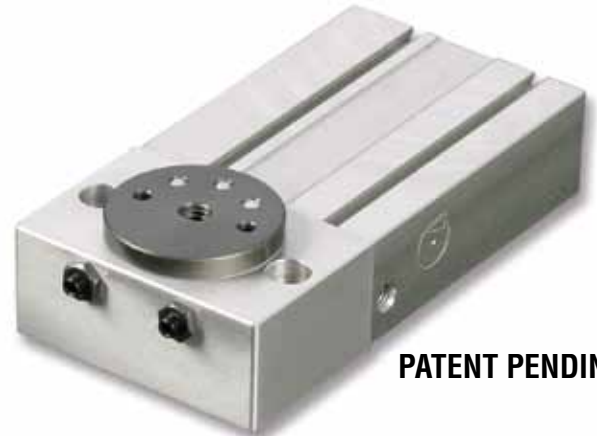


RCC

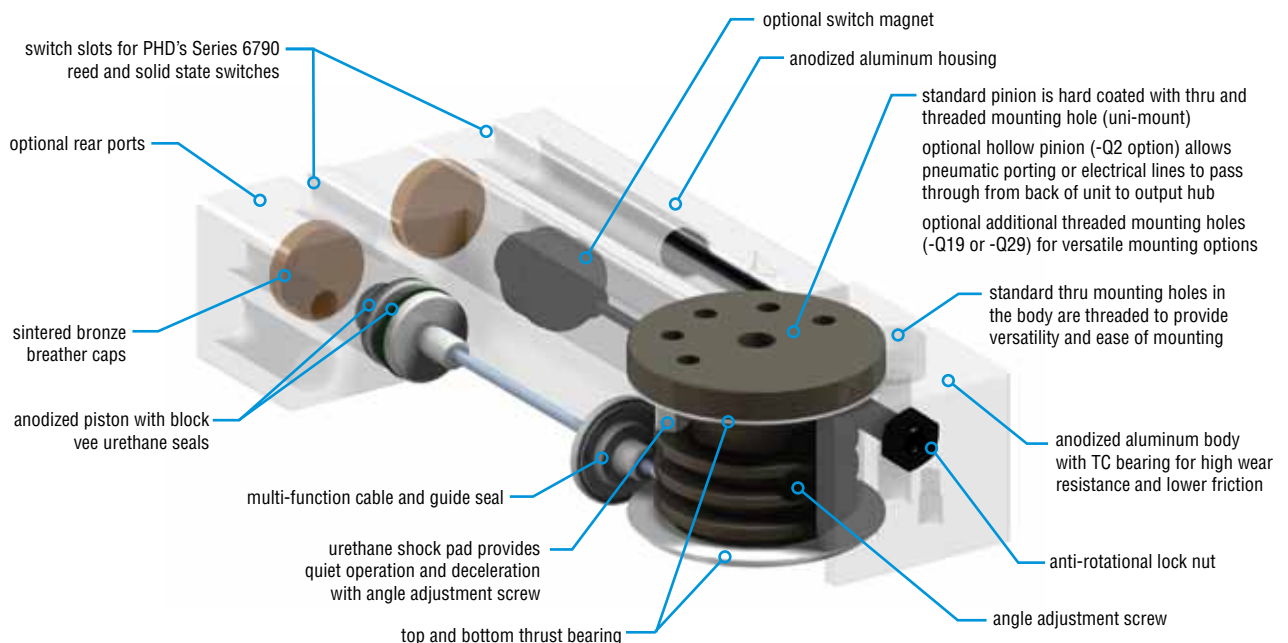
CABLE-DRIVEN PNEUMATIC ROTARY ACTUATOR



PATENT PENDING

Major Benefits

- Exceptionally low profile for confined spaces
- Three bore sizes and two standard rotations, 90° and 180°
- Standard internal shock pad eliminates metal to metal contact, reducing noise and end-of-rotation impact forces
- The rotary housing incorporates switch slots for convenient mounting of PHD's Series 6790 4 mm Reed and Solid State Switches. Magnet option (-M) is required when using Series 6790 Switches
- Standard angle adjustment of $\pm 5^\circ$ each direction
- Standard pinion has a threaded thru hole
- High axial thrust load capabilities

