Catalog No. C13103C

DADCO

Air Cylinders

HP Series

Bore Sizes from 32 – 250 mm

Introduction

DADCO's HP Series Air Cylinders meet or exceed most worldwide standards. These products comply with the North American Automotive Metric Standards (NAAMS), the International Standards Organization (ISO 15552), and the German Automotive Standards (Verband Deutscher Maschinen – und Anlagenbau e.V. -- VDMA 24-562).

DADCO's air cylinders are quite versatile and, because of a wide array of options, can be supplied to conform to most individual metric cylinder customers' requirements. The HP Series provides force from .27 kN to 49 kN (64 lb. to 9100 lb.). For more precise force information, see cylinder pages 4 – 23.

Mount Options

DADCO HP Series Air Cylinders feature steel bolt-on mounts that fully conform to NAAMS, ISO, and VDMA standards, and are available for each bore size, ranging from 32 – 250 mm.
Mounts can be easily attached or removed in the field to accommodate different needs, such as changing the mount style or rotating the port location, without altering other features of the cylinder.

Fittings

DADCO offers BSPP fittings. A variety of push-in fittings are available for 32 mm – 125 mm bore cylinders. BSPP and NPT adapters are available for all bore sizes. For more detailed fitting information, see page 26.

Position Sensing Capability

The HP Series Air Cylinders can be prepped to accommodate most popular types of sensors. A variety of switches can be installed upon customer specification, including magnetic reed switches and proximity switches. See page 29 for more information.

Non-lube Operation

DADCO HP Cylinders are manufactured to exacting standards and are prelubed at assembly with a high quality, non-dissipating, pneumatic cylinder lubricant to eliminate the need for further lubricants during operation. Special low friction materials are employed to reduce heat and wear. Each cylinder is fully tested to give long, trouble-free operation. When properly applied, field tests have demonstrated that HP Series Air Cylinders often operate for years without requiring service. If the product ever fails to perform to expectation, contact your DADCO service representative for assistance.

Non-Rotating Option

DADCO's HP.N Non-Rotating Air Cylinders have all the features of DADCO's standard air cylinders, while the piston square rod prevents rotation. DADCO offers the HP.N model in bore sizes from 32 mm to 100 mm with a variety of stroke lengths to meet customer requirements.

HP.N.80.100.P.1.TO

Two Post Lifters

DADCO offers two post direct lifters utilizing the HP Series. These lifters deliver smooth, consistent, non-lube lifting. They are available in a variety of bore sizes and stroke lengths to accommodate different applications. For more information refer to Two Post Direct Lifter pages 30 – 31.

Delivery

DADCO's modern 13,150 m² main production facility, as well as satellite facilities, provide worldwide support. Products are available both directly and through a network of distributors.

CAD Templates On-line

DADCO's entire product line is available on-line in solid models and 2D CAD formats. For more information, visit our website, www.dadco.net, or contact DADCO.

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

Features

Adjustable Cushioning
Every HP Series Cylinder is equipped with adjustable cushion control at each end as standard.

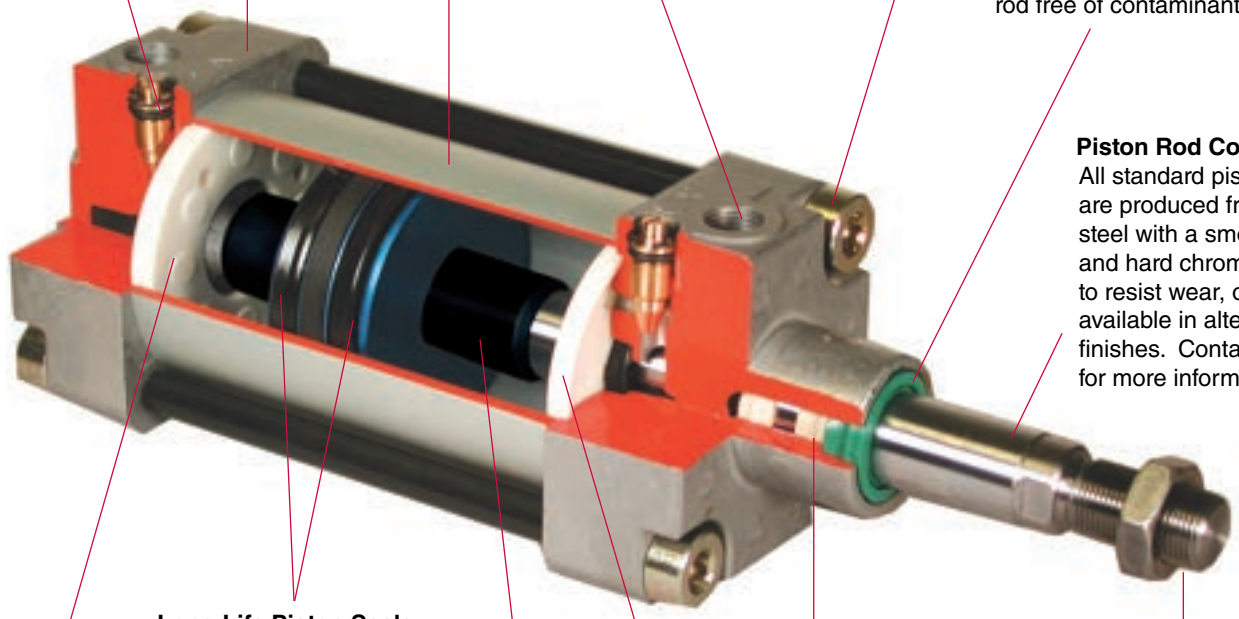
Corrosion Resistant Tube
Non-corrosive, high strength, clear anodized aluminum tubing is supplied as standard on the DADCO HP Cylinder. Chrome plated steel tubing is optionally available.

Tie Rod Nuts
DADCO's long, multi-purpose tie rod nuts feature a full length internal thread below the allen key slot. One end secures the tie rods while the other end accepts bolts for attaching mounts to the cylinder. In addition, the large flange diameter of the tie rod nuts provides an excellent mounting surface.

Precision Cast Heads
DADCO's HP Series Cylinder heads are precision die cast and contain several built-in features.

Multiple Port Capability
The HP series has BSPP ports as standard, NPT ports are optional. The HP Series Air Cylinders can also be ordered with multiple ports.

Rod Seal and Wiper Ring
The HP Cylinder's highly effective rod seal/wiper ring combination retains lubricant, seals air pressure, and wipes the rod free of contaminants.



Piston Rod Construction
All standard piston rods are produced from alloy steel with a smooth finish and hard chrome plating to resist wear, optionally available in alternative finishes. Contact DADCO for more information.

Long Life Piston Seals
High quality block vee piston seals are used on all bore sizes for superior performance.

Built-in Lubrication System
Rod bushing provides continual lubrication and minimizes bearing, seal and rod wear.

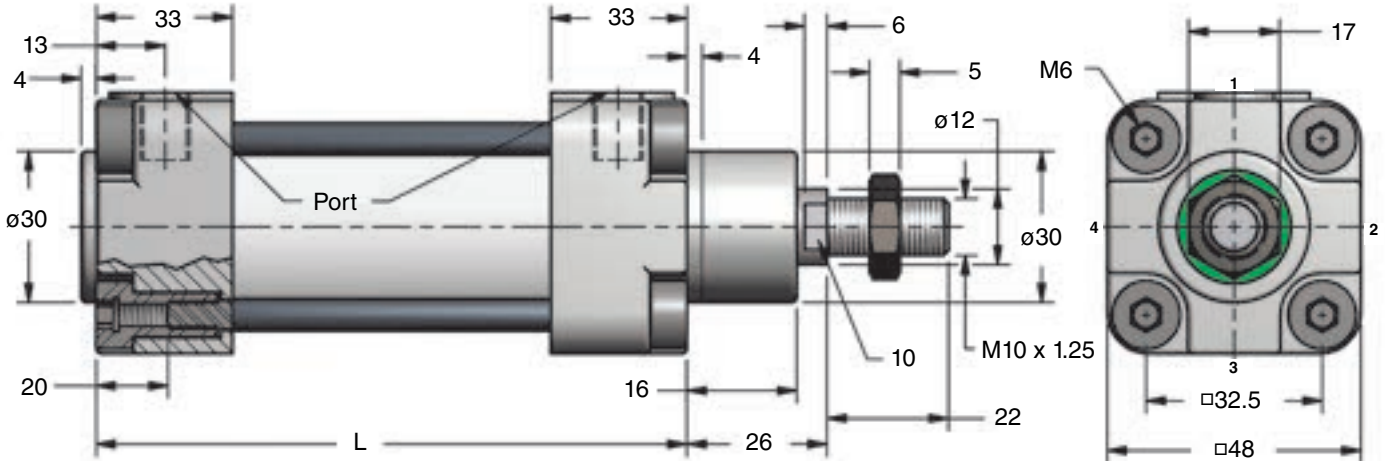
Rolled Threads
All piston rod end threads through M27 are rolled to ensure maximum durability. A female rod end model and special rod end stud (ISO 12.9) optionally can be provided.

Dampening and Tube Seal
The inner face of each head is covered by a polyurethane bumper which counters impact wear, prevents spalling, and reduces noise from piston-to-head contact. The bumpers also act to retain the cushion seals and provide a positive tube-to-head seal, superior to o-rings, which can cut or pinch.

Durable Piston
DADCO's three piece piston is constructed out of non-corrosive, high strength, anodized aluminum with plastic cushion spears.

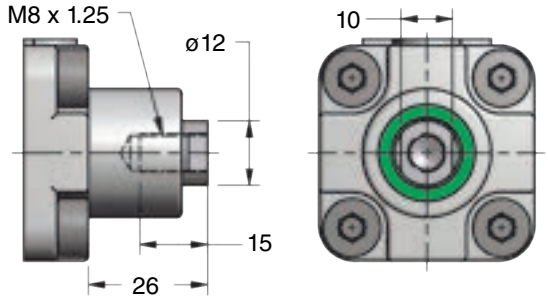
Cushion Seals
A floating cushion seal engages each cushion spear as it enters the head, thereby completely sealing off the main exhaust orifice. The trapped air is metered past the cushion regulating screw, providing a highly repeatable deceleration effect. The cushion seal also operates in place of a cushion ball check so that, even at low pressure, it opens to allow full air flow through the main orifice to facilitate immediate, unrestricted piston movement.

ø32 Air Cylinder



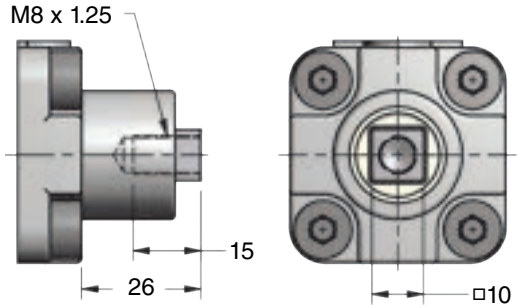
HP.Z = Standard Model

Rod Options



HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.



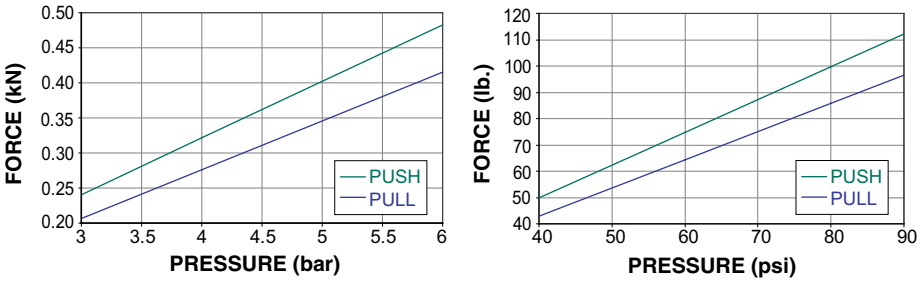
HP.N = Non-Rotating Model

Square piston rod with female thread prevents rotation. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27. HP.N standard stroke lengths available up to 200 mm. Contact DADCO for more information.

Part No.	Stroke	L (mm)
HP._.32.25	25	119
HP._.32.50	50	144
HP._.32.80	80	174
HP._.32.100	100	194
HP._.32.125	125	219
HP._.32.160	160	254
HP._.32.200	200	294
HP._.32.250	250	344

Contact DADCO for special stroke lengths.

Force Charts



PUSH Force:	P(bar) = F(kN) ÷ 0.080	F(kN) = P(bar) x 0.080
	P(psi) = F(lb.) ÷ 1.25	F(lb.) = P(psi) x 1.25
PULL Force:	P(bar) = F(kN) ÷ 0.069	F(kN) = P(bar) x 0.069
	P(psi) = F(lb.) ÷ 1.07	F(lb.) = P(psi) x 1.07

NOTE:
A cylinder's theoretical force should be 50 - 100% greater than the force required.

Ordering Example:

HP. Z. 32. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, N = Non-Rotating Model,
W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 1/8 BSPP, P = 1/8 NPT

Mount Option (TO-T8)
TO = Basic Mount.
When not specified default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 32T1

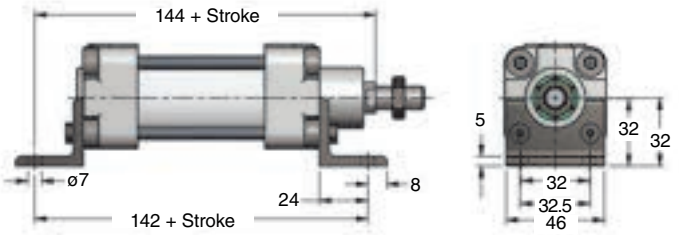
Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

ø32 Mounts

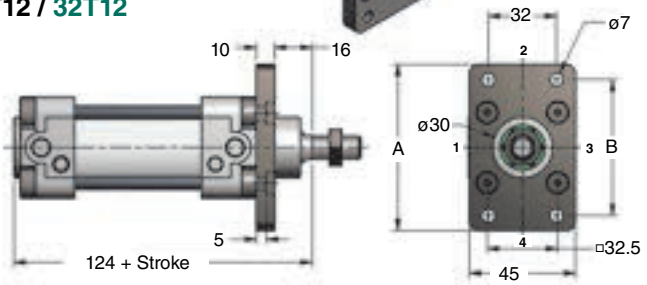
T1 Foot Mount
Part No. 32T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



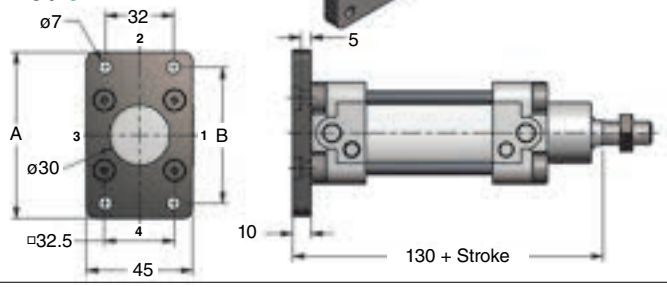
T2 Rectangular Flange – Front Mounted
Part No. 32T2
NFPA Style MF1
T12 / 32T12

Part No.	A	B
T2	80	64
T12	115	100

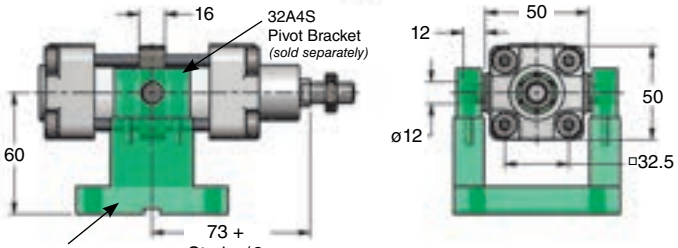


T3 Rectangular Flange – Rear Mounted
Part No. 32T2
NFPA Style MF2
T13 / 32T12

Part No.	A	B
T3	80	64
T13	115	100

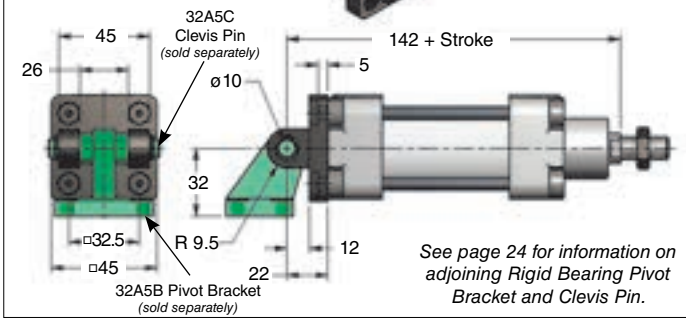


T4 Adjustable Trunnion
Part No. 32T4
NFPA Style MT4



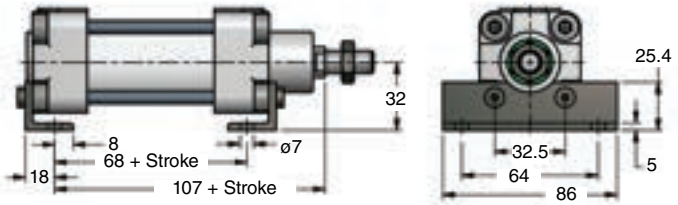
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 32T5
NFPA Style MP2

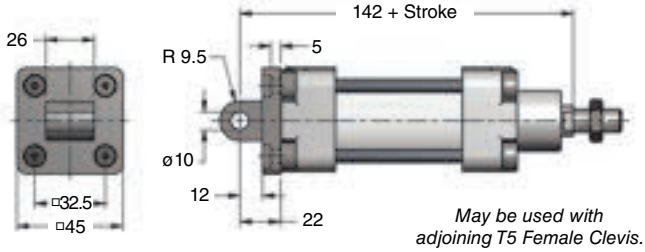


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 32T6
Style MSB

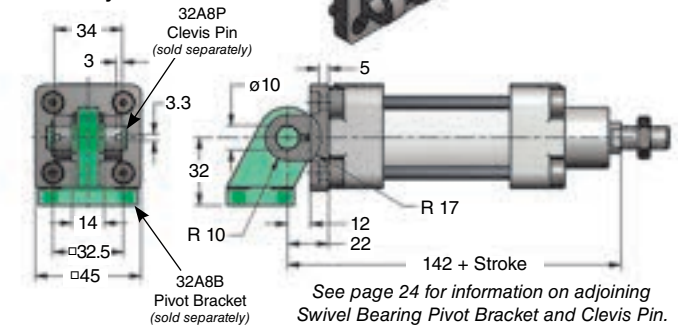


T7 Male Clevis
Part No. 32T7
NFPA Style MP4



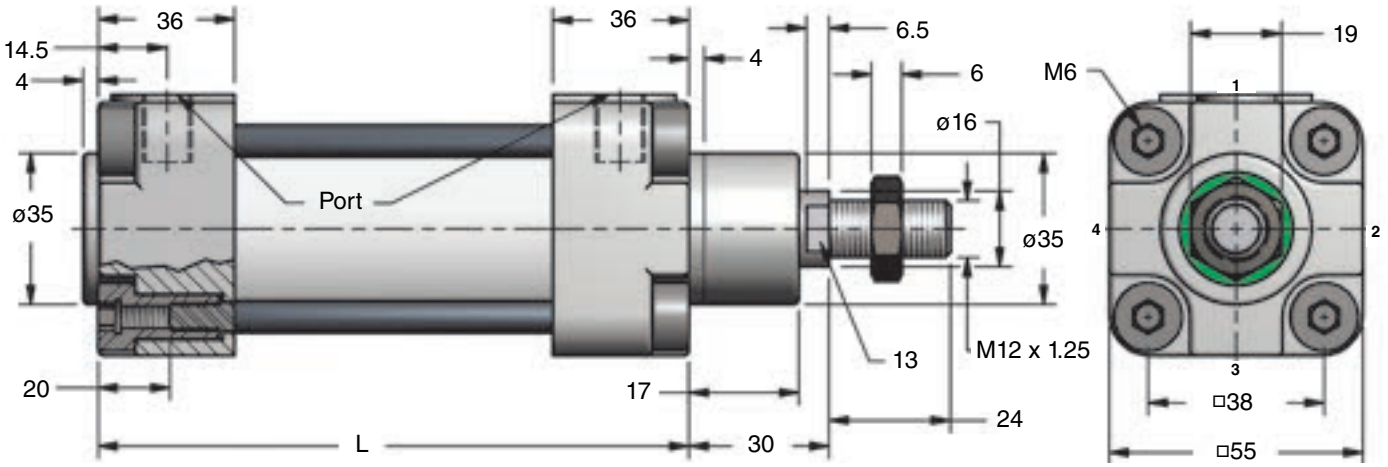
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 32T8
NFPA Style GA



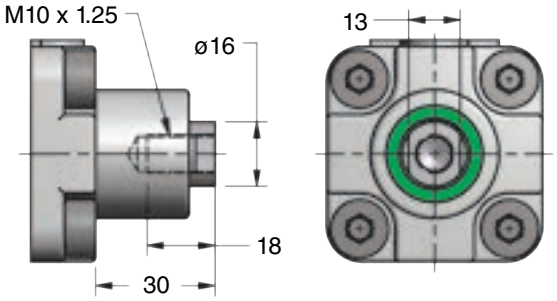
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø40 Air Cylinder



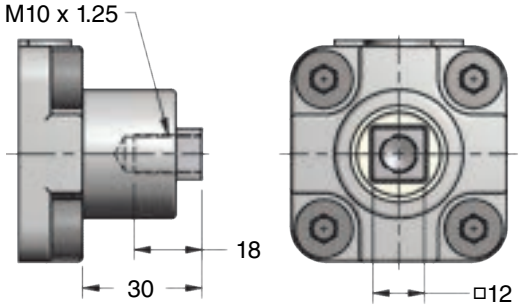
HP.Z = Standard Model

Rod Options



HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.



