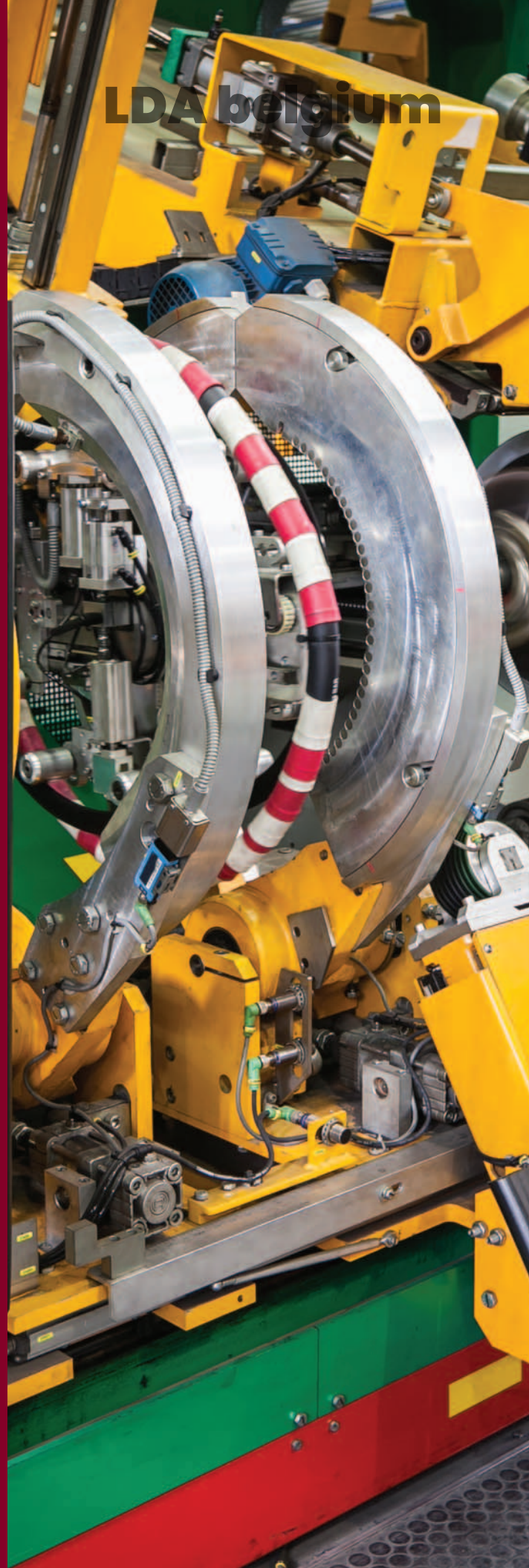


Motion Control Products



COMPACT[®]
AUTOMATION PRODUCTS

LDA belgium



Inch Cylinders, Options and Accessories

Inch Cylinders

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How to Order: Inch Cylinders

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Inch Cylinders

Example: ASFHD118X1-FFHTV

MAGNETIC PISTON	MOUNTING STYLE	DUTY	DOUBLE ROD END	BORE SIZE		STROKE LENGTH	OPTION	OPTION
A	S	FH	D	118	X	1	FF	HTV
1	2	3	4	5		6	7	8

1	Magnetic Piston (Optional)
A	Magnetic piston cylinder with sensor mounting rail

NOTE: Leave blank for standard option.

3	Duty (Optional)
HH	Half Husky - Intermediate duty (available on single rod end only)
FH	Full Husky - Heavy duty

NOTE: Leave blank for standard option.

5	Bore			
	12	1/2"	212	2-1/2"
	34	3/4"	3	3"
	118	1-1/8"	4	4"
	138	1-3/8"	5	5"
	158	1-5/8"	6	6"
	2	2"	8	8"

2	Mounting Style
S	Square, end mount
R	Round, end mount
B	Base, side mount
T	Thin, side mount

4	Double Rod End (Optional)
D	Double rod end

6	Stroke Length (Stroke lengths are available in 1/8" increments)
See catalog pages for stroke availability for each bore size. Example: 1-1/8 = 118 3/4 = 34	

7

Options (String option codes in alphabetical order to the right of the "-" including seal option)			
Mounting Options			
EB	End Bracket	SP	Short Pivot
FF	Front Flange	SRC	Short Rear Clevis
LP	Long Pivot	SRCE	Short Rear Clevis w/ Eye Mount
NM**	Nose Mount		
PS	Pivot Shaft	TBE	Threads Both Ends
RA	Reverse Assembly	TF	Threads Front
RF	Rear Flange	TM	Thru Mount
SB	Side Bracket	TR	Threads Rear
Rod End Options			
CBSS	Clevis Bracket Set Screw	HR1	Hollow Rod, Option 1
EX	Extension, Single Rod End	HR3	Hollow Rod, Option 3
EXD	Extension on Double Rod	MS/MSD	Male Stud/MS Double End
EXF	Front End Extension on Double Rod	NR*	Non-Rotating
		NT**	Jam Nut
EXR	Rear End Extension on Double Rod	RE	Rod Eye
		RES	Rod Eye, short head design
FT	Fine Threads	RW/RWD	Rod Wiper/Rod Wiper Double End
Other			
ADJ	Adjustable Retract Stroke	UB3	Urethane Bumper - Both ends
PA	Positive Alignment	UC1	Urethane Cushion - Front end
UB1	Urethane Bumper - Front end	UC2	Urethane Cushion - Rear end
UB2	Urethane Bumper - Rear end	UC3	Urethane Cushion - Both ends
Ports			
18NPT	1/8" National Pipe Thread Fine	14NPT	1/4" National Pipe Thread Fine

* NOTE: See NR in options section

** NOTE: See nose mount option page 86.

Seal Option		
Standard Buna-N 0° - 200° F (-18° - 93°		
Optional Seals		
Pneumatic		
HTV	High temperature viton	0° - 400° F (-18° - 204° C)
CRT*	Corrosion resistant Not recommended for use under 250° F	250° - 400° F (121° - 204° C)
Hydraulic		
HYD*	Buna-N hydraulic	0° - 250° F (-18° - 121° C)
VHYD*	Viton hydraulic	0° - 400° F (-18° - 204° C)
ETP	Ethylene Propylene	-70° - 300°F (-57° - 150°C)

*NOTE: Not available in 1/2" bore

CR3 - Corrosion Resistant 300 Series Stainless Steel
1/2" Bore - See page 16
3/4 - 3" Bore - See page 72

Modifications Welcome

Special stroke lengths, port orientation, mounting configuration.

Cylinder Force and Pressure Rating

Formula: Force (lbs.) = Piston Area (In²) x Pressure (PSI)

Example: 1.5 In² (Piston Area) x 150 PSI (Pressure) = 225 lbs. Force

Bore	Piston Area (In ²)	Pre-Calculated Force in Pounds			Pressure Rating (PSI)	
		60 PSI	80 PSI	100 PSI	Pneumatic	Hydraulic
1/2	Push .2	12	16	20	125	–
	Pull .15	9	12	15		
3/4	Push .44	26	35	44	250	500
	Pull .36	22	29	36		
1-1/8	Push 1.0	60	80	100	250	500
	Pull .8	48	64	80		
1-3/8	Push 1.5	90	120	150	250	500
	Pull 1.2	72	96	120		
1-5/8	Push 2.0	120	160	200	250	500
	Pull 1.7	102	136	170		
2	Push 3.1	186	248	310	250	500
	Pull 2.8	168	224	280		
2-1/2	Push 4.9	294	392	490	250	500
	Pull 4.5	270	360	450		
3	Push 7.0	420	560	700	250	500
	Pull 6.6	396	528	660		
4	Push 12.6	756	1008	1260	200	200
	Pull 12.1	726	968	1210		
5	Push 19.6	1176	1568	1960	200	–
	Pull 19.2	1152	1536	1920		
5" FH	Pull 18.8	1128	1504	1880	200	–
6	Push 28.3	1698	2264	2830		
	Pull 27.5	1650	2200	2750	200	–
8	Push 50.3	3018	4024	5030		
	Pull 49.5	2970	3960	4950		

Conversions

PSI to BAR

1 PSI = 0,069 bar

Example: 25 PSI X 0,069 = 1.73 BAR

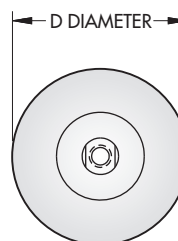
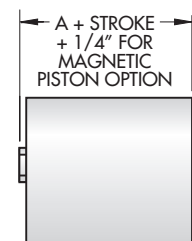
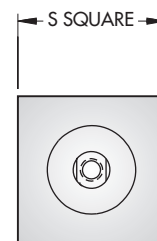
Pound to Kilograms

1 pound = 0,45 kilograms

Example: 5 lbs. x 0,45 = 2,25 kilograms

Envelope Dimensions

Bore	A			S	D
	Standard	Intermediate	Heavy		
1/2	0.69	0.81	0.94	1.00 X .75	1.13
3/4	0.81	1.06	1.31	1.25 Sq.	1.50
1-1/8	0.88	1.13	1.38	1.50 Sq.	1.88
1-3/8	1.13	1.38	1.63	1.75 Sq.	2.13
1-5/8	1.13	1.38	1.63	2.00 Sq.	2.38
2	1.25	1.50	1.75	2.50 Sq.	3.00
2-1/2	1.38	1.63	1.88	3.00 Sq.	3.50
3	1.63	1.88	2.13	3.50 Sq.	4.00
4	1.75	2.00	2.25	–	5.00
5	1.88	2.13	2.38	–	6.00
6	2.13	–	–	–	7.00
8	2.38	–	–	–	9.00



1/2" through 3" Bore

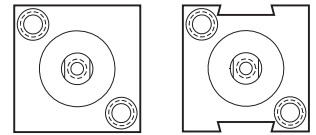
Non Magnetic Piston
Ordering Prefix **S**



Magnetic Piston
Ordering Prefix **AS**



Icon shown on top of each dimensional page

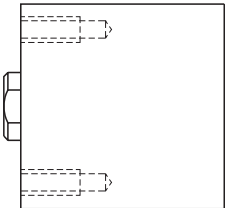


Sensors Sold Separately
See Sensors pages 87-88

Optional Mounting

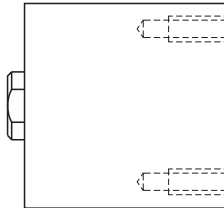
Square - end mount - cylinders have one or more of the following patterns as standard.
Each dimensional page lists standard and optional mounting suffix codes.

Threads Front
Standard on all cylinders



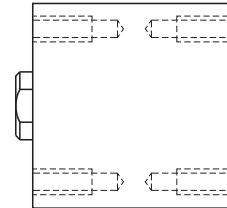
Tapped mounting holes on the rod end

Threads Rear
Ordering Suffix **TR**



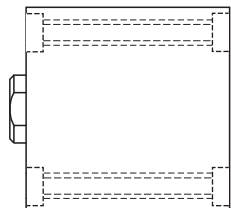
Tapped mounting holes opposite the rod end

Threads Both Ends
Ordering Suffix **TBE**



Tapped mounting holes on both ends

Thru Mount
Ordering Suffix **TM**



Counterbored mounting holes, both ends, for drop through bolt

Available on:

- 1/2" Bore through 1-1/8" **body** length
 - 3/4" - 3" Bore through 2" **stroke** length
- For longer stroke lengths - Check mounting screw availability.*
Modifications welcome - consult factory.

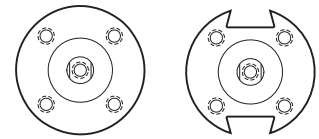
Non magnetic piston cylinders - When 'TR' is specified or when using 'Bolt On Hardware' options, the cylinder may be reverse assembled, see Technical Data section page 93 for detailed explanation. To avoid changing port orientation, specify suffix: "TBE".

1/2" through 8" Bore

Non Magnetic Piston
Ordering Prefix **R**

Magnetic Piston
Ordering Prefix **AR**

Icon shown on top of each dimensional page



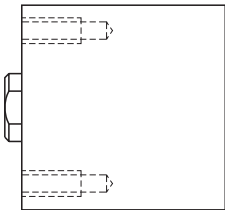
Sensors Sold Separately
See Sensors pages 87-88



Optional Mounting

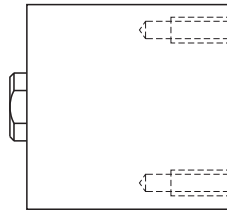
Round - end mount - cylinders have one or more of the following patterns as standard.
Each dimensional page lists standard and optional mounting suffix codes.

Threads Front
Standard on all cylinders



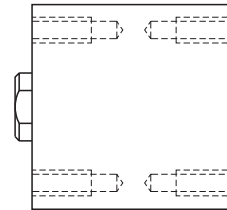
Tapped mounting holes on the rod end

Threads Rear
Ordering Suffix **TR**



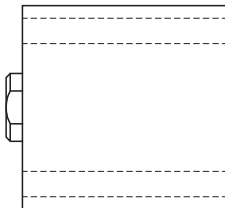
Tapped mounting holes opposite the rod end

Threads Both Ends
Ordering Suffix **TBE**



Tapped mounting holes on both ends

Thru Mount
Ordering Suffix **TM**



Thru mounting holes for drop through bolt

Available on:

- 3/4" - 8" Bore through 2" **stroke** length
For longer stroke lengths - Check mounting screw availability.
Modifications welcome - consult factory.

Non magnetic piston cylinders - When 'TR' is specified or when using 'Bolt On Hardware' options, the cylinder may be reverse assembled, see Technical Data section page 93 for detailed explanation. To avoid changing port orientation, specify suffix: "TBE".

Base - Side Mount - Cylinder

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1/2" through 3" Bore

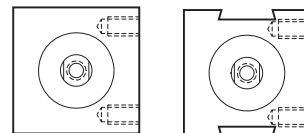
Non Magnetic Piston
Ordering Prefix **B**



Magnetic Piston
Ordering Prefix **AB**



Icon shown on top of each dimensional page



Sensors Sold Separately
See sensors pages 87-88

Optional Port Position

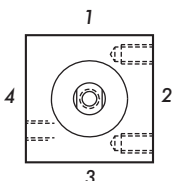
Base - side mount - cylinders have one standard mounting and port location, below are examples of optional positioning.

1/2" Bore Cylinder may be 'Reverse Assembled' consult factory - See Technical Data page 93 for detailed explanation.

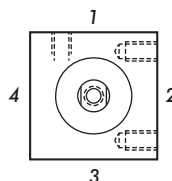
3/4" through 3" Bore

- **Non Magnetic Piston Cylinders** Optional positions are available as shown below:
COMPACT® reserves the right to plug existing ports, without notification, unless specified otherwise.

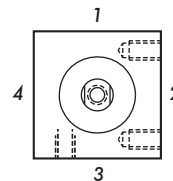
Standard Location
Example
Side number 4



Port Position 1
Example
Ordering Suffix **PP1**



Port Position 3
Example
Ordering Suffix **PP3**



• Magnetic Piston Cylinders

Alternate port locations are available, consult factory for information.

Thin - Side Mount - Cylinder

1/2" Bore Only

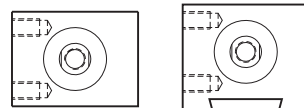
Non Magnetic Piston
Ordering Prefix **T**



Magnetic Piston
Ordering Prefix **AT**



Icon shown on top of each dimensional page



Sensors Sold Separately
See Sensors pages 87-88

Double Acting COMPACT® Cylinders - Single and Double Rod End

Standard Duty



COMPACT® Cylinders

Our most space efficient duty. Short rod bearing and thin piston design are for guided loads. Available as single or double rod end.

Heavy Duty Ordering Suffix

FH



Full Husky®

Longer rod bearing plus thicker piston are for heavy duty service. Available as single or double rod end.

Intermediate Duty

Ordering Suffix

HH

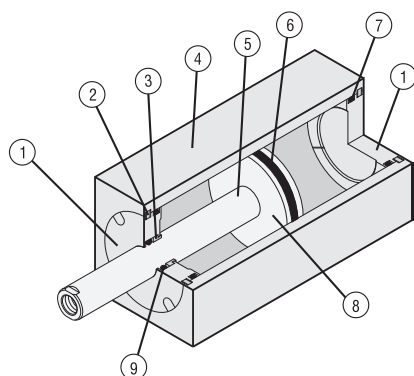


Half Husky®

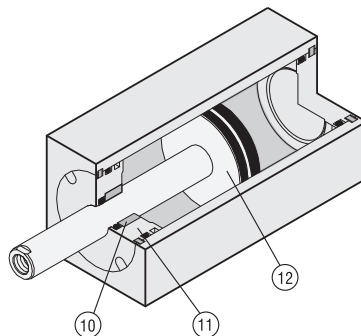
A combination of our standard and Full Husky duty. Long rod bearing and thin piston design are for medium duty service. Available as single rod end only.

Components and Material

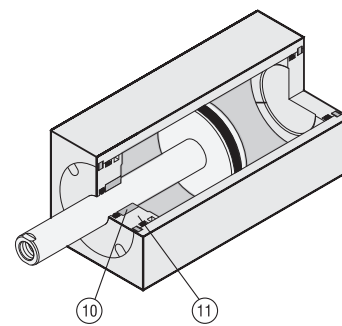
Standard Duty Single Rod End



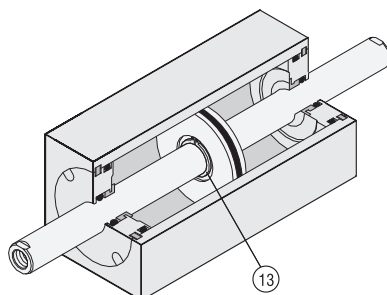
Heavy Duty Single Rod End



Intermediate Duty Single Rod End



Double Rod End Standard or Heavy Duty



Optional Magnetic Piston - Available on any cylinder, style or duty. (Not shown.)

	Description	Material
1	End Cap	Aluminum
2	Retaining Wire	Stainless Steel
3	Rod Bearing	Sintered Bronze
4	Cylinder Body	Aluminum
5	Piston Rod	Stainless Steel
6	Piston Seal	Low Friction Nitrile
7	End Cap Seal	O-ring (Nitrile)
8	Piston	Aluminum
9	Rod Seal	Low Friction Nitrile
10	Husky Rod Bearing	Bronze
11	Husky End Cap	Aluminum
12	Husky Piston	Aluminum
13	Snap Ring	Carbon Spring Steel

Snap-Cap®, Magnetic Piston and Hydraulic option cylinder constructions may deviate from above listing - consult factory for additional information.

Components and Material

A.) Port Orifices

Enter directly into the bore; no turns, tapers or cross drilling. Crisp, powerful response to pneumatic pressure provides speed, control, and faster cycle time.

B.) Factory Lubrication

Is standard on all cylinders and does not require air line induced lubrication, although additional air line lubrication may be used. Lubricated air that is compatible with petroleum based grease containing Teflon® is recommended. Non-lubricated air is recommended to operate the cylinder.

C.) End Caps

Are machined of high grade aluminum alloy and anodized for protection against corrosion.

- 1/2" bore end caps feature our patented Snap-Cap® design - resilient retainer seal that aids in absorbing piston impact.
- 3/4" bore and larger feature our patented wire retainer design.

Optional urethane cushions may be added when additional impact resistance is required, available on 3/4" - 3" bore.

D.) Retaining Wire

Is a patented stainless wire-form end cap retainer. This design provides more security than common fasteners and tie rods. It is easily removed for maintenance or seal replacement.

E.) Rod Bearing

Varies according to duty and bore size.

- 1/2" Bore Snap-Cap
All duties - Sintered bronze
- 3/4" through 5" Bore
All duties - Sintered bronze
- 6" through 8" Bore
All duties - Bearing bronze

F.) Cylinder Body

Is a thick-walled, clear anodized, aluminum extrusion. Tight tolerances and concentricity guarantee longer life. Total Compact® envelope is up to 60% smaller than typical cylinders.

G.) Seals

Are constructed of high grade, low friction, Nitrile materials. Optional seal materials, fluorocarbon and PTFE, are available – See Seal Descriptions in the Options section.

H.) Piston Construction

- 1/2" Bore is a solid one piece construction on both the single and double rod end cylinders.

- 3/4" through 8" Bore

- Single rod end cylinders - the lightweight aluminum piston is attached to the rod with a flat head socket screw. A thread adhesive is used to assure sealing and secure the assembly from shock and vibration damage.
- Double rod end cylinders - the piston and rod feature a snap ring construction. Consult factory for alternative double piston shaft assembly construction.



Unique Application Examples

For technical assistance and quotes contact your local distributor or our Technical Sales Department (864) 647-9521.

Standard Product

- Square End Mount Cylinder
- Standard duty
- Standard port style and location
- Standard rod end



Highly modified to meet the customer's application requirements

- Modified thru mount cylinder
- Special duty including extended rod bearing and rod wiper
- Custom port style and location
- Special rod end with rod end attachment



Modifications... simple solutions to space problems.

We have over 50,000 files of modified or special cylinder designs. Examples range from simple porting changes to 100% custom designed cylinders.

Our standard product design is a simple, plain extrusion, which allows us to easily modify our product to meet many unusual or unique requirements. Our design also allows modifications at a cost effective price and quick delivery.

In the Modified Products section we offer two Request for Quote fax forms to assist in a quick quote on your specifications via your local distributor.



Simple Solutions

- Hollow piston rods
- Tunneled air ports
- Frame modifications
- Modified rod ends
- Multi-position cylinders
- Back-to-back cylinders
- Modified locations on: sensors, mounting and porting
- Multi-piston (multi force)



Complex Solutions

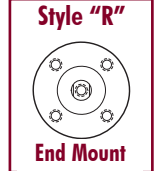
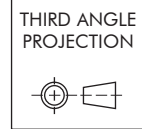
- Extreme space limitations
- Multi-cylinder blocks
- Pneumatic industrial hand tools
- Load bearing cylinders



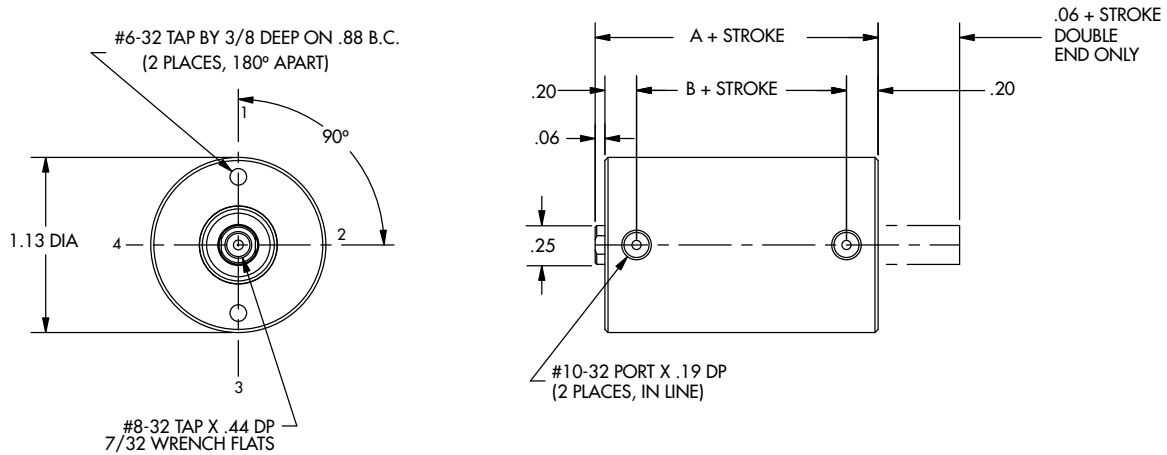
1/2" Bore | Non Magnetic Piston

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Duty	Part Number		Standard Stroke Length	A	B
	Single Rod	Double Rod			
Standard	R12x __	RD12x __	1/8 to 2 in 1/8" increments	.69	.22
Intermediate	RHH12x __		1/8 to 2 in 1/8" increments	.81	.34
Heavy	RFH12x __	RFHD12x __	1/8 to 2 in 1/8" increments	.94	.47



Standard Mounting: **TF** Optional Mounting: **TR, TBE, TMF, TMR**

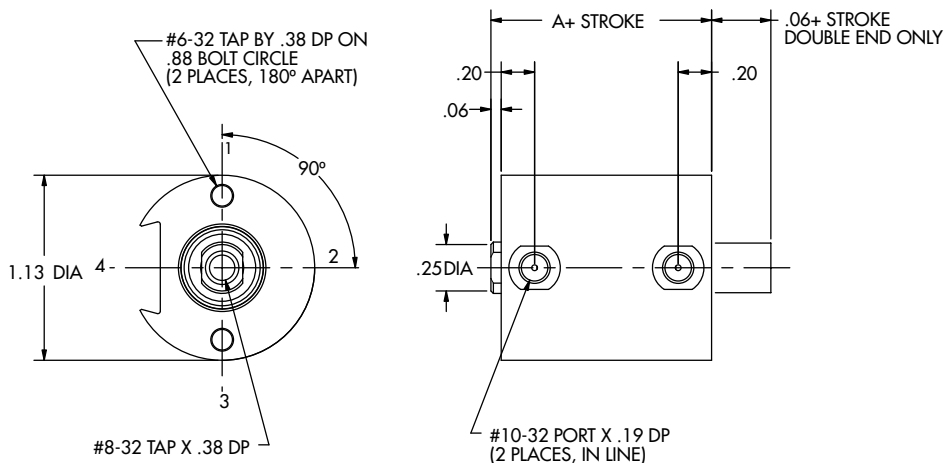


1/2" Bore | Magnetic Piston

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR12x __	ARD12x __	1/8 to 2 in 1/8" increments	.94
Intermediate	ARHH12x __		1/8 to 2 in 1/8" increments	1.06
Heavy	ARFH12x __	ARFHD12x __	1/8 to 2 in 1/8" increments	1.19

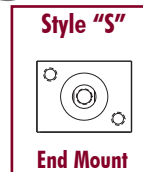
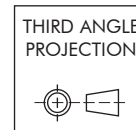


Standard Mounting: **TF** Optional Mounting: **TR, TBE, TMF, TMR**

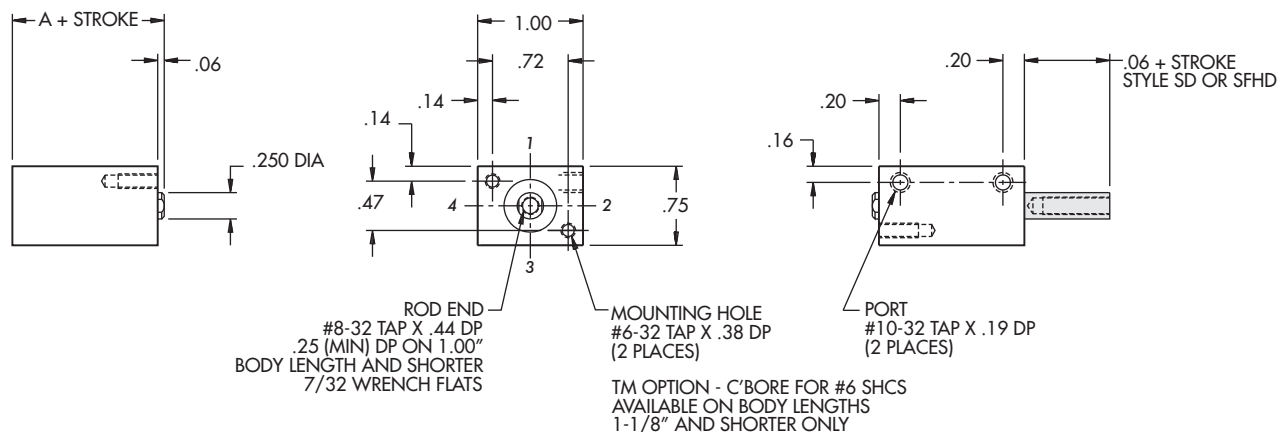


Due to physical size, body lengths 1-1/2" and shorter have only one sensor; Body length = A + stroke - .06.
For modifications, consult factory.

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S12x ___	SD12x ___	1/8 to 2 in 1/8" increments	.69
Intermediate	SHH12x ___		1/8 to 2 in 1/8" increments	.81
Heavy	SFH12x ___	SFHD12x ___	1/8 to 2 in 1/8" increments	.94



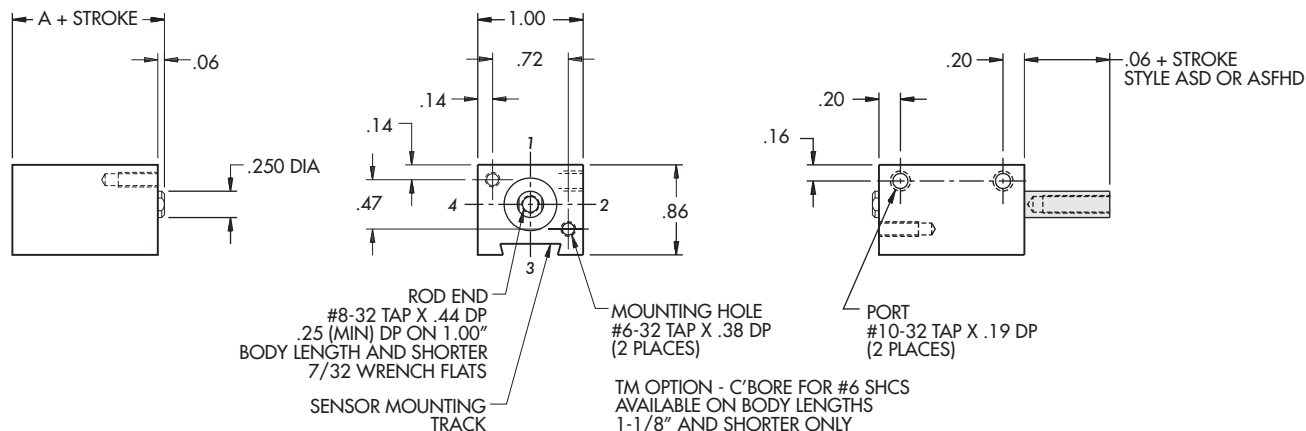
Standard Mounting: **TF** Optional Mounting: **TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS12x ___	ASD12x ___	1/8 to 2 in 1/8" increments	.94
Intermediate	ASHH12x ___		1/8 to 2 in 1/8" increments	1.06
Heavy	ASFH12x ___	ASFHD12x ___	1/8 to 2 in 1/8" increments	1.19



Standard Mounting: **TF** Optional Mounting: **TR, TBE, TM**

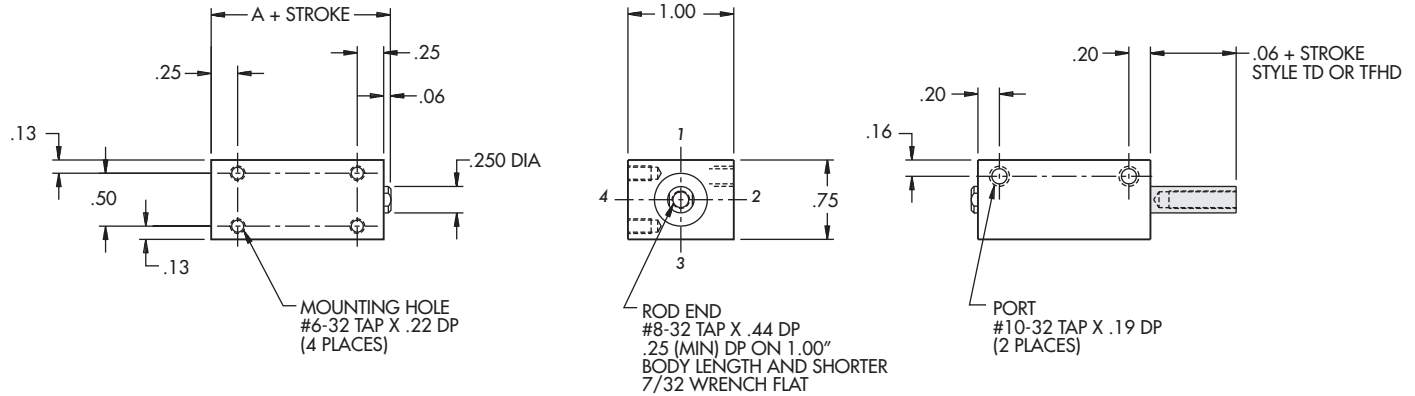
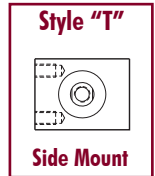
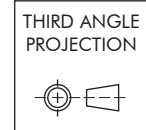


Due to physical size, body lengths 1-1/2" and shorter have only one sensor; Body length = A + stroke - .06.
For modifications, consult factory.

1/2" Bore | Non Magnetic Piston Snap-Cap® Design

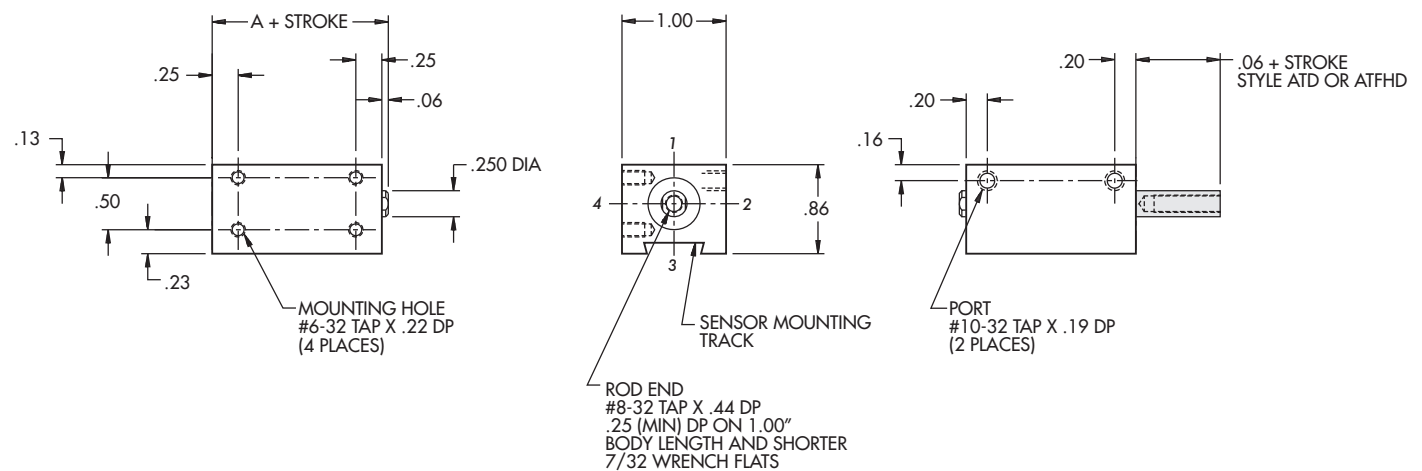
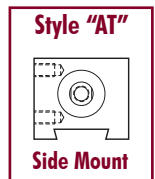
LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	T12x__	TD12x__	1/8 to 2 in 1/8" increments	.69
Intermediate	THH12x__		1/8 to 2 in 1/8" increments	.81
Heavy	TFH12x__	TFHD12x__	1/8 to 2 in 1/8" increments	.94



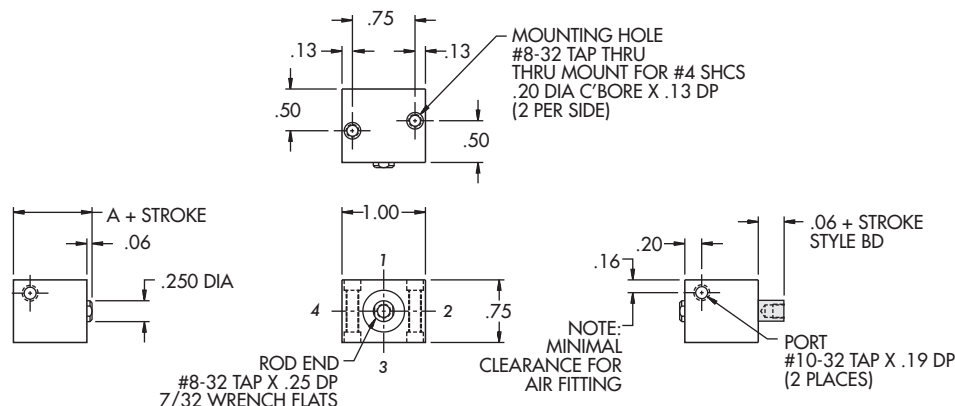
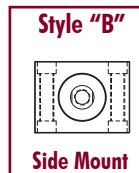
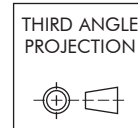
1/2" Bore | Magnetic Piston Snap-Cap® Design

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AT12x__	ATD12x__	1/8 to 2 in 1/8" increments	.94
Intermediate	ATHH12x__		1/8 to 2 in 1/8" increments	1.06
Heavy	ATFH12x__	ATFHD12x__	1/8 to 2 in 1/8" increments	1.19



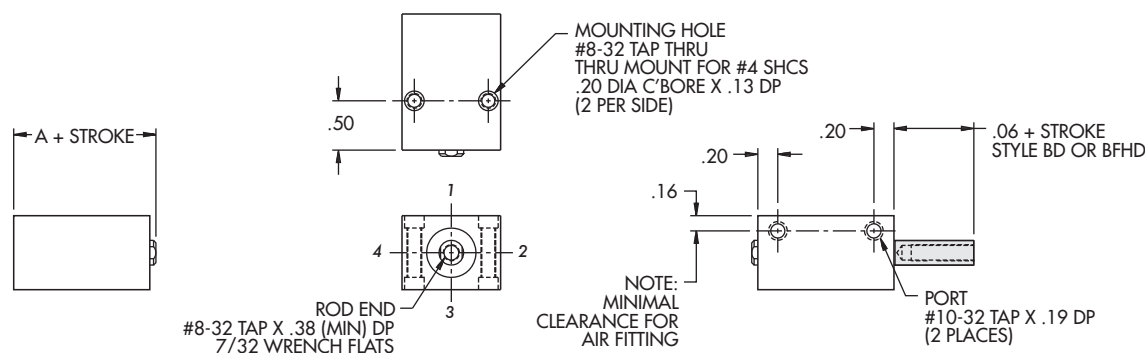
Due to physical size, body lengths 1-1/2" and shorter have only one sensor; Body length = A + stroke - .06. For modifications, consult factory.

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B12x__	BD12x__	1/8, 1/4	.69
Intermediate	BHH12x__		1/8	.81



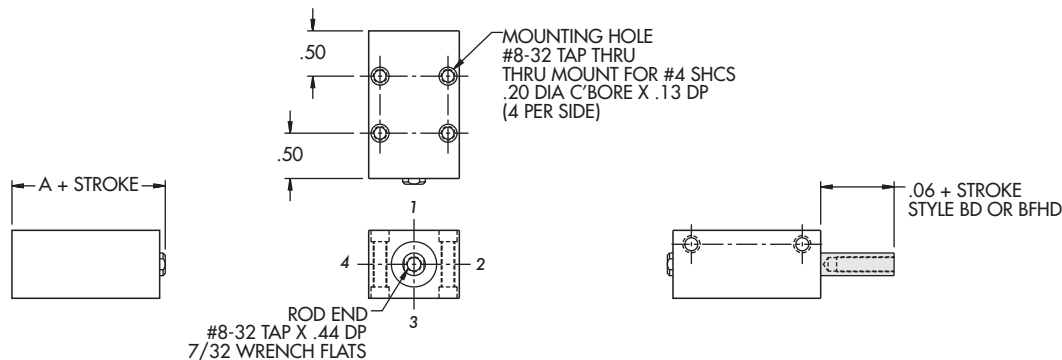
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B12x__	BD12x__	3/8 to 1-1/4 in 1/8" increments	.69
Intermediate	BHH12x__		1/4 to 1-1/8 in 1/8" increments	.81
Heavy	BFH12x__	BFHD12x__	1/8 to 1 in 1/8" increments	.94

Information same as above except where noted.

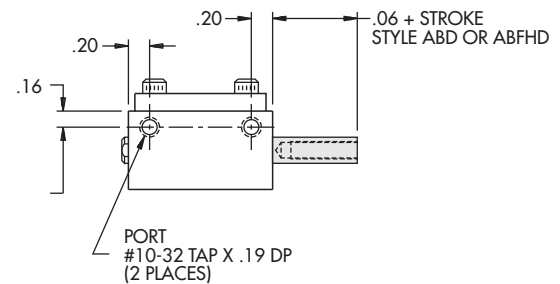
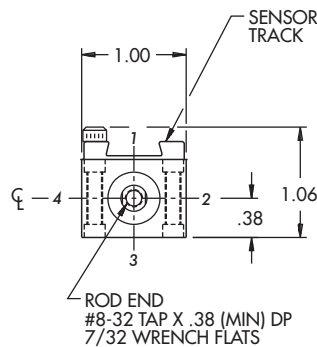
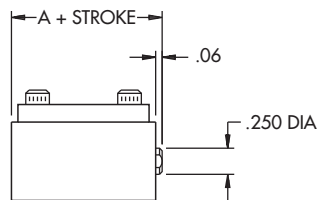
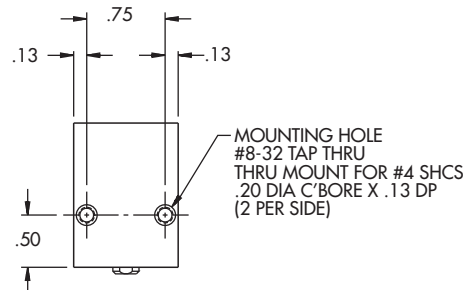
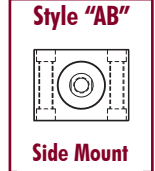
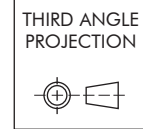


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B12x__	BD12x__	1-3/8 to 2 in 1/8" increments	.69
Intermediate	BHH12x__		1-1/4 to 2 in 1/8" increments	.81
Heavy	BFH12x__	BFHD12x__	1-1/8 to 2 in 1/8" increments	.94

Information same as above except where noted.

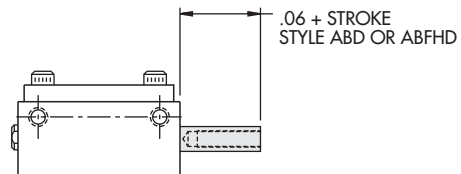
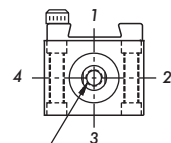
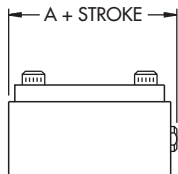
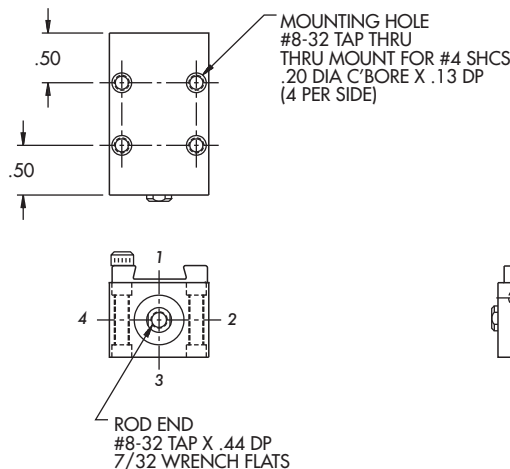


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB12x__	ABD12x__	1/8 to 1 in 1/8" increments	.94
Intermediate	ABHH12x__		1/8 to 7/8 in 1/8" increments	1.06
Heavy	ABFH12x__	ABFHD12x__	1/8 to 3/4 in 1/8" increments	1.19



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB12x__	ABD12x__	1-1/8 to 2 in 1/8" increments	.94
Intermediate	ABHH12x__		1 to 2 in 1/8" increments	1.06
Heavy	ABFH12x__	ABFHD12x__	7/8 to 2 in 1/8" increments	1.19

Information same as above except where noted.



Due to physical size, body lengths 1-1/2" and shorter have only one sensor; Body length = A + stroke - .06. For modifications, consult factory.

1/2" Bore Options

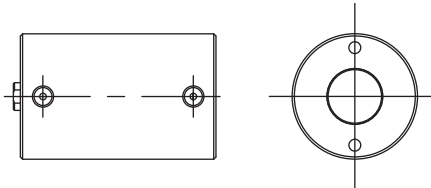
LDA belgium

Conversion Formula: $C^{\circ} = (F^{\circ} - 32^{\circ}) \times .56$

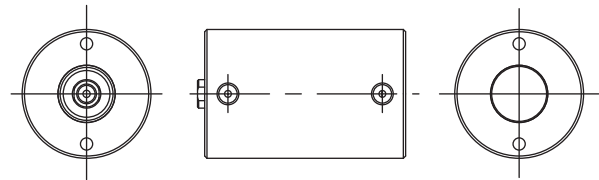
Type	Ordering Suffix	Rating	Description
Pneumatic Seals			
Nitrile	-	0° to 200°F -18° to 93°C	Most commonly used elastomer O-ring due to its excellent resistance to petroleum products, wear, tear and friction. Works with lubricated or non-lubricated air in the noted temperature range. Recommended for general purpose sealing with petroleum oils and fluids, water and silicone greases and oils.
Fluorocarbon	HTV	0° to 400°F -18° to 204°C	Used mainly for elevated temperatures, harsh environments where some coolants, solvents, cleaning agents or other chemicals will contact the seal gland. Lower compression set is characteristic. For your specific requirements, consult factory.

1/2" Bore Round Body Cylinder Options

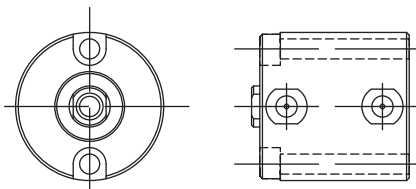
TR Mounting – Threads on Rear
(Optional; specify TR after bore and stroke.)



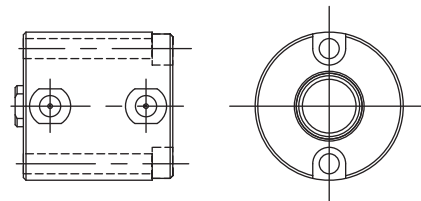
TBE Mounting – Threads on Both Ends
(Optional; specify TBE after bore and stroke.)



TMF Mounting – Thru-Mount (Front)
(Optional; specify TMF after bore and stroke.)
C'bored for #6 SHCB on shaft end only.
Available only on 1-1/8" body lengths and shorter.

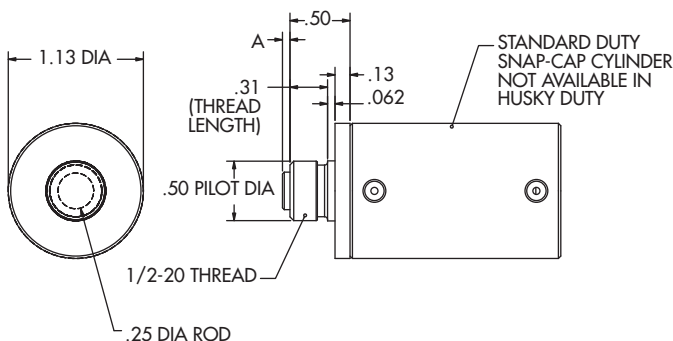


TMR Mounting – Thru-Mount (Rear)
(Optional; specify TMR after bore and stroke.)
C'bored for #6 SHCB on rear end only.
Available only on 1-1/8" body lengths and shorter.



Threaded Nose Mount

**Threaded Nose Mounting for
"R" Series Cylinder Option NM**



*A = 1/16 on all Stroke Cylinders except:
A = 3/16 on 1-5/8" and 1-7/8" Stroke Standard Duty Cylinders
A = 3/16 on 1-3/8" and 1-5/8" Stroke Magnetic Standard Duty Cylinders

Corrosion Resistant 300 Series Stainless Steel

CR3

Ordering Prefix: CR3
Material: 300 Series stainless steel

Applications:
 Chemical / Petroleum
 Medical Equipment
 Salt Water Exposure
 Clean Rooms
 Food Processing
 Electronic Assembly
 Nuclear
 Pharmaceutical

Standard Duty Features:

- 100% 300 series stainless steel components – interior and exterior
- Plastic rod bearings

Intermediate and Heavy Duty Features:

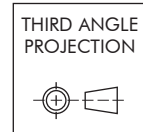
- 100% 300 series stainless steel components – interior and exterior
- Plastic rod bearings

Magnetic Piston Cylinders:

- Bolt-on Mounting Track is aluminum only

Ordering: Specify "CR3" before cylinder part number

Delivery: Non-standard delivery, consult factory



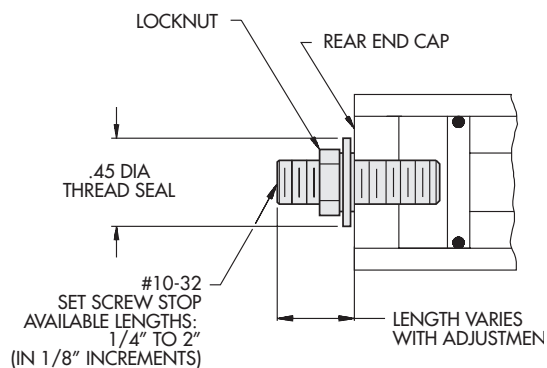
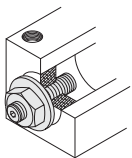
Adjustable Retract Stroke

ADJ_

Specify Length

Ordering Suffix: ADJ_
Length: 1/4 - 2 in 1/8" increments

Rod: Single only
Temperature: 200°F Max.
Material: Aluminum endcap, steel locknut and thread seal



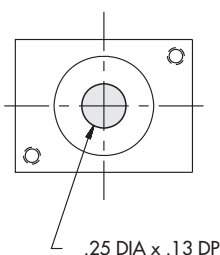
DO NOT use with any pivoting applications

Positive Alignment Available on "S" and "R" style cylinders only

The alignment pocket and pilot are designed to fit between the cylinder and the mounting surface. This ensures accurate mounting and added shear strength.

PA

Ordering Suffix: PA
Style: "S" and "R"
Rod: Single



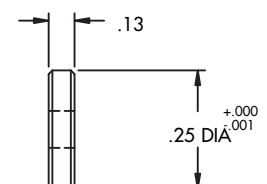
Alignment Pocket

- Provides positive means of locating cylinder centerline within .005"

PL12

Part Number: PL12
Material: Stainless steel

Alignment Pilot Sold separately

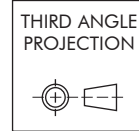
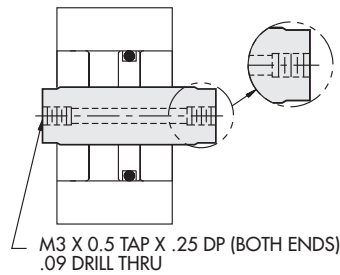


All Dimensions are in inches unless otherwise noted.

Hollow Rod Option

Our hollow rod option is available for applications that require passage through a double ended rod.

- Available on 1/4 - 2" stroke in 1/8" increments.



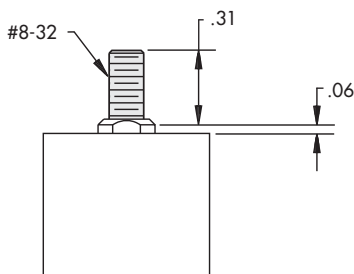
HR3

Ordering Suffix: HR3
Rod: Double only

Applications

Example	YES	NO
Gases	☑	
Liquids	☑	
Vacuum	☑	
Linear / Rotary Cylinder	☑	
Clamp and Punch Cylinder	☑	
Blow Molding Cylinder	☑	
Hydraulic Cylinders		X
Non-Rotating Rods		X

Male Stud



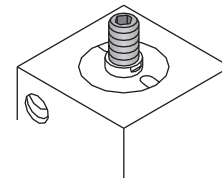
Double ended unit has stud in front end only.

If male stud is desired on *both* ends, specify **MSD**.

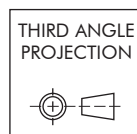
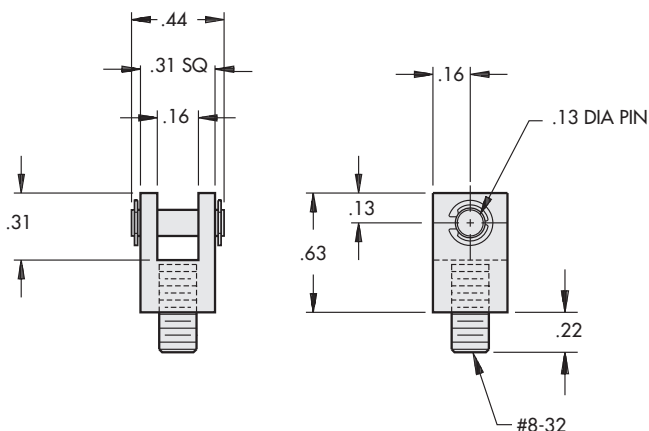
Male stud thread: Same pitch and diameter as female rod tap

MS516

Ordering Suffix: MS516
Material: Steel black oxide

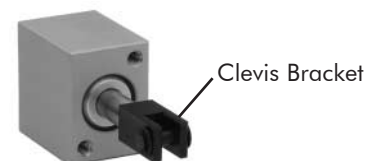


Clevis Bracket with Set Screw



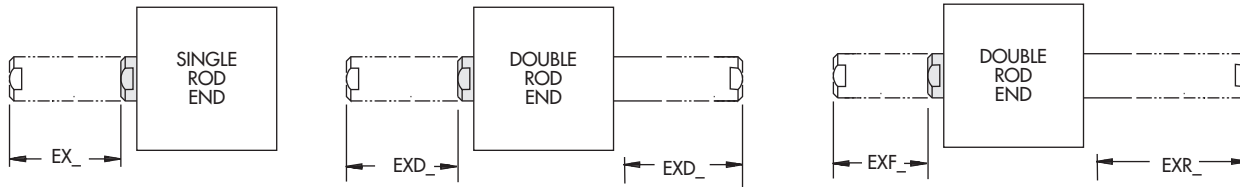
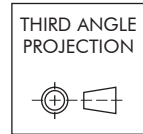
CBSS12

Ordering Suffix: CBSS12
Material: Steel black oxide with case hardened pin and clips



All Dimensions are in inches unless otherwise noted.

Rod End Extension



Extended equally at both ends

- For special extension or length - consult factory
- Not a screw on component
- Female tap does not change

Single Rod End

EX_

Specify Length

Double Rod End

EXD_

Specify Length

Extension Front End

EXF_

Specify Length

Extension Rear End

EXR_

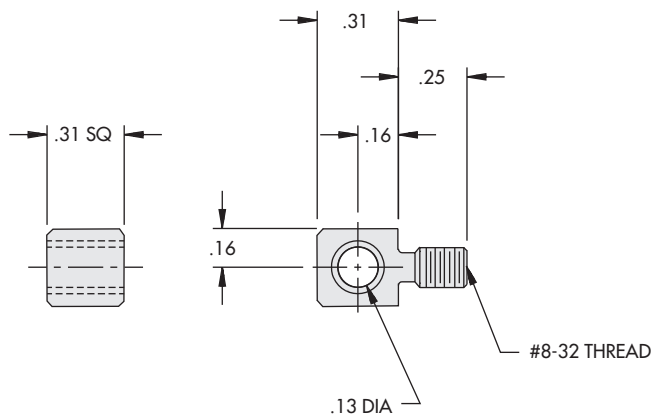
Specify Length

Ordering Suffix:

EX_, EXD_,
EXF_ or EXR_
1/8 - 1 in 1/8"
increments

Length:

Rod Eye



Screws flush with cylinder rod face

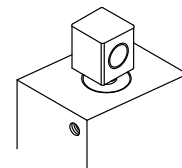
RE

Ordering Suffix:

RE

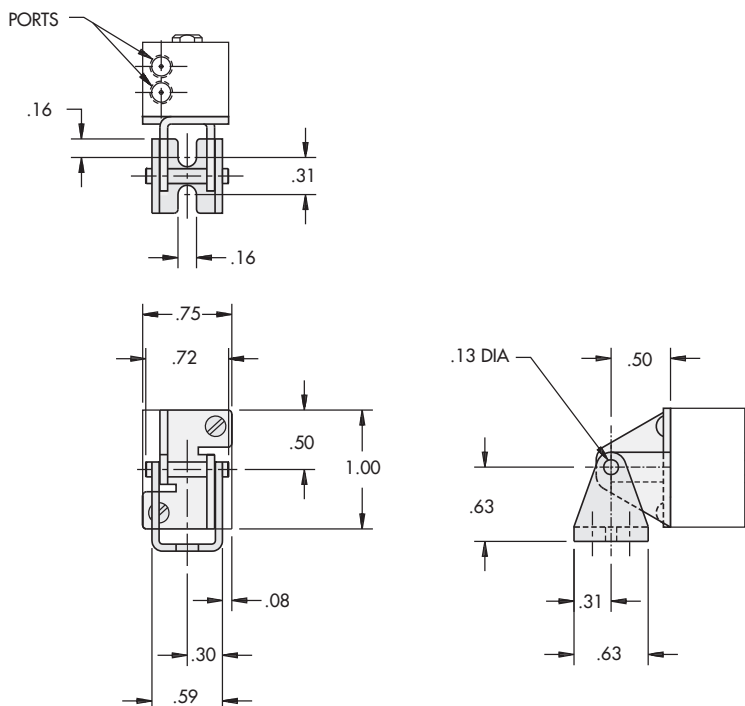
Material:

Steel black oxide with
sintered bronze bearing

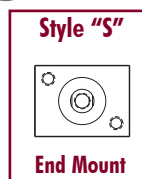
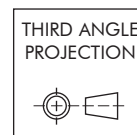


All Dimensions are in inches unless
otherwise noted.

