

R3 SERIES

3000 psi Mill-Type Cylinder

Delivering superior long-term performance and value

**Designed and engineered
for severe-service applications**

Bore Size: 4" to 16"

Piston rod diameter: 2" to 10"

- Heavy duty construction with steel flanged end caps and heavy wall tubing for continuous 3,000 psi service
- Extra-long heavy duty rod bushing with dual wipers
- 4 wrench flats on piston rod + option to accept LDT
- Made-to-order stroke lengths
- Reduce design and development costs



Overview



Our 3000 psi Mill-Type cylinder is designed to handle the most severe service applications.

Cowan's R3 Series was designed in response to our customers' need for a more durable, more reliable product to reduce their replacement and maintenance costs. As a result there is an increase to productivity and efficiency of operations. Based on design specifications that are not subject to NFPA limitations, the R3 Series uses thicker end caps, bigger pistons, bearings, advanced gland design, and numerous other features. Together these assure greater reliability under the severest environmental and operational conditions.

Over 50 years of cylinder design and manufacturing experience

- Extra bearing surface accommodates additional side loading
- Advanced gland design keeps the cylinder interior clean for increased seal longevity
- Dual buffer rod seals
- Wide ductile iron piston for long bearing and seal life
- Custom mounts to suit any application

Fully backed by Cowan Dynamics' warranty and service/support guarantee

Series Design & Materials

Sae Code 62

Flange ports are standard;
BSPP, SAE, NPT also available

Cap Screw | Grade 8

High Strength

Nylon Wear Ring (2X)

BZ-PTFE for high temp version

High Load Piston Seal

Cushion Plunger

Floating cushion plunger provides maximum cushioning effect combined with a quick start for optimum performance

Gland Retainer

Gland Bushing

Cartridge-type AL - bronze

Check Valve & Cushion

Valve | Fully retained for safety

Seals | Standard seals are suitable for water glycol or standard mineral oil; High temp seals available as an option

1st Rod Seal | PTFE - Low friction and long service life; Protects secondary seal from pressure spikes; Allows a fine film of oil to pass ensuring the necessary lubrication of the secondary seal; Geometry designed to vent pressure from the reverse side - to reduce possibility of pressure trap between seals; Acts as an internal wiper to protect secondary seal from internal contaminants

2nd Rod Seal | PTFE - Low friction; Excellent low-pressure seal ability, long service life

Bronze Teflon Wiper

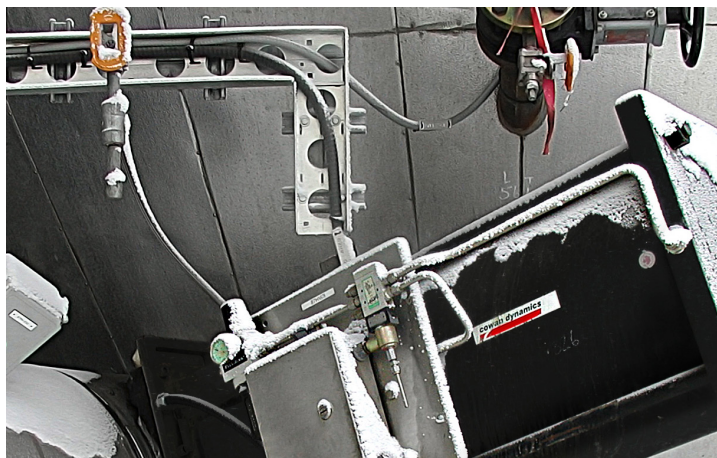
Double-acting wiper ensures the best sealing performance

Metallic Rod Scraper

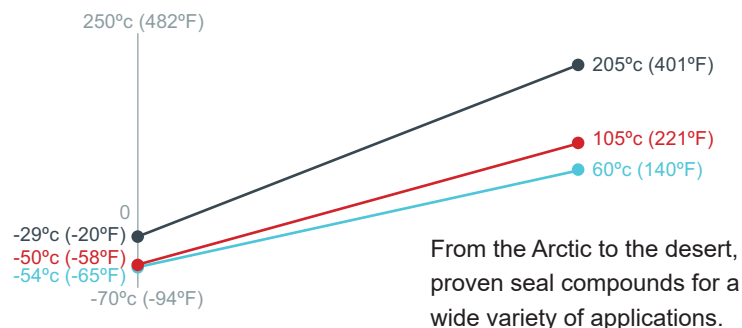
(Standard) Rugged scraper deflects contamination away from the rod seals for long service life

Material Breakdown	STANDARD
Head & Cap	Machined Steel
Flange	Machined Steel
Barrel	Seamless Steel Tubing Honed ID *Optional Chrome Plating available
Barrel Seal	Nitrile O-Ring
Piston	Ductile Iron
Piston rod	Steel SAE 1045
Gland	SAE 660 Bronze
Tie Rod	Stress-proof Steel

Specifications



Caption Here:
Sample Text



- **Thrust:** up to 367,566 lbs
- **Bore size:** 4" - 16"
- **Configuration:** Single-Stage
- **Stroke Range:** Up to 144"
- **Pressure Rating:** 3000 psi
- **Rod Size:** 2" to 10"

Add-Ons



Limit Switches

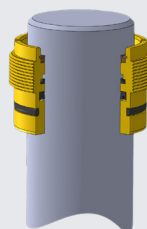
Mechanical Limit Switch SPDT, for Open & Close Indication. Inductive switches also available. Solid State, Reed and inductive type also available. Specify brand and part number



Available in 316 Stainless Construction

for corrosive applications.

Includes attachments such as Rod clevis and Eye brackets.



GT3 Gland for Harsh Environments

Triple-seal gland with dual wipers. Rugged metallic scraper and urethane double-acting wiper deflect contamination away from the rod seal for long service life.

