

TABLE OF CONTENTS

98

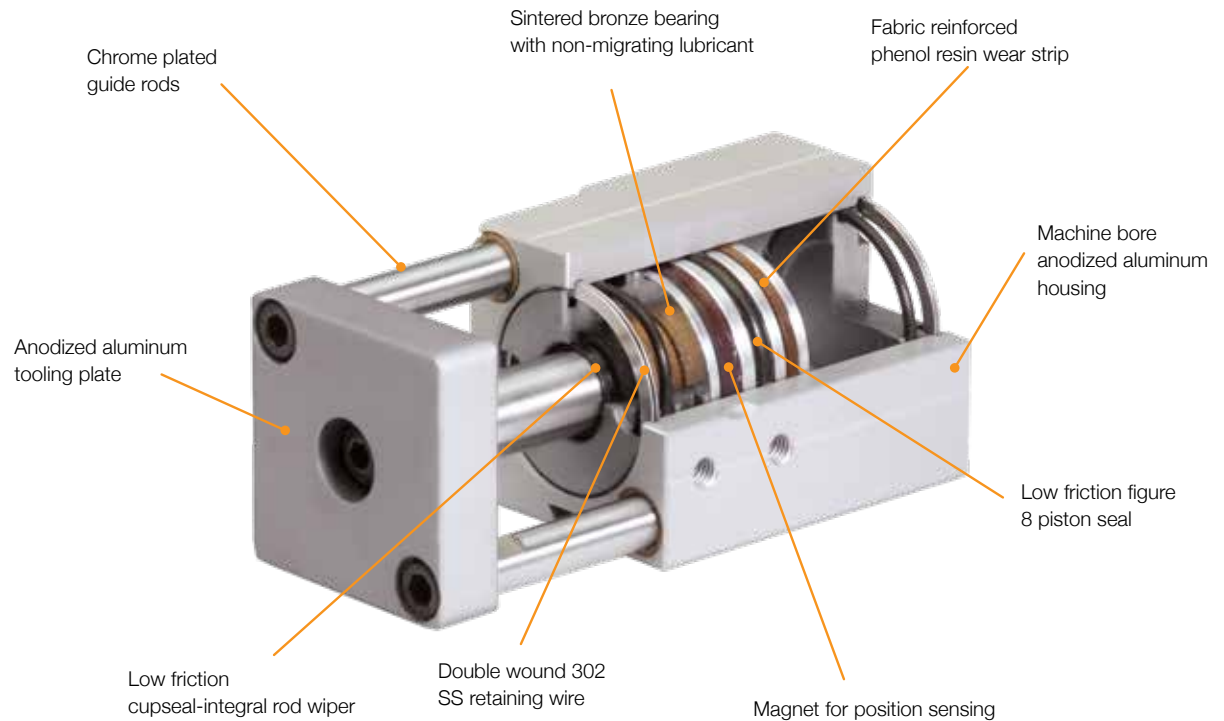
LC SERIES Non-rotating Load Carrying Cylinders



98	Features	104	28.5mm Bore
99	How to Order	105	32mm Bore
100	Engineering Data	106	40mm Bore
101	12mm Bore	107	50mm Bore
102	20mm Bore	108	63mm Bore
103	25mm Bore		

LC SERIES

NON-ROTATING LOAD CARRYING CYLINDERS



Common Features

Nason's LC series of pneumatic guided load actuators were designed to be compact, long lasting, load carrying devices for today's demanding design requirements. They are offered in various mounting styles, bores, and strokes to fill the need of today's design engineers.

Actuator

The LC series guided cylinder actuator is based on Nason's LH cylinder. Extended internal rod bearing, wear banded piston, and integral rod wiper are all standard. Precision machined components, self-lubricating bearings, and PTFE impregnated lubricant ensure long life and continued low friction operation.

Guiding Mechanism

Oversized, chrome plated guide rods riding in specially formulated sintered bronze bearings provide rigid load carrying capability. Guide

rods are located externally of the sealed cylinder chamber but inside the overall envelope of the cylinder. The guide rods are extended past the cylinder housing to ensure no finger trap exists. The guide rods are piloted into the tooling plate to provide more rigidity and ease of disassembly for modification.

Tooling Plate

Tooling plates are thick, anodized aluminum and are provided with tapped through holes for direct mounting, or through mounting, into your part.

Magnetic Piston Sensing

Magnetic piston and sensor mounting tracks are included as standard. See the sensor section for Nason's solid state sensor selection (sold separately).

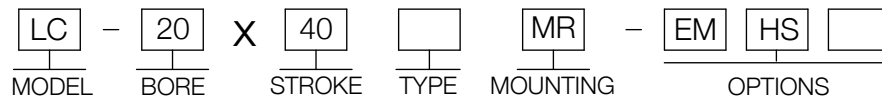
Rebuildable

All LC series cylinders are field rebuildable.

How to Order

Example:

Part Number: LC-20X40MR-EMHS



MODEL
LC - Non-Rotating, Guided Load cylinder

BORE
12 - 12mm (.47")
20 - 20mm (.79")
25 - 25mm (.98")
28.5 - 28.5mm (1.13")
32 - 32mm (1.26")
40 - 40mm (1.58")
50 - 50mm (1.97")
63 - 63mm (2.48")

STROKE
See Stroke Table

TYPE
Blank (No Code) - Double Acting, Single Rod
D - Double Acting, Double Rod

MOUNTING
MR - Threads on Rear Face (Opposite Rod)
MS - Threads on Side of Cylinder Body
FR - Flange on Rear Face (Opposite Rod)
PR - Pivot on Rear Face

OPTIONS
EM - InchThreads (Mounting, Ports, and Tooling Plate) (See product pages for sizes)
HS - High Temperature Seals -10°C to 150°C (0°F to 302°F) (Available on "LE" and "LH" Models Only)
BP - Blank Tooling Plate (No Holes)
PE - 1/4 Ports (Available on 50 and 63mm Bores) With EM Option
UB - Urethane Shock Pads Both Ends (20 thru 63mm Bores)
UF - Urethane Shock Pad Front (Rod End) (20 thru 63mm Bores)
UR - Urethane Shock Pad Rear (Opposite Rod) (20 thru 63mm Bores)

Operating Media:	Air (Clean, Dry or Lubricated)
Maximum Operating Pressure:	17 Bar (250 PSI)
Operating Temperature:	-10°C to 95°C (0°F to 200°F)
Packing:	Buna N
Lubrication:	PTFE impregnated grease
Stroke Tolerance:	+0,75mm/-0mm (+0.03"/-0")

