

S81•83

PNEUMATIC CYLINDERS NFPA



PNEUMATIC CYLINDERS NFPA

Features and benefits

- Meet NFPA standards
- NFPA-MS4 standard mounting styles
- Made of corrosion-resistant aluminium
- Adjustable cushions on both ends
- High strength

Options

- Magnetic piston
- Proximity switches
- High temperature seals
- Stainless steel 304 or 316 piston rod and tie rods



Also available: Special cylinders (see pages 568-569)

- Double rod ends
- Adjustable stroke
- Tandem
- 3-position cylinders
- Multistage cylinders
- ISO 6431 cylinders

Wiper

Keeps dirt out for less maintenance and longer service life of the cylinder (urethane) (temperature: -45 °C to 110 °C)

Rod Lips Seal

Designed with a real rod u-cup; completely self-compensating for zero leakage at all pressures

Tie Rods

Corrosion resistant (nitrocarburated), stressproof steel maintains uniform compression on tube end seals

Piston Wear Ring

Made from nylon to reduce friction and to ensure maximum service life in side load applications. Eliminates metal-to-metal contact

Piston

Machined from solid one-piece aluminium bar stock. Offers long bearing support

Solid Aluminium Head & Cap

Machined from solid one-piece aluminium bar stock and black anodized for corrosion resistance

Piston Rod

Medium carbon steel, chrome plated and polished. Two wrench flats are provided for rod end attachment

Rod Gland

Bronze gland is removable without cylinder disassembly for easy maintenance. Designed to provide maximum rod bearing service life

Hard Anodized Aluminium Tube

Provides superior wear resistance and lower friction coefficient for maximum seal service life

Piston Seals

Lip-type low friction Urethane piston seals are pressure energized and wear compensating for low friction and long service life (-45 °C to 110 °C)

Check Seal Cushion and Needle valves

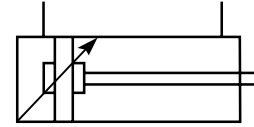
Precision cushion spuds combine with a new style of floating cushion seal to provide smooth deceleration at end of stroke. Needle valves make adjustments easy

O-Ring Tube End Seals

Nitrile O-ring design is pressure compensating and reusable



PNEUMATIC CYLINDERS NFPA



Stroke (in)	Bore Size (in)						
	1-1/2 Product No	2 Product No	2-1/2 Product No	3-1/4 Product No	4 Product No	5 Product No	6 Product No
1	81.501	81.601	81.701	81.801	81.901	81.201	81.301
2	81.502	81.602	81.702	81.802	81.902	81.202	81.302
3	81.503	81.603	81.703	81.803	81.903	81.203	81.303
4	81.504	81.604	81.704	81.804	81.904	81.204	81.304
5	81.505	81.605	81.705	81.805	81.905	81.205	81.305
6	81.506	81.606	81.706	81.806	81.906	81.206	81.306
7	81.507	81.607	81.707	81.807	81.907	81.207	81.307
8	81.508	81.608	81.708	81.808	81.908	81.208	81.308
9	81.509	81.609	81.709	81.809	81.909	81.209	81.309
10	81.510	81.610	81.710	81.810	81.910	81.210	81.310
11	81.511	81.611	81.711	81.811	81.911	81.211	81.311
12	81.512	81.612	81.712	81.812	81.912	81.212	81.312
13	81.513	81.613	81.713	81.813	81.913	81.213	81.313
14	81.514	81.614	81.714	81.814	81.914	81.214	81.314
15	81.515	81.615	81.715	81.815	81.915	81.215	81.315
16	81.516	81.616	81.716	81.816	81.916	81.216	81.316
17	81.517	81.617	81.717	81.817	81.917	81.217	81.317
18	81.518	81.618	81.718	81.818	81.918	81.218	81.318
19	81.519	81.619	81.719	81.819	81.919	81.219	81.319
20	81.520	81.620	81.720	81.820	81.920	81.220	81.320
21	81.521	81.621	81.721	81.821	81.921	81.221	81.321
22	81.522	81.622	81.722	81.822	81.922	81.222	81.322
23	81.523	81.623	81.723	81.823	81.923	81.223	81.323
24	81.524	81.624	81.724	81.824	81.924	81.224	81.324

Note: Please add suffix ".01" to order these cylinders with a magnetized piston for usage with a magnetic proximity switch (example: 81.522.01)

MAGNETIC PROXIMITY SWITCHES



Features and benefits

- Actuate when optional piston magnet passes below switch
- One switch for a majority of voltages and cylinder sizes
- Switch bracket and 9 ft cable included

Product No	Voltage Drop	Indicator Light
81.150	3 Volts	LED

Specifications

Voltage Range: 5-240 V AC/DC • 50/60 HZ

Current: 1 A max

Switching Speed: 0.6 MS operated • 0.5 MS release

Working Temperature: -20 to 80 °C

CAUTION

In auto switch (magnetic proximity switch) applications, it is recommended to connect the auto switch to the power source through a load.

PUSH/PULL FORCES

Cylinders provide specific forces based on the piston area and on pressure provided.

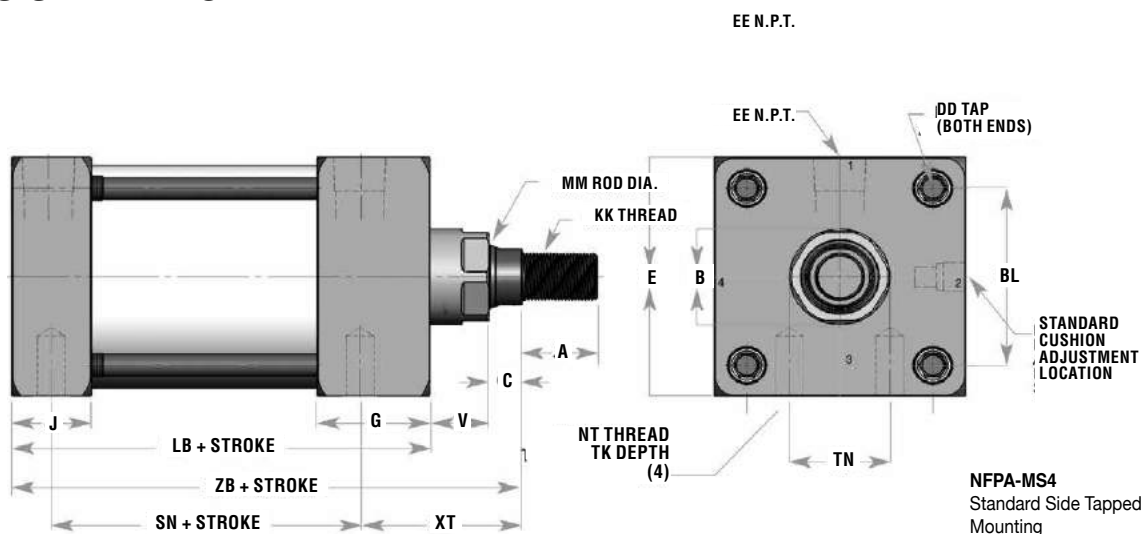
These forces will not be the same for push and pull, since the rod takes up a portion of the area of the piston when pulling.

