



Peninsular & AMLOK Partnered for Performance

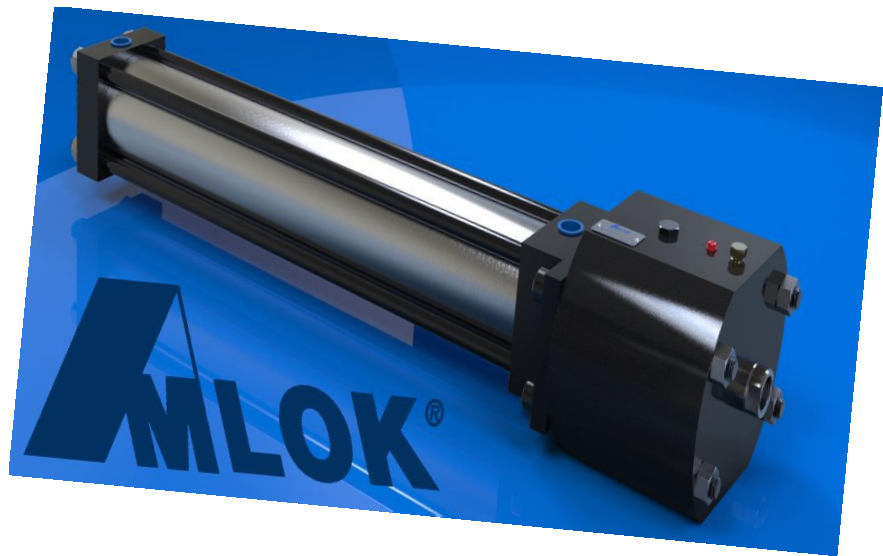
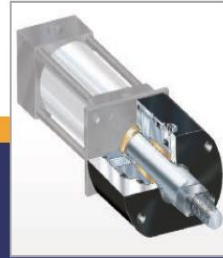




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NFPA Style Hydraulic Rod Clamps
RCH SERIES ROD LOCKS



FEATURES AND BENEFITS

The AMLOK® Rod Clamp has been developed to provide power-off clamping of rods and shafts. The type RCH Rod Clamps are actuated by a spring/collet mechanism and unclamped by hydraulic pressure. These rod clamps are designed to clamp components after the motion has stopped and to hold the position securely as long as the forces do not exceed the table values. For braking applications, contact the factory.

For air applications, call or visit www.ame.com for a pneumatic AMLOK® RLN catalog.

When the potential for personal injury exists, or when life is in danger, SITEMA Safety Catchers are to be used. SITEMA catalogs are available upon request.

The mountings of the RCH AMLOK® Rod Clamp have been designed to apply to standard heavy duty NFPA-style MF1 cylinders. The standard housing can be mounted to any machine structure or be custom-designed to suit your application.

FUNCTION

The AMLOK® Rod Clamp consists of an alloy steel housing containing a special locking mechanism actuated by a set of disc springs. The clamp is unlocked when hydraulic pressure actuates a piston that compresses the disc springs, and releases the locking device.

Since the locking of the AMLOK® Rod Clamp is accomplished mechanically and unlocked by hydraulic pressure, loss of hydraulic pressure to the rod clamp will cause the unit to lock.

The holding force depends upon the rod diameter

and the amount of hydraulic pressure (PSI) available for unclamping. The AMLOK® is preset at the factory to release at the specified hydraulic pressure. The available holding forces are listed in the Technical Data chart and can be multiplied by adding additional AMLOK® clamps to the same rod. Also, special SITEMA Safety Catchers and Locking Units can be provided to suit your needs.

AMLOK® Rod Clamps are designed for locking reciprocating motions only. Special units are also available for both rotating and reciprocating motions.

APPLICATION GUIDELINES

When attached to cylinders, longer cylinder rods must be specified. The AMLOK® Rod Clamp requires a full rod diameter for the entire length "L" of the clamp. Add a minimum of "L" length for a Rod Extension to allow for the length of the AMLOK®.

Recommended rod tolerances are cited in the Technical Data chart. Shafts consisting of commercial hard-chrome plated, polished rods are recommended. If the shaft has to support extreme stresses, e.g. in case of frequent switching operations, braking out of the movement, releasing under load or exposure to dirt, a hardened surface is necessary. If only securing the shaft (without relative movement in clamped condition) is required, an ordinary steel shaft will be sufficient.

The contact surfaces and bores to which the AMLOK® is clamped must be square and concentric to each other to avoid binding of the rod or excess wear. AMLOK® Rod Clamps can be an integral part of your housing. We can provide mating components for your special applications.

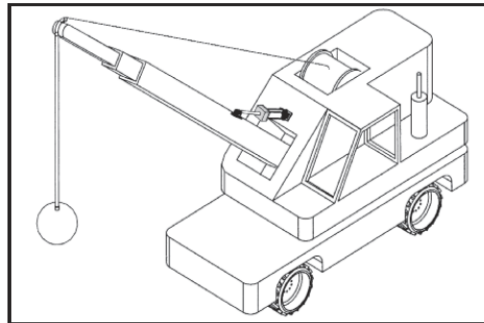
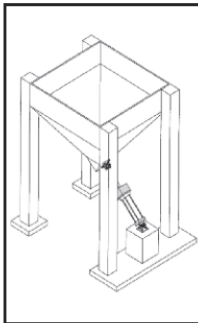
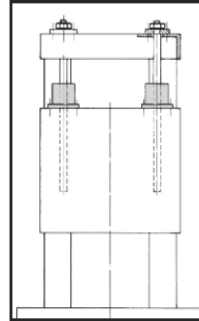
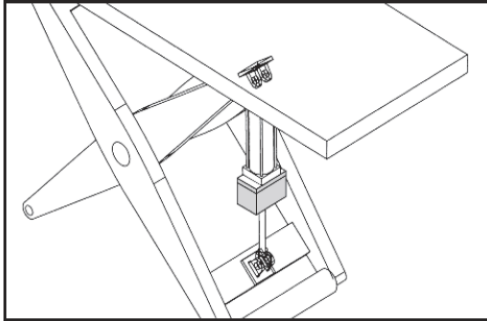
The AMLOK® is designed for zero side loads. When side loads are acting on the cylinder rod, make sure that the rod is guided sufficiently in bearings to avoid side loads on the locking mechanism. This is especially important at higher cylinder rod speeds to avoid overheating the clamping device due to excessive friction with the rod.

AMLOK® Rod Clamps type RCH have provisions to mount one proximity switch to indicate "unlocked" condition. Please see page 7 for specifications.

Each AMLOK® Rod Clamp is tested by Advanced Machine. Test results are available upon request.

When properly applied, the AMLOK RCH units are warranted to be free from defects of materials and workmanship for a period of one (1) year from date of shipment or one (1) million cycles, whichever comes first.

APPLICATIONS



1. Lift table lock & hold in case of loss of hydraulic pressure, hose breakage, etc.
2. Lock & hold platen or machine component in position in case of hydraulic pressure loss, "E" stop, etc.
3. Lock & hold gate valve in position.
4. Lock & hold a boom in case of loss of hydraulic pressure, hose breakage, etc.

CLAMP/UNCLAMP RESPONSE TIME

The AMLOK® clamps in 100msec and unclamps in 100msec, for a total cycle time of 200msec. These response times were calculated with a fast response solenoid valve located at the lock port and zero back pressure.

MAXIMUM CYCLES PER SECOND

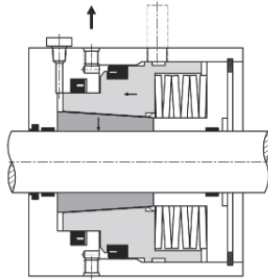
Theoretically, an AMLOK® Rod Clamp can cycle five times per second. However, since an AMLOK® is designed to average one million cycles, frequent and repetitive cycling will reach 1,000,000 cycles in a shorter time.

OTHER APPLICATIONS INCLUDE

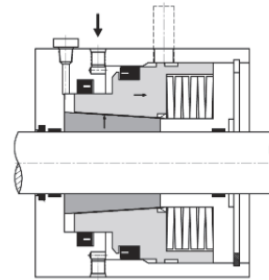
- > Injection molding machines
- > Hydraulic presses
- > Amusement equipment
- > Theatrical equipment (platforms)
- > Paper handling equipment
- > Machine tools; presses, vertical heads, rams, platforms
- > Fixturing (machine tools)
- > Automation equipment
- > Anti-drift applications
- > Scissors lift tables
- > Printing equipment
- > Heavy-duty earth moving equipment
- > Industrial processing equipment
- > Mining applications
- > Municipal vehicles and equipment; i.e. public works, fire, gas, electric, and cable vehicles
- > Locking spherical valves in piston hydro power generating plants
- > Any application where holding the cylinder in place is desirable
- > Positioning; height adjustment of winch installations and rollers; securing of adjusting drives; holding of solenoids, piston rods, and spacers

TECHNICAL DATA

HOW AMLOK® TYPE RCH ROD CLAMP WORKS

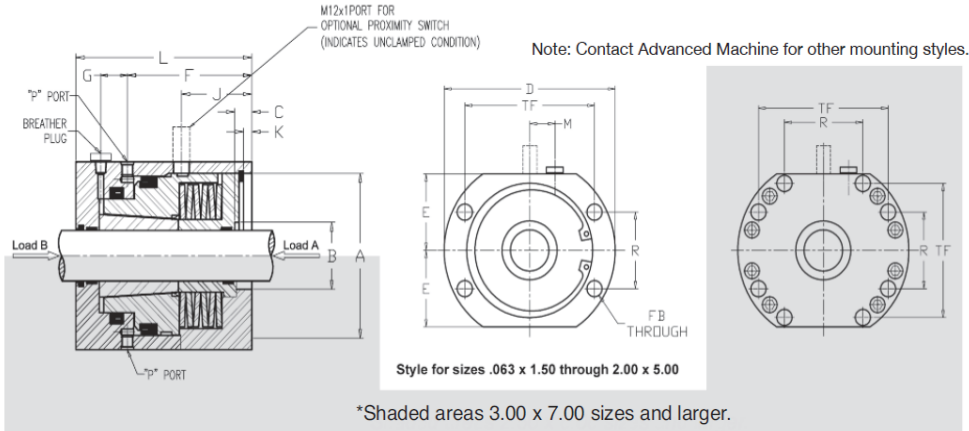


CLAMPED
 > Hydraulic pressure off
 > Zero back pressure



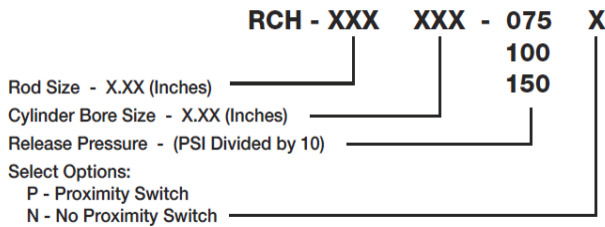
UNCLAMPED
 > Hydraulic pressure at minimum
 > Release pressure not to exceed 3000 psi

FOR HEAD RECTANGULAR FLANGE MOUNT (NFPA MF1 OR MF5)



AMLOK® - Oil Volume				AMLOK® - Oil Volume			
Part Number	volume to cycle		Weight	Part Number	volume to cycle		Weight
	cm ³	in ³			cm ³	in ³	
RCH-.062 X 1.50	6	0.4	11.5	RCH-1.75 X 3.25	30	1.8	65.1
RCH-1.00 X 1.50	6	0.4	10.5	RCH-1.75 X 4.00	39	2.4	75.5
RCH-1.00 X 2.00	16	1.0	20.8	RCH-2.00 X 5.00	39	2.4	114.0
RCH-1.00 X 2.50	16	1.0	31.0	RCH-2.50 X 6.00	129	7.9	270.0
RCH-1.37 X 2.00	10	0.6	20.0	RCH-3.00 X 7.00	145	8.8	380.0
RCH-1.37 X 2.50	16	1.0	30.2	RCH-3.50 X 8.00	181	11.0	550.0
RCH-1.37 X 3.25	30	1.8	66.0	RCH-4.00 X 8.00	230	14.0	530.0

ORDERING INSTRUCTIONS



Example: RCH - 100 250 - 150 N

1.00" Rod - 2.50" Cylinder Bore
 1500 PSI Release Pressure
 No Proximity Switch

*Movement in Load A direction is zero.
 Movement in Load B direction is .012" maximum when clamp is fully locked.*