- Low Temp
- Cast iron construction for applications where yellow metals are not allowed

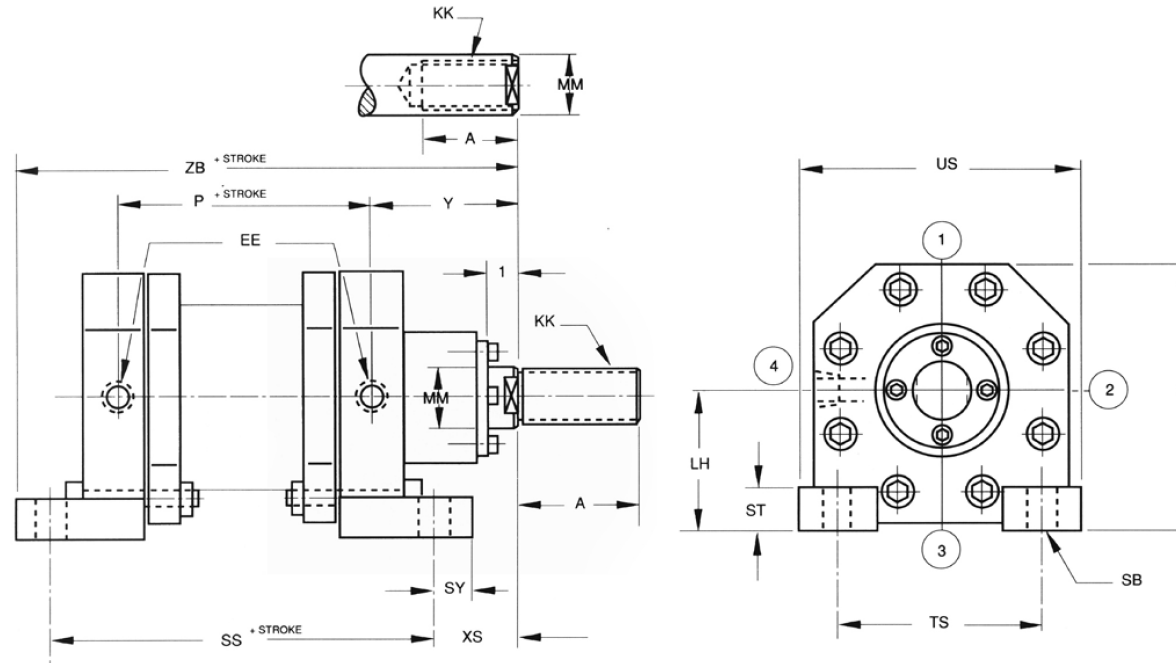


Balluff LDT

Optional Balluff LDT for continuous position feedback. 4-20mA, 0-10V and digital outputs available.

Base Mount

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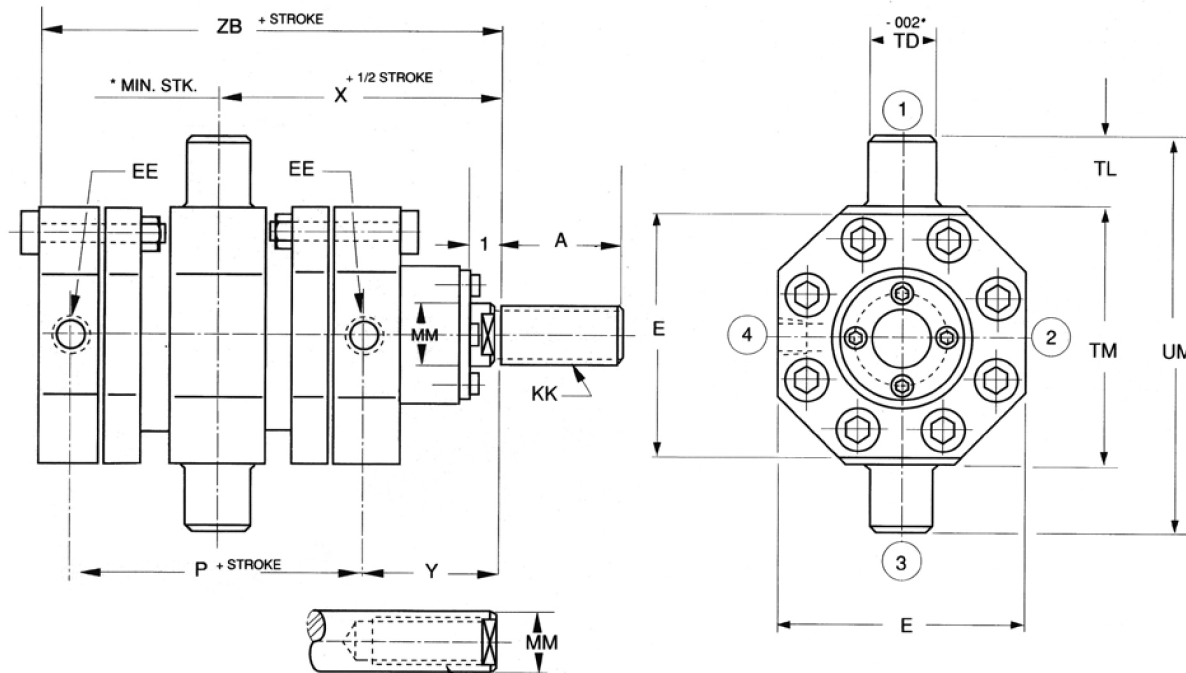


