METRIC

BIMBA STAINLESS

BIMBA PNEU-TURN ROTARY ACTUATORS

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How to Order

The model number of Pneu-Turn Rotary Actuators consists of three alphanumeric clusters. These designate product type, series, angle of rotation and special options. Please refer to the charts below for an example of model number PT-060090-A1DV. This is a 27mm bore, single rack, 90° angle of rotation actuator with angle adjustment on both sides, dual shaft and high temperature option.

PT-060090-A1DV

SERIES – TORQUE FACTOR

011 - 14mm Bore, Single Rack
022 - 14mm Bore, Double Rack

027 - 19mm Bore, Single Rack
054 - 19mm Bore, Double Rack

060 - 27mm Bore, Single Rack
121 - 27mm Bore, Double Rack

161 - 38mm Bore, Single Rack
321 - 38mm Bore, Double Rack

404 - 50mm Bore, Single Rack
808 - 50mm Bore, Double Rack

Single Rack see page 4.3.
Double Rack see page 4.5.

To determine theoretical output torque (N-m), place a decimal point between the first and second digits of the series number. Then multiply that number by the air line pressure (Bars) for the approximate torque produced.

For example, a PT-060090 will produce an output torque of 0.60 times the air line pressure. At 6 Bars this torque will be 3.6 N-m.

ANGLE OF ROTATION

045 - 45°
090 - 90°
180 - 180°
270 - 270°
360 - 360°

Above angles are standard. Other angles available upon request.

Rotation angles up to 1080° are available. See page 4.10 for rotational tolerance.

OPTIONS

A1 - Angle adjustment (both sides)
A2 - Angle adjustment (counterclockwise rotation)
A3 - Angle adjustment (clockwise rotation)
B1 - Bumpers (both sides)
B2 - Bumper (counterclockwise rotation)
B3 - Bumper (clockwise rotation)
C1 - Cushions (both sides)[1]
C2 - Cushion (counterclockwise rotation)[1]
C3 - Cushion (clockwise rotation)[1]
D - Dual shaft
E - Rear shaft (front portion of dual shaft removed; to accommodate hanging axial load)
G - Polymer Grease
K - Square key[2]
M - MRS® magnetic position sensing
R - Ball bearing[2]
S - Seals – oil service[3]
T - Switch Track
V - High temperature option (-18°C to +205°C)
X - Anti-backlash(for 38mm and 50mm bores only)[5]

[1] Not available in Series 011 or 022. See below for option combination availability. See page 4.4 and 4.6 for explanation of clockwise/counterclockwise.

[2] 011 and 022 have flat shaft.

[3] Oil service not recommended for applications at pressures less than 2.8 bar.

[4] Option T must be ordered in conjunction with Option M. Option M can be ordered with Option-V, but Option V's rating will change to 180°. See Position Sensing Solutions section for additional switch information.

[5] Option X (Anti-backlash) is available in bore sizes 1-1/16", 1-1/2" and 2", single and double rack-up to 360° rotation. This option eliminates mid-rotational and end of rotation backlash in single rack models. It also eliminates mid-rotational backlash in double rack models. Double rack models do not have end of rotation backlash. All Pneu-Turns with this option include ball bearings Option R. Use this option to provide smooth rotation along with rotational precision.

Option Combination Availability

Due to design or compatibility restrictions, the following options may **not** be ordered in combination. For example, M (magnetic position sensing) and V (high temperature option) are not available in combination.

SERIES \ OPTIONS	A	B	C	D	E**	K	M	R*	S	V	X
14mm (011)	S	S	N/A	E	D,R	N/A	V	E	A,B	M	**N/A**
14mm (022)	N/A	S	N/A	E	D,R	N/A	V	E	B	M	**N/A**
19mm (027)	S	C,S	B,S	E	D,R	N/A	V	E	A,B,C	M	**N/A**
19mm (054)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**N/A**
27mm (060)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
27mm (121)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
38mm (161)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
38mm (321)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
50mm (404)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
50mm (808)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**

**Temperature range of ball bearing option with high temperature option is -18°C to +120°C.*
***Option E with standard bearing – front part of dual shaft removed to accommodate hanging axial load. Not required for option R.*

How to Order

The model number of Pneu-Turn Rotary Actuators consists of three alphanumeric clusters. These designate product type, series, angle of rotation and special options. Please refer to the charts below for an example of model number PT-060090-A1DV. This is a 27mm bore, single rack, 90° angle of rotation actuator with angle adjustment on both sides, dual shaft and high temperature option.

