) VMAA-M200-25321 (NPT Porting)	2	Solenoid controlled vacuum and blow-off	24 VDC	5-Pin Single-Key M12 Connector	82 dBa	3.4 lbs [1.54 kg]
	Model #	# of Jet modules	Function	Electrical Control	Connector	Sound Level	Weight
	VMAA-M100-35311 (ISO-G Porting) VMAA-M100-35321 (NPT Porting)	1	Solenoid controlled vacuum and blow-off 4-20 mA sensor feedback output	24 VDC	5-Pin Single-Key M12 Connector	78 dBa	2.4 lbs [1.09 kg]
	Model #	# of Jet modules	Function	Electrical Control	Connector	Sound Level	Weight
	VMAA-M200-35311 (ISO-G Porting) VMAA-M200-35321 (NPT Porting)	2	Solenoid controlled vacuum and blow-off 4-20 mA sensor feedback output	24 VDC	5-Pin Single-Key M12 Connector	82 dBa	3.4 lbs [1.54 kg]
	Model #	# of Jet modules	Function	Electrical Control	Connector	Sound Level	Weight
	VMAA-M100-45311 (ISO-G Porting) VMAA-M100-45321 (NPT Porting)	1	Fully programmable digital unit	24 VDC	5-Pin Single-Key M12 Connector	78 dBa	2.7 lbs [1.22 kg]
	Model #	# of Jet modules	Function	Electrical Control	Connector	Sound Level	Weight
	VMAA-M200-45311 (ISO-G Porting) VMAA-M200-45321 (NPT Porting)	2	Fully programmable digital unit	24 VDC	5-Pin Single-Key M12 Connector	82 dBa	3.7 lbs [1.68 kg]

VMAA Modular Smart Pump

Single Channel Vacuum Generator
Overall Dimensions



NORGREN VACUUM



VMAA Modular Smart Pump

Single Channel Vacuum Generator

Electrical Specifications



Vacuum Controller options	VMAA-25311/21 Solenoid Only	VMAA-35311/21 Solenoid w/4-20 mA Output	VMAA-45311/21 Smart Pump	Notes
General:				
Supply Voltage	24V $\pm$ 10%	24V $\pm$ 10%	24V $\pm$ 10%	
Supply Current (Max.)	50 mA	70 mA	110 mA	
Supply Power	1.2 W	1.7 W	2.6 W	
Reverse Voltage Protection	Yes	Yes	Yes	
Delay on Power-Up (Max.)			3 seconds	
Control Inputs:				
Input Type (Sink/Source)	Sink (NPN)	Source (PNP)	Configurable	
Turn-On	11.2 V	11.2 V	17 Vdc Min	
Turn-Off	2.2 V	2.2 V	9 Vdc Max	
Impedance			3800 Ohms	
Output Signal:				
Output Type		Current Loop	S.S. Relay	
Output Current		4-20 mA	100 mA Max	
Leakage Current			5 mA Max.	
Short Circuit Protected			Yes	
Load Resistance		150-600Ω		
Operator Interface:				
Display Type	2 LEDs P+ = Red P- = Green	2 LEDs P+ = Red P- = Green	3 Digit, plus 6 Status LEDs	
Selectable Units of Measure			kPa and "Hg	
Indication Accuracy			$\pm$ 1%	
Target and Switch Point Range			0 - 99 kPa 0 - 29.9 "Hg	1 kPa Resolution .1" Hg Resolution
Blow-off Delay Range			0 - 9.99 Sec	.01 Sec. Resolution

