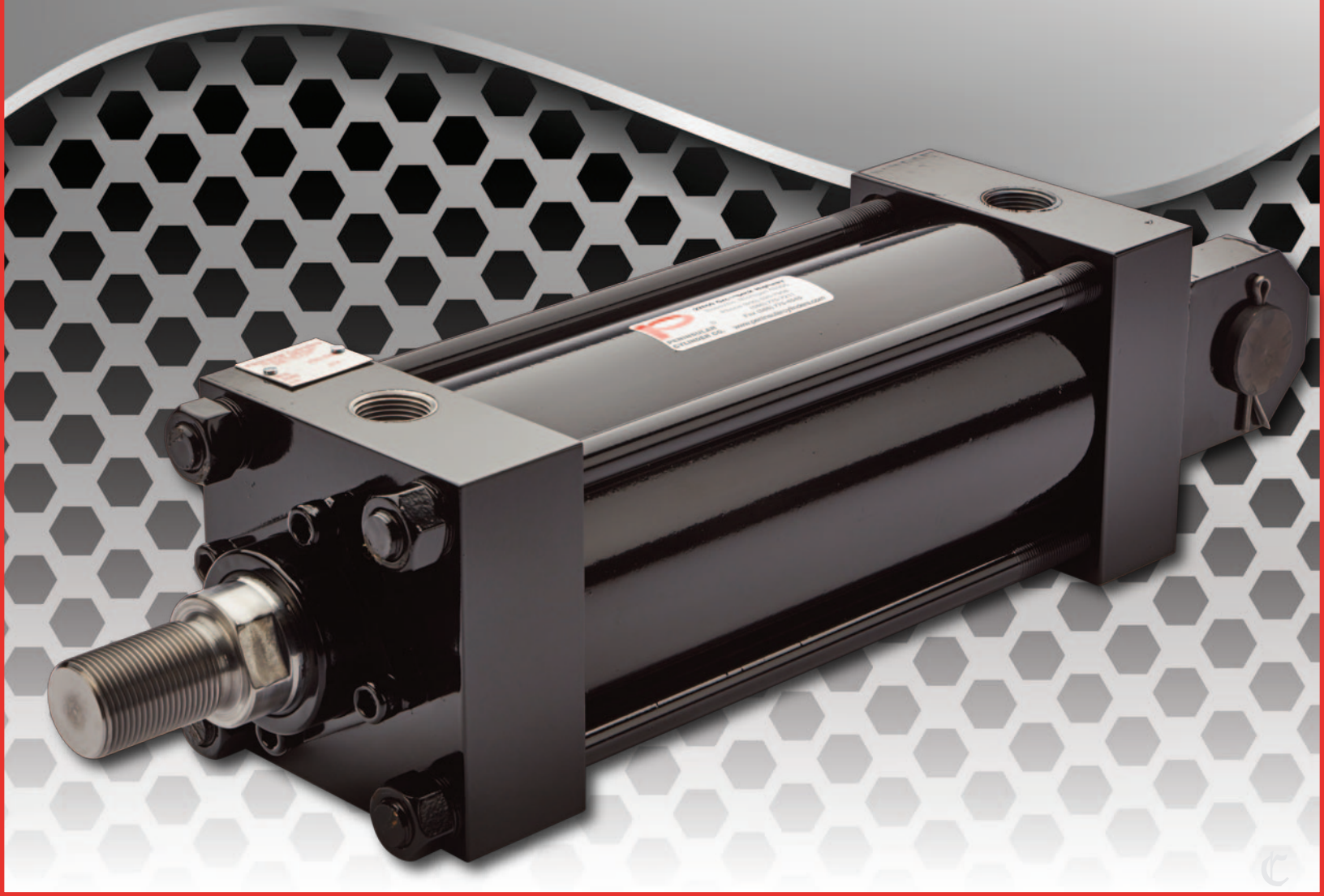
PENINSULAR®
CYLINDER CO.