Short Rear Clevis with Eye Mount

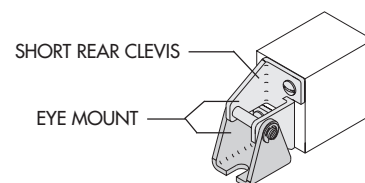


Cylinder is reverse assembled with magnetic piston option.

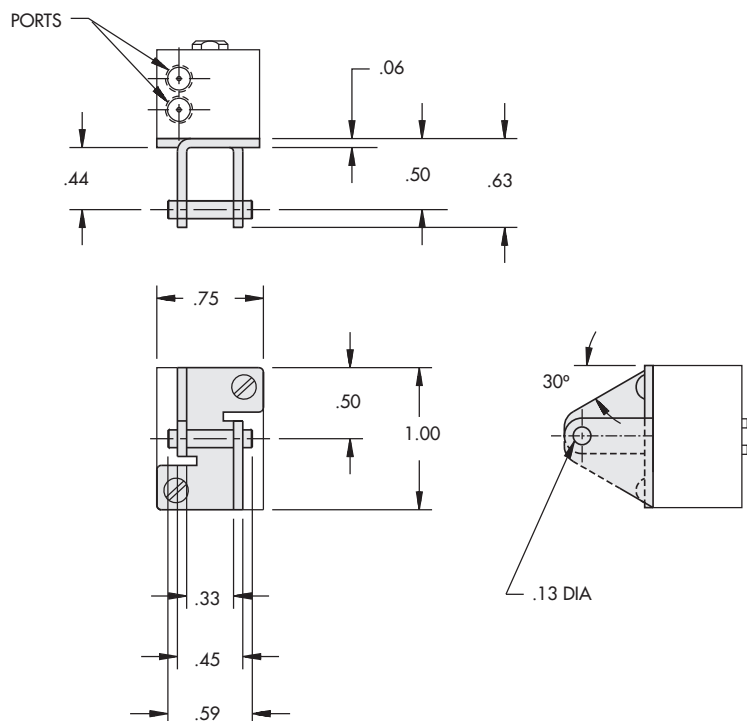


SRCE

Ordering Suffix: SRCE
Style: "S" only
Rod: Single only
Pivot: 180°
Material: Short Rear Clevis:
 See Below
 Eye Mount:
 Steel black oxide



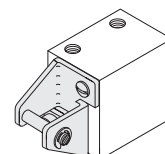
Short Rear Clevis



Cylinder is reverse assembled with magnetic piston option.

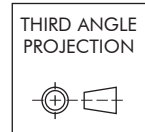
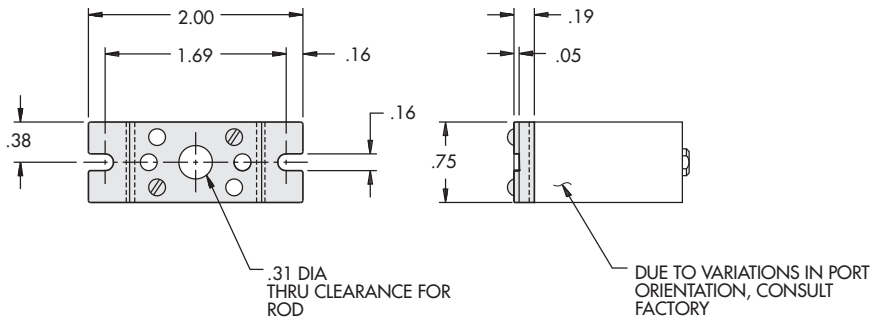
SRC

Ordering Suffix: SRC
Style: "S" only
Rod: Single only
Material: Short Rear Clevis:
 Steel black oxide
 with case hardened
 pin and clips



All Dimensions are in inches unless
 otherwise noted.

Flange Mount (shown as Rear Flange)



Front Flange

FF

Ordering Suffix:

Style:

Material:

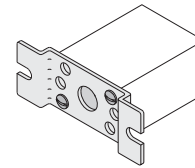
Rear Flange

RF

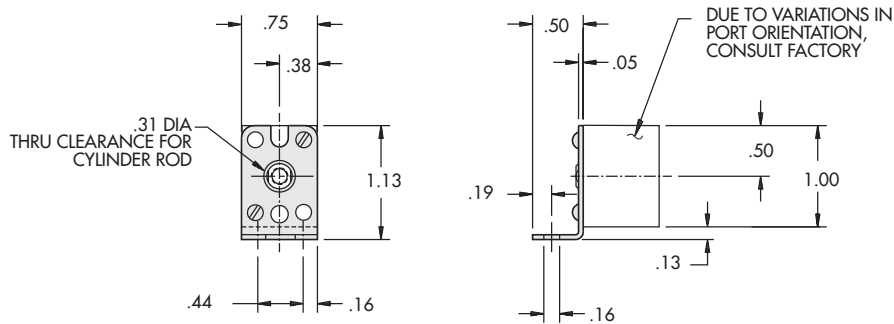
FF or RF

"S" and "R"

Steel black oxide



End Bracket



EB

Ordering Suffix:

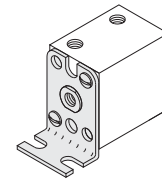
Style:

Material:

EB

"S" only

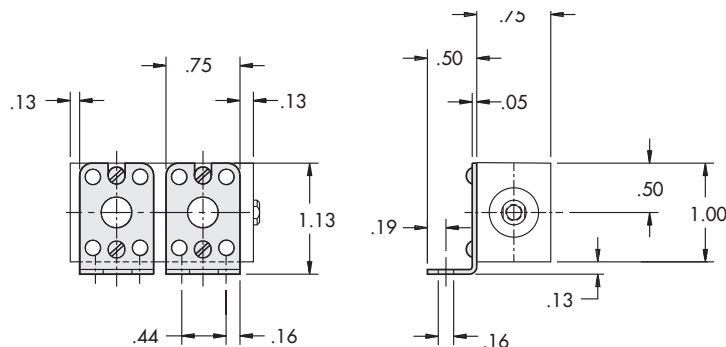
Steel black oxide



Number of brackets required:

- 1-1/2" body length and shorter = 1 bracket
 - Over 1-1/2" body length = 2 brackets
- (must specify suffix: TBE mounting, threads both ends)

Side Bracket



SB

Ordering Suffix:

Style:

Body Length:

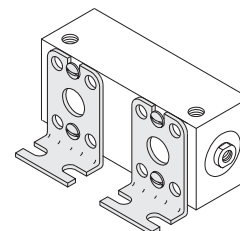
Material:

SB

"B" only

1" and larger

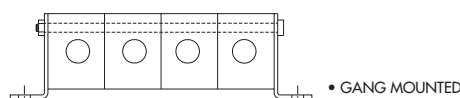
Steel black oxide



Number of brackets required:

- Two mounting holes = 1 bracket
- Four mounting holes = 2 brackets

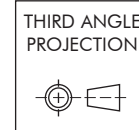
Application Idea



• GANG MOUNTED

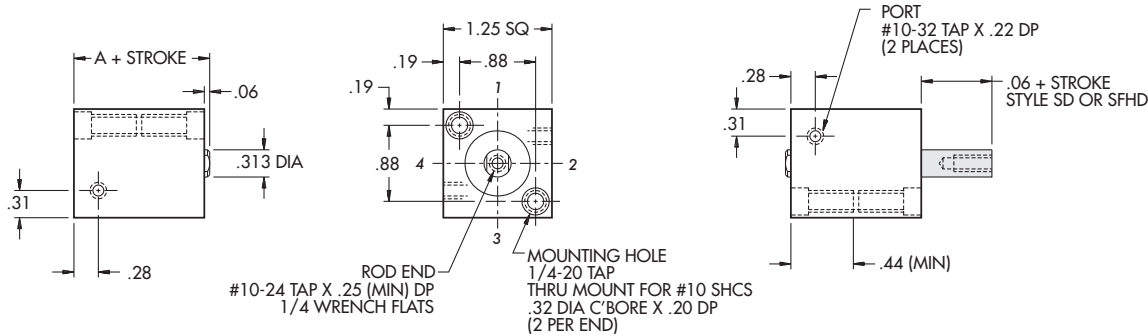
All Dimensions are in inches unless otherwise noted.

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S34x __	SD34x __	1/8 to 3/4 in 1/8" increments	.81
Intermediate	SHH34x __		1/8 to 1/2 in 1/8" increments	1.06
Heavy	SFH34x __	SFHD34x __	1/8, 1/4	1.31



Standard Mounting: **TF, TR, TBE, TM**

Optional Porting: **1/8-27 NPTF**

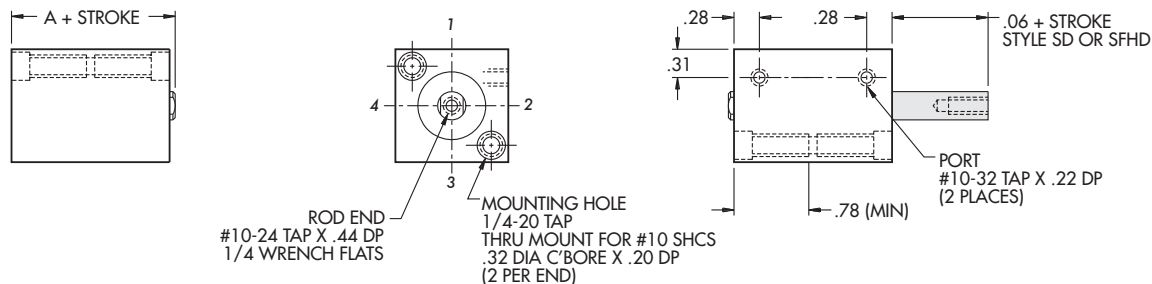


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S34x __	SD34x __	7/8, 1	.81
Intermediate	SHH34x __		5/8, 3/4	1.06
Heavy	SFH34x __	SFHD34x __	3/8, 1/2	1.31

Standard Mounting: **TF, TR, TBE, TM**

Optional Porting: **1/8-27 NPTF**

Information same as above except where noted.



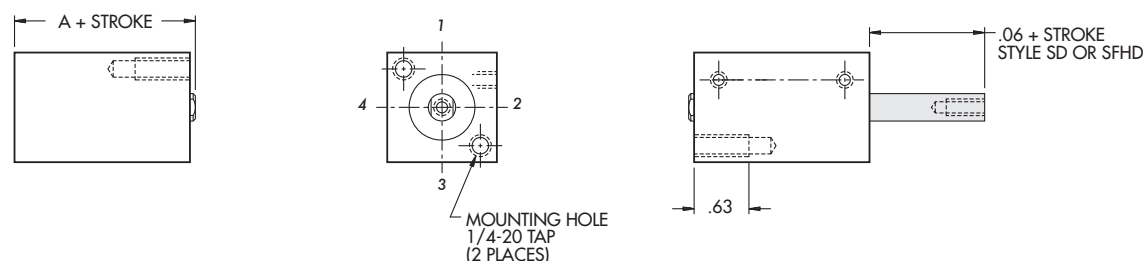
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S34x __	SD34x __	1-1/8 to 6 in 1/8" increments	.81
Intermediate	SHH34x __		7/8 to 6 in 1/8" increments	1.06
Heavy	SFH34x __	SFHD34x __	5/8 to 6 in 1/8" increments	1.31

Standard Mounting: **TF**

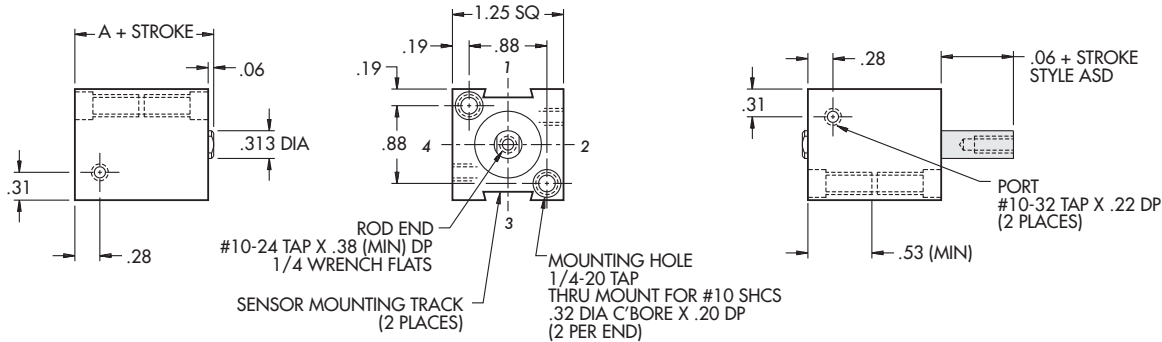
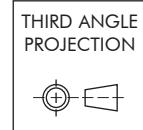
Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/8-27 NPTF**

Information same as above except where noted.



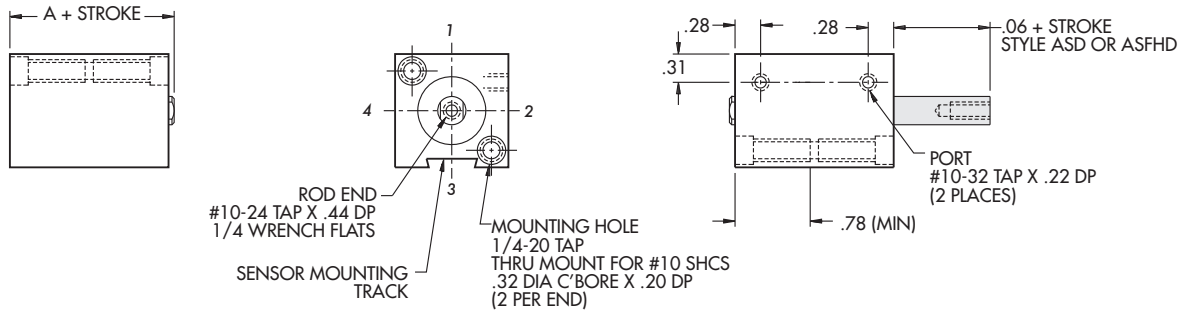
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS34x__	ASD34x__	1/8 to 1/2 in 1/8" increments	1.06
Intermediate	ASHH34x__		1/8, 1/4	1.31

Standard Mounting: **TF, TR, TBE, TM**Optional Porting: **1/8-27 NPTF**

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS34x__	ASD34x__	5/8 to 3/4 in 1/8" increments	1.06
Intermediate	ASHH34x__		3/8 to 1/2 in 1/8" increments	1.31
Heavy	ASFH34x__	ASFHD34x__	1/8 to 1/4 in 1/8" increments	1.56

Standard Mounting: **TF, TR, TBE, TM**Optional Porting: **1/8-27 NPTF**

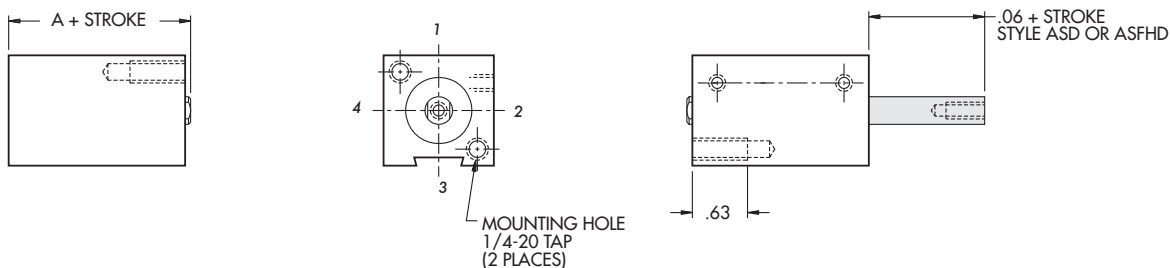
Information same as above except where noted.



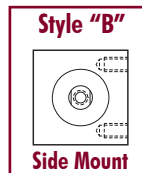
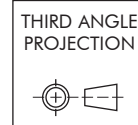
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS34x__	ASD34x__	7/8 to 6 in 1/8" increments	1.06
Intermediate	ASHH34x__		5/8 to 6 in 1/8" increments	1.31
Heavy	ASFH34x__	ASFHD34x__	3/8 to 6 in 1/8" increments	1.56

Standard Mounting: **TF**Optional Mounting: **TR, TBE, TM**Optional Porting: **1/8-27 NPTF**

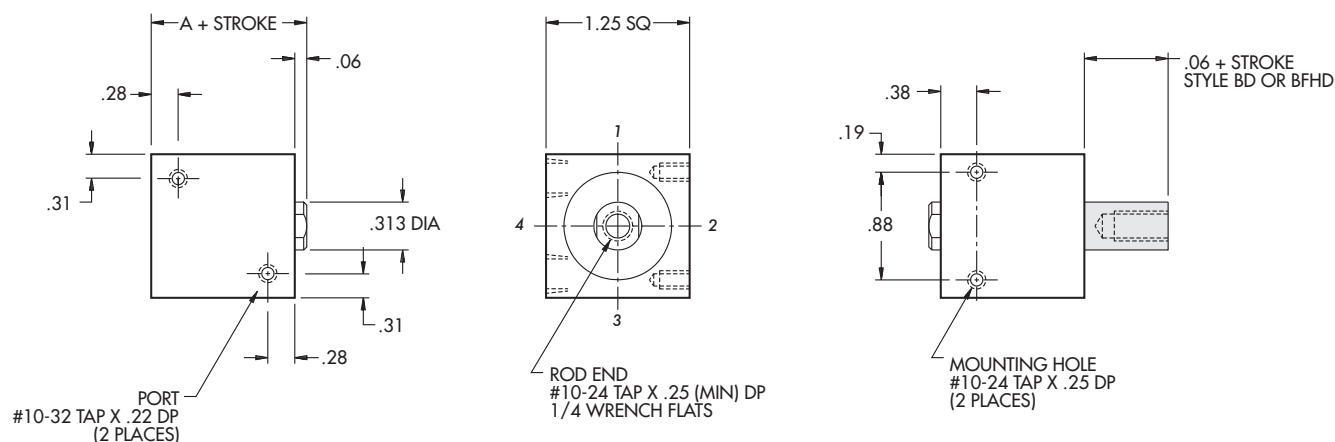
Information same as above except where noted.



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B34x __	BD34x __	1/8 to 3/4 in 1/8" increments	.81
Intermediate	BHH34x __		1/8 to 1/2 in 1/8" increments	1.06
Heavy	BFH34x __	BFHD34x __	1/8, 1/4	1.31



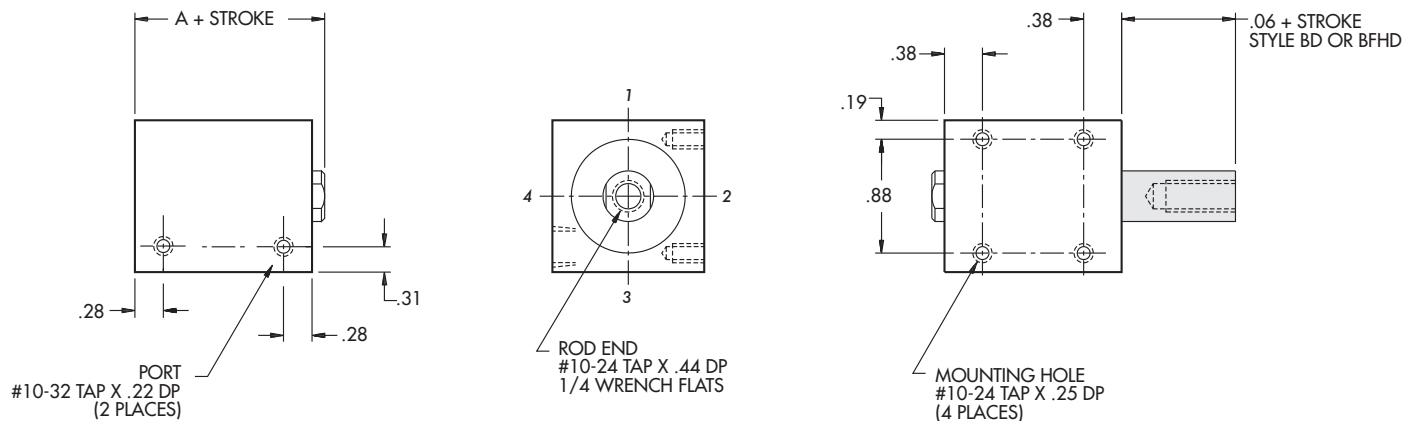
Optional Porting: **1/8-27 NPTF**



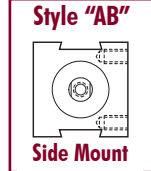
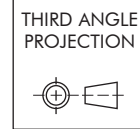
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B34x __	BD34x __	7/8 to 6 in 1/8" increments	.81
Intermediate	BHH34x __		5/8 to 6 in 1/8" increments	1.06
Heavy	BFH34x __	BFHD34x __	3/8 to 6 in 1/8" increments	1.31

Optional Porting: **1/8-27 NPTF**

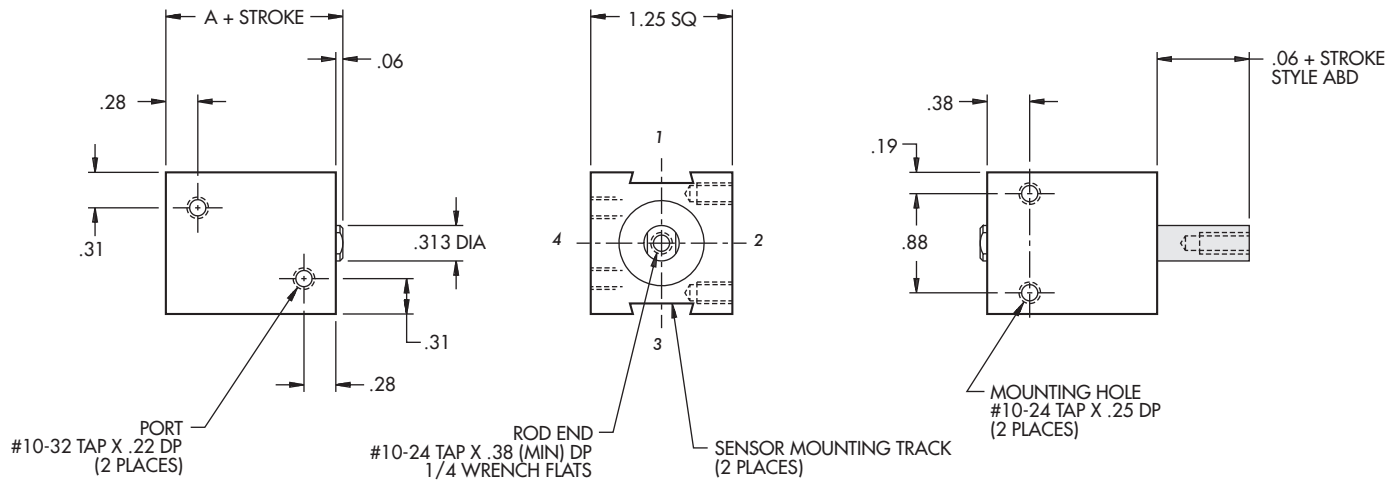
Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB34x __	ABD34x __	1/8 to 1/2 in 1/8" increments	1.06
Intermediate	ABHH34x __		1/8, 1/4	1.31



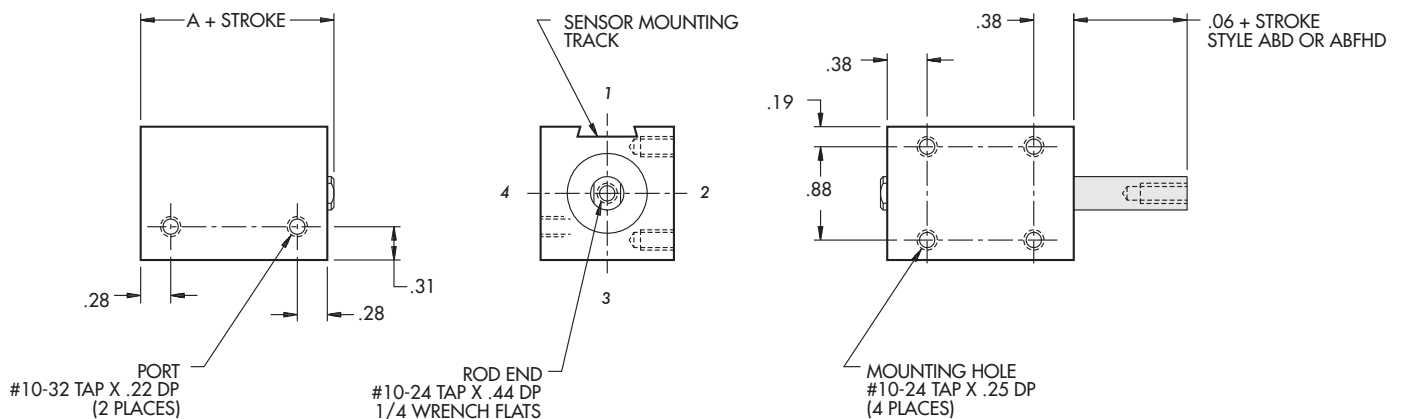
Optional Porting: **1/8-27 NPTF**



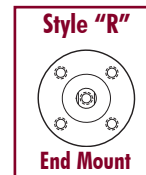
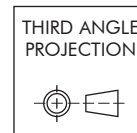
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB34x __	ABD34x __	5/8 to 6 in 1/8" increments	1.06
Intermediate	ABHH34x __		3/8 to 6 in 1/8" increments	1.31
Heavy	ABFH34x __	ABFHD34x __	1/8 to 6 in 1/8" increments	1.56

Optional Porting: **1/8-27 NPTF**

Information same as above except where noted



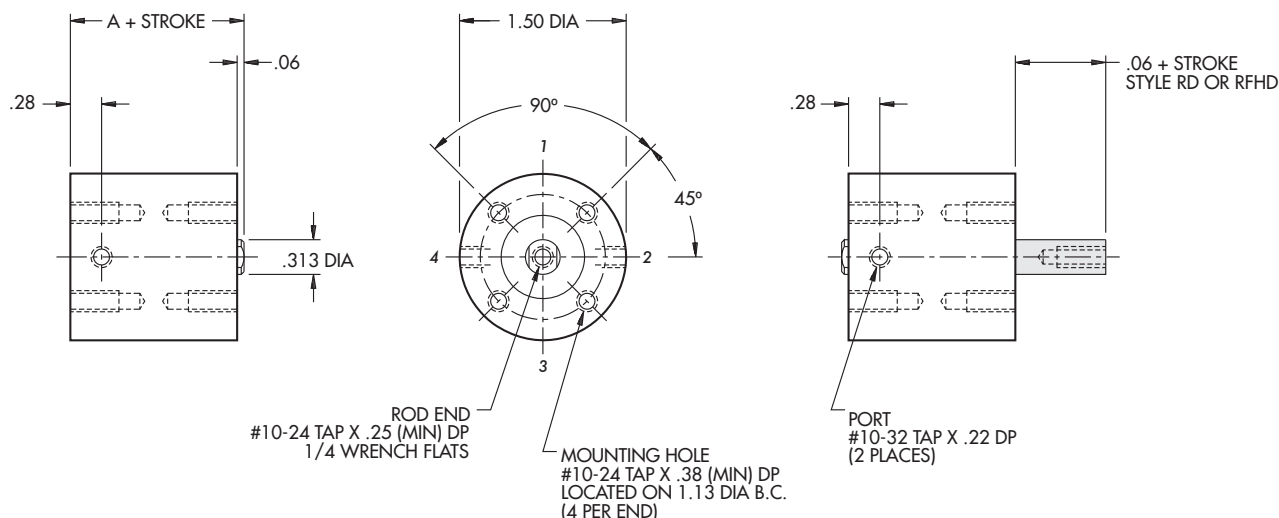
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R34x__	RD34x__	1/8 to 3/4 in 1/8" increments	.81
Intermediate	RHH34x__		1/8 to 1/2 in 1/8" increments	1.06
Heavy	RFH34x__	RFHD34x__	1/8, 1/4	1.31



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/8-27 NPTF**



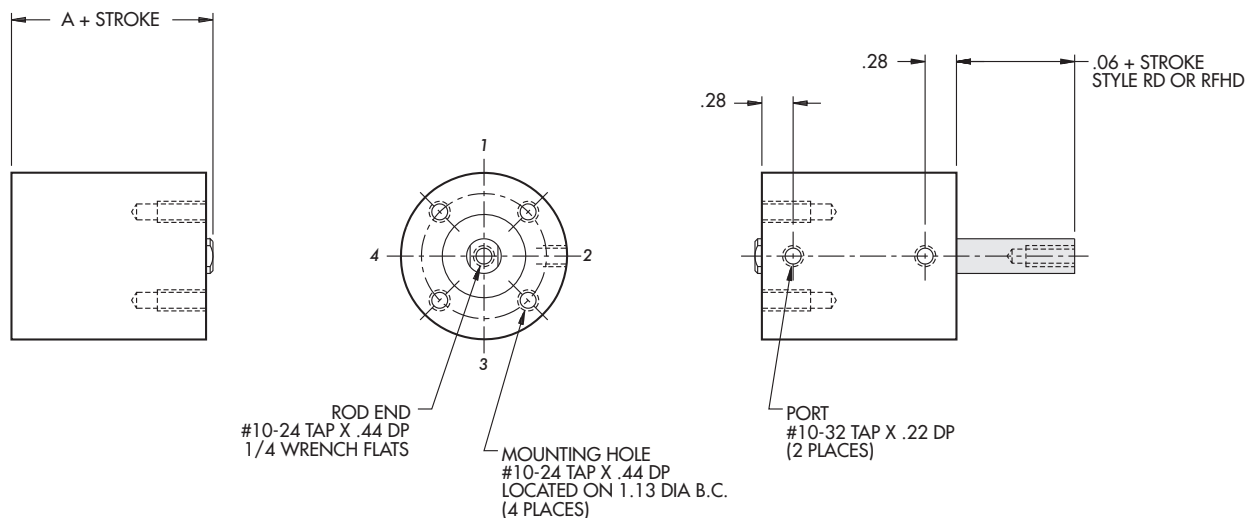
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R34x__	RD34x__	7/8 to 6 in 1/8" increments	.81
Intermediate	RHH34x__		5/8 to 6 in 1/8" increments	1.06
Heavy	RFH34x__	RFHD34x__	3/8 to 6 in 1/8" increments	1.31

Standard Mounting: **TF**

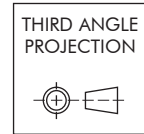
Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/8-27 NPTF**

Information same as above except where noted



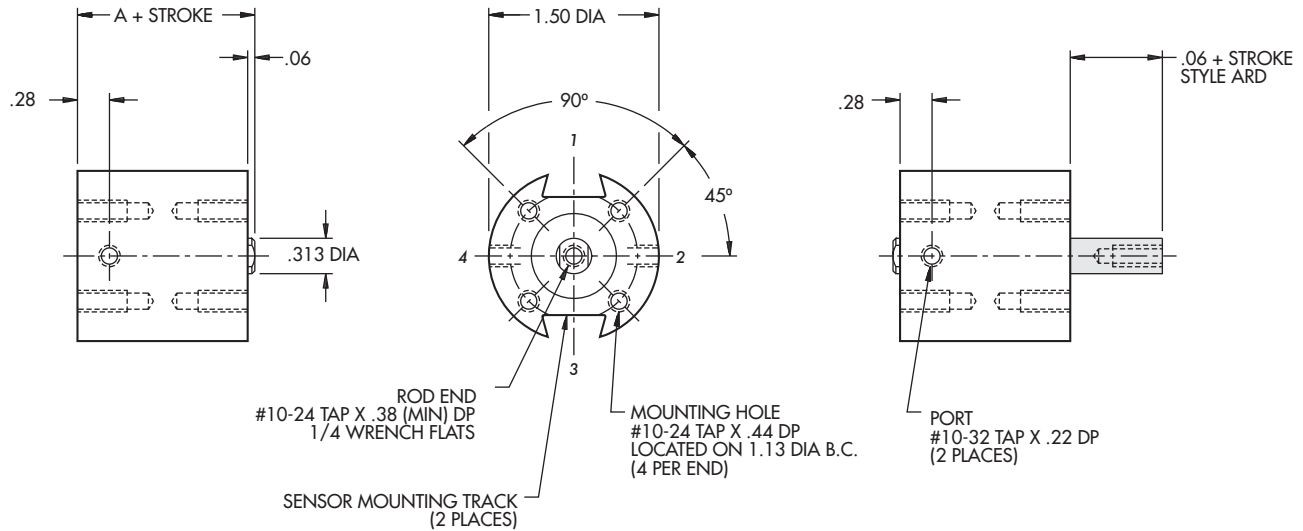
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR34x__	ARD34x__	1/8 to 1/2 in 1/8" increments	1.06
Intermediate	ARHH34x__		1/8, 1/4	1.31



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/8-27 NPTF**



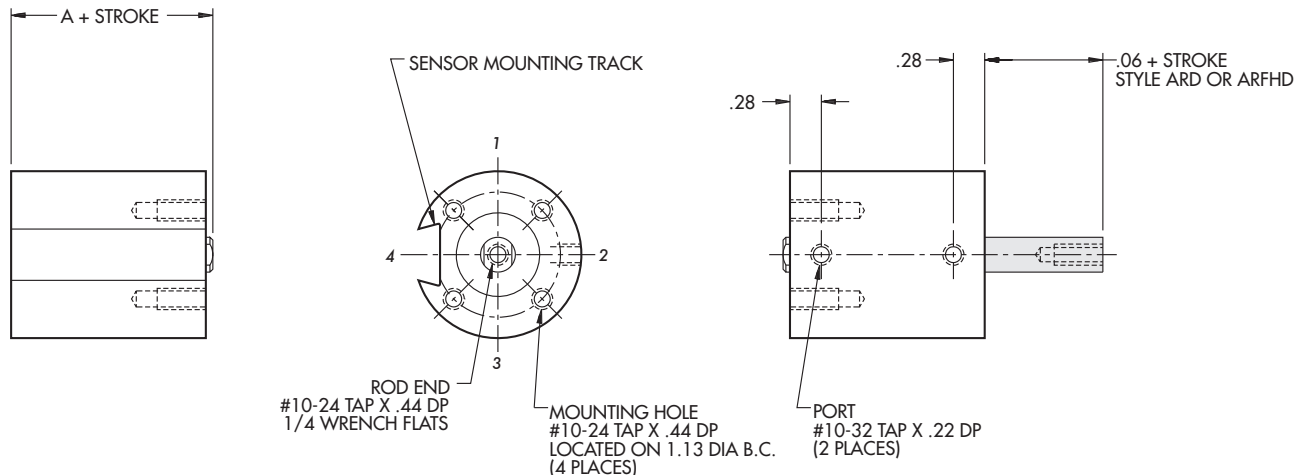
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR34x__	ARD34x__	5/8 to 6 in 1/8" increments	1.06
Intermediate	ARHH34x__		3/8 to 6 in 1/8" increments	1.31
Heavy	ARFH34x__	ARFHD34x__	1/8 to 6 in 1/8" increments	1.56

Standard Mounting: **TF**

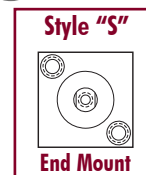
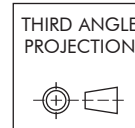
Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/8-27 NPTF**

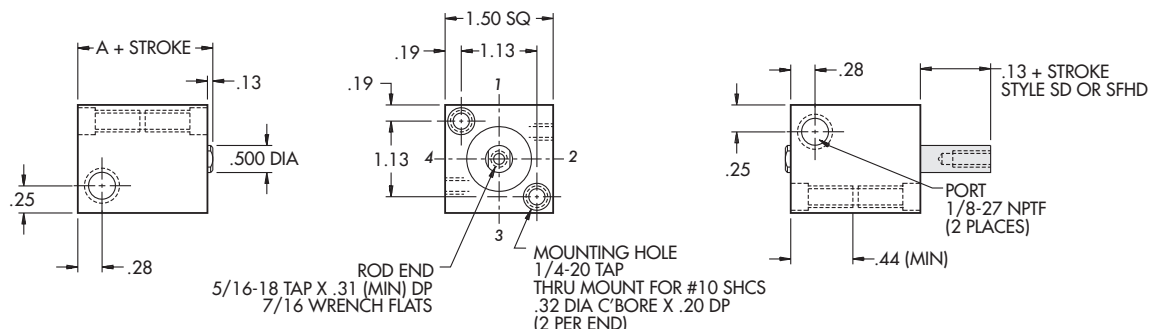
Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S118x __	SD118x __	1/8 to 3/4 in 1/8" increments	.88
Intermediate	SHH118x __		1/8 to 1/2 in 1/8" increments	1.13
Heavy	SFH118x __	SFHD118x __	1/8 to 1/4 in 1/8" increments	1.38



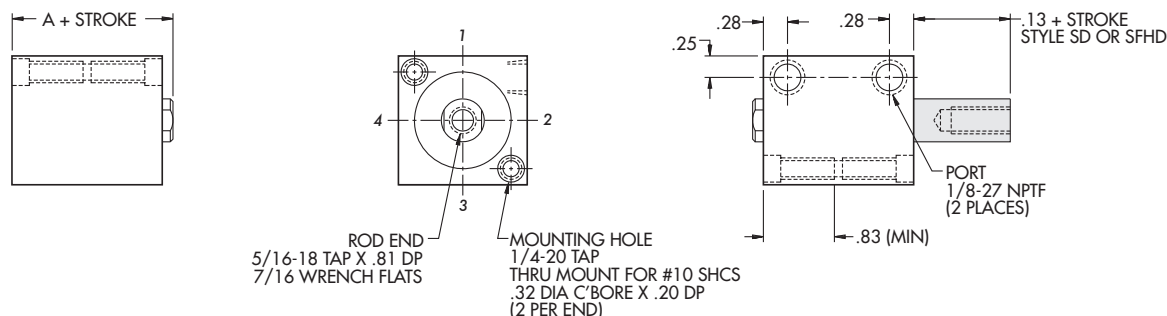
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S118x __	SD118x __	7/8, 1	.88
Intermediate	SHH118x __		5/8, 3/4	1.13
Heavy	SFH118x __	SFHD118x __	3/8, 1/2	1.38

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

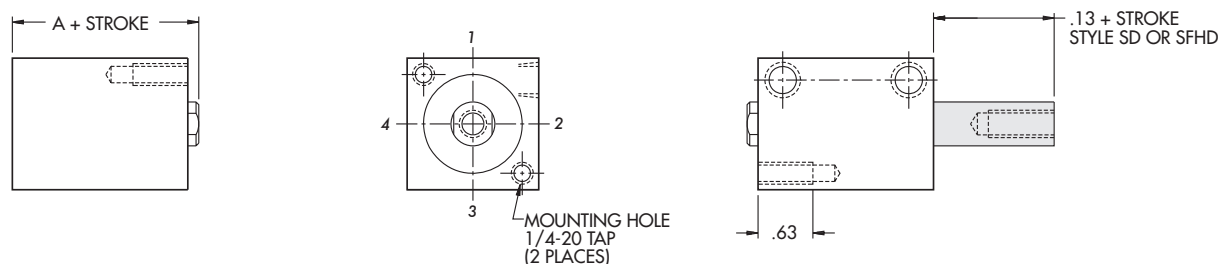


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S118x __	SD118x __	1-1/8 to 6 in 1/8" increments	.88
Intermediate	SHH118x __		7/8 to 6 in 1/8" increments	1.13
Heavy	SFH118x __	SFHD118x __	5/8 to 6 in 1/8" increments	1.38

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

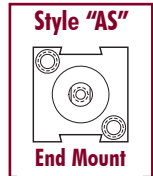
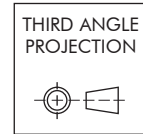
Information same as above except where noted



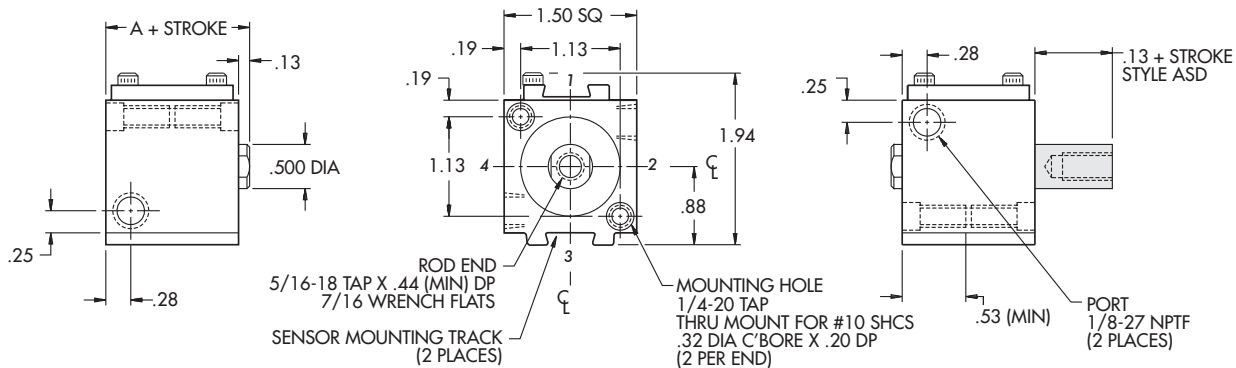
1-1/8" Bore | Magnetic Piston

LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS118x__	ASD118x__	1/8 to 1/2 in 1/8" increments	1.13
Intermediate	ASHH118x__		1/8 to 1/4 in 1/8" increments	1.38



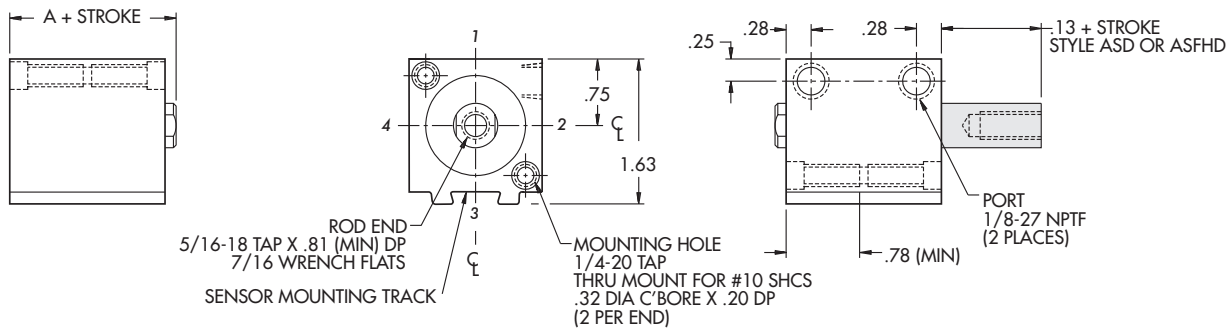
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS118x__	ASD118x__	5/8, 3/4	1.13
Intermediate	ASHH118x__		3/8, 1/2	1.38
Heavy	ASFH118x__	ASFHD118x__	1/8, 1/4	1.63

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

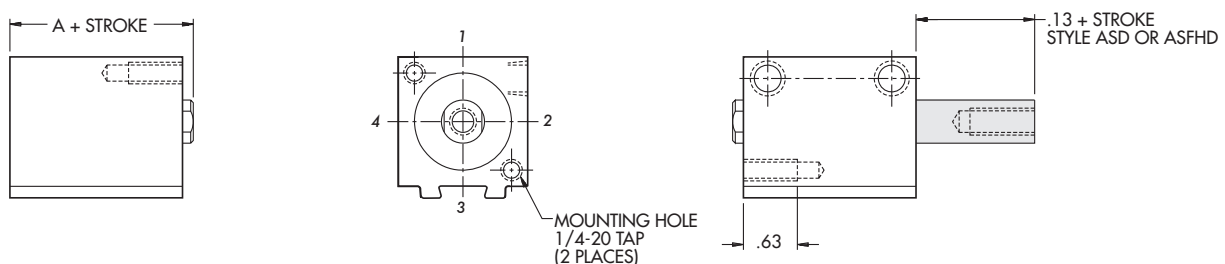


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS118x__	ASD118x__	7/8 to 6 in 1/8" increments	1.13
Intermediate	ASHH118x__		5/8 to 6 in 1/8" increments	1.38
Heavy	ASFH118x__	ASFHD118x__	3/8 to 6 in 1/8" increments	1.63

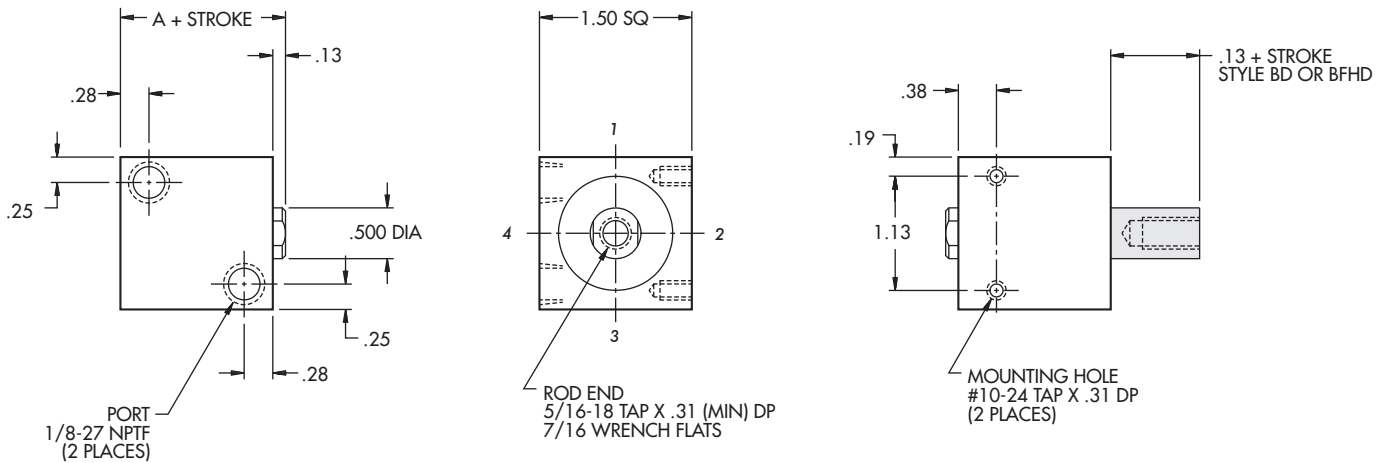
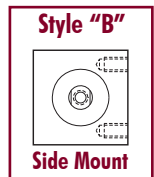
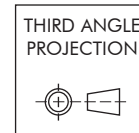
Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Information same as above except where noted

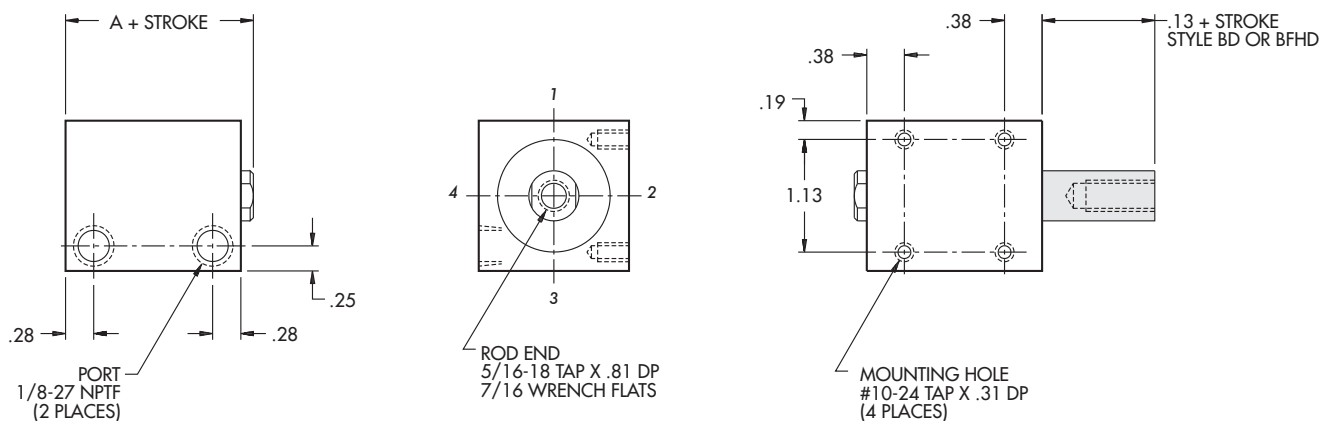


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B118x__	BD118x__	1/8 to 3/4 in 1/8" increments	.88
Intermediate	BHH118x__		1/8 to 1/2 in 1/8" increments	1.13
Heavy	BFH118x__	BFHD118x__	1/8, 1/4	1.38

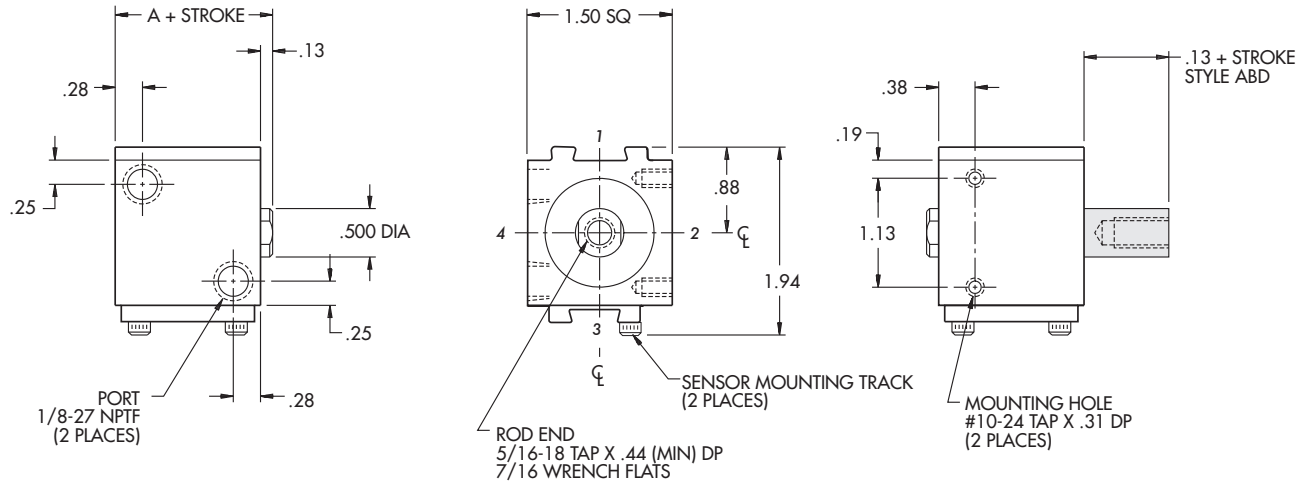
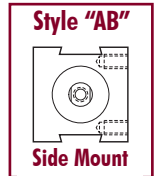
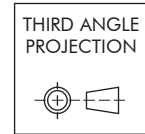


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B118x__	BD118x__	7/8 to 6 in 1/8" increments	.88
Intermediate	BHH118x__		5/8 to 6 in 1/8" increments	1.13
Heavy	BFH118x__	BFHD118x__	3/8 to 6 in 1/8" increments	1.38

Information same as above except where noted

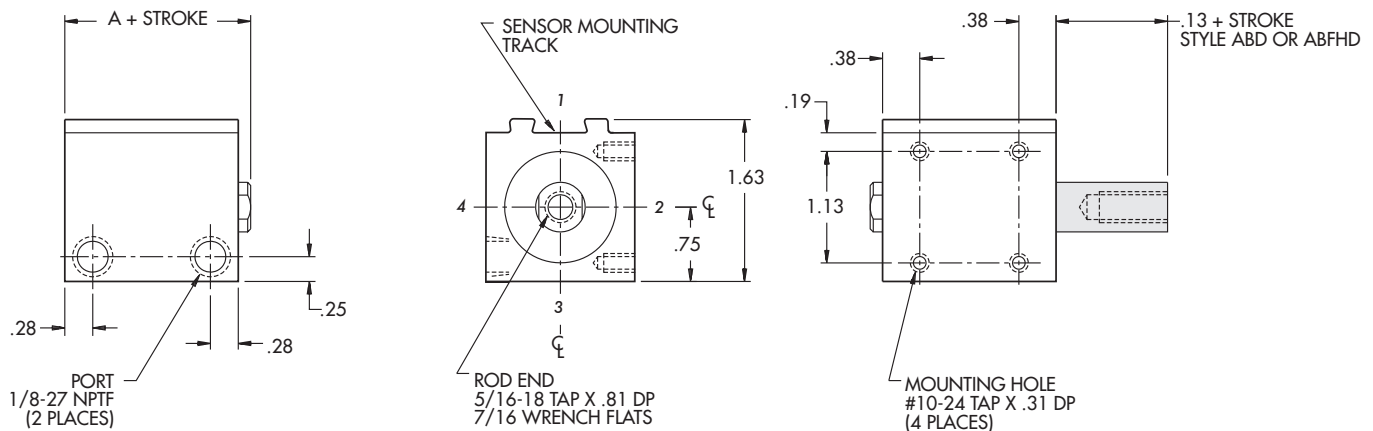


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB118x __	ABD118x __	1/8 to 1/2 in 1/8" increments	1.13
Intermediate	ABHH118x __		1/8, 1/4	1.38

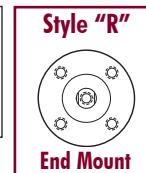
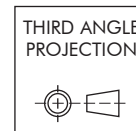


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB118x __	ABD118x __	5/8 to 6 in 1/8" increments	1.13
Intermediate	ABHH118x __		3/8 to 6 in 1/8" increments	1.38
Heavy	ABFH118x __	ABFHD118x __	1/8 to 6 in 1/8" increments	1.63

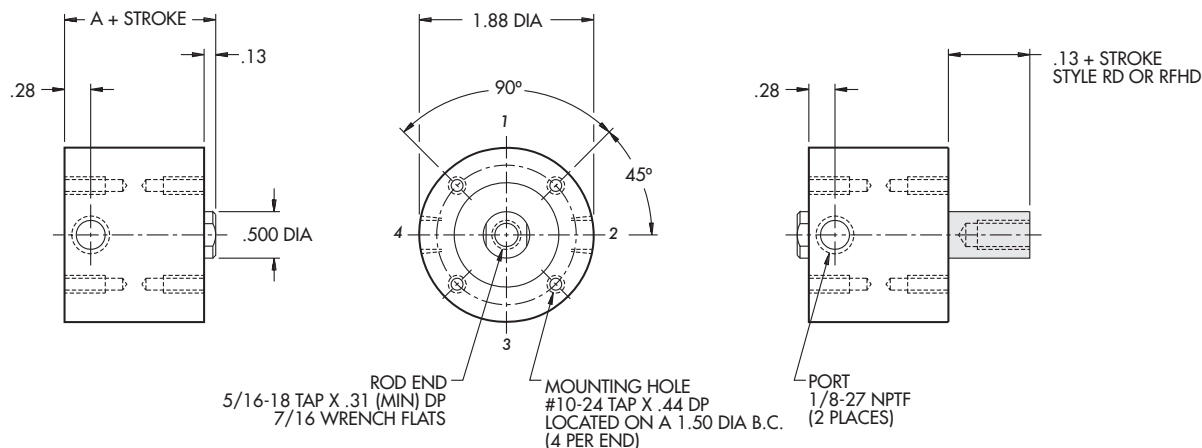
Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R118x__	RD118x__	1/8 to 3/4 in 1/8" increments	.88
Intermediate	RHH118x__		1/8 to 1/2 in 1/8" increments	1.13
Heavy	RFH118x__	RFHD118x__	1/8, 1/4	1.38



