

Series ET, T & VT Tiny Tim



3/4" and 1-1/8" bore

Single and double rod end styles

Viton seals optional for higher temperatures

Technical data

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

Single or double acting

Operating Pressure:

150 PSI (10 bar)

Operating Temperature:

-20° to 200°F (-29° to 107°C)

Cylinder Diameters:

3/4", 1-1/8"

Differences between Series T and Series VT air actuators

Series T contains a Quad Ring Buna-N piston seal. The VT Series utilizes a dual Block-Vee nitrile piston seal design.

The Block-Vee seals increase the envelope dimensions of the Series VT cylinders by 3/8". All other features of the Series T and VT are the same.

Series VT cylinders have a slightly lower breakaway pressure (psig) than the Series T Tiny Tim air cylinders.

Options selector for T, VT, and ET

VT SR 3/8 RC EN 1-1/8 5

Single Rod End Models	Substitute
Quad ring piston seal, block – vee rod seal	T
Block-vee piston and rod seals	VT
Impact dampening piston seals and block-vee rod seal	ET

Double Rod End Models	Substitute
Quad ring piston, block – v-rod seal	DT
Block-vee piston and rod seals	VDT
Impact dampening piston seals and block-vee rod seal	EDT

Mounting Styles	Substitute
Flush mount	F
CLevis mount	C
Nose mount	SR
Rear flange mount	FC
Front flange mount	FR
Head trunnion mount	HT
Back trunnion mount	BT

Rod Diameter	Specify
	5/16" or 3/8"

Single Acting Cylinders (3/4", 1-1/8" ø)	Substitute
Spring on rod end (spring retracts rod)	SR
Spring on cap end (spring extends rod)	SC

Stroke (inches)

Bore (Specify 3/4" or 1-1/8")

Options	Substitute
T and VT stroke adjustment (Specify length of adjustment)	A
ET stroke adjustment (length of adjustment) Note: adds 1/2" to overall length.	AA
Electroless nickel plating (includes option S)	EN
*†Pneumatic valve (position 1, 2, 3, 4)	EV
* Non-standard port location (Specify location)	L
Non thread rod	PR
Rod extension over standard. (Specify length)	RX
Stainless steel tie rods and nuts	S
Chrome-plated stainless steel piston rod	SS
*†Stroke signal valve (position 1, 2, 3, 4)	SV
Rod thread extension over standard (specify length)	TX
Viton® seals -20° to 400°F temperature range.	V

Cushions	Substitute
Rod end cushion	R
Cap end cushion	C
Both ends cushioned	RC

* Designate head position first, and cap position last
† Not available on 1-1/8" bore Series T or any 3/4" bore cylinder.

Notes: Cylinder requires a stop tube equivalent to the stroke length. Cushions not available on spring end of cylinder. Standard spring forces for SR and SC = 3.5 lbs relaxed, 11.5 lbs compressed

Series ET

Series ET actuators achieve their cushion effect through the normal compression of the Buna-N "shock-absorber" impact dampening seals at the completion of the cylinder stroke. This compressive action absorbs the cylinder's kinetic energy and reduces the shock created by the piston striking the end caps.

The measurable cushion effect of the "shock-absorber" impact dampening seals provides a predictable pounds stoppable/piston speed ratio (see website), allowing you to determine the exact weight that can be stopped at a given piston speed.

Series ET actuators also help meet OSHA's noise and clean air standards (see website). They are guaranteed to operate without lubrication for one year regardless of cycles. Non-lubricated operation is achieved by the combined efforts of an oil-impregnated sintered iron piston rod bushing that lubricates the rod during normal operation, and through the use of a reinforced Teflon wear ring on the center perimeter of the piston. This ring reduces friction between the piston and the cylinder tube. For details of impact dampening and sound reduction see website.

Energy Absorption Capacity of Impact Dampening Seals

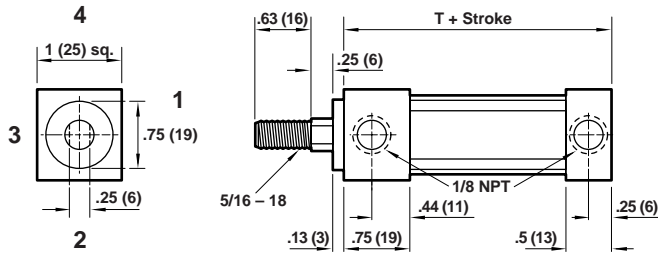
Size	In./Lbs of Kinetic Energy Absorbable	Pounds* Stoppable at Following Speeds					
		6 in/sec	12 in/sec	24 in/sec	36 in/sec	48 in/sec	60 in/sec
3/4"	1.5	32.4	8.0	2.0	.8	.41	.23
1", 1-1/8"	3	79.2	16	4	1.8	1	.59

*Pounds must include piston and rod assembly weight

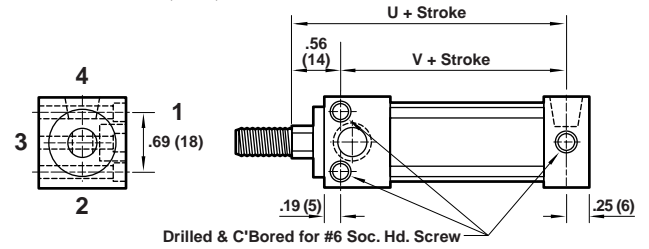
Series T, ET, VT (3/4" Bore, 5/16" Rod)

Dimensions in inches (mm)

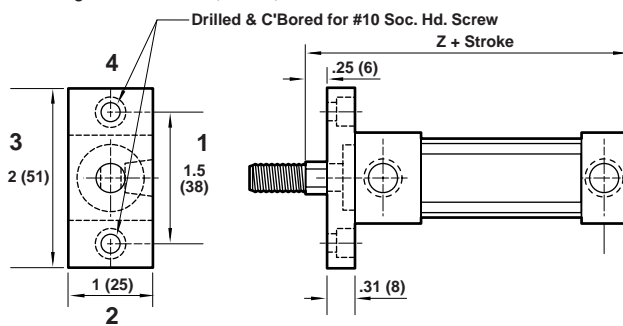
Standard Cylinder (TNM, VTNM, ETNM)



