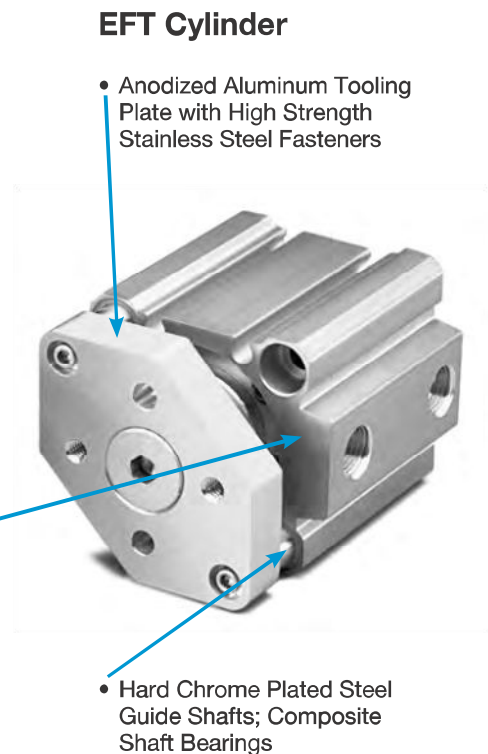
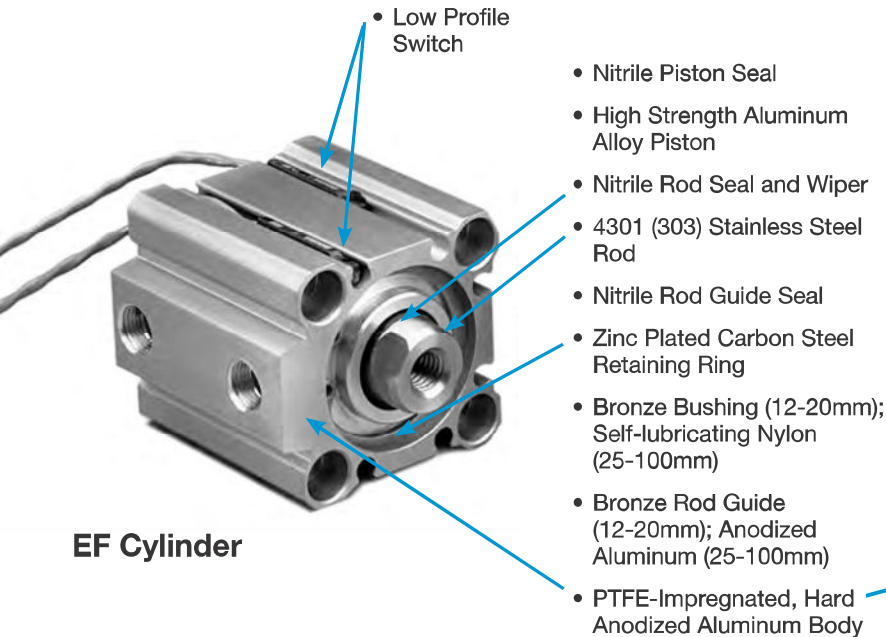


Bimba EF Cylinders

The Bimba EF Series is a compact, aluminum-extruded body air cylinder designed for international machine requirements.

The body is anodized in a special PTFE-impregnation process that provides superior wear characteristics. With its streamlined look, low cost and low-profile switch, it is an excellent choice for space-saving machine design.



Features and Advantages

- PTFE-impregnated, hard anodized aluminum body provides superior wear resistance. Expected service life is 2500 kilometers.
- Very compact; dimensionally-interchangeable with similar compact extruded aluminum body cylinders.
- Very low profile, compact switch slides into groove within cylinder geometry.
- EF1 cylinders are available in four models: double acting, single or double rod end; and single acting, spring return or extend, and EF2 cylinders are available in double acting, non-rotating.
- EFDT cylinders are available as a double acting, double ended, non-rotating rod cylinder to provide an additional operation feature from the cylinder rear.
- Both models are available in ten bore sizes from 12mm to 100mm.
- Wide variety of standard stroke lengths in 5mm increments; additional stroke lengths available.
- Standard cylinder is completely metric in design; with Option -E, threaded mounting options, rod threads and ports are in U.S. customary units (inch).
- Mounting options include threaded bottom mounting and threaded front/rear mounting option.
- Options include bumpers, ports and threaded mounting option and rod threads in U.S. customary units, magnetic position sensing, and high temperature seals.
- X option for EFT and EFDT cylinders only. This option increases stability by at least two times and up to 23 times depending on bore size. In addition, the X option more than doubles the maximum cylinder side load and moment!

Bimba EFl Cylinders

How to Order

The Model Number for all EFl cylinders consists of three alphanumeric clusters. These designate type, bore size and stroke length, and options. Please refer to the charts below for an example of Model Number EF-2510-3MMTV. This is a 25mm bore, double acting, single end rod cylinder, with metric threads and ports, 10mm of stroke, threaded front/rear mounting holes, magnetic position sensing, male rod end and high temperature option.

TYPE	BORE SIZE mm (inch)*	STROKE LENGTH**
EF – Double Acting, Single End Rod EFD – Double Acting, Double End Rod EFS – Single Acting, Spring Retract EFR – Single Acting, Spring Extend	12mm – (1/2") 40mm – (1-1/2") 16mm – (5/8") 50mm – (2") 20mm – (3/4") 63mm – (2-1/2") 25mm – (1") 80mm – (3-1/4") 32mm – (1-1/4") 100mm – (4")	See table - page 2.46

EF-2510-3MMTV

MOUNTING OPTIONS (Enter in numeric order)	OPTIONS (Enter in alphabetical order, except for EE which is last)
No Number – Basic model 1 – Threaded bottom mounting option 3 – Threaded front/rear mounting option 6 – Rear Clevis 6N – Rear Clevis 90°	B – Bumpers (see page 2.56) ¹ C – Stainless steel retaining ring E – U.S. customary units (inch) ² F – Full-flow port orifice ⁵ M – Magnetic position sensing (see table page 2.56) ³ MT – Male rod end (fine thread) (see page 2.55) ⁴ NT – Non-threaded rod V – High temperature option -10°C to 110°C (15°F to 225°F) EE – Extra rod extension in 1mm increments

¹Bumpers reduce stroke length by 3mm. When bumper is specified with option V, standard bumper material is supplied. Operating temperature remains -10° to 70°C (15° to 160°F).

²When option E is specified, user interface threads are designated U.S. customary (inch). This includes ports, rod threads and threaded mounting options (as applicable).

³When magnetic position sensing is specified with option V, operating temperature remains -10° to 70°C (15° to 160°F). This combination is recommended when fluoroelastomer is specified for compatibility.

⁴MT option must be specified to use rod pivot.

⁵Automatically includes bumpers, so stroke is reduced by 3mm.

Please note that throughout all catalog charts, metric measurements are shown first and U.S. customary units (inches) are in parentheses.

*NOTE: Numbers in parentheses are the equivalent bore size in inches and listed FOR REFERENCE ONLY. DO NOT use for model designation.

**When stroke length exceeds 30mm, a threaded mounting option should be considered. Mounting bolts that span the entire cylinder length may not be readily available.

Bimba EFI Cylinders

Engineering Specifications

Operating Medium:	Air
Maximum Operating Pressure:	10 bar (140 psi)
Ambient and Fluid Temperature:	-10° to 70°C (15° to 160°F)
Lubrication:	PTFE impregnated grease
Standard Rod End:	Female
Stroke Tolerance:	12-50mm bore: ± .6mm (.025 inch) 63-100mm bore: ± .8mm (.030 inch)
Cylinder Mounting (Standard):	Through hole with counterbores both ends
Cylinder Mounting (Optional):	Front and Rear threaded Side mount threaded Rear Clevis
Expected Service Life:	2500 kilometers (1500 miles)*

*For filtered, lubricated air, no-load conditions; if unlubricated, life is approximately 1/3.

Maximum Side Loads kg-Force (lb)

Bore	Stroke Length					
	5mm	10mm	15mm	20mm	25mm	30mm
12mm (1/2")	0.27 (0.60)	0.22 (0.49)	0.19 (0.41)	0.16 (0.35)	0.14 (0.31)	0.12 (0.27)
16mm (5/8")	0.33 (0.73)	0.27 (0.59)	0.23 (0.50)	0.20 (0.43)	0.17 (0.38)	0.15 (0.34)
20mm (3/4")	0.34 (0.74)	0.27 (0.60)	0.23 (0.51)	0.20 (0.44)	0.18 (0.39)	0.16 (0.35)
25mm (1")	0.54 (1.18)	0.45 (0.99)	0.38 (0.85)	0.34 (0.74)	0.30 (0.66)	0.27 (0.59)
32mm (1-1/4")	1.28 (2.81)	1.08 (2.38)	0.94 (2.07)	0.83 (1.83)	0.74 (1.64)	0.67 (1.48)
40mm (1-1/2")	2.27 (4.99)	1.97 (4.34)	1.75 (3.84)	1.57 (3.44)	1.42 (3.12)	1.30 (2.85)
50mm (2")	N/A	2.40 (5.29)	2.13 (4.69)	1.92 (4.22)	1.74 (3.83)	1.60 (3.51)
63mm (2-1/2")	N/A	3.18 (6.99)	2.85 (6.27)	2.58 (5.69)	2.36 (5.20)	2.18 (4.80)
80mm (3-1/4")	N/A	5.94 (13.06)	5.41 (11.91)	4.97 (10.94)	4.60 (10.12)	4.28 (9.41)
100mm (4")	N/A	9.14 (20.10)	8.45 (18.58)	7.85 (17.28)	7.34 (16.14)	6.88 (15.15)

Bore	Stroke Length					
	35mm	40mm	45mm	50mm	75mm	100mm
12mm (1/2")	0.11 (0.25)	0.10 (0.23)	N/A	N/A	N/A	N/A
16mm (5/8")	0.14 (0.30)	0.13 (0.28)	N/A	N/A	N/A	N/A
20mm (3/4")	0.14 (0.32)	0.13 (0.29)	0.12 (0.27)	0.11 (0.25)	N/A	N/A
25mm (1")	0.24 (0.54)	0.22 (0.49)	0.21 (0.46)	0.19 (0.42)	N/A	N/A
32mm (1-1/4")	0.61 (1.35)	0.57 (1.25)	0.52 (1.15)	0.49 (1.07)	0.36 (0.80)	0.29 (0.64)
40mm (1-1/2")	1.19 (2.63)	1.11 (2.44)	1.03 (2.27)	0.97 (2.12)	0.73 (1.61)	0.59 (1.30)
50mm (2")	1.47 (3.24)	1.37 (3.01)	1.27 (2.80)	1.19 (2.63)	0.91 (2.00)	0.73 (1.61)
63mm (2-1/2")	2.02 (4.45)	1.88 (4.15)	1.76 (3.88)	1.66 (3.65)	1.28 (2.81)	1.04 (2.29)
80mm (3-1/4")	4.00 (8.79)	3.75 (8.25)	3.53 (7.78)	3.34 (7.35)	2.62 (5.77)	2.16 (4.75)
100mm (4")	6.48 (14.27)	6.13 (13.48)	5.81 (12.78)	5.52 (12.15)	4.43 (9.74)	3.69 (8.13)

Flat-1/
Square Flat-1

Flat-4/
Square Flat-4

F02, F03, F04
(multiple power)

F0P
(multiple position)

Flat
Accessories

EF1/EF2

EF1/EF4

Stopper/
Twist Clamp

Extruded
Flat Lift Table

Twin Bore

N/A

Diaphragm/
Miniature Cube

Bimba EFl Cylinders

Theoretical Cylinder Forces

FORCE = Power Factor x Input Pressure

Bore	Direction	Power Factor* (When input pressure in bar)	Power Factor** (When input pressure in psi)
12mm (1/2")	Extend	1.1	(0.2)
	Retract	0.8	(0.1)
16mm (5/8")	Extend	2.0	(0.3)
	Retract	1.5	(0.2)
20mm (3/4")	Extend	3.1	(0.5)
	Retract	2.4	(0.4)
25mm (1")	Extend	4.9	(0.8)
	Retract	3.8	(0.6)
32mm (1-1/4")	Extend	8.0	(1.2)
	Retract	6.0	(0.9)
40mm (1-1/2")	Extend	12.6	(1.9)
	Retract	10.6	(1.6)
50mm (2")	Extend	19.6	(3.0)
	Retract	16.5	(2.6)
63mm (2-1/2")	Extend	31.2	(4.8)
	Retract	28.0	(4.3)
80mm (3-1/4")	Extend	50.3	(7.8)
	Retract	45.4	(7.0)
100mm (4")	Extend	78.5	(12.2)
	Retract	71.5	(11.1)

*Power Factor x bar = kg.

**Power Factor x psi = Pounds

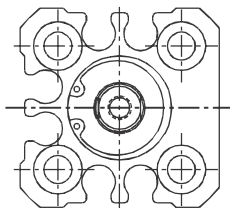
Bimba EFI Cylinders

Enclosed Spring Forces

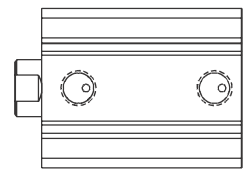
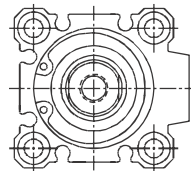
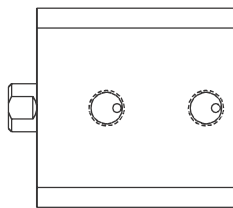
Action	Bore	Compressed Spring Force		Spring Rate	
		N	(lb)	N/mm	(lb/in)
Spring Acting Spring Return	12mm (1/2")	12.8	(2.9)	0.8	(4.8)
	16mm (5/8")	16.0	(3.6)	1.0	(5.7)
	20mm (3/4")	18.1	(4.1)	1.2	(6.9)
	25mm (1")	21.4	(4.8)	1.1	(6.4)
	32mm (1-1/4")	22.2	(5.0)	0.8	(4.3)
	40mm (1-1/2")	33.1	(7.4)	0.9	(5.1)
	50mm (2")	53.8	(12.1)	1.2	(6.7)
	63mm (2-1/2")	89.0	(20.0)	2.1	(11.8)
	80mm (3-1/4")	106.8	(24.0)	2.3	(13.2)
	100mm (4")	N/A	(N/A)	N/A	(N/A)
Reverse Acting Spring Extend	12mm; 5mm stroke	10.9	(2.5)	1.6	(9.1)
	12mm; 10mm stroke	11.0	(2.5)	0.8	(4.6)
	16mm; 5mm stroke	20.7	(4.7)	3.4	(19.5)
	16mm; 10mm stroke	20.9	(4.7)	1.8	(10.3)
	20mm	27.3	(6.1)	2.3	(12.9)
	25mm	29.1	(6.5)	2.0	(11.2)
	32mm	26.6	(6.0)	0.9	(5.1)
	40mm	30.1	(6.8)	1.2	(7.1)
	50mm	81.9	(18.4)	2.9	(16.7)
	63mm; 20mm stroke	95.3	(21.4)	3.0	(16.7)
	63mm; 25mm stroke	95.3	(21.4)	2.4	(13.3)
	80mm; 20mm stroke	110.8	(24.9)	3.2	(17.8)
	80mm; 25mm stroke	110.9	(24.9)	2.5	(14.2)
	100mm	N/A	(N/A)	N/A	(N/A)

Body Styles

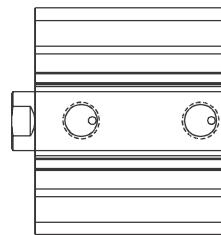
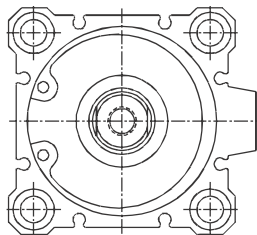
12mm Bore



16mm to 32mm Bore



40mm to 100mm Bore



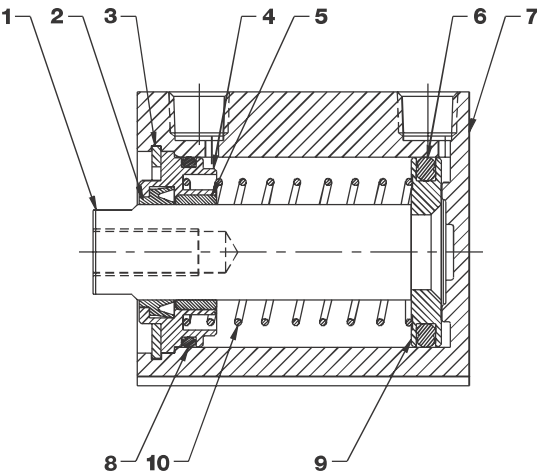
Bimba EFL Cylinders

Components

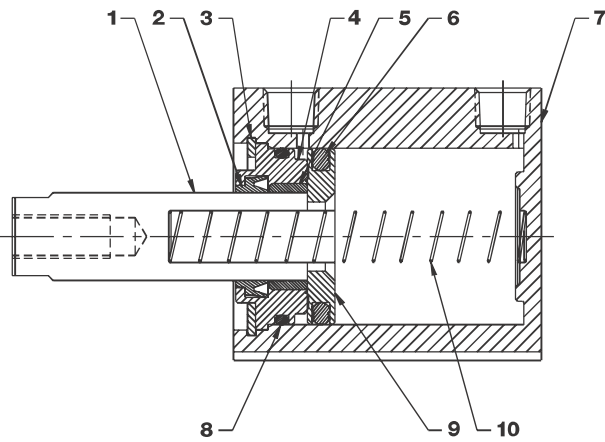
Part List

Part #	Description	Material
1	Rod	4301 (303) Stainless Steel
2	Rod Seal/Wiper	Nitrile (Standard) or Fluoroelastomer (High Temperature Option)
3	Retaining Ring	Zinc Plated Carbon Steel or Stainless Steel (optional)
4	Rod Guide	12-20mm: Bronze / 25-100mm: Anodized Aluminum
5	Bushing	12-20mm: Bronze / 25-100mm: Self Lubricating Nylon
6	Piston Seal	Nitrile (Standard) or Fluoroelastomer (High Temperature Option)
7	Cylinder Body	Polytetrafluoroethylene (PTFE) Impregnated Hard Anodized Aluminum
8	Rod Guide Seal	Nitrile (Standard) or Fluoroelastomer (High Temperature Option)
9	Piston	High Strength Aluminum Alloy
10	Spring	Corrosion Protected Music Wire

