

The Price Alternative



*Optimized for
OEM requirements
at a lower price*



**Series ORQ Pneumatic
Compact Rotary Table**
6 Sizes

**Series OSCV Pneumatic
Thruster Slide**
3 Sizes, 4 Travels



**Series OSH Pneumatic
Compact Slide Table**
4 Sizes, Incremental Travels



**Series OCV Pneumatic
ISO Cylinder**
3 Sizes, 4 Strokes



**Series OSD Pneumatic
Thruster Slide**
3 Sizes, 4 Travels



**Series OCG Pneumatic
Round Body Cylinder**
6 Sizes, 10 Strokes



**Series OCQ Pneumatic
Compact Cylinder**
10 Sizes, Incremental Strokes



**Series OSX Pneumatic
Light Duty Thruster Slide**
5 Sizes, 7 Travels



**Series OSP Pneumatic
Compact Thruster Slide**
8 Sizes, Incremental Travels



**Series OSW Pneumatic
Dual Bore Slide Table**
6 Sizes, Incremental Travels

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Pneumatic Cylinders & Rotary Tables

The data shown is presented as a quick reference tool for determining which product may fit your requirements. Refer to engineering data pages for more information. It is recommended to use the PHD online sizing app to easily and confidently determine which unit is best suited for your requirements.

SERIES	SIZE	MAX STROKE		MAX FORCE	
		in	mm	lb	N
OCG ISO Air Round Body Cylinder  SEE PAGE 5	20	3/4"	8	200	@ 140 psi [10 bar]
	25	1"	12	300	68 302
	32	1-1/4"	12	300	106 471
	40	1-1/2"	12	300	174 774
	50	2"	12	300	272 1209
	63	2-1/2"	12	300	426 1895
OCQ Compact Cylinder  SEE PAGE 13	12	—	30	25	@ 145 psi [10 bar]
	16	—	30	45	111
	20	—	50	70	200
	25	—	50	110	311
	32	—	100	180	489
	40	—	100	282	800
	50	—	100	441	1254
	63	—	100	700	1964
	80	—	100	1129	3113
	100	—	100	1765	5022
OCV ISO Air Cylinder  SEE PAGE 19	32	—	200	187	@ 150 psi [10 bar]
	40	—	200	292	831
	50	—	200	456	1300
					2028

NOTE: Consult PHD for longer strokes.

SERIES	SIZE	MAXIMUM TORQUE OUTPUT	
		in-lb	Nm
ORQ Compact Rotary Table  SEE PAGE 59	12	0.06	@ 100 psi [7 bar]
			0.10
	16	0.16	@ 145 psi [10 bar]
	20	0.31	0.26
	25	0.55	0.50
	32	1.15	0.90
	40	2.29	1.89
			3.76

The data shown is presented as a quick reference tool for determining which product may fit your requirements. Refer to engineering data pages for more information. It is recommended to use the PHD online sizing app to easily and confidently determine which unit is best suited for your requirements.

SERIES	MODEL	MAX STANDARD TRAVEL		MAX THRUST*		MAX DYNAMIC MOMENTS						MAX LOAD HORIZONTAL**		
		in	mm	in	mm	PITCH		YAW		ROLL		lb	kg	
						in-lb	Nm	in-lb	Nm	in-lb	Nm			
OSCV Thruster Slide 	SEE PAGE 25	OSCV74	—	200	188	834	73	8.2	73	8.2	—	—	27	12
		OSCV75	—	200	293	1301	178	20	178	20	—	—	28	13
		OSCV76	—	200	456	2028	372	42	372	42	—	—	53	24
OSD Thruster Slide 	SEE PAGE 29	OSDD12	8	—	66	293	19	2.2	19	2.2	19	2.2	25	11
		OSDD14	10	—	149	662	47	5.3	47	5.3	47	5.3	70	32
		OSDD16	10	—	471	2095	83	9.4	83	9.4	83	9.4	180	81.6
OSH Compact Slide Table 	SEE PAGE 33	OSH5-6	—	60	4	19	4.2	0.47	3.5	0.39	5.3	0.6	0.16	0.07
		OSH5-10	—	60	12	52	8.5	0.96	7.3	0.82	12	1.4	0.27	0.12
		OSH5-16	—	60	31	137	17	1.88	14	1.59	25	2.8	0.47	0.21
		OSH5-20	—	60	49	217	28	3.14	24	2.75	49	5.5	0.65	0.30
OSP Compact Thruster Slide 	SEE PAGE 37	OSPC5-12	—	100	25	111	20.7	2.3	30.8	3.5	3.5	0.4	4.1	1.9
		OSPC5-16	—	100	45	200	30.4	3.4	45.6	5.2	6.2	0.7	6.0	2.7
		OSPC5-20	—	100	70	311	81.2	9.2	124	14	17	1.9	15	6.9
		OSPC5-25	—	100	110	489	108	12	165	19	27	3.0	20	9.2
		OSPC5-32	—	100	180	800	178	20	280	32	57	6.4	32	14
		OSPC5-40	—	100	282	1254	178	20	280	32	62	7.0	32	14
		OSPC5-50	—	100	441	1961	280	32	458	52	115	13	48	22
		OSPC5-63	—	100	700	3113	280	32	458	52	133	15	48	22
OSW Dual Bore Slide Table 	SEE PAGE 43	OSW5-6	—	50	9	39	9.7	1.1	9.7	1.1	9.7	1.1	1.3	0.60
		OSW5-8	—	75	15	66	35	3.9	35	3.9	35	3.9	1.8	0.80
		OSW5-12	—	100	35	155	85	9.6	85	9.6	85	9.6	4.4	2.0
		OSW5-16	—	100	63	280	266	30	266	30	266	30	8.1	3.7
		OSW5-20	—	150	98	435	407	46	407	46	407	46	13	6.0
		OSW5-25	—	150	153	680	460	52	460	52	460	52	19	8.5
OSX Light Duty Thruster Slide 	SEE PAGE 55	OSXC5-12	—	50	35	155	0.3	0.03	1.1	0.12	0.06	0.007	0.49	0.22
		OSXC5-16	—	50	63	280	0.7	0.08	3.6	0.41	0.18	0.02	1.2	0.54
		OSXC5-20	—	100	98	435	1.3	0.15	6.0	0.68	0.44	0.05	2.0	0.91
		OSXC5-25	—	100	153	680	2.2	0.25	9.6	1.09	0.89	0.10	3.2	1.4
		OSXC5-32	—	100	251	1116	3.9	0.44	19.3	2.18	1.95	0.22	5.3	2.4

* Maximum thrust shown is at the maximum psi [bar] operating pressure possible for that slide. See respective engineer specifications.

** Maximum load horizontal shown is at the minimum travel length respective to that series and size of slide.



Need something different?

PHD Unlimited® can easily modify Optimax® products to fit your specific application requirements.

Common Optimax® modifications:

- Stroke lengths / stroke adjustments
- Different ports
- Rod ends (thread and length)
- Magnets / no magnets
- Flow controls
- Fluoroelastomer seals
- Low friction seals
- Stainless Steel components
- Travel lengths



**Series OCK
Clamping Cylinders**

- 4 standard stroke lengths
- 2 cylinder clevis sizes
- 2 bore sizes



ML315150



ML312513



**Series OCN
NFPA Large Bore Cylinders**

- 7 mounting styles
- 5 bore sizes
- 14 standard stroke lengths

PHD has such a wide variety of actuators, options, and accessories available, and has the capabilities built into our factory systems to modify products within our everyday processes. Because of our flexibility, creating Unique Solutions® is simple for PHD.

We have dedicated assembly cells, machining centers, and many engineers to design and build unique solutions for our customers. We carry more than 34,000 unique designs and more than 100,000 quotes already in our database. We can provide most quotes within eight working hours and have the systems in place to provide the best delivery in the industry.

Capabilities:

- Most quotes delivered within eight working hours
- Dedicated application assistance
- Fast delivery and competitive pricing
- Separate unique solutions engineering and manufacturing areas dedicated to our customers, ensuring prompt quotes and dependable delivery
- More than 34,000 unique designs and more than 100,000 quotes already in our database

www.phdinc.com/unlimited/quote

Quotes Online:

- Available 24 hours a day, 7 days a week
- Enter and edit order prior to contact information
- Submit your quote and an MDN representative will contact you with a quote
- No minimum quantities are required
- CAD files available prior to ordering
- Geared towards short-run requests
- All units receive an "ML" number when ordered. This number, along with all specifications, is kept on permanent record at PHD for future reference and reorders.

For more information, request a Unique Solutions® brochure.



Pneumatic Round Body Cylinders

BENEFITS

- Imperial and metric models to match machine builders' specifications
- Magnets standard for switch sensing capability
- Standard cushions to reduce end of travel impact
- 6 bore sizes with 10 stroke lengths available to fit a variety of applications
- Drop-in mounting to match global standard

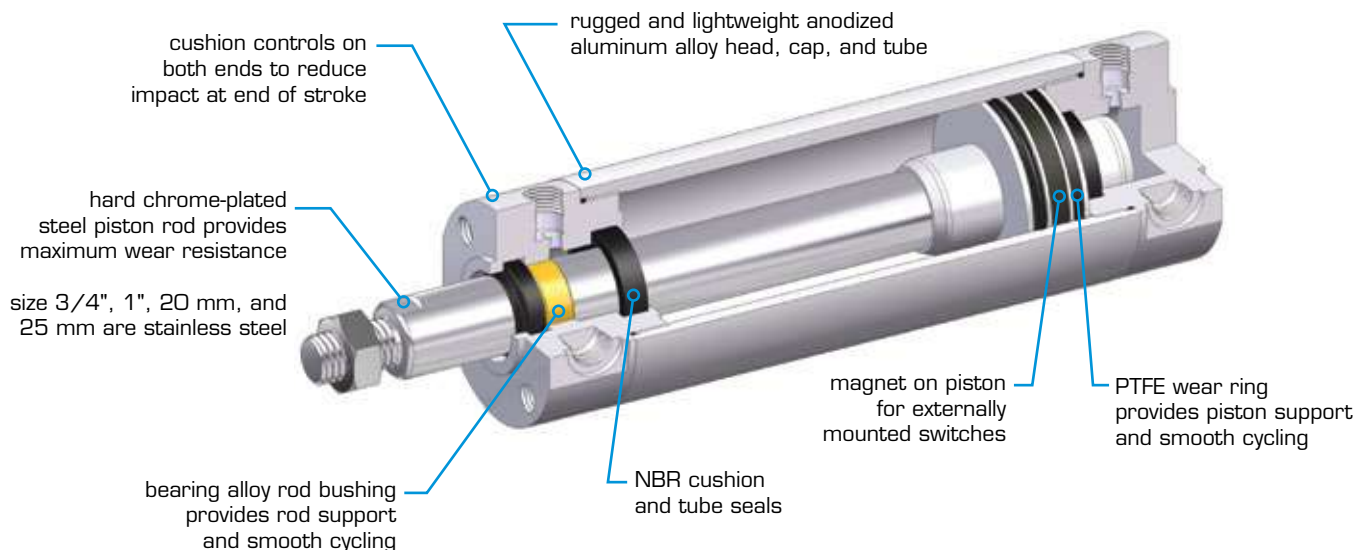


optional switch bundle for ease of ordering includes 2 switches with band brackets



Component	Materials
Head & Cap	Anodized Aluminum Alloy
Cylinder Tube	
Rod Seal	NBR
Piston Seal	
O-Rings	
Cushion Seal	Brass
Cushion Needle	
Piston Wear Ring	PTFE
Rod Bushing	PTFE and Bronze Alloy
Rod Nut	Carbon Steel
Piston Rod*	

*Stainless steel sizes 3/4", 1", 20 mm and 25 mm





Need something different?

PHD Unlimited® can make modifications to fit your specific needs. See page 4.

IMPERIAL

DESIGN NO.	BORE SIZE	AREA	STROKE
1 = Imperial	in	in ²	in
	3/4	0.49	1
	1	0.76	2
	1-1/4	1.25	3
	1-1/2	1.95	4
	2	3.04	5
	2-1/2	4.83	6
			7
			8
			10*
			12*

* Not available
3/4 in Bore

STROKE
Standard Lengths

MODEL NO.

OCG

SWITCH BUNDLE (OPTIONAL)

DESIGN NO.
5 = Metric

BORE SIZE
mm

AREA
mm²

STROKE
mm

METRIC

Standard Lengths

25

50

75

100

125

150

200

250*

300*

* Not available
20 mm Bore

Switch Circuitry

D = DC Reed

N = DC Solid State NPN - Sink

P = DC Solid State PNP - Source

Cable Type

K = Quick Connect

2 = 2 Meter Cable

NOTES:

- 1) Switch bundle includes 2 switches and 2 mounting brackets. Bundle available with actuator only.
- 2) Magnets and cushions standard both directions.
- 3) See page 9 for mounting accessories.

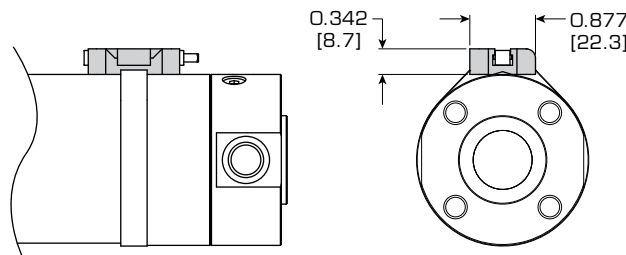
Repair Kits		
Bore Size		Part No.
in	mm	
3/4	20	87000-01
1	25	87000-02
1-1/4	32	87000-03
1-1/2	40	87000-04
2	50	87000-05
2-1/2	63	87000-06

Cordsets	
Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Switches & Brackets	
Part No.	Description
85844-0	Reed DC 5-30 V, 50 mA, Quick Connect
85844-2	Reed DC 5-30 V, 50 mA, 2 m cable
85845-0	Sink Type (NPN), DC 5-30 V, 50 mA, Quick Connect
85845-2	Sink Type (NPN), DC 5-30 V, 50 mA, 2 m cable
85846-0	Source Type (PNP), DC 5-30 V, 50 mA, Quick Connect
85846-2	Source Type (PNP), DC 5-30 V, 50 mA, 2 m cable
86999	Round Cylinder Switch Band Bracket

Includes one switch or bracket.



CAD & Sizing Assistance

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

Specifications	Series OCG Cylinder
Operating Air Pressure	8-140 psi [0.5-9.7 bar]
Temperature Limits	32°-140°F [0°-60°C]
Velocity	2-20 in/s [50-500 mm/s]
Rated Life	3 million cycles
Lubrication	Factory lubricated for rated life

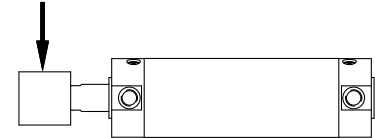
Bore Size		Rod Diameter		Rod Direction	Total Piston Area		Base Weight		Adder per 1 in [25 mm]	
in	mm	in	mm		in ²	mm ²	lb	kg	lb	kg
3/4	20	0.315	8	Extend	0.49	314	0.20	0.09	0.06	0.03
				Retract	0.41	264				
1	25	0.394	10	Extend	0.76	491	0.35	0.16	0.08	0.04
				Retract	0.64	412				
1-1/4	32	0.472	12	Extend	1.25	804	0.55	0.25	0.10	0.05
				Retract	1.07	691				
1-1/2	40	0.630	16	Extend	1.95	1256	0.90	0.41	0.17	0.08
				Retract	1.64	1055				
2	50	0.787	20	Extend	3.04	1963	1.68	0.76	0.25	0.11
				Retract	2.56	1649				
2-1/2	63	0.787	20	Extend	4.83	3116	2.34	1.06	0.29	0.13
				Retract	4.34	2802				



Application & Sizing Assistance

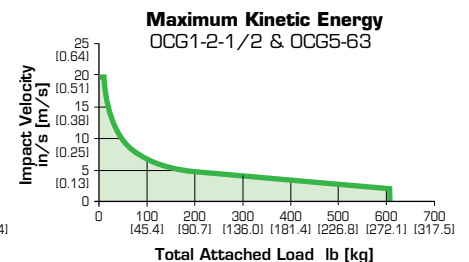
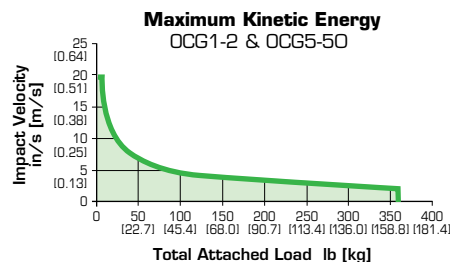
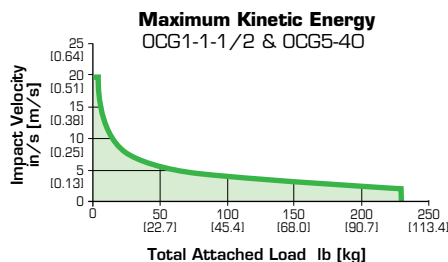
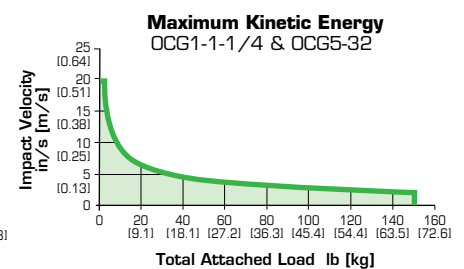
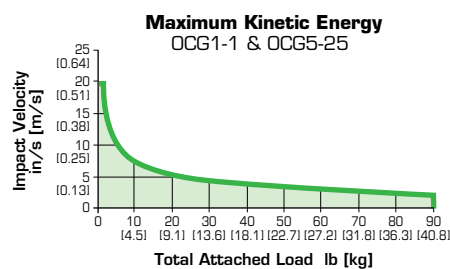
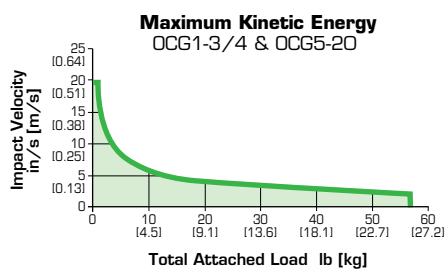
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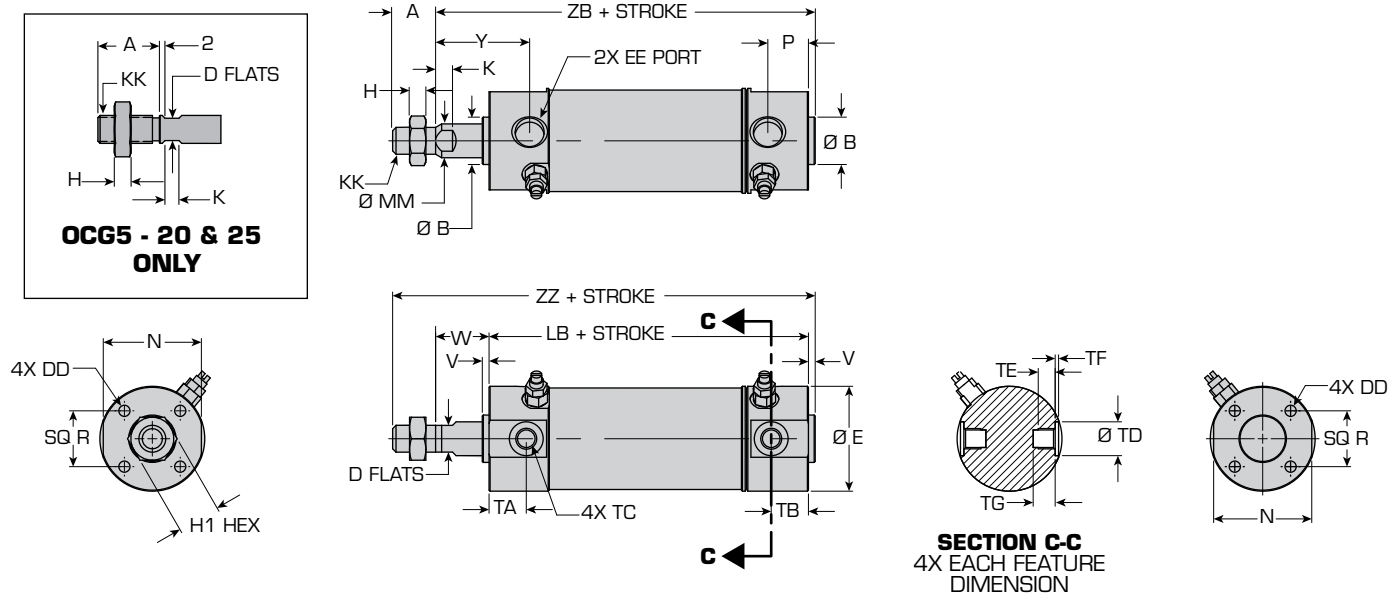
Lateral Load



Maximum Lateral Load by Stroke

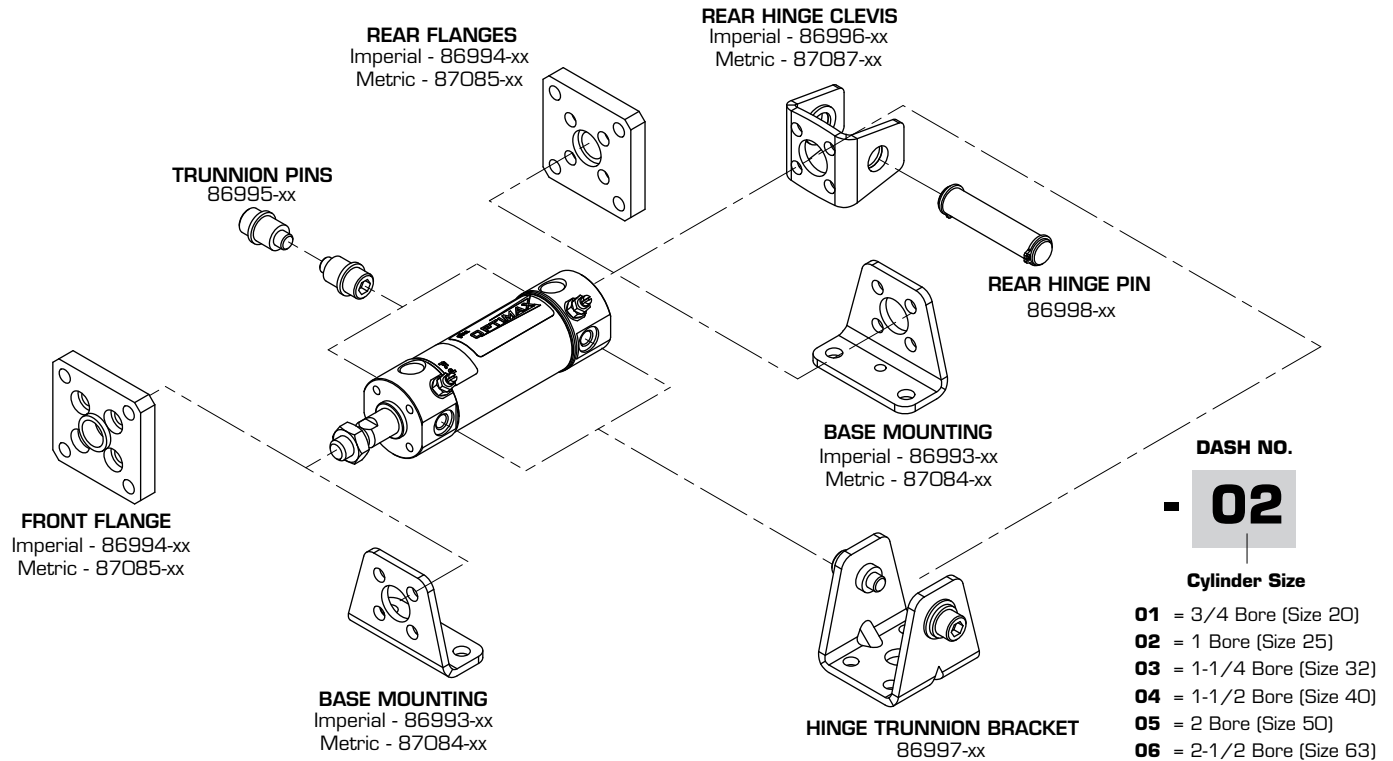
Bore Size		1 in 25 mm		2 in 50 mm		3 in 75 mm		4 in 100 mm		5 in 125 mm		6 in 150 mm		7 in —		8 in 200 mm		10 in 250 mm		12 in 300 mm	
in	mm	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g
3/4	20	18	505	15	414	12	337	10	275	8	228	6.9	195	6.3	177	6.2	174	—	—	—	—
1	25	24	675	20	563	17	475	14	408	13	358	11.4	323	10.5	298	9.9	281	9.1	257	8	225
1-1/4	32	43	1223	35	983	28	798	23	661	20	564	18	497	16	453	15	425	13	379	10	295
1-1/2	40	55	1552	47	1323	40	1141	35	999	31	889	29	808	26	747	25	701	22	628	19	540
2	50	86	2429	76	2157	68	1925	61	1729	55	1565	50	1427	46	1311	43	1211	37	1043	31	882
2-1/2	63	140	3959	121	3435	106	3001	94	2647	83	2362	76	2138	69	1966	65	1834	59	1659	54	1535





Letter Dim	Imperial						Metric					
	3/4 in	1 in	1-1/4 in	1-1/2 in	2 in	2-1/2 in	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm
A	0.50	0.50	0.75	0.75	0.88	0.88	18	22	22	30	35	35
B	0.472 +0.0000 /-0.0011	0.551 +0.0000 /-0.0011	0.709 +0.0000 /-0.0011	0.984 +0.0000 /-0.0013	1.181 +0.0000 /-0.0013	1.260 +0.0000 /-0.0015	12 +0.00 /-0.05	14 +0.00 /-0.05	18 +0.00 /-0.05	25 +0.00 /-0.05	30 +0.00 /-0.05	32 +0.00 /-0.05
D	0.24	0.31	0.39	0.55	0.71	0.71	6	8	10	14	18	18
DD	8-32 x 0.28 DP	10-32 x 0.30 DP	10-32 x 0.30 DP	1/4-28 x 0.47 DP	5/16-24 x 0.63 DP	3/8-24 x 0.63 DP	M4 x 0.7 x 7 DP	M5 x 0.8 x 7.5 DP	M5 x 0.8 x 8 DP	M6 x 1.0 x 12 DP	M8 x 1.25 x 16 DP	M10 x 1.5 x 16 DP
E	1.02	1.22	1.50	1.85	2.28	2.83	26	31	38	47	58	72
EE	1/8 NPT	1/8 NPT	1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT	G 1/8	G 1/8	G 1/8	G 1/8	G 1/4	G 1/4
H	0.16	0.19	0.26	0.26	0.32	0.32	5	6	6	8	11	11
H1	0.44	0.50	0.69	0.69	0.75	0.75	13	17	17	22	27	27
K	0.157	0.197	0.217	0.236	0.276	0.276	4	5	5.5	6	7	7
KK	1/4-28	5/16-24	7/16-20	7/16-20	1/2-20	1/2-20	M8 x 1.25	M10 x 1.25	M10 x 1.25	M14 x 1.5	M18 x 1.5	M18 x 1.5
LB	2.72	2.72	2.80	3.07	3.54	3.54	69	69	71	78	90	90
MM	0.315	0.394	0.472	0.630	0.787	0.787	8	10	12	16	20	20
N	0.94	1.14	1.42	1.73	2.17	2.72	24	29	36	44	55	69
P	0.47	0.47	0.43	0.47	0.51	0.51	12	12	11	12	13	13
R	0.55 ± .004	0.65 ± .004	0.79 ± .004	1.02 ± .004	1.26 ± .004	1.50 ± .004	14 ± 0.1	16.5 ± 0.1	20 ± 0.1	26 ± 0.1	32 ± 0.1	38 ± 0.1
TA	0.433	0.433	0.433	0.472	0.512	0.512	11	11	11	12	13	13
TB	0.433	0.433	0.394	0.394	0.472	0.472	11	11	10	10	12	12
TC	M5 x 0.8	M6 x 0.75	M8 x 1.0	M10 x 1.25	M12 x 1.25	M14 x 1.5	M5 x 0.8	M6 x 0.75	M8 x 1.0	M10 x 1.25	M12 x 1.25	M14 x 1.5
TD	0.315 +0.0014 /-0.000	0.394 +0.0014 /-0.000	0.472 +0.0017 /-0.000	0.551 +0.0017 /-0.000	0.630 +0.0017 /-0.000	0.709 +0.0017 /-0.000	8 +0.036 /-0.000	10 +0.036 /-0.000	12 +0.043 /-0.000	14 +0.043 /-0.000	16 +0.043 /-0.000	18 +0.043 /-0.000
TE	0.157	0.197	0.217	0.240	0.295	0.453	4	5	5.5	6	7.5	11.5
TF	0.020	0.039	0.049	0.049	0.079	0.118	0.5	1	1.25	1.25	2	3
TG	0.217	0.256	0.295	0.335	0.394	0.571	5.5	6.5	7.5	8.5	10	14.5
V	0.08	0.08	0.08	0.08	0.08	0.08	2	2	2	2	2	2
W	0.50	0.62	0.88	0.88	1.19	1.19	17	18	18	20	23	23
Y	0.97	1.09	1.35	1.39	1.74	1.74	29	30	30	33	37	37
ZB	3.30	3.42	3.76	4.03	4.81	4.81	88	89	91	100	115	115
ZZ	3.80	3.92	4.51	4.78	5.69	5.69	106	111	113	130	150	150

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.



Mounting Attachments

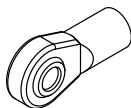
Base Part No.		Cylinder Size Dash No.	Description
Imperial	Metric		
86993	87084	-xx	Base Mounting
86994	87085	-xx	Front or Rear Flange Mounting
86995	86995	-xx	Trunnions
86996	87087	-xx	Rear Hinge Clevis
86997	86997	-xx	Rear Hinge & Trunnion Bracket
86998	86998	-xx	Rear Hinge Pin

Example: 86993-03 is a base mounting kit for size 1-1/4 bore cylinders.