TECHNICAL DATA

Rod Dia. ²	Rod Dia. Tolerance ²	Cylinder Bore	AMLOK® Part No. RCH-	Min. Release Pressure PSI ¹	Max. Holding Force (lbs) ³	D ±.03	L ±.03	E ±.015	R ±.005	TF ±.005	FB ±.015	B ±.015	A ±.015	K ±.015	C ±.03	F ±.03	G ±.03	J ±.03	M ±.03	Port
.625	+.000 -.003	1.50	062 150-075	750	1100	4.37	3.55	1.63	1.625	3.437	.44	1.25	2.48	.23	.38	2.13	.75	.79	.78	SAE 4
			062 150-100	1000	1800															
			062 150-150	1500	2250															
1.000	+.000 -.003	1.50	100 150-075	750	1200	4.37	3.45	1.75	1.625	3.437	.44	1.63	2.76	.23	.50	1.88	.87	.79	.78	SAE 4
			100 150-100	1000	2000															
			100 150-150	1500	2300															
1.000	+.000 -.003	2.00	100 200-075	750	2900	5.37	4.37	2.25	2.050	4.125	.56	1.63	3.74	.23	.35	2.90	.85	1.00	0	SAE 4
			100 200-100	1000	5200															
			100 200-150	1500	5600															
1.000	+.000 -.003	2.50	100 250-075	750	2900	5.98	5.12	2.50	2.550	4.625	.56	1.63	4.13	.23	.50	3.40	1.00	1.50	0	SAE 4
			100 250-100	1000	5200															
			100 250-150	1500	6000															
1.375	+.000 -.003	2.00	137 200-075	750	2700	5.37	4.65	2.25	2.050	4.125	.56	2.13	3.74	.23	.50	3.00	1.00	1.50	0	SAE 4
			137 200-100	1000	2700															
			137 200-150	1500	5200															
1.375	+.000 -.003	2.50	137 250-075	750	2700	5.98	5.12	2.50	2.550	4.625	.56	2.13	4.13	.23	.50	3.50	.90	1.50	0	SAE 4
			137 250-100	1000	5200															
			137 250-150	1500	6000															
1.375	+.000 -.003	3.25	137 325-075	750	8200	7.75	6.50	3.25	3.250	5.875	.69	2.13	5.70	.28	.45	4.50	1.10	2.60	0	SAE 4
			137 325-100	1000	11500															
			137 325-150	1500	16000															
1.750	+.000 -.003	2.50	175 250-075	750	3500	6.00	5.91	2.50	2.55	4.630	.56	2.38	4.33	.32	.70	3.90	.96	2.44	.78	SAE 4
			175 250-120	1200	5200															
			175 250-200	2000	7500															
1.750	+.000 -.003	3.25	175 325-075	750	8200	7.75	6.50	3.25	3.250	5.875	.69	2.50	5.70	.30	.63	4.67	.93	2.60	0	SAE 4
			175 325-100	1000	11500															
			175 325-150	1500	16000															
1.750	+.000 -.003	4.00	175 400-075	750	8200	8.38	6.50	3.50	3.820	6.375	.69	2.50	6.10	.34	.50	4.375	1.225	2.20	0	SAE 4
			175 400-100	1000	12000															
			175 400-150	1500	17000															
2.000	+.000 -.003	3.25	200 325-075	750	8200	7.75	6.50	3.25	3.250	5.875	.69	2.68	5.70	.29	.58	4.50	1.10	2.60	0	SAE 4
			200 325-100	1000	11500															
			200 325-150	1500	16000															
2.000	+.000 -.003	5.00	200 500-075	750	8200	11.25	6.50	3.50	4.950	8.187	.94	2.75	6.10	.34	.50	4.375	1.225	2.20	0	SAE 4
			200 500-100	1000	12000															
			200 500-150	1500	17000															
2.500	+.000 -.003	4.00	250 400-075	750	6000	7.68	7.10	3.50	3.813	6.375	.69	3.14	6.10	.35	.56	4.77	1.23	3.0	.91	SAE 4
			250 400-100	1000	8000															
			250 400-150	1500	15000															
2.500	+.000 -.003	6.00	250 600-075	750	30000	12.75	9.00	5.00	5.730	9.437	1.06	3.25	8.85	.38	.75	3.625	1.125	3.00	0	SAE 8
			250 600-100	1000	36000															
			250 600-150	1500	50000															
3.000	+.000 -.003	6.00	300 600-075	750	17000	12.75	9.00	5.00	5.730	9.437	1.06	3.88	-	-	.38	4.88	1.1	3.11	0	SAE 8
			300 600-100	1000	22500															
3.000	+.000 -.003	7.00	300 700-075	750	30000	14.75	10.00	6.50	6.580	10.625	1.19	3.88	-	-	.75	7.325	1.375	4.73	0	SAE 8
			300 700-100	1000	36000															
			300 700-150	1500	50000															
3.500	+.000 -.003	8.00	350 800-075	750	40000	16.14	11.50	7.00	7.500	11.812	1.31	4.38	-	-	.90	8.93	1.32	5.35	0	SAE 10
			350 800-100	1000	55000															
			350 800-150	1500	80000															
4.000	+.000 -.005	8.00	400 800-075	750	40000	16.14	11.50	7.00	7.500	11.812	1.31	4.88	-	-	.90	8.875	1.365	5.35	0	SAE 10
			400 800-100	1000	55000															
			400 800-150	1500	80000															

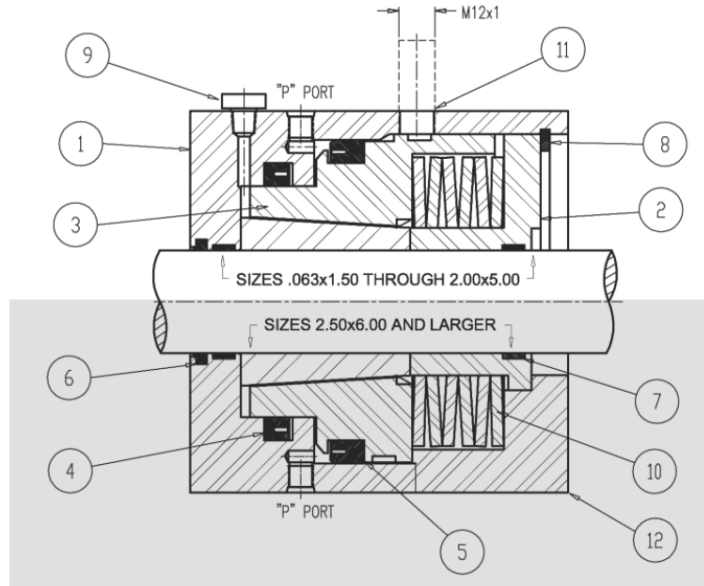
1 Maximum hydraulic release pressure: 3000 psi.
2 Other sizes available upon request.

3 Rod tolerances that exceed these limits will affect the holding force.
4 Holding forces are based on dry or mineral-oil lubricated shafts.

RCH ASSEMBLY INSTRUCTIONS

1. Temporarily connect a flexible hose to a release pressure port of the AMLOK® Rod Clamp and apply specified hydraulic release pressure.
2. Line up the counter-bored end toward the mounting surface of the hydraulic cylinder or housing and slide the rod clamp over the rod to be clamped.
3. Align mounting holes, proximity switch, hydraulic pressure and breather plug to the proper location.
4. Release hydraulic pressure.
5. Bolt AMLOK® to cylinder or other mounting surface.
6. Pressurize the Rod Clamp to the specified release pressure. (Units must be completely bled of air prior to use unless hydraulic circuit includes a SIT-EMMEA-4 air bleed. See page 7.)
7. Release and pressurize several times. With the specified release pressure, the rod should move freely through the AMLOK®.
8. If the rod does not move freely, check the squareness of the housing and cylinder contact surface and correct if needed.

*Shaded areas 2.50 x 6.00 sizes and larger.



#	DESCRIPTION	Quantity	#	DESCRIPTION	Quantity
1	Housing	1	7	Wear Ring	2
2	Retainer (sizes .063 x 1.50 2.00 x 5.00)	1	8	Retainer Ring	1
3	Clamping Ring	1	9	Breather Plug - 1/8 NPT	1
4	Seal	1	10	Disc Springs	4-8
5	Seal	1	11	Proximity Switch (Optional)	1
6	Wiper	1	12	Retainer (sizes 2.5x6.00 & larger)	1

NOTE: When assembling the AMLOK® Rod Clamp, take precaution not to induce side loading.

ACTUATION & CIRCUIT RECOMMENDATIONS

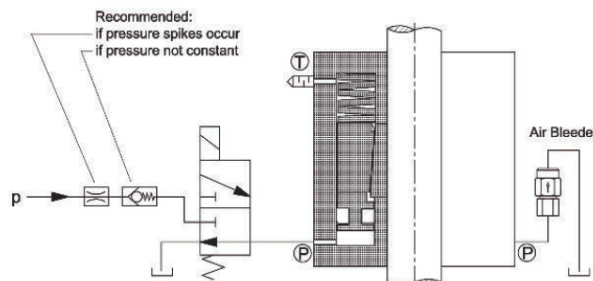
In most applications, the circuit suggested in the drawing is used. During every operational cycle, the 3-way valve is actuated electrically and releases the locking unit. In power failure, emergency stop, etc. the locking unit secures the rod and holds the load. In case the pressure fails, the load is secured in the same way.

To avoid possible problems, the shaft should not be moved unless the proximity switch indicates "unclamped".

If pressure (p) is not sufficiently constant (e.g. "pressure drop" when lowering movement begins), we recommend installing a check valve in the "p" port as shown in the diagram.

Pressure spikes above rated pressure can sometimes be reduced by a snubber orifice upstream of the check valve.

To assure no air is trapped in hydraulic chamber, installation of the SIT-EMMEA-4 Air Bleed must be installed as shown in sample circuit.



AMLOK® PROXIMITY SWITCH SETTING INSTRUCTIONS

1. Set the AMLOK® to the unclamped "pressure applied" position.
2. Screw the proximity switch (incl. Lock tooth washer) into the designated M12 x 1 proximity switch hole, until it contacts the piston flange.
3. Unscrew (back off) the proximity switch approximately 1 turn. While holding the proximity switch in the set position, tighten the locking nut using 15 ft. lbs. of torque. Final adjustment may be necessary to achieve desired results.

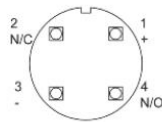
4. With the electrical power in the off position, connect the electrical wiring per the wiring diagram supplied with the switch. After the electrical power has been turned on, the proximity switch should indicate that the AMLOK® is in the unclamped position.

Note: Insure that the electrical power has been turned off before making adjustments. The locking nut should be tightened to a maximum of 15ft.lbs. of torque to prevent damage to the internal components of the switch.

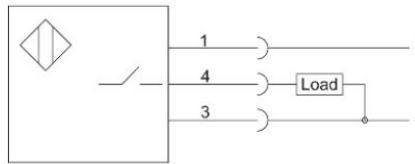


SPECIFICATIONS FOR OPTIONAL PROXIMITY SWITCH (INDICATES 'UNCLAMPED' POSITION)

View of Male Connector pins:



Wiring Connections:
PNP Normally Open



SIT-EMMEA-4 AIR BLEED

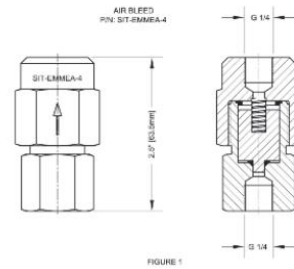
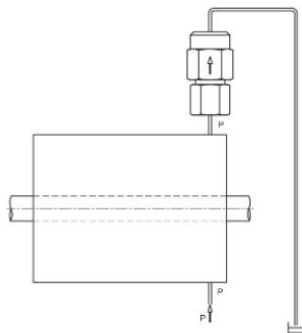
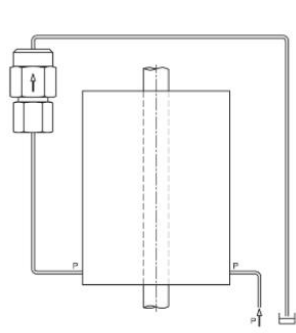
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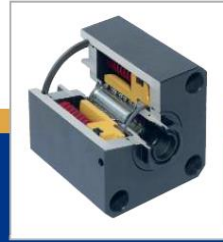
It is important that all the air be bled from the AMLOK® piston area. The AMLOK® is designed with a short piston travel to give it a fast response time. Trapped air, especially with fast acting short stroke pistons at high pressure can cause ignition of the air-oil mixture, causing mini explosions (dieseling) to occur which will cut and crack seals.

To avoid this occurrence, it is recommended to install an automatic air bleed valve, (Fig. 1), between the AMLOK® and the oil reservoir. The automatic air bleed valve should be installed in either P port, whichever

is the highest. The automatic air bleed valve opens slightly each time the AMLOK® is depressurized and allows air to escape to the reservoir. See (Fig. 2) and (Fig. 3) for typical mounting arrangements of the automatic bleed valve.

It is important to install the air bleed valve as near as possible and above piston chamber of the AMLOK® and that no back pressure over 30 PSI (2 bar) remain in the line while the AMLOK® is locked. See sample circuit page 6.





4th GENERATION

Stand Alone Mounting or
NFPA Style Mounting Options

RLN SERIES ROD LOCKS

NEW COMPACT DESIGN FOR LONGER LIFE

1 BODY

Solid aluminum precision machined for accurate alignment. Black anodized for appearance and corrosion resistance.

2 LOCKING MECHANISM

Oversized, hardened and ground locking with antifriction amplification.

3 COIL SPRINGS

Heavy duty springs designed for long life.

4 LIP-TYPE PISTON SEALS

Pressure activated lip seal is wear compensated for effective sealing at rated pressures. The seal is internally lubricated, reducing friction and extending life.

5 HOUSING DESIGN

Provides for direct mounting or allows attaching of a choice of NFPA detachable mounts.

6 ROD WIPER

The wiper is designed to wipe off abrasive dust and contamination on the retract stroke to ensure long life for the seals, bearing and piston rod. The standard wiper is carboxylated nitrile and is internally lubricated to reduce friction and extend life.

7 ROD BEARING

The phenolic bearing provides maximum piston rod support, reduces friction and resists wear abrasion (galling and seizing). Factory preset for minimum backlash.