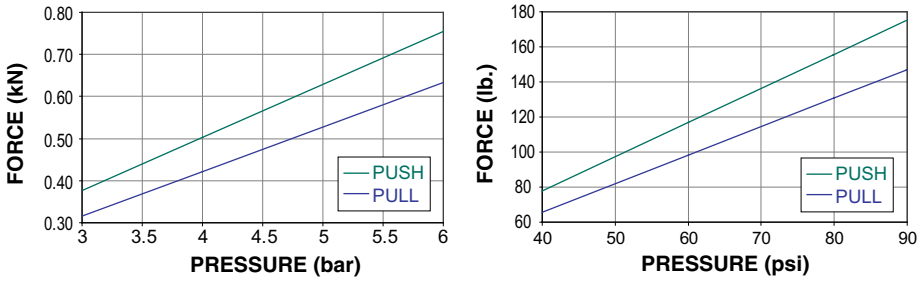
HP.N = Non-Rotating Model

Square piston rod with female thread prevents rotation. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27. HP.N standard stroke lengths available up to 200 mm. Contact DADCO for more information.

Part No.	Stroke	L (mm)
HP._.40.25	25	130
HP._.40.50	50	155
HP._.40.80	80	185
HP._.40.100	100	205
HP._.40.125	125	230
HP._.40.160	160	265
HP._.40.200	200	305
HP._.40.250	250	355

Contact DADCO for special stroke lengths.

Force Chart



PUSH Force:	P(bar) = F(kN) ÷ 0.126	F(kN) = P(bar) x 0.126
	P(psi) = F(lb.) ÷ 1.95	F(lb.) = P(psi) x 1.95
PULL Force:	P(bar) = F(kN) ÷ 0.106	F(kN) = P(bar) x 0.106
	P(psi) = F(lb.) ÷ 1.64	F(lb.) = P(psi) x 1.64

NOTE:
A cylinder's theoretical force should be 50 -100% greater than the force required.

Ordering Example:

HP. Z. 40. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, N = Non-Rotating Model,
W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 1/4 BSPP, P = 1/4 NPT

Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

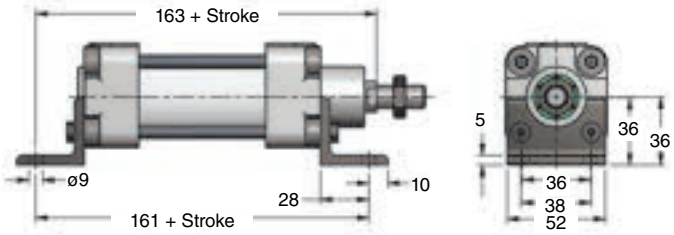
Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 40T1

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

ø40 Mounts

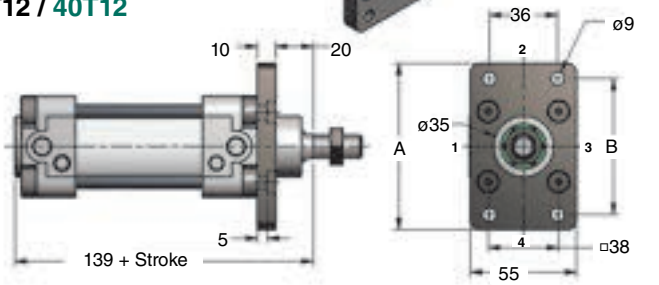
T1 Foot Mount
Part No. 40T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



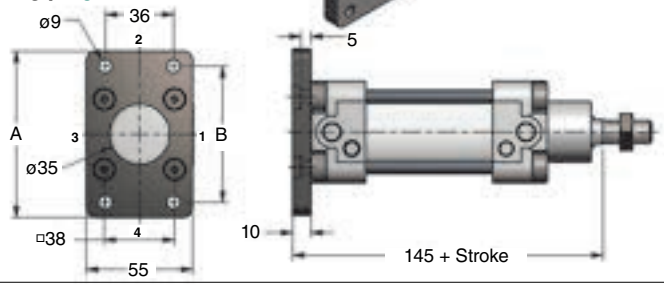
T2 Rectangular Flange – Front Mounted
Part No. 40T2
NFPA Style MF1
T12 / 40T12

Part No.	A	B
T2	90	72
T12	125	105

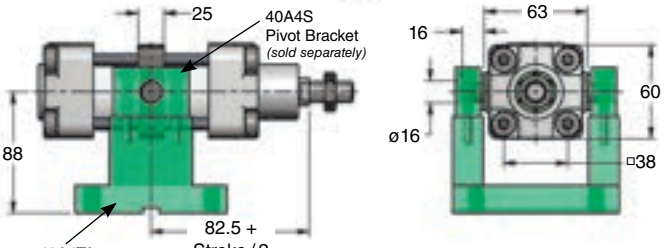


T3 Rectangular Flange – Rear Mounted
Part No. 40T2
NFPA Style MF2
T13 / 40T12

Part No.	A	B
T3	90	72
T13	125	105

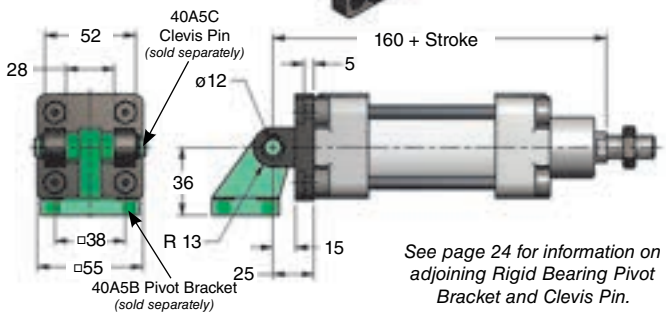


T4 Adjustable Trunnion
Part No. 40T4
NFPA Style MT4



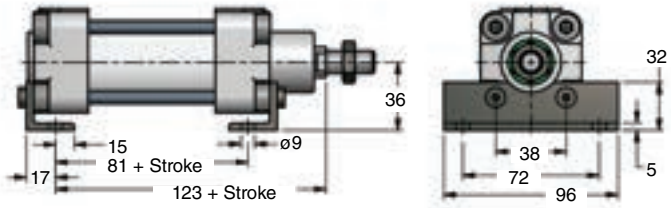
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 40T5
NFPA Style MP2

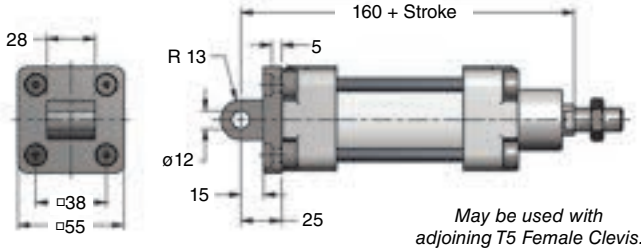


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 40T6
Style MSB

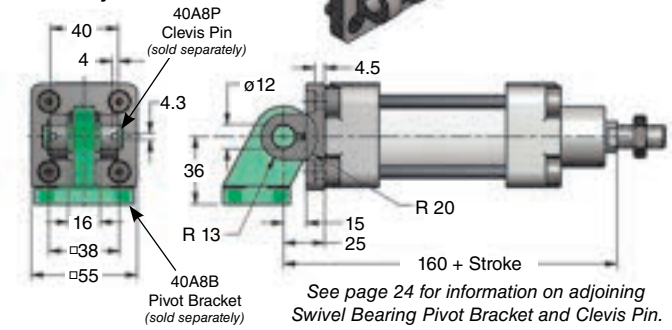


T7 Male Clevis
Part No. 40T7
NFPA Style MP4



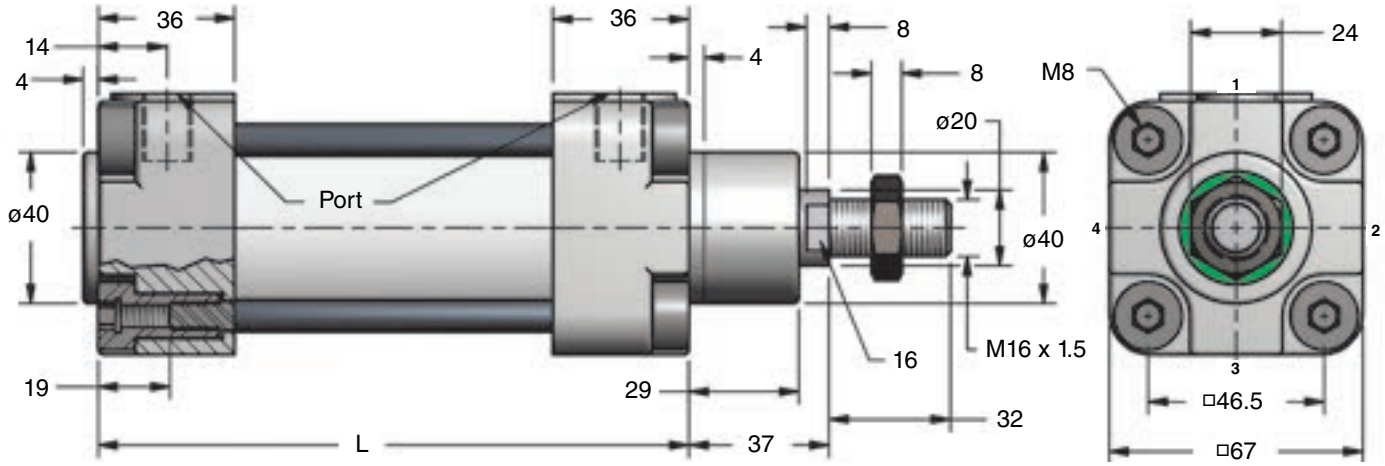
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 40T8
NFPA Style GA



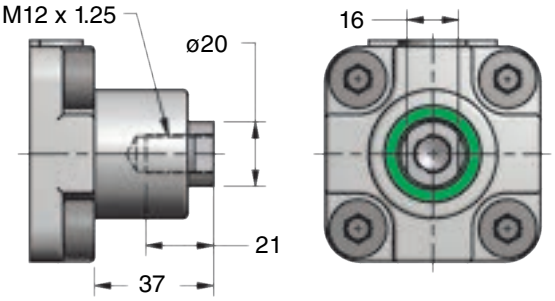
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø50 Air Cylinder



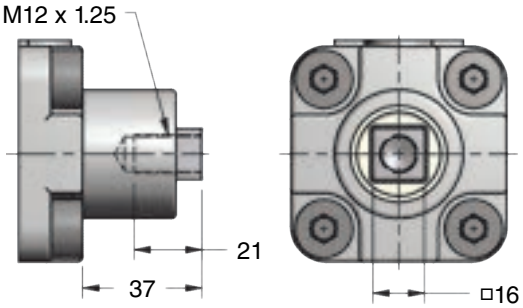
HP.Z = Standard Model

Rod Options



HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.



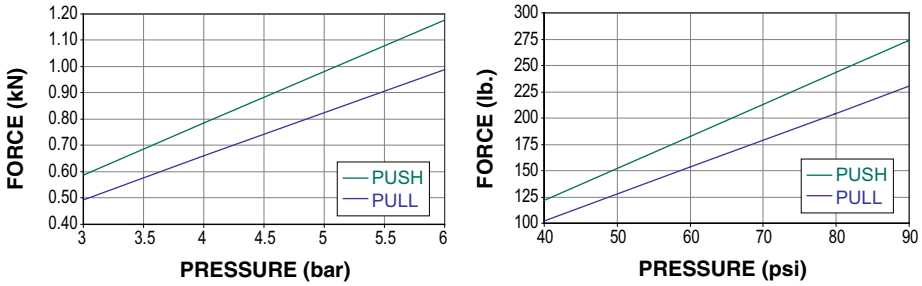
HP.N = Non-Rotating Model

Square piston rod with female thread prevents rotation. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27. HP.N standard stroke lengths available up to 200 mm. Contact DADCO for more information. For an oversized non-rotating rod option, please see page 29.

Part No.	Stroke	L (mm)
HP._.50.25	25	131
HP._.50.50	50	156
HP._.50.80	80	186
HP._.50.100	100	206
HP._.50.125	125	231
HP._.50.160	160	266
HP._.50.200	200	306
HP._.50.250	250	356
HP._.50.320	320	426
HP._.50.400	400	506

Contact DADCO for special stroke lengths.

Force Chart



PUSH Force:	P(bar) = F(kN) ÷ 0.196	F(kN) = P(bar) x 0.196
	P(psi) = F(lb.) ÷ 3.04	F(lb.) = P(psi) x 3.04
PULL Force:	P(bar) = F(kN) ÷ 0.165	F(kN) = P(bar) x 0.165
	P(psi) = F(lb.) ÷ 2.56	F(lb.) = P(psi) x 2.56

NOTE:
A cylinder's theoretical force should be 50 - 100% greater than the force required.

Ordering Example:

HP. Z. 50. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, N = Non-Rotating Model,
W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 1/4 BSPP, P = 1/4 NPT

Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

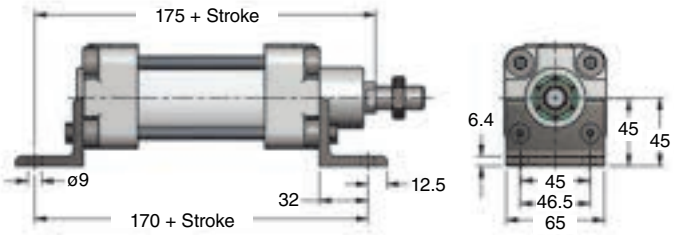
Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 50T1

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

ø50 Mounts

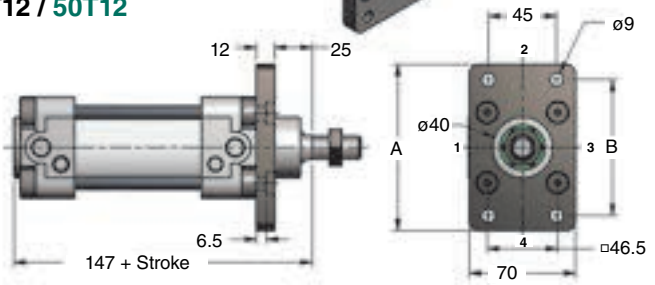
T1 Foot Mount
Part No. 50T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



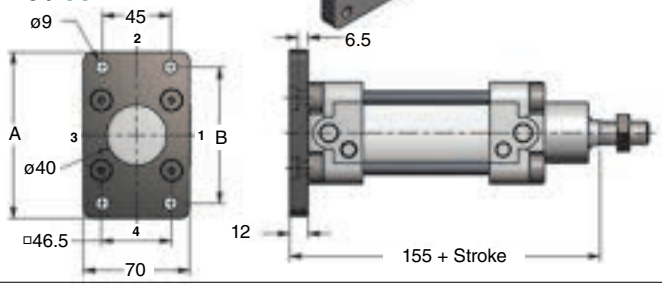
T2 Rectangular Flange – Front Mounted
Part No. 50T2
NFPA Style MF1
T12 / 50T12

Part No.	A	B
T2	110	90
T12	140	120

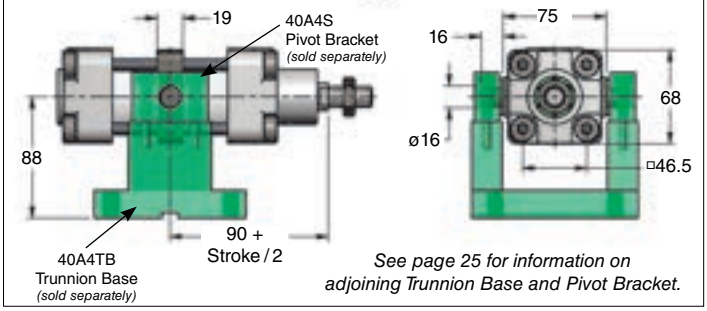


T3 Rectangular Flange – Rear Mounted
Part No. 50T2
NFPA Style MF2
T13 / 50T12

Part No.	A	B
T3	110	90
T13	140	120

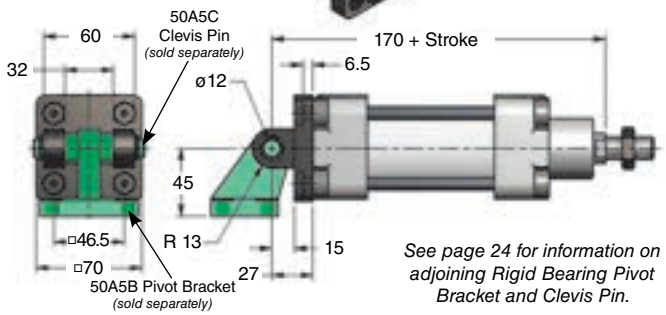


T4 Adjustable Trunnion
Part No. 50T4
NFPA Style MT4



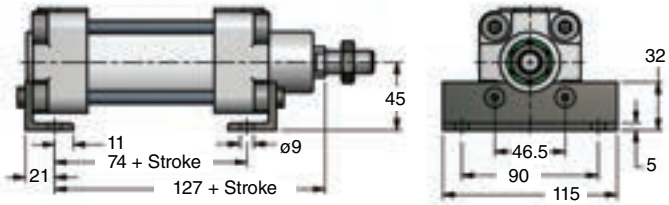
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 50T5
NFPA Style MP2

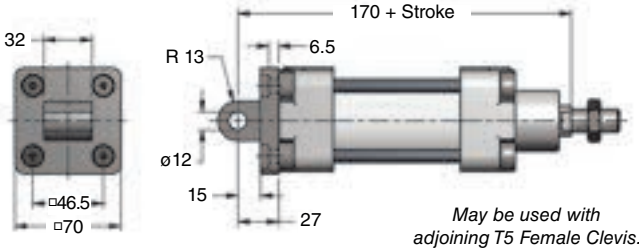


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 50T6
Style MSB

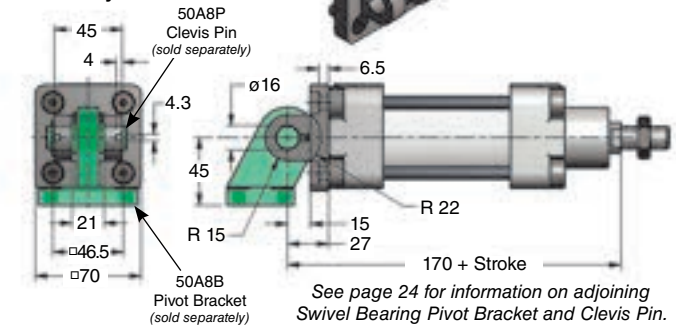


T7 Male Clevis
Part No. 50T7
NFPA Style MP4



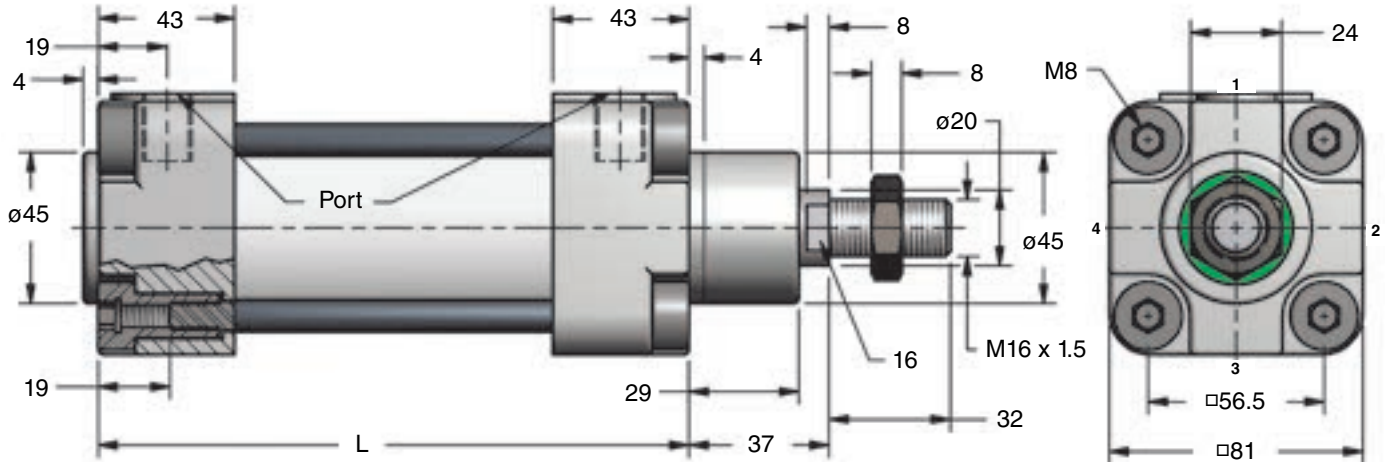
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 50T8
NFPA Style GA



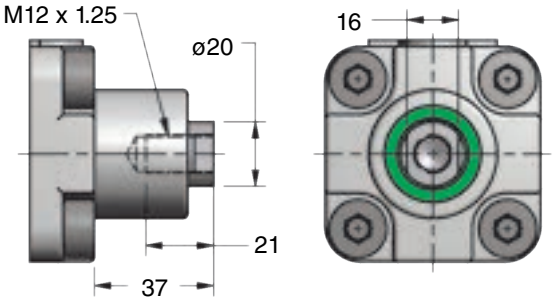
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø63 Air Cylinder



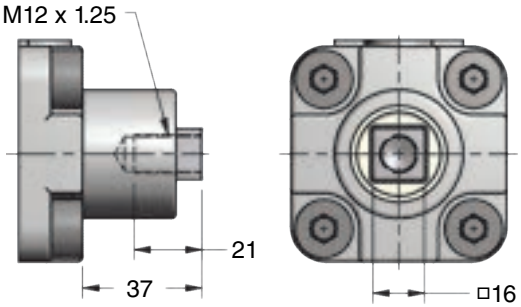
HP.Z = Standard Model

Rod Options



HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.



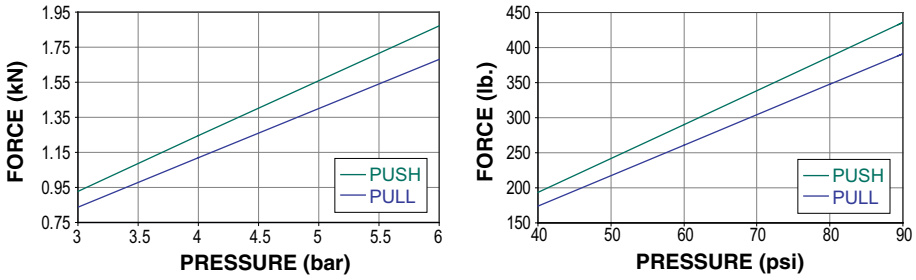
HP.N = Non-Rotating Model

Square piston rod with female thread prevents rotation. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27. HP.N standard stroke lengths available up to 200 mm. Contact DADCO for more information.

