

NUMATICS®

LR Series

Low Profile Rotary Actuator



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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

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 = Clockwise and Counter Clockwise
 D = No Sensing

Sensing Type

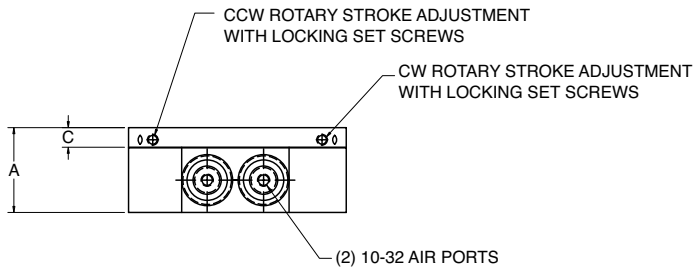
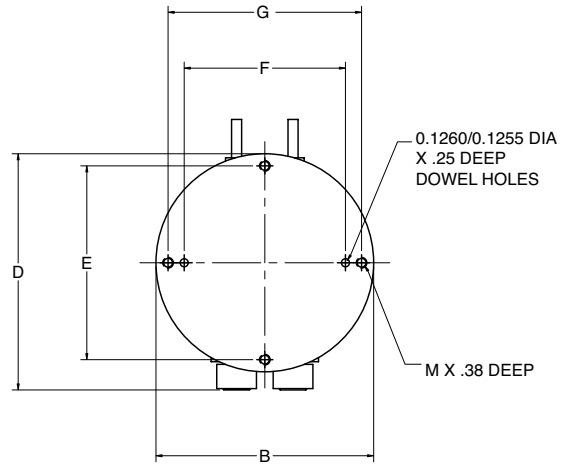
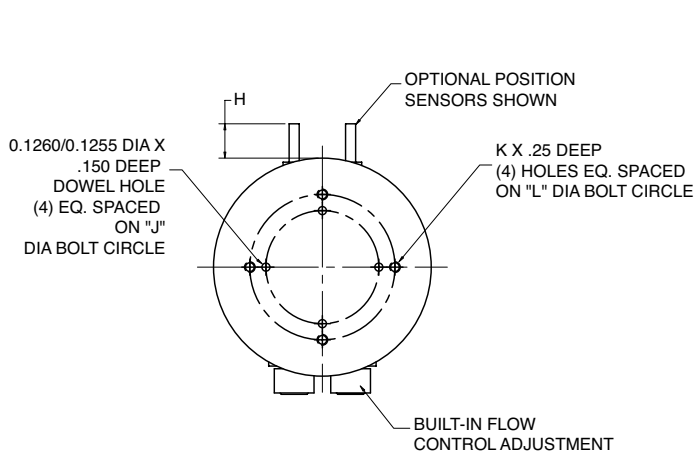
Standard Cord Set
 4 = Prox Switch - PNP (sourcing)
 5 = Prox Switch - NPN (sinking)
 6 = No Sensing
 Quick Disconnect Cord Set
 W = Prox Switch - PNP (sourcing) Straight
 U = Prox Switch - PNP (sourcing) 90 Deg.
 Prox switches are 5 mm diameter.

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



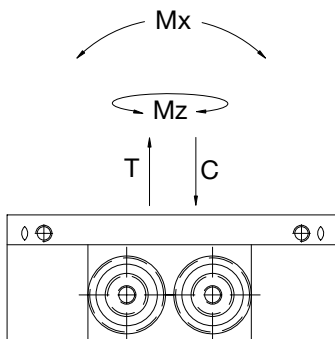
See page 7.

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 ²	0.012 lb.-in ²
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.