8 TIE RODS - (if capable)

Alloy steel, pre-stressed for maximum fatigue strength. Roll threaded for added strength on 1 1/2" - 6" bores.

This new 4th generation NFPA - Style AMLOK® Pneumatic Series RLN Rod Clamp has been developed as a solution to control problems inherent to pneumatics—over travel, drifting, bouncing and reverse traveling. The AMLOK® Power-Off Rod Clamp can be mounted to the NFPA cylinder of your choice, or as a stand alone unit to be used with no cylinder at all.

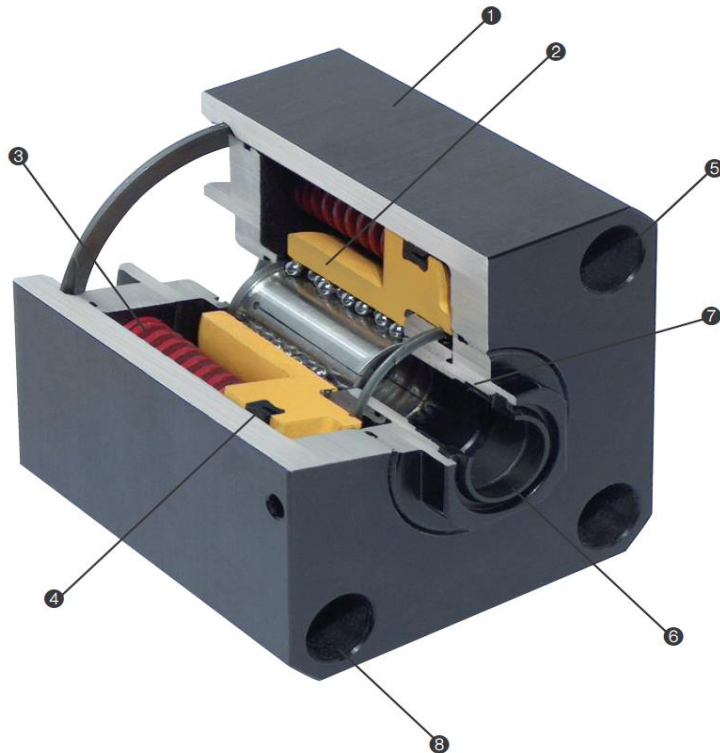
The AMLOK® has been designed with oversized components to withstand the most severe applications. For example, the contact area of the clamping collet is considerably greater than on similar units. The increased contact area reduces the pressure-per-square-inch on the rod, thereby extending service life.

The patented intensifier is a mechanical design, assuring a long service life. Since the clamping is accomplished through spring force, drifting caused by a lack of air pressure is not possible.

For hydraulic applications, please refer to our Type RCH AMLOK® catalog.

WARRANTY:

AMLOK® RLN units are warranted for a period of one (1) year from date of shipment, to be free from defects of materials and workmanship, provided said items are properly applied.



FEATURES

- No Rod Displacement on Engagement
- Large Clamping Surface
- Fast Response Time
- Extremely Low Backlash
- Spring Engaged Units
- Profile Matches NFPA Cylinder
- 4 bar (60 psi) release pressure

BENEFITS

- Precision Holding (0.002-0.003)
- Consistent Clamping Force
- High Cycle Rates and accuracy
- Holds Load During Power/Pressure Loss
- Compact Unit, Easy Integration
- Broad Applications

ROD LOCK OPTIONS:

- Stainless Housing
- Electroless Nickel Plated Housing
- Viton Seals
- Wiper Scraper
- Sealed Unit

The patented AMLOK® Type RLN consists of a anodized aluminum housing with a special piston and wedge locking mechanism actuated by a spring that mechanically locks the rod. This mechanically-operated intensifying mechanism increases the force created by the spring several times to guarantee quick and secure locking. The clamp is unlocked when air actuates the piston, which compresses the spring and releases the locking device.

Since the locking of the AMLOK® is accomplished mechanically by a spring and unlocked by air pressure, loss of air pressure will cause the unit to lock.

The holding force depends upon the rod and piston diameter. The available holding forces can be multiplied by adding additional AMLOK® clamps to the same rod.

AMLOKS® are designed for locking reciprocating motions only. To lock rotary motions, contact the factory.

NOTE:

If these units are to be used as safety or braking devices, please consult the factory.



When attached to cylinders, longer cylinder rods must be specified to allow for the length of the AMLOK®. See "L+V" dimension in the chart.

If a hollow rod must be clamped, contact Advanced Machine for guidelines.

Recommended rod tolerances are cited on page 5. For maximum life, the rod should be hard chrome or surface-hardened with surface finish of about 32 micro inches. Avoid nicks and burrs which could damage the wiper and bearings.

The contact surfaces and bores to which the AMLOK® is clamped must be square and concentric to each other

within .002" T.I.R. to avoid binding of the rod or excess wear. The rod must fully engage the clamping device at all times.

NOTE: AMLOK® Rod Clamps can be an integral part of your housing. We can provide mating components for your special applications. When side loads are acting on the cylinder rod, make sure that the rod is guided sufficiently in bearings to avoid excessive side loads on the locking mechanism. This is especially important at higher cylinder rod speeds.

For special mountings or higher holding forces, please consult the factory.

APPLICATIONS

STANDARD SPECIFICATIONS

- NFPA Mounting Styles
- Tie Rod Design - One Piece Solid Body
- Maximum Operating Pressure - 160 PSI Air (11 bar)
Required Release Pressure - 60 PSI Air (6 bar)
- Operating Media - Filtered Compressed Air
- Operating Temperature
 - Standard 10°F to + 180°F (+12°C to +82°C)
 - Optional 10°F to + 250°F (+12°C to +121°C)
- Holding Force - Axial holding forces were established after 2,000,000 fatigue test cycles
- Minimum linear movement may occur after clamp is fully engaged (.002" - .003")

ROD LOCK OPERATION SPECIFICS

- Holds with consistent force in both directions
- Can be mounted in any position
- Release pressure can range from 4-8 bar (60 psi min. - 120 psi max.)
- The Buna-N seals are rated to 100°C (212°F)
- Operating temperature range from 0.5°C-66°C (33°F-150°F). Units are capable of intermittent use at temperatures up to 100°C (212°F)
Consult factory for extreme applications.



AMLOK® RLN attached to NFPA cylinder with CMF1 mounting flange and custom pressure check valve.

REQUIREMENTS FOR OPTIMAL PERFORMANCE

AMLOK® RLN Series rodlocks must be used in an application that meets the following specifications:

- Suitable for infrequent dynamic braking (emergency stops) when used with hardened shaft material and proper cylinder and motion control circuits. Repeated dynamic stops may cause rod wear, reduce holding forces and reduce life.
- Requires dry, clean, pressure regulated air
- Does not require lubrication
- Rated holding force corresponds to static load conditions. Slipping may occur if rated value is exceeded and may cause rod damage.
- Rod must be clean and dry to maintain optimum holding force.
- Cylinder pilot must mate properly with rod lock seal for food service washdown rating.
- Rod material requirements:
 - Standard NFPA cylinder rod
 - Hard chrome plate recommended
 - Rod diameter +0.00"/-0.003"
 - Surface finish hard chrome plate

APPLICATIONS

The new AMLOK® RLN Series Rod Lock design can be sealed. Suitable for food and washdown applications. Other common applications include:

- Machine Tool Applications
- Scissor-lift Tables
- Test and Positioning Equipment
- Amusement Ride Equipment
- Printing and Paper Handling Equipment
- Theatrical Equipment (Platforms)
- Assembly and Test Equipment



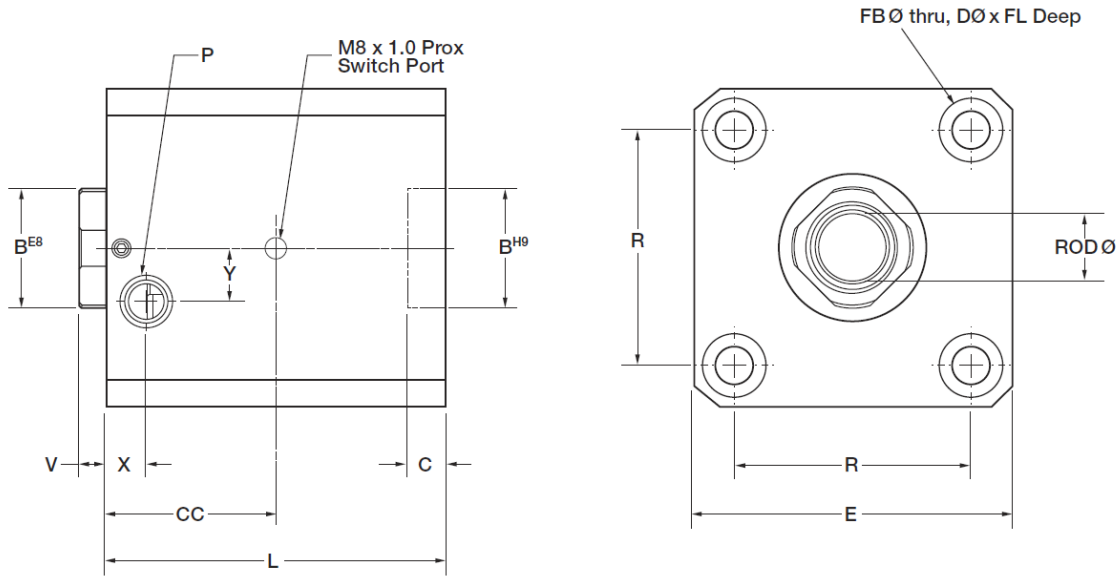
Pneumatic Amlok functional considerations and recommended release circuit for Amlok rod clamps.

It is important to consider that the Amlok rod lock is a power off locking device. During every operational cycle, the 3-way valve is actuated electrically and pressure releases the locking mechanism. When power fails, emergency stop, etc. pressure is lost (dropped) and the locking mechanism secures the rod.

When pressure is not sufficiently constant (drops below recommended releases pressure) the spring operated locking mechanism begins to engage the rod, (shaft) and develops (full) stated holding force at "0" psi.

It is therefore important to isolate the release circuit from inadvertent pressure drops when release is via check valve in the inlet to the release valve see recommended circuit above.

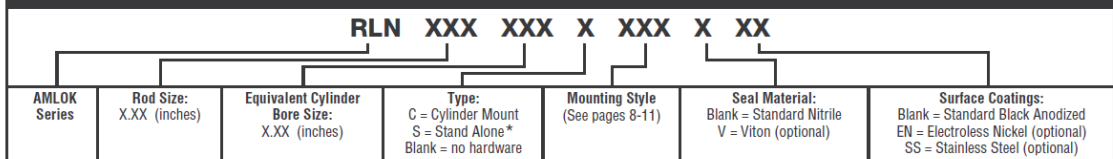
AMLOK® RLN NFPA BASIC TECHNICAL DATA



AMLOK ROD CLAMP TECHNICAL DATA

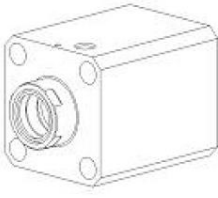
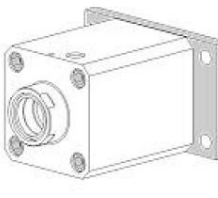
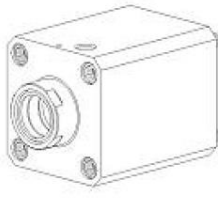
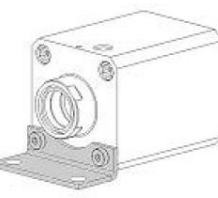
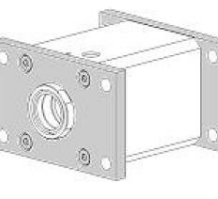
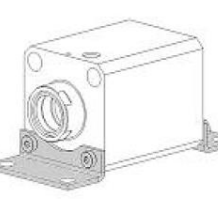
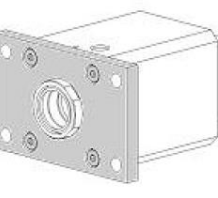
AMLOK Type- RLN	Rod Dia. [in]	Bore Dia. [in]	Axial Holding Force [lbf]	B [in]	C [in]	D [in]	FL [in]	E [in]	FB [in]	L [in]	P [in]	R [in]	V [in]	X [in]	Y [in]	Weight [lb]
RLN-063150	0.625	1.500	200	1.125	0.375	0.422	0.896	1.98	0.281	3.05	1/8 NPT	1.430	0.63	0.60	0.25	3.0
RLN-063200	0.625	2.000	400	1.125	0.375	0.515	1.031	2.48	0.343	3.06	1/8 NPT	1.840	0.63	0.50	0.38	4.0
RLN-063250	0.625	2.500	650	1.125	0.375	0.515	1.031	2.98	0.343	3.18	1/8 NPT	2.190	0.63	0.50	0.50	5.0
RLN-100200	1.000	2.000	300	1.500	0.563	0.515	1.031	2.48	0.343	3.75	1/8 NPT	1.840	0.63	0.31	0.38	3.5
RLN-100250	1.000	2.500	450	1.500	0.563	0.515	1.031	2.98	0.343	3.65	1/8 NPT	2.190	0.63	0.38	0.50	5.0
RLN-100325	1.000	3.250	950	1.500	0.563	0.719	1.281	3.725	0.406	4.00	1/4 NPT	2.760	0.89	0.56	0.00	8.0
RLN-100400	1.000	4.000	1550	1.500	0.563	0.719	1.281	4.48	0.406	4.00	1/4 NPT	3.320	0.89	0.56	0.00	13.5
RLN-100500	1.000	5.000	2150	1.500	0.563	0.844	1.500	5.48	0.531	4.00	1/4 NPT	4.100	0.89	0.56	0.00	17.5
RLN-138325	1.375	3.250	950	2.000	0.625	0.719	1.281	3.725	0.406	4.00	1/4 NPT	2.760	0.89	0.56	0.00	8.1
RLN-138400	1.375	4.000	1550	2.000	0.625	0.719	1.281	4.48	0.406	4.00	1/4 NPT	3.320	0.89	0.56	0.00	12.0
RLN-138500	1.375	5.000	1950	2.000	0.625	0.844	1.500	5.48	0.531	4.00	1/4 NPT	4.100	0.89	0.56	0.00	18.0
RLN-138600	1.375	6.000	2650	2.000	0.625	0.844	1.500	6.48	0.531	4.50	1/4 NPT	4.880	1.00	0.56	0.00	24.5
RLN-175600	1.750	6.000	2450	2.375	0.750	0.844	1.500	6.48	0.531	4.50	1/4 NPT	4.880	1.00	0.56	0.00	22.5