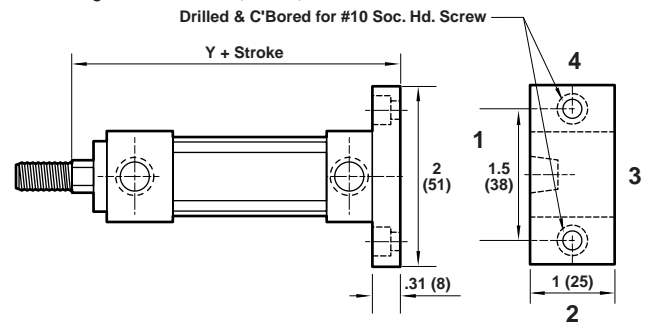
Flush Mount – TF, VTF, ETF



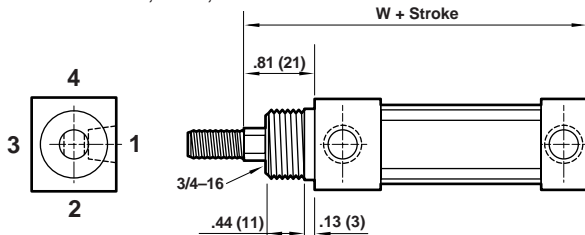
Front Flange Mount – TFR, VTFR, ETFR



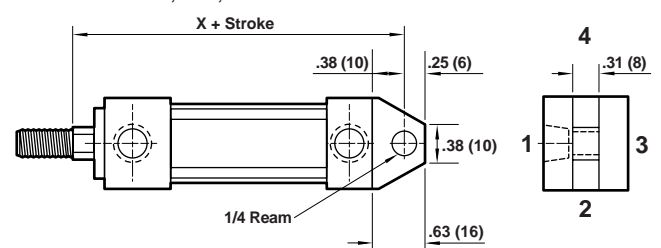
Rear Flange Mount – TFC, VTFC, ETFC



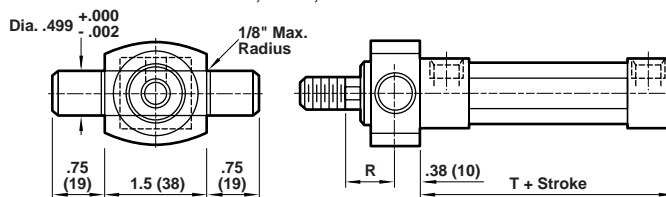
Nose Mount – TSR, VTSR, ETSR



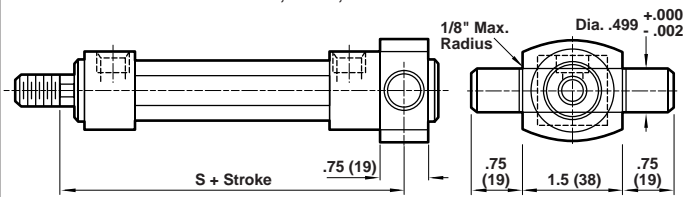
Clevis Mount – TC, VTC, ETC



Head Trunnion Mount* – THT, VTHT, ETHT



Back Trunnion Mount* – TBT, VTBT, ETBT



*Configured as special at factory

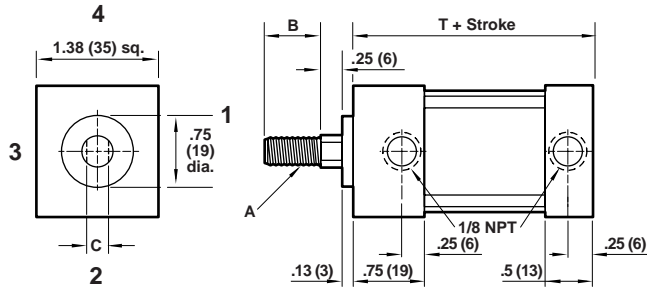
	Series T Quad ring seals	Series VT Block vee seals Series ET Ecology seals
R	.44 (11)	.44 (11)
S	2.81 (71)	3.19 (81)
T	1.81 (46)	2.19 (56)
U	1.94 (49)	2.31 (59)
V	1.38 (35)	1.75 (45)
W	2.63 (67)	3 (76)
X	2.56 (65)	2.94 (75)
Y	2.5 (64)	2.88 (73)
Z	2.38 (60)	2.75 (70)

NOTE: For spring return cylinders add an additional stroke length to dimensions.

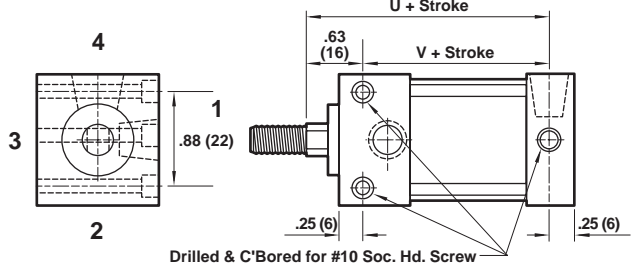
Series T, ET, VT (1-1/8" Bore, 5/16" and 3/8" Rods)

Dimensions in inches (mm)

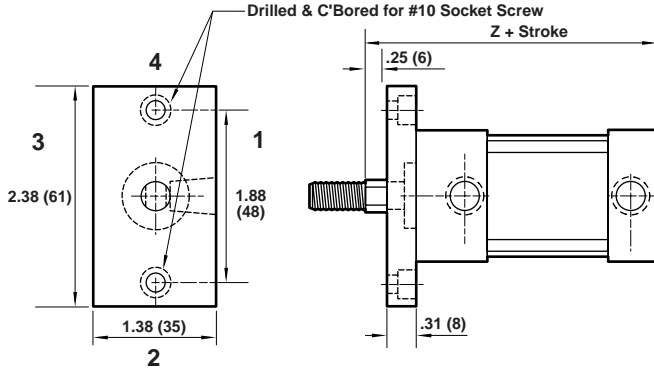
Standard Cylinder (TNM, VTNM, ETNM)