Part No.	Stroke	L (mm)
HP._.63.25	25	146
HP._.63.50	50	171
HP._.63.80	80	201
HP._.63.100	100	221
HP._.63.125	125	246
HP._.63.160	160	281
HP._.63.200	200	321
HP._.63.250	250	371
HP._.63.320	320	441
HP._.63.400	400	521
HP._.63.500	500	621

Contact DADCO for special stroke lengths.

Force Chart



PUSH Force: P(bar) = F(kN) ÷ 0.312 | F(kN) = P(bar) x 0.312
P(psi) = F(lb.) ÷ 4.83 | F(lb.) = P(psi) x 4.83

PULL Force: P(bar) = F(kN) ÷ 0.280 | F(kN) = P(bar) x 0.280
P(psi) = F(lb.) ÷ 4.34 | F(lb.) = P(psi) x 4.34

NOTE:
A cylinder's theoretical force should be 50 - 100% greater than the force required.

Ordering Example:

HP. Z. 63. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, N = Non-Rotating Model,
W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 3/8 BSPP, P = 3/8 NPT

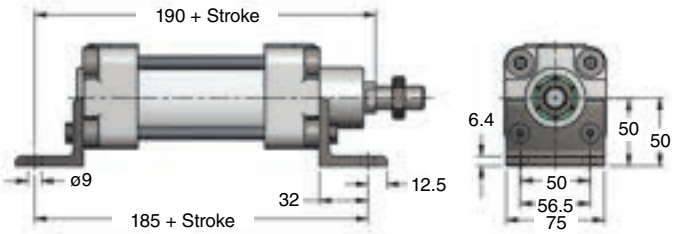
Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 63T1

Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

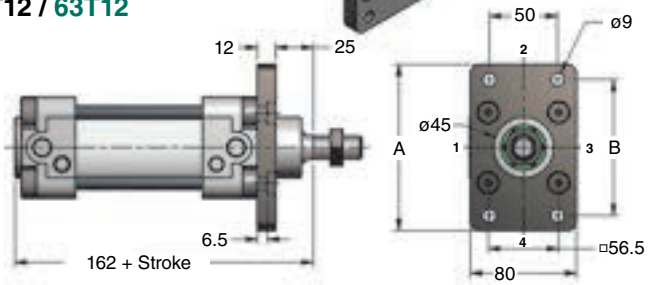
T1 Foot Mount
Part No. 63T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



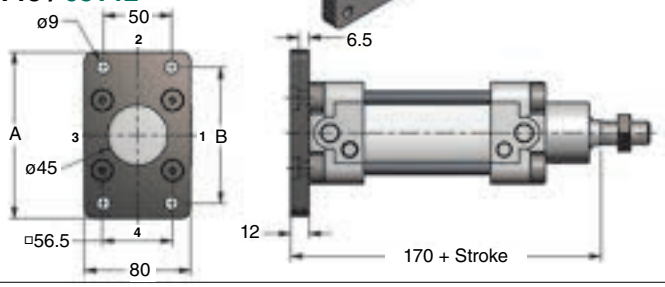
T2 Rectangular Flange – Front Mounted
Part No. 63T2
NFPA Style MF1
T12 / 63T12

Part No.	A	B
T2	120	100
T12	155	135

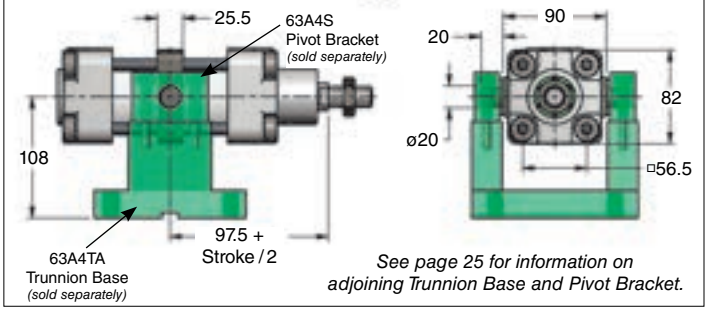


T3 Rectangular Flange – Rear Mounted
Part No. 63T2
NFPA Style MF2
T13 / 63T12

Part No.	A	B
T3	120	100
T13	155	135

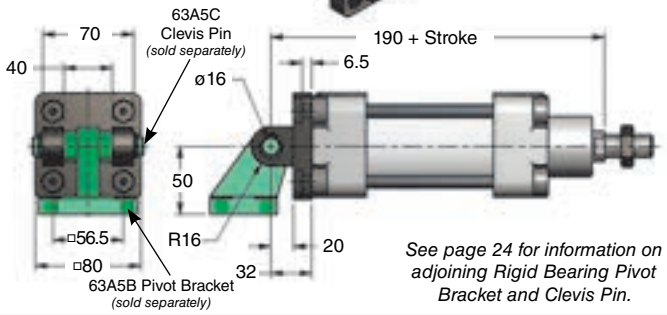


T4 Adjustable Trunnion
Part No. 63T4
NFPA Style MT4



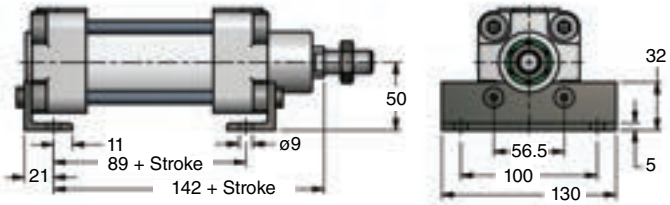
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 63T5
NFPA Style MP2

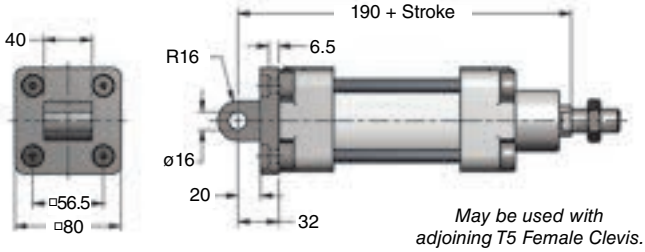


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 63T6
Style MSB

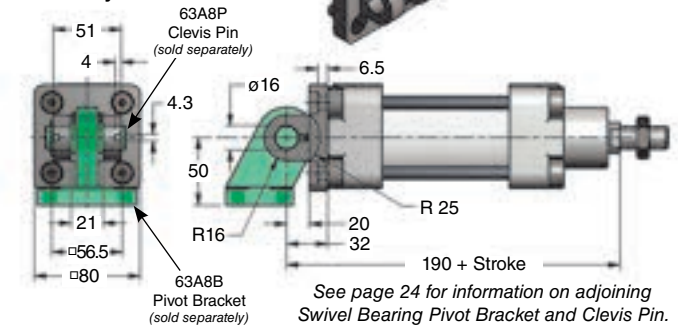


T7 Male Clevis
Part No. 63T7
NFPA Style MP4



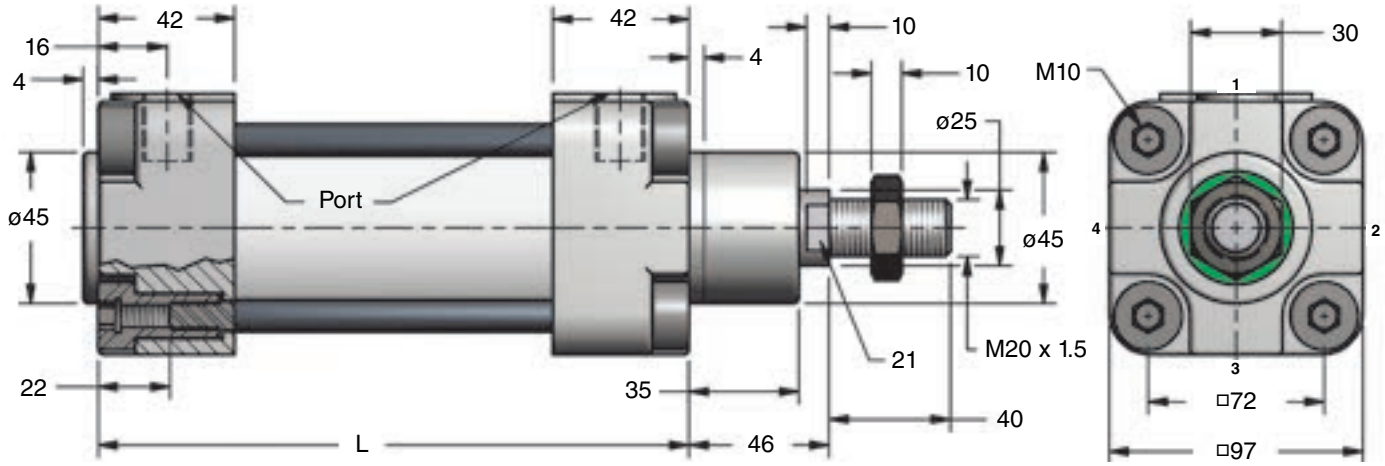
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 63T8
NFPA Style GA



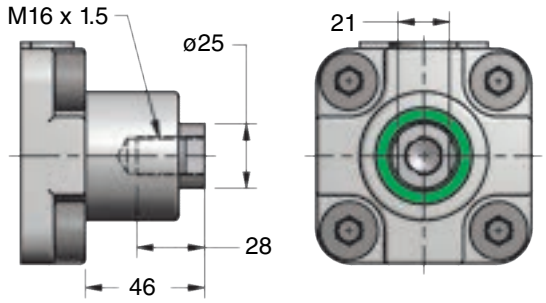
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø80 Air Cylinder



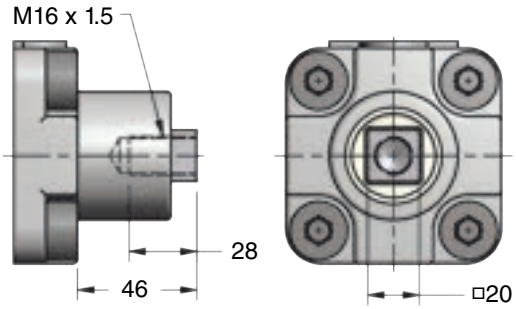
HP.Z = Standard Model

Rod Options



HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.



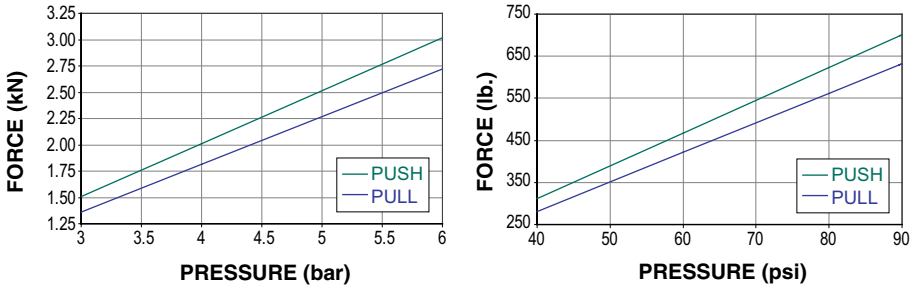
HP.N = Non-Rotating Model

Square piston rod with female thread prevents rotation. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27. HP.N standard stroke lengths available up to 200 mm. Contact DADCO for more information.

Part No.	Stroke	L (mm)
HP._.80.25	25	153
HP._.80.50	50	178
HP._.80.80	80	208
HP._.80.100	100	228
HP._.80.125	125	253
HP._.80.160	160	288
HP._.80.200	200	328
HP._.80.250	250	378
HP._.80.320	320	448
HP._.80.400	400	528
HP._.80.500	500	628

Contact DADCO for special stroke lengths.

Force Chart



PUSH Force: P(bar) = F(kN) ÷ 0.503 | F(kN) = P(bar) x 0.503
P(psi) = F(lb.) ÷ 7.79 | F(lb.) = P(psi) x 7.79
PULL Force: P(bar) = F(kN) ÷ 0.454 | F(kN) = P(bar) x 0.454
P(psi) = F(lb.) ÷ 7.03 | F(lb.) = P(psi) x 7.03

NOTE:
A cylinder's theoretical force should be 50 - 100% greater than the force required.

Ordering Example:

HP. Z. 80. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, N = Non-Rotating Model,
W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 3/8 BSPP, P = 3/8 NPT

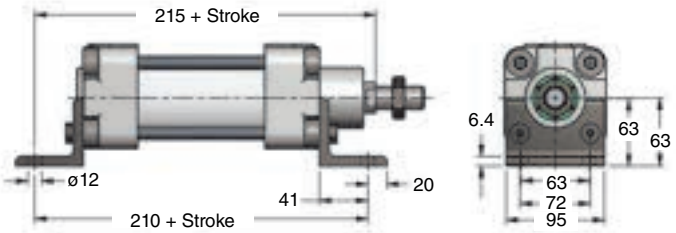
Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 80T1

Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

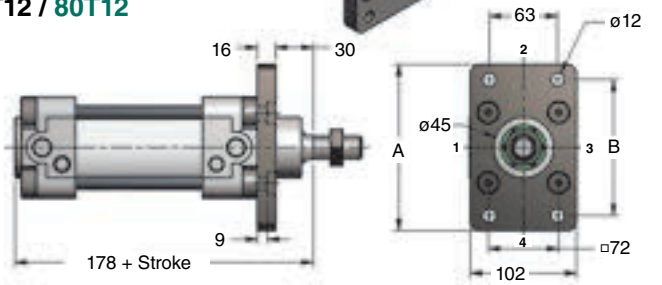
T1 Foot Mount
Part No. 80T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



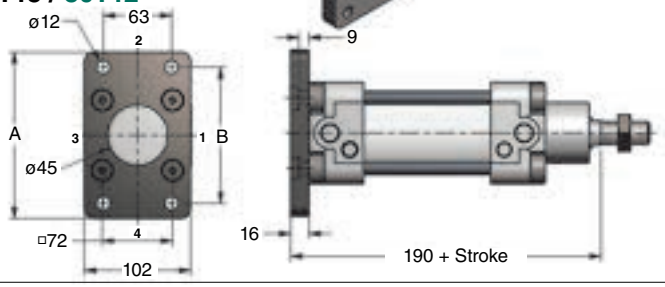
T2 Rectangular Flange – Front Mounted
Part No. 80T2
NFPA Style MF1
T12 / 80T12

Part No.	A	B
T2	150	126
T12	180	155

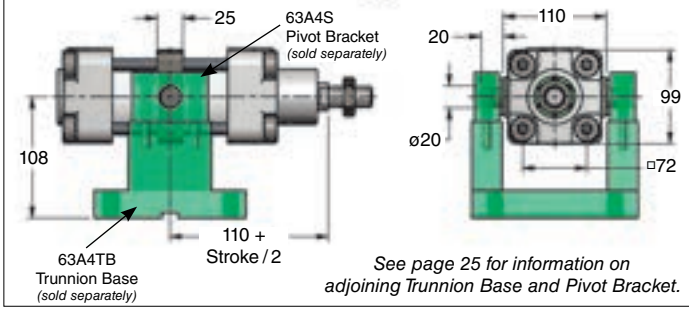


T3 Rectangular Flange – Rear Mounted
Part No. 80T2
NFPA Style MF2
T13 / 80T12

Part No.	A	B
T3	150	126
T13	180	155

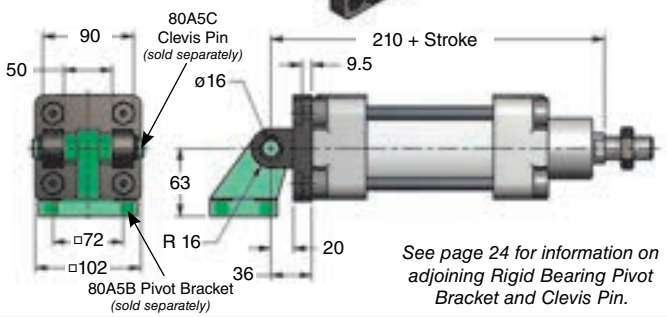


T4 Adjustable Trunnion
Part No. 80T4
NFPA Style MT4



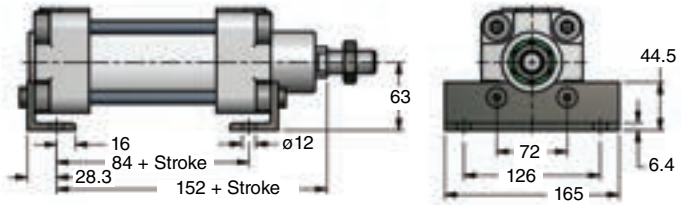
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 80T5
NFPA Style MP2

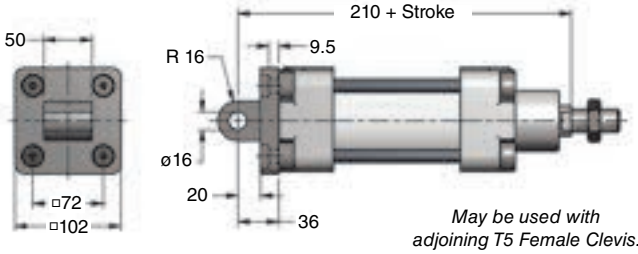


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 80T6
Style MSB

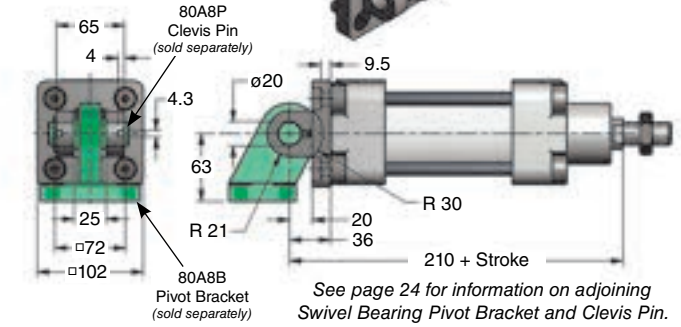


T7 Male Clevis
Part No. 80T7
NFPA Style MP4



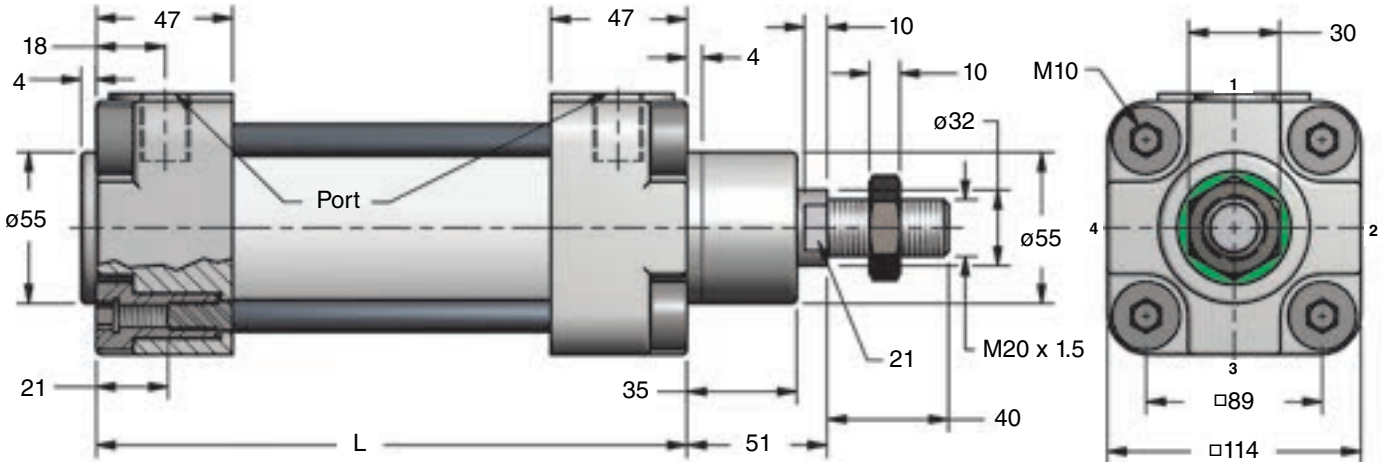
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 80T8
NFPA Style GA



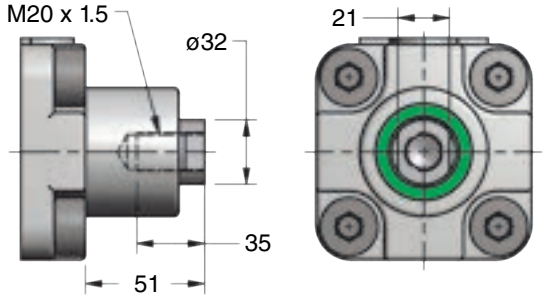
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø100 Air Cylinder



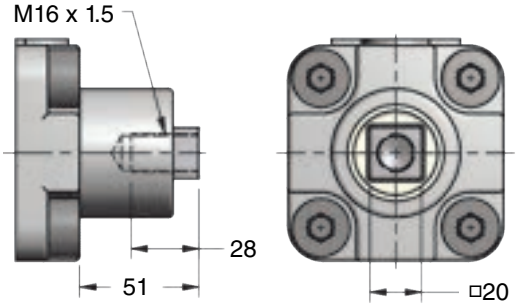
HP.Z = Standard Model

Rod Options



HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.



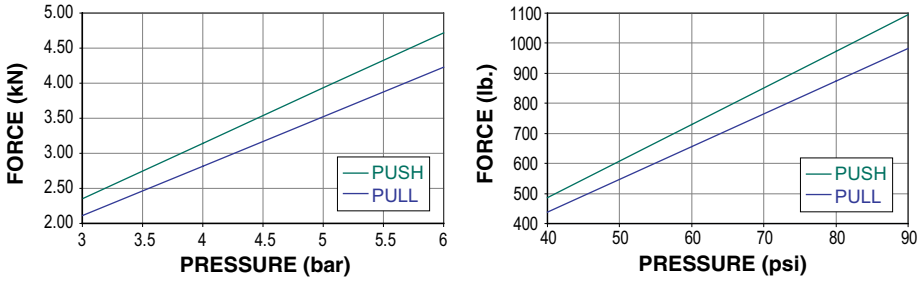
HP.N = Non-Rotating Model

Square piston rod with female thread prevents rotation. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27. HP.N standard stroke lengths available up to 200 mm. Contact DADCO for more information.

