

Static Rod Locks

RLSS Series

Nexen's new generation of linear holding/locking devices take rod locking technology to the next level. With superior performance, these spring-engaged, air-released units supplement air cylinders and guide rods for holding in power-off/e-stop situations. High clamping forces ensure positive holding with minimal air required for release. Choose from our standard products, or we will work with you to meet your unique application specifications.



Precision Operation Maintains Accurate Positioning

The RLSS series of Rod Locks guarantees accurate positioning and provides precision holding while other operations are performed. The Rod Lock engages without causing any rod displacement, and also features extremely low backlash during operation, making them ideal for precision applications.

Large Clamping Surface Ensures Consistent Performance

The RLSS line is designed with a large clamping surface that provides uniform force to the rod contact area on every engagement. The clamping mechanism utilizes numerous ball bearing to reduce friction.

Spring-engaged Units Engage in Power-off Situations

Nexen's Rod Locks are spring-engaged, so they operate even in power-off situations to promote safety for operators and machinery. The fast response time of these spring-engaged products also increases positioning accuracy.

Sealed to Withstand Harsh Environments

Every RLSS Rod Lock is sealed to protect internal components. These seals are designed to withstand even harsh wash-down environments and are IP67 rated (anodized models exceed NEMA 4X rating). Rod Locks are available in natural brushed aluminum or with a blue anodized coating.

NEXEN'S STATIC ROD LOCKS deliver precision holding with virtually no backlash, providing high accuracy in demanding applications. These spring-engaged, air-released units come in both ISO and NFPA sizes and will accept standard accessories.

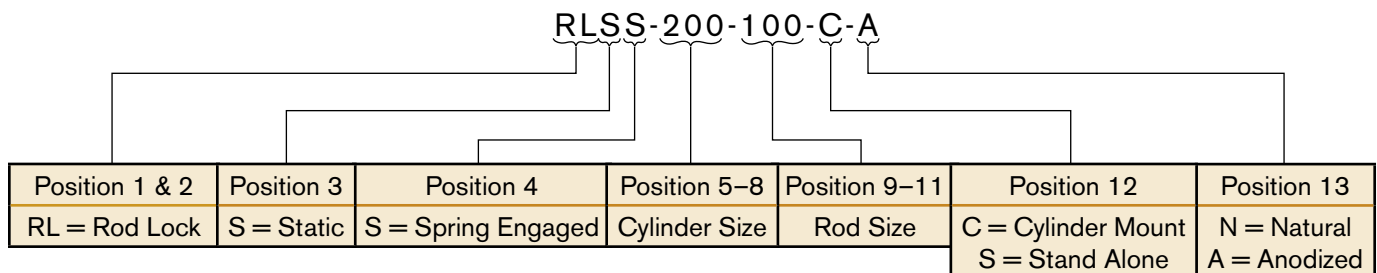
The Rod Lock's large clamping surface ensures high clamping/holding force and Nexen offers models for use on a pneumatic cylinder or as a stand-alone unit on a guide rod. Customers can further increase holding forces by stacking multiple Rod Locks together. The patent pending design is sealed and features a natural brushed aluminum finish or a corrosion-resistant, anodized finish suitable for food/washdown applications. Whatever your application, precision operation with hassle-free performance come standard with each compact unit.