Dimensions (in)													
BORE	E	EE (NPT)	LH	P	SB	SS	ST	SY	TS	US	XS	Y	ZB
3	6.13	3/4	3.63	6.00	0.69	11.00	0.88	0.63	5.25	6t.50	3.25	5.75	14.88
4	8.06	3/4	4.50	7.00	0.81	11.50	1.00	0.75	7.00	8.50	3.50	5.75	15.75
5	9.38	1	5.13	7.94	1.06	13.63	1.50	1.00	7.50	9.50	3.50	6 11/32	18.13
6	10.63	1 1/4	5.63	8.38	1.31	15.13	1.88	1.25	8.00	10.50	3.50	6.88	19.88
8	14.00	1 1/4	7.50	9.25	1.56	16.75	2.25	1.50	11.00	14.00	4.00	7.75	22.25
10	17.13	1 1/2	9.00	10.50	1.88	19.63	2.50	1.88	13.00	17.50	4.00	8.56	25.50
12	20.75	1 1/2	11.00	11.38	2.38	20.00	2.75	2.25	15.00	21.00	4.00	8.31	26.25
14	23.75	2	12.75	12.25	2.63	24.00	2.88	2.50	19.00	24.00	4.13	10.00	30.63
16	26.75	2-30	14.00	13.63	3.13	26.50	2.88	3.00	21.00	27.50	4.25	10.69	33.75

Dimensions (in)				
BORE	Rod Φ MM	KK	A	Thrust (lbs)
3	1.75	1 1/4-12	1.75	13,990
	2.00	1 1/2-12	2.00	11,781
4	2.00	1 1/2-12	2.00	28,274
	2.50	1 7/8-12	2.50	28,973
5	2.50	1 7/8-12	2.50	44,179
	3.50	2 1/2-12	3.50	30,042
6	3.00	2 1/4-12	3.00	63,617
	4.25	3-12	4.25	42,265
8	4.25	3-12	4.25	108,238
	5.75	4-12	5.75	72,896
10	5.00	4-12	5.00	176,714
	7.00	5-12	7.00	120,164
12	5.75	4-12	5.75	261,391
	8.00	5-12	8.00	188,497
14	7.00	6-8	7.00	346,359
	9.00	6-8	9.00	270,963
16	8.00	7-8	8.00	452,391
	10.00	7-8	10.00	367,566

Trunnion Mount

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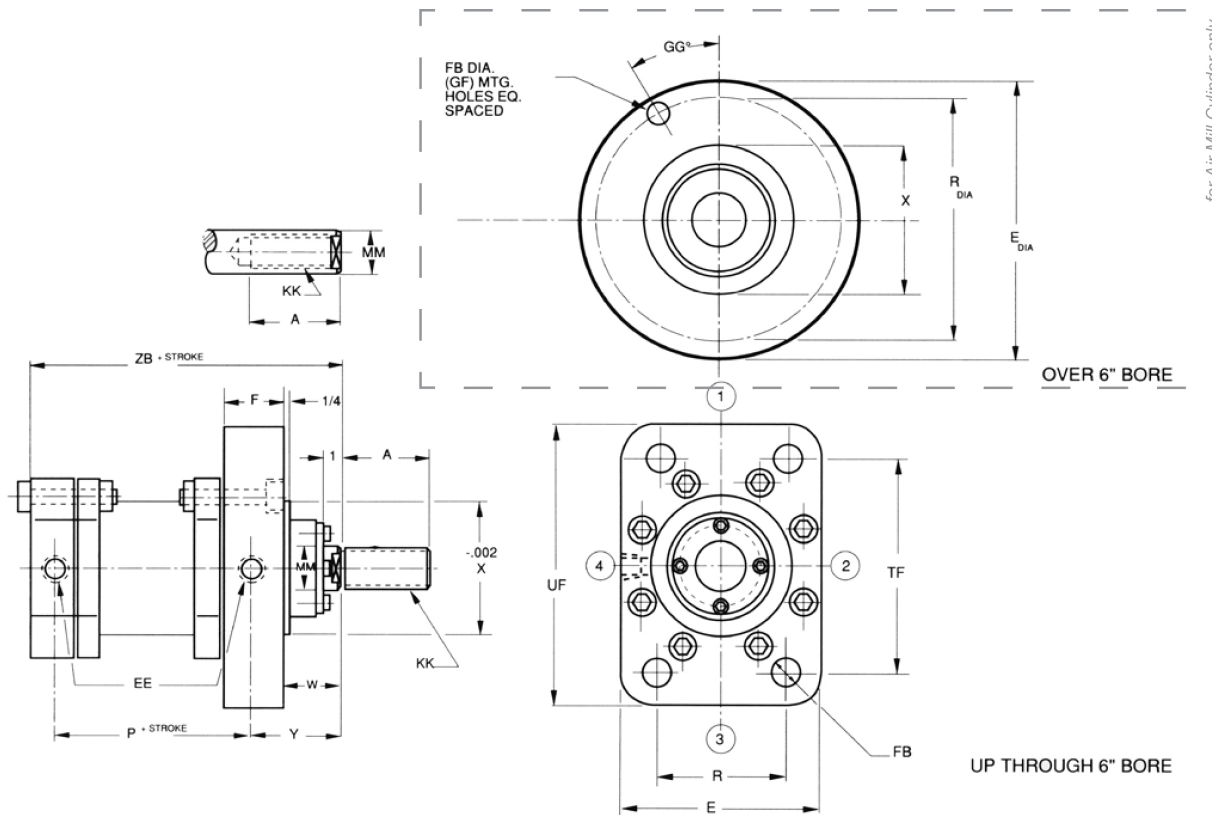


Dimensions (in)											
BORE	E	EE (NPT)	P	TD	TL	TM	UM	X	Y	ZB	Min. Stroke
3	5.00	3/4	6.00	1.50	1.63	6.50	9.75	8.75	5.75	12.56	1.50
4	7.13	3/4	7.00	1.75	2.13	8.25	12.50	9.25	5.75	13.63	2.00
5	8.50	1	7.94	2.25	2.63	9.75	15.00	10.31	6.34	15.31	2.38
6	10.00	1 1/4	8.38	2.50	3.00	10.75	16.75	11.06	6.88	16.44	3.25
8	13.00	1 1/4	9.25	3.50	4.25	14.50	23.00	12.38	7.75	18.50	4.75
10	16.25	1 1/2	10.50	4.00	5.25	18.00	28.50	13.81	8.56	20.56	6.00
12	19.50	1 1/2	11.38	5.00	6.25	20.50	33.00	14.00	8.31	21.38	7.75
14	22.00	2	12.25	5.50	6.75	23.00	36.50	16.13	10.00	24.06	8.63
16	25.50	2	13.63	6.50	7.25	26.50	41.00	17.50	10.69	26.38	9.50