AMLOK ROD CLAMP PART NUMBERING SYSTEM

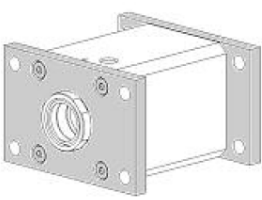
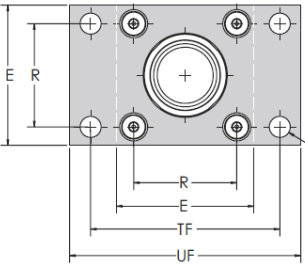
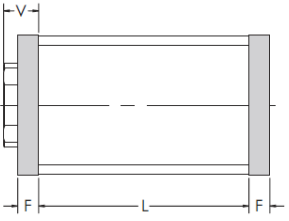


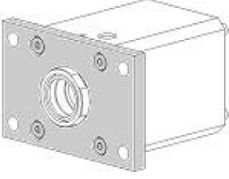
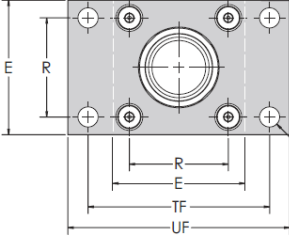
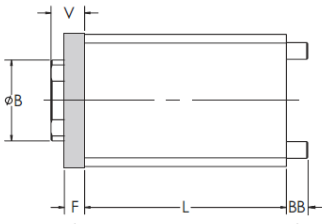
* Stand-alone unit contains wipers and rod bearings on each end.
NOTE: For direct replacement of RCN style rod lock, please consult factory.

RLN NFPA MOUNTING OVERVIEW

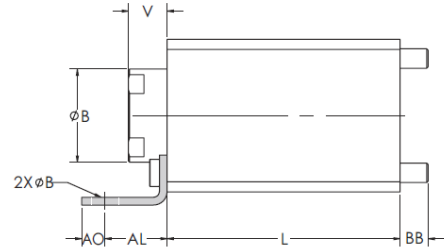
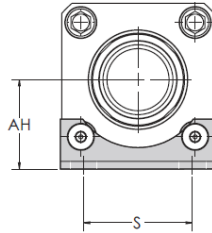
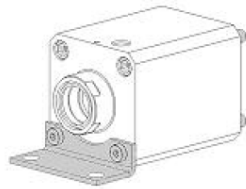
	<p>MXO / SN : No Mount</p> <p>Rod lock housing contains 4 through holes.</p> <p>* SXXX = Stand Alone additional rod bearing and wiper supplied</p>		<p>CMF2 : Cylinder Mount</p> <p>Assembly contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Rear Flange 4 Sleeve Nuts 4 Tie Rods 	
	<p>CMXO : Cylinder Mount</p> <p>Kit contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 4 Sleeve Nuts 4 Tie Rods 		<p>CMS1 : Cylinder Mount</p> <p>Kit contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Angle Bracket 4 Sleeve Nuts 4 Tie Rods 4 SHCS 	
	<p>SA : Stand Alone CA : Cylinder Mount</p> <p>Assembly contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Front Flange 1 Rear Flange 4 Sleeve Nuts 4 Tie Rods 4 SHCS <p>* SXXX = Stand Alone additional rod bearing and wiper supplied</p>		<p>SMS1 : Stand Alone</p> <p>Assembly contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 2 Angle Brackets 2 Sleeve Nuts 2 Tie Rods 2 SHCS 2 Hex Nuts <p>* SXXX = Stand Alone additional rod bearing and wiper supplied</p>	
	<p>SMF1 : Stand Alone / CMF1 : Cylinder Mount</p> <table border="0"> <tbody> <tr> <td> <p>SMF1 Assembly contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Front Flange 4 Sleeve Nuts 4 Tie Rods 4 SHCS 4 Hex Nuts </td> <td> <p>CMF1 Kit contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Front Flange 4 Sleeve Nuts 4 Tie Rods 4 SHCS 4 Hex Nuts </td> </tr> </tbody> </table> <p>* SXXX = Stand Alone additional rod bearing and wiper supplied</p>		<p>SMF1 Assembly contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Front Flange 4 Sleeve Nuts 4 Tie Rods 4 SHCS 4 Hex Nuts 	<p>CMF1 Kit contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Front Flange 4 Sleeve Nuts 4 Tie Rods 4 SHCS 4 Hex Nuts
<p>SMF1 Assembly contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Front Flange 4 Sleeve Nuts 4 Tie Rods 4 SHCS 4 Hex Nuts 	<p>CMF1 Kit contains:</p> <ul style="list-style-type: none"> 1 Rod Lock 1 Front Flange 4 Sleeve Nuts 4 Tie Rods 4 SHCS 4 Hex Nuts 			

MOUNTING DIMENSIONS

MOUNTING DIMENSIONS CA - CYLINDER MOUNT												
  												
RLN - XXX XXX CA X XX	AMLOK Type - RLN	Rod Dia. [in]	Bore Dia. [in]	L [in]	E [in]	UF [in]	F [in]	FB Dia. [in]	TF [in]	R [in]	V [in]	Weight [lb]
CYLINDER MOUNT	RLN-063150	0.625	1.500	3.050	1.980	3.375	0.375	0.312	2.750	1.430	0.63	2.53
Front Flange Mount (NFPA Style MF1)	RLN-063200	0.625	2.000	3.060	2.480	4.125	0.375	0.375	3.375	1.840	0.63	4.43
Rear Flange Mount (NFPA Style MF2)	RLN-063250	0.625	2.500	3.180	2.980	4.625	0.375	0.375	3.875	2.190	0.63	5.96
Ships assembled	RLN-100200	1.000	2.000	3.750	2.480	4.125	0.375	0.375	3.375	1.840	0.63	4.26
	RLN-100250	1.000	2.500	3.650	2.980	4.625	0.375	0.375	3.875	2.190	0.63	6.01
	RLN-100325	1.000	3.250	4.000	3.725	5.500	0.625	0.437	4.687	2.760	0.89	12.52
	RLN-100400	1.000	4.000	4.000	4.480	6.250	0.625	0.437	5.437	3.320	0.89	18.35
	RLN-100500	1.000	5.000	4.000	5.480	7.625	0.625	0.562	6.625	4.100	0.89	27.81
	RLN-138325	1.375	3.250	4.000	5.500	3.725	0.625	0.437	4.687	2.760	0.89	12.23
	RLN-138400	1.375	4.000	4.000	4.480	6.250	0.625	0.437	5.437	3.320	0.89	17.92
	RLN-138500	1.375	5.000	4.000	5.480	7.625	0.625	0.562	6.625	4.100	0.89	26.97
	RLN-138600	1.375	6.000	4.500	6.480	8.625	0.750	0.562	7.628	4.880	1.00	42.18
	RLN-175600	1.750	6.000	4.500	6.480	8.625	0.750	0.562	7.625	4.880	1.00	42.24

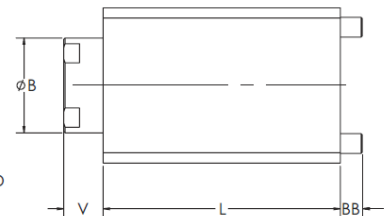
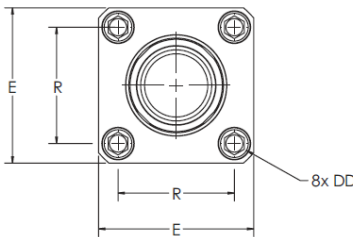
MOUNTING DIMENSIONS CMF1 AND CMF2 - CYLINDER MOUNT													
  													
RLN - XXX XXX CMF1 X XX RLN - XXX XXX CMF2 X XX	AMLOK Type - RLN	Rod Dia. [in]	Bore Dia. [in]	L [in]	E [in]	UF [in]	F [in]	FB Dia. [in]	TF [in]	R [in]	V [in]	Weight [lb]	BB [in]
CYLINDER MOUNT	RLN-063150	0.625	1.500	3.050	1.980	3.375	0.375	0.312	2.750	1.430	0.63	1.97	.35
Front Flange Mount - CMF1 (NFPA Style MF1 for cylinder mounting)	RLN-063200	0.625	2.000	3.060	2.480	4.125	0.375	0.375	3.375	1.840	0.63	3.51	.35
Ships as a kit	RLN-063250	0.625	2.500	3.180	2.980	4.625	0.375	0.375	3.875	2.190	0.63	4.66	.35
Rear Flange Mount - CMF2 (NFPA Style MF2 for cylinder mounting)	RLN-100200	1.000	2.000	3.750	2.480	4.125	0.375	0.375	3.375	1.840	0.63	3.45	.35
Ships assembled	RLN-100250	1.000	2.500	3.650	2.980	4.625	0.375	0.375	3.875	2.190	0.63	4.79	.35
	RLN-100325	1.000	3.250	4.000	3.725	5.500	0.625	0.437	4.687	2.760	0.89	9.33	.60
	RLN-100400	1.000	4.000	4.000	4.480	6.250	0.625	0.437	5.437	3.320	0.89	13.82	.60
	RLN-100500	1.000	5.000	4.000	5.480	7.625	0.625	0.562	6.625	4.100	0.89	20.94	.60
	RLN-138325	1.375	3.250	4.000	5.500	3.725	0.625	0.437	4.687	2.760	0.89	9.28	.60
	RLN-138400	1.375	4.000	4.000	4.480	6.250	0.625	0.437	5.437	3.320	0.89	13.65	.60
	RLN-138500	1.375	5.000	4.000	5.480	7.625	0.625	0.562	6.625	4.100	0.89	20.35	.60
	RLN-138600	1.375	6.000	4.500	6.480	8.625	0.750	0.562	7.628	4.880	1.00	31.22	.70
	RLN-175600	1.750	6.000	4.500	6.480	8.625	0.750	0.562	7.625	4.880	1.00	31.55	.70

MOUNTING DIMENSIONS CMS1 - CYLINDER MOUNT



RLN - XXX XXX CMS1	AMLOK Type - RLN	Rod Dia. [in]	Bore Dia. [in]	L [in]	AO [in]	AL [in]	AH [in]	S [in]	V [in]	Weight [lb]	BB [in]
CYLINDER MOUNT Front Angle Mount - CMS1 (NFPA Style MS1) Ships as a kit	RLN-063150	0.625	1.500	3.050	0.375	1.000	1.187	1.250	0.625	1.51	.35
	RLN-063200	0.625	2.000	3.060	0.375	1.000	1.437	1.750	0.627	2.72	.35
	RLN-063250	0.625	2.500	3.180	0.375	1.000	1.625	2.250	0.623	3.54	.35
	RLN-100200	1.000	2.000	3.750	0.375	1.000	1.437	1.750	0.623	2.74	.35
	RLN-100250	1.000	2.500	3.650	0.375	1.000	1.625	2.250	0.632	3.75	.35
	RLN-100325	1.000	3.250	4.000	0.500	1.250	1.937	2.750	0.865	6.42	.60
	RLN-100400	1.000	4.000	4.000	0.500	1.250	2.238	3.500	0.875	9.66	.60
	RLN-100500	1.000	5.000	4.000	0.625	1.375	2.738	4.250	0.875	14.89	.60
	RLN-138325	1.375	3.250	4.000	0.500	1.250	1.937	2.750	0.875	6.62	.60
	RLN-138400	1.375	4.000	4.000	0.500	1.279	2.238	3.500	0.871	9.75	.60
	RLN-138500	1.375	5.000	4.000	0.625	1.375	2.738	4.250	0.866	14.54	.60
	RLN-138600	1.375	6.000	4.500	0.625	1.375	3.235	5.250	1.000	21.24	.70
	RLN-175600	1.750	6.000	4.500	0.625	1.375	3.235	5.250	1.000	21.84	.70