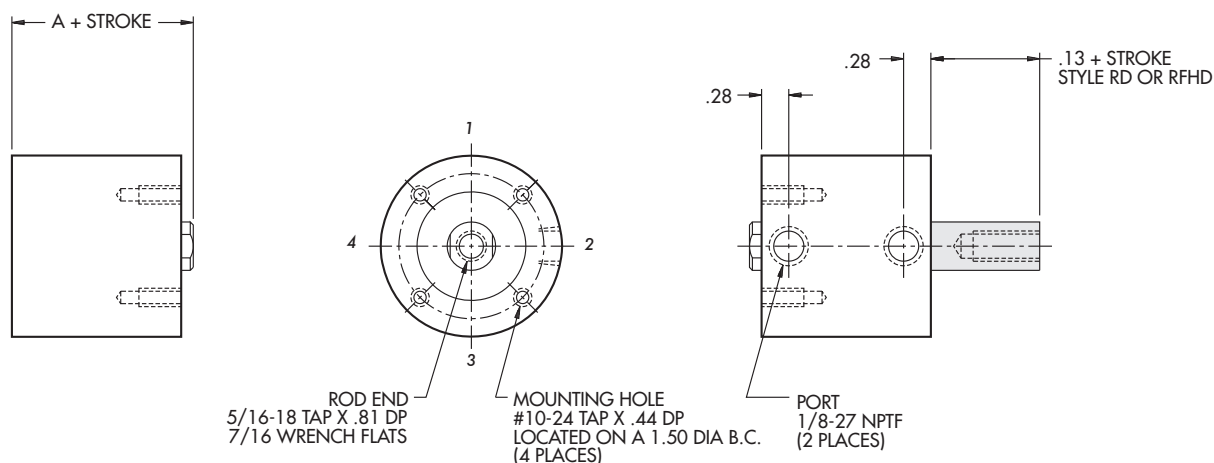
Standard Mounting: **TF, TR, TBE** Optional Mounting: **TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R118x__	RD118x__	7/8 to 6 in 1/8" increments	.88
Intermediate	RHH118x__		5/8 to 6 in 1/8" increments	1.13
Heavy	RFH118x__	RFHD118x__	3/8 to 6 in 1/8" increments	1.38

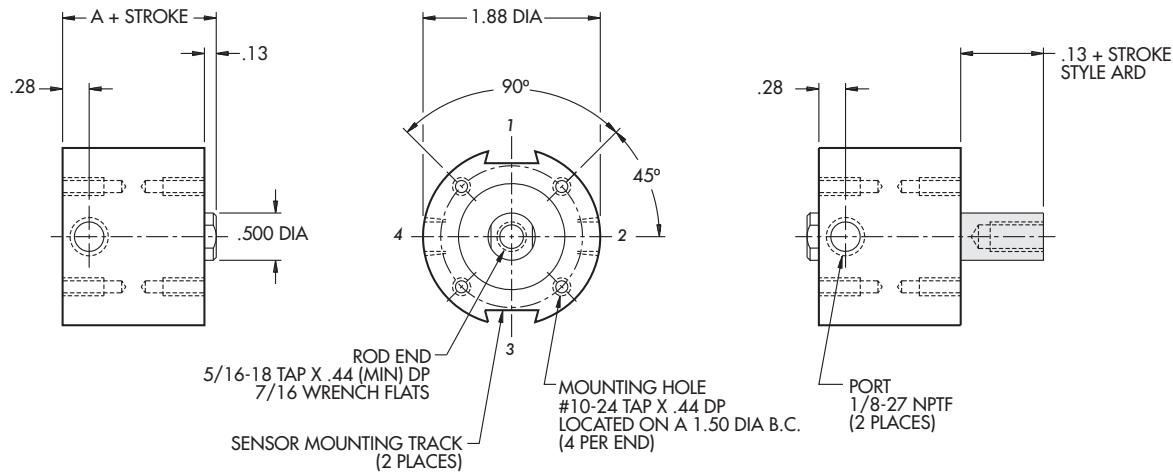
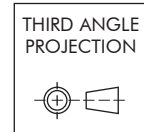
Standard Mounting: **TF** Optional Mounting: **TR, TBE, TM**

Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR118x__	ARD118x__	1/8 to 1/2 in 1/8" increments	1.13
Intermediate	ARHH118x__		1/8, 1/4	1.38

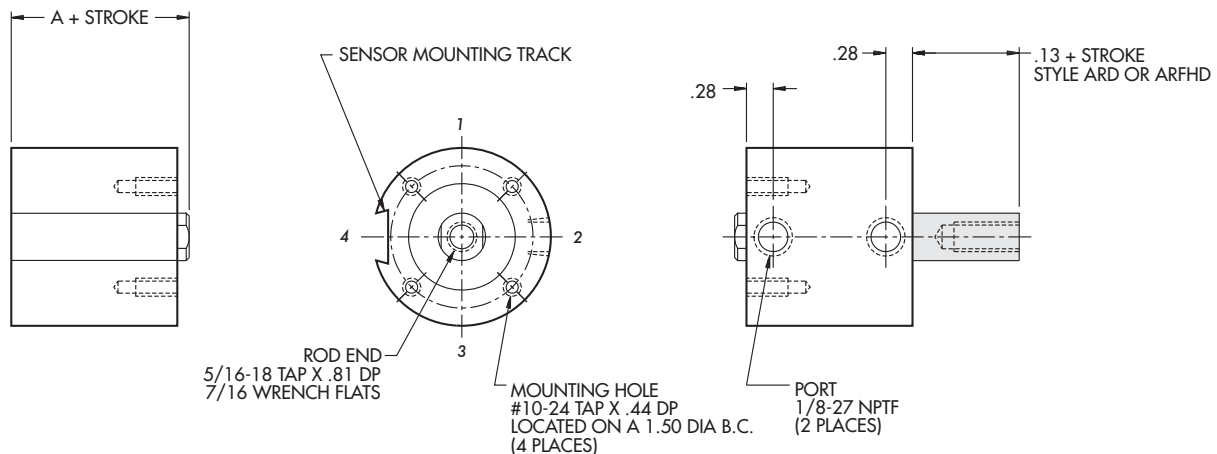
Standard Mounting: **TF, TR, TBE** Optional Mounting: **TM**



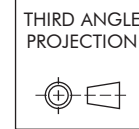
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR118x__	ARD118x__	5/8 to 6 in 1/8" increments	1.13
Intermediate	ARHH118x__		3/8 to 6 in 1/8" increments	1.38
Heavy	ARFH118x__	ARFHD118x__	1/8 to 6 in 1/8" increments	1.63

Standard Mounting: **TF** Optional Mounting: **TR, TBE, TM**

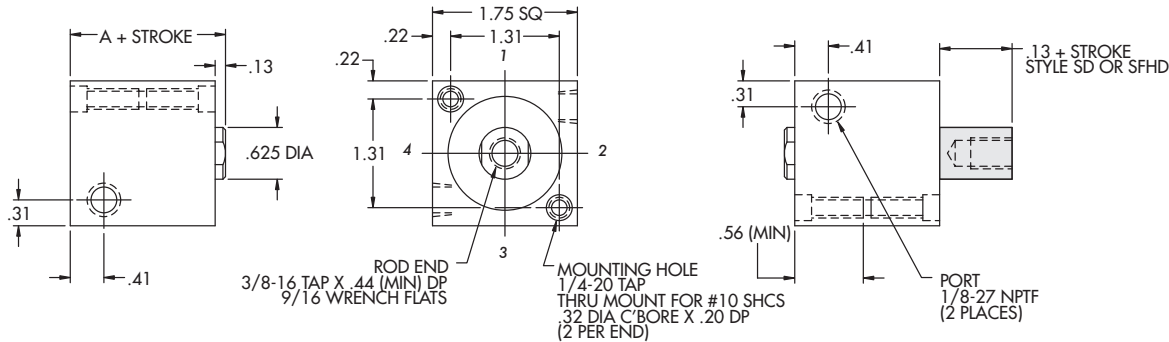
Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S138x __	SD138x __	1/8 to 3/4 in 1/8" increments	1.13
Intermediate	SHH138x __		1/8 to 1/2 in 1/8" increments	1.38
Heavy	SFH138x __	SFHD138x __	1/8, 1/4	1.63



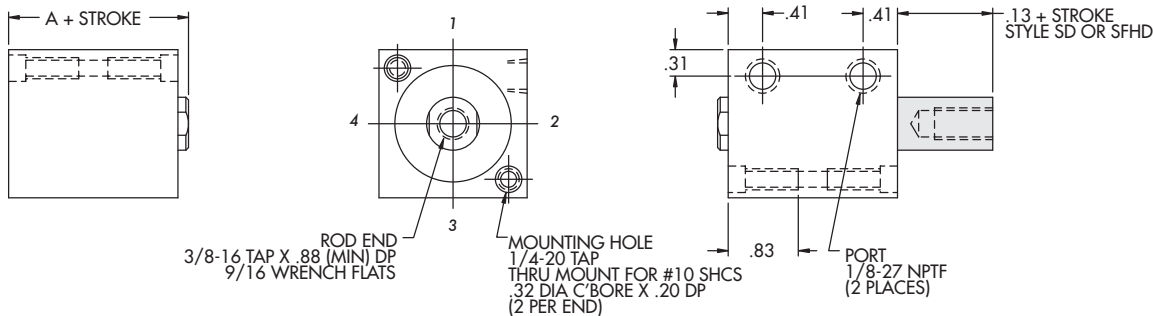
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S138x __	SD138x __	7/8, 1	1.13
Intermediate	SHH138x __		5/8, 3/4	1.38
Heavy	SFH138x __	SFHD138x __	3/8, 1/2	1.63

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

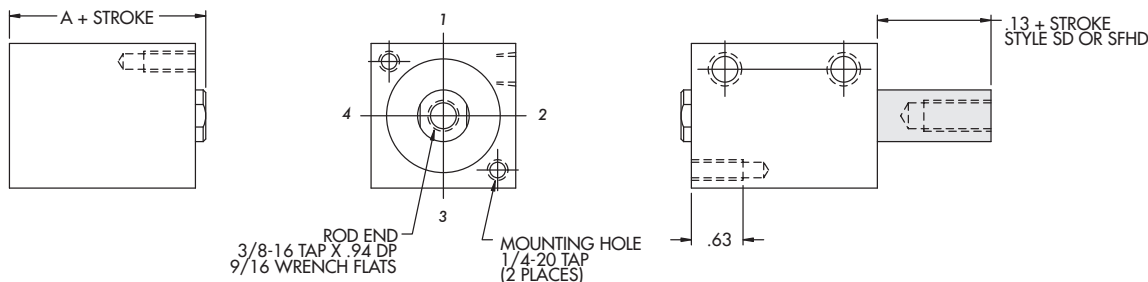


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S138x __	SD138x __	1-1/8 to 6 in 1/8" increments	1.13
Intermediate	SHH138x __		7/8 to 6 in 1/8" increments	1.38
Heavy	SFH138x __	SFHD138x __	5/8 to 6 in 1/8" increments	1.63

Standard Mounting: **TF**

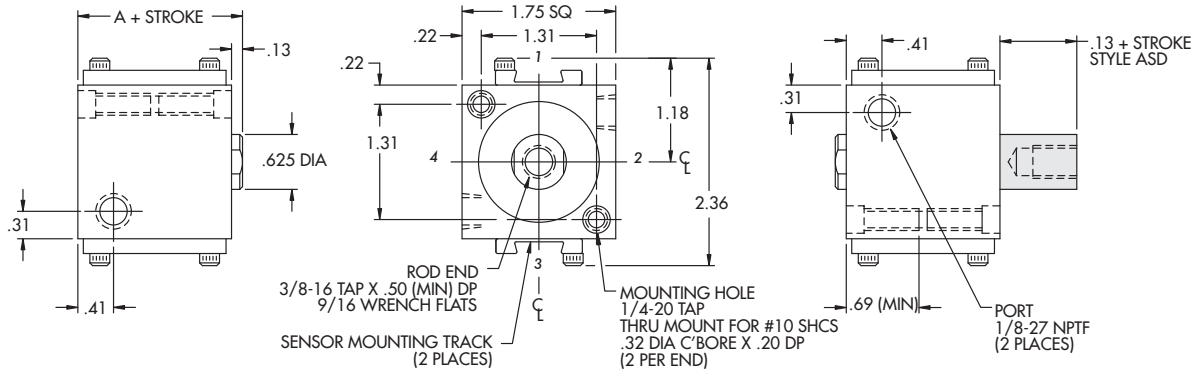
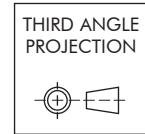
Optional Mounting: **TR, TBE, TM**

Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS138x__	ASD138x__	1/8 to 1/2 in 1/8" increments	1.38
Intermediate	ASHH138x__		1/8, 1/4	1.63

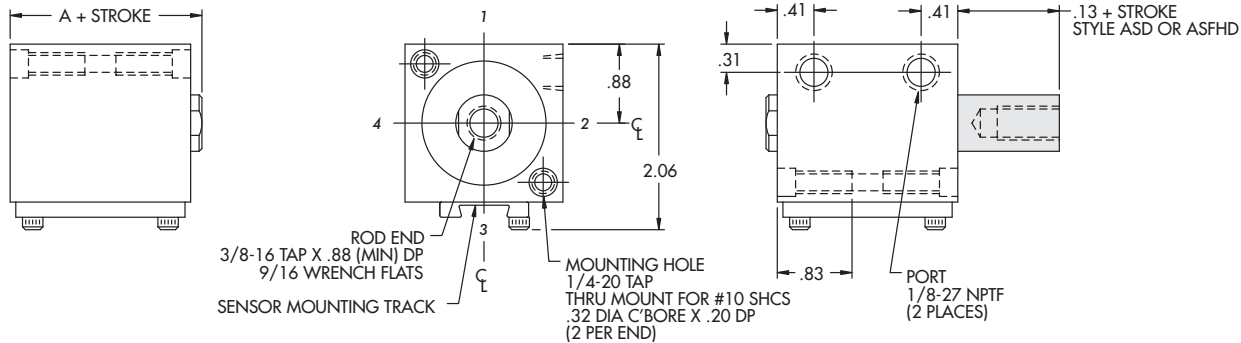
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS138x__	ASD138x__	5/8, 3/4	1.38
Intermediate	ASHH138x__		3/8, 1/2	1.63
Heavy	ASFH138x__	ASFHD138x__	1/8, 1/4	1.88

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

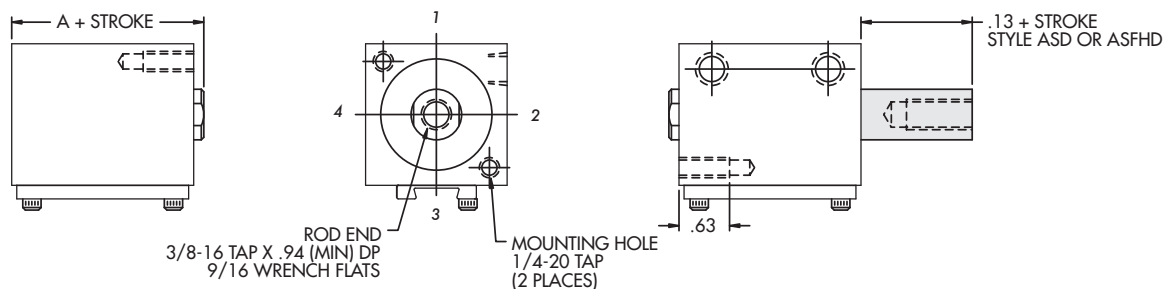


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS138x__	ASD138x__	7/8 to 6 in 1/8" increments	1.38
Intermediate	ASHH138x__		5/8 to 6 in 1/8" increments	1.63
Heavy	ASFH138x__	ASFHD138x__	3/8 to 6 in 1/8" increments	1.88

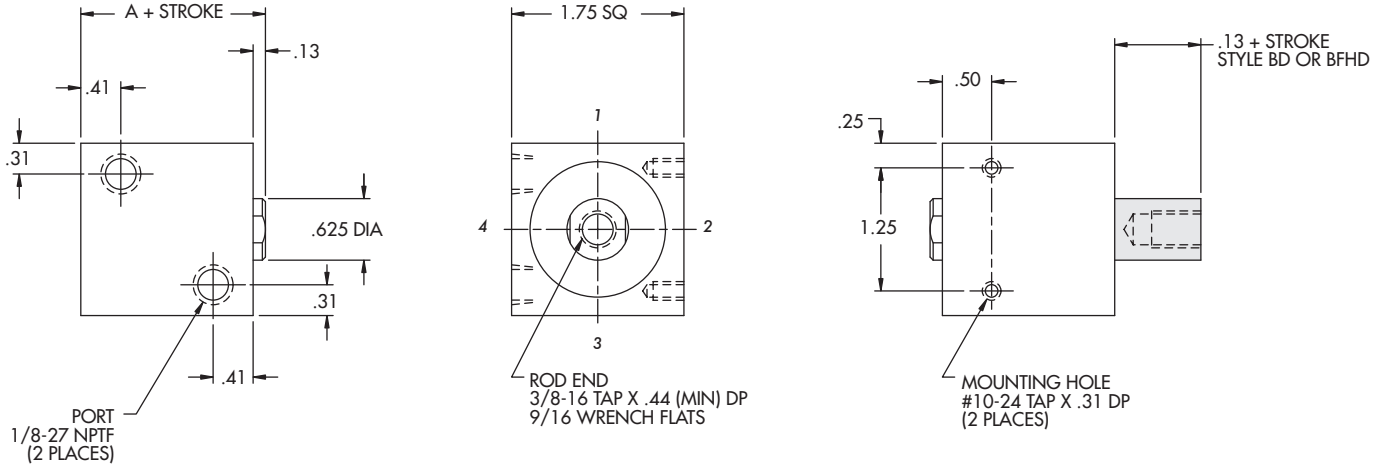
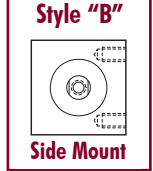
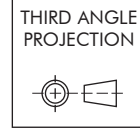
Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Information same as above except where noted

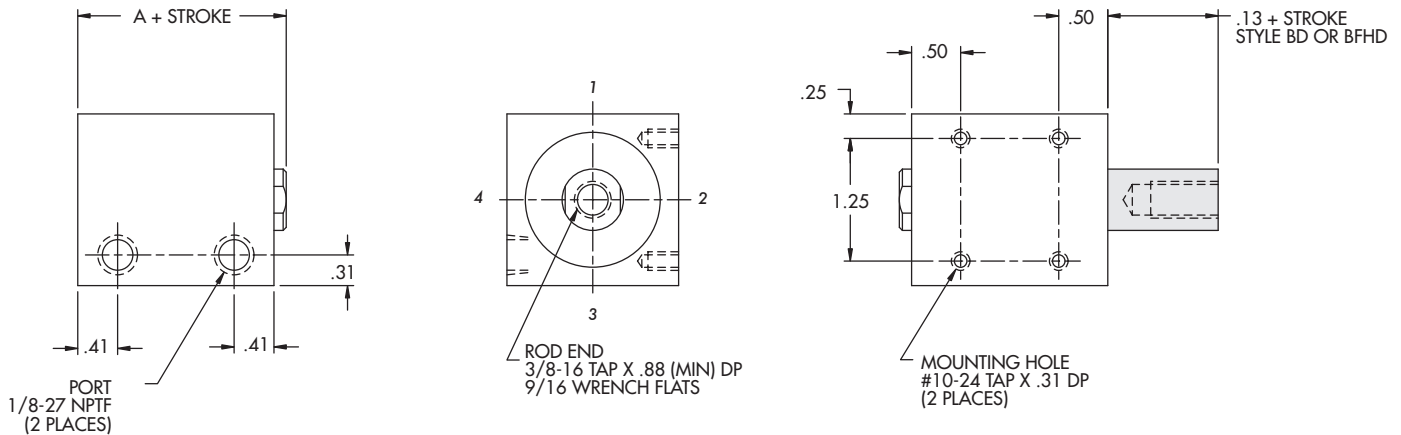


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B138x __	BD138x __	1/8 to 3/4 in 1/8" increments	1.13
Intermediate	BHH138x __		1/8 to 1/2 in 1/8" increments	1.38
Heavy	BFH138x __	BFHD138x __	1/8, 1/4	1.63

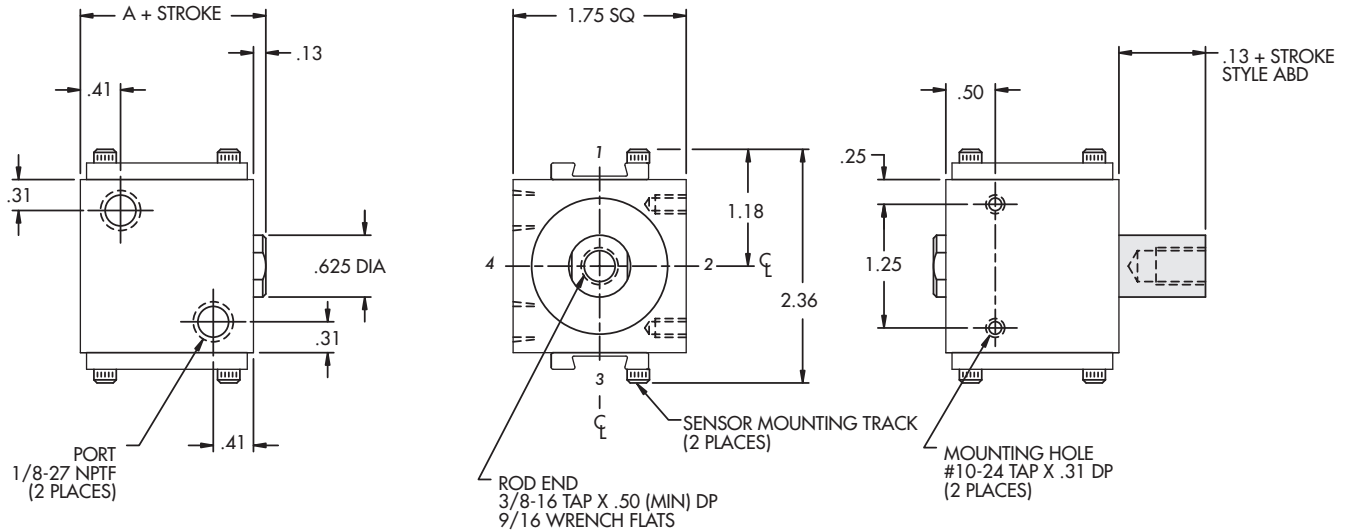
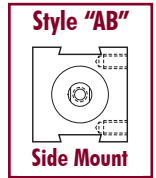


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B138x __	BD138x __	7/8 to 6 in 1/8" increments	1.13
Intermediate	BHH138x __		5/8 to 6 in 1/8" increments	1.38
Heavy	BFH138x __	BFHD138x __	3/8 to 6 in 1/8" increments	1.63

Information same as above except where noted

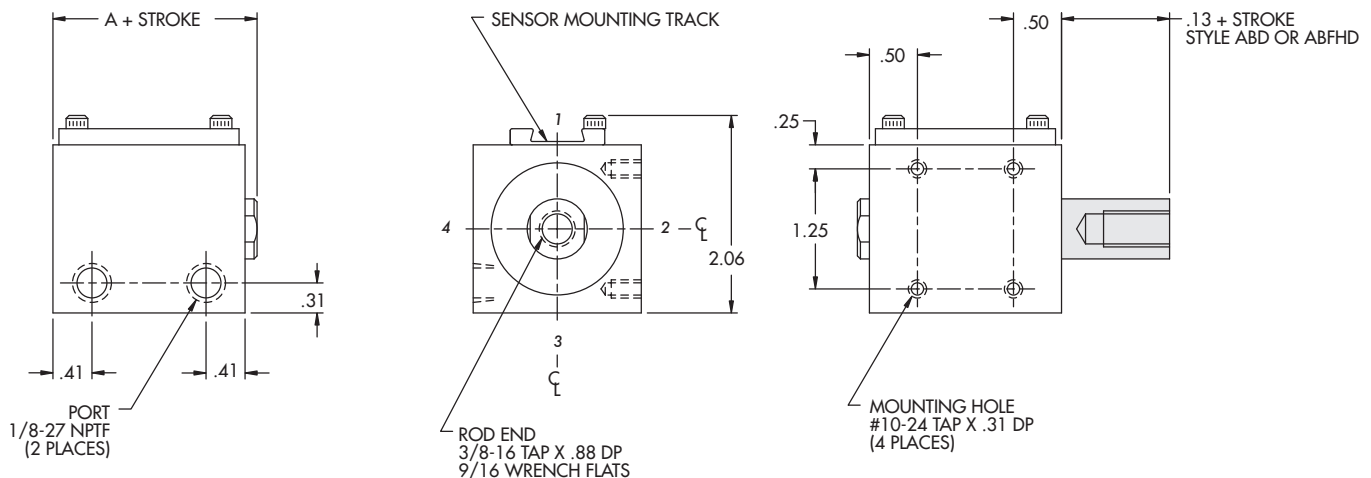


THIRD ANGLE
PROJECTION



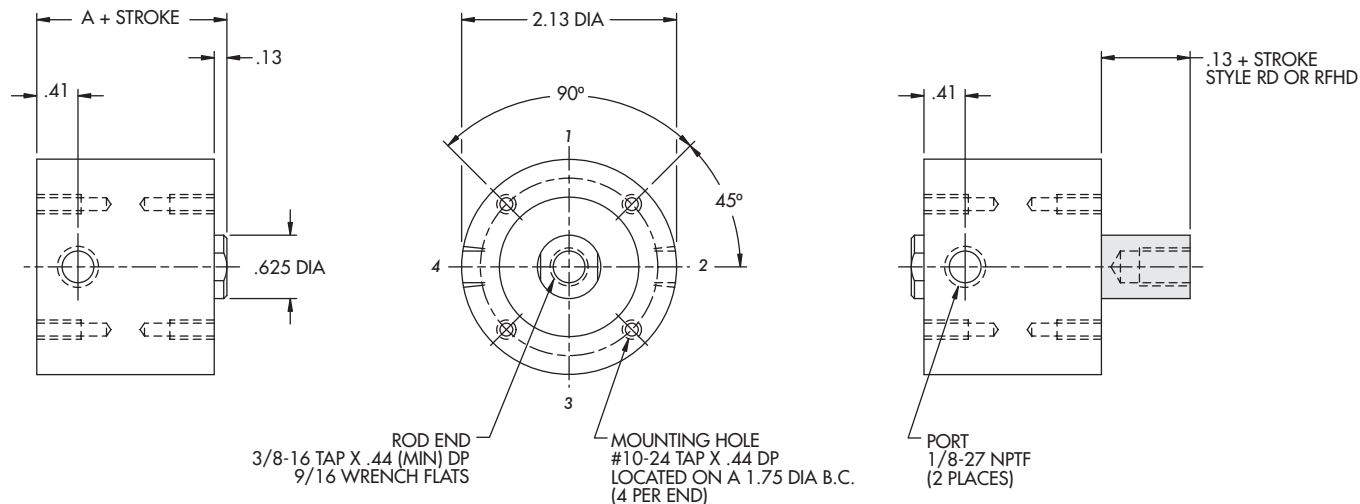
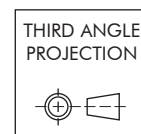
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB138x__	ABD138x__	5/8 to 6 in 1/8" increments	1.38
Intermediate	ABHH138x__		3/8 to 6 in 1/8" increments	1.63
Heavy	ABFH138x__	ABFHD138x__	1/8 to 6 in 1/8" increments	1.88

Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R138x __	RD138x __	1/8 to 3/4 in 1/8" increments	1.13
Intermediate	RHH138x __		1/8 to 1/2 in 1/8" increments	1.38
Heavy	RFH138x __	RFHD138x __	1/8, 1/4	1.63

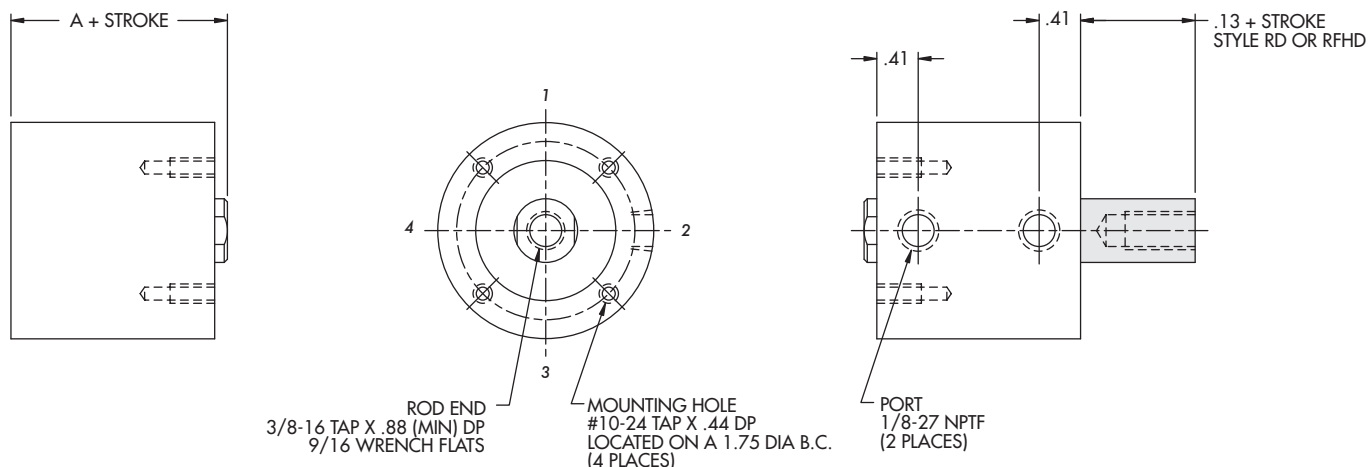
Standard Mounting: **TF, TR, TBE** Optional Mounting: **TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R138x __	RD138x __	7/8 to 6 in 1/8" increments	1.13
Intermediate	RHH138x __		5/8 to 6 in 1/8" increments	1.38
Heavy	RFH138x __	RFHD138x __	3/8 to 6 in 1/8" increments	1.63

Standard Mounting: **TF** Optional Mounting: **TR, TBE, TM**

Information same as above except where noted

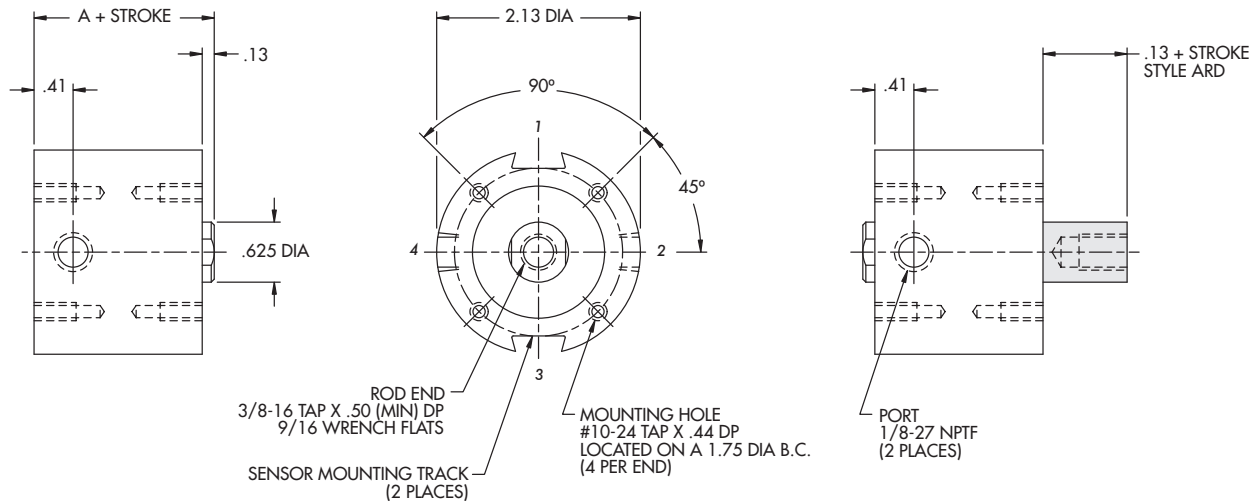
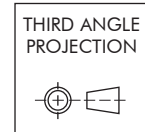


1-3/8" Bore | Magnetic Piston

LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR138x__	ARD138x__	1/8 to 1/2 in 1/8" increments	1.38
Intermediate	ARHH138x__		1/8, 1/4	1.63

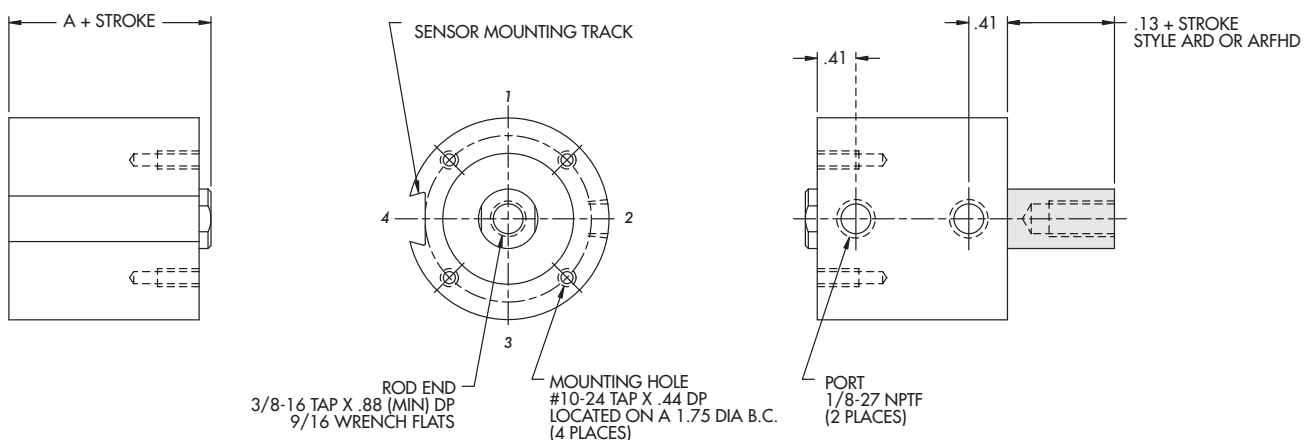
Standard Mounting: **TF, TR, TBE** Optional Mounting: **TM**



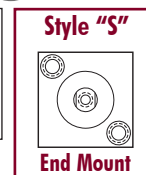
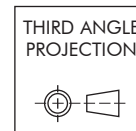
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR138x__	ARD138x__	5/8 to 6 in 1/8" increments	1.38
Intermediate	ARHH138x__		3/8 to 6 in 1/8" increments	1.63
Heavy	ARFH138x__	ARFHD138x__	1/8 to 6 in 1/8" increments	1.88

Standard Mounting: **TF** Optional Mounting: **TR, TBE, TM**

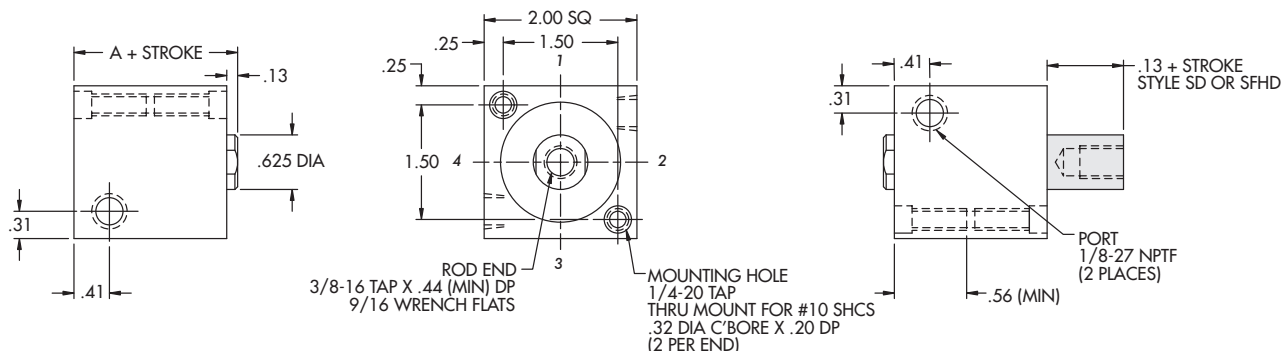
Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S158x __	SD158x __	1/8 to 3/4 in 1/8" increments	1.13
Intermediate	SHH158x __		1/8 to 1/2 in 1/8" increments	1.38
Heavy	SFH158x __	SFHD158x __	1/8, 1/4	1.63



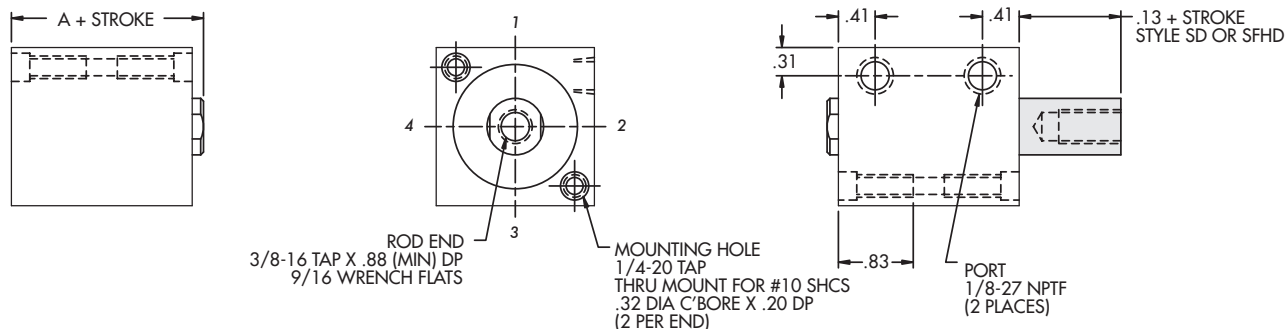
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S158x __	SD158x __	7/8, 1	1.13
Intermediate	SHH158x __		5/8, 3/4	1.38
Heavy	SFH158x __	SFHD158x __	3/8, 1/2	1.63

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

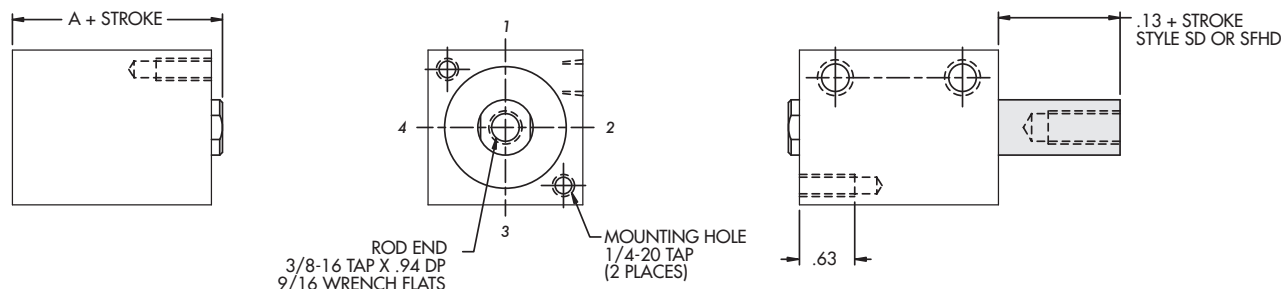


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S158x __	SD158x __	1-1/8 to 6 in 1/8" increments	1.13
Intermediate	SHH158x __		7/8 to 6 in 1/8" increments	1.38
Heavy	SFH158x __	SFHD158x __	5/8 to 6 in 1/8" increments	1.63

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Information same as above except where noted



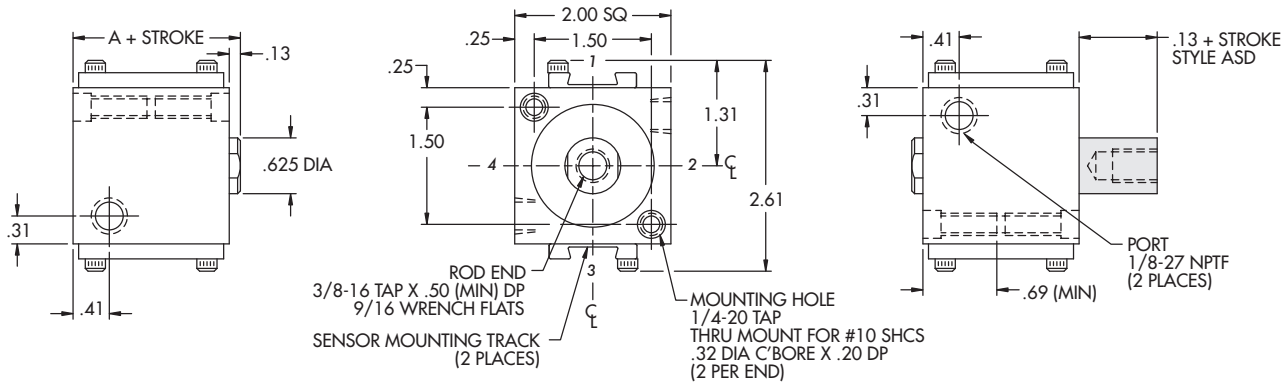
1-5/8" Bore | Magnetic Piston

LDA belgium



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS158x __	ASD158x __	1/8 to 1/2 in 1/8" increments	1.38
Intermediate	ASHH158x __		1/8, 1/4	1.63

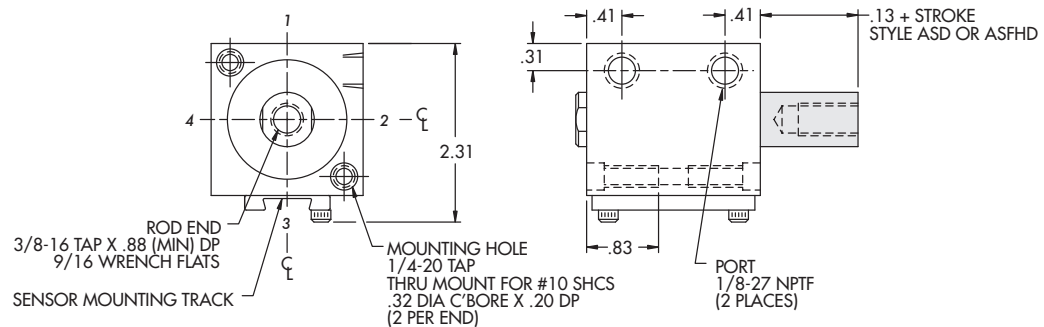
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS158x __	ASD158x __	5/8, 3/4	1.38
Intermediate	ASHH158x __		3/8, 1/2	1.63
Heavy	ASFH158x __	ASFHD158x __	1/8, 1/4	1.88

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

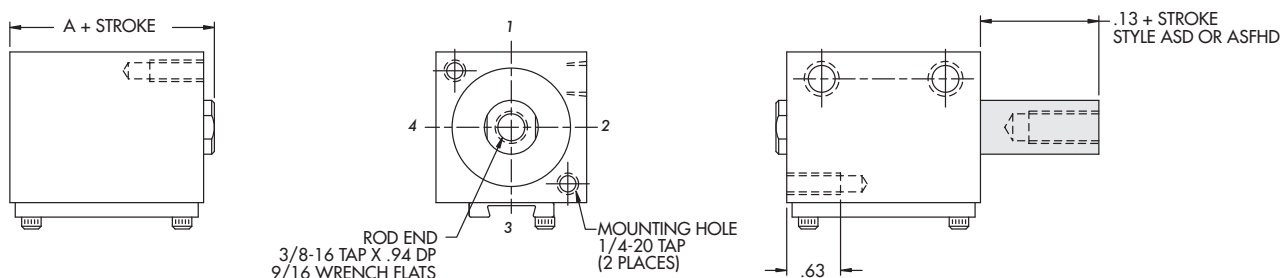


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS158x __	ASD158x __	7/8 to 6 in 1/8" increments	1.38
Intermediate	ASHH158x __		5/8 to 6 in 1/8" increments	1.63
Heavy	ASFH158x __	ASFHD158x __	3/8 to 6 in 1/8" increments	1.88

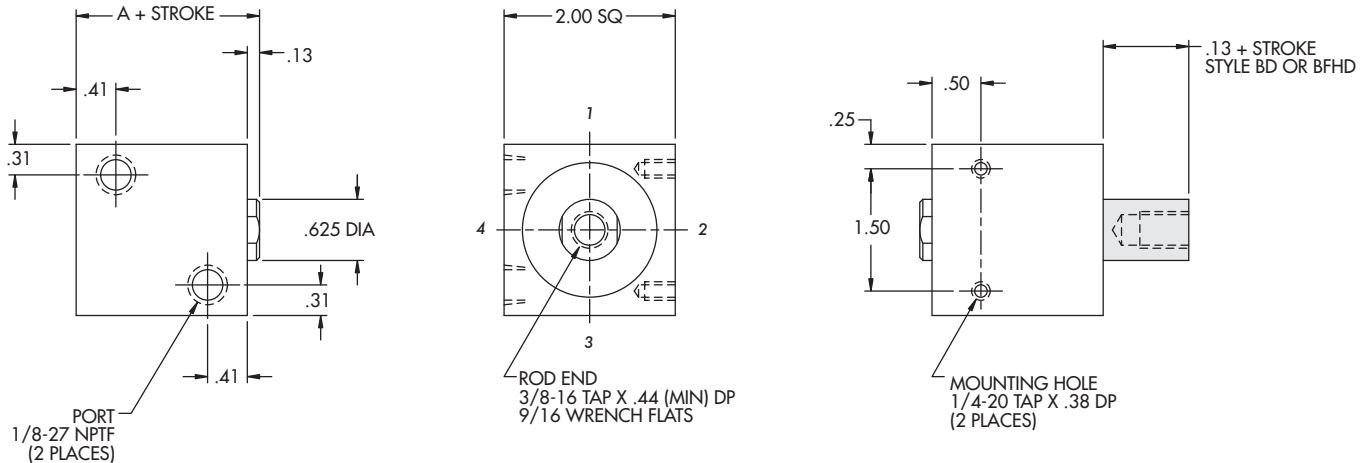
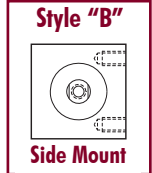
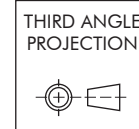
Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Information same as above except where noted

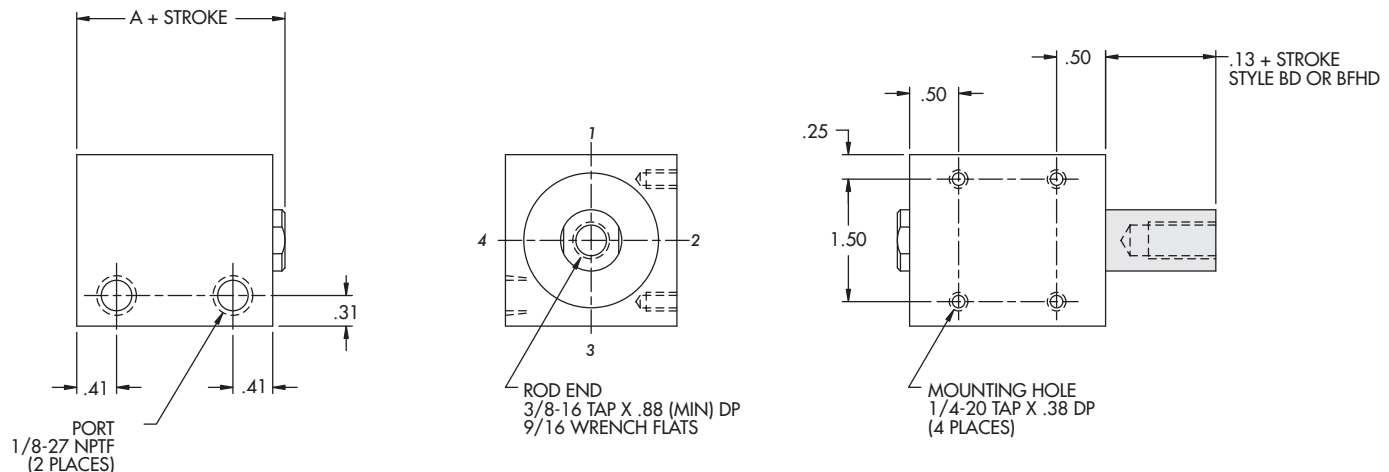


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B158x __	BD158x __	1/8 to 3/4 in 1/8" increments	1.13
Intermediate	BHH158x __		1/8 to 1/2 in 1/8" increments	1.38
Heavy	BFH158x __	BFHD158x __	1/8, 1/4	1.63

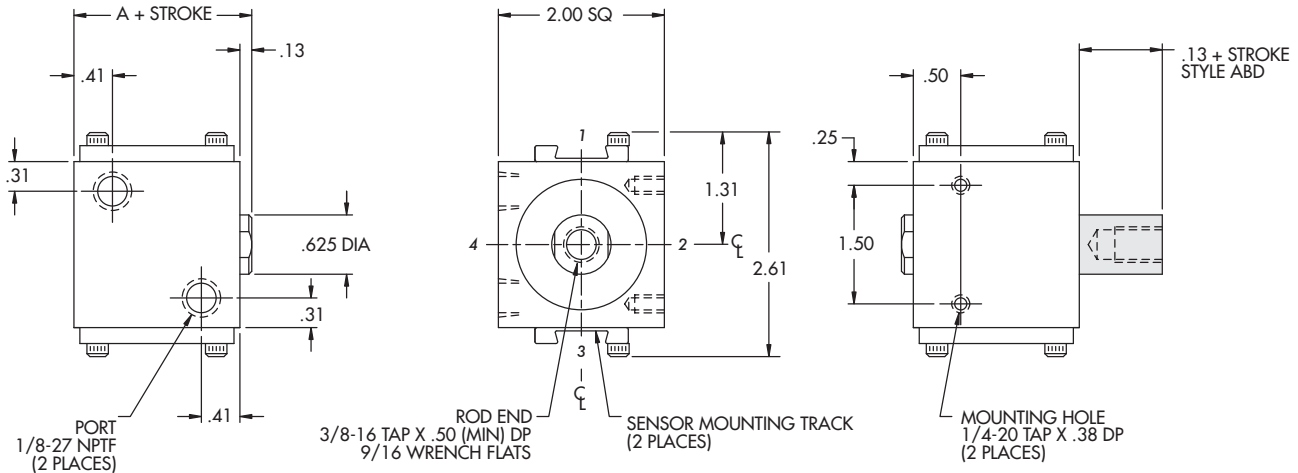
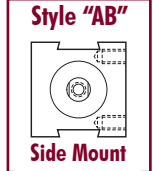
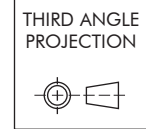


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B158x __	BD158x __	7/8 to 6 in 1/8" increments	1.13
Intermediate	BHH158x __		5/8 to 6 in 1/8" increments	1.38
Heavy	BFH158x __	BFHD158x __	3/8 to 6 in 1/8" increments	1.63

Information same as above except where noted

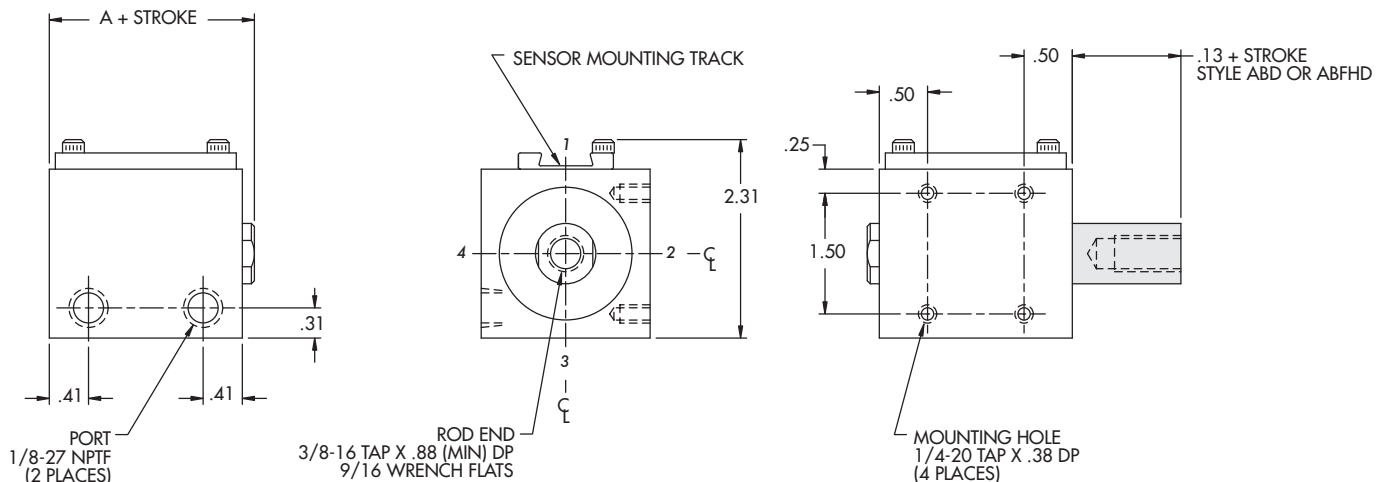


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB158x __	ABD158x __	1/8 to 1/2 in 1/8" increments	1.38
Intermediate	ABHH158x __		1/8, 1/4	1.63

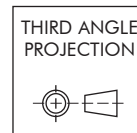


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB158x __	ABD158x __	5/8 to 6 in 1/8" increments	1.38
Intermediate	ABHH158x __		3/8 to 6 in 1/8" increments	1.63
Heavy	ABFH158x __	ABFHD158x __	1/8 to 6 in 1/8" increments	1.88

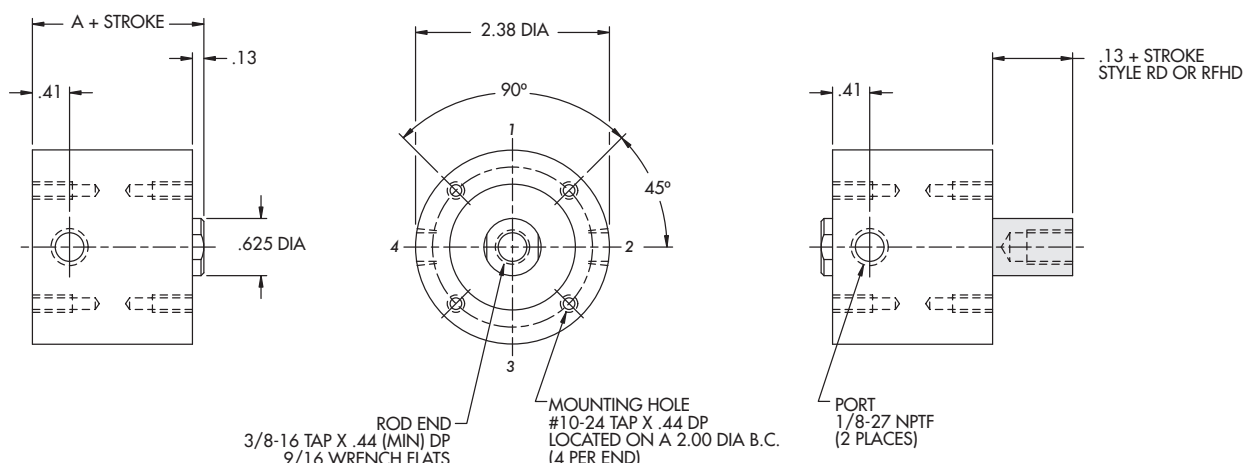
Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R158x ___	RD158x ___	1/8 to 3/4 in 1/8" increments	1.13
Intermediate	RHH158x ___		1/8 to 1/2 in 1/8" increments	1.38
Heavy	RFH158x ___	RFHD158x ___	1/8, 1/4	1.63



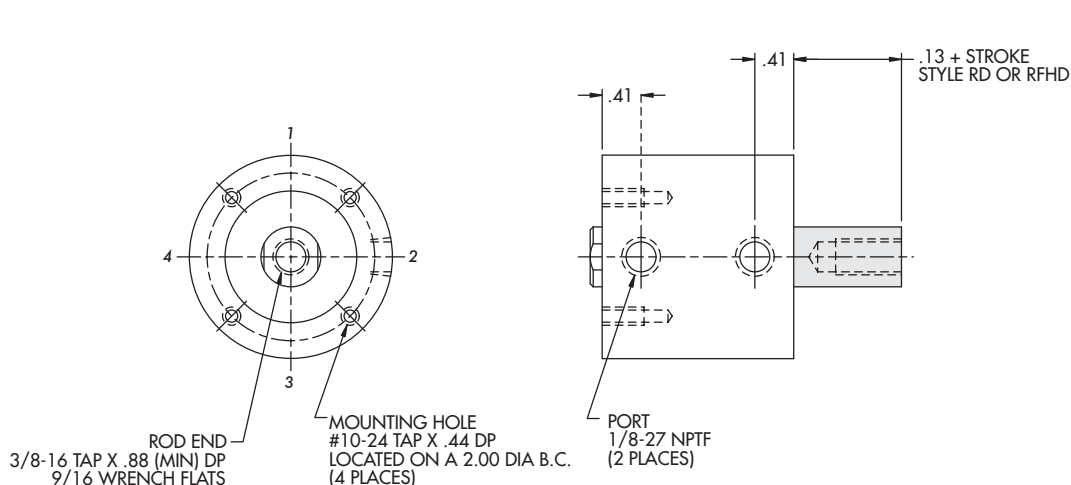
Standard Mounting: **TF, TR, TBE** Optional Mounting: **TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R158x ___	RD158x ___	7/8 to 6 in 1/8" increments	1.13
Intermediate	RHH158x ___		5/8 to 6 in 1/8" increments	1.38
Heavy	RFH158x ___	RFHD158x ___	3/8 to 6 in 1/8" increments	1.63