APPLICATIONS >>>

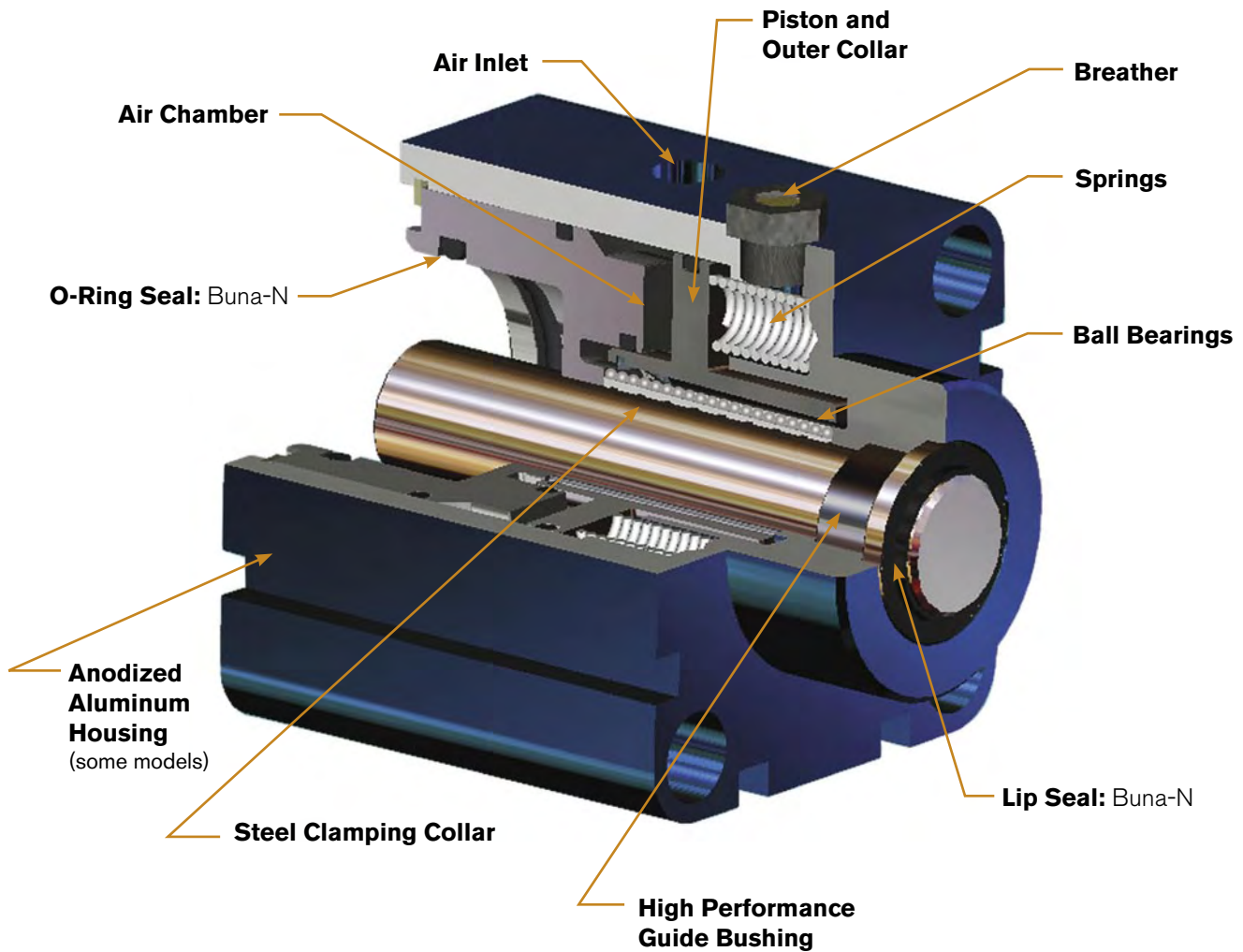
- MACHINE TOOLS
- HYDRAULIC PRESSES
- SCISSOR-LIFT TABLES
- POSITIONING EQUIPMENT
- AMUSEMENT RIDE EQUIPMENT
- PRINTING & PAPER HANDLING EQUIPMENT
- THEATRICAL EQUIPMENT (PLATFORMS)
- INJECTION MOLDING MACHINES
- AUTOMATION EQUIPMENT
- ELEVATORS AND LIFTS
- MINING APPLICATIONS

UNDERSTANDING ROD LOCK NOMENCLATURE

The diagram below explains the components of a Rod Lock model number. In this example, the Nexen Rod Lock listed is a cylinder mounted, spring-engaged, blue anodized, static rod lock for a two inch cylinder with a one inch rod.



ROD LOCK CUTAWAY



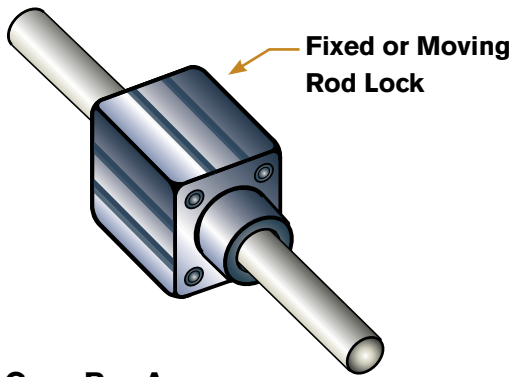
FEATURES

- No Rod Displacement on Engagement
- Large Clamping Surface
- IP67 Rated [exceeds NEMA 4X]
- Fast Response Time
- Extremely Low Backlash
- Spring-Engaged Units
- Profile Matches Cylinder
- 4 bar [60 psi] Release Pressure

