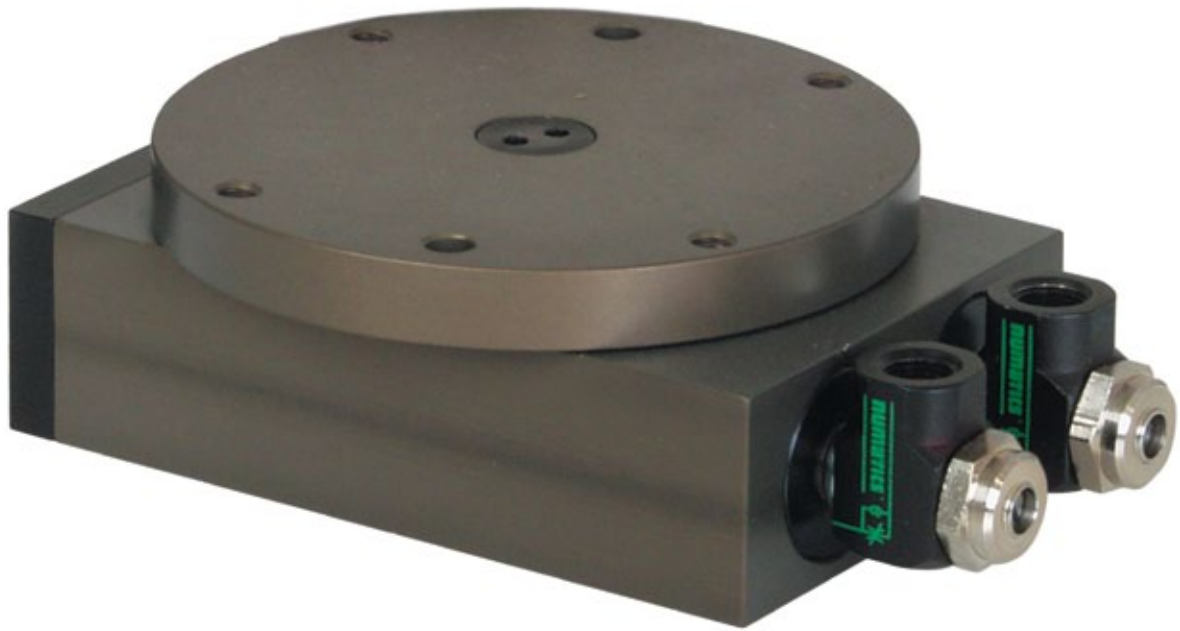


# NUMATICS®

## LR Series

Low Profile Rotary Actuator



[www.numatics.com](http://www.numatics.com)

## LR Series

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The LR series rotary actuator is a low profile rack and pinion design. Two independent pistons drive their corresponding racks against the pinion thereby rotating the platform.

### A. Body

Hardcoated anodized aluminum PTFE impregnated, lightweight, high strength to weight ratio.

### B. Rotary Platform

Hardcoated anodized aluminum, durable. Supported by two bearings, one on each side of the pinion shaft, providing superior dynamic load capacity.

### C. Stroke Adjustment

Built in rotary hard stops protect rotary platform from over travel. External stroke adjust screws with locking set screws provide fine tuned rotary position.

### D. Flow Controls

Built in design is easily adjustable, provides precise deceleration speed control in both directions.

### E. Position Sensing

Proximity switch sensors available for rotary position sensing.

### F. Shocks

LR60, LR125 & LR270 come standard with internal shock absorbers.



## How to Order

**LR 06 A 1 6 D 4 X**

#### Torque Rating

06 = 6 in.-lb.  
 20 = 21 in.-lb.  
 60 = 62.5 in.-lb.  
 60M\* = 62.5 in.-lb.  
 125 = 125 in.-lb.  
 125M\* = 125 in.-lb.  
 270 = 270 in.-lb.  
 \*Manifold option, contact factory.