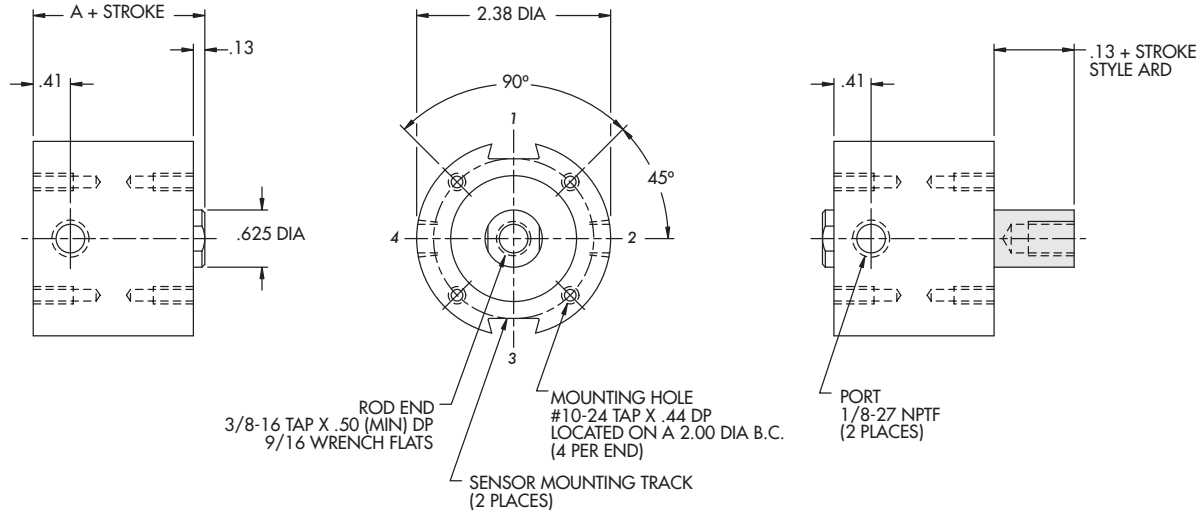
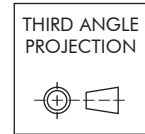
Standard Mounting: **TF** Optional Mounting: **TR, TBE, TM**

Information same as above except where noted



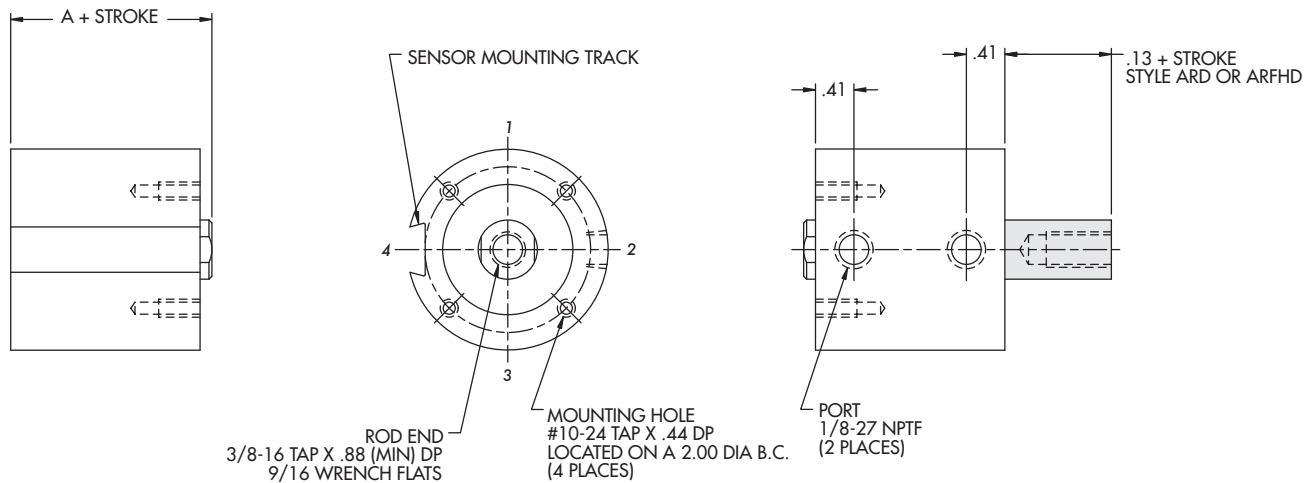
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR158x __	ARD158x __	1/8 to 1/2 in 1/8" increments	1.38
Intermediate	ARHH158x __		1/8, 1/4	1.63

Standard Mounting: **TF, TR, TBE** Optional Mounting: **TM**

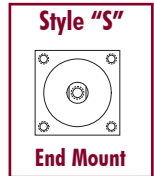
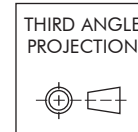


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR158x __	ARD158x __	5/8 to 6 in 1/8" increments	1.38
Intermediate	ARHH158x __		3/8 to 6 in 1/8" increments	1.63
Heavy	ARFH158x __	ARFHD158x __	1/8 to 6 in 1/8" increments	1.88

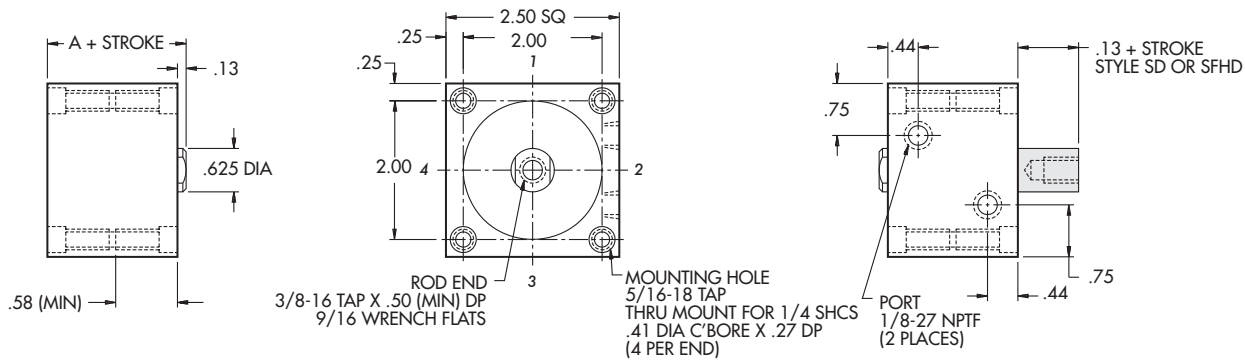
Standard Mounting: **TF** Optional Mounting: **TR, TBE, TM** *Information same as above except where noted*



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S2x __	SD2x __	1/8 to 3/4 in 1/8" increments	1.25
Intermediate	SHH2x __		1/8 to 1/2 in 1/8" increments	1.50
Heavy	SFH2x __	SFHD2x __	1/8, 1/4	1.75



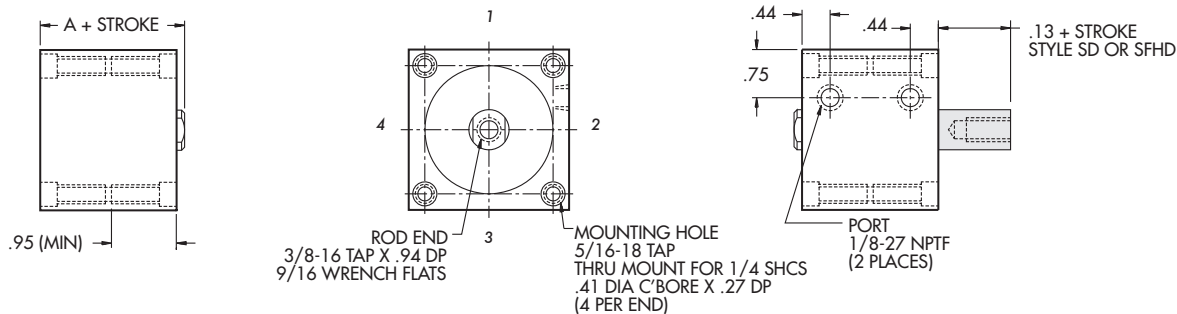
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S2x __	SD2x __	7/8 to 1-1/2 in 1/8" increments	1.25
Intermediate	SHH2x __		5/8 to 1-1/4 in 1/8" increments	1.50
Heavy	SFH2x __	SFHD2x __	3/8 to 1 in 1/8" increments	1.75

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

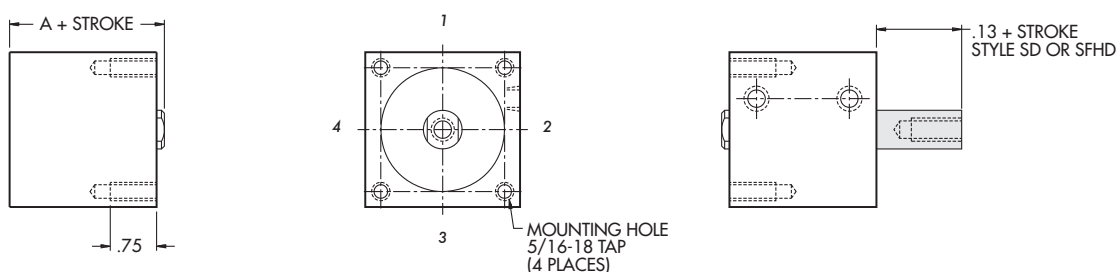


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S2x __	SD2x __	1-5/8 to 6 in 1/8" increments	1.25
Intermediate	SHH2x __		1-3/8 to 6 in 1/8" increments	1.50
Heavy	SFH2x __	SFHD2x __	1-1/8 to 6 in 1/8" increments	1.75

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Information same as above except where noted

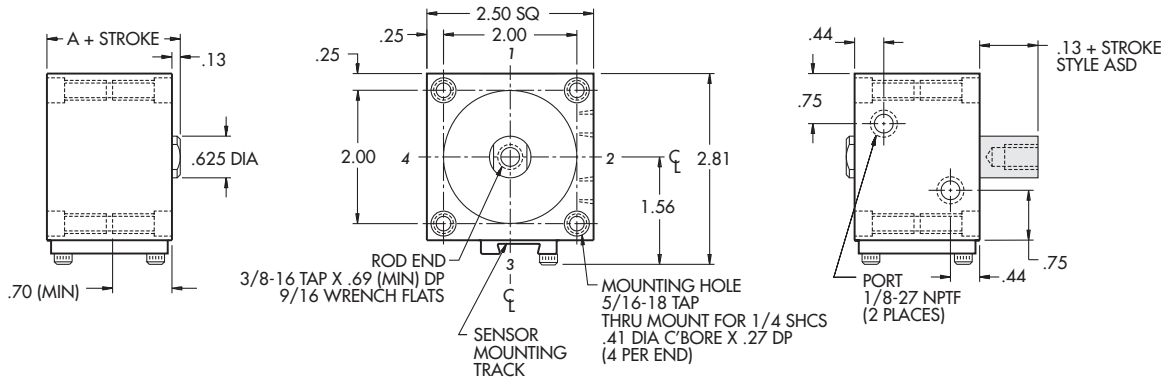
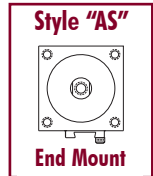
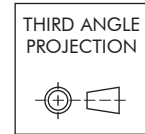


2" Bore | Magnetic Piston

LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS2x__	ASD2x__	1/8 to 1/2 in 1/8" increments	1.50
Intermediate	ASHH2x__		1/8, 1/4	1.75

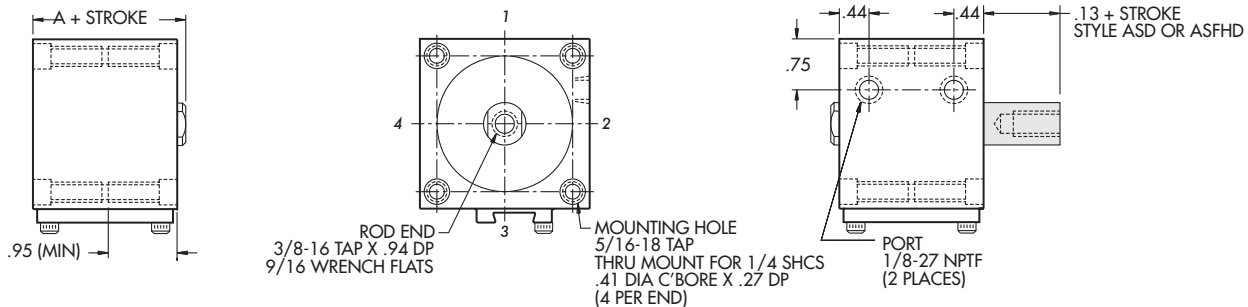
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS2x__	ASD2x__	5/8 to 1-1/4 in 1/8" increments	1.50
Intermediate	ASHH2x__		3/8 to 1 in 1/8" increments	1.75
Heavy	ASFH2x__	ASFHD2x__	1/8 to 3/4 in 1/8" increments	2.00

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

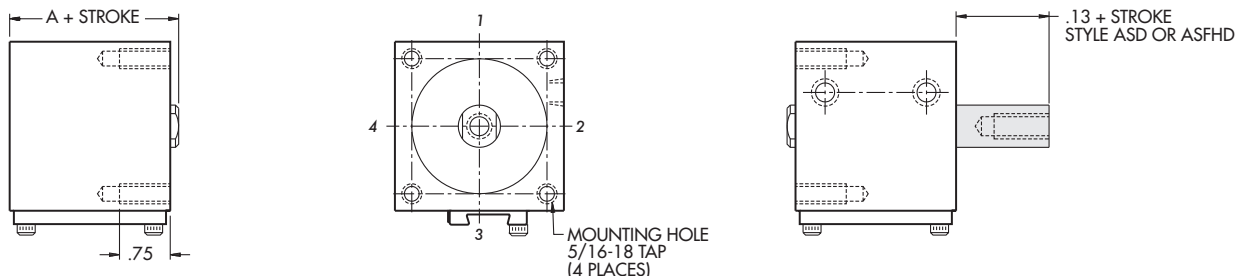


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS2x__	ASD2x__	1-3/8 to 6 in 1/8" increments	1.50
Intermediate	ASHH2x__		1-1/8 to 6 in 1/8" increments	1.75
Heavy	ASFH2x__	ASFHD2x__	7/8 to 6 in 1/8" increments	2.00

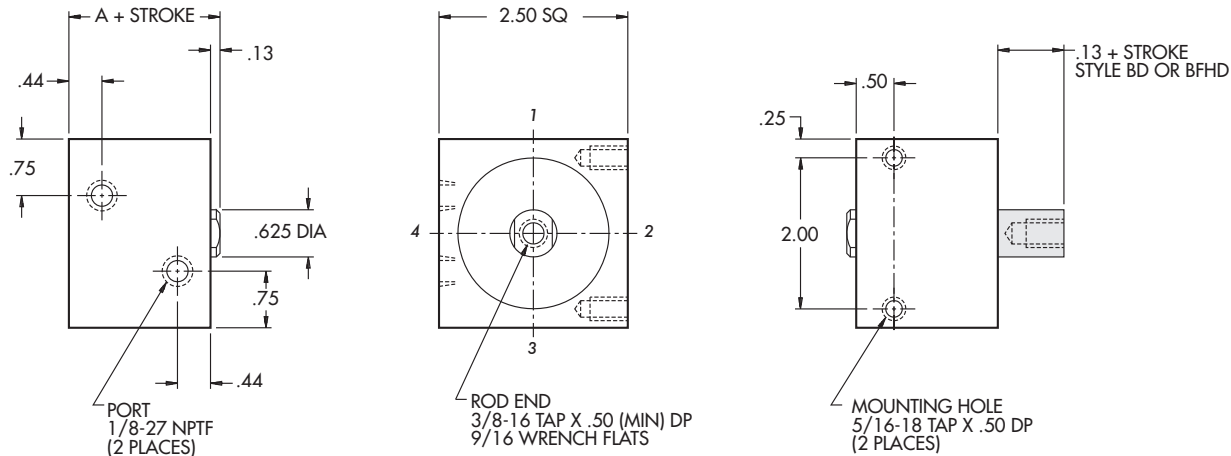
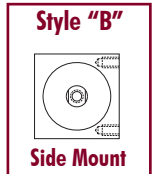
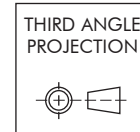
Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Information same as above except where noted

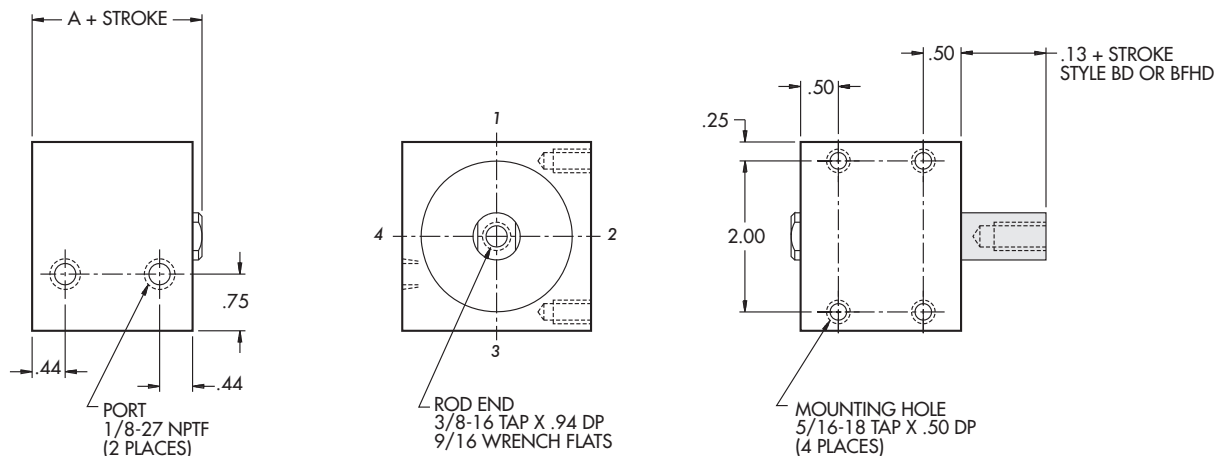


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B2x __	BD2x __	1/8 to 3/4 in 1/8" increments	1.25
Intermediate	BHH2x __		1/8 to 1/2 in 1/8" increments	1.50
Heavy	BFH2x __	BFHD2x __	1/8, 1/4	1.75



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B2x __	BD2x __	7/8 to 6 in 1/8" increments	1.25
Intermediate	BHH2x __		5/8 to 6 in 1/8" increments	1.50
Heavy	BFH2x __	BFHD2x __	3/8 to 6 in 1/8" increments	1.75

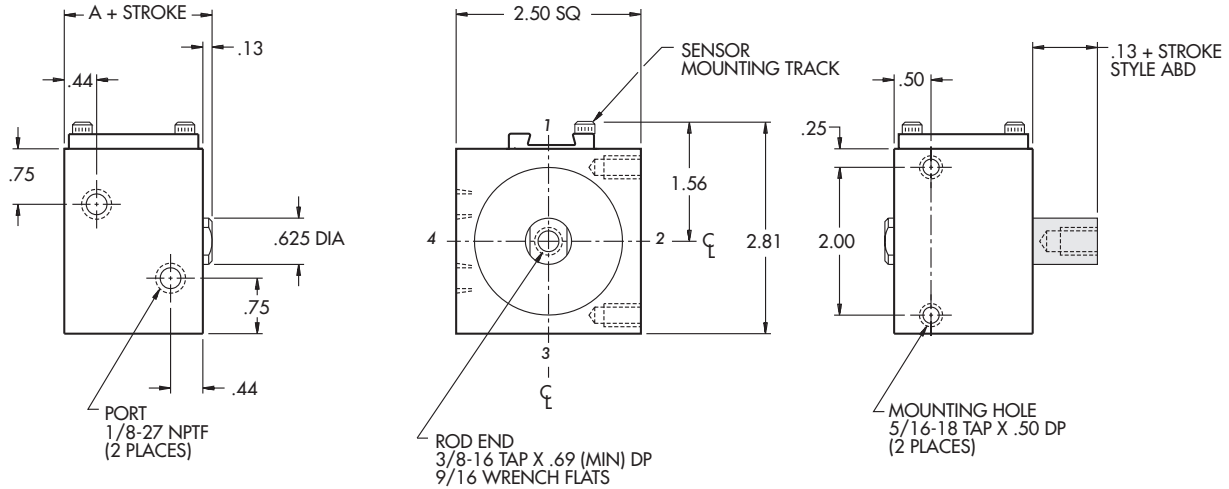
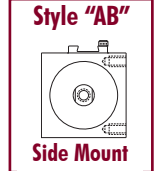
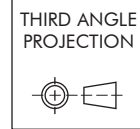
Information same as above except where noted



2" Bore | Magnetic Piston

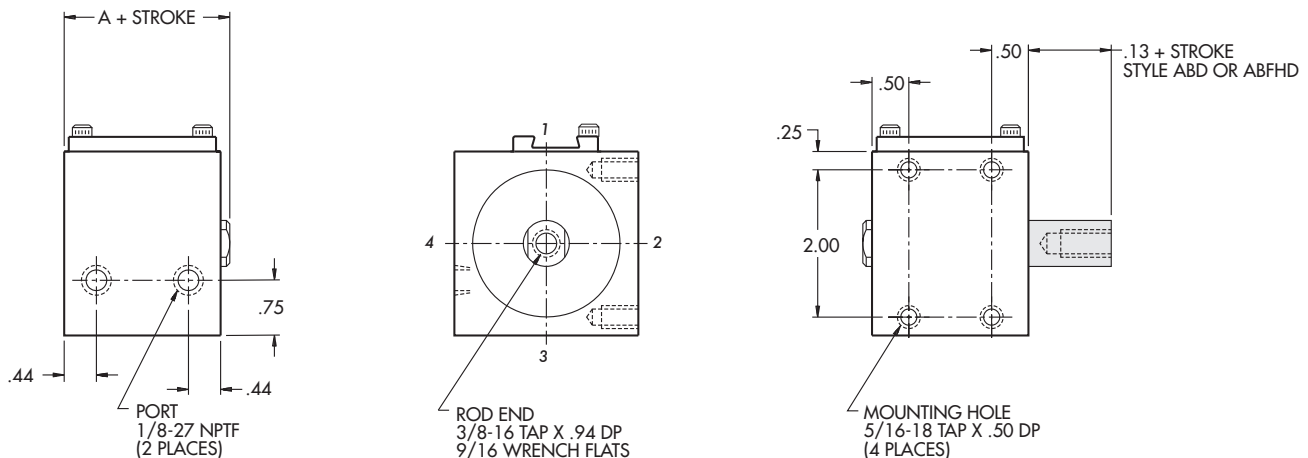
LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB2x__	ABD2x__	1/8 to 1/2 in 1/8" increments	1.50
Intermediate	ABHH2x__		1/8, 1/4	1.75



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB2x__	ABD2x__	5/8 to 6 in 1/8" increments	1.50
Intermediate	ABHH2x__		3/8 to 6 in 1/8" increments	1.75
Heavy	ABFH2x__	ABFHD2x__	1/8 to 6 in 1/8" increments	2.00

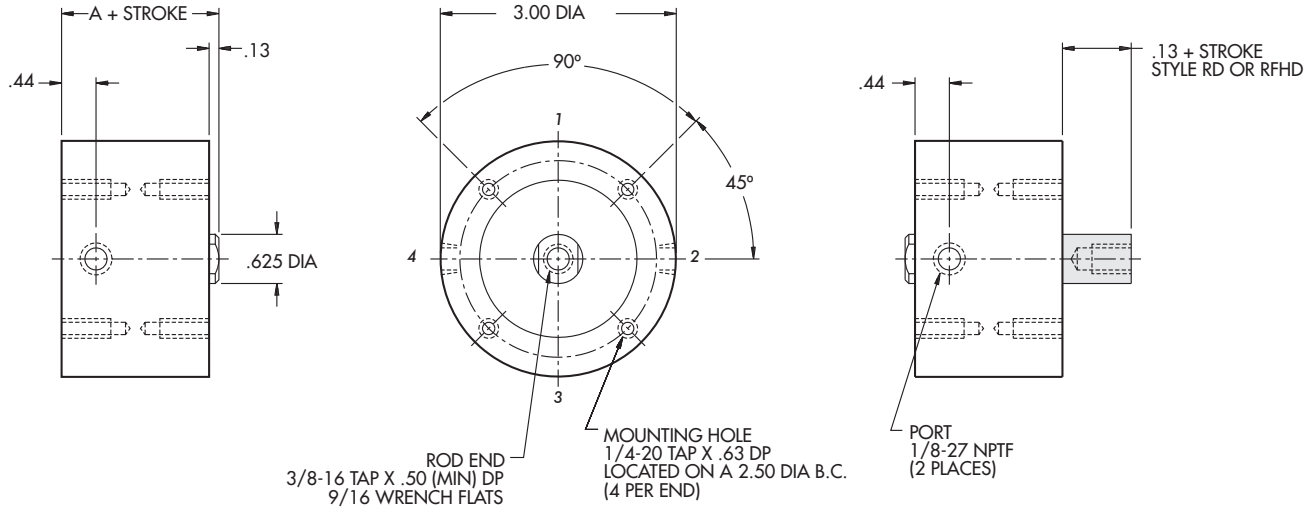
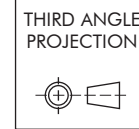
Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R2x __	RD2x __	1/8 to 3/4 in 1/8" increments	1.25
Intermediate	RHH2x __		1/8 to 1/2 in 1/8" increments	1.50
Heavy	RFH2x __	RFHD2x __	1/8, 1/4	1.75

Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

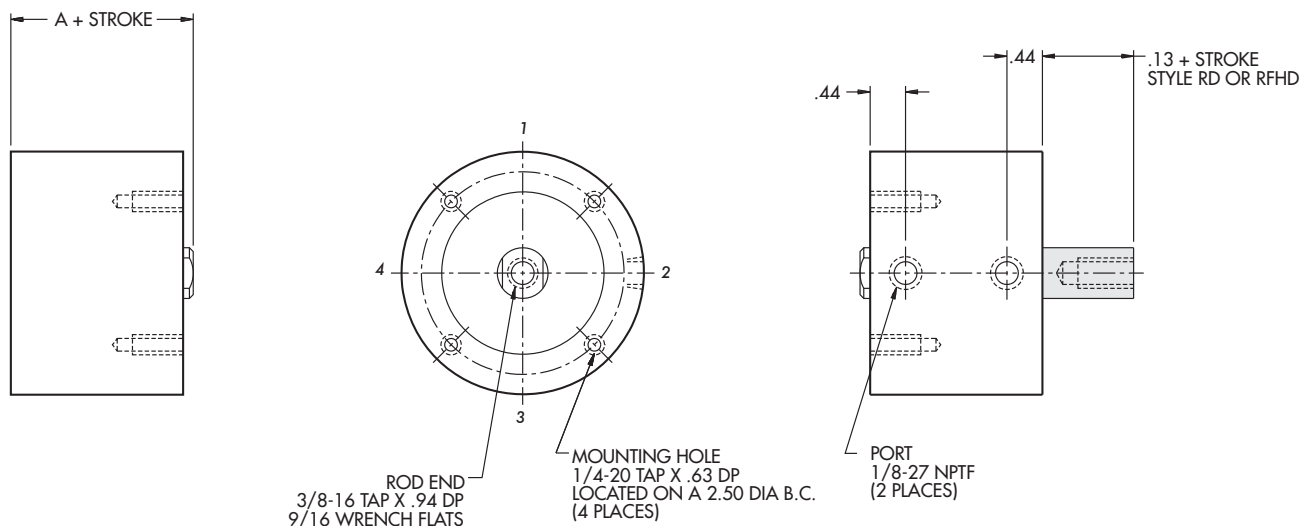


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R2x __	RD2x __	7/8 to 6 in 1/8" increments	1.25
Intermediate	RHH2x __		5/8 to 6 in 1/8" increments	1.50
Heavy	RFH2x __	RFHD2x __	3/8 to 6 in 1/8" increments	1.75

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

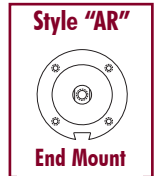
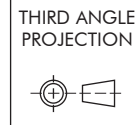
Information same as above except where noted



2" Bore | Magnetic Piston

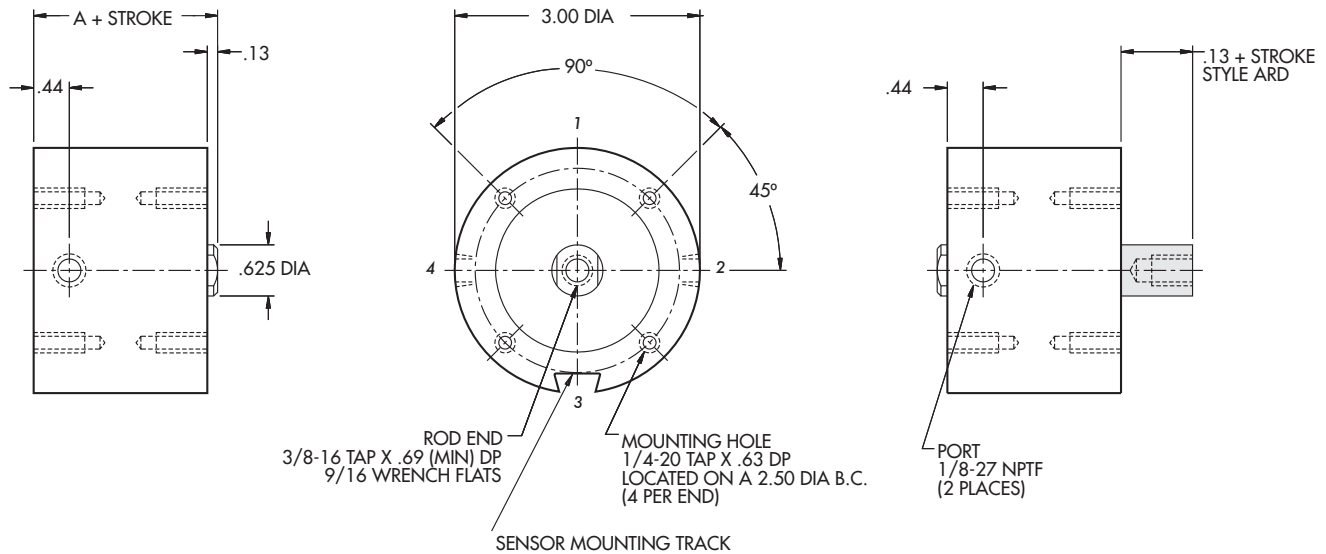
LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR2x__	ARD2x__	1/8 to 1/2 in 1/8" increments	1.50
Intermediate	ARHH2x__		1/8, 1/4	1.75



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

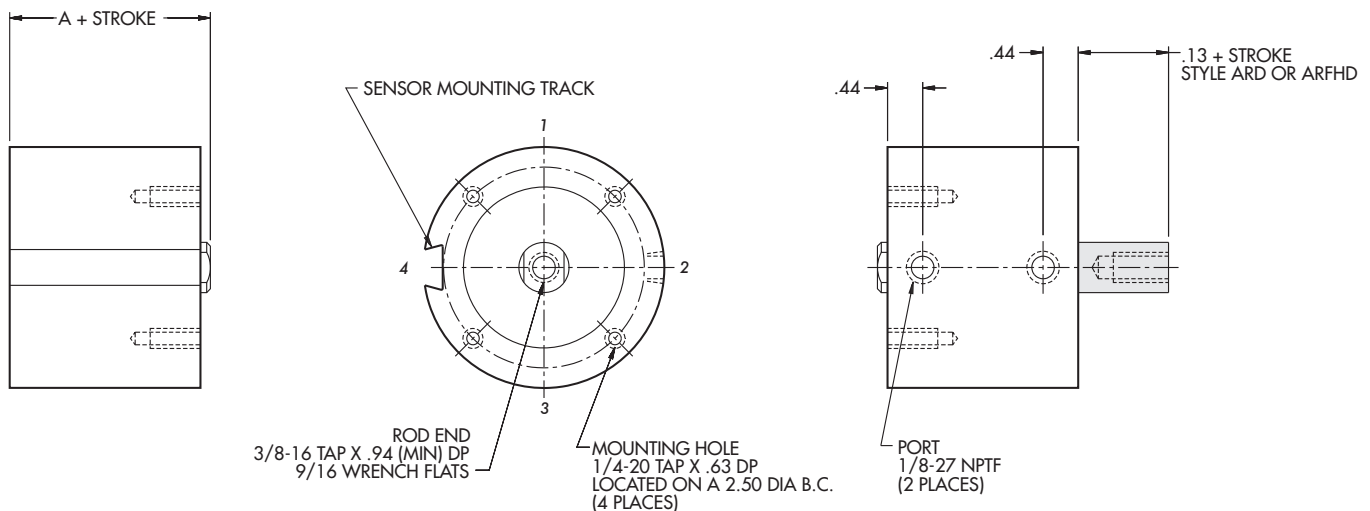


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR2x__	ARD2x__	5/8 to 6 in 1/8" increments	1.50
Intermediate	ARHH2x__		3/8 to 6 in 1/8" increments	1.75
Heavy	ARFH2x__	ARFHD2x__	1/8 to 6 in 1/8" increments	2.00

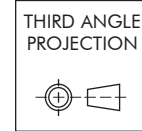
Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

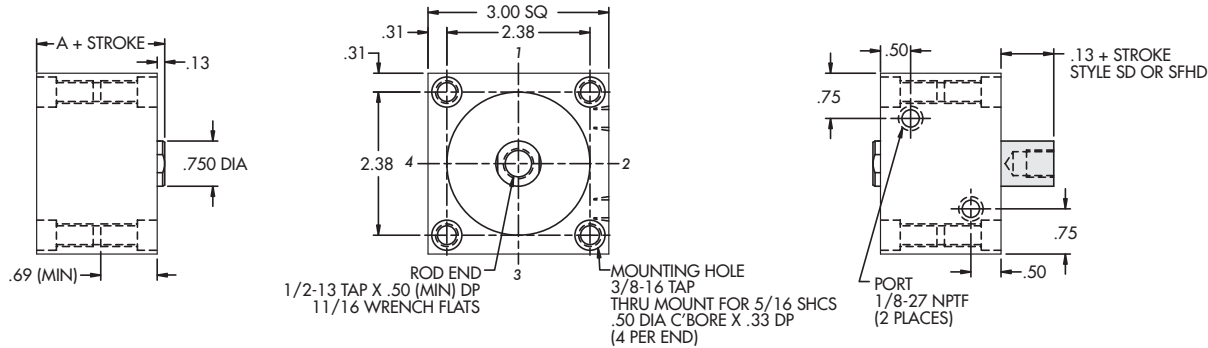
Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S212x __	SD212x __	1/8 to 3/4 in 1/8" increments	1.38
Intermediate	SHH212x __		1/8 to 1/2 in 1/8" increments	1.63
Heavy	SFH212x __	SFHD212x __	1/8, 1/4	1.88



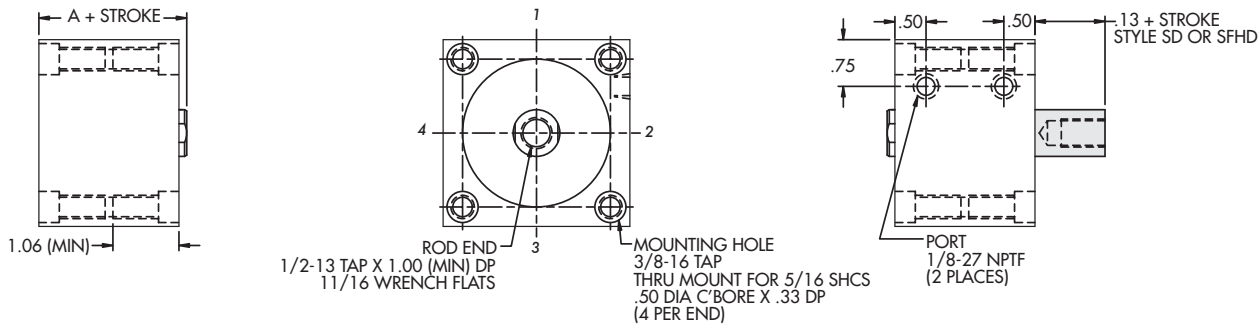
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S212x __	SD212x __	7/8 to 1-1/2 in 1/8" increments	1.38
Intermediate	SHH212x __		5/8 to 1-1/4 in 1/8" increments	1.63
Heavy	SFH212x __	SFHD212x __	3/8 to 1 in 1/8" increments	1.88

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

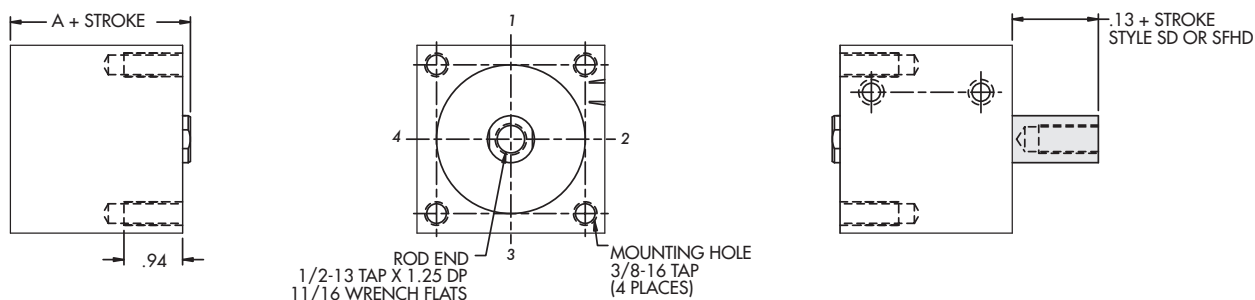


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S212x __	SD212x __	1-5/8 to 6 in 1/8" increments	1.38
Intermediate	SHH212x __		1-3/8 to 6 in 1/8" increments	1.63
Heavy	SFH212x __	SFHD212x __	1-1/8 to 6 in 1/8" increments	1.88

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Information same as above except where noted

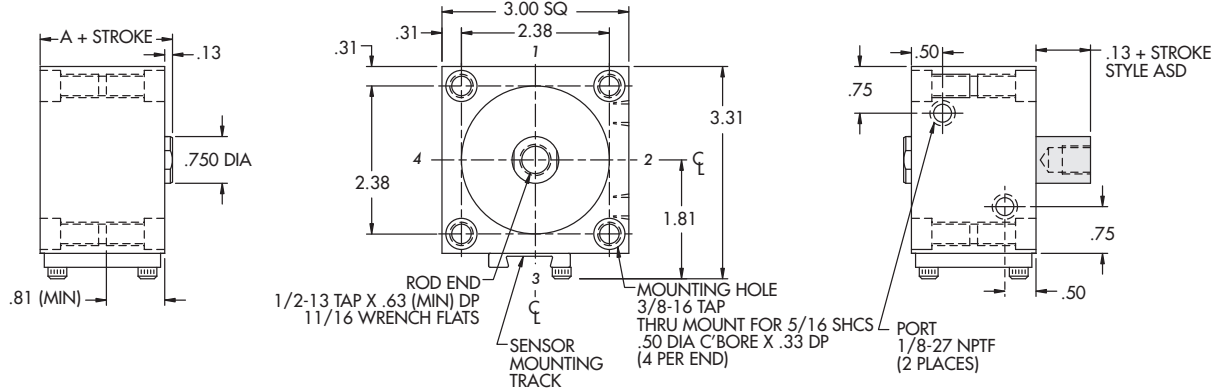
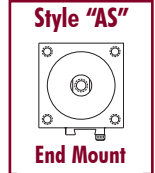
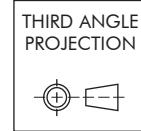


2-1/2" Bore | Magnetic Piston

LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS212x __	ASD212x __	1/8 to 1/2 in 1/8" increments	1.63
Intermediate	ASHH212x __		1/8, 1/4	1.88

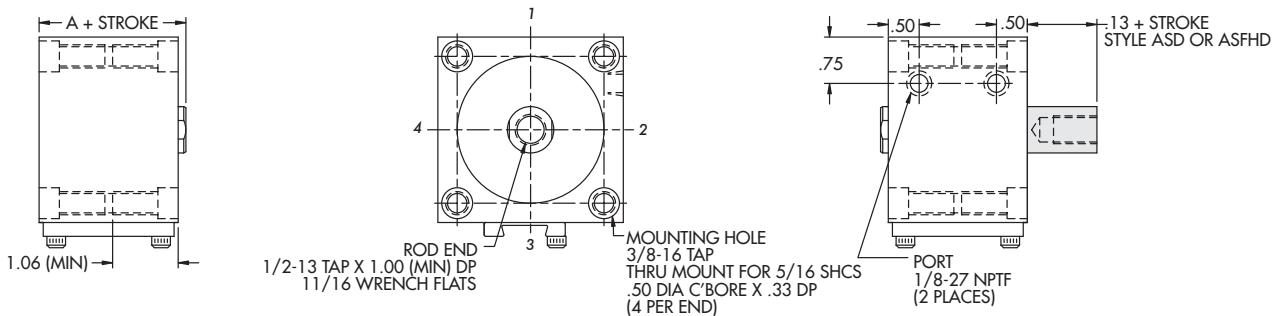
Standard Mounting: **TF, TR, TBE, TM**



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS212x __	ASD212x __	5/8 to 1-1/4 in 1/8" increments	1.63
Intermediate	ASHH212x __		3/8 to 1 in 1/8" increments	1.88
Heavy	ASFH212x __	ASFHD212x __	1/8 to 3/4 in 1/8" increments	2.13

Standard Mounting: **TF, TR, TBE, TM**

Information same as above except where noted

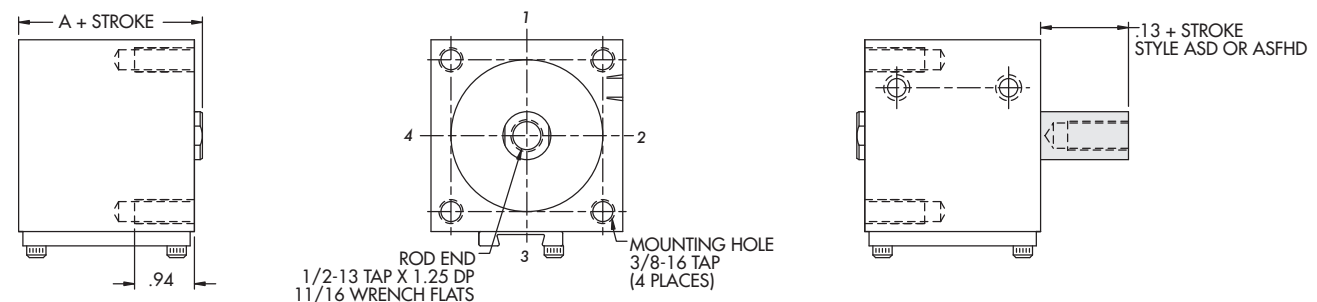


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS212x __	ASD212x __	1-3/8 to 6 in 1/8" increments	1.63
Intermediate	ASHH212x __		1-1/8 to 6 in 1/8" increments	1.88
Heavy	ASFH212x __	ASFHD212x __	7/8 to 6 in 1/8" increments	2.13

Standard Mounting: **TF**

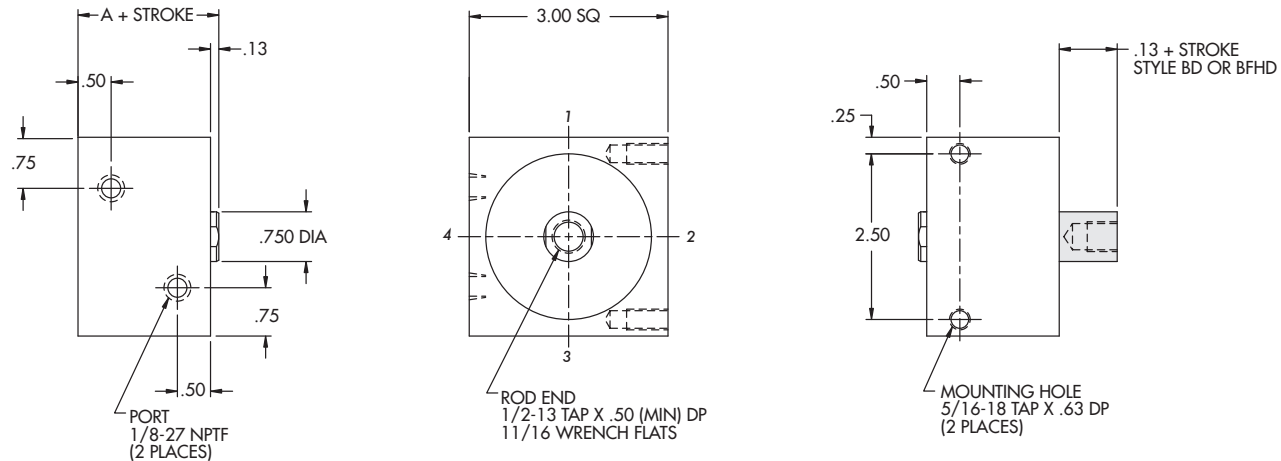
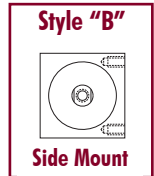
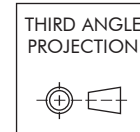
Optional Mounting: **TR, TBE, TM**

Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B212x __	BD212x __	1/8 to 3/4 in 1/8" increments	1.38
Intermediate	BHH212x __		1/8 to 1/2 in 1/8" increments	1.63
Heavy	BFH212x __	BFHD212x __	1/8, 1/4	1.88

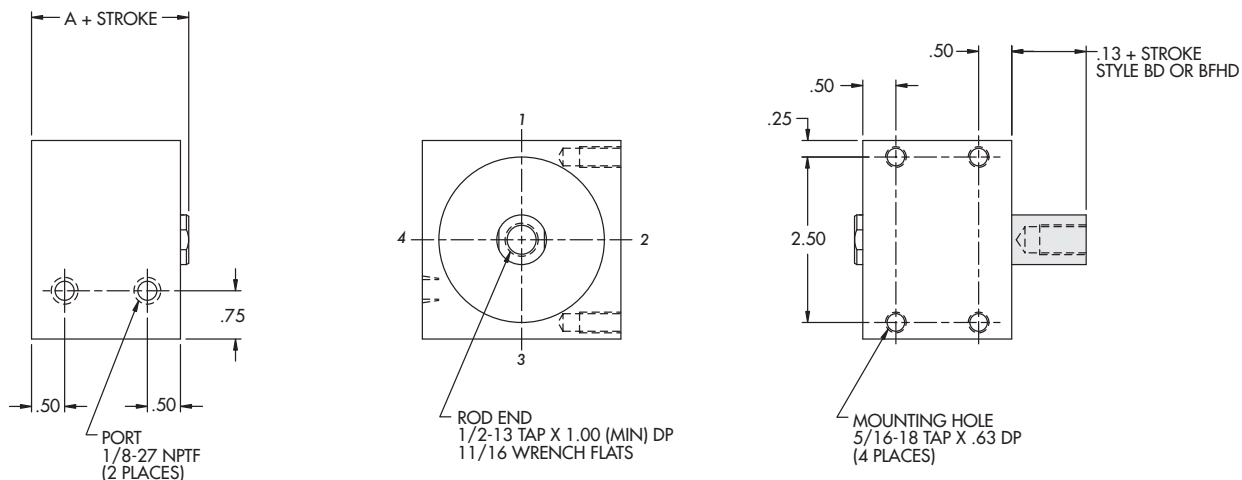
Optional Porting: 1/4-18 NPTF



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B212x __	BD212x __	7/8 to 6 in 1/8" increments	1.38
Intermediate	BHH212x __		5/8 to 6 in 1/8" increments	1.63
Heavy	BFH212x __	BFHD212x __	3/8 to 6 in 1/8" increments	1.88

Optional Porting: 1/4-18 NPTF

Information same as above except where noted

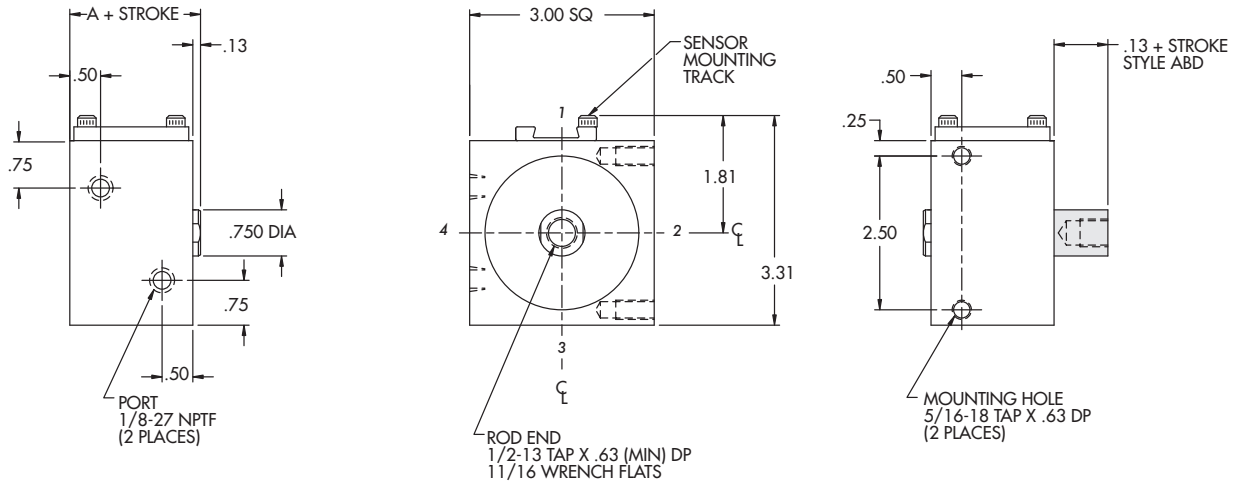
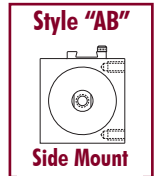
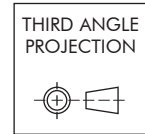


2-1/2" Bore | Magnetic Piston

LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB212x__	ABD212x__	1/8 to 1/2 in 1/8" increments	1.63
Intermediate	ABHH212x__		1/8, 1/4	1.88

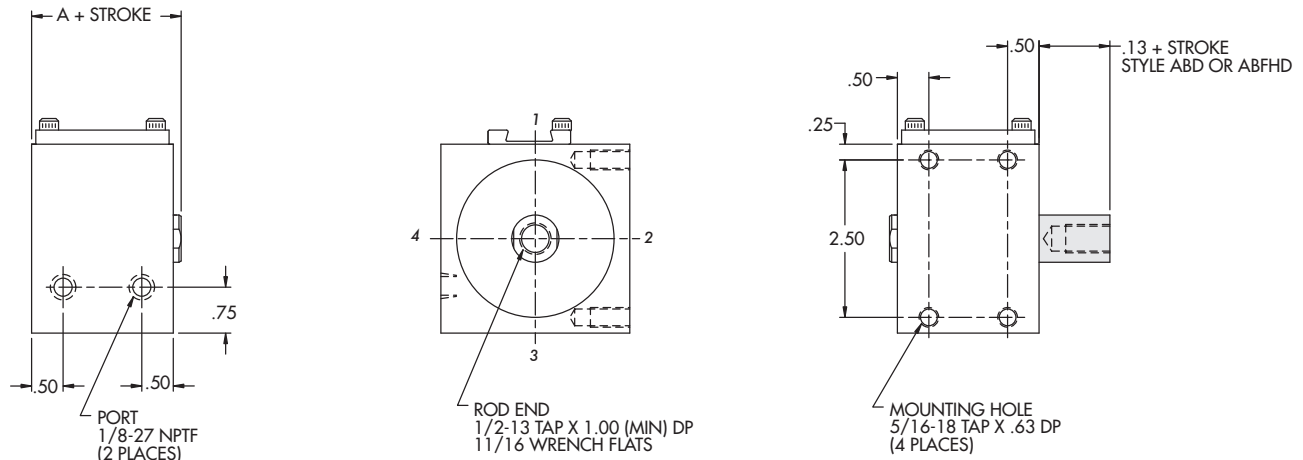
Optional Porting: 1/4-18 NPTF



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB212x__	ABD212x__	5/8 to 6 in 1/8" increments	1.63
Intermediate	ABHH212x__		3/8 to 6 in 1/8" increments	1.88
Heavy	ABFH212x__	ABFHD212x__	1/8 to 6 in 1/8" increments	2.13

Optional Porting: 1/4-18 NPTF

Information same as above except where noted

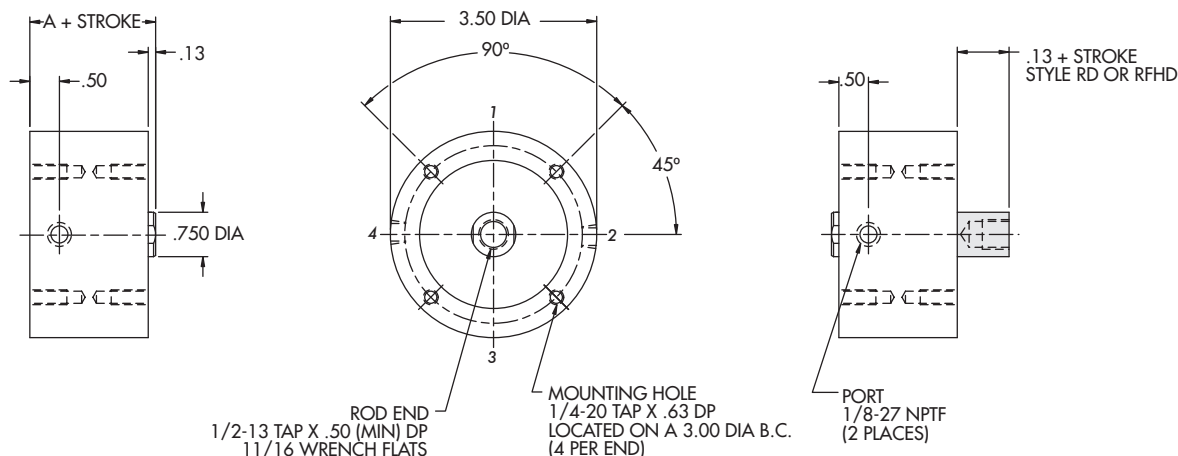
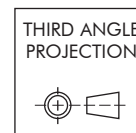


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R212x ___	RD212x ___	1/8 to 3/4 in 1/8" increments	1.38
Intermediate	RHH212x ___		1/8 to 1/2 in 1/8" increments	1.63
Heavy	RFH212x ___	RFHD212x ___	1/8, 1/4	1.88

Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



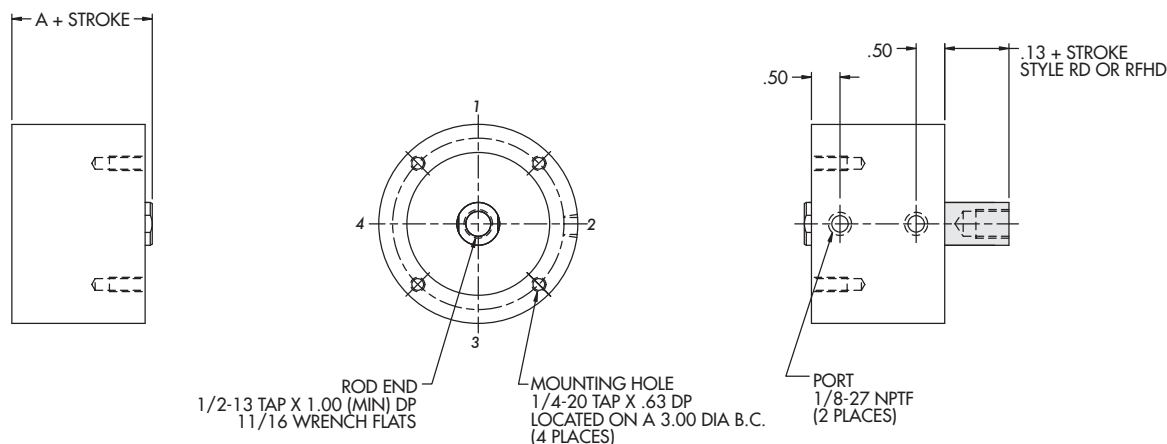
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R212x ___	RD212x ___	7/8 to 6 in 1/8" increments	1.38
Intermediate	RHH212x ___		5/8 to 6 in 1/8" increments	1.63
Heavy	RFH212x ___	RFHD212x ___	3/8 to 6 in 1/8" increments	1.88

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

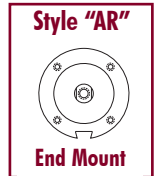
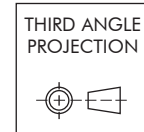
Information same as above except where noted



