

PRN Series


- Single or double vane rotary actuator
- 3 standard rotations: 90°, 180°, or 270°
- Output torque @ 0.7 MPa:
 16 to 1120 N•cm (1.4 to 99 in-lb)
- Internal bumpers are standard
- Shock absorbers are available for high inertia loads



Operating information

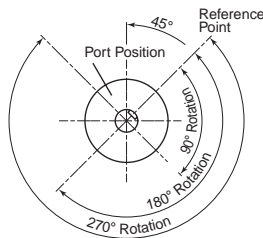
Operating pressure:	100 PSIG (6.9 bar)
Temperature range:	-5°C to 80°C (-23°F to 176°F)
Filtration requirements:	40 micron, dry filtered air

Ordering information

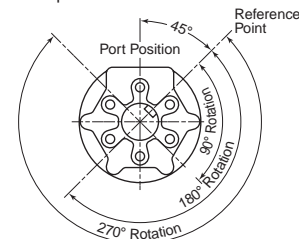
PRNA	20	S - 90 - 90	S																									
<table border="1"> <tr><th>Type</th></tr> <tr><td>PRNA</td><td>Sizes 1-20</td></tr> <tr><td>PRN</td><td>Sizes 30-800</td></tr> </table>	Type	PRNA	Sizes 1-20	PRN	Sizes 30-800	<table border="1"> <tr><th>Size</th></tr> <tr><td>1</td></tr> <tr><td>3</td></tr> <tr><td>10</td></tr> <tr><td>20</td></tr> <tr><td>30</td></tr> <tr><td>50</td></tr> <tr><td>150</td></tr> <tr><td>300</td></tr> <tr><td>800</td></tr> </table>	Size	1	3	10	20	30	50	150	300	800	<table border="1"> <tr><th>Type</th></tr> <tr><td>S</td><td>Single vane</td></tr> <tr><td>D</td><td>Double vane</td></tr> </table>	Type	S	Single vane	D	Double vane	<table border="1"> <tr><th>Porting</th></tr> <tr><td>Omit</td><td>Standard porting</td></tr> <tr><td>S</td><td>Rear porting (sizes 3-20 only)</td></tr> </table>	Porting	Omit	Standard porting	S	Rear porting (sizes 3-20 only)
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<p>Sensors For sensors see page B339. </p>		<p>* See specification tables for availability of rotation angle /reference point combinations for the selected model.</p>																										

Reference point and rotation orientations

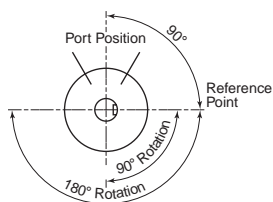
PRNA1S/D, PRNA3S/D, PRNA10S/D, PRNA20S/D, PRN30S/D
 Reference point at 45°



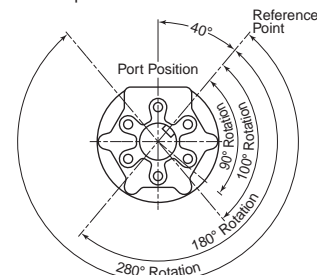
PRN50, 150, 300, 800
 Reference point at 45°



PRN1AS, PRNA3S, PRNA10S, PRNA20S
 Reference point at 90°



PRN50, 150, 300, 800
 Reference point at 40°



Quick reference data – PRNA miniature

Type	Model number	Theoretical output torque								Maximum breakaway pressure		Unit weight	
		0.3 MPa (45 PSI)		0.5 MPa (75 PSI)		0.7 MPa (100 PSI)		1.0 MPa (145 PSI)		MPa	PSI	kg	lb
		Ncm	(in-lb)	Ncm	(in-lb)	Ncm	(in-lb)	Ncm	(in-lb)				
Single vane	PRNA1S	8	(0.7)	13	(1.2)	19	(1.6)	—	—	0.08	(12)	0.04	(0.08)
	PRNA3S	17	(1.5)	31	(3)	45	(4.0)	—	—	0.10	(15)	0.07	(0.15)
	PRNA10S	46	(4.1)	86	(7.6)	127	(11)	—	—	0.10	(15)	0.14	(0.31)
	PRNA20S	80	(7.1)	159	(14)	240	(21)	350	(31)	0.10	(15)	0.25	(0.55)
Double vane	PRNA1D	17	(1.5)	28	(2.5)	41	(3.6)	—	—	0.10	(15)	0.04	(0.09)
	PRNA3D	32	(2.9)	54	(4.8)	76	(6.7)	—	—	0.07	(10)	0.07	(0.16)
	PRNA10D	101	(8.9)	168	(15)	235	(21)	—	—	0.07	(10)	0.15	(0.33)
	PRNA20D	165	(15)	330	(29)	530	(47)	800	(71)	0.06	(9)	0.26	(0.57)