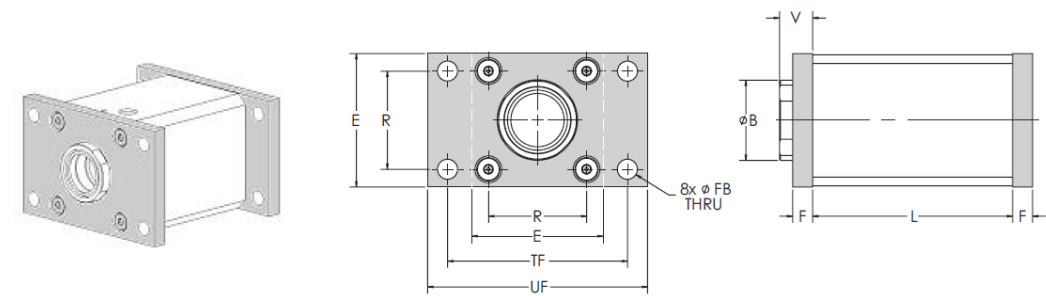
MOUNTING DIMENSIONS CMXO - CYLINDER MOUNT



RLN - XXX XXX CMXO	AMLOK Type - RLN	Rod Dia. [in]	Bore Dia. [in]	L [in]	E [in]	R [in]	DD Thread	V [in]	Weight [lb]	BB [in]
CYLINDER MOUNT (NFPA Style MXO for cylinder mounting) Ships as a kit	RLN-063150	0.625	1.500	3.050	0.375	1.430	1/4-28	0.625	1.24	.35
	RLN-063200	0.625	2.000	3.060	0.375	1.840	5/16-24	0.627	2.06	.35
	RLN-063250	0.625	2.500	3.180	0.375	2.190	5/16-24	0.623	2.98	.35
	RLN-100200	1.000	2.000	3.750	0.375	1.840	5/16-24	0.623	2.23	.35
	RLN-100250	1.000	2.500	3.605	0.375	2.190	5/16-24	0.632	3.20	.35
	RLN-100325	1.000	3.250	4.000	0.500	2.760	3/8-24	0.865	5.31	.60
	RLN-100400	1.000	4.000	4.000	0.500	3.320	3/8-24	0.875	8.47	.60
	RLN-100500	1.000	5.000	4.000	0.625	4.100	1/2-20	0.875	12.43	.60
	RLN-138325	1.375	3.250	4.000	0.500	2.760	3/8-24	0.875	5.62	.60
	RLN-138400	1.375	4.000	4.000	0.500	3.320	3/8-24	0.871	9.03	.60
	RLN-138500	1.375	5.000	4.000	0.625	4.100	1/2-20	0.866	12.78	.60
	RLN-138600	1.375	6.000	4.500	0.625	4.880	1/2-20	1.000	18.84	.70
	RLN-175600	1.750	6.000	4.500	0.625	4.880	1/2-20	1.000	19.55	.70

MOUNTING DIMENSIONS

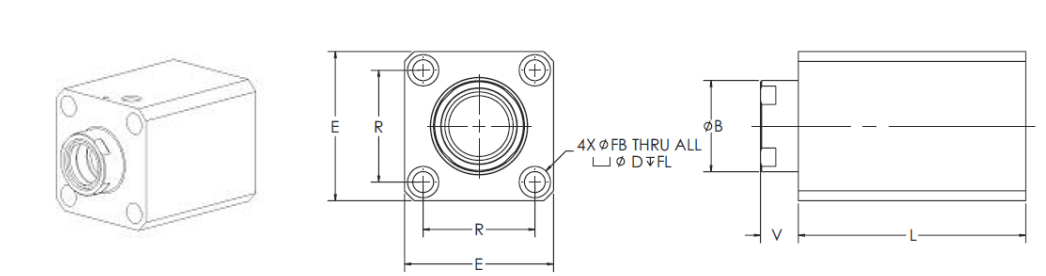
MOUNTING DIMENSIONS SA - STAND ALONE



RLN - XXX XXX SA X XX	AMLOK Type - RLN	Rod Dia. [in]	Bore Dia. [in]	L [in]	E [in]	UF [in]	F [in]	FB Dia. [in]	TF [in]	R [in]	V [in]	Weight [lb]
STAND ALONE Front Flange Mount (NFPA Style MF1 and MF2) Ships assembled Includes rod bearings and wipers on both ends.d	RLN-063150	0.625	1.500	3.050	1.980	3.375	0.375	0.312	2.750	1.430	0.63	2.62
	RLN-063200	0.625	2.000	3.060	2.480	4.125	0.375	0.375	3.375	1.840	0.63	4.31
	RLN-063250	0.625	2.500	3.180	2.980	4.625	0.375	0.375	3.875	2.190	0.63	6.02
	RLN-100200	1.000	2.000	3.750	2.480	4.125	0.375	0.375	3.375	1.840	0.63	4.37
	RLN-100250	1.000	2.500	3.650	2.980	4.625	0.375	0.375	3.875	2.190	0.63	6.10
	RLN-100325	1.000	3.250	4.000	3.725	5.500	0.625	0.437	4.687	2.760	0.89	12.60
	RLN-100400	1.000	4.000	4.000	4.480	6.250	0.625	0.437	5.437	3.320	0.89	18.46
	RLN-100500	1.000	5.000	4.000	5.480	7.625	0.625	0.562	6.625	4.100	0.89	27.89
	RLN-138325	1.375	3.250	4.000	5.500	3.725	0.625	0.437	4.687	2.760	0.89	12.42
	RLN-138400	1.375	4.000	4.000	4.480	6.250	0.625	0.437	5.437	3.320	0.89	18.54
	RLN-138500	1.375	5.000	4.000	5.480	7.625	0.625	0.562	6.625	4.100	0.89	27.48
	RLN-138600	1.375	6.000	4.500	6.480	8.625	0.750	0.562	7.628	4.880	1.00	42.18
	RLN-175600	1.750	6.000	4.500	6.480	8.625	0.750	0.562	7.625	4.880	1.00	42.52

* SXXX = Stand Alone additional rod bearing and wiper supplied

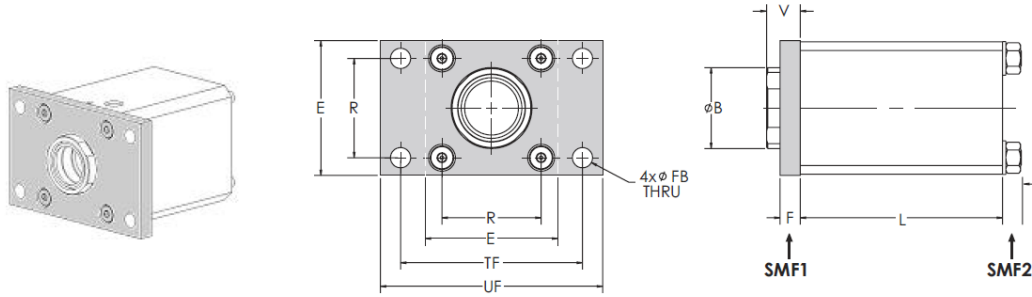
MOUNTING DIMENSIONS MXO / SN - STAND ALONE



RLN - XXX XXX MXO X XX RLN - XXX XXX SN X XX	AMLOK Type - RLN	Rod Dia. [in]	Bore Dia. [in]	L [in]	E [in]	R [in]	V [in]	FB [in]	FL [in]	D [in]	Weight [lb]
MXO OR STAND ALONE No mounting hardware included	RLN-063150	0.625	1.500	3.050	1.980	1.430	0.63	0.281	0.896	0.422	1.24
	RLN-063200	0.625	2.000	3.060	2.480	1.840	0.63	0.343	1.031	0.515	2.06
	RLN-063250	0.625	2.500	3.180	2.980	2.190	0.63	0.343	1.031	0.515	2.98
	RLN-100200	1.000	2.000	3.750	2.480	1.840	0.63	0.343	1.031	0.515	2.23
	RLN-100250	1.000	2.500	3.650	2.980	2.190	0.63	0.343	1.031	0.515	3.20
	RLN-100325	1.000	3.250	4.000	3.725	2.760	0.89	0.406	1.281	0.719	5.31
	RLN-100400	1.000	4.000	4.000	4.480	3.320	0.89	0.406	1.281	0.719	8.47
	RLN-100500	1.000	5.000	4.000	5.480	4.100	0.89	0.531	1.500	0.844	12.43
	RLN-138325	1.375	3.250	4.000	3.725	2.760	0.89	0.406	1.281	0.719	5.62
	RLN-138400	1.375	4.000	4.000	4.480	3.320	0.89	0.406	1.281	0.719	9.03
	RLN-138500	1.375	5.000	4.000	5.480	4.100	0.89	0.531	1.500	0.844	12.78
	RLN-138600	1.375	6.000	4.500	6.480	4.880	1.00	0.531	1.500	0.844	18.84
	RLN-175600	1.750	6.000	4.500	6.480	4.880	1.00	0.531	1.500	0.844	19.55

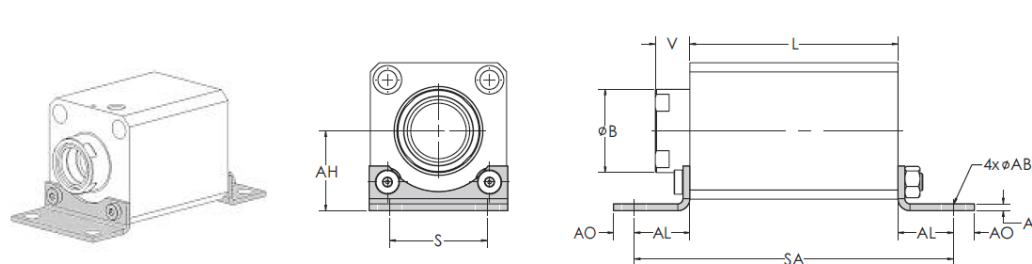
* SXXX = Stand Alone additional rod bearing and wiper supplied

MOUNTING DIMENSIONS SMF1 AND SMF2 - STAND ALONE



RLN - XXX XXX SMF1 X XX RLN - XXX XXX SMF2 X XX	AMLOK Type - RLN	Rod Dia. [in]	Bore Dia. [in]	L [in]	E [in]	UF [in]	F [in]	FB Dia. [in]	TF [in]	R [in]	V [in]	Weight [lb]
STAND ALONE	RLN-063150	0.625	1.500	3.050	1.980	3.375	0.375	0.312	2.750	1.430	0.63	2.11
Front Flange Mount - SMF1 (NFPA Style MF1) Ships assembled	RLN-063200	0.625	2.000	3.060	2.480	4.125	0.375	0.375	3.375	1.840	0.63	3.40
	RLN-063250	0.625	2.500	3.180	2.980	4.625	0.375	0.375	3.875	2.190	0.63	4.72
	RLN-100200	1.000	2.000	3.750	2.480	4.125	0.375	0.375	3.375	1.840	0.63	3.54
	RLN-100250	1.000	2.500	3.650	2.980	4.625	0.375	0.375	3.875	2.190	0.63	4.88
Rear Flange Mount - SMF2 (NFPA Style MF2) Ships assembled	RLN-100325	1.000	3.250	4.000	3.725	5.500	0.625	0.437	4.687	2.760	0.89	9.42
	RLN-100400	1.000	4.000	4.000	4.480	6.250	0.625	0.437	5.437	3.320	0.89	13.97
	RLN-100500	1.000	5.000	4.000	5.480	7.625	0.625	0.562	6.625	4.100	0.89	21.05
	RLN-138325	1.375	3.250	4.000	5.000	3.725	0.625	0.437	4.687	2.760	0.89	9.51
	RLN-138400	1.375	4.000	4.000	4.480	6.250	0.625	0.437	5.437	3.320	0.89	14.29
	RLN-138500	1.375	5.000	4.000	5.480	7.625	0.625	0.562	6.625	4.100	0.89	20.89
	RLN-138600	1.375	6.000	4.500	6.480	8.625	0.750	0.562	7.628	4.880	1.00	31.15
	RLN-175600	1.750	6.000	4.500	6.480	8.625	0.750	0.562	7.625	4.880	1.00	31.86

MOUNTING DIMENSIONS SMS1 - STAND ALONE



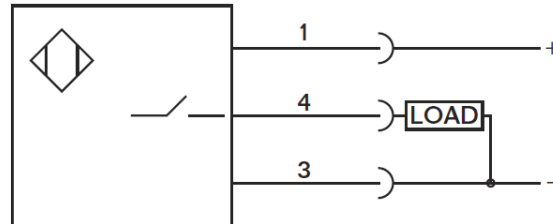
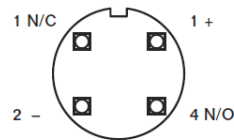
RLN - XXX XXX SMS1 X XX	AMLOK Type - RLN	Rod Dia. [in]	Bore Dia. [in]	L [in]	AO [in]	AL [in]	AH [in]	AT [in]	S [in]	SA [in]	AB [in]	V [in]	Weight [lb]
STAND ALONE	RLN-063150	0.625	1.500	3.050	0.375	1.000	1.187	0.125	1.250	5.050	0.437	0.625	1.60
Front & Rear Angle Mount - SMS1 (NFPA Style MS1) Ships assembled	RLN-063200	0.625	2.000	3.060	0.375	1.000	1.437	0.125	1.750	5.060	0.437	0.627	2.59
	RLN-063250	0.625	2.500	3.180	0.375	1.000	1.625	0.125	2.250	5.175	0.437	0.623	3.59
	RLN-100200	1.000	2.000	3.750	0.375	1.000	1.437	0.125	1.750	5.750	0.437	0.623	2.76
	RLN-100250	1.000	2.500	3.650	0.375	1.000	1.625	0.125	2.250	5.650	0.437	0.632	3.82
	RLN-100325	1.000	3.250	4.000	0.500	1.250	1.937	0.125	2.750	6.500	0.562	0.865	6.42
	RLN-100400	1.000	4.000	4.000	0.500	1.250	2.238	0.125	3.500	6.500	0.562	0.875	9.73
	RLN-100500	1.000	5.000	4.000	0.625	1.375	2.738	0.188	4.250	6.750	0.687	0.875	15.23
	RLN-138325	1.375	3.250	4.000	0.500	1.250	1.937	0.125	2.750	6.500	0.562	0.875	6.73
	RLN-138400	1.375	4.000	4.000	0.500	1.279	2.238	0.125	3.500	6.500	0.562	0.871	10.31
	RLN-138500	1.375	5.000	4.000	0.625	1.375	2.738	0.188	4.250	6.750	0.687	0.866	15.30
	RLN-138600	1.375	6.000	4.500	0.625	1.375	3.235	0.188	5.250	7.250	0.812	1.000	21.77
	RLN-175600	1.750	6.000	4.500	0.625	1.375	3.235	0.188	5.250	7.250	0.812	1.000	22.47

PROXIMITY SWITCH

The new RLN series Amlok provides for optional proximity switch.