2-1/2" Bore | Magnetic Piston

LDA belgium

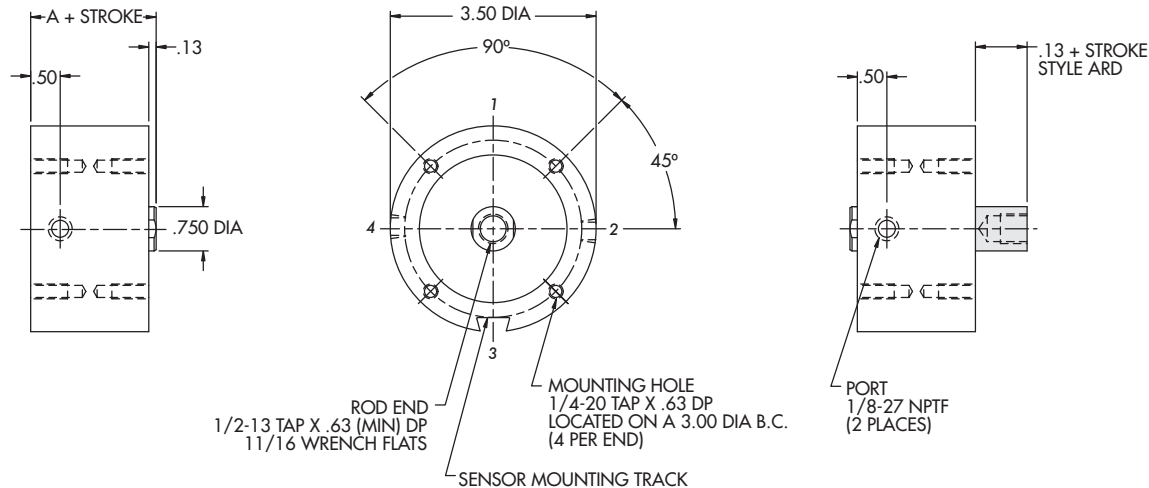
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR212x __	ARD212x __	1/8 to 1/2 in 1/8" increments	1.63
Intermediate	ARHH212x __		1/8, 1/4	1.88



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



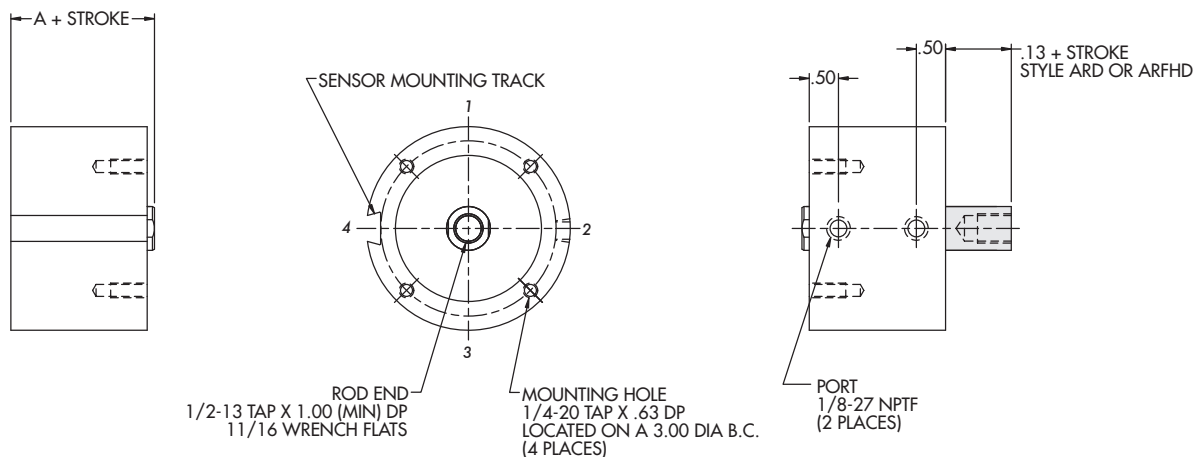
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR212x __	ARD212x __	5/8 to 6 in 1/8" increments	1.63
Intermediate	ARHH212x __		3/8 to 6 in 1/8" increments	1.88
Heavy	ARFH212x __	ARFHD212x __	1/8 to 6 in 1/8" increments	2.13

Standard Mounting: **TF**

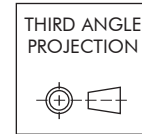
Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted

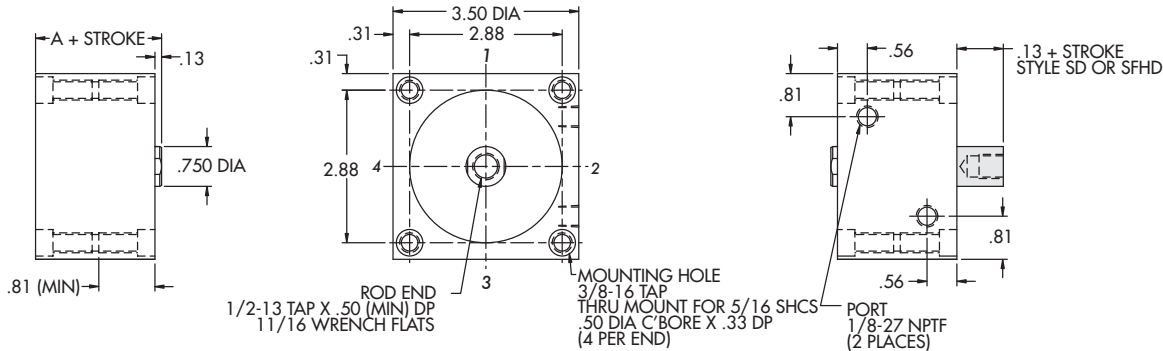


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S3x __	SD3x __	1/8 to 3/4 in 1/8" increments	1.63
Intermediate	SHH3x __		1/8 to 1/2 in 1/8" increments	1.88
Heavy	SFH3x __	SFHD3x __	1/8, 1/4	2.13



Standard Mounting: **TF, TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

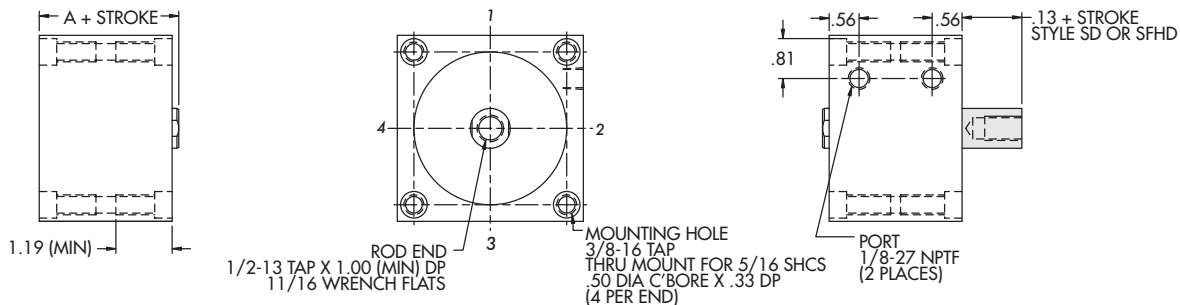


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S3x __	SD3x __	7/8 to 1-1/2 in 1/8" increments	1.63
Intermediate	SHH3x __		5/8 to 1-1/4 in 1/8" increments	1.88
Heavy	SFH3x __	SFHD3x __	3/8 to 1 in 1/8" increments	2.13

Standard Mounting: **TF, TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



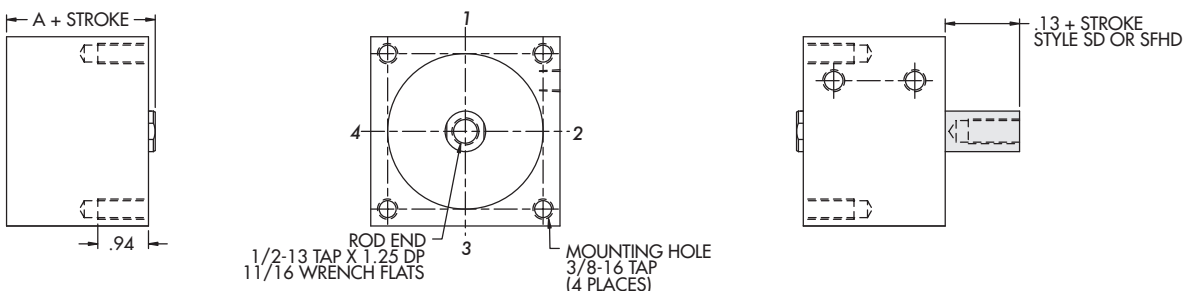
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	S3x __	SD3x __	1-5/8 to 6 in 1/8" increments	1.63
Intermediate	SHH3x __		1-3/8 to 6 in 1/8" increments	1.88
Heavy	SFH3x __	SFHD3x __	1-1/8 to 6 in 1/8" increments	2.13

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



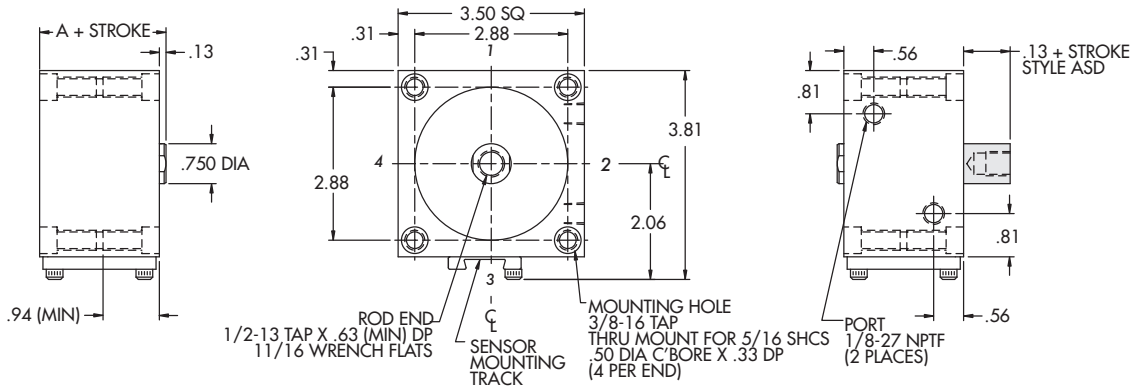
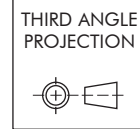
3" Bore | Magnetic Piston

LDA belgium

Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS3x__	ASD3x__	1/8 to 1/2 in 1/8" increments	1.88
Intermediate	ASHH3x__		1/8, 1/4	2.13

Standard Mounting: **TF, TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

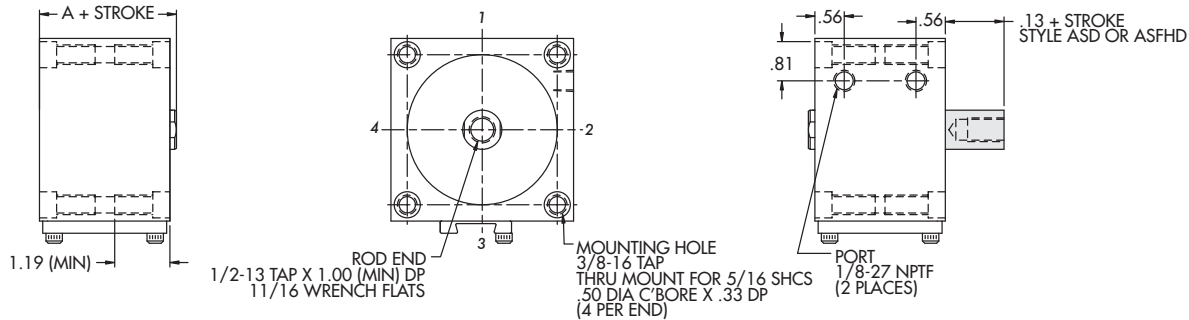


Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS3x__	ASD3x__	5/8 to 1-1/4 in 1/8" increments	1.88
Intermediate	ASHH3x__		3/8 to 1 in 1/8" increments	2.13
Heavy	ASFH3x__	ASFHD3x__	1/8 to 3/4 in 1/8" increments	2.38

Standard Mounting: **TF, TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



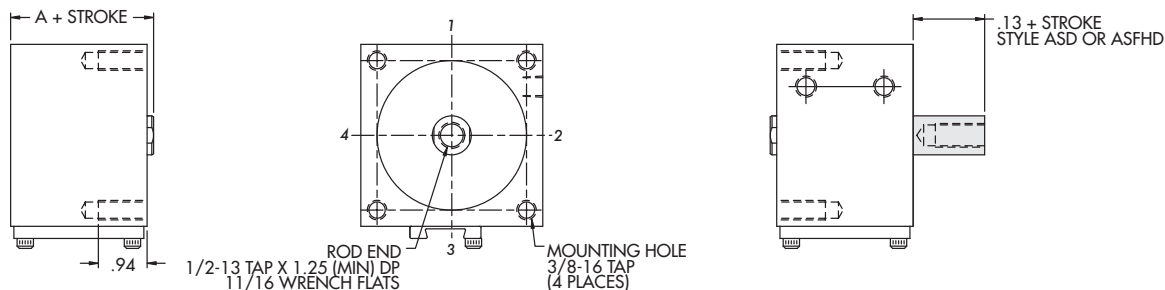
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AS3x__	ASD3x__	1-3/8 to 6 in 1/8" increments	1.88
Intermediate	ASHH3x__		1-1/8 to 6 in 1/8" increments	2.13
Heavy	ASFH3x__	ASFHD3x__	7/8 to 6 in 1/8" increments	2.38

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

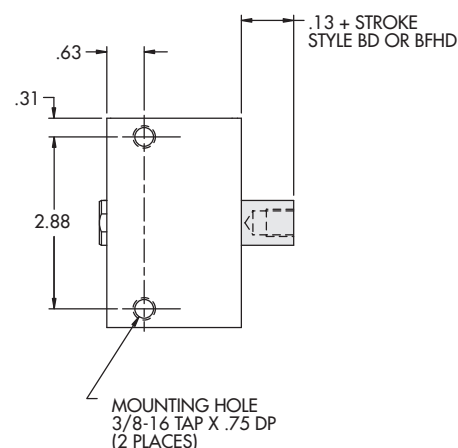
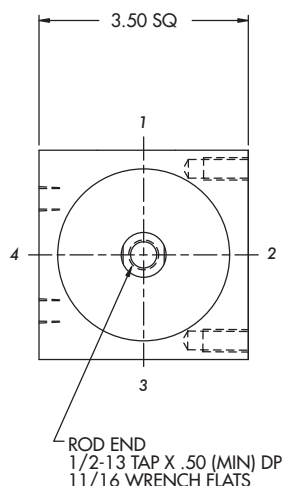
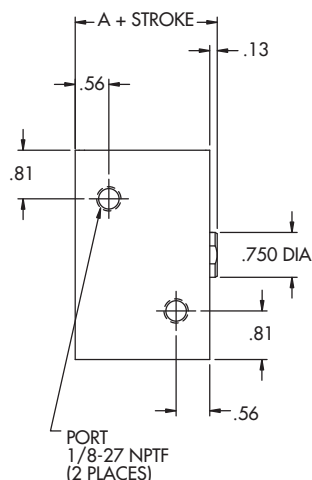
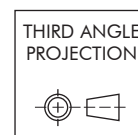
Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B3x __	BD3x __	1/8 to 3/4 in 1/8" increments	1.63
Intermediate	BHH3x __		1/8 to 1/2 in 1/8" increments	1.88
Heavy	BFH3x __	BFHD3x __	1/8, 1/4	2.13

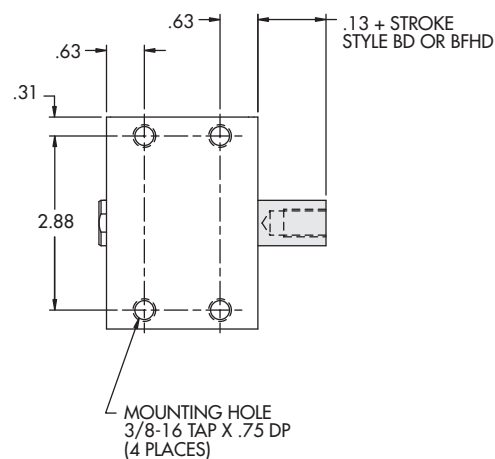
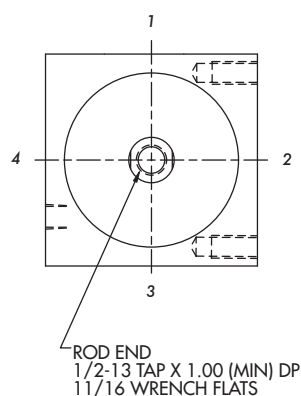
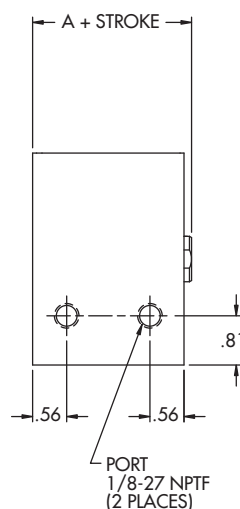
Optional Porting: 1/4-18 NPTF



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	B3x __	BD3x __	7/8 to 6 in 1/8" increments	1.63
Intermediate	BHH3x __		5/8 to 6 in 1/8" increments	1.88
Heavy	BFH3x __	BFHD3x __	3/8 to 6 in 1/8" increments	2.13

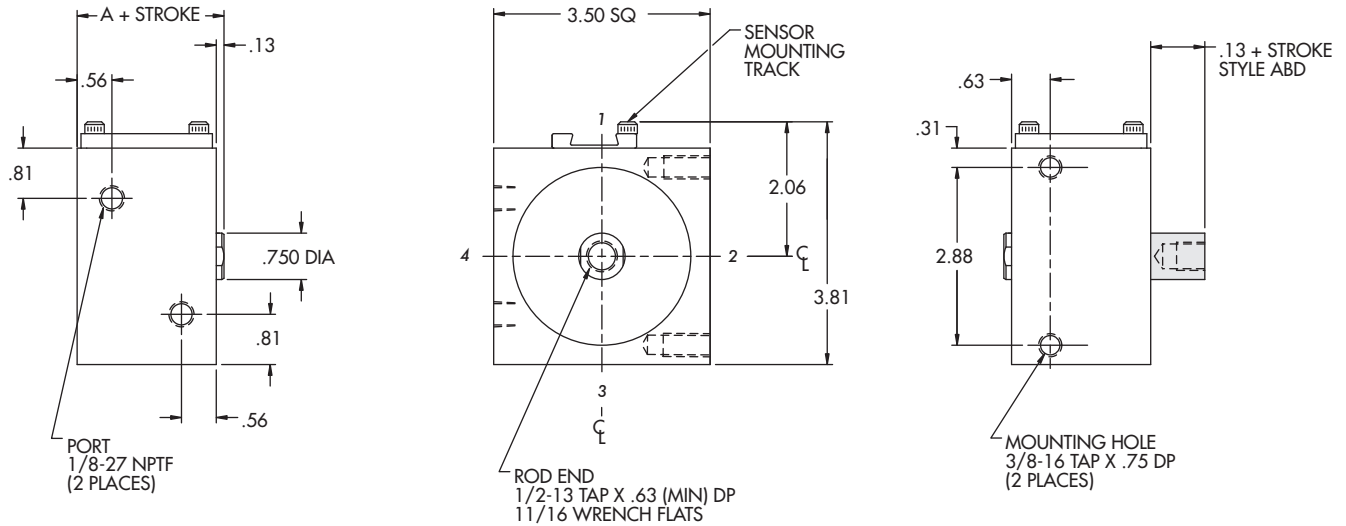
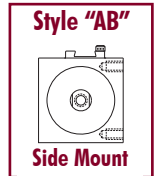
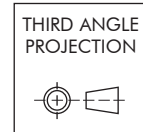
Optional Porting: 1/4-18 NPTF

Information same as above except where noted



Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB3x__	ABD3x__	1/8 to 1/2 in 1/8" increments	1.88
Intermediate	ABHH3x__		1/8, 1/4	2.13

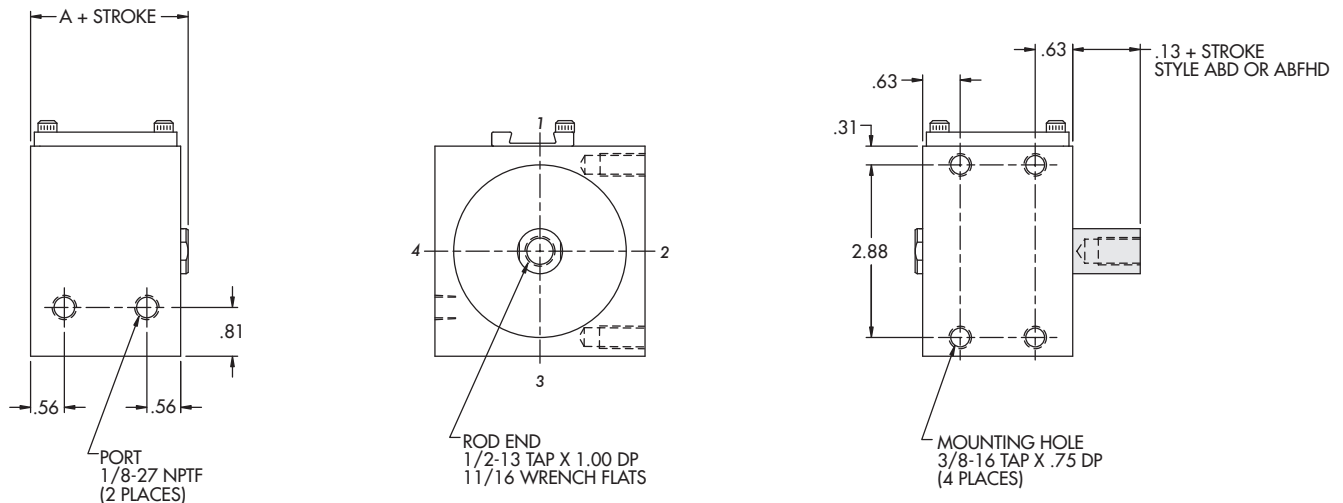
Optional Porting: 1/4-18 NPTF



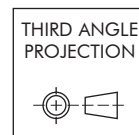
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AB3x__	ABD3x__	5/8 to 6 in 1/8" increments	1.88
Intermediate	ABHH3x__		3/8 to 6 in 1/8" increments	2.13
Heavy	ABFH3x__	ABFHD3x__	1/8 to 6 in 1/8" increments	2.38

Optional Porting: 1/4-18 NPTF

Information same as above except where noted



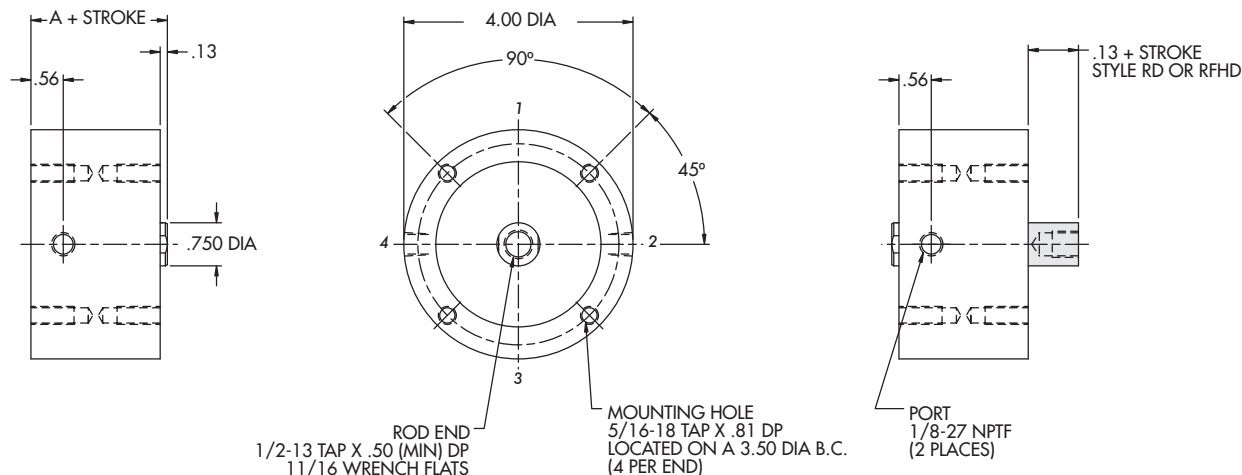
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R3x __	RD3x __	1/8 to 3/4 in 1/8" increments	1.63
Intermediate	RHH3x __		1/8 to 1/2 in 1/8" increments	1.88
Heavy	RFH3x __	RFHD3x __	1/8, 1/4	2.13



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



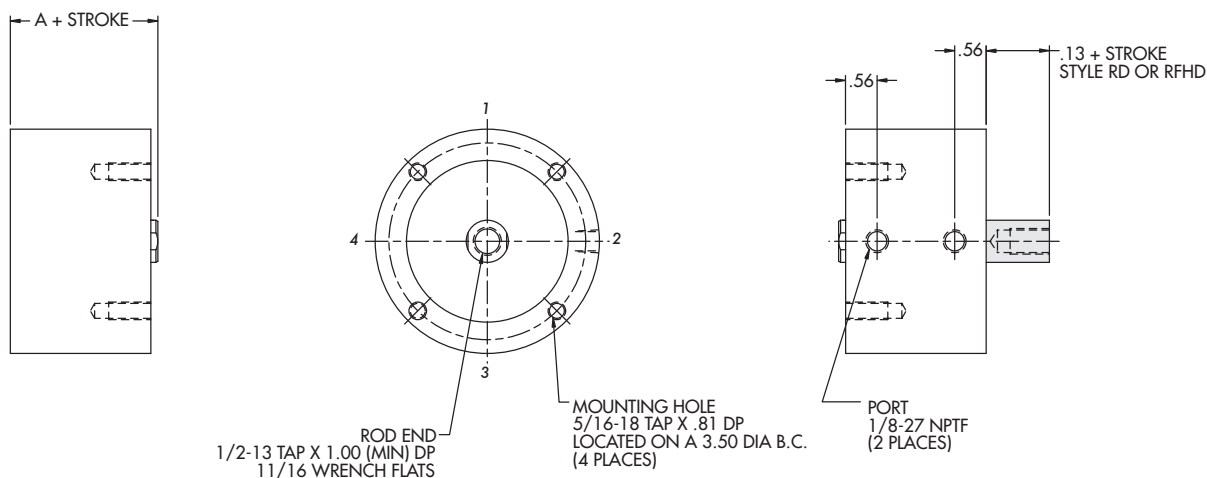
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R3x __	RD3x __	7/8 to 6 in 1/8" increments	1.63
Intermediate	RHH3x __		5/8 to 6 in 1/8" increments	1.88
Heavy	RFH3x __	RFHD3x __	3/8 to 6 in 1/8" increments	2.13

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

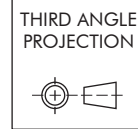
Information same as above except where noted



3" Bore | Magnetic Piston

LDA belgium

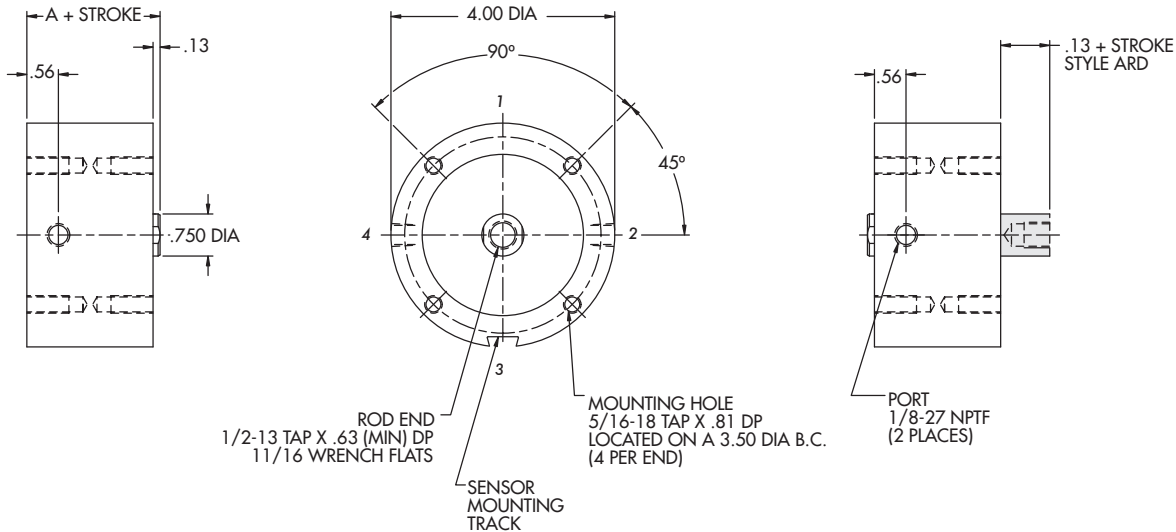
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR3x__	ARD3x__	1/8 to 1/2 in 1/8" increments	1.88
Intermediate	ARHH3x__		1/8, 1/4	2.13



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



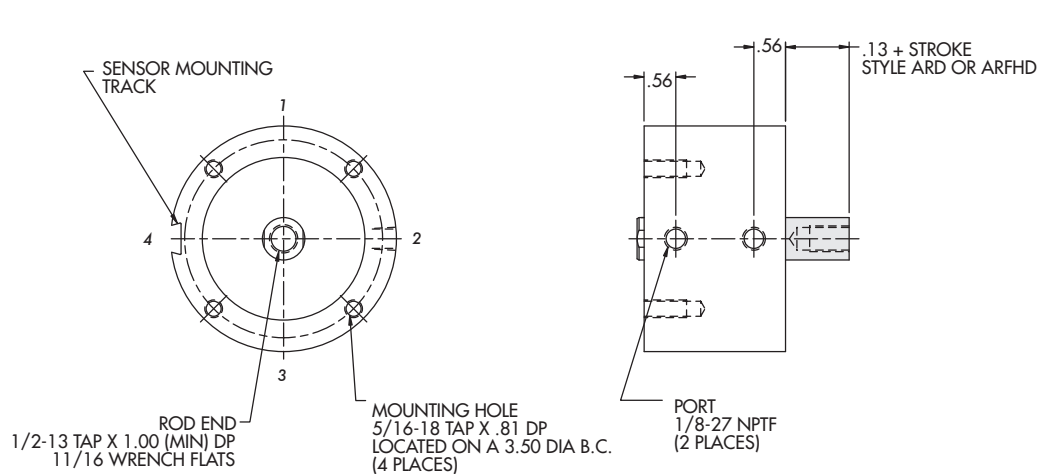
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR3x__	ARD3x__	5/8 to 6 in 1/8" increments	1.88
Intermediate	ARHH3x__		3/8 to 6 in 1/8" increments	2.13
Heavy	ARFH3x__	ARFHD3x__	1/8 to 6 in 1/8" increments	2.38

Standard Mounting: **TF**

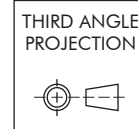
Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



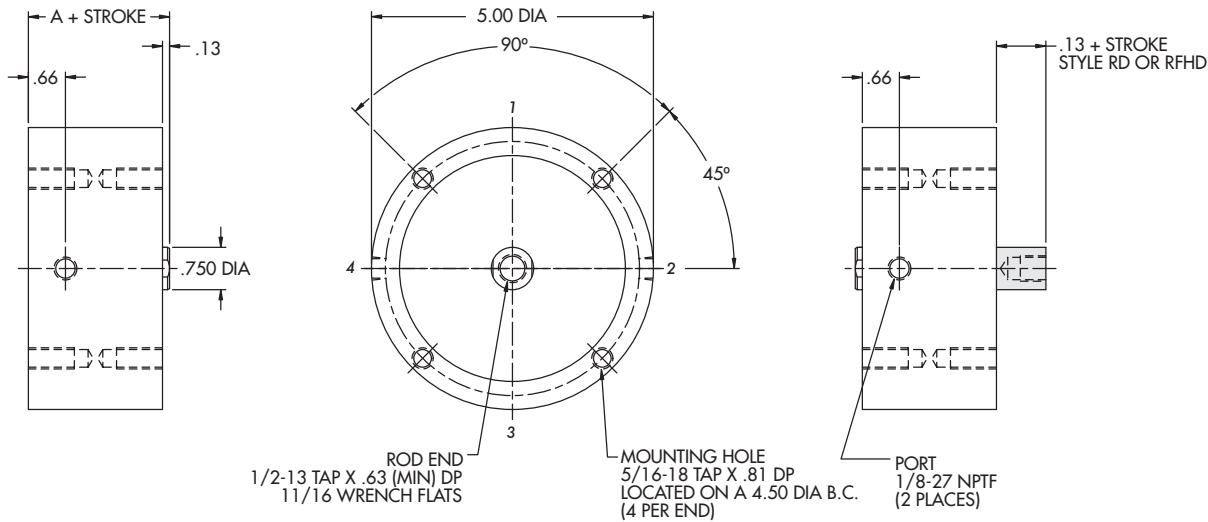
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R4x __	RD4x __	1/8 to 3/4 in 1/8" increments	1.75
Intermediate	RHH4x __		1/8 to 1/2 in 1/8" increments	2.00
Heavy	RFH4x __	RFHD4x __	1/8, 1/4	2.25



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



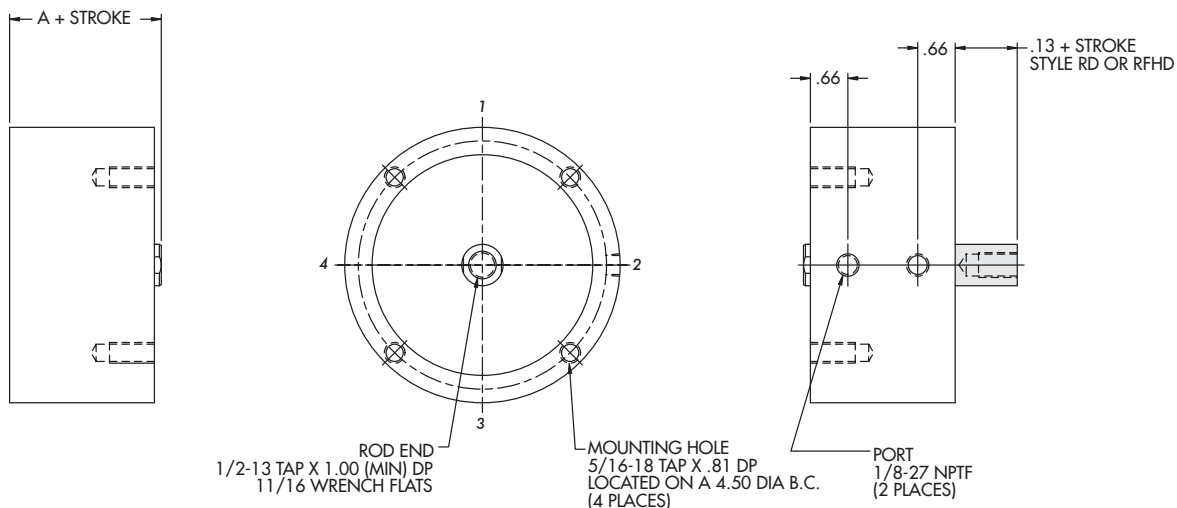
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R4x __	RD4x __	7/8 to 6 in 1/8" increments	1.75
Intermediate	RHH4x __		5/8 to 6 in 1/8" increments	2.00
Heavy	RFH4x __	RFHD4x __	3/8 to 6 in 1/8" increments	2.25

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

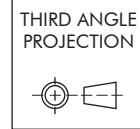
Information same as above except where noted



4" Bore | Magnetic Piston

LDA belgium

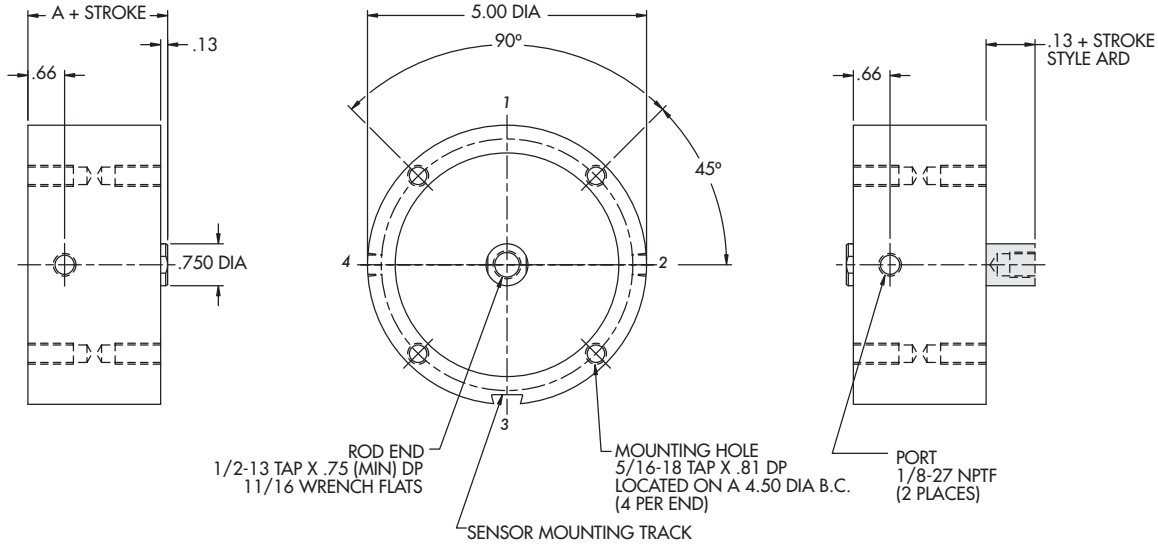
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR4x__	ARD4x__	1/8 to 1/2 in 1/8" increments	2.00
Intermediate	ARHH4x__		1/8, 1/4	2.25



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



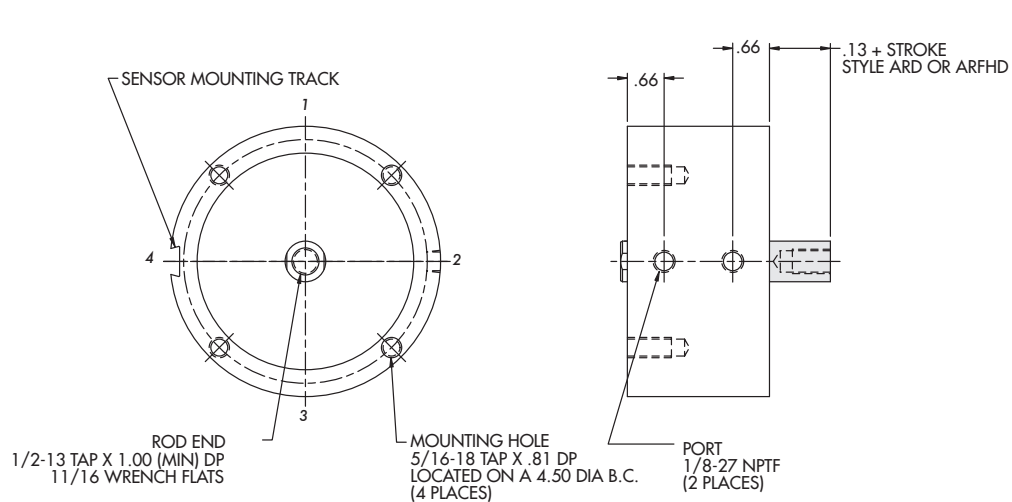
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR4x__	ARD4x__	5/8 to 6 in 1/8" increments	2.00
Intermediate	ARHH4x__		3/8 to 6 in 1/8" increments	2.25
Heavy	ARFH4x__	ARFHD4x__	1/8 to 6 in 1/8" increments	2.50

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



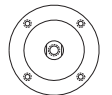
Duty	Part Number		Standard Stroke Length	A	B	C
	Single Rod	Double Rod				
Standard	R5x __	RD5x __	1/8 to 3/4 in 1/8" increments	1.88	.750	1/2-13 x .63 (Min.) Dp 11/16 Wrench Flats
Intermediate	RHH5x __		1/8 to 1/2 in 1/8" increments	2.13	.750	1/2-13 x .75 (Min.) Dp 11/16 Wrench Flats
Heavy	RFH5x __	RFHD5x __	1/8, 1/4	2.38	1.000	5/8-18 x .88 (Min.) Dp 15/16 Wrench Flats

Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

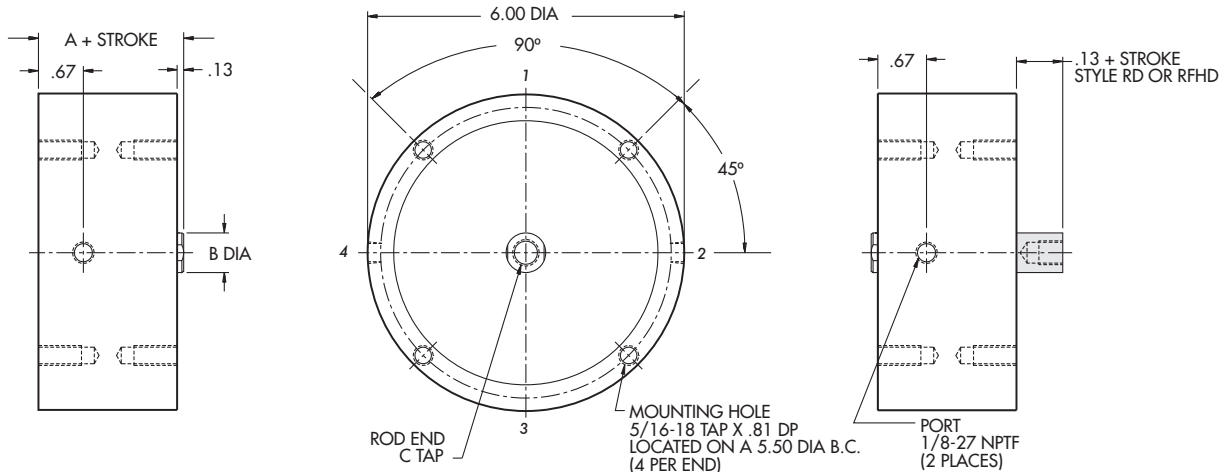
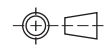
Optional Porting: **1/4-18 NPTF**

Style "R"



End Mount

THIRD ANGLE
PROJECTION



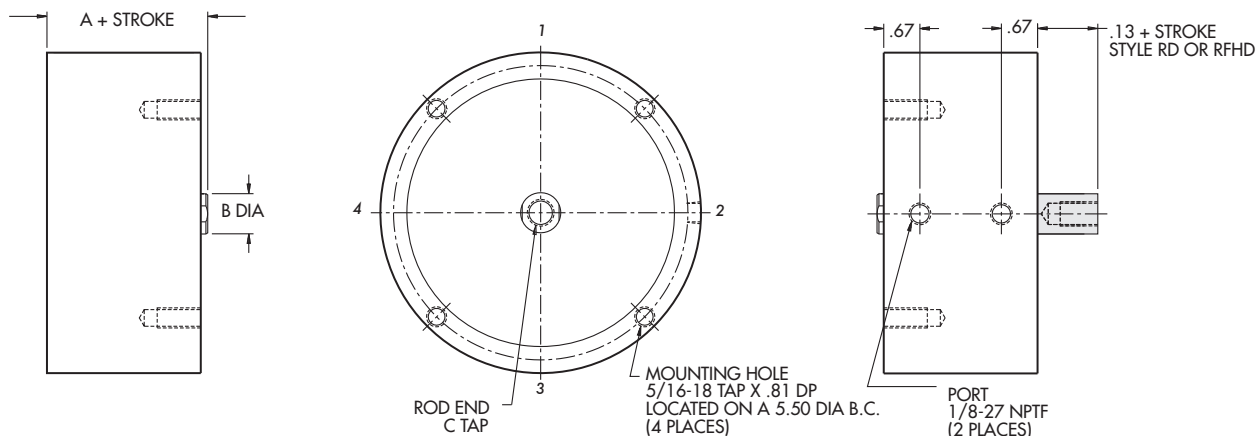
Duty	Part Number		Standard Stroke Length	A	B	C
	Single Rod	Double Rod				
Standard	R5x __	RD5x __	7/8 to 6 in 1/8" increments	1.88	.750	1/2-13 x .1.00 (Min.) Dp 11/16 Wrench Flats
Intermediate	RHH5x __		5/8 to 6 in 1/8" increments	2.13	.750	1/2-13 x 1.00 (Min.) Dp 11/16 Wrench Flats
Heavy	RFH5x __	RFHD5x __	3/8 to 6 in 1/8" increments	2.38	1.000	5/8-18 x 1.00 (Min.) Dp 15/16 Wrench Flats

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



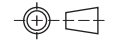
5" Bore | Magnetic Piston

LDA belgium

Duty	Part Number		Standard Stroke Length	A	B	C
	Single Rod	Double Rod				
Standard	AR5x__	ARD5x__	1/8 to 1/2 in 1/8" increments	2.13	.750	1/2-13 x .75 (Min.) Dp 11/16 Wrench Flats
Intermediate	ARHH5x__		1/8, 1/4	2.38	.750	1/2-13 x .88 (Min.) Dp 11/16 Wrench Flats



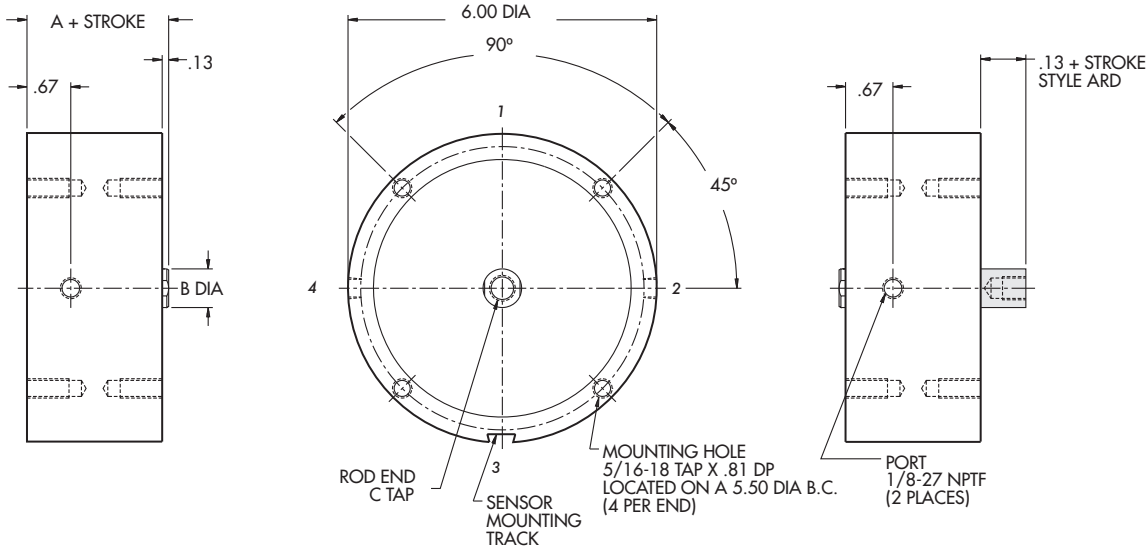
THIRD ANGLE
PROJECTION



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



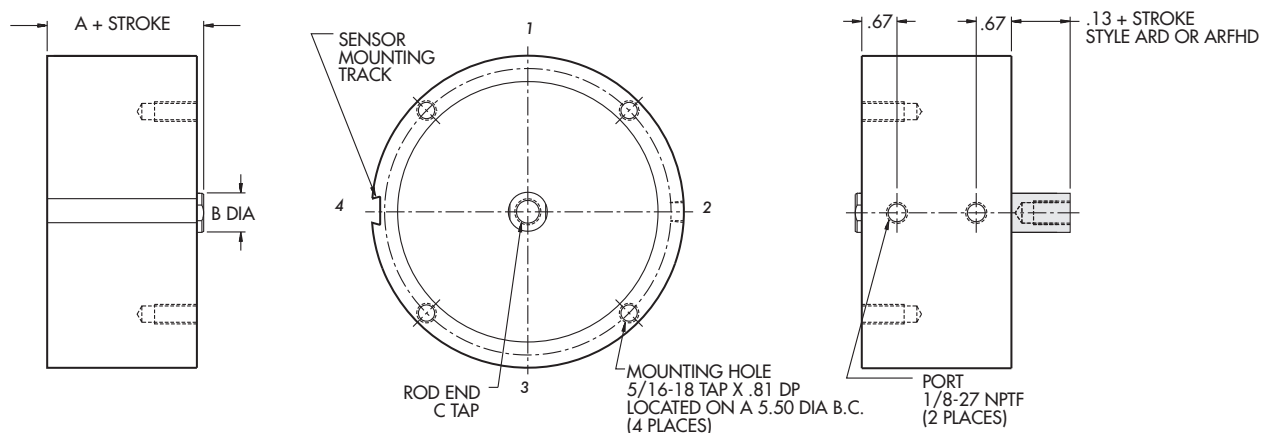
Duty	Part Number		Standard Stroke Length	A	B	C
	Single Rod	Double Rod				
Standard	AR5x__	ARD5x__	5/8 to 6 in 1/8" increments	2.13	.750	1/2-13 x .1.00 (Min.) Dp 11/16 Wrench Flats
Intermediate	ARHH5x__		3/8 to 6 in 1/8" increments	2.38	.750	1/2-13 x 1.00 (Min.) Dp 11/16 Wrench Flats
Heavy	ARFH5x__	ARFHD5x__	1/8 to 6 in 1/8" increments	2.63	1.000	5/8-18 x 88 (Min.) Dp 15/16 Wrench Flats

Standard Mounting: **TF**

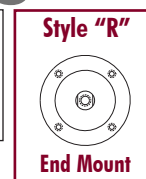
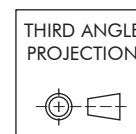
Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



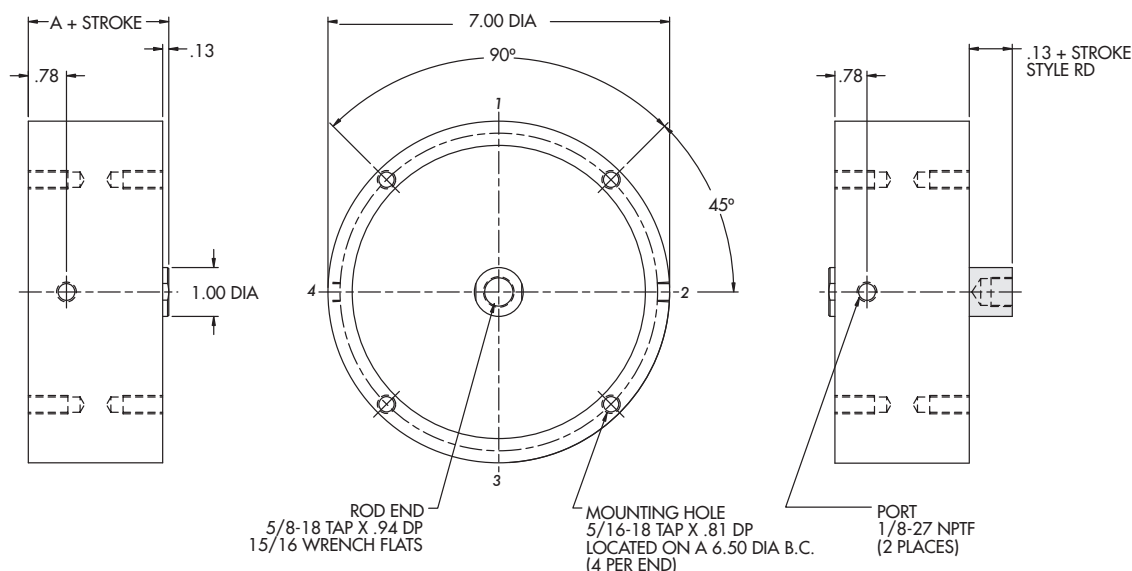
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R6x __	RD6x __	1/8 to 3/4 in 1/8" increments	2.13



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



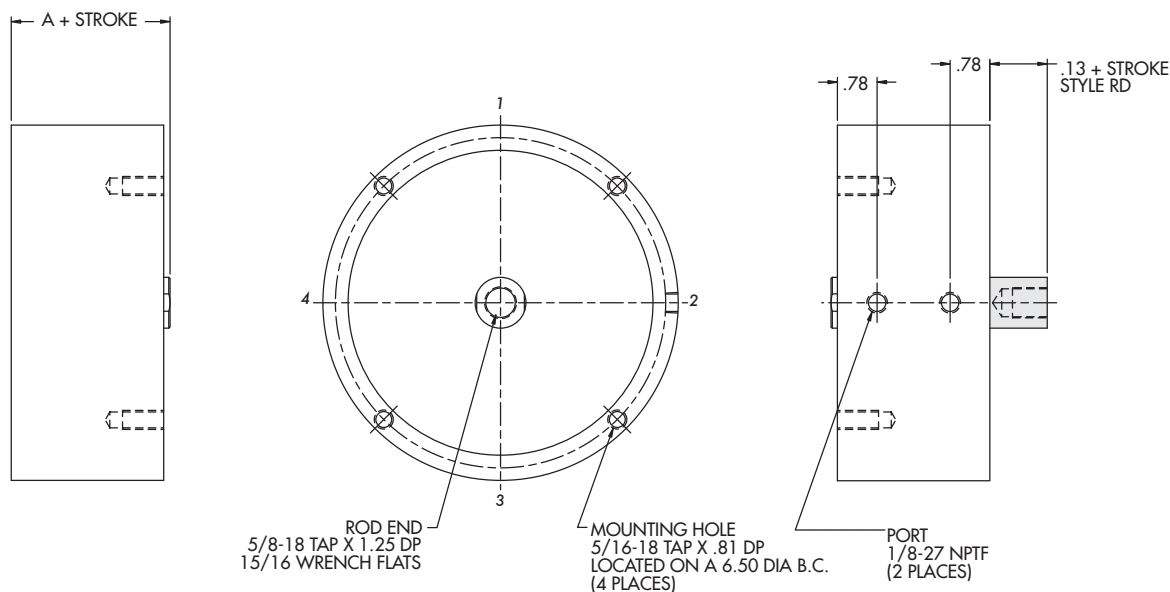
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R6x __	RD6x __	7/8 to 6 in 1/8" increments	2.13

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

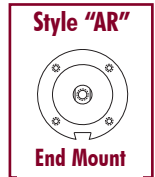
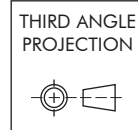
Information same as above except where noted



6" Bore | Magnetic Piston

LDA belgium

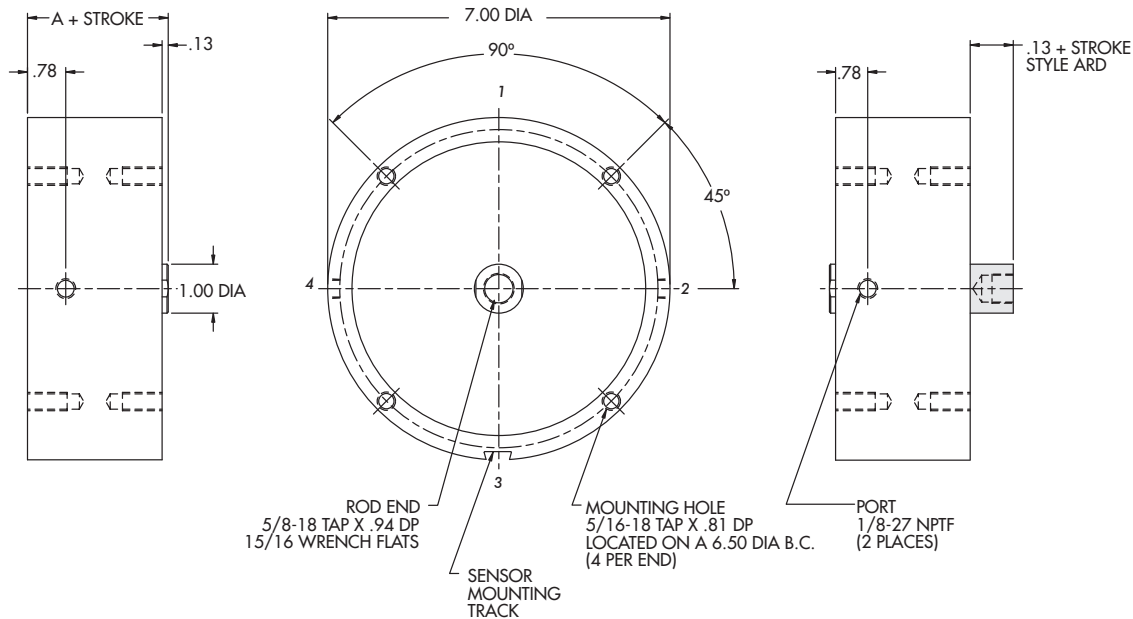
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR6x__	ARD6x__	1/8 to 1/2 in 1/8" increments	2.38