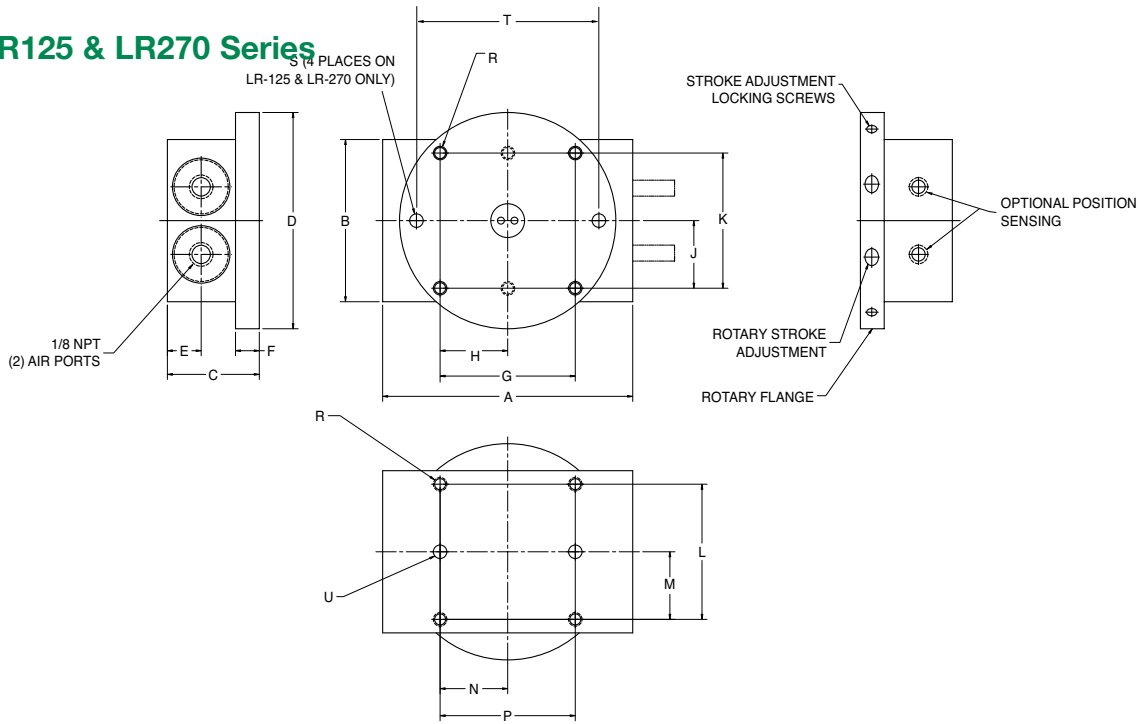
Load Capacity*

	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



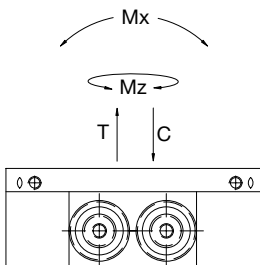
Dimensions

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. ²	0.1 lbs.-in./sec. ²	0.254 lb.-in./sec. ² (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*



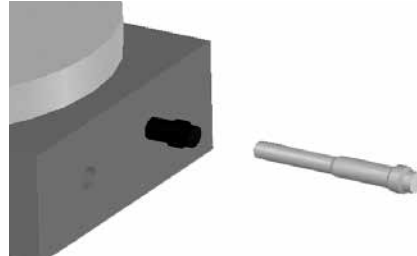
	Static Condition			Dynamic Condition		
	LR60	LR125	LR270	LR60	LR125	LR270
C-Compression	500 lbs.	1000 lbs.	2000 lbs.	100 lbs.	200 lbs.	400 lbs.
T-Tension	100 lbs.	200 lbs.	800 lbs.	20 lbs.	40 lbs.	160 lbs.
Mx	300 in.-lbs.	500 in.-lbs.	1000 in.-lbs.	75 in.-lbs.	100 in.-lbs.	200 in.-lbs.
Mz	300 in.-lbs.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

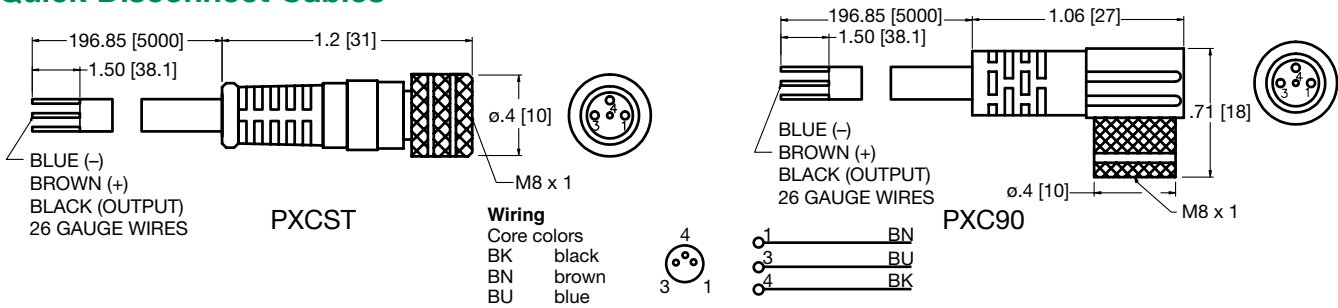
LR Series Rotary

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



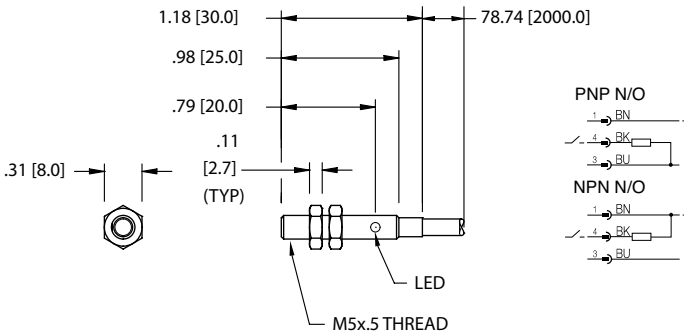
Sensor Description	Standard Cord Set	Quick Disconnect
Prox PNP	PROX-5FL2-P	PROX-5QDS-P
Prox NPN	PROX-5FL2-N	Not Available

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



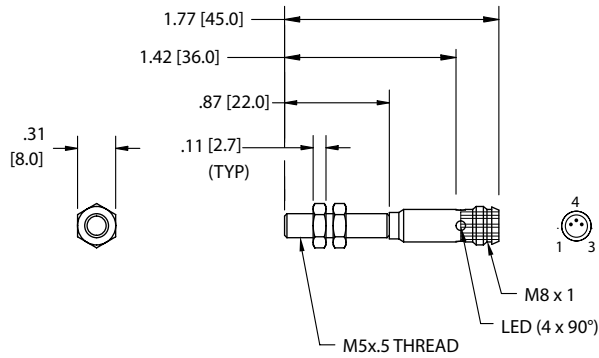
Electrical Design
Output
Operating Voltage
Current Rating
Short-Circuit Protection
Overload Protection
Reverse Polarity Protection
Voltage Drop
Current Consumption
Real Sensing Range
Switching Frequency
Ambient Temperature
Protection
Switch-Point Drift
Hysteresis
Operating Distance
Correction Factor

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

Housing Material
Function Display Switching Status
Connection

*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



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