Part No.	Stroke	L (mm)
HP._.100.25	25	163
HP._.100.50	50	188
HP._.100.80	80	218
HP._.100.100	100	238
HP._.100.125	125	263
HP._.100.160	160	298
HP._.100.200	200	338
HP._.100.250	250	388
HP._.100.320	320	458
HP._.100.400	400	538
HP._.100.500	500	638

Contact DADCO for special stroke lengths.

Force Charts



PUSH Force:	P(bar) = F(kN) ÷ 0.785	F(kN) = P(bar) x 0.785	**NOTE:**
	P(psi) = F(lb.) ÷ 12.17	F(lb.) = P(psi) x 12.17	*A cylinder's theoretical force should be 50 - 100% greater than the force required.*
PULL Force:	P(bar) = F(kN) ÷ 0.705	F(kN) = P(bar) x 0.705	
	P(psi) = F(lb.) ÷ 10.93	F(lb.) = P(psi) x 10.93	

Ordering Example:

HP. Z. 100. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, N = Non-Rotating Model,
W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 1/2 BSPP, P = 1/2 NPT

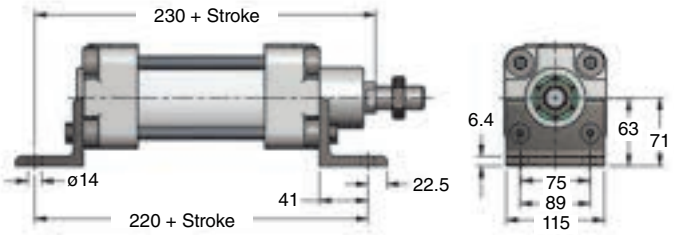
Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 100T1

Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

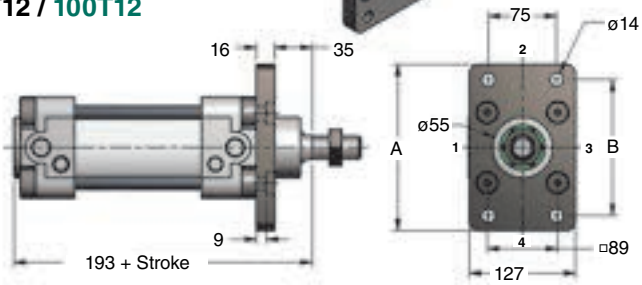
T1 Foot Mount
Part No. 100T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



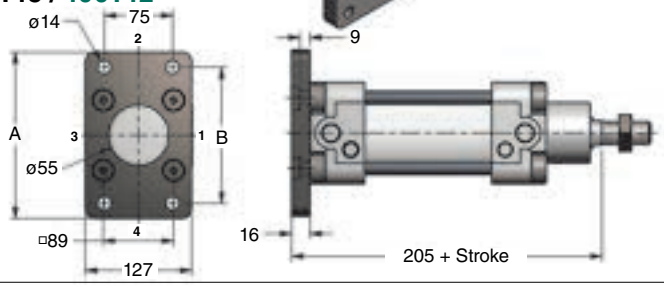
T2 Rectangular Flange – Front Mounted
Part No. 100T2
NFPA Style MF1
T12 / 100T12

Part No.	A	B
T2	180	150
T12	210	185

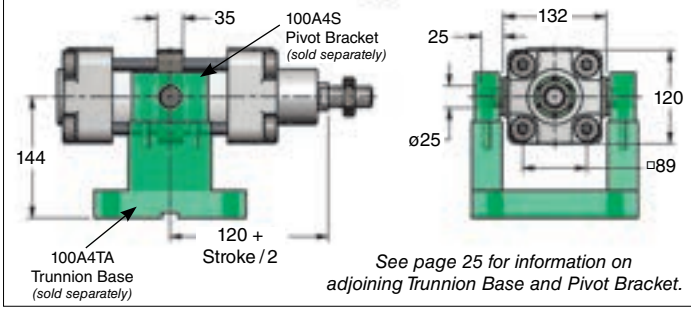


T3 Rectangular Flange – Rear Mounted
Part No. 100T2
NFPA Style MF2
T13 / 100T12

Part No.	A	B
T3	180	150
T13	210	185

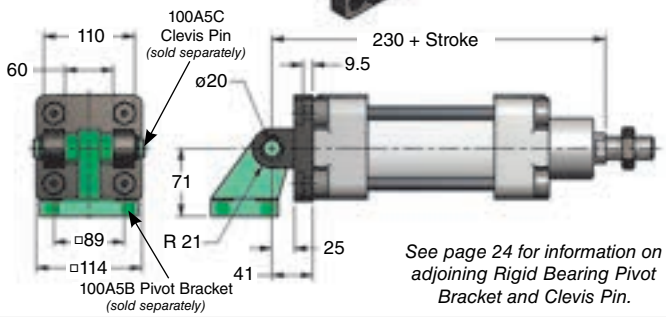


T4 Adjustable Trunnion
Part No. 100T4
NFPA Style MT4



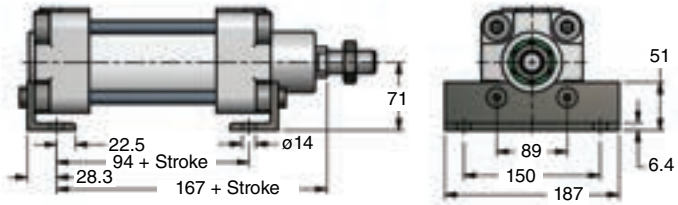
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 100T5
NFPA Style MP2

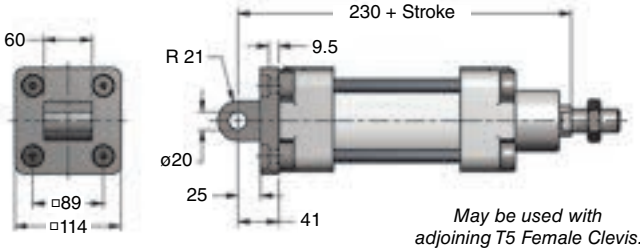


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 100T6
Style MSB

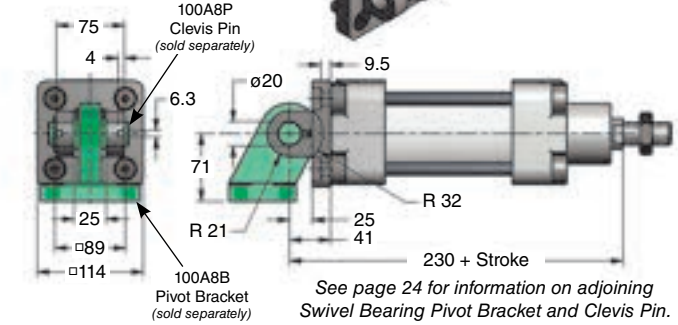


T7 Male Clevis
Part No. 100T7
NFPA Style MP4



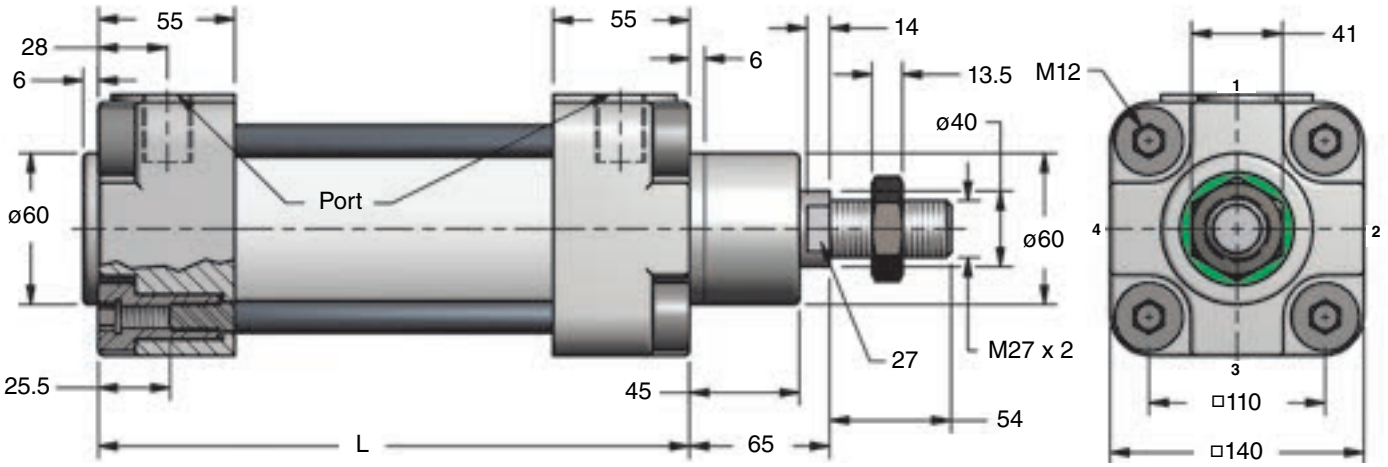
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 100T8
NFPA Style GA



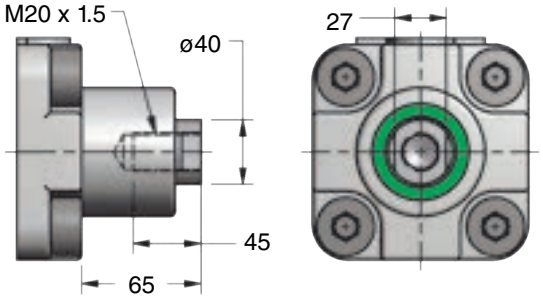
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø125 Air Cylinder



HP.Z = Standard Model

Rod Options



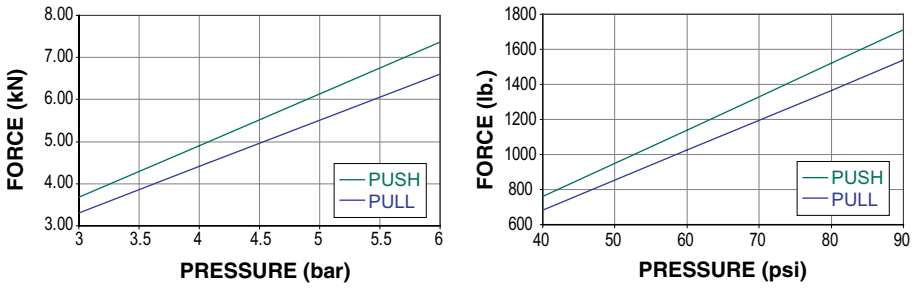
HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.

Part No.	Stroke	L (mm)
HP._.125.25	25	185
HP._.125.50	50	210
HP._.125.80	80	240
HP._.125.100	100	260
HP._.125.125	125	285
HP._.125.160	160	320
HP._.125.200	200	360
HP._.125.250	250	410
HP._.125.320	320	480
HP._.125.400	400	560
HP._.125.500	500	660

Contact DADCO for special stroke lengths.

Force Chart



PUSH Force:	P(bar) = F(kN) ÷ 1.227	F(kN) = P(bar) x 1.227
	P(psi) = F(lb.) ÷ 19.02	F(lb.) = P(psi) x 19.02
PULL Force:	P(bar) = F(kN) ÷ 1.102	F(kN) = P(bar) x 1.102
	P(psi) = F(lb.) ÷ 17.07	F(lb.) = P(psi) x 17.07

NOTE:
A cylinder's theoretical force should be 50 - 100% greater than the force required.

Ordering Example:

HP. Z. 125. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 1/2 BSPP, P = 1/2 NPT

Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

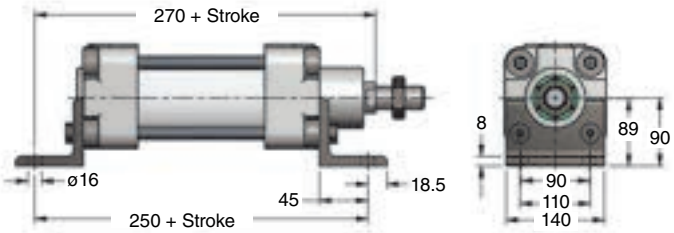
Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 125T1

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

ø125 Mounts

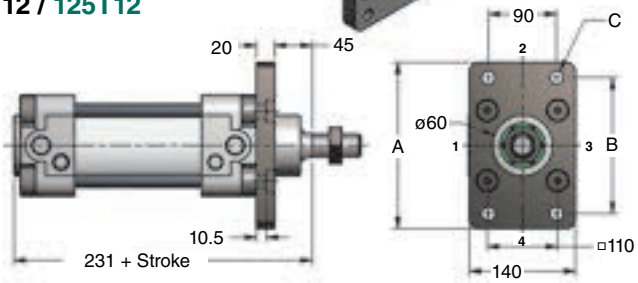
T1 Foot Mount
Part No. 125T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



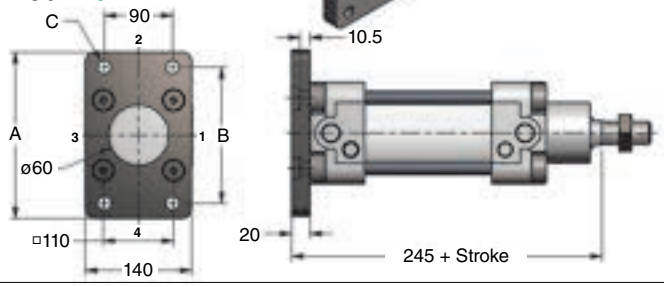
T2 Rectangular Flange – Front Mounted
Part No. 125T2
NFPA Style MF1
T12 / 125T12

Part No.	A	B	C
T2	210	180	ø16
T12	235	210	ø14

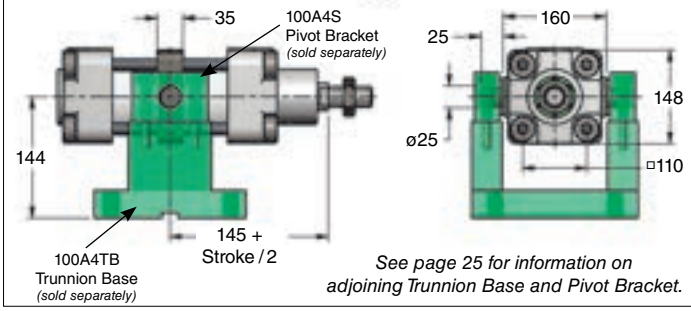


T3 Rectangular Flange – Rear Mounted
Part No. 125T2
NFPA Style MF2
T13 / 125T12

Part No.	A	B	C
T3	210	180	ø16
T13	235	210	ø14

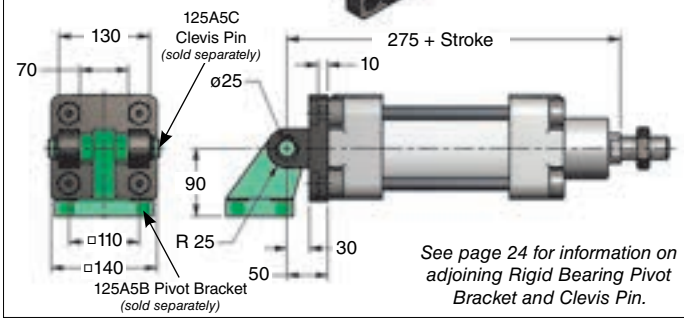


T4 Adjustable Trunnion
Part No. 125T4
NFPA Style MT4



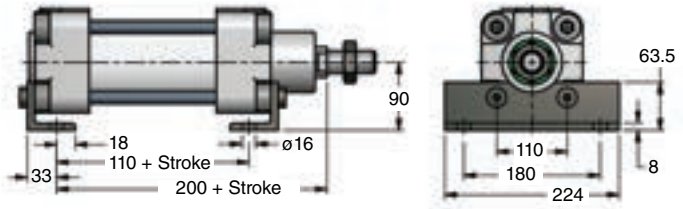
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 125T5
NFPA Style MP2

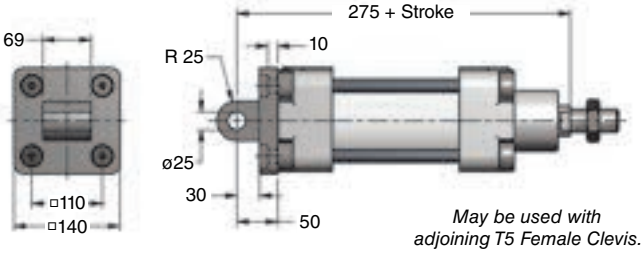


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 125T6
Style MSB

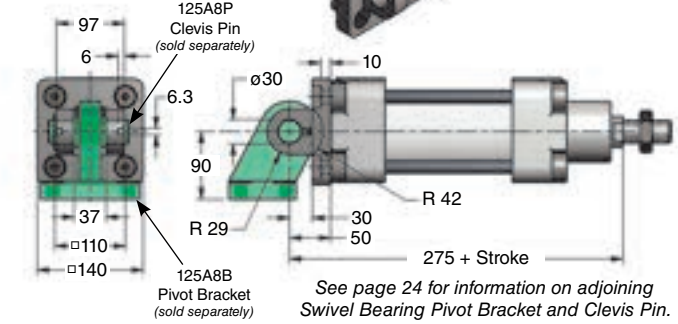


T7 Male Clevis
Part No. 125T7
NFPA Style MP4



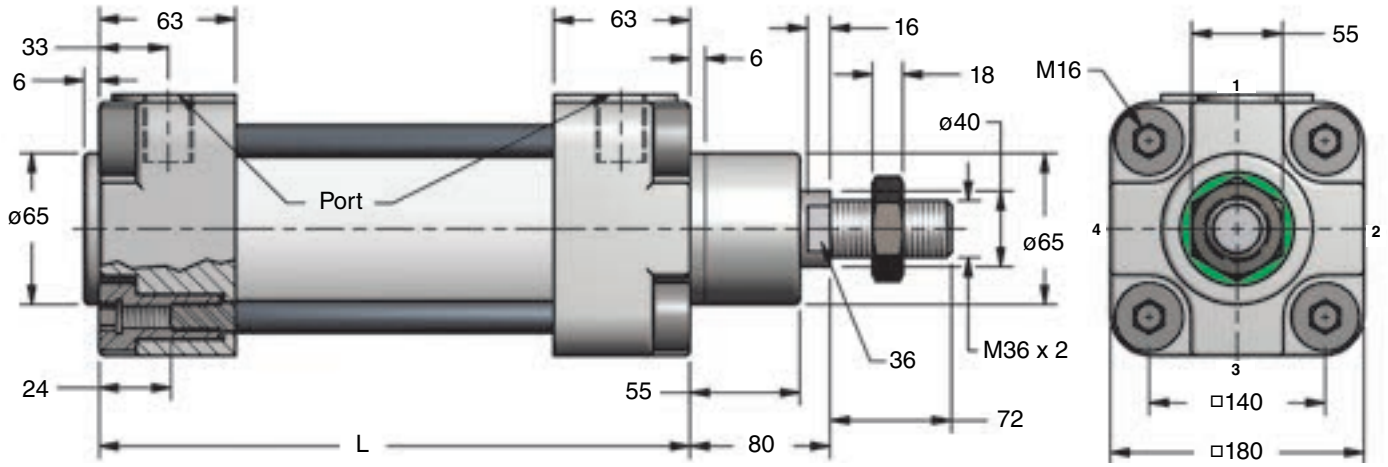
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 125T8
NFPA Style GA



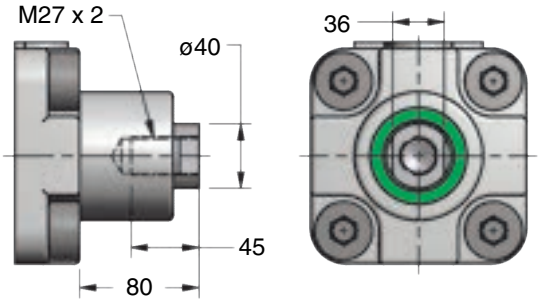
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø160 Air Cylinders



HP.Z = Standard Model

Rod Options



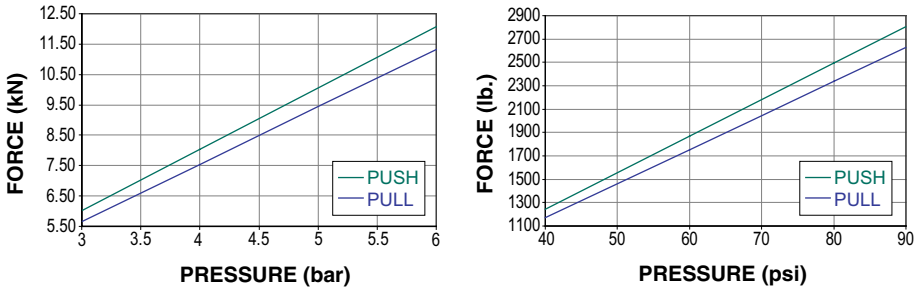
HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.

Part No.	Stroke	L (mm)
HP._.160.25	25	205
HP._.160.50	50	230
HP._.160.80	80	260
HP._.160.100	100	280
HP._.160.125	125	305
HP._.160.160	160	340
HP._.160.200	200	380
HP._.160.250	250	430
HP._.160.320	320	500
HP._.160.400	400	580
HP._.160.500	500	680

Contact DADCO for special stroke lengths.

Force Chart



PUSH Force:	P(bar) = F(kN) ÷ 2.011	F(kN) = P(bar) x 2.011
	P(psi) = F(lb.) ÷ 31.16	F(lb.) = P(psi) x 31.16
PULL Force:	P(bar) = F(kN) ÷ 1.885	F(kN) = P(bar) x 1.885
	P(psi) = F(lb.) ÷ 29.22	F(lb.) = P(psi) x 29.22

NOTE:
A cylinder's theoretical force should be 50 - 100% greater than the force required.

