

NOPAK[®]

CATALOG 107

"SQAIRPAK"[®]

**CLASS 7
SQUARE
BARREL
AIR AND
HYDRAULIC^{*}
CYLINDERS**



* Limited Hydraulic Applications

GALLAND HENNING NOPAK, Inc.

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West Milwaukee, Wisconsin 53234
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Nopak[®]

Square Barrel Cylinders

- Chatter-free movement throughout the stroke
- Low breakaway force for applications where surge cannot be tolerated
- Easy to clean for applications where sanitary considerations are important
- High visual appeal

Applications for

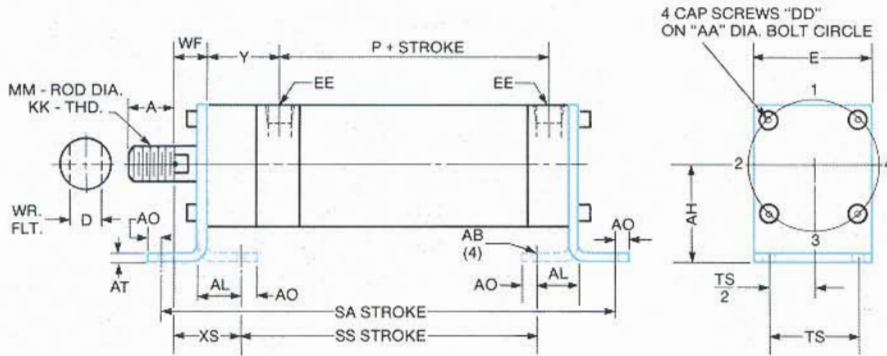
- Food processing
- Graphic arts
- Medical
- High technology
- Clean room environments
- Electronics

Performance and Design

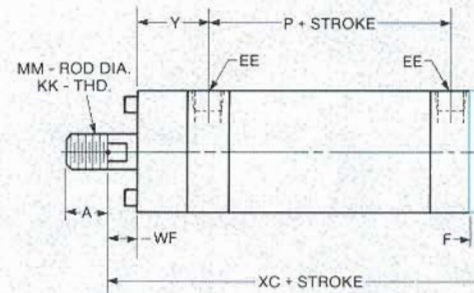
- Four flush sides for easy cleaning
- Versatile mounting; tap or drill directly into cylinder tube or heads at right angles or longitudinally.
- Application adaptability; interchangeable foot, flange, clevis or trunnion mounts
- Power; remarkable power to weight ratio using pressure cast, extruded aluminum, hard anodized.
- Compact design offers multiple mounting of several cylinders in a small area

ONE BASIC BODY... 7 UNIVERSAL MOUNT

A MOUNTING Parallel Base — legs in and legs out



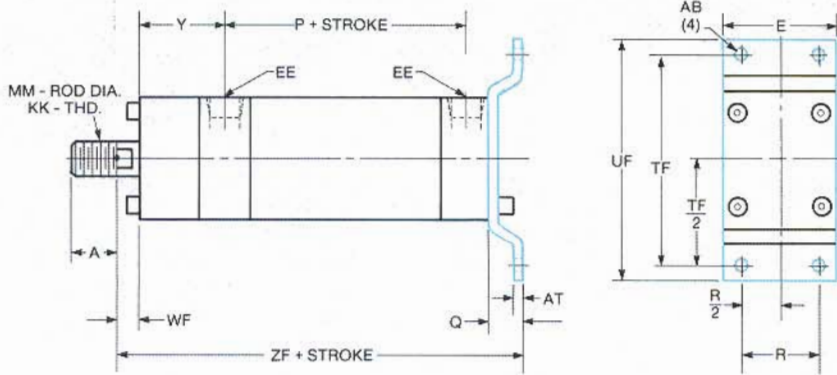
E MOUNTING Pivot Tongue



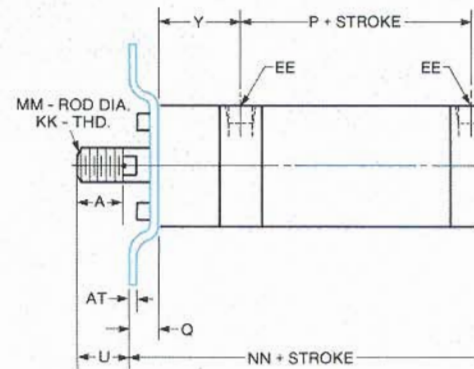
NOTE: Pivot Pins supplied with Model E Cylinders.