CAUTION

Selecting the proper cylinder for the application remains the responsibility of the system designer; these forces should be used as a guideline and it is important to do the required tests according to the specific application.

Bore Size	Rod Size	Push Force (lb)				Pull Force (lb)			
		at 50 PSI	at 100 PSI	at 150 PSI	at 250 PSI	at 50 PSI	at 100 PSI	at 150 PSI	at 250 PSI
1-1/2	5/8	88	177	266	442	73	146	220	365
2	5/8	157	314	471	785	141	283	425	709
2-1/2	5/8	245	491	737	1227	230	460	691	1150
3-1/4	1	415	830	1245	2074	375	751	1127	1878
4	1	628	1257	1886	3142	589	1170	1768	2945
5	1	982	1964	2946	4909	942	1885	2827	4712
6	1-3/8	1413	2827	4241	7069	1337	2679	4018	6697

PNEUMATIC CYLINDERS NFPA



Bore Size	MM Rod Diameter	Dimensions (in)																	
		A	B	BL	C	DD (UNF)	E	EE (F) NPT	G	J	KK (UNF)	LB	V	ZB	SN	XT	NT	TK	TN
1-1/2	5/8	3/4	1-1/8	1.43	3/8	1/4 (28)	2	3/8	1-1/2	1	7/16 (20)	3-5/8	5/8	4-5/8	2-1/4	1-15/16	1/4 (20)	3/8	5/8
2	5/8	3/4	1-1/8	1.84	3/8	5/16 (24)	2-1/2	3/8	1-1/2	1	7/16 (20)	3-5/8	5/8	4-5/8	2-1/4	1-15/16	15/16 (18)	1/2	7/8
2-1/2	5/8	3/4	1-1/8	2.19	3/8	5/16 (24)	3	3/8	1-1/2	1	7/16 (20)	3-3/4	5/8	4-3/4	2-3/8	1-15/16	3/8 (16)	5/8	1-1/4
3-1/4	1	1-1/8	1-1/2	2.78	1/2	3/8 (24)	3-3/4	1/2	1-3/4	1-1/4	3/4 (16)	4-1/4	7/8	5-5/8	2-5/8	2-7/16	1/2 (13)	3/4	1-1/2
4	1	1-1/8	1-1/2	3.32	1/2	3/8 (24)	4-1/2	1/2	1-3/4	1-1/4	3/4 (16)	4-1/4	7/8	5-5/8	2-5/8	2-7/16	1/2 (13)	3/4	2-1/16
5	1	1-1/8	1-1/2	4.12	1/2	1/2 (20)	5-1/2	1/2	1-3/4	1-1/4	3/4 (16)	4-1/2	7/8	5-7/8	2-7/8	2-7/16	5/8 (11)	1	2-11/16
6	1-3/8	1-5/8	2	4.88	5/8	1/2 (20)	6-1/2	3/4	2	1-1/2	1 (14)	5	1	6-5/8	3-1/8	2-13/16	3/4 (10)	1-1/8	3-1/4

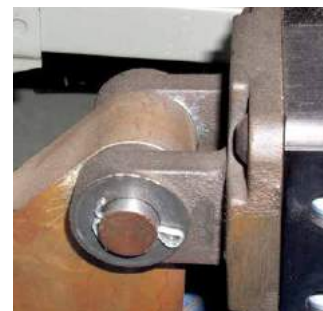
CYLINDER MOUNTING OPTIONS

There are various ways to mount a cylinder to equipment, beyond using the standard side tapped mounting style (MS4).

These mounting options can be identified by their NFPA standard codes:

- NFPA-MS1 90° angle bracket
- NFPA-MF1 rectangular head flange
- NFPA-MF2 rectangular cap flange
- NFPA-MP1 cap clevis
- NFPA-MP2 cap clevis high
- NFPA-MP4 cap Eye
- NFPA-MS2 side Lug

The following pages show the available options that can be used to mount NFPA cylinders.

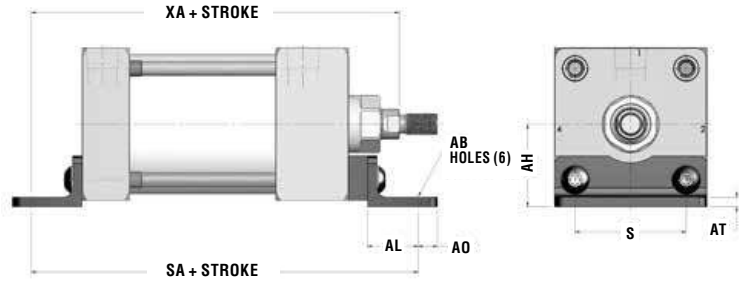


MOUNTING ACCESSORIES FOR PNEUMATIC CYLINDERS NFPA

90° ANGLE BRACKET NFPA-MS1



Screws included

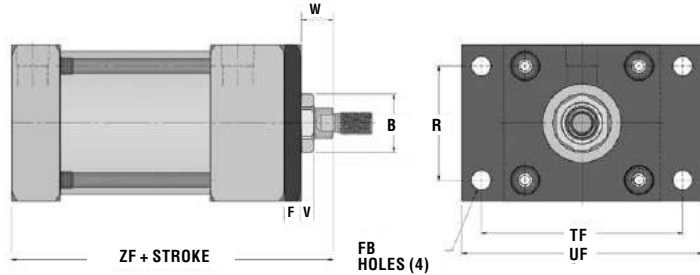


Product No	Bore Size	Dimensions (in)							
		AB	AH	AL	AO	AT	S	SA	XA
81.560	1-1/2	7/16	1-3/16	1	3/8	1/8	1-3/4	6	5-5/8
81.660	2	7/16	1-7/16	1	3/8	1/8	1-3/4	6	5-5/8
81.760	2-1/2	7/16	1-5/8	1	3/8	1/8	2-1/4	6-1/8	5-3/4
81.860	3-1/4	9/16	1-15/16	1-3/4	1/2	3/16	2-3/4	7-3/8	6-7/8
81.985	4	9/16	2-1/4	1-3/4	1/2	3/16	3-1/2	7-3/8	6-7/8
81.260	5	11/16	2-3/4	1-3/8	5/8	3/16	4-1/4	7-7/8	7-1/4
81.360	6	13/16	3-1/4	1-3/8	5/8	1/4	5-1/4	8-1/2	8