Ordering Example:

HP. Z. 160. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 3/4 BSPP, P = 3/4 NPT

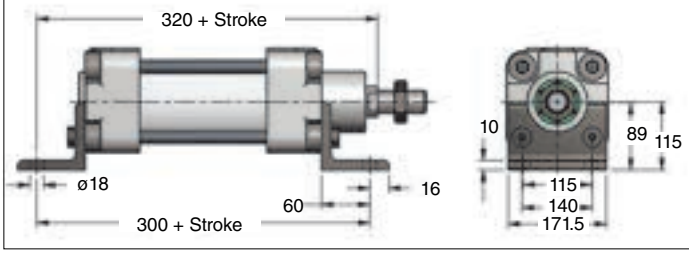
Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 160T1

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

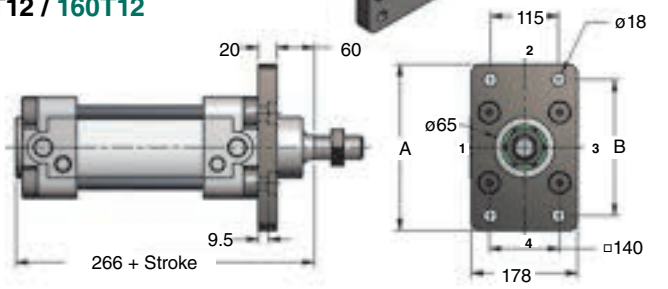
T1 Foot Mount
Part No. 160T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



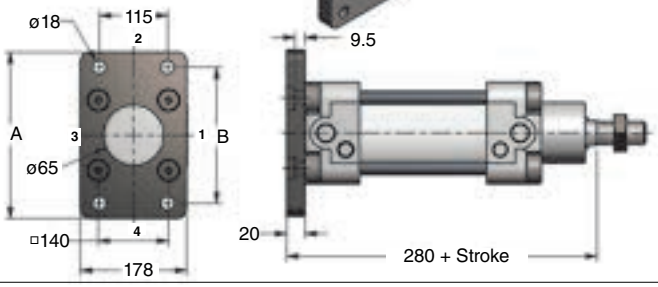
T2 Rectangular Flange – Front Mounted
Part No. 160T2
NFPA Style MF1
T12 / 160T12

Part No.	A	B
T2	270	230
T12	280	250

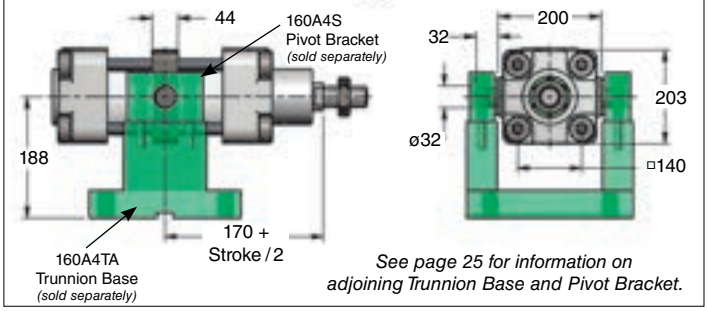


T3 Rectangular Flange – Rear Mounted
Part No. 160T2
NFPA Style MF2
T13 / 160T12

Part No.	A	B
T3	270	230
T13	280	250

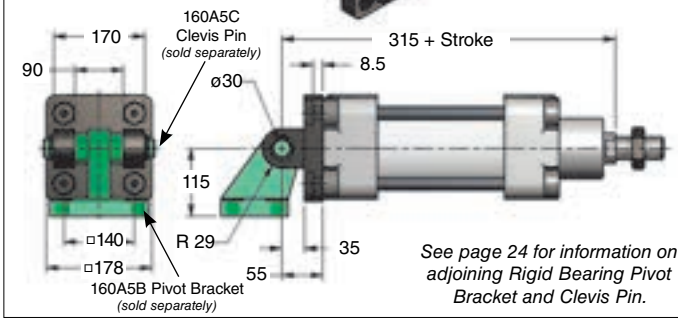


T4 Adjustable Trunnion
Part No. 160T4
NFPA Style MT4



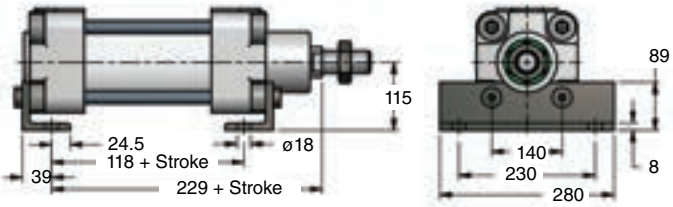
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 160T5
NFPA Style MP2

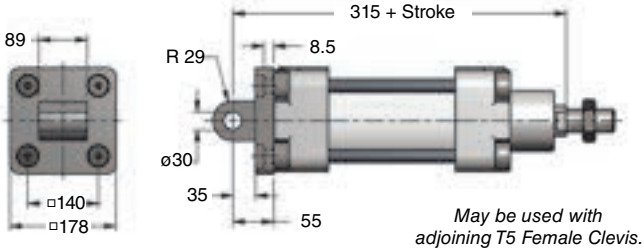


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 160T6
Style MSB

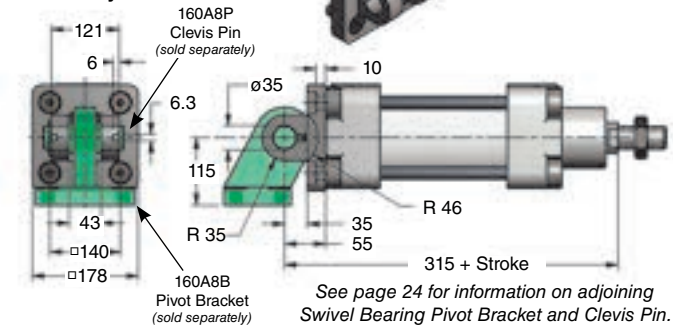


T7 Male Clevis
Part No. 160T7
NFPA Style MP4



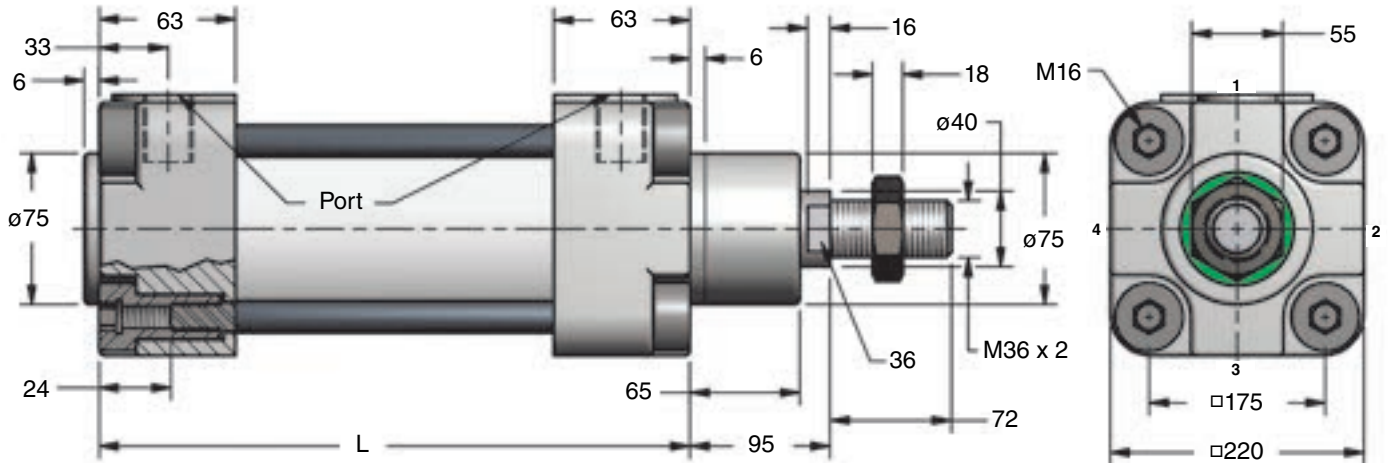
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 160T8
NFPA Style GA



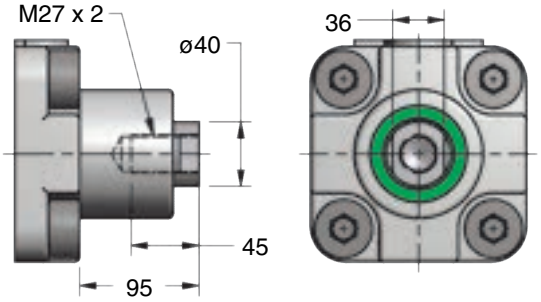
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø200 Air Cylinder



HP.Z = Standard Model

Rod Options



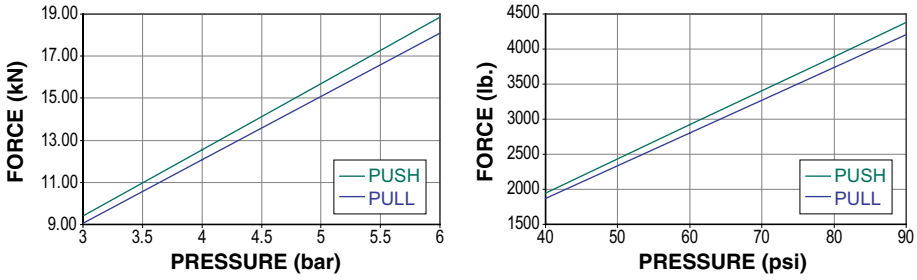
HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.

Part No.	Stroke	L (mm)
HP._.200.25	25	205
HP._.200.50	50	230
HP._.200.80	80	260
HP._.200.100	100	280
HP._.200.125	125	305
HP._.200.160	160	340
HP._.200.200	200	380
HP._.200.250	250	430
HP._.200.320	320	500
HP._.200.400	400	580
HP._.200.500	500	680

Contact DADCO for special stroke lengths.

Force Chart



PUSH Force:	P(bar) = F(kN) ÷ 3.142	F(kN) = P(bar) x 3.142
	P(psi) = F(lb.) ÷ 48.69	F(lb.) = P(psi) x 48.69
PULL Force:	P(bar) = F(kN) ÷ 3.016	F(kN) = P(bar) x 3.016
	P(psi) = F(lb.) ÷ 46.75	F(lb.) = P(psi) x 46.75

NOTE:
A cylinder's theoretical force should be 50 - 100% greater than the force required.

Ordering Example:

HP. Z. 200. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, W = Female Rod End Model
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 3/4 BSPP, P = 3/4 NPT

Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

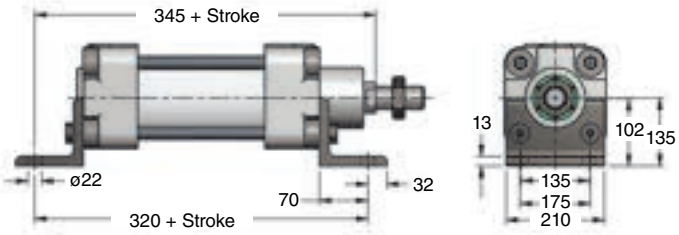
Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 200T1

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

ø200 Mounts

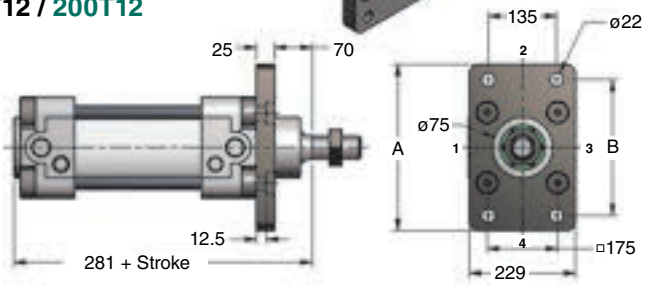
T1 Foot Mount
Part No. 200T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



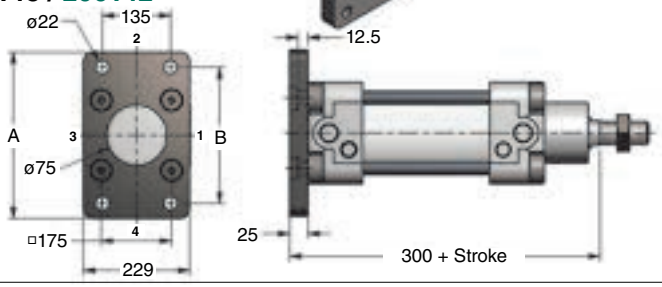
T2 Rectangular Flange – Front Mounted
Part No. 200T2
NFPA Style MF1
T12 / 200T12

Part No.	A	B
T2	310	270
T12	335	300

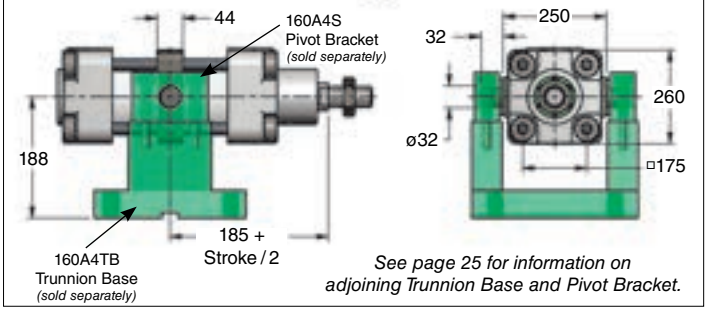


T3 Rectangular Flange – Rear Mounted
Part No. 200T2
NFPA Style MF2
T13 / 200T12

Part No.	A	B
T3	310	270
T13	335	300

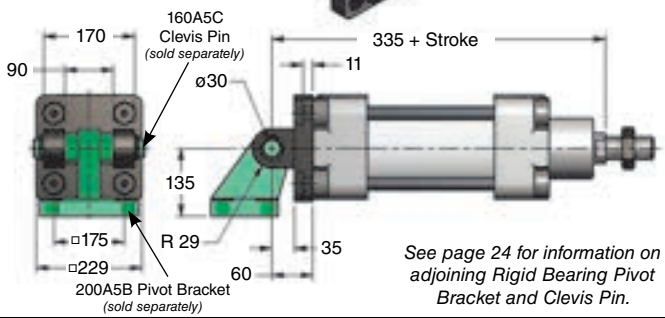


T4 Adjustable Trunnion
Part No. 200T4
NFPA Style MT4



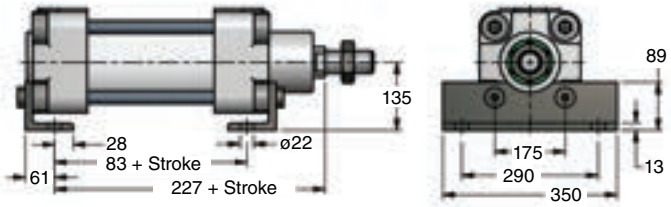
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

T5 Female Clevis
Part No. 200T5
NFPA Style MP2

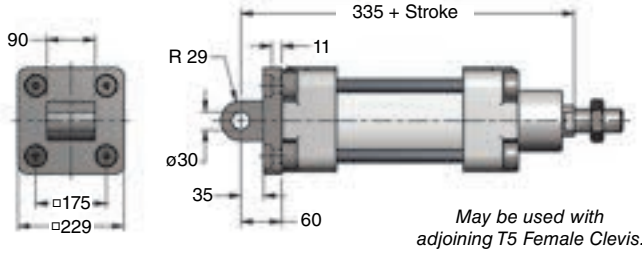


See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 200T6
Style MSB

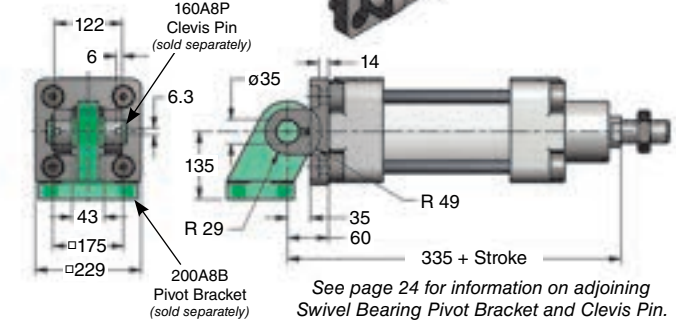


T7 Male Clevis
Part No. 200T7
NFPA Style MP4



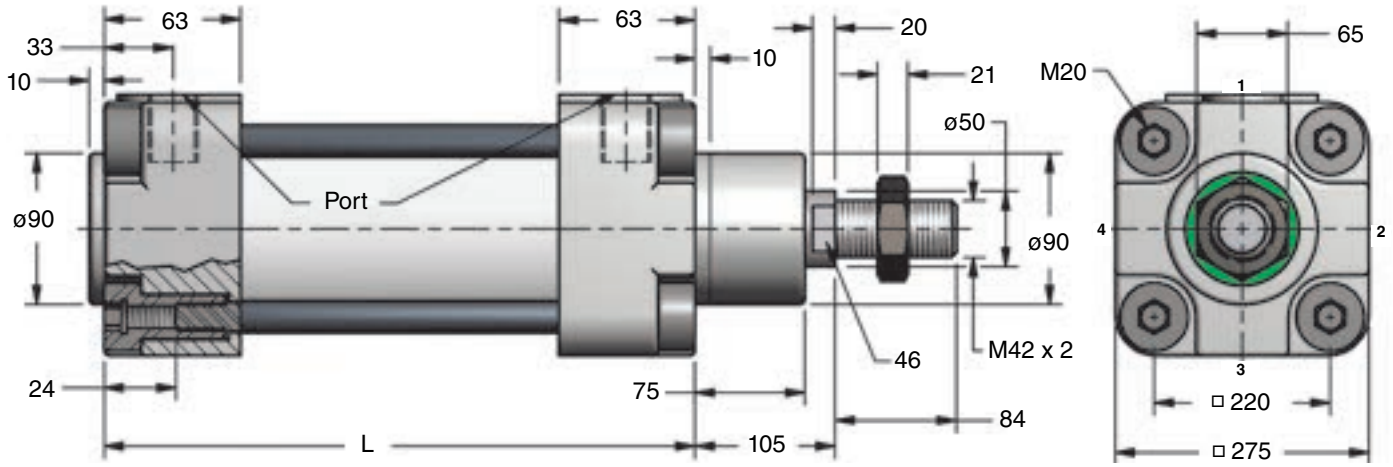
May be used with adjoining T5 Female Clevis.

T8 Clevis Bracket
Part No. 200T8
NFPA Style GA



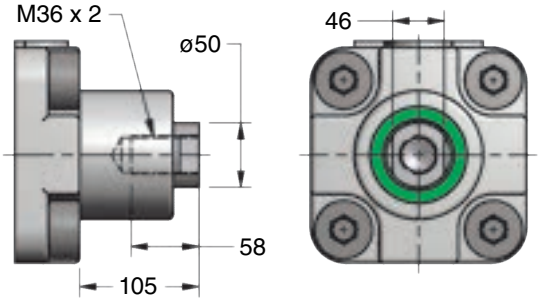
See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

ø250 Air Cylinders



HP.Z = Standard Model

Rod Options



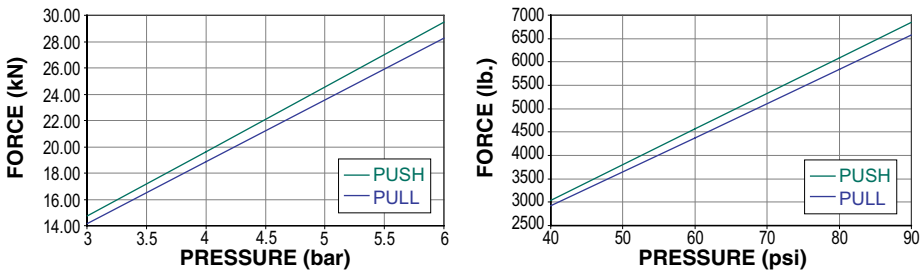
HP.W = Female Rod End Model

Piston rod with a female thread. DADCO offers rod end studs to convert the female thread to the standard male rod end. See page 27.

Part No.	Stroke	L (mm)
HP._.250.25	25	225
HP._.250.50	50	250
HP._.250.80	80	280
HP._.250.100	100	300
HP._.250.125	125	325
HP._.250.160	160	360
HP._.250.200	200	400
HP._.250.250	250	450
HP._.250.320	320	520
HP._.250.400	400	600
HP._.250.500	500	700

Contact DADCO for special stroke lengths.

Force Chart



PUSH Force:	P(bar) = F(kN) ÷ 4.909	F(kN) = P(bar) x 4.909
	P(psi) = F(lb.) ÷ 76.09	F(lb.) = P(psi) x 76.09
PULL Force:	P(bar) = F(kN) ÷ 4.712	F(kN) = P(bar) x 4.712
	P(psi) = F(lb.) ÷ 73.04	F(lb.) = P(psi) x 73.04

NOTE:
A cylinder's theoretical force should be 50 - 100% greater than the force required.

Ordering Example:

HP. Z. 250. 100. G. 1. TO

Series

Rod Option
Z = Standard Model, W = Female Rod End Model.
When not specified, default is HP.Z

Bore

Stroke Length

Port Style
G = 1.0 BSPP, P = 1.0 NPT

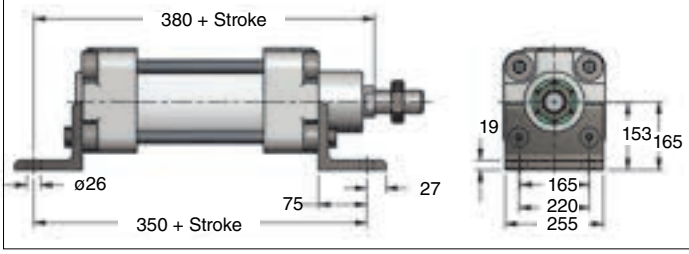
Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

Mount Option (TO-T8)
TO = Basic Mount.
When not specified, default is TO. Mount ordered with cylinder will be attached at the factory.
Mount Only Example: 250T1

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

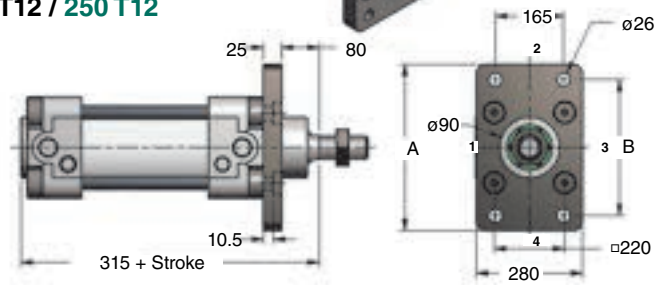
T1 Foot Mount
Part No. 250T1
NFPA Style MS1

Conforms to NAAMS, and meets or exceeds VDMA Requirements.