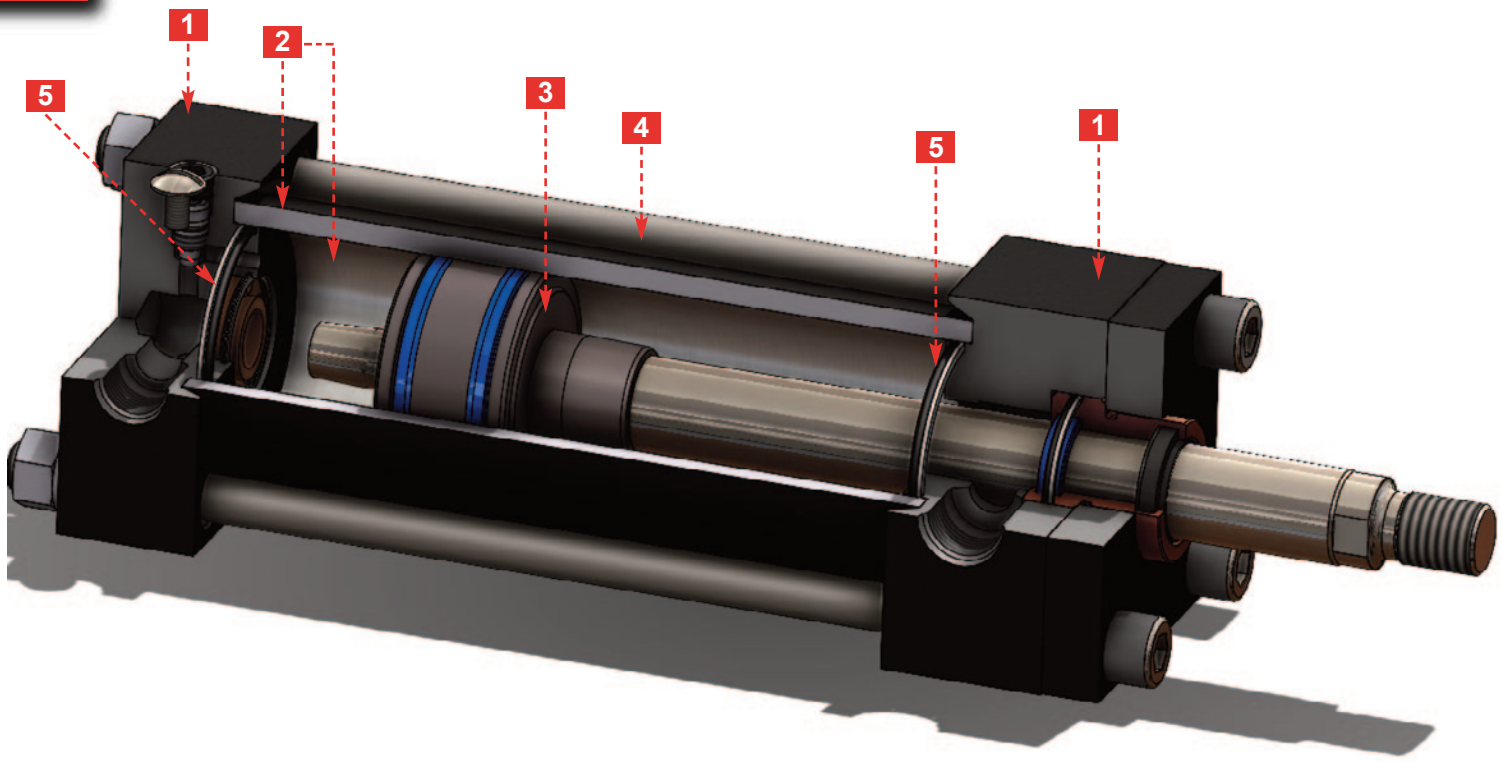
HP Series
HYDRAULIC

Hydraulic Cylinders

Steel • Heavy Duty • 3,000 PSI
NFPA Interchangeable



FEATURES & BENEFITS



1 Heads & Caps

Square, precision made carbon steel end covers. Precision machined for concentricity of tube, bearing, cushion and piston rod. Chamfered grooves allow fast and easy positioning of cylinder tube over the tube seals. Can be made proximity switch ready to accept same probe-length switches at each end without spacers.

2 Cylinder Tube

Heavy wall seamless D.O.M. steel material (1020 to 1026). Precision honed to 10/15 micro inch finish. Tubing has superior concentricity and a high degree of uniformity in wall thickness.

3 Piston

One-piece fine grained ductile iron piston is threaded onto piston rod and held in place with thread locker and staked to a secure position. Wide piston bearing surface reduces bearing loads and assures low wear and low friction to the piston seals and tube ID. An O-Ring with two backups are used to seal the piston to the rod, which prevents fluid leaks from bypassing the piston. Piston wear band optional.

4 Tie Rods

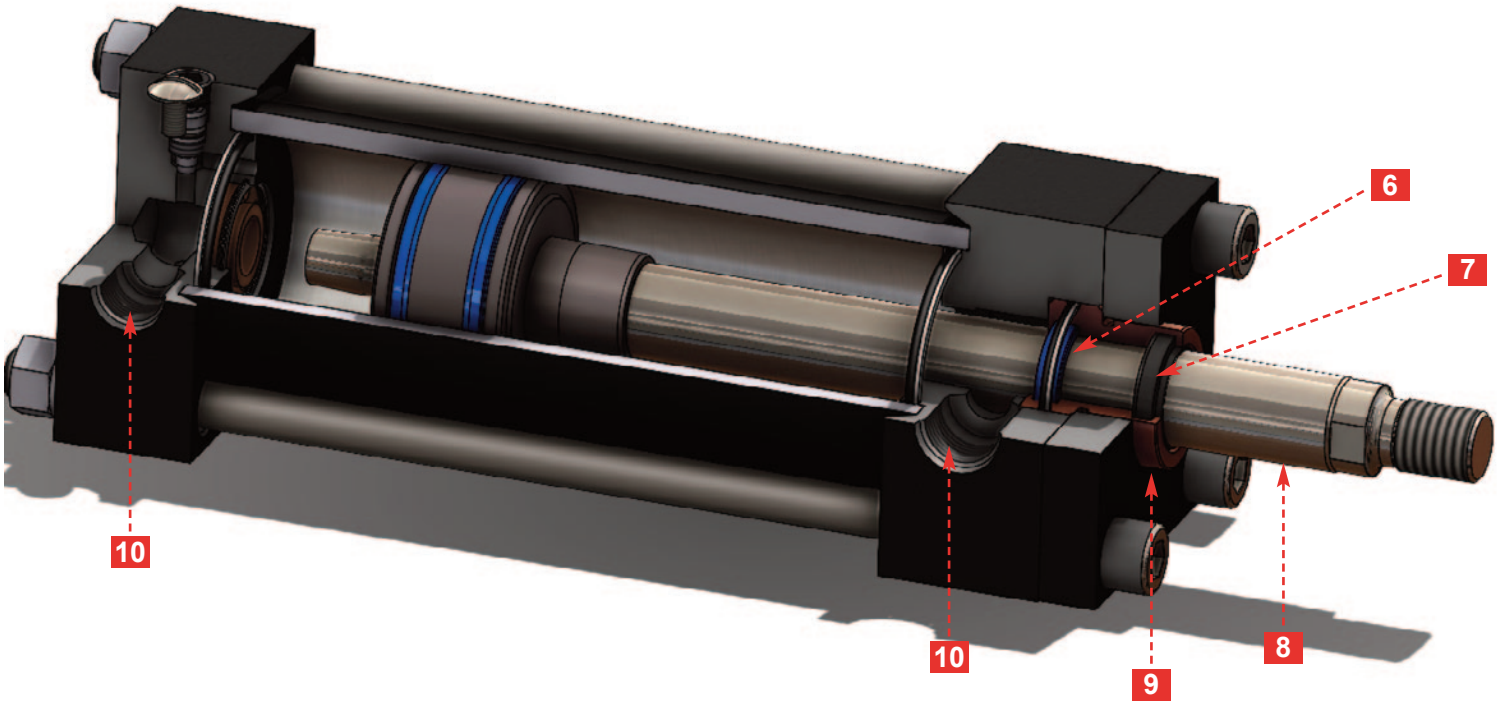
Made from 100,000 psi minimum yield, stress-proof, medium carbon steel with rolled threads at each end.
Grade 8 hex nuts with washers provide maximum strength for cylinder assembly.