Load Chart

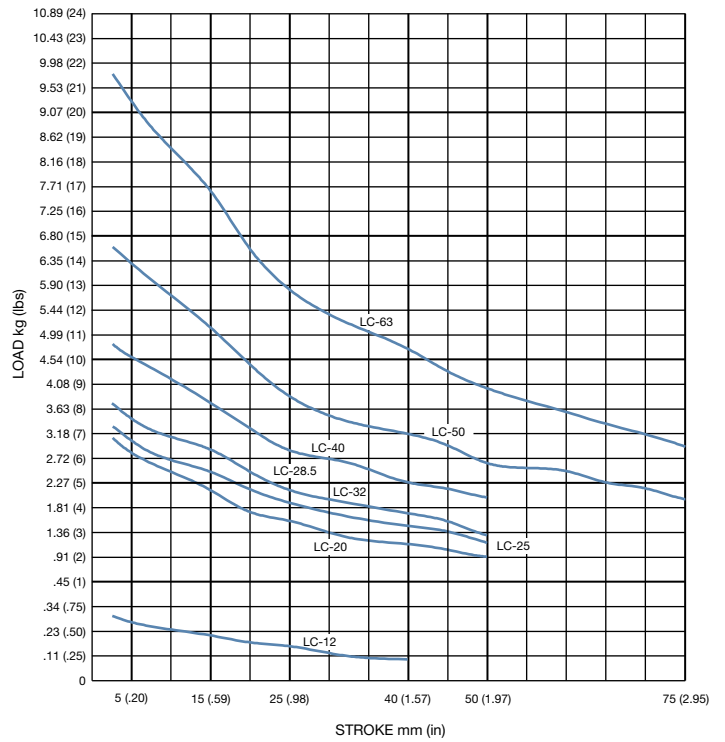
1. Loads based on .08mm (.003") deflection up to 25mm stroke and .16mm (.006") deflection over 25mm stroke and maximum life.
2. Rotational tolerance = +/- .5 degree
3. Speed controls or external shock absorbers are recommended to reduce impact and extend cylinder life.

Piston Area Chart

Bore	Push (Rod Extend)	Pull (Rod Retract)
12	1,13 cm ² (.18 in ²)	0,85 cm ² (.14 in ²)
20	3,14 cm ² (.48 in ²)	2,64 cm ² (.40 in ²)
25	4,91 cm ² (.76 in ²)	4,12 cm ² (.64 in ²)
28.5	6,41 cm ² (1.0 in ²)	5,28 cm ² (.82 in ²)
32	8,04 cm ² (1.25 in ²)	6,91 cm ² (1.07 in ²)
40	12,56 cm ² (1.95 in ²)	10,55 cm ² (1.64 in ²)
50	19,63 cm ² (3.04 in ²)	17,62 cm ² (2.73 in ²)
63	31,17 cm ² (4.83 in ²)	28,03 cm ² (4.34 in ²)

Stock Stroke Table

Bore	Standard Stroke Lengths
12	15, 25, 40
20	15, 25, 40, 50
25	
28.5	12.7, 25.4, 38.1, 50.8
32	15, 25, 40, 50
40	
50	15, 25, 40, 50, 75
63	



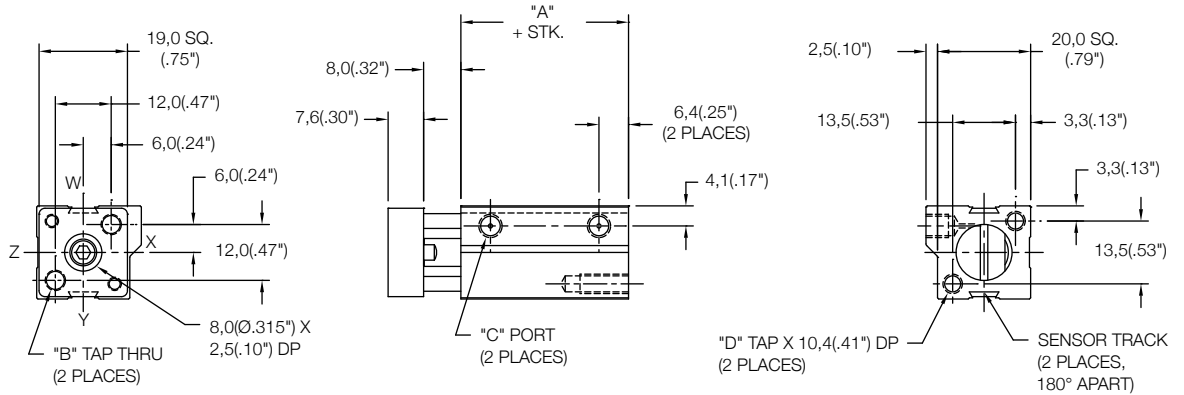
Cylinder Output Force Formula

Piston Area x Pressure = Output Force
Piston Area (in ²) x Pressure (PSI) = lbf (Pounds Force)
Piston Area (cm ²) x Pressure (kg/cm ²) = kgf (Kilograms Force)
Piston Area (cm ²) x Pressure (kg/cm ²) x 9.8 = Newtons
Piston Area (cm ²) x Pressure (Bar) x 10 = Newtons
Piston Area (cm ²) x Pressure (Bar) x 1.02 = kgf (Kilograms Force)

Rear Mount Cylinder "MR"

MODEL	STANDARD STROKES	"A"	PISTON AREA
LC	15mm	36,0(1.42")	PUSH 1,13 cm ² (0.18 in ²) PULL 0,85 cm ² (0.14 in ²)
	25mm		
	40mm		

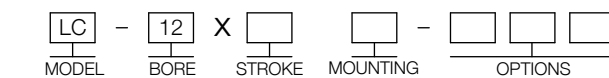
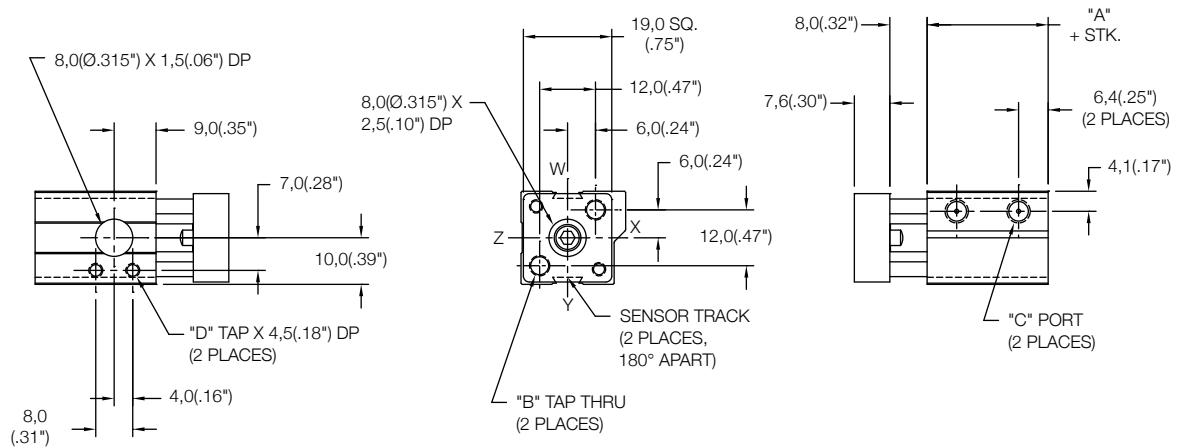
	Standard Threads	"EM" Option
"B"	M4X0,7	#8-32
"C"	M5X0,8	#10-32
"D"	M4X0,7	#8-32



Side Mount Cylinder "MS"