Recommended Attachment Mounting Torques

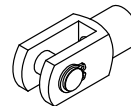
Bore Size		Mounting Torque		Trunnion Torque	
in	mm	in-lb	Nm	in-lb	Nm
3/4	20	13.3	1.5	20	2.2
1	25	26	3	32	3.6
1-1/4	32	26	3	80	9
1-1/2	40	43	5	160	18
2	50	104	12	280	32
2-1/2	63	217	25	460	52

METRIC



Rod Eye with Spherical Bearing (DIN 8139)

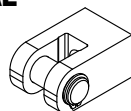
Cylinder	Standard Kit No.
OCG5-20	52493-05-1
OCG5-25	52493-01-1
OCG5-32	52493-01-1



Rod Clevis Mounting (DIN 8140)

Cylinder	Standard Kit No.	-Z1 Kit No.
OCG5-20	52492-05-1	52492-05-3
OCG5-25	52492-01-1	52492-01-3
OCG5-32	52492-01-1	52492-01-3

IMPERIAL



Rod Clevis Mounting

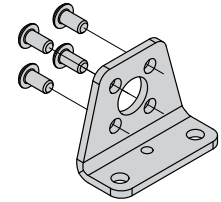
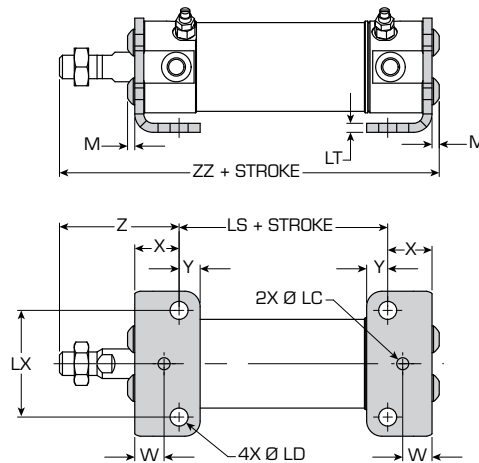
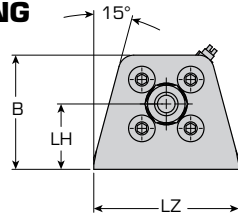
Cylinder	Standard Kit No.
OCG1 3/4	12904
OCG1 1	12906
OCG1 1-1/4	12910
OCG1 1-1/2	12910
OCG1 2	12911
OCG1 2-1/2	12911



Rod Eye Mounting

Cylinder	Standard Kit No.
OCG1 3/4	1075-01
OCG1 1	1075-04
OCG1 1-1/4	1375-02
OCG1 1-1/2	1375-02
OCG1 2	1375-03
OCG1 2-1/2	1375-03

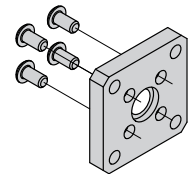
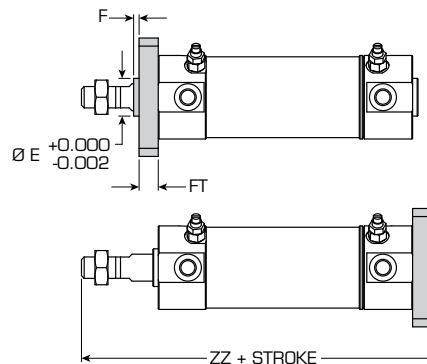
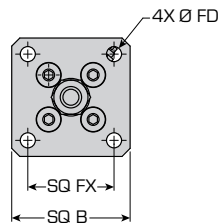
BASE MOUNTING



NOTE: Kit includes one base mounting bracket and fasteners.

Letter Dim	Imperial						Metric					
	3/4 in	1 in	1-1/4 in	1-1/2 in	2 in	2-1/2 in	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm
	86993-01	86993-02	86993-03	86993-04	86993-05	86993-06	87084-01	87084-02	87084-03	87084-04	87084-05	87084-06
B	1.34	1.52	1.77	2.15	2.78	3.25	34	38.5	45	54.5	70.5	82.5
LC	0.16	0.16	0.16	0.16	0.20	0.20	4	4	4	4	5	5
LD	0.24	0.24	0.26	0.26	0.35	0.43	6	6	6.6	6.6	9	11
LH	0.79	0.87	0.98	1.18	1.57	1.77	20	22	25	30	40	45
LS	1.78	1.78	1.78	2.01	2.16	2.16	45	45	45	51	55	55
LT	0.12	0.12	0.12	0.12	0.18	0.18	3	3	3	3	4.5	4.5
LX	1.26	1.42	1.73	2.13	2.60	3.23	32	36	44	54	66	82
LZ	1.73	1.93	2.28	2.80	3.39	4.17	44	49	58	71	86	106
M	0.09	0.11	0.11	0.13	0.17	0.22	2.2	2.8	2.8	3.3	4.4	5.5
W	0.39	0.39	0.39	0.39	0.69	0.69	10	10	10	10	17.5	17.5
X	0.59	0.59	0.63	0.65	0.87	0.87	15	15	16	16.5	22	22
Y	0.28	0.28	0.31	0.33	0.43	0.51	7	7	8	8.5	11	13
Z	1.47	1.59	2.14	2.16	2.76	2.76	47	52	53	63.5	75.5	75.5
ZZ	3.93	4.07	4.66	4.95	5.96	6.01	109.2	114.8	116.8	134.3	156.9	158

FRONT OR REAR FLANGE MOUNTING

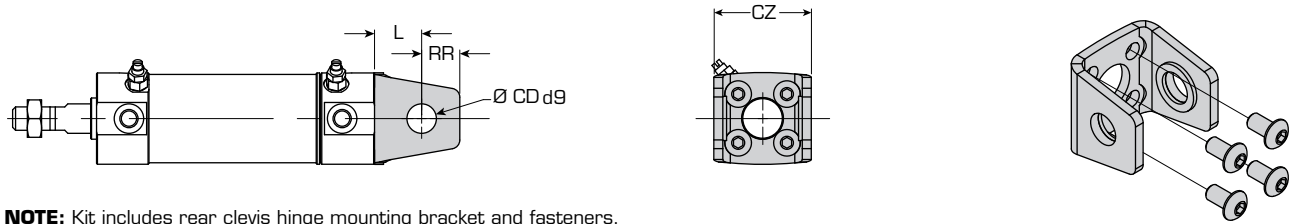


NOTE: Kit includes one flange mounting bracket and fasteners.

Letter Dim	Imperial						Metric					
	3/4 in	1 in	1-1/4 in	1-1/2 in	2 in	2-1/2 in	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm
	86994-01	86994-02	86994-03	86994-04	86994-05	86994-06	87085-01	87085-02	87085-03	87085-04	87085-05	87085-06
B	1.57	1.73	2.09	2.40	2.99	3.62	40	44	53	61	76	92
E	0.472 +0.000 /-0.002	0.551 +0.000 /-0.002	0.709 +0.000 /-0.002	0.984 +0.000 /-0.002	1.181 +0.000 /-0.002	1.260 +0.000 /-0.002	12 +0.00 /-0.05	14 +0.00 /-0.05	18 +0.00 /-0.05	25 +0.00 /-0.05	30 +0.00 /-0.05	32 +0.00 /-0.05
F	0.08	0.08	0.08	0.08	0.08	0.08	2	2	2	2	2	2
FX	1.10	1.26	1.50	1.81	2.28	2.76	28	32	38	46	58	70
FD	0.22	0.22	0.26	0.26	0.35	0.43	5.5	5.5	6.6	6.6	9	11
FT	0.24	0.28	0.28	0.31	0.35	0.35	6	7	7	8	9	9
ZZ	4.04	4.20	4.79	5.09	6.04	6.04	112	118	120	138	159	159

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.

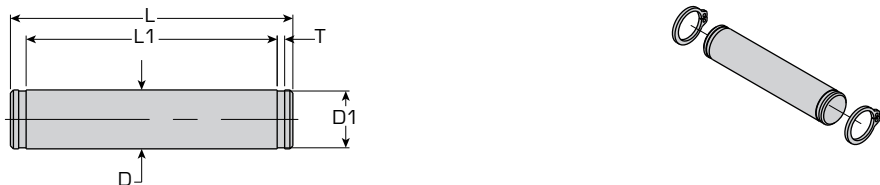
REAR CLEVIS HINGE MOUNTING



NOTE: Kit includes rear clevis hinge mounting bracket and fasteners.

Letter Dim	Imperial						Metric					
	3/4 in	1 in	1-1/4 in	1-1/2 in	2 in	2-1/2 in	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm
	86996-01	86996-02	86996-03	86996-04	86996-05	86996-06	87087-01	87087-02	87087-03	87087-04	87087-05	87087-06
CD d9	0.315	0.394	0.472	0.551	0.630	0.709	8	10	12	14	16	18
CZ	1.14	1.30	1.57	1.93	2.36	2.91	29	33	40	49	60	74
L	0.55	0.63	0.79	0.87	0.98	1.18	14	16	20	22	25	30
RR	0.43	0.51	0.59	0.71	0.79	0.87	11	13	15	18	20	22

REAR HINGE PIN

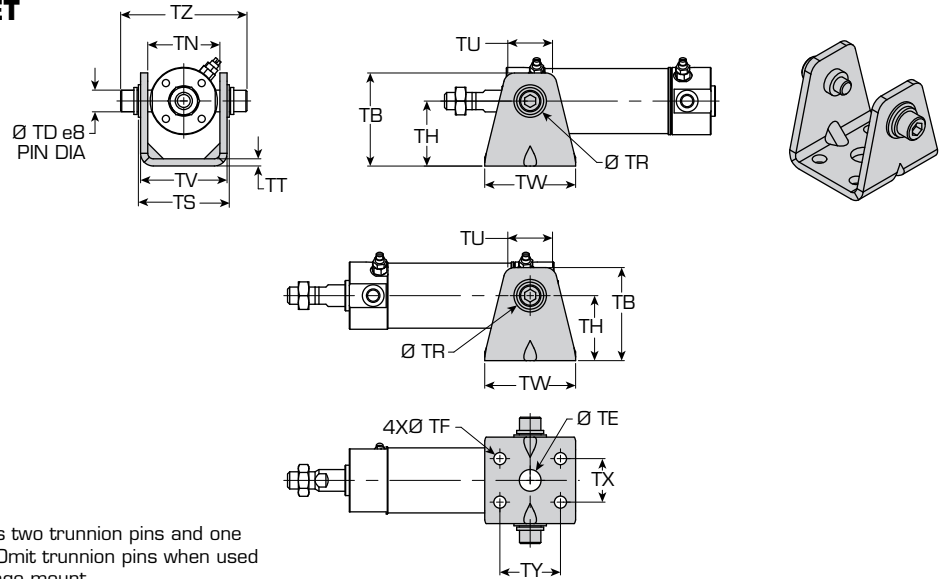


NOTE: For use with rear clevis hinge mount. Kit includes two retaining rings and one rear hinge pin.

Letter Dim	Imperial						Metric					
	3/4 in	1 in	1-1/4 in	1-1/2 in	2 in	2-1/2 in	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm
	86998-01	86998-02	86998-03	86998-04	86998-05	86998-06	86998-01	86998-02	86998-03	86998-04	86998-05	86998-06
D d9	0.315	0.394	0.472	0.551	0.630	0.709	8	10	12	14	16	18
D1	0.30	0.38	0.45	0.53	0.60	0.67	7.6	9.6	11.5	13.4	15.2	17
L	1.71	1.89	2.34	2.81	3.39	4.15	43.4	48	59.4	71.4	86	105.4
L1	1.52	1.68	2.13	2.56	3.13	3.85	38.6	42.6	54	65	79.6	97.8
T	0.04	0.05	0.05	0.05	0.05	0.05	0.9	1.15	1.15	1.15	1.15	1.35

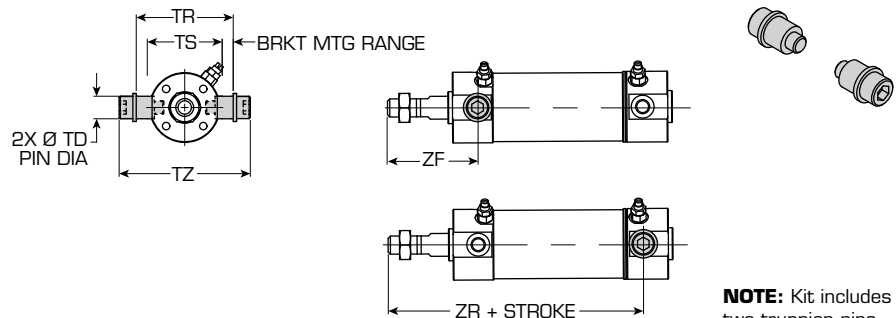
ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.

HINGE AND TRUNNION BRACKET



Letter Dim	Imperial						Metric					
	3/4 in	1 in	1-1/4 in	1-1/2 in	2 in	2-1/2 in	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm
TB	86997-01	86997-02	86997-03	86997-04	86997-05	86997-06	86997-01	86997-02	86997-03	86997-04	86997-05	86997-06
	1.42	1.69	1.97	2.28	2.76	3.23	36	43	50	58	70	82
TE	0.394 +0.0039 /-0.0000	0.394 +0.0039 /-0.0000	0.394 +0.0039 /-0.0000	0.394 +0.0039 /-0.0000	0.787 +0.0039 /-0.0000	0.787 +0.0039 /-0.0000	10 +0.1/-0.0	10 +0.1/-0.0	10 +0.1/-0.0	10 +0.1/-0.0	20 +0.1/-0.0	20 +0.1/-0.0
TF	0.22	0.22	0.26	0.26	0.35	0.43	5.5	5.5	6.6	6.6	9	11
TH	0.98 ±0.0039	1.18 ±0.0039	1.38 ±0.0039	1.57 ±0.0039	1.97 ±0.0039	2.36 ±0.0039	25 ±0.1	30 ±0.1	35 ±0.1	40 ±0.1	50 ±0.1	60 ±0.1
TN	1.15	1.30	1.59	1.94	2.38	2.94	29.3	33.1	40.4	49.2	60.4	74.6
TR	0.51	0.59	0.67	0.83	0.94	1.02	13	15	17	21	24	26
TT	0.13	0.13	0.18	0.18	0.24	0.31	3.2	3.2	4.5	4.5	6	8
TU	0.71	0.81	0.93	1.07	1.17	1.35	18.1	20.7	23.6	27.3	29.7	34.3
TV	1.41	1.57	1.94	2.30	2.85	3.56	35.8	39.8	49.4	58.4	72.4	90.4
TW	1.65	1.65	1.89	2.20	2.52	2.91	42	42	48	56	64	74
TX	0.63	0.79	0.87	1.18	1.42	1.81	16	20	22	30	36	36
TY	1.10	1.10	1.10	1.18	1.42	1.81	28	28	28	30	36	46
TS	1.50	1.65	2.06	2.50	3.10	3.80	38	42	52.4	63.4	78.8	96.6
TZ	2.00	2.27	2.88	3.52	4.29	5.15	51	57.9	73.3	89.5	109.2	131
TD	0.315	0.394	0.472	0.551	0.630	0.709	8	10	12	14	16	18

TRUNNION MOUNTING



Letter Dim	Imperial						Metric					
	3/4 in	1 in	1-1/4 in	1-1/2 in	2 in	2-1/2 in	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm
TD e8	86995-01	86995-02	86995-03	86995-04	86995-05	86995-06	86995-01	86995-02	86995-03	86995-04	86995-05	86995-06
	0.315	0.394	0.472	0.551	0.630	0.709	8	10	12	14	16	18
TR	1.54	1.69	2.11	2.54	3.15	3.86	39	43	53.5	64.5	80	98
TS	1.14	1.30	1.57	1.93	2.36	2.91	29	33	40	49	60	74
TZ	2.00	2.27	2.88	3.52	4.29	5.15	51	57.9	73.3	89.5	109.2	131
ZF	1.43	1.55	2.06	2.10	2.58	2.58	46	51	51	62	71	71
ZR	3.28	3.40	4.03	4.31	5.14	5.14	93	98	101	118	136	136

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.

Pneumatic Compact Cylinders

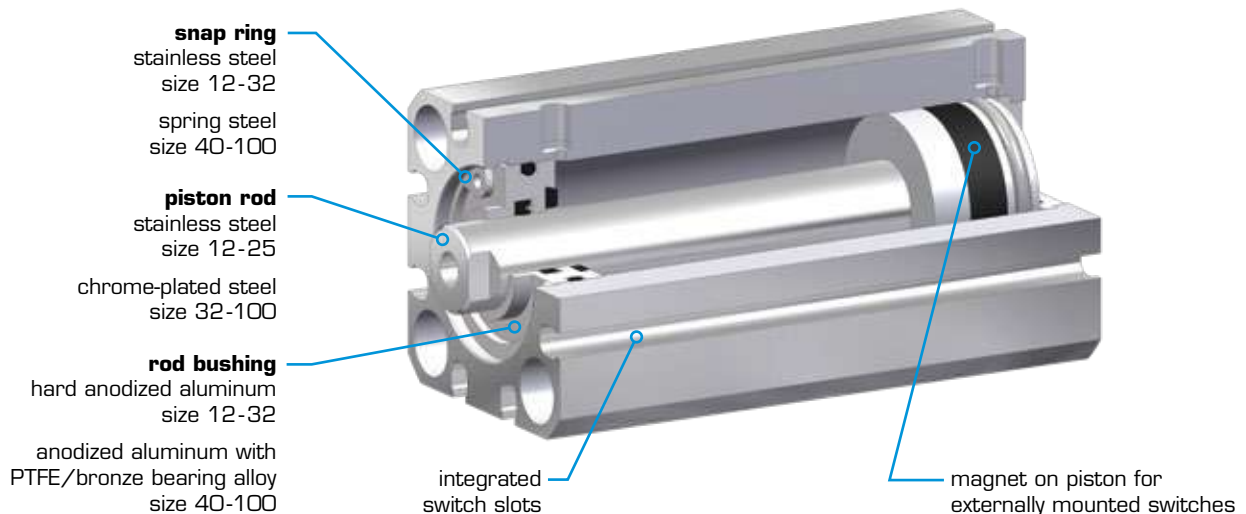
BENEFITS

- Standard shock pads reduce end of travel impact
- 10 bore sizes available in incremental stroke lengths
- Standard magnets for switch sensing capability
- Drop-in metric mounting matching global standard
- Proven Optimax® performance at a competitive price



Component	Materials
Body	Anodized Aluminum Alloy
Bore Plug	
Snap Ring	
Piston Rod	
Rod Bushing	See Figure
Rod Seal	
Shock Pads	NBR
Piston Seal	
O-rings	
Piston Wear Ring*	PTFE

*Size 32 thru 100 only



**Need something different?**

PHD Unlimited® can make modifications to fit your specific needs. See page 4.

SIZE	
Size mm	Bore in
12	0.472
16	0.630
20	0.787
25	0.984
32	1.260
40	1.575
50	1.969
63	2.480
80	3.150
100	3.937

Area	
sq mm	sq in
113	0.18
201	0.31
314	0.49
491	0.76
804	1.25
1257	1.95
1963	3.04
3117	4.83
5027	7.79
7854	12.17

TYPE
S = Single Rod, Double Acting

MODEL NO.
OCQ

DESIGN NO.
5 = Metric

STANDARD STROKE LENGTHS
mm

Size	Stroke Lengths (mm)
12	5, 10, 15, 20, 25, 30
16	5, 10, 15, 20, 25, 30
20	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
63	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
80	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

SWITCH BUNDLE (OPTIONAL)

Switch Circuitry
D = DC Reed
N = DC Solid State NPN - Sink
P = DC Solid State PNP - Source

Cable Type
K = Quick Connect

NOTES:
1) Switch bundle option includes 2 switches
2) Switch bundle available with actuator only
3) Switches available in quick connect only
4) Magnets standard for switch sensing

Example Model: OCQ S 5 - 12 x 20 - SD K2

Cordsets

Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Switches

Part No.	Description
86725-0	Reed DC 5-30 V, 50 mA, Quick Connect
86726-0	Sink Type (NPN), DC 5-30 V, 50 mA, Quick Connect
86727-0	Source Type (PNP), DC 5-30 V, 50 mA, Quick Connect

Includes one switch.

**CAD & Sizing Assistance**

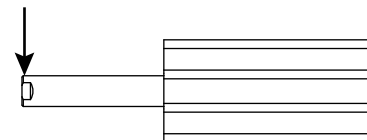
Use PHD's free online Product Sizing and CAD Configurator at www.phdinc.com/myphd

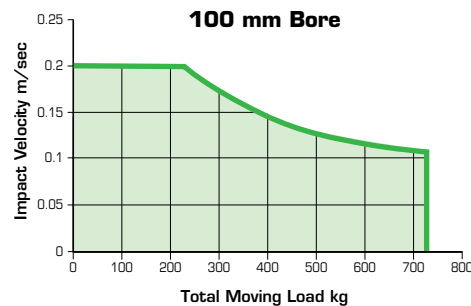
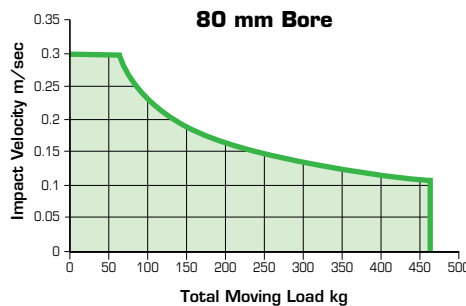
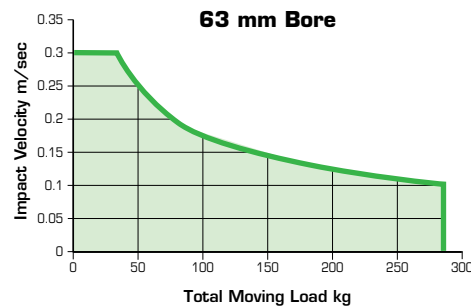
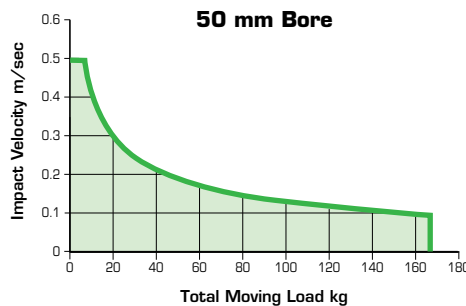
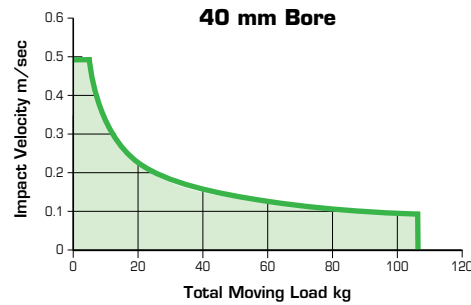
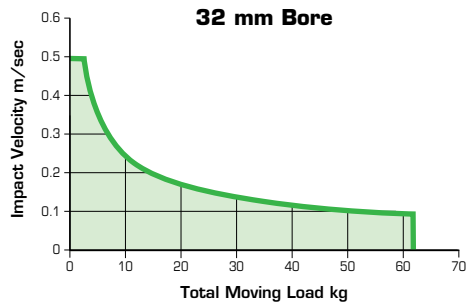
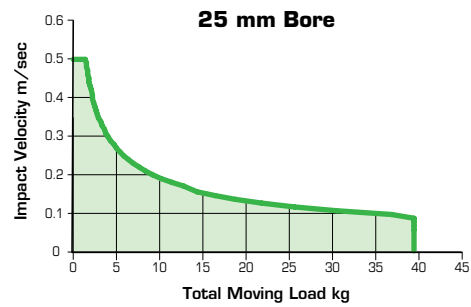
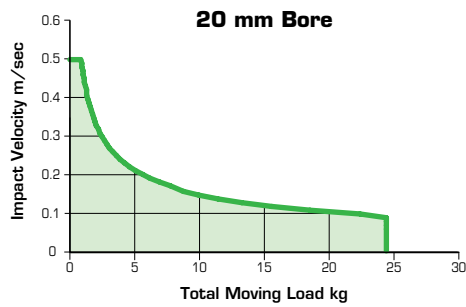
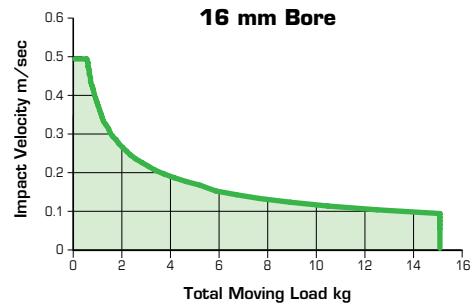
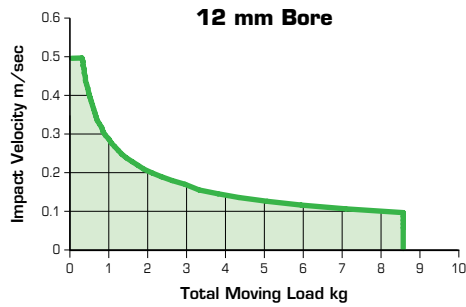
Specifications	Series OCQ Cylinder			
	12-16 mm	20-50 mm	63-80 mm	100 mm
Operating Air Pressure	0.7-10 bar [10.2-145 psi]		0.5-10 bar [7.3-145 psi]	
Operating Temperature	5°-60°C [41°-140°F]			
Velocity	50-500 mm/s [2-20 in/s]		50-300 mm/s [2-13 in/s]	50-200 mm/s [2-8 in/s]
Rated Life	3 million cycles			
Lubrication	Factory lubricated for rated life			

Size	Rod Diameter mm	Effective Area			Unit Weight (g) by Stroke											
		Direction	mm ²	in ²	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	45 mm	50 mm	75 mm	100 mm
12	6	Extend	113	0.18	32	39	46	52	60	67						
		Retract	85	0.13												
16	8	Extend	201	0.31	43	51	60	69	78	86						
		Retract	151	0.23												
20	10	Extend	314	0.49	67	80	95	109	123	138	152	165	180	194		
		Retract	236	0.37												
25	12	Extend	491	0.76	104	121	140	157	176	194	212	230	249	266		
		Retract	378	0.59												
32	16	Extend	804	1.25	130	152	173	193	215	236	257	278	299	320	475	581
		Retract	603	0.93												
40	16	Extend	1257	1.95	194	217	240	263	287	309	332	356	378	402	587	708
		Retract	1056	1.64												
50	20	Extend	1963	3.04		343	378	412	446	480	515	549	583	617	897	1074
		Retract	1649	2.56												
63	20	Extend	3117	4.83		493	534	574	615	655	696	737	776	818	1168	1377
		Retract	2803	4.34												
80	25	Extend	5027	7.79		925	987	1050	1114	1177	1239	1302	1366	1428	1971	2282
		Retract	4536	7.03												
100	30	Extend	7854	12.17		1720	1809	1898	1988	2076	2166	2255	2343	2433	3244	3697
		Retract	7147	11.08												

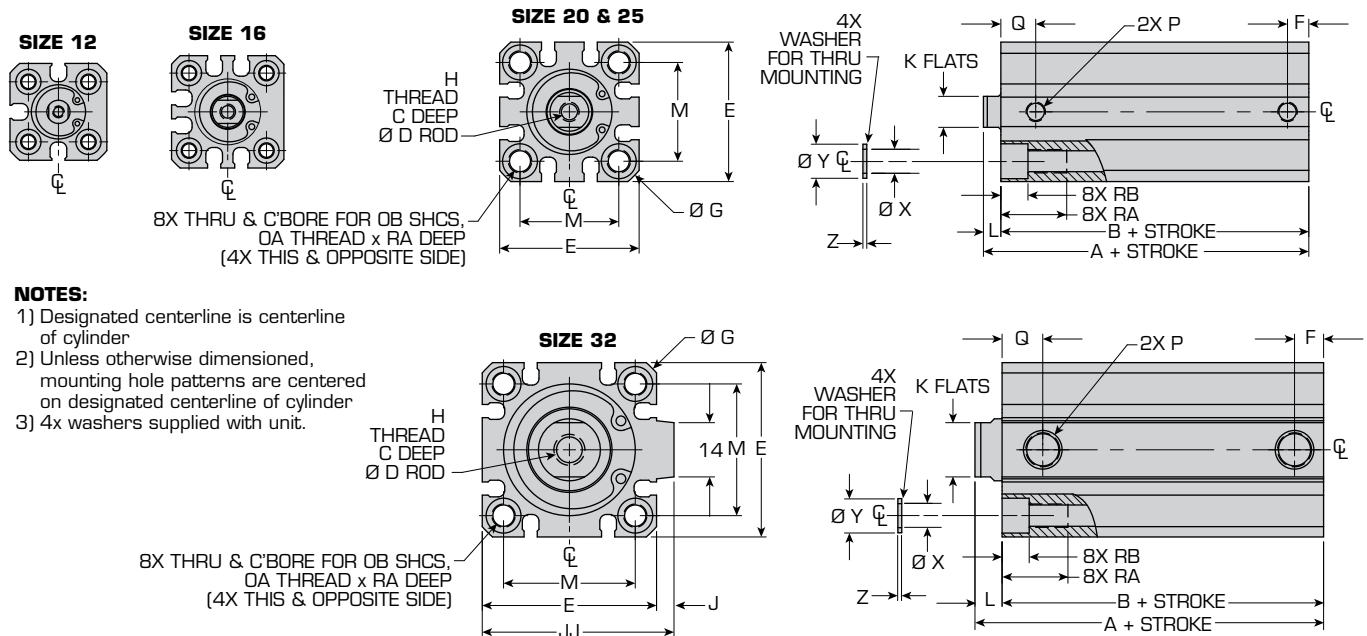
Size	Weight (g) of Moving Components by Stroke											
	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	45 mm	50 mm	75 mm	100 mm
12	8	9	10	11	12	13						
16	16	18	20	22	24	26						
20	25	28	30	33	36	40	43	46	49	51.4		
25	39	43	48	52	57	60	65	69	74	77.6		
32	73	80	87	95	103	110	118	126	133	140	178	217
40	101	109	117	125	132	140	148	156	164	172	210	249
50		176	188	200	211	224	236	248	260	273	333	393
63		244	257	269	282	295	307	320	332	346	409	472
80		405	426	445	464	483	503	522	541	561	657	753
100		710	738	767	795	824	853	881	910	939	1081	1223