WIRING CONNECTIONS

PNP normally open



PROXIMITY SWITCH SETTING INSTRUCTIONS

1. Set the AMLOK® to the unclamped 'pressure applied' position.
2. Screw the proximity switch (with jam nuts) into the designated M 8 x 1 proximity switch hole, until it contacts the position flange.
3. Unscrew (back off) the proximity switch approximately 3/4 turn. While holding the proximity switch in the set position, tighten the locking nut using 15 ft/lbs of torque. Final adjustment may be necessary to achieve desired results.
4. With the electrical power in the off position, connect the electrical wiring per the wiring diagram supplied with the switch. After the electrical power has been turned on, the proximity switch should indicate that the AMLOK® is in the unclamped position.

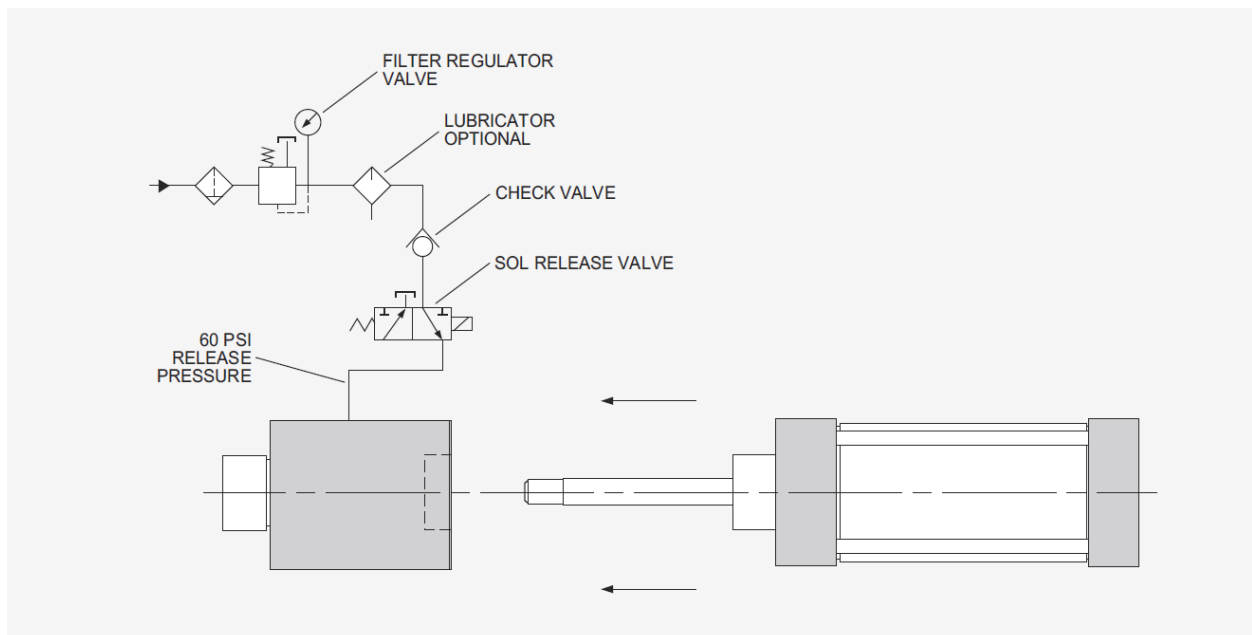
Note: Insure that the electrical power has been turned off before making adjustments. The locking nut should be tightened to a maximum of 15 ft/lbs. of torque to prevent damage to the internal components of the switch.

- If sealing unit for food or chemical service also include optional sealing ring.

ASSEMBLY INSTRUCTIONS

RLN ASSEMBLY INSTRUCTIONS

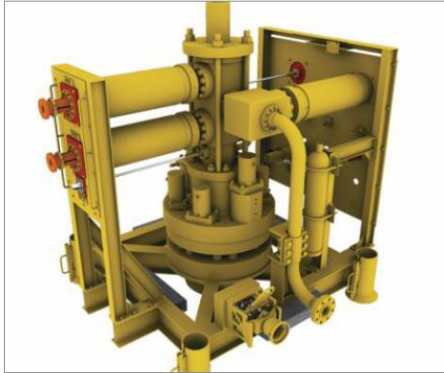
1. Read Assembly Instructions and Caution Label on unit.
2. Connect a flexible hose to the pressure port of the AMLOK®, apply air pressure to release the clamping mechanism and slide the AMLOK® over the rod to be clamped.
3. Align the mounting holes and port hole to the proper location.
4. Release pressure.
5. Bolt AMLOK® to cylinder or housing.
6. Pressurize the AMLOK® to the specified release pressure.
7. Release and pressurize several times. With the specified pressure the rod should move freely through the AMLOK®.
8. If the rod does not move freely, check the squareness of the housing and cylinder contact surface and correct if necessary.



CAUTION

Minimum of 60 psi must be maintained on release port when there is no shaft in unit.

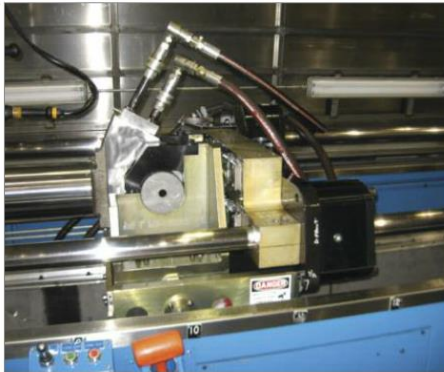
APPLICATION EXAMPLES



Sub-sea tree



Position and hold application



Cylinder test stand



Material handling and measuring system



Lift Gate lock and hold



Theater stage lift



ISO 6431 SERIES

Cylinder Mount & Stand Alone

RLI ROD LOCKS

NEW RLI ISO 6431 COMPACT DESIGN FOR LONGER LIFE

1 BODY

Solid aluminum precision machined for accurate alignment. Black anodized for appearance and corrosion resistance.

2 LOCKING MECHANISM

Oversized, hardened and ground locking with antifriction amplification.

3 COIL SPRINGS

Heavy duty springs designed for long life.

4 LIP-TYPE PISTON SEALS

Pressure activated lip seal is wear compensated for effective sealing at rated pressures. The nitrile seal is internally lubricated, reducing friction and extending life.

5 HOUSING DESIGN

Provides for direct mounting or allows attaching of a choice of ISO 6431 detachable mounts.

6 ROD WIPER

The wiper is designed to wipe off abrasive dust and contamination on the retract stroke to ensure long life for the seals, bearing and piston rod. The standard wiper is nitrile and is internally lubricated to reduce friction and extend life.

7 ROD BEARING

The phenolic bearing provides maximum piston rod support, reduces friction and resists wear abrasion (galling and seizing). Factory preset for minimum backlash.

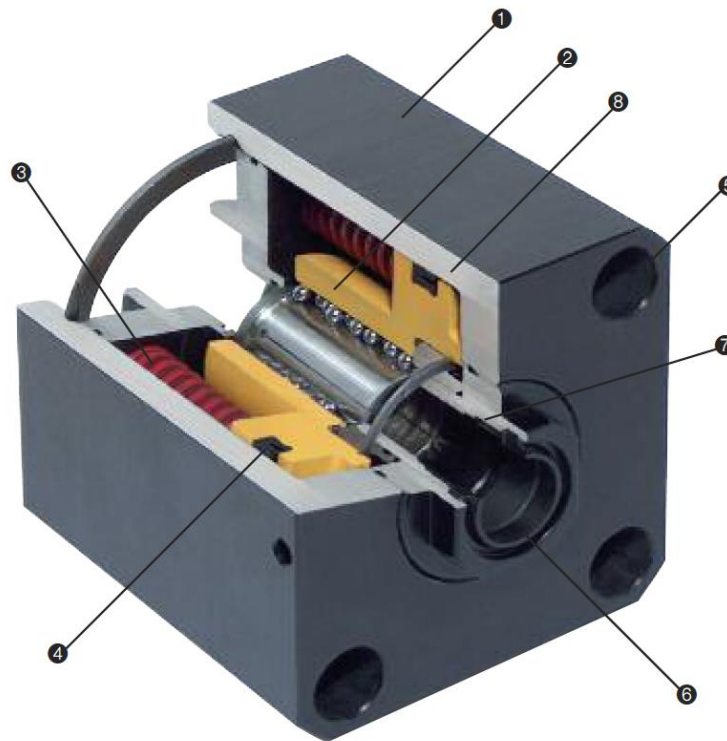
8 PROX SWITCH PORT FOR INDICATION OF UNLOCK CONDITION

FEATURES

No Rod Displacement on Engagement
Large Clamping Surface
Fast Response Time
Extremely Low Backlash
Spring Engaged Units
Profile Matches ISO 6431 Cylinder
4 bar (60 PSI) release pressure

BENEFITS

Precision Holding (.05 - .08 mm)
Consistent Clamping Force
High Cycle Rates and accuracy
Holds Load During Power/Pressure Loss
Compact Unit, Easy Integration
Broad Applications



ROD LOCK OPTIONS:

Stainless Housing
Electroless Nickel Plated Housing
Viton Seals
Wiper Scraper
Sealed Unit

FEATURES AND BENEFITS

This new ISO 6431 - Style AMLOK® Pneumatic Series RLI Rod Clamp has been developed as a solution to control problems inherent to pneumatics — over travel, drifting, bouncing and reverse traveling. The AMLOK® Power-Off Rod Clamp can be mounted to the ISO 6431 cylinder of your choice, or as a stand alone unit to be used with no cylinder at all.

The AMLOK® has been designed with oversized components to withstand the most severe applications. For example, the contact area of the clamping collet is considerably greater than on similar units. The increased contact area reduces the pressure-per-square-inch on the rod, thereby extending service life.

The patented AMLOK® Type RLI consists of a anodized aluminum housing with a special piston and wedge locking mechanism actuated by a spring that mechanically locks the rod. This mechanically-operated intensifying mechanism increases the force created by the spring several times to guarantee quick and secure locking. The clamp is unlocked when air actuates the piston, which compresses the spring and releases the locking device.

Since the locking of the AMLOK® is accomplished mechanically by a spring and unlocked by air pressure, loss of air pressure will cause the unit to lock.

When attached to cylinders, longer cylinder rods must be specified to allow for the length of the AMLOK®. See “L+V” dimension in the chart.

If a hollow rod must be clamped, contact Advanced Machine for guidelines.

Recommended rod tolerances are cited on page 5. For maximum life, the rod should be hard chrome or surface-hardened with surface finish of about 32 micro inches. Avoid nicks and burrs which could damage the wiper and bearings.

The contact surfaces and bores to which the AMLOK® is clamped must be square and concentric to each other within .05 mm T.I.R. to avoid binding of

The patented intensifier is a mechanical design, assuring a long service life. Since the clamping is accomplished through spring force, drifting caused by a lack of air pressure is not possible.

For hydraulic applications, please refer to our Type RCH AMLOK® catalog.

WARRANTY:

AMLOK® RLI units are warranted for a period of one (1) year from date of shipment, to be free from defects of materials and workmanship, provided said items are properly applied.

The holding force depends upon the rod and piston diameter. The available holding forces can be multiplied by adding additional AMLOK® clamps to the same rod.

AMLOKS® are designed for locking reciprocating motions only. Not for use on rotary motions.

NOTE:

If these units are to be used as safety or braking devices, please consult the factory.

the rod or excess wear. The rod must fully engage the clamping device at all times.

NOTE: AMLOK® Rod Clamps can be an integral part of your housing. We can provide mating components for your special applications. When side loads are acting on the cylinder rod, make sure that the rod is guided sufficiently in bearings to avoid excessive side loads on the locking mechanism. This is especially important at higher cylinder rod speeds.

For special mountings or higher holding forces, please consult the factory.

