



Model ILM – Metric, Air Cylinders Medium-Duty, Aluminum

Features	Advantage	Benefit
1. Heads and Caps	Square, precision-machined 6061T6 anodized aluminum.	Corrosion resistant. 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	Solid 6061T6 aluminum tube; precision honed to 12/15 micro inch finish; hard coat anodized .001" thick on both ID and OD.	Resists wear and corrosion; also reduces wear on piston seals.
3. Wear Band	Delrin™ material.	Creates low friction, long lasting wear surface, which prevents scoring of cylinder tube inner wall. Will not expand with moisture.
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 bearing cartridge ID, rod seal and rod wiper.
6. Piston	One-piece precision-machined 6061T6 anodized aluminum or black oxidized steel piston with uniform polished steel, black oxidized, cushion hubs on both sides, threaded onto piston rod, staked and secured with Loctite™.	Prevents corrosion and air leakage; anchored onto piston rod with minimum undercut providing maximum strength. Additional pinning onto rod is optional. Aluminum piston required for magnetic piston sensing. See #19.
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 valves with Buna-N O-ring sealed screws, held captive with locking snap rings.	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.	Smears grease through 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 cartridge and cylinder.

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11. Piston Rod	High yield strength" IHCP" 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 Metric rod and thread sizes, including female and studded male ends available, plus NFPA threads. Provides positive connections to existing machine components.
12. Bearing Cartridge	Floating, self-aligning in either ductile iron (standard) or SAE 660 bronze with internal lubrication reservoir. Optional "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 lubricated 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. Steel material permits the use of in-port cylinder head mounted proximity switches.	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	BSPP (G-Port) standard, NPT, BPT and other thread sizes are optional.	Universally adaptable to any hose or fitting.

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<p>18. Optional Proximity Switch Capability (not shown)</p>	<p>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.</p>	<p>Self-contained switch probe not subject to contamination. This 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.</p>
<p>19. Optional Piston Magnet (not shown, but located under wear band)</p>	<p>Tie-rod mounted proximity switches can sense high gauss, shunted “rare-earth material” magnet, anywhere along the cylinder stroke. Stronger magnetism outside of the cylinder tube insures actuation of the proximity switch.</p>	<p>Tie-rod mounted proximity switches sense strong magnetic field provided by shunted magnet in aluminum piston, allowing piston rod location to be determined wherever external switches are placed. Proximity switches may be locked onto tie-rods at factory, as an option, to prevent sliding due to cylinder vibration.</p>

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