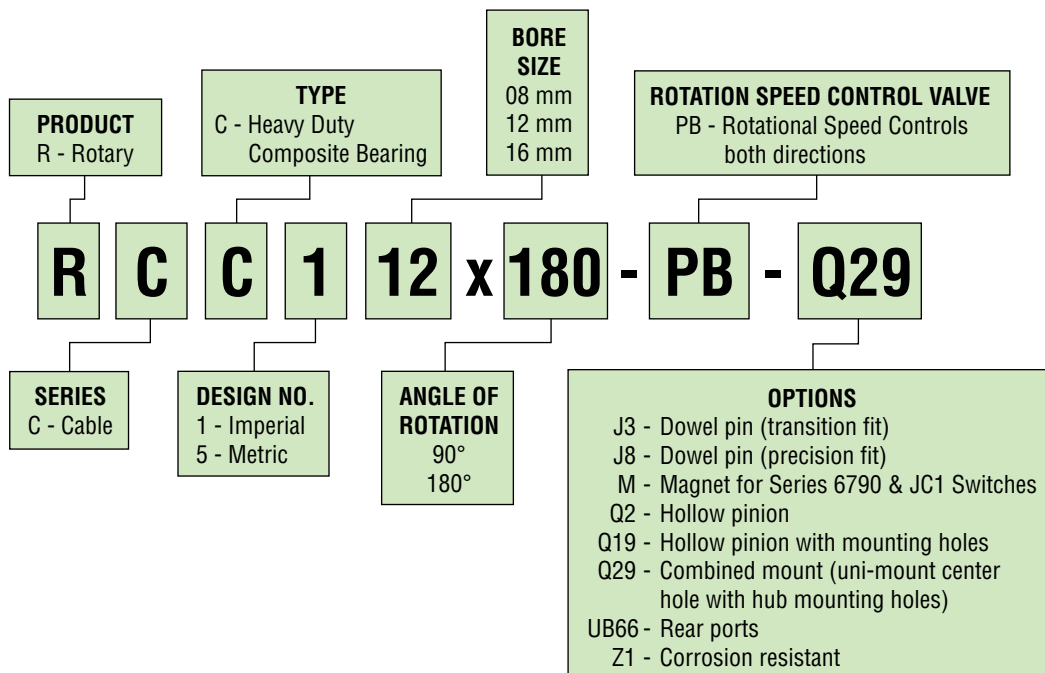


RCC

ORDERING DATA: SERIES RCC ROTARY ACTUATORS

TO ORDER SPECIFY:

Product, Series, Type, Design No.,
Bore Size, Rotation, and Options.



SERIES 6790 & JC1 SWITCHES

PART NO.	DESCRIPTION
67902-1-05	PNP (Source) or NPN (Sink) Reed, 4.5-30 VDC, 5 m cable
JC1SDN-5	NPN (Sink) Solid State, 10-30 VDC, 5 m cable
JC1SDP-5	PNP (Source) Solid State, 10-30 VDC, 5 m cable
67922-1	PNP (Source) or NPN (Sink) Reed, 4.5-30 VDC, Quick Connect
JC1SDN-K	NPN (Sink) Solid State, 10-30 VDC, Quick Connect
JC1SDP-K	PNP (Source) Solid State, 10-30 VDC, Quick Connect
67929-2	PNP (Source) or NPN (Sink) Reed, 65-120 VAC, Quick Connect

NOTE: See Switches and Sensors section for additional switch information and complete specification. Switches must be ordered separately.



Options may affect unit length. See dimensional pages and option information details.



Refer to this product's online catalog in the product section for complete information including related dimensions and additional specifications. See link at bottom of this page.

SERIES 6790 & JC1SDx CORDSET CHART

PART NO.	DESCRIPTION
63549-02	M8, 3 pin, Straight Female Connector, 2 m cable
63549-05	M8, 3 pin, Straight Female Connector, 5 m cable

NOTE: Cordsets must be ordered separately.