VMAA Modular Smart Pump

Single Channel Vacuum Generator
VMAA-M100-10011/21

Performance Data

NORGREN VACUUM

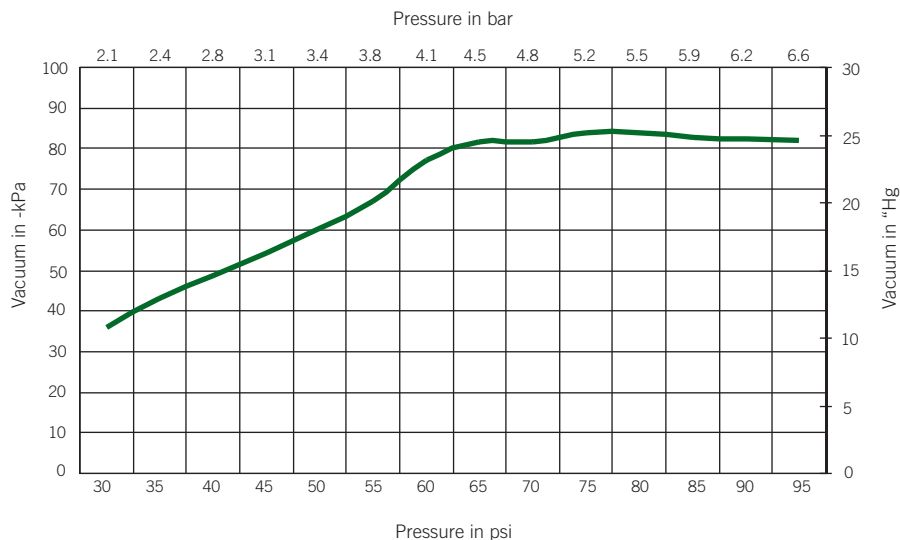


VMAA-M100-10011/21
1 Jet Module Unit
Passive Vacuum Generator
(No electrical controls)

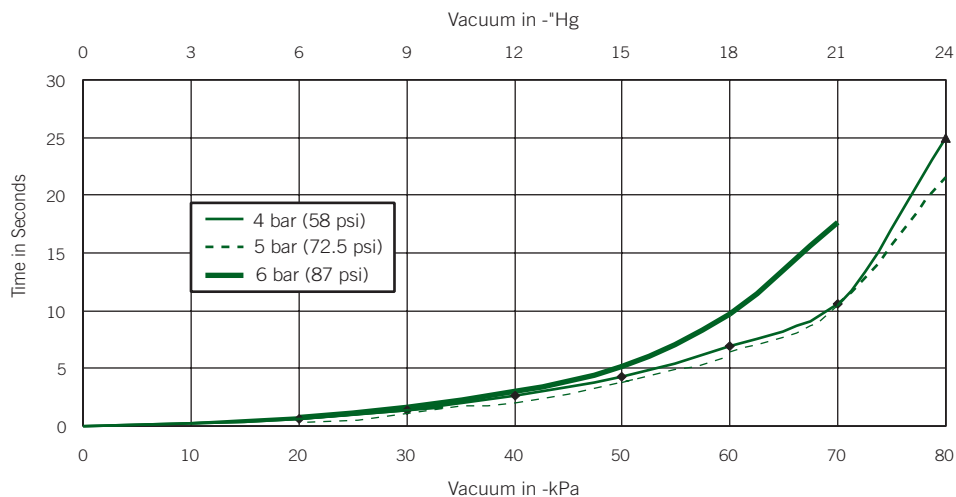
AIR CONSUMPTION

222 l/m @ 4 bar (7.9 scfm @ 58 psi)
270 l/m @ 5 bar (9.5 scfm @ 72.5 psi)
312 l/m @ 6 bar (11.1 scfm @ 87 psi)

VMAA-M100-10011/21
Operating Pressure vs. Vacuum Level



VMAA-M100-10011/21
Time to Evacuate 28.3 litres (1 ft³)



VMAA Modular Smart Pump

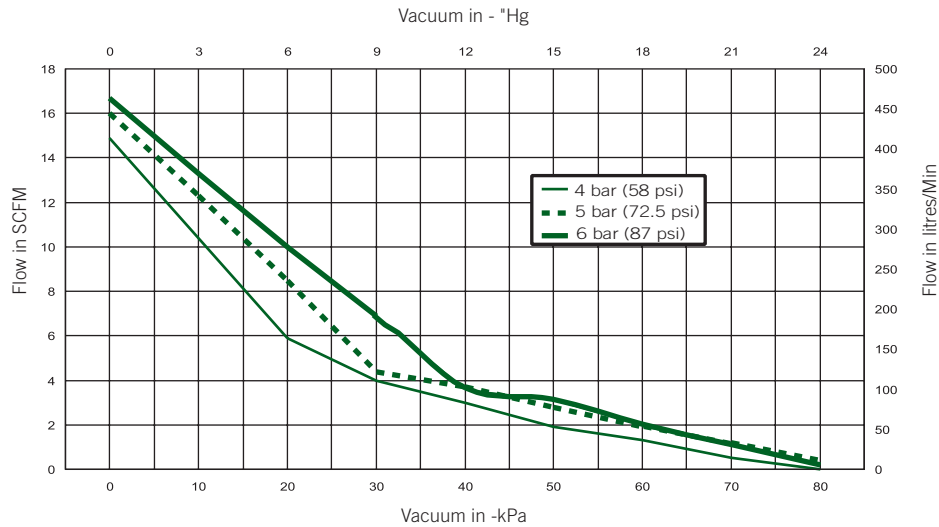
Single Channel Vacuum Generator

VMAA-M100-1001 1/21

Performance Data

VMAA-M100-10011/21

Vacuum Flow



VMAA-M100-10011/21
1 Jet Module Unit
Passive Vacuum Generator
(No electrical controls)