MODEL	STANDARD STROKES	"A"	PISTON AREA
LC	15mm	36,0(1.42")	PUSH 1,13 cm ² (0.18 in ²) PULL 0,85 cm ² (0.14 in ²)
	25mm		
	40mm		

	Standard Threads	"EM" Option
"B"	M4X0,7	#8-32
"C"	M5X0,8	#10-32
"D"	M3X0,5	#4-40



15mm - 40mm STROKE
(SEE CHART ABOVE)

MR - REAR MOUNT
MS - SIDE MOUNT
FR - REAR FLANGE
PR - PIVOT REAR
(SEE PAGE 92-94 FOR DETAILS)

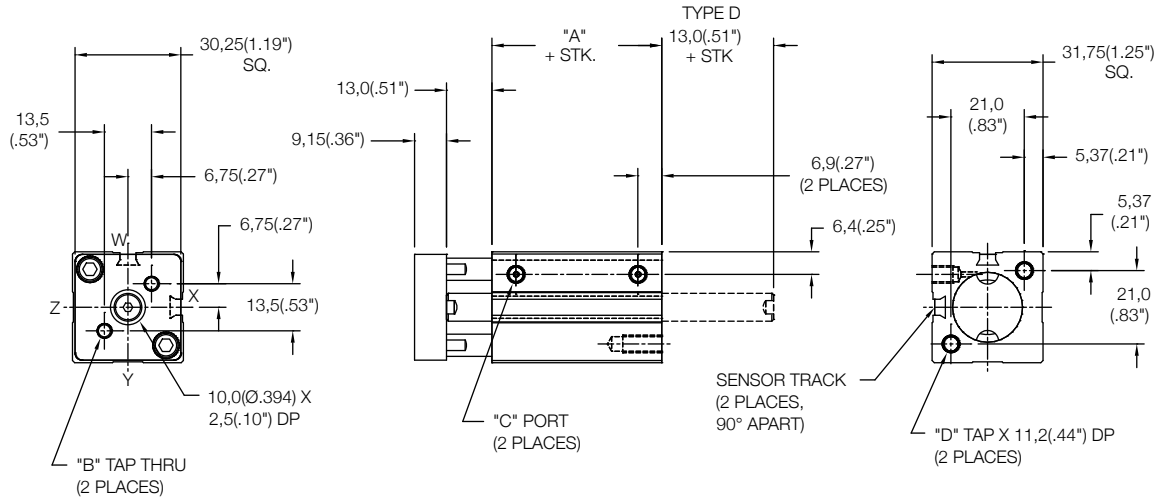
SENSORS SOLD SEPARATELY
SKS, SKP, SCS, SCP - SOLID STATE
LIMIT SENSORS
(SEE CATALOG PAGE 88 FOR DETAILS)

EM - INCH THREADS & PORT OPTIONS:
HS - HIGH TEMPERATURE SEALS OPTION:
(SEE CATALOG PAGE 97 FOR DETAILS)
BP - BLANK TOOLING PLATE

Rear Mount Cylinder "MR"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	33,5(1.32")	PUSH 3,14 cm ² (0.48 in ²)
		25mm		
		40mm		PULL 2,64 cm ² (0.40 in ²)
		50mm		

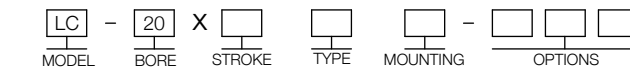
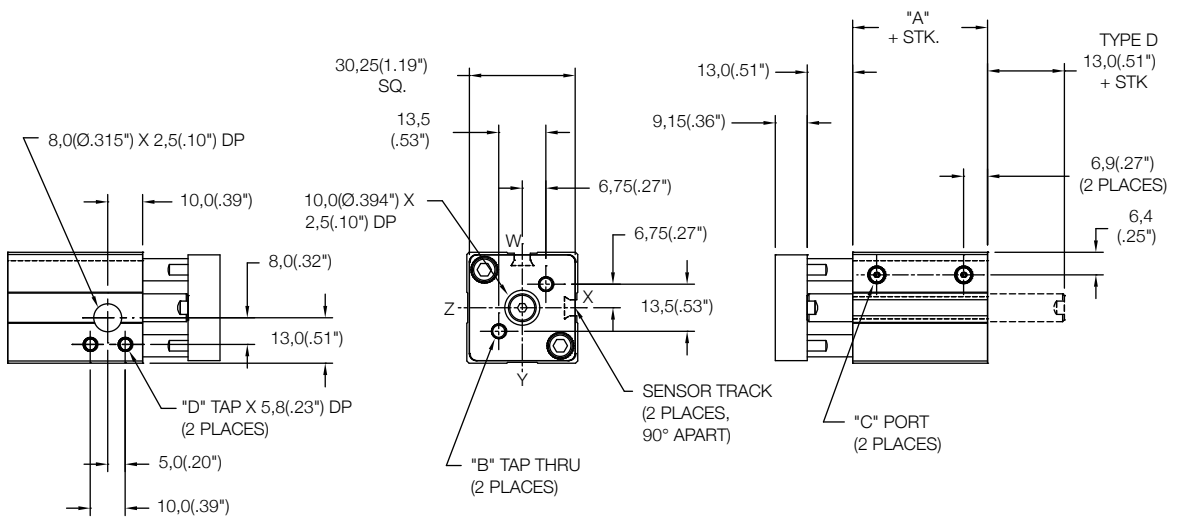
	Standard Threads	"EM" Option
"B"	M4X0,7	#8-32
"C"	M5X0,8	#10-32
"D"	M5X0,8	#10-32



Side Mount Cylinder "MS"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	33,5(1.32")	PUSH 3,14 cm ² (0.48 in ²)
		25mm		
		40mm		PULL 2,64 cm ² (0.40 in ²)
		50mm		

	Standard Threads	"EM" Option
"B"	M4X0,7	#8-32
"C"	M5X0,8	#10-32
"D"	M4X0,7	#8-32



15mm - 50mm STROKE
(SEE CHART ABOVE)

BLANK - NO CODE
D - DOUBLE ROD
(SEE PAGE 99 FOR DETAILS)

MR - REAR MOUNT
MS - SIDE MOUNT
FR - REAR FLANGE
PR - PIVOT REAR
(SEE PAGE 92-94 FOR DETAILS)

SENSORS SOLD SEPARATELY
SKS, SKP, SCS, SCP - SOLID STATE
LIMIT SENSORS
(SEE CATALOG PAGE 88 FOR DETAILS)

EM - INCH THREADS & PORT OPTIONS:

HS - HIGH TEMPERATURE SEALS OPTION:
(SEE CATALOG PAGE 97 FOR DETAILS)