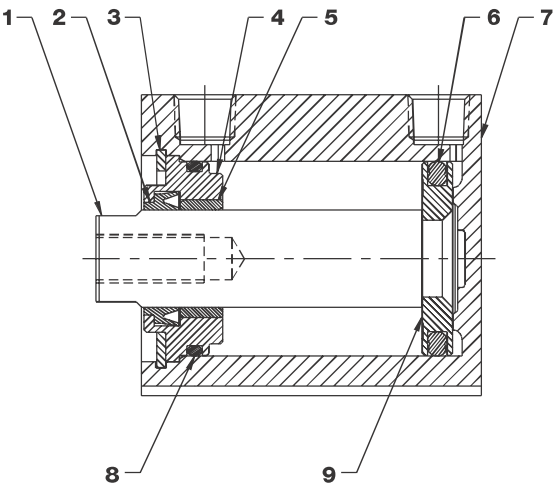
Single Acting/Spring Retract



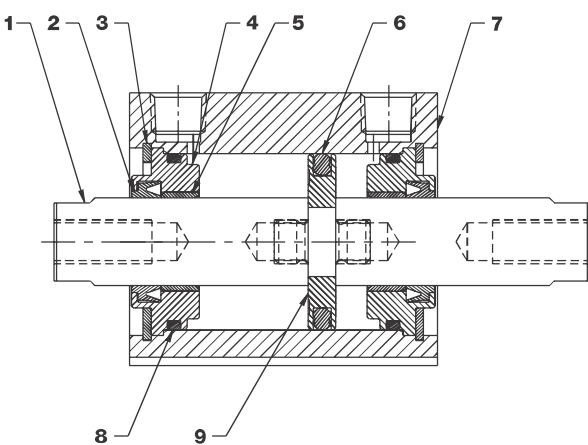
Single Acting/Spring Extend



Double Acting/Single Rod



Double Acting/Double Rod



Bimba EFI Cylinders

Dimensions

Shown in millimeters (inches)

Double Acting/Single Rod

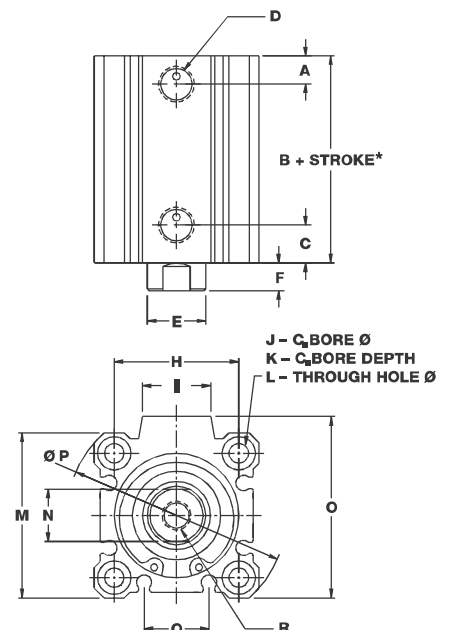
Bore	A	B	C	D	E	F	H
12mm (1/2")	3.8 (0.15)	17.0 (0.67)	8.9 (0.35)	M5 x 0.8 (#10-32)	6.0 (0.24)	3.5 (0.14)	15.5 (0.61)
16mm (5/8")	4.6 (0.18)	18.5 (0.73)	9.4 (0.37)	M5 x 0.8 (#10-32)	8.0 (0.31)	3.5 (0.14)	20.0 (0.79)
20mm (3/4")	4.8 (0.19)	19.5 (0.77)	9.4 (0.37)	M5 x 0.8 (#10-32)	10.0 (0.39)	4.5 (0.18)	25.5 (1.00)
25mm (1")	5.1 (0.20)	22.5 (0.89)	10.9 (0.43)	M5 x 0.8 (#10-32)	12.0 (0.47)	5.0 (0.20)	28.0 (1.10)
32mm (1-1/4")	7.1 (0.28)	23.0 (0.91)	10.4 (0.41)	G - 1/8 (NPT 1/8)	16.0 (0.63)	7.0 (0.28)	34.0 (1.34)
40mm (1-1/2")	7.4 (0.29)	29.5 (1.16)	13.2 (0.52)	G - 1/8 (NPT 1/8)	16.0 (0.63)	7.0 (0.28)	40.0 (1.57)
50mm (2")	9.4 (0.37)	30.5 (1.20)	13.7 (0.54)	G - 1/4 (NPT 1/4)	20.0 (0.79)	8.0 (0.31)	50.0 (1.97)
63mm (2-1/2")	9.7 (0.38)	36.0 (1.42)	15.7 (0.62)	G - 1/4 (NPT 1/4)	20.0 (0.79)	8.0 (0.31)	60.0 (2.36)
80mm (3-1/4")	11.7 (0.46)	43.5 (1.71)	17.8 (0.70)	G - 3/8 (NPT 3/8)	25.0 (0.98)	10.0 (0.39)	77.0 (3.03)
100mm (4")	12.2 (0.48)	53.0 (2.09)	24.4 (0.96)	G - 3/8 (NPT 3/8)	30.0 (1.18)	12.0 (0.47)	94.0 (3.70)

Bore	I	J	K	L	M	N	O
12mm (1/2")	N/A	6.1 (0.24)	3.5 (0.14)	3.5 (0.14)	25.0 (0.98)	5.0 (0.19)	25.0 (0.98)
16mm (5/8")	8.7 (0.34)	6.5 (0.26)	3.5 (0.14)	3.5 (0.14)	29.0 (1.14)	6.0 (0.25)	29.0 (1.14)
20mm (3/4")	9.5 (0.37)	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	36.0 (1.42)	8.0 (0.31)	36.0 (1.42)
25mm (1")	10.3 (0.41)	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	40.0 (1.57)	10.0 (0.38)	40.0 (1.57)
32mm (1-1/4")	18.5 (0.73)	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	45.0 (1.77)	14.0 (0.56)	49.5 (1.95)
40mm (1-1/2")	17.3 (0.68)	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	52.0 (2.05)	14.0 (0.56)	57.0 (2.24)
50mm (2")	20.0 (0.79)	11.1 (0.44)	8.0 (0.31)	6.9 (0.27)	64.0 (2.52)	17.0 (0.69)	71.0 (2.80)
63mm (2-1/2")	20.0 (0.79)	14.1 (0.56)	10.5 (0.41)	8.8 (0.35)	77.0 (3.03)	17.0 (0.69)	84.0 (3.31)
80mm (3-1/4")	26.0 (1.02)	17.5 (0.69)	13.5 (0.53)	11.0 (0.43)	98.0 (3.86)	22.0 (0.88)	104.0 (4.09)
100mm (4")	26.0 (1.02)	17.5 (0.69)	13.5 (0.53)	11.0 (0.43)	117.0 (4.61)	27.0 (1.06)	123.5 (4.86)

Bore	P	Q	R
12mm (1/2")	32.0 (1.26)	5.3 (0.21)	M3 x 0.5 6H (#8-32 UNC-2B)
16mm (5/8")	38.0 (1.50)	7.8 (0.31)	M4 x 0.7 6H (#8-32 UNC-2B)
20mm (3/4")	47.0 (1.85)	10.5 (0.41)	M5 x 0.8 6H (#10-32 UNF-2B)
25mm (1")	52.0 (2.05)	11.5 (0.45)	M6 x 1.0 6H (1/4-28 UNF-2B)
32mm (1-1/4")	60.0 (2.36)	17.7 (0.70)	M8 x 1.25 6H (5/16-24 UNF-2B)
40mm (1-1/2")	69.0 (2.72)	24.5 (0.96)	M8 x 1.25 6H (3/8-24 UNF-2B)
50mm (2")	86.0 (3.39)	29.3 (1.16)	M10 x 1.5 6H (1/2-20 UNF-2B)
63mm (2-1/2")	103.0 (4.06)	29.1 (1.15)	M10 x 1.5 6H (1/2-20 UNF-2B)
80mm (3-1/4")	132.0 (5.20)	28.1 (1.11)	M16 x 2.0 6H (5/8-18 UNF-2B)
100mm (4")	156.0 (6.14)	32.3 (1.27)	M20 x 2.5 6H (3/4-16 UNF-2B)

*See page 2.56 for overall body length with MRS option.

When option E is specified, user interface threads are designated U.S. customary (inch). This includes ports, rod threads and threaded mounting options (as applicable).



Bimba EFL Cylinders

Dimensions

Shown in millimeters (inches)

Double Acting/Double Rod

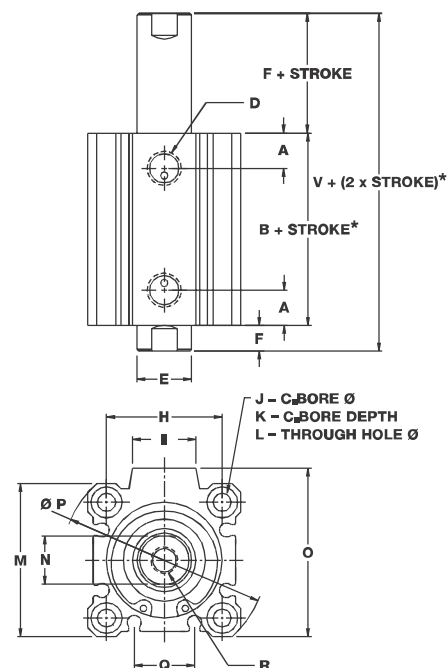
Bore	A	B	D	E	F	H	I
12mm (1/2")	10.6 (0.42)	25.2 (0.99)	M5 x 0.8 (#10-32)	6.0 (0.24)	3.5 (0.14)	15.5 (0.61)	N/A
16mm (5/8")	10.7 (0.42)	26.0 (1.03)	M5 x 0.8 (#10-32)	8.0 (0.31)	3.5 (0.14)	20.0 (0.79)	8.7 (0.34)
20mm (3/4")	10.1 (0.40)	26.0 (1.03)	M5 x 0.8 (#10-32)	10.0 (0.39)	4.5 (0.18)	25.5 (1.00)	9.5 (0.37)
25mm (1")	11.2 (0.44)	29.0 (1.14)	M5 x 0.8 (#10-32)	12.0 (0.47)	5.0 (0.20)	28.0 (1.10)	10.3 (0.41)
32mm (1-1/4")	8.9 (0.35)	30.5 (1.20)	G - 1/8 (NPT 1/8)	16.0 (0.63)	7.0 (0.28)	34.0 (1.34)	18.5 (0.73)
40mm (1-1/2")	13.1 (0.52)	40.0 (1.58)	G - 1/8 (NPT 1/8)	16.0 (0.63)	7.0 (0.28)	40.0 (1.57)	17.3 (0.68)
50mm (2")	12.2 (0.48)	40.5 (1.60)	G - 1/4 (NPT 1/4)	20.0 (0.79)	8.0 (0.31)	50.0 (1.97)	20.0 (0.79)
63mm (2-1/2")	12.8 (0.50)	42.0 (1.66)	G - 1/4 (NPT 1/4)	20.0 (0.79)	8.0 (0.31)	60.0 (2.36)	20.0 (0.79)
80mm (3-1/4")	14.4 (0.57)	51.0 (2.01)	G - 3/8 (NPT 3/8)	25.0 (0.98)	10.0 (0.39)	77.0 (3.03)	26.0 (1.02)
100mm (4")	18.3 (0.72)	60.5 (2.32)	G - 3/8 (NPT 3/8)	30.0 (1.18)	12.0 (0.47)	94.0 (3.70)	26.0 (1.02)

Bore	J	K	L	M	N	O	P
12mm (1/2")	6.1 (0.24)	3.5 (0.14)	3.5 (0.14)	25.0 (0.98)	5.0 (0.19)	25.0 (0.98)	32.0 (1.26)
16mm (5/8")	6.5 (0.26)	3.5 (0.14)	3.5 (0.14)	29.0 (1.14)	6.0 (0.25)	29.0 (1.14)	38.0 (1.50)
20mm (3/4")	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	36.0 (1.42)	8.0 (0.31)	36.0 (1.42)	47.0 (1.85)
25mm (1")	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	40.0 (1.57)	10.0 (0.38)	40.0 (1.57)	52.0 (2.05)
32mm (1-1/4")	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	45.0 (1.77)	14.0 (0.56)	49.5 (1.95)	60.0 (2.36)
40mm (1-1/2")	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	52.0 (2.05)	14.0 (0.56)	57.0 (2.24)	69.0 (2.72)
50mm (2")	11.1 (0.44)	8.0 (0.31)	6.9 (0.27)	64.0 (2.52)	17.0 (0.69)	71.0 (2.80)	86.0 (3.39)
63mm (2-1/2")	14.1 (0.56)	10.5 (0.41)	8.8 (0.35)	77.0 (3.03)	17.0 (0.69)	84.0 (3.31)	103.0 (4.06)
80mm (3-1/4")	17.5 (0.69)	13.5 (0.53)	11.0 (0.43)	98.0 (3.86)	22.0 (0.88)	104.0 (4.09)	132.0 (5.20)
100mm (4")	17.5 (0.69)	13.5 (0.53)	11.0 (0.43)	117.0 (4.61)	27.0 (1.06)	123.5 (4.86)	156.0 (6.14)

Bore	Q	R	V
12mm (1/2")	5.3 (0.21)	M3 x 0.5 6H (#8-32 UNC-2B)	32.4 (1.27)
16mm (5/8")	7.8 (0.31)	M4 x 0.7 6H (#8-32 UNC-2B)	33.2 (1.31)
20mm (3/4")	10.5 (0.41)	M5 x 0.8 6H (#10-32 UNF-2B)	35.2 (1.39)
25mm (1")	11.5 (0.45)	M6 x 1.0 6H (1/4-28 UNF-2B)	39.2 (1.54)
32mm (1-1/4")	17.7 (0.70)	M8 x 1.25 6H (5/16-24 UNF-2B)	44.7 (1.76)
40mm (1-1/2")	24.5 (0.96)	M8 x 1.25 6H (3/8-24 UNF-2B)	54.2 (2.14)
50mm (2")	29.3 (1.16)	M10 x 1.5 6H (1/2-20 UNF-2B)	56.3 (2.22)
63mm (2-1/2")	29.1 (1.15)	M10 x 1.5 6H (1/2-20 UNF-2B)	57.8 (2.28)
80mm (3-1/4")	28.1 (1.11)	M16 x 2.0 6H (5/8-18 UNF-2B)	70.8 (2.79)
100mm (4")	32.3 (1.27)	M20 x 2.5 6H (3/4-16 UNF-2B)	84.3 (3.26)

*See page 2.56 for overall body length with MRS option.

When option E is specified, user interface threads are designated U.S. customary (inch). This includes ports, rod threads and threaded mounting options (as applicable).



Bimba EFL Cylinders

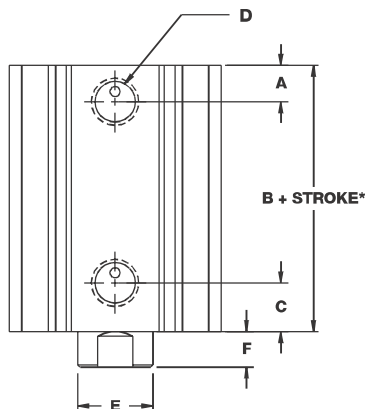
Dimensions

Shown in millimeters (inches)

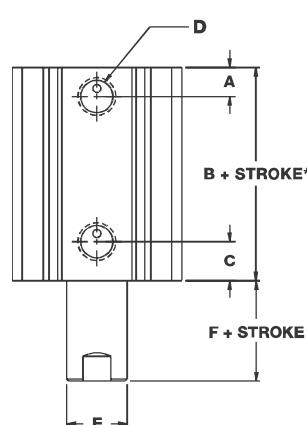
Spring Retract/Spring Extend

Bore	A	B	C	D	E	F
12mm (1/2")	3.8 (0.15)	17.0 (0.67)	8.9 (0.35)	M5 x 0.8 (#10-32)	6.0 (0.24)	3.5 (0.14)
16mm (5/8")	4.6 (0.18)	18.5 (0.73)	9.4 (0.37)	M5 x 0.8 (#10-32)	8.0 (0.31)	3.5 (0.14)
20mm (3/4")	4.8 (0.19)	19.5 (0.77)	9.4 (0.37)	M5 x 0.8 (#10-32)	10.0 (0.39)	4.5 (0.18)
25mm (1")	5.1 (0.20)	22.5 (0.89)	10.9 (0.43)	M5 x 0.8 (#10-32)	12.0 (0.47)	5.0 (0.20)
32mm (1-1/4")	7.1 (0.28)	23.0 (0.91)	10.4 (0.41)	G - 1/8 (NPT 1/8)	16.0 (0.63)	7.0 (0.28)
40mm (1-1/2")	7.4 (0.29)	29.5 (1.16)	13.2 (0.52)	G - 1/8 (NPT 1/8)	16.0 (0.63)	7.0 (0.28)
50mm (2")	9.4 (0.37)	30.5 (1.20)	13.7 (0.54)	G - 1/4 (NPT 1/4)	20.0 (0.79)	8.0 (0.31)
63mm (2-1/2")	9.7 (0.38)	36.0 (1.42)	15.7 (0.62)	G - 1/4 (NPT 1/4)	20.0 (0.79)	8.0 (0.31)
80mm (3-1/4")	11.7 (0.46)	43.5 (1.71)	17.8 (0.70)	G - 3/8 (NPT 3/8)	25.0 (0.98)	10.0 (0.39)

Spring Retract (Model EFS)



Spring Extend (Model EFR)



*See page 2.56 for overall body length with MRS option.

When option E is specified, user interface threads are designated U.S. customary (inch).
This includes ports, rod threads and threaded mounting options (as applicable).