Quick reference data – PRN

Type	Model number	Theoretical output torque								Maximum breakaway pressure		Unit weight	
		0.3 MPa (45 PSI)		0.5 MPa (75 PSI)		0.7 MPa (100 PSI)		1.0 MPa (145 PSI)		MPa	PSI	kg	(lb)
		Ncm	(in-lb)	Ncm	(in-lb)	Ncm	(in-lb)	Ncm	(in-lb)				
Single vane	PRN30S	180	(16)	319	(28)	480	(42)	720	(64)	0.10	(15)	0.47	(1.04)
	PRN50S	259	(23)	479	(42)	700	(62.0)	1060	(94)	0.10	(15)	0.8	(1.8)
	PRN150S	850	(75)	1500	(133)	2100	(186)	3050	(270)	0.08	(12)	2.0	(4.4)
	PRN300S	1650	(146)	2850	(252)	4050	(358)	5750	(509)	0.08	(12)	3.7	(8.2)
	PRN800S	5910	(523)	10200	(903)	14400	(1274)	20500	(1814)	0.05	(7)	13	(28)
Double vane	PRN30D	440	(39)	770	(68)	1120	(99)	1660	(147)	0.08	(12)	0.48	(1.06)
	PRN50D	579	(51)	1040	(92.0)	1510	(134)	2250	(199)	0.08	(12)	0.8	(1.8)
	PRN150D	1900	(168)	3500	(310)	4800	(425)	6900	(611)	0.06	(9)	2.0	(4.4)
	PRN300D	3900	(345)	6800	(602)	9700	(858)	1370	(121)	0.06	(9)	4.3	(9.5)
	PRN800D	12000	(1062)	20600	(1823)	28800	(2549)	41100	(3637)	0.05	(7)	13	(28)

Kinetic energy ratings and bearing load capacities – sizes 1 to 30

Model number	Bearing load capacities				Distance between centerline bearings		Maximum kinetic energy rating	
	Thrust load		Radial load		mm	in	mJ	in-lb
	N	lb	N	lb				
PRNA1S	1	0.2	10	2	15	0.6	0.8	0.01
PRNA3S	4	0.9	40	9	20	0.8	4	0.03
PRNA10S	4	0.9	50	11	30	1.2	8	0.07
PRNA20S	25	5.6	300	67	42	1.7	40	0.35
PRN30S	30	6.7	400	90	48	1.9	67	0.60

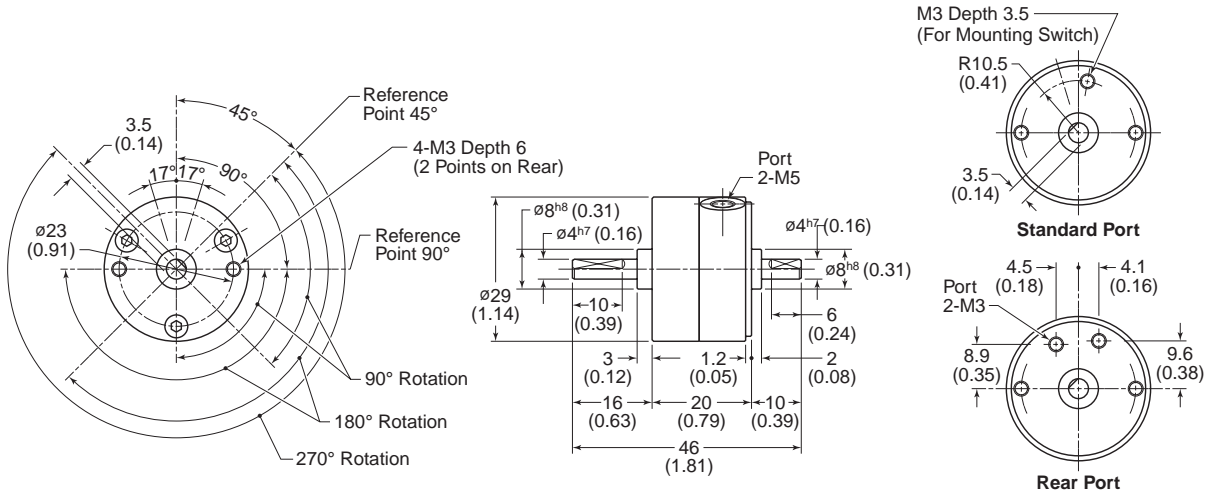
Kinetic energy ratings and bearing load capacities – sizes 50 to 800