AIR CONSUMPTION

222 l/m @ 4 bar (7.9 scfm @ 58 psi)
270 l/m @ 5 bar (9.5 scfm @ 72.5 psi)
312 l/m @ 6 bar (11.1 scfm @ 87 psi)

NORGREN VACUUM

VMAA Modular Smart Pump

Single Channel Vacuum Generator

VMAA-M100-25311/21, 35311/21, 45311/21

Performance Data

NORGREN VACUUM



VMAA-M100-25311/21

35311/21

45311/21

1 Jet Module Unit
including various
electrical controls

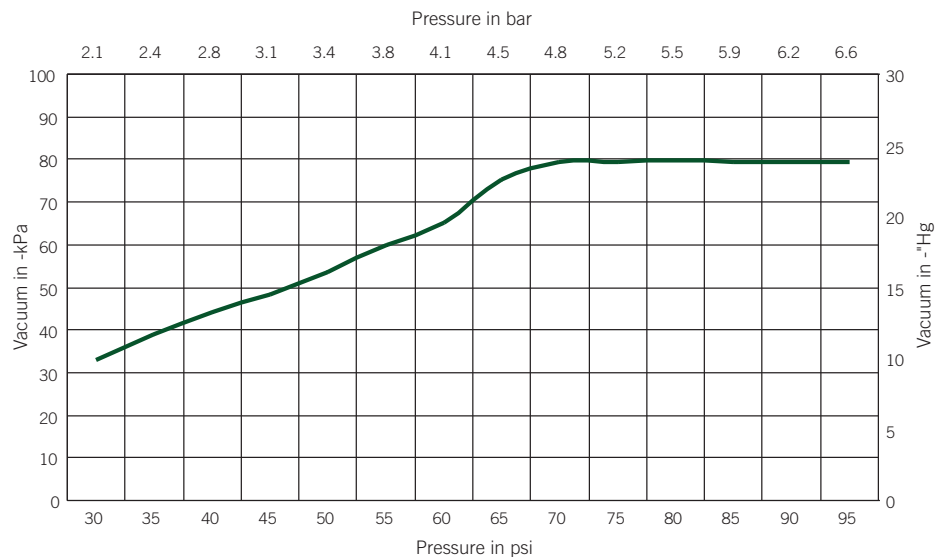
AIR CONSUMPTION

216 l/m @ 4 bar (7.6 scfm @ 58 psi)

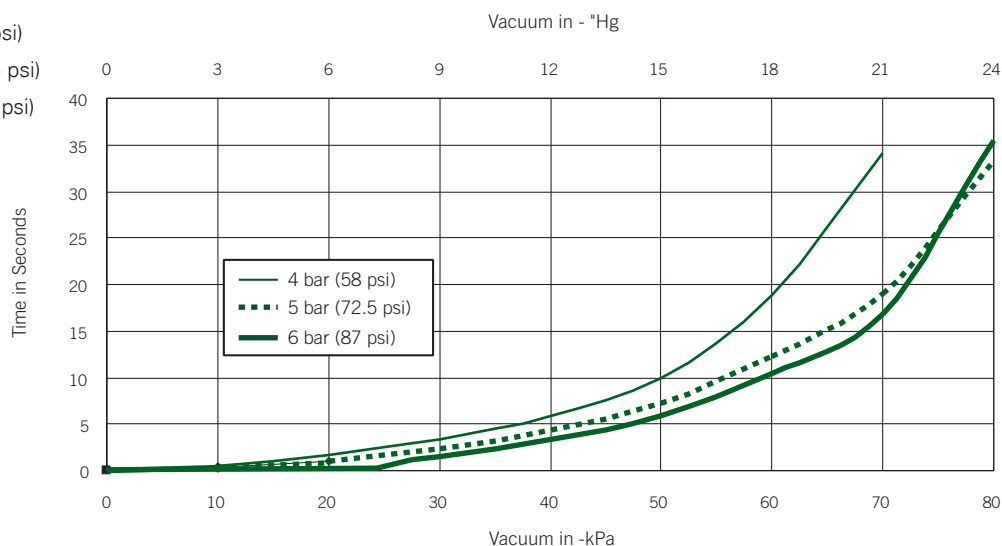
258 l/m @ 5 bar (9.1 scfm @ 72.5 psi)

300 l/m @ 6 bar (10.6 scfm @ 87 psi)