RECTANGULAR HEAD FLANGE NFPA-MF1



Screws included

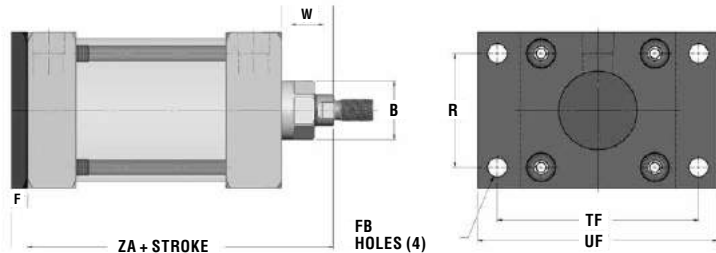


Product No	Bore Size	Dimensions (in)								
		B	F	FB	R	TF	UF	V	W	ZF
81.550	1-1/2	1-1/8	3/8	5/16	1.43	2-3/4	3 3/8	1/4	5/8	4-5/8
81.650	2	1-1/8	3/8	3/8	1.84	3-3/8	4-1/8	1/4	5/8	4-5/8
81.750	2-1/2	1-1/8	3/8	3/8	2.19	3-7/8	4-5/8	1/4	5/8	4-3/4
81.850	3-1/4	1-1/2	5/8	7/16	2.76	4-11/16	5-1/2	1/4	3/4	5-5/8
81.980	4	1-1/2	5/8	7/16	3.32	5-7/16	6-1/4	1/4	3/4	5-5/8
81.250	5	1-1/2	5/8	9/16	4.10	6-5/8	7-5/8	1/4	3/4	5-7/8
81.350	6	2	3/4	9/16	4.88	7-5/8	8-5/8	1/4	7/8	6-5/8

RECTANGULAR CAP FLANGE NFPA-MF2



Screws included



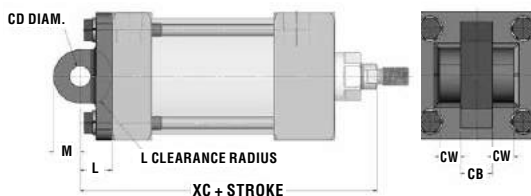
Product No	Bore Size	Dimensions (in)							
		B	F	FB	R	TF	UF	W	ZA
81.550	1-1/2	1-1/8	3/8	5/16	1.43	2-3/4	3 3/8	1	5
81.650	2	1-1/8	3/8	3/8	1.84	3-3/8	4-1/8	1	5
81.750	2-1/2	1-1/8	3/8	3/8	2.19	3-7/8	4-5/8	1	5-1/8
81.850	3-1/4	1-1/2	5/8	7/16	2.76	4-11/16	5-1/2	1-3/8	6-1/4
81.980	4	1-1/2	5/8	7/16	3.32	5-7/16	6-1/4	1-3/8	6-1/4
81.250	5	1-1/2	5/8	9/16	4.10	6-5/8	7-5/8	1-3/8	6-1/2
81.350	6	2	3/4	9/16	4.88	7-5/8	8-5/8	1-5/8	7-3/8

MOUNTING ACCESSORIES FOR PNEUMATIC CYLINDERS NFPA

CAP CLEVIS NFPA-MP1

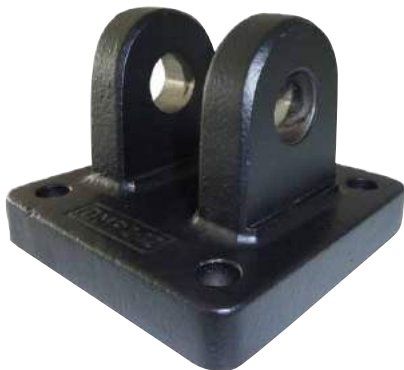


Clevis pin and screws included

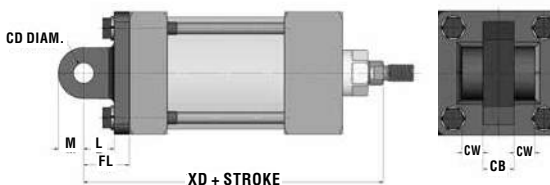


Product No	Bore Size	Dimensions (in)					
		CB	CD	CW	L	M	XC
81.565	1-1/2	3/4	1/2	1/2	3/4	5/8	5-3/8
81.665	2	3/4	1/2	1/2	3/4	5/8	5-3/8
81.765	2-1/2	3/4	1/2	1/2	3/4	5/8	5-1/2
81.865	3-1/4	1-3/4	3/4	5/8	1-3/4	7/8	6-7/8
81.990	4	1-3/4	3/4	5/8	1-3/4	7/8	6-7/8
81.265	5	1-3/4	3/4	5/8	1-3/4	7/8	7-1/8
81.365	6	1-1/2	1	3/4	1-1/2	1-3/4	8-1/8

CAP CLEVIS HIGH NFPA-MP2



Clevis pin and screws included



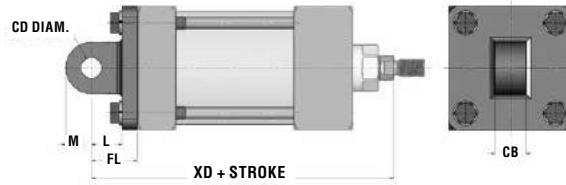
Product No	Bore Size	Dimensions (in)						
		CB	CD	CW	FL	L	M	XD
81.563	1-1/2	3/4	1/2	1/2	1-1/8	3/4	5/8	5-3/4
81.663	2	3/4	1/2	1/2	1-1/8	3/4	5/8	5-3/4
81.763	2-1/2	3/4	1/2	1/2	1-1/8	3/4	5/8	5-7/8
81.863	3-1/4	1-3/4	3/4	5/8	1-7/8	1-3/4	7/8	7-1/2
81.993	4	1-3/4	3/4	5/8	1-7/8	1-3/4	7/8	7-1/2
81.263	5	1-3/4	3/4	5/8	1-7/8	1-3/4	7/8	7-3/4
81.363	6	1-3/4	1	5/8	2-1/4	1-1/2	1-3/4	8-7/8