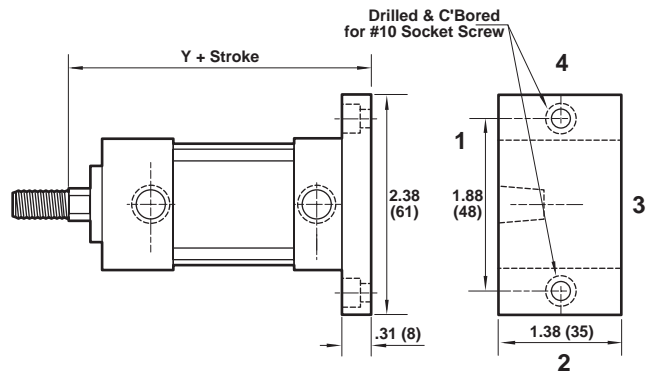
Flush Mount – TF, VTF, ETF



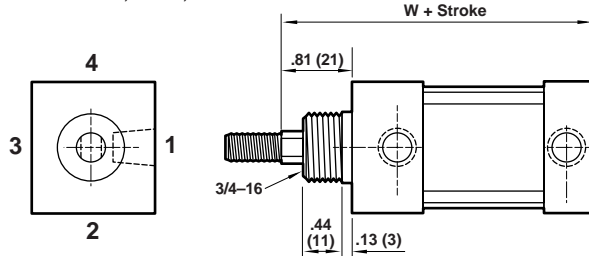
Front Flange Mount – TFR, VTFR, ETFR



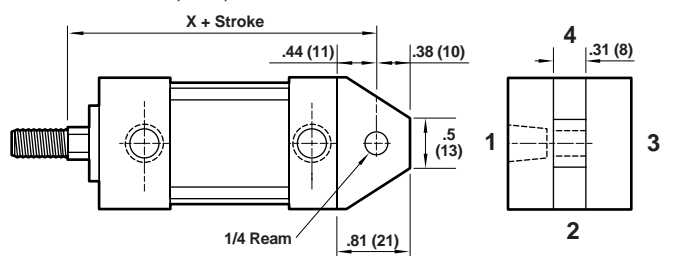
Rear Flange Mount – TFC, VTFC, ETFC



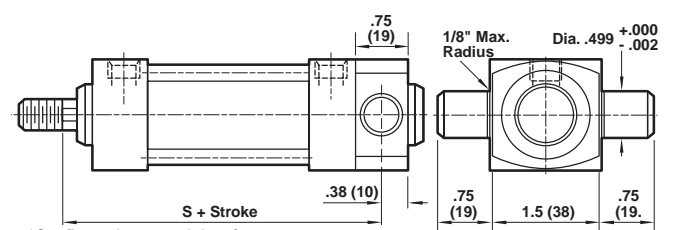
Nose Mount – TSR, VTSR, ETSR



Clevis Mount – TC, VTC, ETC



Back Trunnion Mount *- TBT, VTBT, ETBT



*Configured as special at factory

	Piston Rod 5/16 Diameter	3/8* Diameter
A	5/16-18	3/8-24
B	.63 (16)	.75 (19)
C	.25 (6)	.31 (8)

* 3/8" dia. piston rod will be furnished as an option only if specified.

	Series T Quad ring seals	Series VT Block vee seals Series ET Ecology seals
R	.44 (11)	.44 (11)
S	2.81 (71)	3.19 (81)
T	1.81 (46)	2.19 (56)
U	1.94 (49)	2.31 (59)
V	1.31 (33)	1.69(43)
W	2.63 (67)	3 (76)
X	2.63 (67)	3 (76)
Y	2.5 (64)	2.88 (73)
Z	2.38 (60)	2.75 (70)

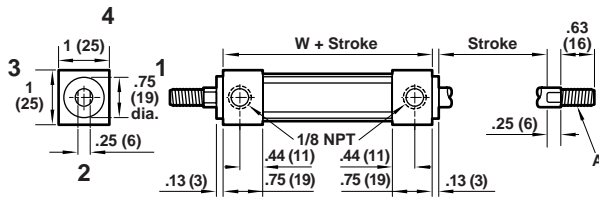
NOTE: Series T, ET & VT 1-1/8" Bore Cylinders are available with adjustable cushions. Increase dimensions T through Z by 9/16" for one cushion and by 1-1/8" for both ends cushioned. (See "Ordering Procedure" for details.) For spring return cylinders add an additional stroke length to above dimensions.

Series DT, EDT, VDT (Double Rod End)

Dimensions in inches (mm)

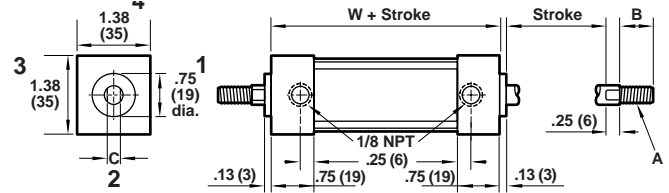
3/4 Bore

Standard Cylinder (DTNM, VDTNM, EDTNM)

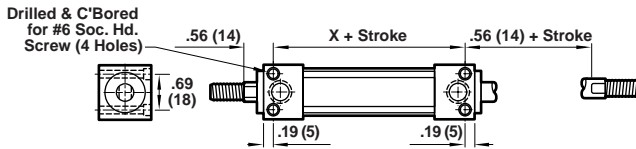


1-1/8 Bore

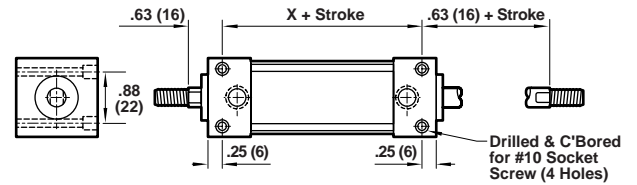
Standard Cylinder (DTNM, VDTNM, EDTNM)



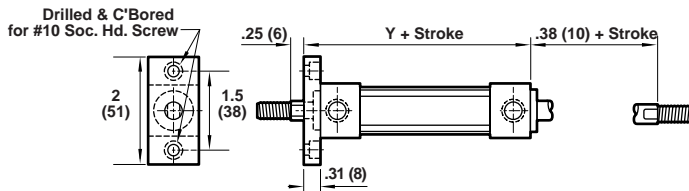
Flush Mount – DTF, VDTF, EDTF



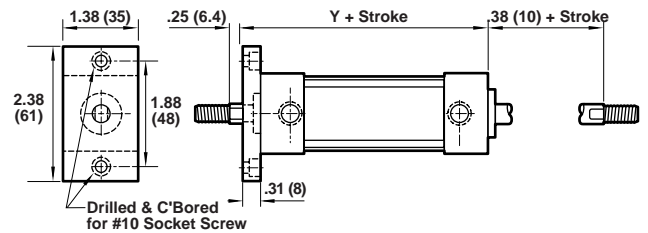
Flush Mount – DTF, VDTF, EDTF



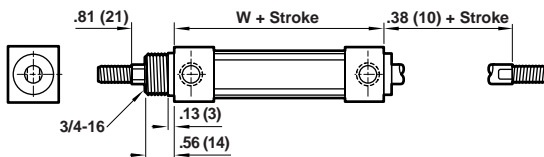
Front Flange – DTFR, VDTFR, EDTFR



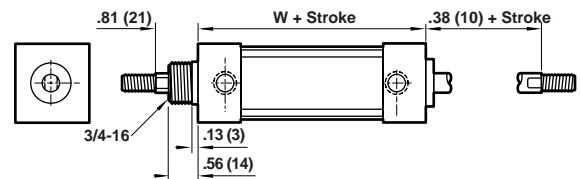
Front Flange – DTFR, VDTFR, EDTFR



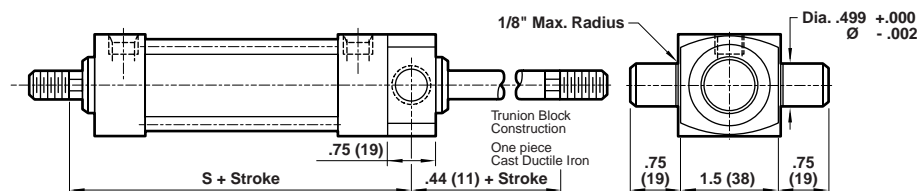
Nose Mount – DTSR, VDTSR, EDTSR



Nose Mount – DTSR, VDTSR, EDTSR



Trunnion Mount * – DTHT, VDHT, EDTHT



*Configured as special at factory

	Piston Rod 5/16 Diameter	3/8* Diameter
A	5/16-18	3/8-24
B	.63 (16)	.75 (19)
C	.25 (6)	.31 (8)

* 3/8" dia. piston rod will be furnished as an option only if specified.