#### Rotation

A = 90°  
 B = 180°

#### Seal Option

1 = Buna-N  
 2 = FKM

#### Special Options

M = Metric  
 Q = No Switch Cables  
 X = Standard

#### Shock Absorbers

3 = Clockwise and Counter Clockwise Shock (standard on LR-60, LR-125 & LR-270)  
 4 = No Shocks (shocks are not available on LR-06 and LR-20)

#### Sensing Position

A = Single Position Clockwise  
 B = Single Position Counter Clockwise  
 C = Two Position  
 D = No Sensing

#### Sensing Type

Standard Cord Set  
 4 = Prox Switch - PNP (sourcing)  
 5 = Prox Switch - NPN (sinking)  
 6 = No Sensing  
 Quick Disconnect Cord Set  
 W = Prox Switch - PNP (sourcing) Straight  
 U = Prox Switch - PNP (sourcing) 90 Deg.  
 Prox switches are 5 mm diameter.

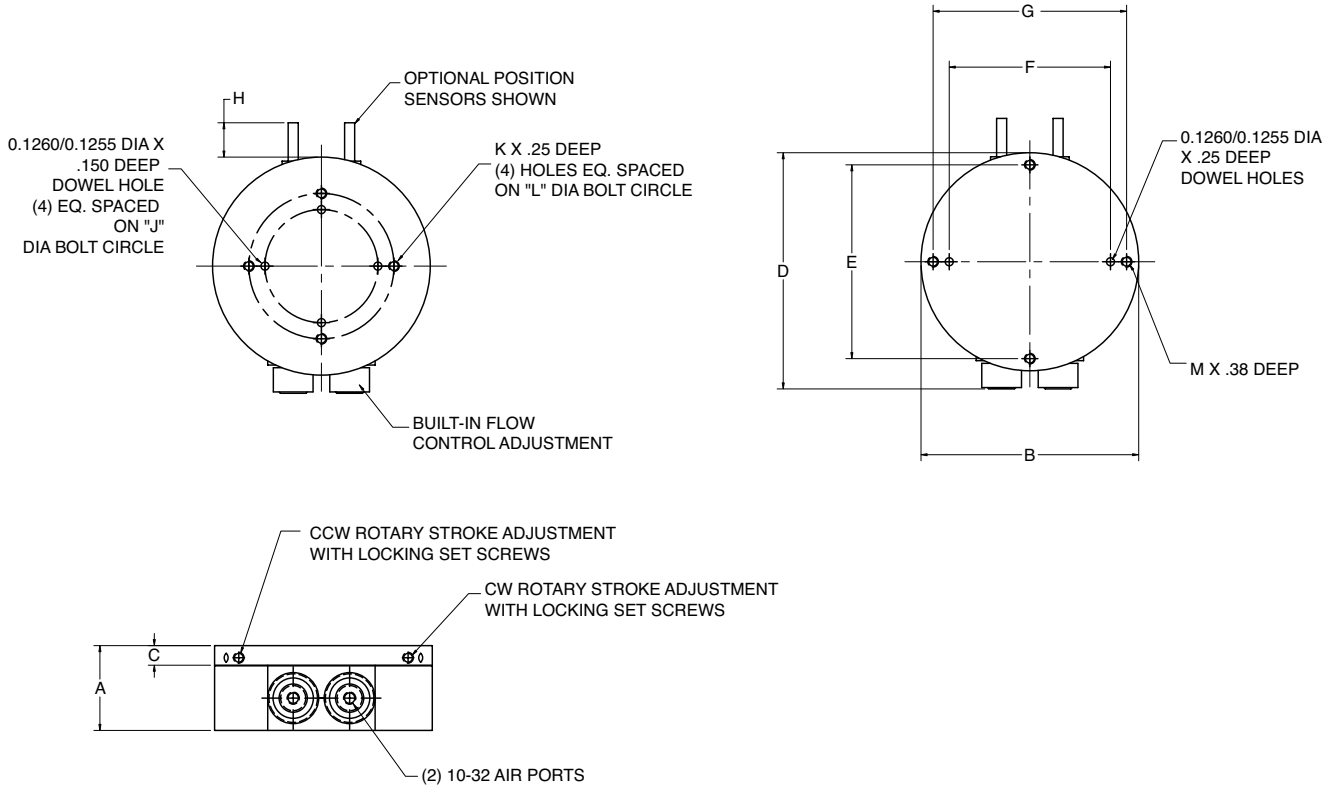
See page 6.