NOTE: WRENCH FLAT, REFERENCE D, APPLIES TO ALL CYLINDER MODELS.

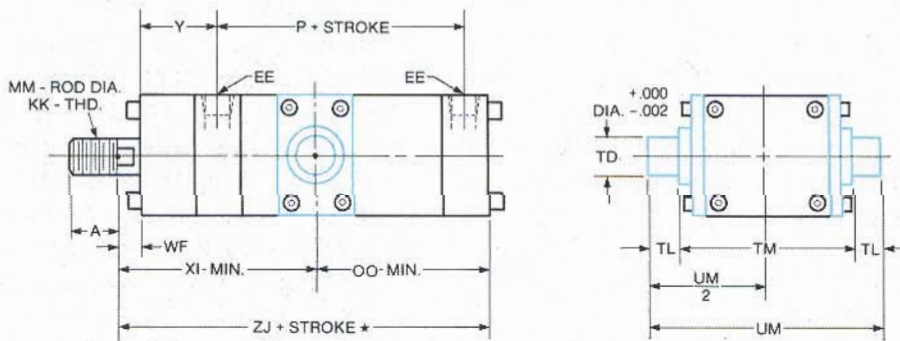
C MOUNTING Right angle flange — Blind end



D MOUNTING Right angle flange

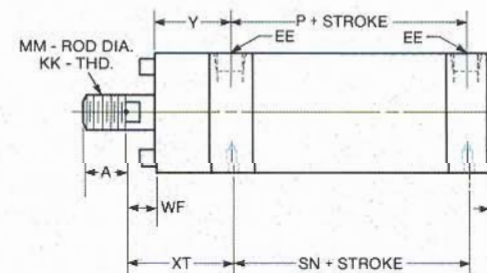


F MOUNTING Trunnion*



* See minimum stroke requirements.

S MOUNTING Head bolted



Dimension XI and dimension OO are minimums established to eliminate interference with head bolts. Dimension XI minimum plus OO minimum minus ZJ equals minimum stroke.

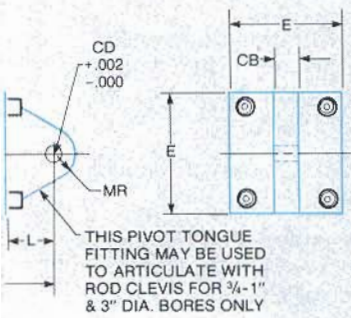
Right Angle Direct Head Bolting may also be accomplished using end Use longer socket head screws to compensate for thickness at mount

Cyl. Bore	Effective Area		A	D	E	F	L	K	P	Q	R	U	Y	AA	AB	AH	AL	AO	AT	CB	CD	DD	EE NPT	KK	MM	MR	MS	NN
	Push	Pull																										
3/4	.44	.33	3/4	5/16	1	3/16	9/16	3/16	1 1/2	5/16	1/2	13/16	1 3/16	1.00	9/32	3/4	9/16	5/16	1/8	9/32	.250	#8-32	1/8	3/8-24	3/8	5/16	2	37/16
1	.79	.68	3/4	5/16	1 1/4	3/16	9/16	3/16	1 1/2	1/2	3/4	5/8	1 3/16	1.28	9/32	15/16	9/16	5/16	1/8	11/32	.250	#10-24	1/8	3/8-24	3/8	5/16	2	3 5/8
1 1/2	1.76	1.46	1 1/2	1/2	1 3/4	1/4	7/8	1/4	2 1/8	1/2	1	1 1/2	1 7/16	1.88	13/32	1 5/16	1 1/16	7/16	1/8	1 5/32	.375	1/4-20	1/4	5/8-18	5/8	5/8	2 1/4	4 1/2
2	3.14	2.83	1 1/2	1/2	2 1/4	1/4	7/8	5/16	2 1/8	9/16	1 1/2	1 7/16	1 7/16	2.50	13/32	1 9/16	7/8	7/16	3/16	1 5/32	.375	5/16-18	1/4	5/8-18	5/8	5/8	2 1/4	4 9/16
3	7.07	6.63	1 1/2	5/8	3 1/4	5/16	1 5/16	3/8	2 1/2	1 1/16	2 1/4	1 7/16	1 1/2	3.69	13/32	2 1/16	1	7/16	3/16	1 5/32	.500	3/8-16	3/8	3/4-16	3/4	1	2 1/2	5 3/16