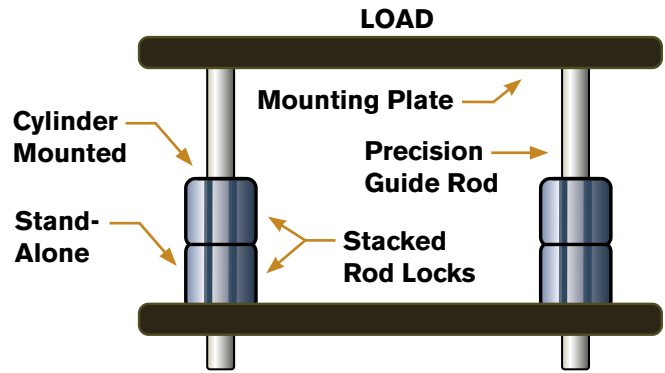
BENEFITS

- Maintains Accurate Positioning
- Consistent Clamping Force
- Suitable for Wash-Down Areas
- High Cycle Rates, Accuracy
- Precision Holding
- Holds Load During Power/Pressure Loss
- Compact Unit, Easy Integration
- Broad Application

STAND-ALONE ROD LOCKS FOR GUIDE ROD APPLICATIONS



ROUND GUIDE ROD APPLICATION



VERTICAL HOLDING APPLICATION

STAND-ALONE ROD LOCK SPECIFICATIONS

Inch Rod Locks

Rod Diameter	Model	Holding Force	Anodized P/N	Natural Finish P/N
0.625 in	RLSS 150-063-S	180 lbs	966100	966300
0.625 in	RLSS 200-063-S	314 lbs	966110	966310
0.625 in	RLSS 250-063-S	491 lbs	966120	966320
1.000 in	RLSS 200-100-S	325 lbs	966112	966312
1.000 in	RLSS 325-100-S	830 lbs	966130	966330
1.000 in	RLSS 400-100-S	1300 lbs	966140	966340
1.000 in	RLSS 500-100-S	2000 lbs	966150	966350
1.375 in	RLSS 600-138-S	2850 lbs	966160	966360

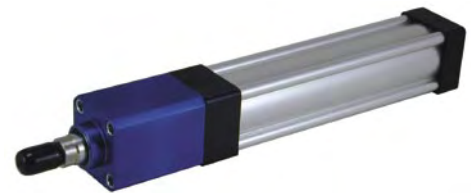
Metric Rod Locks

Rod Diameter	Model	Holding Force	Anodized P/N	Natural Finish P/N
16 mm	RLSS 040-016-S	890 N	966008	966208
20 mm	RLSS 050-020-S	1400 N	966002	966202
20 mm	RLSS 063-020-S	2225 N	966004	966204
25 mm	RLSS 080-025-S	3560 N	966006	966206
25 mm	RLSS 100-025-S	5500 N	966012	966212
32 mm	RLSS 125-032-S	8560 N	966010	966210

CYLINDER MOUNTED ROD LOCKS

CYLINDER REQUIREMENTS

- Longer cylinder rod
Extra length = rod lock length – cylinder pilot length
- Hardened rod (preferred) or hard chrome plating: See Requirements for Optimal Performance for specifications.
- Longer tie rods on NFPA cylinders
- Mounting bolts included with ISO cylinders



Nexen's cylinder mounted RLSS Rod Locks match the cylinder profiles for easy, compact integration.

CYLINDER MOUNTED ROD LOCK SPECIFICATIONS

NFPA Rod Locks, 'FM' Mounts

Rod Diameter	Bore Size	Holding Force	Rod Lock Model	Anodized P/N	Natural Finish P/N
0.625 in	1.500 in	180 lbs	RLSS 150-063-C	966101	966301
0.625 in	2.000 in	314 lbs	RLSS 200-063-C	966111	966311
0.625 in	2.500 in	491 lbs	RLSS 250-063-C	966121	966321
1.000 in	2.000 in	325 lbs	RLSS 200-100-C	966113	966313
1.000 in	3.250 in	830 lbs	RLSS 325-100-C	966131	966331
1.000 in	4.000 in	1300 lbs	RLSS 400-100-C	966141	966341
1.375 in	4.000 in	1300 lbs	RLSS 400-138-C	966343	-
1.000 in	5.000 in	2000 lbs	RLSS 500-100-C	966151	966351
1.375 in	6.000 in	2850 lbs	RLSS 600-138-C	966161	966361

ISO Rod Locks

Rod Diameter	Bore Size	Holding Force	Rod Lock Model	Anodized P/N	Natural Finish P/N
16 mm	40 mm	890 N	RLSS 040-016-C	966009	966209
20 mm	50 mm	1400 N	RLSS 050-020-C	966003	966203
20 mm	63 mm	2225 N	RLSS 063-020-C	966005	966205
25 mm	80 mm	3560 N	RLSS 080-025-C	966007	966207
25 mm	100 mm	5500 N	RLSS 100-025-C	966013	966213
32 mm	125 mm	8560 N	RLSS 125-032-C	966011	966211

ROD LOCK OPERATION SPECIFICATIONS

- › All of Nexen’s Rod Locks will operate in both directions, engaging with the same holding force.
- › Rod Locks can be mounted in any position.
- › Rod rotation is not allowed when a Rod Lock is engaged (not intended for torsional braking).
- › Nexen’s Rod Lock complies with ISO 6431 standards.
- › Release pressures can range from 4–8 bar [60–120 psi].
- › The Buna-N seals used are rated to 100°C [212°F].
- › Allowable operating temperatures 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].