Weights

Bore	Approximate Base Weight of Cylinder gram-force (oz.)	Weight Adder per 5mm of Stroke gram-force (oz.)
12mm (1/2")	21.8 (0.77)	5.6 (0.20)
16mm (5/8")	38.7 (1.36)	8.0 (0.28)
20mm (3/4")	46.4 (1.64)	11.5 (0.41)
25mm (1")	73.1 (2.58)	14.6 (0.52)
32mm (1-1/4")	113.3 (4.00)	20.9 (0.74)
40mm (1-1/2")	181.4 (6.40)	21.3 (0.75)
50mm (2")	294.0 (10.37)	33.6 (1.19)
63mm (2-1/2")	484.5 (17.09)	40.7 (1.44)
80mm (3-1/4")	885.2 (31.23)	62.6 (2.21)
100mm (4")	1885.9 (66.52)	110.1 (3.89)

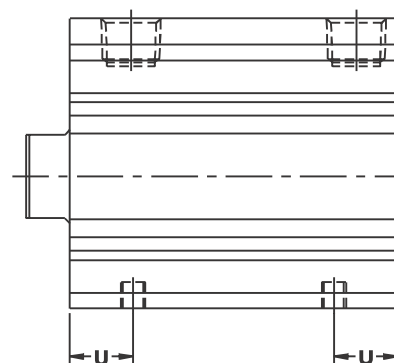
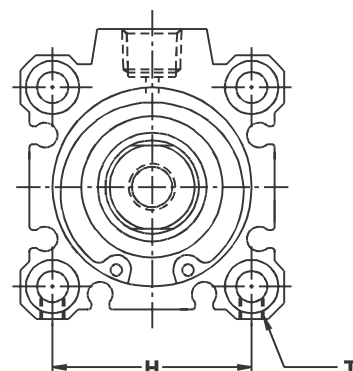
Bimba EFL Cylinders

Mounting Options

Threaded Bottom Mount (-1) (EF1 models only)

Bore	H	T	U
12mm (1/2")	15.5 (0.61)	M4 x 0.7 6H (8-32 UNC-2B)	6.6 (0.26)
16mm (5/8")	20.0 (0.79)	M4 x 0.7 6H (8-32 UNC-2B)	6.6 (0.26)
20mm (3/4")	25.5 (1.00)	M6 x 1.0 6H (1/4-20 UNC-2B)	11.2 (0.44)
25mm (1")	28.0 (1.10)	M6 x 1.0 6H (1/4-20 UNC-2B)	11.2 (0.44)
32mm (1-1/4")	34.0 (1.34)	M6 x 1.0 6H (1/4-20 UNC-2B)	11.2 (0.44)
40mm (1-1/2")	40.0 (1.57)	M6 x 1.0 6H (1/4-20 UNC-2B)	11.2 (0.44)
50mm (2")	50.0 (1.97)	M8 x 1.25 6H (5/16-18 UNC-2B)	13.0 (0.51)
63mm (2-1/2")	60.0 (2.36)	M10 x 1.5 6H (7/16-14 UNC-2B)	16.8 (0.66)
80mm (3-1/4")	77.0 (3.03)	M12 x 1.75 6H (1/2-13 UNC-2B)	20.8 (0.82)
100mm (4")	94.0 (3.70)	M12 x 1.75 6H (1/2-13 UNC-2B)	20.8 (0.82)

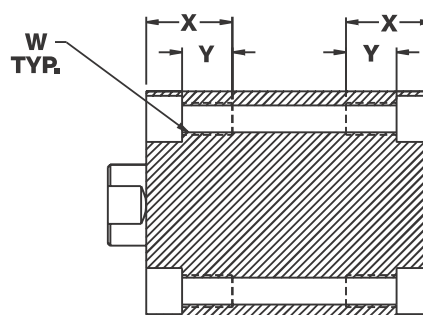
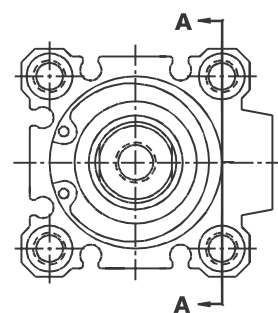
Note: On the following models, only the front set of threaded bottom mounting holes is provided; EF-205, EF-2010, EF-255, EF-325, EF-8010.



Threaded Front/Rear Mount (-3)

Bore	W	X	Y
12mm (1/2")	M4 x 0.7 (8-32 UNC)	10.5 (0.41)	7.0 (0.28)
16mm (5/8")	M4 x 0.7 (8-32 UNC)	10.5 (0.41)	7.0 (0.28)
20mm (3/4")	M6 x 1.0 (1/4-20 UNC)	17.0 (0.67)	10.0 (0.39)
25mm (1")	M6 x 1.0 (1/4-20 UNC)	17.0 (0.67)	10.0 (0.39)
32mm (1-1/4")	M6 x 1.0 (1/4-20 UNC)	17.0 (0.67)	10.0 (0.39)
40mm (1-1/2")	M6 x 1.0 (1/4-20 UNC)	17.0 (0.67)	10.0 (0.39)
50mm (2")	M8 x 1.25 (5/16-18 UNC)	22.0 (0.87)	14.0 (0.55)
63mm (2-1/2")	M10 x 1.5 (7/16-14 UNC)	28.5 (1.12)	18.0 (0.71)
80mm (3-1/4")	M12 x 1.75 (1/2-13 UNC)	35.6 (1.40)	22.0 (0.87)
100mm (4")	M12 x 1.75 (1/2-13 UNC)	35.6 (1.40)	22.0 (0.87)

Note: On EFT models, there are two threaded holes per end, not four.



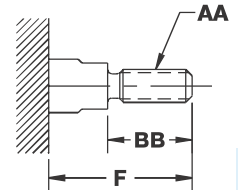
SECTION "A-A"

Bimba EFI Cylinders

Options

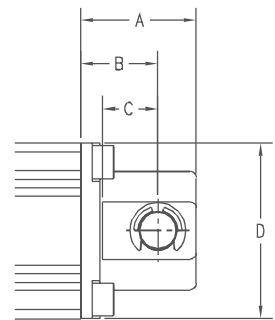
Male Rod End (MT)

Bore	Standard			With Option E		
	AA	BB	F	AA	BB	F
12mm (1/2")	M5 x 0.80	10.5 (0.41)	14.0 (0.55)	#8-32 UNC	8.0 (0.31)	11.5 (0.45)
16mm (5/8")	M6 x 1.00	12.0 (0.47)	15.5 (0.61)	#8-32 UNC	8.0 (0.31)	11.5 (0.45)
20mm (3/4")	M8 x 1.25	14.0 (0.55)	18.5 (0.73)	#10-32 UNF	8.0 (0.31)	12.5 (0.49)
25mm (1")	M10 x 1.25	17.5 (0.69)	22.5 (0.89)	1/4-28 UNF	9.5 (0.37)	14.5 (0.57)
32mm (1-1/4")	M14 x 1.5	23.5 (0.93)	28.5 (1.12)	5/16-24 UNF	12.7 (0.50)	19.7 (0.78)
40mm (1-1/2")	M14 x 1.5	23.5 (0.93)	28.5 (1.12)	3/8-24 UNF	16.0 (0.63)	23.0 (0.91)
50mm (2")	M18 x 1.5	28.5 (1.12)	33.5 (1.32)	1/2-20 UNF	19.5 (0.77)	27.5 (1.08)
63mm (2-1/2")	M18 x 1.5	28.5 (1.12)	33.5 (1.32)	1/2-20 UNF	19.5 (0.77)	27.5 (1.08)
80mm (3-1/4")	M22 x 1.5	35.5 (1.40)	43.5 (1.71)	5/8-18 UNF	25.5 (1.00)	35.5 (1.40)
100mm (4")	M26 x 1.5	32.5 (1.28)	43.5 (1.71)	3/4-16 UNF	28.5 (1.12)	40.5 (1.59)

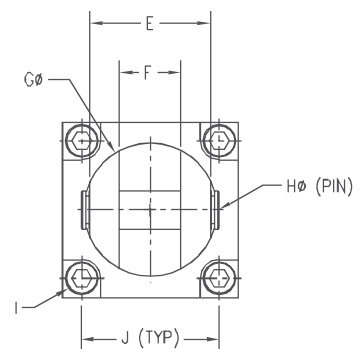


Rear Clevis Mount (6, 6N)

Stroke	A	B	C	D	E	F
12m	20 (0.79)	14 (0.55)	7 (0.28)	25 (0.98)	10 (0.39)	5 (0.21)
16m	21 (0.83)	15 (0.59)	10 (0.39)	29 (1.14)	12 (0.47)	7 (0.27)
20m	27 (1.06)	18 (0.71)	12 (0.47)	36 (1.41)	16 (0.62)	8 (0.33)
25m	30 (1.18)	20 (0.79)	14 (0.55)	40 (1.57)	20 (0.78)	10 (0.41)
32m	30 (1.18)	20 (0.79)	14 (0.55)	45 (1.77)	36 (1.41)	18 (0.72)
40m	32 (1.26)	22 (0.87)	14 (0.55)	52 (2.04)	36 (1.41)	18 (0.72)
50m	42 (1.65)	28 (1.10)	20 (0.79)	64 (2.52)	44 (1.72)	22 (0.87)
63m	44 (1.73)	30 (1.18)	20 (0.79)	77 (3.03)	44 (1.72)	22 (0.87)
80m	56 (2.21)	38 (1.50)	27 (1.06)	98 (3.85)	56 (2.20)	28 (1.11)
100m	67 (2.64)	45 (1.77)	31 (1.22)	117 (4.60)	64 (2.51)	32 (1.27)



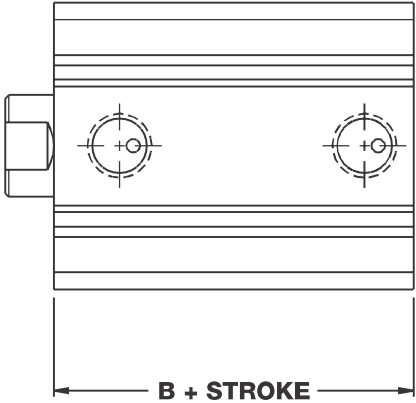
Bore	G	HØ (PIN)	I	J
12mm	13 (0.51)	5 (0.197)	M4x0.7 (#8-32 UNC)	15.5 (0.61)
16mm	15 (0.58)	5 (0.197)	M4x0.7 (#8-32 UNC)	20 (0.79)
20mm	21 (0.82)	8 (0.315)	M6x1.0 (1/4-20 UNC)	25.5 (1.00)
25mm	22 (0.85)	10 (0.394)	M6x1.0 (1/4-20 UNC)	28 (1.10)
32mm	39 (1.53)	10 (0.394)	M6x1.0 (1/4-20 UNC)	34 (1.34)
40mm	39 (1.53)	10 (0.394)	M6x1.0 (1/4-20 UNC)	40 (1.58)
50mm	49 (1.91)	14 (0.551)	M8x1.25 (5/16-18 UNC)	50 (1.97)
63mm	49 (1.91)	14 (0.551)	M10x1.5 (7/16-14 UNC)	60 (2.36)
80mm	62 (2.44)	18 (0.709)	M12x1.75 (1/2-13 UNC)	77 (3.03)
100mm	72 (2.84)	22 (0.866)	M12x1.75 (1/2-13 UNC)	94 (3.70)



Bimba EFL Cylinders

Magnetic Position Sensing (M) (Body Lengths With MRS Option)

Bore	B			
	Double Acting Single Rod		Double Acting Double Rod	
12mm (1/2")	27.0	(1.06)	32.4	(1.28)
16mm (5/8")	28.5	(1.12)	36.0	(1.42)
20mm (3/4")	29.5	(1.16)	36.0	(1.42)
25mm (1")	32.5	(1.28)	39.0	(1.54)
32mm (1-1/4")	33.0	(1.30)	40.5	(1.59)
40mm (1-1/2")	39.5	(1.56)	50.0	(1.97)
50mm (2")	40.5	(1.59)	50.5	(1.99)
63mm (2-1/2")	46.0	(1.81)	52.0	(2.05)
80mm (3-1/4")	53.5	(2.11)	61.0	(2.40)
100mm (4")	63.0	(2.48)	70.5	(2.78)



Bumpers (Stroke reduction by model for all bores)

Model	Stroke Reduction mm (inches)
Double Acting Single Rod End Double Acting Double Rod End	3.0 (.12)
Single Acting Spring Retract Reverse Acting Spring Extend	1.5 (.06)

Extruded Flat Repair Kits

For bore sizes of 12, 16, and 20, each Extruded Flat Basic Kit includes the appropriate rod guide, rod seal, piston seals, cylinder body seals, and instructions. For larger bore sizes (25mm and up), a rod bushing is included instead of the rod guide. Please note that EF repair kits will work on EF2 cylinders.

To order, please provide the correct bore code in the kit part number blank. Specialty seals are designated by their suffix option.

Repair Kit
K-B-EF-__
K-B-EFD-__
K-B-EF-__-V
K-B-EFD-__-V

Bimba EFI Cylinders

Accessories

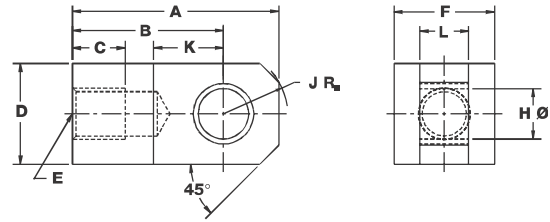
Rod Pivot List Prices

Model Number	Bore	List Price
RP(M,E)K-12	12mm (1/2")	
RP(M,E)K-16	16mm (5/8")	
RP(M,E)K-20	20mm (3/4")	
RP(M,E)K-25	25mm (1")	
RP(M,E)K-32	32mm (1-1/4")	
RP(M,E)K-40	40mm (1-1/2")	
RP(M,E)K-50	50mm (2")	
	63mm (2-1/2")	
RP(M,E)K-80	80mm (3-1/4")	
RP(M,E)K-100	100mm (4")	

Note: To use Rod Pivot, cylinder must be specified with male thread option (MT).

For inch series Rod Pivot Kits, change the third digit from an M to an E.

For example: RPMK-32 is a metric size / RPEK-32 is a U.S. customary size.



Metric Small Bore Rod Pivot (for 12mm to 63mm bore cylinders)

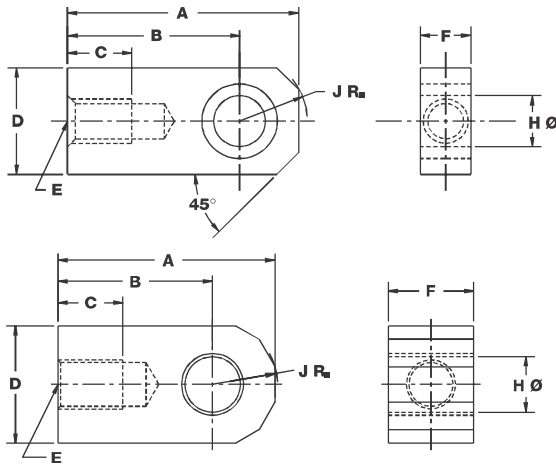
RPMK-12, RPMK-16, RPMK-20, RPMK-25, RPMK-32, RPMK-40, RPMK-50

U.S. Customary Small Bore Rod Pivot (for 12mm to 63mm bore cylinders)

RPEK-12, RPEK-16, RPEK-20, RPEK-25, RPEK-32, RPEK-40, RPEK-50

Metric and U.S. Customary Large Bore Rod Pivot (for 80mm and 100mm bore cylinders)

RPMK-80, RPEK-80, RPMK-100, RPEK-100



Rod Pivot Dimensions

Model Number	Bore	A	B	C	D	E
RP(M,E)K-12	12mm (1/2")	21.5 (0.85)	16.0 (0.63)	6.0 (0.24)	10.0 (0.39)	M5 x 0.8 (# 8-32 UNC)
RP(M,E)K-16	16mm (5/8")	32.0 (1.26)	25.0 (0.98)	8.0 (0.24)	12.0 (0.47)	M6 x 1.0 (# 8-32 UNC)
RP(M,E)K-20	20mm (3/4")	34.0 (1.34)	25.0 (0.98)	8.5 (0.24)	15.9 (0.63)	M8 x 1.25 (# 10-32 UNF)
RP(M,E)K-25	25mm (1")	41.0 (1.61)	30.0 (1.18)	10.5 (0.32)	20.0 (0.79)	M10 x 1.25 (1/4-28 UNF)
RP(M,E)K-32	32mm (1-1/4")	40.5 (1.59)	30.0 (1.18)	14.0 (0.35)	22.0 (0.87)	M14 x 1.5 (5/16-24 UNF)
RP(M,E)K-40	40mm (1-1/2")	40.5 (1.59)	30.0 (1.18)	14.0 (0.43)	22.0 (0.87)	M14 x 1.5 (3/8-24 UNF)
RP(M,E)K-50	50mm (2")	53.8 (2.12)	40.0 (1.58)	18.0 (0.71)	28.0 (1.10)	M18 x 1.5 (1/2-20 UNF)
RP(M,E)K-80	80mm (3-1/4")	70.2 (2.77)	50.0 (1.97)	21.0 (0.83)	38.0 (1.50)	M22 x 1.5 (5/8-18 UNF)
RP(M,E)K-100	100mm (4")	77.9 (3.07)	55.0 (2.17)	21.0 (0.83)	44.0 (1.73)	M26 x 1.5 (3/4-16 UNF)

Model Number	Bore Size	F	H	J	K	L
RP(M,E)K-12	12mm (1/2")	10.0 (0.19)	5.0 (0.188)	6.2 (0.25)	6.9 N/A	4.7 N/A
RP(M,E)K-16	16mm (5/8")	12.0 (0.24)	5.0 (0.188)	7.8 (0.31)	13.9 N/A	6.2 N/A
RP(M,E)K-20	20mm (3/4")	15.9 (0.30)	8.0 (0.313)	10.2 (0.41)	11.4 N/A	7.7 N/A
RP(M,E)K-25	25mm (1")	20.0 (0.38)	10.0 (0.375)	12.6 (0.50)	13.9 N/A	9.7 N/A
RP(M,E)K-32	32mm (1-1/4")	22.0 (0.69)	10.0 (0.375)	11.9 (0.47)	13.9 N/A	17.6 N/A
RP(M,E)K-40	40mm (1-1/2")	22.0 (0.69)	10.0 (0.375)	11.9 (0.47)	13.9 N/A	17.6 N/A
RP(M,E)K-50	50mm (2")	28.0 (0.85)	14.0 (0.500)	15.9 (0.63)	19.9 N/A	21.6 N/A
RP(M,E)K-80	80mm (3-1/4")	27.6 (1.09)	18.0 (0.750)	21.0 (0.83)	N/A	N/A
RP(M,E)K-100	100mm (4")	31.6 (1.24)	22.0 (0.875)	24.0 (0.94)	N/A	N/A

Bimba EF2 Cylinders

How to Order

The Model Number for the EF2 cylinder consists of three alphanumeric clusters. These designate type, bore size and stroke length, and options. Please refer to the charts below for an example of Model Number EFT-3225-3M. This is a 32mm bore, double acting, guided cylinder with metric threads and ports, 25mm stroke, threaded front/rear mounting holes, and magnetic position sensing.

TYPE	BORE SIZE mm (inch)**	STROKE LENGTH***
EFT - Double Acting, Non-rotating EFDT - Double Acting, Double End Rod, Non-rotating	12mm - (1/2") 40mm - (1-1/2") 16mm - (5/8") 50mm - (2") 20mm - (3/4") 63mm - (2-1/2") 25mm - (1") 80mm - (3-1/4") 32mm - (1-1/4") 100mm - (4")	See table - page 2.59

EFT-3225-3M

MOUNTING OPTIONS	OPTIONS
(Enter in numeric order) No Number - Basic model 3 - Threaded front/rear mounting option* 6 - Rear clevis mount* 6N - Rear clevis 90°	(Enter in alphabetical order, except for EE which is last) B - Bumpers (see page 2.67) ¹ C - Stainless steel retaining ring E - U.S. customary units (inch) ² F - Full-flow port orifice ⁴ M - Magnetic position sensing (see table page 2.67) ³ P - Blank tooling plate V - High temperature option -10°C to 110°C (15°F to 225°F) X - Rear guide shaft extension (see page 2.65) ⁵ EE - Extra rod extension in 1mm increments ⁶

¹Bumpers reduce stroke length by 3mm. When bumper is specified with option V, standard bumper material is supplied. Operating temperature remains -10° to 70°C (15° to 160°F).

²When option E is specified, user interface threads are designated U.S. customary (inch). This includes ports, rod threads and threaded mounting options (as applicable).

