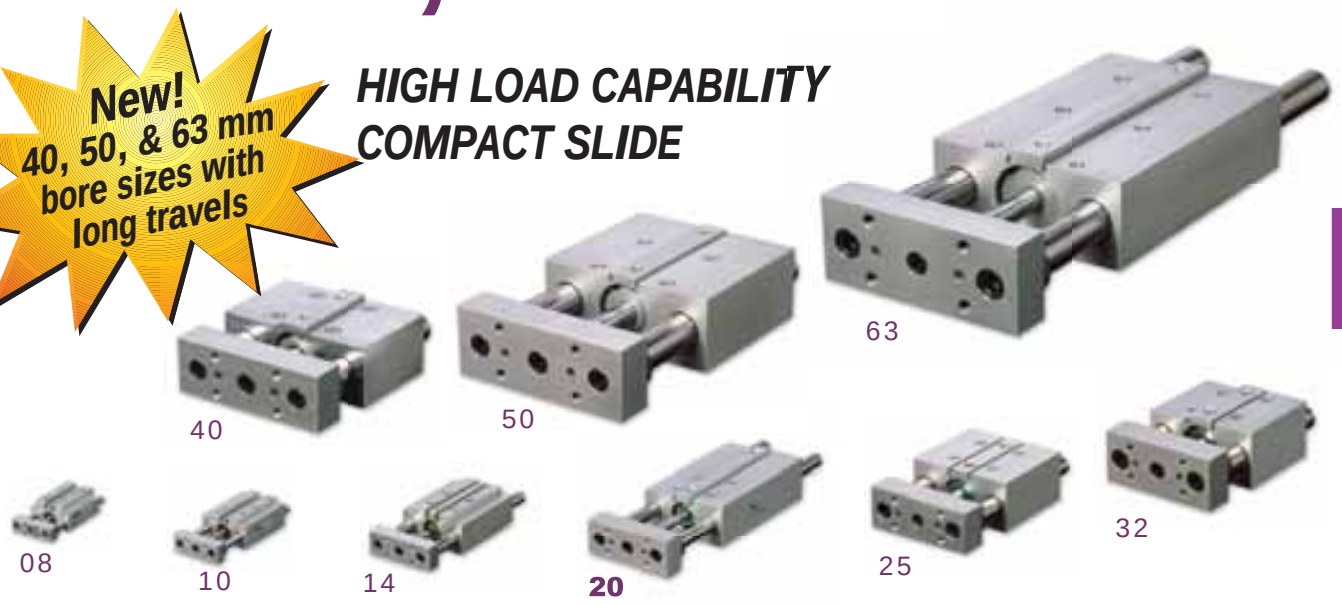
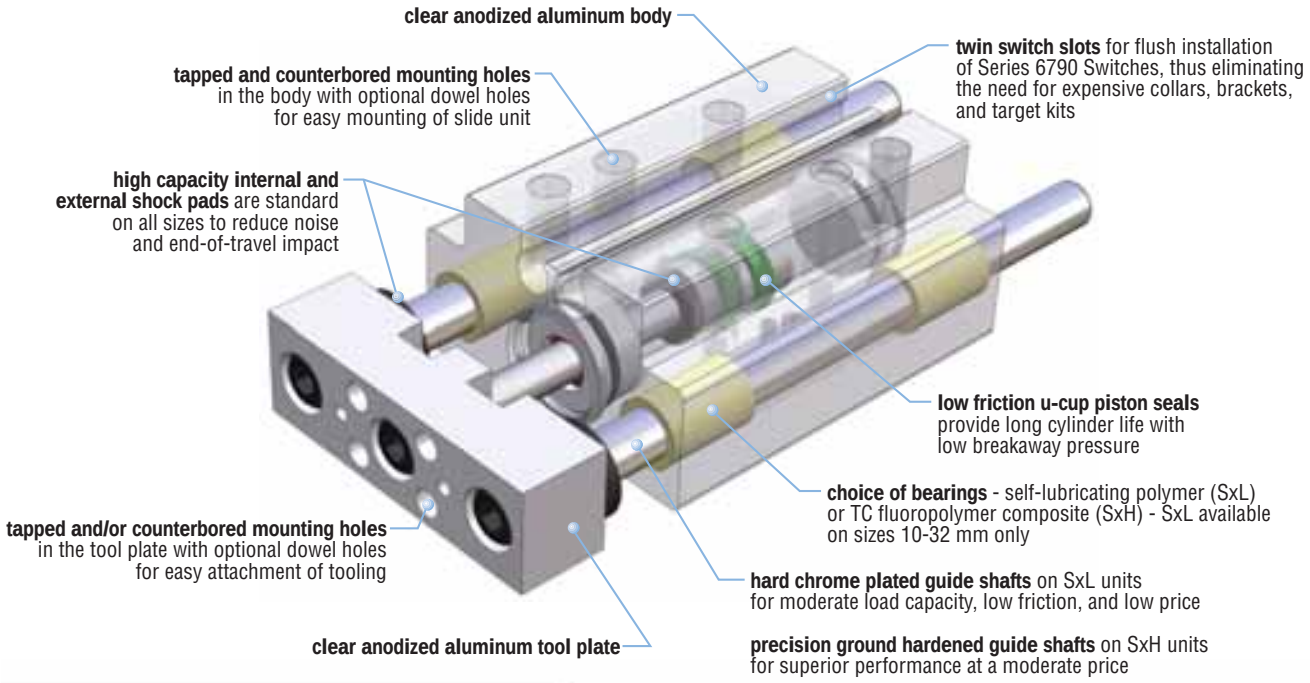
SxL, SxH