PT-060090-A1DV

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011 - 14mm Bore, Single Rack
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060 - 27mm Bore, Single Rack
121 - 27mm Bore, Double Rack

161 - 38mm Bore, Single Rack
321 - 38mm Bore, Double Rack

404 - 50mm Bore, Single Rack
808 - 50mm Bore, Double Rack

Single Rack see page 4.3.
Double Rack see page 4.5.

To determine theoretical output torque (N-m), place a decimal point between the first and second digits of the series number. Then multiply that number by the air line pressure (Bars) for the approximate torque produced.

For example, a PT-060090 will produce an output torque of 0.60 times the air line pressure. At 6 Bars this torque will be 3.6 N-m.

ANGLE OF ROTATION

045 - 45°
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270 - 270°
360 - 360°

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Rotation angles up to 1080° are available. See page 4.10 for rotational tolerance.

OPTIONS

A1 - Angle adjustment (both sides)
A2 - Angle adjustment (counterclockwise rotation)
A3 - Angle adjustment (clockwise rotation)
B1 - Bumpers (both sides)
B2 - Bumper (counterclockwise rotation)
B3 - Bumper (clockwise rotation)
C1 - Cushions (both sides)[1]
C2 - Cushion (counterclockwise rotation)[1]
C3 - Cushion (clockwise rotation)[1]
D - Dual shaft
E - Rear shaft (front portion of dual shaft removed; to accommodate hanging axial load)
G - Polymer Grease
K - Square key[2]
M - MRS® magnetic position sensing
R - Ball bearing[2]
S - Seals – oil service[3]
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V - High temperature option (-18°C to +205°C)
X - Anti-backlash(for 38mm and 50mm bores only)[5]

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[2] 011 and 022 have flat shaft.

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[4] Option T must be ordered in conjunction with Option M. Option M can be ordered with Option-V, but Option V's rating will change to 180°. See Position Sensing Solutions section for additional switch information.

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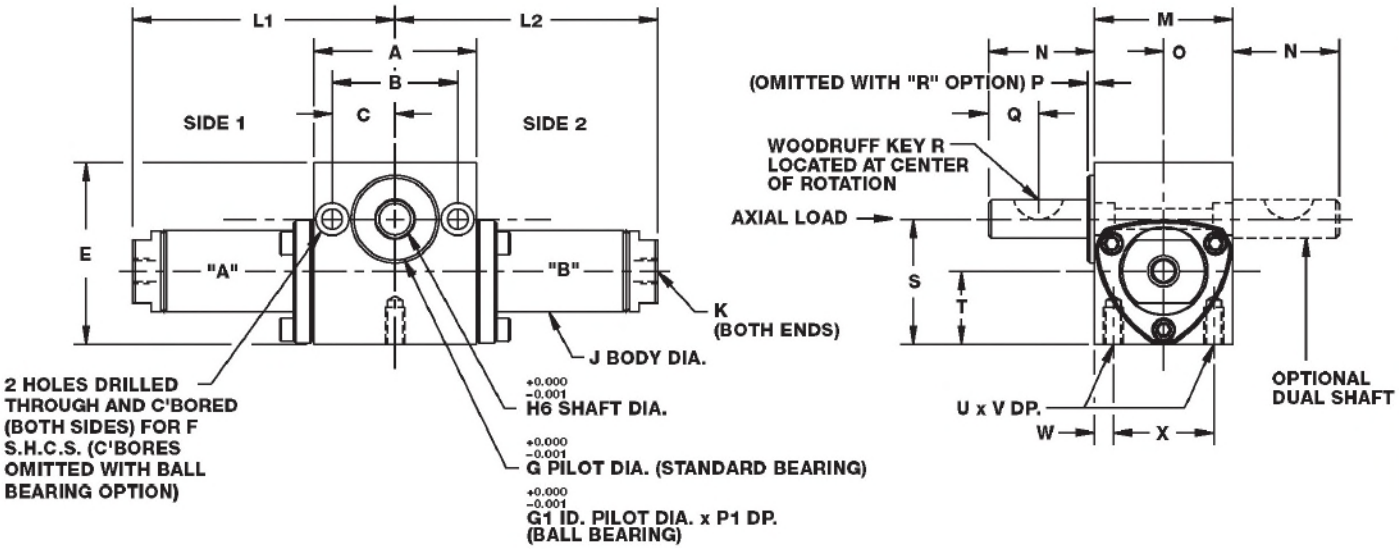
Option Combination Availability

Due to design or compatibility restrictions, the following options may **not** be ordered in combination. For example, M (magnetic position sensing) and V (high temperature option) are not available in combination.