MOUNTING ACCESSORIES FOR PNEUMATIC CYLINDERS NFPA

CAP EYE NFPA-MP4



Screws included

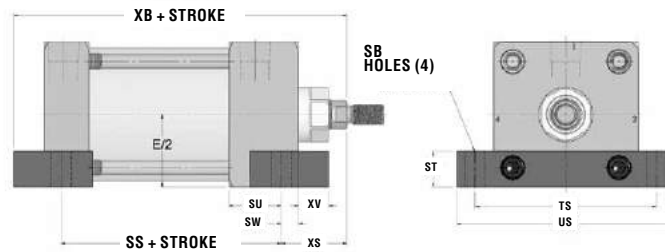


Product No	Bore Size	Dimensions (in)					
		CB	CD	FL	L	M	XD
81.567	1-1/2	3/4	1/2	1-1/8	3/4	5/8	5-3/4
81.667	2	3/4	1/2	1-1/8	3/4	5/8	5-3/4
81.767	2-1/2	3/4	1/2	1-1/8	3/4	5/8	5-7/8
81.867	3-1/4	1-1/4	3/4	1-7/8	1-1/4	7/8	7-1/2
81.996	4	1-1/4	3/4	1-7/8	1-1/4	7/8	7-1/2
81.267	5	1-1/4	3/4	1-7/8	1-1/4	7/8	7-3/4
81.367	6	1-1/2	1	2-1/4	1-1/2	1-1/8	8-7/8

SIDE LUG NFPA-MS2



Screws included



Product No	Bore Size	Dimensions (in)									
		SB	SS	ST	SU	SW	TS	US	XB	XS	XV
81.562	1-1/2	13/32	2-7/8	9/16	5/8	3/8	2-3/4	3-1/2	5-1/8	1-3/8	1/2
81.662	2	13/32	2-7/8	5/8	5/8	3/8	3-1/4	4	5-1/4	1-3/8	5/8
81.762	2-1/2	13/32	3	3/4	5/8	3/8	3-3/4	4-1/2	5-3/8	1-3/8	5/8
81.862	3-1/4	17/32	3-1/4	1	3/4	1/2	4-3/4	5-3/4	6-3/8	1-7/8	3/4
81.982	4	17/32	3-1/4	1	3/4	1/2	5-1/2	6-1/2	6-3/8	1-7/8	3/4
81.262	5	25/32	3-1/8	1-3/4	9-16	11/16	6-7/8	8-1/4	6-13/16	2-1/16	15/16
81.362	6	25/32	3-5/8	1-1/2	7/8	11/16	7-7/8	9-1/4	7-9/16	2-5/16	15/16

ACCESSORIES FOR PNEUMATIC CYLINDERS NFPA

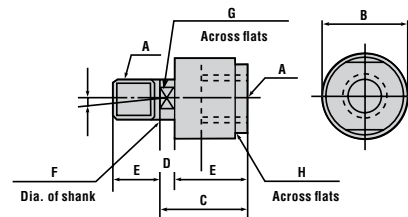
SELF-ALIGNING ROD-END COUPLERS

Features and benefits

- Prevent binding of cylinders
- Permit greater tolerance between center line of the cylinder and mating part
- Reduce cylinder and component wear
- All couplers are heat treated for higher corrosion and wear resistance



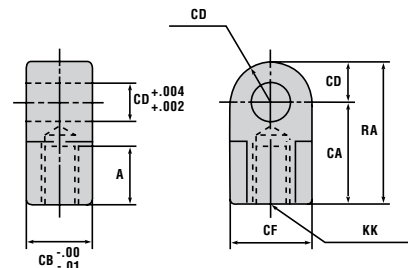
Product No	Bore Size	Dimensions (in)							
		A	B	C	D	E	F	G	H
81.010	1-1/2 • 2 • 2-1/2	7/16-20	1.25	2.0	0.50	0.75	0.62	9/16	1.12
81.015	3 1/4 • 4 • 5	3/4-16	1.75	2.31	0.31	1.12	0.97	7/8	1.50
81.020	6	1-14	2.50	2.94	0.50	1.62	1.38	1-3/4	2.25



EYE ROD END TYPE T



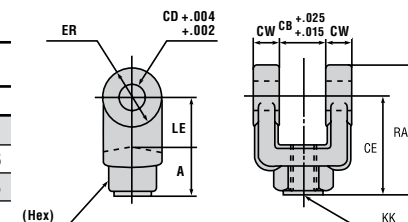
Product No	Bore Size	Dimensions (in)						
		A	CA	CB	CD	CF	KK	RA
81.575	1-1/2 • 2 • 2-1/2	3/4	1-1/2	3/4	1/2	1	7/16-20	2
81.675	3 1/4 • 4 • 5	1-1/8	2 1/16	1-3/4	3/4	1-1/2	3/4-16	2 13/16
81.875	6	1 5/8	2 13/16	1-1/2	1	2	1-14	3 13/16



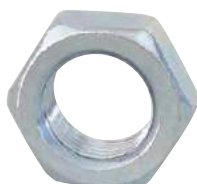
CLEVIS ROD END TYPE Y WITH PIVOT PIN



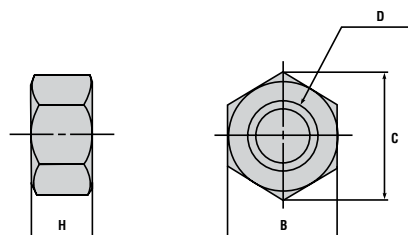
Product No	Bore Size	Dimensions (in)								
		A	CE	CB	CD	CW	ER	KK	LE	RA
81.570	1-1/2 • 2 • 2-1/2	3/4	1-1/2	3/4	1/2	1/2	1/2	7/16 (20)	3/4	2
81.870	3-1/4 • 4 • 5	1-1/8	2-3/8	1-1/4	3/4	5/8	3/4	3/4 (16)	1-1/4	3-1/8
81.370	6	1-5/8	3-1/8	1-1/2	1	3/4	1	1 (14)	1-1/2	4-1/8