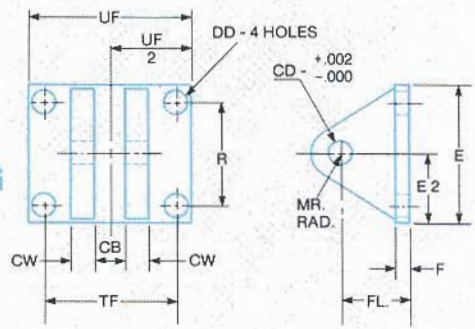
Chrome plated rods furnished as standard. Stainless steel optional on request.

Dimensions in this catalog are subject to change. We suggest you request certified prints where dimensions are critical.

TINGS



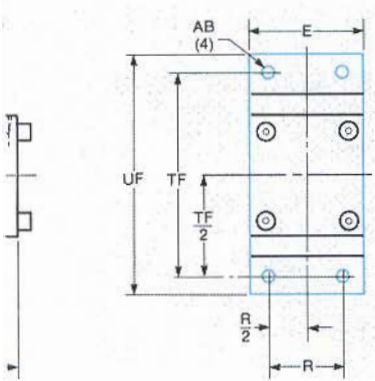
BRACKET FOR E MOUNTING



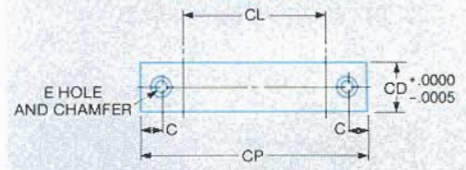
BRACKET DIMENSIONS

Cyl. Bore	E	F	R	CB	CD	CW	DD	FL	MR	TF	UF	Part No.
3/4 - 1	1 1/4	3/16	3/4	13/32	.250	1/4	9/32	3/4	5/16	1 9/16	2 1/16	8425CY
1 1/2 - 2	2 1/4	1/4	1 1/2	17/32	.375	3/8	13/32	1 1/8	5/8	2 1/4	3	8426CY
3	3 1/4	5/16	2 1/2	17/32	.500	3/8	13/32	1 5/8	1	2 1/2	3 1/4	8427CY

ge — Rod end



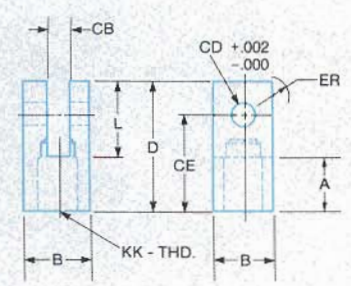
PIVOT-PIN



PIVOT-PIN DIMENSIONS

Cyl. Dia.	C	E	CD	CL	CP	MODEL E BLIND D/C	ROD CLEVIS
						Part No.	Part No.
3/4-1	1/8	3/32	1/4	13/32	1 1/4	4364.L49-4	4364.L49-4
1 1/2-2	3/16	1/8	3/8	1 1/4	1 1/4	3221.L46-1	3221.L46-2
3	3/16	1/8	1/2	1 1/2	2 1/4	3221.L46-2	3221.L46-3

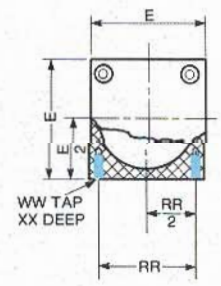
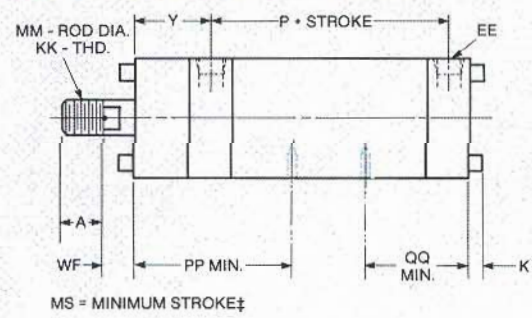
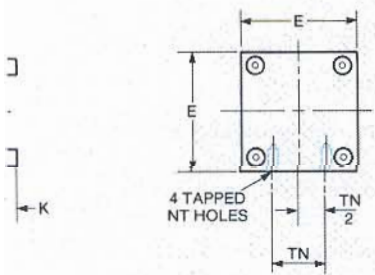
ROD CLEVIS