SERIES \ OPTIONS	A	B	C	D	E**	K	M	R*	S	V	X
14mm (011)	S	S	N/A	E	D,R	N/A	V	E	A,B	M	**N/A**
14mm (022)	N/A	S	N/A	E	D,R	N/A	V	E	B	M	**N/A**
19mm (027)	S	C,S	B,S	E	D,R	N/A	V	E	A,B,C	M	**N/A**
19mm (054)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**N/A**
27mm (060)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
27mm (121)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
38mm (161)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
38mm (321)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
50mm (404)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**
50mm (808)	N/A	C,S	B,S	E	D,R	N/A	V	E	B,C	M	**E**

**Temperature range of ball bearing option with high temperature option is -18°C to +120°C.*
***Option E with standard bearing – front part of dual shaft removed to accommodate hanging axial load. Not required for option R.*

Single Rack Models(mm)



L1/L2 dimensions shown in chart on page 4.4.

Bore	A	B	C	E	E (With R Option)	F (C' Bores Omitted with Ball Bearing Option)	G (Std Bearing O.D. Pilot Dia.)
14mm (011)	40.0	31.0	15.5	39.0	39.0	4mm S.H.C.S	22.00 / 21.97
19mm (027)	49.0	37.0	18.5	47.0	47.0	5mm S.H.C.S.	24.99 / 24.97
27mm (060)	59.0	47.0	23.5	60.0	60.0	6mm S.H.C.S.	29.01 / 28.98
38mm (161)	65.0	50.0	25.0	74.0	74.0	8mm S.H.C.S.	31.72 / 31.70
50mm (404)	80.0	63.0	31.5	96.0	96.0	8mm S.H.C.S.	44.42 / 44.40

Bore	G1 Ball Bearing I.D. Pilot	H	J	K	M	N	O	P	P1
14mm (011)	22.00 / 21.98	8mm	15.5	M5 x 0.8	29.0	20.0	14.5	1.6	2.0
19mm (027)	26.00 / 25.98	10mm	20.8	M5 x 0.8	35.0	23.0	17.5	1.6	2.43
27mm (060)	35.00 / 34.98	14mm	28.4	G 1/8	49.0	30.0	24.5	1.6	2.17
38mm (161)	35.00 / 34.98	16mm	39.6	G 1/8	60.0	28.0	30.0	2.3	3.37
50mm (404)	47.00 / 46.97	25mm	52.8	G 1/4	66.0	50.0	33.0	2.1	3.99

Bore	Q	R*	S	T	U	V	W	X
14mm (011)	8.0	2 x 3.7	26.0	15.5	M4 x 0.7	11.5	5.0	19.0
19mm (027)	10.0	3 x 5	32.0	18.8	M5 x 0.8	10.0	4.5	26.0
27mm (060)	16.0	5 x 7.5	40.0	22.7	M6 x 1	13.0	8.5	32.0
38mm (161)	16.0	5 x 7.5	54.0	30.2	M8 x 1.25	16.0	9.0	42.0
50mm (404)	20.0	8 x 13	65.0	32.5	M8 x 1.25	16.0	7.1	52.0

**Key dimensions on page 4.7.*

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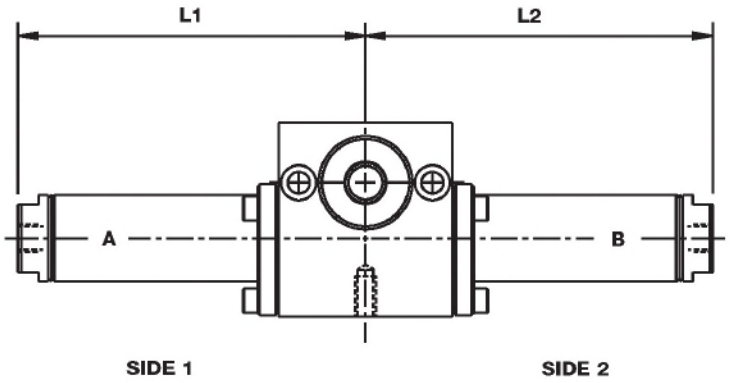
Single Rack Options(mm)

(Dimensional variations from standard as shown.)