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



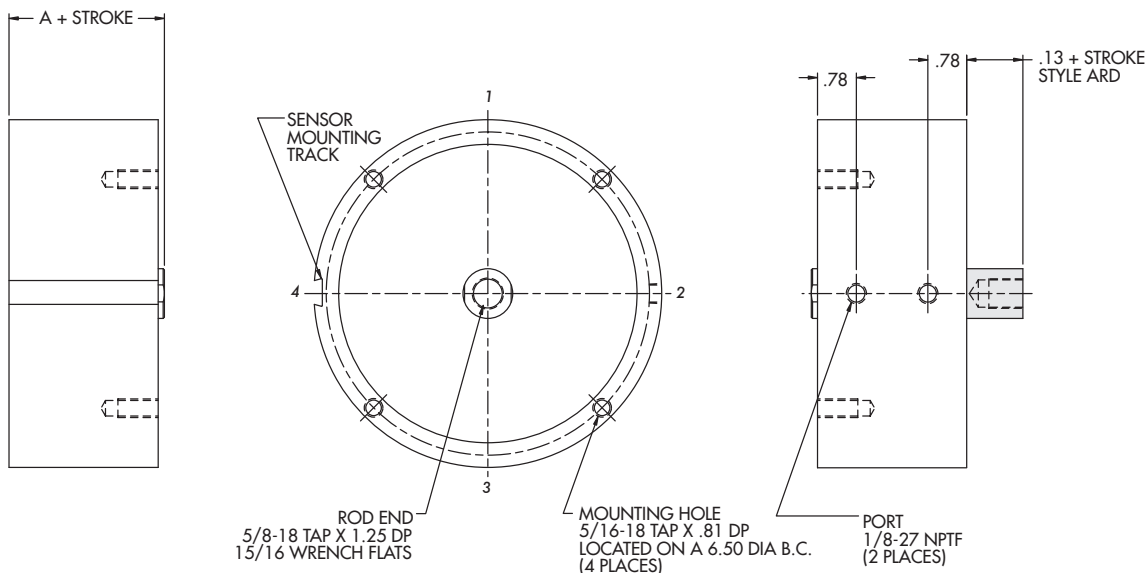
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR6x__	ARD6x__	5/8 to 6 in 1/8" increments	2.38

Standard Mounting: **TF**

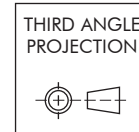
Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



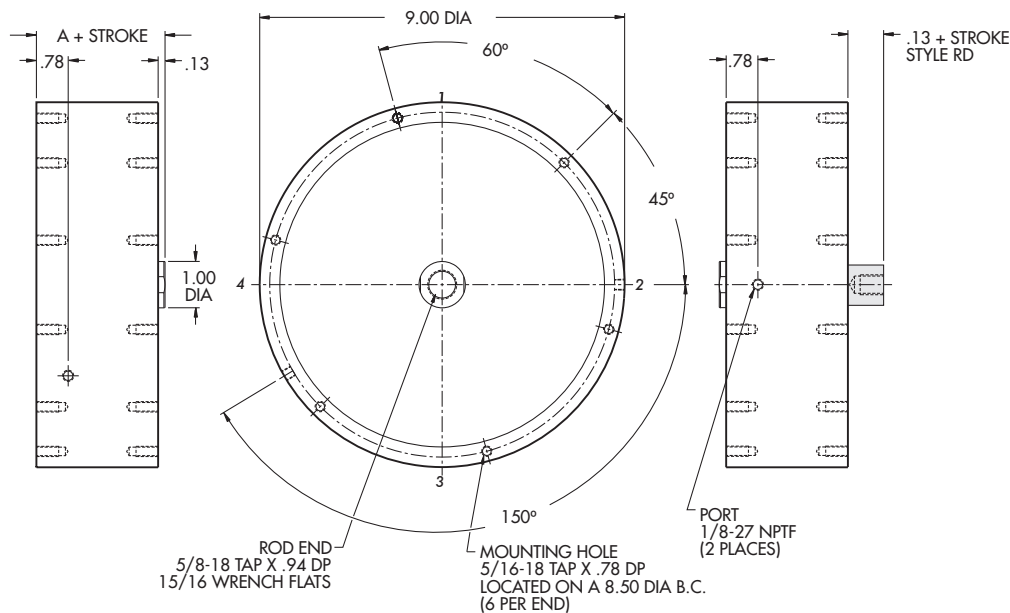
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R8x__	RD8x__	1/8 to 3/4 in 1/8" increments	2.38



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



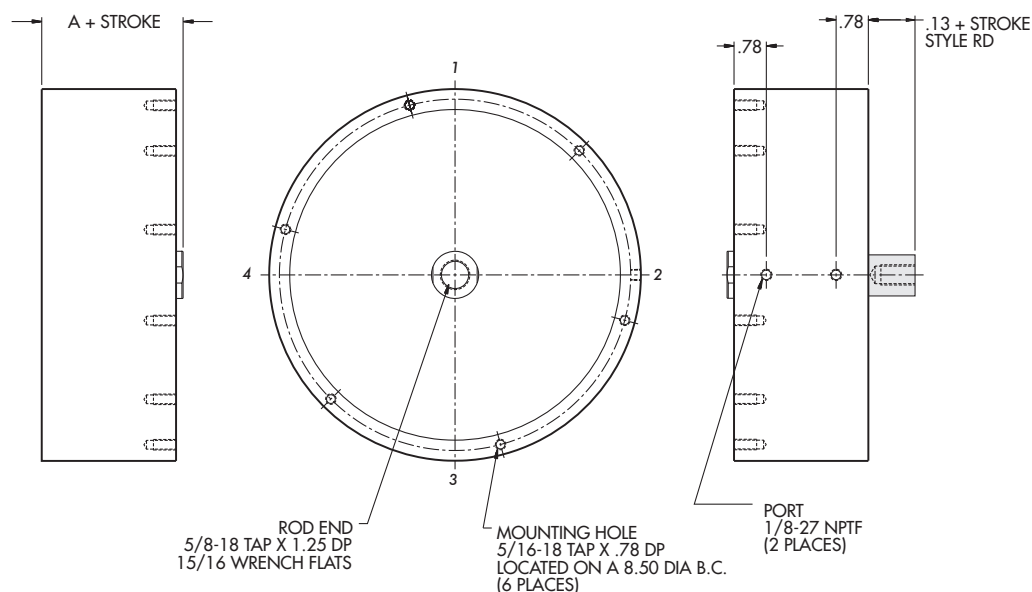
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	R8x__	RD8x__	7/8 to 6 in 1/8" increments	2.38

Standard Mounting: **TF**

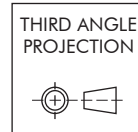
Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



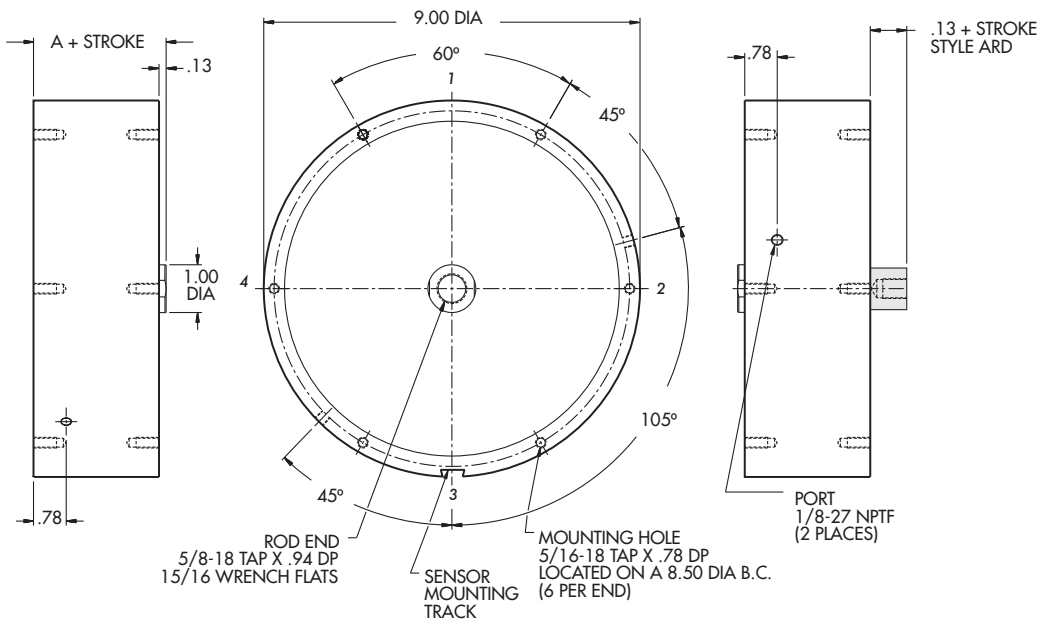
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR8x__	ARD8x__	1/8 to 1/2 in 1/8" increments	2.63



Standard Mounting: **TF, TR, TBE**

Optional Mounting: **TM**

Optional Porting: **1/4-18 NPTF**



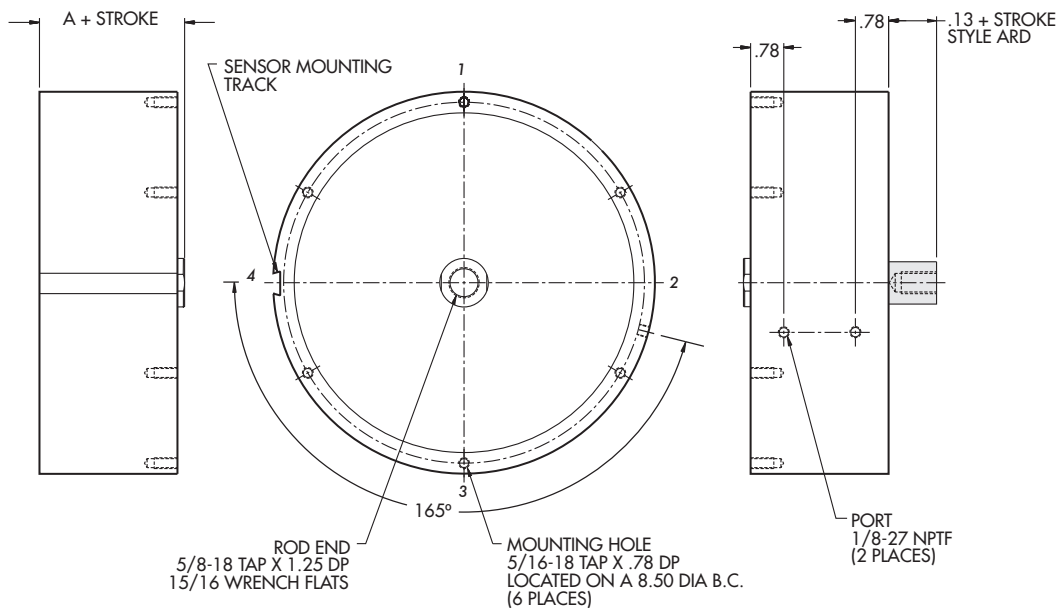
Duty	Part Number		Standard Stroke Length	A
	Single Rod	Double Rod		
Standard	AR8x__	ARD8x__	5/8 to 6 in 1/8" increments	2.63

Standard Mounting: **TF**

Optional Mounting: **TR, TBE, TM**

Optional Porting: **1/4-18 NPTF**

Information same as above except where noted



Conversion Formula: $C^{\circ} = (F^{\circ} - 32^{\circ}) \times 5/9$

Type	Ordering Suffix	Rating	Description
Pneumatic Seals			
Nitrile	—	0° to 200°F -18° to 93°C	Most commonly used elastomer O-ring due to its excellent resistance to petroleum products, wear, tear and friction. Works with lubricated or non-lubricated air in the noted temperature range. Recommended for general purpose sealing with petroleum oils and fluids, water and silicone greases and oils.
Fluorocarbon	HTV	0° to 400°F -18° to 204°C	Used mainly for elevated temperatures, harsh environments where some coolants, solvents, cleaning agents or other chemicals will contact the seal gland. Lower compression set is characteristic. For your specific requirements, consult factory.
PTFE*	CRT	250° to 400°F 121° to 204°C	Specified for extreme temperatures and harsh atmosphere where rubber seals are not suitable. Best compression set is at high temperature. PTFE seals are not guaranteed to be leak free and higher breakaway is typical. Overall strength does not compare favorably to rubber in abrasion resistance.
Hydraulic Seals			
Nitrile*	HYD	0° to 250°F -18° to 121°C	Seal material is Nitrile and Urethane. Moderate resistance to abrasion, high pressure and shock. Low temperature decreases flexibility. Recommended for hydraulic fluids, dilute acids, and water.
Fluorocarbon* & Nitrile*	VHYD	0° to 400°F -18° to 204°C	Seal material is fluorocarbon and PTFE. This option is designed to operate over an extremely wide elevated temperature range, harsh environment or with any non-oil based synthetic hydraulic fluids.
Ethylene Propylene	ETP	-70° to 300°F -57° to 150°C	Used for sealing water, phosphate-ester hydraulic fluids, glycol base brake fluids, silicone oils and grease, many acids, solvents. Not compatible with mineral oil products. Consult factory for specific applications.

*Available through 4" bore only

Corrosion Resistant 300 Series Stainless Steel

Standard Duty Features:

- 100% 300 series stainless steel components – interior and exterior
- Viton® seals (Teflon® seals, suffix "CRT", are optional)
- Plastic rod bearings

Intermediate and Heavy Duty Features:

- 100% 300 series stainless steel components – interior and exterior
- Viton® seals (Teflon® seals, suffix "CRT", are optional)
- UHMW plastic rod bearings

Optional - A Crystalline PET Thermoplastic Polyester rod bearing is available for use in clean-room environments. Consult Factory for details.

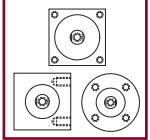
Magnetic Piston Cylinders:

- Bolt-on Mounting Track is aluminum only

Ordering: Specify "CR3" **before** cylinder part number

Delivery: Non-standard delivery, consult factory

All Styles



CR3

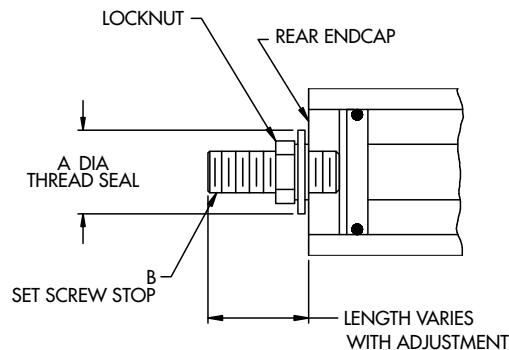
Ordering Prefix: CR3
Bore: 3/4" - 3"
Material: 300 Series stainless steel
Stroke: 1/8 - 4 in 1/8" increments

Applications:
 Chemical / Petroleum
 Medical Equipment
 Salt Water Exposure
 Clean Rooms
 Food Processing
 Electronic Assembly
 Nuclear
 Pharmaceutical



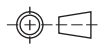
Adjustable Retract Stroke

Bore	A	B
3/4	.56	1/4-20
1-1/8 1-3/8 1-5/8	.75	3/8-16
2 2-1/2	1.00	1/2-13
3 4 5 6 8	1.38	3/4-10



- DO NOT use with any pivoting applications

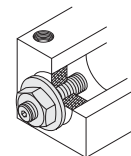
THIRD ANGLE PROJECTION



ADJ_

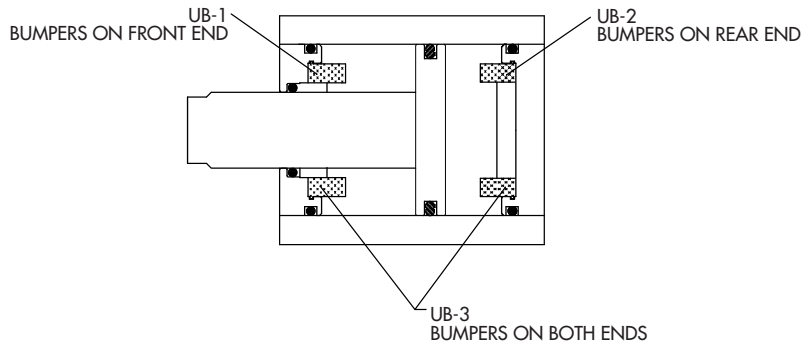
Specify Length

Ordering Suffix: ADJ_
Length: 1/8 - 2 in 1/8" increments
Rod: Single only
Temperature: 200°F Max.
Material: Aluminum endcap, steel locknut and thread seal



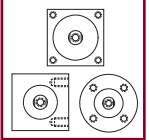
All Dimensions are in inches unless otherwise noted.

Urethane Bumper Pads



THIRD ANGLE
PROJECTION

All Styles



UB _

Example: UB1, UB2, UB3

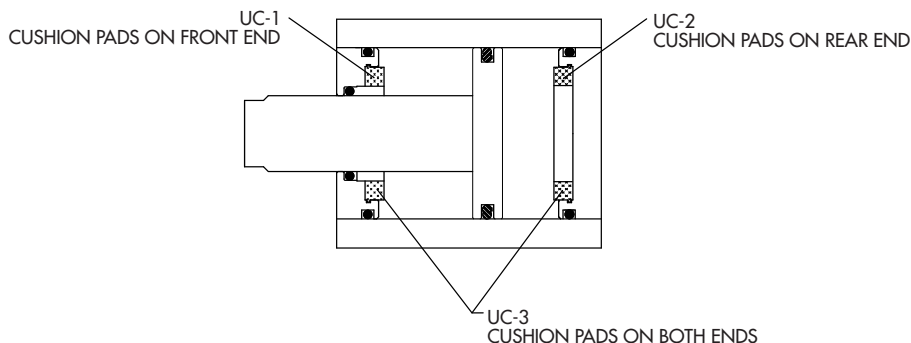
Ordering Suffix: UB_
Bore: 3/4" - 3"
Temperature: 0° - 150° F
Service: Pneumatic only
Material: Polyurethane

NOTE: UB1 & UB3 not available with CR3 or NR option

This option does not replace external shock absorbers needed for high loads.

- Designed for noise reduction and minor piston impact only
- Cylinder length does not increase
- Stroke is decreased by 1/8" per bumper
- Bumper Pads mechanically retained within the endcap
- Repairable part - replaceable bumper pads

Urethane Cushion Pads



UC _

Example: UC1, UC2, UC3

Ordering Suffix: UC_
Bore: 3/4" - 3"
Temperature: 0° - 150° F
Service: Pneumatic only
Material: Polyurethane

NOTE: UC1 & UC3 not available with CR3 or NR option

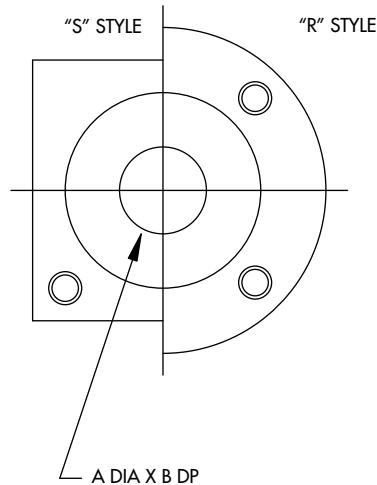
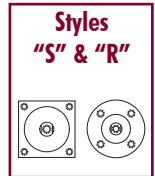
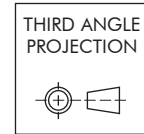
This option does not replace external shock absorbers needed for high loads.

- Designed for noise reduction and minor piston impact only
- Cylinder length does not increase
- Cushion Pads mechanically retained within the endcap
- Repairable part - replaceable cushion pads

All Dimensions are in inches unless otherwise noted.

Positive Alignment Pocket

The alignment pocket and pilot are designed to fit between the cylinder and the mounting surface. This ensures accurate mounting and added shear strength.



Bore	A	B
3/4	.31	.13
1-1/8	.50	.13
1-3/8 1-5/8	.63	.19
2 2-1/2 3	.75	.25
4 5 6 8	1.50	.31

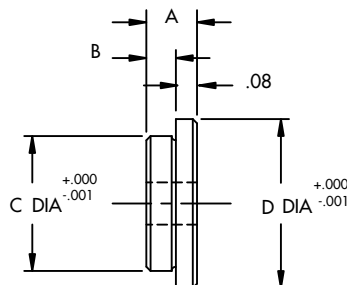
PA

Ordering Suffix: PA
Style: "S" and "R" only
Rod: Single only

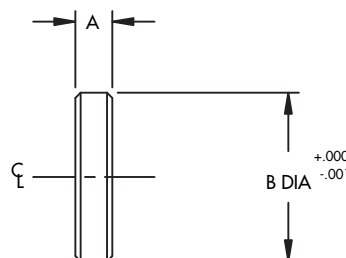
- Provides positive means of locating cylinder centerline within .005"

Positive Alignment sold separately

Dual Diameter



Common Diameter



PL

Part Number: PL_
Rod: Single only
Material: Stainless steel

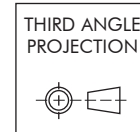
Bore	Part Number	A	B	C	D
1-1/8	PL118-05	.17	.09	.25	.50
	PL118-07	.19	.11	.31	.50
1-3/8	PL158-07	.19	.11	.31	.63
1-5/8	PL158-11	.19	.11	.50	.63

Bore	Part Number	A	B
3/4	PL12L	.20	.31
1-1/8	PL118L	.20	.50
1-3/8 1-5/8	PL158L	.30	.63
2 2-1/2 3	PL2L	.41	.75
4 5 6 8	PL4L	.50	1.50

All Dimensions are in inches unless otherwise noted.

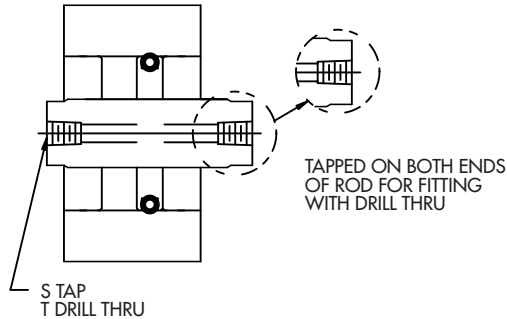
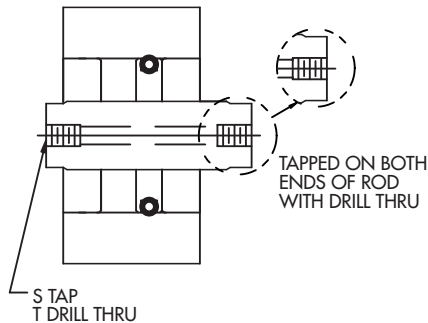
Hollow Rod

Our hollow rod option is available for applications that require passage through a double ended rod.



HR1

HR3



HR

Specify Length

Ordering Suffix:

Bore:

Duty:

Rod:

Service:

Stroke:

HR_ 3/4" - 2" only
Standard and Full Husky only
Double only
Pneumatic only
1/8 - 2 in 1/8" increments

	HR1		HR3	
Bore	S Tap	T Drill Thru	S Tap	T Drill Thru
3/4	#10-24 x 3/8 Dp.	.14	#10-32 x 3/8 Dp	.16
1-1/8	5/16-18 x 5/8 Dp.	.25		
1-3/8 1-5/8 2	3/8-16 x 3/4 Dp.	.31	1/8-27 NPTF	.34

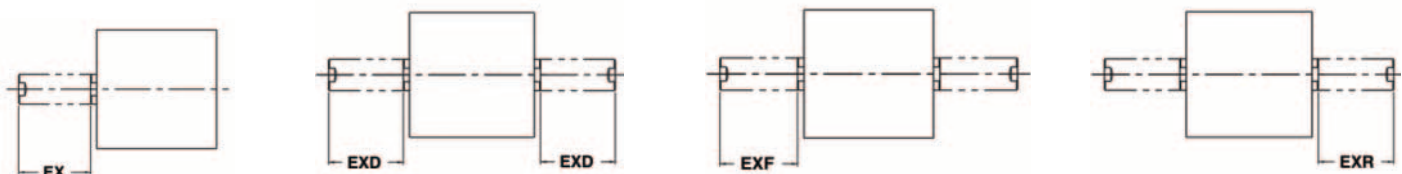
Modifications Welcome

Modified rod ends or threads, oversized or undersized diameter, alternative material, etc.

Applications		
Example	YES	NO
Gases	⌞	
Liquids	⌞	
Vacuum	⌞	
Linear / Rotary Cylinder	⌞	
Clamp and Punch Cylinder	⌞	
Blow Molding Cylinder	⌞	
Hydraulic Cylinders		X
Non-Rotating Rods		X

SPECIALS: Consult factory with ID requirements, thread information, pipe taps, etc.

Rod End Extension



Extended equally at both ends

- For special extension or length - consult factory
- Not a screw on component
- Female tap does not change

Single Rod End

EX_

Specify Length

Double Rod End

EXD_

Specify Length

Extension Front End

EXF_

Specify Length

Extension Rear End

EXR_

Specify Length

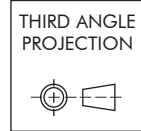
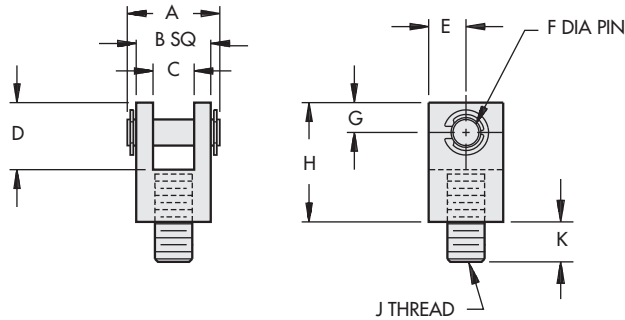
Ordering Suffix:

Length:

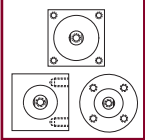
EX_, EXD_, EXF_ or EXR_
1/8 - 1 in 1/8" increments

All Dimensions are in inches unless otherwise noted.

Clevis Bracket / Set Screw



All Styles



CBSS_

Specify Screw Length

Ordering Suffix:

Material:

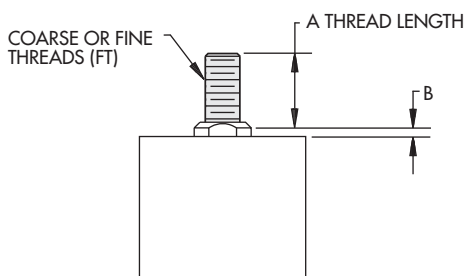
Example:

CBSS_
Steel black oxide
with case hard-
ened pin and
clips
CBSS78 = 7/8"
screw length

Bore	A	B	C	D	E	F	G	H	J	K	Screw Length	
											Standard	Optional
3/4	.69	.50	.28	.44	.25	.19	.19	.88	#10-24	.34	3/4	Up to 2" in 1/8" incre- ments
1-1/8	.81	.63	.34	.56	.31	.25	.25	1.00	5/16-18	.34	3/4	
1-3/8 1-5/8 2	1.00	.75	.41	.69	.38	.31	.31	1.13	3/8-16	.34	3/4	
2-1/2 3 4 5	1.25	1.00	.53	.81	.50	.38	.38	1.38	1/2-13	.47	1	
FH5 6 8	2.31	2.00	.66	2.06	1.00	.75	1.00	3.00	5/8-18	.84	1-3/4	



Male Stud



Double ended unit has stud in front end only.

If male stud is desired on **both** ends, specify **MSD** or **FTMSD**.

Male stud thread: Same pitch and diameter as female rod tap

Bore	A		B
	MIN	MAX	
3/4	.38	2	.06
1-1/8	.63		.13
1-3/8 1-5/8 2	.75		.13
2-1/2 3 4 5 6 8	1.00		.13

Coarse thread

MS

Fine thread

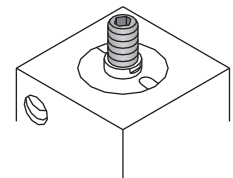
FTMS

Ordering Suffix:

Material:

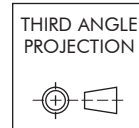
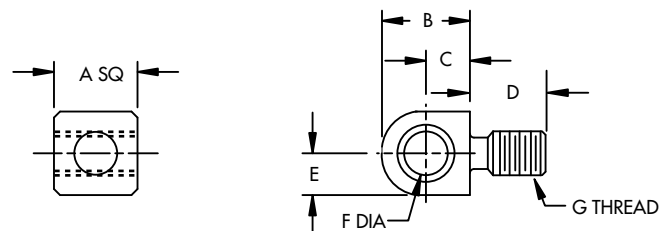
Length:

MS or FTMS
Steel black oxide
Specify length



All Dimensions are in inches unless
otherwise noted.

Rod Eye



Bore	A	B	C	D	E	F	G
3/4	.38	.38	.19	.31	.19	.19	#10-24
	.38	.88	.69	.31	.19	.19	#10-24
1-1/8	.50	.50	.25	.30	.25	.25	5/16-18
1-3/8							
1-5/8	.63	.63	.31	.42	.31	.31	3/8-18
2							
2-1/2	1.00	1.00	.50	.88	.50	.50	1/2-13
3							
4	1.00	1.00	.50	.88	.50	.50	1/2-13
5							
FH5							
6	1.50	2.50	1.75	.94	.75	.75	5/8-18
8							

RES - Short head design
RE - Old Design

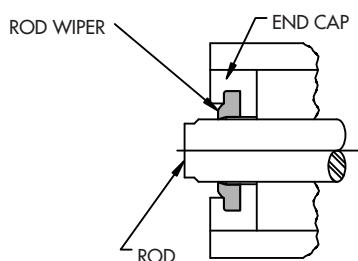
RE(S)

Ordering Suffix: RES - 3/4" bore only
RE - 3/4" - 8" bore

Pressure Rating: 3/4" - 3" bore: thru 250 PSI
4" bore: thru 200 PSI
5" - 8" bore: thru 200 PSI (pneumatic only)

Material: Steel black oxide with sintered bronze bearing

Rod Wiper



- Husky duty only
- Cylinder length does not increase
- Positioned below cylinder face

RW

Ordering Suffix: RW

Bore: 3/4" - 5"

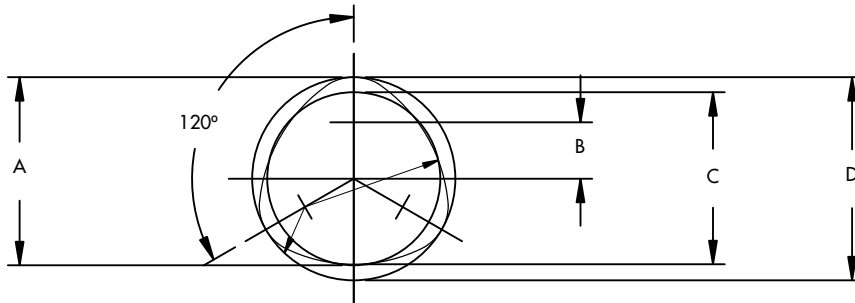
Duty: Husky only

Temperature: 200°F Max.

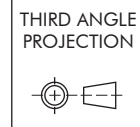
Material: 3/4" bore: Buna O-ring
1-1/8" - 5" bore: Urethane wiper

All Dimensions are in inches unless otherwise noted.

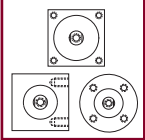
Non-Rotating Option



- The non-rotating option requires air line lubrication to prevent bearing and rod wear.
- Female threads not shown for clarity
- Lobe orientation on the rod is random
- Double rod end model has polygon on front end only
- +/- 1° radial movement should be expected, do not torque the bearing



All Styles



NR

Ordering Suffix: NR
Duty: Husky
recommended
Stroke: Under 1"
recommended
Service: Pneumatic only
Material: 303 stainless steel rod, brass, or bronze bearing

Ordering suffix should immediately follow stroke length.

Ex: ASFHD118X12NR-RF

Applications		
Example	YES	NO
Basic Orientation	☑	
Workholding Fixtures	☑	
Marking	☑	
Presses	☑	
Parts Ejectors	☑	
Elevators	☑	
Robotic End Effectors	☑	
Custom Escapements	☑	
Clamping	☑	
Long Strokes		X
Pivoting Applications		X
Side Loads		X
Torque Loads		X
Off Center Loads		X

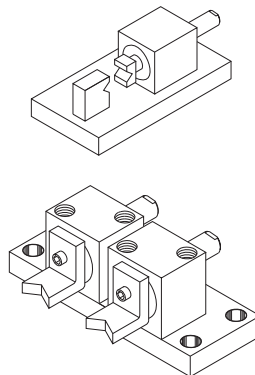
Nominal Sizes (inches)				
Nominal Dia.	A	B	C	D
5/16	.31	.07	.29	.33
1/2	.50	.11	.47	.53
5/8	.63	.15	.59	.67
3/4	.75	.19	.70	.80
1	1.00	.30	.92	1.08

These dimensions are for drafting purposes only

The unique three sided polygon rod often eliminates the need for external alignment devices.



NOTE: For load bearing applications see our Guided Cylinder product line



Basic Workholding Fixtures

- Double rod end will decrease deflection by 35%

Custom Escapements

- Double acting, independently controlled pneumatic escapements
- Square body design allows close center line positioning

Fine Thread Rod Tap

Standard Course Thread	#10-24	5/16-18	3/8-16	1/2-13
Optional Fine Thread ("FT")	#10-32	5/16-24	3/8-24	1/2-20

NOTE: FT is standard on 5" full husky through 8" bore.

All Dimensions are in inches unless otherwise noted.

FT

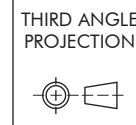
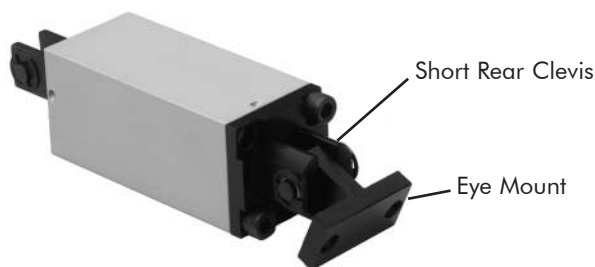
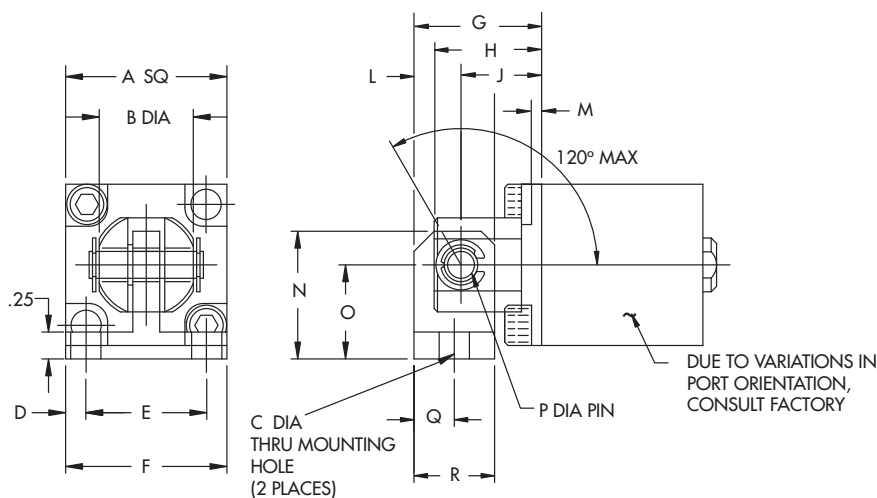
Ordering Suffix: FT

Modifications Welcome

Modified rod ends, lobe orientation, and other requirements are welcome!

Short Rear Clevis with Eye Mount

NOTE: Mount can be rotated 90°



Style "S"



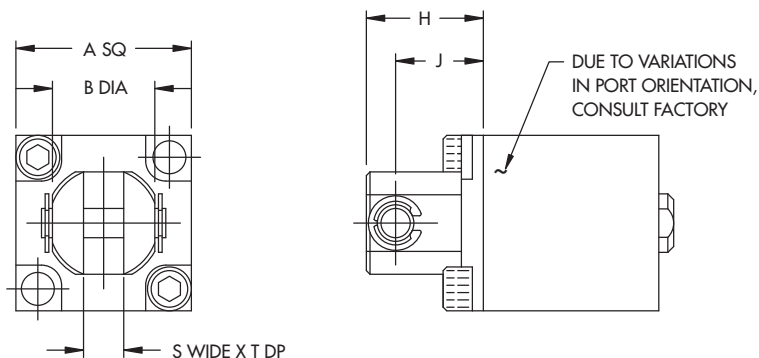
End Mount

SRCE

Ordering Suffix: SRCE
Bore: 3/4" - 3"
Style: "S" only
Rod: Single only
Service: Pneumatic only
Rating: 3/4" - 2" bore: thru 250 PSI
 2-1/2" - 3" bore: thru 100 PSI
Pivot: 120°
Material: Short Rear Clevis: See Below
 Eye Mount: 3/4" bore: Aluminum black anodized with sintered bronze bearing
 1-1/8" - 2-1/2" bore: Aluminum black anodized with steel bearing
 3" bore: Steel black oxide with steel bearing

Short Rear Clevis

NOTE: Mount can be rotated 90°



SRC

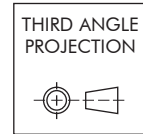
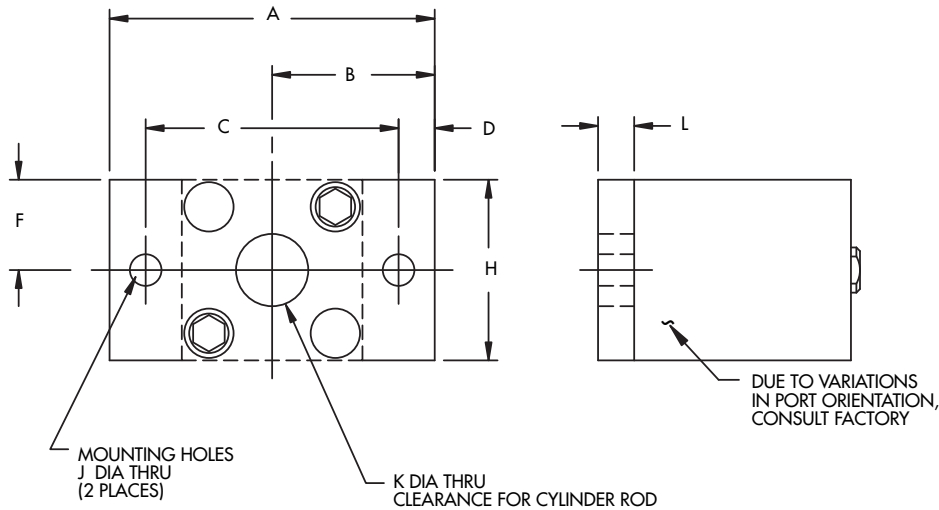
Ordering Suffix: SRC
Bore: 3/4" - 3"
Style: "S" only
Rod: Single only
Material: Aluminum black anodized with sintered bronze bearings and case hardened pin and clips

Bore	A	B	C	D	E	F	G	H	J	L	M	N	O	P	Q	R	S	T
3/4	1.25	.69	.28	.19	.88	1.25	1.19	.83	.69	.50	.19	1.00	.75	.19	.38	.75	.28	.56
1-1/8	1.50	.88	.28	.19	1.13	1.50	1.19	1.00	.75	.44	.19	1.19	.88	.25	.38	.75	.34	.69
1-3/8	1.75	1.25	.28	.25	1.50	2.00	1.44	1.19	.81	.63	.19	2.00	1.63	.31	.50	1.00	.41	.88
1-5/8	2.00	1.25	.28	.25	1.50	2.00	1.44	1.19	.81	.63	.19	2.00	1.63	.31	.50	1.00	.41	.88
2	2.50	1.25	.41	.25	1.50	2.00	1.88	1.38	1.00	.88	.31	2.00	1.63	.31	.63	1.25	.41	.94
2-1/2	3.00	2.00	.41	.31	1.38	2.00	2.00	1.56	1.13	.88	.31	2.00	1.63	.38	.63	1.25	.53	1.13
3	3.50	2.00	.41	.31	1.38	2.00	2.25	1.56	1.13	1.13	.31	2.25	1.88	.38	.75	1.50	.53	1.13

All Dimensions are in inches unless otherwise noted.

Flange Mount (Shown as Rear Flange)

3/4" - 1-5/8" Bore



Front Flange

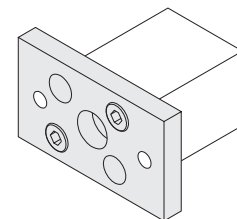
FF

or

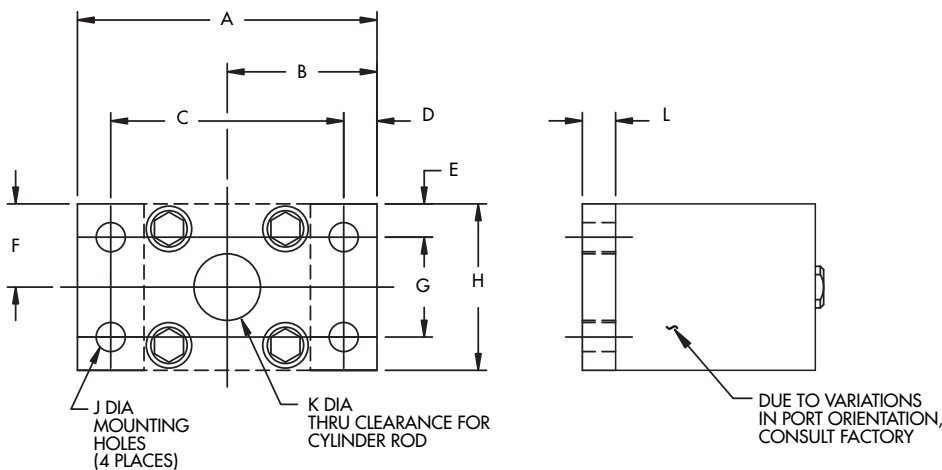
Rear Flange

RF

Ordering Suffix: FF or RF
Bore: 3/4" - 3"
Style: "S" only
Rotation: 90°
Material: Aluminum black anodized



2" - 3" Bore

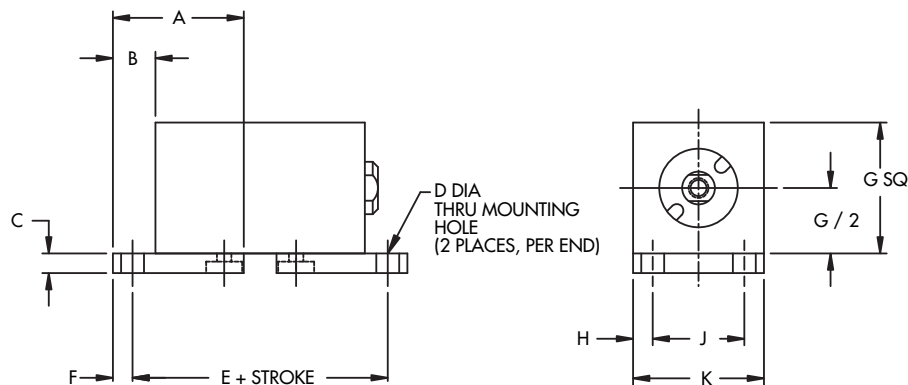


- FF/RF can be rotated 90°

Bore	A	B	C	D	E	F	G	H	J	K	L
3/4	2.25	1.13	1.75	.25	—	.63	—	1.25	.22	.50	.25
1-1/8	2.50	1.25	2.00	.25	—	.75	—	1.50	.22	.75	.25
1-3/8	2.75	1.38	2.25	.25	—	.88	—	1.75	.22	.88	.25
1-5/8	3.00	1.50	2.50	.25	—	1.00	—	2.00	.22	1.13	.25
2	3.50	1.75	3.00	.25	.25	1.25	2.00	2.50	.28	1.38	.38
2-1/2	4.13	2.06	3.50	.31	.31	1.50	2.38	3.00	.34	1.63	.38
3	4.63	2.31	4.00	.31	.31	1.75	2.88	3.50	.34	2.13	.38

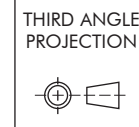
All Dimensions are in inches unless otherwise noted.

End Bracket



Bore	A	B	C	D	E	F	G	H	J	K
3/4	1.13	.38	.19	.22	SEE NOTE BELOW	.19	1.25	.19	.88	1.25
1-1/8	1.13	.38	.19	.22		.19	1.50	.19	1.13	1.50
1-3/8	1.50	.50	.25	.28		.25	1.75	.25	1.25	1.75
1-5/8	1.50	.50	.25	.28		.25	2.00	.25	1.50	2.00
2	1.50	.50	.31	.34		.25	2.50	.25	2.00	2.50
2-1/2	1.50	.50	.31	.34		.25	3.00	.25	2.50	3.00
3	2.00	.63	.38	.41		.31	3.50	.31	2.88	3.50

Note: Please consult factory. Body lengths differ depending on duty type, magnetic option, etc.; therefore, this dimension will vary with each cylinder.

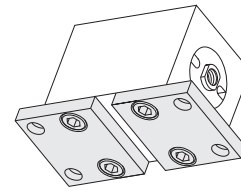


Style "B"



EB

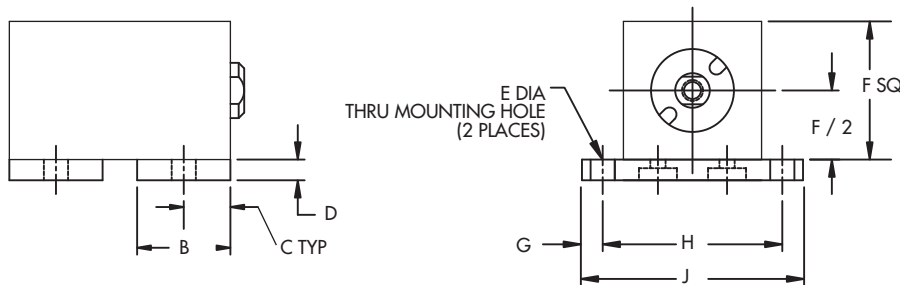
Ordering Suffix: EB
Bore: 3/4" - 3"
Style: "B" only
Material: Aluminum black anodized



Number of brackets required:

- Two mounting holes = 1 bracket
- Four mounting holes = 2 bracket

Side Bracket



Bore	B	C	D	E	F	G	H	J
3/4	.75	.38	.19	.22	1.25	.19	1.88	2.25
1-1/8	.75	.38	.19	.22	1.50	.25	2.00	2.50
1-3/8	1.00	.50	.25	.28	1.75	.25	2.25	2.75
1-5/8	1.00	.50	.25	.28	2.00	.25	2.50	3.00
2	1.00	.50	.31	.34	2.50	.25	3.00	3.50
2-1/2	1.00	.50	.31	.34	3.00	.25	3.50	4.00
3	1.25	.63	.38	.41	3.50	.31	4.13	4.75

SB

Ordering Suffix: SB
Bore: 3/4" - 3"
Style: "B" only
Material: Aluminum black anodized



Number of brackets required:

- Two mounting holes = 1 bracket
- Four mounting holes = 2 brackets

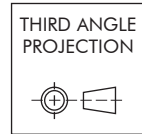
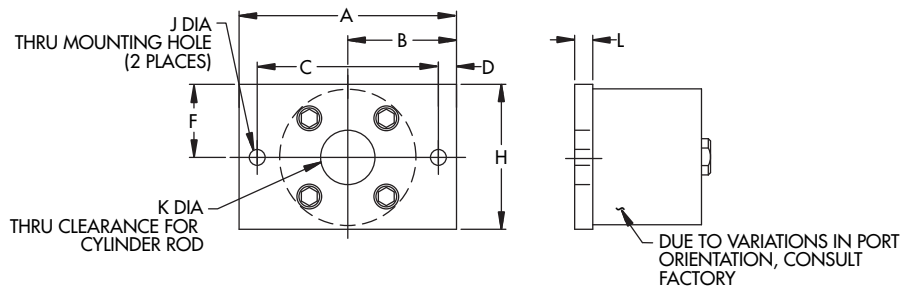
All Dimensions are in inches unless otherwise noted.

3/4" - 8" Bore Options

LDA belgium

Flange Mount (Shown as Rear Flange)

3/4" - 1-1/8" Bore



Front Flange

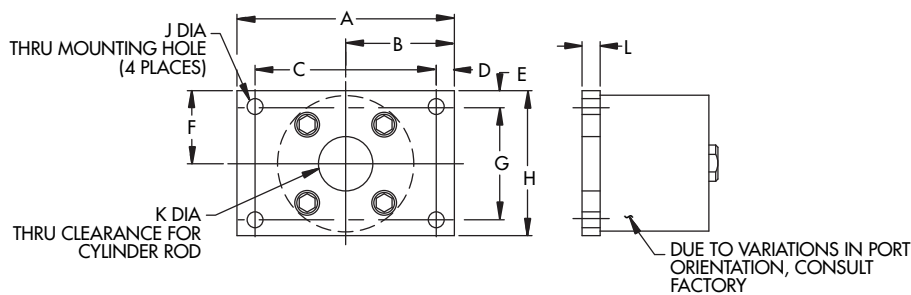
FF

or

Rear Flange

RF

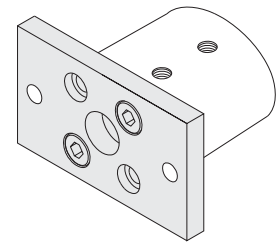
1-3/8" - 4" Bore



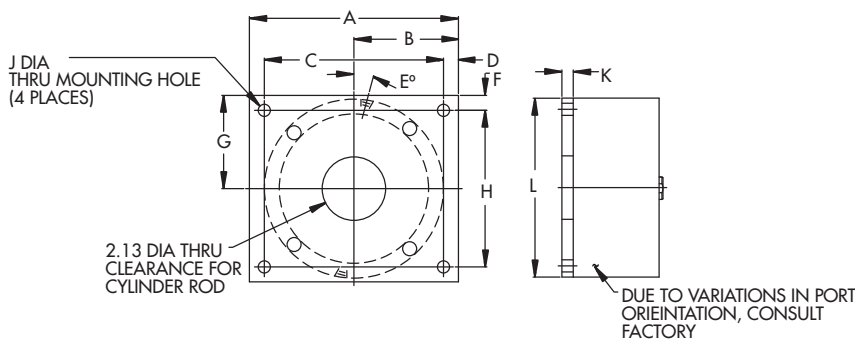
Ordering Suffix: FF or RF
Style: "R" only
Material: 3/4" - 5" bore: Aluminum black anodized
 6" & 8" bore: Steel black oxide

- 3/4" - 6" Flange can be rotated 90°

Bore	A	B	C	D	E	F	G	H	J	K	L
3/4	2.50	1.25	2.00	.25	—	.75	—	1.50	.22	.50	.25
1-1/8	3.00	1.50	2.50	.25	—	1.00	—	2.00	.22	.75	.25
1-3/8	2.38	1.19	1.94	.22	.22	1.00	1.56	2.00	.22	.88	.25
1-5/8	2.50	1.25	2.00	.25	.25	1.25	2.00	2.50	.22	1.13	.25
2	3.00	1.50	2.50	.25	.25	1.50	2.50	3.00	.28	1.38	.38
2-1/2	3.50	1.75	2.88	.31	.31	1.75	2.88	3.50	.28	1.63	.38
3	4.00	2.00	3.38	.31	.31	2.00	3.38	4.00	.34	2.13	.38
4	5.00	2.50	4.25	.38	.38	2.50	4.25	5.00	.34	2.13	.50



5" - 8" Bore



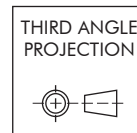
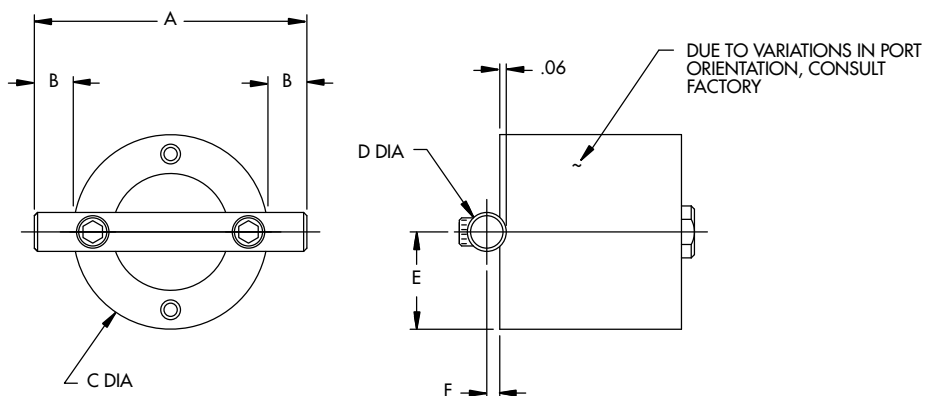
- 8" Flange can be rotated 60°

Bore	A	B	C	D	E°	F	G	H	J	K	L
5	7.00	3.50	6.00	.50	0°	.50	3.00	5.00	.41	.38	6.00
6	7.00	3.50	6.00	.50	8°	.50	3.00	5.00	.41	.38	6.00
8	9.50	4.75	8.00	.75	15°	.75	4.00	6.50	.53	.50	8.00

All Dimensions are in inches unless otherwise noted.

Pivot Shaft

3/4" - 4" Bore



Style "R"



PS

Ordering Suffix:

Rod:

Style:

Material:

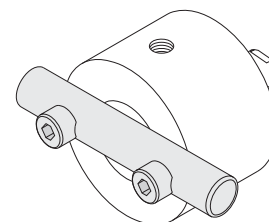
PS

Single only

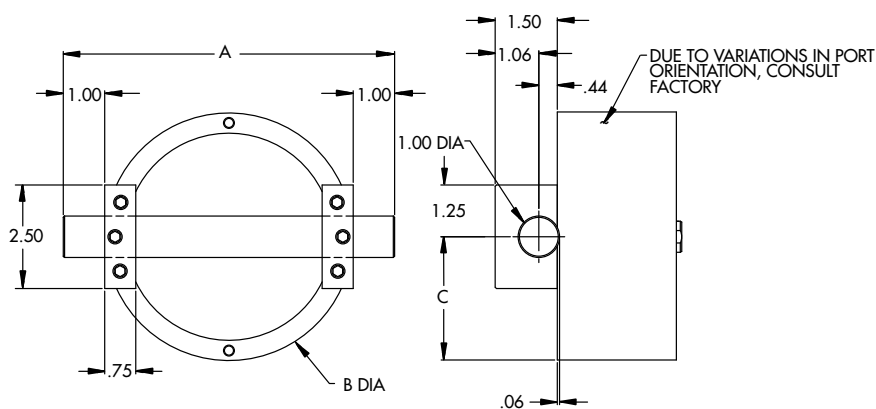
"R" only

Steel black oxide shaft. 5" - 8" bore with aluminum mounting bracket.

Bore	A	B	C	D	E	F
3/4	2.25	.34	1.50	.38	.75	.13
1-1/8	2.63	.34	1.88	.38	.94	.13
1-3/8	2.88	.34	2.13	.38	1.06	.13
1-5/8	3.13	.34	2.38	.38	1.19	.13
2	4.25	.59	3.00	.50	1.50	.19
2-1/2	4.75	.59	3.50	.50	1.75	.19
3	5.25	.59	4.00	.63	2.00	.25
4	6.25	.59	5.00	.63	2.50	.25



5" - 8" Bore

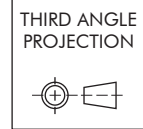
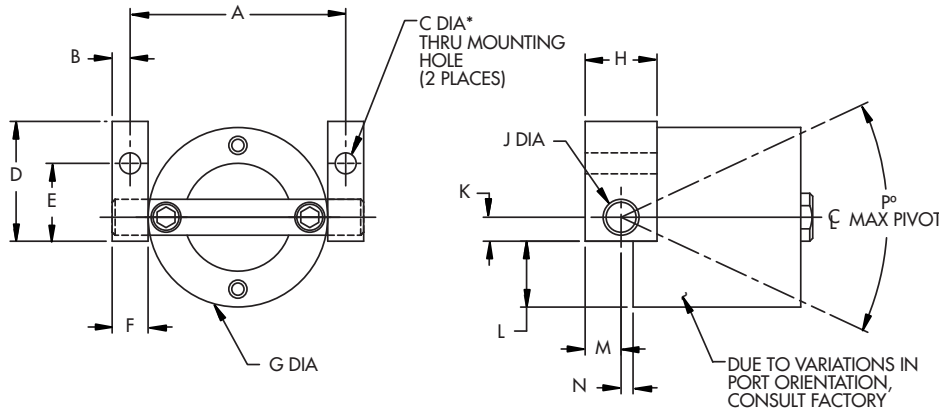


Bore	A	B	C
5	8.00	6.00	3.00
6	9.00	7.00	3.50
8	11.00	9.00	4.50

All Dimensions are in inches unless otherwise noted.