Size	Maximum Lateral Load (kg) by Stroke											
	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	45 mm	50 mm	75 mm	100 mm
12	0.22	0.19	0.16	0.14	0.12	0.11						
16	0.44	0.37	0.32	0.29	0.25	0.22						
20	0.76	0.64	0.56	0.50	0.45	0.41	0.38	0.35	0.32	0.30		
25	1.1	0.98	0.87	0.77	0.69	0.62	0.57	0.52	0.49	0.46		
32	1.8	1.5	1.4	1.2	1.1	1.0	0.92	0.84	0.76	0.71	0.56	0.45
40	2.1	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.99	0.76	0.61
50		3.0	2.7	2.4	2.2	2.0	1.8	1.7	1.6	1.5	1.2	0.94
63		4.8	4.4	4.0	3.7	3.4	3.1	2.8	2.6	2.4	2.0	1.6
80		8.2	7.5	6.9	6.4	5.9	5.5	5.1	4.8	4.6	3.6	2.9
100		12.4	11.5	10.7	10.0	9.4	8.9	8.4	7.9	7.5	6.1	5.1



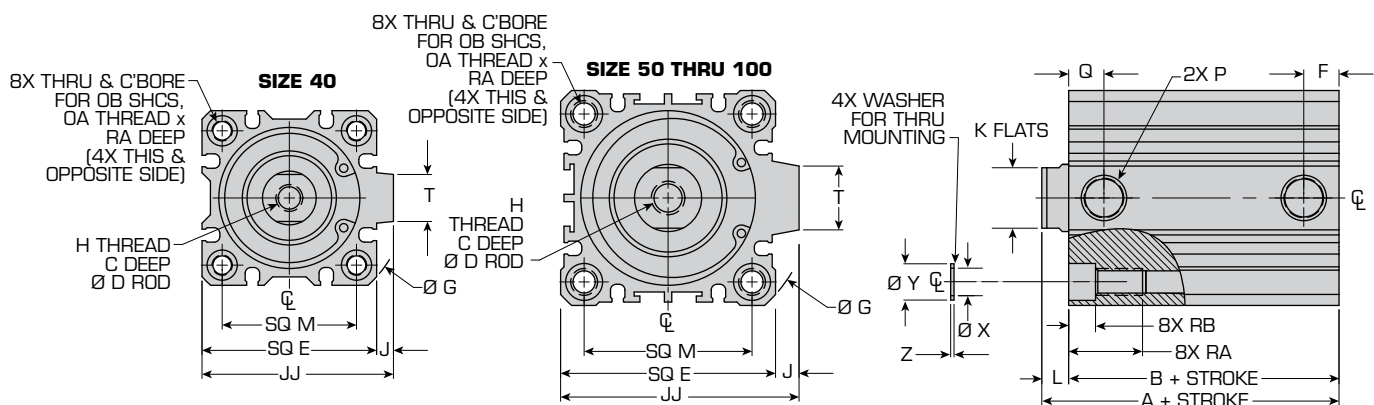
MAXIMUM ALLOWABLE KINETIC ENERGY

SIZES 12 THRU 32



Bore Size	A	B	C	Ø D	E	F	Ø G	H	J	JJ	K	L	M	P	OA	OB	Q	RA	RB	Ø X	Ø Y	Z
12	25.5	22	6	6	25	5	32	M3 x 0.5	-	-	5	3.5	15.5	M5 x 0.8	M4 x 0.7	M3	7.5	11	4	4.2	6.3	0.5
16	25.5	22	8	8	29	5	38	M4 x 0.7	-	-	6	3.5	20	M5 x 0.8	M4 x 0.7	M3	7.5	11	4	4.2	6.3	0.5
20	34	29.5	7	10	36	5.5	47	M5 x 0.8	-	-	8	4.5	25.5	M5 x 0.8	M6 x 1	M5	9	17	7	6.2	8.8	1
25	37.5	32.5	12	12	40	5.5	52	M6 x 1	-	-	10	5	28	M5 x 0.8	M6 x 1	M5	11	17	7	6.2	8.8	1
32	40	33	13	16	45	7.5	60	M8 x 1.25	4.5	49.5	14	7	34	G 1/8	M5 x 1	M5	10.5	17	7	6.2	8.8	1

SIZES 40 THRU 100



Bore Size	A	B	C	Ø D	E	F	Ø G	H	J	JJ	K	L	M	P	OA	OB	Q	RA	RB	T	Ø X	Ø Y	Z
40	46.5	39.5	13	16	52	8	70	M8 x 1.25	5	57	14	7	40	G 1/4	M6 x 1	M5	11	17	7	14	6.2	8.8	1
50	48.5	40.5	15	20	64	10.5	86	M10 x 1.5	7	71	17	8	50	G 1/4	M8 x 1.25	M6	10.5	22	8	19	8.2	10.8	1
63	54	46	15	20	77	10.5	103	M10 x 1.5	7	84	17	8	60	G 1/4	M10 x 1.5	M8	15	28.5	10.5	19	10.2	13.8	1
80	63.5	53.5	21	25	98	12.5	132	M16 x 2	6	104	22	10	77	G 3/8	M12 x 1.75	M10	16	35.5	13.5	26	12.2	17.3	2
100	75	63	27	30	117	13	156	M20 x 2.5	6.5	123.5	27	12	94	G 3/8	M12 x 1.75	M10	23	35.5	13.5	26	12.2	17.3	2

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

FLANGE MOUNTING KITS

87785 - 016

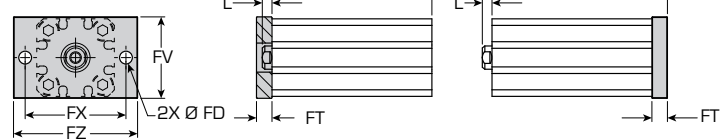
Kit Base Part
Number

Cylinder Bore Size

012 = 12 mm 040 = 40 mm
 016 = 16 mm 050 = 50 mm
 020 = 20 mm 063 = 60 mm
 025 = 25 mm 080 = 80 mm
 032 = 32 mm 100 = 100 mm

Size	Flange Mount Dimensions								
	A1	A2	FD	FT	FV	FX	FZ	L	M
12	25.5	31	4.5	5.5	25	45	55	3.5	-
16	25.5	31	4.5	5.5	30	45	55	3.5	-
20	34	42	6.6	8	39	48	60	4.5	-
25	37.5	45.5	6.6	8	42	52	64	5	-
32	40	48	5.5	8	48	56	65	7	34
40	46.5	54.5	5.5	8	54	62	72	7	40
50	48.5	57.5	6.6	9	67	76	89	8	50
63	54	63	9	9	80	92	108	8	60
80	63.5	74.5	11	11	99	116	134	10	77
100	75	86	11	11	117	136	154	12	94

SIZE 12 THRU 25



SIZE 32 THRU 100



NOTES:

- 1) Kit may be attached to either end of cylinder. Each kit contains single flange mounting plate and necessary fasteners for mounting to cylinder.
- 2) Cylinder shown for reference only.

FOOT MOUNTING KITS

87784 - 016

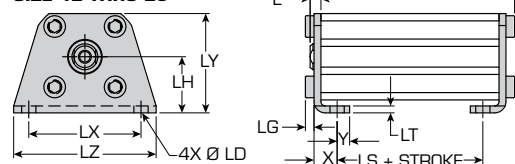
Kit Base Part
Number

Cylinder Bore Size

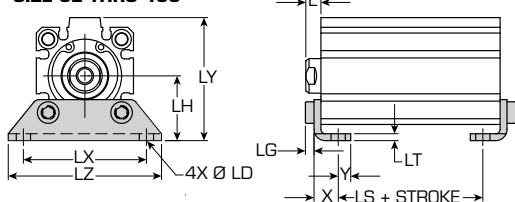
012 = 12 mm 040 = 40 mm
 016 = 16 mm 050 = 50 mm
 020 = 20 mm 063 = 60 mm
 025 = 25 mm 080 = 80 mm
 032 = 32 mm 100 = 100 mm

Size	Foot Mount Dimensions											
	A	LS	L	LD	LG	LH	LT	LX	LY	LZ	X	Y
12	30.3	10	3.5	4.5	2.8	17	2	34	29.5	44	8	4.5
16	30.3	10	3.5	4.5	2.8	19	2	38	33.5	48	8	5
20	41.2	17.5	4.5	6.6	4	24	3.2	48	42	62	9.2	5.8
25	44.7	17.5	5	6.6	4	26	3.2	52	46	66	10.7	5.8
32	47.2	17	7	6.6	4	30	3.2	57	57	71	11.2	5.8
40	53.7	23.5	7	6.6	4	33	3.2	64	64	78	11.2	7
50	56.7	17.5	8	9	5	39	3.2	79	78	95	14.7	8
63	62.2	20	8	11	5	46	3.2	95	91.5	113	16.2	9
80	75	23.5	10	13	7	59	4.5	118	114	140	19.5	11
100	88	29	12	13	7	71	6	137	136	162	23	12.5

SIZE 12 THRU 25



SIZE 32 THRU 100



NOTES:

- 1) Each kit contains bracket and mounting hardware for one end only.
- 2) Cylinder shown for reference only.

REAR FORK MOUNTING KITS

87788 - 016

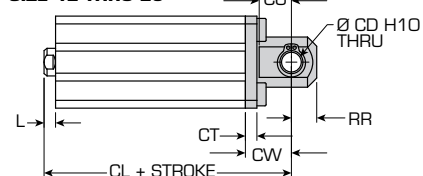
Kit Base Part
Number

Cylinder Bore Size

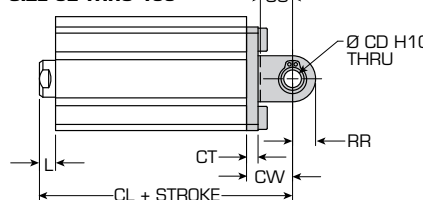
012 = 12 mm 040 = 40 mm
 016 = 16 mm 050 = 50 mm
 020 = 20 mm 063 = 60 mm
 025 = 25 mm 080 = 80 mm
 032 = 32 mm 100 = 100 mm

Size	Rear Fork Mount Dimensions										
	A	CL	Ø CD	Ø D	CT	CU	CW	CX	CZ	L	RR
12	14.6	39.5	5	5	4	7	14	5	10	3.5	6
16	16.6	40.5	5	5	4	10	15	6.5	12	3.5	6
20	21	52	8	8	5	12	18	8	16	4.5	9
25	25.6	57.5	10	10	5	14	20	10	20	5	10
32	41.6	60	10	10	5	14	20	18	36	7	10
40	41.6	68.5	10	10	6	14	22	18	36	7	10
50	50.6	76.5	14	14	7	20	28	22	44	8	14
63	50.6	84	14	14	8	20	30	22	44	8	14
80	64	101.5	18	18	10	27	38	28	56	10	18
100	72	120	22	22	13	31	45	32	64	12	22

SIZE 12 THRU 25



SIZE 32 THRU 100



NOTES:

- 1) Each kit contains: rear fork, fasteners for mounting to cylinder, pin, and retaining rings
- 2) Cylinder shown for reference only.

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
 ALL DIMENSIONS ARE mm.

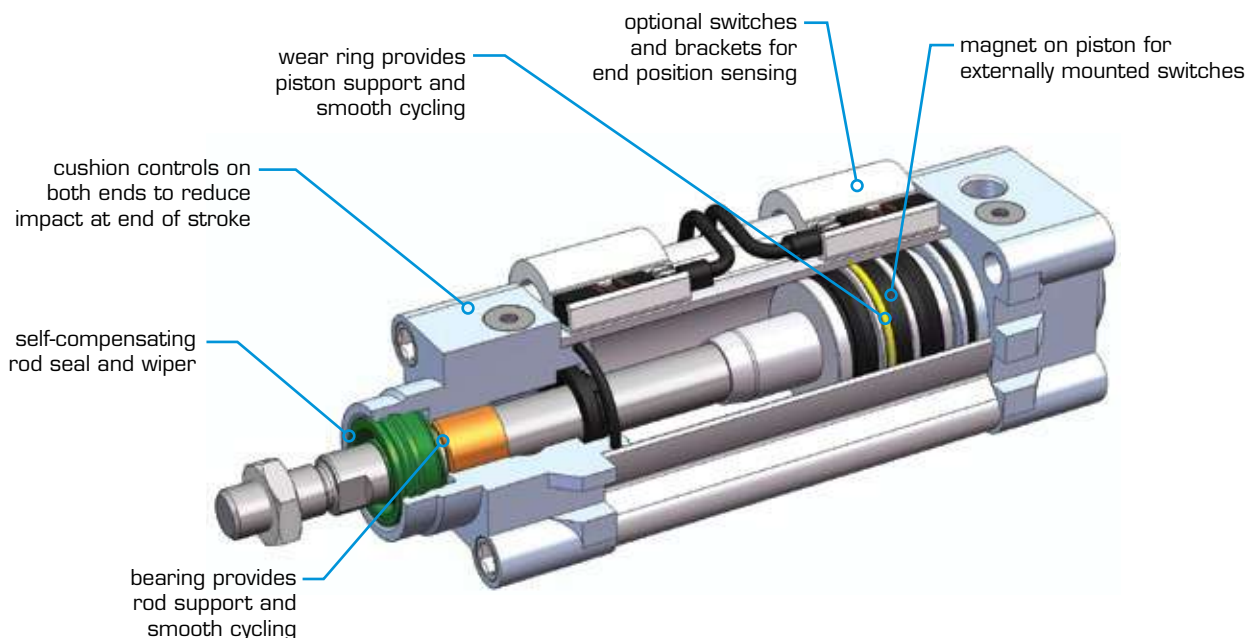
Pneumatic ISO Cylinders

BENEFITS

- Series OCV Cylinders are ISO 6431
- The price alternative to the PHD Series CV Pneumatic Cylinder
- 32, 40 & 50 mm bores
- 25, 50, 100 & 200 mm stroke lengths



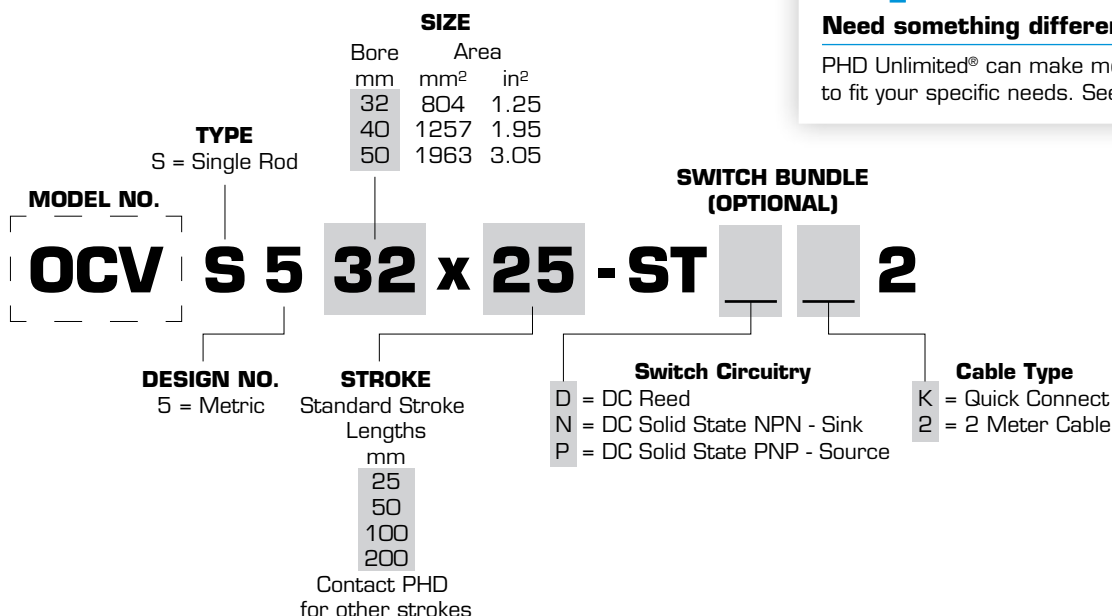
Component	Materials
Head & Cap	Painted Aluminum Alloy
Cylinder Tube	Anodized Aluminum Alloy
Rod Seal	Polyurethane
Piston Seal	NBR
O-Rings	
Cushion Seal	
Piston Rod	Carbon Steel
Rod Nut	
Cushion Needle	Brass
Rod Bushing	PTFE and Bronze Alloy





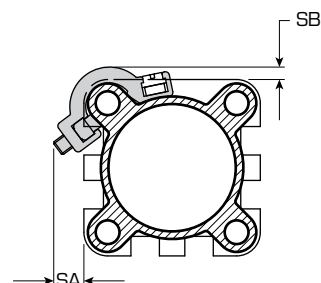
Need something different?

PHD Unlimited® can make modifications to fit your specific needs. See page 4.



NOTES:

- 1) Switch bundle option includes 2 switches and 2 mounting brackets
- 2) Switch bundle available with actuator only
- 3) Magnets standard on all units
- 4) Cushions and cushion controls standard on all units



Switch Bracket

Bore	SA	SB
32	7.6	3.4
40	6.3	2.2
50	5.8	1.2

Switches	
Part No.	Description
85844-0	Reed, DC 5-30 V, 50 mA w/Quick Connect
85844-2	Reed, DC 5-30 V, 50 mA w/2 m cable
85845-0	Solid State NPN, DC 5-30 V, 50 mA w/Quick Connect
85845-2	Solid State NPN, DC 5-30 V, 50 mA w/2 m cable
85846-0	Solid State PNP, DC 5-30 V, 50 mA w/Quick Connect
85846-2	Solid State PNP, DC 5-30 V, 50 mA w/2 m cable

Includes one switch.

Cordsets	
Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Trunnion Mount	
Bore	Part No.
32	85841-032-00-1
40	85841-040-00-1
50	85841-050-00-1

NOTES:

- 1) Trunnion mount incompatible on 25 mm stroke units with a single switch.
- 2) Trunnion mount incompatible on 25 mm and 50 mm stroke units with two switches.
- 3) Trunnion installation requires end user to remove and reinstall the cylinder cap.



CAD & Sizing Assistance

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

Specifications	Series OCV Cylinder
Operating Air Pressure	1-10 bar [15-150 psi]
Temperature Limits	-5° to +70°C [23°-158°F]
Velocity	50-800 mm/s [2-31 in/s]
Rated Life	3 million cycles
Lubrication	Factory lubricated for rated life

Bore	Rod Dia mm	Rod Direction	Effective Area		Base Weight		Adder Per 25 mm	
			mm ²	in ²	g	oz	g	oz
32	12	Extend	804	1.25	485	17.1	23	0.8
		Retract	691	1.07				
40	16	Extend	1257	1.95	739	26.1	82	2.9
		Retract	1056	1.64				
50	20	Extend	1963	3.04	1143	40.3	113	4.0
		Retract	1649	2.56				



Application & Sizing Assistance

Use PHD's free online Product Sizing Application at www.phdinc.com/apps/sizing

Speed Data - Standard Units

Bore	Acceleration Time	Stroke During Acceleration	
	s	mm	in
32	0.015	16	0.63
40	0.019	24	0.94
50	0.024	29	1.14

NOTES:

The above speed data is based on:

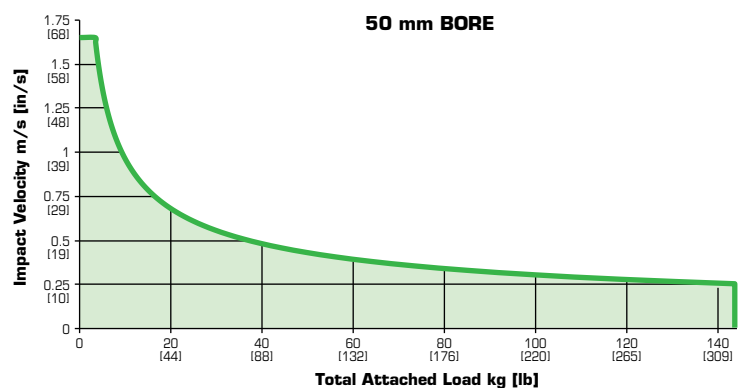
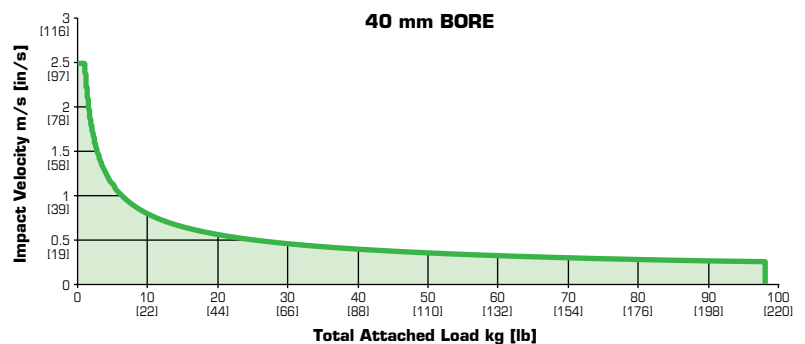
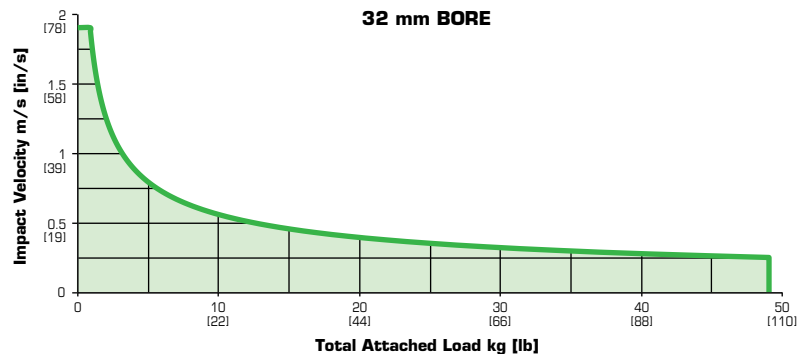
- A) No attached loads
- B) Line pressure of 6 bar [87 psi]
- C) Valve and tubing rated at Cv=50

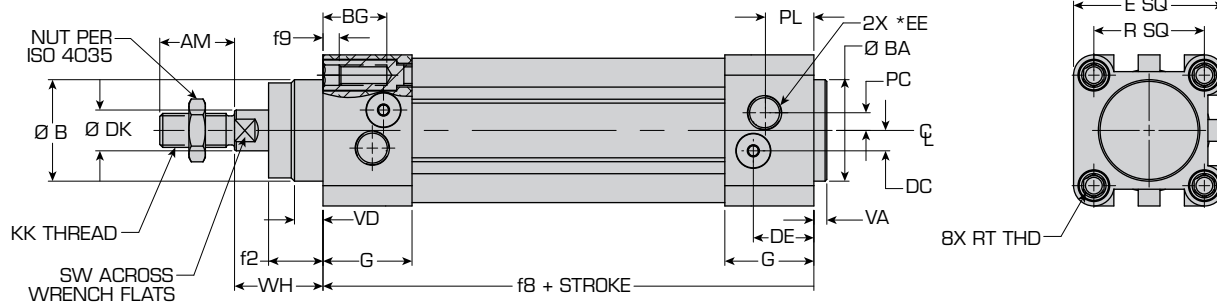
Cylinder Force Table

Bore	Rod Dia mm	Rod Direction	Effective Area	
			mm ²	in ²
32	12	Extend	804	1.25
		Retract	691	1.07
40	16	Extend	1257	1.95
		Retract	1056	1.64
50	20	Extend	1963	3.04
		Retract	1649	2.56

Bore	Normal Stroke [L]	Full Stroke Tolerance	
	mm	mm	in
32	L ≤ 500	+2.0/-0	+0.08/-0
	500 < L ≤ 1000	+3.2/-0	+0.13/-0
40	L ≤ 500	+2.0/-0	+0.08/-0
	500 < L ≤ 1000	+3.2/-0	+0.13/-0
50	L ≤ 500	+2.0/-0	+0.08/-0
	500 < L ≤ 1000	+3.2/-0	+0.13/-0

MAXIMUM ALLOWABLE KINETIC ENERGY



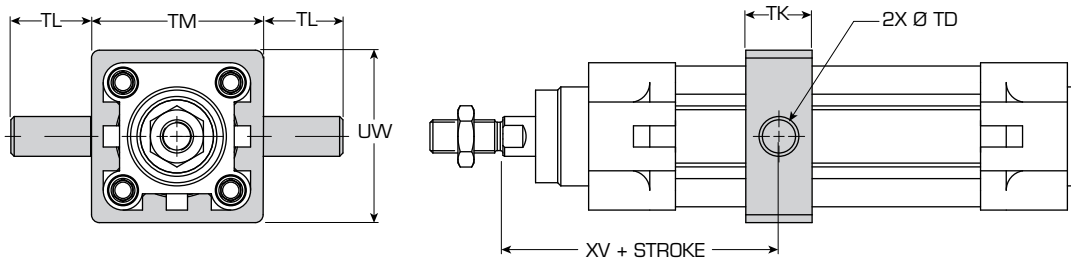


NOTES:

- 1) Dimensions are in mm.
- 2) Designated centerline is centerline of cylinder.
- 3) Unless otherwise dimensioned, mounting hole patterns are centered on designated cylinder centerline.
- 4) *EE conforms to ISO 16030.

Bore	Ø B	RT	WH	f2	R SQ	BG MIN	VD	VA MAX	G	f8	f9	E SQ MAX	SW (WRENCH FLAT)	Ø BA	KK	AM	*EE PORT	PL	PC	DE	DC	Ø DK
32	30.0	M6 x 1	26.0	18.0	32.5	16.0	10.0	4.0	26.0	94.0	5.0	50.0	10.0	30.0	M10 x 1.25	22.0	G 1/8	13.0	5.2	16.3	6.0	12.0
40	35.0	M6 x 1	30.0	21.5	38.0	16.0	10.5	4.0	29.6	105.0	5.0	58.0	13.0	35.0	M12 x 1.25	24.0	G 1/4	14.0	6.0	17.6	8.0	16.0
50	40.0	M8 x 1.25	37.0	28.0	46.5	16.0	11.5	4.0	30.0	106.0	5.0	70.0	17.0	40.0	M16 x 1.5	32.0	G 1/4	14.0	8.5	19.1	10.0	20.0

TRUNNION MOUNT ACCESSORY



NOTES:

- 1) Dimensions shown assume no switch brackets are installed.
- 2) Trunnion mount incompatible on 25 mm stroke units with a single switch.
- 3) Trunnion mount incompatible on 25 mm and 50 mm stroke units with two switches.
- 4) Trunnion installation requires end user to install.

Bore	Part No.	Ø TD e9	TK MAX	TL ** MAX	TM MAX	UW MAX	XV MIN
32	85841-032-00-1	12	25	25	53	65	73
40	85841-040-00-1	16	28	25	63	75	82.5
50	85841-050-00-1	16	28	25	75	95	90

* TM max for bore size 32 mm does not conform to ISO 6431 (MT4) and ISO 15552 (MT4)
 ** TL max dimensions do not conform to ISO 6431 (MT4) and ISO 15552 (MT4)

SWITCHES AND BRACKETS

Brackets

Bore	Switch Bracket No.
32	85843-01
40	85843-01
50	85843-03

Includes one bracket.

Cordsets

Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Switches

Part No.	Description
85844-0	Reed, DC 5-30 V, 50 mA w/Quick Connect
85844-2	Reed, DC 5-30 V, 50 mA w/2 m cable
85845-0	Solid State NPN, DC 5-30 V, 50 mA w/Quick Connect
85845-2	Solid State NPN, DC 5-30 V, 50 mA w/2 m cable
85846-0	Solid State PNP, DC 5-30 V, 50 mA w/Quick Connect
85846-2	Solid State PNP, DC 5-30 V, 50 mA w/2 m cable

Includes one switch.