	14mm (011)		19mm (027)		27mm (060)		38mm (161)		50mm (404)	
	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
Adder Per Degree of Rotation	0.121	0.121	0.166	0.166	0.185	0.185	0.246	0.246	0.348	0.348
Plus One Length Adder Below Per Side										
Base Unit (No Options)	41.2	41.2	44.3	44.3	57.3	57.3	61.7	61.7	74.1	74.1
Bumper Both Sides (B1)	44.2	44.2	47.8	47.8	61.1	61.1	65.5	65.5	79.2	79.2
Bumper CCW Side (B2)	41.2	41.2	44.3	47.8	57.3	61.1	61.7	65.5	74.1	79.2
Bumper CW Side (B3)	44.2	44.2	47.8	44.3	61.1	57.3	65.5	61.7	79.2	74.1
Cushion Both Sides (C1)	N/A	N/A	57.7	57.7	75.1	75.1	77.9	77.9	94.7	94.7
Cushion CCW Side (C2)	N/A	N/A	44.3	57.7	57.3	75.1	61.7	77.9	74.1	94.7
Cushion CW Side (C3)	N/A	N/A	57.7	44.3	75.1	57.3	77.9	61.7	94.7	74.1
Oil Service Seals (S)	N/A	N/A	58.1	58.1	65.1	65.1	72.7	72.7	87.7	87.7
Oil Service with Angle Adjustment (AS)	51.5	51.5	N/A	N/A	83.0	83.0	89.0	89.0	108.3	108.3

"CCW Side" –
refers to the extreme rotation of the shaft in the counter-clockwise direction as viewed from the mounting pilot side of the actuator.

The location of the optional feature chosen will be on tube B for single rack actuators.

"CW Side" –
refers to the extreme rotation of the shaft in the clockwise direction as viewed from the mounting pilot side of the actuator.

The location of the optional feature chosen will be on tube A for single rack actuators.

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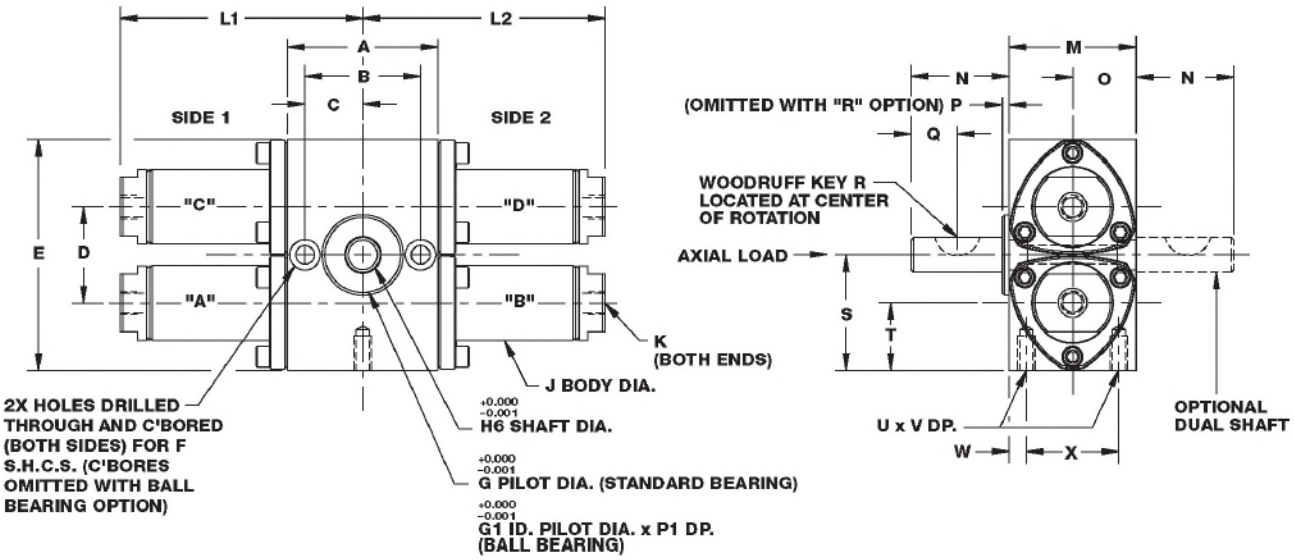
Double Rack Models(mm)



Note: Body retainer on 50mm bore has 4 corners.
L1/L2 dimensions shown in chart on page 4.6.