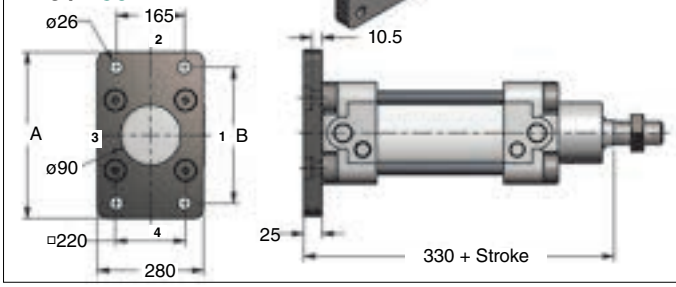
T2 Rectangular Flange – Front Mounted
Part No. 250T2
NFPA Style MF1
T12 / 250 T12

Part No.	A	B
T2	380	330
T12	395	355

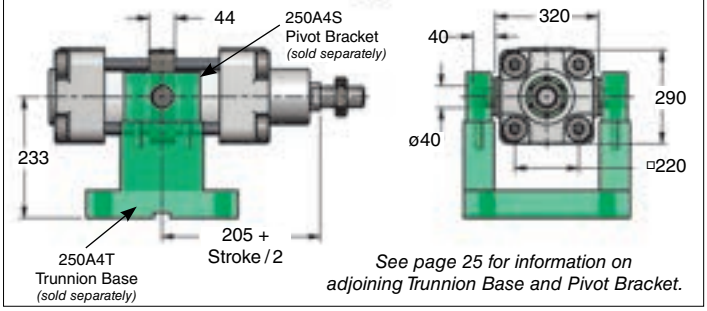


T3 Rectangular Flange – Rear Mounted
Part No. 250T2
NFPA Style MF2
T13 / 250T12

Part No.	A	B
T3	380	330
T13	395	355

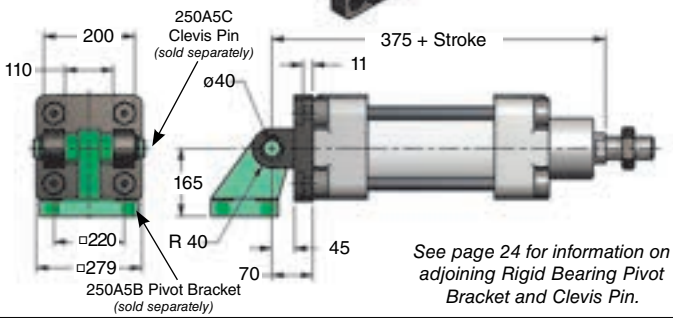


T4 Adjustable Trunnion
Part No. 250T4
NFPA Style MT4



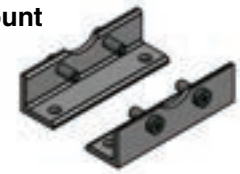
See page 25 for information on adjoining Trunnion Base and Pivot Bracket.

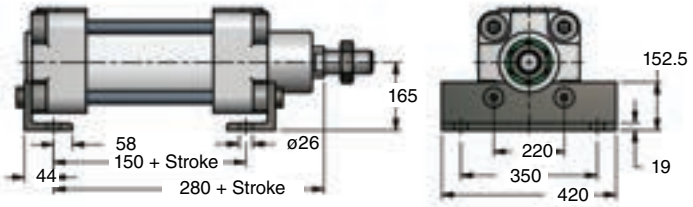
T5 Female Clevis
Part No. 250T5
NFPA Style MP2



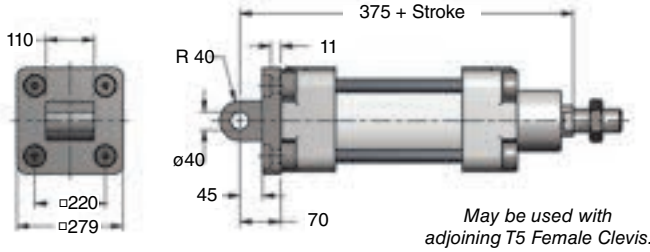
See page 24 for information on adjoining Rigid Bearing Pivot Bracket and Clevis Pin.

T6 Inverted Foot Mount
Part No. 250T6
Style MSB



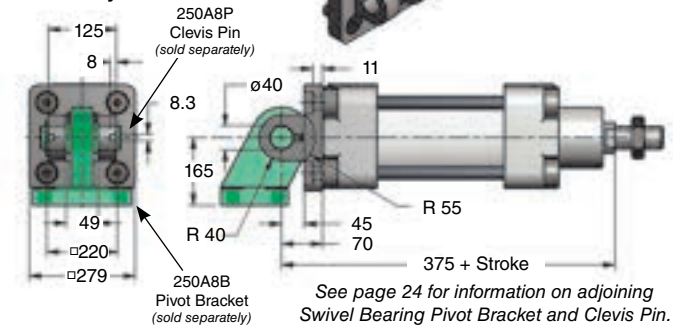


T7 Male Clevis
Part No. 250T7
NFPA Style MP4



May be used with adjoining T5 Female Clevis.

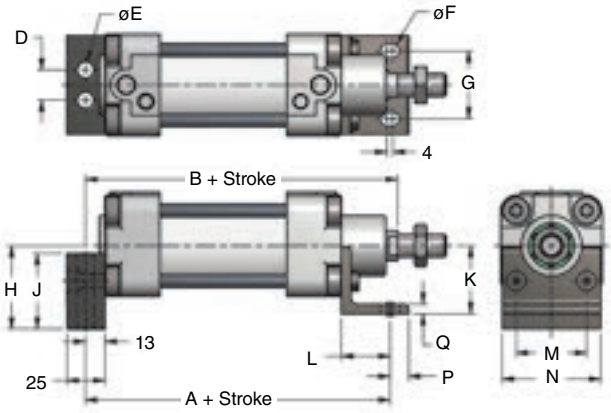
T8 Clevis Bracket
Part No. 250T8
NFPA Style GA



See page 24 for information on adjoining Swivel Bearing Pivot Bracket and Clevis Pin.

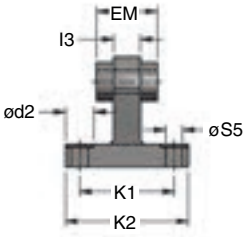
Mount Accessories

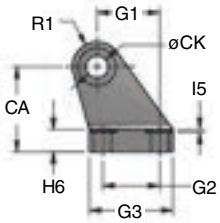
T9 Foot Mount



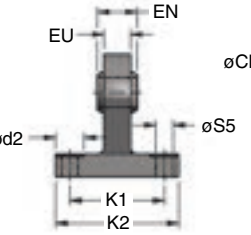
Part No.	Bore	A	B	D	E	F	G	H	J	K	L	M	N	P	Q
32T9	32	131	133	16	9	6.6	32	42	40	32	24	32.5	46	8	5
40T9	40	146	148	20	9	9	36	46	40	36	28	38	52	10	6.4
50T9	50	151	156	20	11	9	45	55	50	45	32	46.5	65	10.5	6.4
63T9	63	166	171	30	11	9	50	60	50	50	32	56.5	75	12.5	6.4
80T9	80	182	187	40	11	11	63	73	70	63	41	72	95	22.5	9.5
100T9	100	192	202	50	11	13.5	75	81	70	71	41	89	115	22.5	9.5
125T9	125	218	238	70	11	13.5	90	100	80	90	45	110	140	18.5	13
160T9	160	253	273	80	13.5	17.5	115	125	90	115	60	140	171.5	29	16
200T9	200	263	288	80	13.5	22	135	145	100	135	70	175	210	32	16
250T9	250	288	318	140	13.5	26	165	175	120	165	75	220	255	36.5	19

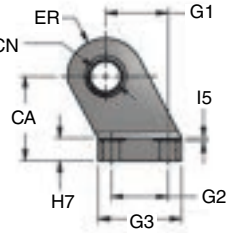
A5B Pivot Bracket with Rigid Bearing
(for use with the T5 Female Clevis)





A8B Pivot Bracket with Swivel Bearing
(for use with the T8 Clevis Bracket)





Note: Optional A5BF and A8BF versions available to comply with Ford Standards. Contact DADCO for more information.

Bore	CA	d2	G1	G2	G3	K1	K2	I5	S5
32	32	11	21	18	31	38	51	1.5	6.6
40	36	11	24	22	35	41	54	1.5	6.6
50	45	15	33	30	44	50	65	1.5	9
63	50	15	37	35	50	52	67	1.5	9
80	63	18	47	40	59	66	86	2.5	11
100	71	18	55	50	70	76	95	2.5	11
125	90	20	70	60	89	94	124	2.5	14
160	115	20	97	88	124	118	152	3	14
200	135	26	105	90	124	122	152	3	18
250	165	33	128	110	159	150	197	4	22

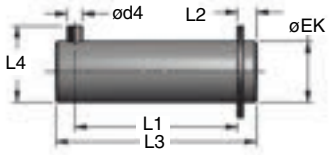
Part No.	CK	EM	H6	I3	R1
32A5B	10	26	8	8	10
40A5B	12	28	10	11	11
50A5B	12	32	12	14	13
63A5B	16	40	12	14	15
80A5B	16	50	14	16	15
100A5B	20	60	15	16	19
125A5B	25	70	20	25	23
160A5B	30	90	25	25	32
200A5B	30	90	30	25	32
250A5B	40	110	35	32	40

Part No.	CN	EN	ER	EU	H7
32A8B	10	14	14	9.5	10
40A8B	12	16	16	11	10
50A8B	16	21	21	14	12
63A8B	16	21	22	14	12
80A8B	20	25	27	16	14
100A8B	20	25	27	16	15
125A8B	30	37	38	25	20
160A8B	35	43	43	25	25
200A8B	35	43	44	25	30
250A8B	40	49	51	32	35

A5C Clevis Pin
(for use with the T5 Female Clevis & T7 Male Clevis)

Part No.	Bore	EK	EL	L2
32A5C	32	10	48	4.5
40A5C	40	12	55	5
50A5C	50	12	63	5
63A5C	63	16	73	5
80A5C	80	16	93	5
100A5C	100	20	113	5
125A5C	125	25	135	7
160A5C	160/200	30	175	7
250A5C	250	40	205	7

A8P Clevis Pin (for use with the T8 Clevis Bracket)



Part No.	Bore	d4	EK	L1	L2	L3	L4
32A8P	32	3	10	32.5	4.5	42	14
40A8P	40	4	12	38	5	48	16
50A8P	50	4	16	43	5	53	20
63A8P	63	4	16	49	5	59	20
80A8P	80	4	20	63	5	73	24
100A8P	100	4	20	73	5	83	24
125A8P	125	6	30	94	7	108	36
160A8P	160/200	6	35	119	7	133	41
250A8P	250	8	40	121	7	135	48

A1M Mounting Screws

Part No.	Bore	d	d2	K	L	S
32A1M	32/40	M6	10	4	18	4
50A1M	50/63	M8	13	5	20	5
80A1M	80/100	M10	16	6	20	7
125A1M	125	M12	18	7	25	8
160A1M	160/200	M16	24	9	30	12
250A1M	250	M20	30	11	30	14

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

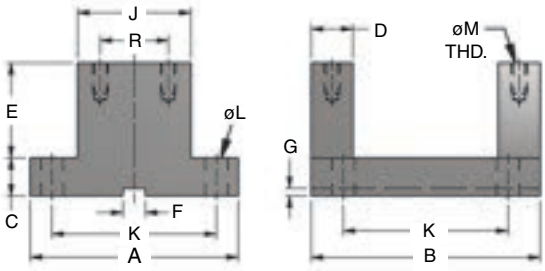
Trunnion Base & Brackets

DADCO offers a prefabricated base and sideposts that accept standard pivot brackets used to secure a trunnion mounted cylinder. The A4T Trunnion Base will accept either the Single Height Pivot Bracket (A4S) or the Dual Height Pivot Bracket (A4D), both shown below. The Dual Height Pivot Bracket is reversible. When mounted in the "low" position, the pivot centerline coincides with the single height pivot bracket. When mounted in the "high" position, the pivot centerline is doubled.

Single Height Pivot Bracket (A4S) attached to Trunnion Base (A4T).

Trunnion Base

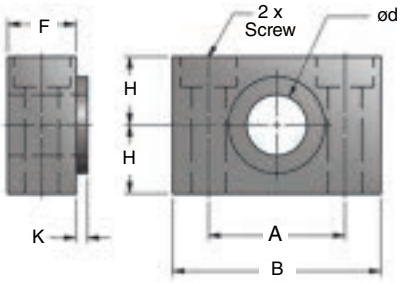
A4T



Part No.	Bore	A	B	C (max)	D	E	F	G	J	K	L	M	R
32A4T	32	90	91	20	20	25	12	4	50	71	9	M6 x 1	32
40A4TA	40	121	110	20	22	50	12	4	60	87	12	M8 x 1.25	36
40A4TB	50	110	121	20	22	50	12	4	60	87	12	M8 x 1.25	36
63A4TA	63	160	140	25	24	63	14	4.5	70	116	14	M10 x 1.5	42
63A4TB	80	140	160	25	24	63	14	4.5	70	116	14	M10 x 1.5	42
100A4TA	100	228	200	30	35	89	14	4.5	90	164	18	M12 x 1.75	50
100A4TB	125	200	228	30	35	89	14	4.5	90	164	18	M12 x 1.75	50
160A4TA	160	332	282	38	37	120	20	6	100	241	18	M16 x 2	60
160A4TB	200	282	332	38	37	120	20	6	100	241	18	M16 x 2	60
250A4TA	250	381	434	38	52	160	20	6	150	330	22	M20 x 2.5	90

Single Height Pivot Bracket

A4S

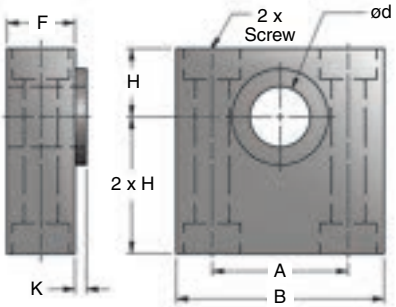


Note: *Mounting screws included with pivot bracket.*

Part No.	Bore	A	B	F	d	H	K	Screw Size
32A4S	32	32	46	15	12	15	3	M6 x 35
40A4S	40/50	36	55	18	16	18	3	M8 x 40
63A4S	63/80	42	65	20	20	20	3	M10 x 45
100A4S	100/125	50	75	25	25	25	3.5	M12 x 55
160A4S	160/200	60	92	36	32	30	4	M16 x 70
250A4S	250	90	140	51	40	35	5	M20 x 80

Dual Height Pivot Bracket

A4D

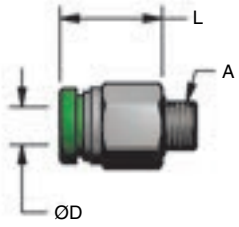


Note: *Mounting screws included with pivot bracket.*

Part No.	Bore	A	B	F	d	H	K	Screw Size
32A4D	32	32	46	15	12	15	3	M6 x 50
40A4D	40/50	36	55	18	16	18	3	M8 x 60
63A4D	63/80	42	65	20	20	20	3	M10 x 65
100A4D	100/125	50	75	25	25	25	3.5	M12 x 80
160A4D	160/200	60	92	36	32	30	4	M16 x 100
250A4D	250	90	140	51	40	35	5	M20 x 120

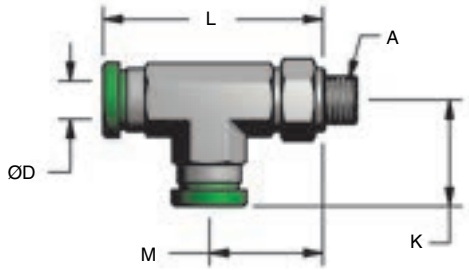
Fittings

Straight Port Adapter



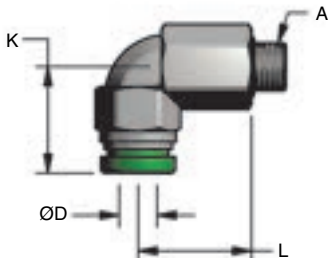
Part No.	Bore	A	D	L
FT.10.G02.T08	32	G 1/8	8	21.4
FT.10.G04.T10	40/50	G 1/4	10	26.4
FT.10.G06.T12	63/80	G 3/8	12	26.7
FT.10.G08.T14	100/125	G 1/2	14	25.4

Run Tee Port Adapter



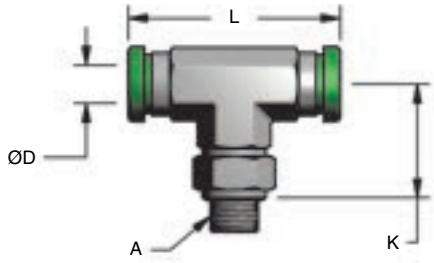
Part No.	Bore	A	D	K	L	M
FT.50.G02.T08	32	G 1/8	8	22	46	24
FT.50.G04.T10	40/50	G 1/4	10	28	58	30
FT.50.G06.T12	63/80	G 3/8	12	30	63	33
FT.50.G08.T14	100/125	G 1/2	14	34	72.5	38.5

Elbow Port Adapter



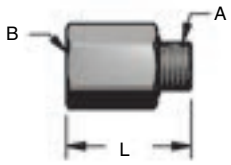
Part No.	Bore	A	D	K	L
FT.20.G02.T08	32	G 1/8	8	22	24
FT.20.G04.T10	40/50	G 1/4	10	28	30
FT.20.G06.T12	63/80	G 3/8	12	30	33
FT.20.G08.T14	100/125	G 1/2	14	34	38.5

Branch Tee Port Adapter



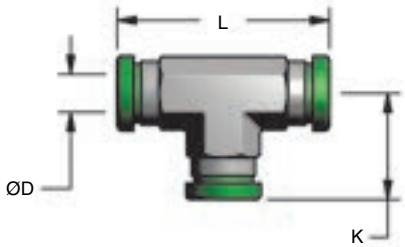
Part No.	Bore	A	D	K	L
FT.40.G02.T08	32	G 1/8	8	24	44
FT.40.G04.T10	40/50	G 1/4	10	30	56
FT.40.G06.T12	63/80	G 3/8	12	33	60
FT.40.G08.T14	100/125	G 1/2	14	38.5	68

BSPP → NPT Port Adapter



Part No.	Bore	A	B	L
FR.10.G02.N02	32	G 1/8	1/8 NPT	25
FR.10.G04.N04	40/50	G 1/4	1/4 NPT	33
FR.10.G06.N06	63/80	G 3/8	3/8 NPT	34
FR.10.G08.N08	100/125	G 1/2	1/2 NPT	44
FR.10.G12.N12	160/200	G 3/4	3/4 NPT	45
FR.10.G16.N16	250	G 1.0	1.0 NPT	55

Union Tee



Part No.	Bore	D	K	L
FT.40.T08	32	8	22	44
FT.40.T10	40/50	10	28	56
FT.40.T12	63/80	12	30	60
FT.40.T14	100/125	14	34	68

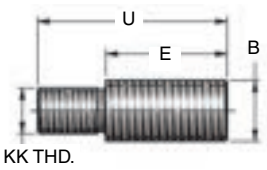
1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

Rod End Studs & Accessories

Rod End Studs

DADCO offers rod end studs (ISO 12.9) to convert the female thread back to a standard male rod end. See ordering example below.

In addition to the standard rod ends, special metric and inch threads are available. Contact DADCO for more information.



HP.WY.50.100 G. 1. TO

Part Number
Includes Series, Rod End Style, Bore and Stroke Length

Rod End Stud Designation
WY = Female Rod End (HP.W) model with ISO 12.9 Stud Installed.
NY = Non-Rotating (HP.N) model with ISO 12.9 Stud Installed.

