



SPECIFICATIONS

Limitorque MX

Selection Data

Performance and Dimensions
for MX Series 05 through 150 Electric Actuators

FCD LMENSS2326-00 – 10/07 (Replaces 130-30000)



Flowserve Limitorque MX Actuators

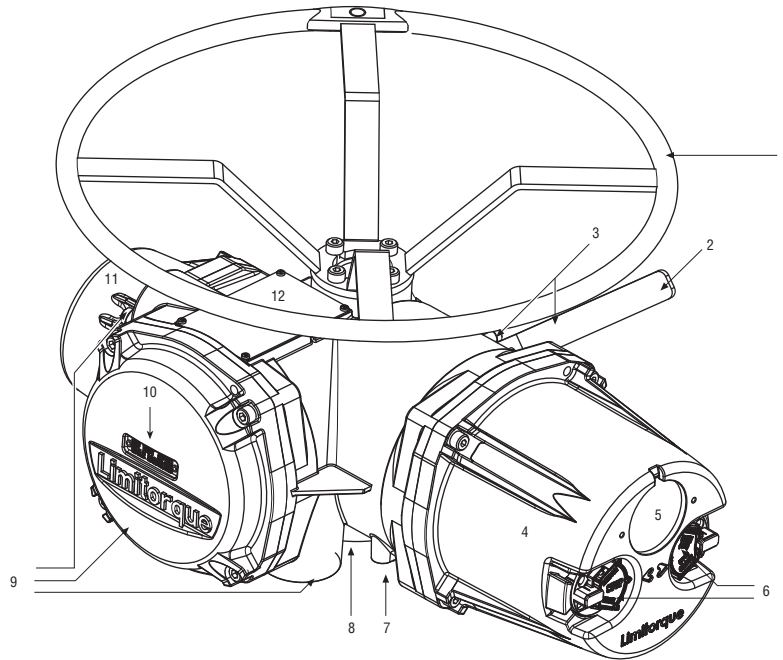
Flowserve Limitorque MX actuators have been engineered to accommodate today's wide variety of valve designs and to meet international standards for valve and actuator interfaces.

MX Series 05 through 150 electric actuators can be used in applications requiring up to 1,700 ft-lb (2,307 N m) of torque and up to 75,000 lb (333 kN) of thrust.

Standard and extended torque and thrust bases are available for all unit sizes and a side-mounted hand-wheel option is offered for the MX-10 through 150.

Dimensions for all sizes of MX actuators, base options, and stem nuts are included in this document. Contact your local Limitorque distributor or Limitorque sales office for further information.

Typical MX-05 Unit



Item	Description
1	Handwheel
2	Declutch Lever
3	Oil Fills
4	Control Cover
5	Control Panel Display
6	Control Knobs
7	Ground Lugs
8	Thrust/Torque Base
9	Conduit Entries
10	Terminal Compartment (Installation Kit)
11	Motor
12	Nameplate

MX Series Performance Ratings for Units 05 through 150

MX-05 through MX-40 (three-phase: 50 Hz/380, 400, 415, and 440 Volt: 60 Hz/208, 230, 380, 460, 525, 575 Volt)

MX-85 through MX-150 (three-phase: 50 Hz/380*, 400, and 415 Volt: 60 Hz/380, 460, 525, 575 Volt) *380/50 multiply by 0.9

Output Speed (RPM)		Rated Output Torque															
		MX-05		MX-10		MX-20		MX-40		MX-85		MX-140		MX-150			
60 Hz	50 Hz	ft-lb	N m	ft-lb	N m	ft-lb	N m	ft-lb	N m	ft-lb	N m	ft-lb	N m	ft-lb	N m		
18	15	55	75	125	170	225	305	440	597	N/A	N/A	N/A	N/A	N/A	N/A		
26	22	55	75	125	170	225	305	440	597	850	1153	1500	2036	N/A	N/A		
40	33	55	75	125	170	225	305	440	597	1225	1662	1700	2307	N/A	N/A		
52	43	55	75	125	170	225	305	440	597	1150	1561	1600	2171	N/A	N/A		
77	65	48	65	107	145	178	241	345	468	850	1153	1200	1628	N/A	N/A		
100	131 ¹	84	110 ¹	39	53	89	121	148	201	286	388	600	814	739	1003	1500	2036
155	170 ¹	127	143 ¹	41	56	89	121	140	190	260	353	450	611	650	882	1150	1561
200	165	34	46	73	99	114	155	210	285	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note 1: MX-85, MX-140 and MX-150

	lb	kN	lb	kN	lb	kN	lb	kN	lb	kN	lb	kN	lb	kN	lb	kN
Thrust Ratings (lb/kN)	8000	35	15000	66	25000	111	36000	160	50000	222	75000	333	75000	333	75000	333
Weights (lb/kg)	52	24	65	29	109	49	133	60	250	114	300	136	300	136	300	136

Maximum Stem Capacity

Type A Couplings	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
Type A1	1.26	32	1.57	40	2.36	60	2.64	67	3.50	88	3.50	88	3.50	88
Type A1E (Extended Nut)	1.26	32	1.57	40	2.36	60	2.64	67	3.50	88	3.50	88	3.50	88
Type B Couplings (Torque Only) ²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
Type B4	1	25.4	1.25	30	1.94	50	2.2	55	2.88	73	2.88	73	2.625	65
Type B4E (Extended)	0.75	19	0.91	22	1.56	41	1.78	46	2.25	57	2.25	57	2.625	65
Type B1 (Fixed Bore) ³	N/A	42	N/A	42	N/A	60	N/A	60	N/A	N/A	N/A	N/A	N/A	N/A
Type BL (Splined)	6 & 38 Splines		6 & 38 Splines		6 & 36 Splines		6 Splines		N/A	N/A	N/A	N/A	N/A	N/A
Maximum Bore and Keyway	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
Maximum Bore (B4)	1	25	1.25	30	1.94	50	2.2	55	2.88	73	2.88	73	2.625	65
Maximum Keyway	¼ sq.	8 x 7	¼ sq.	10 x 8	½ x ⅜	14 x 9	½ x ⅜	16 x 10	¾ x ½	20 x 12	¾ x ½	20 x 12	⅝ x ⅞	18 x 11
Maximum Bore (B4E)	.75	18	0.91	22	1.56	41	1.78	46	2.25	56	2.25	56	2.5	65
Maximum Keyway	⅜ sq.	6 x 6	¼ sq.	8 x 7	⅝ sq.	12 x 8	½ x ⅜	14 x 9	½ x ⅜	16 x 10	½ x ⅜	16 x 10	0.625 sq.	18 x 11

Note 2: Maximum bores for Type B couplings may require rectangular keys.

Note 3: Available in ISO base only.

	MX-05	MX-10	MX-20	MX-40	MX-85	MX-140	MX-150
Mounting Base (MSS SP-102/ISO 5210)	FA10/F10	FA10/F10	FA14/F14	FA14/F14	FA16/F16	FA25/F25	FA25/F25
Handwheel Ratio (STD/Optional)	Direct	Direct/8:1	Direct/12:1	Direct/24:1	16/48	16/48	16/48
Side-Mounted Handwheel Efficiencies	N/A	52%	54%	51%	53%/51% ⁴	53%/51% ⁴	53%/51% ⁴

Note 4: Efficiencies for MX-85 and 140 are 51% with SGA and 53% without SGA.