5 Tube Seals

90 durometer Buna-N Nitrile O-Rings are seated into grooves in both the head end and cap end covers. When combined with accurately torqued pre-stressed tie rods, proper O-Ring placement at the ID of the tube and confinement of the tube OD, seal extrusion and fluid leakage under pressure is prevented.

PENINSULAR CYLINDER CO.
800-526-7968
27650 Groesbeck Highway • Roseville, MI 48066
Local: 586-775-7211 • Fax: 586-775-4545 • www.peninsularcylinders.com • sales@peninsularcylinders.com

FEATURES & BENEFITS



6 Rod Seal

The asymmetrical twin lip Urethane rod seal U-cup provides positive static and dynamic sealing at both low and high pressures.

7 Rod Wiper

Urethane H type wiper seal keeps contaminants off the rod and provides additional sealing beyond rod seal. Severe external conditions could require the addition of an optional metallic rod scraper installed ahead of the rod wiper to effectively provide dual protection from the elements. Guards against dust, dirt and grit from entering the bearing cartridge and cylinder, which significantly extends the cylinder life.

8 Piston Rod

85,000 psi minimum yield strength chrome plated steel with core hardness of Rc 28-34. Rod is hard chrome-plated (.0003/.0005 thick) and polished to 12/15 micro inch finish. Solid male threads contain a radiused undercut. Resists wear and provides positive connections to existing machine components. Solid male threads include a radiused undercut to minimize stress risers.

9 Bearing Cartridge

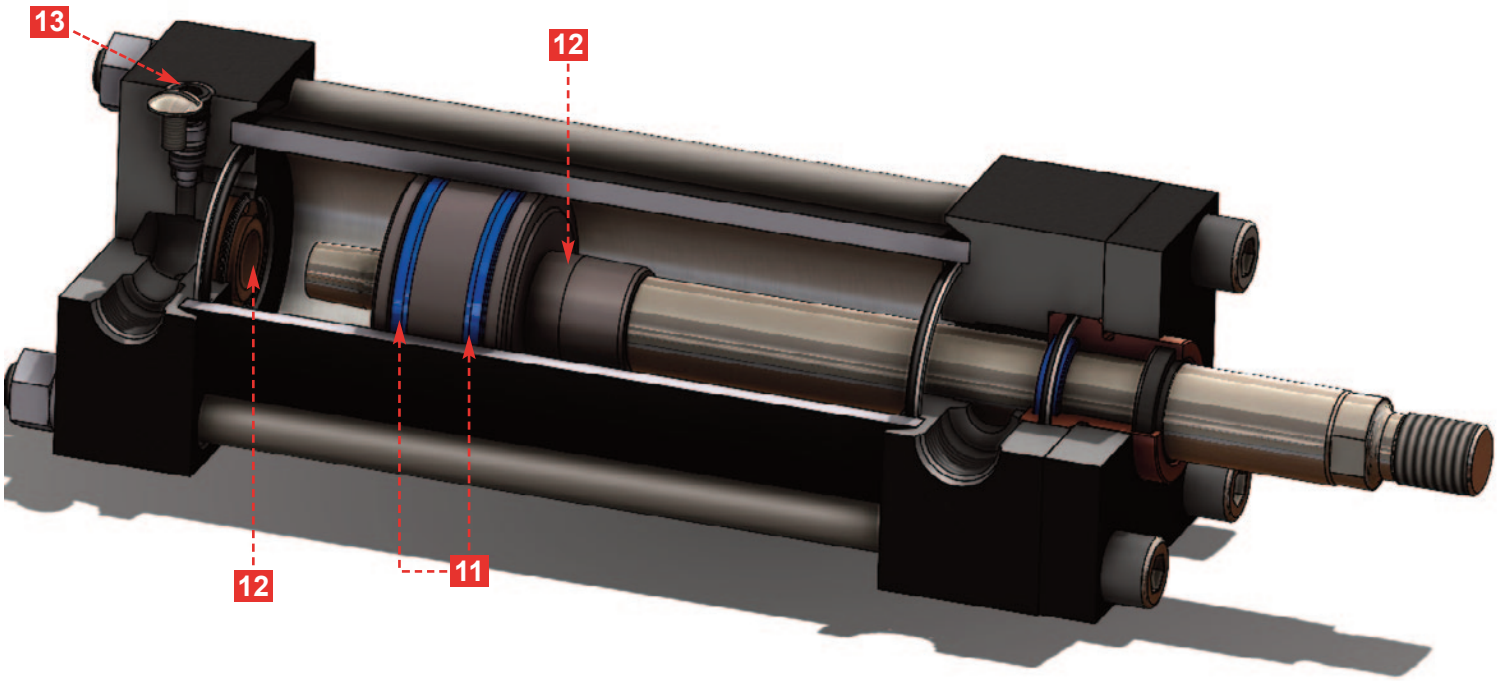
Floating, self-aligning bearing cartridge is made from grade 65-45-12 ductile iron. Cartridge is retained by cap screws and plate providing for strength and shock resistance. 90 durometer Buna-N O-Ring with backup ring on the cartridge O.D. prevents extrusion and fluid leakage around the outside of bearing cartridge. Float condition minimizes piston rod misalignment by reducing side loading.

10 Ports

NPT or SAE O-Ring ports are to be identified at time of order. Optional port sizes include flange ports, metric ports and oversized ports. Universally adaptable to any hose or fitting.

PENINSULAR CYLINDER CO.
800-526-7968
27650 Groesbeck Highway • Roseville, MI 48066
Local: 586-775-7211 • Fax: 586-775-4545 • www.peninsularcylinders.com • sales@peninsularcylinders.com

FEATURES & BENEFITS



11 Piston Seals

Asymmetrical Urethane U-Cups with seal material options available including backup rings. Hydraulic X-Pac type seals are standard for 10” bore and larger cylinders. X-Pac seals may also be used on smaller bores. Step cut cast iron piston rings & high load piston seals are also available.

12 Cushions

Floating ductile iron rod cushion collar on head end. The cap cushion is a Ductile iron floating, check-type seal insert held captive by a retaining ring in the rear end cap. Ball checks are provided at both ends for rapid breakaway out of the cushion and the ball check screws are flush with the end caps. Cushions are optional but ultimately help prevent cylinder failure, due to fatigue, resulting from the piston slamming into cylinder end caps. A reliable floating cushion system provides for smooth action and eliminates binding conditions, which can cause sudden failure.