Model	Bearing load capacities						Maximum kinetic energy rating					
	Thrust load		Radial load		Distance between centerline bearings		Standard unit		Shock absorber (per cycle)		Shock absorber (per cycle)	
	N	lb	N	lb	mm	in	J	in-lb	J	in-lb	J/hr	in-lb/hr
PRN50S/D	44.1	9.9	588	132	66	2.6	0.13	1.2	7.8	69	3100	27000
PRN150S/D	88.2	19.8	1176	264	79.5	3.1	0.6	5.3	10	231	11300	100000
PRN300S/D	147	33.0	1960	441	97.5	3.8	8.0	70	20	462	22000	194000
PRN800S/D	490	110.2	4900	1102	138.5	5.5	10.5	92	156	1387	56500	500000

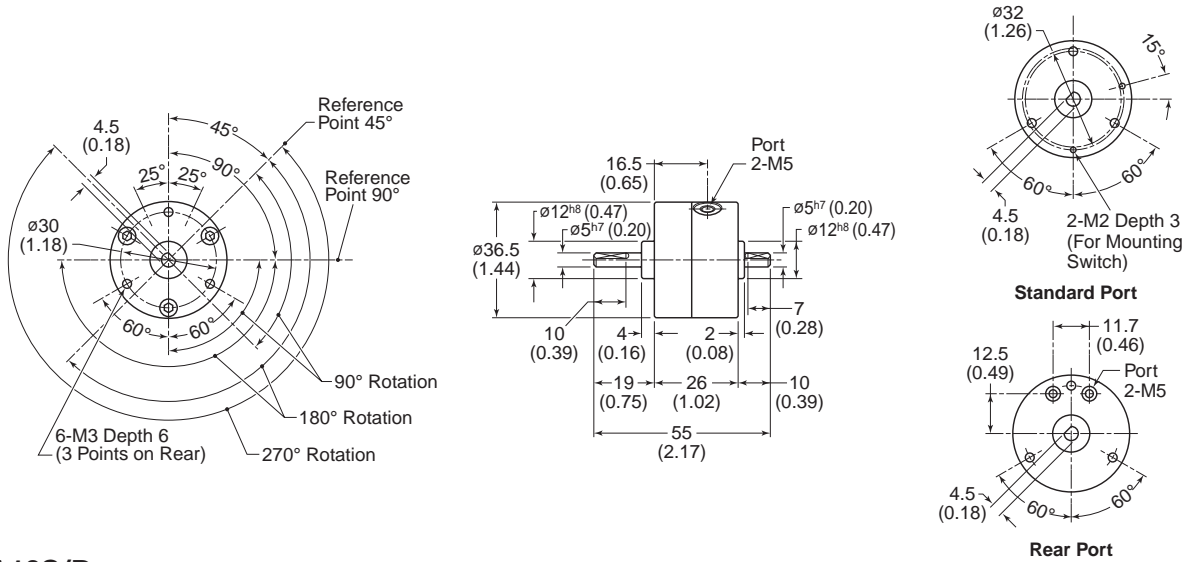


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 Rotary Actuators
 Actuator Products
 Series
 PV
 Series
 PRN(A)
 Series
 PTR
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 HP
 Series
 P1V-S
 Series