VMAA-M100-35311/21
Operating Pressure vs. Vacuum Level



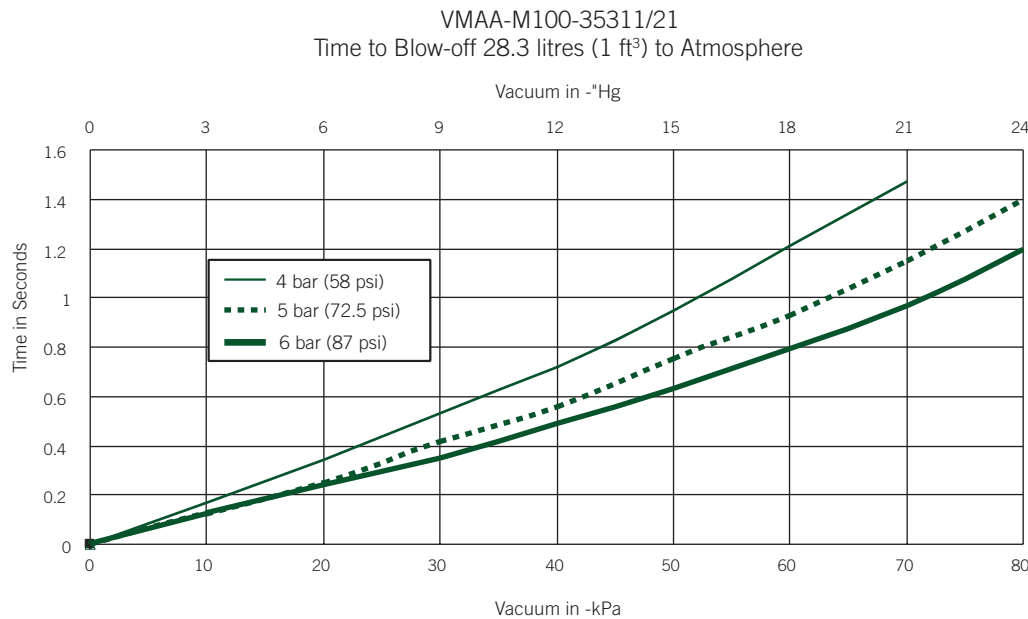
VMAA-M100-35311
Time to Evacuate 28.3 litres (1 ft³)



VMAA Modular Smart Pump

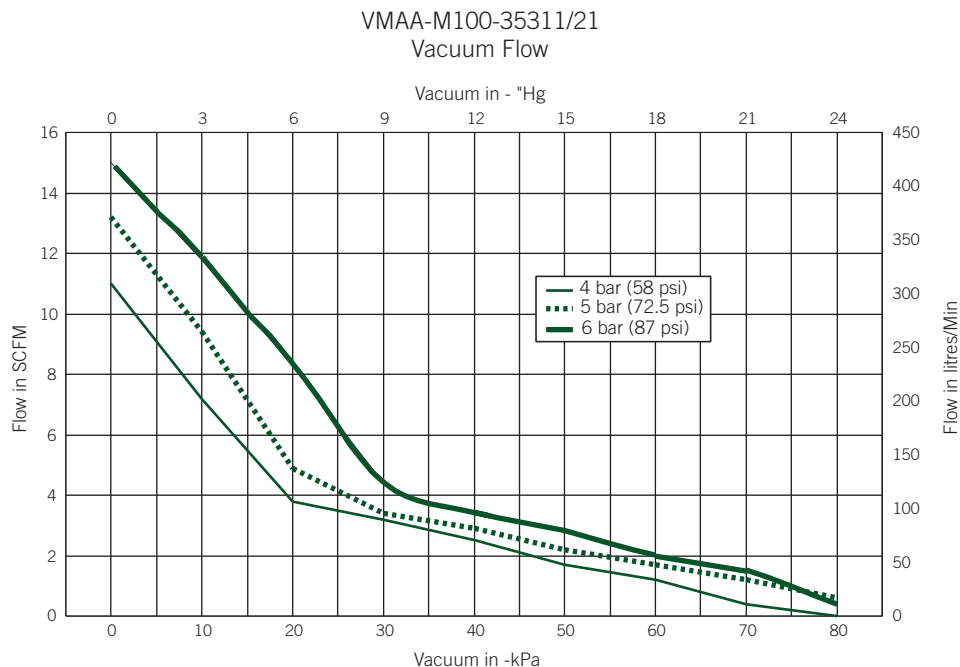
Single Channel Vacuum Generator

VMAA-M100-25311/21, 35311/21,
45311/21 Performance Data



VMAA-M100-25311/21
35311/21
45311/21

1 Jet Module Unit
including various
electrical controls



AIR CONSUMPTION

216 l/m @ 4 bar (7.6 scfm @ 58 psi)
258 l/m @ 5 bar (9.1 scfm @ 72.5 psi)
300 l/m @ 6 bar (10.6 scfm @ 87 psi)