Dimensions (in)				
BORE	Rod Φ MM	KK	A	Thrust (lbs)
3	1.75	1 1/4-12	1.75	13,990
	2.00	1 1/2-12	2.00	11,781
4	2.00	1 1/2-12	2.00	28,274
	2.50	1 7/8-12	2.50	28,973
5	2.50	1 7/8-12	2.50	44,179
	3.50	2 1/2-12	3.50	30,042
6	3.00	2 1/4-12	3.00	63,617
	4.25	3-12	4.25	42,265
8	4.25	3-12	4.25	108,238
	5.75	4-12	5.75	72,896
10	5.00	4-12	5.00	176,714
	7.00	5-12	7.00	120,164
12	5.75	4-12	5.75	261,391
	8.00	5-12	8.00	188,497
14	7.00	6-8	7.00	346,359
	9.00	6-8	9.00	270,963
16	8.00	7-8	8.00	452,391
	10.00	7-8	10.00	367,566

Front Flange Mount

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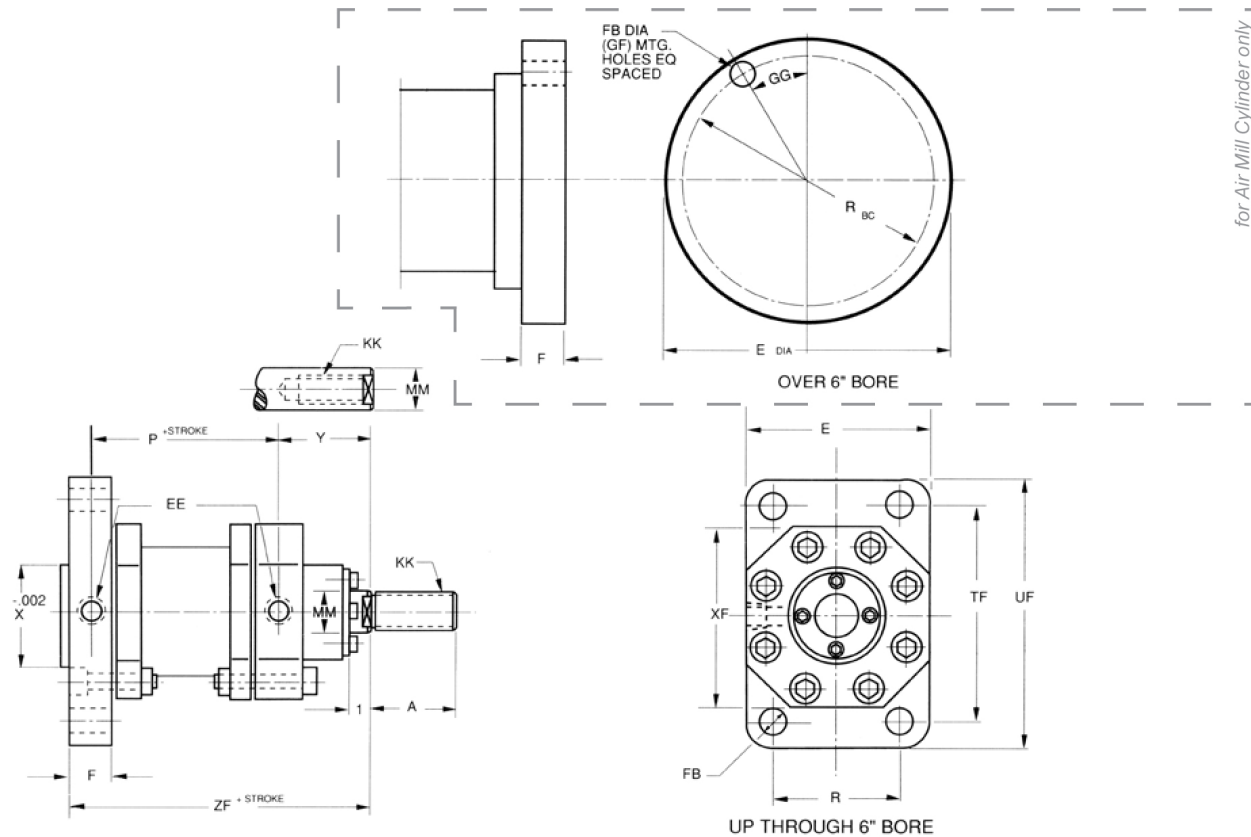


Dimensions (in)												
BORE	E	EE (NPT)	F	FB	P	R	TF	UF	W	X	Y	ZB
3	6.25	3/4	2.25	0.94	6.00	4.50	6.75	8.50	3.50	4.75	5.00	11.81
4	8.00	3/4	2.75	1.31	7.00	5.50	8.75	11.25	3.25	6.00	5.13	13.00
5	9.25	1	3.00	1.56	7.94	6.00	10.50	13.50	3.50	6.75	5.47	14.44
6	10.25	1 1/4	3.25	1.81	8.38	7.00	12.75	16.25	3.75	7.50	5.81	15.38
8	14.00	1 1/4	3.75	2.63	9.25	9.00	16.75	21.75	4.25	10.00	6.75	17.50
10	17.00	1 1/2	4.50	2.63	10.50	12.00	18.50	23.50	4.50	11.50	7.50	19.50
12	19.50	1 1/2	5.00	3.13	11.38	13.50	22.00	28.00	4.00	13.00	7.31	20.38
14	22.00	2	5.50	3.63	12.25	15.00	25.00	32.00	5.50	14.50	9.19	23.25
16	25.50	2	6.00	4.13	13.63	17.50	29.00	37.00	6.00	15.75	9.94	25.63