### When ordering additional switches:

Switch Description	Standard Part No.	Quick Disconnect Part No.
Prox Switch - PNP (Sourcing)	PROX-5FL2-P	PROX-5QDS-P
Prox Switch - NPN (Sinking)	PROX-5FL2-N	Not Available
Quick Disconnect Cable	-	PXCST
90° 5 meter cable	-	PXC90
Bronze switch housing for LR & RM Rotaries	-	RSH05

Dimensions: Inches

LR06 & LR20 Series

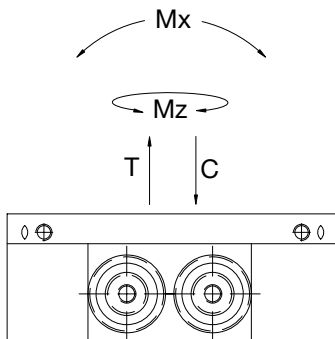


Dimensions

	LR06	LR20
A	0.969	1.313
B	2.250	3.375
C	0.281	0.303
D	2.625	3.656
E	N/A	3.000
F	1.624/1.626	2.499/2.501
G	2.000	3.000
H	0.600	0.600
J	0.750	1.750
K	#6-32	#8-32
L	1.250	2.250
M	#6-32	#8-32

Specifications

	LR06	LR20
Max. Payload	1.0 lbs	3.0 lbs
Max. Air Pressure	120 psi	120 psi
Torque Output @ 100 psi	6.5 in.-lbs.	21.2 in.-lbs.
Max Payload Inertia	0.012 lb.-in <sup>2</sup>	0.012 lb.-in <sup>2</sup>
Cylinder Bore Dia.	2 @ 0.5 in.	2 @ 0.75 in.
Displacement	0.3 cu.in.	0.72 cu.in.
Repeatability	0.015 degrees	0.015 degrees
Max. Rotation	180 degrees	180 degrees
Degrees Adjustment	+/- 5 degrees	+/- 5 degrees
Max. Speed for 180 degrees	0.3 sec.	0.4 sec.
Unit Weight	7 oz.	1.2 lbs.