VMAA Modular Smart Pump

Single Channel Vacuum Generator

VMAA-M200-10011/21

Performance Data

NORGREN VACUUM



VMAA-M200-10011/21
2 Jet Module Unit
Passive vacuum generator

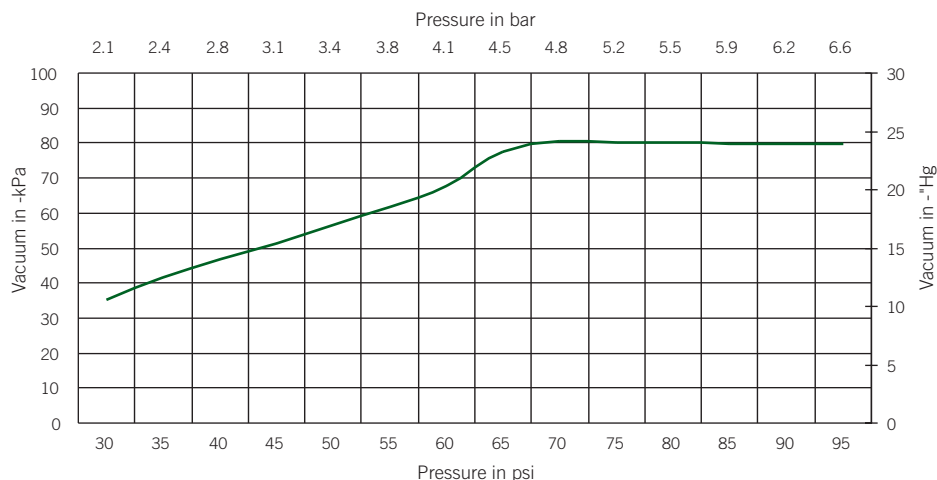
AIR CONSUMPTION

468 l/m @ 4 bar (16.5 scfm @ 58 psi)

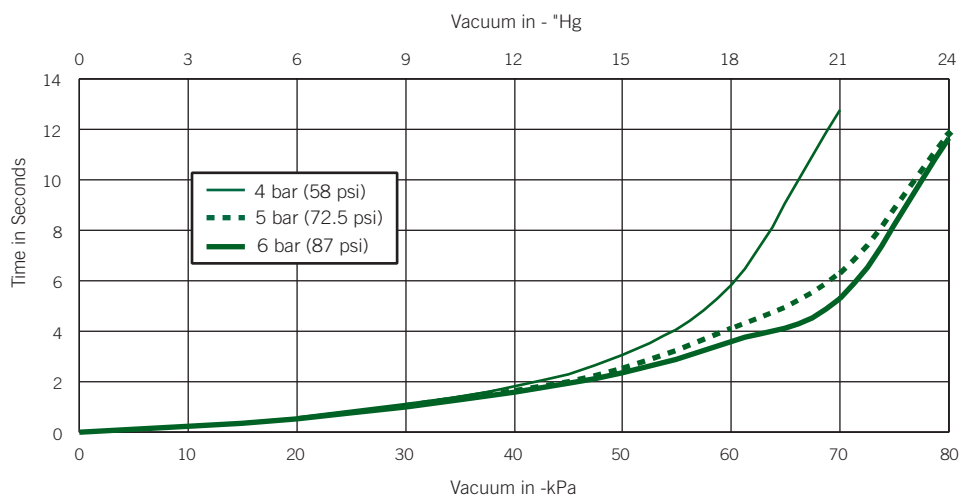
564 l/m @ 5 bar (19.9 @ 72.5 psi)

659 l/m @ 6 bar (22.2 scfm @ 87 psi)

VMAA-M200-10011/21
Operating Pressure vs. Vacuum Level



VMAA-M200-10011/21
Time to Evacuate 28.3 litres (1 ft3)