MP2 PIVOT PINS

Bore	Std Kit No.	-Z1 Kit No.
32	52490-01-1	52490-01-3
40	52490-02-1	52490-02-3
50	52490-03-1	52490-03-3

**REAR FORK MOUNTING
(MP2 PER VDMA 24562)**

Bore	Std Kit No.	-Z1 Kit No.
32	52485-01-1	52485-01-3
40	52485-02-1	52485-02-3
50	52485-03-1	52485-03-3

NOTE: Includes pivot pin hardware.**PILLOW BLOCK MOUNTING
WITH RIGID BEARINGS
(BMP4, CETOP RP 107P)**

Bore	Std Kit No.
32	62818-001-00
40	62818-002-00
50	62818-003-00

**FASTENER MOUNTING
(MX1)**

Bore	Std Kit No.	-Z1 Kit No.
32	63480-01-1	63480-01-3
40	63480-01-1	63480-01-3
50	63480-02-1	63480-02-3

**RECTANGULAR
FLANGE MOUNTING**

Bore	Std Kit No.	-Z1 Kit No.
32	52484-01-1	52484-01-3
40	52484-02-1	52484-02-3
50	52484-03-1	52484-03-3

BASE MOUNTING

Bore	Std Kit No.	-Z1 Kit No.
32	52487-01-1	52487-01-3
40	52487-02-1	52487-02-3
50	52487-03-1	52487-03-3

**REAR MALE HINGE
MOUNTING MP4**

Bore	Std Kit No.	-Z1 Kit No.
32	52486-01-1	52486-01-3
40	52486-02-1	52486-02-3
50	52486-03-1	52486-03-3

**FASTENER MOUNTING
(MX1)**

Bore	Std Kit No.	-Z1 Kit No.
32	63480-01-1	63480-01-3
40	63480-01-1	63480-01-3
50	63480-02-1	63480-02-3

**ROD CLEVIS
MOUNTING (DIN 8140)**

Bore	Std Kit No.	-Z1 Kit No.
32	52492-01-1	52492-01-3
40	52492-02-1	52492-02-3
50	52492-03-1	52492-03-3

**ROD EYE WITH SPHERICAL
BEARING (DIN 8139)**

Bore	Std Kit No.
32	52493-01-1
40	52493-02-1
50	52493-03-1

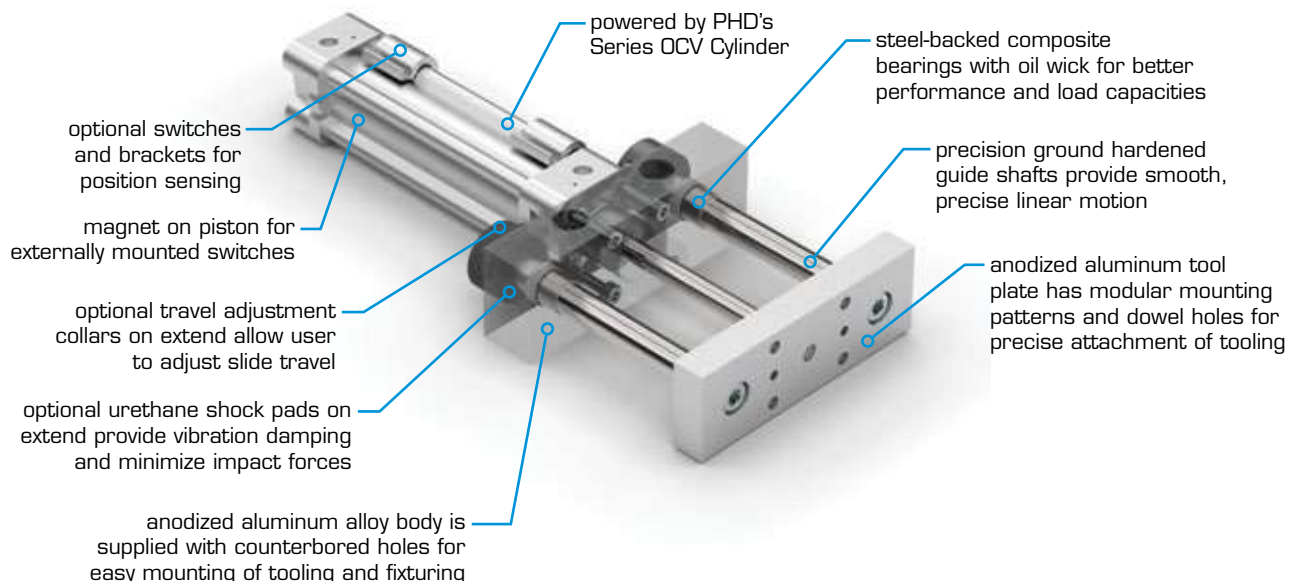
Pneumatic Thruster Slides

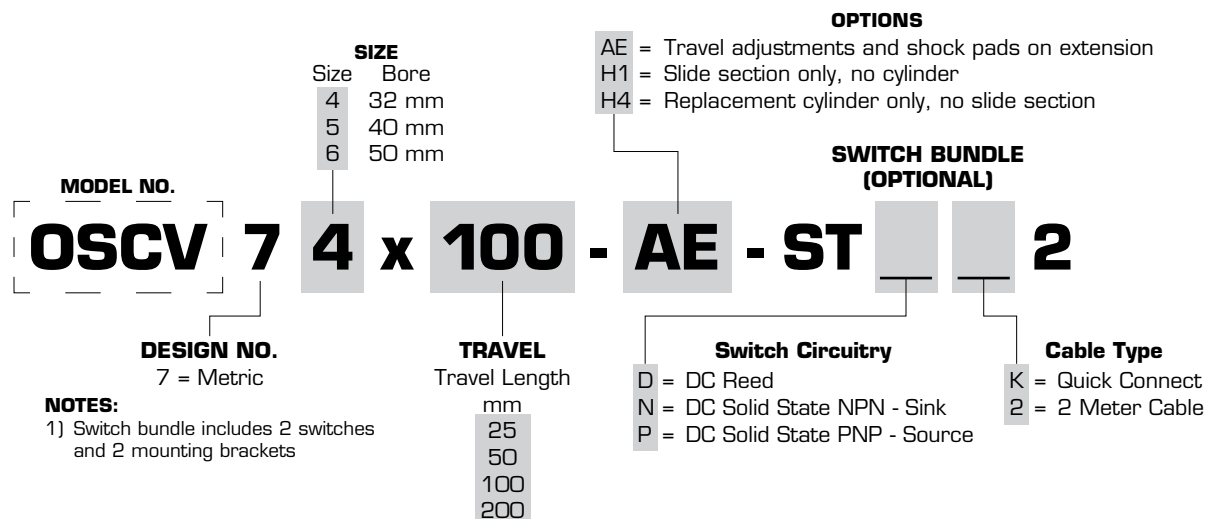
BENEFITS

- 3 bore sizes with 4 travel lengths available to fit variety of applications
- The price alternative to the PHD Series SCV Slide
- Powered by PHD Optimax® Series OCV Cylinders
- Easy tooling mounting to tool plate
- Magnet on piston for position sensing is standard
- Switch bundle option provides two switches and brackets



Component	Materials
Housing	Anodized Aluminum Alloy
Tool Plate	
Cylinder Tube	
Guide Shafts	Carbon Steel
External Fasteners	
Piston Rod	
Rod Nut	Composite with Steel Backing
Shaft Bushings	
Oil Wick	
Head & Cap	Painted Aluminum Alloy
Rod Seal	Polyurethane
Piston Seal	NBR
O-Rings	
Cushion Seal	
Cushion Needle	Brass
Rod Bushing	PTFE and Bronze Alloy



**Switch Brackets**

Slide Size	Part No.
4	85843-01
5	85843-01
6	85843-03

Includes one bracket.

Cordsets

Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

**Need something different?**

PHD Unlimited® can make modifications to fit your specific needs. See page 4.

Switches

Part No.	Description
85844-0	Reed, DC 5-30 V, 50 mA w/Quick Connect
85844-2	Reed, DC 5-30 V, 50 mA w/2 m cable
85845-0	Solid State NPN, DC 5-30 V, 50 mA w/Quick Connect
85845-2	Solid State NPN, DC 5-30 V, 50 mA w/2 m cable
85846-0	Solid State PNP, DC 5-30 V, 50 mA w/Quick Connect
85846-2	Solid State PNP, DC 5-30 V, 50 mA w/2 m cable

Includes one switch.

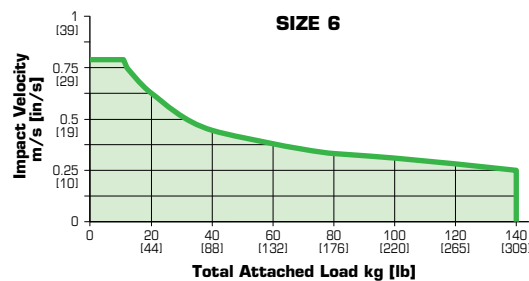
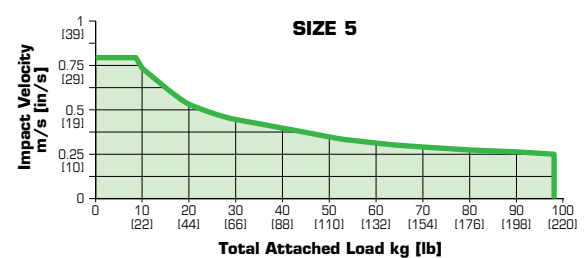
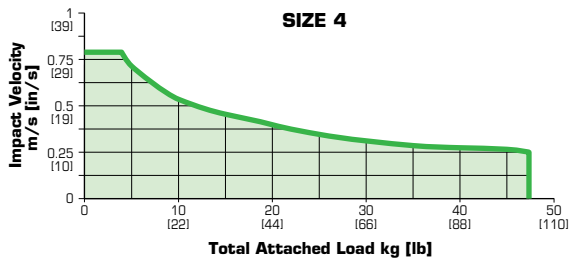
**CAD & Sizing Assistance**

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Specifications	Series OSCV Slide
Operating Air Pressure	1-10 bar [15-150 psi]
Temperature Limits	-5° to +70°C [23°-158°F]
Velocity	50-800 mm/s [2-31 in/s]
Rated Life	3 million cycles
Lubrication	Factory lubricated for rated life

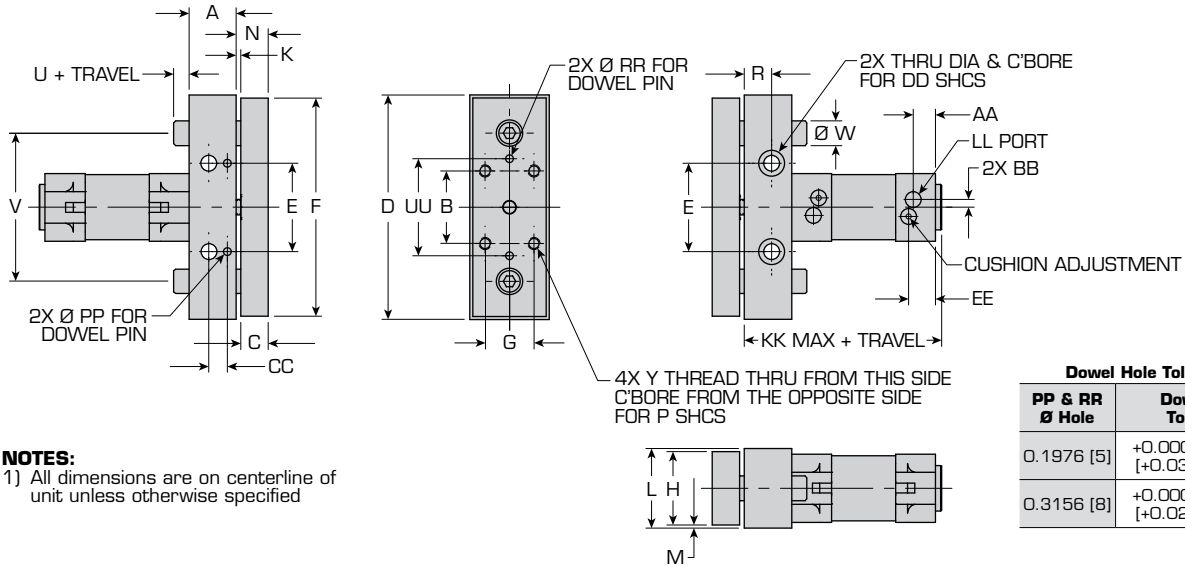
Size	Guide Shaft Diameter		Rod Diameter		Bore Diameter		Effective Area			Base Weight		Adder per 25 mm / 1 in		Typical Dynamic Load	
	mm	in	mm	in	mm	in	Direction	mm²	in²	kg	lb	kg	lb	N	lb
4	16	0.63	12	0.47	32	1.26	Extend	804	1.25	1.51	3.32	0.10	0.23	122	27
							Retract	691	1.07						
5	20	0.79	16	0.63	40	1.57	Extend	1257	1.95	2.43	5.35	0.20	0.45	171	38
							Retract	1056	1.64						
6	25	0.98	20	0.79	50	1.97	Extend	1963	3.04	4.47	9.86	0.31	0.68	244	55
							Retract	1649	2.56						

MAXIMUM ALLOWABLE KINETIC ENERGY



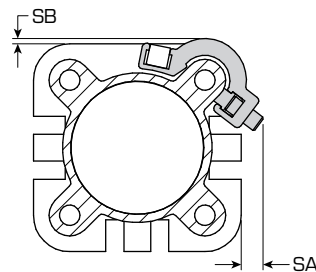
Application & Sizing Assistance

Use PHD's free online Product Sizing Application at www.phdinc.com/apps/sizing



Size	Cylinder Bore	A	B	C	D	E	F	G	H	K	L	M	N	P	R
4	32	31.0	47.5	18.0	147.0	58.0	143.0	32.0	48.0	3.0	52.0	2.0	21.0	M6	18.0
5	40	36.0	58.0	23.0	176.0	65.0	172.0	36.0	58.0	3.0	62.0	2.0	26.0	M8	23.0
6	50	45.0	65.0	31.0	217.5	80.0	213.5	45.0	69.0	3.0	73.0	2.0	34.0	M10	27.0

Size	Cylinder Bore	U	V	W	Y	AA	BB	CC	DD	EE	KK	LL	PP	RR	UU
4	32	10.0	97.0	16.0	M8 x 1.25	13.0	5.2	12.0	M10	16.3	129.0	G1/8	5.0	5.0	47.5
5	40	10.0	117.0	20.0	M10 x 1.5	14.0	6.0	16.0	M12	17.6	145.0	G1/4	8.0	8.0	75.0
6	50	10.0	143.0	25.0	M12 x 1.75	14.0	8.5	18.0	M12	19.1	155.0	G1/4	8.0	8.0	90.0

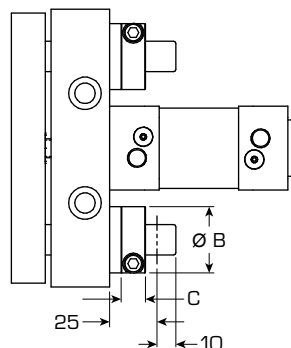


Switch Bracket		
Slide Size	SA	SB
4	7.6	3.4
5	6.3	2.2
6	5.8	1.2

OPTIONS

AE Travel adjustment and shock pads on extension

Size	Cylinder Bore	Ø B	C
4	32	35	13
5	40	42	15
6	50	48	15



KITS

Kit Description	Kit No.		
	Size 4	Size 5	Size 6
Slide Replacement	Full unit description required -H1		
Cylinder Replacement	Full unit description required -H4		
Bushing Repair	88374-03	88374-04	88374-05
Mounting Fastener	88375-03	88375-04	88375-05
Travel Adjustment	58068-02	58068-03	58068-04

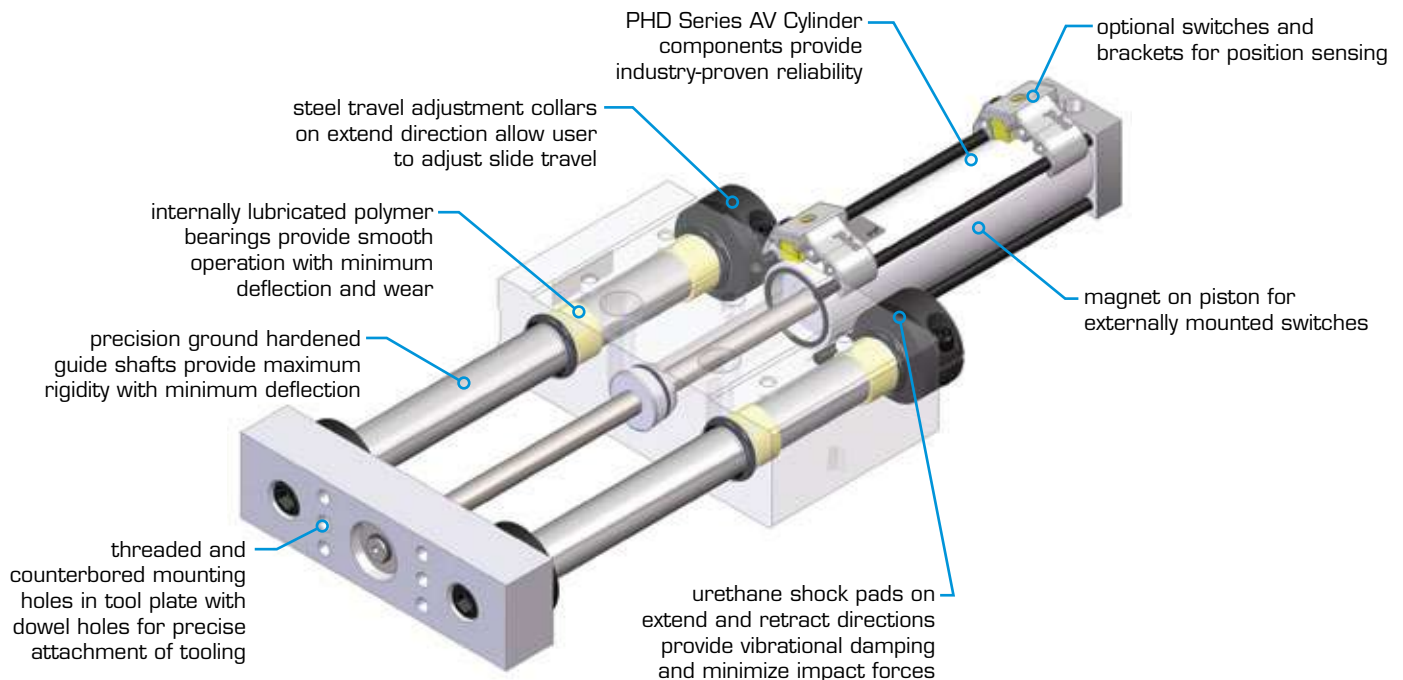
Pneumatic Thruster Slides

BENEFITS

- 3 bore sizes with 4 travel lengths available to fit variety of applications
- The price alternative to the PHD Series SD Slide
- Oversized guide shafts
- Travel adjustment collars in extend direction are standard
- Shock pads on extend and retract are provided to eliminate metal to metal contact at end of travel, reducing noise and shock
- Dowel pin holes and mounting threads in slide body for easy and accurate mounting
- Magnet on piston for position sensing
- Switch bundle option provides two switches and brackets utilizing proven PHD Series 1750 switch technology, for simplified ordering at a lower price



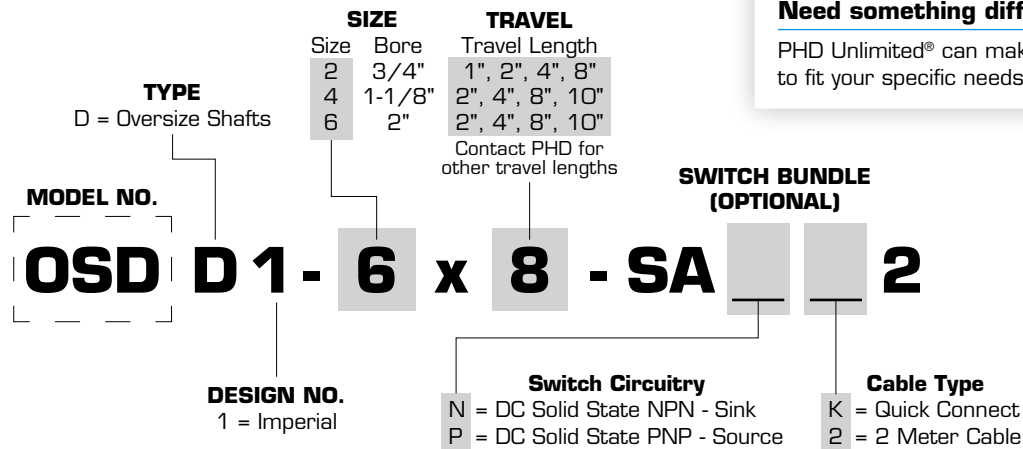
Component	Materials
Body	Anodized Aluminum Alloy
Tool Plate	
Rod Bushing	
Cylinder Tube	
Cylinder Cap (Size 6)	
Cylinder Cap (Size 2 & 4)	Carbon Steel
Tierod and Nut	
Guide Shafts	
External Fasteners	
Stop Collars	
Piston Rod (Size 6)	Stainless Steel
Piston Rod (Size 2 & 4)	
Rod Seal	NBR
O-Rings	
Shock Pad	Polypropylene
Pressed In Ball Plugs	Polyurethane
Shaft Bearings	Polymer Composite





Need something different?

PHD Unlimited® can make modifications to fit your specific needs. See page 4.



NOTES:

- 1) Includes 2 switches and 2 mounting brackets
- 2) Switch bundle available with actuator only

Switch Brackets

Slide Size	Part No.
2	17000-31-5
4	17000-33-5
6	17000-51-0

Includes one bracket.

Cordsets

Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Solid State Switches

Part No.	Description
17503-2-06	Sink Type (NPN), 10-30 VDC w/6 ft [1.8 m] cable
17504-2-06	Source Type (PNP), 10-30 VDC w/6 ft [1.8 m] cable
17523-2	Sink Type (NPN), 10-30 VDC, Quick Connect
17524-2	Source Type (PNP), 10-30 VDC, Quick Connect

Includes one switch.



CAD & Sizing Assistance

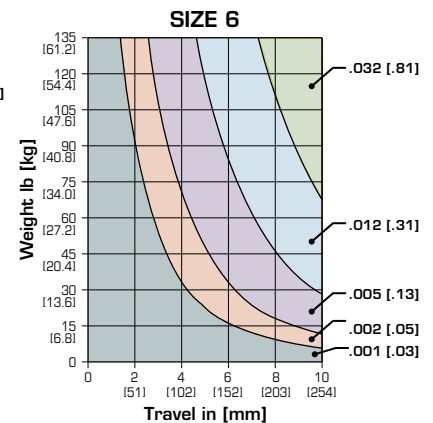
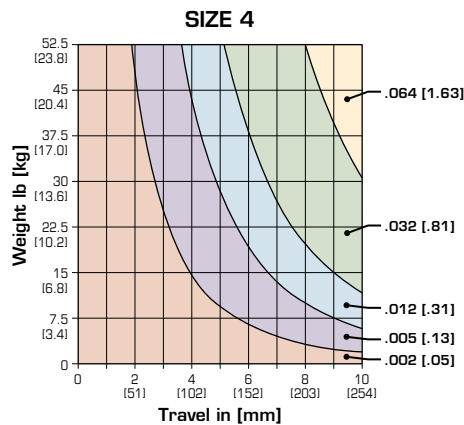
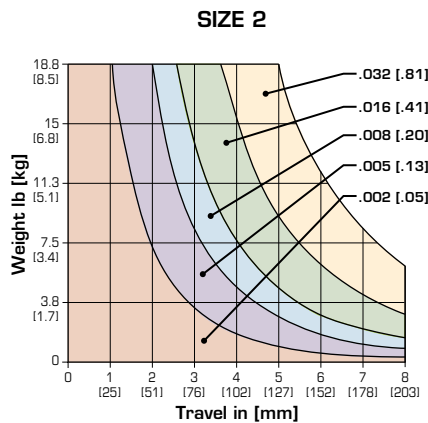
Use PHD's free online Product Sizing and CAD Configurator at www.phdinc.com/myphd

Specifications	Series OSD Slide
Operating Air Pressure	20-150 psi [1.4-10 bar]
Operating Temperature	-20° to +180°F [-29° to +82°C]
Repeatability	±0.001 in [±0.025 mm] of original position
Velocity (zero load @ 100 psi [6.9 bar])	50 in/sec [1.3 m/sec]
Rated Life	3 million cycles
Lubrication	Factory lubricated for rated life

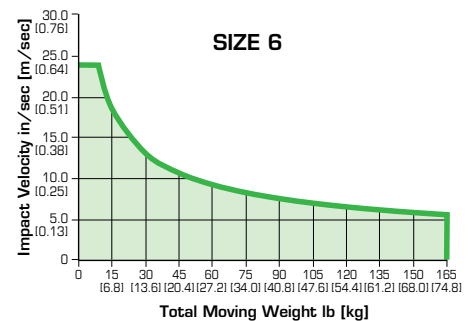
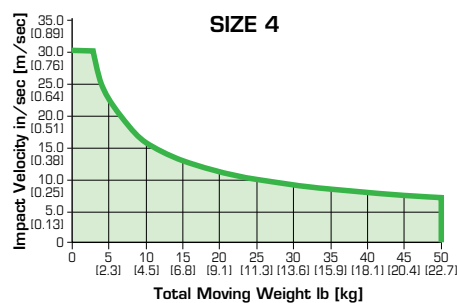
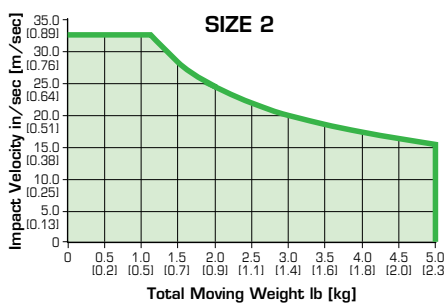
Size	Guide Shaft Diameter		Bore Diameter		Effective Area			Base Weight		Travel Weight Adder		Typical Dynamic Load	
	in	mm	in	mm	Direction	in ²	mm ²	lb	kg	lb/in	kg/mm	lb	N
2	0.500	12.7	0.750	19.0	Extend	0.44	285	1.90	0.86	0.16	0.003	6	27
					Retract	0.39	254						
4	0.750	19.1	1.125	28.6	Extend	1.00	642	5.42	2.46	0.36	0.007	19	85
					Retract	0.88	570						
6	1.375	34.9	2.000	50.8	Extend	3.14	2026	19.90	9.03	1.10	0.020	38	169
					Retract	2.84	1829						

DEFLECTION

inches [mm]

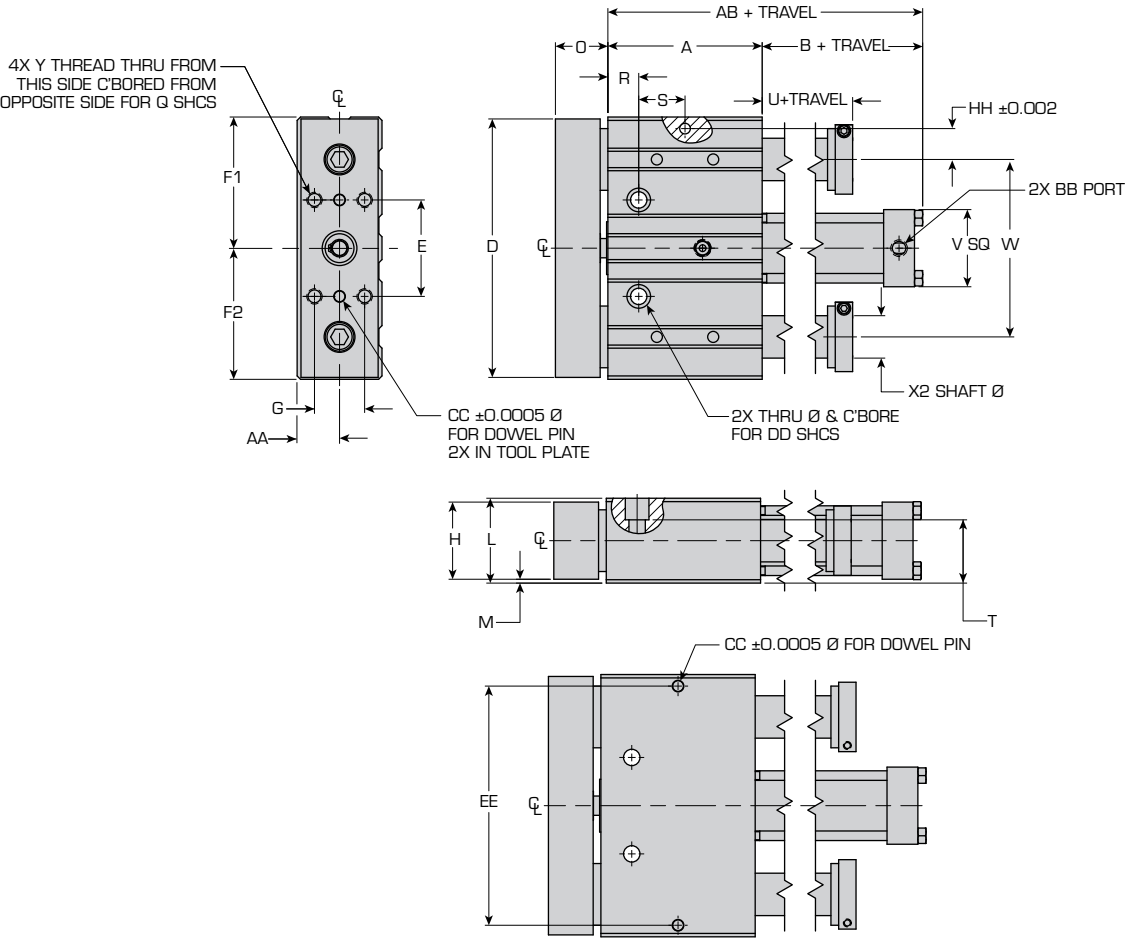


MAXIMUM ALLOWABLE KINETIC ENERGY



Application & Sizing Assistance

Use PHD's free online Product Sizing
Application at www.phdinc.com/apps/sizing



Size	A	B	D	E	F1	F2	G	H	L	M	O	Q	R	S	T
2	2.390	1.776	3.800	1.625	1.937	1.998	0.580	1.000	1.200	0.100	0.952	#10 x 0.215 DP	0.500	0.500	0.825
4	3.390	1.776	5.400	2.000	2.752	2.818	0.900	1.500	1.700	0.100	1.200	1/4 x 0.275 DP	0.750	0.875	1.260
6	5.000	3.179	8.375	3.125	4.250	4.330	1.625	2.500	2.750	0.125	1.700	3/8 x 0.400 DP	1.000	1.500	2.050

Size	U	V	W	X2	Y	AA	AB	BB	CC	DD	EE	HH
2	0.748	1.000	2.625	0.500	1/4 - 20	0.600	4.166	1/8 NPT	0.1884 x 0.25 MIN DP	1/4	3.437	0.406
4	0.846	1.500	3.625	0.750	5/16 - 18	0.850	5.166	1/8 NPT	0.2509 x 0.31 MIN DP	3/8	5.000	0.688
6	0.909	2.500	5.750	1.375	1/2 - 13	1.375	8.179	1/4 NPT	0.3759 x 0.50 MIN DP	1/2	7.750	1.000

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

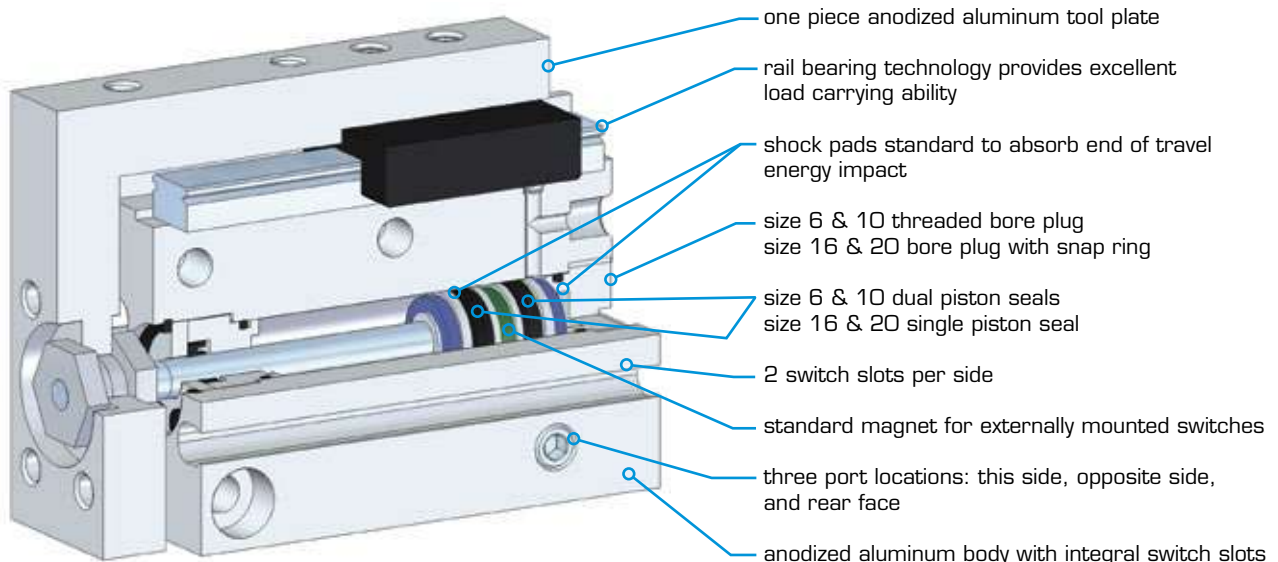
Pneumatic Compact Slide Tables

BENEFITS

- Multiple port locations for application flexibility
- Four bore sizes available in incremental travel lengths to fit a variety of applications
- Drop-in metric mounting matching global standard
- Standard shock pads reduce end of travel impact
- Standard magnets for switch sensing capability
- Proven Optimax® performance at a competitive price



Component	Materials
Body	Anodized Aluminum Alloy
Tool Plate	
Rod Bushing	
Bore Plug	
Snap Ring	Carbon Steel
Rod Coupling	Brass
Rod Seal	NBR
Shock Pad	
Piston Seal	
O-rings	
Piston Rod	Stainless Steel
Rail	
Rail Fasteners	
Tool Plate Fasteners	
Pressed in Ball Plugs	
Port Plugs	



**Need something different?**

PHD Unlimited® can make modifications to fit your specific needs. See page 4.