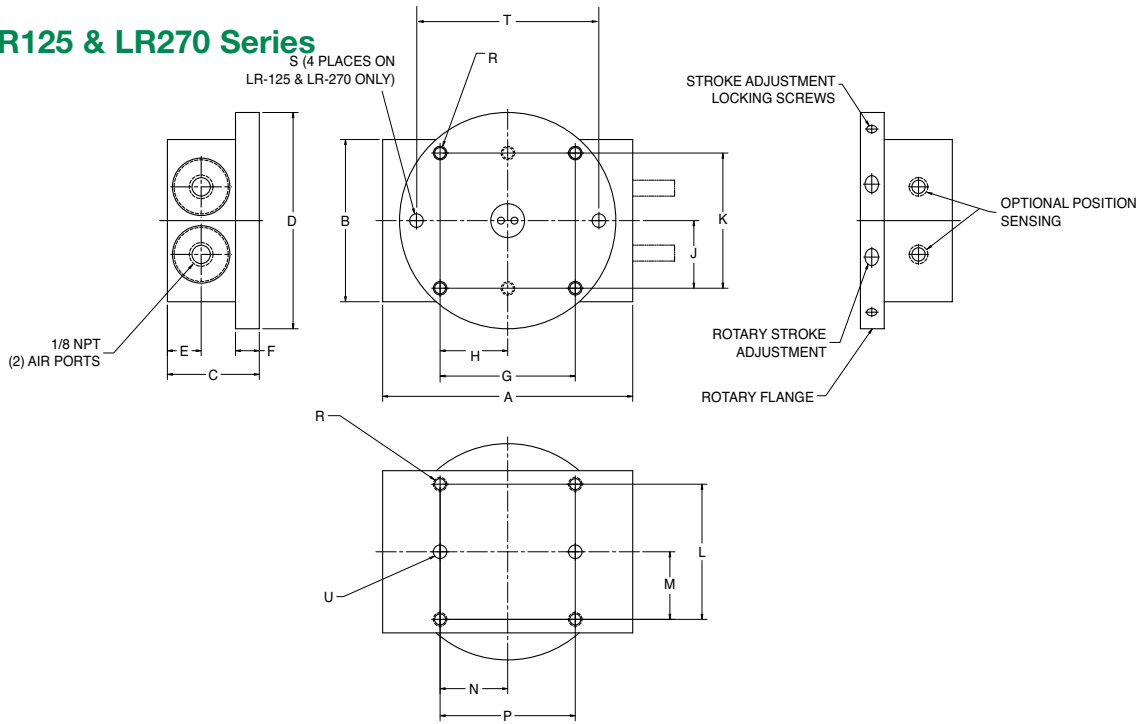
Load Capacity\*

	Static Condition		Dynamic Condition	
	LR06	LR20	LR06	LR20
C-compression	250 lbs.	350 lbs.	50 lbs.	75 lbs.
T-tension	50 lbs.	75 lbs.	12 lbs.	20 lbs.
Mx	100 in.-lbs.	200 in.-lbs.	25 in.-lbs.	50 in.-lbs.
Mz	100 in.-lbs.	200 in.-lbs.	25 in.-lbs.	50 in.-lbs.

\* Dynamic rating applicable with external shocks or stops.

## Dimensions: Inches

### LR60, LR125 & LR270 Series

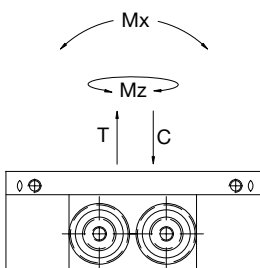


### Dimensions

Model	LR60	LR125	LR270
A	4.625	5.500	8.500
B	3.000	3.500	4.625
C	1.700	2.125	2.765
D	4.000	4.470	5.125
E	0.625	0.750	1.000
F	0.440	0.609	0.750
G	2.500	2.750	3.000
H	1.250	1.375	1.500
J	2.500	1.375	1.500
K	1.250	2.750	3.000
L	2.500	3.000	4.000
M	1.250	1.500	2.000
N	1.250	1.500	2.000
P	2.500	3.000	4.000
R	1/4-20 X .43 DP	5/16-18 X .43 DP	3/8-16 X .75 DP
S	0.2505/0.2510 X 0.38 DP	0.2505/0.2510 X 0.38 DP	0.3750/0.3755 X .25 DP
T	3.38	2.75	3.000
U	0.2505/0.2510 X 0.38 DP	0.3130/0.3135 X 0.37 DP	0.3750/0.3755 X .50 DP

### Specifications

Model	LR60	LR125	LR270
Max. Payload	8.0 lbs.	15.0 lbs.	30.0 lbs.
Max. Air Pressure	120 psi	120 psi	120 psi
Torque Output @ 100 psi	61 in.-lbs.	126 in.-lbs.	310 in.-lbs.
Max. Payload Inertia	0.041 lbs.-in./sec. <sup>2</sup>	0.1 lbs.-in./sec. <sup>2</sup>	0.254 lb.-in./sec. (squared symbol)
Cylinder Bore Dia.	2 @ 1 in.	2 @ 1.25 in.	2 @ 1.62 in.
Displacement	2.06 cu.in.	3.855 cu.in.	9.77 cu. in.
Repeatability	0.018 degrees	0.018 degrees	0.018 degrees
Max. Rotation	180 degrees	180 degrees	180 degrees
Degrees Adjustment	+/- 5 degrees	+/- 5 degrees	+/- 5 degrees
Max. Speed for 180 degrees	0.35 sec.	0.4 sec.	0.4 sec.
Unit Weight	2.9 lbs.	5 lbs.	8.5 lbs.