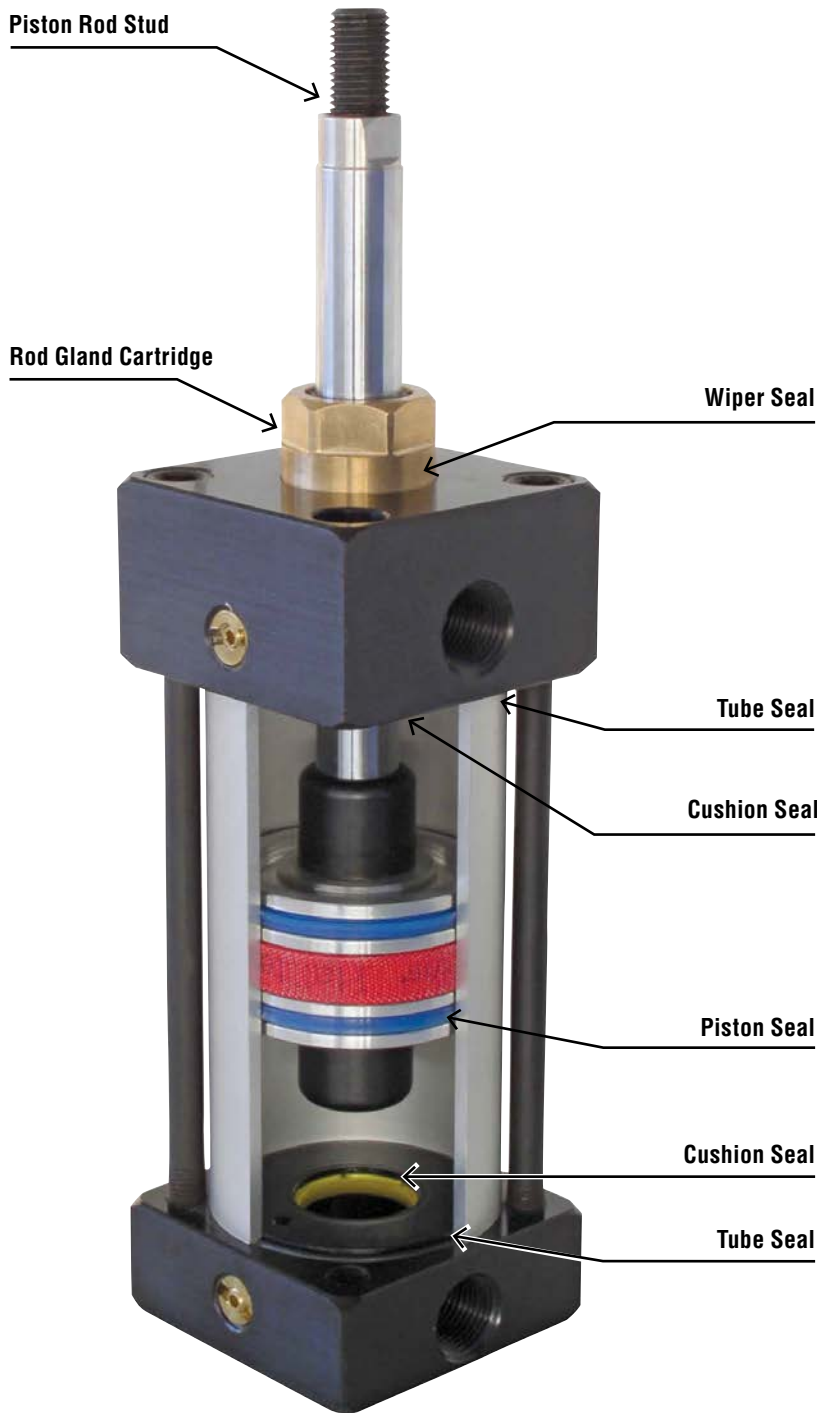
LOCK NUT



Product No	Bore Size	Dimensions (in)			
		D	H	B	C
81.576	1-1/2 • 2 • 2-1/2	7/16 (20)	1/4	11/16	0.79
81.676	3-1/4 • 4 • 5	3/4 (16)	27/64	1-1/8	1.30
81.876	6	1 (14)	31/64	1-9/32	1.46



REPLACEMENT PARTS FOR NFPA PNEUMATIC CYLINDERS



CYLINDER SEAL KITS

Includes wiper seal, tube seal, cushion seal and piston seal.

Product No	Bore Size
81.052	1-1/2
81.057	2
81.062	2-1/2
81.067	3-1/4
81.072	4
81.077	5
81.082	6

ROD GLAND CARTRIDGE

Product No	Bore Size
81.032	1-1/2 • 2 • 2-1/2
81.037	3-1/4 • 4 • 5
81.042	6

PISTON ROD STUD

Product No	Bore Size
81.001	5/8
81.002	1

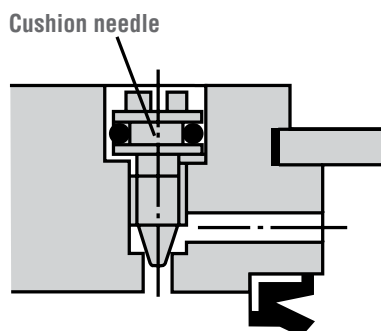
PNEUMATIC CYLINDERS NFPA

CUSHIONING ADJUSTMENT

Cushioning is adjusted prior to shipment, but the cushion effect may change due to cylinder speed, load and inertial force.

When necessary, adjust the cushion needle as follows: turn cushion needle to the left or right, and adjust speed at stroke end so that shock is minimal and operation smoothness is optimal.

Turning to the left (right) opens (closes) the cushion needle.



CYLINDER SPEED ADJUSTMENT

Maximum cylinder operating speed is 25 inches/sec. If the speed is exceeded, the rod gland and seals will wear rapidly and the shock at stroke-end will increase. The result is shortened cylinder life and susceptibility to malfunction.

If cylinder speed is too low, the result will be sticking, slipping and unstable operation.

Cylinder speed varies depending on supply and exhaust tube diameter, air pressure, flow rate and load, and therefore must be adjusted to suit the intended use.

Adjustment is normally done using a speed control valve, but this is not always enough, and other factors may have to be considered (air pressure, load).

CAUTION

TOPRING pneumatic cylinders are intended for use in industrial compressed air systems only. They must not be used where pressure or temperature may exceed maximum rated operating conditions (see specifications). In lubricated applications, some oil mist may escape from the point of use into the surrounding atmosphere.

Specifications


Working Fluid: Air

Working Pressure: 15 to 250 PSI

Lubrication: Not required

Working Temperature: -45 to 110 °C

Tightening torque for tie rod nut

 Bore Size	Tie Rod Thread	Tightening Torque lb - ft
1-1/2	1/4 (28)	5
2 • 2-1/2	5/16 (24)	11
3-1/4 • 4	3/8 (24)	25
5 • 6	1/2 (20)	60

PNEUMATIC CYLINDERS NFPA FOR SPECIAL APPLICATIONS

STAINLESS STEEL 304 OR 316



Stainless steel cylinders for use in food and drug-related industries
Standard stainless steel piston rod and tie rods

ADJUSTABLE STROKE RETURN TYPE



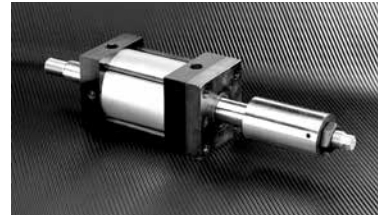
Return stroke stop position is infinitely adjustable within the adjustment range
Bore sizes available from 1-1/2 to 6 in

TANDEM CYLINDER



Single piston rod (two positions)
Double the force on the extend stroke
Bore sizes available from 1-1/2 to 6 in

ADJUSTABLE STROKE EXTENDED, DOUBLE ROD TYPE



Extended stroke stop position is infinitely adjustable within the adjustment range
Bore sizes available from 1-1/2 to 6 in

DUAL STROKE CYLINDER



Three positions from a single cylinder
Double the force on the extend stroke
Bore sizes available from 1-1/2 to 6 in

AIR/OIL TANK



Internal baffles reduce foaming and aeration of the oil, resulting in maximum cylinder control
Sight tube available
Bore sizes available in 2-1/2, 3-1/4, 4 and 5 in