SIZE

Size mm	Bore in	Area sq mm	Area sq in
6	0.236	28	0.04
10	0.394	79	0.12
16	0.630	201	0.31
20	0.787	314	0.49

MODEL NO.
OSH 5 - 10 x 20 - SD K2

DESIGN NO.
5 = Metric

STANDARD TRAVEL LENGTHS

Size mm	5	10	15	20	25	30	40	50	60
6	5	10	15	20	25	30	40	50	60
10	5	10	15	20	25	30	40	50	60
16	5	10	15	20	25	30	40	50	60
20	5	10	15	20	25	30	40	50	60

SWITCH BUNDLE (OPTIONAL)

Switch Circuitry
 D = DC Reed
 N = DC Solid State NPN - Sink
 P = DC Solid State PNP - Source

Cable Type
K = Quick Connect

NOTES:
 1) Switch bundle option includes 2 switches
 2) Switch bundle available with actuator only
 3) Switches available in quick connect only
 4) Magnets standard for switch sensing

Cordsets

Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Switches

Part No.	Description
86725-0	Reed DC 5-30 V, 50 mA, Quick Connect
86726-0	Sink Type (NPN), DC 5-30 V, 50 mA, Quick Connect
86727-0	Source Type (PNP), DC 5-30 V, 50 mA, Quick Connect

Includes one switch.

ENGINEERING DATA

Specifications	Series OSH Slide		
	6 mm	10 & 16 mm	20 mm
Operating Air Pressure	1.2-7 bar [18-101 psi]	0.6-7 bar [9-101 psi]	0.5-7 bar [7.5-101 psi]
Operating Temperature	5°-60°C [41°-140°F]		
Velocity	50-500 mm/sec [2-20 in/sec]		
Rated Life	3 million cycles		
Lubrication	Factory lubricated for rated life		

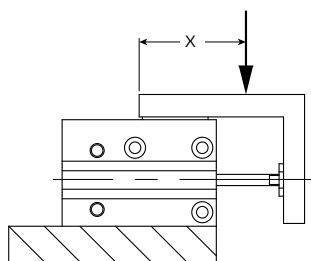
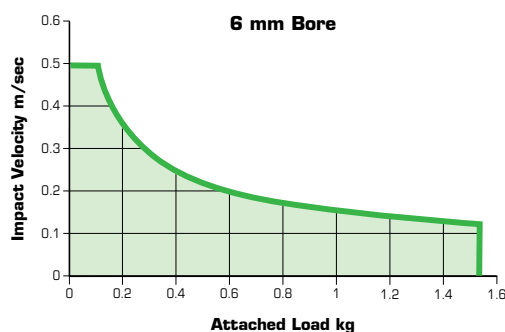
Size	Rod Diameter	Effective Area			Unit Weight by Travel																	
					5 mm		10 mm		15 mm		20 mm		25 mm		30 mm		40 mm		50 mm		60 mm	
	mm	Direction	mm²	in²	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz
6	3	Extend	28	0.04	62	2.2	67	2.4	76	2.7	81	2.9	91	3.2	96	3.4	111	3.9	125	4.4	140	4.9
		Retract	21	0.03																		
10	4	Extend	79	0.12	117	4.1	125	4.4	140	4.9	148	5.2	162	5.7	170	6	192	6.8	215	7.6	238	8.4
		Retract	66	0.10																		
16	6	Extend	201	0.31	216	7.6	227	8	247	8.7	258	9.1	279	9.8	290	10.2	323	11.4	353	12.5	386	13.6
		Retract	173	0.27																		
20	8	Extend	314	0.49	437	15.4	455	16	486	17.1	505	17.8	542	19.1	560	19.8	597	21.1	656	23.1	700	24.7
		Retract	264	0.41																		

**CAD & Sizing Assistance**

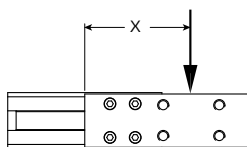
Use PHD's free online Product Sizing and CAD Configurator at www.phdinc.com/myphd

Size	Recommended Mounting Torques							
	Lateral Body Thru and Counterbore		Lateral Body Threads		Rear and Bottom Body Threads		Tool Plate and Table Threads	
	Nm	in-lb	Nm	in-lb	Nm	in-lb	Nm	in-lb
6	1.7	15	2.8	25	1.7	15	1.7	15
10	2.8	25	5	40	2.8	25	2.8	25
16	2.8	25	5	40	2.8	25	2.8	25
20	5	40	9	80	5	40	5	40

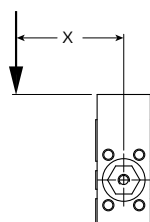
MAXIMUM ALLOWABLE KINETIC ENERGY



Pitch Moment



Yaw Moment



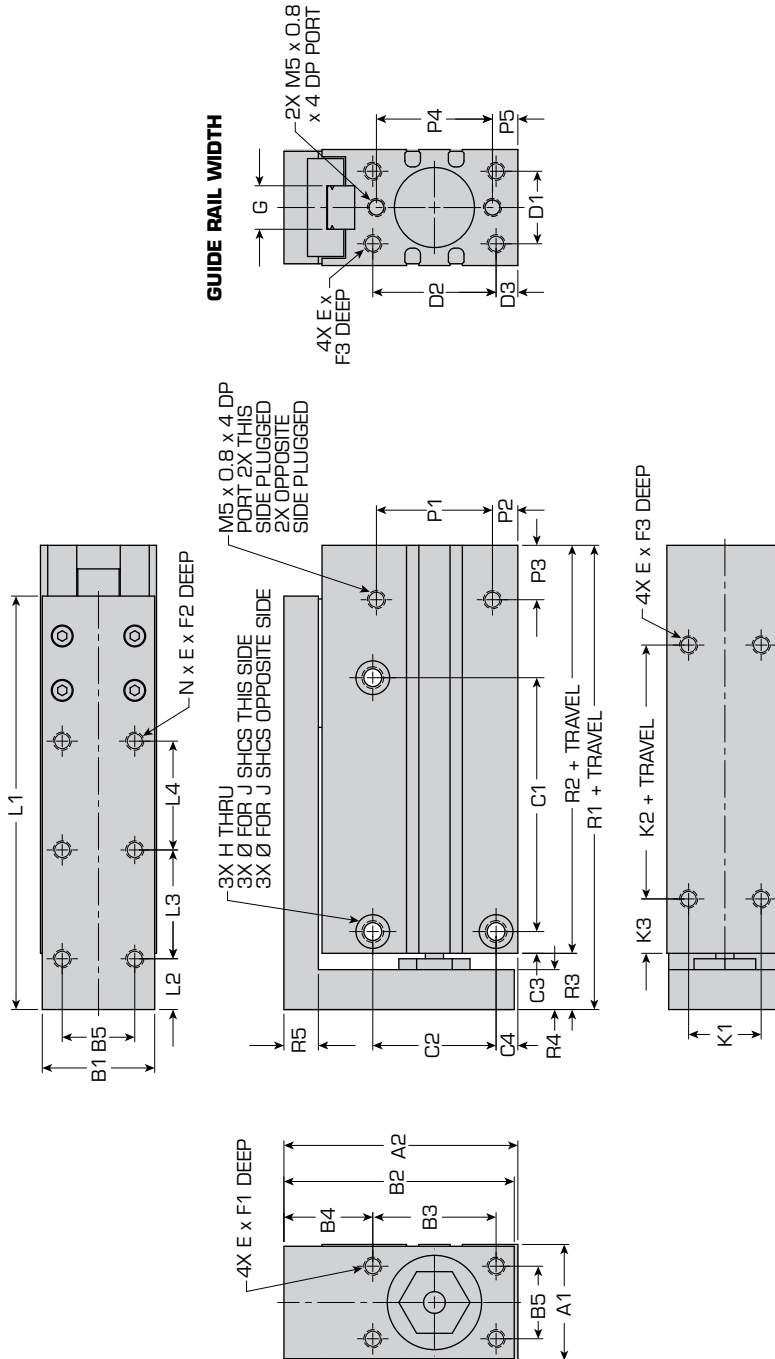
Roll Moment

Size	Max Pitch Moment Nm	Max Yaw Moment Nm	Max Roll Moment Nm
6	0.47	0.39	0.59
10	0.96	0.82	1.37
16	1.88	1.59	2.75
20	3.14	2.75	5.49



Application & Sizing Assistance

Use PHD's free online Product Sizing Application at www.phdinc.com/apps/sizing



Model Size	Travel	A1	A2	B1	B2	B3	B4	B5	C1	C2	C3	C4	D1	D2	D3	E	F1	F2	F3	G	H	J	K1	K2	K3	L1	L2	L3	L4	R1	R2	R3	R4	R5	N	P1	P2	P3	P4	P5	
		5.10	15.20	25.30	40	50	60	5.10	15.20	25.30	40	50	60	5.10	15.20	25.30	40	50	60	5.10	15.20	25.30	40	50	60	5.10	15.20	25.30	40	50	60	5.10	15.20	25.30	40	50	60	5.10	15.20	25.30	40
OSW5-6	16	39	15	38	15	17	9	45	19	4	5	10.5	19	5	M3 x 0.5	M3	5.5	4.8	4.8	5	M4 x 0.7	M3	10	5	10	72	82	25	20	39.5	31	8.5	5.5	6.5	4	19	5	10	18.5	5.5	
	50						55																																		
	60						60																																		
	5.10						14																																		
	15.20						24																																		
OSW5-10	20	47	19	46	18	21.5	11	45	23	5	5	13	23	5	M4 x 0.7	M4	7.5	5.8	6	7	M5 x 0.8	M4	13	5	12	79	89	25	20	46.5	35	11.5	7.5	8	21	6	12.5	20.5	6.5		
	50						55																																		
	60						60																																		
	5.10						20																																		
	15.20						30																																		
OSW5-16	25	53.5	24	52.5	26	21.5	16	50	27	5	5.5	17	27	5.5	M4 x 0.7	M4	10	5.8	6	9	M5 x 0.8	M5	17	10	12	88	98	25	20	56	42	14	10	9	25	6.5	12.5	25	6.5		
	50						60																																		
	60						60																																		
	5.10						20																																		
	15.20						30																																		
OSW5-20	32	64.5	31	63.5	34	24.5	20	50	34	6	6	20	34	6	M5 x 0.8	M5	11	6.3	8	12	M6 x 1.0	M5	20	10	15	84	104	25	20	68	52.5	15.5	11	9.5	32	7	15	32	7		
	50						70																																		
	60						70																																		
	5.10						20																																		
	15.20						25																																		

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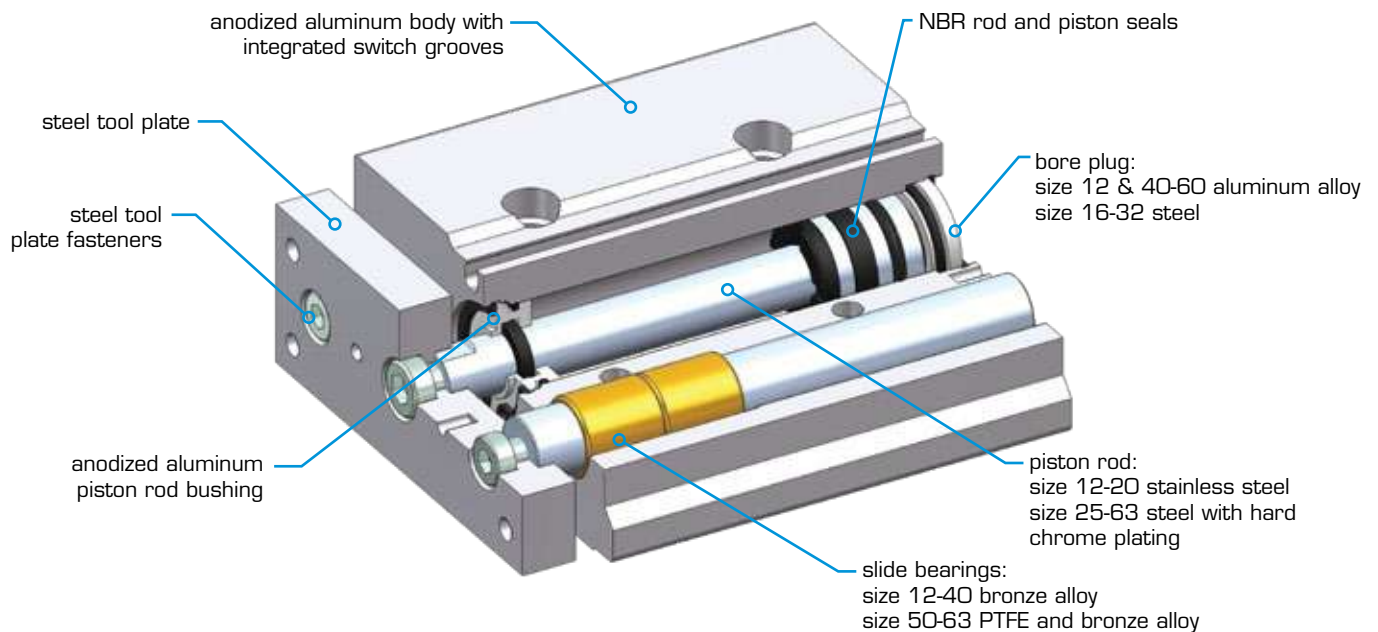
Pneumatic Compact Thruster Slides

BENEFITS

- Port locations on top and side
- Standard shock pads reduce end of travel impact
- Magnets standard for switch sensing capability
- 8 bore sizes available in incremental travel lengths to fit a variety of applications
- Drop-in metric mounting matches global standard



Component	Materials
Body	Anodized Aluminum Alloy
Rod Bushing	
Tool Plate	Carbon Steel
Tool Plate Fasteners	
Snap Rings	
Guide Shafts	
Slide Bearings	See Figure Above
Piston Rod	
Bore Plug	
Rod Seal	NBR
Shock Pad	
Piston Seal	
O-Rings	
Pressed In Ball Plugs	Stainless Steel
Port Plugs	



NOTE: Unit view depicts less than 30 mm of travel



Need something different?

PHD Unlimited® can make modifications to fit your specific needs. See page 4.

MODEL NO.

OSP

BUSHING TYPE
C = Slide Bushing

C 5

SIZE

Size mm	Bore in	Area sq mm	Area sq in
12	0.394	113	0.18
16	0.591	201	0.31
20	0.787	314	0.49
25	0.984	491	0.76
32	1.260	804	1.25
40	1.575	1257	1.95
50	1.969	1963	3.04
63	2.480	3117	4.83

DESIGN NO.
5 = Metric

STANDARD TRAVEL LENGTHS

Size	10	20	30	40	50	75	100
12	10	20	-	30	40	50	75 100
16	10	20	-	30	40	50	75 100
20	-	20	-	30	40	50	75 100
25	-	20	-	30	40	50	75 100
32	-	-	25	-	-	50	75 100
40	-	-	25	-	-	50	75 100
50	-	-	25	-	-	50	75 100
63	-	-	25	-	-	50	75 100

SWITCH BUNDLE (OPTIONAL)

Switch Circuitry
D = DC Reed
N = DC Solid State NPN - Sink
P = DC Solid State PNP - Source

Cable Type
K = Quick Connect

NOTES:

- 1) Switch bundle option includes 2 switches
- 2) Switch bundle available with actuator only
- 3) Switches available in Quick Connect only
- 4) Magnets standard for switch sensing

Cordsets	
Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Switches	
Part No.	Description
86725-0	Reed DC 5-30 V, 50 mA, Quick Connect
86726-0	Sink Type (NPN), DC 5-30 V, 50 mA, Quick Connect
86727-0	Source Type (PNP), DC 5-30 V, 50 mA, Quick Connect

Includes one switch.

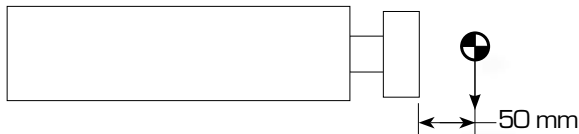


CAD & Sizing Assistance

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

Specifications	Series OSP Slide
Operating Air Pressure	1-10 bar [14.5-145 psi]
Operating Temperature	5°-60°C [41°-140°F]
Velocity	50-500 mm/sec [2-20 in/sec]
Rated Life	3 million cycles
Lubrication	Factory lubricated for rated life

Size	Rod Diameter	Effective Area			Base Unit Weight		Adder per 5 mm Travel		Recommended Mounting Torques							
									Body Thru & Counterbore		Bottom Body Threads		Rear Body Threads		Tool Plate Threads	
	mm	Direction	mm ²	in ²	kg	lb	kg	lb	Nm	in-lb	Nm	in-lb	Nm	in-lb	Nm	in-lb
12	6	Extend	113	0.18	0.191	0.42	0.021	0.046	2.8	25	4.5	40	2.8	25	2.8	25
		Retract	85	0.13												
16	8	Extend	201	0.31	0.283	0.62	0.028	0.062	2.8	25	4.5	40	4.5	40	4.5	40
		Retract	151	0.23												
20	10	Extend	314	0.49	0.450	0.99	0.045	0.099	4.5	40	9	80	4.5	40	4.5	40
		Retract	236	0.37												
25	12	Extend	491	0.76	0.670	1.48	0.063	0.139	4.5	40	9	80	9	80	9	80
		Retract	378	0.59												
32	16	Extend	804	1.25	1.210	2.67	0.090	0.198	9	80	20	175	20	175	20	175
		Retract	603	0.93												
40	16	Extend	1257	1.95	1.474	3.25	0.088	0.194	9	80	20	175	20	175	20	175
		Retract	1056	1.64												
50	20	Extend	1963	3.04	2.540	5.60	0.140	0.309	20	175	39	345	39	345	39	345
		Retract	1649	2.56												
63	20	Extend	3117	4.83	3.345	7.37	0.157	0.346	20	175	39	345	39	345	39	345
		Retract	2803	4.34												



Size	Maximum Lateral Load [kg] by Travel [mm]							
	10	20	25	30	40	50	75	100
12	1.13	1.03	—	0.94	0.86	0.8	1.87	1.65
16	1.87	1.7	—	1.56	1.44	1.34	2.71	2.39
20	—	3.06	—	2.62	2.62	2.44	6.9	6.15
25	—	4.31	—	3.98	3.69	3.44	9.18	8.19
32	—	—	14.1	—	—	12.1	14.4	12.9
40	—	—	14.1	—	—	12.1	14.4	12.9
50	—	—	21.3	—	—	18.5	21.9	19.9
63	—	—	21.3	—	—	18.5	21.9	19.9

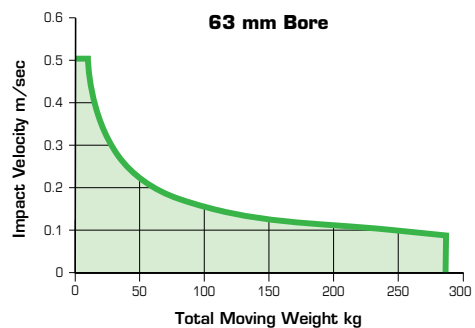
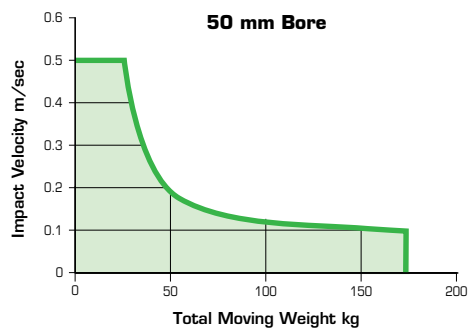
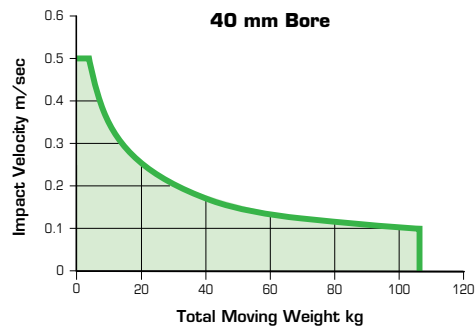
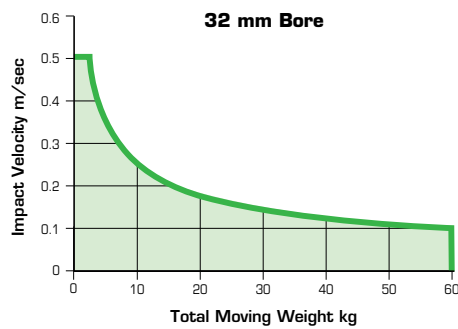
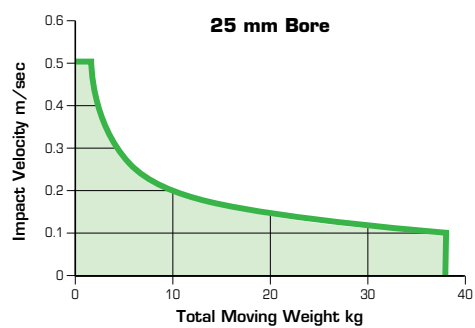
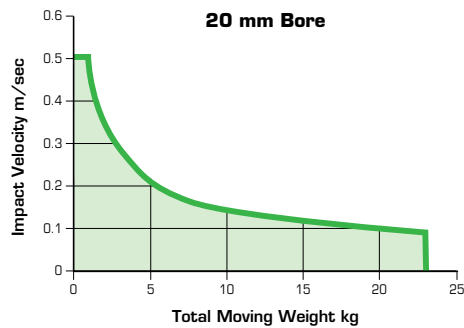
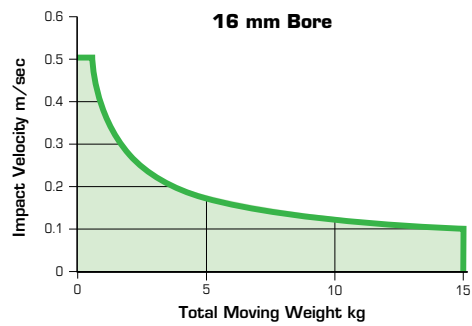
Size	Weight of Moving Components [kg] by Travel [mm]							
	10	20	25	30	40	50	75	100
12	0.12	0.13	—	0.14	0.15	0.16	0.2	0.23
16	0.16	0.18	—	0.19	0.21	0.22	0.29	0.33
20	—	0.33	—	0.35	0.38	0.4	0.52	0.58
25	—	0.52	—	0.56	0.6	0.64	0.84	0.95
32	—	—	1.07	—	—	1.23	1.42	1.58
40	—	—	1.14	—	—	1.3	1.49	1.65
50	—	—	2.15	—	—	2.4	2.75	3
63	—	—	2.5	—	—	2.75	3.09	3.35

NOTES:

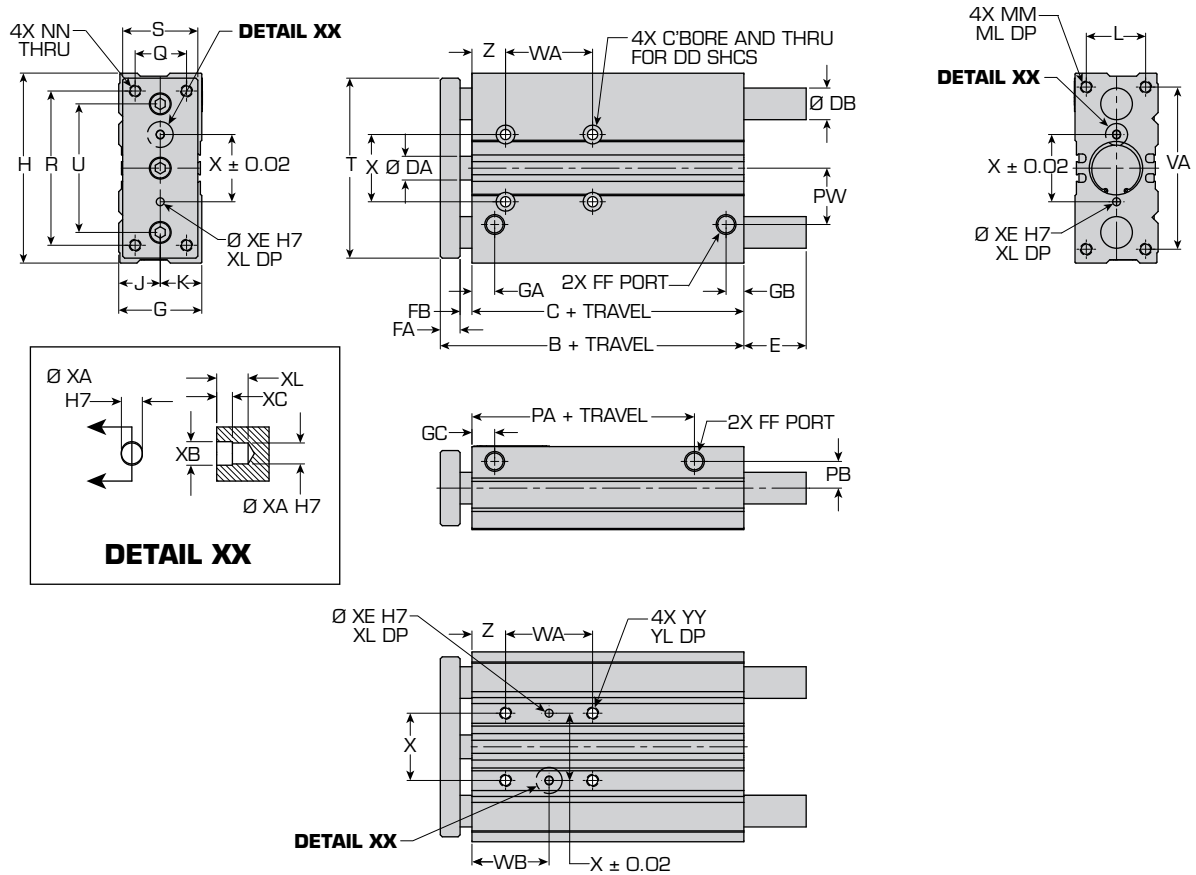
- 1) Attached load must not exceed maximum kinetic energy.
- 2) Maximum loads given are positioned 50 mm from face of tool plate.