³When magnetic position sensing is specified with option V, operating temperature remains -10° to 70°C (15° to 160°F). This combination is recommended when fluoroelastomer is specified for compatibility.

⁴Automatically includes bumpers, so stroke is reduced by 3mm.

⁵Available stroke lengths starting at 10mm.

⁶In EFDT models, extra extension dimension is added to both tooling plate and rod ends.

Please note that throughout all catalog charts, metric measurements are shown first and U.S. customary units (inches) are in parentheses.

**NOTE: Numbers in parentheses are the equivalent bore size in inches and listed FOR REFERENCE ONLY. DO NOT use for model designation.

***When stroke length exceeds 30mm, a threaded mounting option should be considered. Mounting bolts that span the entire cylinder length may not be readily available.

Bimba EF2 Cylinders

Bimba is a JIT manufacturer and we are able to provide EFT model cylinders in *ANY 1mm or stroke length increment for all option styles within our standard three-day lead time*. Longer stroke lengths are also available upon request at standard lead times. Please consult Technical Assistance at 800-44-BIMBA for help.

The table below represents our standard stroke lengths. **Blue** stroke lengths are EF cylinders with -3EM options in stock available for Same Day Shipping.

Stroke Length Availability

Nominal Bore Diameter	EFT Single Rod End (mm)
12mm (1/2")	5, 10, 15 , 20, 25 , 30
16mm (5/8")	5, 10 , 15, 20, 25, 30
20mm (3/4")	5, 10 , 15, 20, 25 , 30, 35, 40 , 45, 50
25mm (1")	5, 10 , 15, 20, 25 , 30, 35, 40 , 45, 50
32mm (1-1/4")	5, 10 , 15, 20, 25 , 30, 35, 40 , 45, 50 , 75, 100
40mm (1-1/2")	5, 10, 15 , 20, 25 , 30, 35, 40 , 45, 50 , 75 , 100
50mm (2")	10, 15, 20, 25 , 30, 35, 40 , 45, 50 , 75 , 100
63mm (2-1/2")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
80mm (3-1/4")	10, 15, 20, 25 , 30, 35, 40 , 45, 50 , 75, 100
100mm (4")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Flat-1/
Square Flat-1

Flat-1/
Square Flat-1

F02, F03, F04
(multiple power)

F0P
(multiple position)

Flat
Accessories

EF1/EF2

EF1/EFQ

Stopper/
Twist Clamp

Extruded
Flat Lift Table

Twin Bore

NPA

Diaphragm/
Miniature Cube

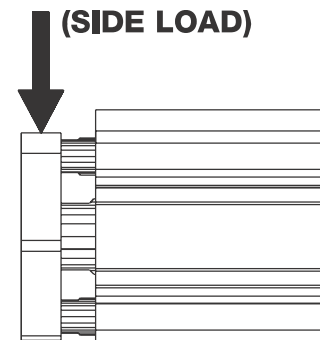
Bimba EF2 Cylinders

EFT Cylinders

Maximum Side Loads kg-Force (lb)

Bore	Stroke Length									
	5mm		10mm		15mm		20mm		25mm	
12mm (1/2")	1.79	(3.94)	1.47	(3.24)	1.25	(2.75)	1.08	(2.39)	0.96	(2.11)
16mm (5/8")	2.60	(5.72)	2.16	(4.76)	1.85	(4.08)	1.62	(3.57)	1.44	(3.17)
20mm (3/4")	5.09	(11.23)	4.36	(9.62)	3.82	(8.42)	3.39	(7.48)	3.06	(6.74)
25mm (1")	5.22	(11.50)	4.48	(9.88)	3.93	(8.66)	3.50	(7.71)	3.15	(6.94)
32mm (1-1/4")	5.54	(12.22)	4.80	(10.59)	4.24	(9.35)	3.80	(8.37)	3.44	(7.58)
40mm (1-1/2")	6.53	(14.40)	5.69	(12.55)	5.04	(11.12)	4.53	(9.98)	4.11	(9.06)
50mm (2")	N/A		8.94	(19.71)	8.03	(17.71)	7.30	(16.09)	6.68	(14.74)
63mm (2-1/2")	N/A		14.49	(31.95)	13.16	(29.01)	12.06	(26.58)	11.12	(24.51)
80mm (3-1/4")	N/A		23.59	(52.02)	21.70	(47.85)	20.09	(44.30)	18.71	(41.24)
100mm (4")	N/A		26.22	(57.80)	24.24	(53.45)	22.55	(49.71)	21.07	(46.46)

Bore	Stroke Length									
	40mm		45mm		50mm		75mm		100mm	
12mm (1/2")	N/A		N/A		N/A		N/A		N/A	
16mm (5/8")	N/A		N/A		N/A		N/A		N/A	
20mm (3/4")	2.35	(5.19)	2.19	(4.82)	2.04	(4.50)	N/A		N/A	
25mm (1")	2.43	(5.35)	2.26	(4.98)	2.11	(4.64)	N/A		N/A	
32mm (1-1/4")	2.68	(5.90)	2.49	(5.48)	2.33	(5.13)	1.76	(3.89)	1.42	(3.13)
40mm (1-1/2")	3.22	(7.09)	3.00	(6.60)	2.80	(6.18)	2.13	(4.70)	1.72	(3.79)
50mm (2")	5.34	(11.78)	5.01	(11.03)	4.71	(10.39)	3.64	(8.02)	2.96	(6.53)
63mm (2-1/2")	9.03	(19.90)	8.49	(18.72)	8.02	(17.67)	6.27	(13.82)	5.15	(11.35)
80mm (3-1/4")	15.49	(34.16)	14.66	(32.32)	13.91	(30.66)	11.07	(24.40)	9.19	(20.27)
100mm (4")	17.61	(38.83)	16.70	(36.82)	15.88	(35.00)	12.74	(28.08)	10.63	(23.44)



Maximum Moments N-m (in-lb)

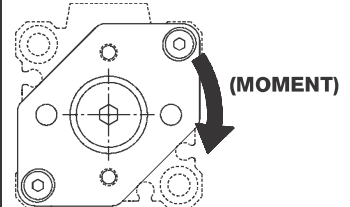
Bore	Stroke Length									
	5mm		10mm		15mm		20mm		25mm	
12mm (1/2")	0.08	(0.72)	0.07	(0.59)	0.06	(0.50)	0.05	(0.44)	0.04	(0.39)
16mm (5/8")	0.16	(1.39)	0.13	(1.16)	0.11	(1.00)	0.10	(0.87)	0.09	(0.78)
20mm (3/4")	0.42	(3.72)	0.36	(3.20)	0.32	(2.81)	0.28	(2.50)	0.25	(2.25)
25mm (1")	0.45	(4.02)	0.39	(3.46)	0.34	(3.04)	0.31	(2.71)	0.28	(2.45)
32mm (1-1/4")	0.50	(4.45)	0.44	(3.88)	0.39	(3.44)	0.35	(3.09)	0.32	(2.81)
40mm (1-1/2")	0.59	(5.24)	0.52	(4.57)	0.46	(4.05)	0.41	(3.64)	0.37	(3.31)
50mm (2")	N/A		1.13	(10.04)	1.02	(9.06)	0.93	(8.26)	0.86	(7.59)
63mm (2-1/2")	N/A		2.35	(20.84)	2.15	(18.99)	1.97	(17.44)	1.82	(16.13)
80mm (3-1/4")	N/A		4.72	(41.75)	4.35	(38.51)	4.04	(35.75)	3.77	(33.35)
100mm (4")	N/A		5.57	(49.33)	5.16	(45.63)	4.79	(42.44)	4.48	(39.67)

Bimba EF2 Cylinders

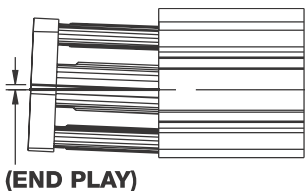
EFT Cylinders

Maximum Moments N-m (in-lb)

Bore	Stroke Length				
	40mm	45mm	50mm	75mm	100mm
12mm (1/2")	N/A	N/A	N/A	N/A	N/A
16mm (5/8")	N/A	N/A	N/A	N/A	N/A
20mm (3/4")	0.20 (1.74)	0.18 (1.62)	0.17 (1.51)	N/A	N/A
25mm (1")	0.21 (1.89)	0.20 (1.76)	0.19 (1.64)	N/A	N/A
32mm (1-1/4")	0.25 (2.20)	0.23 (2.05)	0.22 (1.92)	0.16 (1.46)	0.13 (1.18)
40mm (1-1/2")	0.29 (2.59)	0.27 (2.41)	0.26 (2.26)	0.19 (1.72)	0.16 (1.39)
50mm (2")	0.69 (6.11)	0.65 (5.73)	0.61 (5.40)	0.47 (4.19)	0.39 (3.42)
63mm (2-1/2")	1.49 (13.15)	1.40 (12.39)	1.32 (11.71)	1.04 (9.19)	0.85 (7.57)
80mm (3-1/4")	3.14 (27.77)	2.97 (26.30)	2.82 (24.98)	2.26 (19.96)	1.88 (16.63)
100mm (4")	3.75 (33.17)	3.55 (31.45)	3.38 (29.90)	2.71 (24.00)	2.26 (20.04)



Bore	Stroke Length							
	5mm	10mm	15mm	20mm	25mm	30mm	35mm	
12mm (1/2")	0.17 (.007)	0.21 (.008)	0.25 (.010)	0.29 (.012)	0.34 (.013)	0.38 (.015)	N/A	
16mm (5/8")	0.18 (.007)	0.23 (.009)	0.27 (.011)	0.32 (.012)	0.36 (.014)	0.41 (.016)	N/A	
20mm (3/4")	0.15 (.006)	0.18 (.007)	0.20 (.008)	0.23 (.009)	0.26 (.010)	0.29 (.011)	0.32 (.013)	
25mm (1")	0.16 (.006)	0.19 (.007)	0.22 (.008)	0.24 (.010)	0.27 (.011)	0.30 (.012)	0.33 (.013)	
32mm (1-1/4")	0.17 (.007)	0.20 (.008)	0.23 (.009)	0.26 (.010)	0.28 (.011)	0.31 (.012)	0.34 (.013)	
40mm (1-1/2")	0.17 (.007)	0.20 (.008)	0.23 (.009)	0.26 (.010)	0.28 (.011)	0.31 (.012)	0.34 (.013)	
50mm (2")	N/A	0.26 (.010)	0.30 (.012)	0.33 (.013)	0.36 (.014)	0.40 (.016)	0.43 (.017)	
63mm (2-1/2")	N/A	0.18 (.007)	0.20 (.008)	0.22 (.009)	0.24 (.010)	0.26 (.010)	0.28 (.011)	
80mm (3-1/4")	N/A	0.20 (.008)	0.23 (.009)	0.25 (.010)	0.27 (.011)	0.29 (.011)	0.31 (.012)	
100mm (4")	N/A	0.21 (.008)	0.23 (.009)	0.26 (.010)	0.28 (.011)	0.30 (.012)	0.32 (.013)	



Bore	Stroke Length				
	40mm	45mm	50mm	75mm	100mm
12mm (1/2")	N/A	N/A	N/A	N/A	N/A
16mm (5/8")	N/A	N/A	N/A	N/A	N/A
20mm (3/4")	0.35 (.014)	0.38 (.015)	0.40 (.016)	N/A	N/A
25mm (1")	0.36 (.014)	0.39 (.015)	0.42 (.016)	N/A	N/A
32mm (1-1/4")	0.37 (.015)	0.40 (.016)	0.43 (.017)	0.57 (.022)	0.71 (.028)
40mm (1-1/2")	0.37 (.015)	0.40 (.016)	0.43 (.017)	0.57 (.022)	0.71 (.028)
50mm (2")	0.46 (.018)	0.50 (.020)	0.53 (.021)	0.70 (.027)	0.86 (.034)
63mm (2-1/2")	0.30 (.012)	0.32 (.013)	0.35 (.014)	0.45 (.018)	0.55 (.022)
80mm (3-1/4")	0.33 (.013)	0.36 (.014)	0.38 (.015)	0.49 (.019)	0.60 (.023)
100mm (4")	0.34 (.014)	0.36 (.014)	0.39 (.015)	0.50 (.020)	0.61 (.024)

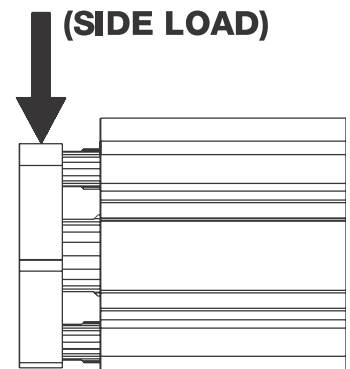
Bimba EF2 Cylinders

EFT Cylinders with X Option

Maximum Side Loads kg-Force (lb)

Bore	Stroke Length							
	5mm	10mm	15mm	20mm	25mm	30mm	35mm	
12mm (1/2")	N/A	2.99 (6.58)	2.85 (6.28)	2.76 (6.07)	2.69 (5.92)	2.63 (5.80)	N/A	
16mm (5/8")	N/A	4.21 (9.27)	4.02 (8.84)	3.88 (8.54)	3.78 (8.32)	3.70 (8.15)	N/A	
20mm (3/4")	N/A	8.13 (17.90)	7.84 (17.25)	7.63 (16.79)	7.47 (16.45)	7.35 (16.18)	7.26 (15.97)	
25mm (1")	N/A	8.52 (18.76)	8.18 (18.01)	7.94 (17.47)	7.75 (17.06)	7.60 (16.74)	7.49 (16.48)	
32mm (1-1/4")	N/A	8.75 (19.27)	8.42 (18.53)	8.16 (17.97)	7.96 (17.53)	7.80 (17.18)	7.68 (16.90)	
40mm (1-1/2")	N/A	10.18 (22.40)	9.69 (21.34)	9.32 (20.52)	9.03 (19.87)	8.78 (19.33)	8.58 (18.89)	
50mm (2")	N/A	15.11 (33.26)	14.49 (31.90)	14.01 (30.84)	13.63 (30.00)	13.31 (29.30)	13.05 (28.72)	
63mm (2-1/2")	N/A	24.31 (53.50)	23.36 (51.41)	22.61 (49.76)	22.00 (48.42)	21.50 (47.32)	21.07 (46.38)	
80mm (3-1/4")	N/A	38.19 (84.06)	36.78 (80.96)	35.64 (78.44)	34.68 (76.34)	33.76 (74.32)	33.19 (73.06)	
100mm (4")	N/A	42.40 (93.34)	40.83 (89.88)	39.52 (86.98)	38.39 (84.51)	37.43 (82.38)	36.58 (80.53)	

Bore	Stroke Length				
	40mm	45mm	50mm	75mm	100mm
12mm (1/2")	N/A	N/A	N/A	N/A	N/A
16mm (5/8")	N/A	N/A	N/A	N/A	N/A
20mm (3/4")	7.17 (15.79)	7.11 (15.65)	7.05 (15.52)	N/A	N/A
25mm (1")	7.39 (16.27)	7.31 (16.09)	7.24 (15.94)	N/A	N/A
32mm (1-1/4")	7.57 (16.66)	7.48 (16.46)	7.40 (16.29)	7.14 (15.71)	6.98 (15.36)
40mm (1-1/2")	8.41 (18.52)	8.27 (18.20)	8.14 (17.92)	7.70 (16.96)	7.44 (16.38)
50mm (2")	12.82 (28.23)	12.63 (27.81)	12.47 (27.44)	11.88 (26.16)	11.53 (25.39)
63mm (2-1/2")	20.71 (45.59)	20.40 (44.90)	20.13 (44.30)	19.16 (42.18)	18.57 (40.88)
80mm (3-1/4")	32.60 (71.75)	32.07 (70.60)	31.61 (69.59)	29.95 (65.92)	28.90 (63.61)
100mm (4")	35.84 (78.90)	35.19 (77.46)	34.61 (76.18)	32.43 (71.38)	31.01 (68.26)



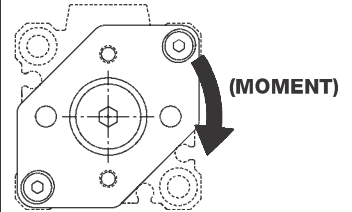
Maximum Moments N-m (in-lb)

Bore	Stroke Length							
	5mm	10mm	15mm	20mm	25mm	30mm	35mm	
12mm (1/2")	N/A	0.15 (1.31)	0.14 (1.27)	0.14 (1.23)	0.13 (1.21)	0.13 (1.19)	N/A	
16mm (5/8")	N/A	0.27 (2.42)	0.26 (2.32)	0.25 (2.26)	0.25 (2.21)	0.24 (2.18)	N/A	
20mm (3/4")	N/A	0.68 (6.14)	0.66 (5.94)	0.64 (5.80)	0.63 (5.70)	0.62 (5.62)	0.62 (5.56)	
25mm (1")	N/A	0.77 (6.93)	0.74 (6.70)	0.72 (6.53)	0.71 (6.40)	0.70 (6.30)	0.69 (6.22)	
32mm (1-1/4")	N/A	0.89 (7.99)	0.86 (7.79)	0.85 (7.63)	0.83 (7.52)	0.82 (7.43)	0.82 (7.35)	
40mm (1-1/2")	N/A	1.11 (10.02)	1.08 (9.71)	1.05 (9.48)	1.03 (9.29)	1.02 (9.15)	1.00 (9.03)	
50mm (2")	N/A	2.16 (19.48)	2.10 (18.95)	2.06 (18.54)	2.02 (18.22)	1.99 (17.96)	1.97 (17.75)	
63mm (2-1/2")	N/A	4.31 (38.84)	4.18 (37.70)	4.08 (36.80)	4.01 (36.09)	3.94 (35.51)	3.89 (35.02)	
80mm (3-1/4")	N/A	8.44 (76.07)	8.21 (73.99)	8.03 (72.32)	7.88 (70.96)	7.75 (69.82)	7.64 (68.86)	
100mm (4")	N/A	10.63 (95.78)	10.35 (93.25)	10.12 (91.16)	9.93 (89.42)	9.76 (87.94)	9.62 (86.67)	

Bimba EF2 Cylinders

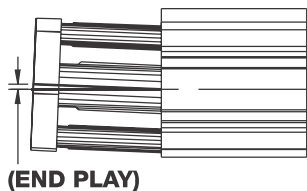
EFT Cylinders with X Option Maximum Moments N-m (in-lb)