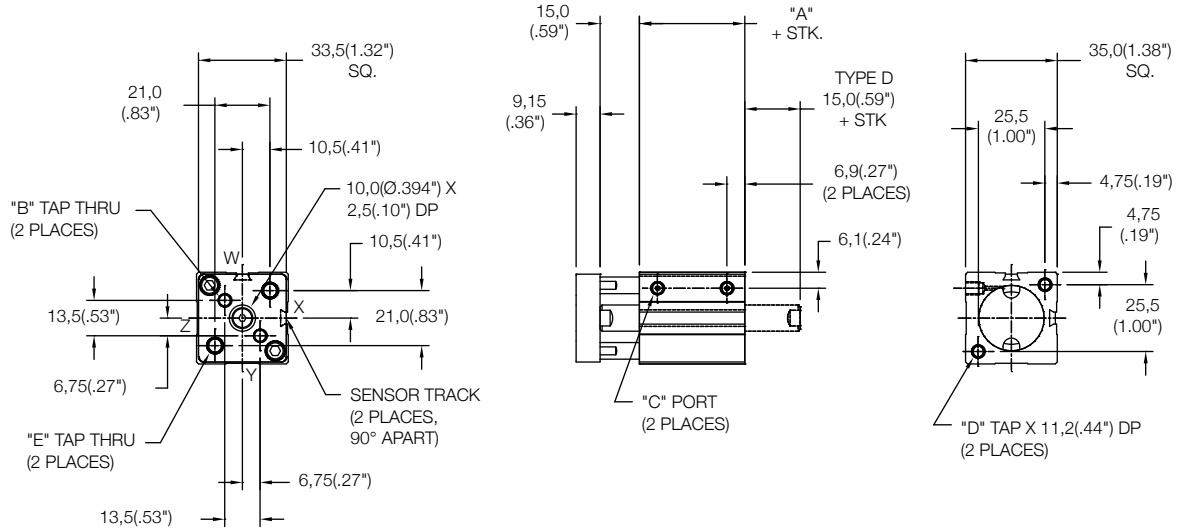
BP - BLANK TOOLING PLATE

UB, UF, UR - URETHANE SHOCK PAD OPTION
(SEE CATALOG PAGE 97 FOR DETAILS)

Rear Mount Cylinder "MR"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	34,0(1.34")	PUSH 4,91 cm ² (0.76 in ²)
		25mm		
		40mm		PULL 4,12 cm ² (0.64 in ²)
		50mm		

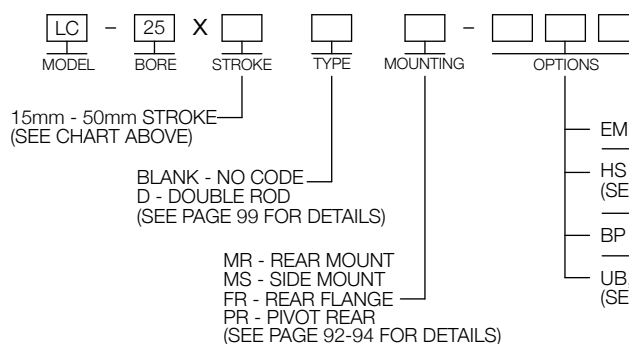
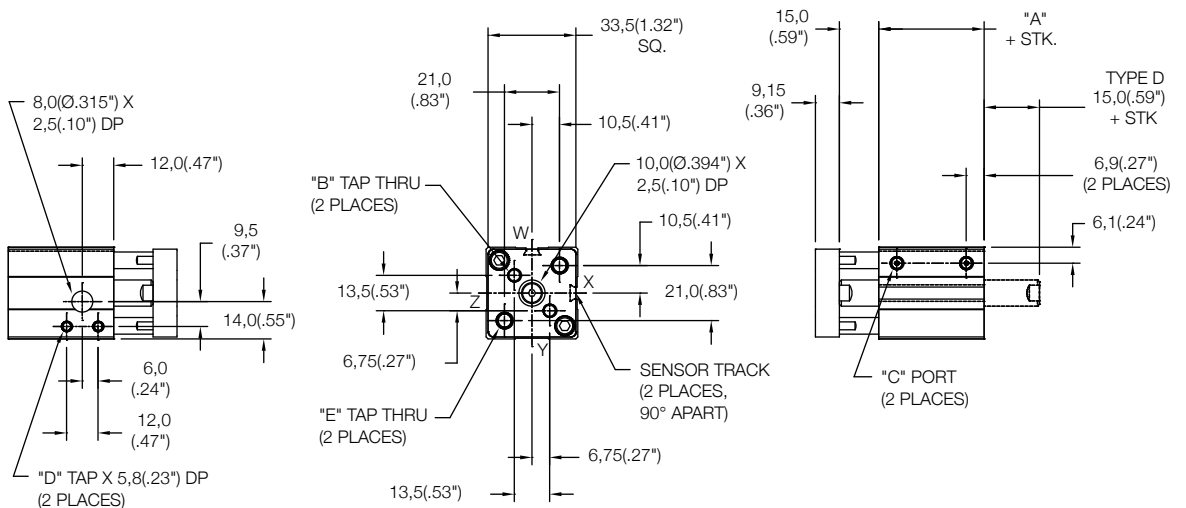
	Standard Threads	"EM" Option
"B"	M5X0,8	#10-32
"C"	M5X0,8	#10-32
"D"	M5X0,8	#10-32
"E"	M6X1,0	1/4-20



Side Mount Cylinder "MS"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	34,0(1.34")	PUSH 4,91 cm ² (0.76 in ²)
		25mm		
		40mm		PULL 4,12 cm ² (0.64 in ²)
		50mm		

	Standard Threads	"EM" Option
"B"	M5X0,8	#10-32
"C"	M5X0,8	#10-32
"D"	M4X0,7	#8-32
"E"	M6X1,0	1/4-20

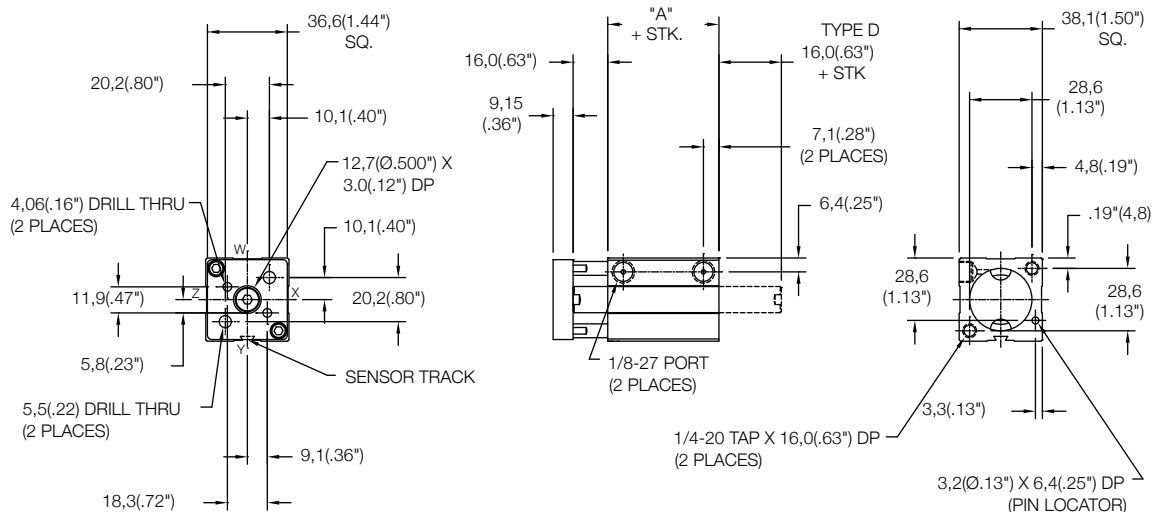


SENSORS SOLD SEPARATELY
SKS, SKP, SCS, SCP - SOLID STATE
LIMIT SENSORS
(SEE CATALOG PAGE 88 FOR DETAILS)