ROD LOCK AIR CHAMBER VOLUME & ENGAGEMENT TIME

NFPA Rod Locks

Model	Air Chamber Volume	Engagement Time
RLSS 150-063	5.0 cm ³ [0.30 in ³]	0.030 seconds
RLSS 200-063	13.3 cm ³ [0.81 in ³]	0.040 seconds
RLSS 250-063	20.7 cm ³ [1.26 in ³]	0.040 seconds
RLSS 200-100	13.3 cm ³ [0.81 in ³]	0.045 seconds
RLSS 325-100	43.0 cm ³ [2.63 in ³]	0.060 seconds
RLSS 400-100	61.7 cm ³ [3.77 in ³]	0.070 seconds
RLSS 400-138	61.7 cm ³ [3.77 in ³]	0.070 seconds
RLSS 500-100	97.3 cm ³ [5.64 in ³]	0.95 seconds
RLSS 600-138	129.6 cm ³ [7.91 in ³]	0.115 seconds

ISO Rod Locks

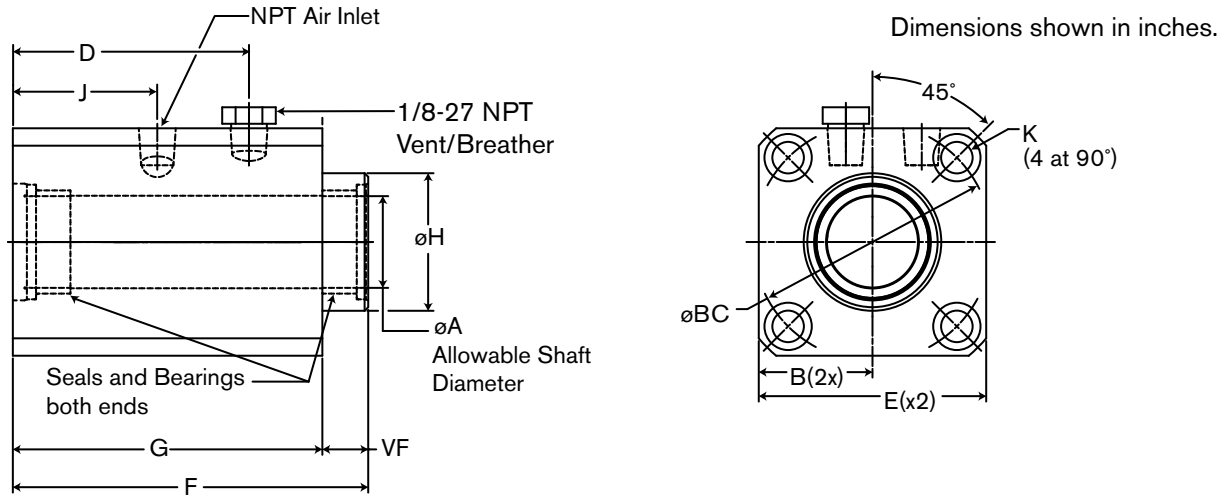
Model	Air Chamber Volume	Engagement Time
RLSS 040-016	4.6 cm ³ [0.28 in ³]	0.035 seconds
RLSS 050-020	7.3 cm ³ [0.45 in ³]	0.040 seconds
RLSS 063-020	17.1 cm ³ [1.04 in ³]	0.045 seconds
RLSS 080-025	24.2 cm ³ [1.48 in ³]	0.060 seconds
RLSS 100-025	60.5 cm ³ [3.69 in ³]	0.070 seconds
RLSS 125-032	163.2 cm ³ [3.96 in ³]	0.085 seconds

REQUIREMENTS FOR OPTIMAL PERFORMANCE

Nexen’s series of Static Rod Locks must be used in an application that meets the following specifications:

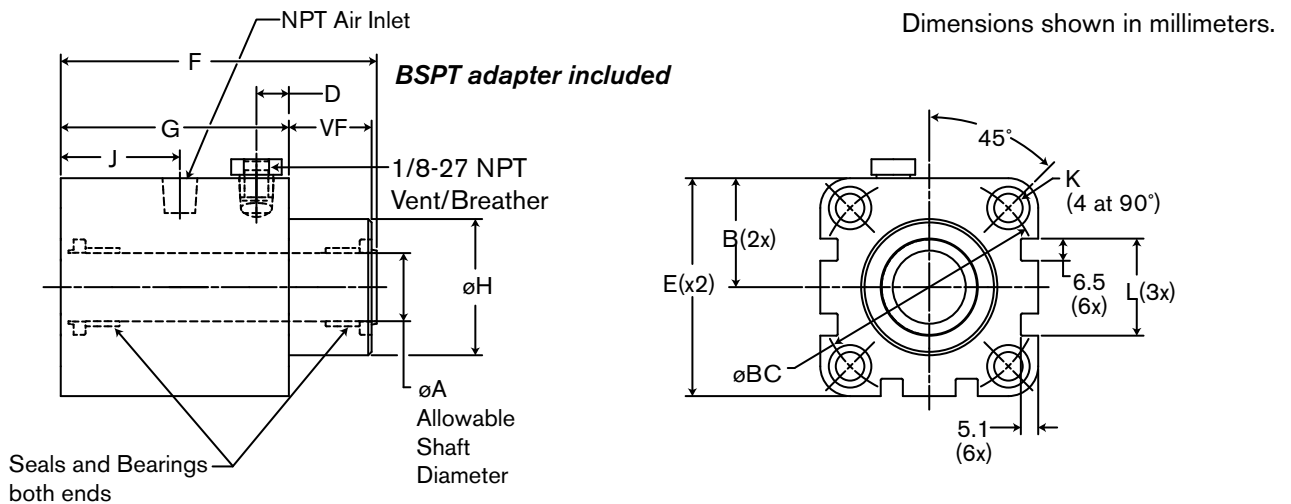
- Nexen’s Static Rod Lock is suitable for infrequent dynamic braking (emergency stops) when used with hardened shaft material. Because the RLSS line is designed for static applications, repeated dynamic stops will cause rod and/or collar wear and reduce holding forces.
- If personnel safety is required, an unrelated, redundant safety system is recommended.
- Nexen’s Rod Lock must mount to a shaft hardened to a minimum of HRC60 or hard-chrome plated to a minimum thickness of 20 microns [0.0008 in] or damage to the shaft may result.
- Nexen recommends a surface roughness R_{max} of 1.6 microns [63 micro inch] or better.
- The Rod Lock requires clean, dry, pressure regulated air. Lubrication is not required.
- The rated holding force corresponds to static load conditions. If the rated value is exceeded, slipping may occur.
- The rod must be kept clean and dry to maintain optimum holding forces.
- Cylinder pilot must properly mate with rod lock seal for IP67 rating.
- The rod diameter must be in the h8 tolerance range. Refer to:
 - USAS B4.1–1967(1974)
 - ISO 286-1–1988
 - ISO 286-2–1988

Stand-alone Rod Locks for Inch Guide Rods, Approximate Dimensions



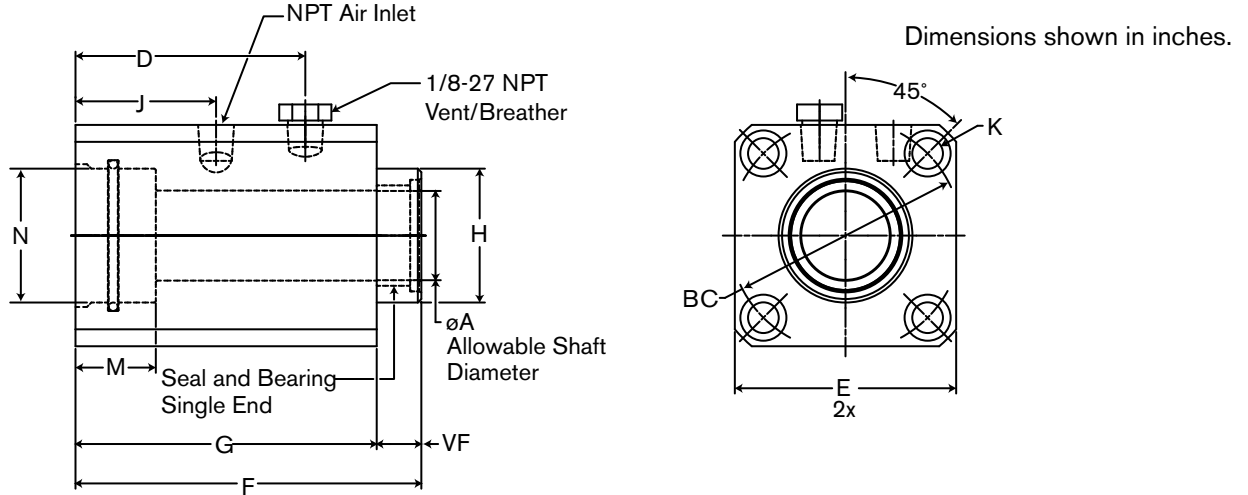
RLSS Model	Product Number	øA ^{+0.000} / _{-0.002}	B	øBC	E	D	G	F	VF	øH ^{-0.001} / _{-0.003}	J	K			NPT Air Inlet
												ø	└	┘	
150-063-S	See page 4 for product numbers.	0.625	1.00	2.022	2.00	1.95	2.397	2.77	0.375	1.125	0.91	0.281	0.438	0.91	1/8-27
200-063-S		0.625	1.25	2.602	2.50	2.08	2.422	2.80	0.375	1.125	1.02	0.344	0.516	1.03	1/8-27
250-063-S		0.625	1.50	3.097	3.00	2.13	2.540	2.91	0.375	1.125	1.02	0.344	0.516	1.03	1/8-27
200-100-S		1.000	1.25	2.602	2.50	2.58	3.375	3.88	0.500	1.500	1.58	0.344	0.516	1.03	1/8-27
325-100-S		1.000	1.88	3.903	3.75	2.99	3.976	4.48	0.500	1.500	1.56	0.406	0.719	1.28	1/4-18
400-100-S		1.000	2.25	4.695	4.50	2.99	3.976	4.48	0.500	1.500	1.56	0.406	0.719	1.28	1/4-18
500-100-S		1.000	2.75	5.798	5.50	2.99	4.189	4.69	0.500	1.500	1.56	0.531	0.844	1.50	1/4-18
600-138-S		1.375	3.25	6.901	6.50	3.54	4.740	5.36	0.625	2.000	1.68	0.531	0.844	1.50	1/4-18

