

RT Series Roundline Plus Thrusters



9/16" to 3" bore

Composite and Roller Bearings

PS magnetic piston option

Optional ecology seal

Optional shock absorbers

Choice of high load composite or precision low friction bearings

Comes with stroke adjusting collars

Technical data

Medium:

Filtered, lubricated or non-lubricated, compressed air

Operating Pressure

250 psig (17.2 Bar) Max.

Temperature Range:

Standard Nitrile seals:

-20°F to 200°F (-29°C to 93°C)

*With dew point of supply air less than air temperature below 35°F (2°C)

Lubrication:

All Roundline Thruster cylinders are prelubricated at the time of assembly with a Teflon®-Based grease, for non-lube service and long life.

Thruster Materials:

Guide shafts with **composite bearings:**

9/16" to 2.0" bore: Chrome plated 303 SS.

2-1/2" to 3.0": Chrome plated carbon steel.

Guide shafts with **roller bearings:**

All bore sizes case hardened carbon steel shafts.

Body: Anodized aluminum housing and tooling plate. Choice of composite or roller bearing shaft guides.

Cylinder Materials:

304 Stainless Steel body

Aluminum alloy head, cap and piston

Oil impregnated sintered bronze rod bearing

Chrome Plated stainless steel piston rod.

Nitrile piston and rod seals



Options selector

RT 075 C x 4.50 CC

Series	
Roundline Thruster	RT
Roundline Cylinder with *Ecology Seals	ERT*

Bore Size		
9/16"		056
3/4"	E	075
1-1/16"	E	106
1-1/2"	E	150
2"	E	200
2-1/2"	E	250
3"	E	300

E* Ecology seals available, Note: Ecology seals not available in 9/16" bore.

Bearing Type	
Composite	C
Roller	R

Maximum Stroke Lengths **	
056	6.0" Maximum Stroke
075	12.0" Maximum Stroke
106	12.0" Maximum Stroke
150	12.0" Maximum Stroke
200	12.0" Maximum Stroke
250	12.0" Maximum Stroke
300	12.0" Maximum Stroke

* ERT, Ecology Thruster come complete with non-adjustable cushions both ends (NH, NC, NB, options not required in model number of ERT Thruster). Note cushions and ecology seals not available in 9/16" bore.

**Consult factory for longer stroke lengths.

Options	
Stroke Adjustment (Collar & Bumper) Extend	AE
Stroke Adjustment (Collar & Bumper) Both Ends	AJ
Stroke Adjustment (Collar & Bumper) Retract	AR
Adjustable Cushion Both Ends	CB
Adjustable Cushion Cap End (Retract)	CC
Adjustable Cushion Head End (Extend)	CH
Dowel Pin*	DP
Switch Rail	M1
Mounting Plate (Composite only)**	MP
No Mounting Plate (Roller only)**	NM
Non-Adjustable cushions both ends†	NB
Non-Adjustable cushion cap end (Retract)†	NC
Non-Adjustable cushion head end (Extend)†	NH
Side Ported	PC
Magnetic Piston	PS
Shock Absorber Extend ††	SG (‡)
Shock Absorber Retract ††	SH (‡)
Shock Absorber Both ††	SJ (‡)
Tapped Mounting Holes (Composite only)**	TH
Stainless Steel Tooling Plate	TP
Internal Bumpers	UB

*Contact factory for dowel pin option.

** Mounting plate and tapped holes, standard with roller bearing thruster

† ERT Ecology Thrusters come complete with non-adjustable cushions both ends. (NH,NC,NB option not required in model number or ERT Thruster). Note cushions and ecology seals not available in 9/16" bore.