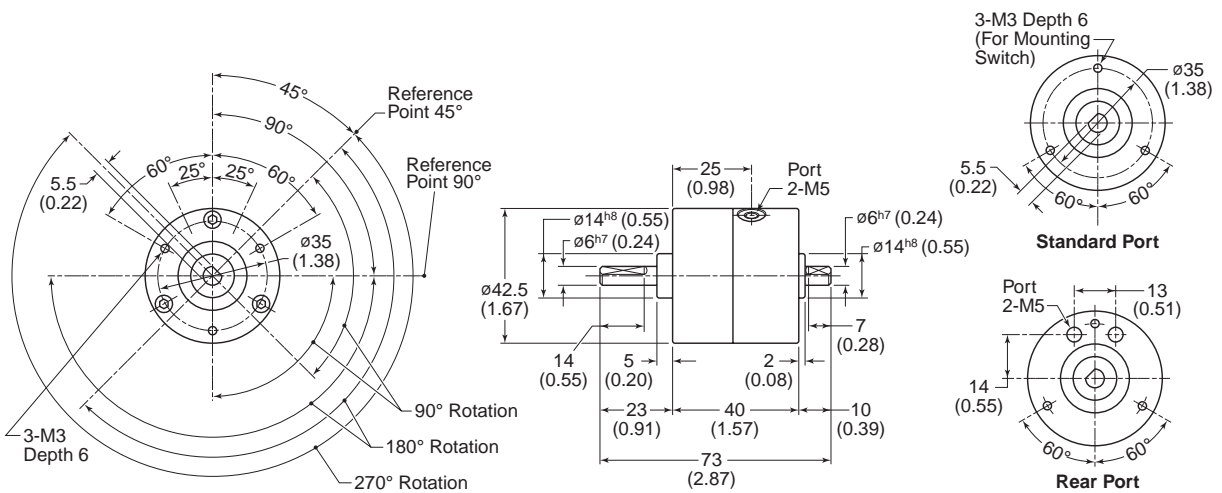
PRNA1S



PRNA3S/D



PRNA10S/D

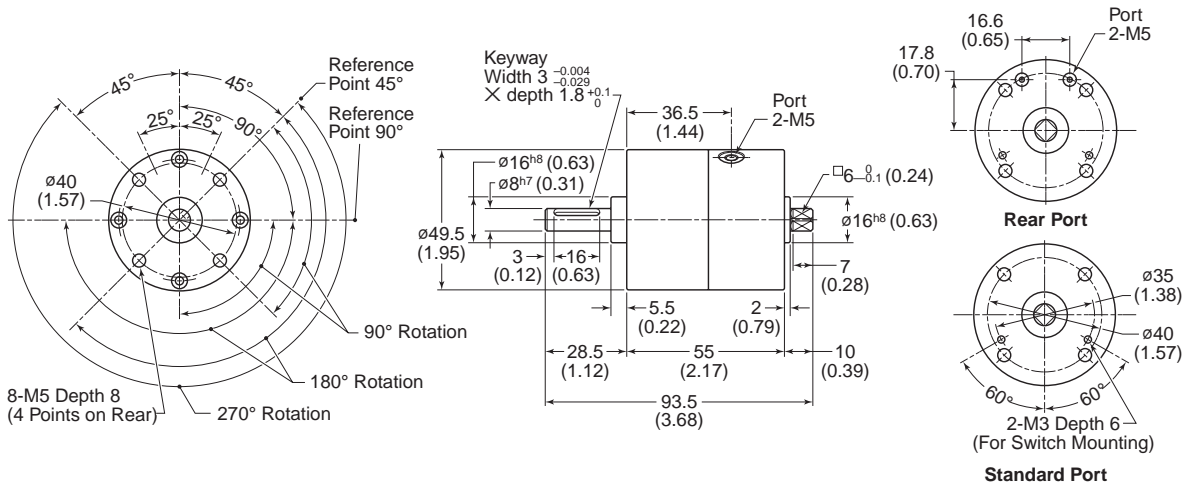


Dimensions in mm (inch)