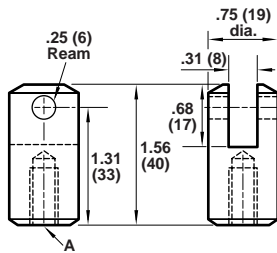
	3/4" Bore		1-1/8" Bore	
	DT	VDT & EDT	DT	VDT & EDT
S	2.81 (71)	3.19 (81)	2.81 (71)	3.19 (81)
W	2.06 (52)	2.44 (62)	2.06 (52)	2.44 (62)
X	1.69 (43)	2.06 (52)	1.56 (40)	1.94 (49)
Y	2.38 (60)	2.75 (70)	2.38 (60)	2.75 (70)

NOTE: Series DT, VDT & EDT 1-1/8" bore cylinders are available with adjustable cushions. Increase dimensions S through Y by 9/16" for one cushion and by 1-1/8" for both ends cushioned.

Series T, ET, VT (1-1/8" Bore, 5/16" and 3/8" Rods)

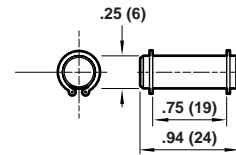
Dimensions in inches (mm)

Rod Clevis (includes pin)



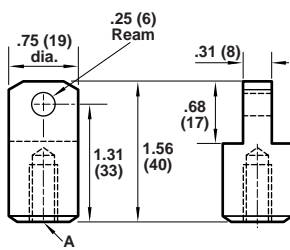
Part Number	Thread
40035	5/16-18
40036	3/8-24

Pin (includes snap rings)



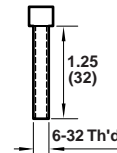
Part Number 49085

Rod Eye



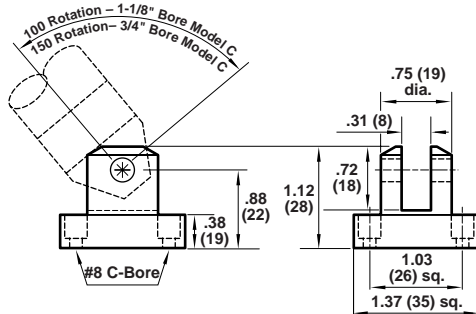
Part Number	Thread
40042	5/16-18
40043	3/8-24

Mounting Screw (for TF, VTF, ETF 3/4")



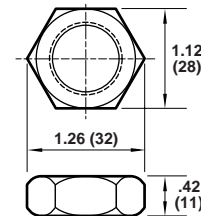
Part Number 51043

Clevis Bracket (includes pin)



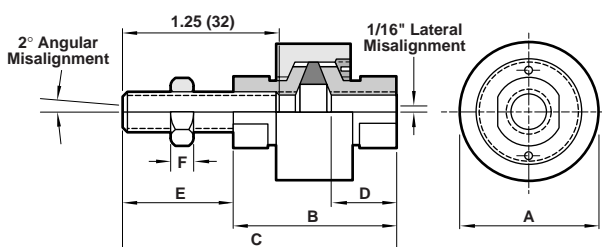
Part Number 40038

Mounting Nut (for TSR, VTSR, ETSR)



Part Number 52010

Rod Aligners (includes jam nut)



PN Thread	Rod Aligners			
	RA-25 1/4-28	RA-31C 5/16-18	RA-32 5/16-24	RA-38 3/8-24
A	1 (25)	1 (25.4)	1 (25)	1 (25)
B	1.38 (35)	1.38 (35)	1.38 (35)	1.38 (35)
C	2.13 (54)	2.13 (54)	2.13 (54)	2.13 (54)
D	.5 (13)	.5 (13)	.5 (13)	.5 (13)
E	.75 (19)	.75 (19)	.75 (19)	.75 (19)
F	.16 (4)	.19 (5)	.19 (5)	.22 (6)

NFPA Interchangeable TA, TAV, TAE Actuators



3/4", 1", and 1-1/8" bore
Single and double rod end
styles
Rated 150 psi air
-20° to 200°F (-29° to 107°C)
operating temperatures
Viton seals optional for higher
temperatures
Designed to conform with NFPA
(T3.6.11) 1972.

Technical data

Medium:
Compressed air, filtered,
lubricated or non-lubricated

Operation:

Double acting

Operating Pressure:
150 PSI (10 bar)

Operating Temperature:
-20° to 200°F (-29° to 107°C)

Cylinder Diameters:
Nominal Inch: 3/4", 1-1/8"

Options selector for TA, TAV, and TAE

TA 6 3 A DR EN 1-1/8 5

Single Rod End Models	Substitute
Quad ring piston seal, block – vee rod seal	TA
Block-vee piston and rod seals	TAV
Impact dampening piston seals and block-vee rod seal	TAE

Double Rod End Models	Substitute
Quad ring piston, block – v-rod seal	DTA
Block-vee piston and rod seals	DTAV
Impact dampening piston seals and block-vee rod seal	DTAE

Mounting Styles	Substitute
Side Tapped	1
Side through holes	2
Cap eye	4
Head male rabbet	5
Threaded nose	6
Cap rectangular flange	7
Head flange	8
Head flange (no pilot)	9

Rod Diameter	Substitute
1/4"	1
5/16"	2
3/8"	3
1/2"	4

Rod End Thread Style (Specify "A" or "B" on all models)		
Rod Size	Thd A	Thd B
1/4 ø	1/4-28	10-32
5/16 ø	5/16-24	1/4-28
3/8 ø	3/8-24	5/16-24
1/2 ø	1/2-20	7/16-20

Stroke (inches)	
3/4"	
1"	
1-1/8"	

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

Options	Substitute
Rod extension*	RX
Rod thread extension*	TX
Special Rod thread*	T
Plain rod end	PR
Magnetic piston**	PS
Port location (other than standard)†	L
Stop tube*†	ST
Stroke adjust (specify length of adjustment)	A
Stroke adjustment (double piston design)	AA
Viton seals	V
Piston Rod (chrome plated stainless steel)	SS
Electroless nickel plating (includes option S)	EN
Stainless steel tie rods & nuts	S

Single Acting Actuators	
Spring on Rod End	SR
Spring on Cap End	SC

* Specify length
** PS option adds 1/2" to overall length.
† Specify location

Adjustable Cushions*	
Rod end only	DR
Cap end only	DC
Both ends	D

* Add 1/2" per cushioned end.