Bore	Stroke Length				
	40mm	45mm	50mm	75mm	100mm
12mm (1/2")	N/A	N/A	N/A	N/A	N/A
16mm (5/8")	N/A	N/A	N/A	N/A	N/A
20mm (3/4")	0.61 (5.50)	0.61 (5.46)	0.60 (5.42)	N/A	N/A
25mm (1")	0.68 (6.15)	0.68 (6.10)	0.67 (6.05)	N/A	N/A
32mm (1-1/4")	0.81 (7.29)	0.80 (7.24)	0.80 (7.20)	0.76 (6.84)	0.75 (6.77)
40mm (1-1/2")	0.99 (8.93)	0.98 (8.84)	0.97 (8.77)	0.90 (8.15)	0.89 (8.02)
50mm (2")	1.95 (17.57)	1.93 (17.42)	1.92 (17.28)	1.79 (16.16)	1.77 (15.91)
63mm (2-1/2")	3.84 (34.61)	3.80 (34.25)	3.77 (33.95)	3.47 (31.26)	3.40 (30.64)
80mm (3-1/4")	7.55 (68.03)	7.47 (67.32)	7.40 (66.69)	6.77 (60.95)	6.61 (59.55)
100mm (4")	9.50 (85.57)	9.39 (84.60)	9.30 (83.75)	8.95 (80.63)	8.73 (78.66)



Tooling Plate End Play mm (in)

Bore	Stroke Length							
	5mm	10mm	15mm	20mm	25mm	30mm	35mm	
12mm (1/2")	N/A	0.10 (.004)	0.08 (.003)	0.08 (.003)	0.05 (.002)	0.05 (.002)	N/A	
16mm (5/8")	N/A	0.10 (.004)	0.08 (.003)	0.08 (.003)	0.08 (.003)	0.05 (.002)	N/A	
20mm (3/4")	N/A	0.10 (.004)	0.08 (.003)	0.08 (.003)	0.05 (.002)	0.05 (.002)	0.05 (.002)	
25mm (1")	N/A	0.08 (.003)	0.08 (.003)	0.08 (.003)	0.05 (.002)	0.05 (.002)	0.05 (.002)	
32mm (1-1/4")	N/A	0.08 (.003)	0.08 (.003)	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.05 (.002)	
40mm (1-1/2")	N/A	0.08 (.003)	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.05 (.002)	
50mm (2")	N/A	0.08 (.003)	0.08 (.003)	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.05 (.002)	
63mm (2-1/2")	N/A	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.03 (.001)	
80mm (3-1/4")	N/A	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.03 (.001)	0.03 (.001)	
100mm (4")	N/A	0.05 (.002)	0.05 (.002)	0.03 (.001)	0.03 (.001)	0.03 (.001)	0.03 (.001)	



Bore	Stroke Length				
	40mm	45mm	50mm	75mm	100mm
12mm (1/2")	N/A	N/A	N/A	N/A	N/A
16mm (5/8")	N/A	N/A	N/A	N/A	N/A
20mm (3/4")	0.05 (.002)	0.05 (.002)	0.05 (.002)	N/A	N/A
25mm (1")	0.05 (.002)	0.05 (.002)	0.03 (.001)	N/A	N/A
32mm (1-1/4")	0.05 (.002)	0.05 (.002)	0.03 (.001)	0.03 (.001)	0.03 (.001)
40mm (1-1/2")	0.05 (.002)	0.03 (.001)	0.03 (.001)	0.03 (.001)	0.13 (.005)
50mm (2")	0.05 (.002)	0.05 (.002)	0.05 (.002)	0.03 (.001)	0.13 (.005)
63mm (2-1/2")	0.03 (.001)	0.03 (.001)	0.03 (.001)	0.03 (.001)	0.13 (.005)
80mm (3-1/4")	0.03 (.001)	0.03 (.001)	0.03 (.001)	0.03 (.001)	0.13 (.005)
100mm (4")	0.03 (.001)	0.03 (.001)	0.03 (.001)	0.03 (.001)	0.13 (.005)

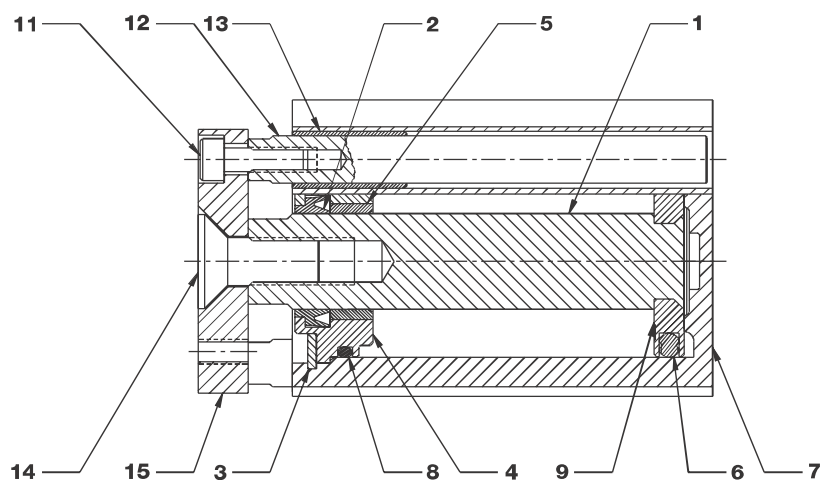
Bimba EF2 Cylinders

Components

Shown in millimeters (inches)

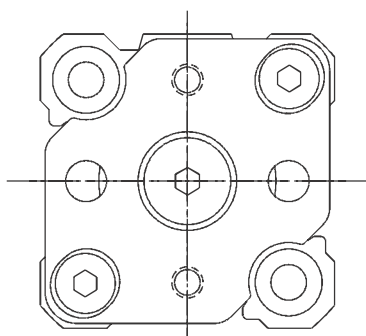
Part List

Part #	Description	Material
1	Rod	4301 (303) Stainless Steel
2	Rod Seal/Wiper	Nitrile (Standard) or Fluoroelastomer (High Temperature Option)
3	Retaining Ring	Zinc Plated Carbon Steel or Stainless Steel (Optional)
4	Rod Guide	12-20mm: Bronze / 25-100mm: Anodized Aluminum
5	Bushing	12-20mm: Bronze / 25-100mm: Self Lubricating Nylon
6	Piston Seal	Nitrile (Standard) or Fluoroelastomer (High Temperature Option)
7	Cylinder Body	Polytetrafluoroethylene (PTFE) Impregnated Hard Anodized Aluminum
8	Rod Guide Seal	Nitrile (Standard) or Fluoroelastomer (High Temperature Option)
9	Piston	High Strength Aluminum Alloy
11	Cap Screw	Stainless Steel
12	Guide Rod	Chrome Plated Stainless Steel
13	Guide Bushing	Delrin
14	Flat Screw	Stainless Steel
15	Plate	Clear Coat Anodized Aluminum

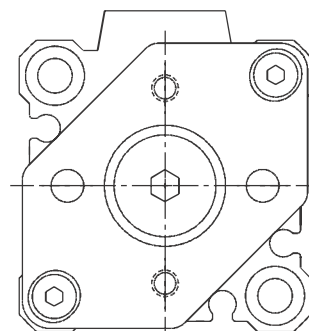


Tooling Plate Styles

12mm to 16mm Bore



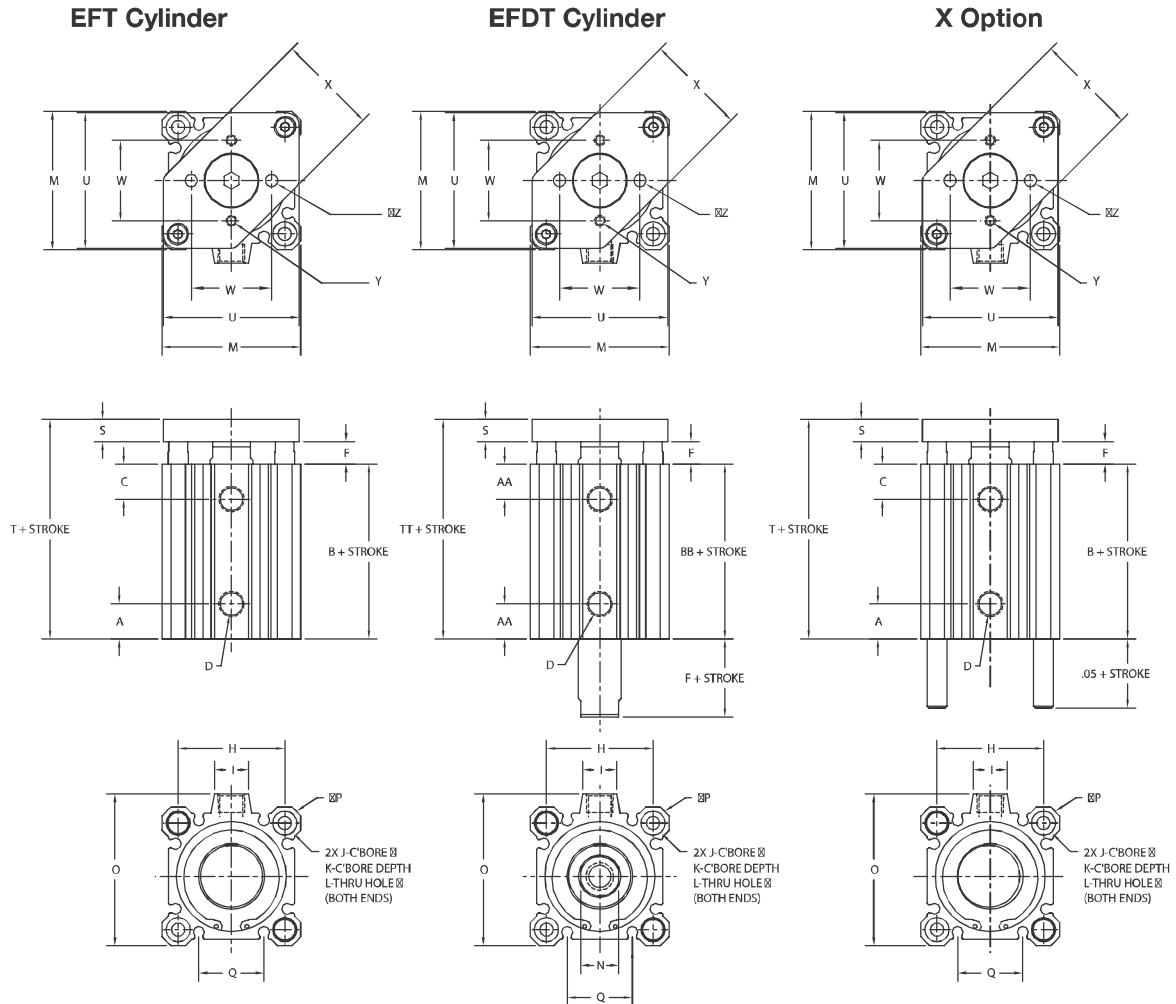
20mm to 100mm Bore



Bimba EF2 Cylinders

Dimensions

Shown in millimeters (inches)



Double Acting/Non-Rotating

Bore	A	AA	B	BB	C	D	F	H	I	J
12mm (1/2")	3.8 (0.15)	10.6 (0.42)	17.0 (0.67)	25.2 (0.99)	8.9 (0.35)	M5 x 0.8 (#10-32)	3.5 (0.14)	15.5 (0.61)	N/A	6.1 (0.24)
16mm (5/8")	4.5 (0.18)	10.7 (0.42)	18.5 (0.73)	26.0 (1.03)	9.4 (0.37)	M5 x 0.8 (#10-32)	3.5 (0.14)	20.0 (0.79)	8.7 (0.34)	6.5 (0.26)
20mm (3/4")	4.8 (0.19)	10.1 (0.40)	19.5 (0.77)	26.0 (1.03)	9.4 (0.37)	M5 x 0.8 (#10-32)	4.5 (0.18)	25.5 (1.00)	9.5 (0.38)	9.0 (0.36)
25mm (1")	5.1 (0.20)	11.2 (0.44)	22.5 (0.89)	29.0 (1.14)	10.9 (0.43)	M5 x 0.8 (#10-32)	5.0 (0.20)	28.0 (1.10)	10.3 (0.41)	9.0 (0.36)
32mm (1-1/4")	7.0 (0.28)	8.9 (0.35)	23.0 (0.91)	30.5 (1.20)	10.4 (0.41)	G - 1/8 (NPT 1/8)	7.0 (0.28)	34.0 (1.34)	18.6 (0.73)	9.0 (0.36)
40mm (1-1/2")	7.4 (0.29)	13.1 (0.52)	29.5 (1.16)	40.0 (1.58)	13.2 (0.52)	G - 1/8 (NPT 1/8)	7.0 (0.28)	40.0 (1.58)	17.3 (0.68)	9.0 (0.36)
50mm (2")	9.4 (0.37)	12.2 (0.48)	30.5 (1.20)	40.5 (1.60)	13.7 (0.54)	G - 1/4 (NPT 1/4)	8.0 (0.32)	50.0 (1.97)	20.0 (0.79)	11.1 (0.44)
63mm (2-1/2")	9.7 (0.38)	12.8 (0.50)	36.0 (1.42)	42.0 (1.66)	15.7 (0.62)	G - 1/4 (NPT 1/4)	8.0 (0.32)	60.0 (2.36)	20.0 (0.79)	14.1 (0.56)
80mm (3-1/4")	11.6 (0.46)	14.4 (0.57)	43.5 (1.71)	51.0 (2.01)	17.8 (0.70)	G - 3/8 (NPT 3/8)	10.0 (0.39)	77.0 (3.03)	26.0 (1.02)	17.5 (0.69)
100mm (4")	12.2 (0.48)	18.3 (0.72)	53.0 (2.09)	60.5 (2.32)	24.4 (0.96)	G - 3/8 (NPT 3/8)	12.0 (0.47)	94.0 (3.70)	26.0 (1.02)	17.5 (0.69)

Bimba EF2 Cylinders

Dimensions

Shown in millimeters (inches)

Bore	K	L	M	N	O	P	Q	S
12mm (1/2")	3.5 (0.14)	3.5 (0.14)	25.0 (0.98)	5.0 (0.19)	25.0 (0.98)	32.0 (1.26)	5.3 (0.21)	6.0 (0.24)
16mm (5/8")	3.5 (0.14)	3.5 (0.14)	29.0 (1.14)	6.0 (0.25)	29.0 (1.14)	38.0 (1.50)	7.8 (0.31)	6.0 (0.24)
20mm (3/4")	7.0 (0.28)	5.5 (0.22)	36.0 (1.42)	8.0 (0.31)	36.0 (1.42)	47.0 (1.85)	10.5 (0.41)	6.9 (0.27)
25mm (1")	7.0 (0.28)	5.5 (0.22)	40.0 (1.58)	10.0 (0.38)	40.0 (1.58)	52.0 (2.05)	11.5 (0.45)	8.3 (0.33)
32mm (1-1/4")	7.0 (0.28)	5.5 (0.22)	45.0 (1.77)	14.0 (0.56)	49.5 (1.95)	60.0 (2.36)	17.7 (0.70)	8.3 (0.33)
40mm (1-1/2")	7.0 (0.28)	5.5 (0.22)	52.0 (2.05)	14.0 (0.56)	57.0 (2.24)	69.0 (2.72)	24.5 (0.96)	8.3 (0.33)
50mm (2")	8.0 (0.31)	6.9 (0.27)	64.0 (2.52)	17.0 (0.69)	71.0 (2.80)	86.0 (3.39)	29.3 (1.16)	12.1 (0.48)
63mm (2-1/2")	10.5 (0.41)	8.8 (0.35)	77.0 (3.03)	17.0 (0.69)	84.0 (3.31)	103.0 (4.06)	29.1 (1.15)	12.5 (0.49)
80mm (3-1/4")	13.5 (0.53)	11.0 (0.43)	98.0 (3.86)	22.0 (0.88)	104.0 (4.09)	132.0 (5.20)	28.1 (1.11)	14.0 (0.55)
100mm (4")	13.5 (0.53)	11.0 (0.43)	117.0 (4.61)	27.0 (1.06)	123.5 (4.86)	156.0 (6.14)	32.3 (1.27)	14.0 (0.55)

Bore	T	TT	U	W	X	Y		Z	
						Standard	With Option E	Standard	With Option E
12mm (1/2")	26.5 (1.04)	34.7 (1.37)	24.3 (0.96)	14.0 (0.55)	20.8 (0.82)	M3 x 0.5 6H	#4-40 UNC-2B	4.1 (0.16)	3.6 (0.14)
16mm (5/8")	28.0 (1.10)	35.5 (1.40)	28.0 (1.10)	20.0 (0.79)	25.0 (0.98)	M3 x 0.5 6H	#4-40 UNC-2B	4.1 (0.16)	3.6 (0.14)
20mm (3/4")	30.8 (1.21)	37.4 (1.47)	35.0 (1.38)	27.0 (1.06)	26.5 (1.04)	M4 x 0.7 6H	#6-32 UNC-2B	5.2 (0.20)	4.3 (0.17)
25mm (1")	35.8 (1.41)	42.3 (1.67)	39.0 (1.54)	27.0 (1.06)	30.0 (1.18)	M4 x 0.7 6H	#6-32 UNC-2B	5.2 (0.20)	4.3 (0.17)
32mm (1-1/4")	38.3 (1.52)	45.8 (1.80)	44.0 (1.73)	30.0 (1.18)	34.3 (1.35)	M4 x 0.7 6H	#8-32 UNC-2B	5.2 (0.20)	4.7 (0.18)
40mm (1-1/2")	44.8 (1.76)	55.3 (2.18)	51.0 (2.01)	30.0 (1.18)	38.0 (1.50)	M4 x 0.7 6H	#8-32 UNC-2B	5.2 (0.20)	4.7 (0.18)
50mm (2")	50.6 (1.99)	60.6 (2.39)	63.0 (2.48)	42.8 (1.69)	48.0 (1.89)	M5 x 0.8 6H	#10-32 UNF-2B	6.4 (0.25)	5.6 (0.22)
63mm (2-1/2")	56.5 (2.22)	62.5 (2.46)	75.8 (2.98)	42.8 (1.69)	53.7 (2.11)	M5 x 0.8 6H	#10-32 UNF-2B	6.4 (0.25)	5.6 (0.22)
80mm (3-1/4")	67.5 (2.66)	75.0 (2.95)	97.0 (3.82)	50.8 (2.00)	74.8 (2.94)	M6 x 1.0 6H	#1/4-20 UNC-2B	7.1 (0.28)	7.2 (0.29)
100mm (4")	79.0 (3.11)	86.5 (3.41)	115.5 (4.55)	50.8 (2.00)	93.3 (3.67)	M6 x 1.0 6H	#1/4-20 UNC-2B	7.1 (0.28)	7.2 (0.29)

*See page 2.67 for overall body length with MRS option.

When option E is specified, user interface threads are designated U.S. customary (inch). This includes ports, rod threads and threaded mounting options (as applicable).