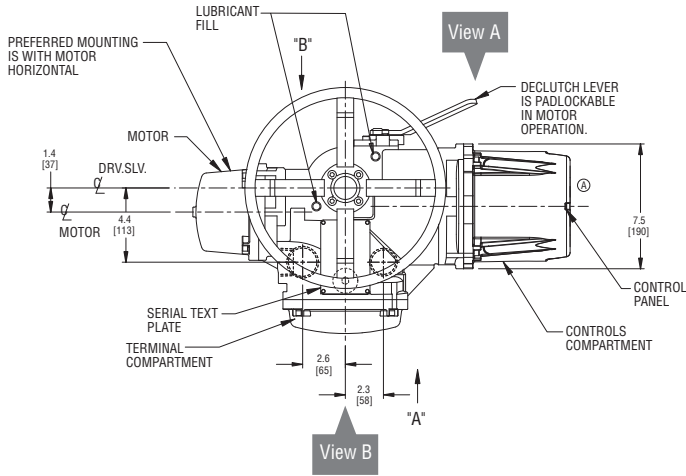
MX Handwheel Rimpull

Unit/ Mounting	Handwheel Diameter (in.)	Gear Ratio	Rated Torque (ft-lb)	Efficiency	Rimpull at Rated Torque (lb)	Output Torque (ft-lb) at 20 lb Rimpull	Output Torque (ft-lb) at 40 lb Rimpull	Output Torque (ft-lb) at 60 lb Rimpull	Output Torque (ft-lb) at 80 lb Rimpull
MX-05 Top	12	1	55	0.88	125	9	18	26	35
MX-05 Top	18	1	55	0.88	83	13	26	40	53
MX-10 Top	18	1	125	0.88	189	13	26	40	53
MX-10 Side	12	8	125	0.52	60	42	83	125	166
MX-20 Top	24	1	225	0.88	256	18	35	53	70
MX-20 Side	12	12	225	0.54	69	65	130	194	259
MX-40 Top	24	1	440	0.88	500	18	35	53	70
MX-40 Side	12	24	440	0.51	72	122	245	367	490
MX-85/140/150 w/o SGA	18	16	600	0.53	88	127	254	382	508
MX-85/140/150 w/ SGA	18	48	1574	0.51	86	367	734	1101	1469

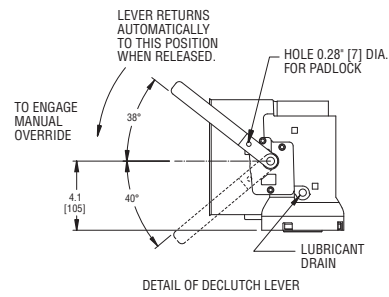
MX Unit 05 Dimension Data

Dimensions in inches and millimeters.

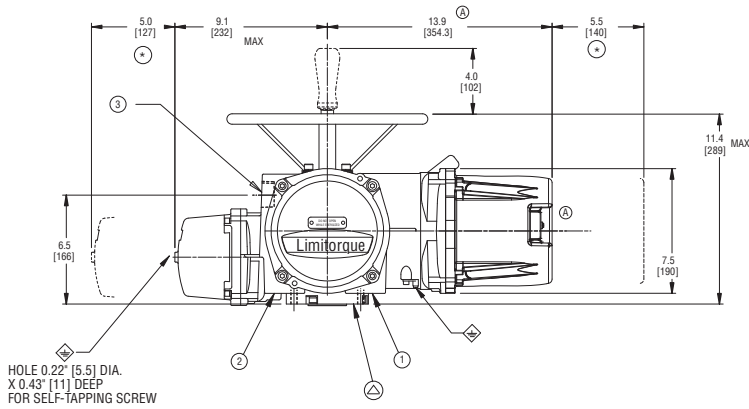
Top View



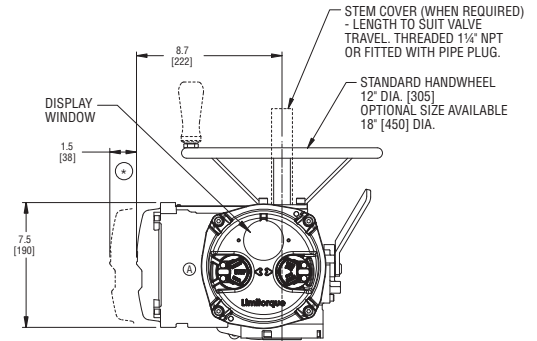
View A



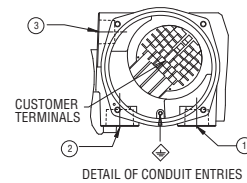
Side View



Front View



View B



CONDUIT ENTRIES			
POSITION	①	②	③
STANDARD	1 1/4" NPT	1 1/2" NPT	1 3/4" NPT
OPTIONS	M32, M25, M20	M40, M32, M25, M20	M32, M25, M20
	PG21	PG29, PG21	PG21

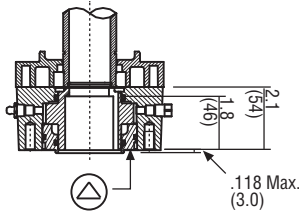
- ⊕ GROUND/EARTHING LUG
- ⊙ RECOMMENDED CLEARANCE FOR COVER REMOVAL
- ⊕ MOUNTING FACE FOR ATTACHING TO VALVE FLANGE

MX Unit 05 Base Details

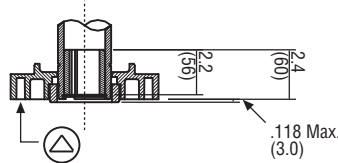
Dimensions in inches and millimeters.

Non-thrust (Torque Only) Bases

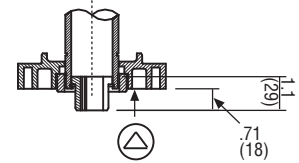
Type B1



Type B4

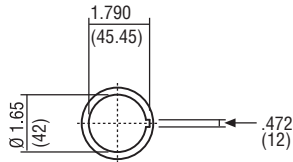


Type B4E (Extended Reach)

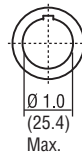


Stem Nut Bore Details

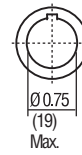
Type B1 (Fixed Bore and Key)



Type B4 (Variable Bore)

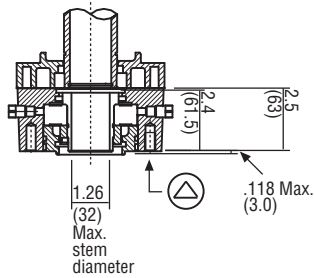


Type B4E (Variable Bore)

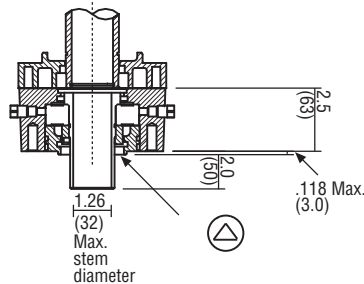


Thrust Bases

Type A1

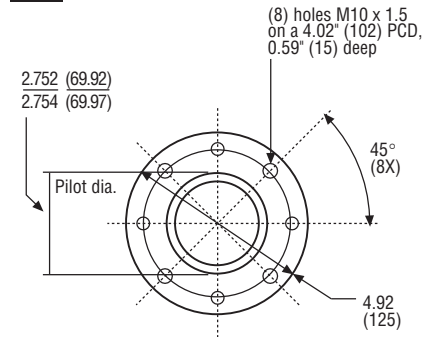


Type A1E (Extended Reach)



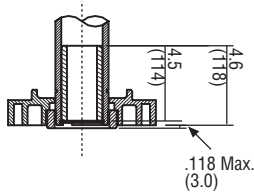
Base Details

F10

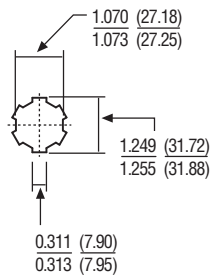


Splined Stem Nuts

Type BL



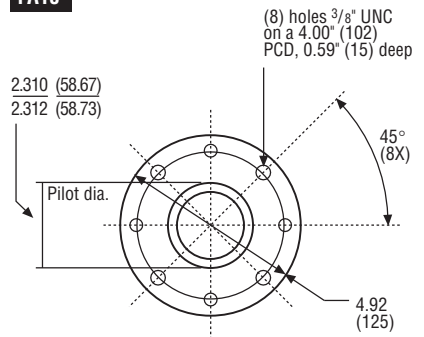
Type BL6 (6 Splines)



Type BL38 (38 Splines)

- Involute per ANSI B92.1
- Fillet root
- Side fit
- 30° PA
- 32/64 pitch

FA10

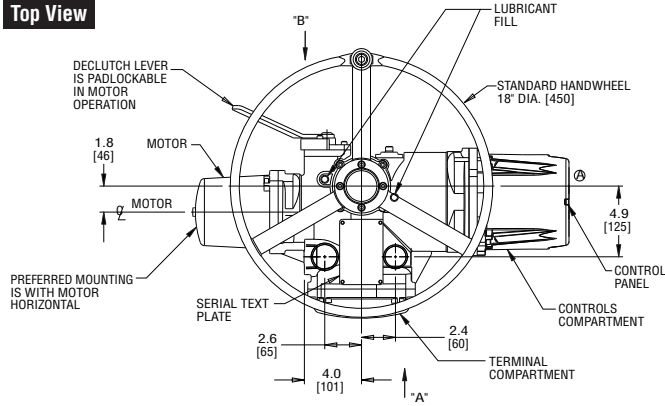


⊗ Note 1: Mounting face for attaching to valve flange.
Note 2: Millimeter dimensions are in parentheses.