Mount Option

Port Location

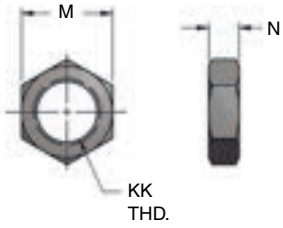
Port Style

Stud Part No.	Bore	B	E	KK	U
32RES	32	M10 x 1.25	22	M8 x 1.25	34
40RES	40	M12 x 1.25	24	M10 x 1.25	39
50RES	50/63	M16 x 1.5	32	M12 x 1.25	50
80RES	80	M20 x 1.5	40	M16 x 1.5	64
100RES	100*	M20 x 1.5	40	M20 x 1.5	70
125RES	125	M27 x 2	54	M20 x 1.5	95
160RES	160/200	M36 x 2	72	M27 x 2	113
250RES	250	M42 x 2	84	M36 x 2	138

**For the HP.N.100 model order Stud Part No. 80RES.*

Jam Nuts

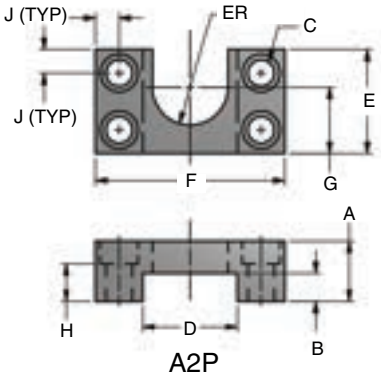
A2J



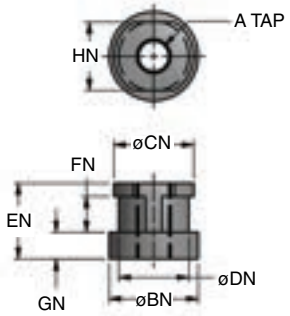
Part No.	Bore	KK	M	N
32A2J	32	M10 x 1.25	17	5
40A2J	40	M12 x 1.25	19	6
50A2J	50/63	M16 x 1.5	24	8
80A2J	80/100	M20 x 1.5	30	10
125A2J	125	M27 x 2	41	13.5
160A2J	160/200	M36 x 2	55	18
250A2J	250	M42 x 2	65	21

Coupling Nut and Plate

A2K



A2P

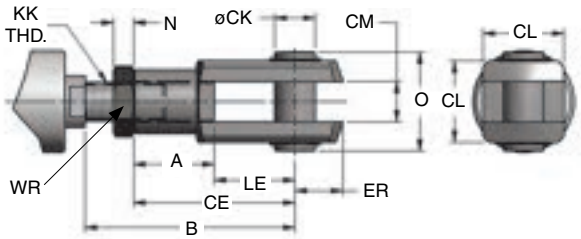


A2N

Set Part No.	Plate Part No.	Nut Part No.	Bore	A	B	C	D	ER	E	F	G	H	J	A Tap	BN	CN	DN	EN	FN	GN	HN
32A2K	32A2P	32A2N	32	25	11	M10	38	14	50	80	30	15	11.5	M10 x 1.25	35	30	25	30	16	10	24
40A2K	32A2P	40A2N	40	25	11	M10	38	14	50	80	30	15	11.5	M12 x 1.25	35	30	25	30	16	10	24
50A2K	50A2P	50A2N	50/63	32	15	M12	50	20	55	100	35	20	12.5	M16 x 1.5	47	42	37	40	19	14	36
80A2K	50A2P	80A2N	80/100	32	15	M12	50	20	55	100	35	20	12.5	M20 x 1.5	47	42	37	40	19	14	36
125A2K	125A2P	125A2N	125	40	20	M16	60	25	65	120	45	24	16	M27 x 2	57	52	47	50	24	19	46
160A2K	125A2P	160A2N	160/200	40	20	M16	60	25	65	120	45	24	16	M36 x 2	57	52	47	50	24	19	46
250A2K	250A2P	250A2N	250	45	20	M20	80	33	100	150	64	19	18	M42 x 2	76	64	59	76	50	19	60

Clevis

A2C/A2CH*



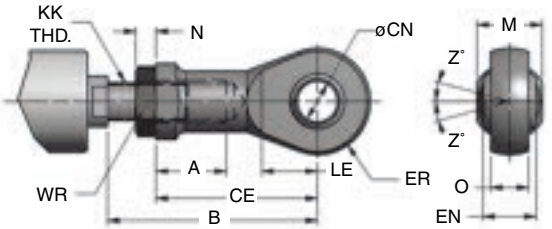
Part No.	Bore	A	B (max)	CE	CK	CL	CM	ER	KK	LE	N	O	WR
32A2C/A2CH	32	20	52	40	10	20	10	12	M10 x 1 .25	20	5	26	17
40A2C/A2CH	40	24	60	48	12	24	12	14	M12 x 1.25	24	6	31	19
50A2C/A2CH	50/63	32	80	64	16	32	16	19	M16 x 1.5	32	8	39	24
80A2C/A2CH	80/100	40	100	80	20	40	20	25	M20 x 1.5	40	10	53	30
125A2C/A2CH	125	56	137	110	30	55	30	38	M27 x 2	54	13.5	74	41
160A2C/A2CH	160/200	72	180	144	35	70	35	44	M36 x 2	72	18	90.5	55
250A2C/A2CH	250	84	210	168	40	86	40	64	M42 x 2	84	21	109.5	65

Standard Hardened Clevis Pin (_A2CH) available. For diameters 10mm and 12mm pins are hardened to 25-32 Rc. For diameters 16-40mm pins are hardened to 28-35 Rc. Contact DADCO for more information.

NOTE: Photo above depicts the product as it was at the time this catalog was printed. Slight product changes may occur during the life of this catalog without prior notice, but products supplied will remain functionally interchangeable.

Swivel Rod Eye

A2E

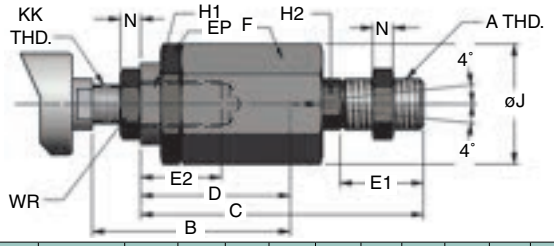


Part No.	Bore	A	B (max)	CE	CN	EN	ER	KK	LE	N	M	O	Z	WR
32A2E	32	20	55	43	10	14	14	M10 x 1.25	15	5	17	10.5	13	17
40A2E	40	22	62	50	12	16	16	M12 x 1.25	17	6	19	12	13	19
50A2E	50/63	28	80	64	16	21	21	M16 x 1.5	22	8	22	15	15	24
80A2E	80/100	33	97	77	20	25	25	M20 x 1.5	26	10	32	18	15	30
125A2E	125	51	137	110	30	37	35	M27 x 2	36	13.5	41	25	15	41
160A2E	160/200	56	161	125	35	43	40	M36 x 2	41	18	50	28	16	55
250A2E	250	60	184	142	40	49	45	M42 x 2	46	21	55	33	16	65

NOTE: Photo above depicts the product as it was at the time this catalog was printed. Slight product changes may occur during the life of this catalog without prior notice, but products supplied will remain functionally interchangeable.

Alignment Coupler

A2L

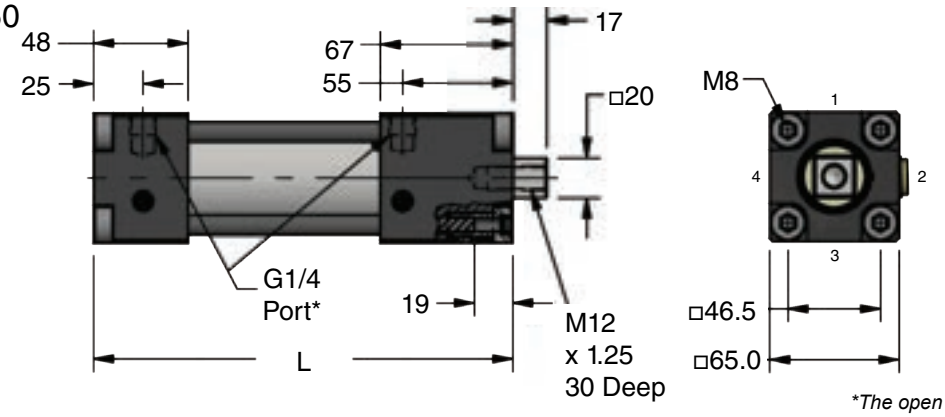


Part No.	Bore	A	B (max)	C	D	E1	E2	EP	F	H1	H2	J	KK	N	WR
32A2L	32	M10 x 1.25	38	70	31	20	23	30	30	19	12	-	M10 x 1.25	5	17
40A2L	40	M12 x 1.25	37	67	31	23	23	30	30	19	12	-	M12 x 1.25	6	19
50A2L	50/63	M16 x 1.5	53	112	45	40	32	41	41	30	19	-	M16 x 1.5	8	24
80A2L	80/100	M20 x 1.5	66	123	56	39	42	41	41	30	19	-	M20 x 1.5	10	30
125A2L	125	M27 x 2	73.5	145	60	48	48	55	55	32	24	-	M27 x 2	13.5	41
160A2L	160/200	M36 x 2	128	250	110	65	50	75	-	50	32	80	M36 x 2	18	55
250A2L	250	M42 x 2	141	271	120	82	88	80	-	60	36	90	M42 x 2	21	65

Optional Cylinder Styles

Oversized Non-Rotating Rod

HP.STB.50



*The open port allows for maximum air flow.

Part No.	Stroke	L (mm)
HP.STB.50.125	125	286
HP.STB.50.160	160	321
HP.STB.50.180	180	341
HP.STB.50.200	200	361

Operating Specifications:

Max. Working Pressure:	10 bar (140 psi)
Push Force* at 5.5 bar (80 psi):	1080 N (243 lb)
Pull Force* at 5.5 bar (80 psi):	860 N (194 lb)

*Theoretical

Ordering Example:

HP. STB ( ). 50. __ . G. 1. TO

- **Series**
- **Rod Option**
  STB = Oversized Non-Rotating Rod Option
  X = Optional Stud Attachment
- **Bore**
- **Stroke Length**
  125, 160, 180, 200
- **Port Style**
  G = 1/4 BSPP
- **Port Location (1-4)**
  Standard = 1
- **Mount Option (TO, T13)**
  TO = Basic Mount.
  When not specified, default is TO. T13 Mount ordered with cylinder will be attached at the factory.

For more information on mount options and stud attachment, please reference Bulletin B16126B.

Sensors

DADCO's Sensors can be used with HP Cylinders to properly synchronize the timing of motion. DADCO offers two different types of switches, magnetic and proximity switches. Since there are a wide array of switches available, it is best to contact DADCO for information on switch selection and cylinder preparation.

Magnetic Switches are typically affixed to the tie rod and rest tightly against the non-magnetic tube. The switch senses a magnetic piston as the piston passes the switch. To receive a magnetic ring mounted within the piston, specify an "M" in the HP ordering code.

Proximity Switches are sometimes designed specifically for cylinder use. Most conventional switches can be adapted to pneumatic cylinders. The cylinder must be manufactured with a proximity port for a probe to be installed. The end of the probe must nearly contact the target it is sensing. The target (the cushion spear) must contain ferrous metal to interrupt the radial field of the switch; therefore, modified cushion spears are required. To receive an HP Cylinder prepped for proximity switches, specify an "E _ _ E" along with the desired proximity port location and head selection (i.e. front, rear, or both) in the HP ordering code. The proximity switch manufacturer and model number are also required for proper cylinder preparation.

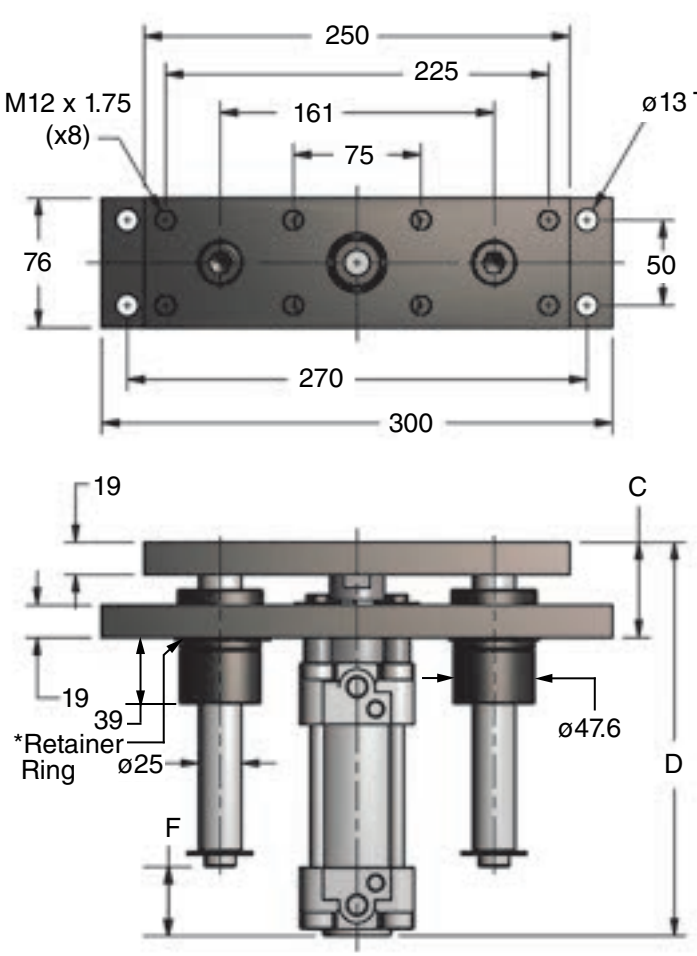
Ordering Example:

HP.Z. ____ . 63. 100. G. 2. TO

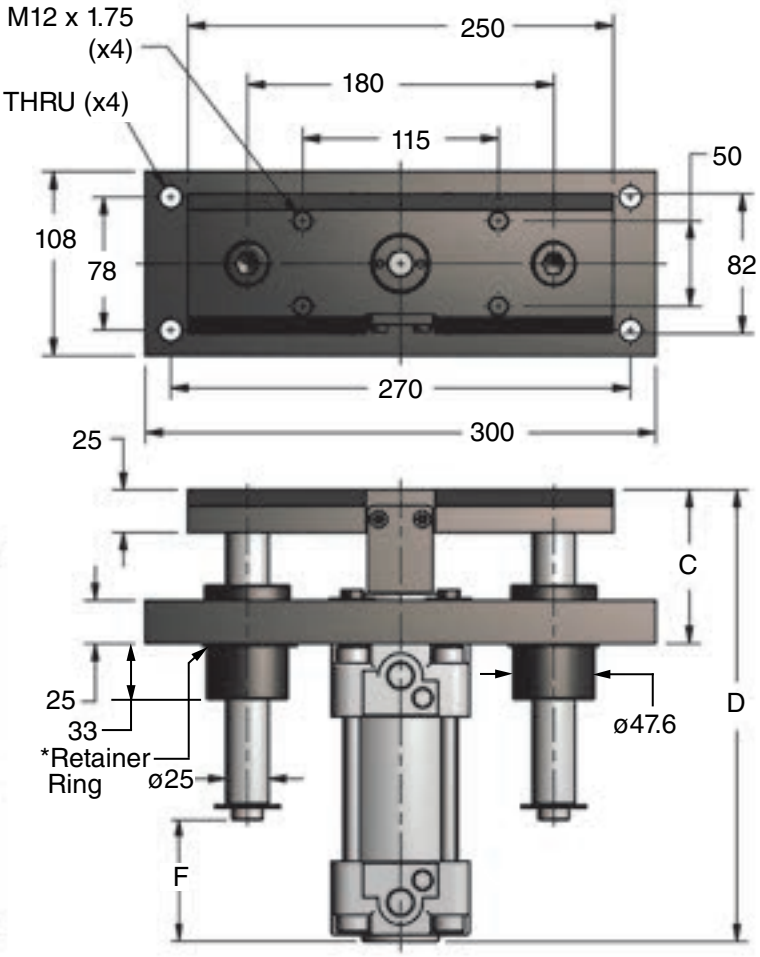
- **Series and Rod Option:**
  Z, N, NY, W, WY
- **Cylinder Style:**
  M = Magnetic Ring on Piston
  E11E = Proximity Switch Designation
  E1 = Front Head Prep at Location 1
  1E = Rear Head Prep at Location 1
  (0 = No Prep)
- **Bore**
- **Stroke**
- **Port Style**
- **Port Location**
  Cannot be same as sensor designation.
- **Mount Option**

TDL2C - Two Post Direct Lifter

DADCO's TDL2C delivers smooth, consistent lifting action and conforms with the Chrysler (080.90.07-08) and Ford (WDX 18-80) Die Standards. It is available in ø40 – ø100 mm bore sizes with a variety of stroke lengths to accommodate different applications. The TDL2C has M12 bolt holes in the upper plate to easily mount fixtures in place; no welding or extra machining is required.



ø40/ø50 Model

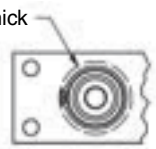


ø63 – ø100 Model

Bore Size	C	D	F	Port Style G or P
ø40	56	165 + S	22.1	1/4
ø50	56	181 + S	38.1	1/4
ø63	90	215 + S	68.9	3/8
ø80	90	222 + S	75.9	3/8
ø100	95	237 + S	90.9	1/2

***Retainer Ring Installation Detail**

Spotface required for retainer ring clearance.



Ordering Example:

HP. Z. 50. 100. G. 1. TDL2C

Series
Rod Option
Z = Standard Model.
TDL2C requires HP.Z configuration.
Bore
Stroke Length
25, 50, 80, 100, 125, 160, 200, 320, 400
Port Style
G = BSPP, P = NPT

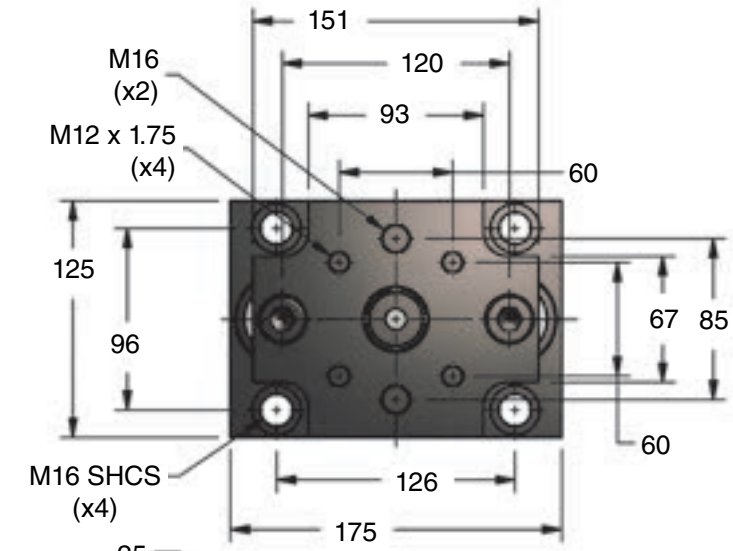
Mount Option
TDL2C = Two Post Direct Lift with Linear Bearings and Guide Shafts.

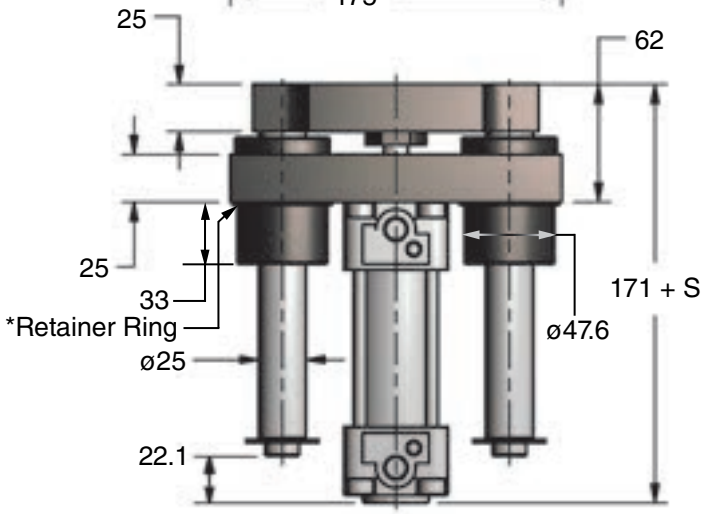
Port Location (1-4)
Standard = 1.
When not specified, default is 1. Refer to page 32 for information on proper orientation.

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

TDL4 - Two Post Direct Lifter

DADCO's TDL4 is available in a ø40 mm bore size and boasts the same high quality construction as the TDL2C. The TDL4's compact upper and mounting plates, make it ideal for placement in tighter spaces.

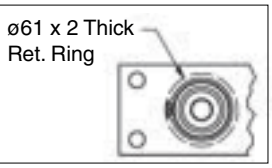




ø40 Model

***Retainer Ring Installation Detail**

Spotface required for retainer ring clearance.



TDL2C and TDL4 Upper Plate Modification

DADCO's HP Two Post Direct Lifters feature an upper plate with a convenient bolt pattern. If necessary, the plate can be removed and machined to accommodate various applications.

Spanner Tools

DADCO offers Spanner Tools to aid in the removal of the plate. Refer to bulletin #B01126 for step by step instruction on how to use the tools.

HP.325 *(for use with ø40, ø50, ø80 and ø100)*

Use with a 5/8˝ (16 mm) Socket Wrench (not included)

SW-55 *(for use with ø63)*

Ordering Example:

HP. Z. 40. 100. G. 1. TDL4

Series

Rod Option
TDL4 requires HP.Z configuration.

Bore

Stroke Lengths
25, 50, 80, 100, 125, 160, 200 and 250

Port Style
G = 1/4 BSPP, P = 1/4 NPT

Mount Option
TDL4 = Two Post Direct Lift with Linear Bearings and Guide Shafts.

Port Location (1-4)
Standard = 1.
When not specified, default is 1.

Technical Data

Operating Specifications

Charging Medium: Air
Temperature: -20˚C – 80˚C *(-4˚F – 176˚F)*
Max. Working Pressure: 10 bar *(140 psi) [1 MPa]*
Max. Speed (HP.Z / HP.W): 1 m/sec. *(3.28 ft/sec.)*
Max. Speed (HP.N): 0.2 m/sec. *(0.66 ft/sec.)*
NOTE: *Refer to cylinder pages for PUSH and PULL Forces.*

Force Chart

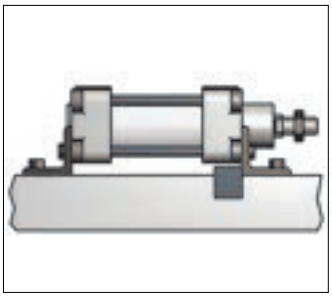
Model	Work Action	Force (lb.)		Force (kN)	
		60 psi	*80 psi*	*4 bar*	*6 bar*
HP._.32	PUSH	75	100	.322	.483
	PULL	64	86	.276	.415
HP._.40	PUSH	117	156	.503	.754
	PULL	98	131	.422	.633
HP._.50	PUSH	183	243	.785	1.18
	PULL	153	204	.660	.990
HP._.63	PUSH	290	387	1.25	1.87
	PULL	261	348	1.12	1.68
HP._.80	PUSH	467	623	2.01	3.02
	PULL	422	562	1.81	2.72
HP._.100	PUSH	730	974	3.14	4.71
	PULL	656	874	2.82	4.23
HP._.125	PUSH	1141	1522	4.91	7.36
	PULL	1024	1366	4.41	6.61
HP._.160	PUSH	1870	2493	8.04	12.06
	PULL	1753	2337	7.54	11.31
HP._.200	PUSH	2922	3896	12.57	18.85
	PULL	2805	3740	12.06	18.10
HP._.250	PUSH	4565	6087	19.64	29.45
	PULL	4383	5843	18.85	28.27

NOTE: *A cylinder's theoretical force should be 50–100% greater than the force required.*

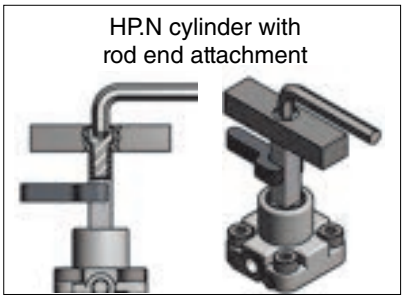
General

Do not use an air cylinder as a single acting spring. DADCO offers a full line of nitrogen gas springs and special single acting air cylinders which are specifically designed to provide concentrated spring forces.
DADCO air cylinders are prelubed at assembly and require only filtered air when operated at under 1 m/sec. Lubricated air may be required when operating at speeds exceeding 1 m/sec. Only provide lubed, compressed air when necessary. The cylinder must be operated with only that type of air it is introduced to.