CAD & Sizing Assistance

Use PHD's free online Product Sizing and CAD Configurator at www.phdinc.com/myphd

SPECIFICATIONS	RCCx08	RCCx12	RCCx16
MIN. OPERATING PRESSURE	30 psi [2.0 bar]	25 psi [1.7 bar]	20 psi [1.4 bar]
MAX. OPERATING PRESSURE	100 psi [7 bar]		
OPERATING TEMPERATURE RANGE	32 to 150°F [0 to 65°C]		
ROTATIONAL TOLERANCE	Nominal +10° to -10° with angle adjustment		
BACKLASH	No backlash at end of rotation		
DEGREES OF ROTATION	90° and 180°		
LUBRICATION	Permanent for non-lube air		

SIZE	ROTATION	BASE WEIGHT lb kg	BORE DIAMETER in mm	DISPLACEMENT VOLUME in ³ mm ³	THEORETICAL TORQUE OUTPUT in-lb/psi Nm/bar	ROTATIONAL VELOCITY MAX. deg/sec	MAX. AXIAL BEARING LOAD lb N	MAX. RADIAL BEARING LOAD* lb N
08	90°	.32 .15	.315 8	.146 240	.018 .0291	180°/.16	7.0 31.1	1.3 5.8
	180°	.31 .14		.292 479				
12	90°	.65 .30	.472 12	.263 432	.050 .0808	180°/.24	15.0 66.7	3.5 15.6
	180°	.61 .28		.527 863				
16	90°	1.20 .55	.630 16	.514 842	.137 .2213	180°/.24	30.0 133.4	9.0 40.0
	180°	1.16 .53		1.027 1683				

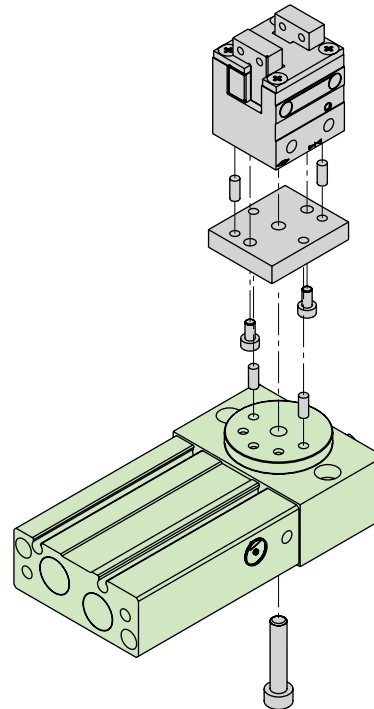
NOTE: *At .5 in [12.7 mm] from hub face

MOUNTING INSTRUCTIONS

PHD recommends mounting load or tooling with pinion in mid-rotation. Support pinion while tightening fasteners. Recommended mounting torques (for screw thread engagement of one diameter or greater) are shown in the Mounting Torques Table. Torque for port fittings is the minimum amount required to prevent leakage.