**Application & Sizing Assistance**

Use PHD's free online Product Sizing Application at www.phdinc.com/apps/sizing

MAXIMUM ALLOWABLE KINETIC ENERGY

SIZES 12 - 32



Size	B	C	DA	DB	DD	FA	FB	FF	G	GA	GB	GC	H	J	K	L	MM	ML	NN	PA
12	42	29	6	8	M4	8	5	M5 X 0.8	26	11	15 (SEE NOTE 1)	11	58	13	13	18	M4 x 0.7	10	M4 x 0.7	14
16	46	33	8	10	M4	8	5	M5 X 0.8	30	11	18 (SEE NOTE 2)	11	64	15	15	22	M5 x 0.8	12	M5 x 0.8	15
20	53	37	10	12	M5	10	6	G 1/8	36	10.5	8.5	10.5	85	17	19	24	M5 x 0.8	13	M5 x 0.8	12.5
25	53.5	37.5	12	16	M5	10	6	G 1/8	42	11.5	9	11.5	96	21	21	30	M6 X 1.0	15	M6 X 1.0	12.5
32	59.5	37.5	16	20	M6	12	10	G 1/8	51	12.5	9	12.5	116	26	25	34	M8 X 1.25	20	M8 X 1.25	7

Size	PB	PW	Q	R	S	T	U	VA	X	XA H7	XB	XC	XE H7	XL	YL	YY	Z
12	8.5	18	14	48	22	56	41.5	50	23	3	3.5	3	3	6	10	M5 X 0.8	5
16	10	19	16	54	25	62	46	56	24	3	3.5	3	3	6	10	M5 x 0.8	5
20	11.5	25	18	70	30	81	55	72	28	3	3.5	3	3	6	12	M6 X 1.0	17
25	13.5	28.5	26	78	38	91	65	82	34	4	4.5	3	4	6	12	M6 X 1.0	17
32	16	34	30	96	44	110	80	98	42	4	4.5	3	4	6	16	M8 X 1.25	21

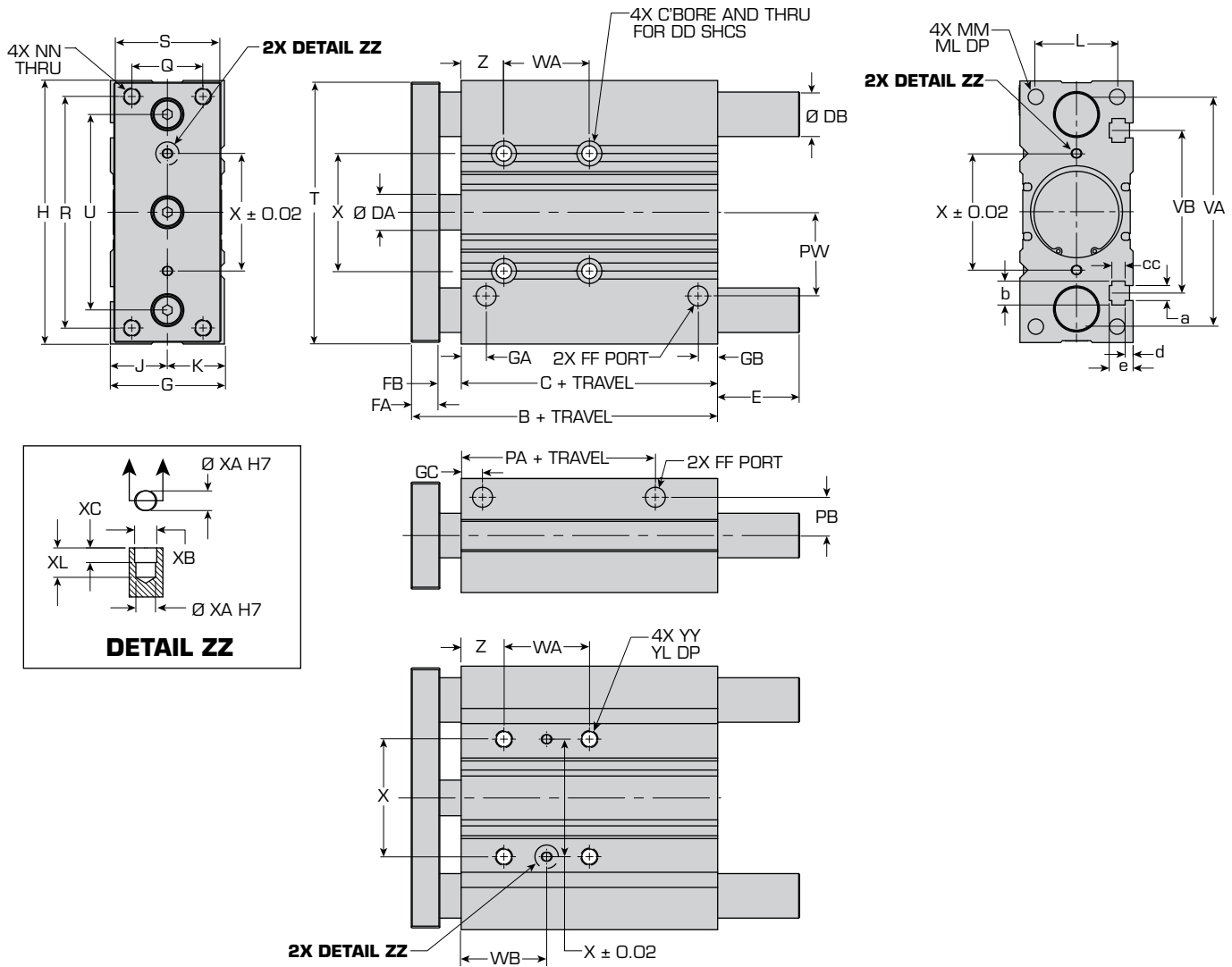
NOTES:

- 1) For travel lengths = 19 or less, GB = 7.5
- 2) For travel lengths = 19 or less, GB = 9

Size	E		WA		WB	
	TRAVEL		TRAVEL		TRAVEL	
	≤ 50	≥ 75	≤ 30	≥ 40	≤ 30	≥ 40
12	—	18.5	20	40	15	25
16	—	18.5	24	44	17	27
20	—	31.5	24	44	29	39
25	—	31.5	24	44	29	39
32	37.5	42.5	24	48	33	45

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

SIZES 40 - 63



Size	B	C	DA	DB	DD	FA	FB	FF	G	GA	GB	GC	H	J	K	L	MM	ML	NN	PA	PB	PW	Q	R
40	66	44	16	20	M6	12	10	G 1/8	54	14	10	14	120	27	27	40	M8 X 1.25	20	M8 X 1.25	13	18	38	30	104
50	72	44	20	25	M8	16	12	G 1/4	64	14	11	12	148	32	32	46	M10 X 1.5	22	M10 X 1.5	9	21.5	47	40	130
63	77	49	20	25	M8	16	12	G 1/4	78	16.5	13.5	16.5	162	39	39	58	M10 X 1.5	22	M10 X 1.5	14	28	55	50	130

Size	S	T	U	VA	X	XA H7	XB	XC	XL	YL	YY	Z	VB	a	b	cc	d	e
40	44	118	86	106	50	4	4.5	3	6	16	M8 X 1.25	22	72	6.5	10.5	5.5	4	11
50	60	146	110	130	66	5	6	4	8	20	M10 X 1.5	24	92	8.5	13.5	7.5	4.5	13.5
63	70	158	124	142	80	5	6	4	8	20	M10 X 1.5	24	110	11	17.8	10	7	18.5

Size	E		WA		WB	
	TRAVEL		TRAVEL		TRAVEL	
	≤ 50	≥ 75	≤ 30	≥ 40	≤ 30	≥ 40
40	31	36	24	48	34	46
50	34.5	46	24	48	36	48
63	29.5	41	28	52	38	50

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

Pneumatic Dual Bore Slide Tables

BENEFITS

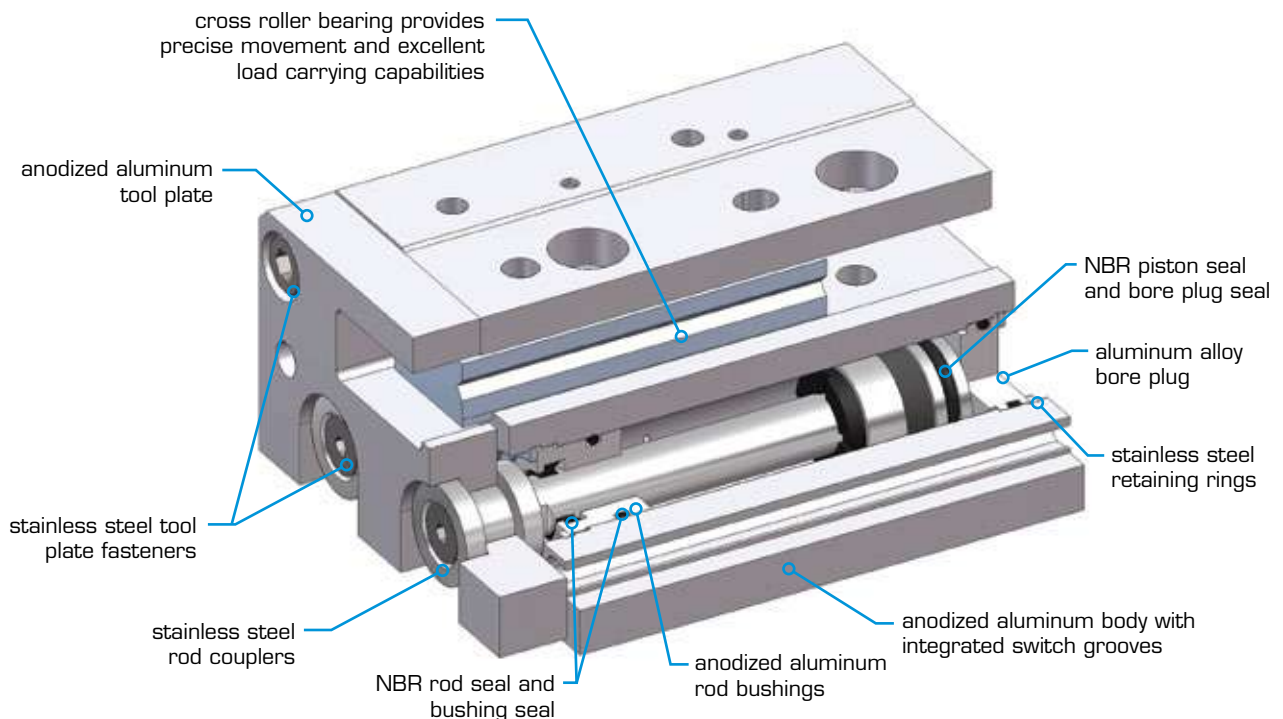
- Dual piston bores provide high power in compact spaces
- Standard shock pads reduce end of travel impact
- Magnets standard for switch sensing capability
- 6 bore sizes available in incremental travel lengths to fit a variety of applications
- Drop-in metric mounting matching global standard
- Stroke adjustments and shock absorbers available as kits



Component	Materials
Body	Anodized Aluminum Alloy
Tool Plate	
Rod Bushing	
Bore Plug	
Coupling Nut*	Copper Bronze Alloy
Rod Coupling	
Piston Rod	Stainless Steel
Rail Fasteners	
Tool Plate Fasteners	
Snap Rings**	
Rod Seal	NBR
Shock Pad	
Piston Seal	
O-Rings	Carbon Steel
Rail	

*Size 6 and 8 only

**Carbon steel size 6 only



**Need something different?**

PHD Unlimited® can make modifications to fit your specific needs. See page 4.

SIZE	
Size mm	Bore in
6	0.236
8	0.315
12	0.473
16	0.630
20	0.787
25	0.984

Area	
sq mm	sq in
57	0.09
101	0.16
226	0.35
402	0.62
628	0.97
982	1.52

MODEL NO.

OSW 5 - 12 x 20 - SD K2

DESIGN NO.
5 = Metric

STANDARD TRAVEL LENGTHS

Size	mm
6	10, 20, 30, 40, 50
8	10, 20, 30, 40, 50, 75
12	10, 20, 30, 40, 50, 75, 100
16	10, 20, 30, 40, 50, 75, 100
20	10, 20, 30, 40, 50, 75, 100, 125, 150
25	10, 20, 30, 40, 50, 75, 100, 125, 150

SWITCH BUNDLE (OPTIONAL)

Switch Circuitry
 D = DC Reed
 N = DC Solid State NPN - Sink
 P = DC Solid State PNP - Source

Cable Type
K = Quick Connect

NOTES:
 1) Switch bundle option includes 2 switches
 2) Switch bundle available with actuator only
 3) Switches available in quick connect only
 4) Magnets standard for switch sensing

Cordsets

Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Switches

Part No.	Description
86725-0	Reed DC 5-30 V, 50 mA, Quick Connect
86726-0	Sink Type (NPN), DC 5-30 V, 50 mA, Quick Connect
86727-0	Source Type (PNP), DC 5-30 V, 50 mA, Quick Connect

Includes one switch.

**CAD & Sizing Assistance**

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

Specifications	Series OSW Slide
Operating Air Pressure	1.5-7 bar [21.7-101 psi]
Operating Temperature	5°-60°C [41°-140°F]
Velocity	50-500 mm/sec [2-20 in/sec]
Rated Life	3 million cycles
Lubrication	Factory lubricated for rated life

Size	Rod Diameter	Effective Area		Unit Weight by Travel																	
				10 mm		20 mm		30 mm		40 mm		50 mm		75 mm		100 mm		125 mm		150 mm	
		mm	Direction	mm ²	in ²	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz	g	oz
6	3		Extend	57	0.09	89	3.1	110	3.9	122	4.3	161	5.7	199	7.0	-	-	-	-	-	-
			Retract	42	0.07																
8	4		Extend	101	0.16	155	5.5	166	5.9	201	7.1	246	8.7	281	9.9	394	13.9	-	-	-	-
			Retract	75	0.12																
12	6		Extend	226	0.35	360	12.7	362	12.8	369	13.02	425	14.99	529	18.7	722	25.5	960	33.9	-	-
			Retract	170	0.26																
16	8		Extend	402	0.62	576	20.3	604	21.3	602	21.2	674	23.8	762	26.9	1095	38.6	1410	49.7	-	-
			Retract	302	0.47																
20	10		Extend	628	0.97	1050	37	1060	37.4	1092	39	1145	40	1320	47	1815	64	2365	83	2880	102
			Retract	471	0.73																
25	12		Extend	982	1.52	1636	57.7	1650	58	1673	59	1797	63	1989	70	2713	96	3260	115	4260	150
			Retract	756	1.17																

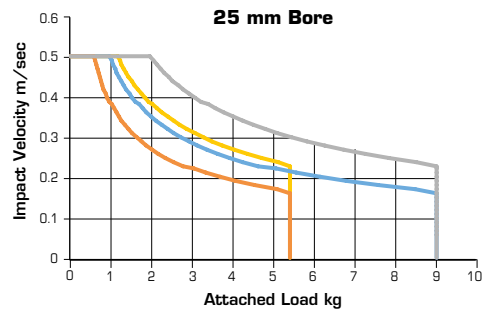
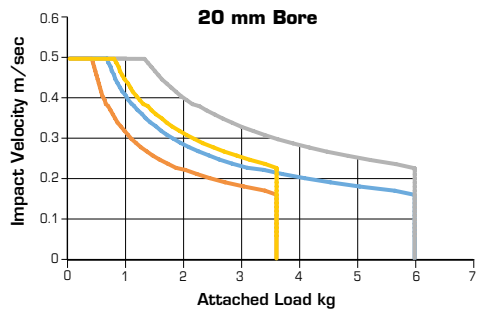
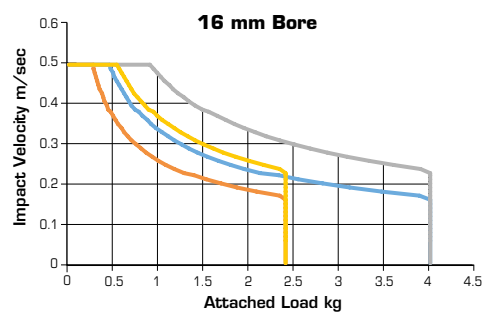
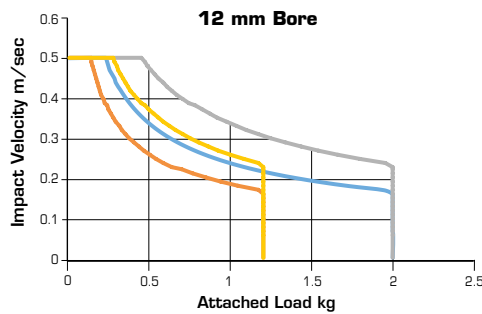
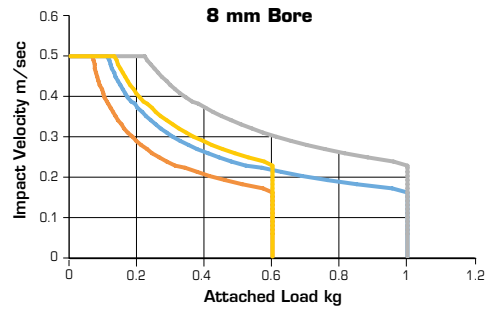
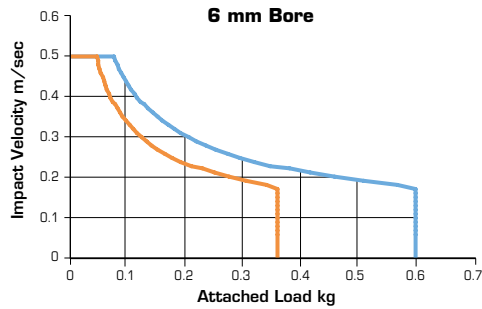
Size	Recommended Mounting Torques							
	Body Thru & C'bore		Body Threads		Tool Plate Threads		Table Threads	
	Nm	in-lb	Nm	in-lb	Nm	in-lb	Nm	in-lb
6	1.7	15	2.8	25	1.7	15	1.7	15
8	1.7	15	2.8	25	2.8	25	1.7	15
12	2.8	25	4.5	40	4.5	40	2.8	25
16	4.5	40	9	80	9	80	4.5	40
20	4.5	40	9	80	9	80	4.5	40
25	9	80	20	175	20	175	9	80



Application & Sizing Assistance

Use PHD's free online Product Sizing Application at www.phdinc.com/apps/sizing

MAXIMUM ALLOWABLE KINETIC ENERGY



Tool Plate Mounted Load

Table Mounted Load

Tool Plate Mounted Load with Shock Absorbers

Table Mounted Load with Shock Absorbers

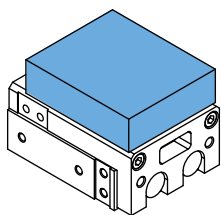
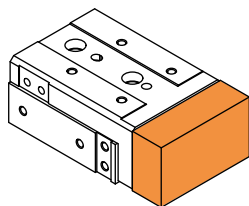


Table Mounted Load



Tool Plate Mounted Load

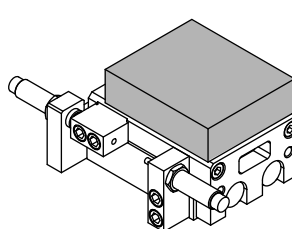
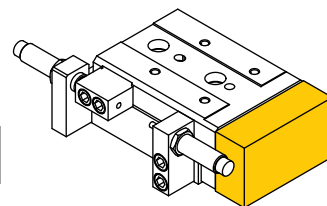
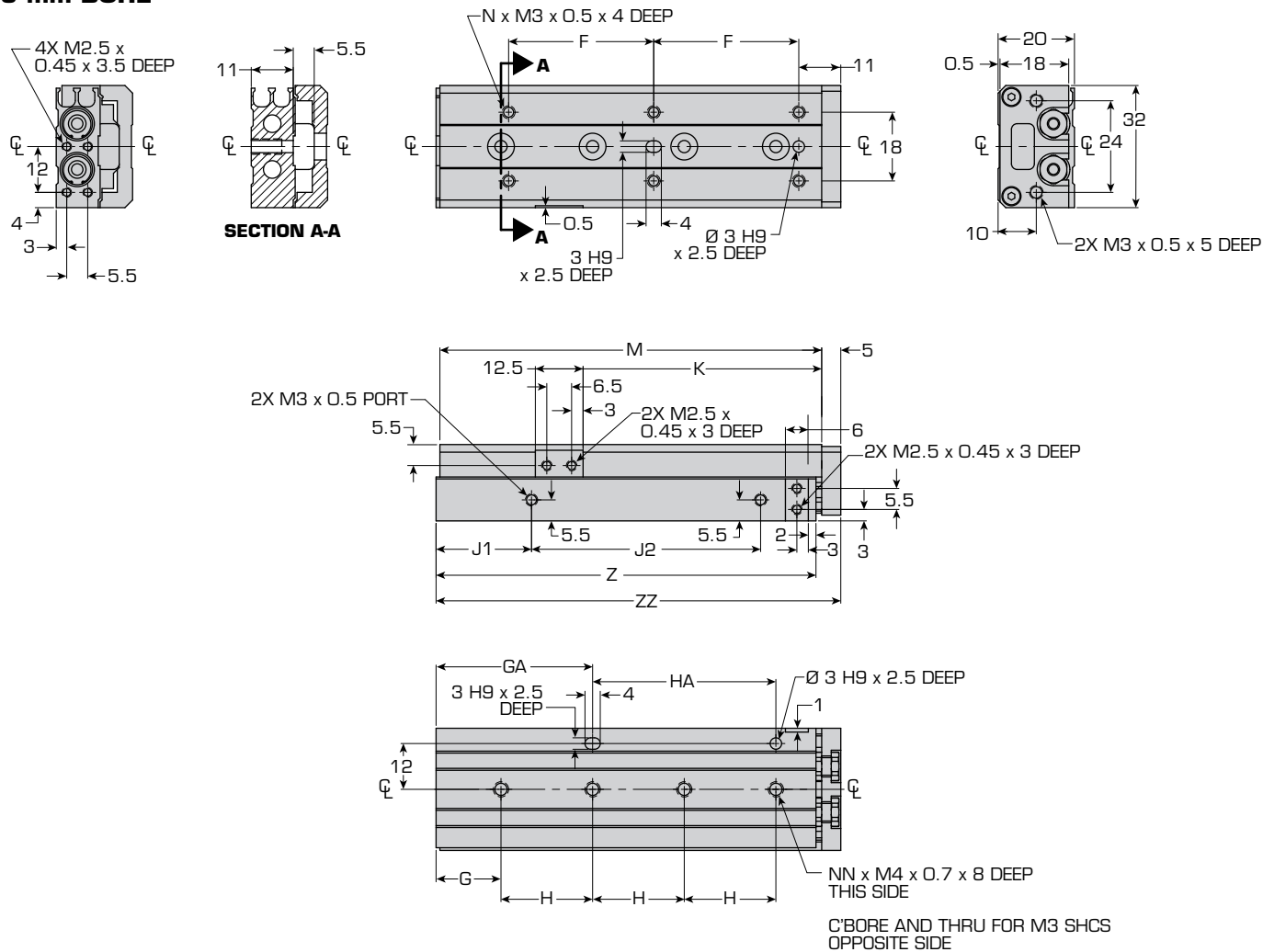


Table Mounted Load with Shock Absorbers



Tool Plate Mounted Load with Shock Absorbers

6 mm BORE



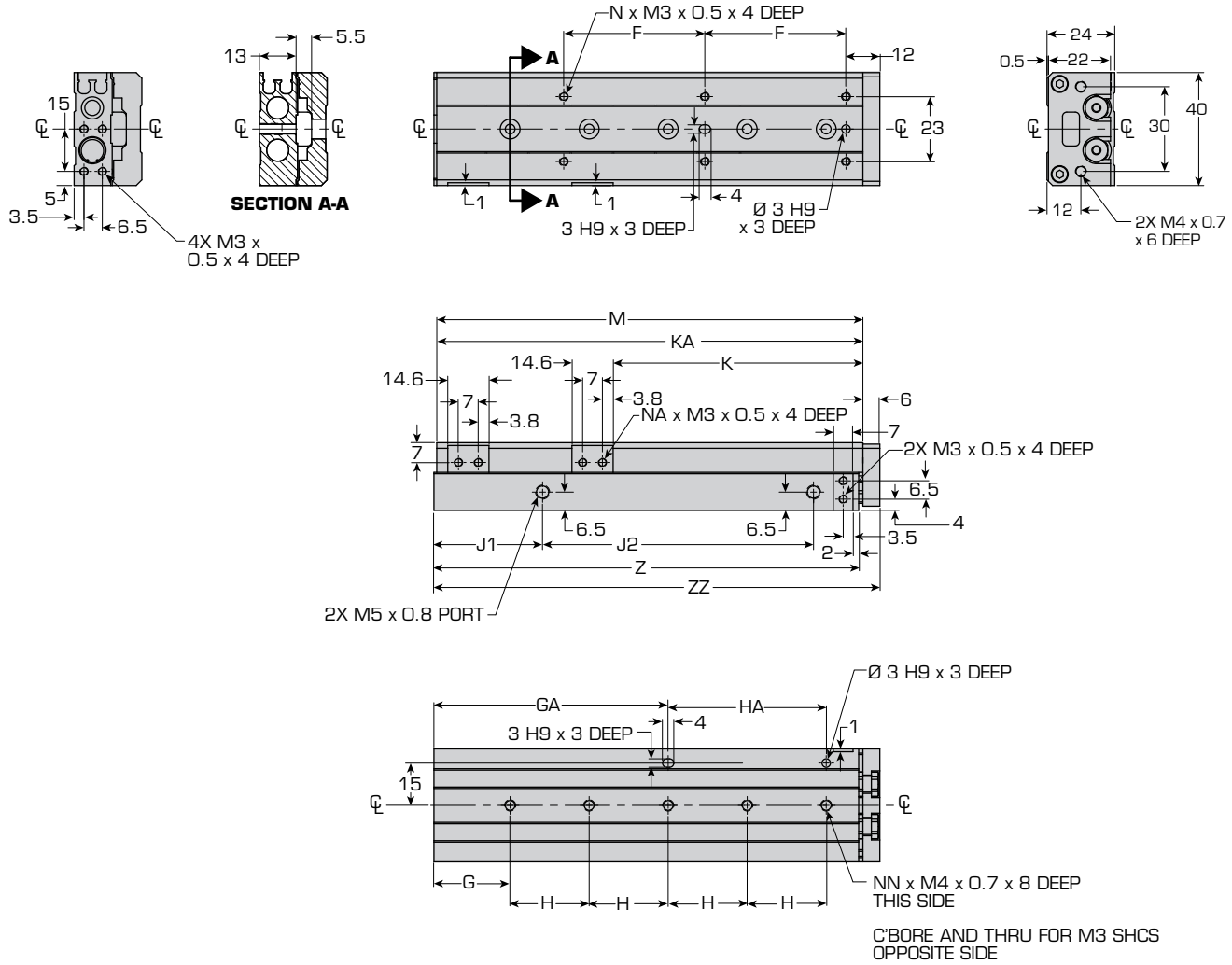
NOTES:

- NOTES:**
- 1) Designated centerline is centerline of slide housing width
 - 2) Unless otherwise dimensioned, dimensions are centered on designated centerline
 - 3) Magnet on piston standard
 - 4) Shock pad on extend and retract standard
 - 5) See page 53 for travel adjustment and shock absorber kits

Travel	F	G	GA	H	HA	J1	J2	K	M	N	NN	Z	ZZ
10	20	6	11	25	20	10	17	22.5	42	4	2	41.5	48
20	30	6	21	35	20	10	27	32.5	52	4	2	51.5	58
30	20	11	31	20	20	7	40	42.5	62	6	3	61.5	68
40	28	13	43	30	30	19	50	52.5	84	6	3	83.5	90
50	38	17	41	24	48	25	60	62.5	100	6	4	99.5	106

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

8 mm BORE



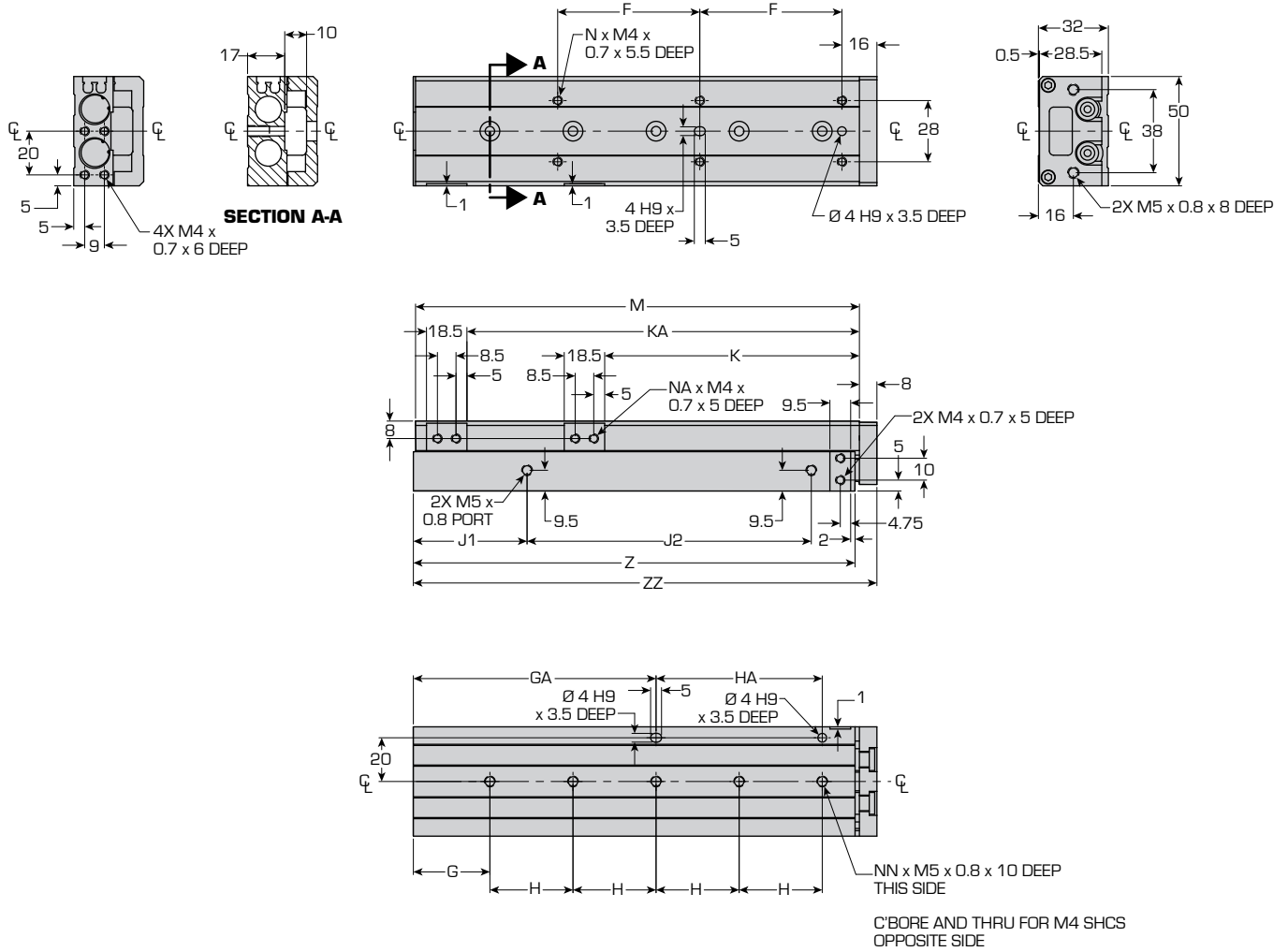
NOTES:

- 1) Designated centerline is centerline of slide housing width
- 2) Unless otherwise dimensioned, dimensions are centered on designated centerline
- 3) Magnet on piston standard
- 4) Shock pad on extend and retract standard
- 5) See page 53 for travel adjustment and shock absorber kits

Travel	F	G	GA	H	HA	J1	J2	K	KA	M	N	NA	NN	Z	ZZ
10	25	9	17	28	20	13	19.5	23.5	-	49	4	2	2	48.5	56
20	25	12	12	30	30	8.5	29	33.5	-	54	4	2	2	53.5	61
30	40	13	33	20	20	9.5	39	43.5	-	65	4	2	3	64.5	72
40	50	15	43	28	28	10.5	56	53.5	-	83	4	2	3	82.5	90
50	38	20	43	23	46	24.5	60	63.5	82.5	101	6	4	4	100.5	108
75	50	27	83	28	56	38.5	96	88.5	132.5	151	6	4	5	150.5	158

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

12 mm BORE



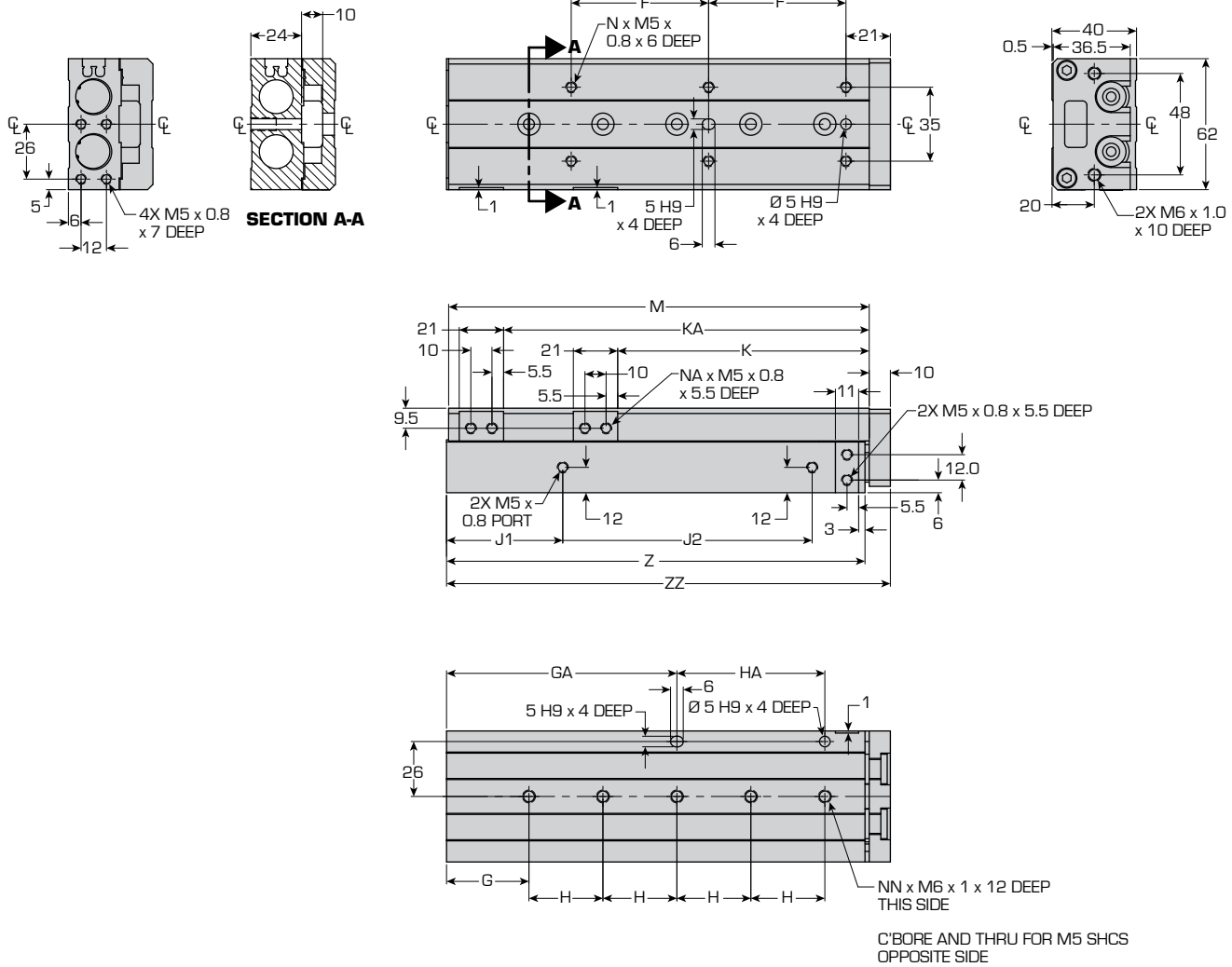
NOTES:

- 1) Designated centerline is centerline of slide housing width
- 2) Unless otherwise dimensioned, dimensions are centered on designated centerline
- 3) Magnet on piston standard
- 4) Shock pad on extend and retract standard
- 5) See page 53 for travel adjustment and shock absorber kits

Travel	F	G	GA	H	HA	J1	J2	K	KA	M	N	NA	NN	Z	ZZ
10	35	15	15	40	40	10	40	26.5	-	71	4	2	2	70	80
20	35	15	15	40	40	10	40	36.5	-	71	4	2	2	70	80
30	35	15	15	40	40	10	40	46.5	-	71	4	2	2	70	80
40	50	17	42	25	25	10	52	56.5	-	83	4	2	3	82	92
50	35	15	51	36	36	22	60	66.5	-	103	6	2	3	102	112
75	55	25	61	36	72	43	85	91.5	125.5	149	6	4	4	148	158
100	65	35	111	38	76	52	130	116.5	179.5	203	6	4	5	202	212

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

16 mm BORE



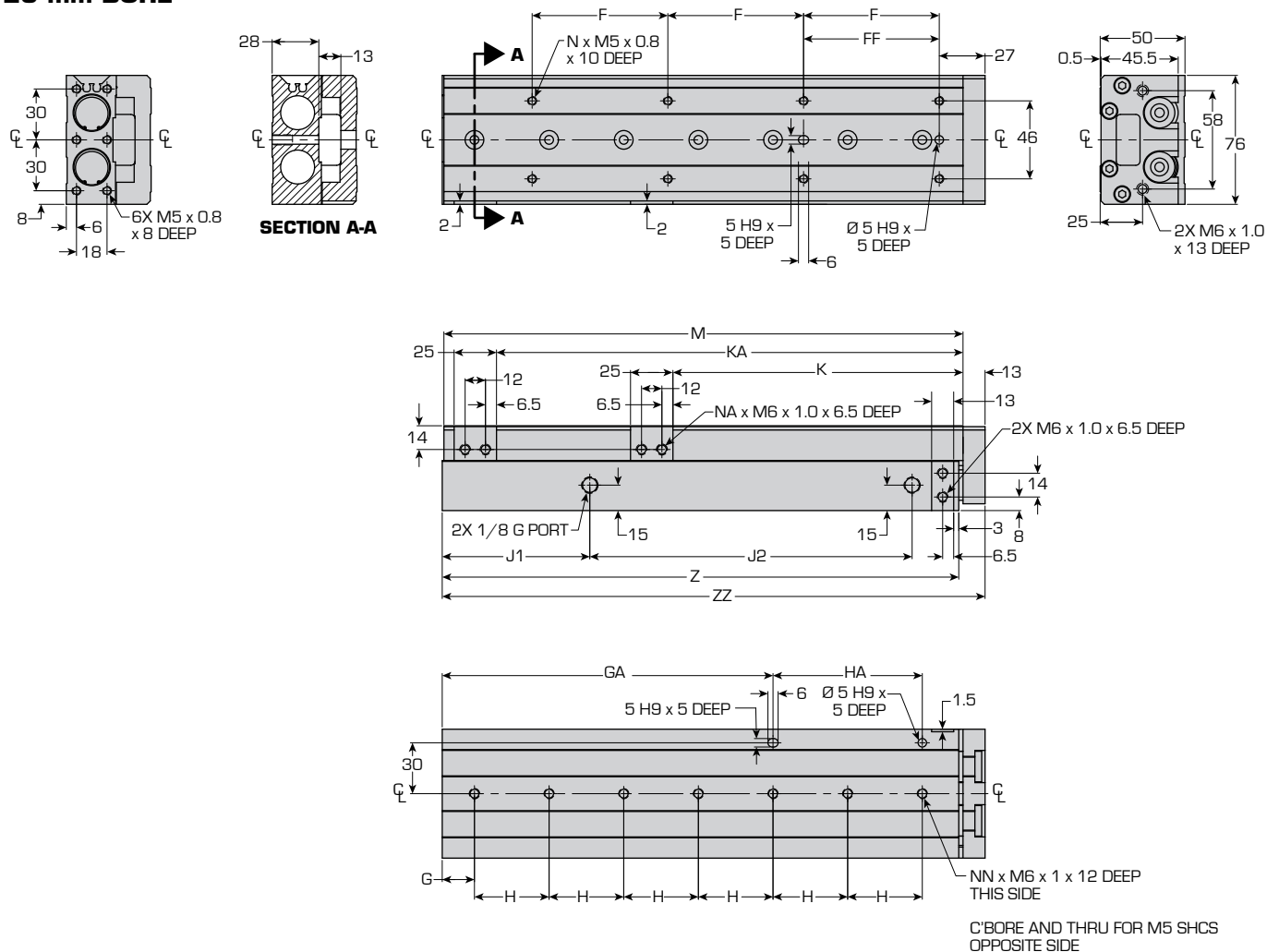
NOTES:

- 1) Designated centerline is centerline of slide housing width
- 2) Unless otherwise dimensioned, dimensions are centered on designated centerline
- 3) Magnet on piston standard
- 4) Shock pad on extend and retract standard
- 5) See page 53 for travel adjustment and shock absorber kits

Travel	F	G	GA	H	HA	J1	J2	K	KA	M	N	NA	NN	Z	ZZ
10	35	16	16	40	40	10	40	29	-	76	4	2	2	75	87
20	35	16	16	40	40	10	40	39	-	76	4	2	2	75	87
30	35	16	16	40	40	10	40	49	-	76	4	2	2	75	87
40	40	16	16	50	50	10	50	59	-	86	4	2	2	85	97
50	30	21	51	30	30	15	60	69	-	101	6	2	3	100	112
75	55	26	61	35	70	40	85	94	125	151	6	4	4	150	162
100	65	39	109	35	70	55	118	119	173	199	6	4	5	198	210

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

20 mm BORE



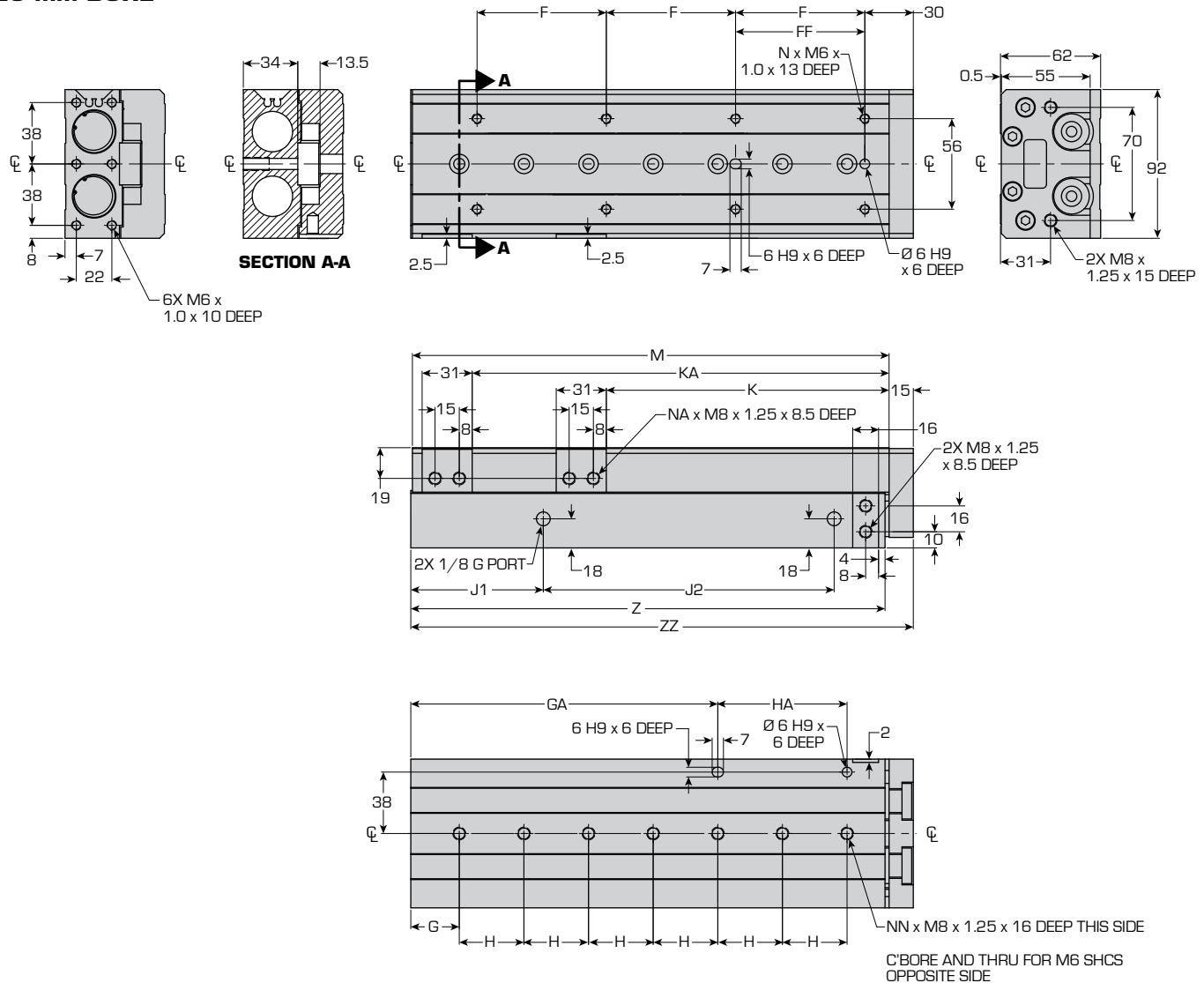
NOTES:

- 1) Designated centerline is centerline of slide housing width
- 2) Unless otherwise dimensioned, dimensions are centered on designated centerline
- 3) Magnet on piston standard
- 4) Shock pad on extend and retract standard
- 5) See page 53 for travel adjustment and shock absorber kits

Travel	F	FF	G	GA	H	HA	J1	J2	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	15	25	45	35	10	44	31	-	83	4	2	2	81.5	97
20	50	40	15	25	45	35	10	44	41	-	83	4	2	2	81.5	97
30	50	40	15	25	45	35	10	44	51	-	83	4	2	2	81.5	97
40	60	50	15	35	55	35	10	54	61	-	93	4	2	2	91.5	107
50	35	35	15	50	35	35	10	69	71	-	108	6	2	3	106.5	122
75	60	60	19	54	35	70	10	108	96	-	147	6	2	4	145.5	161
100	70	70	37	107	35	70	58	113	121	169	200	6	4	5	198.5	214
125	70	70	41	155	38	76	70	155	146	223	254	8	4	6	252.5	268
150	80	80	19	195	44	88	87	190	171	275	306	8	4	7	304.5	320

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

25 mm BORE



NOTES:

- 1) Designated centerline is centerline of slide housing width
- 2) Unless otherwise dimensioned, dimensions are centered on designated centerline
- 3) Magnet on piston standard
- 4) Shock pad on extend and retract standard
- 5) See page 53 for travel adjustment and shock absorber kits

Travel	F	FF	G	GA	H	HA	J1	J2	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	22	22	45	45	12	47	35	-	92	4	2	2	90.5	108
20	50	40	22	22	45	45	12	47	45	-	92	4	2	2	90.5	108
30	50	40	22	22	45	45	12	47	55	-	92	4	2	2	90.5	108
40	60	50	22	22	55	55	12	57	65	-	102	4	2	2	100.5	118
50	35	35	20	55	35	35	12	70	75	-	115	6	2	3	113.5	131
75	60	60	26	61	35	70	33	90	100	-	156	6	2	4	154.5	172
100	70	70	32	102	35	70	50	114	125	162	197	6	4	5	195.5	213
125	75	75	40	154	38	76	67	155	150	218	255	8	4	6	253.5	271
150	80	80	30	190	40	80	82	180	175	258	295	8	4	7	293.5	311

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

SHOCK ABSORBER KIT

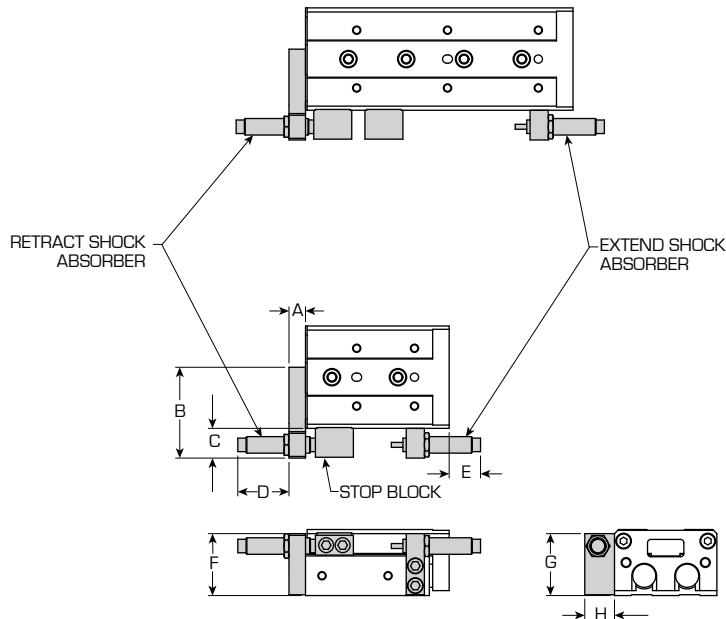
87458 - 16Shock Absorber
Kit Base Part
Number

Slide Bore Size

08 = 8 mm
12 = 12 mm
16 = 16 mm
20 = 20 mm
25 = 25 mm

Size	Replacement Shock Part No.
8	87460-01
12	87460-01
16	87460-02
20	87460-03
25	87460-03

Size	Max Energy per Cycle Nm	Max Energy per Hour Nm
8	1.8	2400
12	1.8	2400
16	3.2	5760
20	16	28800
25	16	28800



Size	Dimension D by Travel Length								
	10	20	30	40	50	75	100	125	150
8	22	27	26	18	29	29	-	-	-
12	6.6	16.6	26.6	24.6	14.6	27.6	27.6	-	-
16	11	21	31	31	26	32	32	-	-
20	27	37	47	47	43	29	49	49	49
25	25	35	45	45	43	27	48	46	46

Size	A	B	C	E	F	G	H
8	8	38	14.5	22	23.5	23.5	14.5
12	8	45	15	17.1	31.5	31.5	15
16	10	55	18	19	37.5	37.5	18
20	12	70	24.5	34	47.5	48	24.5
25	15	80	24.5	28	54.5	54.5	24.5

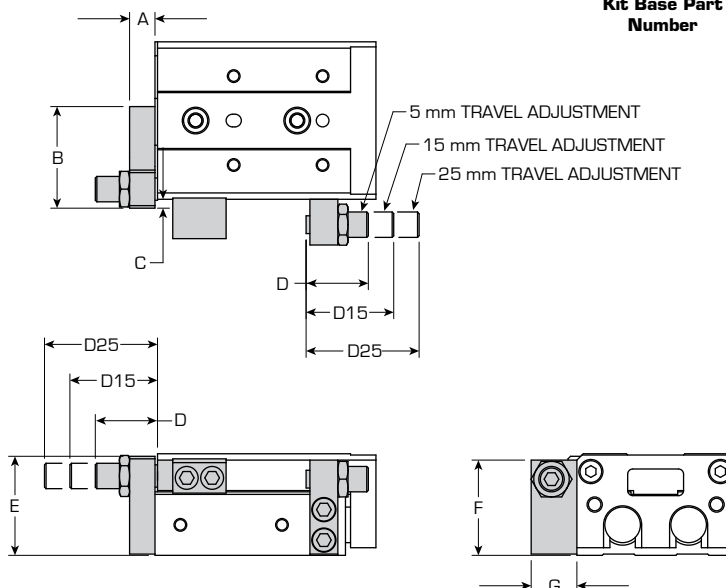
NOTES:

- Each shock kit includes 2 table mounted stop blocks. Shorter travel slides will use only 1 stop block. PHD recommends replacing shocks every 1.2 million cycles.
- Shocks/shock kits not available on size 6.

STROKE ADJUSTMENT KIT

87457 - 16 - 15Stroke Adjustment
Kit Base Part
Number

Slide Bore Size

06 = 6 mm
08 = 8 mm
12 = 12 mm
16 = 16 mm
20 = 20 mm
25 = 25 mmAdjustment
AmountBlank = 5 mm
15 = 15 mm
25 = 25 mm

Size	A	B	C	D	D15	D25	E	F	G
6	5	21	2.5	16.5	26.5	-	19.2	18	10
8	6	25	2	16.5	26.5	36.5	23	21.5	10
12	8	32	2.5	20	30	40	31.5	31.5	15
16	10	40	3.5	24.5	34.5	44.5	39	37	18
20	12	50	5	27.5	37.5	47.5	48.5	46.5	22.5
25	15	60	4.5	32.5	42.5	52.5	58	54.5	24.5

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

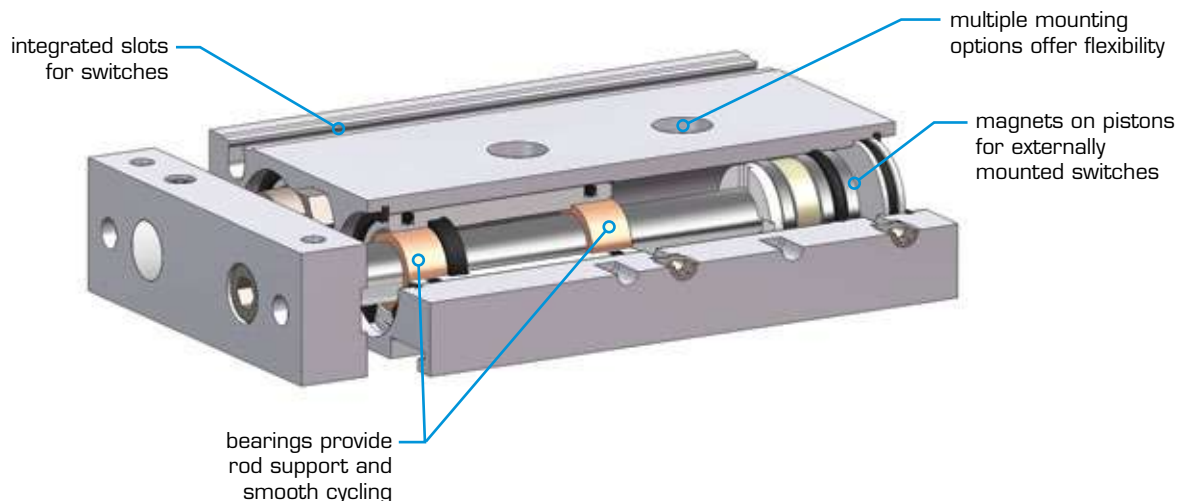
Pneumatic Light Duty Thruster Slides

BENEFITS

- Standard shock pads reduce end of travel impact
- 5 bore sizes with up to 7 travel lengths available to fit variety of applications
- Travel adjustment on retract
- Magnets standard for switch sensing capability
- Smooth linear motion at twice the thrust of a single bore size
- Drop-in metric mounting to match global standard
- Sizes 12 and 16 are drop-in compatible for competition sizes 10 and 15.



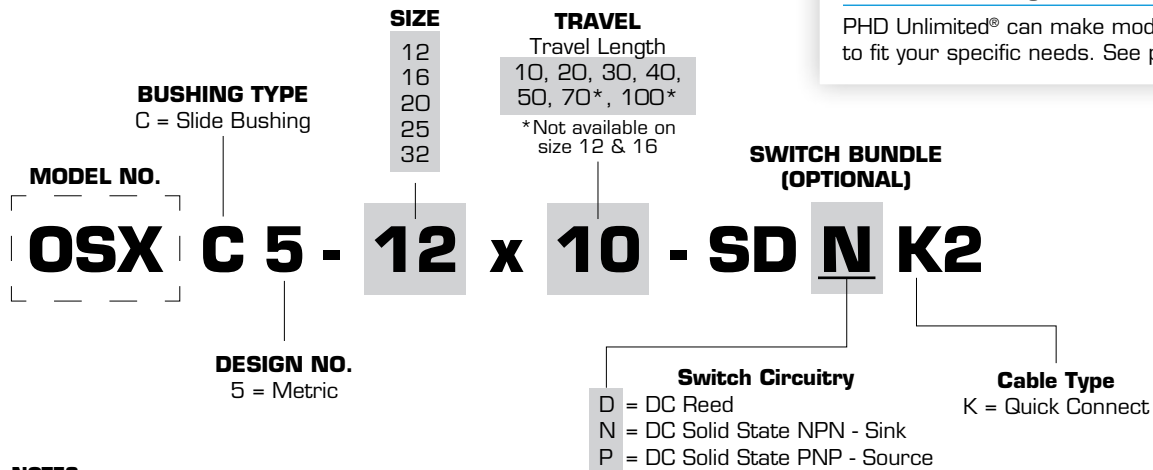
Component	Materials
Body	Anodized Aluminum Alloy
Tool Plate	
Rod Bearing Retainer	
Bore Plug	
Rod Seal	
Shock Pad	NBR
Piston Seal	
O-Rings	
Tool Plate Fasteners	
Piston Rods (size 12 thru 20)	Stainless Steel
Piston Rods (size 25 & 32)	
Port Plugs	Carbon Steel
Travel Adjustment	
Snap Ring	
Rod Bearings	PTFE and Bronze Composite





Need something different?

PHD Unlimited® can make modifications to fit your specific needs. See page 4.



NOTES:

- 1) Switch bundle includes 2 switches
- 2) Switch bundle available with actuator only
- 3) Switches available in Quick Connect only
- 4) Magnets standard for switch sensing

Switches

Part No.	Description
86725-0	Reed DC 5-30 V, 50 mA, Quick Connect
86726-0	Sink Type (NPN), DC 5-30 V, 50 mA, Quick Connect
86727-0	Source Type (PNP), DC 5-30 V, 50 mA, Quick Connect

Includes one switch.

Cordsets

Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.