- EM - INCH THREADS & PORT OPTIONS:
- HS - HIGH TEMPERATURE SEALS OPTION: (SEE CATALOG PAGE 97 FOR DETAILS)
- BP - BLANK TOOLING PLATE
- UB, UF, UR - URETHANE SHOCK PAD OPTION (SEE CATALOG PAGE 97 FOR DETAILS)

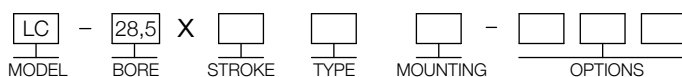
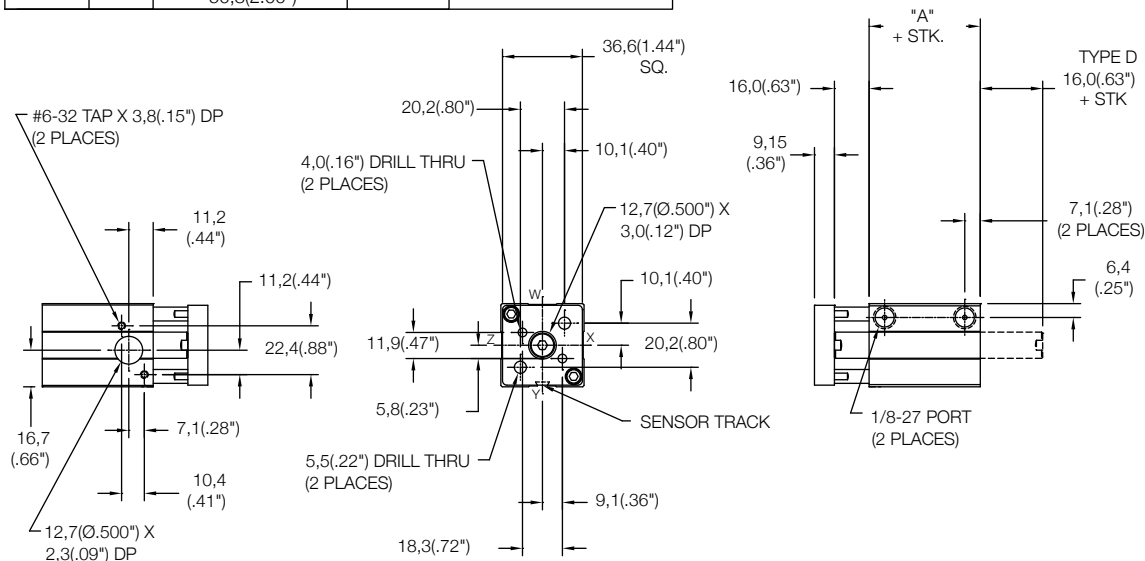
Rear Mount Cylinder "MR"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	12,7(.50")	38,1(1.50")	PUSH 6,41 cm ² (0.99 in ²)
		25,4(1.00")		
		38,1(1.50")		PULL 5,28 cm ² (0.82 in ²)
		50,8(2.00")		



Side Mount Cylinder "MS"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	12,7(.50")	38,1(1.50")	PUSH 6,41 cm ² (0.99 in ²)
		25,4(1.00")		
		38,1(1.50")		PULL 5,28 cm ² (0.82 in ²)
		50,8(2.00")		



LC - 28,5 X [] [] []
 MODEL BORE STROKE TYPE MOUNTING OPTIONS

12,7(.50") - 50,8(2.00")
 STROKE
 (SEE CHART ABOVE)

BLANK - NO CODE
 D - DOUBLE ROD
 (SEE PAGE 99 FOR DETAILS)

MR - REAR MOUNT
 MS - SIDE MOUNT
 FR - REAR FLANGE
 PR - PIVOT REAR
 (SEE PAGE 92-94 FOR DETAILS)

SENSORS SOLD SEPARATELY
 SKS, SKP, SCS, SCP - SOLID STATE
 LIMIT SENSORS
 (SEE CATALOG PAGE 88 FOR DETAILS)

HS - HIGH TEMPERATURE SEALS OPTION:
 (SEE CATALOG PAGE 97 FOR DETAILS)

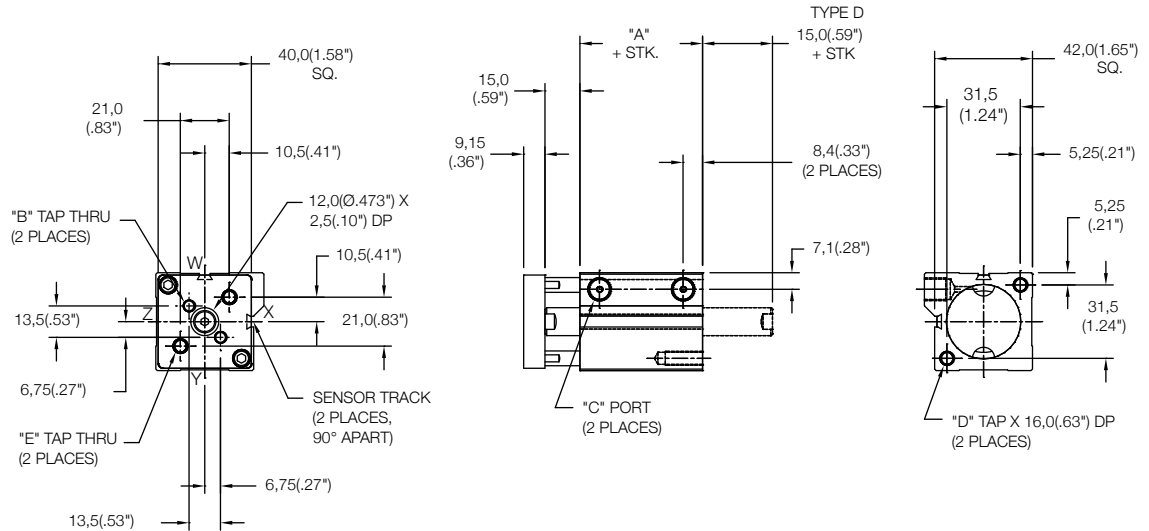
BP - BLANK TOOLING PLATE

UB, UF, UR - URETHANE SHOCK PAD OPTION
 (SEE CATALOG PAGE 97 FOR DETAILS)

Rear Mount Cylinder "MR"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	37,5(1.48")	PUSH 8,04 cm ² (1.25 in ²)
		25mm		
		40mm		PULL 6,91 cm ² (1.07 in ²)
		50mm		