Bimba EF2 Cylinders

Weights

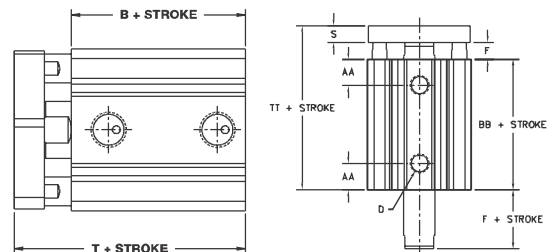
Bore	Approximate Base Weight of Cylinder gram-force (oz.)	Weight Adder per 5mm of Stroke gram-force (oz.)
12mm (1/2")	32.3 (1.14)	6.1 (0.22)
16mm (5/8")	53.4 (1.89)	8.6 (0.30)
20mm (3/4")	74.4 (2.62)	13.3 (0.47)
25mm (1")	114.6 (4.04)	16.3 (0.58)
32mm (1-1/4")	166.9 (5.89)	22.6 (0.80)
40mm (1-1/2")	250.7 (8.84)	23.0 (0.81)
50mm (2")	440.4 (15.53)	35.8 (1.26)
63mm (2-1/2")	697.3 (24.60)	45.2 (1.59)
80mm (3-1/4")	1309.6 (46.20)	70.0 (2.47)
100mm (4")	2464.6 (86.94)	117.5 (4.15)

Options

Magnetic Position Sensing (M) (Overall Length Adders)

Model Type and Size	Body Length	Total Length
EFT	B*	T*
12mm – 100mm	10.0 (0.39)	10.0 (0.39)
EFDT	BB*	TT*
12mm	7.2 (0.28)	7.2 (0.28)
16mm – 100mm	10.0 (0.39)	10.0 (0.39)

*Add the following lengths to the overall length dimension for EFT and EFDT cylinders when specifying a magnet option.



Bumpers (B)

(Stroke reduction by model for all bores)

Model	Stroke Reduction mm (inches)
Double Acting, Non-Rotating	3.0 (.12)

Flat-1/
Square Flat-1

Flat-II/
Square Flat-II

F02, F03, F04
(multiple power)

F0P
(multiple position)

Flat
Accessories

EF1/EF2

EF1/EFQ

Stopper/
Twist Clamp

Extruded
Flat Lift Table

Twin Bore

NPA

Diaphragm/
Miniature Cube

Bimba EFP MultiPosition Cylinder

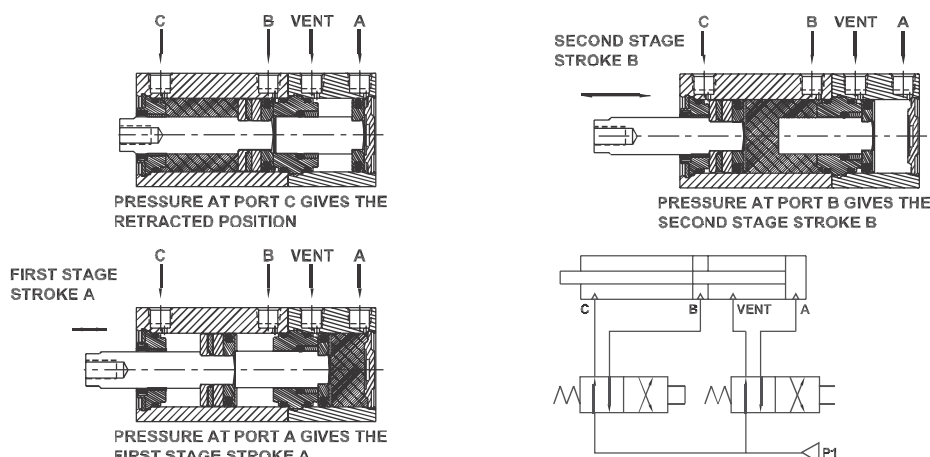


The Bimba EFP Extruded Flat MultiPosition cylinder is a double-acting, single rod end cylinder that provides three positions in one cylinder package. This cylinder is a two piston design that saves space using the existing EF footprint and eliminates the need for an additional cylinder. This unit can help simplify machine changeovers and thereby saving costs.

Features and Advantages

- Provides three position output on extension using the same EF bore footprint to save space
- Easily interchangeable to other compact extruded cylinders of the same bore size
- Available in 10 bore sizes from 12mm to 100mm for greater application versatility
- Versatile to easily connect and operate your application's pneumatic logic
- Shares the same popular standard features as EF product line
 - PTFE impregnated, hard anodized aluminum body for superior wear resistance
 - 4301 (303) Stainless Steel Rod
 - High Strength Aluminum Alloy Piston with Nitrile Piston Seal
 - Bronze Bushing (12-20mm); Self-Lubricating Nylon Bushing (25-100mm)
 - Bronze Rod Guide (12-20mm); Anodized Aluminum (25-100mm)
 - Nitrile Rod Seal and Wiper
 - Zinc Plated Carbon Steel Retaining Ring
 - Repairable and easy to maintain
- Standard with threaded front/rear mounting holes, English customary units, and magnetic positioning sensing (MRS) at no extra charge as compared to the competition.
- Standard options include bumpers, full flow ports, rod threads, rod extensions, and high temperature seals.
- All units are made to order and available to ship in three days!
- CAD drawings (2D and 3D) can be downloaded from our web site at: www.bimba.com/cad/

How It Works

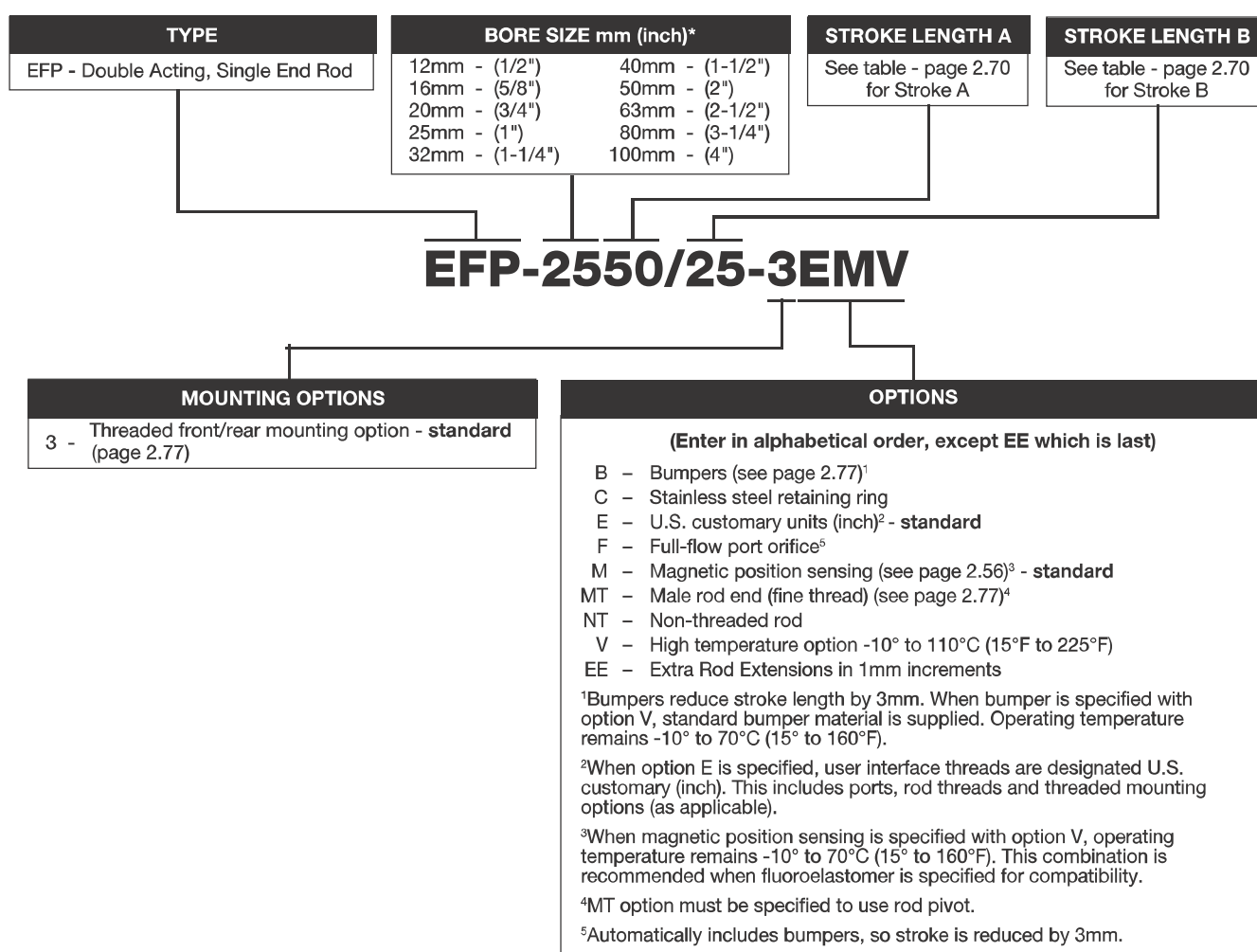


Bimba EFP MultiPosition Cylinder

How to Order

The model number for all EFP MultiPosition Cylinders consists of three alphanumeric clusters. These three parts designate the type of cylinder, the cylinder bore size and stroke length A/B, and cylinder options. For example, an EFP-2550/25-3EMV is a 25mm bore EF MultiPosition cylinder with 50mm for stroke plus an additional 25mm for stroke B. Additional features are threaded front/rear mounting, English ports/rod threads, magnetic position sensing, and high temperature seals. Please refer to the chart below for part number explanation and options.

Please note that all models come **STANDARD** with threaded front/rear mounting holes (3), English customary units for interface threads (E), and magnetic positioning sensing (M) options.



Please note that throughout all catalog charts, metric measurements are shown first and U.S. customary units (inches) are in parentheses.

*NOTE: Number in parentheses are the equivalent bore size in inches and listed FOR REFERENCE ONLY. DO NOT use for model designation.

Bimba EFP MultiPosition Cylinder

Stroke Length Availability

The table to right represents our standard stroke lengths for each stage. Please note that the total combined strokes (A + B) may not be greater than the maximum stroke as listed in the table.

Bimba is a JIT manufacturer and we are able to provide EFP cylinders in ANY stage to 1mm stroke length increment for all option styles within our standard three (3) day lead time. Longer stroke lengths, other options are available upon request. Please consult Technical Assistance at 800-44-BIMBA for help.

Nominal Bore Diameter	Double Acting EF Single Rod End		
	Standard Single Stage Stroke A or B (mm)	Minimum Single Stage Stroke A or B (mm)	Maximum Total Combining Stroke A + B (mm)
12mm (1/2")	5, 10, 15, 20, 25, 30	5	40
16mm (5/8")	5, 10, 15, 20, 25, 30	5	70
20mm (3/4")	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	5	80
25mm (1")	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	5	90
32mm (1-1/4")	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5	100
40mm (1-1/2")	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5	120
50mm (2")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10	120
63mm (2-1/2")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10	240
80mm (3-1/4")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10	230
100mm (4")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10	220

Cylinder Weights

Bore Size	Approximate Base Weight of Cylinder		Approximate Weight added per 5mm of stroke	
	gf	oz	gf	oz
12mm (1/2")	56.7	2.00	5.6	0.20
16mm (5/8")	100.6	3.54	8.0	0.28
20mm (3/4")	120.6	4.26	11.5	0.41
25mm (1")	190.1	6.71	14.6	0.52
32mm (1-1/4")	294.6	10.40	20.9	0.74
40mm (1-1/2")	471.6	16.64	21.3	0.75
50mm (2")	764.4	26.96	33.6	1.19
63mm (2-1/2")	1259.7	44.43	40.7	1.44
80mm (3-1/4")	2301.5	81.20	62.6	2.21
100mm (4")	4903.3	172.95	110.1	3.89

Bimba EFQ MultiForce Cylinder

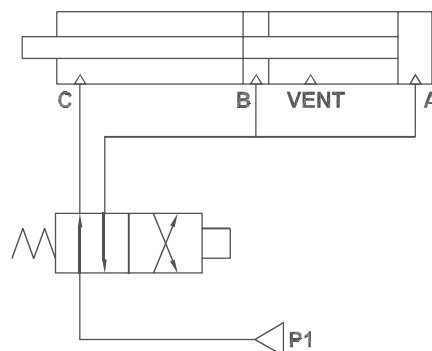
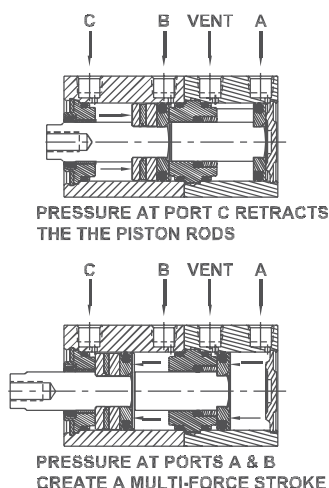


The Bimba EFQ Extruded Flat MultiForce cylinder is a double-acting, single end rod cylinder that **DOUBLES** the resultant force on extension. This cylinder is a two piston design that saves space using the existing EF footprint and eliminates the need for higher pressure systems or unique configurations. Only one piston is pressurized on the return stroke to save air volume and operating costs.

Features and Advantages

- Doubles the force output on extension using the same EF bore footprint to save space
- Easily interchangeable to other compact extruded cylinders of the same bore size
- Available in 10 bore sizes from 12mm to 100mm for greater application versatility
- Versatile to easily connect and operate your application's pneumatic logic
- Shares the same popular standard features as EF product line
 - PTFE impregnated, hard anodized aluminum body for superior wear resistance
 - 4301 (303) Stainless Steel Rod
 - High Strength Aluminum Alloy Piston with Nitrile Piston Seal
 - Bronze Bushing (12-20mm); Self-Lubricating Nylon Bushing (25-100mm)
 - Bronze Rod Guide (12-20mm); Anodized Aluminum (25-100mm)
 - Nitrile Rod Seal and Wiper
 - Zinc Plated Carbon Steel Retaining Ring
 - Repairable and easy to maintain
- Standard with threaded front/rear mounting holes, English customary units, and magnetic positioning sensing (MRS) at no extra charge as compared to the competition.
- Standard options include bumpers, full flow ports, rod threads, rod extensions, and high temperature seals.
- All units are made to order and available to ship in three days!
- CAD drawings (2D and 3D) can be downloaded from our web site at: www.bimba.com/cad/

How It Works

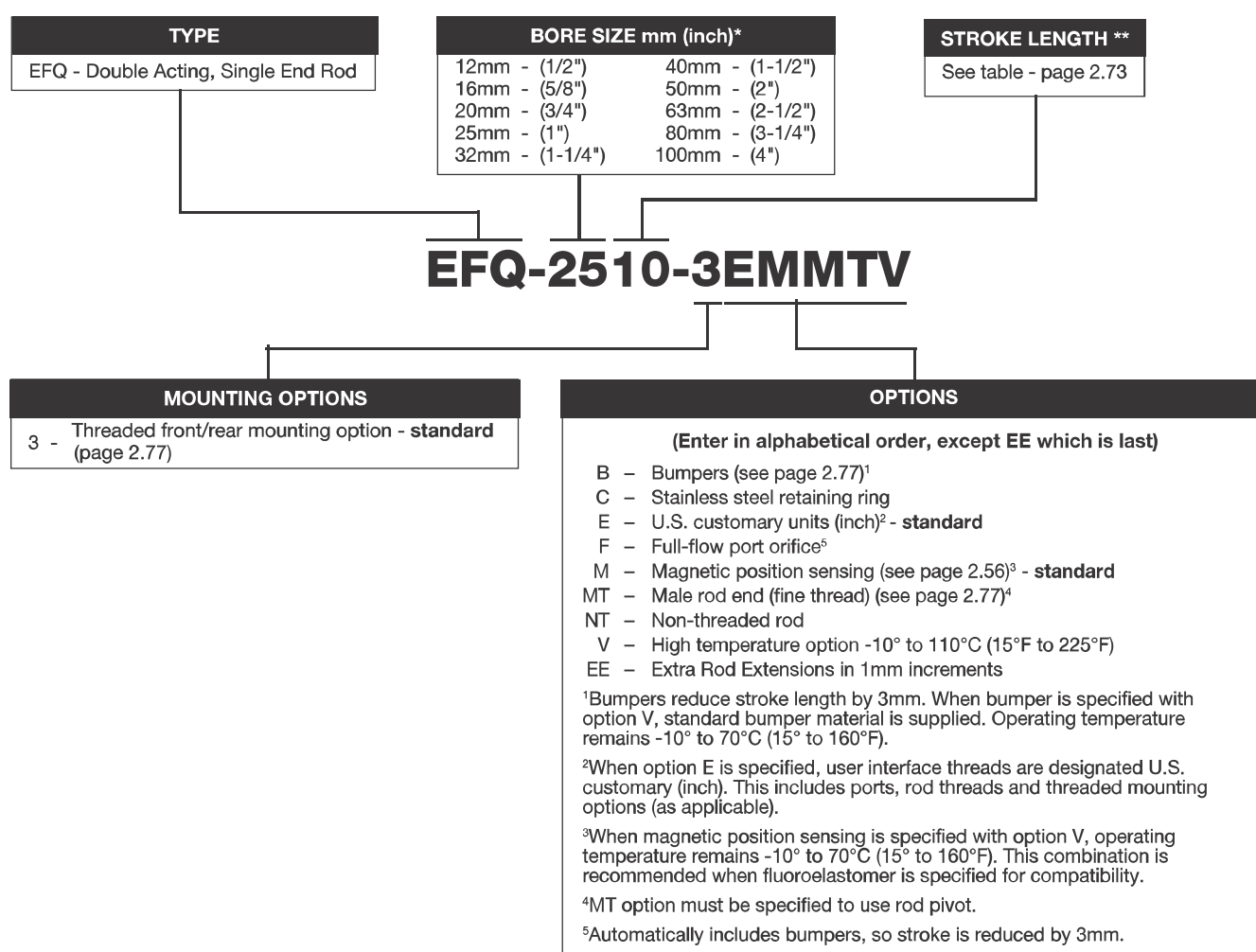


Bimba EFQ MultiForce Cylinder

How to Order

The model number for all EFQ MultiForce Cylinders consists of three alphanumeric clusters. These three parts designate the type of cylinder, the cylinder bore size and stroke length, and cylinder options. Please refer to the chart below for part number explanation and options.

Please note that all models come **STANDARD** with threaded front/rear mounting holes (3), English customary units for interface threads (E), and magnetic positioning sensing (M) options.



Please note that throughout all catalog charts, metric measurements are shown first and U.S. customary units (inches) are in parentheses.
 *NOTE: Number in parentheses are the equivalent bore size in inches and listed FOR REFERENCE ONLY. DO NOT use for model designation.

Bimba EFQ MultiForce Cylinder

Stroke Length Availability

The table to right represents our standard stroke lengths. Please note that the combination of stroke and extra rod extension may not be greater than the maximum stroke length as listed in the table.

Bimba is a JIT manufacturer and we are able to provide EFQ cylinders in ANY 1mm stroke length increment for all option styles within our standard three (3) day lead time. Longer stroke lengths other options are available upon request. Please consult Technical Assistance at 800-44-BIMBA for help.