CLEVIS DIMENSIONS

Cyl. Bore	A	B	D	L	CB	CD	CE	CW	ER	KK	Part No.
3/4 - 1	5/8	7/8	1 1/2	7/8	3/8	.250	1 3/16	1/4	7/16	3/8-24	4140.L25
1 1/2 - 2	7/8	1 1/4	2 1/8	1 1/4	17/32	.500	1 5/8	3/8	1/2	5/8-18	1787.L46
3	1 1/8	1 1/2	2 5/8	1 1/2	17/32	.500	2	1/2	5/8	3/4-16	1788.L46

BB MOUNTING Barrel Bolted



MS = MINIMUM STROKE‡

hole pattern dimension.
ng bracket.

*NOTE: Drill along edge of barrel except for interference with head bolts (see dimensions). This minimum space mounting is a NOPAK exclusive. Patent applied for.

NT	OO	PP	QQ	RR	SA	SN	SS	TD	TF	TL	TM	TN	TS	UF	UM	WF	WW	XC	XI	XS	XT	XX	ZF	ZJ	*MODEL F MIN. STROKE
#5-40	2 5/16	2 11/16	1 15/16	3/4	4 1/4	1 1/2	2 1/8	.375	2 5/8	3 3/8	1 3/4	3 3/8	1/2	3 1/4	2 1/2	3 3/8	#8-32	4 1/4	3 7/16	7/8	1 9/16	5/32	3 13/16	3 1/2	2 1/4
#10-24	2 5/16	2 11/16	1 15/16	1	4 1/4	1 1/2	2 1/4	.375	3	3 3/8	2	3 3/8	3/4	3 5/8	2 3/4	3 3/8	#10-24	4 1/4	3 7/16	1 3/16	1 9/16	3/16	4	3 1/2	2 1/4
#10-24	2 7/8	3 5/16	2 5/16	1 7/16	5 3/8	2	2 7/8	.750	3 5/8	5 3/8	2 3/4	3 3/4	1	4 1/2	4	1 1/2	#10-24	5 5/8	4 3/8	1 1/16	2	1/4	5	4 1/2	2 3/4
1/4-20	3 1/8	3 5/16	2 5/16	1 7/8	5 3/4	2	2 5/8	.750	4 3/8	5 3/8	3 1/4	1	1 1/2	5 1/4	4 1/2	1 1/2	1/4-20	5 5/8	4 3/8	1 3/16	2	3/8	5 1/16	4 1/2	3 3/4
3/8-16	3 7/8	3 5/8	2 5/8	2 3/4	6 1/4	2 1/2	2 7/8	1.25	5 5/8	15 1/8	4 3/8	1 3/4	2 1/4	6 1/2	6 1/4	5 3/8	3/8-16	6 3/4	5 1/2	1 7/16	2 1/8	7/16	5 13/16	5 1/8	4 3/4

PRESSURE RATINGS

AIR
HYDRAULIC

CLASS 7 CYLINDER

TABLE A
PRESSURE RATINGS/RECOMMENDED STROKE LENGTH

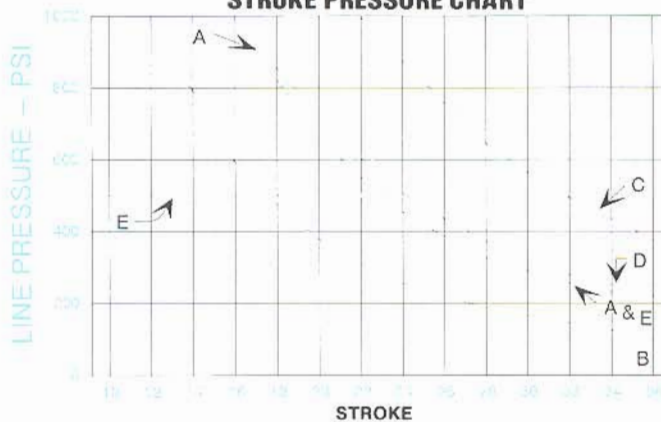
BORE DIA.	STD. ROD	P7 AIR	H7 HYD.	(PUSH) STROKE MAX.
3/4	3/8	200	1000	16 In.
1	3/8	200	1000	12 In.
1 1/2	5/8	200	1000	22 In.
2	5/8	200	1000	16 In.
3	3/4	200	500	23 In.

Please refer to stroke chart (Table B) for pressure limitations of strokes exceeding those shown on chart (Table A). Consult your Nopak representative or the factory for strokes longer than recommended on chart.

Table A operating pressures can, under certain limited conditions, be exceeded. Consult with factory.

In addition to pressure ratings, proper choice and application of a cylinder are dependent on mounting type, stroke length, application, fluid, temperature, and environment. Water service or chemical atmosphere can be severe and should be emphasized so that a Nopak engineer can determine your requirements.

TABLE B
STROKE PRESSURE CHART



A = .75" BORE .375" ROD
B = 1" BORE .375" ROD
C = 1.50" BORE .625" ROD
D = 2" BORE .625" ROD
E = 3" BORE .75" ROD

* Note: For Model E, CC or other blind end mounting styles, reduce the stroke length by 1/2 to avoid bending rod.

To determine the recommended maximum operating pressure for strokes, locate the stroke in inches at the bottom of chart. Follow up graph curve to your selected

cylinder bore. Readings on left of graph will be the PSI pressure recommendation depending on the intersection point of stroke and cylinder bore.

ORDERING CODE **Phone: 414-645-6000 Fax No.: 414-645-6048**

HOW TO ORDER:

1. Select Cylinder Class and Bore Diameter.
2. Specify desired stroke length.
3. Specify mounting option, if requested.
4. Operating Medium (Air-Hyd.)
5. Specify dia. of rod and type of rod end required.

When ordering replacement parts be sure to specify:

- Part by name and item number
- Bore, stroke and mounting
- Serial number shown on Nopak label

EXAMPLE:

CL7 - 1.50 X 12 - A - NN - 0.63 - [0.63-18] - OPT.

CL7: Class (Class 7)
1.50: Bore (0.75" through 3.00" with limited availability of 1.50" bore while present inventory lasts.)
X: Stroke
12: Stroke
A: Mounting style.
NN: No bumpers
0.63: Rod Diameter: See dimension MM in chart, pg. 3.
[0.63-18]: Rod End Thread: See dimension KK in chart, page 3.
OPT.: Special modification if required. If not omit.

All standard cylinders are non-cushioned. (Bumpers optional. See chart below.)

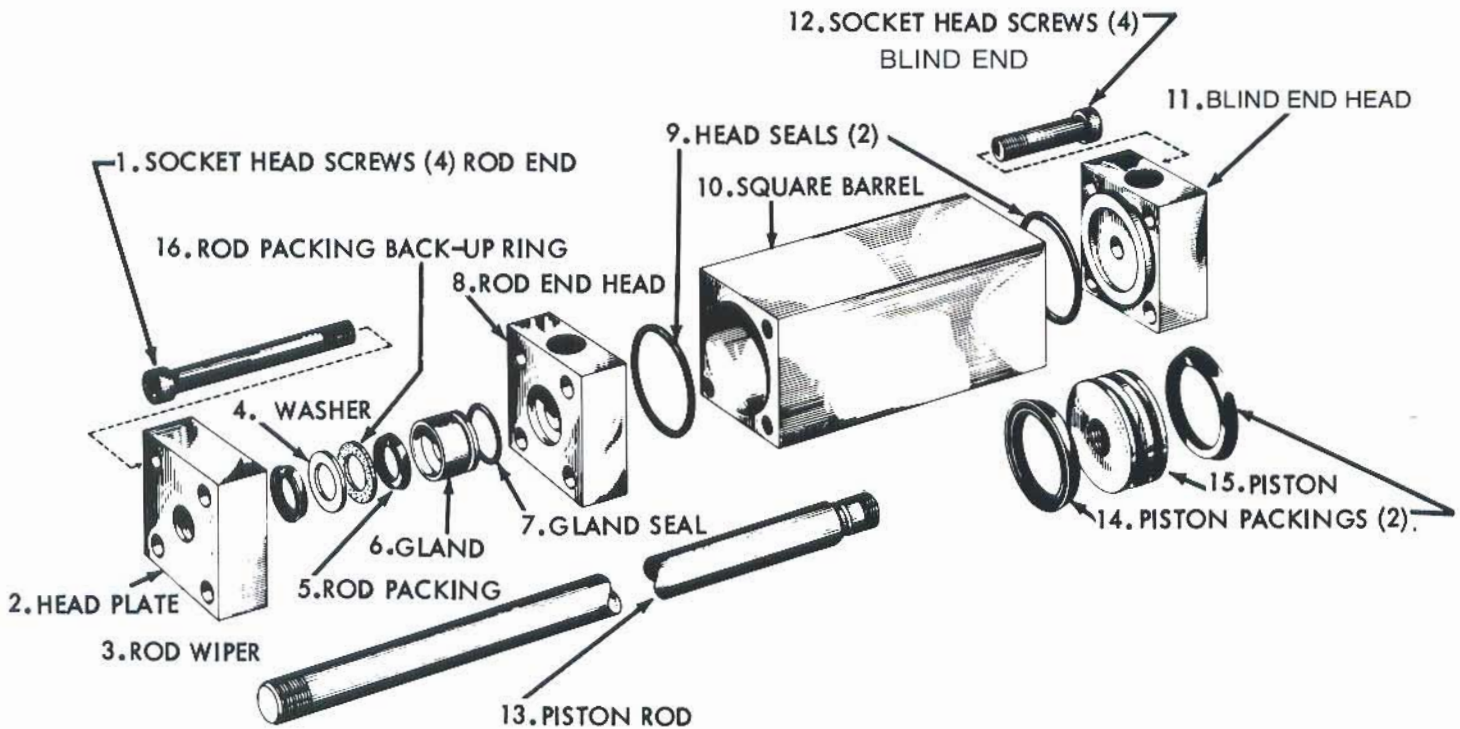
NN = No bumpers	NX = No bumper rod end, bumper blind end.	OPT = Optional features required such as VITON seals, port position, etc.
XX = Bumper both ends	XN = Bumper rod end, no bumper blind end.	

NOPAK QUALITY WARRANTY

The Seller guarantees every product to be of proper materials and first class workmanship, and agrees to repair or replace F.O.B. Factory, but not to install, any product which proves defective in material or workmanship, within 90 days after shipment. The Seller assumes no responsibility for work done or expense incurred in connection with repairs or replacements,

except upon written authority from its home office. Component materials not of the Seller's manufacture are subject only to the warranty of their respective manufacturer. When orders have been correctly filled, goods cannot be returned without the Seller's consent, and will be subject to restocking charge.

Versatile Design



Compact and Clean

SQUARE BARREL: Made of seamless extruded aluminum alloy, drawn to a 16 micro inch finish. The cylinder bore is hard coated to insure an extremely durable surface. Life tests reveal no appreciable wear in bore after millions of cycles. The "four-square" flush barrel provides unique and exclusive opportunity for direct bolt-in mounting into any side or longitudinally from either end (see Mounting S and BB).

CYLINDER HEADS — HEAD PLATE:

Precision cast and machined

aluminum alloy. The "four-square" heads can be readily rotated to position ports for most convenient piping. No matter how rotated, the heads align perfectly with the square barrel, resulting in clean, flush surfaces. Heads also provide opportunity for direct bolt-in mounting (see Mounting S).

NO TIE RODS OR LOCK RINGS:

All components including Mounting Attachments neatly contained by only four (4) bolts at each end. No dirt catching, inaccessible or hard to clean contours.

MOUNTING VERSATILITY: The 5 Universal Mounting Attachments are quickly bolted to the basic body. In addition, the "four-square" design allows rotating and inter-mixing these attachments. Our Direct Head Bolt and Barrel Bolt Mountings teamed with our NOPAK Class 7 offer the most universal air and hydraulic cylinders ever developed. If you have difficult applications, this combo is a natural.

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