13 Cushion Adjustment Screw

Steel needle valve with 90 durometer Nitrile O-Ring and backup ring. The captive adjustment screw can be locked in place and is flush with the end cap. The backup ring behind the O-Ring prevents fluid leakage around the adjustment screw, The cushion design allows fine adjustment of cushioning speed. Captive screw assures user safety.

14 Optional Air Bleed System *(Not Shown)*

Manual air bleed plug is located on the cylinder tube.

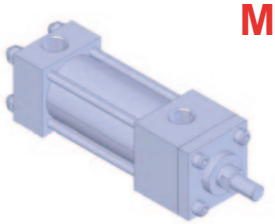
15 Optional Rod Drain Back System *(Not Shown)*

Drain feature is an additional groove cut into the front end of the bearing cartridge, between the rod wiper and rod seal, that drains off any accumulation of fluid between the seals. A cartridge drain port is located on the cartridge retainer plate for a user-installed drain line back to the reservoir. Captures hydraulic fluid and drains it back to the reservoir. This minimizes the slow weepage of hydraulic fluid through the rod wiper onto the piston rod. By capturing it and redirecting it to the tank..

PENINSULAR CYLINDER CO.
800-526-7968
27650 Groesbeck Highway • Roseville, MI 48066
Local: 586-775-7211 • Fax: 586-775-4545 • www.peninsularcylinders.com • sales@peninsularcylinders.com