Short Pivot Mount

3/4" - 4" Bore



SP

Ordering Suffix:

Rod:

Style:

Pivot:

Material:

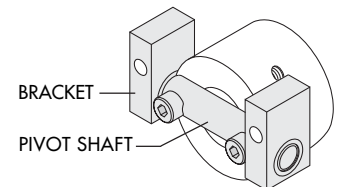
SP

Single only

"R" only

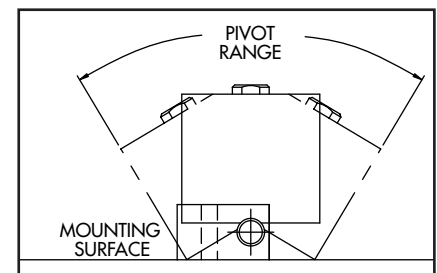
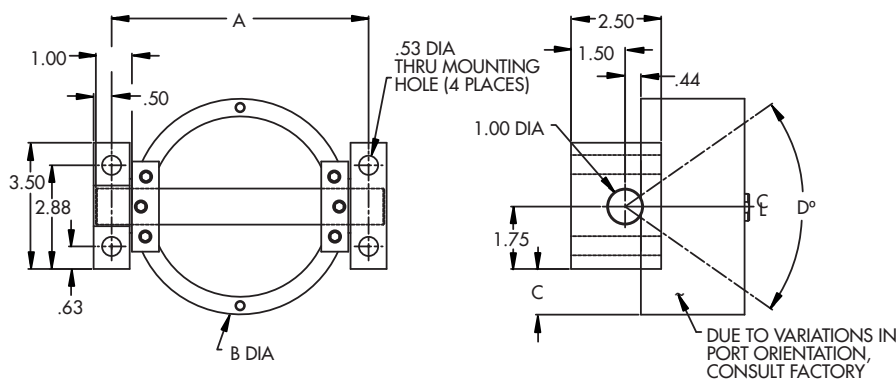
See table below
Steel black oxide
pivot shaft, alu-
minum black
anodized bracket
with sintered
bronze bearings

*4" bore = 4 mounting holes. Consult factory for mounting hole locations.



Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	P°
3/4	1.88	.19	.22	1.25	.81	.38	1.50	.75	.38	.38	.75	.38	.13	75°
1-1/8	2.25	.19	.22	1.25	.81	.38	1.88	.75	.38	.38	.56	.38	.13	60°
1-3/8	2.50	.19	.22	1.25	.81	.38	2.13	.75	.38	.38	.69	.38	.13	55°
1-5/8	2.75	.19	.22	1.25	.81	.38	2.38	.75	.38	.38	.81	.38	.13	50°
2	3.63	.31	.41	2.00	1.19	.63	3.00	1.25	.50	.50	1.00	.63	.19	60°
2-1/2	4.13	.31	.41	2.00	1.19	.63	3.50	1.25	.50	.50	1.25	.63	.19	50°
3	4.63	.31	.41	2.50	1.63	.63	4.00	1.50	.63	.75	1.25	.75	.25	45°
4	5.75	.38	.41	3.50	2.13	.75	5.00	1.50	.63	1.13	1.38	.88	.25	35°

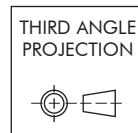
5" - 8" Bore



Bore	A	B	C	D°
5	7.25	6.00	1.25	55°
6	8.25	7.00	1.75	45°
8	10.25	9.00	2.75	35°

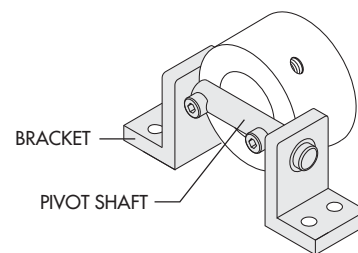
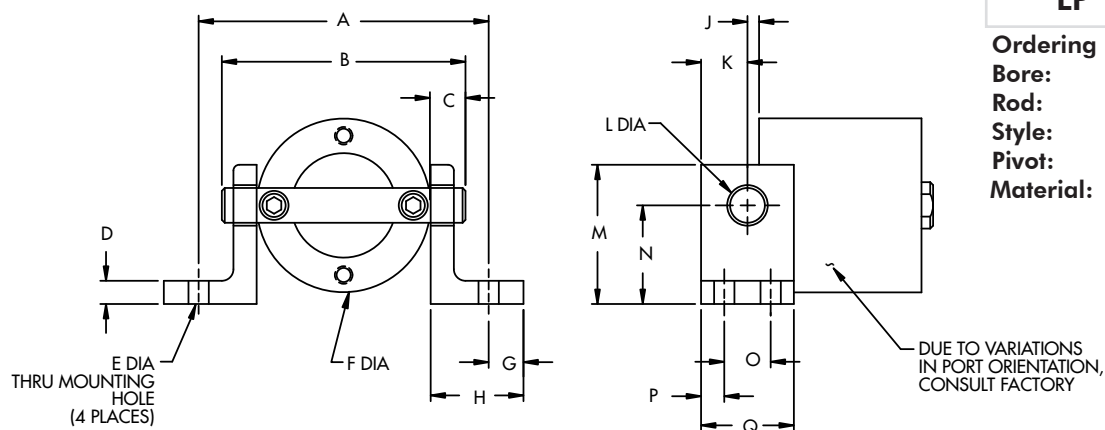
All Dimensions are in inches unless
otherwise noted.

Long Pivot Mount



LP

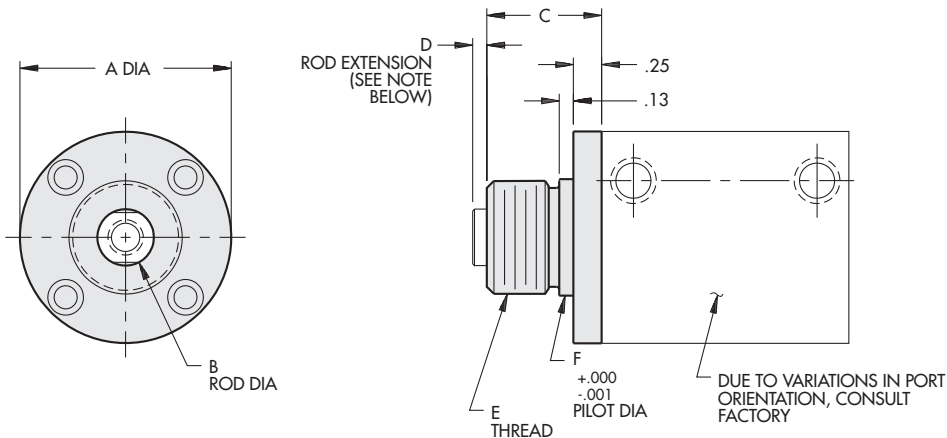
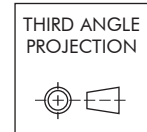
Ordering Suffix: LP
Bore: 3/4" - 4"
Rod: Single only
Style: "R" only
Pivot: 180°
Material: Steel black oxide pivot shaft with aluminum black anodized brackets and sintered bronze bearings



Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q
3/4	2.75	2.25	.34	.25	.22	1.50	.38	1.00	.13	.50	.38	1.50	1.06	.50	.25	1.00
1-1/8	3.13	2.63	.34	.25	.22	1.88	.38	1.00	.13	.50	.38	1.50	1.06	.50	.25	1.00
1-3/8	3.38	2.88	.34	.25	.22	2.13	.38	1.00	.13	.50	.38	2.00	1.25	.50	.25	1.00
1-5/8	4.38	3.13	.34	.38	.28	2.38	.50	1.50	.13	.50	.38	2.50	1.63	.50	.25	1.00
2	5.00	4.25	.59	.38	.28	3.00	.50	1.50	.19	.50	.50	2.50	1.63	.50	.25	1.00
2-1/2	5.25	4.75	.59	.38	.34	3.50	.50	1.38	.19	.75	.50	3.00	2.13	.75	.38	1.50
3	5.75	5.25	.59	.38	.34	4.00	.50	1.38	.25	.75	.63	3.00	2.13	.75	.38	1.50
4	7.25	6.25	.59	.50	.41	5.00	.63	1.75	.25	1.00	.63	3.50	2.63	1.00	.50	2.00

All Dimensions are in inches unless otherwise noted.

Nose Mount



NM

Ordering Suffix: NM
Bore: 3/4" - 5"
Duty: Standard only
Style: "R" only
Material: 3/4" bore: Brass
 1-1/8" - 5" bore: Aluminum black anodized with sintered bronze bearing



Bore	A	B	C	D	E	F
3/4	1.50	.31	1.00	See Rod Extension Chart Below	3/4-16 x 5/8	.750
1-1/8	1.88	.50	1.00		1-14 x 5/8	.999
1-3/8	2.13	.63	1.00		1-1/4-12 x 5/8	1.249
1-5/8	2.38	.63	1.00		1-1/4-12 x 5/8	1.249
2	3.00	.63	1.00		1-1/4-12 x 5/8	1.249
2-1/2	3.50	.75	1.50		1-1/2-12 x 1-1/8	1.499
3	4.00	.75	1.50		1-1/2-12 x 1-1/8	1.499
4	5.00	.75	1.50		2-12 x 1-1/8	1.999
5	6.00	.75	1.50		2-12 x 1-1/8	1.999

Optional Jam Nut (order separately)

		A	B	C	D
Part No.		A	B	C	D
34NT		1.13	1.27	3/4-16	.19
1NT		1.50	1.69	1-14	.19
114NT		1.88	2.11	1-1/4-12	.25
112NT		2.25	2.53	1-1/2-12	.25
2NT		3.00	3.39	2-12	.25

NOTE: 0.6 on 3/4" Bore
 .13 on 1-1/8" thru 5" Bore

All Dimensions are in inches unless otherwise noted.

Simple solution to a mounting or porting interference. Compact® cylinders are symmetrical and easily assembled in reverse. When specifying 'RA' the mounting and porting orientations will change; see examples below.

This option is **not** applicable to Magnetic Piston cylinders.

1/2" - 8"
Bore

Reverse Assembly

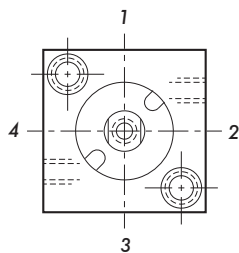
Ordering
Suffix

RA

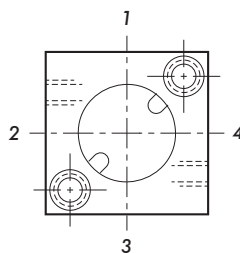
Example 3/4" Bore Short Stroke

Standard Assembly

Front View

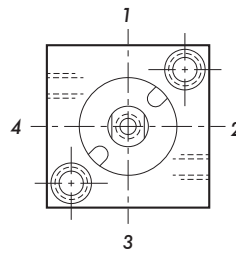


Rear View

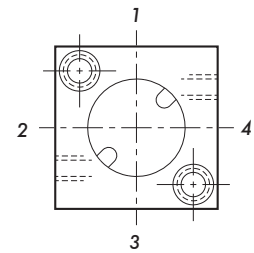


Reverse Assembly

Front View



Rear View

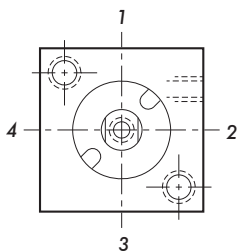


Orientation of porting and mounting change

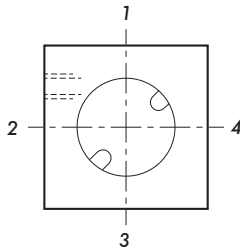
Example 3/4" Bore Long Stroke

Standard Assembly

Front View

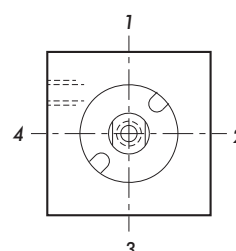


Rear View

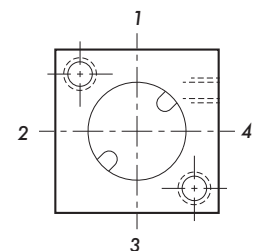


Reverse Assembly

Front View



Rear View

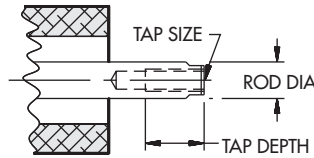


Orientation of porting and mounting change

Reminder: This option is **not** applicable to Magnetic Piston cylinders.

Usable Female Rod Thread

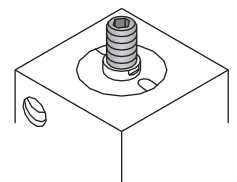
On magnetic piston style cylinders, refer to 1/4" longer **stroke** when determining tap depth.



1/2" - 8"
Bore

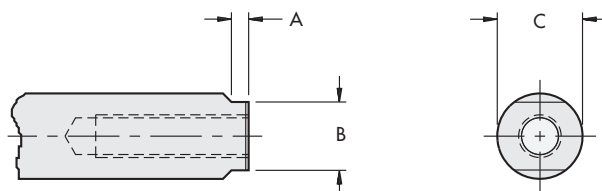
Bore	Rod Diameter	Rod Tap		Duty	Stroke	Tap Depths							
		Standard	Optional Suffix: FT			1/8	1/4	3/8	1/2	5/8	3/4	7/8	1" and longer
1/2	.25	#8-32	?	Standard		.25	.25	.38	.44	.44	.44	.44	.44
				Intermediate		.25	.38	.44	.44	.44	.44	.44	.44
				Heavy		.25	.38	.44	.44	.44	.44	.44	.44
3/4	.31	#10-24	#10-32	Standard		.25	.38	.38	.44	.44	.44	.44	.44
				Intermediate		.38	.44	.44	.44	.44	.44	.44	.44
				Heavy		.44	.44	.44	.44	.44	.44	.44	.44
1-1/8	.50	5/16-18	5/16-24	Standard		.31	.38	.44	.50	.63	.69	.81	.81
				Intermediate		.44	.50	.63	.69	.81	.81	.81	.81
				Heavy		.63	.69	.81	.81	.81	.81	.81	.81
1-3/8	.63	3/8-16	3/8-24	Standard		.44	.44	.50	.50	.69	.81	.88	.94
				Intermediate		.50	.50	.69	.81	.88	.94	.94	.94
				Heavy		.69	.81	.88	.94	.94	.94	.94	.94
1-5/8	.63	3/8-16	3/8-24	Standard		.44	.44	.50	.50	.69	.81	.88	.94
				Intermediate		.50	.50	.69	.81	.88	.94	.94	.94
				Heavy		.69	.81	.88	.94	.94	.94	.94	.94
2	.63	3/8-16	3/8-24	Standard		.50	.50	.69	.69	.81	.88	.94	.94
				Intermediate		.69	.69	.81	.88	.94	.94	.94	.94
				Heavy		.81	.88	.94	.94	.94	.94	.94	.94
2-1/2	.75	1/2-13	1/2-20	Standard		.50	.63	.63	.75	.88	1.00	1.00	1.25
				Intermediate		.63	.75	.88	1.00	1.00	1.25	1.25	1.25
				Heavy		.88	1.00	1.00	1.25	1.25	1.25	1.25	1.25
3	.75	1/2-13	1/2-20	Standard		.50	.63	.63	.75	.88	1.00	1.00	1.25
				Intermediate		.63	.75	.88	1.00	1.00	1.25	1.25	1.25
				Heavy		.88	1.00	1.00	1.25	1.25	1.25	1.25	1.25
4	.75	1/2-13	1/2-20	Standard		.63	.75	.75	.88	.88	.88	1.00	1.25
				Intermediate		.75	.88	.88	.88	1.00	1.25	1.25	1.25
				Heavy		.88	.88	1.00	1.25	1.25	1.25	1.25	1.25
5	.75	1/2-13	1/2-20	Standard		.63	.75	.75	.88	.88	.88	1.00	1.25
				Intermediate		.75	.88	.88	.88	1.00	1.25	1.25	1.25
	1.00	5/8-18	?	Heavy		.88	.94	1.00	1.25	1.25	1.25	1.25	1.25
6	1.00	5/8-18	?	Standard		.75	.81	.88	.94	1.00	1.00	1.25	1.25
8	1.00	5/8-18	?	Standard		.75	.81	.88	.94	1.00	1.00	1.25	1.25

For low cost male thread see the Accessories section, Male Stud on page 76.



Usable Wrench Flats

Bore	A	B Flat	C Dia
1/2	.06	.22	.25
3/4	.06	.25	.31
1-1/8	.13	.44	.50
1-3/8, 1-5/8, 2"	.13	.56	.63
2-1/2, 3, 4, 5"	.13	.69	.75
5FH, 6, 8"	.13	.94	1.00



Approximate Unit Weights (Ounces)

Ounces to Grams (Ounces x 28.349 = Grams)

Example: AS34x214

A Magnetic Piston .55
 S34 Square 3/4" bore 2.0
 x
 214 # of 1/8" increments $\frac{3.6}{6.15}$ (.2x18) ounces

NOTE: For CR3 multiply weight from chart below by 2.8"

1/2" - 8"
Bore

Rectangular and Square body styles

	Duty	Non-Magnetic Piston					Magnetic Piston Adder				
		Standard		Intermediate	Heavy		Standard		Intermediate	Heavy	
	Rod End	Single	Double	Single	Single	Double	Single	Double	Single	Single	Double
1/2	Zero stroke	.90	.95	1.10	1.20	1.20	.45	.50	.40	.40	.40
	per 1/8" stroke	.15	.20	.15	.15	.20					
3/4	Zero stroke	2.00	2.10	3.00	3.80	4.00	.55	.60	.70	.85	.90
	per 1/8" stroke	.20	.30	.20	.20	.30					
1-1/8	Zero stroke	3.10	3.30	4.40	5.70	6.10	.75	.80	1.20	1.55	1.60
	per 1/8" stroke	.30	.50	.30	.30	.50					
1-3/8	Zero stroke	5.50	6.10	7.40	9.50	10.10	.95	1.00	1.65	2.10	2.35
	per 1/8" stroke	.50	.60	.50	.50	.60					
1-5/8	Zero stroke	6.80	7.40	9.10	11.20	12.0	1.20	1.20	2.10	2.65	3.00
	per 1/8" stroke	.60	.70	.60	.60	.70					
2	Zero stroke	11.80	12.10	15.30	18.40	19.00	.95	1.65	1.85	3.05	3.50
	per 1/8" stroke	.90	1.00	1.00	.90	1.00					
2-1/2	Zero stroke	18.40	19.40	23.30	27.60	29.00	2.30	2.35	4.55	6.35	6.80
	per 1/8" stroke	1.20	1.50	1.20	1.20	1.50					
3	Zero stroke	30.40	31.10	36.70	42.30	43.60	3.20	3.25	6.10	8.80	9.00
	per 1/8" stroke	1.80	2.10	1.80	1.80	2.10					

Round body styles

	Duty	Non-Magnetic Piston					Magnetic Piston Adder				
		Standard		Intermediate	Heavy		Standard		Intermediate	Heavy	
	Rod End	Single	Double	Single	Single	Double	Single	Double	Single	Single	Double
1/2	Zero stroke	1.1	1.2	1.3	1.5	1.5	1.6	1.7	1.8	2	2
	per 1/8" stroke	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
3/4	Zero stroke	2.20	2.20	3.20	4.00	4.10	.11	.16	.25	.43	.44
	per 1/8" stroke	.30	.40	.30	.30	.40					
1-1/8	Zero stroke	3.70	4.00	5.10	6.40	6.80	.38	.40	.78	1.14	1.22
	per 1/8" stroke	.50	.60	.50	.50	.60					
1-3/8	Zero stroke	6.30	6.90	8.30	10.10	10.90	.59	.62	1.26	1.73	1.96
	per 1/8" stroke	.60	.70	.60	.60	.70					
1-5/8	Zero stroke	7.80	8.20	10.00	12.00	12.80	.89	.90	1.79	2.36	2.70
	per 1/8" stroke	.70	.80	.70	.70	.80					
2	Zero stroke	13.10	13.40	16.60	19.70	20.30	.80	1.51	1.72	2.91	3.35
	per 1/8" stroke	1.00	1.10	1.00	1.00	1.10					
2-1/2	Zero stroke	19.60	20.60	24.30	28.80	30.10	2.27	2.31	4.49	6.30	6.75
	per 1/8" stroke	1.10	1.40	1.10	1.10	1.40					
3	Zero stroke	30.50	31.20	36.80	42.40	43.70	3.37	3.41	6.24	8.93	9.15
	per 1/8" stroke	1.10	1.60	1.10	1.10	1.60					
4	Zero stroke	51.50	53.00	60.60	68.90	71.30	5.07	5.01	9.89	14.86	14.65
	per 1/8" stroke	1.60	1.90	1.60	1.60	1.90					
5	Zero stroke	79.30	80.90	88.10	105.70	109.20	8.09	8.19	15.89	23.01	22.93
	per 1/8" stroke	1.90	2.20	1.90	1.90	2.20					
6	Zero stroke	124.20	127.50	?	?	?	12.00	11.27	-	-	-
	per 1/8" stroke	2.40	2.90	?	?	?					
8	Zero stroke	229.10	233.00	?	?	?	19.28	18.27	-	-	-
	per 1/8" stroke	3.10	3.50	?	?	?					

Approximate Unit Weights (Ounces)

1/2" - 8"
Bore

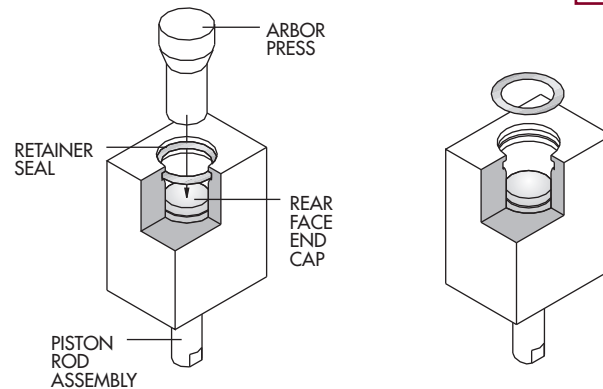
Accessories													
Suffix	Description	Bore											
		1/2	3/4	1-1/8	1-3/8	1-5/8	2	2-1/2	3	4	5	6	8
ADJ	Adjustable Retract Stroke	.37	.61	1.53	1.97	2.31	5.09	5.96	10.10	CF	CF	CF	CF
CBSS	Clevis Bracket	.26	.79	1.37	2.17	2.17	2.17	4.18	4.18	4.18	4.18	39.84	39.84
EB	End Bracket (flange)	.19	.36	.44	.94	1.31	2.01	2.35	4.66	?	?	?	?
FF	Front Flange ("S") style only)	.28	.84	1.11	1.78	1.74	4.85	5.31	9.10	?	?	?	?
FF	Front Flange ("R") style only)	.28	1.28	2.03	1.77	1.89	4.72	5.59	9.10	16.26	61.90	157.0	157.0
LP	Long Pivot Mount	?	2.63	2.79	3.26	5.58	7.21	13.27	14.31	42.57	?	?	?
MS	Male Stud	.04	.06	.24	.43	.43	.43	.96	.96	1.12	1.12	1.90	1.90
NM	Nose Mount	.25	3.43	2.09	3.05	3.78	5.67	9.76	12.33	24.00	33.83	?	?
PS	Pivot Shaft	?	.94	1.10	1.22	1.31	3.28	6.43	7.70	27.00	?	?	?
RE	Rod Eye	.13	.51	.54	1.01	1.01	1.01	3.82	3.82	3.82	3.82	21.80	21.80
RF	Rear Flange ("S") style only)	.28	.84	1.11	1.78	1.74	4.85	5.31	9.10	?	?	?	?
RF	Rear Flange ("R") style only)	.28	1.28	2.03	1.77	1.89	4.72	5.59	9.10	16.26	61.90	157.00	157.00
SB	Side Bracket (flange)	.19	.43	.49	.99	1.26	1.89	2.15	3.94	?	?	?	?
SP	Short Pivot Mount	?	1.96	2.12	2.25	2.34	7.59	10.74	14.17	37.70	?	?	?
SRC	Short Rear Clevis	.28	.86	1.52	2.97	3.35	5.54	10.91	12.88	?	?	?	?
SRCE	Short Rear Clevis with Eye Mount	.50	1.37	2.19	4.36	4.75	7.28	12.69	19.36	?	?	?	?

Disassembly

**1/2" - 8"
Bore**

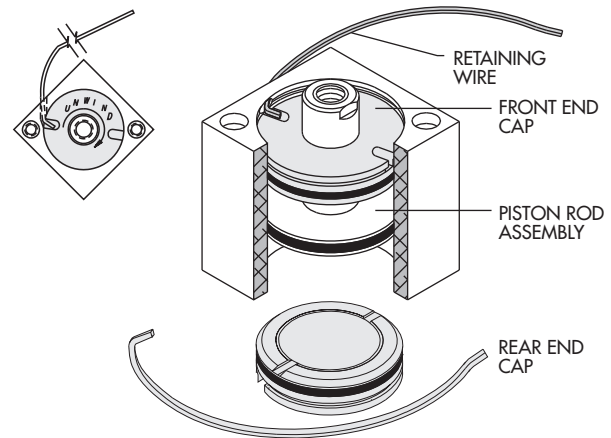
1/2" Bore (Snap Cap)

1. Place cylinder under small arbor press, rear end cap up. Apply 15 pounds of force.
2. Push the end cap down into the cylinder frame, retainer seal will remain in groove.
3. With an o-ring tool remove the retainer seal.
4. Push the piston rod assembly up to remove the rear face end cap.
5. Do not remove the piston rod assembly.
6. Turn cylinder over.
7. Repeat steps 1-3, push rod end cap out with piston rod assembly and remove both.



3/4" - 8" Bore

1. Place cylinder in vise, rear end cap up
2. Place spanner wrench pins in notches of the end cap
3. Turn clockwise. The retaining wire will back out of the cylinder.
4. Stop turning when wire becomes loose.
5. Push the end cap down into the frame.
6. Remove the wire by pulling the hooked end *from the cylinder bore*.
7. Push the piston rod assembly up to remove the end cap.
8. Do not remove piston rod assembly.
9. Turn cylinder over.
10. Repeat steps 1-6, push front end cap out with piston rod assembly and remove both.



General Repair Instructions

1. Remove any seal that becomes visible during repair with an o-ring tool.
2. Clean all grooves with a soft cloth.
3. Lightly lubricate seal grooves, reset seals and lubricate again.
4. Repeat above steps, in reverse, to reassemble.
5. Bubble test cylinder to assure air tight seal.

Double Rod Instructions - 3/4" through 8"

1. Using snap ring pliers, remove first snap ring.
2. Remove piston from rod and remove snap ring from opposite side.
3. Remove inner piston seal with an o-ring tool and reset seals as detailed above.
4. Reset snap ring with flat side facing out from center.
5. Place piston over seal.
6. Reset opposite snap ring with flat side facing out from center.
7. Reassemble and bubble test.

Repair Kits

1/2" - 8"
Bore

	Repair Kits						Tools		Lubrication				
	Pneumatic Seals				Hydraulic Seals		Assembly Wrench	Flat Wrench					
Bore	Rod End	Standard	Viton®	Teflon®	Hydraulic	Viton® Hyd							
1/2	Single	RK12	RKV12	?	?	?	?	FW1S	Lube One Lubricates approximately 30 medium size cylinders.				
	Double	RKD12	RKDV12										
3/4	Single	RK34	RKV34	RKT34	RKH34	RKVH34	W1						
	Double	RKD34	RKDV34	RKDT34	RKDH34	RKDVH34							
1-1/8	Single	RK118	RKV118	RKT118	RKH118	RKVH118							
	Double	RKD118	RKDV118	RKDT118	RKDH118	RKDVH118							
1-3/8	Single	RK138	RKV138	RKT138	RKH138	RKVH138	W2	FW2S					
	Double	RKD138	RKDV138	RKDT138	RKDH138	RKDVH138							
1-5/8	Single	RK158	RKV158	RKT158	RKH158	RKVH158							
	Double	RKD158	RKDV158	RKDT158	RKDH158	RKDVH158							
2	Single	RK2	RKV2	RKT2	RKH2	RKVH2							
	Double	RKD2	RKDV2	RKDT2	RKDH2	RKDVH2							
2-1/2	Single	RK212	RKV212	RKT212	RKH212	RKVH212							
	Double	RKD212	RKDV212	RKDT212	RKDH212	RKDVH212							
3	Single	RK3	RKV3	RKT3	RKH3	RKVH3							
	Double	RKD3	RKDV3	RKDT3	RKDH3	RKDVH3							
4	Single	RK4	RKV4	RKT4	RKH4	RKVH4							
	Double	RKD4	RKDV4	RKDT4	RKDH4	RKDVH4							
5	Single	RK5	RKV5	?	?	?	FW3S						
	Double	RKD5	RKDV5										
FH5	Single	RKFH5	RKFHV5	?	?	?				W3			
	Double	RKFHD5	RKFHDV5										
6	Single	RK6	RKV6	?	?	?							
	Double	RKD6	RKDV6										
8	Single	RK8	RKV8	?	?	?							
	Double	RKD8	RKDV8										

Repair Kits apply to Non-Magnetic and Magnetic piston cylinders - any duty.

All Repair Kits Include:

- Endcap Seals
- Shaft Seals
- Piston Seals
- Retaining Wire*
- Lubrication (1 to 4 milliliters)
- Snap Rings - *RKD kits only*
- Magnets

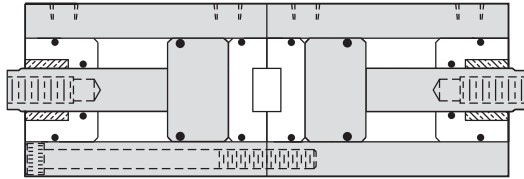
**3/4" through 1-5/8" Bore Repair Kits only*
2" Bore and larger -- must be ordered separately.

With only minor modification to Compact® cylinder bodies and rod ends, these non-standard cylinder can be built and delivered quickly and cost effectively in any quantity.

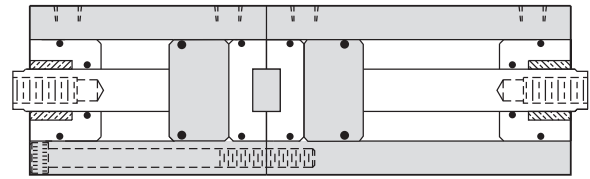
1/2" - 8"
Bore

Back-to-Back 3 or 4 positions

Equal stroke increments provide 3 positions.



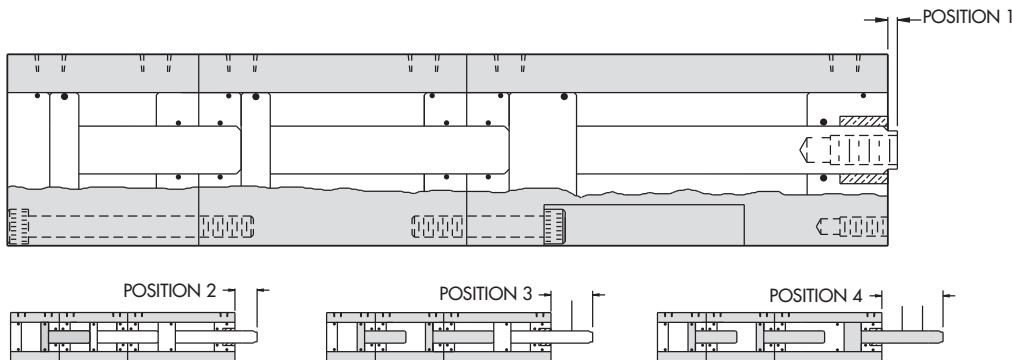
Unequal stroke increments provide 3 or 4 positions, depending on sequence of operation.



- Back-to-back assemblies feature a pilot locator between the cylinder to assure positive alignment.
- Cylinder must have support when used in a non-vertical application.
- 4-way valve circuit required for each cylinder.

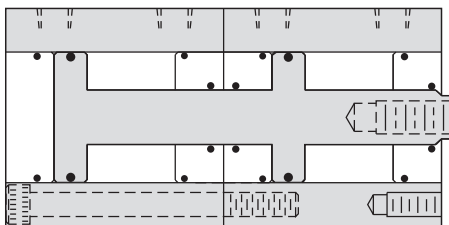
Multi-Position 3 or more positions

Three or more stroke increments can be achieved with "in line" multi-position cylinders.



- Precise valve circuit design is critical.
- Front cylinder must include all previous cylinder increments. Example: Increments include 1" + 1" + 1". Front cylinder stroke 3", middle cylinder 2", back cylinder 1".

Multi-Piston High Output



- Numerous pistons can be coupled to achieve extra output in limited space applications.
- Individual cylinders with a common rod, as shown in this diagram, can provide multiple output for push and pull.

For design assistance and quotes contact your local distributor or our Technical Sales Department at (864) 647-9521.

Modifications to fit Customer Requirements

Compact Automation Product's Technical Sales team understands the ever-changing industry.

Each modified design is its own, requiring application - specific parts and know-how. We at Compact Automation Products pride ourselves in our ability to create or modify a cylinder to fit **your** application.

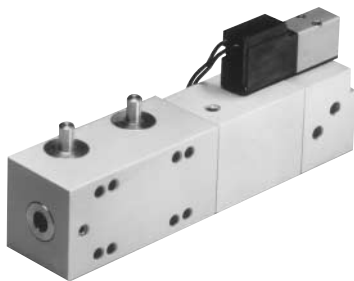
Do you have an unusual space situation, material requirement, or other specific need you think is hopeless?

Never fear, Compact Automation is here... Call us!

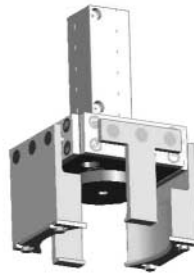
If you think it can't be done, we think IT CAN.

For your convenience, see the Request for Quote form, on pages 95 and 96.

1/2" - 8"
Bore



Medical Device
*Twin Pinion/Common Rack 90°
Actuator*



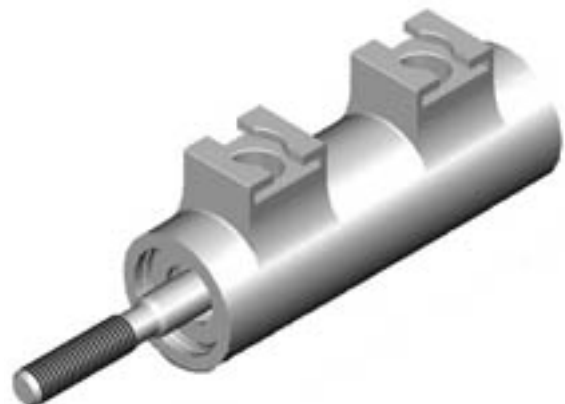
Food Processing Machine
*Multi-axis gripper with all
Stainless Steel components*



Semi Conductor Industry
*Heavily modified frame and
oversized hollow rod*



PCB Machine Tool
Direct mounted control valve



Entertainment Industry Animation Cylinder
Custom stainless steel body for hydraulic service

Modified Cylinder Proposal

Date Requested _____
Date Quoted _____

From

Company Name _____
City _____ State _____
Contact _____
Phone _____ Fax _____
E-mail _____

To

Compact Automation Products, Inc.
Contact (if known) _____
Current Compact Distributor _____
Contact _____

– All modified and special purpose air cylinders are manufactured from our standard product lines –
To ensure a quick and accurate quote, please include all requirements.

Round or Square Style Cylinder

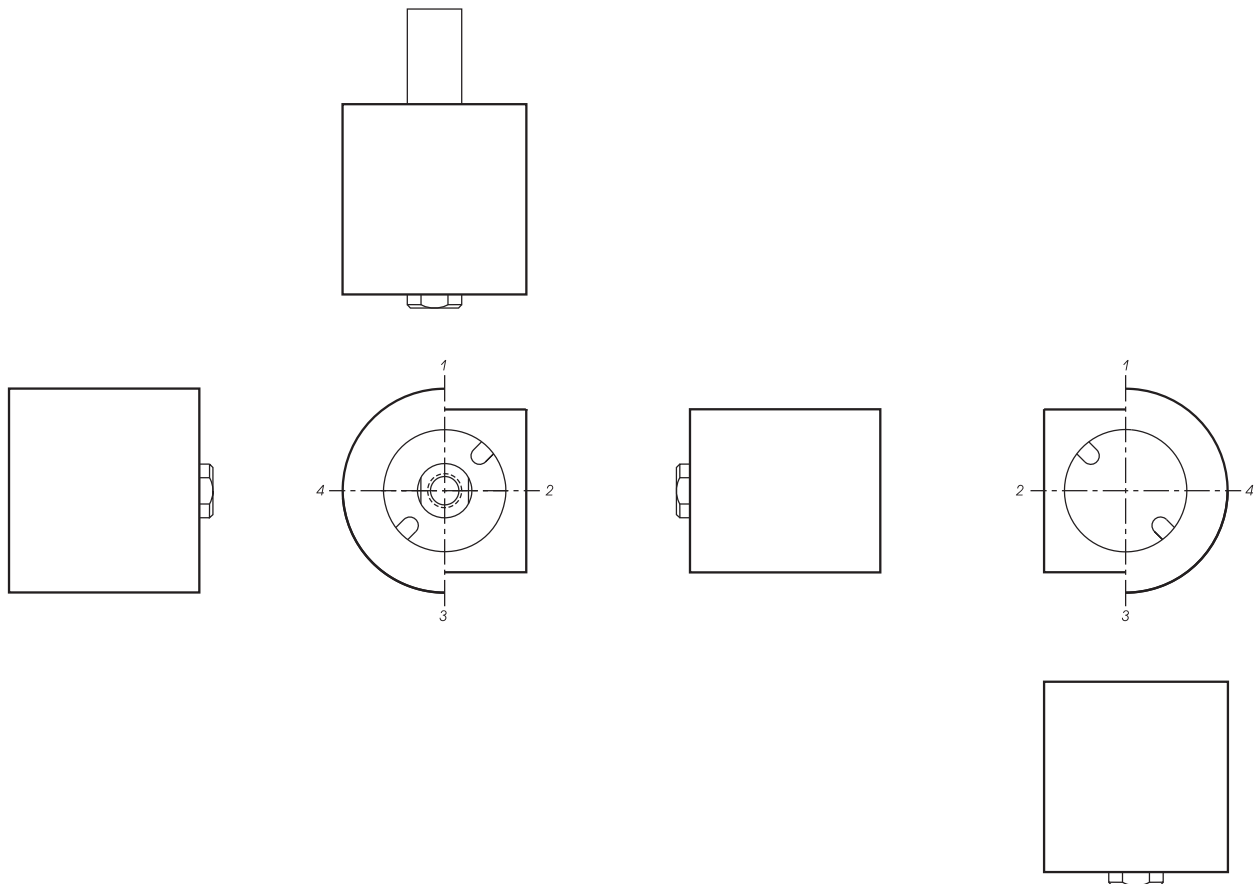
Basic Cylinder Part Number Required: _____

Prototype:

☐ Yes ☐ No

Quantity:

☐ 1 - 9 pcs.
☐ 10 - 24 pcs.
☐ 25 - 49 pcs.
☐ 50 - 99 pcs.
☐ Other: _____



Modified Hollow Rod Cylinder Proposal

Date Requested _____
Date Quoted _____

From

Company Name _____
City _____ State _____
Contact _____
Phone _____ Fax _____
E-mail _____

To

Compact Automation Products, Inc.
Contact (if known) _____
Current Compact Distributor _____
Contact _____

*– All modified and special purpose air cylinders are manufactured from our standard product lines –
To ensure a quick and accurate quote, please include all requirements.*

Round or Square Style Cylinder

Basic Cylinder Part Number Required: _____

Hollow Rod Requirements:

Base Rod Material

☐ Stainless Steel

☐ Other _____

Prototype:

☐ Yes ☐ No

Quantity:

☐ 1 - 9 pcs.

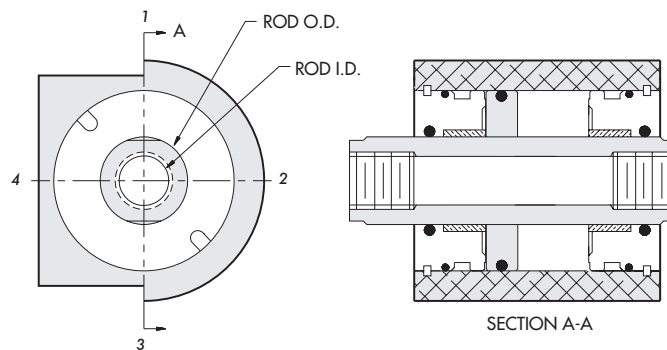
☐ 10 - 24 pcs.

☐ 25 - 49 pcs.

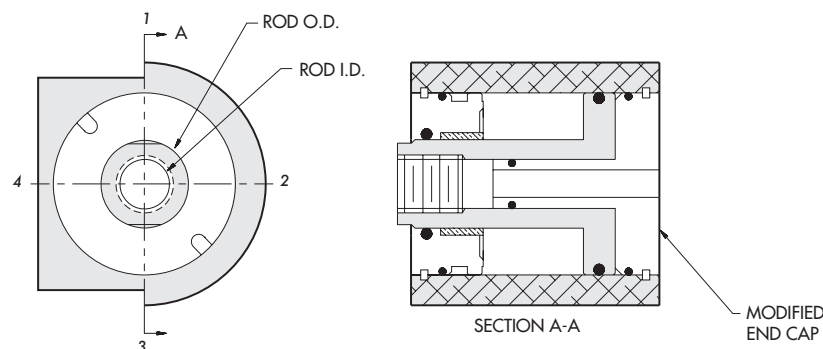
☐ 50 - 99 pcs.

☐ Other: _____

Double Rod End



Single Rod End Concept only



Standard Limit Sensors

- Low Cost and Compact® size
- Dual LED indicators for power and signal
- Circuit protection for surge and polarity
- High-flex robotic grade cable with 4,8mm (3/16") bend radius. 105 strand primaries.
- CE compliant / IP67 and NEMA 6P rated
- 100% solid state device for maximum life
- 3 cord options

(Shown with Quick Disconnect Option)



3 Prong Plug

#WSKLP, #WSCLP, #WSKLPS, #WSCLPS

NOTE: This universal sensor is used for all Compact cylinders, inch or metric.
Inch and metric sold separately, not installed.

Part No.		Sensor Type (Wiring diagrams and definitions on page 88)	Cord Types		
			Quick Disconnect	1 Meter	3 Meter
Sinking	WSKL	NPN		R	
	WSKLP		R*		
	WSKL-3				R
	WSKLPS		R*		
Sourcing	WSCL	PNP		R	
	WSCLP		R*		
	WSCL-3				R
	WSCLPS		R*		

*Mating 3 socket receptacle available, part # R3
"3" denotes 3 meter cable

WS_LP

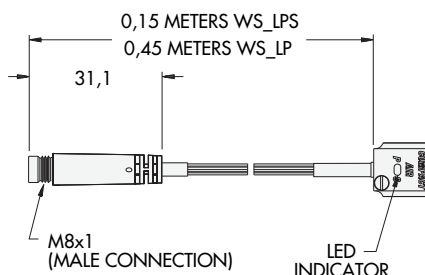
WS_LPS

Optional Quick Disconnect Sensor Cable

with threaded, sealed connectors

Part Number - Specify K or C

Plug - 3 Prong



BLUE (-)
BLACK (0)
BROWN (+)

3 Socket Mating Cable

For use with:

#WSKLP, #WSCLP, #WSKLPS, #WSCLPS,



Sold Separately

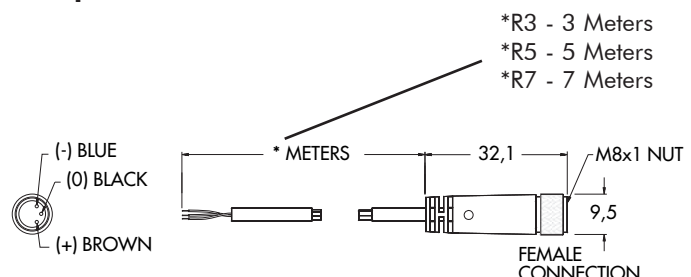
Part Number

R3

R5

R7

Receptacle - 3 Socket



*R3 - 3 Meters
*R5 - 5 Meters
*R7 - 7 Meters

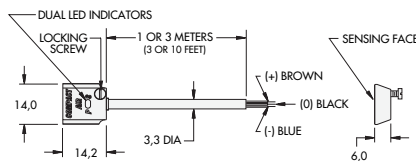
Comtronic® Sensors Dimensional Information

Must specify 'K' (sinking) or 'C' (sourcing) when ordering

Part Number - Specify K or C

WS_L WS_L-3

"3" denotes 3 meter cable



Part No. WSKL-3 - Sinking output with 3 meter cable.

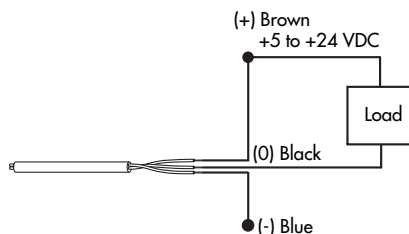


Parameters	Specifications	
	Comtronic® Standard Limit Sensors	
	NPN (sinking)	PNP (sourcing)
Part Number	WSKL, WSKL-3, WSKLP, WSKLPS	WSCL, WSCL-3, WSCLP, WSCLPS
Operating Voltage	5-24 VDC	
Current Consumption		
On	16mA (at 24V)	14mA (at 24V)
Off	7mA (at 24V)	7mA (at 24V)
Switching Current	100mA Max	
Voltage Drop	1.5 V Max @ 100mA	
Operating Frequency	1 KHz Max	
Switch Logic	Sinking, Normally Open	Sourcing, Normally Open
LED Function		
Green	Power On	
Red	Switch Active (Magnet Present)	
Operating Temperature	0°C to 70°C	
Circuit Protection	Reverse Polarity / Surge Absorber	
Environmental Certifications	IEC standard IP67, NEMA 6P	
Wire Type	High flex, 24 AWG / 105 strand primary	
Housing Material	Zinc diecast	
Housing Color Code	Black	Silver
Shock Resistance	30G Max	
Vibration Strength	9G Max	

Wiring Diagrams and Definitions

For units with flying leads

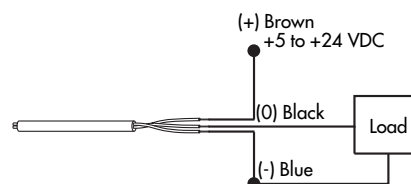
NPN Output Sinking (K)



- Ideal for complex controls utilizing multiple power supplies.

A "sinking" output sensor complete a circuit by connecting the load to ground. Sinking output sensors in a sequence can have different supply voltages. The ground is their common factor.

PNP Output Sourcing (C)

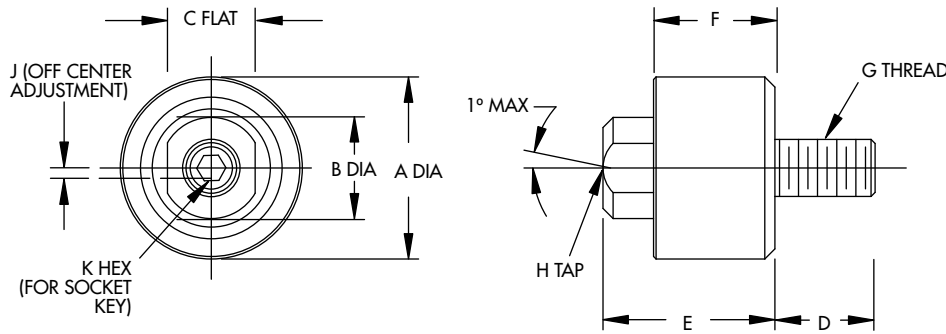


- Ideal for single power supply applications.

A "sourcing" output sensor completes a circuit by connecting the load to the supply current. All sourcing output sensors must have the same supply voltage.

Rod End Alignment Coupler Inch Sizes

LDA belgium



Material: Hardened steel
Finish: Black Oxide Finish
Maximum Temperature Rating: 200°F (93.3°C)

NOTE: Do not use alignment couplers on pivoting applications.

Sold separately - Not attached to the cylinder.

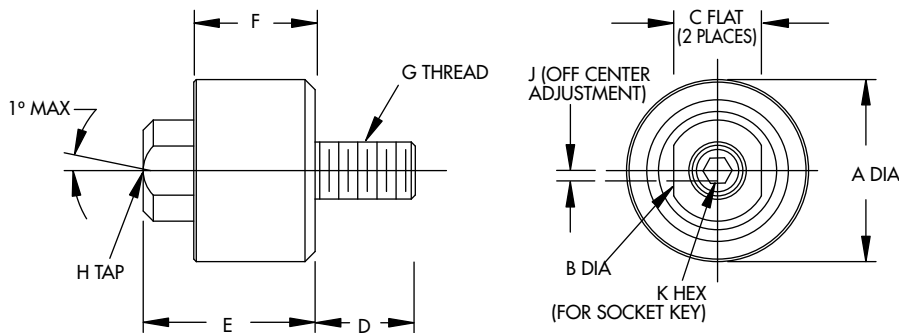
All dimensions are in inches.

Applicable Compact Air Cylinders	Screw Size	Part Number	Male Thread	Female Thread	A	B	C	D	E	F	G Male Thread	H Female Thread x Depth	J	K	Unit Weight (oz.)	Axial Load Ratings (lbs.)						
1/2"	# 8	ACCC8	Coarse		9/16	1/4	7/32	5/16	7/16	11/32	# 8-32	#8-32 x 13/64	1/64	5/64	0.4	180						
3/4"	#10	ACCC10	Coarse		9/16	5/16	1/4	11/32	9/16	13/32	# 10-24	#10-24 x 9/32	1/64	3/32	0.5	180						
		ACCF10	Coarse	Fine							# 10-24	#10-32 x 9/32										
		ACFF10	Fine								# 10-32	#10-32 x 9/32										
		ACFC10	Fine	Coarse							# 10-32	#10-24 x 9/32										
—	1/4"	ACCC14	Coarse		15/16	1/2	7/16	13/32	13/16	9/16	1/4-20	1/4-20 x 7/16	1/32	1/8	1.6	450						
		ACCF14	Coarse	Fine							1/4-20	1/4-28 x 7/16										
1-1/8"	5/16"	ACCC516	Coarse		15/16	1/2	7/16	11/16	13/16	9/16	5/16-18	5/16-18 x 15/32	1/64	5/32	1.6	580						
		ACCF516	Coarse	Fine							5/16-18	5/16-24 x 15/32										
		ACFF516	Fine								5/16-24	5/16-24 x 15/32										
		ACFC516	Fine	Coarse							5/16-24	5/16-18 x 15/32										
1-1/8"	5/16"	ACCC516L	Coarse		1-1/8	5/8	9/16	9/16	1-1/32	3/4	5/16-18	5/16-18 x 17/32	1/32	5/32	3.2	580						
		ACCF516L	Coarse	Fine							5/16-18	5/16-24 x 17/32										
		ACFF516L	Fine								5/16-24	5/16-24 x 17/32										
		ACFC516L	Fine	Coarse							5/16-24	5/16-18 x 17/32										
1-3/8" 1-5/8" 2.0"	3/8"	ACCC38	Coarse		1-1/8	5/8	9/16	19/32	1-1/32	3/4	3/8-16	3/8-16 x 9/16	1/32	3/16	3.2	830						
		ACCF38	Coarse	Fine							3/8-16	3/8-24 x 9/16										
		ACFF38	Fine								3/8-24	3/8-24 x 9/16										
		ACFC38	Fine	Coarse							3/8-24	3/8-16 x 9/16										
2-1/2" 3.0" 4.0" 5.0"	7/16"	ACCF716	Coarse	Fine	1-9/16	3/4	11/16	3/4	1-3/8	1-1/8	1/2-13	7/16-20 x 3/4	1/16	1/4	8.8	1690						
		ACFF716	Fine								1/2-20	7/16-20 x 3/4										
	1/2"	ACCC12	Coarse								1-9/16	3/4	11/16	3/4	1-3/8	1-1/8	1/2-13	1/2-13 x 3/4	1/16	1/4	8.8	1690
		ACCF12	Coarse	Fine													1/2-13	1/2-20 x 3/4				
		ACFF12	Fine														1/2-20	1/2-20 x 3/4				
		ACFC12	Fine	Coarse													1/2-20	1/2-13 x 3/4				
6.0" 8.0"	5/8"	ACCC58	Coarse		2-1/4	1.0	15/16	15/16	1-3/4	1-1/2	5/8-11	5/8-11 x 15/16	1/16	5/16	24.0	3220						
		ACCF58	Coarse	Fine							5/8-11	5/8-18 x 15/16										
		ACFF58	Fine								5/8-18	5/8-18 x 15/16										
		ACFC58	Fine	Coarse							5/8-18	5/8-11 x 15/16										

Rod End Alignment Coupler Combination Sizes

LDA belgium

FIRST ANGLE
PROJECTION



Material: Hardened steel
Finish: Black Oxide Finish
Maximum Temperature Rating: 200°F (93.3°C)

NOTE: Do not use alignment couplers on pivoting applications.

Sold separately - Not attached to the cylinder.

All dimensions are in millimeters except where noted.

Applicable Compact Air Cylinder	Part Number	A	B	C	D	E	F	G Male Thread	H Female Thread X Depth	J	K mm (Inch)	Unit Weight (Grams)	Axial Load Rating (N)
1/2" & 10mm	WACC8-M4	14,3	6,1	5,0	8,0	11,2	8,7	#8-32	M4x0,7 x 6		1,98 (5/64)		
10mm	WACM4-C8	14,0	6,35	5,6	6,0	12,5	10,0	M4x0,7	#8-32 x 1/4	0,4	2,5 (.098)	11,4	815
3/4"	WACC10-M5							#10-24					
	WACF10-M5	14,3	7,6	7,0	8,7	14,5	10,3	#10-32	M5x0,8 x 8		2,38 (3/32)		
20mm 25mm	WACM5-C10								#10-24 x 5/16				
	WACM5-F10	14,0	7,9	6,35	8,0	15,2	11,0	M5x0,8	#10-32 x 5/16	0,4	3,0 (.118)	14,2	815
-	WACC14-M6	23,8	12,4	10,0	10,3	20,8	14,3	1/4-20	M6x1 x 13		3,18 (1/8)		
40mm	WACM6-C14								1/4-20 x 1/2				
	WACM6-F14	24,0	12,7	11,1	9,7	21,5	15,0	M6x1	1/4-28 x 1/2	0,8	4,0 (.157)	45,4	2045
1-1/8"	WACC516-M8							5/16-18					
	WACF516-M8	23,8	12,4	10,0	17,5	20,8	14,3	5/16-24	M8x1,25 x 13		3,97 (5/32)		
-	WACM8-C516								5/16-18 x 5/8				
	WACM8-F516	24,0	12,7	11,1	11,7	22,5	16,0	M8x1,25	5/16-24 x 5/8	0,4	5,0 (.197)	45,4	2580
1-3/8 1-5/8 2.0"	WACC38-M10							3/8-16					
	WACF38-M10	28,6	15,6	13,0	15,1	26,3	19,1	3/8-24	M10x1,5 x 15		4,76 (3/16)		
-	WACM10-C38								3/8-16 x 5/8				
	WACM10-F38	28,0	15,9	14,3	16	26,5	20,0	M10x1,5	3/8-24 x 5/8	0,8	7,0 (.276)	90,7	3700
2-1/2 3.0 4.0 5.0"	WACM12-F716	39,0	19,1	17,5	17,9	36,5	30,0	M12x1,75	7/16-20 x 13/16		8,0 (.315)		
	WACC12-M12							1/2-13					
	WACF12-M12	39,7	18,8	16,0	19,1	35,1	28,6	1/2-20	M12x1,75 x 19		6,35 (1/4)		
	WACM12-C12								1/2-13 x 13/16				
	WACM12-F12	39,0	19,1	17,5	17,9	36,5	30,0	M12x1,75	1/2-20 x 13/16	1,6	8,0 (.315)	250,0	7540



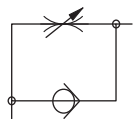
Unique Inch to Metric Combinations

- Inch Sizes: #10-32, 1/8NPTF, 1/4NPTF
- Metric Sizes: M5, G1/8, G1/4
- #10-32 valves available with a space saving integral barb for 1/8" I.D. tubing.

- Meter Out style valves can be factory installed to your Compact Automation cylinders, guided cylinders, gripper, etc... at no extra charge. See Factory Installed below.

3 Flow Paths

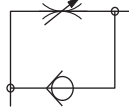
Style "MO" Meter Out



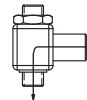
- Metered Output
- Free Flow Input



Style "MI" Meter In



- Metered Input
- Free Flow Output



Style "NV" Needle Valve Meter Both Ways



- Metered Input
- Metered Output



Precision Control

- A unique needle design minimizes turbulence and improves flow control ability.
- A super fine pitch needle thread provides the finest adjustment available.
- Captive needle cannot be adjusted out of the housing.