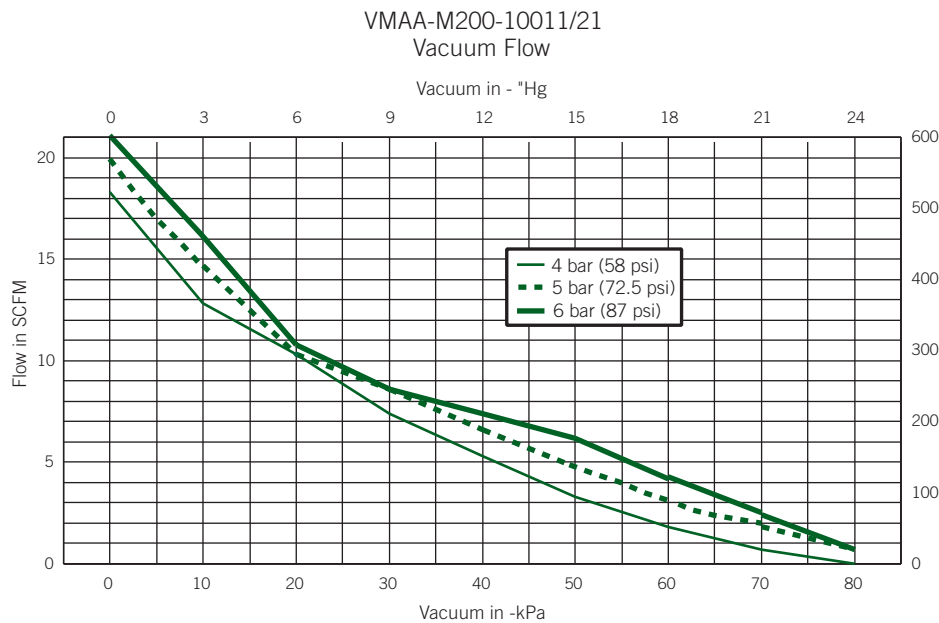


VMAA Modular Smart Pump

Single Channel Vacuum Generator

VMAA-M200-10011/21

Performance Data



VMAA-M200-10011/21
2 Jet Module Unit
Passive vacuum generator

NORGREN VACUUM

AIR CONSUMPTION

468 l/m @ 4 bar (16.5 scfm @ 58 psi)

564 l/m @ 5 bar (19.9 @ 72.5 psi)

659 l/m @ 6 bar (22.2 scfm @ 87 psi)