MOUNTING TORQUES

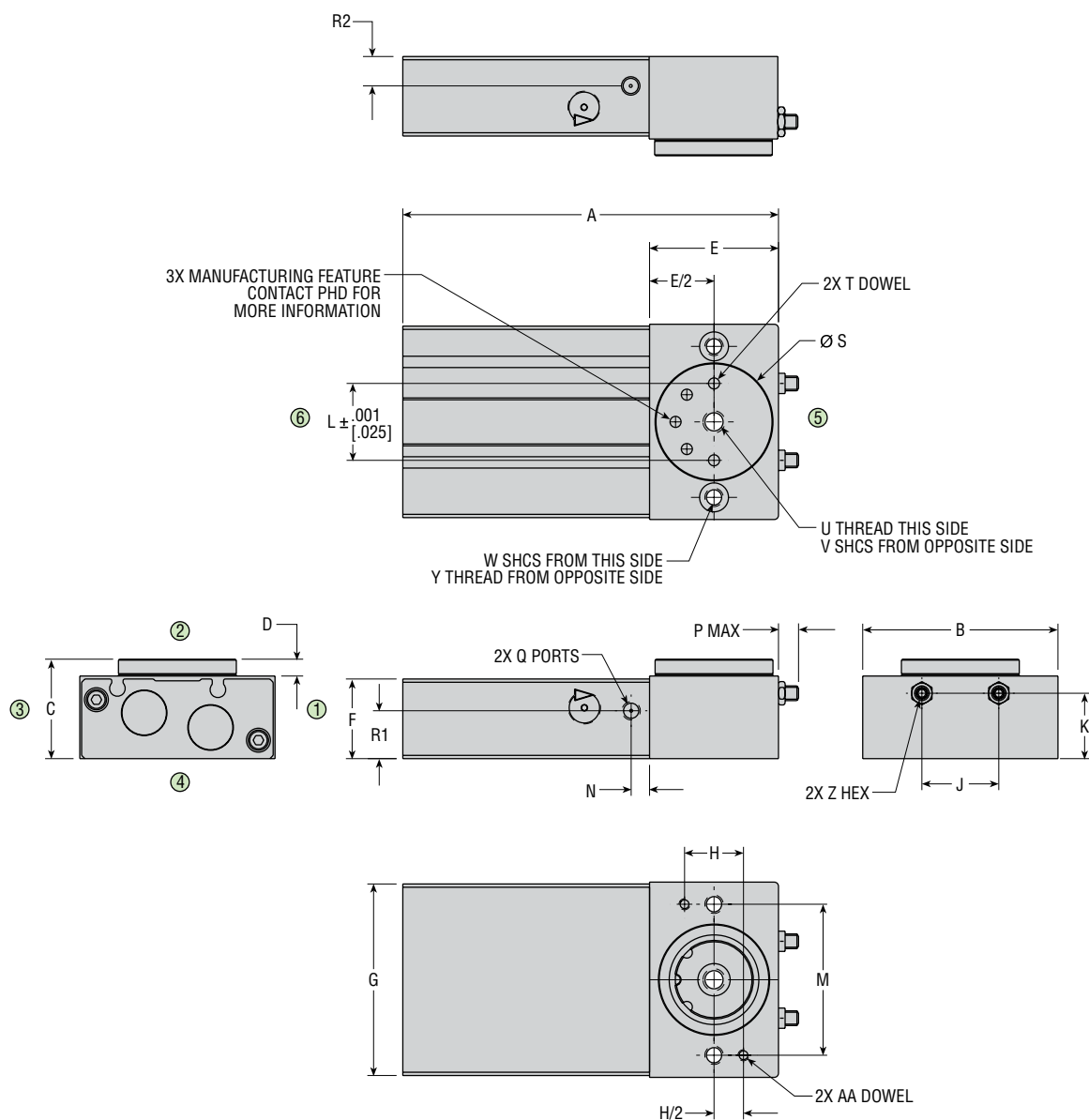
SIZE	in-lb	Nm
M2	2.6	0.3
M3	9	1.0
M4	18	2.0
M5	39	4.4
M6	60	6.8
M8	130	14.7
#4-40	9	1.0
#6-32	15	1.7
#10-24	40	4.5
#1/4-20	95	10.7
#5/16-18	120	13.6



Sizing & Application Assistance

Use PHD's free online Product Sizing Application or view the Product Sizing Catalog at: www.phdinc.com/apps/sizing

DIMENSIONS: SERIES RCC ROTARY ACTUATORS



NOTES:

- 1) CIRCLED NUMBERS INDICATE POSITION
- 2) HUB SHOWN IN MID-ROTATION POSITION

BORE SIZE	NOMINAL ROTATION	A	B	C	D	E	F	G	H	J	K	L	M	N	P
08 mm	90° or 180°	3.346 [85]	1.614 [41]	.861 [21.9]	.168 [4.3]	1.142 [29]	.652 [16.6]	1.575 [40]	.394 [10]	.590 [15]	.505 [12.8]	.591 [15]	1.299 [33]	.197 [5]	.227 [5.8]
12 mm	90° or 180°	4.016 [102]	2.087 [53]	1.065 [27.1]	.182 [4.6]	1.378 [35]	.851 [21.6]	2.047 [52]	.630 [16]	.822 [20.9]	.699 [17.8]	.822 [20.9]	1.614 [41]	.197 [5]	.276 [7.0]
16 mm	90° or 180°	5.246 [133.2]	2.598 [66]	1.297 [32.9]	.197 [5.0]	1.900 [48.3]	1.100 [27.9]	2.559 [65]	.630 [16]	1.140 [29]	.880 [22.4]	1.140 [29]	2.126 [54]	.197 [5]	.496 [12.6]