### Load Capacity\*

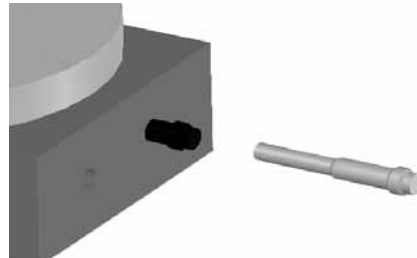
	Static Condition			Dynamic Condition		
	LR60	LR125	LR270	LR60	LR125	LR270
C-Compression	500 lbs.	1000 lbs.	2000 lbs.	100 lbs.	200 lbs.	400 lbs.
T-Tension	100 lbs.	200 lbs.	800 lbs.	20 lbs.	40 lbs.	160 lbs.
Mx	300 in.-lbs.	500 in.-lbs.	1000 in.-lbs.	75 in.-lbs.	100 in.-lbs.	200 in.-lbs.
Mz	300 in.-lbs.	500 in.-lbs.	1000 in.-lbs.	75 in.-lbs.	100 in.-lbs.	200 in.-lbs.

\* Dynamic rating applicable with external shocks or stops.

LR Series Switch Information

LR Series Rotary

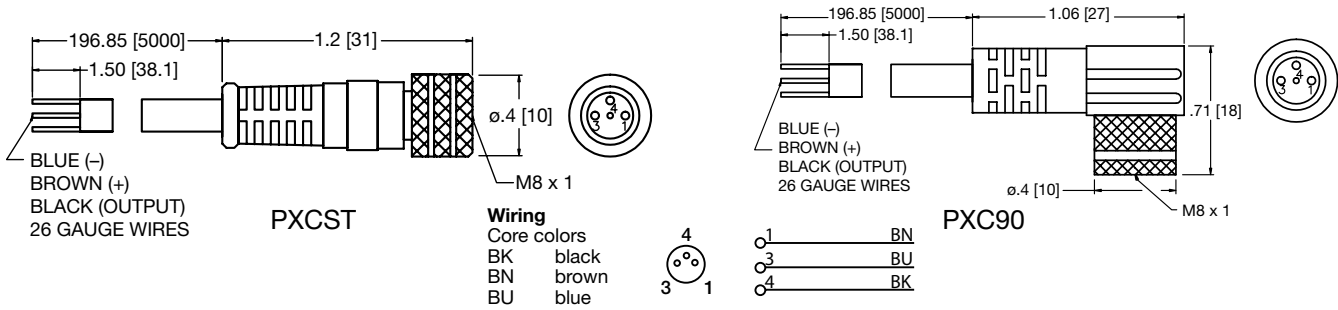
Bore	Bracket P/N
LR06	RSH05
LR20	RSH05
LR60	RSH05
LR125	RSH05
LR270	RSH05



Sensor Description	Standard Cord Set	Quick Disconnect
Prox PNP	PROX-5FL2-P	PROX-5QDS-P
Prox NPN	PROX-5FL2-N	Not Available

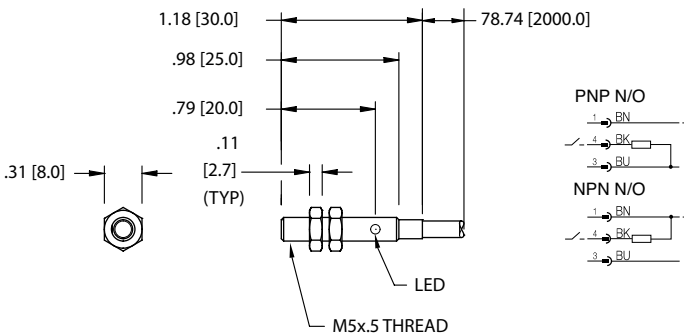
See page 19 and 20 for sensor specifications