Bore	A	B	C	D	E	F (C' Bores Omitted with Ball Bearing Option)	G (Std Bearing O.D. Pilot Dia.)
14mm (022)	40.0	31.0	15.5	21.1	52	4mm S.H.C.S	22.00 / 21.97
19mm (054)	49.0	37.0	18.5	26.4	64	5mm S.H.C.S.	24.99 / 24.97
27mm (121)	59.0	47.0	23.5	34.5	80	6mm S.H.C.S.	29.01 / 28.98
38mm (321)	65.0	50.0	25.0	47.6	108	8mm S.H.C.S.	31.72 / 31.70
50mm (808)	80.0	63.0	31.5	65.0	130	8mm S.H.C.S.	44.42 / 44.40

Bore	G1 (Ball Bearing I.D. Pilot)	H	J	K	M	N	O	P	P1
14mm (022)	22.00 / 21.98	8.0	15.5	M5 x 0.8	29.0	20	14.5	1.6	2.00
19mm (054)	26.00 / 25.98	10.0	20.8	M5 x 0.8	35.0	23	17.5	1.6	2.43
27mm (121)	35.00 / 34.98	14.0	28.4	G 1/8	49.0	30	24.5	1.6	2.17
38mm (321)	35.00 / 34.98	16.0	39.6	G 1/8	60.0	28	30.0	2.3	3.37
50mm (808)	47.00 / 46.97	25.0	52.8	G 1/4	66.0	50	33.0	2.1	3.99

Bore	Q	R*	S	T	U	V	W	X
14mm (022)	8.0	2 x 3.7	26.0	15.5	M4 x 0.7	11.5	5.0	19.0
19mm (054)	10.0	3 x 5	32.0	18.8	M5 x 0.8	10.0	4.5	26.0
27mm (121)	16.0	5 x 7.5	40.0	22.7	M6 x 1	13.0	8.5	32.0
38mm (321)	16.0	5 x 7.5	54.0	30.2	M8 x 1.25	16.0	9.0	42.0
50mm (808)	20.0	8 x 13	65.0	32.5	M8 x 1.25	16.0	7.1	52.0

**Key dimensions on page 4.7.*

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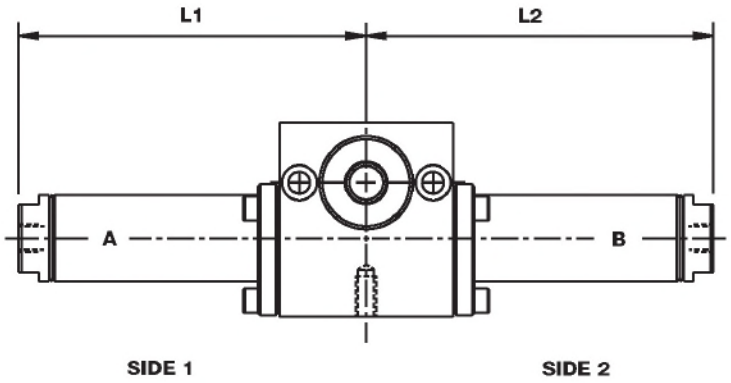
Single Rack Options(mm)

(Dimensional variations from standard as shown.)



	14mm (011)		19mm (027)		27mm (060)		38mm (161)		50mm (404)	
	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
Adder Per Degree of Rotation	0.121	0.121	0.166	0.166	0.185	0.185	0.246	0.246	0.348	0.348
Plus One Length Adder Below Per Side										
Base Unit (No Options)	41.2	41.2	44.3	44.3	57.3	57.3	61.7	61.7	74.1	74.1
Bumper Both Sides (B1)	44.2	44.2	47.8	47.8	61.1	61.1	65.5	65.5	79.2	79.2
Bumper CCW Side (B2)	41.2	41.2	44.3	47.8	57.3	61.1	61.7	65.5	74.1	79.2
Bumper CW Side (B3)	44.2	44.2	47.8	44.3	61.1	57.3	65.5	61.7	79.2	74.1
Cushion Both Sides (C1)	N/A	N/A	57.7	57.7	75.1	75.1	77.9	77.9	94.7	94.7
Cushion CCW Side (C2)	N/A	N/A	44.3	57.7	57.3	75.1	61.7	77.9	74.1	94.7
Cushion CW Side (C3)	N/A	N/A	57.7	44.3	75.1	57.3	77.9	61.7	94.7	74.1
Oil Service Seals (S)	N/A	N/A	58.1	58.1	65.1	65.1	72.7	72.7	87.7	87.7
Oil Service with Angle Adjustment (AS)	51.5	51.5	N/A	N/A	83.0	83.0	89.0	89.0	108.3	108.3

"CCW Side" –
refers to the extreme rotation of the shaft in the counter-clockwise direction as viewed from the mounting pilot side of the actuator.

The location of the optional feature chosen will be on tube B for single rack actuators.

"CW Side" –
refers to the extreme rotation of the shaft in the clockwise direction as viewed from the mounting pilot side of the actuator.

The location of the optional feature chosen will be on tube A for single rack actuators.

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