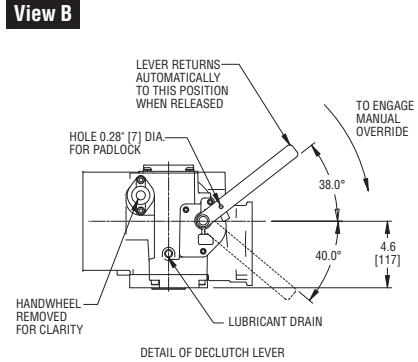
MX Unit 10 Dimension Data

Dimensions in inches and millimeters.

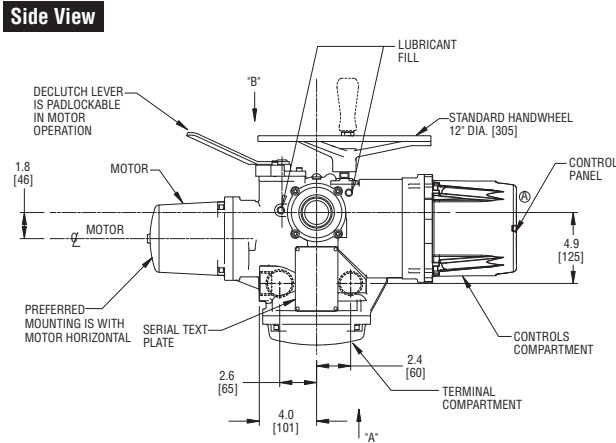
Top View



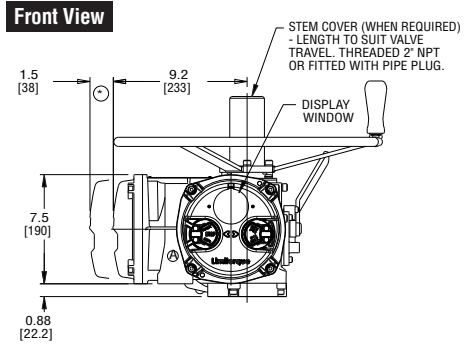
View B



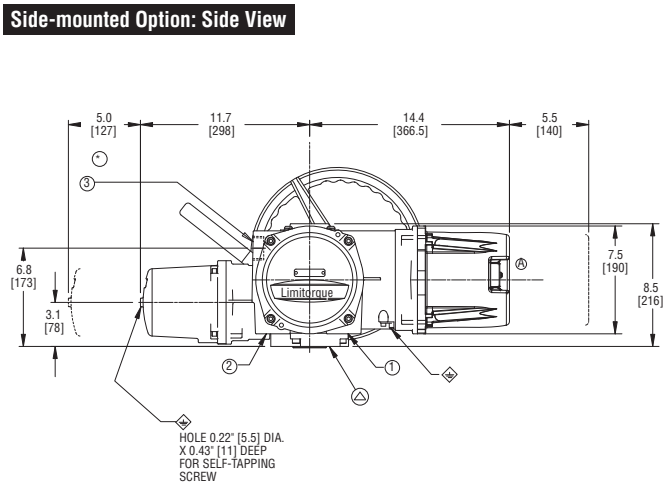
Side View



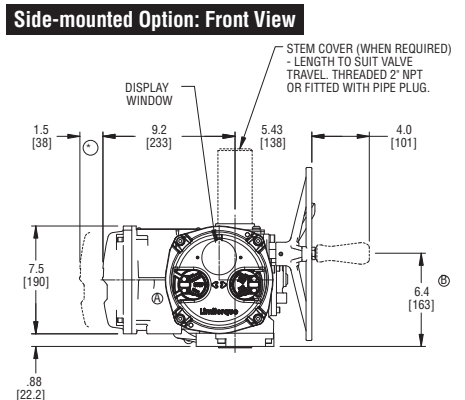
Front View



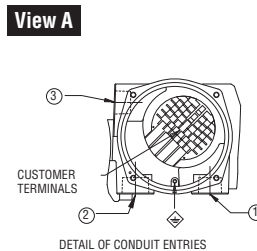
Side-mounted Option: Side View



Side-mounted Option: Front View



View A



POSITION	CONDUIT ENTRIES		
	①	②	③
STANDARD	1½" NPT	1½" NPT	1½" NPT
OPTIONS	M32, M25 M20	M40, M32, M25, M20	M32, M25 M20
	PG21	PG29, PG21	PG21

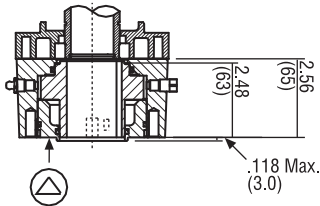
- ⊕ GROUND/EARTHING LUG
- RECOMMENDED CLEARANCE FOR COVER REMOVAL
- ⊗ MOUNTING FACE FOR ATTACHING TO VALVE FLANGE

MX Unit 10 Base Details

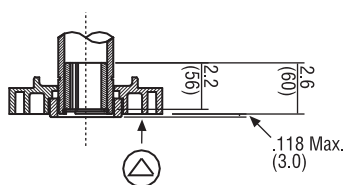
Dimensions in inches and millimeters.

Non-thrust (Torque Only) Bases

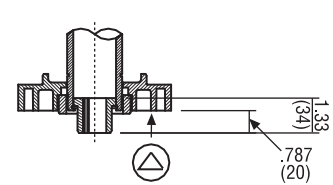
Type B1



Type B4

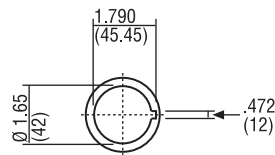


Type B4E (Extended Reach)

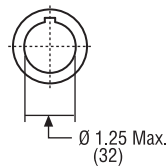


Stem Nut Bore Details

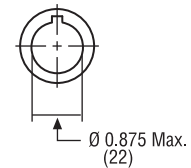
Type B1 (Fixed Bore and Key)



Type B4 (Variable Bore)

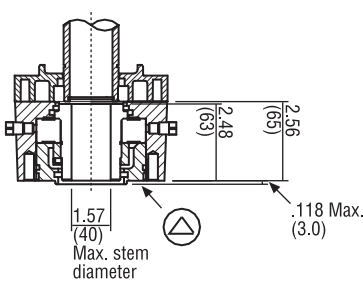


Type B4E (Variable Bore)

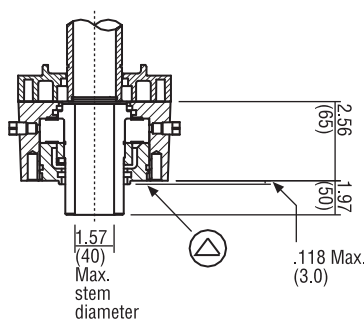


Thrust Bases

Type A1

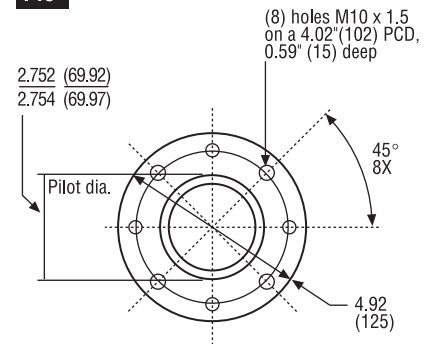


Type A1E (Extended Reach)