CAD & Sizing Assistance

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

Specifications	Series OSX Slide
Operating Air Pressure	1-7 bar [14.5-101 psi]
Operating Temperature	5°-60°C [41°-140°F]
Velocity	50-500 mm/sec [2-20 in/sec]
Rated Life	3 million cycles
Lubrication	Factory lubricated for rated life

Lateral Load



Size	Rod Size	Effective Area	
		Direction	mm ² in ²
12	6	Extend	226 0.350
		Retract	170 0.264
16	8	Extend	402 0.623
		Retract	346 0.536
20	10	Extend	628 0.973
		Retract	471 0.730
25	12	Extend	982 1.522
		Retract	756 1.172
32	16	Extend	1608 2.492
		Retract	1206 1.869

Size	Unit Weight by Travel													
	10		20		30		40		50		70		100	
	kg	oz	kg	oz	kg	oz	kg	oz	kg	oz	kg	oz	kg	oz
12	0.14	4.9	0.16	5.6	0.18	6.3	0.20	7.1	0.22	7.8	—	—	—	—
16	0.23	8.1	0.26	9.2	0.28	9.9	0.31	10.9	0.34	12.0	—	—	—	—
20	0.39	13.8	0.43	15.2	0.47	16.6	0.50	17.6	0.54	19.0	0.63	22.2	0.73	25.7
25	0.62	21.9	0.67	23.6	0.73	25.7	0.78	27.5	0.84	29.6	0.96	33.9	1.11	39.1
32	1.10	38.8	1.18	41.6	1.27	44.8	1.35	47.6	1.44	50.8	1.66	58.5	1.88	66.3

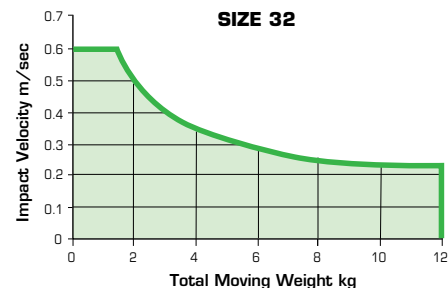
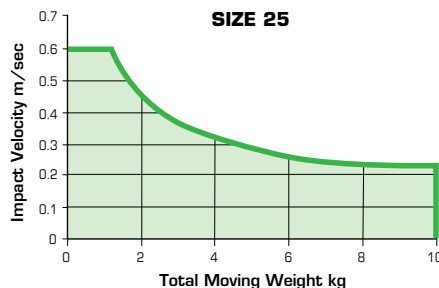
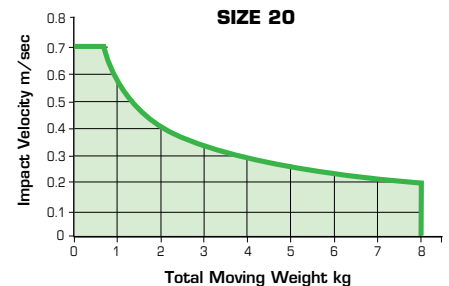
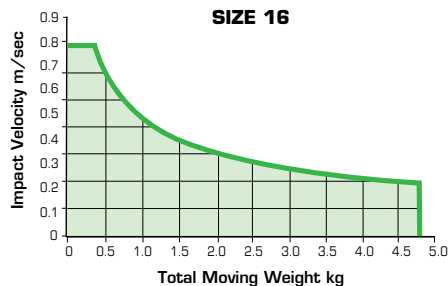
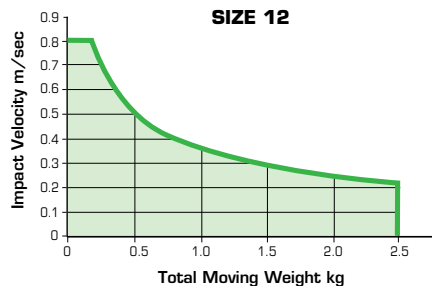
Size	Maximum Lateral Loads by Travel													
	10		20		30		40		50		70		100	
	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
12	0.23	0.50	0.20	0.44	0.15	0.33	0.13	0.29	0.12	0.26	—	—	—	—
16	0.54	1.20	0.48	1.06	0.40	0.88	0.35	0.77	0.30	0.66	—	—	—	—
20	0.91	2.00	0.85	1.87	0.74	1.63	0.65	1.43	0.58	1.28	0.40	0.88	0.30	0.66
25	1.48	3.25	1.35	2.98	1.18	2.60	1.03	2.27	0.90	1.98	0.68	1.50	0.52	1.15
32	2.40	5.29	2.25	4.96	1.95	4.30	1.75	3.86	1.55	3.42	1.18	2.60	0.90	1.98



Application & Sizing Assistance

Use PHD's free online
Product Sizing Application at
www.phdinc.com/apps/sizing

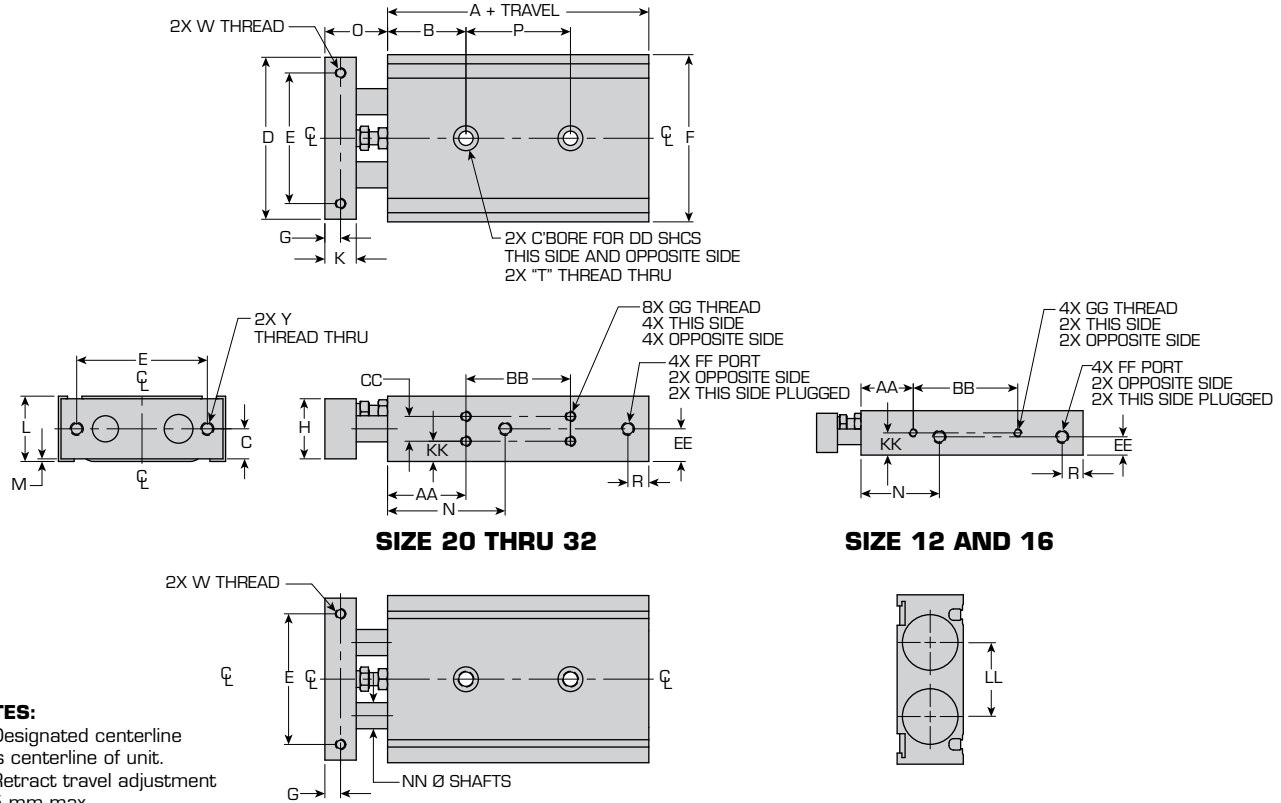
MAXIMUM ALLOWABLE KINETIC ENERGY



Size	Recommended Mounting Torques									
	Body Thru & C'Bore		Body Bottom Threads Unit (Mounting)		Body Side Threads Unit (Mounting)		Tool Plate Face (Tooling Mounting)		Tool Plate Top & Bottom (Tooling Mounting)	
	Nm	in-lb	Nm	in-lb	Nm	in-lb	Nm	in-lb	Nm	in-lb
12	1.7	15	2.8	25	1.7	15	2.8	25	1.7	15
16	2.8	25	4.5	40	2.8	25	4.5	40	2.8	25
20	4.5	40	7.5	66	2.8	25	4.5	40	2.8	25
25	7.5	66	18.1	160	4.5	40	7.5	66	4.5	40
32	7.5	66	18.1	160	4.5	40	7.5	66	4.5	40

NOTES:

- 1) Assumes use of at least 75% of full thread depth.
- 2) Assumes use of high strength steel socket head cap screws.
- 3) PHD recommends use of threadlocker.



Letter Dim	Size													
	12			16		20			25			32		
	10, 20	30, 40, 50		10, 20	30, 40, 50	10, 20	30, 40, 50	70, 100	10, 20	30, 40, 50	70, 100	10, 20	30, 40, 50	70, 100
A	55 + TRAVEL			60 + TRAVEL		70 + TRAVEL			72 + TRAVEL			82 + TRAVEL		
B	20			30		30			30			30		
C	8			9		11.5			14			18		
D	44			56		62			78			96		
E	35 ± 0.2			45 ± 0.2		50 ± 0.2			60 ± 0.2			75 ± 0.2		
F	46			58		64			80			98		
G	4			5		6			6			8		
H	16			18		23			28			36		
K	8			10		12			12			16		
L	18			20		25			30			38		
M	1			1		1			1			1		
N	30			38.5		45			46			56		
O	17			19		24			24			30		
P	30	40		25	35	30	40	60	30	40	60	40	50	70
R	8			8		8			9			10		
T	M4 x 0.7			M5 x 0.8		M6 x 1			M8 x 1.25			M8 x 1.25		
Y	M4 x 0.7			M5 x 0.8		M5 x 0.8			M6 x 1			M6 x 1		
W	M3 x 0.5 x 5 DP			M4 x 0.7 x 6 DP		M4 x 0.7 x 6 DP			M5 x 0.8 x 7.5 DP			M5 x 0.8 x 8 DP		
AA	20			30		30			30			30		
BB	30	40		25	35	30	40	60	30	40	60	40	50	70
CC	-			-		9.5			13			20		
DD	M3			M4		M5			M6			M6		
EE	10			10		12.5			15			19		
FF	M5			M5		M5			G 1/8			G 1/8		
GG	M3 x 0.5 x 4.5 DP			M4 x 0.7 x 5 DP		M4 x 0.7 x 5.5 DP			M5 x 0.8 x 7.5 DP			M5 x 0.8 x 7.5 DP		
KK	8.5			10		7.75			8.5			9		
LL	19			25		28			35			44		
NN	Ø 6			Ø 8		Ø 10			Ø 12			Ø 16		

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.
ALL DIMENSIONS ARE mm.

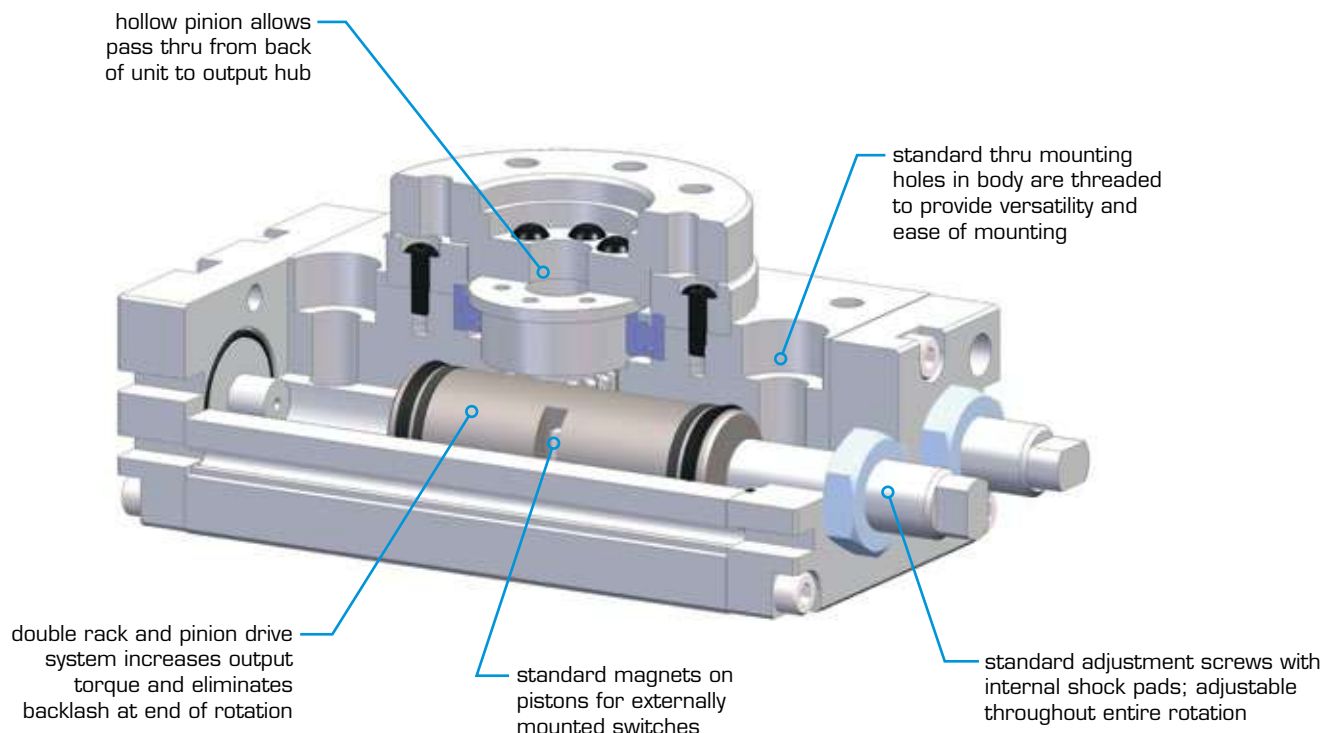
Pneumatic Compact Rotary Tables

BENEFITS

- Available in 6 sizes
- Standard adjustment screws with integral shock pads
- Standard thru mounting holes in body are threaded to provide versatility and ease of mounting
- Double rack and pinion drive system increases output torque and eliminates backlash at end of rotation
- Hollow pinion allows pass thru from back of unit to output hub
- Standard magnets on pistons for externally mounted switches
- Drop-in replacement for other manufacturers



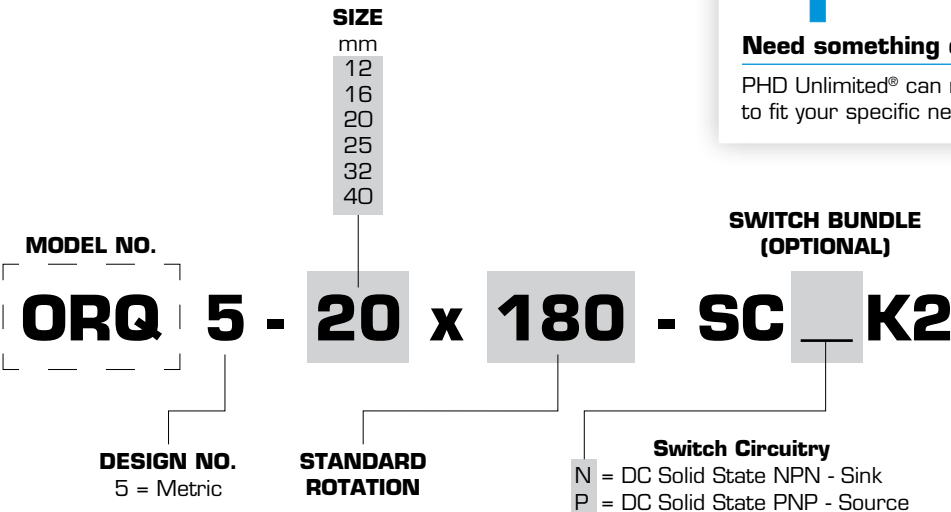
Component	Materials
Body	Anodized Aluminum Alloy
Bearing Retainer	
Output Hub	
Pinion	High strength steel
Ball Bearing	Bearing steel
Piston Adjustment Screw	Stainless Steel
Adjustment Nut Fasteners	Carbon Steel
O-Ring & Piston Seal	NBR





Need something different?

PHD Unlimited® can make modifications to fit your specific needs. See page 4.



- NOTES:
- 1) Switch bundle option includes 2 switches
 - 2) Switch bundle available with actuator only
 - 3) Switches available in quick connect only
 - 4) Magnets standard for switch sensing

Cordsets

Model No.	Cable Length
63549-02	78.74 in [2 m]
63549-05	196.85 in [5 m]

Includes one cordset.

Switches

Part No.	Description
88195	Sink Type (NPN), DC 4.5-28 V, 50 mA, Quick Connect
88196	Source Type (PNP), DC 4.5-28 V, 50 mA, Quick Connect

Includes one switch.



CAD & Sizing Assistance

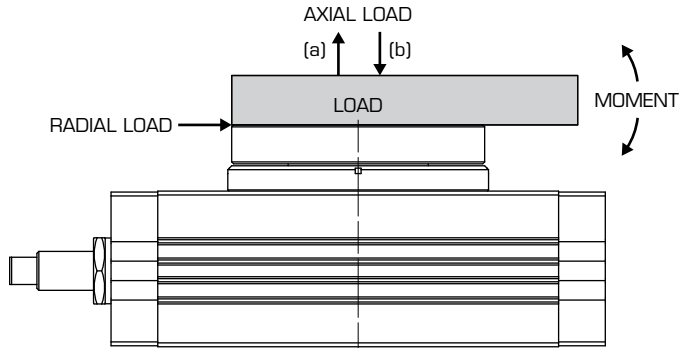
Use PHD's free online Product Sizing and CAD Configurator at www.phdinc.com/myphd



Specifications	Series ORQ Compact Rotary Table					
	12 mm	16 mm	20 mm	25 mm	32 mm	40 mm
Operating Pressure	1-7 bar [14.5-101.5 psi]		1-10 bar [14.5-145 psi]			
Operating Temperature	0°-60°C [32°-140°F]					
Rated Life	3 million cycles					
Angle Adjustment Range	0°-190°					
Backlash *	0° at end of rotation					
Lubrication	Factory lubricated for rated life					
Rotation Time Adjustment for Stable Operation (s/90°)	0.2-1.0				0.2-2.0	0.2-2.5
Allowable Kinetic Energy (J)	0.006	0.007	0.048	0.081	0.32	0.56
Unit Weight (kg)	0.25	0.60	1.31	2.10	4.18	7.67

NOTE: *Angle adjustment screws must be engaged or adjusted to achieve 0° backlash

Size	Recommended Mounting Torques							
	Body Thru and Counterbore		Bottom Body Threads		Top Body Threads		Table Threads	
	Nm	in-lb	Nm	in-lb	Nm	in-lb	Nm	in-lb
12	2.8	25	4.5	40	2.8	25	2.8	25
16	9	80	20	175	4.5	40	4.5	40
20	20	175	39	345	9	80	9	80
25	39	345	51	450	20	175	20	175
32	39	345	51	450	20	175	39	345
40	51	450	110	975	51	450	51	450



Size	Theoretical Torque Output		Max Radial Bearing Load		Max Axial Bearing Load				Maximum Applied Moment	
	Nm/bar	in-lb/psi	N	lb	(a)		(b)		Nm	in-lb
12	0.10	0.06	54	12	71	16	71	16	1.5	13
16	0.26	0.16	78	18	74	17	78	18	2.4	21
20	0.50	0.31	197	44	197	44	363	82	5.3	47
25	0.90	0.55	314	71	296	67	451	101	9.7	86
32	1.89	1.15	390	88	493	111	708	159	18	159
40	3.76	2.29	543	122	740	166	1009	227	25	221

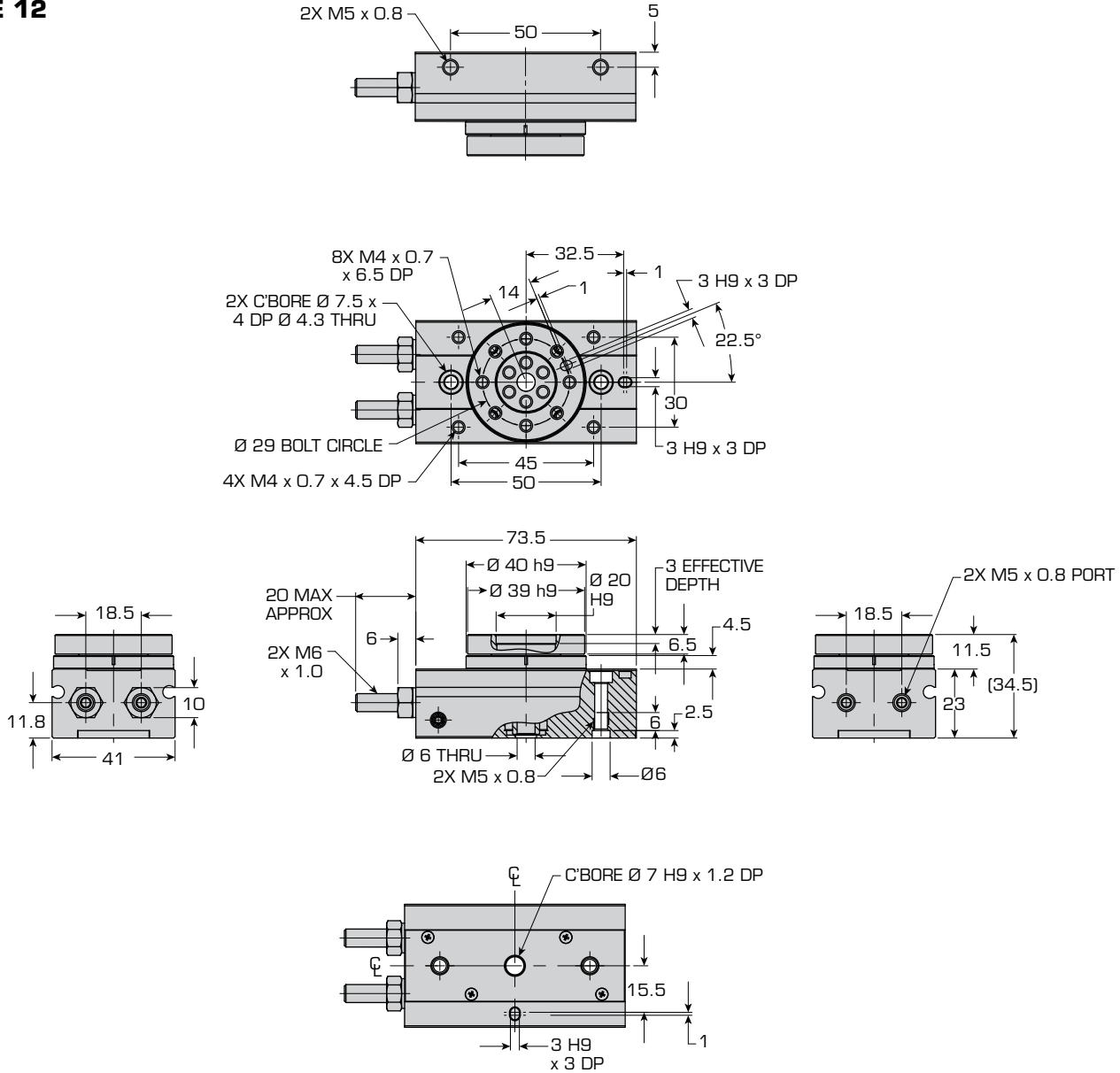
NOTE: PHD online sizing software does not provide for the (a) axial loading.



Application & Sizing Assistance

Use PHD's free online Product Sizing Application at www.phdinc.com/apps/sizing

SIZE 12

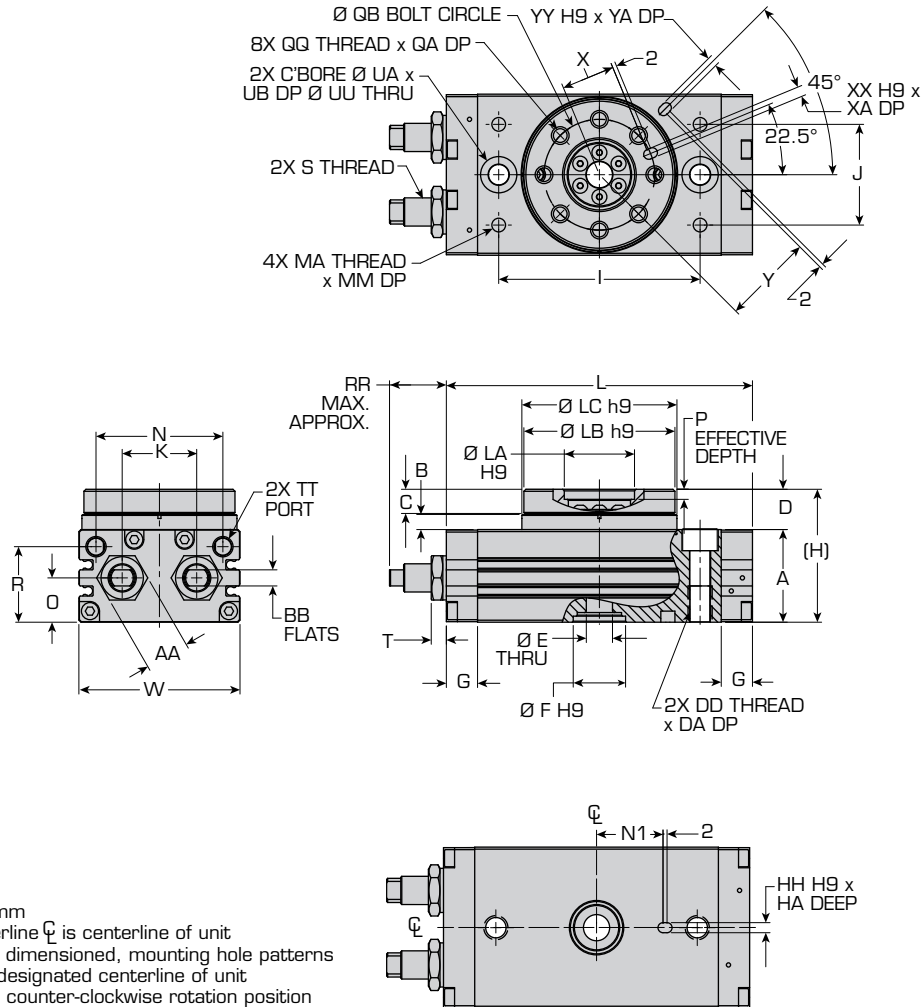


NOTES:

- 1) Dimensions are mm
- 2) Designated centerline CL is centerline of unit
- 3) Unless otherwise dimensioned, mounting hole patterns are centered on designated centerline of unit
- 4) Unit shown at full counter-clockwise rotation position

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.

SIZE 16, 20 & 25



NOTES:

- 1) Dimensions are mm
- 2) Designated centerline $\bar{C}$ is centerline of unit
- 3) Unless otherwise dimensioned, mounting hole patterns are centered on designated centerline of unit
- 4) Unit shown at full counter-clockwise rotation position

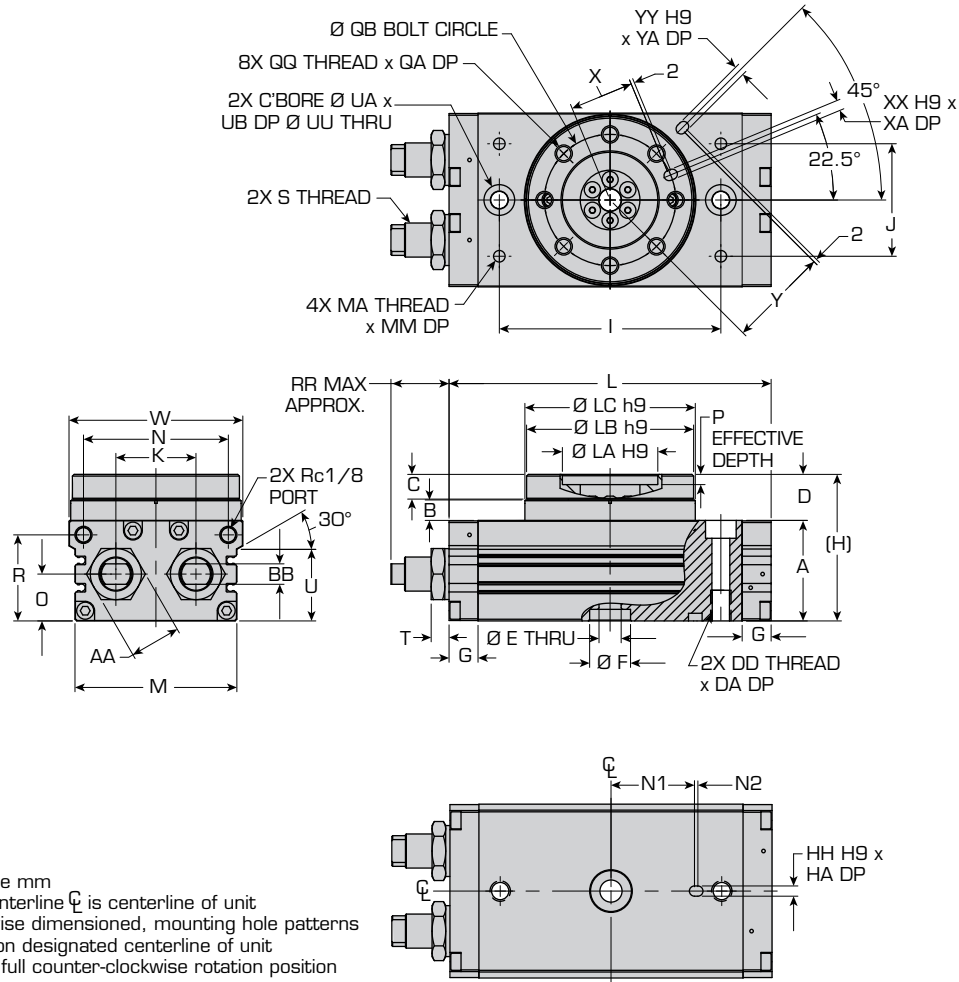
Size	A	AA	B	BB	C	D	DA	DD	ØE	ØF H9	G	H	HA	ØHH H9	I
16	34	14	4.5	7	8	13	12	M8 x 1.25	6	15	9.5	47	3.5	3	60
20	40	17	6.5	8	10	17	15	M10 x 1.5	10	22	12	57	4.5	4	84
25	46	22	7.5	8	12	20	18	M12 x 1.75	13	26	15.5	66	5.5	5	100

Size	J	K	L	ØLA H9	ØLB h9	ØLC h9	MA	MM	N	N1	O	P	QA	ØQB
16	27	26	92	20	45	46	M5 x 0.8	8	37	19	15.5	4	8	32
20	37	32	127	32	65	67	M6 x 1	8	54	28	19.5	4.5	10	48
25	50	37	152	35	75	77	M8 x 1.25	8	63	33	22	5	12	55

Size	QQ	R	RR	S	T	TT	ØUA	UB	ØUU	W	X	XA	XX H9	Y	YA	YY H9
16	M5 x 0.8	29	31	M10 x 1	5.5	M5 x 0.8	11	6.5	6.8	50	15	3.5	3	27	3.5	3
20	M6 x 1	33	23	M10 x 1	4.5	Rc 1/8	14	8.5	8.6	70	23	4.5	4	39	4.5	4
25	M8 x 1.25	37.5	28	M14 x 1.5	7.5	Rc 1/8	18	10.5	10.5	80	26.5	5.5	5	45	5.5	5

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.

SIZE 32 & 40



NOTES:

- 1) Dimensions are mm
- 2) Designated centerline $\bar{C}$ is centerline of unit
- 3) Unless otherwise dimensioned, mounting hole patterns are centered on designated centerline of unit
- 4) Unit shown at full counter-clockwise rotation position

Size	A	AA	B	BB	C	D	DA	DD	ØE	ØF H9	G	H	HA	HH H9	I	J
32	59	30	12	12	14.5	27	18	M12 x 1.75	13	24	17	86	4.5	6	130	66
40	74	36	15	21	16.5	32	25	M16 x 2	24	32	24	106	6.5	8	150	80

Size	K	L	ØLA H9	ØLB h9	ØLC h9	M	MA	MM	N	N1	N2	O	P	QA	ØQB
32	47	189	56	98	100	95	M8 x 1.25	10	85	49	2	27.5	6	14.5	77
40	60	240	64	116	118	113	M12 x 1.75	13	100	54	2	37	9	16.5	90

Size	QQ	R	RR	S	T	U	ØUA	UB	ØUU	W	X	XA	XX H9	Y	YA	YY H9
32	M10 x 1.5	50.5	34	M20 x 1.5	10.5	42	18	10.5	10.5	102	37.5	6.5	6	59	4.5	6
40	M12 x 1.75	65.5	45	M27 x 1.5	7	57	20	12.5	14.2	120	44	8.5	8	69	4.5	8

ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED.