

PNEUMATIC CYLINDERS FOR VALVE ACTUATION

HEAD & CAP

Numerically controlled machined from hot rolled steel plates ASTM A36 or better.

PISTON PACKING

2 pressure sensitive "U" cups for better sealing and durability.

CYLINDER BARREL

Bore size from 3 1/4 to 12": Heavy wall steel tubing with a polished chrome plated interior for better durability.

Bore size from 14" to 20": Thermoset fiber reinforced composite, specially designed for cylinder tubing for weight reduction and corrosion resistance.

TIE RODS AND NUTS

Bore size from 3 1/4 to 12": Made from STAINLESS STEEL to limit corrosion.

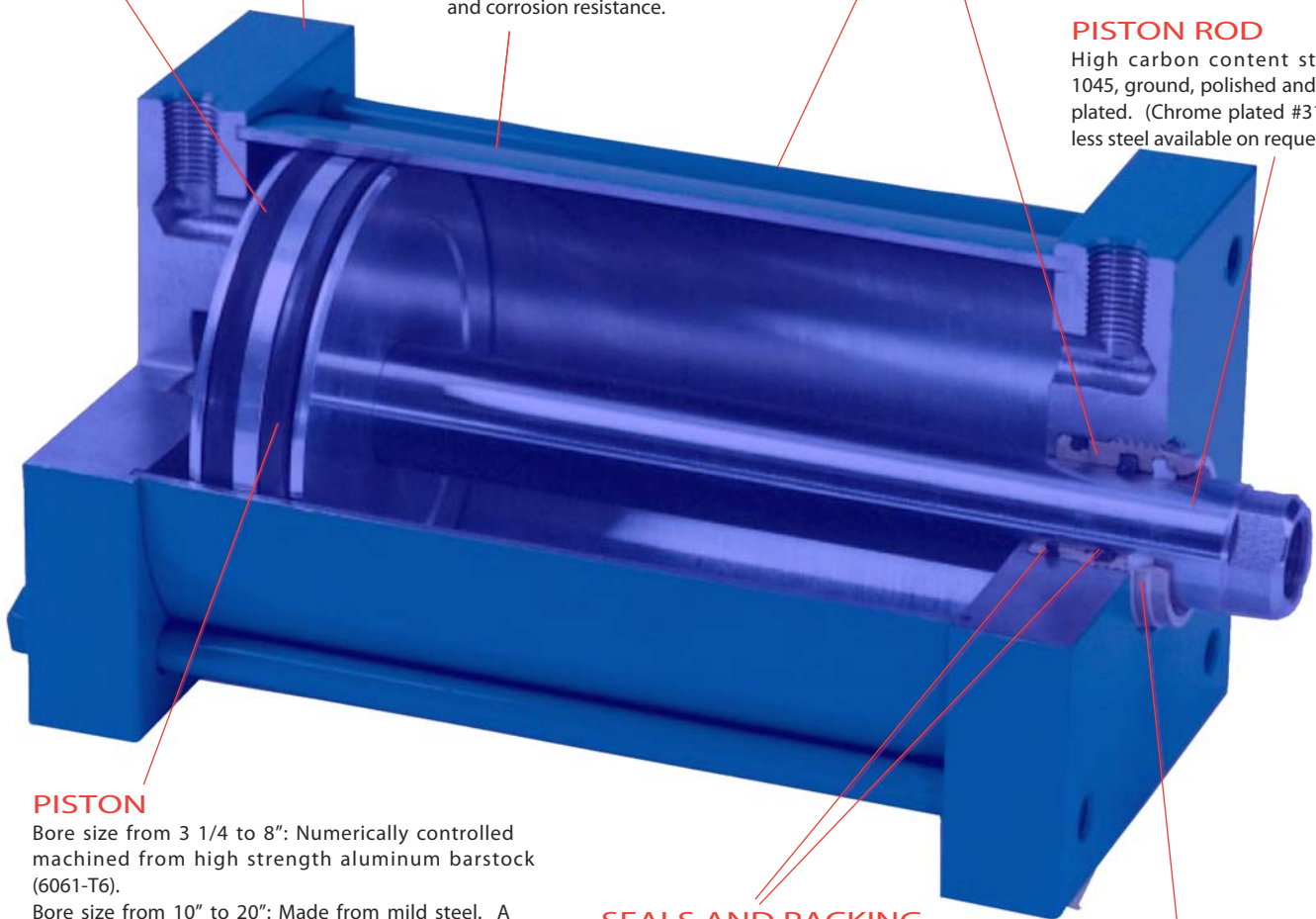
Bore size from 14" to 20": High strength steel barstock along with zinc plated steel nuts (Grade 5).

GLAND BUSHING

Cartridge type, made from Bronze SAE 660. Seals can be replaced without dismantling the cylinder.

PISTON ROD

High carbon content steel SAE 1045, ground, polished and chrome plated. (Chrome plated #316 stainless steel available on request).



PISTON

Bore size from 3 1/4 to 8": Numerically controlled machined from high strength aluminum barstock (6061-T6).

Bore size from 10" to 20": Made from mild steel. A wear strip is added on the outside diameter to protect the tube and assure a perfect fit.

PISTON WEAR STRIP

Bore size from 10" to 20": It consists of a teflon tape filled with particles of bronze and glass, for smoother piston operation.

SEALS AND PACKING

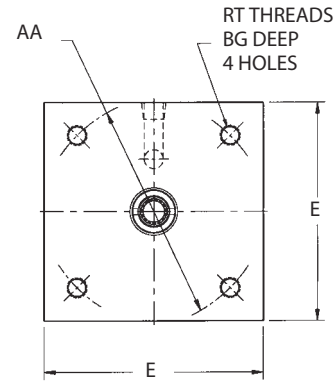
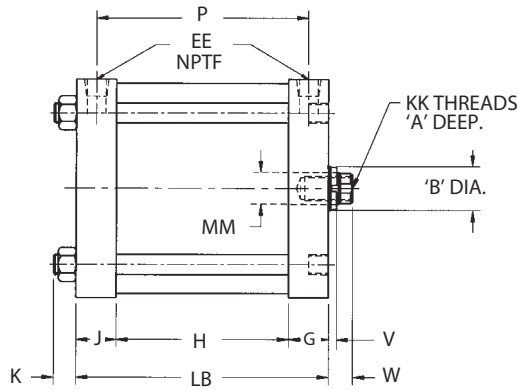
"U" CUP AND "O" RING used for added security. A high durometer nitrile material is offered as a standard for a temperature rating from -34°C to 120°C (-30°F to 250°F). For temperature range up to 250°C (450°F), fluorocarbon (viton) seals and packings are available

ROD WIPER

Stops dust and other particles from entering into the cylinder. Standard material is polyurethane. It can be replaced by fluorocarbon (viton) for higher temperature applications.

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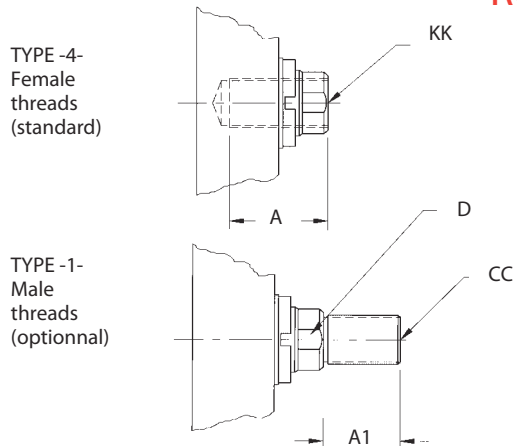
BASE MOUNTING



DIMENSIONS (IN.)

BORE	MM ROD SIZE	KK UNF	A	AA	B	BG	E	EE NPTF	G	J	K	RT UNF	V	W	ADD STROKE		
															LB	H	P
3 1/4	1	5/8 - 18	1 1/2	3.900	1.375	5/8	3 3/4	1/4	1	1	3/8	3/8 - 24	1/4	3/4	3	1	2
4	1	5/8 - 18	1 1/2	4.700	1.375	5/8	4 1/2	1/4	1	1	3/8	3/8 - 24	1/4	3/4	3	1	2
5	1	5/8 - 18	1 1/2	5.800	1.375	1/2	5 1/2	1/4	1	1	1/2	1/2 - 20	1/4	3/4	3 1/8	1 1/8	2 1/8
6	1	5/8 - 18	1 1/2	6.900	1.375	1/2	6 1/2	1/4	1	1	1/2	1/2 - 20	1/4	3/4	3 1/8	1 1/8	2 1/8
7	1	5/8 - 18	1 1/2	8.100	1.375	5/8	7 1/2	3/8	1 1/4	1 1/4	5/8	5/8 - 18	1/4	3/4	3 3/4	1 1/4	2 1/2
8	1	5/8 - 18	1 1/2	9.100	1.375	5/8	8 1/2	3/8	1 1/4	1 1/4	5/8	5/8 - 18	1/4	3/4	3 3/4	1 1/4	2 1/2
10	1 3/8	1 - 14	2	11.200	1.875	3/4	10 5/8	3/8	1 1/2	1 1/2	3/4	3/4 - 16	5/16	1	4 3/4	1 3/4	3 1/4
12	1 3/8	1 - 14	2	13.300	1.875	3/4	12 3/4	1/2	1 1/2	1 1/2	3/4	3/4 - 16	5/16	1	4 3/4	1 3/4	3 1/4
14	1 3/8	1 - 14	2	15.400	1.875	7/8	14 3/4	1/2	1 3/4	1 3/4	7/8	7/8 - 14	5/16	1	5 1/2	2	3 3/4
16	2	1 1/2 - 12	2 1/2	17.800	2.500	-	17	1/2	3/4	3/4	1	-	3/8	1 1/2	5 5/8	2 1/8	3 7/8
18	2	1 1/2 - 12	2 1/2	20.000	2.500	-	19	3/4	1 3/4	1 3/4	1 1/8	-	3/8	1 1/2	5 7/8	2 3/8	4 1/8
20	2	1 1/2 - 12	2 1/2	22.300	2.500	-	21	3/4	1 3/4	1 3/4	1 1/4	-	3/8	1 1/2	6 1/8	2 5/8	4 3/8

ROD THREADS



DIMENSIONS (IN.)

ROD SIZE	A1	CC UNF-2A	D	A	KK UNF-2B
1	1 1/8	3/4 - 16	7/8	1 1/2	5/8 - 18
1 3/8	15/8	1 - 14	1 1/8	2	1 - 14
2	2 1/4	1 1/2 - 12	1 11/16	2 1/2	1 1/2 - 12

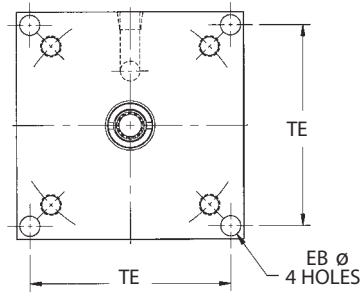
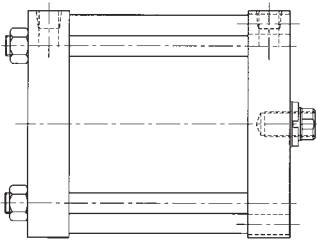
Consult factory for special rod ends.

PNEUMATIC CYLINDERS FOR VALVE ACTUATION

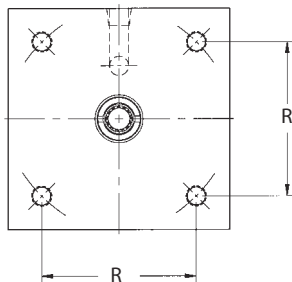
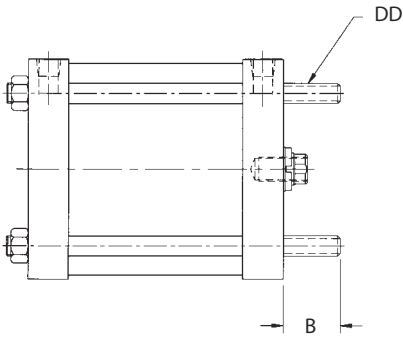
OPTIONAL MOUNTINGS

SQUARE HEAD MOUNTING

BORE SIZE: 7" TO 20" ONLY



EXTENDED TIE RODS MOUNTING



BORE	EB	TE	BB	DD UNF	R
3 1/4	-	-	1 3/8	3/8 - 24	2.76
4	-	-	1 3/8	3/8 - 24	3.32
5	-	-	1 3/4	1/2 - 20	4.10
6	-	-	1 3/4	1/2 - 20	4.88
7	9/16	6.75	2	5/8 - 18	5.73
8	11/16	7.57	2	5/8 - 18	6.44
10	13/16	9.40	2 1/4	3/4 - 16	7.92
12	13/16	11.10	2 1/4	3/4 - 16	9.40
14	15/16	12.87	2 1/2	7/8 - 14	10.90
16	1 1/16	14.85	2 3/4	1 - 14	12.59
18	1 3/16	16.69	3 1/4	1 1/8 - 12	14.14
20	1 5/16	18.46	3 1/4	1 1/4 - 12	15.77

Consult factory for special mountings.

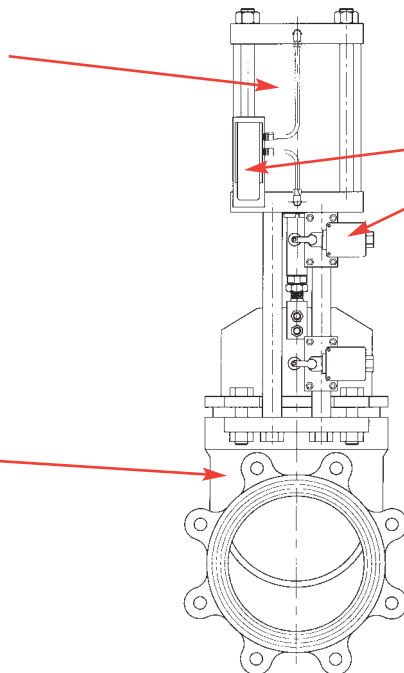
VALVE MOUNTINGS, OPTIONS AND ACCESSORIES

CYLINDER OPTIONS

- Stainless steel piston rod
- Double ended cylinder
- Viton seals (450°F)
- Piston rod scrapper
- Special exterior finish
- Water operation (AWWA)
- Spring return (fail safe)
- Multiple stage cylinder

VALVE TYPES

- Knife gate
- Wedge gate
- Globe
- Pinch
- Sluice



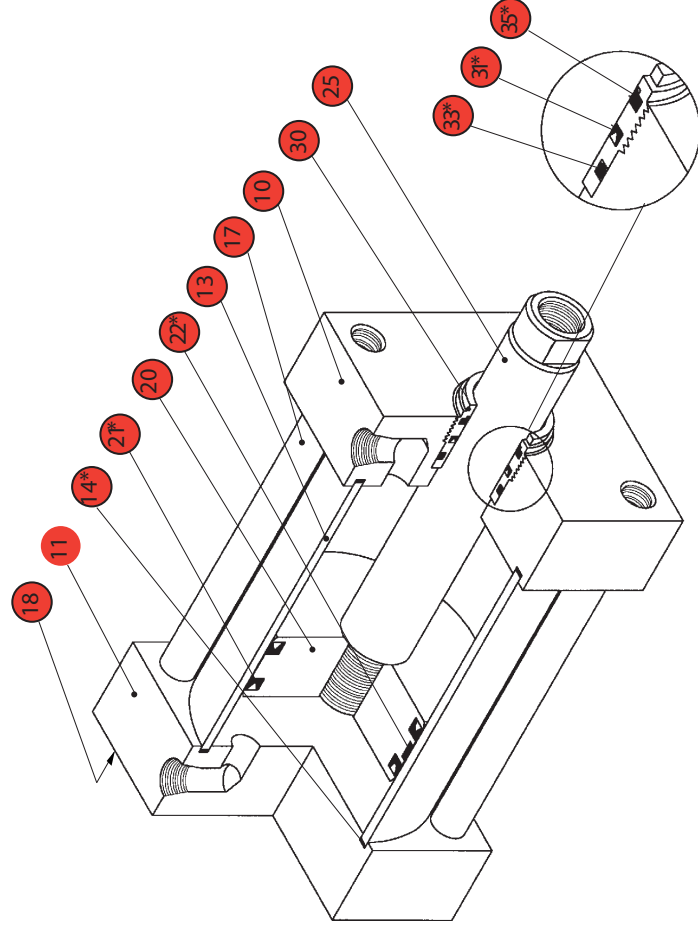
AUTOMATION ACCESSORIES

- Control valve:
 - Manual
 - Solenoid
- Limit switches
- Positioners
- Position transmitters

OTHER OPTIONS

- Stroke adjustment
- Manual override
- Stainless steel mounting
- Air fail safe system

PNEUMATIC CYLINDERS FOR VALVE ACTUATION



Seal kit

- 29 for piston (parts #21 and #22)
- 39 for bushing (parts #31, #33 and #35)
- 99 Complete (parts indicated with an *)

Pieces	Description	Qty
10	Head	1
11	Cap	1
13	Barrel	1
14*	Barrel seals	2
17	Tie rods	4
18	Tie rod nuts	4
20	Piston	1
21*	Piston packings	2
22*	Wear strip (10" and up)	1
25	Piston rod	1
30	Gland bushing	1
31*	Gland packing	1
33*	Gland seal	1
35*	Piston rod wiper	1

TORQUE CHART (MINIMUM & MAXIMUM)

BORE SIZE	TIE RODS		GLAND BUSHING	
	DIA.	TORQUE (FT-LBS)	ROD DIA.	TORQUE (FT-LBS)
3 1/4 - 4	3/8	6-15	1"	30 - 50
5 - 6	1/2	15-30	1"	30 - 50
7	5/8	20-70	1"	30 - 50
8	5/8	30-70	1"	30 - 50
10	3/4	55-110	1 3/8	40 - 60
12	3/4	70-110	1 3/8	40 - 60
14	7/8	100-180	1 3/8	40 - 60
16	1	150-350	2"	55 - 75
18	1 1/8	220-500	2"	55 - 75
20	1 1/4	300-720	2"	55 - 75