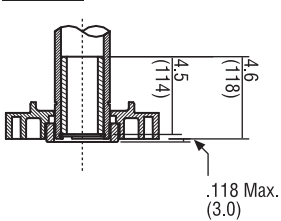
Base Details

F10

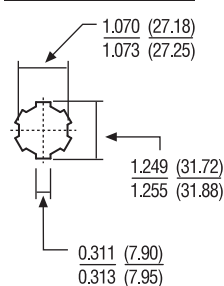


Splined Stem Nuts

Type BL



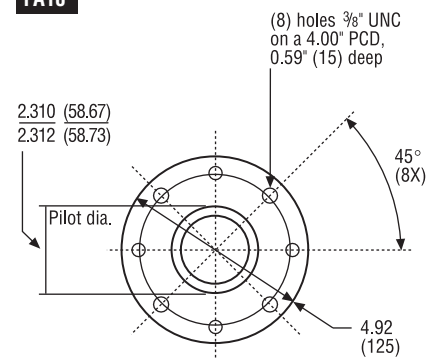
Type BL6 (6 Splines)



Type BL38 (38 Splines)

- Involute per ANSI B92.1
- Fillet root
- Side fit
- 30° PA
- 32/64 pitch

FA10

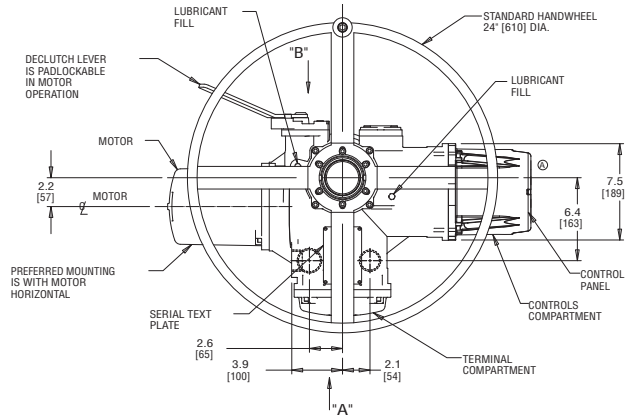


⊕ Note 1: Mounting face for attaching to valve flange.
Note 2: Millimeter dimensions are in parentheses.

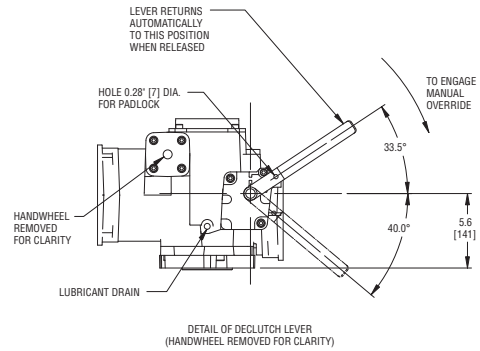
MX Unit 20 Dimension Data

Dimensions in inches and millimeters.

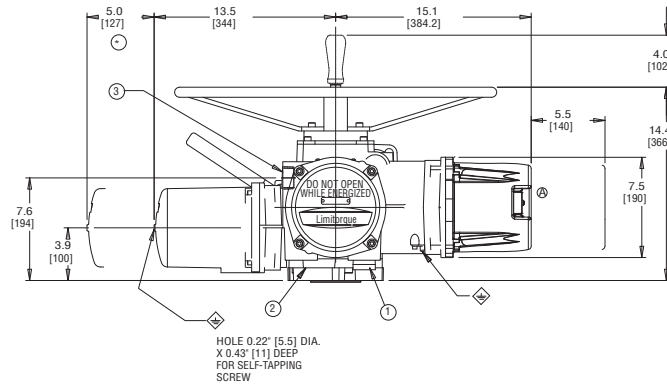
Top View



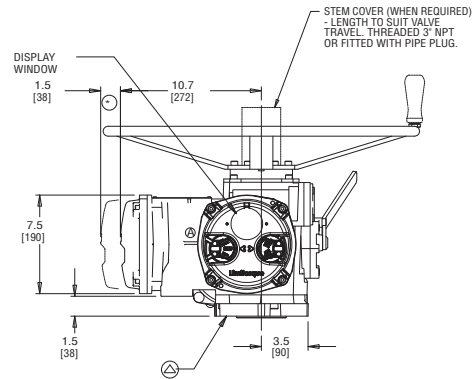
View B



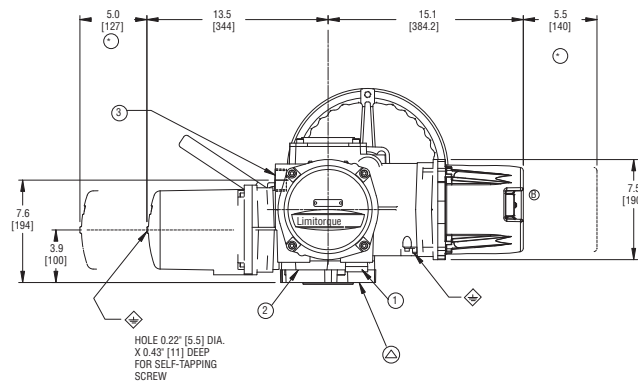
Side View



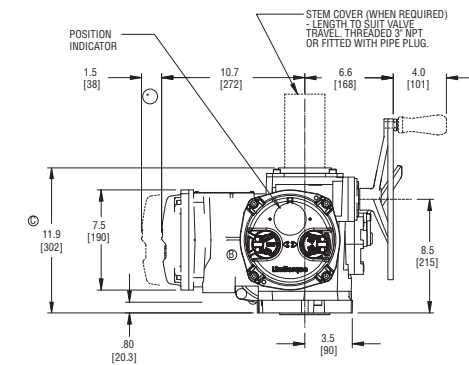
Front View



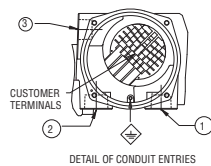
Side-mounted Option: Side View



Side-mounted Option: Front View



View A



CONDUIT ENTRIES			
POSITION	①	②	③
STANDARD	1 1/4\"/>		

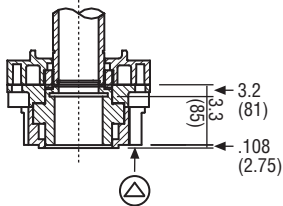
- ◆ GROUND/EARTHING LUG
- RECOMMENDED CLEARANCE FOR COVER REMOVAL
- △ MOUNTING FACE FOR ATTACHING TO VALVE FLANGE

MX Unit 20 Base Details

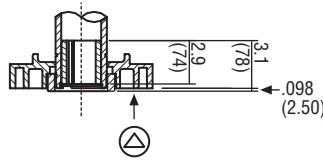
Dimensions in inches and millimeters.

Non-thrust (Torque Only) Bases

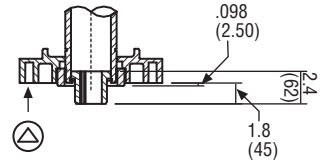
Type B1



Type B4

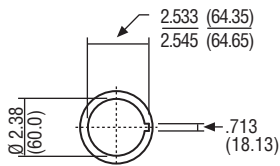


Type B4E (Extended Reach)

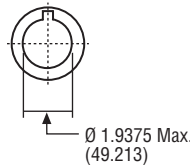


Stem Nut Bore Details

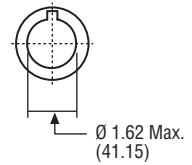
Type B1 (Fixed Bore and Key)



Type B4 (Variable Bore)

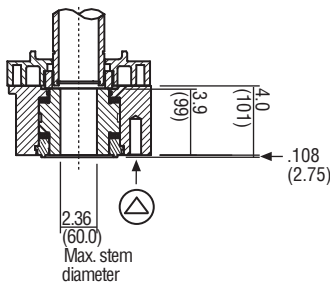


Type B4E (Variable Bore)

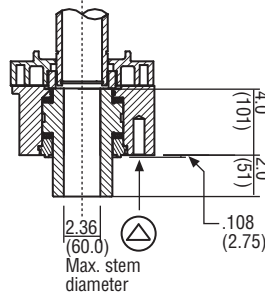


Thrust Bases

Type A1

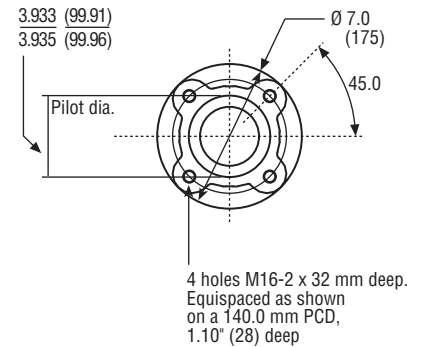


Type A1E (Extended Reach)