Stand-alone Rod Locks for Metric Guide Rods, Approximate Dimensions



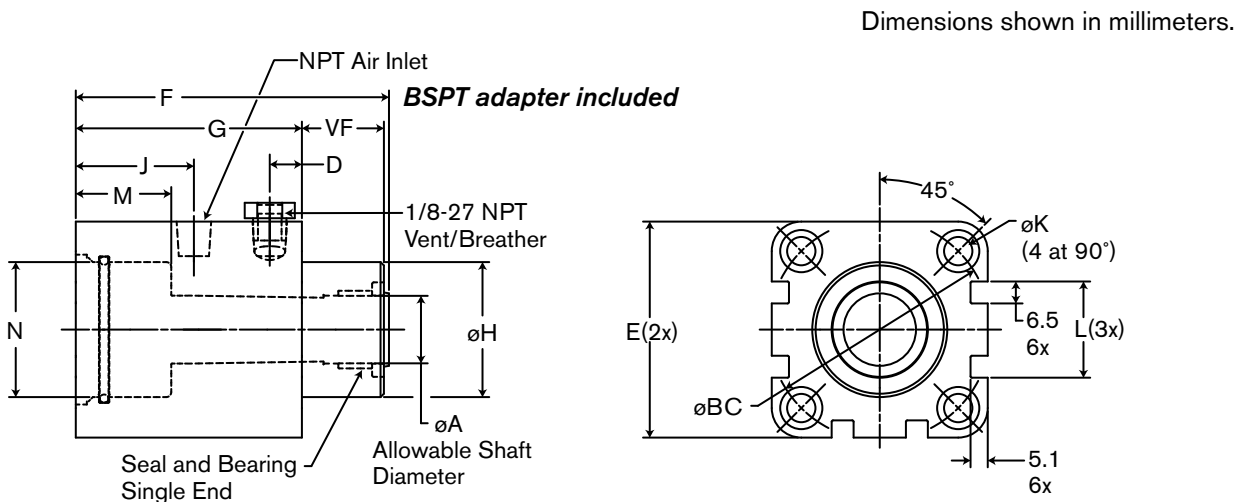
RLSS Model	Product Number	øA ^{+0.00} / _{-0.05}	B	øBC	E	D	G	F	VF	øH (g5)	J	K			L	NPT Air Inlet
												ø	└	┘		
040-016-S	See page 4 for product numbers.	16.00	27.0	53.74	54.0	5.2	53.00	75.5	21.50	35.00	29.00	6.35	10.00	24.0	23.5	1/8-27
050-020-S		20.00	32.0	65.76	64.0	9.5	67.00	92.8	24.30	40.00	35.00	8.40	13.00	26.5	28.5	1/8-27
063-020-S		20.00	37.5	79.90	75.0	10.2	76.00	97.5	20.00	45.00	38.10	8.40	13.00	26.5	37.5	1/8-27
080-025-S		25.00	46.5	101.82	93.0	15.2	95.00	118.5	20.50	45.00	45.00	10.50	15.9	44.6	39.7	1/4-18
100-025-S		25.00	55.0	125.87	110.0	15.0	98.00	121.5	20.50	55.00	42.00	10.50	15.9	44.6	46.5	1/4-18
125-032-S		32.00	67.0	155.56	134.0	15.9	125.00	155.5	27.50	60.00	65.00	12.50	19.25	56.4	60.5	1/4-18