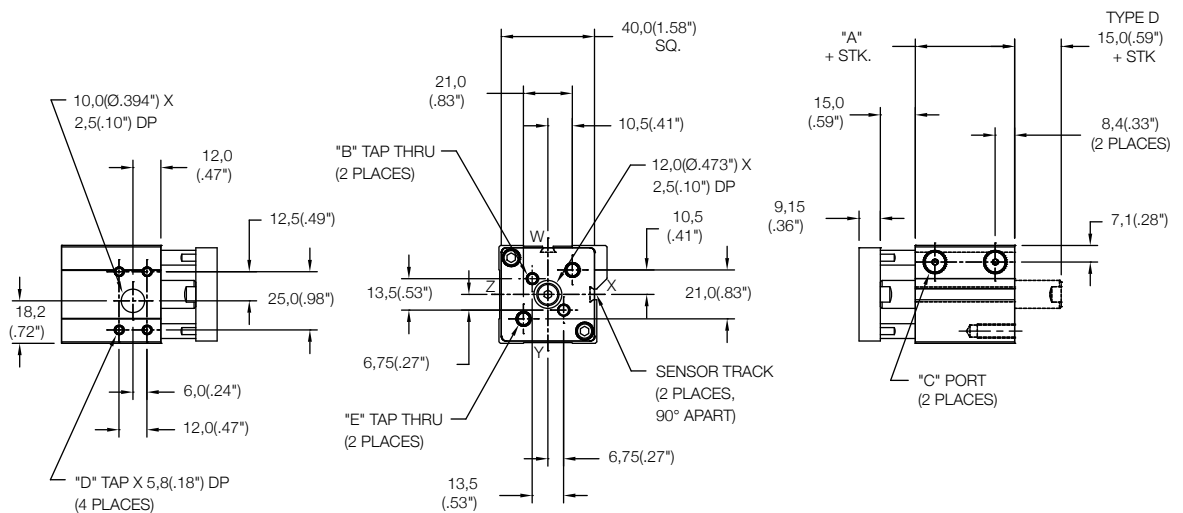
	Standard Threads	"EM" Option
"B"	M5X0,8	#10-32
"C"	G1/8 PORT	1/8-27
"D"	M6X1,0	1/4-20
"E"	M6X1,0	1/4-20



Side Mount Cylinder "MS"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	37,5(1.48")	PUSH 8,04 cm ² (1.25 in ²)
		25mm		
		40mm		PULL 6,91 cm ² (1.07 in ²)
		50mm		

	Standard Threads	"EM" Option
"B"	M5X0,8	#10-32
"C"	G1/8 PORT	1/8-27
"D"	M4X0,7	#8-32
"E"	M6X1,0	1/4-20



LC - MODEL 32 - BORE X STROKE TYPE MOUNTING OPTIONS

15mm - 50mm STROKE
(SEE CHART ABOVE)

BLANK - NO CODE
D - DOUBLE ROD
(SEE PAGE 99 FOR DETAILS)

MR - REAR MOUNT
MS - SIDE MOUNT
FR - REAR FLANGE
PR - PIVOT REAR
(SEE PAGE 92-94 FOR DETAILS)

SENSORS SOLD SEPARATELY
SKS, SKP, SCS, SCP - SOLID STATE
LIMIT SENSORS
(SEE CATALOG PAGE 88 FOR DETAILS)

EM - INCH THREADS & PORT OPTIONS:

HS - HIGH TEMPERATURE SEALS OPTION:
(SEE CATALOG PAGE 97 FOR DETAILS)

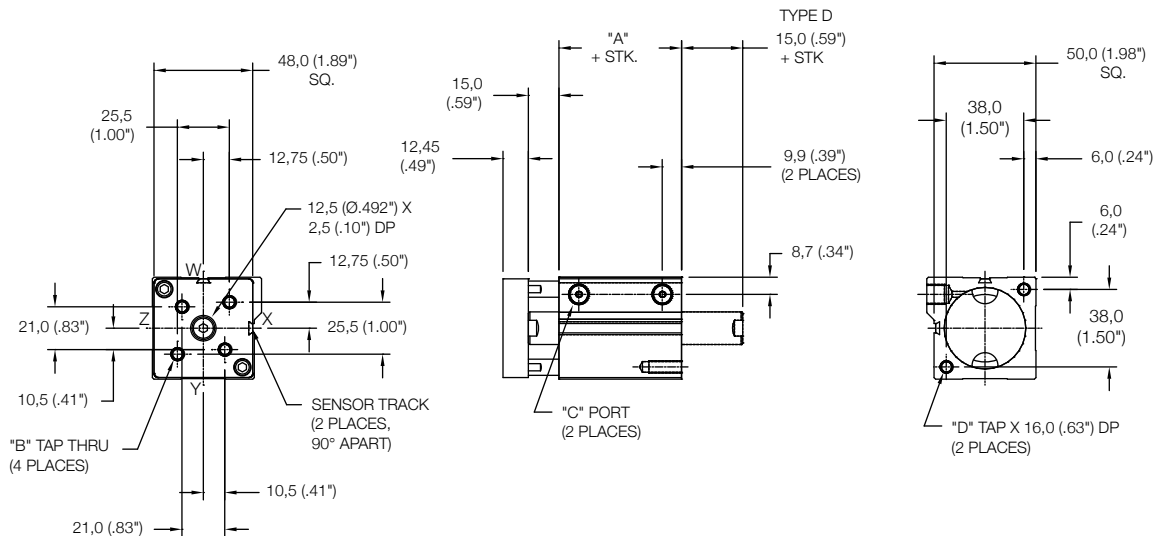
BP - BLANK TOOLING PLATE

UB, UF, UR - URETHANE SHOCK PAD OPTION
(SEE CATALOG PAGE 97 FOR DETAILS)

Rear Mount Cylinder "MR"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	45 (1.78")	PUSH 12,56 cm ² (1.95 in ²)
		25mm		
		40mm		PULL 10,55 cm ² (1.64 in ²)
		50mm		