APPLICATIONS



The new AMLOK® RLI Series Rod Lock design can be sealed. Suitable for food and washdown applications. Other common applications include:

- Machine Tool Applications
- Scissor-lift Tables
- Test and Positioning Equipment
- Amusement Ride Equipment
- Printing and Paper Handling Equipment
- Theatrical Equipment (Platforms)
- Assembly and Test Equipment

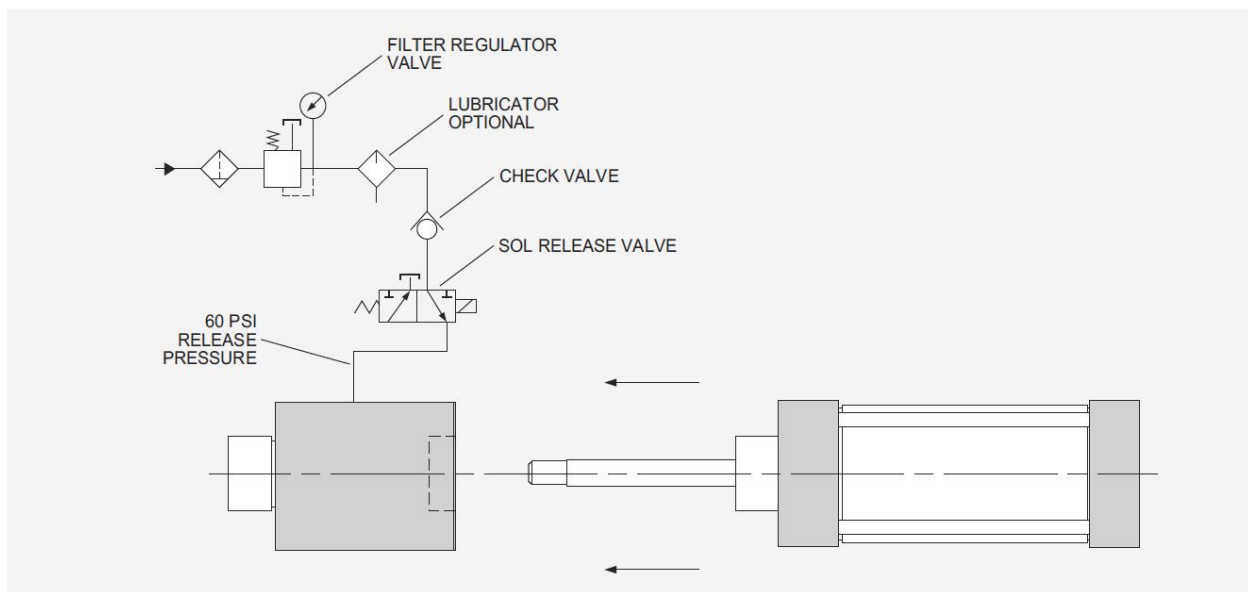


AMLOK® RLI attached to ISO 6431 cylinder with optional prox switch.

ASSEMBLY INSTRUCTIONS

RLI ASSEMBLY INSTRUCTIONS

1. Read Assembly Instructions and Caution Label on unit.
2. Connect a flexible hose to the pressure port of the AMLOK®, apply air pressure to release the clamping mechanism and slide the AMLOK® over the rod to be clamped.
3. Align the mounting holes and release port hole to the proper location.
4. Release pressure 60 PSI clean, dry, compressed air.
5. Bolt AMLOK® to cylinder or housing.
6. Pressurize the AMLOK® to the specified release pressure.
7. Release and pressurize several times. With the specified pressure the rod should move freely through the AMLOK®.
8. If the rod does not move freely, check the squareness of the housing and cylinder contact surface and correct if necessary.



CAUTION

Minimum of 60 PSI must be maintained on release port when there is no shaft in unit.

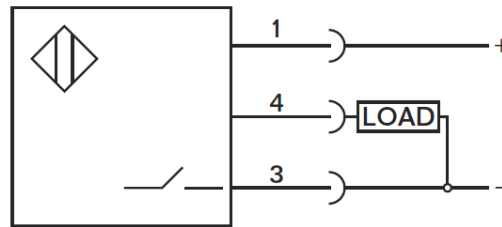
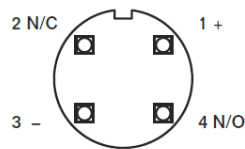
PROXIMITY SWITCH

The new RLI ISO 6431 series Amlok provides for optional proximity switch.

Specifications for optional proximity switch (indicates 'unclamped' position)

WIRING CONNECTIONS

PNP normally open



PROXIMITY SWITCH SETTING INSTRUCTIONS

1. Set the AMLOK® to the unclamped 'pressure applied' position.
2. Screw the proximity switch (with jam nuts) into the designated M 8 x 1 proximity switch hole, until it makes contact.
3. Unscrew (back off) the proximity switch approximately 3/4 turn. While holding the proximity switch in the set position, tighten the locking nut using 6 ft/lbs (8 NM) of torque. Final adjustment may be necessary to achieve desired results.
4. With the electrical power in the off position, connect the electrical wiring per the wiring diagram supplied with the switch. After the electrical power has been turned on, the proximity switch should indicate that the AMLOK® is in the unclamped position.

NOTE: Insure that the electrical power has been turned off before making adjustments. The locking nut should be tightened to a maximum of 15 ft/lbs. of torque to prevent damage to the internal components of the switch.

- If sealing unit for food or chemical service also include optional sealing ring.

PROXIMITY SWITCH INFORMATION

Balluff
 BES01PF
 BES M08EH-PSC15B-S04G
 10-30 V DC
 < 200 mA
 sn = 1.5 mm

SPECIFICATIONS

STANDARD SPECIFICATIONS

- ISO 6431 Mounting Styles
- One Piece Solid Body Design
- Maximum Operating Pressure - 160 PSI Air (11 bar)
Required Release Pressure - 60 PSI Air (4 bar)
Operating Media - Clean, Dry, Filtered,
Compressed Air
- Operating Temperature
 - Standard 10°F to + 180°F (-12°C to +82°C)
 - Optional 10°F to + 250°F (-12°C to +121°C)
- Holding Force - Axial holding forces were established after 2,000,000 fatigue test cycles
- Minimum linear movement may occur after clamp is fully engaged (.05mm - .08mm)

ROD LOCK OPERATION SPECIFICS

- Holds with consistent force in both directions
- Can be mounted in any position
- Release pressure can range from 4-8 bar (60 PSI min. - 120 PSI max.)
- The nitrile seals are rated -40°F to +250°F (-40°C to +120°C). Use at temperatures up to 212°F (100°C)

Consult factory for extreme applications.

Pneumatic Amlok functional considerations and recommended release circuit for Amlok rod clamps. See page 5.

It is important to consider that the Amlok rod lock is a power off locking device. During every operational cycle, the 3-way valve is actuated electrically and pressure releases the locking mechanism. When power fails, emergency stop, etc. pressure is lost (dropped) and the locking mechanism secures the rod.

When pressure is not sufficiently constant (drops below recommended release pressure) the spring operated locking mechanism begins to engage the rod, (shaft) and develops (full) stated holding force at "0" PSI.

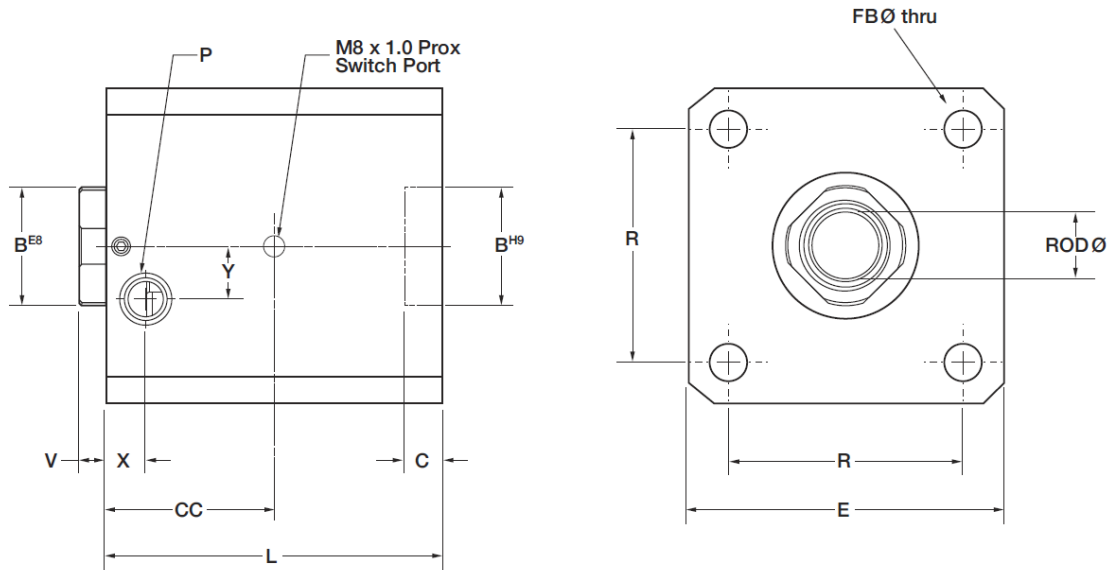
It is therefore important to isolate the release circuit from inadvertent pressure drops via check valve in the inlet to the release valve see recommended circuit above. See page 5.

REQUIREMENTS FOR OPTIMAL PERFORMANCE

AMLOK® RLI Series rodlocks must be used in an application that meets the following specifications:

- Suitable for infrequent dynamic braking (emergency stops) when used with hardened shaft material and proper cylinder and motion control circuits. Repeated dynamic stops may cause rod wear, reduce holding forces and reduce life.
- Requires dry, clean, pressure regulated air
- Does not require lubrication
- Rated holding force corresponds to static load conditions. Slipping may occur if rated value is exceeded and may cause rod damage.
- Rod must be clean and dry to maintain optimum holding force.
- Cylinder pilot must mate properly with rod lock seal for food service washdown rating.
- Rod material requirements:
 - Standard ISO 6431 cylinder rod
 - Hard chrome plate recommended
 - Rod diameter H8 tolerance
 - Surface finish R Max 1.6 microns or better

AMLOK® RLI ISO 6431 BASIC TECHNICAL DATA

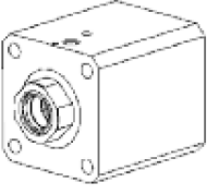
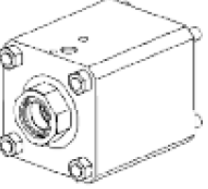
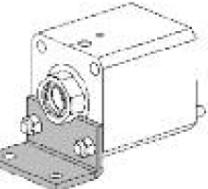
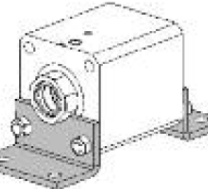
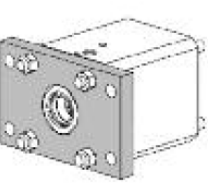
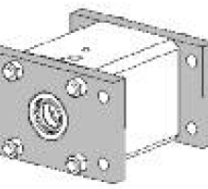


AMLOK ROD CLAMP TECHNICAL DATA														
AMLOK Type - RLI	Bore Dia. [mm]	Rod Dia. [mm]	Axial Holding Force [lbf]	KN	B [mm]	C [mm]	CC [mm]	E [mm]	FB [mm]	L [mm]	P BSP	R [mm]	V [mm]	Y [mm]
RLI-040016	40	16	200	.9	35	22	31	54	6.6	80	G1/8	38	10	6
RLI-050020	50	20	350	1.6	40	29	38	64	9	99	G1/8	46.5	12	12
RLI-063020	63	20	500	2.2	40	29	37	75	9	101	G1/8	56.5	12	6
RLI-080025	80	25	944	4.2	45	35	38	96	M10 CLR	110	G1/8	72	16	6
RLI-100025	100	25	1550	6.9	55	38	38	115	M10 CLR	115	G1/4	89	16	-
RLI-125032	125	32	1956	8.7	60	50	41	145	13.5	130	G1/4	110	15.7	-
RLI-160040	160	40	2450	10.9	65	52	50	180	17.5	140	G1/4	140	19.7	-


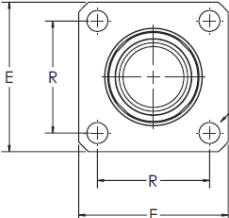
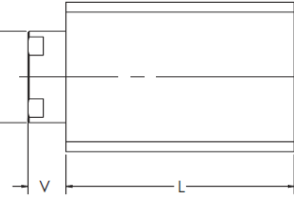
AMLOK ROD CLAMP PART NUMBERING SYSTEM						
RLI XXX XXX X XXX X XX						
AMLOK Series	Bore Size: XXX (mm)	Rod Size: XXX (mm)	Type: C = Cylinder Mount S = Stand Alone* Blank = no hardware	Mounting Style	Seal Material: Blank = Standard Nitrile V = Viton (optional)	Surface Coatings: Blank = Standard Black Anodized EN = Electroless Nickel (optional) SS = Stainless Steel (optional)

* Stand-alone unit contains wipers and rod bearings on each end.