Rod Locks for NFPA Cylinders, Approximate Dimensions



RLSS Model	Product Number	øA ^{+0.000} / _{-0.002}	øBC	E	D	G	F	VF	øH ^{-0.001} / _{-0.003}	J	K			M	N ^{+0.003} / _{+0.001}	NPT Air Inlet	
											ø	└	┘				
150-063-C	See page 4 for product numbers.	0.625	2.022	2.00	1.95	2.39	7	2.77	0.375	1.125	0.91	0.281	0.438	1.25	0.63	1.125	1/8-27
200-063-C		0.625	2.602	2.50	2.08	2.422	2.80	0.375	1.125	1.02	0.344	0.516	1.03	0.67	1.125	1/8-27	
250-063-C		0.625	3.097	3.00	2.13	2.540	2.91	0.375	1.125	1.02	0.344	0.516	1.03	0.67	1.125	1/8-27	
200-100-C		1.000	2.602	2.50	2.58	3.375	3.88	0.500	1.500	1.58	0.344	0.516	1.03	0.90	1.500	1/8-27	
325-100-C		1.000	3.903	3.75	2.99	3.976	4.48	0.500	1.500	1.56	0.406	0.719	1.28	0.91	1.500	1/4-18	
400-100-C		1.000	4.695	4.50	2.99	3.976	4.48	0.500	1.500	1.56	0.406	0.719	1.28	0.87	1.500	1/4-18	
400-138-C		1.375	4.695	4.50	3.16	4.165	4.92	0.750	2.000	1.76	0.406	0.719	1.28	1.07	2.000	1/4-18	
500-100-C		1.000	5.798	5.50	2.99	4.189	4.69	0.500	1.500	1.56	0.531	0.844	1.50	0.87	1.500	1/4-18	
600-138-C		1.375	6.901	6.50	3.54	4.740	5.36	0.625	2.000	1.68	0.531	0.844	1.50	1.00	2.015	1/4-18	

Rod Locks for ISO Cylinders, Approximate Dimensions



RLSS Model	Product Number	øA ^{+0.00} / _{-0.05}	øBC	E	D	G	F	VH	øH (g5)	J	K			L	M	N (H12)	NPT Air Inlet
											ø	└	┘				
040-016-C	See page 4 for product numbers.	16.00	53.74	54.0	5.2	54.00	76.5	21.50	35.00	29.00	6.35	10.00	24.0	23.5	22.5	35.00	1/8-27
050-020-C		20.00	65.76	64.0	9.5	68.00	93.8	24.30	40.00	35.00	8.40	13.00	26.5	28.5	29.5	40.00	1/8-27
063-020-C		20.00	79.90	75.0	10.2	76.00	97.5	20.00	45.00	38.10	8.40	13.00	26.5	37.5	28.9	45.00	1/8-27
080-025-C		25.00	101.82	93.0	15.2	95.00	118.5	20.50	45.00	45.00	10.50	15.90	44.6	39.7	35.0	45.00	1/4-18
100-025-C		25.00	125.87	110.0	15.0	98.00	121.5	20.50	55.00	42.00	10.50	15.90	44.6	46.5	39.3	55.00	1/4-18
125-032-C		32.00	155.56	134.0	15.9	127.00	157.2	27.50	60.00	65.00	12.50	19.25	56.4	56.4	50.5	60.00	1/4-18

AIR CONTROLS AND PROGRAMMING

Minimum release pressure = 4 bar [60 psi]

Maximum pressure = 8 bar [120 psi]

CYLINDER MOUNTING

NOTE: Avoid repeated overlapping conditions when programming the Rod Lock into your system. (i.e.: forced motion during engagement or disengagement of the Rod Lock.) Shaft and/or collar wear will result. Design the control system to use the Rod Lock in static conditions.

Cylinder functioning is regulated by a 5/3 (5 ported, 4-way, 3 [center] position) valve (use cylinder manufacturers' recommended Cv valves), center open on the central port and supplied by exhaust ports.

NOTE: Do not use a valve with a closed center. This will cause imbalance in the piston if any of the circuits leak.

One-directional flow reducers can be used to control the speed of the cylinder rod. To ensure fast braking of the rod, a quick exhaust valve can be installed on or near the rod lock.