Quick Disconnect Cables



Order Code	Type	Operating Voltage	Current Rating	Cable Material	Protection	Connector
PXCST	Straight 5 m Cable (3 x 26 Gauge wire)	60 AC/75 DC	3 A	PUR	IP 68, III	M8
PXC90	90° 5 m Cable (3 x 26 Gauge wire)	60 AC/75 DC	3 A	PUR	IP 68, III	M8

Prox Switch (NPN NO) Flying Lead - PROX-5FL2-N  
Prox Switch (PNP NO) Flying Lead - PROX-5FL2-P



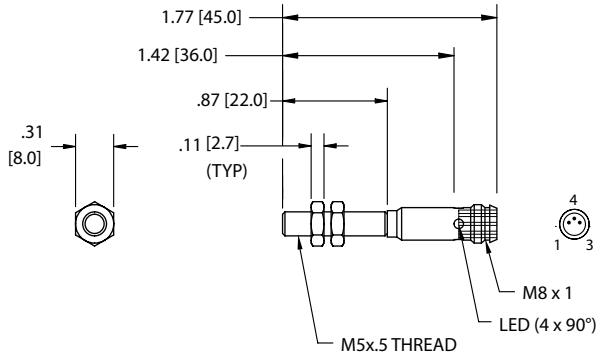
Electrical Design  
Output  
Operating Voltage  
Current Rating  
Short-Circuit Protection  
Overload Protection  
Reverse Polarity Protection  
Voltage Drop  
Current Consumption  
Real Sensing Range  
Switching Frequency  
Ambient Temperature  
Protection  
Switch-Point Drift  
Hysteresis  
Operating Distance  
Correction Factor

Housing Material  
Function Display Switching Status  
Connection

3-Wire DC PNP/NPN  
Normally Open  
10-36 VDC  
100 mA  
Yes (Non-Latching)  
Yes  
Yes  
< 2.5V  
< 15 mA @ 24V  
.8mm ± 10%  
> 2000 Hz  
-25°C to 70°C  
IP 65, III  
-10 - 10% OF Sr  
1 - 15% OF Sr  
0 - .65mm  
Mild Steel=1, Stainless Steel=.7,  
Brass=.5, Alum.=.4, Copper=.3  
Housing: Stainless Steel: POM  
Red LED  
PVC Cable, 2m, 3 x .14mm2

\*Switches are not designed for wet environments. Please see your distributor for additional information.

## Prox Switch (PNP NO) 8 mm connector - PROX-5QDS-P



Electrical Design  
 Output  
 Operating Voltage  
 Current Rating  
 Short-Circuit Protection  
 Overload Protection  
 Reverse Polarity Protection  
 Voltage Drop  
 Current Consumption  
 Real Sensing Range  
 Switching Frequency  
 Ambient Temperature  
 Protection  
 Switch-Point Drift  
 Hysteresis  
 Operating Distance  
 Correction Factor

Housing Material  
 Function Display Switching Status  
 Connection  
 Remarks  
 Accessories  
 Agency Approvals

3-Wire DC PNP  
 Normally Open  
 10-36 VDC  
 100 mA  
 Yes (Non-Latching)  
 Yes  
 Yes  
 < 2.5V  
 < 15 mA @ 24V  
 .8mm ± 10%  
 > 2000 Hz  
 -25°C to 70°C  
 IP 65, III  
 -10 - 10% OF Sr  
 1 - 15% OF Sr  
 0 - .65mm  
 Mild Steel=.1, Stainless Steel=.7,  
 Brass=.5, Alum.=.4, Copper=.3  
 Housing; Stainless Steel: POM  
 Red LED (4 x 90°)  
 M8 Connector  
 cULus-Class 2 Source Required  
 2 Lock Nuts



\*Switches are not designed for wet environments. Please see your distributor for additional information.



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