RLI ISO 6431 MOUNTING OVERVIEW

	<p>MXO / SN : No Mount</p> <p>Rod lock housing contains 4 through holes.</p>		<p>CMXO : Cylinder Mount</p> <p>Kit contains: 1 Rod Lock 4 Hex Nuts 4 Tie Rods</p>
	<p>CMS1 : Cylinder Mount</p> <p>Kit contains: 1 Rod Lock 1 Angle Bracket 4 Hex Nuts 4 Tie Rods</p>		<p>SMS1 : Stand Alone</p> <p>Assembly contains: 1 Rod Lock 2 Angle Brackets 2 Tie Rods 4 Hex Nuts</p>
	<p>SMF1 : Stand Alone CMF1 : Cylinder Mount</p> <p>SMF1 Assembly and CMF1 Kit contain: 1 Rod Lock 1 Front Flange 4 Tie Rods 8 Hex Nuts</p>		<p>SA / CA : Stand Alone</p> <p>Assembly contains: 1 Rod Lock 1 Front Flange 1 Rear Flange 8 Hex Nuts 4 Tie Rods</p>

MOUNTING DIMENSIONS MXO / SN - STAND ALONE

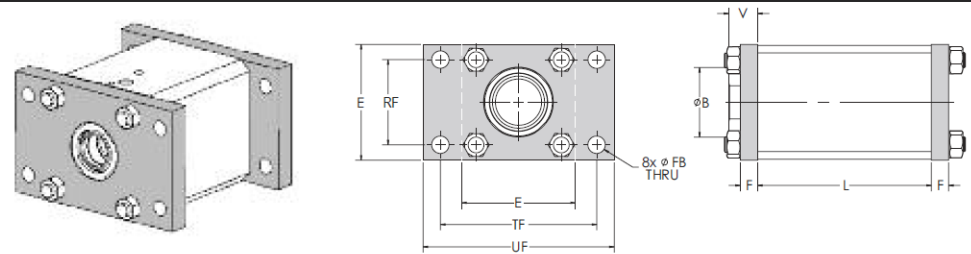
																																																																																									
<p>RLI - XXX XXX MXO X XX RLI - XXX XXX SN X XX</p> <p>MXO OR STAND ALONE No mounting hardware included</p>	<table border="1"> <thead> <tr> <th>PART NUMBER</th> <th>ROD Dia.</th> <th>BORE Dia.</th> <th>B [mm]</th> <th>E [mm]</th> <th>L [mm]</th> <th>K [mm]</th> <th>R [mm]</th> <th>V [mm]</th> <th>WEIGHT [LBS]</th> </tr> </thead> <tbody> <tr> <td>RLI-040016</td> <td>16</td> <td>40</td> <td>35</td> <td>54</td> <td>80</td> <td>6.6</td> <td>38</td> <td>10</td> <td>1.53</td> </tr> <tr> <td>RLI-050020</td> <td>20</td> <td>50</td> <td>40</td> <td>64</td> <td>99</td> <td>9</td> <td>46.5</td> <td>12</td> <td>2.81</td> </tr> <tr> <td>RLI-063020</td> <td>20</td> <td>63</td> <td>40</td> <td>75</td> <td>101</td> <td>9</td> <td>56.5</td> <td>12</td> <td>3.88</td> </tr> <tr> <td>RLI-080025</td> <td>25</td> <td>80</td> <td>45</td> <td>96</td> <td>110</td> <td>11</td> <td>72</td> <td>16</td> <td>5.95</td> </tr> <tr> <td>RLI-100025</td> <td>25</td> <td>100</td> <td>45</td> <td>115</td> <td>115</td> <td>11</td> <td>89</td> <td>16</td> <td>10.90</td> </tr> <tr> <td>RLI-125032</td> <td>32</td> <td>125</td> <td>60</td> <td>145</td> <td>130</td> <td>13.5</td> <td>110</td> <td>16</td> <td>20.02</td> </tr> <tr> <td>RLI-160040</td> <td>40</td> <td>160</td> <td>65</td> <td>180</td> <td>140</td> <td>17.5</td> <td>140</td> <td>20</td> <td>32.03</td> </tr> </tbody> </table>									PART NUMBER	ROD Dia.	BORE Dia.	B [mm]	E [mm]	L [mm]	K [mm]	R [mm]	V [mm]	WEIGHT [LBS]	RLI-040016	16	40	35	54	80	6.6	38	10	1.53	RLI-050020	20	50	40	64	99	9	46.5	12	2.81	RLI-063020	20	63	40	75	101	9	56.5	12	3.88	RLI-080025	25	80	45	96	110	11	72	16	5.95	RLI-100025	25	100	45	115	115	11	89	16	10.90	RLI-125032	32	125	60	145	130	13.5	110	16	20.02	RLI-160040	40	160	65	180	140	17.5	140	20	32.03
PART NUMBER	ROD Dia.	BORE Dia.	B [mm]	E [mm]	L [mm]	K [mm]	R [mm]	V [mm]	WEIGHT [LBS]																																																																																
RLI-040016	16	40	35	54	80	6.6	38	10	1.53																																																																																
RLI-050020	20	50	40	64	99	9	46.5	12	2.81																																																																																
RLI-063020	20	63	40	75	101	9	56.5	12	3.88																																																																																
RLI-080025	25	80	45	96	110	11	72	16	5.95																																																																																
RLI-100025	25	100	45	115	115	11	89	16	10.90																																																																																
RLI-125032	32	125	60	145	130	13.5	110	16	20.02																																																																																
RLI-160040	40	160	65	180	140	17.5	140	20	32.03																																																																																

MOUNTING DIMENSIONS CMXO - CYLINDER MOUNT											
RLI - XXX XXX CMXO	PART NUMBER	ROD Dia.	BORE Dia.	B [mm]	BB [mm]	DD	E [mm]	L [mm]	R [mm]	V [mm]	WEIGHT [LBS]
CYLINDER MOUNT Front Flange Mount - CMXO (NFPA Style MS1) Ships as a kit	RLI-040016	16	40	35	8.89	M6	54	80	38	10	1.5
	RLI-050020	20	50	40	8.89	M8	64	99	46.5	12	2.8
	RLI-063020	20	63	40	8.89	M8	75	101	56.5	12	3.7
	RLI-080025	25	80	45	15.24	M10	96	110	72	16	6
	RLI-100025	25	100	45	15.24	M10	115	115	89	16	10.5
	RLI-125032	32	125	60	15.24	M12	145	130	110	16	19.5
RLI-160040	40	160	65	17.79	M16	180	140	140	20	32.5	

MOUNTING DIMENSIONS CMS1 - CYLINDER MOUNT															
RLI - XXX XXX CMS1	PART NUMBER	ROD Dia.	BORE Dia.	AB [mm]	AH [mm]	AL [mm]	AO [mm]	B [mm]	BB [mm]	DD	L [mm]	S [mm]	V [mm]	WEIGHT [LBS]	
CYLINDER MOUNT Front Flange Mount - CMS1 (NFPA Style MS1) Ships as a kit	RLI-040016	16	40	9	36	28	8	35	8.89	M6	80	38.0	10	1.609	
	RLI-050020	20	50	9	45	32	13	40	8.89	M8	99	46.5	12	3.02	
	RLI-063020	20	63	9	50	32	13	40	8.89	M8	101	56.5	12	3.938	
	RLI-080025	25	80	12	63	41	14	45	15.24	M10	110	72.0	16	6.604	
	RLI-100025	25	100	14	71	41	15	45	15.24	M10	115	89.0	16	11.295	
	RLI-125032	32	125	16	90	45	22	60	15.24	M12	130	110.0	15.7	21.127	
RLI-160040	40	160	18	115	60	24	65	17.78	M16	140	140.0	19.7	33.194		

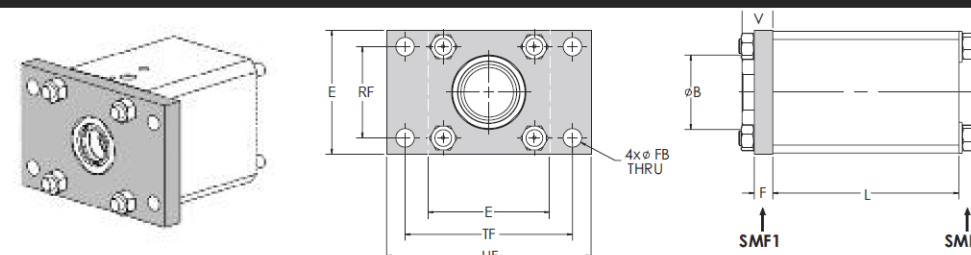
MOUNTING DIMENSIONS SMS1 - STAND ALONE																
RLI - XXX XXX SMS1 X XX	PART NUMBER	ROD Dia.	BORE Dia.	AB [mm]	AL [mm]	AH [mm]	AO [mm]	AT [mm]	B [mm]	BB [mm]	DD	L [mm]	S [mm]	SA [mm]	V [mm]	WEIGHT [LBS]
STAND ALONE Front Flange Mount - SMS1 (Style MS1) Ships assembled	RLI-040016	16	40	9	28	36	8	4.5	35	8.89	M6	80	36	136	10	2.04
	RLI-050020	20	50	9	32	45	13	5.5	40	8.89	M8	99	45	163	12	3.832
	RLI-063020	20	63	9	32	50	13	5.5	40	8.89	M8	101	50	165	12	5.05
	RLI-080025	25	80	12	41	63	14	6.5	45	15.24	M10	110	63	192	16	8.229
	RLI-100025	25	100	14	41	71	15	6.5	45	15.24	M10	115	75	197	16	13.722
	RLI-125032	32	125	16	45	90	22	8.0	60	15.24	M12	130	90	220	16	25.32
RLI-160040	40	160	18	60	115	24	9.0	65	17.78	M16	140	115	260	20	37.183	

MOUNTING DIMENSIONS SA / CA - STAND ALONE



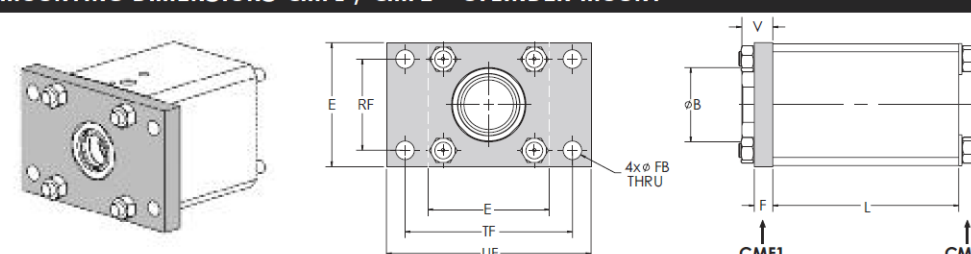
RLI - XXX XXX SA X XX RLI - XXX XXX CA X XX	PART NUMBER	ROD Dia.	BORE Dia.	B [mm]	E [mm]	F [mm]	FB Dia.	L [mm]	RF [mm]	TF [mm]	UF [mm]	V [mm]	WEIGHT [LBS]
STAND ALONE	RLI-040016	16	40	35	52	10	9	80	36	72	90	10	3
Front Flange Mount (NFPA Style MF1 and MF2) Ships assembled Includes rod bearings and wipers on both ends.	RLI-050020	20	50	40	65	12	9	99	45	90	110	12	5.6
	RLI-063020	20	63	40	75	12	9	101	50	100	120	12	7.5
	RLI-080025	25	80	45	95	16	12	110	63	126	150	16	13.9
	RLI-100025	25	100	45	112	16	14	115	75	150	185	16	21.5
	RLI-125032	32	125	60	140	20	16	130	90	180	220	16	38.3
	RLI-160040	40	160	65	190	20	18	140	115	230	279	20	

MOUNTING DIMENSIONS SMF₁ AND SMF₂ - STAND ALONE



RLI - XXX XXX SMF ₁ X XX RLI - XXX XXX SMF ₂ X XX	PART NUMBER	ROD Dia.	BORE Dia.	B [mm]	DD [mm]	E [mm]	F [mm]	FB Dia.	L [mm]	RF [mm]	TF [mm]	UF [mm]	V [mm]	WEIGHT [LBS]
STAND ALONE	RLI-040016	16	40	35	M6	52	10	9	80	36	72	90	10	2.4
Front Flange Mount - SMF ₁ (Style MF1) Ships assembled	RLI-050020	20	50	40	M8	65	12	9	99	45	90	110	12	4.5
Rear Flange Mount - SMF ₂ (Style MF2) Ships assembled	RLI-063020	20	63	40	M8	75	12	9	101	50	100	120	12	6
	RLI-080025	25	80	45	M10	95	16	12	110	63	126	150	16	10.3
	RLI-100025	25	100	45	M10	112	16	14	115	75	150	185	16	16.6
	RLI-125032	32	125	60	M12	140	20	16	130	90	180	220	16	29.8
	RLI-160040	40	160	65	M16	190	20	18	140	115	230	279	20	

MOUNTING DIMENSIONS CMF₁ / CMF₂ - CYLINDER MOUNT



RLI - XXX XXX CMF ₁ X XX	PART NUMBER	ROD Dia.	BORE Dia.	B [mm]	BB [mm]	DD [mm]	E [mm]	F [mm]	FB Dia.	L [mm]	RF [mm]	TF [mm]	UF [mm]	V [mm]	WEIGHT [LBS]
CYLINDER MOUNT	RLI-040016	16	40	35	8.89	M6	52	10	9	80	36	72	90	10	2.2
Front Flange Mount - CMF ₁ (NFPA Style MS1 for cylinder mounting) Ships as a kit	RLI-050020	20	50	40	8.89	M8	65	12	9	99	45	90	110	12	4.0
	RLI-063020	20	63	40	8.89	M8	75	12	9	101	50	100	120	12	5.3
	RLI-080025	25	80	45	15.24	M10	95	16	12	110	63	126	150	16	9.7
	RLI-100025	25	100	45	15.24	M10	112	16	14	115	75	150	185	16	15.4
	RLI-125032	32	125	60	15.24	M12	140	20	16	130	90	180	220	16	28.0
	RLI-160040	40	160	65	17.78	M16	190	20	18	140	115	230	279	20	