Note: 1/2" diameter rods are not available on Series TAE

Effective Piston Areas

To determine approximate force/lb multiply area by applicable pressure

Bore	Head End*	Cap End
3/4"	.393 sq. in.	.442 sq. in.
1"	.917 sq. in.	.994 sq. in.
1-1/8"	.884 sq. in.	.994 sq. in.

* With standard rods

Energy Absorption Capacity of Impact Dampening Seals

Size	In./Lbs of Kinetic Energy Absorbable	Pounds* Stoppable at Following Speeds					
		6 in/sec	12 in/sec	24 in/sec	36 in/sec	48 in/sec	60 in/sec
3/4"	1.5	32.4	8.0	2.0	.8	.41	.23
1", 1-1/8"	3	79.2	16	4	1.8	1	.59

*Pounds must include piston and rod assembly weight

Actuators

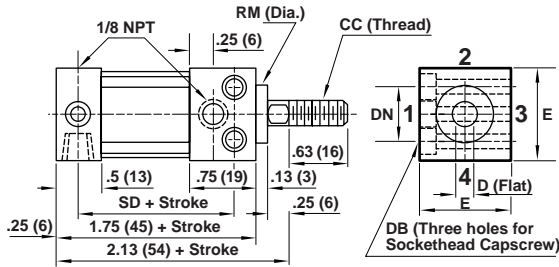
Dimensions in inches (mm)

NFPA Interchangeable Tiny Tim

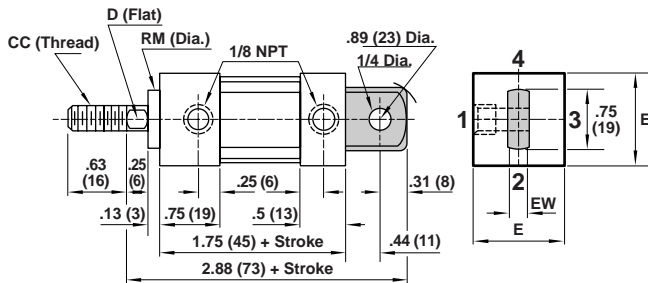
Bore	3/4	1*	1-1/8
BC	1.06 (27)	1.41 (36)	1.59 (40)
CC	1/4-28	5/16-24	3/8-24
D	.22 (6)	.25 (6)	.31 (8)
DB	8-32	10-32	10-32
DN	.63 (16)	.88 (22)	1 (25)
E	1 (25)	1.38 (35)	1.5 (38)
EW	.25 (6)	.38 (10)	.38 (10)
KM	5/8-18	3/4-16	3/4-16
N	.75 (19)	1 (25)	1.13 (29)
NT	8-32 x 3/16 DP	8-32 x 1/4 DP	10-32 x 1/4 DP
R	.5 (13)	.88 (22)	1 (25)
RM	.63 (16)	.75 (19)	.75 (19)
RM1	.69 (18)	.81 (21)	.81 (21)
RT	8-32 x 1/4 DP	8-32 x 1/4 DP	10-32 x 1/4 DP
SD	1.31 (33)	1.25 (32)	1.25 (32)
SN	1.31 (33)	1.25 (32)	1.25 (32)
TF	1.5 (38)	1.88 (48)	2 (51)
TN	.63 (16)	.88 (22)	1 (25)
UF	2 (51)	2.38 (60)	2.5 (64)

* Piston Dia. of 1" cylinders is 1-1/8" diameter.

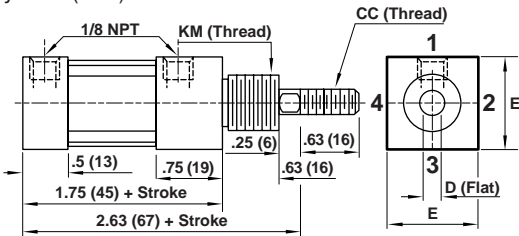
Style 2 – (MS8) Side Through Holes (not available w/oversized rod)