Sizes	Needle Pitch	Number of Turns
# 10-32	80 TPI	6
M5 x .8	.32mm	
1/8NPTF	60 TPI	8
G1/8	.42mm	
1/4NPTF	56 TPI	8
G1/4	.45mm	

Model Numbers*

Port Thread	"MO" Color Code: Black			"MI" Color Code: Red			"NV" Color Code: Silver		
	Model #	Male Thread	Female Thread	Model #	Male Thread	Female Thread	Model #	Male Thread	Female Thread
# 10-32 M5	MO10	# 10-32	# 10-32	MI10	# 10-32	# 10-32	NV10	# 10-32	# 10-32
	MO5	M5	M5	MI5	M5	M5	NV5	M5	M5
	MO10-5	# 10-32	M5	MI10-5	# 10-32	M5	NV10-5	# 10-32	M5
	MO5-10	M5	# 10-32	MI5-10	M5	# 10-32	NV5-10	M5	# 10-32
	MO10B	# 10-32	1/8" barb	MI10B	# 10-32	1/8" barb	NV10B	# 10-32	1/8" barb
	MO5B	M5	1/8" barb	MI5B	M5	1/8" barb	NV5B	M5	1/8" barb
1/8-27NPTF G1/8	MO18	1/8NPTF	1/8NPTF	MI18	1/8NPTF	1/8NPTF	NV18	1/8NPTF	1/8NPTF
	MOG18	G1/8	G1/8	MIG18	G1/8	G1/8	NVG18	G1/8	G1/8
	MO18-G18	1/8NPTF	G1/8	MI18-G18	1/8NPTF	G1/8	NV18-G18	1/8NPTF	G1/8
	MOG18-18	G1/8	1/8NPTF	MIG18-18	G1/8	1/8NPTF	NVG18-18	G1/8	1/8NPTF
1/4-18NPTF G1/4	MO14	1/4NPTF	1/4NPTF	MI14	1/4NPTF	1/4NPTF	NV14	1/4NPTF	1/4NPTF
	MOG14	G1/4	G1/4	MIG14	G1/4	G1/4	NVG14	G1/4	G1/4
	MO14-G14	1/4NPTF	G1/4	MI14-G14	1/4NPTF	G1/4	NV14-G14	1/4NPTF	G1/4
	MOG14-14	G1/4	1/4NPTF	MIG14-14	G1/4	1/4NPTF	NVG14-14	G1/4	1/4NPTF

NPTF = National Pipe Thread Dry Seal (1/8NPTF and 1/4 NPTF)

"G" = BSPP British Standard Pipe Parallel (G1/8 and G1/4)

1/8" Barb is for 1/8" ID polyurethane or vinyl tubing

* = All model numbers are available with the Knob Option, add suffix "K" to the end of the part number.

Factory Installed

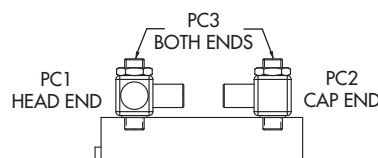
Compact Automation Products will factory install any "MO" model flow control at no charge.

How to Order:

- 1.) Verify "MO" model number required from the chart above.
- 2.) Choose factory installation: "PC1" Head end only, "PC2" Cap end only, "PC 3" Head and cap end
- 3.) Remove "MO" from model number and add "PC" option to the end

Factory Installed part number example: G18-18PC3

Flow control required: MOG18-18
Install at: head and cap end PC3
(Remove MO add PC3 to end)

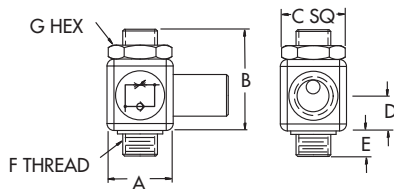


Specify our unique Inch to Metric or Metric to Inch combination flow controls factory installed to convert cylinder ports.

For example, metric cylinder part number WS25x25 - G18-18PC3 would place two metered output flow controls on the cylinder and allow for the use of 1/8-27 NPTF fittings.

Dimension Information Minimum body length for two part controls - 7/8"

Inch Version



Model #	A	B	C	D	E	F	G
MO10 MI10 NV10	11/16	9/16	3/8	3/16	5/32	#10-32	5/16
MO18 MI18 NV18	1.0	29/32	9/16	5/16	5/16	1/8-27 NPTF	9/16
MO14 MI14 NV14	1-1/8	1-1/32	11/16	3/8	13/32	1/4-18 NPTF	11/16

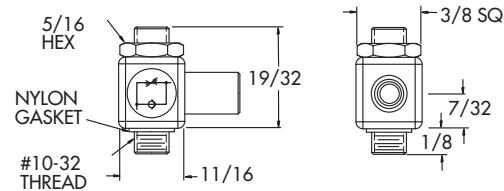
Combination

Important Note

The combination units with Inch and Metric threads are modular versions of both drawings.

Barb Fitting for #10-32 or M5 only

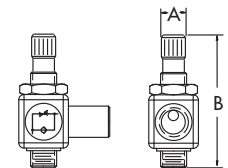
#10-32 or M5 Male to Barb for 1/8" I.D. tubing



Model Number Examples	MO10B	MI10B	NV10B
	MO5B	MI5B	NV5B

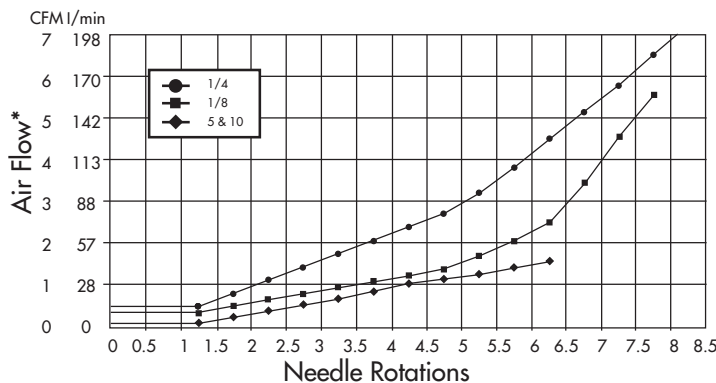
Knob Option Available with any valve

Inch Version



Model Number	MO10K MI10K NV10K	MO18K MI18K NV18K	MO14K MI14K NV14K
A	5/32	15/64	19/64
B (max.)	29/32	1-5/16	1-5/8

Flow Chart



* at 60 PSI (4.1 BAR) and 60°F (15°C)

Cv Factor

Cv = Volume of water in gallons at 60°F (15°C) that will flow per minute through the valve with a pressure differential of 1 PSI across the valve.

Style	Flow Direction (Fully open)	# 10-32 M5	1/8-27 G1/8	1/4-18 G1/4
MO	Free Cv	.08	.25	.42
	Metered Cv	.05	.20	.38
MI	Free Cv	.07	.23	.40
	Metered Cv	.06	.22	.39
NV	Metered Cv	.05	.24	.38

Materials and Technical Data

Size	Housing	Inner Housing	Needle	Seals	Pressure Ratings	Captive Needle	360° Swivel	Gasket Material
M5 # 10-32	Nickel Plated Brass	Nickel Plated Brass	Stainless Steel	Buna-N 0°F to 200°F -15°C to 90°C	0 to 175 PSI 0 to 12 BAR	Yes	Yes- Prior to tightening 1/8NPTF and 1/4NPTF swivel after mounting	Nylon 0°F to 200°F -15°C to 90°C
1/8 and 1/4	Anodized Aluminum							



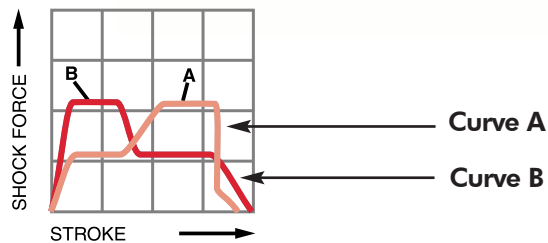
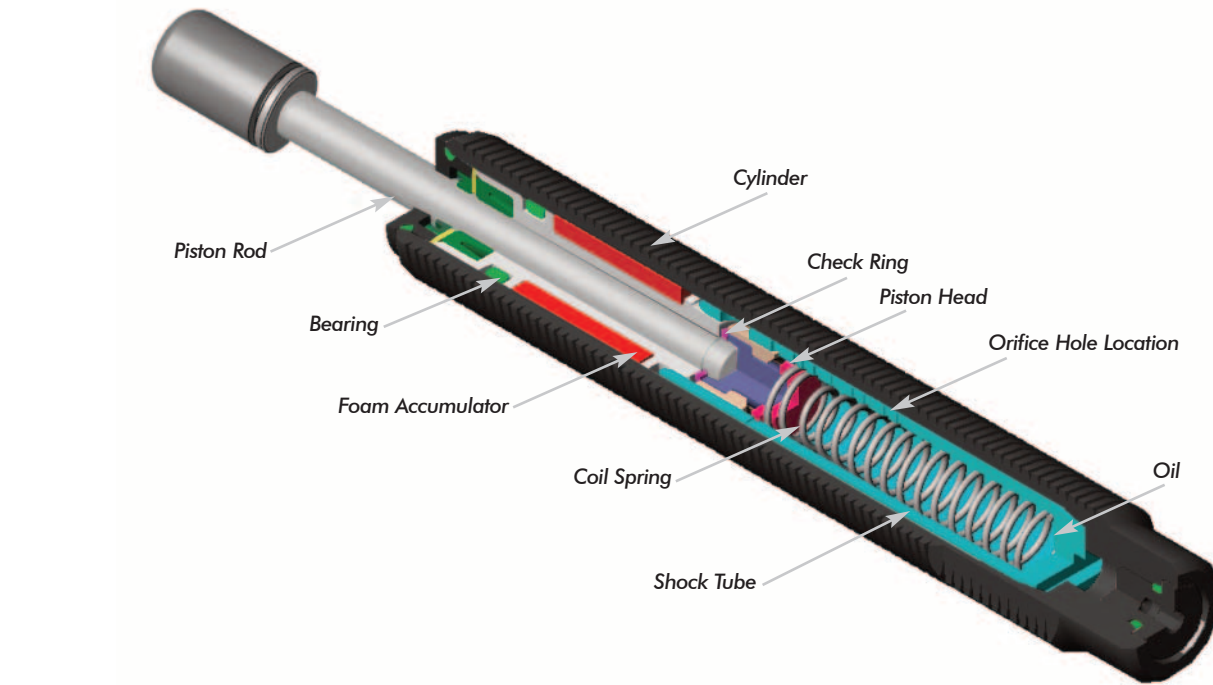
Compact Automation's **New CHS Series** non-adjustable hydraulic shock absorbers can accommodate varying energy conditions. This family of tamperproof shock absorbers provides consistent performance, cycle after cycle. Non-adjustable models are designed to absorb maximum energy within a compact envelope size.

The **CHS Series** was designed using materials and fluids that are safe for our environment. Models can accommodate a wide range of operating conditions with varying masses or propelling forces. The **CHS Series** offers a flexible design to accommodate a wide variety of application parameters. Whether your application has a low velocity/high drive force or high velocity/low drive force condition, the **New CHS Series** will deliver the performance that you have come to expect.

Features and Benefits

- **Extensive non-adjustable product line** offers flexibility in both size and energy absorption capacity to fulfill a wide range of application requirements.
- **Environmentally friendly materials:**
 - RoHS Compliant materials
 - Bio-degradable hydraulic oil
 - Copper-Free design
 - Recyclable packaging materials
- **Introducing our new Enicote II surface finish:**
 - RoHS Compliant
 - Rated at 350 hours salt spray corrosion protection
- **Jam Nut included** with every shock absorber.
- **ISO quality standards** result in reliable, long-life operation.
- **Tamperproof design** ensures repeatable performance.
- **Threaded cylinders provide mounting flexibility** and increase surface area for improved heat dissipation.
- **Wrench flats** promote ease of mounting
- **Capability to mount into pressure chambers**
- **Integrated positive stopping capabilities** up to 100 psi (7 bar).
- **Special materials and finishes** can be designed to meet specific customer requirements
 - Optional fluids and seal packages can expand the standard operating temperature range from (15°F to 180°F) to (-30°F to 210°F)
 - Food grade options available

Non-Adjustable Multiple Orifice Shock Absorbers



Self-compensating damping maintains acceptable deceleration with conventional type damping characteristics. Self-compensating shock absorbers operate over a wide range of weights and velocities. These shock absorbers are well suited for high drive force, low velocity applications, and where energy conditions may change. **Curve A** shows the *shock force vs. stroke* curve of a self-compensating shock absorber impacted with a low velocity and high drive force. **Curve B** shows the *shock force vs. stroke* curve of a self-compensating shock absorber impacted with a high velocity and low drive force.

The design of a multi-orifice shock absorber features a double cylinder arrangement with space between the concentric shock tube and cylinder, and a series of orifice holes drilled down the length of the shock tube wall.

During piston movement, the check ring is seated and oil is forced through the orifices in the shock tube wall, into the closed cellular foam accumulator and behind the piston head.

As the piston head moves it closes off orifice holes, thus reducing the available orifice area in proportion to the velocity. After the load is removed the coil spring pushes the piston rod outward. This unseats the check ring and permits the oil to flow from the accumulator and across the piston head, back into the shock tube. This allows quick repositioning for the next impact.

Low Pressure multiple orifice shock absorbers can provide progressive or self-compensating damping, depending on the impact conditions.

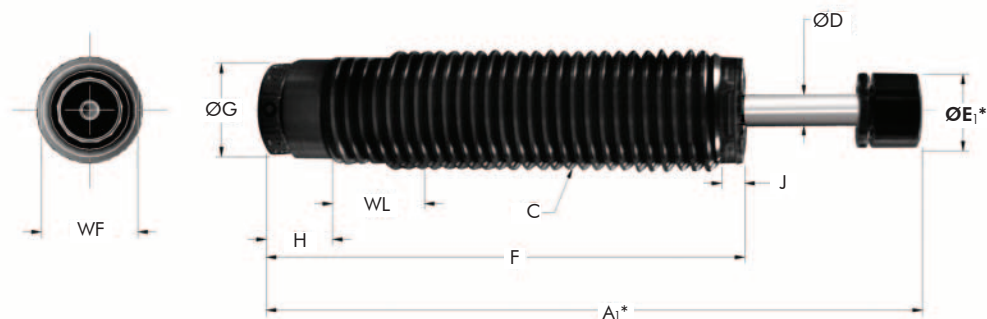
Non-Adjustable Series Hydraulic Shock Absorbers | CHS Series

Technical Data

LDA belgium

Standard

CHS 8 → CHS 100 Series



*Note: A₁ and E₁ apply to button models and urethane striker cap accessory. One Hex Jam Nut included with every shock absorber.

Catalog No./ Model	(S) Stroke in. (mm)	(E _T) Max. in.-lbs./cycle (Nm/cycle)	(E _T E) Emergency Max. in.-lbs./cycle (Nm/cycle)	(E _T C) Max. in.-lbs./hour (Nm/h)	(F _p) Max. Reaction Force lbs. (N)	Nominal Coil Spring Force		(F _D) Max. Propelling Force lbs. (N)	Model Weight oz. (g)
						Extended lbs. (N)	Compressed lbs. (N)		
CHS 8 (B)	0.25 (6,4)	35 (4,0)	—	55,000 (6 215)	200 (890)	0.6 (2,7)	1.2 (5,6)	45 (200)	.5 (16)
CHS 10 (B)	0.28 (7,0)	62 (7,0)	—	120,700 (13 640)	360 (1 600)	0.5 (2,2)	1.0 (4,5)	80 (350)	1.0 (28)
CHS 15 (B)	0.41 (10,4)	106 (12,0)	220 (25)	275,000 (31 020)	450 (2 000)	0.7 (3,0)	1.6 (7,0)	50 (220)	2.0 (56)
CHS S 25 (B)	0.50 (12,7)	212 (24,0)	390 (44)	331,000 (37 400)	625 (2 800)	1.0 (4,5)	2.5 (11,0)	200 (890)	2.4 (68)
CHS 25 (B)	0.63 (16,0)	265 (30,0)	500 (56)	389,000 (44 000)	625 (2 800)	1.0 (4,5)	2.5 (11,0)	200 (890)	2.4 (68)
CHS S 50 (B)	0.50 (12,7)	285 (32,0)	560 (63)	440,000 (49 720)	850 (3 750)	1.5 (6,0)	3.5 (15,0)	360 (1 600)	3.0 (69)
CHS 50 (B)	0.88 (22,0)	550 (62,0)	975 (110)	523,000 (59 070)	850 (3 750)	2.0 (8,9)	6.8 (30,0)	360 (1 600)	4.8 (136)
CHS 100 (B)	1.00 (25,0)	930 (105,0)	2210 (250)	681,500 (77 000)	1,250 (5 500)	3.0 (13,0)	6.0 (27,0)	500 (2 200)	10.5 (297)

*Notes: Maximum emergency rating for emergency use only. Estimated cycle life of 1-5 cycles if used at maximum emergency rating.

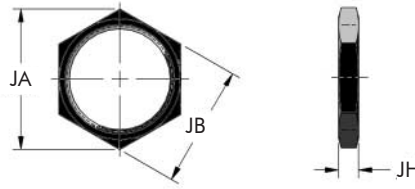
Catalog No./ Model	Damping Constant	A ₁ in. (mm)	C in. (mm)	D in. (mm)	E ₁ in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	WF in. (mm)	WL in. (mm)
CHS 8 IF (B)	-1,-2,-3	2.25 (57,0)	3/8 - 32 UNEF	.10 (2,5)	0.27 (6,8)	1.61 (40,9)	.26 (6,6)	.18 (4,6)	.10 (2,5)	—	—
CHS 8 MF (B)	-1,-2,-3		M8 x 0,75								
CHS 8 MC (B)	-1,-2,-3	2.51 (64,0)	1/16 - 28 UNEF	.12 (3,0)	0.34 (8,6)	1.83 (46,5)	.34 (8,6)	.18 (4,6)	.13 (3,3)	—	—
CHS 10 IF (B)	-1,-2,-3		M10 x 1,0								
CHS 10 MF (B)	-1,-2,-3	2.85 (72,4)	7/16 - 28 UNEF	.12 (3,0)	.40 (10,2)	2.10 (52,1)	.39 (9,9)	.27 (6,9)	.10 (2,5)	.39 (11,0)	.38 (9,5)
CHS 15 IF (B)	-1,-2,-3,-4		M12 x 1,0								
CHS 15 IC (B)	-1,-2,-3,-4	3.63 (92,2)	1/2 - 20 UNEF	.16 (4,0)	0.44 (11,2)	2.74 (69,5)	.43 (10,9)	.20 (5,1)	.04 (1,0)	.50 (12,0)	.50 (12,7)
CHS S 25 MF (B)	-1,-2,-3		M14 x 1,0								
CHS S 25 IC (B)	-1,-2,-3	4.22 (107,2)	9/16 - 18 UNF	.16 (4,0)	.44 (11,2)	3.20 (81,3)	.43 (10,9)	.30 (7,6)	.04 (1,0)	.50 (12,0)	.50 (12,7)
CHS S 25 MC (B)	-1,-2,-3		M14 x 1,5								
CHS 25 IF (B)	-1,-2,-3,-4	5.13 (130,3)	1/2 - 20 UNF	.19 (4,8)	0.50 (12,7)	3.76 (95,5)	.64 (16,3)	.30 (7,6)	.04 (1,0)	.68 (18,0)	.50 (12,7)
CHS 25 MF (B)	-1,-2,-3,-4		M14 x 1,0								
CHS 25 IC (B)	-1,-2,-3,-4	5.57 (141,5)	9/16 - 18 UNF	.25 (6,4)	0.62 (15,7)	4.04 (102,6)	.87 (22,0)	.50 (12,7)	.18 (4,6)	.88 (23,0)	.50 (12,7)
CHS 25 MC (B)	-1,-2,-3,-4		M14 x 1,5								
CHS S 50 IF (B)	-1,-2,-3	5.57 (141,5)	3/4 - 16 UNF	.25 (6,4)	0.62 (15,7)	4.04 (102,6)	.87 (22,0)	.50 (12,7)	.18 (4,6)	.88 (23,0)	.50 (12,7)
CHS S 50 MC (B)	-1,-2,-3		M20 x 1,5								
CHS 50 IF (B)	-1,-2,-3,-4	5.57 (141,5)	3/4 - 16 UNF	.25 (6,4)	0.62 (15,7)	4.04 (102,6)	.87 (22,0)	.50 (12,7)	.18 (4,6)	.88 (23,0)	.50 (12,7)
CHS 50 MC (B)	-1,-2,-3,-4		M20 x 1,5								
CHS 100 IF (B)	-1,-2,-3,-4	5.57 (141,5)	1-12 UNF	.25 (6,4)	0.62 (15,7)	4.04 (102,6)	.87 (22,0)	.50 (12,7)	.18 (4,6)	.88 (23,0)	.50 (12,7)
CHS 100 MF (B)	-1,-2,-3,-4		M25 x 1,5								
CHS 100 MC (B)	-1,-2,-3,-4		M27 x 3,0								

Notes: 1. See page 108 for constant damping curves.

CHS 8 → CHS 100 Series

Jam Nut (JN)

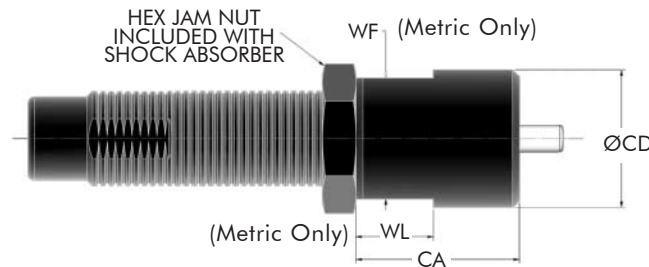
*Note: One Hex Jam Nut included with every shock absorber.



Catalog No./Model	CHS Series Part Number	Model (Ref)	JA in. (mm)	JB in. (mm)	JH in. (mm)	Weight (mass) oz. (g)
JN 3/8 - 32	J123839034	CHS 8 (B)	0.58	0.50	.09	0.1
JN M8 x 0,75	J223839185	CHS 8 MF (B)	(14,0)	(12,0)	(4,0)	(2)
JN M8 x 1	J223839035	CHS 8 MC (B)	(14,0)	(12,0)	(4,0)	(2)
JN 7/16 - 28	J123840034	CHS 10 IF (B)/CHS 15 (B)	0.65	0.56	.16	0.1
JN M10 x 1	J223840167	CHS 10 MF (B)	(17,3)	(15,0)	(4,0)	(2)
JN M12 x 1	J223841035	CHS 15 M (B)	(15,0)	(13,0)	(3,2)	(2)
JN 1/2 - 20	J123842166	CHS 25 IF (B)	0.72	0.63	.12	0.1
JN M14 x 1	J223842035	CHS S/CHS 25 MF (B)	(19,7)	(17,0)	(4,0)	(3)
JN 9/16 - 18	J123842034	CHS S/CHS 25 IC (B)	1.01	0.88	.31	0.6
JN M14 x 1,5	J223842165	CHS S/CHS 25 MC (B)	(19,7)	(17,0)	(4,0)	(3)
JN 3/4 - 16	J123844034	CHS S/CHS 50 IC (B)	1.08	0.94	.18	0.3
JN M20 x 1,5	J223844035	CHS S/CHS 50 MC (B)	(27,7)	(24,0)	(4,6)	(7)
JN 1-12	J123846034	CHS 100 (B)	1.30	1.13	.18	0.5
JN M25 x 1,5	J223846035	CHS 100 MF (B)	(37,0)	(32,0)	(4,6)	(15)

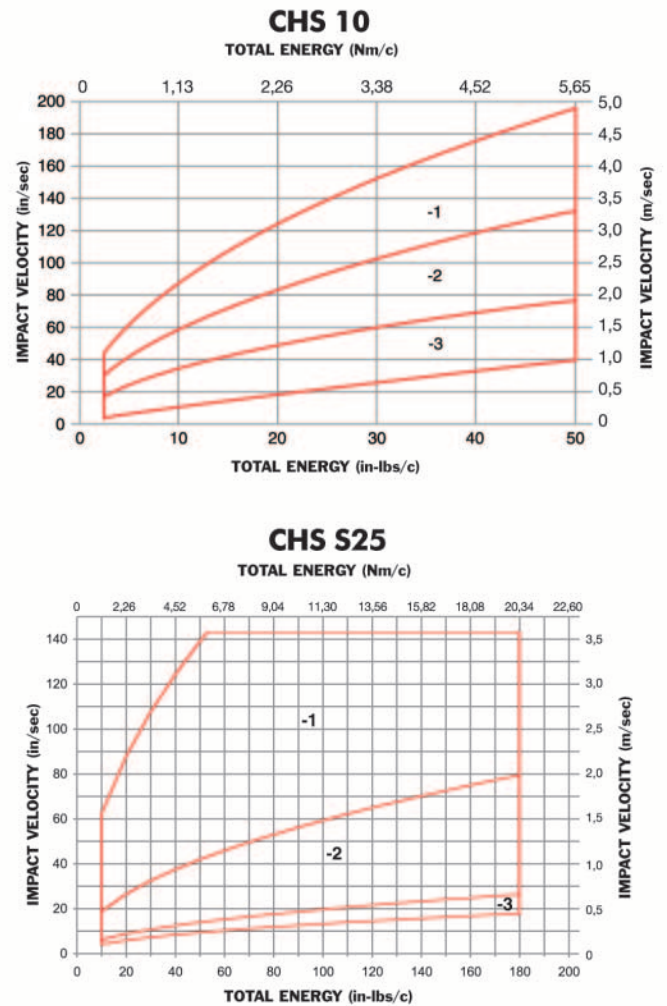
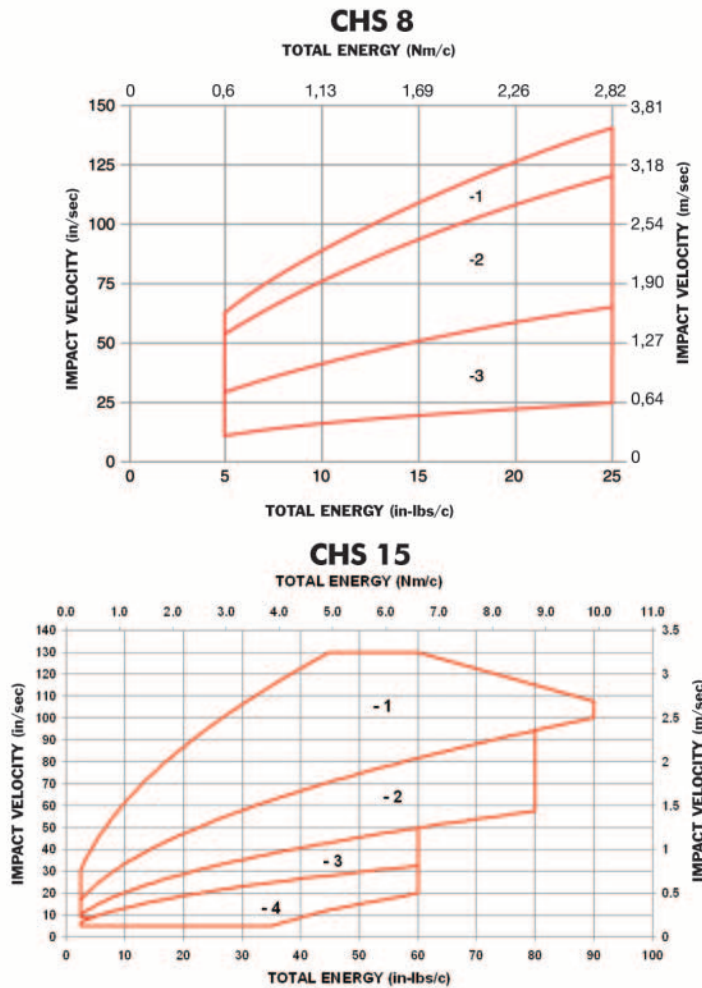
Stop Collar (SC)

CHS 8 → CHS 100



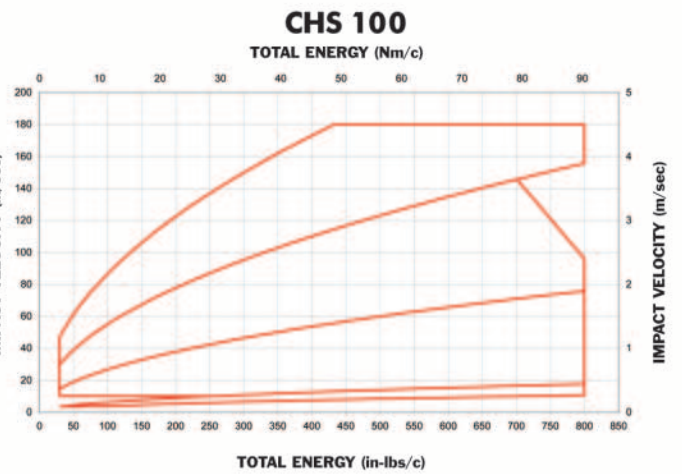
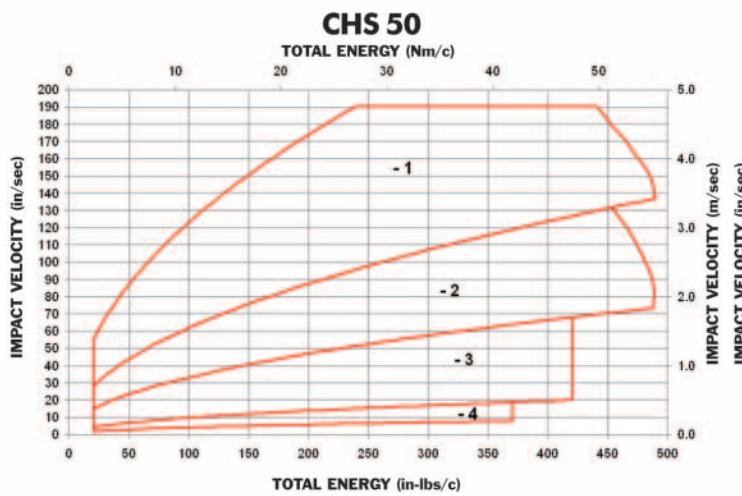
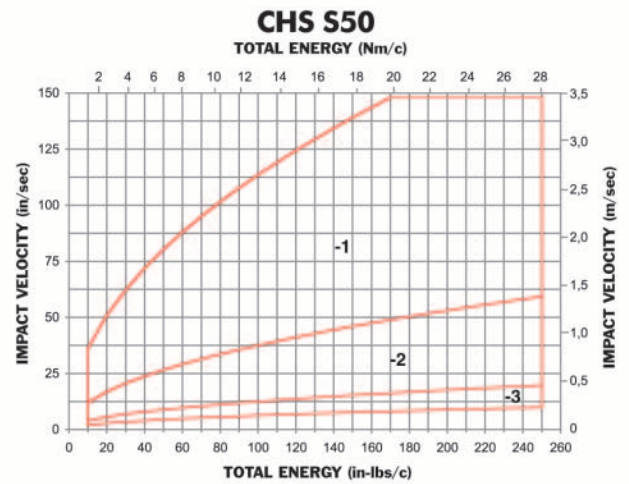
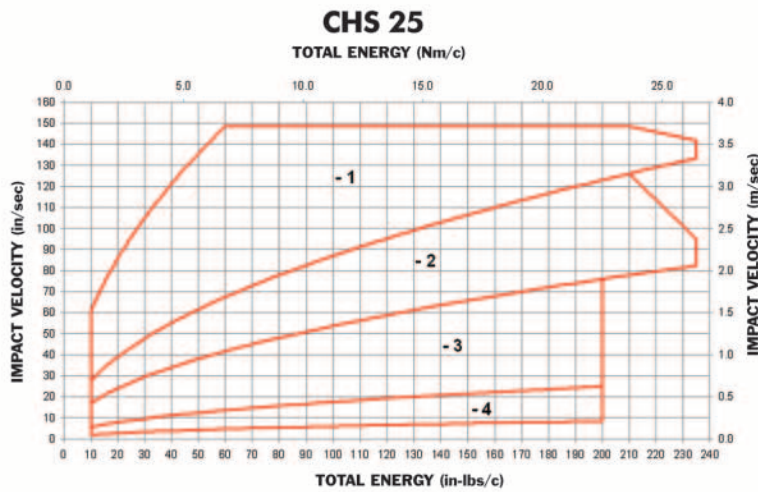
Catalog No./Model	CHS Series Part Number	Model (Ref)	CA in. (mm)	CB in. (mm)	CD in. (mm)	WF in. (mm)	WL in. (mm)	Weight (mass) oz. (g)
SC M8 x 0,75	M923839175	CHS 8 MF (B)	(19,0)	(12,0)	(14,0)	—	—	(23)
SC M8 x 1	M923839058	CHS 8 MC (B)	(19,0)	(12,0)	(14,0)	—	—	(23)
SC 7/16 - 28	M923841057	CHS 10 IF (B)	0.75	—	0.63	—	—	.5
SC M10 x 1	M923840171	CHS 10 MF (B)	(19,0)	—	(14,0)	—	—	(11)
SC 7/16 - 28	M923841057	CHS 15 (B)	0.75	—	0.63	—	—	.5
SC M12 x 1	M923841058	CHS 15 M (B)	(19,0)	—	(16,0)	(14,0)	(9,0)	(14)
SC 1/2 - 20	M923842057	CHS 25 IF (B)	1.00	—	0.75	—	—	1.0
SC M14 x 1,5	M923842171	CHS S/CHS 25 MF (B)	(25,4)	—	(21,0)	(19,0)	(12,0)	(38)
SC 9/16 - 18	M923842199	CHS S/CHS 25 IC (B)	1.00	—	0.69	—	—	1.0
SC M14 x 1	M923842058	CHS S/CHS 25 MF (B)	(25,4)	—	(19,0)	(17,0)	(12,0)	(20)
SC 3/4 - 16	M923844057	CHS S/CHS 50 (B)	1.50	—	1.00	—	—	2.0
SC M20 x 1,5	M924057058	CHS S/CHS 50 M (B)	(38,0)	—	(25,0)	(22,0)	(12,0)	(63)
SC 1-12 x 1	M923846057	CHS 100 (B)	1.75	—	1.50	—	—	8.0
SC M25 x 1,5	M923846171	CHS 100 MF (B)	(44,5)	—	(38,0)	(32,0)	(15,0)	(215)

CHS 8 → CHS 100 Series



Note: Minimum impact velocity for CHS models is 4in./sec. (0,1 m/sec).

CHS 8 → CHS 100 Series



Note: Minimum impact velocity for CHS models is 4in./sec. (0,1 m/sec).



CRC Series

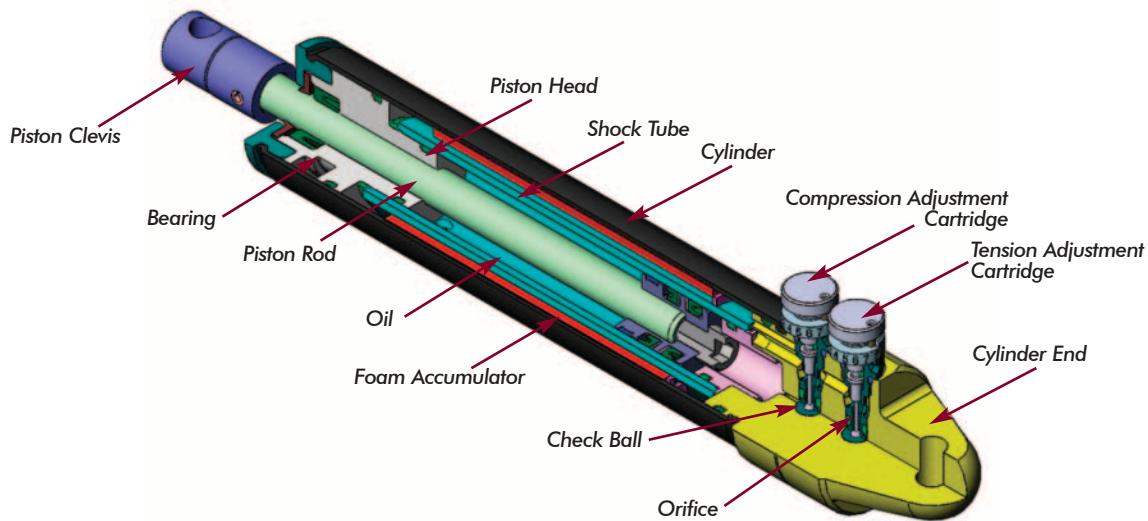
Compact Automation Rate Controls are designed to regulate the speed and time required for a mechanism to move from one position to another. Adjustable and non-adjustable models are available to accommodate a wide variety of motion control applications. Both single and double acting hydraulic damper designs allow smooth, controllable machine operation by providing rate control for both linear and rotational (hinged) loads. Each product family offers a variety of stroke lengths from which to choose.

Compact Rate Controls (CRC 500) regulate speed in both tension and/or compression modes independently. CRC products let the user adjust the rate to suit specific application requirements. Fixed orifice interchangeable cartridges are available for the CRC 500 Series, which provide tamperproof operation once the desired rate has been determined. An optional remote adjustment cable provides adjustment control in otherwise inaccessible locations for the CRC 500 Series.

Features and Benefits

- Extensive product line offers flexibility in both size and load capacities to fulfill a wide range of application requirements.
- Custom stroke lengths and damping characteristics can be designed to suit your application requirements.
- ISO quality standards result in reliable, long-life operation.
- Incorporating optional fluids can expand the standard operational temperature range from (15°F to 180°F) to (-30°F to 210°F).
- A select variety of surface finishes maintains original quality appearance and provides the longest corrosion resistance protection.
- Special materials and finishes available to meet specific customer requirements.

Adjustable Double Acting (CRC) Series Rate Control



Compact Automation Double Acting Adjustable (CRC) rate controls control the velocity of both linear and rotational loads throughout their entire motion. Adjustment cartridges on the CRC 500 Series allow flexibility in controlling the speed for an applied force in both the tension and compression directions. Maximum damping is achieved by turning the adjustment knob to the number eight (8) setting, while turning the knob to the zero (0) setting provides minimal resistance. Interchangeable, threaded, fixed-orifice cartridges can provide consistent, tamper-resistant damping to meet particular application requirements.

The CRC 500 Series utilizes two independent adjustment cartridges for motion control in each direction, housed in the cylinder end.

Resistance is controlled by using a wrench key at either end of the rate control and adjusting the movement by following the stiffer (+) or softer (-) indications. When the rate control is compressed, the oil is orificed through the compression adjustment cartridge and flows freely through the tension adjustment cartridge. The tension cartridge check ball unseats and allows free flow of the oil to the rod end of the shock tube. A foam accumulator is utilized to accept the volume of oil displaced by the piston rod. When the rate control is extended, oil is moved through an internal flow path in the shock tube and is orificed through the tension adjustment cartridge. The compression cartridge check ball unseats and allows free flow of the oil into the blind end of the shock tube.

Compact Automation Rate Controls are used to regulate the speed or time required for a mechanism to move from one position to another. They use proven technology to enhance performance in a variety of product applications. Rate controls are typically used to control pneumatic cylinders, linear slides, lids, and other moving mechanisms.

The advantages of using rate controls include:

- 1. Longer Machine Life** – The use of rate controls significantly reduces shock and vibration to machinery caused by uncontrolled machine operation. This further reduces machinery damage, downtime and maintenance costs, while increasing machine life.
- 2. Improved Production Quality** – Harmful effects of uncontrolled motion, such as noise, vibration and damaging impacts, are moderated or eliminated so that production quality is improved.
- 3. Safer Machinery Operation** – Rate controls protect machinery and equipment operators by offering predictable, reliable and controlled machine operation.
- 4. Competitive Advantage** – Machines and end products become more valuable because of increased productivity, longer life, lower maintenance and safer operation.

Compact Automation offers a wide range of rate controls that provide motion control in tension, compression, or both directions. Adjustable and non-adjustable tamperproof models are available to fit your particular application requirements.

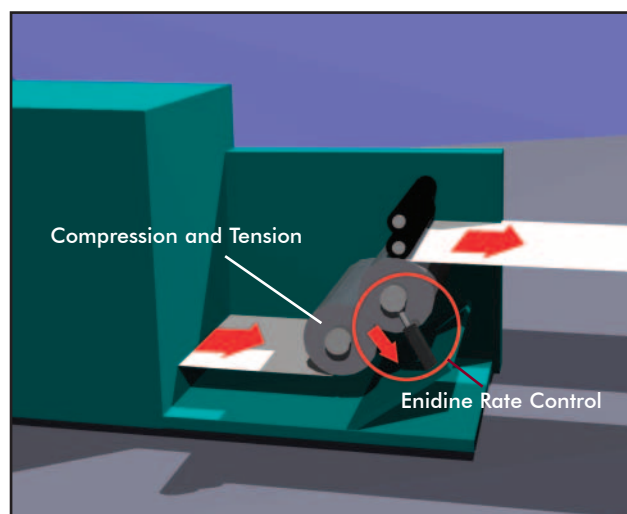
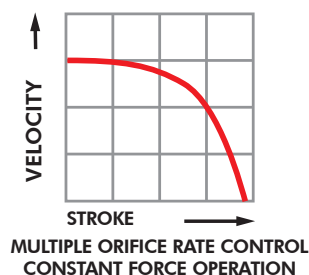
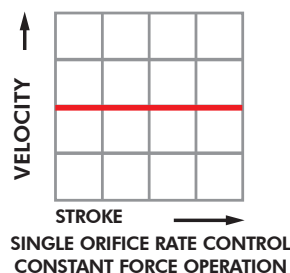
The resisting force provided by Compact Automation rate controls is typically constant over the entire stroke when the piston rod is moved at a constant velocity, since the rate controls are single orifice products.

Rate Control Adjustment Techniques

A properly adjusted rate control safely controls machinery operation, and reduces noise levels from uncontrolled motion. To correctly adjust the rate control after it has been properly sized for the application, set the adjustment knob (per the useable adjustment setting graphs for the applicable model). Cycle the mechanism and observe the motion of the system.

If the motion of the mechanism is too fast, move the adjustment dial to the next largest number until the desired velocity is achieved.

If the motion of the mechanism is too slow, move the adjustment dial to the next smallest number until the desired velocity is achieved.



Typical Application: Print Rollers and Paper Tensioners

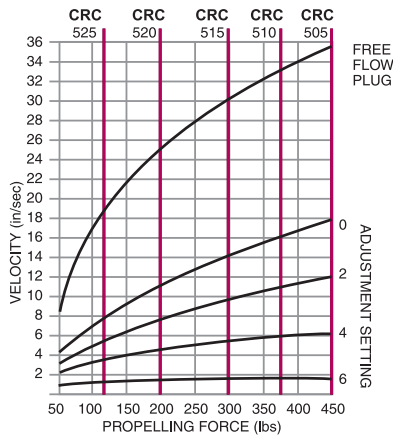
Damping Force

Useable Adjustment Setting Range

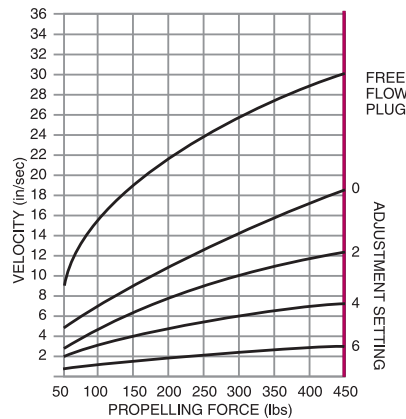
Green lines are model's maximum allowable propelling force.

CRC 500

Compression Mode Adjustment Setting Curve



Tension Mode Adjustment Setting Curve



Position 0 provides minimum damping force.
Position 8 provides maximum damping force.
180° adjustment with setscrew locking.

1. Determine the damping direction (tension [T], compression [C] or both [T and C]), stroke (in. or mm) required, propelling force (lbs. or N), desired velocity (in./sec. or m/s) and cycles per hour.
2. Calculate total energy per hour (in-lbs./hr or Nm/hr).
3. Compare the damping direction (T, C, or T and C), stroke (in. or mm) required, propelling force (lbs. or N) and total energy per hour (in-lbs./hr or Nm/hr) to the values listed in the Rate Controls Engineering Data charts.
NOTE: Propelling force and velocity should be measured at the location of the rate control.
4. Determine if adjustable or non-adjustable model is desired.
5. Select the appropriate rate control model.
 - A. For adjustable rate control models, refer to the Useable Adjustment Settings section for the selected model to determine the proper adjustment setting.
 - B. For non-adjustable rate control models, refer to the Damping Constant Selection Instructions for the selected model to determine the proper damping constant.

Example:

1. Damping Direction (T,C or T and C): T and C
Stroke (S): 4 in. (102 mm)
Propelling Force (F_D): 200 lbs. (890 N) (T and C)
Velocity (V): 8 in./sec. (0.2 m/s)
Cycles/Hour (C): 20
2. Total Energy/Hour: 16,000 in-lbs./hr (1 808 Nm/hr) compression
16,000 in-lbs./hr (1 808 Nm/hr) tension
32,000 in-lbs./hr (3 616 Nm/hr) Total
3. Compare damping direction (T and C), stroke, propelling force and total energy per hour, to the values listed in the rate controls engineering data charts.
4. An adjustable model is desired.
5. Selection: CRC 510 (T and C), The proper adjustment is two (2) in tension and compression per the CRC 500 Series Useable Adjustment Setting Range Curves.

After properly sizing the CRC, the adjustment setting can be determined.

1. To determine the approximate adjustment setting when the selected model, propelling force, and velocity are known: compare velocity to the propelling force in the compression and/or tension mode adjustment setting curves. The intersection point of the velocity and the propelling force is the approximate adjustment setting to be used. Adjustment higher or lower than this setting will result in slower or faster damper operation, respectively.
2. To determine the velocity when the selected model, adjustment setting, and propelling force are known: compare the propelling force to the adjustment setting in the compression and/or tension mode adjustment setting curves. The intersection point of the propelling force and the adjustment setting is the approximate velocity for the selected model. Higher velocities are obtained at lower adjustment settings and lower velocities are obtained at higher adjustment settings.

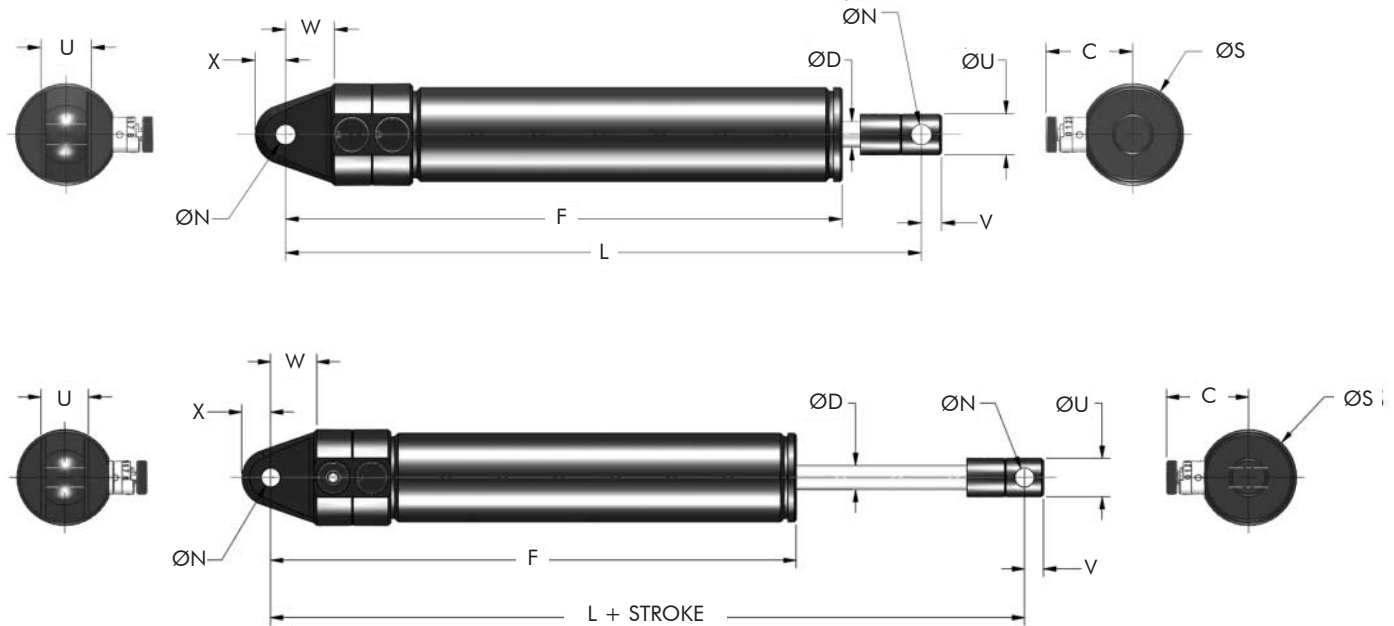
EXAMPLE: Double Acting Application

- Stroke required: 2 in. (51 mm)
Control direction: Tension and Compression
Propelling force: 350 lbs. (1 557 N) (tension),
400 lbs. (1 780 N) (compression)
- Selection: ADA 505
1. Velocity: 11 in./sec. (.28 m/s) (tension),
6 in./sec. (.15 m/s) (compression)
Intersection point: Adjustment setting 2 (tension),
4 (compression)
 2. Adjustment setting: 2 (tension), 4 (compression)
Velocity: 11 in./sec. (.28 m/s) (tension),
6 in./sec. (.15 m/s) (compression)

NOTE: When a free flow plug is used, the intersection point of the propelling force and free flow plug curve determines the velocity.

NOTE: Propelling force and velocity should be measured at the location of the rate control.

CRC 505 → CRC 525 Series



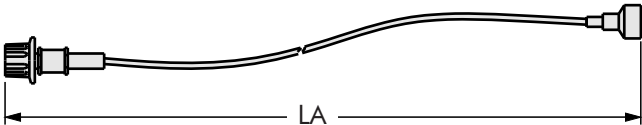
Catalog No./Model	Damping Direction	Bore Size in. (mm)	(S) Stroke in. (mm)	(F _D) Max. Propelling Force (E _T , C)		Model Max. in.-lbs./hour (Nm/hr)	Weight lbs. (Kg)
				Extension lbs. (N)	Compression lbs. (N)		
CRC 505	T, C or T and C	.63	2	450	450	650,000	0.68
CRC 505M		(16,0)	(50,0)	(2 000)	(2 000)	(73 450)	(0,3)
CRC 510	T, C or T and C	.63	4	450	375	850,000	0.80
CRC 510M		(16,0)	(100,0)	(2 000)	(1 670)	(96 050)	(0,372)
CRC 515	T, C or T and C	.63	6	450	300	1,050,000	1.0
CRC 515M		(16,0)	(150,0)	(2 000)	(1 335)	(118 650)	(0,445)
CRC 520	T, C or T and C	.63	8	450	200	1,250,000	1.1
CRC 520M		(16,0)	(200,0)	(2 000)	(900)	(141 250)	(0,520)
CRC 525	T, C or T and C	.63	10	450	125	1,450,000	1.3
CRC 525M		(16,0)	(250)	(2 000)	(550)	(163 850)	(0,590)

Catalog No./Model	C in. (mm)	D in. (mm)	F in. (mm)	L in. (mm)	N +0,005/-0,000 +0,13/-0,00	S in. (mm)	U +0,000/-0,010 +0,00/-0,381	V in. (mm)	W in. (mm)	X in. (mm)	(S) Stroke in. (mm)	Damping Direction in. (mm)
CRC 505	1.06	.31	6.87	7.81	.251	1.25	.500	.25	.563	.375	2	T, C or T and C
CRC 505M	(27,0)	(8,0)	(173,0)	(200)	(6,0)	(31,8)	(12,7)	(6,3)	(14,2)	(9,5)	(50,0)	
CRC 510	1.06	.31	8.87	9.81	.251	1.25	.500	.25	.563	.375	4	T, C or T and C
CRC 510M	(27,0)	(8,0)	(224,0)	(250)	(6,0)	(31,8)	(12,7)	(6,3)	(14,2)	(9,5)	(100,0)	
CRC 515	1.06	.31	10.87	11.81	.251	1.25	.500	.25	.563	.375	6	T, C or T and C
CRC 515M	(27,0)	(8,0)	(275,0)	(300)	(6,0)	(31,8)	(12,7)	(6,3)	(14,2)	(9,5)	(150,0)	
CRC 520	1.06	.31	12.87	13.81	12.87	1.25	.500	.25	.563	.375	8	T, C or T and C
CRC 520M	(27,0)	(8,0)	(325,0)	(350)	(6,0)	(31,8)	(12,7)	(6,3)	(14,2)	(9,5)	(200,0)	
CRC 525	1.06	.31	14.87	15.81	.251	1.25	.500	.25	.563	.375	10	T, C or T and C
CRC 525M	(27,0)	(8,0)	(376,0)	(400)	(6,0)	(31,8)	(12,7)	(6,3)	(14,2)	(9,5)	(250,0)	

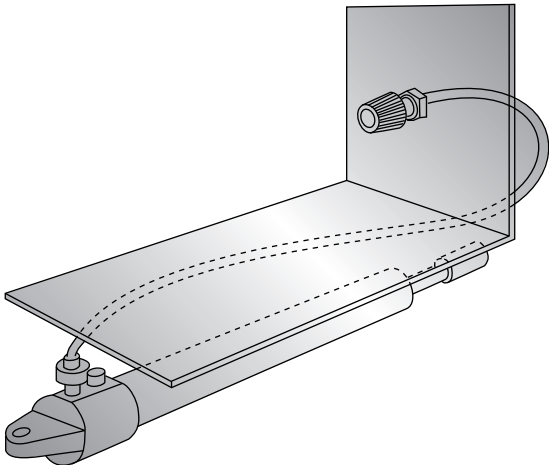
Remote Adjustment Cable for CRC 500 Series

Compact Automation will custom fit a remote adjustment cable for applications where the CRC unit will be mounted in non-accessible locations. Contact Compact Automation for more information.

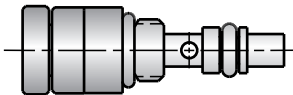
Note: If rotary application, please complete application worksheet on page 115 and forward to Compact Automation.



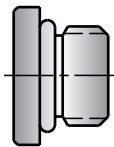
Standard remote adjustment cable length is 48" (1220 mm). Optional lengths available upon request.
Note: Remote adjustment cable can be used in a single position only.



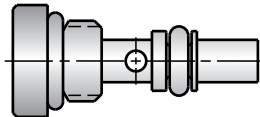
Adjustable Cartridge



Free Flow Plug



Non-Adjustable Cartridge



Catalog No.	Part Number	Accessory Description	LA in. (mm)	Weight oz. (g)
RAC48	1K495748	Remote Adjustment Cable	48 (1220)	7 (191)
RAC4957	AJ4957325	Adjustable Cartridge	Notes "x" specify desired setting "0-6." May be used in place of adjustable cartridge. For installing adjustable and non-adjustable cartridges. Provides least amount of damping force for ADA Models.	
NAC "x"	NJ"x"4957327	Non-Adjustable Cartridge (0-6)		
CW4957	2L4957302	Cartridge Wrench		
FFP4957	PA4957326	Free Flow Plug		

Shock Absorber and Rate Control Application Worksheet

LDA belgium

FAX NO.: _____

DATE: _____

ATTN: _____

COMPANY: _____

The Compact Automation Application Worksheet makes shock absorber sizing and selection easier.

Fax, phone, or mail worksheet data to Compact Automation headquarters or your nearest Compact subsidiary/affiliate or distributor. (See catalog back cover for the Compact location, or visit www.compactautomation.com for a list of distributors.)

Upon Compact Automation's receipt of this worksheet, you will receive a detailed analysis of your application and product recommendations. (For custom design projects, Compact representatives will consult with you for specification requirements.)

GENERAL INFORMATION

CONTACT: _____

DEPT/TITLE: _____

COMPANY: _____

ADDRESS: _____

TEL: _____ FAX: _____

EMAIL: _____

PRODUCTS MANUFACTURED: _____

APPLICATION SKETCHES / NOTES

APPLICATION DESCRIPTION

Motion Direction (Check One):

☐ Horizontal ☐ Vertical ☐ Up ☐ Incline Angle _____
☐ Down ☐ Down Height _____

☐ Rotary Horizontal ☐ Rotary Vertical ☐ Up
☐ Down (lbs.)(Kg)

Weight (Min./Max.): _____ (cycles/hour)

Cycle Rate _____ (lbs.)(N)

Additional Propelling Force (If Known) _____ (in.)(mm)

☐ Air Cyl: Bore _____ (in.)(mm) Max. Pressure _____ (psi)(bar) Rod Dia. _____ (in.)(mm)

☐ Hydraulic Cyl: Bore _____ (in.)(mm) Max. Pressure _____ (psi)(bar)

Rod Dia. _____ (in.)(mm)

☐ Motor _____ (hp)(kW) Torque _____ (in-lbs.)(Nm)

Ambient Temp. _____ °F (°C)

Environmental Considerations: _____

SHOCK ABSORBER APPLICATION

Number of Shock Absorbers to Stop Load (All Data Taken at Shock Absorber)

Impact Velocity (min./max.) _____ (in./sec.)(m/sec.)

Shock Absorber Stroke Requirements: _____ (in.)(mm)

G Load Requirements _____ (G)(m/sec²)

LDA belgium

Compact Automation Products
105 Commerce Way
Westminster, SC 29693
Tel: 864.647.9521
Fax: 864.647.9574
www.compactautomation.com