BORE SIZE	NOMINAL ROTATION	Q	R1 (CW)	R2 (CCW)	S	T	U	V	W	Y	Z	AA
08 mm	90° or 180°	10-32 THD [M5 x 0.8]	.370 [9.4]	.228 [5.8]	1.063 [27]	[3 x 3 mm DP]	10-24 THD [M5 x 0.8]	#6 [M4]	#5 [M3]	8-32 THD [M4 x 0.7]	[M2]	[3 x 4 mm DP]
12 mm	90° or 180°	10-32 THD [M5 x 0.8]	.512 [13]	.315 [8]	1.260 [32]	[3 x 3 mm DP]	1/4-20 THD [M6 x 1]	#10 [M5]	#6 [M4]	10-24 THD [M5 x 0.8]	[M2]	[3 x 4 mm DP]
16 mm	90° or 180°	10-32 THD [M5 x 0.8]	.628 [16]	.407 [10.3]	1.732 [44]	[4 x 4 mm DP]	5/16-18 THD [M8 x 1.25]	1/4 [M6]	#6 [M4]	10-24 THD [M5 x 0.8]	[M2.5]	[4 x 4 mm DP]

OPTIONS: SERIES RCC ROTARY ACTUATORS

J3 TRANSITIONAL FIT DOWEL PIN HOLES

This option provides a compromise fit between clearance and interference. Transitional fits are used where accuracy of location is important, but a small amount of clearance is permissible.

J8 PRECISION FIT DOWEL PIN HOLES

This option provides a H7 tolerance precision fit with dowel pins. Precision fits are used where accuracy of location is of prime importance and for parts requiring rigidity and alignment.

M MAGNET FOR PHD SERIES 6790 & JC1 SWITCHES

This option equips the unit with a magnetic piston for use with PHD's Series 6790 & JC1 Switches. These switches mount easily into small grooves located on the top of the rotary housing and are locked into place with a set screw.

PB FLOW CONTROLS

PB - UB66

The PHD Series RCC offers optional external compact flow control fittings to adjust output hub rotation speed. The speed of the hub is controlled by regulating the cylinder exhaust.

The PHD Series RCC flow control fittings are mounted directly to the housing and provide integral tube fitting connections. They swivel 360° around the ports, to ease tube routing and installation.

UB66 REAR PORTS

This option provides both ports located on the rear of the housing, creating the narrowest possible profile when installed.

Q2 HOLLOW PINION

This option provides a through hole for feeding pneumatic or electrical lines through the pinion.

Q19 HOLLOW PINION WITH HUB MOUNTING HOLES

This option provides the Q2 pinion, along with the addition of threaded mounting holes.

Q29 HUB MOUNTING HOLES COMBINED WITH UNI-MOUNT HOLES

This option provides the standard threaded through mounting hole and the addition of threaded mounting holes.

Z1 CORROSION RESISTANT

This option provides stainless steel socket head cap screws, retainers, and angle adjustments.



Options may affect unit length. See dimensional pages and option information details.



Refer to this product's online catalog in the product section for complete information including related dimensions and additional specifications. See link at bottom of this page.

RCC

All dimensions are reference only unless specifically tolerated.

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OPTIONS: SERIES RCC ROTARY ACTUATORS

J3

TRANSITIONAL FIT DOWEL PIN HOLES

This option provides a compromise fit between clearance and interference. Transitional fits are used where accuracy of location is important, but a small amount of clearance is permissible.

SIZE	J3			J8 [H7]		
	DIAMETER	DEPTH	TOLERANCE	DIAMETER	DEPTH	TOLERANCE
08	Ø .1189 [Ø 3.020]	x .118 DP [x 3.0 DP]	± .0005 [± .013]	Ø .1183 [Ø 3.005]	x .118 DP [x 3.0 DP]	± .0002 [± .0127]
12	Ø .1189 [Ø 3.020]	x .118 DP [x 3.0 DP]	± .0005 [± .013]	Ø .1183 [Ø 3.005]	x .118 DP [x 3.0 DP]	± .0002 [± .0127]
16	Ø .1585 [Ø 4.026]	x .157 DP [x 4.0 DP]	± .0005 [± .013]	Ø .15765 [Ø 4.004]	x .157 DP [x 4.0 DP]	+ .0003/- .0002 [± .0127]

J8

PRECISION FIT DOWEL PIN HOLES

This option provides a H7 tolerance precision fit with dowel pins. Precision fits are used where accuracy of location is of prime importance and for parts requiring rigidity and alignment.