MULTI-STAGE DOUBLE ROD ONLY



Multiple piston with 2 to 5 times the force of a standard cylinder
Can replace large bore cylinders or hydraulic systems
Reduces system costs
Bore sizes available in 3-1/4, 4, 5, and 6 in

VOLUME CHAMBER



Reservoir for extra air when needed in a pneumatic system
Available in all bore sizes

PNEUMATIC CYLINDERS ISO / VDMA

Features and benefits

- Meet worldwide standards (ISO 6431), VDMA 24562
- Bore sizes: 32, 40, 50, 63, 80, 100, 125, 160, 200 mm
- Standard stroke lengths: 25 mm to 500 mm
- Corrosion-resistant extruded aluminum body
- Rated for 145 PSI at operating temperatures from -30 to 80 °C
- Available with many mounting styles
- Available with magnetic piston and limit switches
- Available with various seal and rod materials

NOTE:

Pneumatic cylinders
ISO/VDMA available
upon request



STAINLESS STEEL PNEUMATIC CYLINDERS

Features and benefits

- Single and double acting units available in a variety of strokes and mounting styles
- Dimensionally interchangeable with other major brands, allowing for model and mounting retrofits
- Pre-lubricated: all cylinders are lubricated with a special high-endurance oil
- Pre-tested: each cylinder is tested for leakage

Specifications

Maximum Working Pressure: 250 PSI

Working Temperature: -29 to 93 °C

Fluid: Air

Lubrication: Not required

STAINLESS STEEL

Materials

Cylinder Body: 304 Stainless steel for exceptional wear and corrosion resistance and prolong life service

Piston Rod: 303 Stainless steel - All rods have wrench flats

Piston and Caps: High strength aluminium alloy

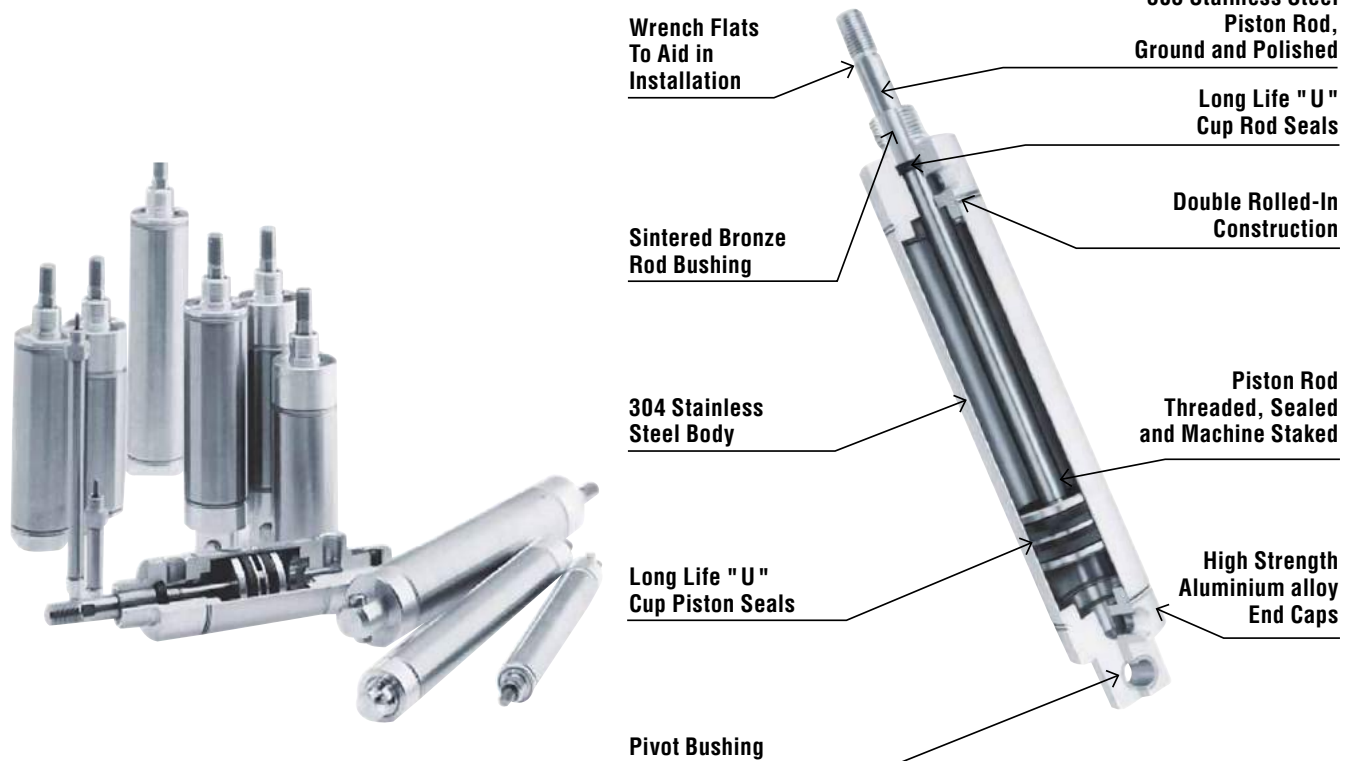
Rod Guide Bushing: Oil-impregnated bronze bushing increases the service life of the cylinder rod and provides a better seamline surface

Spring: Piano wire spring designed for millions of cycles

Seals: Rubber nitrile seals ensure low breakaway friction and leak-free operation

Piston Rod Assembly: Piston rods are threaded, anaerobically sealed, and machine staked into the piston for triple protection

Optional: Viton® seals, magnetic switches and bumpers

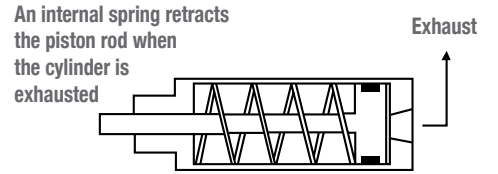
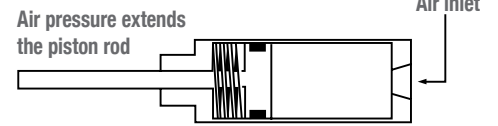


Bore Size	Push Forces (lb)				Pull Forces (lb)			
	at 50 PSI	at 100 PSI	at 150 PSI	at 200 PSI	at 50 PSI	at 100 PSI	at 150 PSI	at 200 PSI
3/4	22.0	44	66.0	88	19.5	39	58.5	78
1-1/16	44.5	89	133.5	178	40.5	81	121.5	162
1-1/4	61.5	123	184.5	246	53.5	107	160.5	214
1-1/2	88.5	177	265.5	354	81.0	162	243.0	324
2	157.0	314	471.0	628	141.0	283	424.0	566

STAINLESS STEEL SINGLE ACTING PNEUMATIC CYLINDERS

STAINLESS STEEL

HOW IT WORKS



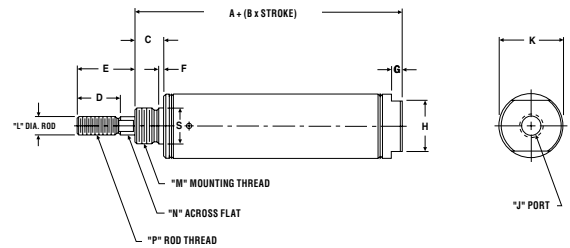
Cylinder operation

The piston rod is extended by pneumatic pressure and is mechanically returned to the retracted position by a spring within the cylinder.