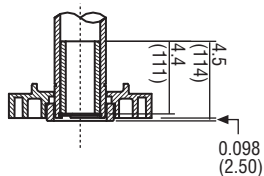
Base Details

F14

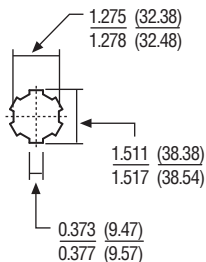


Splined Stem Nuts

Type BL



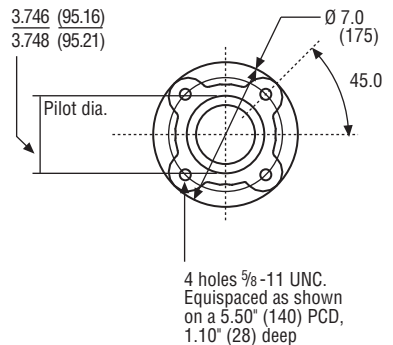
Type BL6 (6 Splines)



Type 36T

- Involute per ANSI B92.1
- Fillet root
- Side fit
- 30° PA
- 32/64 pitch

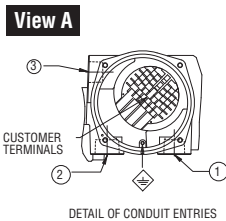
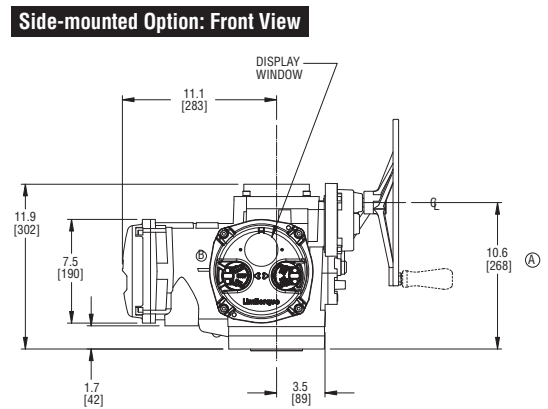
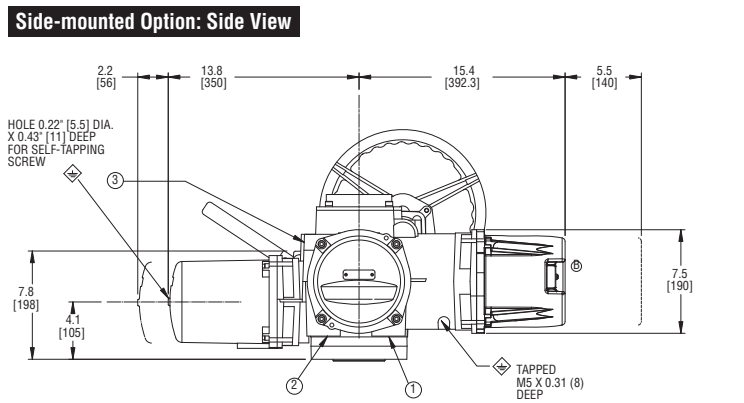
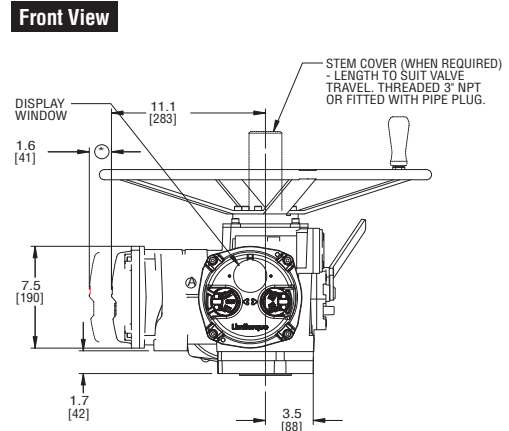
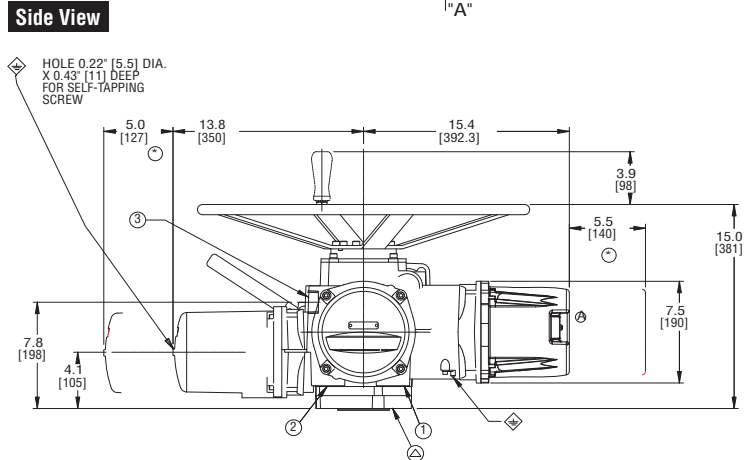
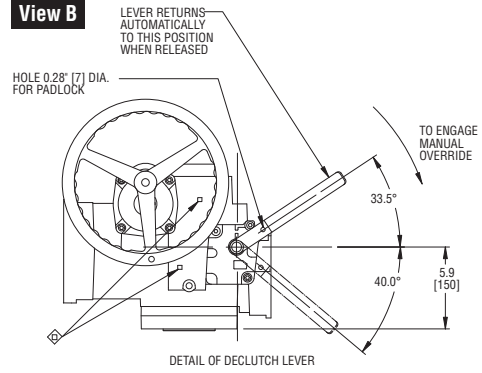
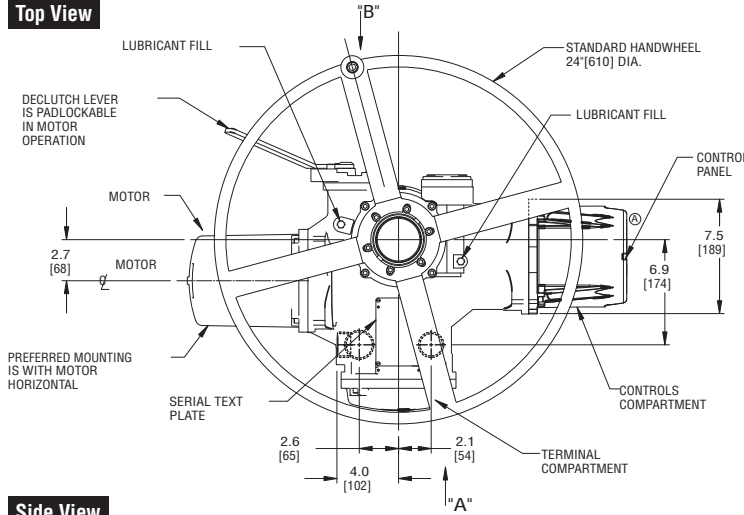
FA14



⊕ Note 1: Mounting face for attaching to valve flange.
 Note 2: Millimeter dimensions are in parentheses.

MX Unit 40 Dimension Data

Dimensions in inches and millimeters.



POSITION	CONDUIT ENTRIES		
	①	②	③
STANDARD	1 1/4" NPT	1 1/2" NPT	1 1/4" NPT
OPTIONS	M32	M40 M32	M32
	PG21	PG29 PG21	PG21

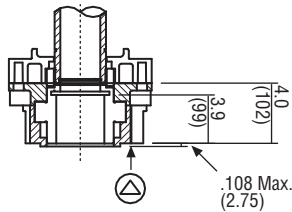
- ◆ GROUND/EARTHING LUG
- ◆ OIL FILLER/DRAIN PLUG
- # ALLOWANCE FOR COVER REMOVAL
- ## MOUNTING FACE FOR ATTACHING TO VALVE FLANGE

MX Unit 40 Bases

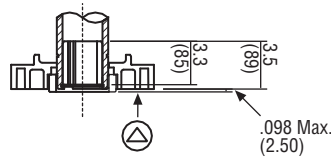
Dimensions in inches and millimeters.