M

MAGNET FOR PHD SERIES 6790 & JC1 SWITCHES

This option equips the unit with a magnetic piston for use with PHD's Series 6790 & JC1 Switches. These switches mount easily into small grooves located on the top of the rotary housing and are locked into place with a set screw. For recommended torque specifications and dimensional data see the table. **See Switches and Sensors section for complete switch specifications.**

SERIES 6790 & JC1SDx CORDSET CHART

PART NO.	DESCRIPTION
63549-02	M8, 3 pin, Straight Female Connector, 2 m cable
63549-05	M8, 3 pin, Straight Female Connector, 5 m cable

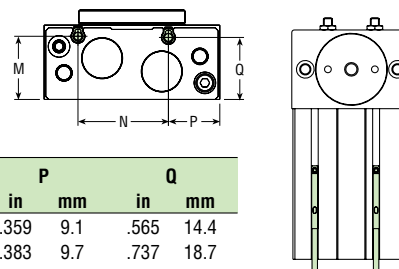
TORQUE CHART

SWITCH	TORQUE
6790	16 in-oz [.11 Nm]
JC1SDx	Hand tighten clockwise until switch is securely retained. Do not overtighten.

SERIES 6790 & JC1 SWITCHES

PART NO.	DESCRIPTION
67902-1-05	PNP (Source) or NPN (Sink) Reed, 4.5-30 VDC, 5 m cable
JC1SDN-5	NPN (Sink) Solid State, 10-30 VDC, 5 m cable
JC1SDP-5	PNP (Source) Solid State, 10-30 VDC, 5 m cable
67922-1	PNP (Source) or NPN (Sink) Reed, 4.5-30 VDC, Quick Connect
JC1SDN-K	NPN (Sink) Solid State, 10-30 VDC, Quick Connect
JC1SDP-K	PNP (Source) Solid State, 10-30 VDC, Quick Connect
67929-2	PNP (Source) or NPN (Sink) Reed, 65-120 VAC, Quick Connect

NOTE: See Switches and Sensors section for additional switch information and complete specification.



SIZE	M		N		P		Q	
	in	mm	in	mm	in	mm	in	mm
08	.565	14.4	.858	21.8	.359	9.1	.565	14.4
12	.750	19.1	1.074	27.3	.383	9.7	.737	18.7
16	.983	25.0	1.378	35.0	.421	10.7	.907	23.0

PB

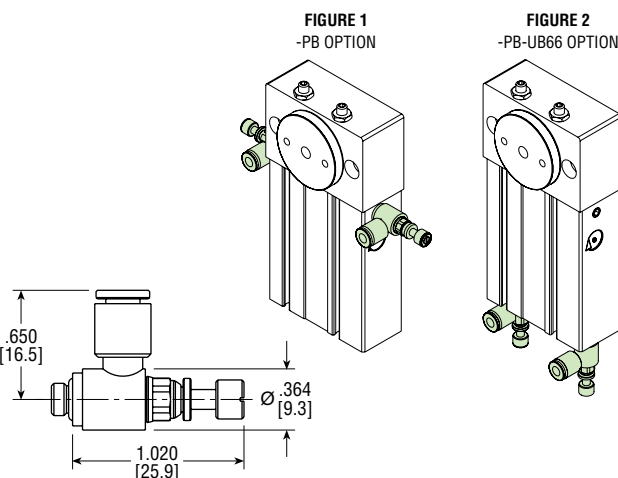
FLOW CONTROLS

PB

- UB66

The PHD Series RCC offers optional external compact flow control fittings to adjust output hub rotation speed. The speed of the hub is controlled by regulating the cylinder exhaust.

The PHD Series RCC flow control fittings are mounted directly to the housing and provide integral tube fitting connections. They swivel 360° around the ports, to ease tube routing and installation. Standard -PB location option is shown in Figure 1. Alternate flow control location is shown in Figure 2, with -PB and -UB66 options.



All dimensions are reference only unless specifically toleranced.

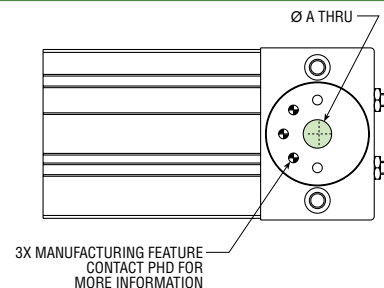
OPTIONS: SERIES RCC ROTARY ACTUATORS

Q2

HOLLOW PINION

This option provides a through hole for feeding pneumatic or electrical lines through the pinion.