NOSE MOUNT



Stroke (in)	Bore Size (in)			
	3/4 Product No	1-1/16 Product No	1-1/4 Product No	1-1/2 Product No
1	83.401	83.501	83.601	83.701
2	83.403	83.503	83.603	83.703
3	83.405	83.505	83.605	83.705
4	83.407	83.507	83.607	83.707

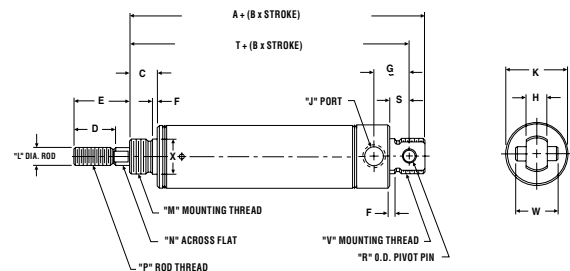


Bore Size	Dimensions (in)														
	A	B	C	D	E	F	G	H	J (NPT)	K	L	M	N	P	S
3/4	1.50	1.68	0.43	0.50	0.50	0.05	0.18	0.62	1/8	0.81	0.25	1/2 (20)	0.21	1/4 (28)	0.50
1-1/16	1.93	1.56	0.50	0.50	0.50	0.06	0.18	0.87	1/8	1.12	0.31	5/8 (18)	0.25	5/16 (24)	0.62
1-1/4	2.40	1.81	0.62	0.75	1.00	0.09	0.18	0.87	1/8	1.34	0.43	3/4 (16)	0.37	7/16 (20)	0.75
1-1/2	2.18	1.68	0.62	0.75	1.00	0.09	0.25	0.87	1/8	1.56	0.43	3/4 (16)	0.37	7/16 (20)	0.75

UNIVERSAL MOUNT



Stroke (in)	Bore Size (in)			
	3/4 Product No	1-1/16 Product No	1-1/4 Product No	1-1/2 Product No
1	83.421	83.521	83.621	83.721
2	83.423	83.523	83.623	83.723
3	83.425	83.525	83.625	83.725
4	83.427	83.527	83.627	83.727



Bore Size	Dimensions (in)																			
	A	B	C	D	E	F	G	H	J (NPT)	K	L	M	N	P	R	S	T	V	W	X
3/4	2.56	1.68	0.43	0.50	0.50	0.05	0.62	0.37	1/8	+	0.25	1/2 (20)	0.21	1/4 (28)	0.25	0.34	2.28	5/8 (18)	0.75	0.50
1-1/16	2.81	1.56	0.50	0.50	0.50	0.06	0.62	0.37	1/8	1.12	0.31	5/8 (18)	0.25	5/16 (24)	0.25	0.34	2.53	5/8 (18)	0.75	0.62
1-1/4	3.53	1.81	0.62	0.75	1.00	0.09	0.71	0.50	1/8	1.34	0.43	3/4 (16)	0.37	7/16 (20)	0.25	0.40	3.12	3/4 (16)	0.87	0.75
1-1/2	3.25	1.68	0.62	0.75	1.00	0.09	0.81	0.62	1/8	1.56	0.43	3/4 (16)	0.37	7/16 (20)	0.37	0.50	2.87	◇	1.00	0.75

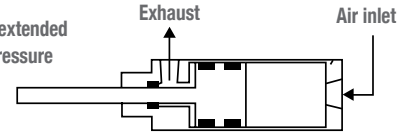
+ 3/4" Bore Front Head Diameter = 0.81", Read Head Diameter = 0.86" ◇ 1.00" Diameter Unthreaded

STAINLESS STEEL DOUBLE ACTING PNEUMATIC CYLINDERS

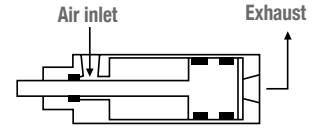
STAINLESS STEEL

HOW IT WORKS

The piston rod is extended by directing air pressure to the blind end of the cylinder.



The piston rod retracts when air pressure is directed to the rod end of the cylinder.

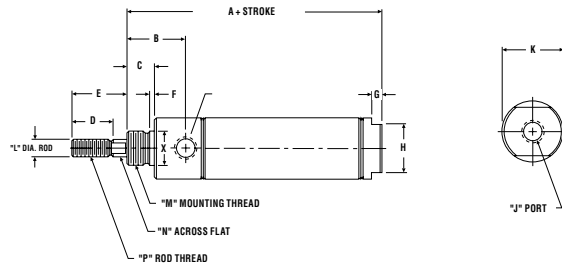


Cylinder operation

By alternately applying air pressure to the blind end and rod end of a double-acting cylinder, a reciprocating push and pull type output is obtained.

NOSE MOUNT

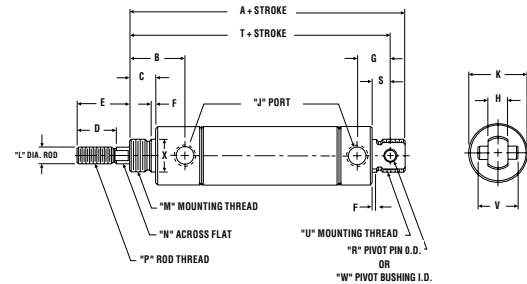
Stroke (in)	Bore Size (in) \varnothing				
	3/4 Product No	1-1/16 Product No	1-1/4 Product No	1-1/2 Product No	2 Product No
1	83.441	83.541	83.641	83.741	83.961
2	83.443	83.543	83.643	83.743	83.963
3	83.445	83.545	83.645	83.745	83.965
4	83.447	83.547	83.647	83.747	83.967
5	83.449	83.549	83.649	83.749	83.969
6	83.451	83.551	83.651	83.751	83.971
8	83.453	83.553	83.653	83.753	83.973
10	83.455	83.555	83.655	83.755	83.975
12	83.457	83.557	83.657	83.757	83.977