Non-thrust (Torque Only) Bases

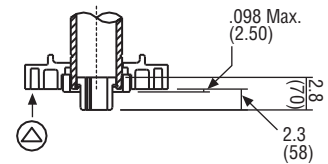
Type B1



Type B4

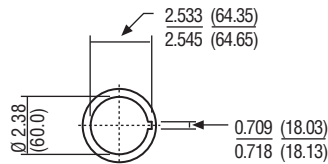


Type B4E (Extended Reach)



Stem Nut Bore Details

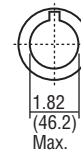
Type B1 (Fixed Bore and Key)



Type B4 (Variable Bore)

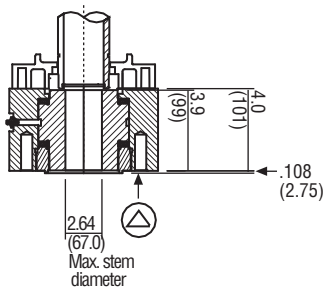


Type B4E (Variable Bore)

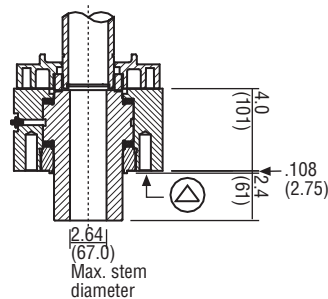


Thrust Bases

Type A1

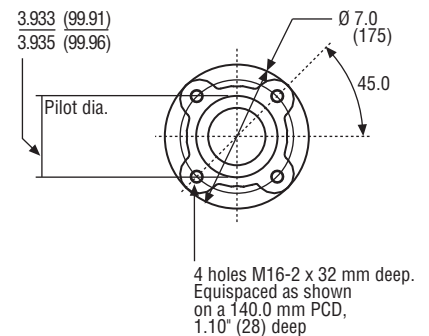


Type A1E (Extended Reach)



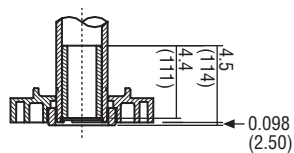
Base Details

F14

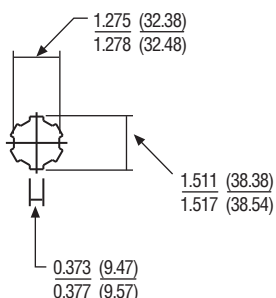


Splined Stem Nuts

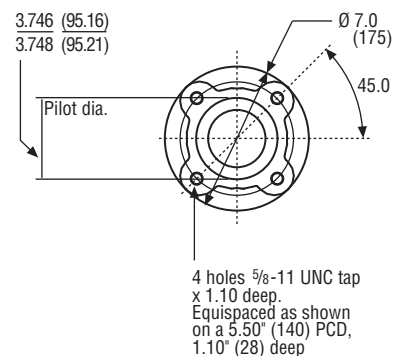
Type BL



Type BL6 (6 Splines)



FA14

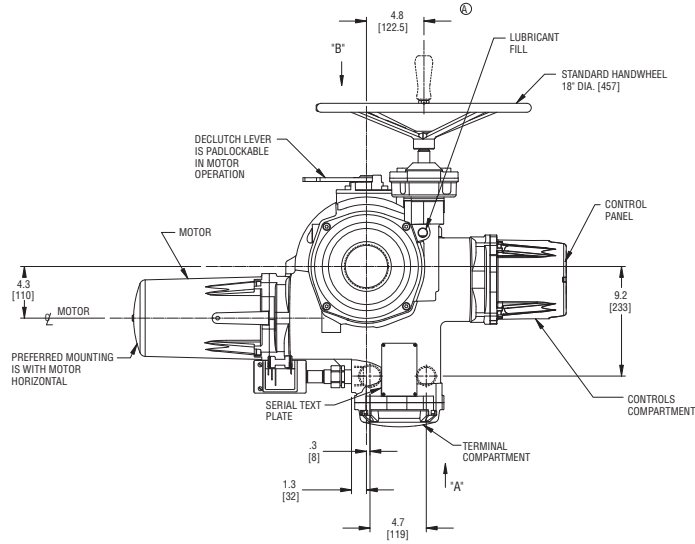


⊕ Note 1: Mounting face for attaching to valve flange.
Note 2: Millimeter dimensions are in parentheses.

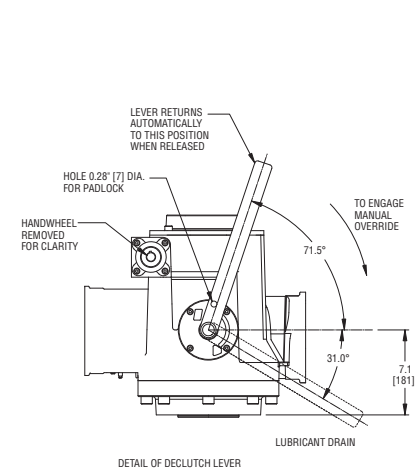
MX Unit 85 Dimension Data

Dimensions in inches and millimeters.

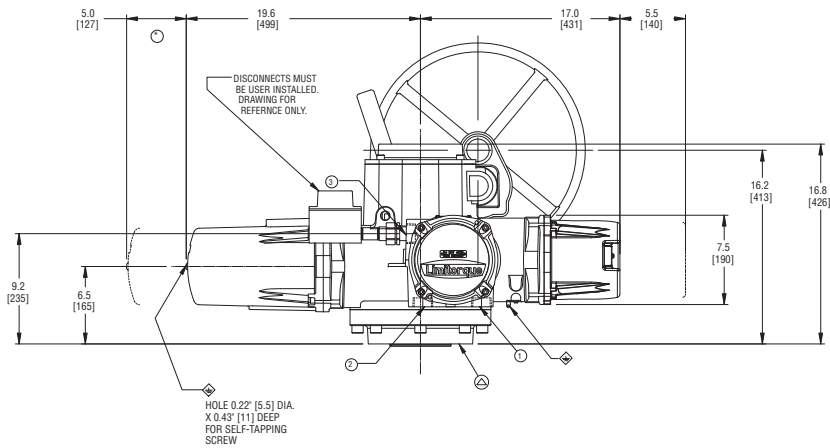
Top View



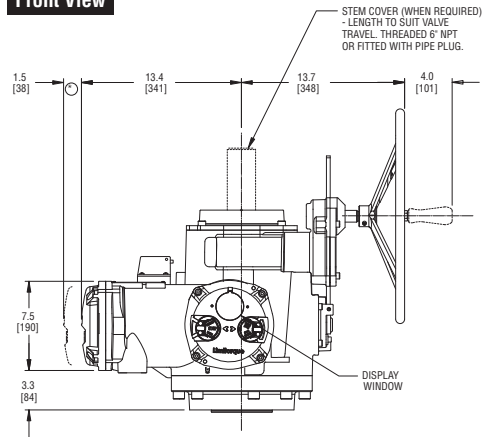
View B



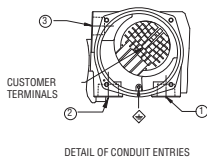
Side View



Front View



View A



CONDUIT ENTRIES			
POSITION	①	②	③
STANDARD	1½" NPT	1½" NPT	1½" NPT
OPTIONS	M32, M25 M20	M40, M32, M25, M20	M32, M25 M20
	PG21	PG29, PG21	PG21

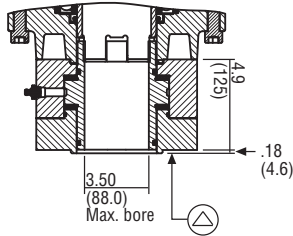
- ◆ GROUND/EARTHING LUG
- RECOMMENDED CLEARANCE FOR COVER REMOVAL
- ⊙ MOUNTING FACE FOR ATTACHING TO VALVE FLANGE

MX Unit 85 Bases

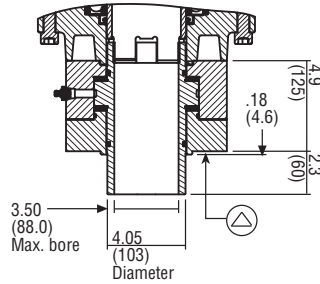
Dimensions in inches and millimeters.