Dimensions (in)				
BORE	Rod Ø MM	KK	A	Thrust (lbs)
3	1.75	1 1/4-12	1.75	13,990
	2.00	1 1/2-12	2.00	11,781
4	2.00	1 1/2-12	2.00	28,274
	2.50	1 7/8-12	2.50	28,973
5	2.50	1 7/8-12	2.50	44,179
	3.50	2 1/2-12	3.50	30,042
6	3.00	2 1/4-12	3.00	63,617
	4.25	3-12	4.25	42,265
8	4.25	3-12	4.25	108,238
	5.75	4-12	5.75	72,896
10	5.00	4-12	5.00	176,714
	7.00	5-12	7.00	120,164
12	5.75	4-12	5.75	261,391
	8.00	5-12	8.00	188,497
14	7.00	6-8	7.00	346,359
	9.00	6-8	9.00	270,963
16	8.00	7-8	8.00	452,391
	10.00	7-8	10.00	367,566

Rear Flange Mount

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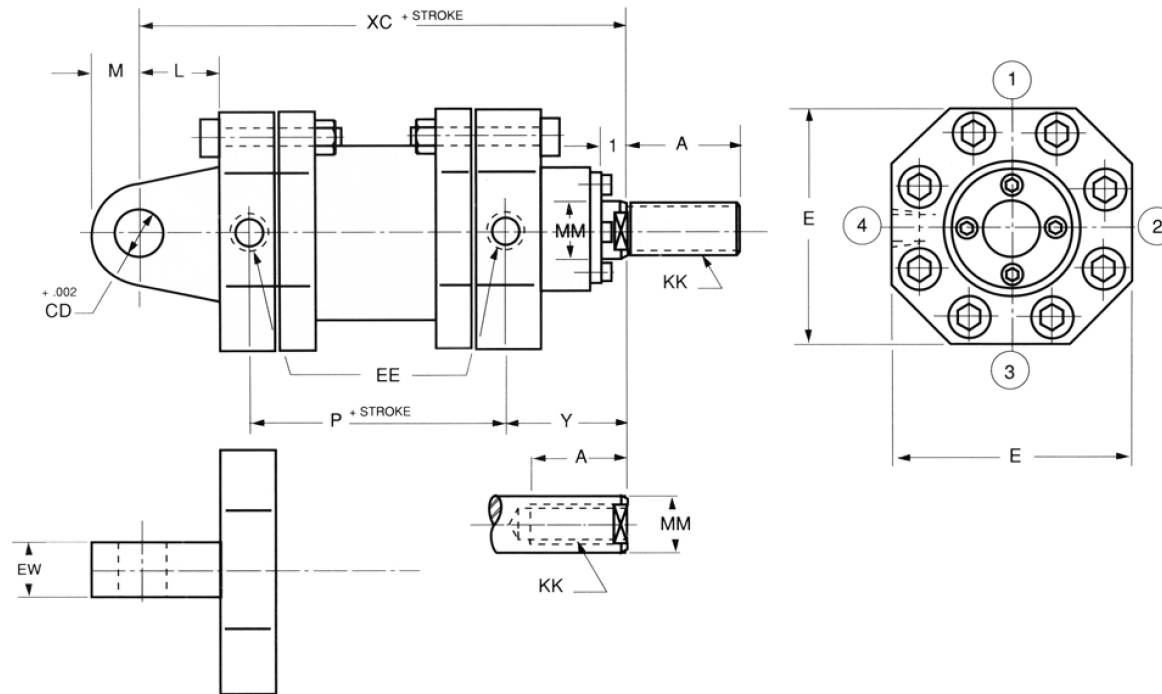


Dimensions (in)												
BORE	E	EE (NPT)	F	FB	P	R	TF	UF	X	XF	Y	ZF
3	6.25	3/4	2.00	0.94	6.00	4.50	6.75	8.50	3.63	5.00	5.75	13.00
4	8.00	3/4	2.00	1.31	7.00	5.50	8.75	11.25	4.50	7.13	5.75	13.88
5	9.25	1	2.38	1.56	7.94	6.00	10.50	13.50	5.75	8.50	6.34	15.63
6	10.25	1 1/4	2.63	1.81	8.38	7.00	12.75	16.25	6.50	10.00	6.88	16.69
8	14.00	1 1/4	3.00	2.63	9.25	9.00	16.75	21.75	8.75	13.00	7.75	18.75
10	17.00	1 1/2	3.88	2.63	10.50	12.00	18.50	23.50	10.00	16.25	8.56	21.44
12	19.50	1 1/2	3.88	3.13	11.38	13.50	22.00	28.00	11.50	19.50	8.31	21.88
14	22.00	2	4.38	3.63	12.25	15.00	25.00	32.00	13.00	22.00	10.00	24.81
16	25.50	2	4.75	4.13	13.63	17.50	29.00	37.00	14.25	25.50	10.69	26.63

Dimensions (in)				
BORE	Rod Ø MM	KK	A	Thrust (lbs)
3	1.75	1 1/4-12	1.75	13,990
	2.00	1 1/2-12	2.00	11,781
4	2.00	1 1/2-12	2.00	28,274
	2.50	1 7/8-12	2.50	28,973
5	2.50	1 7/8-12	2.50	44,179
	3.50	2 1/2-12	3.50	30,042
6	3.00	2 1/4-12	3.00	63,617
	4.25	3-12	4.25	42,265
8	4.25	3-12	4.25	108,238
	5.75	4-12	5.75	72,896
10	5.00	4-12	5.00	176,714
	7.00	5-12	7.00	120,164
12	5.75	4-12	5.75	261,391
	8.00	5-12	8.00	188,497
14	7.00	6-8	7.00	346,359
	9.00	6-8	9.00	270,963
16	8.00	7-8	8.00	452,391
	10.00	7-8	10.00	367,566