New! 40, 50, & 63 mm bore sizes with long travels

HIGH LOAD CAPABILITY COMPACT SLIDE





Major Benefits

- Choose from two bearing types (2 bearings per shaft, 4 total)
- Nine bore sizes
- No metal to metal contact
- Completely corrosion resistant options provide protection in harsh environments
- All units incorporate twin switch slots for flush switch mounting
- Ships next day

Industry Uses

- Material handling – conveyor
- Assembly machine builders
- Labeling equipment
- Bearing manufacturers
- Automotive
- Semiconductor
- Optical

ORDERING DATA: SERIES SxL/SxH SLIDES

TO ORDER SPECIFY:
Product, Series, Type, Design No., Bore Size, Travel, and Miscellaneous Options.

PRODUCT
S - Slide

TYPE
L - Polymer bushing (see note 1)
H - Heavy duty precision TC composite bushing

BORE SIZE (mm)
08
10
14
20
25
32
40
50
63

CORROSION RESISTANCE
Q6 - Total corrosion resistant guide shafts
Z1 - Total corrosion resistant unit

MAGNET
M - Magnetic piston for PHD Series 6790 Switches

DOWEL HOLES
(see availability table below)
J3 - Transitional fit
J4 - Clearance fit (imperial only)
J8 - Precision fit (metric only)

S	A	L	1	10	x	1/2	–	Z1	–	AE	–	M	–	J3

SERIES
A - Threaded tool plate
B - Counterbore holes in tool plate

DESIGN NO.
1 - Imperial - ports and mounting holes are imperial
5 - Metric - ports and mounting holes are metric

TRAVEL (see note 4)

UNIT & BORE SIZE	IMPERIAL (in)		METRIC (mm)	
SAL/SBL	STANDARD		STANDARD	
10	1/2, 1, 1-1/2		12, 25, 40	
14	1/2, 1, 1-1/2		12, 25, 40	
20, 25, 32	1, 2, 3		25, 50, 75	
SAH/SBH	STANDARD	LONG	STANDARD	LONG
08	1/2, 1, 1-1/2	–	12, 25, 40	–
10	1/2, 1, 1-1/2	2, 3, 4	12, 25, 40	–
14	1/2, 1, 1-1/2	2, 3, 4, 5, 6	12, 25, 40	–
20, 25, 32	1, 2, 3	4, 5, 6, 7, 8	25, 50, 75	–
40, 50, 63	1, 2, 3	4, 5, 6, 7, 8	50, 75	100