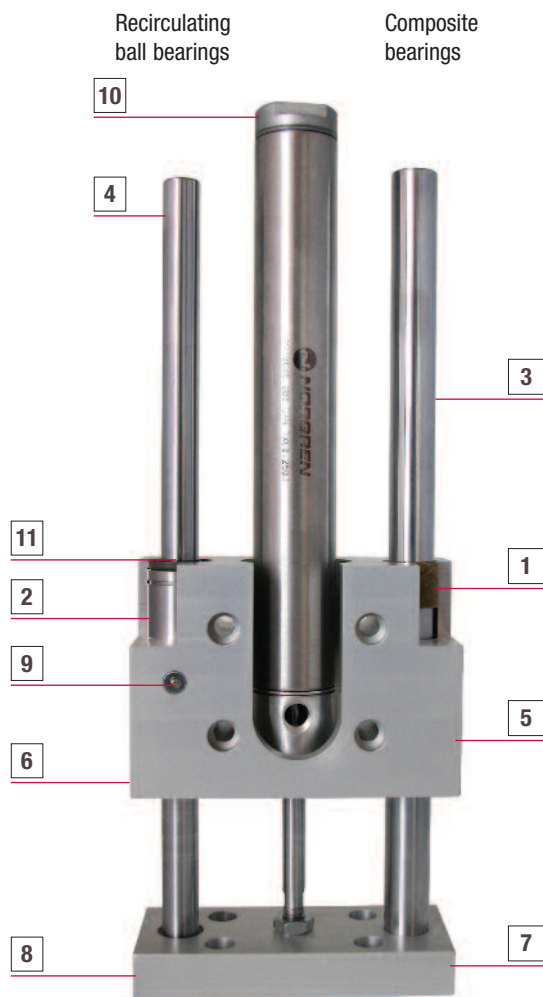
†† Contact application engineering for applications requiring shock absorbers. Shocks available in three different duty rating:

Note, shock absorbers not available in 2 1/2" or 3" bore

‡ L=Light, M=Medium, H=Heavy

Features

- >> PS Magnetic piston option for position sensing with either Reed or Hall Effect switches.
- >> Optional ecology seal with non-adjustable cushion for the optimum in smooth, noise dampening deceleration of load at end of stroke.
- >> Shock absorbers optional to decelerate heavier loads or high speed applications
- >> Choice of high load composite or precision low friction bearings.
- >> A set of stroke adjusting collars come standard on the extend stroke of the recirculating ball bearing thruster.



This product is for demonstration purposes only.

- 1 Two bearings options:
High load carrying composite bearings...
- 2 ...or high precision low friction recirculating ball bearings
- 3 Composite bearing:
9/16" to 2.0" bore has stainless steel guide shafts
2-1/2" and 3.0" bore has chrome plated carbon steel guide shafts
- 4 Recirculating ball bearing: Case hardened steel guide shafts
- 5 Composite bearings, precision machined clear hard anodized aluminum body and tooling plate
- 6 Recirculating ball bearing, precision machined black anodized aluminum body
- 7 Composite bearings, clear hard anodized aluminum tooling plate
- 8 Recirculating ball bearings, black oxide steel tooling plate
- 9 Easily accessible oiler port on ball bearing model
- 10 RP Series Actuator with stainless steel tube aluminum end caps and chrome plated stainless steel piston rod.
- 11 Guide shaft wiper included on recirculating ball bearing model