Male Clevis

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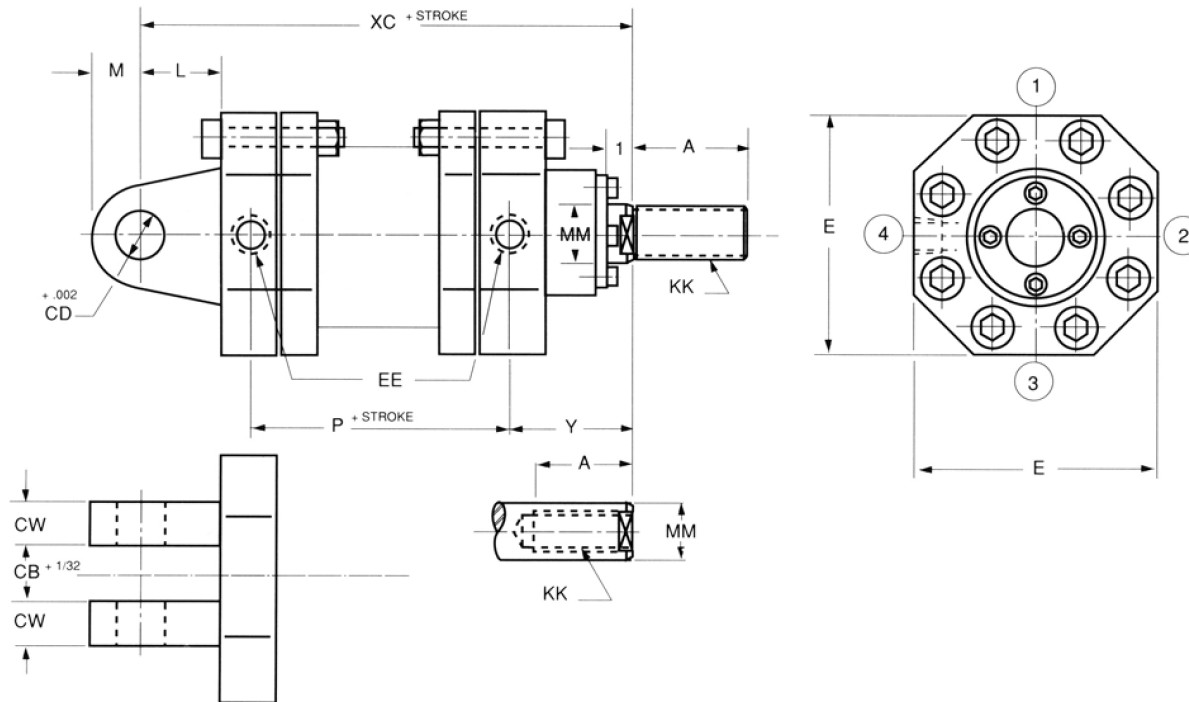


Dimensions (in)									
BORE	EW	CD	E	EE (NPT)	L	M	P	Y	XC
3	2.00	1.38	3/4	0.75	2.44	1.25	6.00	5.75	15.00
4	2.50	1.75	3/4	0.75	3.00	1.63	7.00	5.75	16.63
5	2.50	2.00	1	1.00	3.44	2.00	7.94	6.34	18.75
6	3.00	2.00	1 1/4	1.25	3.81	1.88	8.38	6.88	20.25
8	4.50	3.50	1 1/4	1.25	5.50	4.00	9.25	7.75	23.75
10	5.50	4.00	1 1/2	1.50	5.81	4.50	10.50	8.56	26.38
12	6.50	5.00	1 1/2	1.50	6.75	5.50	11.38	8.31	28.13
14	8.00	5.50	2	2.00	7.31	6.00	12.25	10.00	31.38
16	9.50	6.50	2	2.00	8.25	7.00	13.63	10.69	34.63

Dimensions (in)				
BORE	Rod Ø MM	KK	A	Thrust (lbs)
3	1.75	1 1/4-12	1.75	13,990
	2.00	1 1/2-12	2.00	11,781
4	2.00	1 1/2-12	2.00	28,274
	2.50	1 7/8-12	2.50	28,973
5	2.50	1 7/8-12	2.50	44,179
	3.50	2 1/2-12	3.50	30,042
6	3.00	2 1/4-12	3.00	63,617
	4.25	3-12	4.25	42,265
8	4.25	3-12	4.25	108,238
	5.75	4-12	5.75	72,896
10	5.00	4-12	5.00	176,714
	7.00	5-12	7.00	120,164
12	5.75	4-12	5.75	261,391
	8.00	5-12	8.00	188,497
14	7.00	6-8	7.00	346,359
	9.00	6-8	9.00	270,963
16	8.00	7-8	8.00	452,391
	10.00	7-8	10.00	367,566