Thrust Bases

Type A1

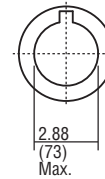


Type A1E (Extended Reach)



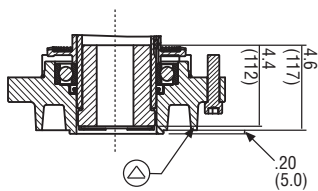
Stem Nut Bore Details

Type B4 (Variable Bore)

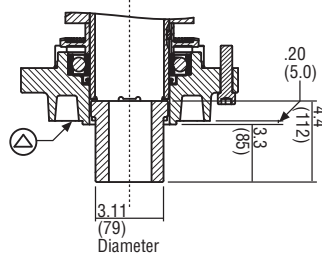


Thrust Bases

Type B4



Type B4E (Extended Reach)

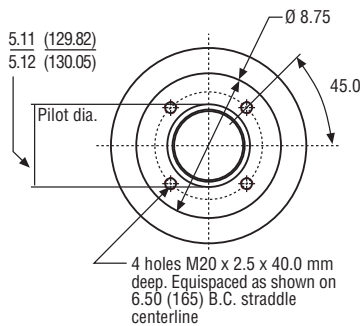


Type B4E (Variable Bore)

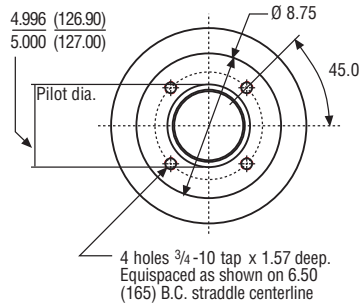


Base Details

F16

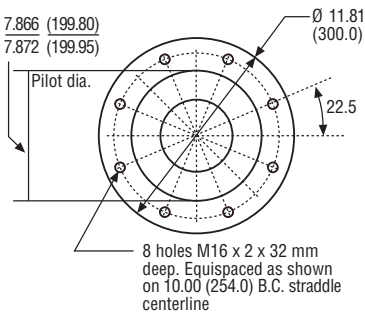


FA16

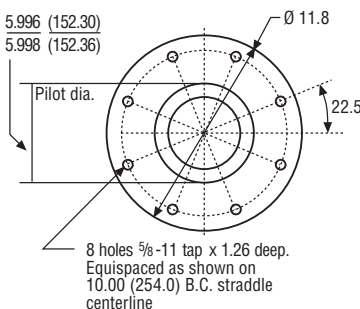


Base Details

F25



FA25

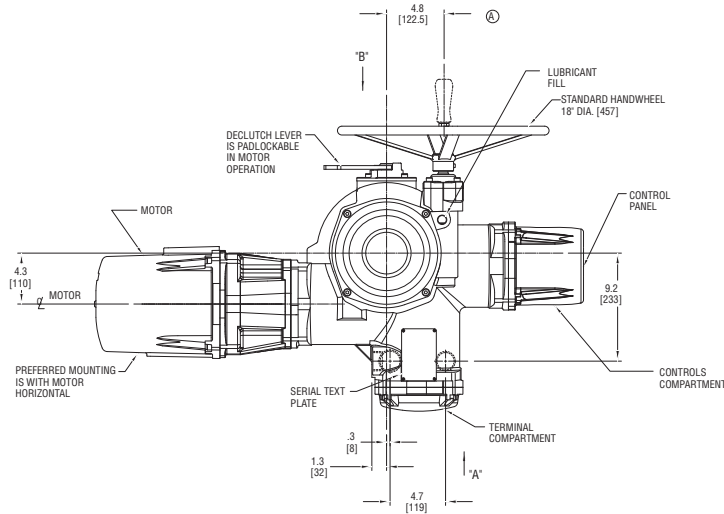


△ Note 1: Mounting face for attaching to valve flange.
 Note 2: Millimeter dimensions are in parentheses.

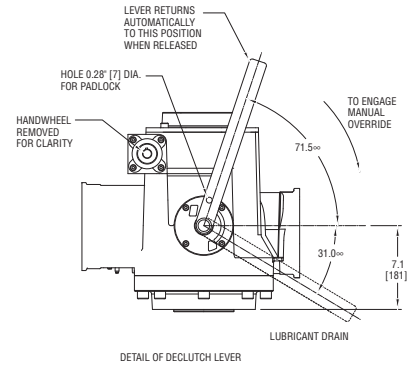
MX Unit 140 Dimension Data

Dimensions in inches and millimeters.

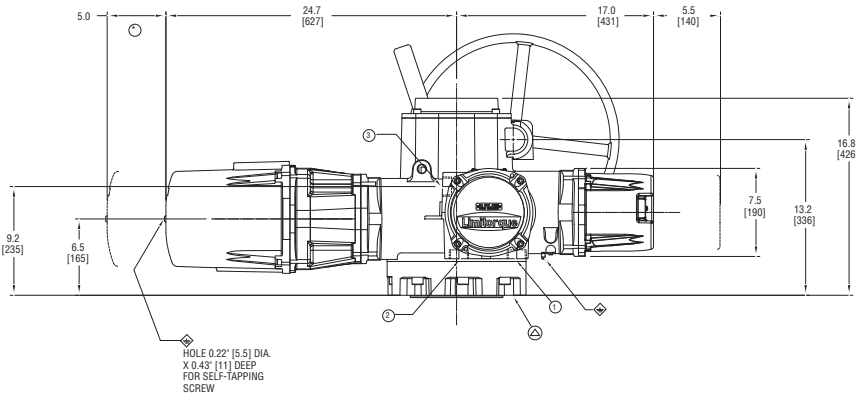
Top View



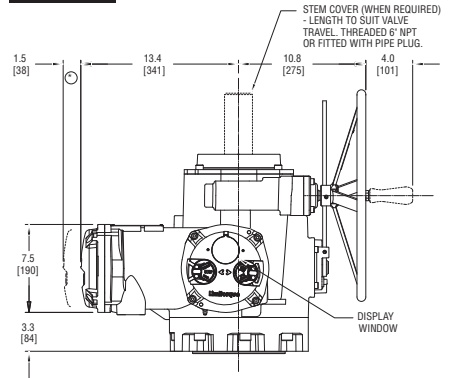
View B



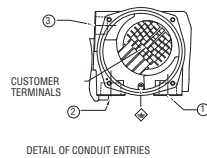
Side View



Front View



View A



POSITION	CONDUIT ENTRIES		
	①	②	③
STANDARD	1 1/2" NPT	1 1/2" NPT	1 1/2" NPT
OPTIONS	M32, M25 M20	M40, M32, M25, M20	M32, M25 M20
	PG21	PG29, PG21	PG21

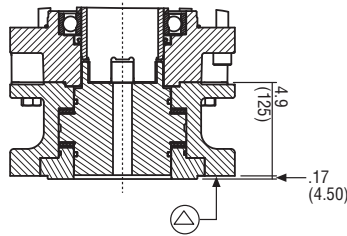
- ◆ GROUND/EARTHING LUG
- RECOMMENDED CLEARANCE FOR COVER REMOVAL
- △ MOUNTING FACE FOR ATTACHING TO VALVE FLANGE

MX Unit 140 Bases

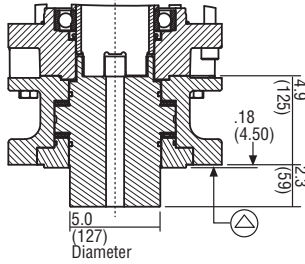
Dimensions in inches and millimeters.