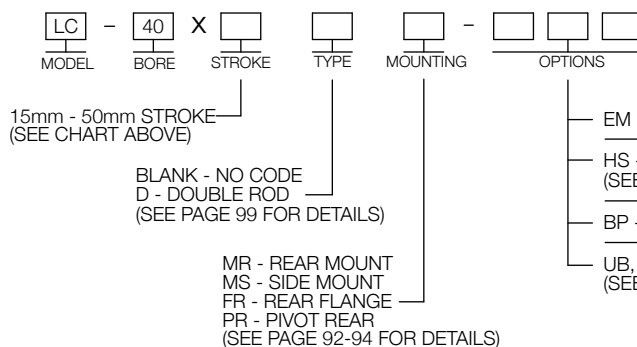
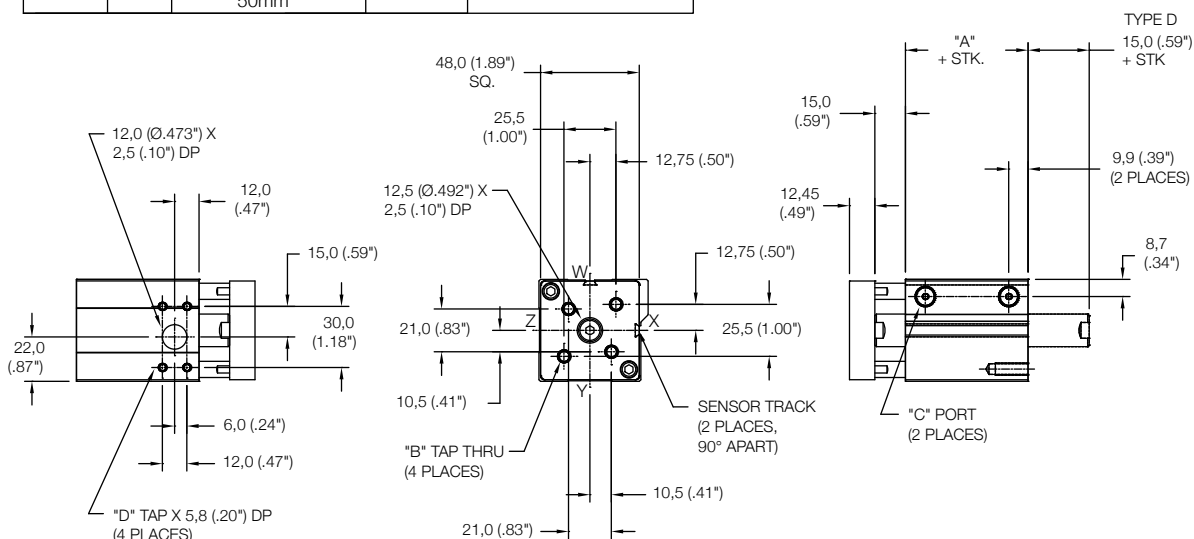
	Standard Threads	"EM" Option
"B"	M6X1,0	1/4-20
"C"	G1/8 PORT	1/8-27
"D"	M6X1,0	1/4-20



Side Mount Cylinder "MS"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	45 (1.78")	PUSH 12,56 cm ² (1.95 in ²)
		25mm		
		40mm		PULL 10,55 cm ² (1.64 in ²)
		50mm		

	Standard Threads	"EM" Option
"B"	M6X1,0	1/4-20
"C"	G1/8 PORT	1/8-27
"D"	M4X0,7	#8-32

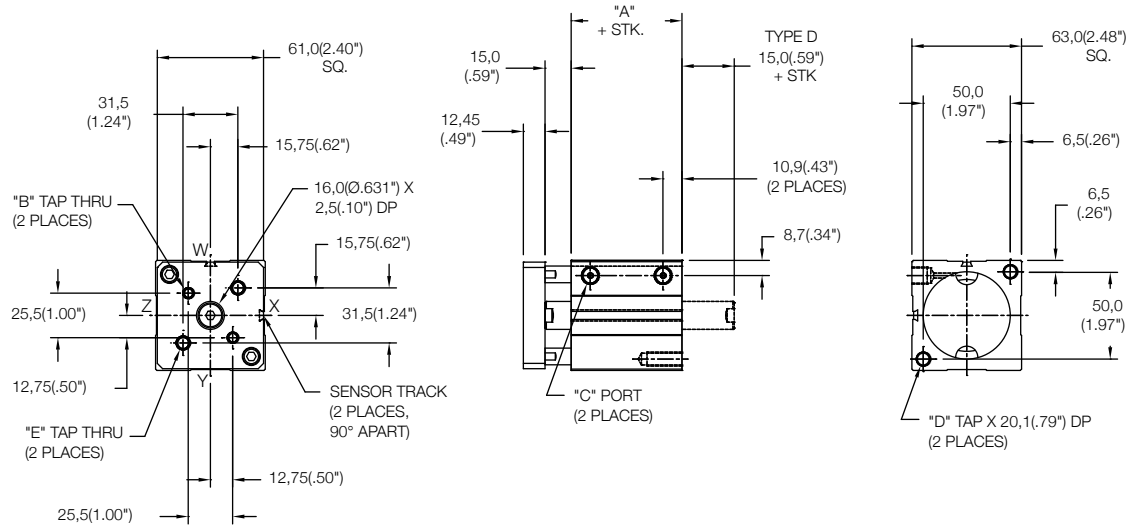


SENSORS SOLD SEPARATELY
SKS, SKP, SCS, SCP - SOLID STATE
LIMIT SENSORS
(SEE CATALOG PAGE 88 FOR DETAILS)

Rear Mount Cylinder "MR"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	48,5(1.91")	PUSH 19,63 cm ² (3.04 in ²) PULL 17,62 cm ² (2.73 in ²)
		25mm		
		40mm		
		50mm		
		75mm		

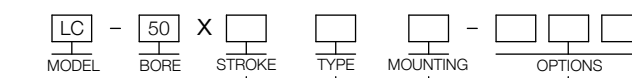
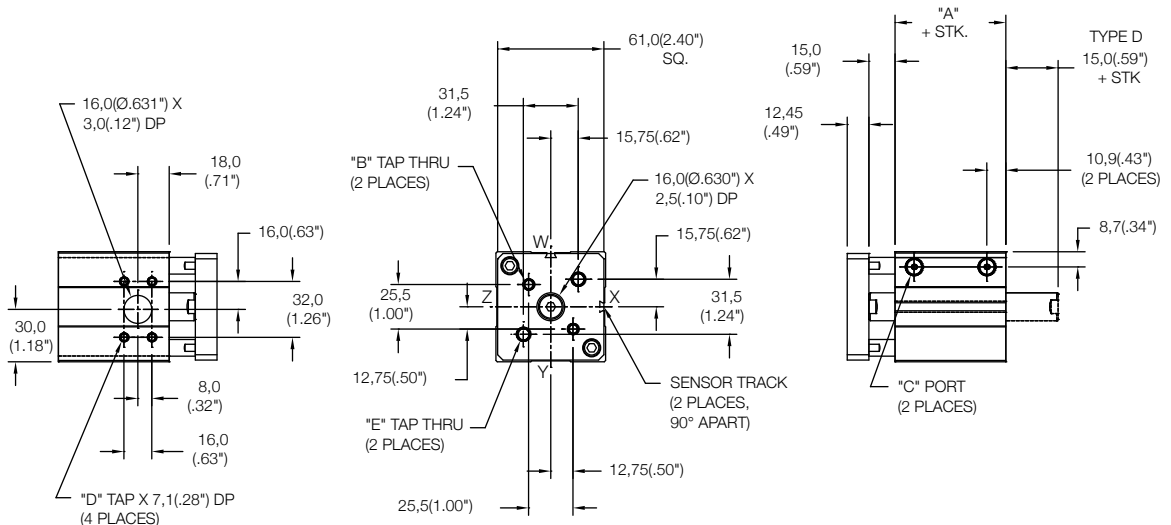
	Standard Threads	"EM" Option
"B"	M6X1,0	1/4-20
"C"	G1/8 PORT	1/8-27
"D"	M8X1,25	5/16-18
"E"	M8X1,25	5/16-18



Side Mount Cylinder "MS"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	48,5(1.91")	PUSH 19,63 cm ² (3.04 in ²) PULL 17,62 cm ² (2.73 in ²)
		25mm		
		40mm		
		50mm		
		75mm		