Female Clevis

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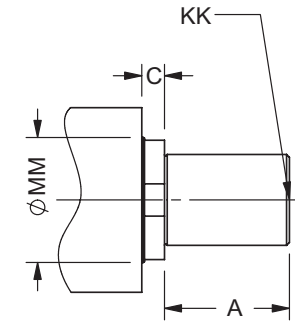
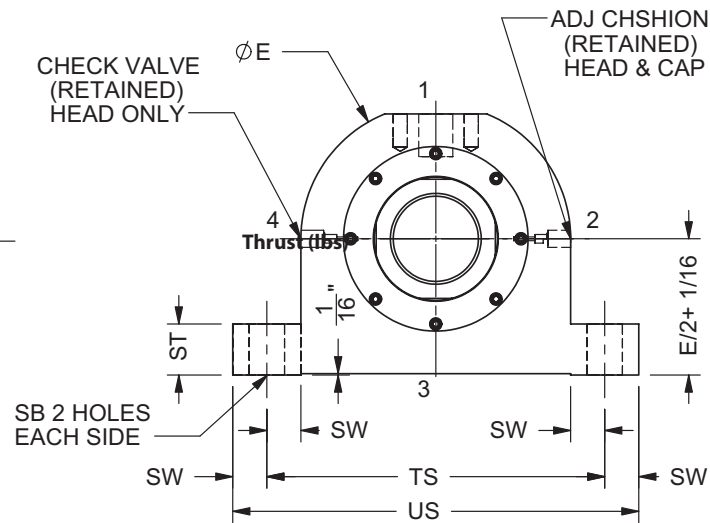
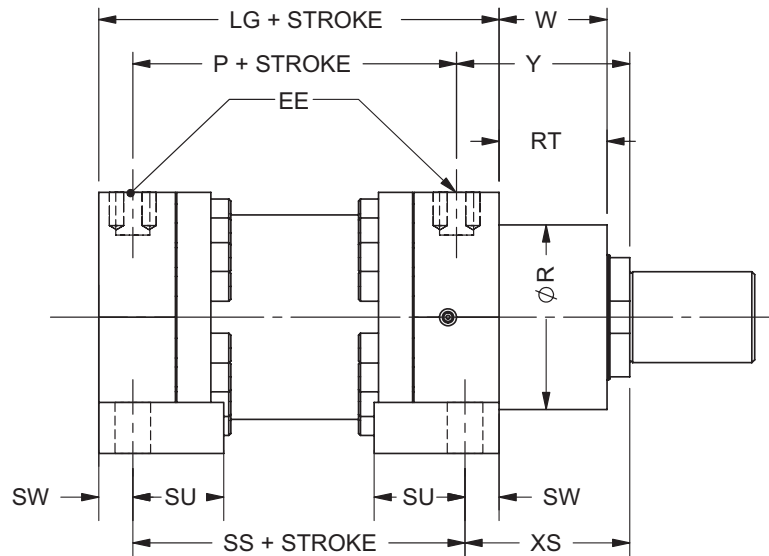


Dimensions (in)										
BORE	CB	CD	CW	E	EE (NPT)	L	M	P	Y	XC
3	2.00	1.38	1.00	3/4	0.75	2.44	1.25	6.00	5.75	15.00
4	2.50	1.75	1.25	3/4	0.75	3.00	1.63	7.00	5.75	16.63
5	2.50	2.00	1.25	1	1.00	3.44	2.00	7.94	6.34	18.75
6	3.00	2.00	1.50	1 1/4	1.25	3.81	1.88	8.38	6.88	20.25
8	4.50	3.50	2.25	1 1/4	1.25	5.50	4.00	9.25	7.75	23.75
10	5.50	4.00	2.75	1 1/2	1.50	5.81	4.50	10.50	8.56	26.38
12	6.50	5.00	3.25	1 1/2	1.50	6.75	5.50	11.38	8.31	28.13
14	8.00	5.50	4.00	2	2.00	7.31	6.00	12.25	10.00	31.38
16	9.50	6.50	4.75	2	2.00	8.25	7.00	13.63	10.69	34.63

Dimensions (in)				
BORE	Rod Ø MM	KK	A	Thrust (lbs)
3	1.75	1 1/4-12	1.75	13,990
	2.00	1 1/2-12	2.00	11,781
4	2.00	1 1/2-12	2.00	28,274
	2.50	1 7/8-12	2.50	28,973
5	2.50	1 7/8-12	2.50	44,179
	3.50	2 1/2-12	3.50	30,042
6	3.00	2 1/4-12	3.00	63,617
	4.25	3-12	4.25	42,265
8	4.25	3-12	4.25	108,238
	5.75	4-12	5.75	72,896
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	7.00	5-12	7.00	120,164
12	5.75	4-12	5.75	261,391
	8.00	5-12	8.00	188,497
14	7.00	6-8	7.00	346,359
	9.00	6-8	9.00	270,963
16	8.00	7-8	8.00	452,391
	10.00	7-8	10.00	367,566

Side Lug

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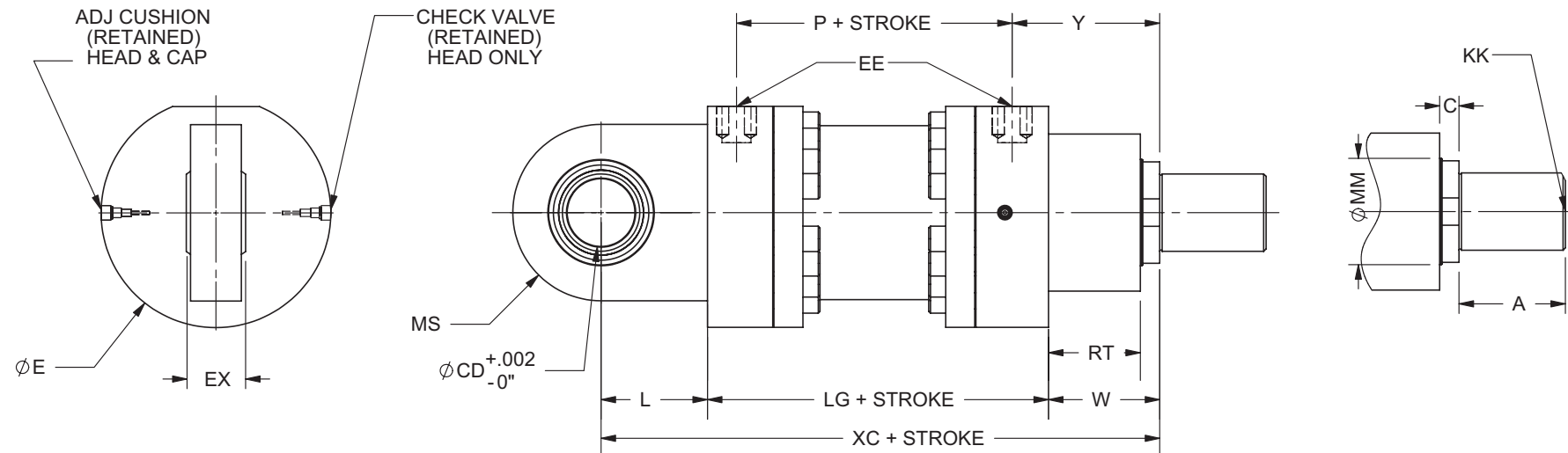