Optional Combination Availability Chart

		X=Option Available						S=Standard w/option						O=Option Not Available								
ERT Prefix	ERT Prefix	AE	AJ	AR	CB	CC	CH	DP	M1	MP	NM	NB	NC	NH	PC	PS	SG	SH	SJ	TH	TP	UB
ERT Prefix		X	X	X	X	X	X	X	X	X	X	S	S	S	O	X	X	X	X	X	X	0
AE	X		0	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AJ	X	0		0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AR	X	0	0		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CB	X	X	X	X		0	0	X	X	X	X	0	0	0	0	X	X	X	X	X	X	0
CC	X	X	X	X	0		0	X	X	X	X	0	0	0	0	X	X	X	X	X	X	0
CH	X	X	X	X	0	0		X	X	X	X	0	X	0	X	X	X	X	X	X	X	0
DP	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
M1	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
MP*	X	X	X	X	X	X	X	X	X		0	X	X	X	X	X	X	X	X	X	X	X
NM	X	X	X	X	X	X	X	X	X	0		X	X	X	X	X	X	X	X	X	X	X
NB	S	X	X	X	0	0	0	X	X	X	X		0	0	0	X	X	X	X	X	X	0
NC	S	X	X	X	0	0	X	X	X	X	X	0		0	0	X	X	X	X	X	X	0
NH	S	X	X	X	0	X	0	X	X	X	X	0	0		X	X	X	X	X	X	X	0
PC	0	X	X	X	0	0	X	X	X	X	X	0	0	X		X	X	X	X	X	X	X
PS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
SG	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		0	0	X	X	X
SH	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0		0	X	X	X
SJ	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	0		X	X	X
*TH	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
TP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
UB	0	X	X	X	0	0	0	X	X	X	X	0	0	0	X	X	X	X	X	X	X	X

* Standard feature with Roller Bearing Thrusters
 PC standard with CB, CC, NB and NC cushion option

Force Factor Data

Bore	Code	Force Factor (Area)	
		Extend	Retract
9/16"	056	0.25	0.2
3/4"	075	0.44	0.36
1-1/16"	106	0.89	0.69
1-1/2"	150	1.77	1.46
2.0"	200	3.14	2.70
2-1/2"	250	4.91	4.47
3.0"	300	7.07	6.47

Force Output Formula

Cylinder Output Force = Force Factor(area) x Air Line Pressure

Example: 1 1/16" Bore operating at 80psi

Extend Force = .89 x 80 = 71.2lbs

Retract Force = .69 x 80 = 55.2 lbs

Replacement Cylinder for (RT) Roundline Thruster

Bore	Model Number
9/16"	RP056X***-DAN-TX(0.063) - options*
3/4"	RP075X***-DAN-SS-TX(0.125) - options*
1-1/16"	RP106X***-DAN-SS-TX(0.250) - options*
1-1/2"	RP150X***-DAN-SS-TX(0.250) - options*
2"	RP200X***-DAN-SS-TX(0.250) - options*
2-1/2"	RP250X***-DAN-SS-TX(0.250) - options*
3"	RP300X***-DAN-SS-TX(0.250) - options*

*** = Stroke in inches

* The following options, if in the model number of the thruster, must be added to the model number of the replacement cylinder part number above.:

PS, M1, CH, CC, CB, NB, NC, NH, PC, UB

Note: If CC, CH or CB, must also add the following option:

CC ----- N(03)
 CH ----- N(30)
 CB ----- N(33)

Replacement Cylinder for (ERT) Ecology Roundline Thruster

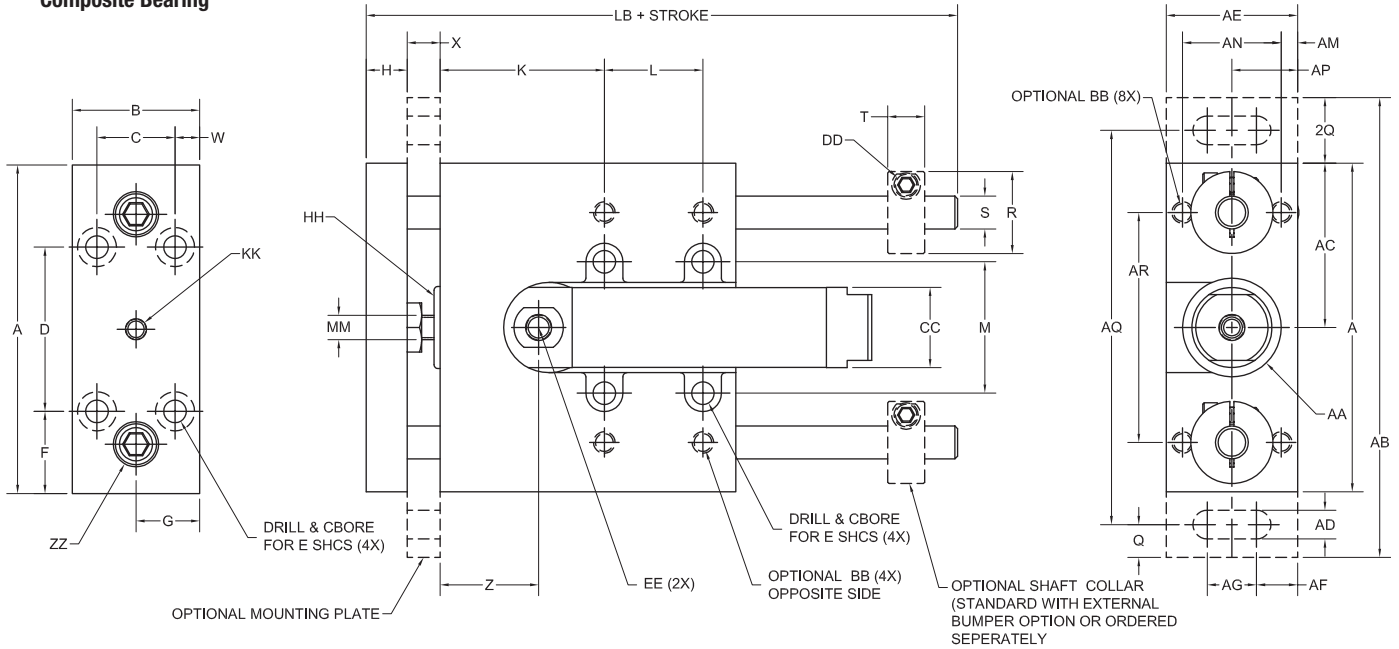
Bore	Model Number
9/16"	N/A
3/4"	ERP075X***-DAN-SS-TX(0.125) - options*
1-1/16"	ERP106X***-DAN-SS-TX(0.250) - options*
1-1/2"	ERP150X***-DAN-SS-TX(0.250) - options*
2"	ERP200X***-DAN-SS-TX(0.250) - options*
2-1/2"	ERP250X***-DAN-SS-TX(0.250) - options*
3"	ERP300X***-DAN-SS-TX(0.250) - options*

RT Series Roundline Plus Thrusters



All Dimensions in Inches

Composite Bearing



Bore	A	B	BB	C	CC	D	DD	E	EE	F	G	H	HH	K	KK	L	LB	M	MM	Q
9/16"	2.50	0.90	#8-32	0.60	0.62	1.25	#6-32	#8	#10-32	0.63	0.45	0.38	7/16-20	1.25	10-32	0.75	3.50	1.00	0.19	0.25
3/4"	3.00	1.15	#10-32	0.75	0.81	1.50	#8-32	#10	1/8 NPT	0.75	0.58	0.50	5/8-18	0.78	1/4-28	0.94	4.25	1.25	0.25	0.38
1-1/16"	4.25	1.75	1/4-20	1.00	1.12	2.00	#10-32	1/4"	1/8 NPT	1.12	0.88	0.62	5/8-18	0.81	5/16-24	1.38	5.00	1.88	0.31	0.50
1-1/2"	5.50	2.25	5/16-18	1.50	1.56	3.00	1/4-28	5/16"	1/8 NPT	1.25	1.12	0.75	3/4-16	1.12	7/16-20	1.75	6.38	2.38	0.44	0.50
2"	6.00	2.75	5/16-18	2.00	2.08	3.00	1/4-28	5/16"	1/4 NPT	1.50	1.38	1.00	1-1/4-12	1.00	1/2-20	2.00	7.12	2.70	0.62	0.50
2-1/2"	7.50	3.25	3/8-16	2.25	2.62	3.75	1/4-28	3/8"	1/4 NPT	1.88	1.63	1.25	1-3/8-12	1.75	1/2-20	2.50	9.75	3.50	0.62	1.00
3"	9.00	4.00	1/2-13	2.75	3.12	4.50	1/4-28	1/2"	3/8 NPT	2.25	2.00	1.50	1-1/2-12	2.00	5/8-18	3.00	11.50	4.20	0.75	1.00