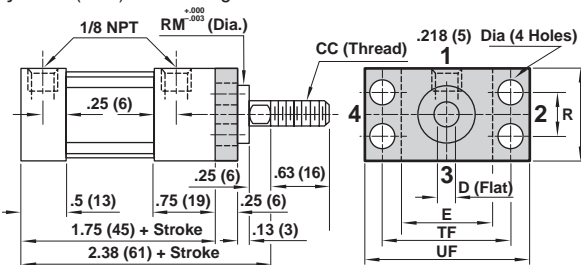
Style 4 – (MP3) Cap Eye



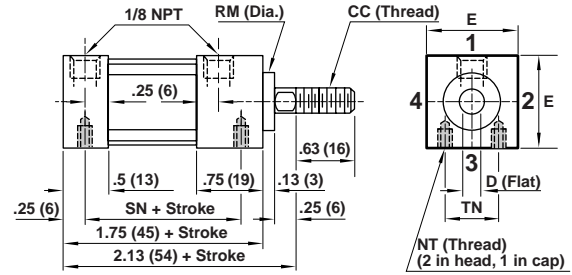
Style 6 – (MN1) Threaded Nose



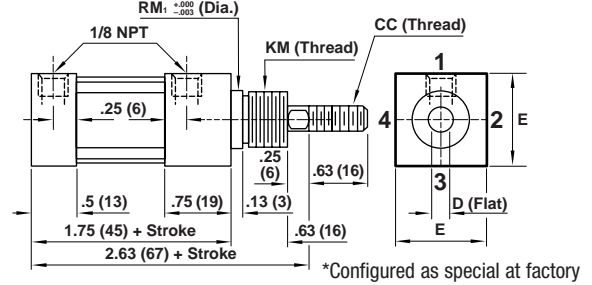
Style 8 – (MF1) Head Flange



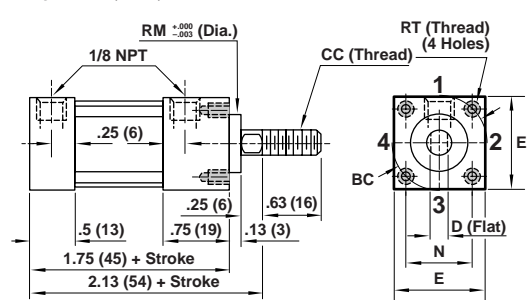
Style 1 – (MS9) Side Tapped



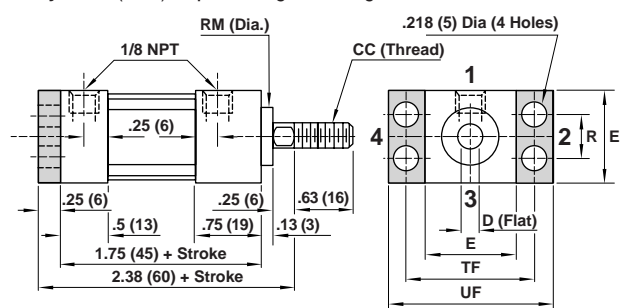
Style 3 – (MNR1) Threaded Male Rabbet*



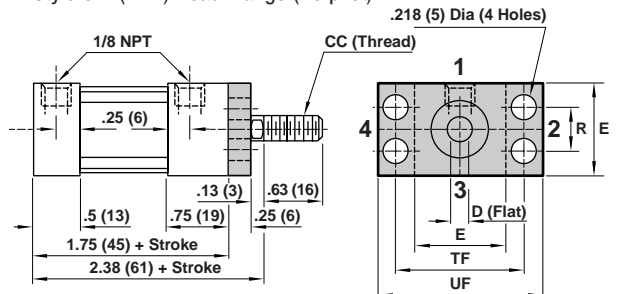
Style 5 – (MR1) Head Male Rabbet



Style 7 – (MF2) Cap Rectangular Flange



Style 9 – (MF7) Head Flange (No pilot)



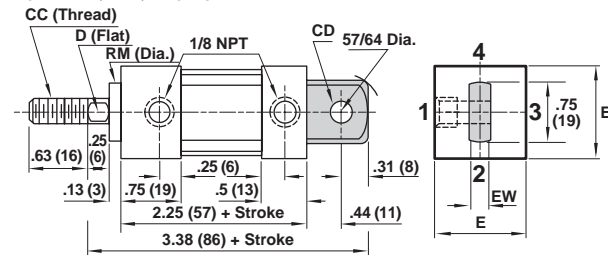
NFPA Interchangeable Tiny Tim

Dimensions in inches (mm)

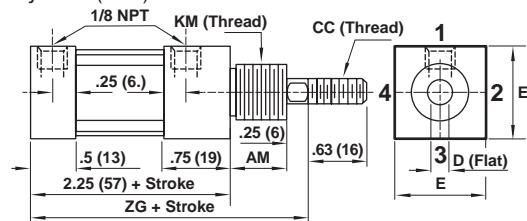
Bore	3/4	1*	1-1/8
AM	.63 (16)	.63 (16)	.88 (22)
BC	1.06 (27)	1.41 (36)	1.59 (40)
CC	1/4-28	5/16-24	3/8-24
CD	.25 (6)	.38 (10)	.38 (10)
D	.22 (6)	.25 (6)	.31 (8)
DB	8-32	10-32	10-32
DN	.63 (16)	.88 (22)	1 (25)
E	1 (25)	1.38 (35)	1.5 (38)
EW	.25 (6)	.38 (10)	.38 (10)
KM	5/8-18	3/4-16	1-14
N	.75 (19)	1 (25)	1.13 (29)
NT	8-32 x 3/16 DP	8-32 x 1/4 DP	10-32 x 1/4 DP
R	.5 (13)	.88 (22)	1 (25)
RM	.63 (16)	.75 (19)	.75 (19)
RM1	.69 (18)	.81 (21)	1.06 (27)
RT	8-32 x 1/4 DP	8-32 x 1/4 DP	10-32 x 1/4 DP
SD	1.81 (46)	1.75 (45)	1.75 (45)
SN	1.81 (46)	1.75 (45)	1.75 (45)
TF	1.5 (38)	1.88 (48)	2 (51)
TN	.63 (16)	.88 (22)	1 (25)
UF	2 (51)	2.38 (60)	2.5 (64)
ZG	3.13 (79)	3.13 (79)	3.38 (86)

* Piston Dia. of 1" cylinders is 1-1/8" diameter.

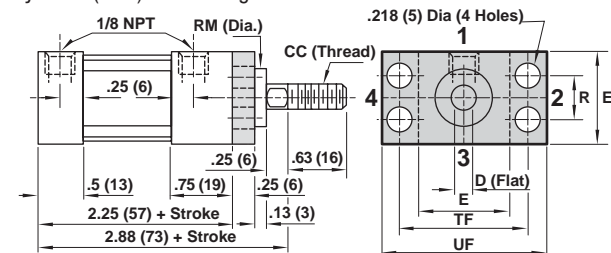
Style 4 – (MP3) Cap Eye



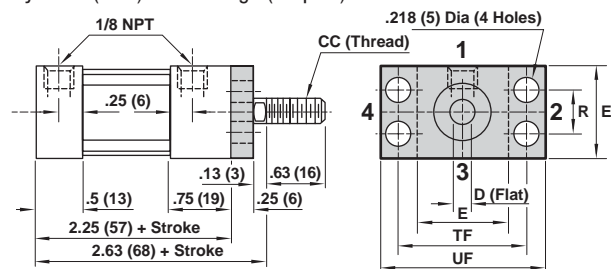
Style 6 – (MN1) Threaded Nose



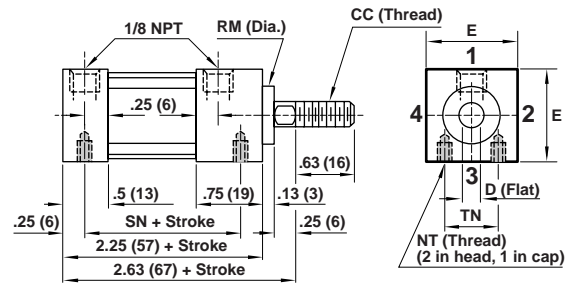
Style 8 – (MF1) Head Flange



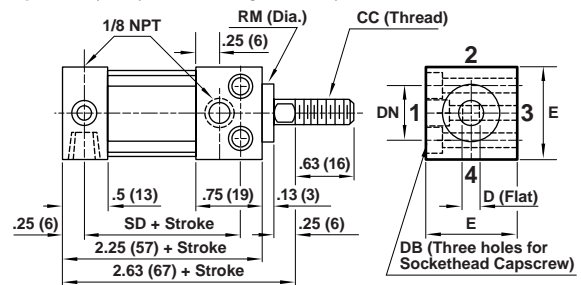
Style 9 – (MF7) Head Flange (No pilot)