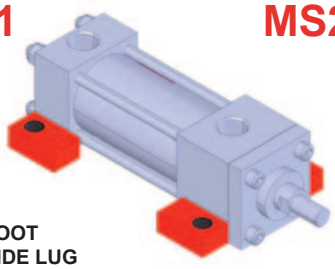
NFPA MOUNTING STYLES

0 MX0



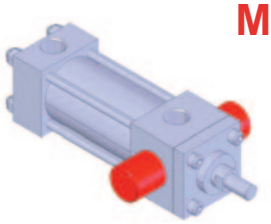
NO MOUNT

1 MS2



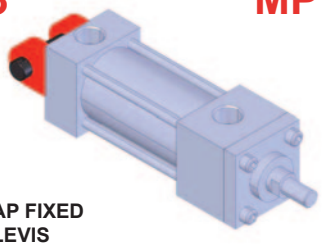
FOOT SIDE LUG

2 MT1



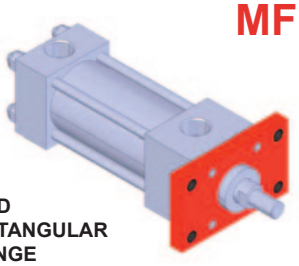
HEAD TRUNNION

3 MP1



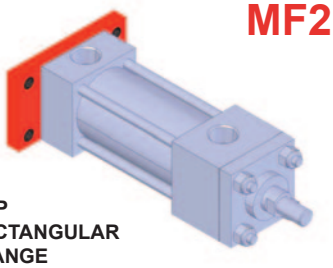
CAP FIXED CLEVIS

4 MF1



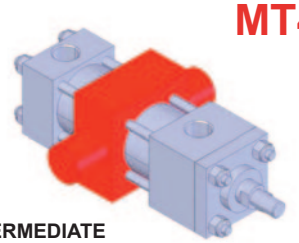
HEAD RECTANGULAR FLANGE

5 MF2



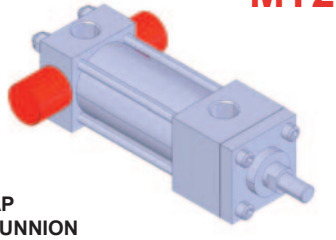
CAP RECTANGULAR FLANGE

6 MT4



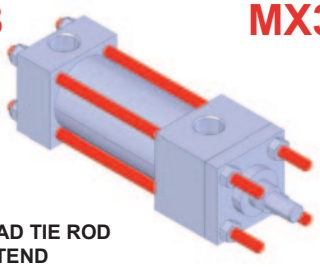
INTERMEDIATE TRUNNION

7 MT2



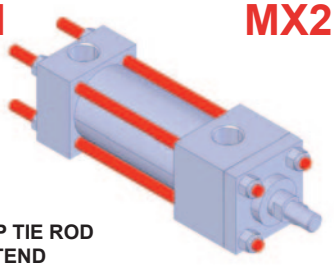
CAP TRUNNION

8 MX3



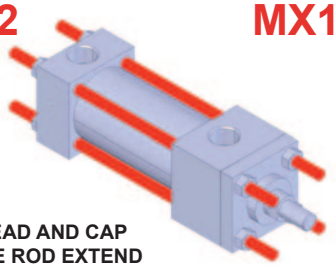
HEAD TIE ROD EXTEND

11 MX2



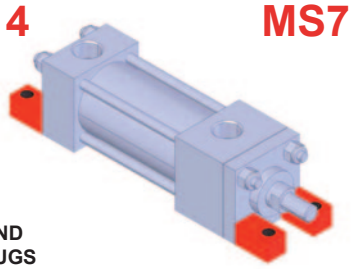
CAP TIE ROD EXTEND

12 MX1



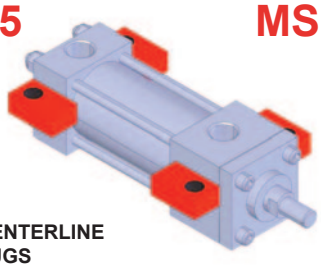
HEAD AND CAP TIE ROD EXTEND

14 MS7



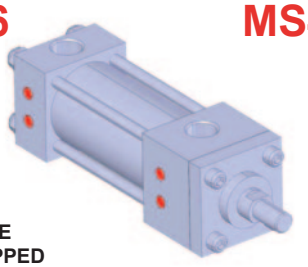
END LUGS

15 MS3



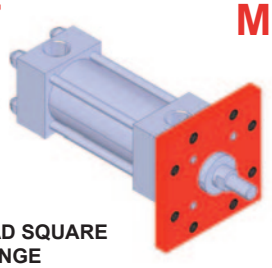
CENTERLINE LUGS

16 MS4



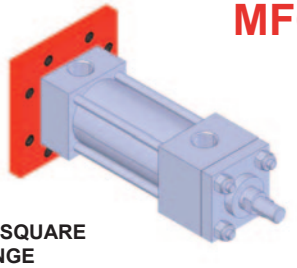
SIDE TAPPED

17 MF5



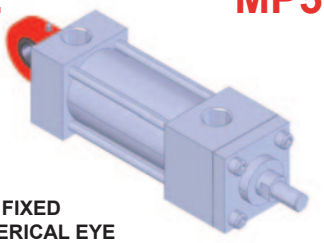
HEAD SQUARE FLANGE

18 MF6



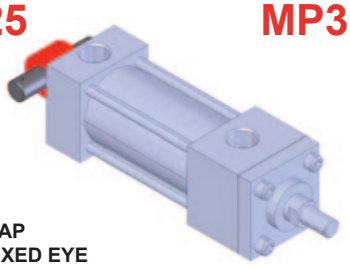
CAP SQUARE FLANGE

22 MP5



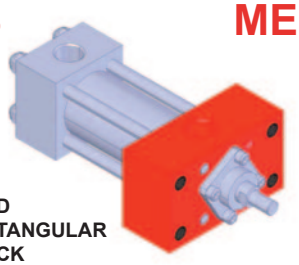
CAP FIXED SPHERICAL EYE

25 MP3



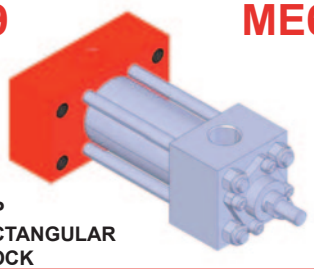
CAP FIXED EYE

28 ME5



HEAD RECTANGULAR BLOCK

29 ME6



CAP RECTANGULAR BLOCK

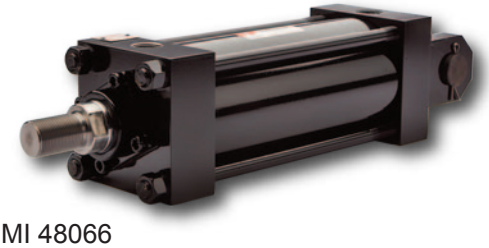
Note: Specify XI dimension at position "J" when ordering an intermediate trunnion cylinder (Mount Style #6). In the absence of an XI dimension, Peninsular will center the intermediate trunnion between the two end caps.

PENINSULAR® CYLINDER CO.

800-526-7968

27650 Groesbeck Highway • Roseville, MI 48066

Local: 586-775-7211 • Fax: 586-775-4545 • www.peninsularcylinders.com • sales@peninsularcylinders.com