Bore	R	S	T	W	X	Z	AA	AB	AC	AD	AE	AF	AG	AM	AN	AP	AQ	AR	ZZ
9/16"	0.88	0.38	0.34	0.15	0.25	0.86	0.75	3.50	1.25	0.22	1.00	0.31	0.38	0.12	0.75	0.50	3.00	1.75	#10-32
3/4"	1.12	0.50	0.41	0.20	0.38	0.85	1.00	4.50	1.50	0.25	1.25	0.38	0.50	0.16	0.94	0.62	3.75	2.12	1/4-20
1-1/16"	1.31	0.62	0.44	0.38	0.38	1.00	1.50	6.25	2.12	0.38	2.00	0.50	1.00	0.31	1.38	1.00	5.25	3.12	5/16-18
1-1/2"	1.50	0.75	0.50	0.38	0.50	1.38	2.00	7.50	2.75	0.44	2.50	0.59	1.31	0.38	1.75	1.25	6.50	4.00	3/8-16
2"	1.62	0.88	0.50	0.38	0.75	1.60	2.25	8.00	3.00	0.44	3.00	0.75	1.50	0.50	2.00	1.50	7.00	4.25	3/8-16
2-1/2"	1.87	1.13	0.50	0.50	0.75	1.45	3.00	11.50	3.75	0.69	3.50	0.84	1.81	0.50	2.50	1.75	9.50	5.37	1/2-13
3"	2.25	1.38	0.56	0.63	1.00	1.62	3.50	13.00	4.50	0.81	4.50	1.15	2.19	0.75	3.00	2.25	11.00	6.50	3/4-16

Approximate Thruster Weights

Bore	Composite Bearing	Roller Bearing	Composite Bearing Per Inch Adder	Roller Bearing Per Inch Adder	Mounting Plate Adder
9/16"	.70 lbs	.83 lbs	.08 lbs	.05 lbs	.06 lbs
3/4"	1.33 lbs	1.59 lbs	.15 lbs	.10 lbs	.14 lbs
1-1/16"	3.18 lbs	4.03 lbs	.30 lbs	.16 lbs	.32 lbs
1-1/2"	6.55 lbs	8.54 lbs	.35 lbs	.25 lbs	.60 lbs
2"	9.81 lbs	18.07 lbs	.50 lbs	.40 lbs	1.15 lbs
2-1/2"	19.34 lbs	35.82 lbs	.75 lbs	.62 lbs	2.0 lbs
3"	35.19 lbs	68.71 lbs	1.9 lbs	.96 lbs	3.9 lbs

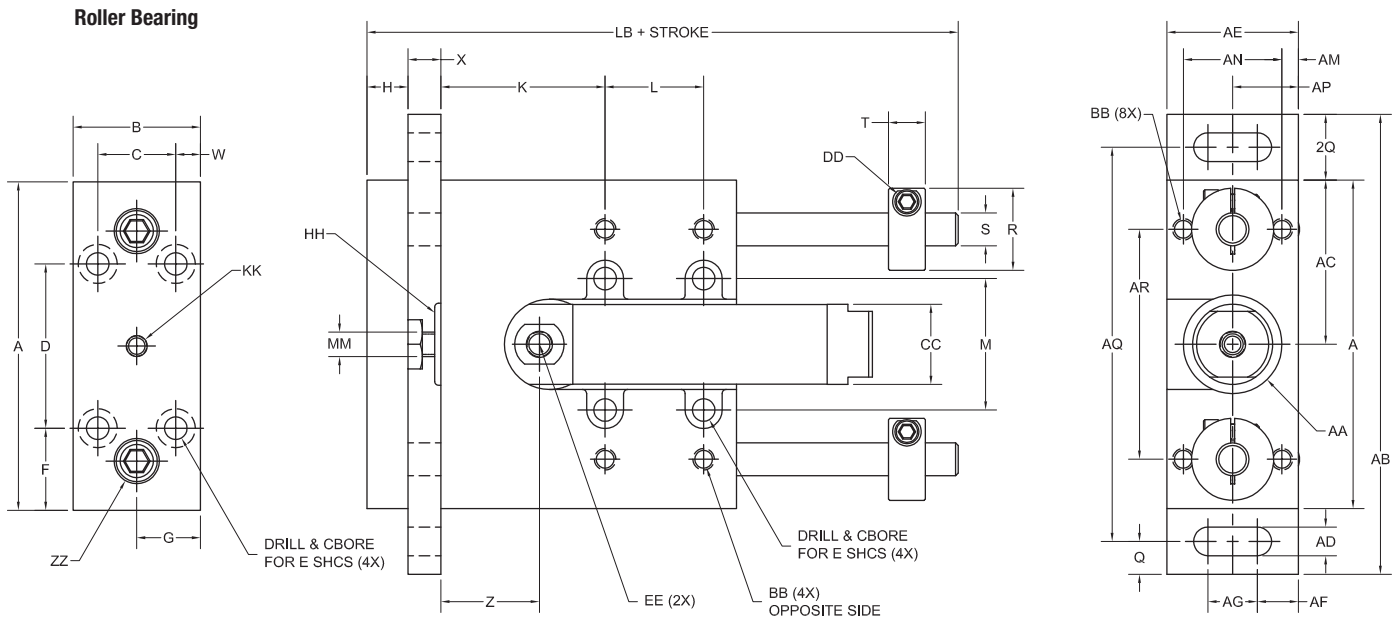
Guide Shaft Extension With Bumper

Bore Size	Length Adder
9/16"	0.50"
3/4"	0.50"
1-1/16"	0.63"
1-1/2"	0.75"
2"	0.88"
2-1/2"	1.38"
3"	1.50"

Retraction Stroke Reduction with Bumper

Bore Size	Standard	w/Mounting Plate Option
9/16"	0.34"	0.59"
3/4"	0.28"	0.66"
1-1/16"	0.31"	0.69"
1-1/2"	0.25"	0.75"
2"	0"	0.75"
2-1/2"	0.25"	1.00"
3"	0.31"	1.31"

Guide shafts are extended so the extend stroke is not affected with the addition of bumpers and collars, however the retract stroke is shortened. See above chart.



Bore	A	B	BB	C	CC	D	DD	E	EE	F	G	H	HH	K	KK	L	LB	M	MM	Q
9/16"	2.50	1.00	#8-32	0.60	0.62	1.25	4-40	#8	#10-32	0.62	0.50	0.31	7/16-20	1.25	10-32	0.75	3.50	1.00	0.19	0.25
3/4"	3.00	1.25	#10-32	0.75	0.81	1.50	6-32	#10	1/8 NPT	0.75	0.62	0.38	5/8-18	0.78	1/4-28	0.94	4.12	1.25	0.25	0.38
1-1/16"	4.25	2.00	1/4-20	1.00	1.12	2.00	8-32	1/4	1/8 NPT	1.12	1.00	0.50	5/8-18	0.81	5/16-24	1.38	4.75	1.88	0.31	0.50
1-1/2"	5.50	2.50	5/16-18	1.50	1.56	3.00	10-32	5/16	1/8 NPT	1.25	1.25	0.75	3/4-16	1.12	7/16-20	1.75	6.38	2.38	0.44	0.50
2"	7.00	3.00	3/8-16	2.00	2.08	4.00	1/4-28	3/8	1/4 NPT	1.50	1.50	1.00	1 1/4-12	0.94	1/2-20	2.12	7.00	3.25	0.62	0.63
2-1/2"	8.50	4.00	3/8-16	3.00	2.62	4.75	1/4-28	3/8	1/4 NPT	1.76	2.00	1.25	1 3/8-12	1.69	1/2-20	2.63	9.50	4.10	0.62	1.00
3"	11.00	4.00	1/2-13	3.00	3.12	6.00	1/4-28	1/2	3/8 NPT	2.50	2.00	1.50	1 1/2-12	1.50	5/8-18	4.00	11.50	5.25	0.75	1.00