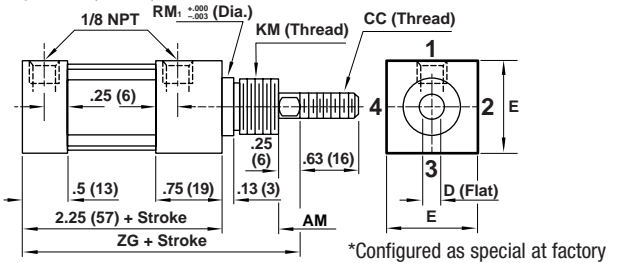
Style 1 – (MS9) Side Tapped



Style 2 – (MS8) Side Through Holes (not available w/oversized rod)

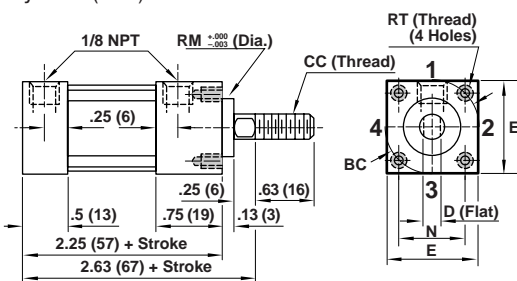


Style 3 – (MNR1) Threaded Male Rabbit*

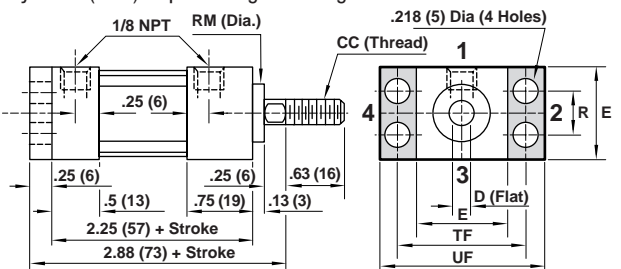


*Configured as special at factory

Style 5 – (MR1) Head Male Rabbit



Style 7 – (MF2) Cap Rectangular Flange



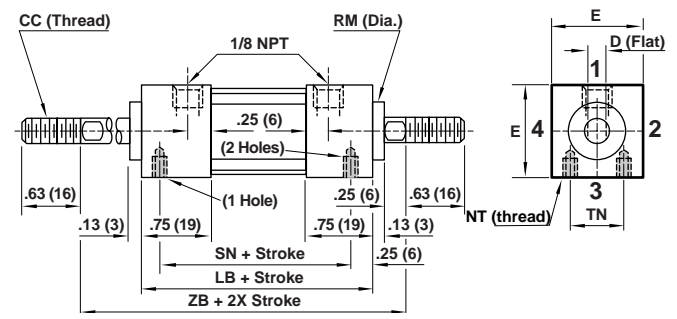
Series DTA, DTAV, DTAE (1-1/8" Bore, 5/16" and 3/8" Rods)

Dimensions in inches (mm)

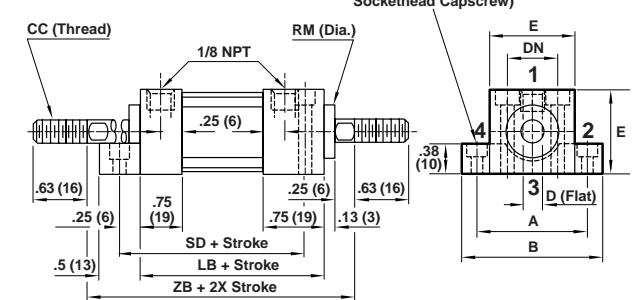
Bore Series	3/4		1*		1-1/8	
	DTA	DTAE-DTAV	DTA	DTAE-DTAV	DTA	DTAE-DTAV
A	1.38 (35)		1.75 (45)		1.88 (48)	
AM	.63 (16)		.63 (16)		.63 (16)	.88 (23)
B	1.75 (45)		2.13 (54)		2.25 (57)	
BC	1.06 (27)		1.41 (36)		1.59 (40)	
CC	1/4-28		5/16-24		3/8-24	
D	.22 (6)		.25 (6)		.31 (8)	
DB	8-32		10-32		10-32	
DN	.63 (16)		.88 (22)		1 (25)	
E	1 (25)		1.38 (35)		1.5 (38)	
KM	5/8-18		3/4-16		3/4-16	1-14
LB	2 (51)	2.5 (64)	2 (51)	2.5 (64)	2 (51)	2.5 (64)
N	.75 (19)		1 (25)		1.13 (29)	
NT	8-32 x 3/16 DP		10-32 x 1/4 DP		10-32 x 1/4 DP	
R	.5 (13)		.88 (22)		1 (25)	
RM	.63 (16)		.75 (19)		.75 (19)	
RM1	.69 (18)		.81 (21)		.81 (21)	1.06 (27)
RT	8-32 x 1/4 DP		8-32 x 1/4 DP		10-32 x 1/4 DP	
SD	2.06 (52)	2.56 (65)	2 (51)	2.5 (64)	2 (51)	2.5 (64)
SN	1.56 (40)	2.06 (52)	1.5 (38)	2 (51)	1.5 (38)	2 (51)
TF	1.5 (38)		1.88 (48)		2 (51)	
TN	.63 (16)		.88 (22)		1 (25)	
UF	2 (51)		2.38 (60)		2.5 (64)	
ZB	2.75 (70)	3.25 (83)	2.75 (70)	3.25 (83)	2.75 (70)	3.25 (83)
ZR	3.25 (83)	3.75 (95)	3.25 (83)	3.75 (95)	3.25 (83)	4.0 (101)
ZT	3 (76)	3.5 (89)	3 (76)	3.5 (89)	3 (76)	3.5 (89)

* Piston Dia. of 1" cylinders is 1-1/8" diameter.

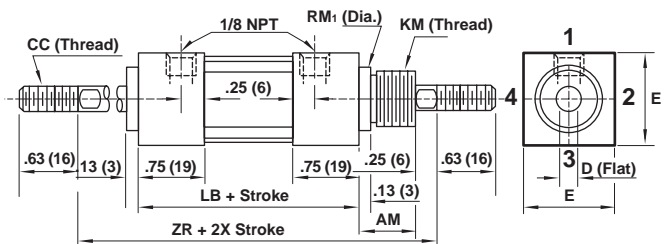
Style 1 – (MS9) Side Tapped



Style 2 – (MS8) Side Through Holes (Not available with oversize rod)