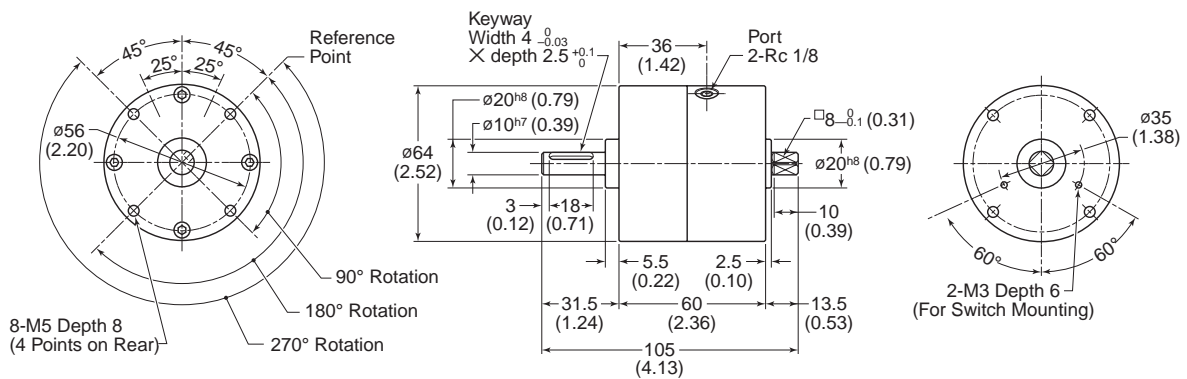
B	Rotary Actuators
	Actuator Products
PV Series	
PRN(A) Series	
PTR Series	
HP Series	
P1V-S Series	