Bore Size \varnothing	Dimensions (in)														
	A	B	C	D	E	F	G	H	J (NPT)	K	L	M	N	P	X
3/4	2.96	0.96	0.50	0.50	0.50	0.06	0.18	0.62	1/8	0.86	0.25	5/8 (18)	0.21	1/4 (28)	0.62
1-1/16	3.12	1.06	0.50	0.50	0.50	0.09	0.18	0.87	1/8	1.12	0.31	5/8 (18)	0.25	5/16 (24)	0.62
1-1/4	3.75	1.18	0.62	0.75	1.00	0.09	0.18	0.87	1/8	1.34	0.43	3/4 (16)	0.37	7/16 (20)	0.75
1-1/2	3.43	1.25	0.62	0.75	1.00	0.09	0.25	0.87	1/8	1.56	0.43	3/4 (16)	0.37	7/16 (20)	0.75
2	4.31	1.50	0.81	0.87	1.25	0.10	0.25	1.25	1/4	2.09	0.62	1-1/4 (12)	0.56	1/2 (20)	1.37

UNIVERSAL MOUNT

Stroke (in)	Bore Size (in) \varnothing				
	3/4 Product No	1-1/16 Product No	1-1/4 Product No	1-1/2 Product No	2 Product No
1	83.461	83.561	83.661	83.761	83.861
2	83.463	83.563	83.663	83.763	83.863
3	83.465	83.565	83.665	83.765	83.865
4	83.467	83.567	83.667	83.767	83.867
5	--	83.569	83.669	83.769	83.869
6	--	83.571	83.671	83.771	83.871
8	--	83.573	83.673	83.773	83.873
10	--	83.575	83.675	83.775	83.875
12	--	83.577	83.677	83.777	83.877



Bore Size \varnothing	Dimensions (in)																				
	A	B	C	D	E	F	G	H	J (NPT)	K	L	M	N	P	R	S	T	U	V	W	X
3/4	4.03	0.96	0.50	0.50	0.50	0.06	0.62	0.37	1/8	0.86	0.25	5/8 (18)	0.21	1/4 (28)	0.25	0.34	3.75	5/8 (18)	0.75	---	0.62
1-1/16	4.00	1.06	0.50	0.50	0.50	0.09	0.62	0.37	1/8	1.12	0.31	5/8 (18)	0.25	5/16 (24)	0.25	0.34	3.71	5/8 (18)	0.75	---	0.62
1-1/4	4.87	1.18	0.62	0.75	1.00	0.09	0.71	0.50	1/8	1.34	0.43	3/4 (16)	0.37	7/16 (20)	0.25	0.40	4.46	3/4 (16)	0.87	---	0.75
1-1/2	4.50	1.25	0.62	0.75	1.00	0.09	0.81	0.62	1/8	1.56	0.43	3/4 (16)	0.37	7/16 (20)	0.37	0.50	4.12	◇	1.00	---	0.75
2	5.68	1.50	0.81	0.87	1.25	0.10	0.93	0.75	1/4	2.09	0.62	1-1/4 (12)	0.56	1/2 (20)	---	0.56	5.25	1-1/4 (12)	---	0.37	1.37

◇ 1.00" Diameter Unthreaded

ACCESSORIES FOR STAINLESS STEEL PNEUMATIC CYLINDERS

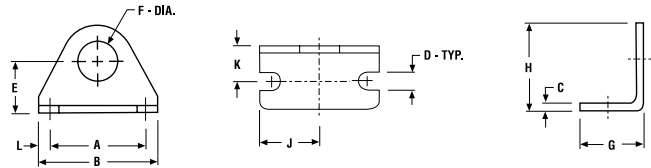
STAINLESS STEEL

FOOT BRACKETS

Mounting nut included



Product No	Bore Size	Simple Acting	Double Acting
83.015	3/4	•	
83.020	3/4		•
83.020	1-1/16	•	•
83.025	1-1/4	•	•
83.025	1-1/2	•	•
83.030	2		•

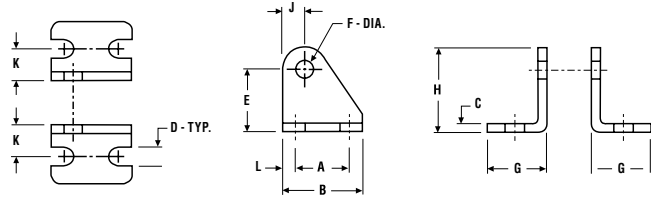


Product No	Dimensions (in)										
	A	B	C	D	E	F	G	H	J	K	L
83.015	1.25	1.62	0.10	0.18	0.68	0.50	0.75	1.09	0.81	0.43	0.18
83.020	1.50	1.87	0.12	0.28	0.81	0.62	1.00	1.37	0.93	0.56	0.18
83.025	1.87	2.50	0.15	0.28	1.00	0.75	1.50	1.75	1.25	0.75	0.31
83.030	2.25	3.12	0.25	0.34	1.50	1.37	1.62	2.56	1.56	1.00	0.43

PIVOT BRACKETS



Product No	Bore Size
83.035	3/4 (Pin not included)
83.035	1-1/16 (Pin not included)
83.035	1-1/4 (Pin not included)
83.040	1-1/2 (Pin not included)
83.045	2 (Pin included)



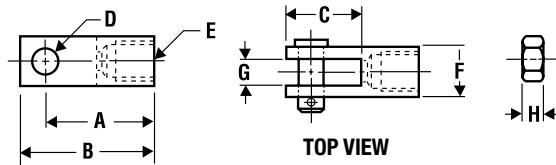
Product No	Dimensions (in)										
	A	B	C	D	E	F	G	H	J	K	L
83.035	0.75	1.12	0.12	0.26	0.87	0.25	0.81	1.18	0.31	0.43	0.18
83.040	1.00	1.50	0.12	0.26	1.37	0.37	1.00	1.75	0.37	0.62	0.25
83.045	1.00	1.50	0.25	0.34	1.37	0.37	1.12	1.75	0.37	0.68	0.25

ROD CLEVIS

Mounting nut included



Product No	Bore Size
83.050	3/4
83.055	1-1/16
83.060	1-1/4
83.060	1-1/2
83.065	2



Product No	Dimensions (in)							
	A	B	C	D	E	F	G	H
83.050	0.93	1.18	0.68	0.25	1/4-28	0.50	0.25	0.15
83.055	0.93	1.18	0.68	0.25	5/16-24	0.50	0.25	0.18
83.060	1.31	1.68	0.93	0.37	7/16-20	0.75	0.37	0.25
83.065	1.31	1.68	0.93	0.37	1/2-20	0.75	0.37	0.37

MOUNTING NUTS



Product No	Bore Size	A
83.072	3/4 (single acting)	1/2 -20
83.074	3/4	5/8 -18
83.074	1-1/16	5/8 -18
83.076	1-1/4	3/4 -16
83.076	1-1/2	3/4 -16
83.078	2	1 1/4 -12