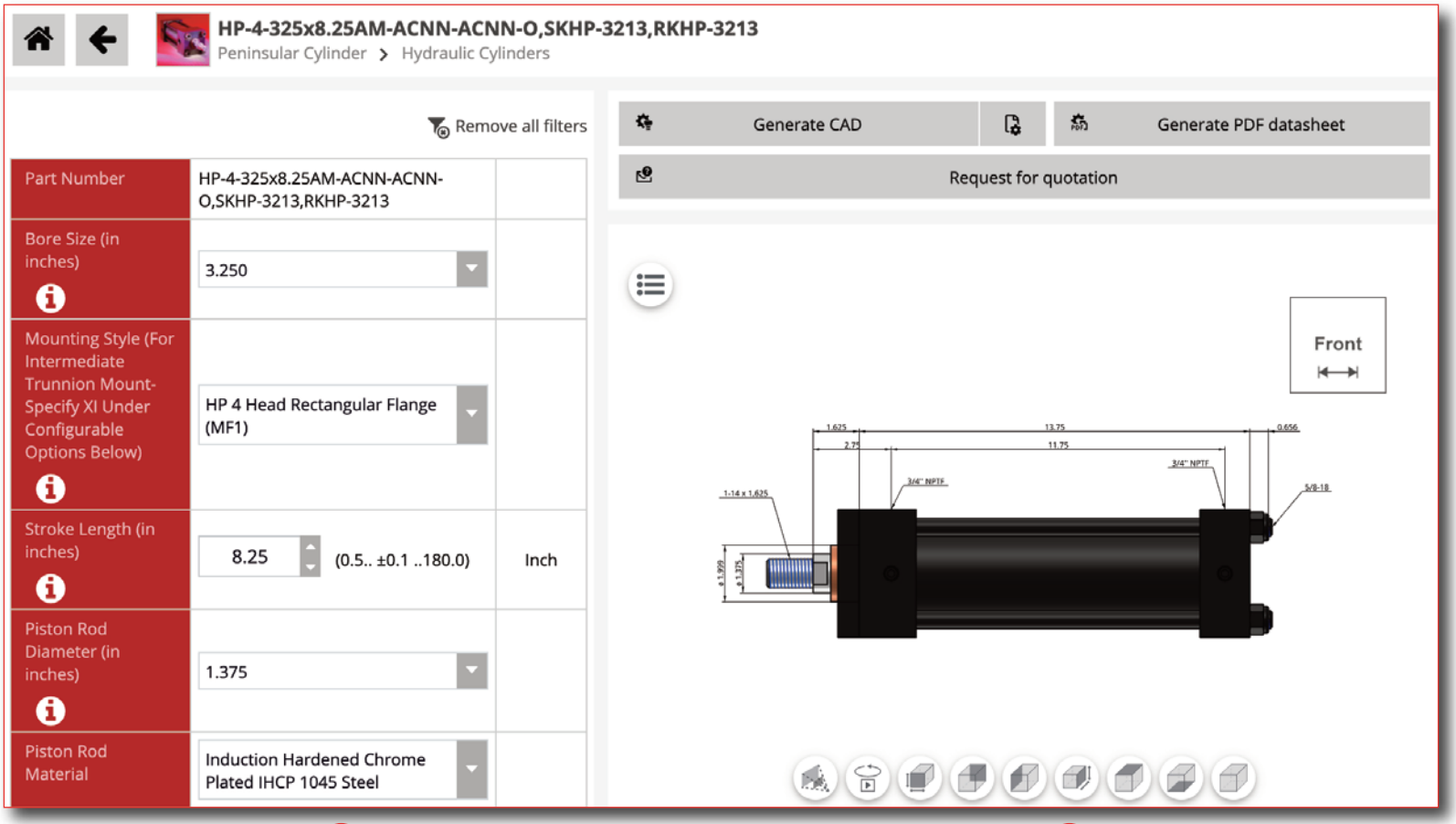


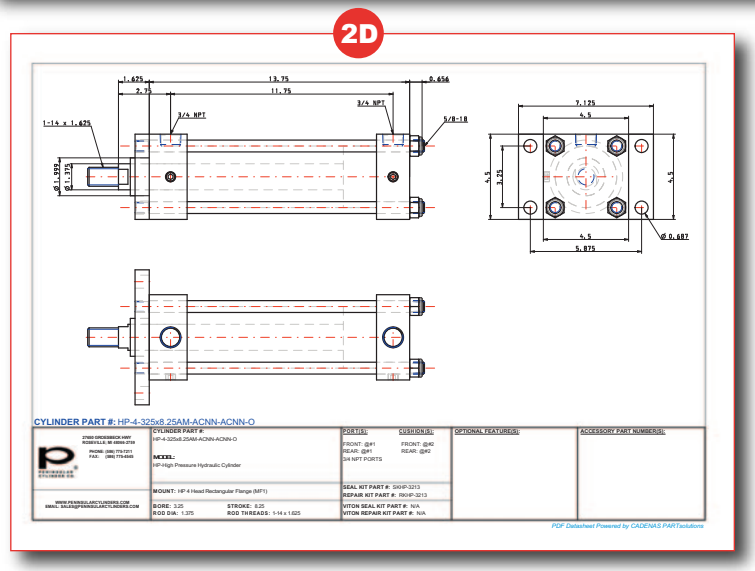
HOW TO ORDER ONLINE

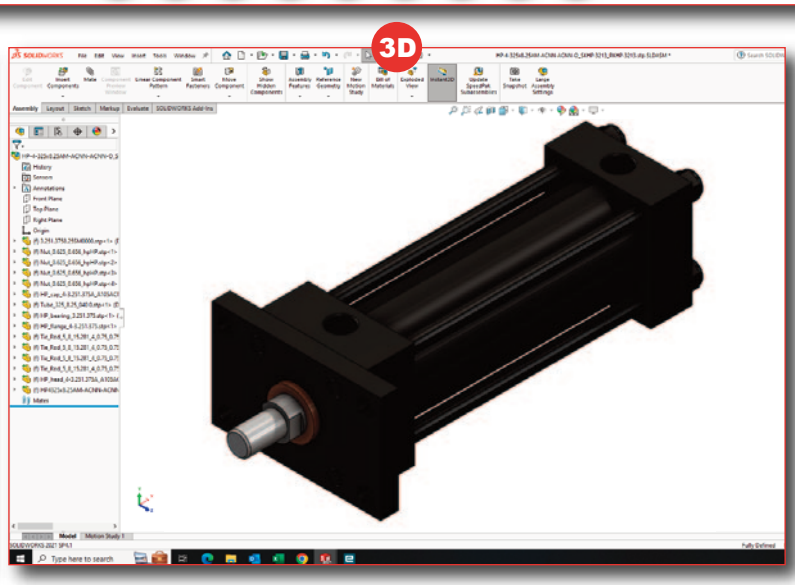
Generate a Part Number Quickly Using the Online Configurator

https://www.peninsularcylinders.com/configurator/

Utilize the drop-down options & input fields to select the desired cylinder configuration. The system will automatically generate the part number. The cylinder configurator is equipped with various features, accessories, and kits to customize your cylinder. After configuration, you can export 2D drawings/3D CAD models and request a quote.







PENINSULAR CYLINDER CO.
800-526-7968
27650 Groesbeck Highway • Roseville, MI 48066
Local: 586-775-7211 • Fax: 586-775-4545 • www.peninsularcylinders.com • sales@peninsularcylinders.com

HOW TO ORDER & SPECIFY MANUALLY

Generate a Part Number using the information below
Or use the online configurator to generate a part number automatically.

SERIES		MOUNT		BORE		STROKE	ROD SIZE	ROD END		HEAD PORTS		CAP PORTS		MODS	MODS	MODS
HP	-	4	-	325	x	8.25	A	M	-	ACNN	-	ACNN	-	O	/ V	/ Z
A		B		C		D		E		F		G		H	J	J

A Cylinder Model: HP

- 1 1/2” Bore through 18” Bore
- Nitrile seals with back up rings (std)
- Precision machined steel cylinder heads (std)
- Removable, self aligning, bearing cartridge (std)
- D.O.M. Seamless tube precision honed and I.D. with thick wall
- Nitrile seals and backup rings at all leak points
- 85,000 PSI yield "CPO" chrome plated high strength steel piston rod (std)
- Adjustable cushions with captive screw (cushions are optional)
- Air bleed system (optional)
- Rod cartridge drain back system (optional)
- "Slip Tuff" coated rod cartridge for severe side loaded conditions (optional)

B Cylinder Mounting: 4

0	No Mount	(MX0)	7	Cap Trunnion	(MT2)	17	Head Square Flange	(MF5)
1	Foot Side Lugs	(MS2)	8	Head Tie Rod Extend	(MX3)	18	Cap Spherical Eye	(MF6)
2	Head Trunnion	(MT1)	11	Cap Tie Rod Extend	(MX2)	22	Cap Fixed Spherical Eye	(MP5)
3	Cap Fixed Clevis	(MP1)	12	Head & Cap Tie Rod Extend	(MX1)	25	Cap Fixed Eye	(MP3)
4	Head Rectangular Flange	(MF1)	14	End Lugs	(MS7)	28	Head Rectangular	(ME5)
5	Cap Rectangular Flange	(MF2)	15	Centerline Lugs	(MS3)	29	Cap Rectangular	(ME6)
6	Intermediate Trunnion	(MT4)	16	Side Tapped	(MS4)			

C Cylinder Bore: 325

150 = 1 1/2” Bore	250 = 2 1/2” Bore	400 = 4” Bore	600 = 6” Bore	1000 = 10” Bore
200 = 2” Bore	325 = 3 1/4” Bore	500 = 5” Bore	800 = 8” Bore	1200 = 12” Bore

D Stroke Length: 8.25

Peninsular HP Cylinders can be ordered in 1/4” increments with stroke lengths from 1/2” to over 15 feet.
For Stop Spool (Stop Tube) applications, contact Peninsular to determine call out for correct stroke length to specify.

E Rod Diameter: AM

Specify Piston Rod Diameter and Rod Threads. *See Rod Chart on Page 9*

PENINSULAR CYLINDER CO.
800-526-7968
27650 Groesbeck Highway • Roseville, MI 48066
Local: 586-775-7211 • Fax: 586-775-4545 • www.peninsularcylinders.com • sales@peninsularcylinders.com

HOW TO ORDER & SPECIFY MANUALLY

Generate a Part Number using the information below
Or use the online configurator to generate a part number automatically.

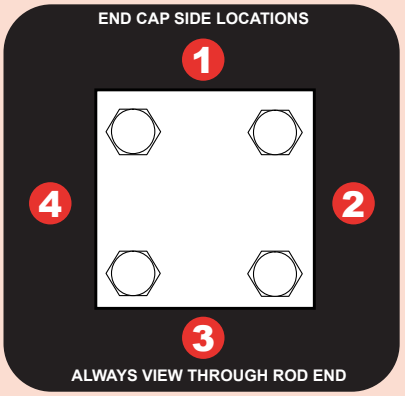
SERIES		MOUNT		BORE		STROKE	ROD SIZE	ROD END		HEAD PORTS		CAP PORTS		MODS	MODS	MODS
HP	-	4	-	325	x	8.25	A	M	-	ACNN (1 2 3 4)	-	ACNN (1 2 3 4)	-	O	/ V	/ Z
A		B		C		D	E			F		G		H	J	J

F Plumbing: ACNN

Specify Plumbing Configuration for Front & Rear End Cap.

A = Hydraulic Supply Port - NPTF Threads
T = Hydraulic Supply Port - SAE Straight 'O' Ring Threads
C = Cushion Adjustment Screw
K = Non-Adjustable Cushions
M = Proximity Switch Ready only, no switch mounted to the cylinder end cap
N = Nothing (No port, cushion, or prox.)
P = Oversize Ports
U = Undersize Ports

G Plumbing: ACNN



H Proximity Switches:

Specify the required proximity switch that is to be affixed to cylinder.

T-11 = Turck Mini-Connector **T-31** = Turck Micro-Connector **B-11** = Balluff Mini-Connector **B-31** = Balluff Micro Connector

O = None

Optional Proximity Switch Capability
Allows for NON-CONTACT piston position sensing at near end of stroke. Precision machined cylinder heads and piston cushion hubs allow for in-port mounting of "RF inductive" proximity switches. Spacerless design using the same switch probe length at each end is optional. Self contained switch probe not subject to contamination. This design provides consistent, reliable, repeatable stroke-to-go and eliminates the design and construction of brackets necessary to mount external mechanical limit switches. (If proximity switch cords are required, contact Peninsular).

Contact Peninsular for probe lengths and stroke-to-go distances.

J Optional Features:

Specify Optional Features with Slash Mark and Alpha Characters

/C = Air Bleed
/D = Drain Back
/E = Extended Piston Rod*
/F = Bronze Rod Cartridge
/H = Rod Boot Cover
/I = Cast Iron Piston Rings
/L = Lubricated Trunnion Pins
/N = Stop Tube*
/P = Oversize Ports
/R = Threaded Stud Rod End
/S = Scraper Ring
/V = Viton Seals
/X = Extended Key
/XI = Specify XI Dimension (HP6)
/Y = Double Rod End
/Z = "Slip Tuff" Coated Rod Cartridge
/O = Other Options (Describe)
**Specify Length*

PENINSULAR CYLINDER CO.
800-526-7968
27650 Groesbeck Highway • Roseville, MI 48066
Local: 586-775-7211 • Fax: 586-775-4545 • www.peninsularcylinders.com • sales@peninsularcylinders.com

HOW TO ORDER

FIRST LETTER DENOTES ROD DIAMETER
A = (STANDARD ROD DIAMETER)
B = (LARGER ROD DIAMETER)
C= (OVERSIZED ROD DIAMETER)
D= (OVERSIZED ROD DIAMETER)
E= (OVERSIZED ROD DIAMETER)
F = (OVERSIZED ROD DIAMETER)

SECOND LETTER DENOTES ROD THREADS
M= (EXTERNAL NFPA SHORT MALE)
F= (NFPA SHORT FEMALE)
D= (NFPA FULL MALE)
I= (NFPA INTERMEDIATE MALE)
A= (NFPA LONG MALE)
X= (OTHER ROD ENDS - PLEASE SPECIFY)
S= (SPOOLED ROD END) CONTACT PENINSULAR FOR DIMENSIONAL INFO

HP Piston Rod Diameter & Rod Threads Chart

BORE SIZE	ROD DIA.	SHORT MALE "M"	SHORT FEMALE "F"	FULL MALE "D"	INTERMEDIATE MALE "I"	LONG MALE "A"
1.50	A= .62	7/16"-20 x .75	7/16"-20 x .75	5/8"-18 x .75	1/2"-20 x .75	1/2"-20 x 1.12
	B=1.00	3/4"-16 x 1.12	3/4"-16 x 1.12	1" -14 x 1.12	7/8"-14 x 1.12	7/8"-14 x 1.87
2.00	A= 1.00	3/4"-16 x 1.12	3/4"-16 x 1.12	1" -14 x 1.12	7/8"-14 x 1.12	7/8"-14 x 1.87
	B=1.38	1"-14 x 1.62	1"-14 x 1.62	1 3/8"-12 x 1.62	1 1/4"- 12 x 1.62	1 1/4"-12 x 2.50
2.50	A= 1.00	3/4"-16 x 1.12	3/4"-16 x 1.12	1"-14 x 1.12	7/8"-14 x 1.12	7/8"-14 x 1.87
	B= 1.38	1"-14 x 1.62	1"-14 x 1.62	1 3/8"-12 x 1.62	1 1/7"-12 x 1.62	1 1/4"-12 x 2.50
	C= 1.75	1 1/4"-12 x 2.00	1 1/4"-12 x 2.00	1 3/8"-12 x 2.00	1 1/2"-12 x 2.00	1 1/2"-12 x 3.00
3.25	A= 1.38	1"-14 x 1.62	1"-14 x 1.62	1 3/8"-12 x 1.62	1 1/4"- 12 x 1.62	1 1/4"-12 x 2.50
	B= 1.75	1 1/7"-12 x 2.00	1 1/4"-12 x 2.00	1 3/4"-12 x 2.00	1 1/2"-12 x 2.00	1 1/2"-12 x 3.00
	C= 2.00	1 1/2"-12 x 2.25	1 1/2"-12 x 2.25	2"-12 x 2.25	1 3/4"-12 x 2.25	1 3/4"-12 x 3.50
4.00	A= 1.75	1 1/4"-12 x 2.00	1 1/4"-12 x 2.00	1 3/4"-12 x 2.00	1 1/2"-12 x 2.00	1 1/2"-12 x 3.00
	B= 2.00	1 1/2"-12 x 2.25	1 1/2"-12 x 2.25	2"-12 x 2.25	1 3/4"-12 x 2.25	1 3/4"-12 x 3.50
	C= 2.50	1 7/8"-12 x 3.00	1 7/8"-12 x 3.00	2 1/2"-12 x 3.00	2 1/4"-12 x 3.00	2 1/4"-12 x 4.50
5.00	A= 2.00	1 1/2"-12 x 2.25	1 1/2"-12 x 2.25	2"-12 x 2.25	1 3/4"-12 x 2.25	1 3/4"-12 x 3.50
	B= 2.50	1 7/8"-12 x 3.00	1 7/8"-12 x 3.00	2 1/2"-12 x 3.00	2 1/4"-12 x 3.00	2 1/4"-12 x 4.50
	C= 3.00	2 1/4"-12 x 3.50	2 1/4" - 12 x 3.50	3"-12 x 3.50	2 3/4"-12 x 3.50	2 3/4"-12 x 5.50
	D= 3.50	2 1/2"-12 x 3.50	2 1/2"-12 x 3.50	3 1/2"-12 x 3.50	3 1/4"-12 x 3.50	3 1/4"-12 x 6.50
6.00	A= 2.50	1 7/8"-12 x 3.00	1 7/8"-12 x 3.00	2 1/2"-12 x 3.00	2 1/4"-12 x 3.00	2 1/4"-12 x 4.50
	B= 3.00	2 1/4"-12 x 3.50	2 1/4"-12 x 3.50	3"-12 x 3.50	2 3/4"-12 x 3.50	2 3/4"-12 x 5.50
	C= 3.50	2 1/2"-12 x 3.50	2 1/2"-12 x 3.50	3 1/2"-12 x 3.50	3 1/4"-12 x 3.50	3 1/4"-12 x 6.50
	D= 4.00	3"-12 x 4.00	3"-12 x 4.00	4"-12 x 4.00	3 3/4"-12 x 4.00	3 3/4"-12 x 7.50
8.00	A= 3.50	2 1/2"-12 x 3.50	2 1/2"-12 x 3.50	3 1/2"-12 x 3.50	3 1/4"-12 x 3.50	3 1/4"-12 x 6.50
	B= 4.00	3"-12 x 4.00	3"-12 x 4.00	4"-12 x 4.00	3 3/4"-12 x 4.00	3 3/4"-12 x 7.50
	D= 4.50	3 1/4"-12 x 4.50	3 1/4"-12 x 4.50	4 1/2"-12 x 4.50	4 1/4"-12 x 4.50	4 1/4"-12 x 8.25
	E= 5.00	3 1/2"-12 x 5.00	3 1/2"-12 x 5.00	5"-12 x 5.00	4 3/4"-12 x 5.00	4 3/4"-12 x 9.00
	C= 5.50	4"-12 x 5.50	4"-12 x 5.50	5 1/2"-12 x 5.50	5 1/4"-12 x 5.50	5 1/4"-12 x 10.00
10.00	D= 4.50	3 1/4"-12 x 4.50	3 1/4"-12 x 4.50	4 1/2"-12 x 4.50	4 1/4"-12 x 4.50	4 1/4"-12 x 8.25
	E= 5.00	3 1/2"-12 x 5.00	3 1/2"-12 x 5.00	5"-12 x 5.00	4 3/4"-12 x 5.00	4 3/4"-12 x 9.00
	B= 5.50	4"-12 x 5.50	4"-12 x 5.50	5 1/2"-12 x 5.50	5 1/4"-12 x 5.50	5 1/4"-12 x 10.00
	F= 6.00	4 1/2"-12 x 6.00	4 1/2"-12 x 6.00	6"-12 x 6.00	5 3/4"-12 x 6.00	5 3/4"-12 x 10.00
	C= 7.00	5"-12 x 7.00	5"-12 x 7.00	7"-12 x 7.00	6 1/2"-12 x 7.00	6 1/2"-12 x 10.00
12.00	A= 5.50	4"-12 x 5.50	4"-12 x 5.50	5 1/2"-12 x 5.50	5 1/4"-12 x 5.50	5 1/4"-12 x 10.00
	B= 6.00	4 1/2"-12 x 6.00	4 1/2"-12 x 6.00	6"-12 x 6.00	5 3/4"-12 x 6.00	5 3/4"-12 x 10.00
	C= 7.00	5"-12 x 7.00	5"-12 x 7.00	7"-12 x 7.00	6 1/2"-12 x 7.00	6 1/2"-12 x 10.00
	D= 8.00	5 3/4"-12 x 8.00	5 3/4"-12 x 8.00	8"-12 x 8.00	7 1/2"-12 x 8.00	7 1/2"-12 x 12.00

OTHER ROD AND THREAD SIZES ARE AVAILABLE.
FOR BORE SIZES 14" THROUGH 20" BORE, CONTACT PENINSULAR.

PENINSULAR CYLINDER CO.
800-526-7968
27650 Groesbeck Highway • Roseville, MI 48066
Local: 586-775-7211 • Fax: 586-775-4545 • www.peninsularcylinders.com • sales@peninsularcylinders.com