Nominal Bore Diameter	Double Acting EFQ Single Rod End		
	Standard Single Length (mm)	Minimum Stroke Length (mm)	Maximum Stroke Length (mm)
12mm (1/2")	5, 10, 15, 20, 25, 30	5	40
16mm (5/8")	5, 10, 15, 20, 25, 30	5	70
20mm (3/4")	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	5	90
25mm (1")	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	5	100
32mm (1-1/4")	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5	160
40mm (1-1/2")	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5	120
50mm (2")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10	150
63mm (2-1/2")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10	110
80mm (3-1/4")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10	140
100mm (4")	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10	160

Cylinder Weights

Bore Size	Approximate Base Weight of Cylinder		Approximate Weight added per 5mm of stroke	
	gf	oz	gf	oz
12mm (1/2")	56.7	2.00	5.6	0.20
16mm (5/8")	100.6	3.54	8.0	0.28
20mm (3/4")	120.6	4.26	11.5	0.41
25mm (1")	190.1	6.71	14.6	0.52
32mm (1-1/4")	294.6	10.40	20.9	0.74
40mm (1-1/2")	471.6	16.64	21.3	0.75
50mm (2")	764.4	26.96	33.6	1.19
63mm (2-1/2")	1259.7	44.43	40.7	1.44
80mm (3-1/4")	2301.5	81.20	62.6	2.21
100mm (4")	4903.3	172.95	110.1	3.89

Bimba EFP and EFQ Cylinders

Engineering Specifications

Operating Medium:	Air
Maximum Operating Pressure:	10.0 bar (140 psi)
Ambient and Fluid Temperature:	-10° to 70°C (15° to 160°F)
Lubrication:	PTFE impregnated grease
Standard Rod End:	Female
Stroke Tolerance:	12-50mm bore: ± .6mm (.025 inch) 63-100mm bore: ± .8mm (.030 inch)
Cylinder Mounting (Standard):	Through hole with counterbores both ends Front and Rear threaded
Maximum Sideload:	Refer to page 2.47 of FL catalog for specific bore size and stroke length
Expected Service Life:	2500 kilometers (1500 miles)*

*For filtered, lubricated air, no-load conditions; if unlubricated, life is approximately 1/3.

Theoretical Cylindrical Forces

To determine the estimated force generated by the EFQ cylinder on extend or retract, use the appropriate power factor below and multiply it to the input working pressure to cylinder. Forces generated by EFP cylinders are found on page 2.48 of FL catalog.

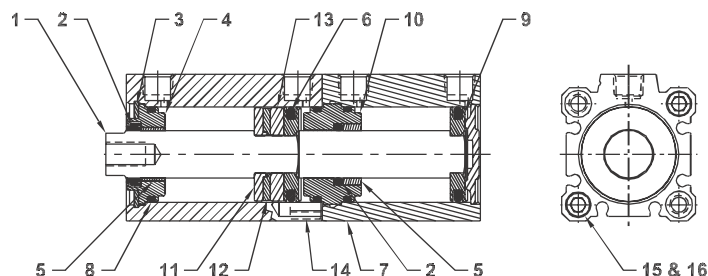
Force (kg or lb) = Power Factor X Pressure (bar or psi)

Bore	Direction	Power Factor (kg/bar)	Power Factor (lb/psi)
12mm (1/2")	Extend	1.9	0.30
	Retract	0.8	0.10
16mm (5/8")	Extend	3.5	0.55
	Retract	1.5	0.20
20mm (3/4")	Extend	5.5	0.86
	Retract	2.4	0.40
25mm (1")	Extend	8.4	1.33
	Retract	3.8	0.60
32mm (1-1/4")	Extend	13.8	2.19
	Retract	6.0	0.90
40mm (1-1/2")	Extend	22.7	3.59
	Retract	10.6	1.60
50mm (2")	Extend	35.7	5.65
	Retract	16.5	2.60
63mm (2-1/2")	Extend	58.3	9.22
	Retract	28.0	4.30
80mm (3-1/4")	Extend	93.6	14.80
	Retract	45.4	7.0
100mm (4")	Extend	149.0	23.56
	Retract	71.5	11.1

Bimba EFP and EFQ Cylinders

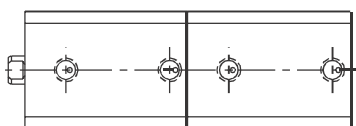
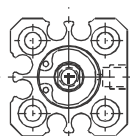
Engineering Specifications Components

#	Description	Material
1	Rod	4301 (303) Stainless Steel
2	Rod Seal/Wiper	Nitrile (Standard) or Fluoroelastomer (High Temperature option)
3	Retaining Ring	Zinc Plated Carbon Steel (standard) or Stainless Steel (optional)
4	Rod Guide	12-20mm bore – Bronze 25-100mm bore – Anodized Aluminum
5	Bushing	12-20mm bore – Bronze 25-100mm bore – Self Lubricating Nylon
6	Piston Seal	Nitrile (standard) or Fluoroelastomer (High Temperature option)
7	Cylinder Body	Polytetrafluoroethylene (PTFE) Impregnated Hard Anodized Aluminum
8	Rod Guide Seal	Nitrile (standard) or Fluoroelastomer (High Temperature option)
9	Piston	High Strength Aluminum Alloy
10	Center Section	12-20mm bore – Bronze 25-100mm bores – High Strength Aluminum Alloy
11	Front Magnet Plate	High Strength Aluminum Alloy
12	Magnet	Ferrite Nylon
13	Rear Magnet Plate	High Strength Aluminum Alloy
14	Threaded Insert	High Strength Steel
15	Tie Rod	High Strength Steel
16	Tie Nut	High Strength Steel

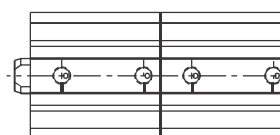
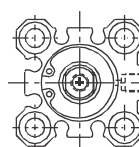


Body Styles

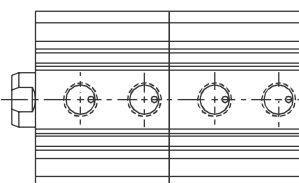
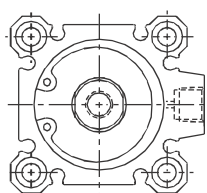
12mm Bore



16mm to 32mm Bore



40mm to 100mm Bore



Bimba EFP and EFQ Cylinders

Dimensions

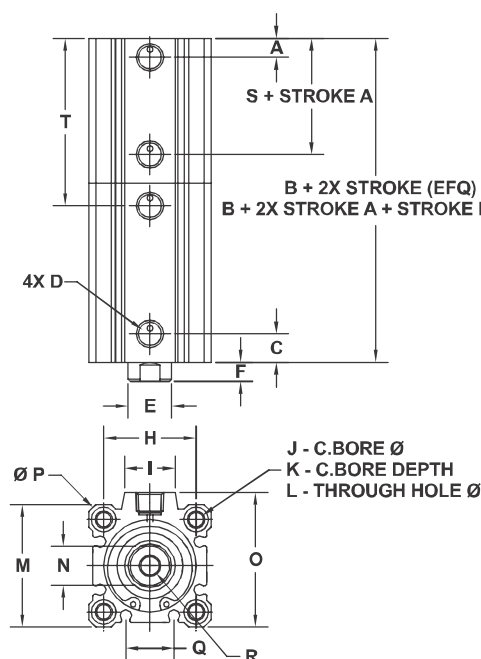
Shown in millimeters (inches)

Double Acting/Single Rod

Bore	A	B	C	D	E	F	H	I
12mm (1/2")	3.8 (0.15)	43.7 (1.72)	8.9 (0.35)	(#10-32)	6.0 (0.24)	3.5 (0.14)	15.5 (0.61)	N/A
16mm (5/8")	4.6 (0.18)	47.0 (1.85)	9.4 (0.37)	(#10-32)	8.0 (0.31)	3.5 (0.14)	20.0 (0.79)	8.7 (0.34)
20mm (3/4")	4.8 (0.19)	51.1 (2.01)	9.4 (0.37)	(#10-32)	10.0 (0.39)	4.5 (0.18)	25.5 (1.00)	9.5 (0.37)
25mm (1")	5.1 (0.20)	56.4 (2.22)	10.9 (0.43)	(#10-32)	12.0 (0.47)	5.0 (0.20)	28.0 (1.10)	10.3 (0.41)
32mm (1-1/4")	7.1 (0.28)	57.7 (2.27)	10.4 (0.41)	(NPT 1/8)	16.0 (0.63)	7.4 (0.29)	34.0 (1.34)	18.5 (0.73)
40mm (1-1/2")	7.4 (0.29)	71.6 (2.82)	13.2 (0.52)	(NPT 1/8)	16.0 (0.63)	7.0 (0.28)	40.0 (1.57)	17.3 (0.68)
50mm (2")	9.4 (0.37)	74.4 (2.93)	13.7 (0.54)	(NPT 1/4)	20.0 (0.79)	8.0 (0.31)	50.0 (1.97)	20.0 (0.79)
63mm (2-1/2")	9.7 (0.38)	84.2 (3.31)	15.7 (0.62)	(NPT 1/4)	20.0 (0.79)	8.0 (0.31)	60.0 (2.36)	20.0 (0.79)
80mm (3-1/4")	11.7 (0.46)	100.6 (3.96)	17.8 (0.70)	(NPT 3/8)	25.0 (0.98)	10.0 (0.39)	77.0 (3.03)	26.0 (1.02)
100mm (4")	12.2 (0.48)	121.4 (4.78)	24.4 (0.96)	(NPT 3/8)	30.0 (1.18)	12.0 (0.47)	94.0 (3.70)	26.0 (1.02)

Bore	J	K	L	M	N	O	P	Q
12mm (1/2")	6.1 (0.24)	3.5 (0.14)	3.5 (0.14)	25.0 (0.98)	5.0 (0.19)	25.0 (0.98)	32.0 (1.26)	5.3 (0.21)
16mm (5/8")	6.5 (0.26)	3.5 (0.14)	3.5 (0.14)	29.0 (1.14)	6.0 (0.25)	29.0 (1.14)	38.0 (1.50)	7.8 (0.31)
20mm (3/4")	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	36.0 (1.42)	8.0 (0.31)	36.0 (1.42)	47.0 (1.85)	10.5 (0.41)
25mm (1")	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	40.0 (1.57)	10.0 (0.38)	40.0 (1.57)	52.0 (2.05)	11.5 (0.45)
32mm (1-1/4")	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	45.0 (1.77)	14.0 (0.56)	49.5 (1.95)	60.0 (2.36)	17.7 (0.70)
40mm (1-1/2")	9.0 (0.35)	7.0 (0.28)	5.5 (0.22)	52.0 (2.05)	14.0 (0.56)	57.0 (2.24)	69.0 (2.72)	24.5 (0.96)
50mm (2")	11.1 (0.44)	8.0 (0.31)	6.9 (0.27)	64.0 (2.52)	17.0 (0.69)	71.0 (2.80)	86.0 (3.39)	29.3 (1.16)
63mm (2-1/2")	14.1 (0.56)	10.5 (0.41)	8.8 (0.35)	77.0 (3.03)	17.0 (0.69)	84.0 (3.31)	103.0 (4.06)	29.1 (1.15)
80mm (3-1/4")	17.5 (0.69)	13.5 (0.53)	11.0 (0.43)	98.0 (3.86)	22.0 (0.88)	104.0 (4.09)	132.0 (5.20)	28.1 (1.11)
100mm (4")	17.5 (0.69)	13.5 (0.53)	11.0 (0.43)	117.0 (4.61)	27.0 (1.06)	123.5 (4.86)	156.0 (6.14)	32.3 (1.27)

Bore	R	S	T
12mm (1/2")	(#8-32 UNC-2B)	8.1 (0.32)	20.8 (0.82)
16mm (5/8")	(#8-32 UNC-2B)	9.1 (0.36)	23.1 (0.91)
20mm (3/4")	(#10-32 UNF-2B)	10.2 (0.40)	26.4 (1.04)
25mm (1")	(1/4-28 UNF-2B)	11.7 (0.46)	29.2 (1.15)
32mm (1-1/4")	(5/16-24 UNF-2B)	12.7 (0.50)	31.5 (1.24)
40mm (1-1/2")	(3/8-24 UNF-2B)	16.3 (0.64)	40.3 (1.59)
50mm (2")	(1/2-20 UNF-2B)	16.8 (0.66)	41.9 (1.65)
63mm (2-1/2")	(1/2-20 UNF-2B)	20.3 (0.80)	47.2 (1.86)
80mm (3-1/4")	(5/8-18 UNF-2B)	25.7 (1.01)	57.5 (2.26)
100mm (4")	(3/4-16 UNF-2B)	28.7 (1.13)	69.7 (2.74)



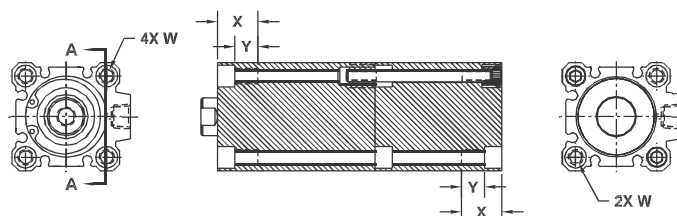
Bimba EFP and EFQ Cylinders

Options

Threaded Front/Rear Mount (-3) (Standard)

Bore	W*	X	Y
12mm (1/2")	8-32 UNC	10.5 (0.41)	7.0 (0.28)
16mm (5/8")	8-32 UNC	10.5 (0.41)	7.0 (0.28)
20mm (3/4")	1/4-20 UNC	17.0 (0.67)	10.0 (0.39)
25mm (1")	1/4-20 UNC	17.0 (0.67)	10.0 (0.39)
32mm (1-1/4")	1/4-20 UNC	17.0 (0.67)	10.0 (0.39)
40mm (1-1/2")	1/4-20 UNC	17.0 (0.67)	10.0 (0.39)
50mm (2")	5/16-18 UNC	22.0 (0.87)	14.0 (0.55)
63mm (2-1/2")	7/16-14 UNC	28.5 (1.12)	18.0 (0.71)
80mm (3-1/4")	1/2-13 UNC	35.8 (1.40)	22.0 (0.87)
100mm (4")	1/2-13 UNC	35.8 (1.40)	22.0 (0.87)

*All four bolt holes are recommended to be used for front mounting.



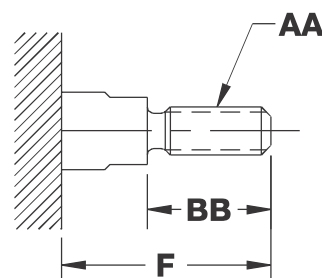
Bumpers (-B)

Stroke Reduction for all EFP/EFQ Bore Sizes

Model	Stroke Reduction mm (in)
Double Acting Single Rod End	3.0 (1.2)

Male Rod End (-MT)

Bore	AA	BB	F
12mm (1/2")	8-32 UNC	8.0 (0.31)	11.5 (0.45)
16mm (5/8")	8-32 UNC	8.0 (0.31)	11.5 (0.45)
20mm (3/4")	10-32 UNC	8.0 (0.31)	12.5 (0.49)
25mm (1")	1/4-28 UNC	9.5 (0.37)	14.5 (0.57)
32mm (1-1/4")	5/16-24 UNC	12.7 (0.50)	20.1 (0.79)
40mm (1-1/2")	3/8-24 UNC	16.0 (0.63)	23.0 (0.91)
50mm (2")	1/2-20 UNC	19.5 (0.77)	27.5 (1.08)
63mm (2-1/2")	1/2-20 UNC	19.5 (0.77)	27.5 (1.08)
80mm (3-1/4")	5/8-18 UNC	25.5 (1.00)	35.5 (1.40)
100mm (4")	5/8-18 UNC	28.5 (1.12)	40.5 (1.59)



Bimba Stopper Cylinders



A Bimba EF1 Cylinder was modified for a conveyor stopping application. Featuring a heavy-duty mounting, the cylinder's rod/bearing design was developed to withstand side impact loading.

How to Order

Model/Price	Dimensions (inch)
Model Number: EFL—Double-acting load-bearing conveyor-stop cylinder EFLR—Double-acting failsafe, spring extended Part Number: EFL or EFLR-32 □-E(options) Note: Part number must include option -E; available only in inch series. Stroke Length: 15, 20, 25mm Blue stroke lengths are stocked EFL/EFLR cylinders with -EM options.	

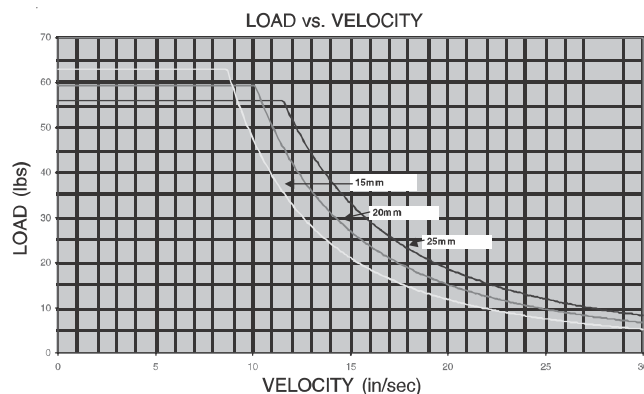
Engineering Specifications

Maximum Operating Pressure:	140 psi
Operating Temperature:	15° to 160°F (15° - 225° with -V option)
Lubrication:	PTFE Grease
Cylinder Body:	Aluminum; Hard-Coat with PTFE
Piston Rod:	303 Stainless Steel
Mounting Flange:	Anodized Aluminum
Seals:	Nitrile (fluoroelastomer optional)
Rod Bearing:	Sintered Iron
Spring Pre-final Loads:	2-8 lbs.