VMAA Modular Smart Pump

Single Channel Vacuum Generator

VMAA-M200-25311/21, 35311/21, 45311/21

Performance Data

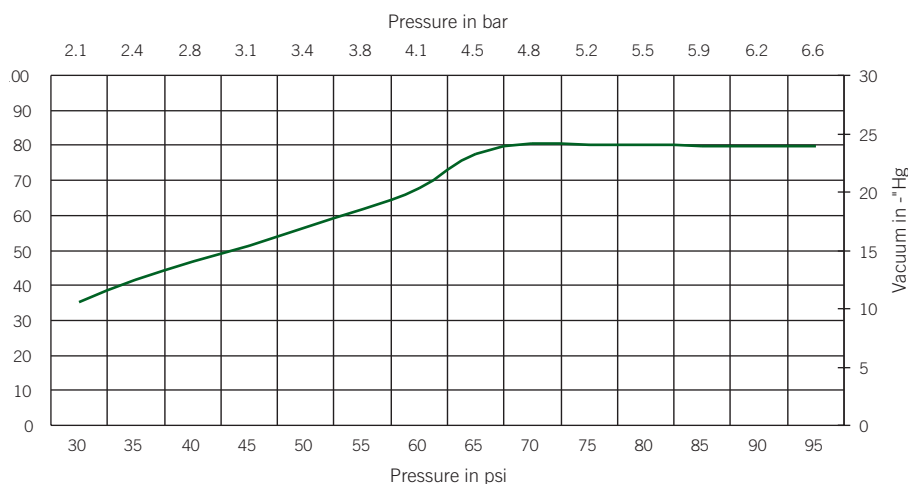
NORGREN VACUUM



VMAA-M200-25311/21
35311/21
45311/21

2 Jet Module Unit
 including various
 electrical controls

VMAA-M200-10011/21
 Operating Pressure vs. Vacuum Level



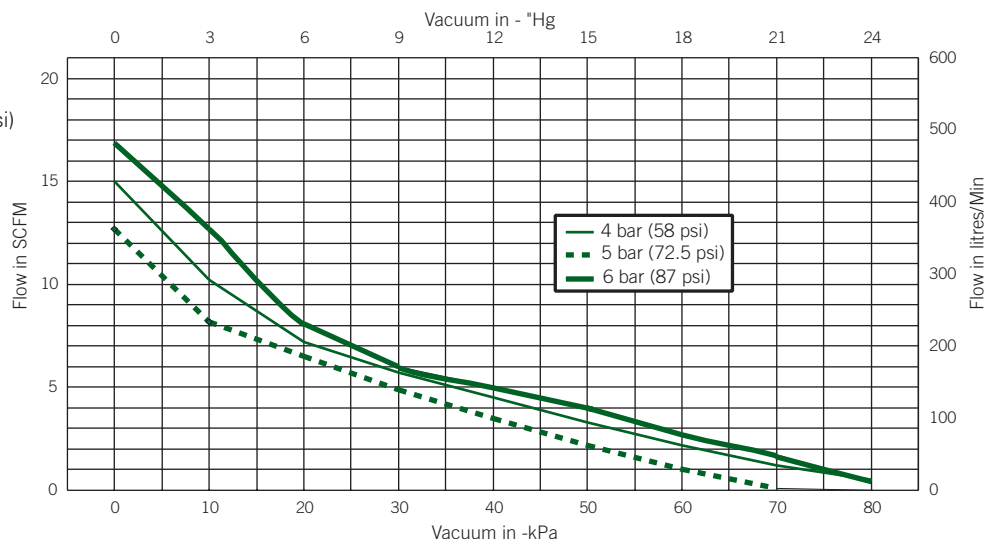
AIR CONSUMPTION

444 l/m @ 4 bar (15.8 @ 58 psi)

534 l/m @ 5 bar (19.0 @ 72.5 psi)

630 l/m @ 6 bar (22.2 scfm @ 87 psi)

VMAA-M200-35311
 Vacuum Flow

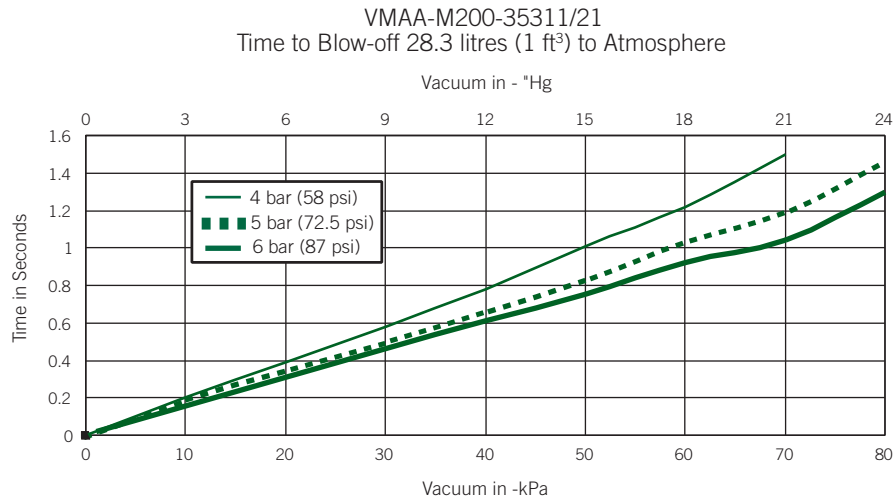


VMAA Modular Smart Pump

Single Channel Vacuum Generator

VMAA-M200-25311/21, 35311/21, 45311/21

Performance Data



**VMAA-M200-25311/21
35311/21
45311/21**

2 Jet Module Unit
including various
electrical controls

AIR CONSUMPTION

444 l/m @ 4 bar (15.8 @ 58 psi)

534 l/m @ 5 bar (19.0 @ 72.5 psi)

630 l/m @ 6 bar (22.2 scfm @ 87 psi)