Dimensions (in)															
BORE	E	EE (NPT)	W	Y	P	LG	R	RT	SS	ST	SU	SW	TS	US	XS
4		0.75		5.75	7.00				11.50	1.00		0.75	7.00	8.50	3.50
5		1.00		6.34	7.94				13.63	1.50		1.00	7.50	9.50	3.50
6		1.25		6.88	8.38				15.13	1.88		1.25	8.00	10.50	3.50
8		1.25		7.75	9.25				16.75	2.25		1.50	11.00	14.00	4.00
10		1.50		8.56	10.50				19.63	2.50		1.88	13.00	17.50	4.00
12		1.50		8.31	11.38				20.00	2.75		2.25	15.00	21.00	4.00
14		2.00		10.00	12.25				24.00	2.88		2.50	19.00	24.00	4.13
16		2.00		10.69	13.63				26.50	2.88		3.00	21.00	27.50	4.25

Dimensions (in)					
BORE	Rod Ø MM	KK	A	C	Thrust (lbs)
4	2.00	1 1/2-12	2.00		28,274
	2.50	1 7/8-12	2.50		28,973
5	2.50	1 7/8-12	2.50		44,179
	3.50	2 1/2-12	3.50		30,042
6	3.00	2 1/4-12	3.00		63,617
	4.25	3-12	4.25		42,265
8	4.25	3-12	4.25		108,238
	5.75	4-12	5.75		72,896
10	5.00	4-12	5.00		176,714
	7.00	5-12	7.00		120,164
12	5.75	4-12	5.75		261,391
	8.00	5-12	8.00		188,497
14	7.00	6-8	7.00		346,359
	9.00	6-8	9.00		270,963
16	8.00	7-8	8.00		452,391
	10.00	7-8	10.00		367,566

Spherical Bearing

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How to Order

Actuation Solutions and Systems for the
World's Most Challenging Environments

SERIES

R3

BORE SIZE

H - 4"
K - 5"
L - 6"
M - 7"
N - 8"

P - 10"
R - 12"
S - 14"
T - 16"

ROD DIAMETER

J - 2"
K - 2 1/2"
L - 3"
M - 3 1/2"
N - 4"
P - 4 1/2"

R - 5"
S - 5 1/2"
W - 7"
X - 8"
V - 9"
Y - 10"

ROD THREAD STYLE

N2 - Intermediate Male
M2 - Intermediate Male Metric*

*Contact Cowan for size

CUSHIONS

5C - Adjustable both ends
6C - Adjustable head end
7C - Adjustable cap end
8 - None

CUSHIONS POS

Omit if non Cushion
CXX

XX denotes position
ex: 23 = Pos 2 head
Pos 3 Cap

DOUBLE ROD DIA

Omit if not required

DJ2 - 2" DR2 - 5"
DK2 - 2 1/2" DS2 - 5 1/2"
DL2 - 3" DW2 - 7"
DM2 - 3 1/2" DX2 - 8"
DN2 - 4" DV2 - 9"
DP2 - 4 1/2" DY2 - 10"

2ND ROD THREAD STYLE

RN2 - 2nd Rod: Intermediate
Male

RM2 - 2nd Rod: Intermediate
Male Metric*

*Contact Cowan for size

PORTS

GXX - SAE Code 62 flange
FXX - SAE Code 61 flange
SXX - SAE
NXX - NPT
BXX - BSPP
MXX - ISO

XX denotes position
ex: 12 = Pos 1 head,
Pos 2 Cap

SEALS

N - Standard Seals
F - High Temp
L - Low Temp
E - EPDM

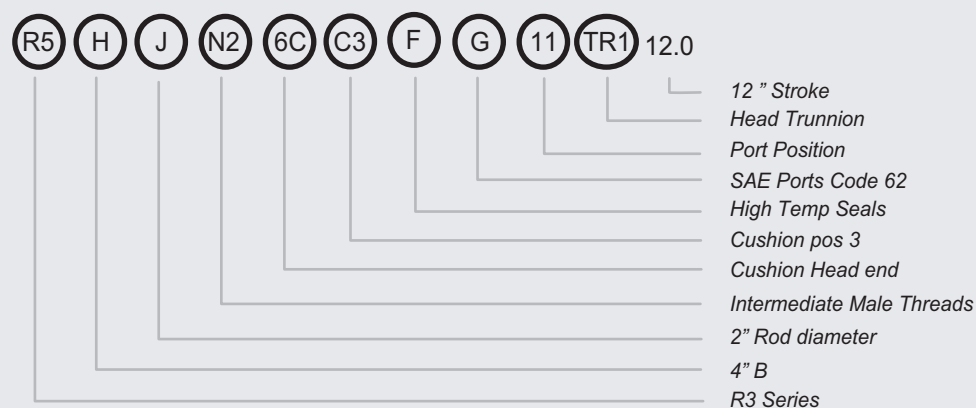
MOUNTINGS

PR1 Cap Fixed Clevis (with
Clevis pin)
PR3 Male Clevis (with pivot pin)
SR2 Side lugs
TR1 Head Trunnion
TR2 Cap Trunnion
TR4 Intermediate Trunnion
SRB Spherical Bearing
X0 No mount

OPTIONS

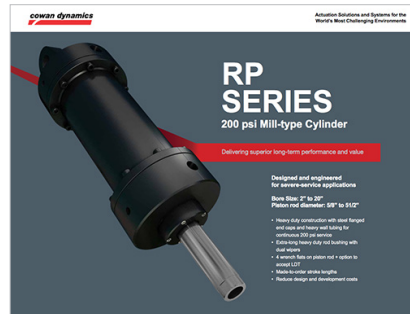
Please consult the factory for additional option codes

EXAMPLE



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