Impact Limitations

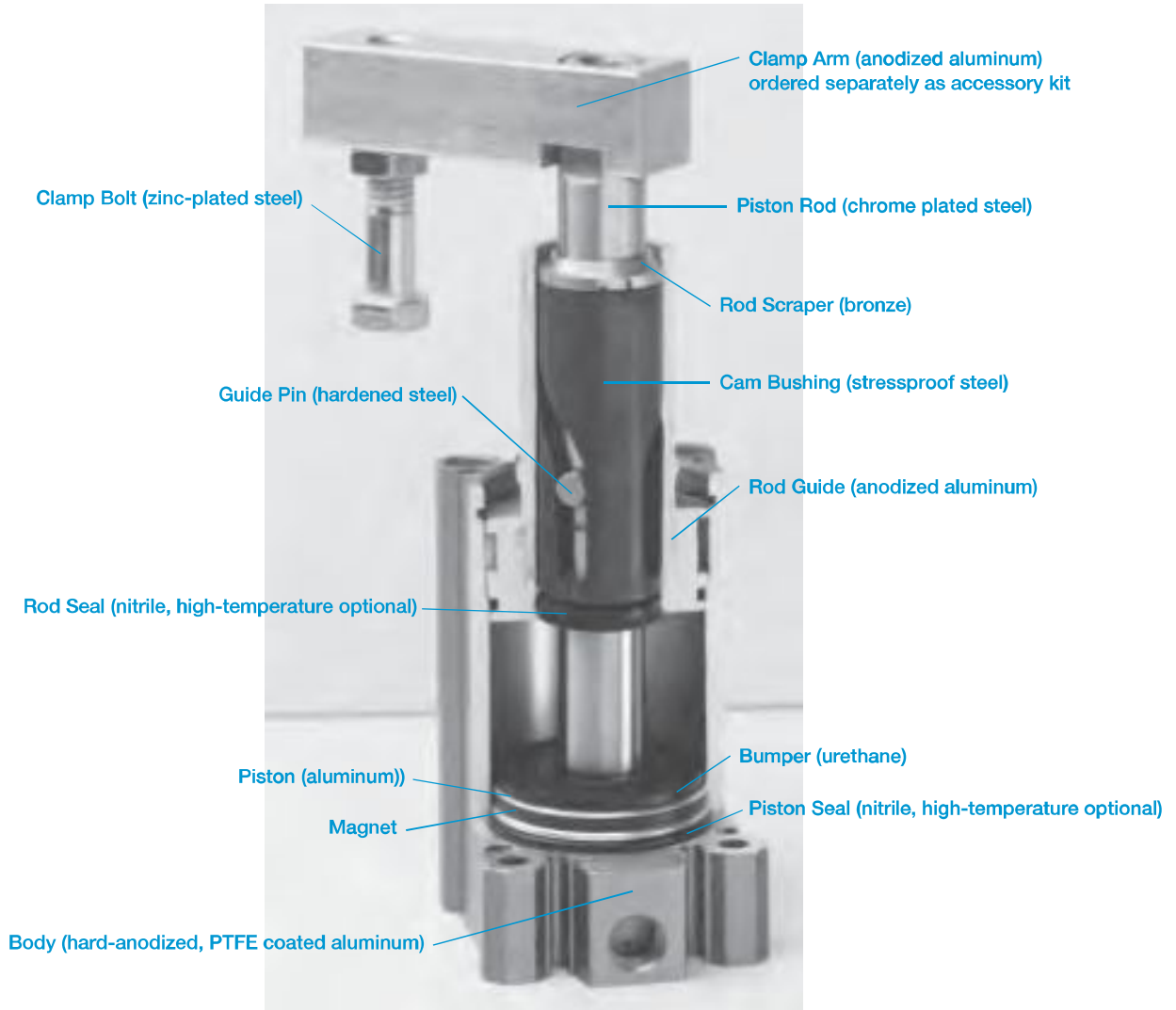
Maximum Side Load

Stroke (mm)	Side Load (lb)
15	12
20	11
25	10



Bimba Twist Clamp Cylinders

How it Works/Materials of Construction



The Guide Pin rides in the Cam Bushing. The bottom portion of stroke is linear travel. As the cylinder extends, the pin follows the groove and creates 90 degrees of rotary motion.

Engineering Specifications

Operating Medium: Air
Maximum Operating Pressure: 140 psi
Ambient and Fluid Temperature: +15 to +160 degrees F
Lubrication: PTFE Grease

Flat-1/
Square Flat-1

Flat-1/
Square Flat-1

F02, F03, F04
(multiple power)

F0P
(multiple position)

Flat
Accessories

EF1/EF2

EF1/EFQ

Stopper/
Twist Clamp

Extruded
Flat Lift Table

Twin Bore

N/A

Diaphragm/
Miniature Cube

Bimba Twist Clamp Cylinders



The Bimba Twist Clamp Cylinder combines linear and 90-degree rotary motion with an internal pin/cam mechanism. The rotary action moves a clamping arm away from the workpiece, allowing for easy loading and unloading of parts.

How to Order

The model number for all EF Twist Clamp cylinders consists of three alphanumeric clusters. These designate product type, bore size and stroke length, and options.

Please note the following features are standard, and are included in all model numbers: 3 (threaded front/rear mounting holes), E (US/inch units), and M (magnetic position sensing).

Product Type
EFCL - EF clamp cylinder, left rotation (Left rotation is achieved as cylinder extends. As cylinder retracts, rotation will be to the right.)
EFCR - EF clamp cylinder, right rotation

Bore Size
25 - 25mm
40 - 40mm
50 - 50mm
63 - 63mm

EFCL - 6377 - 3EM*

Stroke Length			
Bore	Rotary	Clamp	Total
25mm	20mm	15mm	35mm
40mm	28mm	15mm	43mm
50mm	39mm	38mm	77mm
63mm	39mm	38mm	77mm

Options
V - Fluoroelastomer seals (15° to 225°F)
3 - Threaded mounting holes front/rear
E - U.S. units (inch)
M - Magnet for position sensing

*Stroke in model number is called out as TOTAL stroke.
Blue stroke lengths are stocked EFCL/EFCR cylinders with 3EM options.

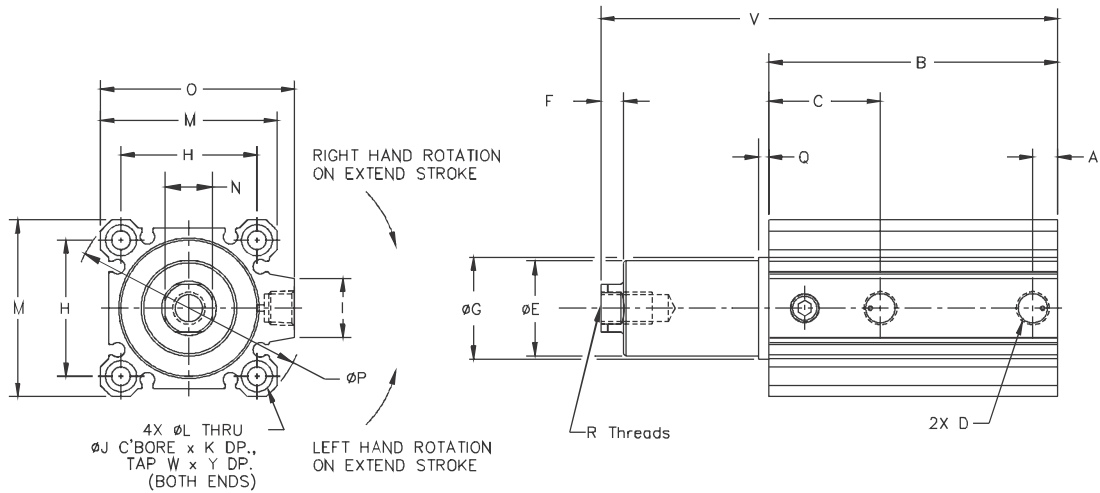
*Note: Options 3, E, and M are standard features and included in all model numbers

Shipping Weight

Bore	Weight
25mm	0.76
40mm	1.34
50mm	3.22
63mm	4.33

Bimba Twist Clamp Cylinders

Dimensions

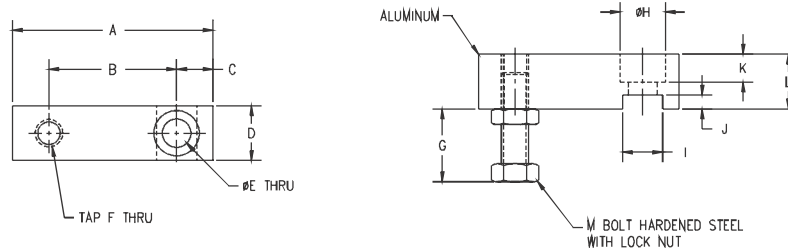


Bore	A	B	C	D	E	F	G	H	I	J
25mm	0.20	3.27	1.22	#10-32	0.84	0.16	0.905	1.10	0.41	0.35
40mm	0.29	3.34	1.29	1/8 NPT	1.12	0.26	1.180	1.57	0.68	0.35
50mm	0.37	4.98	1.29	1/4 NPT	1.39	0.30	1.456	1.97	0.79	0.44
63mm	0.38	5.12	1.37	1/4 NPT	1.82	0.30	1.888	2.36	0.79	0.56

Bore	K	L	M	N	Rod Dia.	O	P	Q	R	V	W	Y
25mm	0.28	0.22	1.57	0.39	0.47	1.57	2.05	0.16	5/16-24	4.47	1/4-20	0.67
40mm	0.28	0.22	2.05	0.54	0.63	2.24	2.72	0.11	3/8-24	5.30	1/4-20	0.67
50mm	0.31	0.27	2.52	0.66	0.79	2.80	3.39	0.14	1/2-20	8.35	5/16-18	0.86
63mm	0.41	0.35	3.03	0.66	0.79	3.31	4.06	0.16	1/2-20	8.47	7/16-14	1.12

Accessories

Clamp Arm Accessory	
Model Number	List Price
EFCA-25-E	
EFCA-40-E	
EFCA-50-E	
EFCA-63-E	

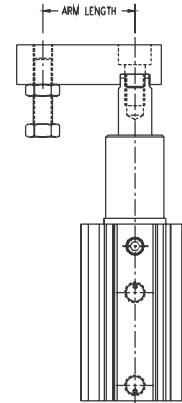
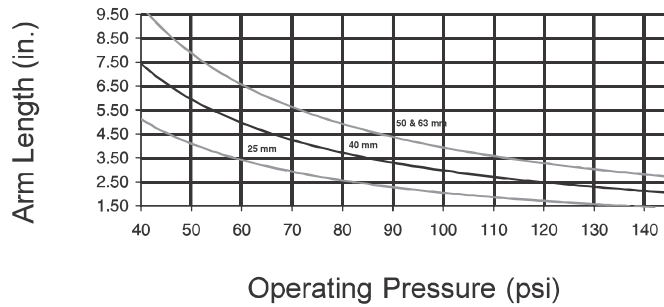


Bore	A	B	C	D	E	F	G	H	I	J	K	L	M
25mm	2.00	1.38	0.38	0.63	0.34	1/4-20	1.13	0.50	0.393	0.08	0.32	0.63	1/4-20
40mm	2.75	1.75	0.50	0.75	0.39	3/8-16	1.00	0.62	0.550	0.19	0.38	0.75	3/8-16
50mm	3.44	2.50	0.50	1.25	0.53	3/8-16	1.00	0.78	0.668	0.19	0.50	1.00	3/8-16
63mm	3.44	2.50	0.50	1.25	0.53	3/8-16	1.00	0.78	0.668	0.19	0.50	1.00	3/8-16

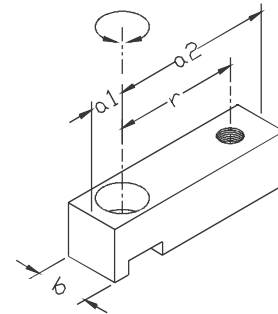
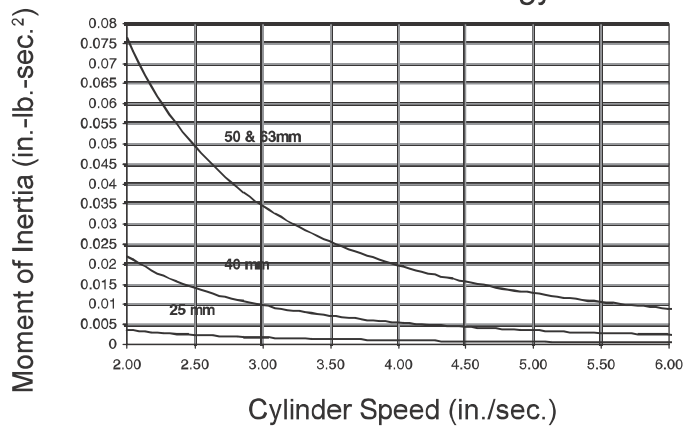
Bimba Twist Clamp Cylinders

Engineering Specifications

Maximum Clamp Arm Length



Maximum Kinetic Energy



$$I = \frac{W_{a1}}{g} * \frac{4(a1)^2 + b^2}{12} + \frac{W_{a2}}{g} * \frac{4(a2)^2 + b^2}{12}$$

Example, for standard EFCA-40-E

a1 - .50 in. Wa1 = .028 lbs.

a2 = 2.25 in. Wa2 = .127 lbs.

b = .75 in.

r = 1.75 in.

g = 386 in./sec.²

clamp bolt and nut = .081 lbs.

$$I_{arm} = \frac{.028 \text{ lb.}}{386 \text{ in./sec.}^2} * \frac{4(.50 \text{ in.})^2 + (.75 \text{ in.})^2}{12} + \frac{.127 \text{ lb.}}{386 \text{ in./sec.}^2} * \frac{4(2.25 \text{ in.})^2 + (.75 \text{ in.})^2}{12}$$

$$I_{arm} = .000578 \text{ in.-lb.-sec.}^2$$

$$I_{bolt/nut} = \frac{.081 \text{ lbs.}}{386 \text{ in./sec.}^2} * (1.75 \text{ in.})^2 = .000642 \text{ in.-lb.-sec.}^2$$

$$I_{total} = .000578 + .000642 = 0.00122 \text{ in.-lb.-sec.}^2$$

Operating Precautions:

- Do not clamp during rotary portion of stroke.
- Cylinder should be mounted vertically.
- Any force applied to clamped part perpendicular to clamping direction should not exceed 5% of the clamp force.

Power Factor

Bore	Power Factor
25mm	0.58
40mm	1.63
50mm	2.55
63mm	4.34

Clamp Force (lbs.) = pressure (psi) x power factor

Bimba Extruded Flat Lift Table



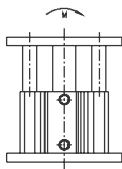
The Lift Table is an EF1-based, guided cylinder with four shafts for maximum rigidity. It is designed for lifting applications where other non-rotating cylinders cannot handle an overhung load and space is at a premium.

- Four-shaft support withstands offset loads and moments.
- Simple, efficient design provides economical alternative to other costly guided actuators.
- Joins the EF family of products and shares all the same benefits--long service life, low friction operation, fast delivery.
- Convenient wide tooling mounting surface.
- Intended for vertical lifting applications and should not be mounted horizontally or with tooling plates facing down.

How to Order

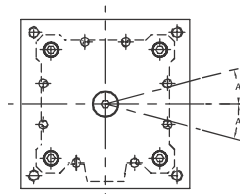
Type	Bore Size	Stroke Length	Options
Double-Acting EFF - Non-Rotating Lift Table	50 - 50mm 80 - 80mm 125 - 125mm	5mm increments to 100mm max	B - Internal Bumpers ¹ E - U.S. Customary (inch) ² M - Magnetic Position Sensing V - High Temperature (15°F to 225°F)
EFF - 80 50 - EM ¹Bumper on rod end only and stroke is reduced by 0.06" ²Inch-series only; include "E" option in all model numbers			

Engineering Specifications



Maximum Moment
Due to Side or Overhung Load

Bore	Max Moment
50mm	45 in-lb
80mm	125 in-lb
125mm	175 in-lb



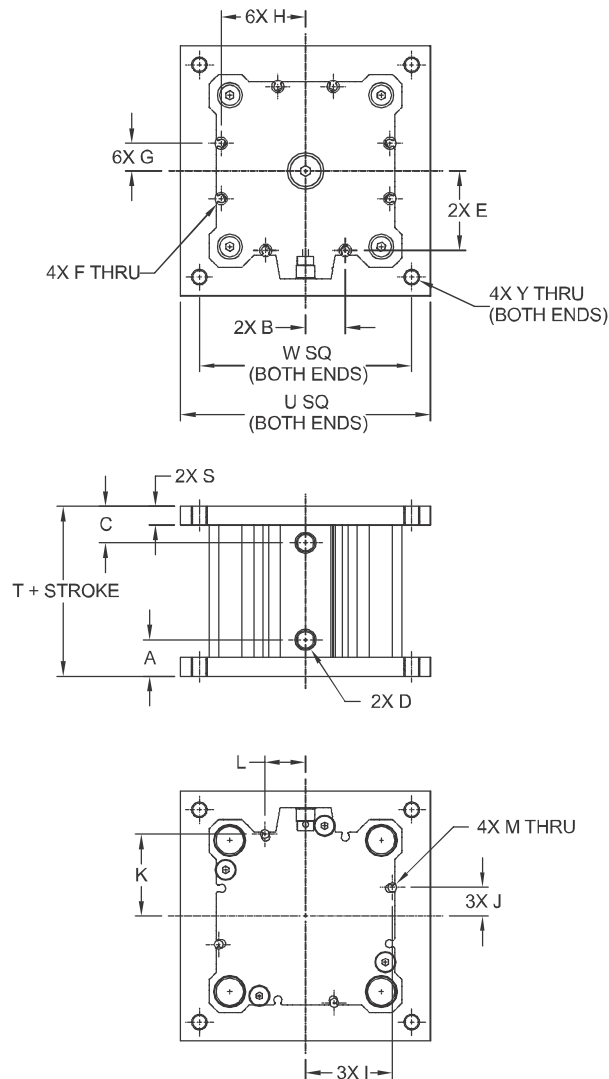
Non-Rotational Accuracy

Bore	Accuracy (A)
50mm	+/- .17°
80mm	+/- .14°
125mm	+/- .11°

Materials of Construction

Component	Material
Cylinder Body	PTFE-impregnated hard anodized aluminum
Rear Mounting Plate	Anodized Aluminum
Guide Shafts	Hard Chrome Plated Stainless Steel
Guide Shaft Bearings	Composite Plastic
Tooling Plate	Anodized Aluminum
Piston Rod	Stainless Steel
Rod Guide	Aluminum Alloy
Seals	Nitrile (Fluoroelastomer optional)
Piston	Aluminum Alloy

Bimba Extruded Flat Lift Table



Bore	A	B	C	D	E	F	G	H	I	J	K	L	M	S	T	U	W	Y
50mm	0.58	0.56	0.58	1/8 NPT	1.06	0.25	0.58	1.05	1.09	0.60	1.11	0.58	0.25	0.25	See Table Below	3.00	2.50	#10-32 UNF
80mm	0.73	0.80	0.73	1/8 NPT	1.59	0.25	0.55	1.68	1.74	0.57	1.64	0.82	0.19	0.38		5.00	4.25	5/16-24 UNF
125mm	1.00	1.07	1.00	3/8 NPT	2.43	0.25	0.85	2.52	2.57	0.87	2.48	1.09	0.19	0.50		7.00	5.88	1/2-20 UNF

Overall Length, Dimension "T"

Bore	Without M Option	With M Option
50mm	Strokes: 0-24mm	Strokes: 0-21mm
	1.86	2.42
	Strokes: 25-100mm	Strokes: 22-100mm
	0.88 + Stroke	1.59 + Stroke
80mm	Strokes: 0-22mm	Strokes: 0-18mm
	2.14	2.30
	Strokes: 23-100mm	Strokes: 19-100mm
	1.28 + Stroke	1.59 + Stroke
125mm	Strokes: 0-37mm	Strokes: 0-30mm
	3.03	3.25
	Strokes: 38-100mm	Strokes: 31-100mm
	1.58 + Stroke	2.17 + Stroke