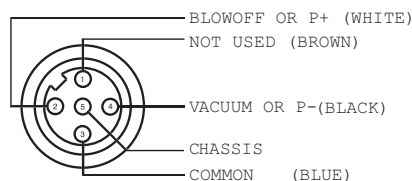
VMAA Modular Smart Pump

Single Channel Vacuum Generator
DC Wiring Pinout and Diagram

TYPICAL WIRING PINOUTS AND WIRING DIAGRAM

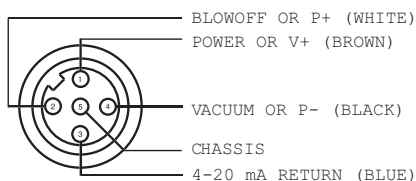
25311 1 Pumps

WIRING PINOUT
5-PIN SINGLE KEY MICRO CONNECTOR
MALE VIEW



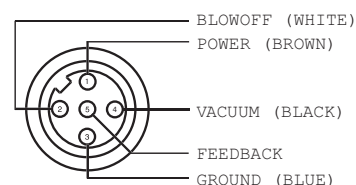
35311 1 Pumps

WIRING PINOUT
5-PIN SINGLE KEY MICRO CONNECTOR
MALE VIEW

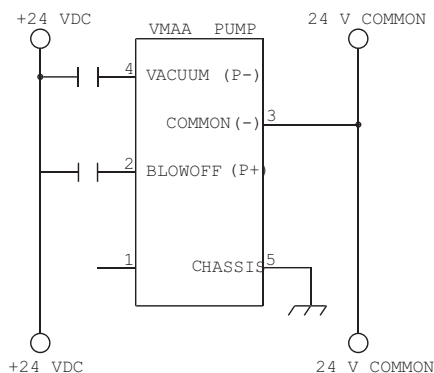


45311 1 Pumps

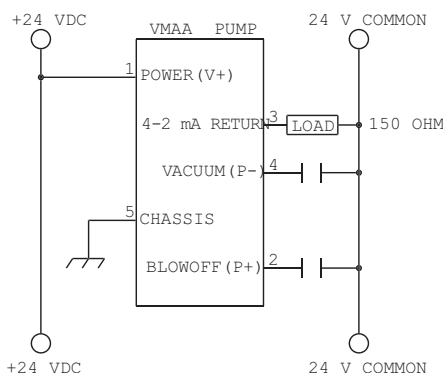
WIRING PINOUT
5-PIN SINGLE KEY MICRO CONNECTOR
MALE VIEW



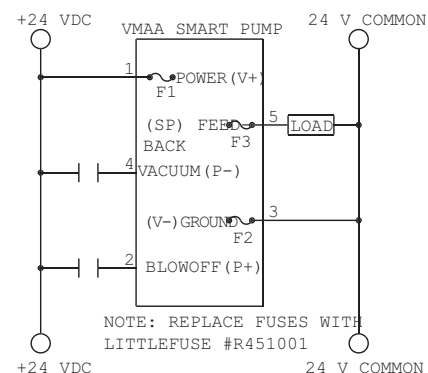
WIRING DIAGRAM
SINKING INPUT



WIRING DIAGRAM
SOURCING INPUT/4-20 mA OUTPUT



WIRING DIAGRAM
SINKING INPUT/SOURCING OUTPUT SHOWN



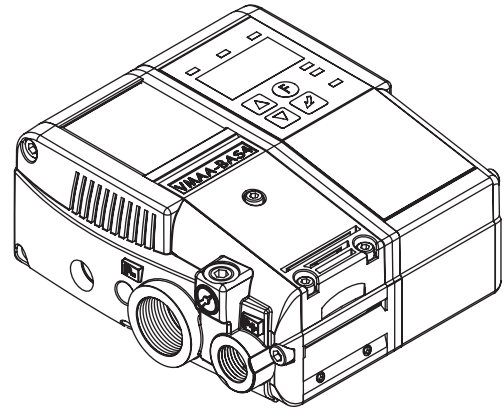
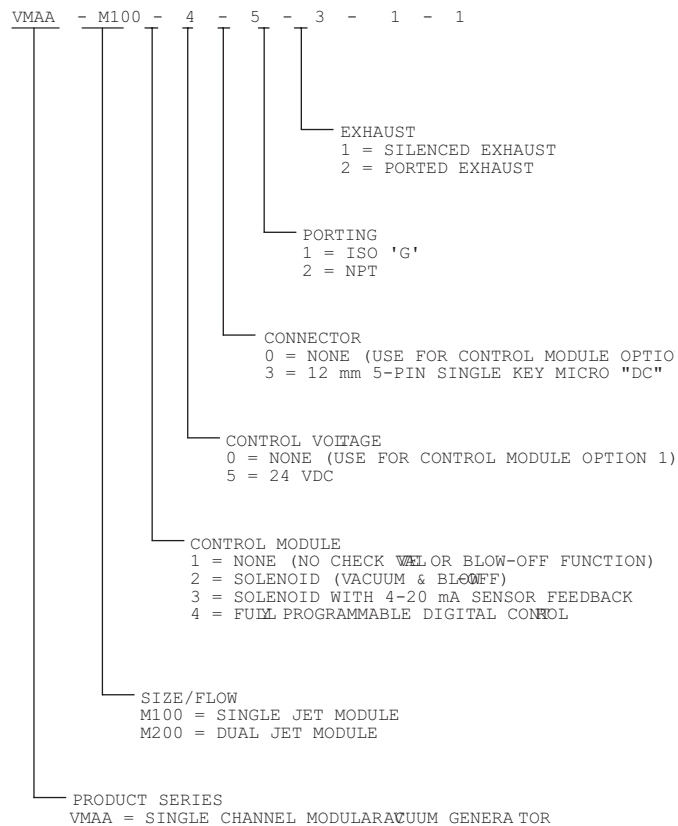
For EMC compliance, The inputs and outputs must not be allowed to float (not connected) and the mounting bracket must be electrically connected to earth ground.

VMAA Modular Smart Pump

Single Channel Vacuum Generator
Ordering Information

ORDERING INFORMATION

EXAMPLE PART NUMBER : VMAA-M100-45311



NORGREN VACUUM