A normally closed (NC) 3-way solenoid valve directs air supply to the rod lock, keeping it disengaged until the electrical signal is interrupted.

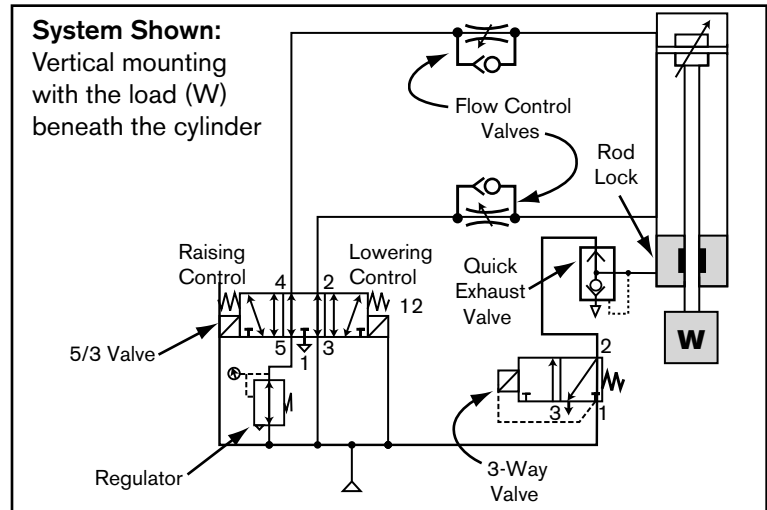
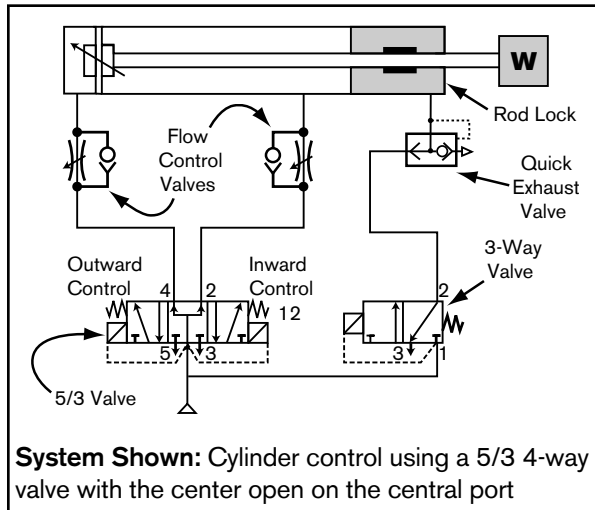
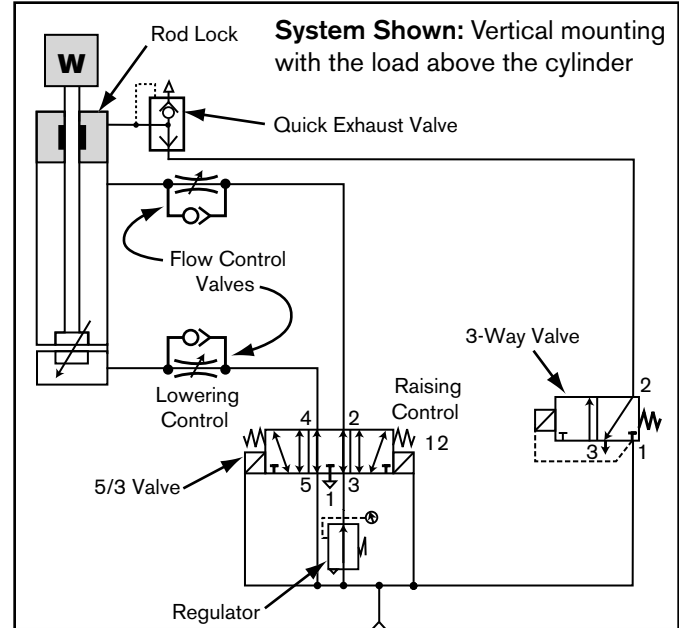
Vertical Mounting: The force on the piston must not exceed its locking capacity when it is combined with the force of the load.

Use of a 5/3 (5 ported, 4-way, 3 [center] position) valve provides a braking effect and maintains accurate rod positioning. Stopping precision is determined by the rate of speed of the rod and loads in motion.

Horizontal Mounting: Pressure is maintained on both sides of the cylinder piston, keeping it balanced and preventing rod displacement upon release. Use exhaust ports 3 and 5 (see below).

STAND-ALONE MOUNTING: Specifications match those of the cylinder models listed above.

Air Control Products		Part Number
Quick Exhaust Valve		170048
3-way Solenoid Valve, NC	24 V	964650
3-way Solenoid Valve, NC	115 V	948804



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