PRNA20S/D



PRN30S/D

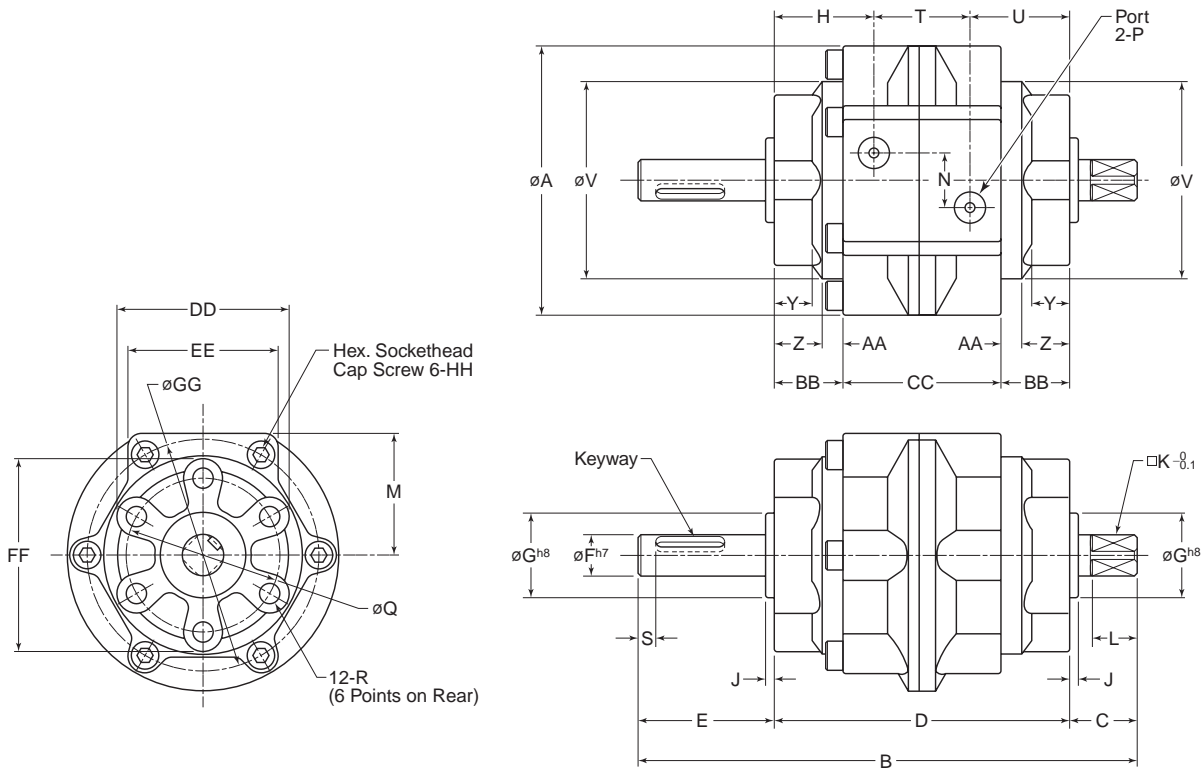


Dimensions in mm (inch)



B	Rotary Actuators
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PV Series	
PRN(A) Series	
PTR Series	
HP Series	
P1V-S Series	

PRN Sizes 50 to 800



Dimensions in mm (inch)

Model number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
PRN50	79 (3.11)	145 (5.71)	19.5 (0.77)	86 (3.39)	39.5 (1.56)	12 (0.47)	25 (0.98)	29 (1.14)	2.5 (0.10)	10 (0.39)	13 (0.51)	36 (1.42)	16 (0.63)	Rc1/8	45 (1.77)	M6 x 1, Depth 9	5 (0.20)
PRN150	110 (4.33)	180 (7.09)	23.5 (0.93)	103 (4.06)	53.5 (2.11)	17 (0.67)	30 (1.18)	34.5 (1.36)	3 (0.12)	13 (0.51)	16 (0.63)	51 (2.01)	24 (0.94)	Rc1/4	70 (2.76)	M8 x 1.25, Depth 12	5 (0.20)
PRN300	141.5 (5.57)	220 (8.66)	30 (1.18)	125 (4.92)	65 (2.56)	25 (0.98)	45 (1.77)	41.5 (1.63)	3.5 (0.14)	19 (0.75)	22 (0.87)	66 (2.60)	32 (1.26)	Rc3/8	80 (3.15)	M10 x 1.5, Depth 15	5 (0.20)
PRN800	196 (7.72)	285 (11.22)	44.5 (1.75)	171 (6.73)	69.5 (2.74)	40 (1.57)	70 (2.76)	53.5 (2.11)	4.5 (0.18)	32 (1.26)	35 (1.38)	90 (3.54)	44 (1.73)	Rc1/2	120 (4.72)	M12 x 1.75, Depth 18	10 (0.39)

Model number	T	U	V	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	Keyway width x depth x length
PRN50	28 (1.10)	29 (1.14)	58 (2.28)	11 (0.43)	14 (0.55)	6 (0.24)	20 (0.79)	46 (1.81)	51 (2.01)	44 (1.73)	57 (2.24)	68 (2.68)	M5 x 30	4 ⁰ _{-0.03} x 2.5 ^{+0.1} ₀ x 20
PRN150	34 (1.34)	34.5 (1.36)	85.2 (3.35)	10.5 (0.41)	15.5 (0.61)	8 (0.31)	23.5 (0.93)	56 (2.20)	75 (2.95)	61 (2.40)	85 (3.35)	97 (3.82)	M6 x 35	5 ⁰ _{-0.03} x 3 ^{+0.1} ₀ x 36
PRN300	42 (1.65)	41.5 (1.63)	110 (4.33)	13 (0.51)	17.5 (0.69)	10 (0.39)	27.5 (1.08)	70 (2.76)	88.5 (3.48)	78 (3.07)	98.5 (3.88)	125 (4.92)	M8 x 45	7 ⁰ _{-0.03} x 4 ^{+0.1} ₀ x 40
PRN800	64 (2.52)	53.5 (2.11)	152 (5.98)	14.5 (0.57)	21.1 (0.83)	11.4 (0.45)	32.5 (1.28)	106 (4.17)	130 (5.12)	110 (4.33)	145 (5.71)	173 (6.81)	M12 x 70	12 ⁰ _{-0.043} x 5 ^{+0.2} ₀ x 40

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Rotary Actuators
 Actuator Products

PV Series

PRN(A) Series

PTR Series

HP Series

P1V-S Series