Thrust Bases

Type A1

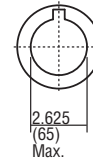


Type A1E (Extended Reach)



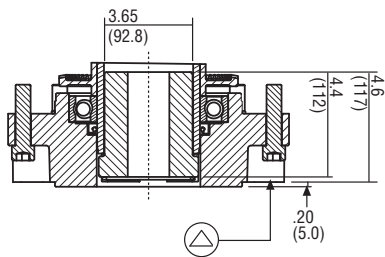
Stem Nut Bore Details

Type B4 (Variable Bore)

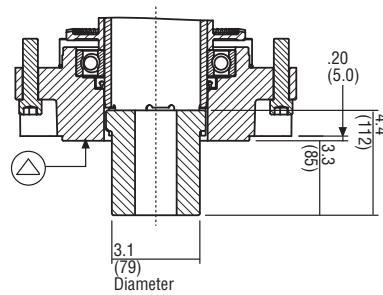


Thrust Bases

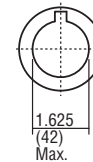
Type B4



Type B4E (Extended Reach)

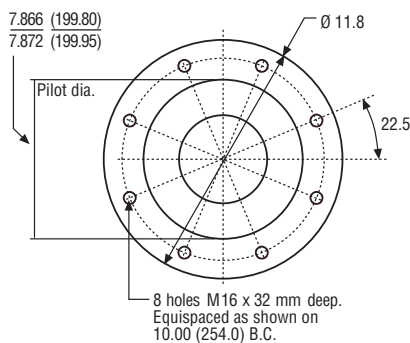


Type B4E (Variable Bore)

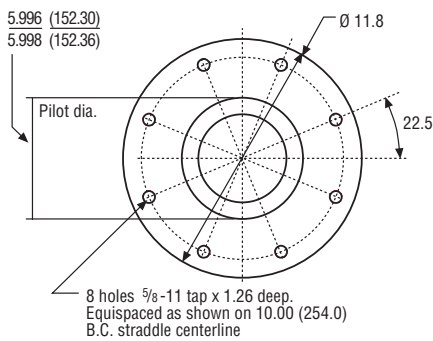


Base Details

F25



FA25

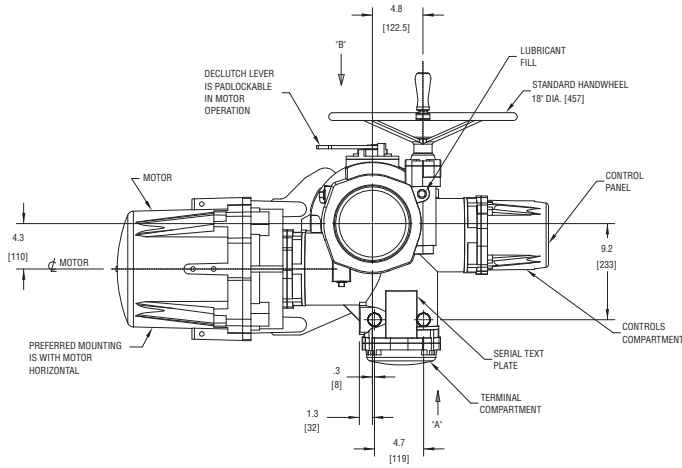


⊲ Note 1: Mounting face for attaching to valve flange.
 Note 2: Millimeter dimensions are in parentheses.

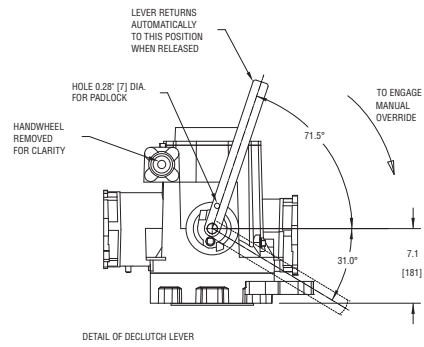
MX Unit 150 Dimension Data

Dimensions in inches and millimeters.

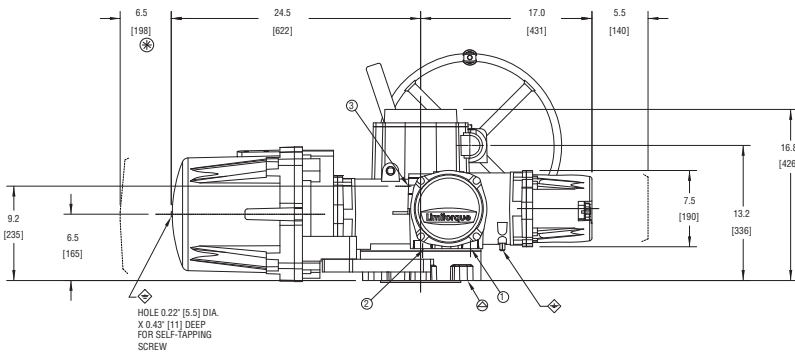
Top View



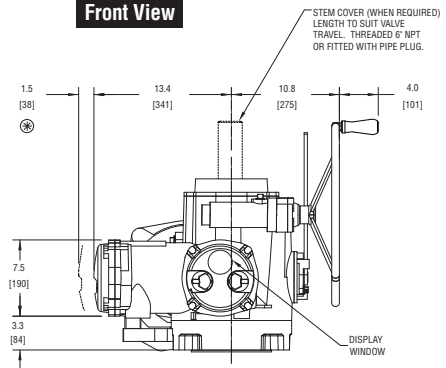
View B



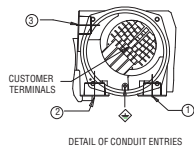
Side View



Front View



View A



POSITION	CONDUIT ENTRIES		
	①	②	③
STANDARD	1 1/2" NPT	1 1/2" NPT	1 1/2" NPT
OPTIONS	M32, M25, M20	M40, M32, M25, M20	M32, M25, M20
	PG21	PG29, PG21	PG21

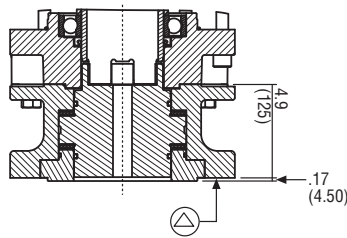
- ◆ GROUND/EARTHING LUG
- ⊗ RECOMMENDED CLEARANCE FOR COVER REMOVAL
- △ MOUNTING FACE FOR ATTACHING TO VALVE FLANGE

MX Unit 150 Bases

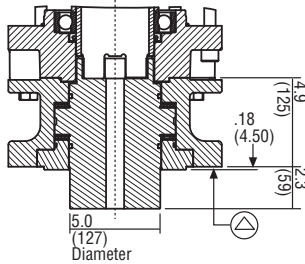
Dimensions in inches and millimeters.

Thrust Bases

Type A1

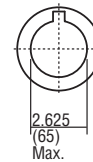


Type A1E (Extended Reach)



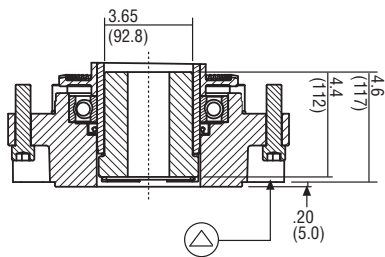
Stem Nut Bore Details

Type B4 (Variable Bore)

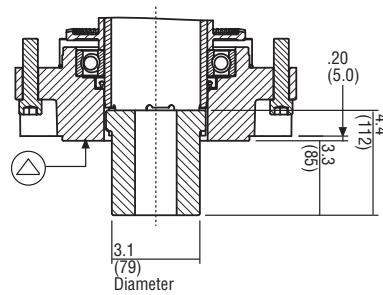


Thrust Bases

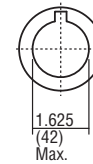
Type B4



Type B4E (Extended Reach)

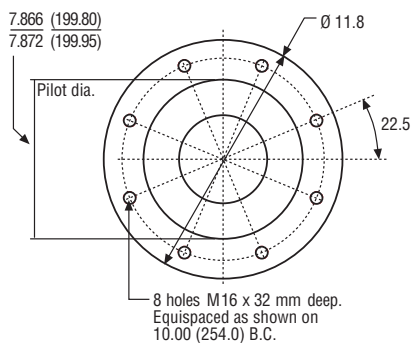


Type B4E (Variable Bore)

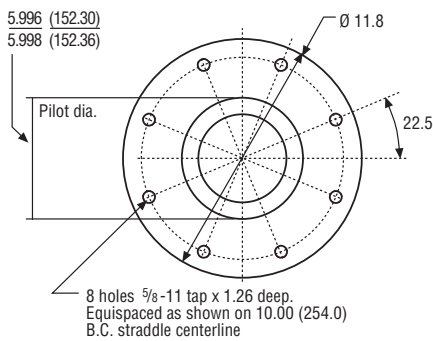


Base Details

F25



FA25



⚠ Note 1: Mounting face for attaching to valve flange.
 Note 2: Millimeter dimensions are in parentheses.



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