Bore	R	S	T	W	X	Z	AA	AB	AC	AD	AE	AF	AG	AM	AN	AP	AQ	AR	ZZ
9/16"	0.62	0.25	0.28	0.20	0.25	0.86	0.75	3.50	1.25	0.22	1.00	0.31	0.38	0.12	0.75	0.50	3.00	1.75	N/A
3/4"	0.88	0.38	0.34	0.25	0.38	0.85	0.94	4.50	1.50	0.25	1.25	0.38	0.50	0.16	0.94	0.62	3.75	2.12	10-32
1-1/16"	1.12	0.50	0.41	0.50	0.38	1.00	1.62	6.25	2.12	0.38	2.00	0.50	1.00	0.31	1.38	1.00	5.25	3.12	1-4-20
1-1/2"	1.31	0.62	0.44	0.50	0.50	1.50	2.12	7.50	2.75	0.44	2.50	0.59	1.31	0.38	1.75	1.25	6.50	4.00	3/8-16
2"	1.50	0.75	0.50	0.50	0.75	1.60	3.00	9.50	3.50	0.56	4.00	1.22	1.56	0.94	2.12	2.00	8.25	5.00	3/8-16
2-1/2"	1.75	1.00	0.50	0.50	0.75	1.48	3.50	12.50	4.25	0.63	4.50	1.25	2.00	0.94	2.63	2.25	10.50	6.25	1/2-13
3"	2.06	1.25	0.50	0.50	1.00	1.88	4.63	15.00	5.50	0.81	6.00	1.41	3.19	1.00	4.00	3.00	13.00	8.00	3/4-16

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under **Specifications**.

Before using these products with fluids other than those specified, for nonindustrial applications, life-support systems, or other applications not within published specifications, consult NORGREN.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure modes. **System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.**

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products. System designers should also provide for all OSHA requirements including Title 29 CFR 1910.147 Lockout/Tagout.

It should be recognized that warnings are valid for any product, regardless of manufacturer, and are not restricted to products manufactured by NORGREN. NORGREN's reputation for product quality and performance is well established. We feel we have the additional obligation to provide information or warnings to customers to assist them in applying our products in a reasonable and safe manner.

Warranty

Items sold by NORGREN are warranted to be free from defects in materials and workmanship for a period of two year from the date of manufacture, provided said items are used according to NORGREN's recommended usages. NORGREN's liability is limited to the repair of, refund of purchase price paid for, or replacement in kind of, at NORGREN's sole option, any items proved defective, provided the allegedly defective items are returned to NORGREN prepaid. The warranties expressed above are in lieu of and exclusive of all other warranties.

There are no other warranties, expressed or implied, except as stated herein. There are no implied warranties of merchantability or fitness for a particular purpose, which are specifically disclaimed. NORGREN's liability for breach of warranty as herein stated is the exclusive remedy, and in no event shall NORGREN be liable or responsible for incidental or consequential damages, even if the possibility of such incidental or consequential damages has been made known to NORGREN.

NORGREN reserves the right to discontinue manufacture of any product or change product materials, design, or specifications.