Recommendations

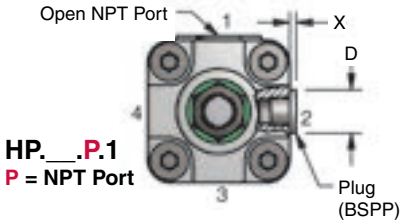


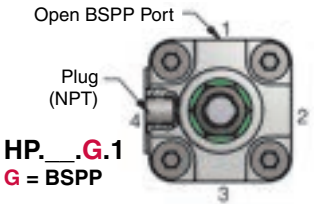
When providing key support for the **T1** mount, use the back of the front mount.



Always use a wrench to hold the rod when attaching items to the rod end. Do not torque against the bearing. Never use channel locks, and be careful not to scratch the rod surface during attachment.

Port Orientation





When the NPT Port option is chosen, the BSPP Port will be plugged, see dimensions below.

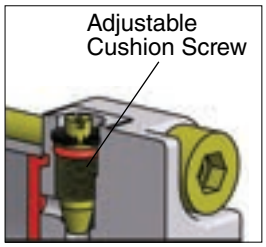
Bore	X	D
	mm	*mm*
ø32	5	16
ø40	5	20
ø50	5	20
ø63	5	24
ø80	5	24
ø100	7	29
ø125	7	29
ø160	7	36
ø200	7	36
ø250	5	40

When the BSPP Port option is chosen, the NPT Port will be plugged and is flush to the head.

NOTE: *Customers may receive a head with just their individual chosen port option.*

Adjustable Cushions

Every HP Series Cylinder is equipped with adjustable cushion control at each end as standard. The regulating screw in the front head controls cushioning on the extension stroke. The regulating screw in the rear head controls cushioning on the retracting stroke. A clockwise rotation closes the cushioning valve to produce more cushion effect; a counter clockwise rotation opens the cushioning valve to minimize cushion effect. The fully open position will provide no cushion effect. The cushion control can be disabled permanently by removing the cushion seals inside the heads. DADCO provides two cushion lengths; for shorter stroke air cylinders a short cushion is installed, for longer strokes a long cushion is installed. Refer to chart for cushion length and availability.



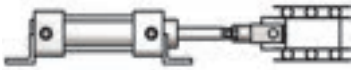
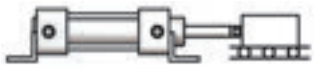
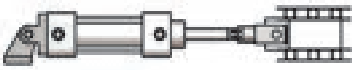
Bore	Effective Short Cushion Length	Effective Long Cushion Length	Short Cushion Used Through
	mm	*mm*	*Stroke (mm)*
ø32	7	18	63
ø40	7	18	63
ø50	7	22	63
ø63	7	22	63
ø80	7	26	63
ø100	17	30	80
ø125	17	30	80
ø160	17	30	100
ø200	17	43	100
ø250	17	50	100

NOTE: *When using proximity sensors the cylinder will need to use long cushion spears regardless of stroke size.*

1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

Maximum Rod Thrust for Long Strokes

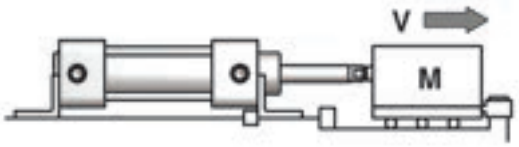
HP Series Cylinders have different load ratings for long strokes based on the mounting style and stroke length. Refer to the table below to determine the maximum thrust by cylinder model, bore size, mounting style and stroke length.

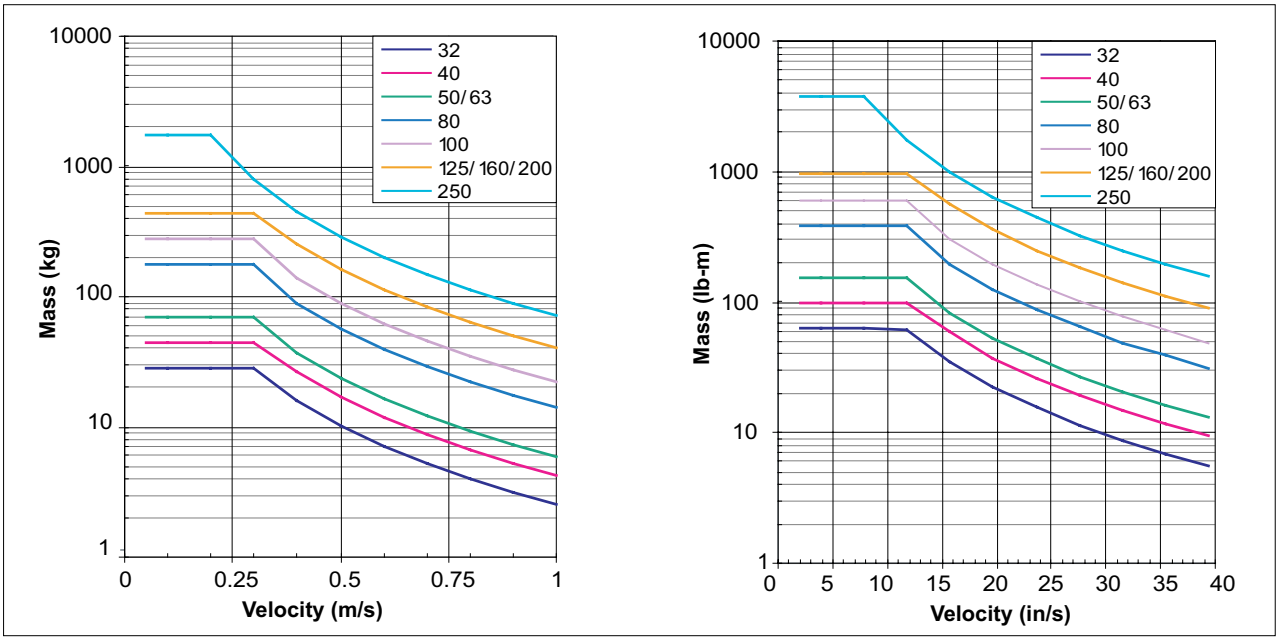
Mounting Style			Stroke - mm *(inch)*	Model	HP.Z / HP.W				HP.N			
				Bore	ø32	ø40	ø50/ ø63	ø80/ ø100	ø32	ø40	ø50/ ø63	ø80
				Rod	ø12	ø16	ø20	ø25	□10	□12	□16	□20
					Max. PUSH Thrust Load - **kN** *(lb.)*				Max. PUSH Thrust Load - **kN** *(lb.)*			
	 *T1, T2, T6*	1		**2000** *78.7*	**0.38** *86*	OK	OK	OK	**0.31** *70*	**0.65** *146*	**2.05** *460*	**5.00** *1124*
	 *T1, T2, T6 with A2C or A2E*	2		**1500** *59.1*	**0.35** *78*	**1.09** *246*	**2.07** *601*	OK	**0.28** *64*	**0.59** *132*	**1.86** *418*	**4.54** *1020*
				2000 *78.7*	**0.19** *44*	**0.62** *138*	**1.50** *338*	OK	**0.16** *36*	**0.33** *74*	**1.05** *235*	**2.55** *574*
	 *T1, T2, T6*	3		**500** *19.7*	**0.38** 86	OK	OK	OK	**0.31** *70*	**0.65** *146*	**2.05** *460*	**5.00** *1124*
				1000 *39.4*	**0.10** *21*	**0.30** *68*	**0.74** *166*	**1.80** *404*	**0.08** *18*	**0.16** *36*	**0.51** *115*	**1.25** *281*
	 *T4, T5, T7, T8 with A2C or A2E*	4		**500** *19.7*	**0.38** *86*	OK	OK	OK	**0.31** *70*	**0.65** *146*	**2.05** *460*	**5.00** *1124*
				1000 *39.4*	**0.10** *21*	**0.30** *68*	**0.74** *166*	**1.80** *404*	**0.08** *18*	**0.16** *36*	**0.51** *115*	**1.25** *281*

Dynamic Load Capacity per Cylinder

For moving larger masses consider kinetic energy and provide external stops, bumpers or shock absorbers where internal cushioning is insufficient or cushioning cannot be used.

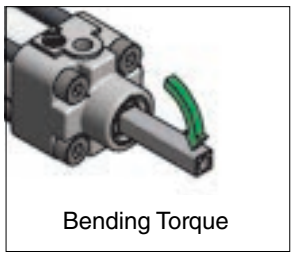
If external stops or cushions cannot be used, reduce the load capacity per cylinder. To avoid damage to the cylinder, reference the graphs for the recommended load capacity based on the velocity of operation.





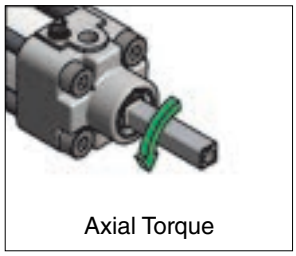
HP.N Load Capacity for Maximum Reliability

To maximize the reliability of the HP.N cylinders, avoid side loading. Good design practice should minimize the length and locate the force on the centerline of the cylinder. Increased wear on the bearing will occur if torque resulting from axial or bending loads exceeds the values referenced below.



Bending Torque

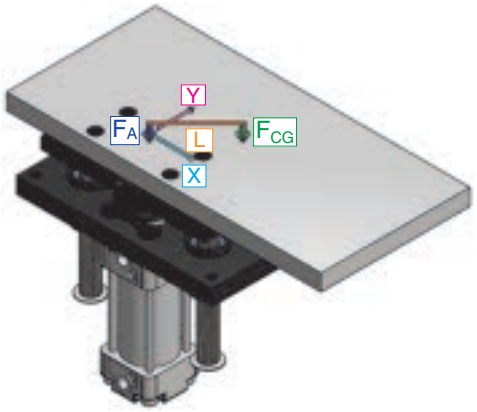
HP.N Bore	Square	Maximum Bending at .25 m/sec *(10 in/sec)*	
mm	*mm*	*lb-in*	*Nm*
32	10	42	4.7
40	12	100	11
50/60	16	197	22
80/100	20	376	43



Axial Torque

HP.N Bore	Square	Maximum Axial at .25 m/sec *(10 in/sec)*	
mm	*mm*	*lb-in*	*Nm*
32	10	28	3.1
40	12	40	4.5
50/60	16	71	8.0
80/100	20	110	12

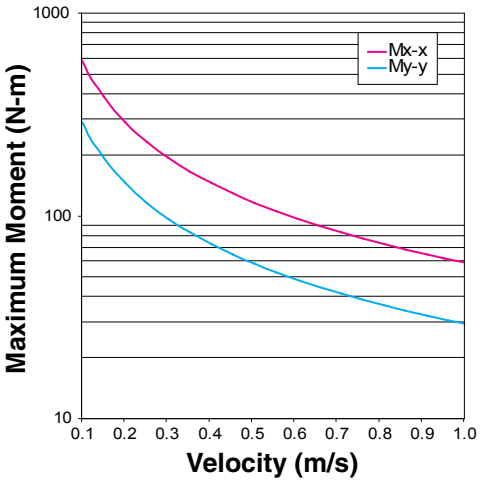
Two Post Direct Lifter Loading Capacity for Maximum Reliability

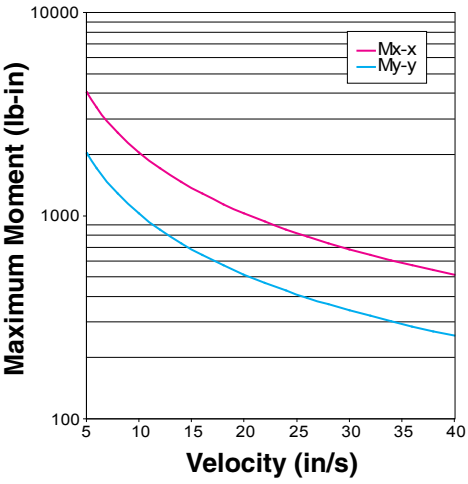


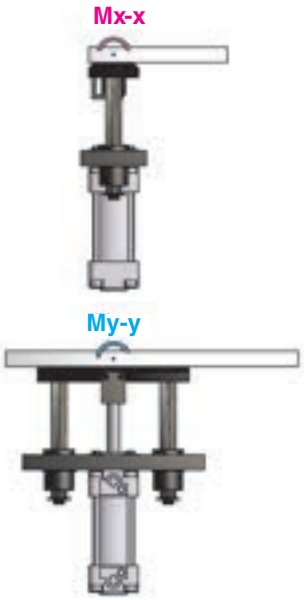
To maximize the reliability of the lifter, locate F_{CG} as close to F_A as possible. Good design practice should minimize L. As L increases, the likelihood of increased bearing wear and vibration increases. If a large offset is required, reduce the attachment load being lifted or add additional lifters. To determine Maximum Moment at a given velocity, refer to the graphs below.

F_A = Compression force to depress the lifter on the lifter centerline
F_{CG} = Load caused at the center of gravity of the attachment
L = Distance from F_A to F_{CG}
X = Reference axis, use My-y loading for forces on this axis
Y = Reference axis, use Mx-x loading for forces on this axis

Maximum Moment = F_{CG} x L

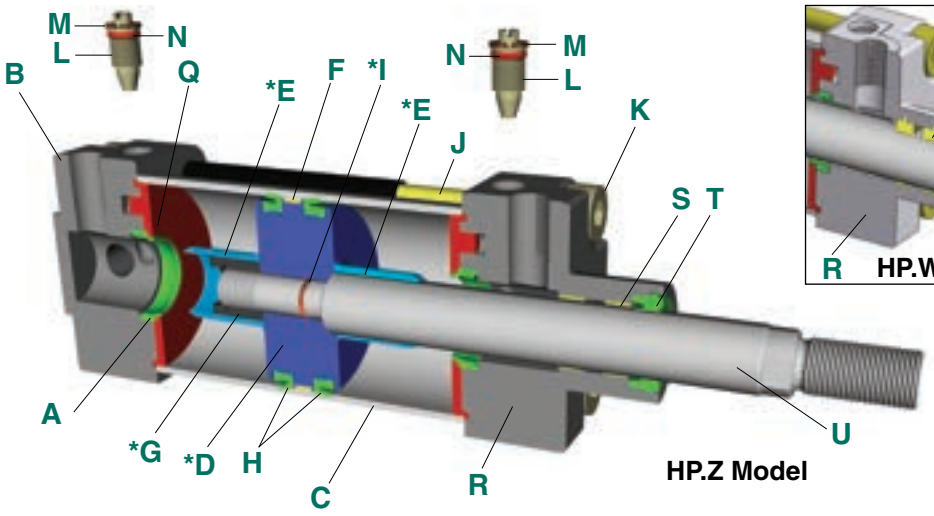




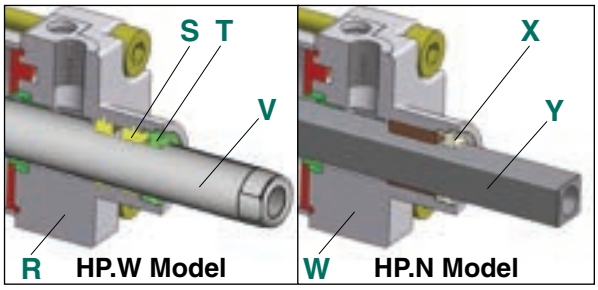


1.734.207.1100 • 800.DADCO.USA • fax 1.734.207.2222 • www.dadco.net

Parts List



HP.Z Model



NOTE: For bore diameters ø160-ø250, please contact DADCO.

Parts List	Quantity Required	Part Number ø32	ø40	ø50	ø63	ø80	ø100	ø125
A Cushion Seal	2	IP470949	IQ470950	IR470951	IR470951	IT470953	IU470954	IV470955
B Rear Head	1	IP600460	IQ600461	IR600462	IS600463	IT600214	IU600215	IV600216
C Tube	1	IP05Z___	IQ05Z___	IR05Z___	IS05Z___	IT05Z___	IU05Z___	IV05Z___
F Guide Tape	1	IP417725	IQ417726	IR417727	IS417728	IT417521	IU417467	IV41V360
H Piston Seal	2	IP480969	IQ480970	IR480971	IS480972	IT480973	IU480974	IV47V359
J Tie Rod	4	IP75M___	IQ75M___	IR75M___	IS75M___	IT75M___	IU75M___	IV75M___
K Tie Rod Nut	8	IP852201	IP852201	IR852203	IR852203	IT852205	IT852205	IV850313
L Regulating Screw	2	IP502240	IQ502241	IR502242	IS502243	IT502244	IU502245	IV502246
M Retaining Ring	2	IP857278	IP857278	IR857279	IS857280	IS857280	IU857281	IV857282
N Adj. Screw O-Ring	2	IP450979	IP450979	IR450981	IS450982	IT450983	IU450984	IV450985
Q Dampening Washer	2	IP450860	IQ450861	IR450862	IS450863	IT450864	IU450865	IV450866
HP.Z Model								
R Front Head	1	IP600450	IQ600451	IR600452	IS600453	IT600204	IU600205	IV600206
S Rod Bearing	2	IP400939***	90.240.00300	90.240.00500	90.240.00500	90.240.00750	90.240.01500	90.240.U.2600
T Rod Seal/Wiper/Ring	1	IP47V229	IQ47V230	IR47V231	IR47V231	IT47V232	IU47V233	IV47V234
****U** Piston Rod Assembly	1	IP00Z___	IQ00Z___	IR00Z___	IS00Z___	IT00Z___	IU00Z___	IV00Z___
HP.W Model								
****V** Piston Rod Assembly	1	IP00W___	IQ00W___	IR00W___	IS00W___	IT00W___	IU00W___	IV00W___
HP.N Model								
*****W** Front Head Assembly	1	IP307646	IQ307647	IR307648	IS307648	IT307649	IU307657	---
X Rod Seal/Wiper/Ring	1	IP477646	IQ477647	IR477648	IR477648	IT477649	IT477649	---
****Y** Piston Rod Assembly	1	IP00N___	IQ00N___	IR00N___	IS00N___	IT00N___	IU00N___	---

* *Not sold separately: Piston (D), Piston O-Ring (I), Piston Nut (G) and Cushion Spears (E).*
** *Includes D, I, G and E. When ordering, please note the stroke length in addition to the part number.*
*** *The ø32 mm bore cylinder uses only one rod bearing.*
**** *Includes Front Head with Rod Bearing, Rod Seal/Wiper/Ring, Regulating Screw, Retaining Ring, Adj. Screw O-Ring, Dampening Washer, and Cushion Seal.*

Ordering Review and Repair Information

Foot Mount (T1)

Front Flange (T2)

Rear Flange (T3)

Adjustable Trunnion (T4)

Female Clevis (T5)

Ordering Information

HP. Z. _ . _ . 50. 100. G. 1. TO

Series

Rod Option
Z = Standard Model
N = Non-Rotating Model *(up to 200mm stroke)*
NY = ISO 12.9 Stud Installed
W = Female Rod End Model
WY = ISO 12.9 Stud Installed
When not specified, default is HP.Z.

Cylinder Options
F = Chrome Plated Steel Tube
R = Stainless Steel Piston Rod
Other tube materials are available.
Contact DADCO for more information.
Leave blank for no option selected.

Sensor Designation
E_ _ E = Prep for Proximity Switches
M = Magnetic Ring on Piston
Leave blank for no option selected.

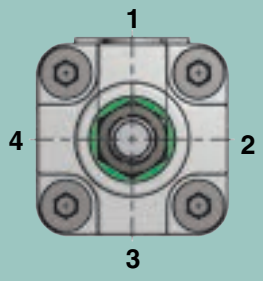
Bore

Stroke Length

Mount Type
TO = Basic Model
T_ = Attached Mount Code
When not specified, default is TO.
Mount Only Example: 32T1

Port Location
1 = Standard
When not specified, default is 1.

Port Style
G = BSPP
P = NPT
When not specified, default is G.



Inverted Foot Mount (T6)

Male Clevis (T7)

Clevis Bracket (T8)

HP.Z and HP.W Model Repair Kits

Seal Kit
Contains Piston Seals, Cushion Seals, Rod Seal/ Wiper/Ring and Maintenance Instructions.

Repair Kit
Contains Piston Seals, Cushion Seals, Rod Seal/Wiper/ Ring, Rod Bearings and Maintenance Instructions.

Model (Z or W)	Seal Kit Number	Repair Kit Number
HP._.32	IP009180	IP009190
HP._.40	IQ009181	IQ009191
HP._.50	IR009182	IR009192
HP._.63	IS009183	IS009193
HP._.80	IT009184	IT009194
HP._.100	IU009185	IU009195
HP._.125	IV009186	IV009196

NOTE: For bore diameters ø160–ø250, please contact DADCO.

HP.N Model Repair Kits

Seal Kit
Contains Piston Seals, Cushion Seals, Rod Seal/ Wiper/Ring and Maintenance Instructions.

Model	Seal Kit Number
HP.N.32	IP007646
HP.N.40	IQ007647
HP.N.50	IR007648
HP.N.63	IS007648
HP.N.80	IT007649
HP.N.100	IU007657

For more information on the repair of HP Series Air Cylinders, refer to bulletin #B04117B, bulletin #B04118B and bulletin #B05119A.

DADCO®
43850 Plymouth Oaks Blvd. • Plymouth, Michigan • 48170 • USA
734.207.1100 • 800.DADCO.USA • fax 734.207.2222 • www.dadco.net

Printed in USA