	Standard Threads	"EM" Option
"B"	M6X1,0	1/4-20
"C"	G1/8 PORT	1/8-27
"D"	M5X0,8	#10-32
"E"	M8X1,25	5/16-18



15mm - 75mm STROKE
(SEE CHART ABOVE)

BLANK - NO CODE
D - DOUBLE ROD
(SEE PAGE 99 FOR DETAILS)

MR - REAR MOUNT
MS - SIDE MOUNT
FR - REAR FLANGE
PR - PIVOT REAR
(SEE PAGE 92-94 FOR DETAILS)

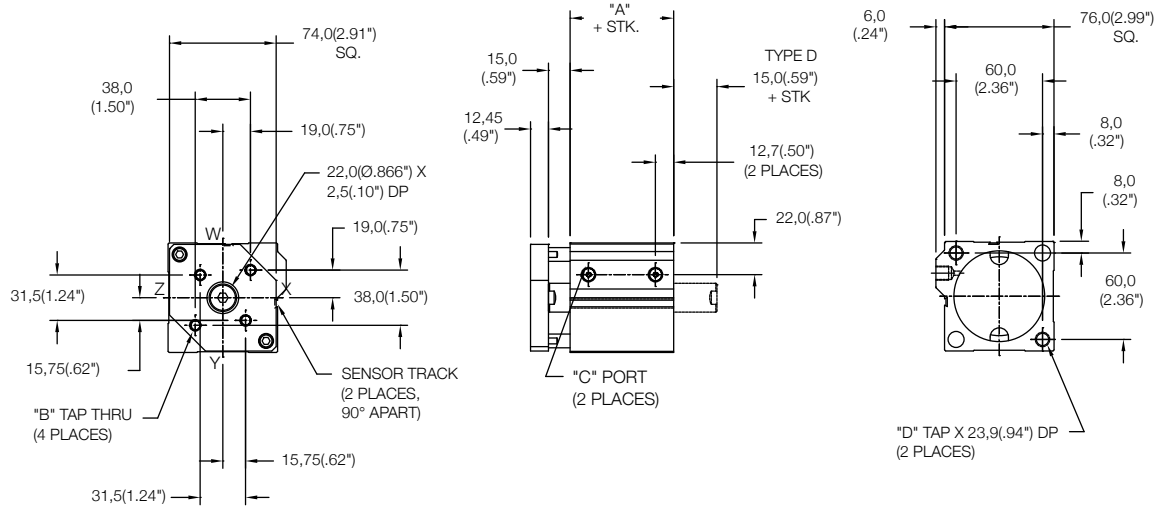
SENSORS SOLD SEPARATELY
SKS, SKP, SCS, SCP - SOLID STATE
LIMIT SENSORS
(SEE CATALOG PAGE 88 FOR DETAILS)

EM - INCH THREADS & PORT OPTIONS:
HS - HIGH TEMPERATURE SEALS OPTION:
(SEE CATALOG PAGE 97 FOR DETAILS)
BP - BLANK TOOLING PLATE
UB, UF, UR - URETHANE SHOCK PAD OPTION
(SEE CATALOG PAGE 97 FOR DETAILS)

Rear Mount Cylinder "MR"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	57,0(2.25")	PUSH 31,17 cm ² (4.83 in ²)
		25mm		
		40mm		
		50mm		
		75mm		
				PULL 28,03 cm ² (4.34 in ²)

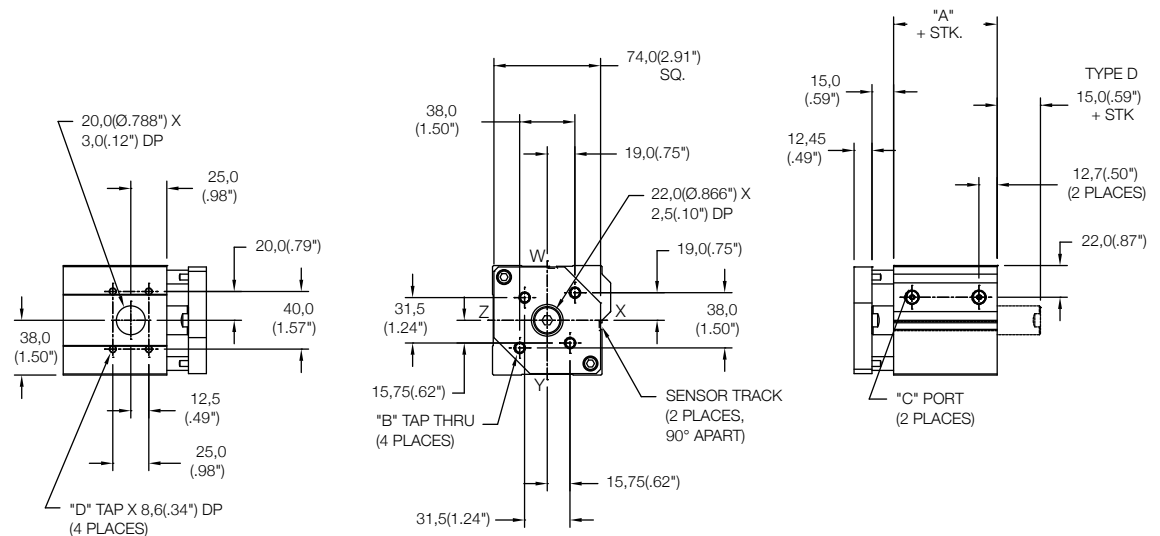
	Standard Threads	"EM" Option
"B"	M8X1,25	5/16-18
"C"	G1/8 PORT	1/8-27
"D"	M10X1,5	3/8-24



Side Mount Cylinder "MS"

MODEL	TYPE	STANDARD STROKES	"A"	PISTON AREA
LC	_D	15mm	57,0(2.25")	PUSH 31,17 cm ² (4.83 in ²)
		25mm		
		40mm		
		50mm		
		75mm		
				PULL 28,03 cm ² (4.34 in ²)

	Standard Threads	"EM" Option
"B"	M8X1,25	5/16-18
"C"	G1/8 PORT	1/8-27
"D"	M5X0,8	#10-32



LC - 63 X [] [] [] []
 MODEL BORE STROKE TYPE MOUNTING OPTIONS

15mm - 75mm STROKE
 (SEE CHART ABOVE)

BLANK - NO CODE
 D - DOUBLE ROD
 (SEE PAGE 99 FOR DETAILS)

MR - REAR MOUNT
 MS - SIDE MOUNT
 FR - REAR FLANGE
 PR - PIVOT REAR
 (SEE PAGE 92-94 FOR DETAILS)

SENSORS SOLD SEPARATELY
 SKS, SKP, SCS, SCP - SOLID STATE
 LIMIT SENSORS
 (SEE CATALOG PAGE 88 FOR DETAILS)

EM - INCH THREADS & PORT OPTIONS:

HS - HIGH TEMPERATURE SEALS OPTION:
 (SEE CATALOG PAGE 97 FOR DETAILS)

BP - BLANK TOOLING PLATE

UB, UF, UR - URETHANE SHOCK PAD OPTION
 (SEE CATALOG PAGE 97 FOR DETAILS)