



Model MH - NFPA, Air Cylinders Heavy-Duty, Steel

Features	Advantage	Benefit
1. Heads and Caps	Square, precision-machined carbon steel to +_ .002 all sides	Assures concentricity of tube, bearing, cushion and piston rod. Can be made proximity switch ready to accept same probe-length switches at each end without spacers.
2. Cylinder Tube	D.O.M. seamless 1020 to 1026 steel; precision honed to 12/15 micro inch finish; hard chrome plated .0003/.0005" thick on ID.	Chrome Plating reduces wear on piston seals and tube I.D. surface. Hard chrome plated I.D. provides corrosion resistance and minimizes tube scoring.
3. Wear Band	Delrin™ material.	Offers low friction, long lasting wear surface which prevents scoring of cylinder tube inner wall.
4. Lubrication Reservoirs	Located underneath wear band inside piston and also inside the bearing cartridge.	Provides effective way of metering maximum amount of lubricant to all areas over long time period. Not subject to air turbulence and contamination.
5. Lubricant (not shown)	Teflon™ based grease is standard. USDA food grade approved grease is optional.	Long lasting lubrication of piston seals, inner cylinder wall surface and rod bearing cartridge seals and ID.
6. Piston	One-piece steel, black oxidized with uniform cushion hubs on both sides, threaded onto piston rod, staked and secured with Loctite®.	Prevents rusting and air leakage; anchored onto piston rod with minimum undercut providing maximum strength. Additional pinning onto rod optional.
7. Tube Seals	Buna-N Nitrile axial placed O-Rings.	When combined with accurately torqued tie rods, prevents extrusion of seal and air leaks under pressure.
8. Cushion Adjustment Screw	Steel needle valve with Buna-N O-ring sealed screw, held captive with locking snap ring.	Accurate fine adjustment of cushioning speed; no air leakage and safe for all users due to internal captive screw.
9. Rod Seal	80 durometer, rounded lip, pre-lubricated, carboxylated nitrile cup style.	Disperses grease throughout ID of rod cartridge extending seal life within. Resists abrasion; significantly increases life and prevents leakage around piston rod.
10. Rod Wiper	80 durometer, sharp double lip, pre-lubricated, carboxylated nitrile seal Provides additional sealing benefit beyond the rod seal.	Inside edge always lubricated extends life significantly, prevents dirt and grit from entering bearing and cylinder.

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11. Piston Rod

High yield strength steel, case hardened OD to 50-55 RC. Core hardness to 28-34 RC. Hard chrome plated .0003/.0005" thick and polished to 12/15 micro inch finish. Rolled threads.

Resists wear. All NFPA rod and thread sizes, including female and studded male ends available, plus metric threads. Provides positive connections to existing machine components.

12. Bearing Cartridge

Floating, self-aligning in either ductile iron or SAE 660 bronze with internal lubrication reservoir. Special "Slip Tuff" coated cartridge is also available for heavy side loaded applications. Retained by plate with cap screws; strong and shock resistant. A Buna-N O-ring located around the cartridge OD prevents leakage.

Float condition minimizes piston rod misalignment by reducing side loading. ID of bearing cartridge, rod seal and rod wiper lubricated on each stroke, reducing wear. Easily removed for maintenance without special tools to disassemble cylinder. Optional "Slip Tuff" bearing provides lubricious wear surface with hardness characteristics that significantly reduce galling and bearing cartridge failure under severe side loaded operating conditions.

13. Tie Rods

Made from 100,000 psi minimum yield, stress-proof, medium carbon steel with rolled threads at each end.

Provides maximum strength for connecting cylinder mounts and used with lock nuts to prevent loosening in service. Accurate torquing prevents leaks at tube seals.

14. Cushion Hubs

Steel with 8/12 micro inch finish RMS. Black oxidized to prevent rusting and corrosion.

Uniform on each side of piston to eliminate different size cushion seals and reduce spare parts inventory. Smooth surface stops cushion seal wear and provides air-tight accurate operation. Ideal for proximity switch applications.

15. Piston Seals

80 durometer, rounded lip, pre-lubricated, carboxylated nitrile U cups.

Resists abrasion; when used with Peninsular's internal lubrication system, provides considerably less wear and increases operating life.

16. Cushion Seals

90 durometer floating check type Urethane seals eliminate ball checks and related parts.

Low friction breakaway and **100% air-tight cushioning** assures smooth maximum effectiveness. **Metal to metal cushions are eliminated** and same size seals at each end reduce parts inventory.

17. Ports

NPT standard, SAE O-ring optional. Metric and other thread size options.

Universally adaptable to any hose or fitting.

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18. Optional Proximity Switch Capability (not shown)	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 using the same switch probe length at each cylinder end without shims or spacers underneath the switch.	Self-contained switch probe not subject to contamination. This patented design creates the same air gap between the sensing probe and target (cushion hubs), thus providing consistent, reliable and repeatable stroke-to-go. Eliminates the design and construction of brackets necessary to mount mechanical limit switches.
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