SIZE	A	
	in	mm
08	.325	8.3
12	.345	8.8
16	.521	13.2



Q19

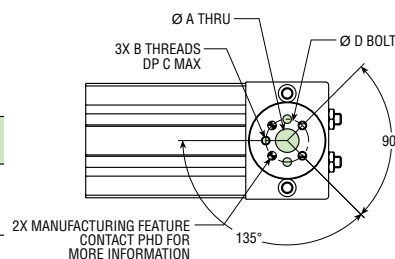
HOLLOW PINION WITH HUB MOUNTING HOLES

This option provides the Q2 pinion, along with the addition of threaded mounting holes.

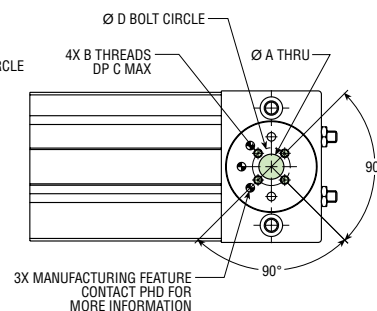
Hub shown at mid-rotation position.

SIZE	A		B		C		D	
	in	mm			in	mm	in	mm
08	.325	8.3	#4-40	[M3 x .5]	.157	4.0	.591	15.0
12	.345	8.8	#4-40	[M3 x .5]	.157	4.0	.520	13.2
16	.521	13.2	#6-32	[M4 x .7]	.210	5.3	.707	18.0

08 mm 90° UNITS ONLY



12 & 16 mm 90°/180° UNITS & 08 mm 180° UNITS



Q29

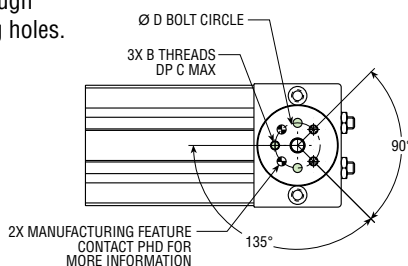
HUB MOUNTING HOLES COMBINED WITH UNI-MOUNT HOLES

This option provides the standard threaded through mounting hole and the addition of threaded mounting holes.

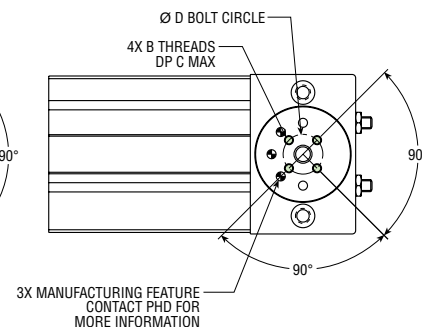
Hub shown at mid-rotation position.

SIZE	B		C		D	
			in	mm	in	mm
08	#4-40	[M3 x .5]	.157	4.0	.591	15.0
12	#4-40	[M3 x .5]	.157	4.0	.520	13.2
16	#6-32	[M4 x .7]	.210	5.3	.707	18.0

08 mm 90° UNITS ONLY



12 & 16 mm 90°/180° UNITS & 08 mm 180° UNITS

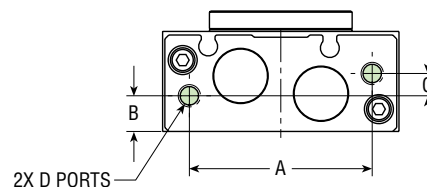


UB66

REAR PORTS

This option provides both ports located on the rear of the housing, creating the narrowest possible profile when installed.

SIZE	A		B		C		D	
	in	mm	in	mm	in	mm		
08	1.181	30	.181	4.6	.236	6.0	10-32 THD	[M5 x .8]
12	1.614	41	.315	8	.197	5	10-32 THD	[M5 x .8]
16	2.078	52.8	.407	10.3	.221	5.6	10-32 THD	[M5 x .8]



Z1

CORROSION RESISTANT

This option provides stainless steel socket head cap screws, retainers, and angle adjustments.

All dimensions are reference only unless specifically tolerated.

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