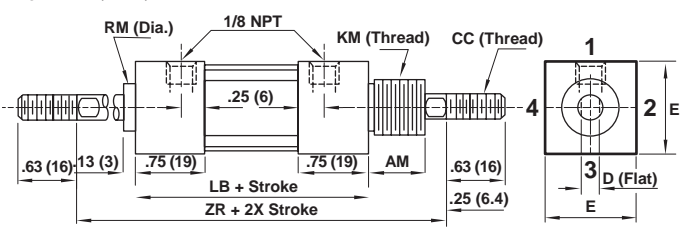


Style 3 – (MNR1) Threaded Male Rabbet*

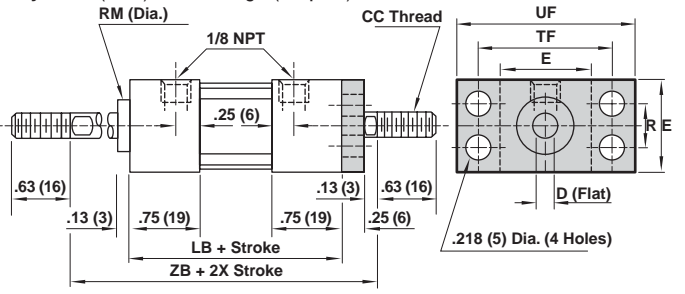


*Configured as special at factory

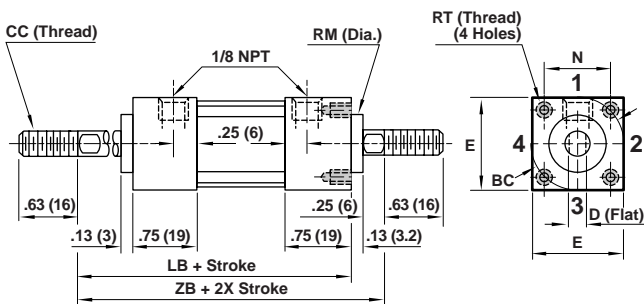
Style 6 – (MN1) Threaded Nose



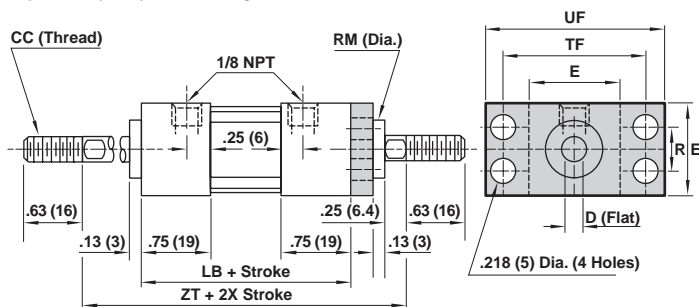
Style 9 – (MF7) Head Flange (No pilot)



Style 5 – (MR1) Head Male Rabbet



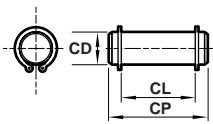
Style 8 – (MF1) Head Flange



NFPA Interchangeable Tiny Tim

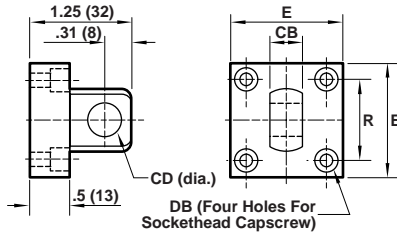
Dimensions in inches (mm)

Pivot Pin



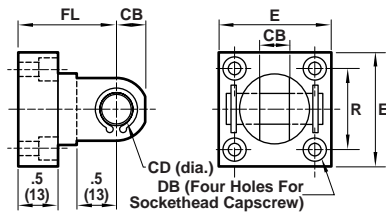
Cyl. Bore	Cyl. Series	Part No.	CD	CL	CP
3/4	All	49085	.25 (6)	.75 (19)	.94 (24)
1, 1-1/8	TA	49086	.25 (6)	.88 (22)	1.06 (27)
1, 1-1/8	TAV-TAE	49087	.38 (10)	.88 (22)	1.06 (27)

Eye Bracket



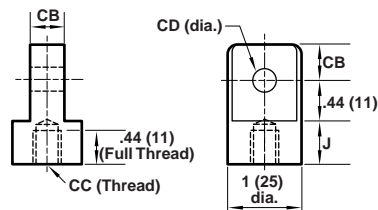
Cyl. Bore	Cyl. Series	Part No.	CD	CB	DB	E	R
3/4	TA, TAV-TAE	49069	.25 (6)	.25 (6)	6-32	1 (25)	.75 (19)
1 &	TA	49070	.25 (6)	.38 (10)	10-32	1.38 (35)	1 (25)
1-1/8	TAV-TAE	49071	.38 (10)	.38 (10)	10-32	1.38 (35)	1 (25)

Clevis Bracket (includes pin)



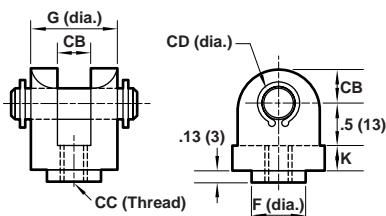
Cyl. Bore	Cyl. Series	Part No.	E	R	FL	CB	CD	DB
3/4	TA, TAV-TAE	49072	1 (25)	.75 (19)	1.19 (30)	.25 (6)	.25 (6)	6-32
1 &	TA	49073	1.38 (35)	1 (25)	1.25 (32)	.38 (10)	.25 (6)	10-32
1-1/8	TAV-TAE	49074	1.38 (35)	1 (25)	1.25 (32)	.38 (10)	.38 (10)	10-32

Rod Eye



Cyl. Bore	Cyl. Series	Part No.	CC	CD	CB	I	J
3/4	TA, TAV-TAE	49075	1/4-28	.25 (6)	.25 (6)	.5 (13)	.31 (8)
	TA	49076	5/16-24	.25 (6)	.38 (10)	.75 (19)	.44 (11)
1	TAV-TAE	49077	5/16-24	.38 (10)	.38 (10)	.75 (19)	.44 (11)
	TA	49078	3/8-24	.25 (6)	.38 (10)	.75 (19)	.44 (11)
1-1/8	TAV-TAE	49079	3/8-24	.38 (10)	.38 (10)	.75 (19)	.44 (11)

Rod Clevis (includes pin)



Cyl. Bore	Cyl. Series	Part No.	CB	CD	F	G	K	CC
3/4	TA, TAV-TAE	49080	.25 (6)	.25 (6)	.44 (11)	.75 (19)	.19 (5)	1/4-28
	TA	49081	.38 (10)	.25 (6)	.56 (14)	.88 (22)	.25 (6)	5/16-24
1	TAV-TAE	49082	.38 (10)	.38 (10)	.56 (14)	.88 (22)	.25 (6)	5/16-24
	TA	49083	.38 (10)	.25 (6)	.56 (14)	.88 (22)	.25 (6)	3/8-24
1-1/8	TAV-TAE	49084	.38 (10)	.38 (10)	.56 (14)	.88 (22)	.25 (6)	3/8-24