TRAVEL ADJUSTMENT
AE - Extend travel adjustment

SERIES 6790 PROXIMITY SWITCHES

PART NO.	DESCRIPTION
67902-1-02	NPN (Sink) or PNP (Source) DC Reed, 2 m cable
67902-1-05	NPN (Sink) or PNP (Source) DC Reed, 5 m cable
67903-1-02	NPN (Sink) DC Solid State, 2 m cable
67903-1-05	NPN (Sink) DC Solid State, 5 m cable
67904-1-02	PNP (Source) DC Solid State, 2 m cable
67904-1-05	PNP (Source) DC Solid State, 5 m cable
67922-1	NPN (Sink) or PNP (Source) DC Reed, Quick Connect
67929-2	AC Reed, Current Limited, Quick Connect
67923-1	NPN (Sink) DC Solid State, Quick Connect
67924-1	PNP (Source) DC Solid State, Quick Connect
63549-02	2 m Cordset with Quick Connect
63549-05	5 m Cordset with Quick Connect

UNIQUE SLIDES ARE AVAILABLE. PLEASE CONSULT PHD.

NOTES:
1) L - Polymer bushing not available on size 08, 40, 50, & 63 mm bore units.
2) Shock pads are standard on extend and retract for all sizes. Retract shock pads are located on the guide shafts. Extend shock pad is located internally on the piston.
3) -AE option (stop collars) is recommended for high cycle speed applications and high load applications. Extend shock pads are included with the -AE option to remove impact load from the piston rod.
4) ** Long travel units are available standard on imperial units. 100 mm long travel units are available on metric sizes 40, 50, & 63. Contact PHD for longer travel metric units.

DOWEL HOLE AVAILABILITY

DESIGN NO.	ITEM	DOWEL HOLES	J3	J4	J8
1 (IMPERIAL)	HOUSING	(J3 STD)	STD	OPT	–
	SAx TOOL PLATE	NONE	OPT	OPT	–
	SBx TOOL PLATE	(J3 STD)	STD	OPT	–
2 (METRIC)	HOUSING	PD	OPT	–	OPT
	SAx TOOL PLATE	PD	OPT	–	OPT
	SBx TOOL PLATE	PD	OPT	–	OPT

NOTES:
1) SEE DOWEL HOLE DIAMETERS TABLE FOR DIMENSIONAL INFORMATION.
2) STD = Standard OPT = Optional PD = Production Diameter

SPECIFICATIONS	SERIES SxL / SxH
OPERATING PRESSURE	30 to 150 psi [2 to 10 bar]
OPERATING TEMPERATURE	-20° to 180°F [-29° to 82°C]
TRAVEL TOLERANCE	Nominal travel +.080/-.000 [+2 mm/-0 mm]
LUBRICATION	Factory lubricated for rated life
MAINTENANCE	Field repairable

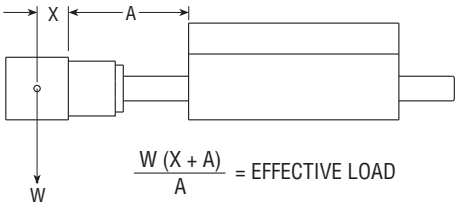
CYLINDER FORCE CALCULATIONS

		IMPERIAL	METRIC
		F = P x A	F = 0.1 x P x A
F	= Cylinder Force	lbs	N
P	= Operating Pressure	psi	bar
A	= Effective Area	in^2	mm^2

SIZE	TRAVEL in	TRAVEL mm	SHAFT DIAMETER in	SHAFT DIAMETER mm	BORE DIAMETER in	BORE DIAMETER mm	EFFECTIVE AREA DIRECTION	EFFECTIVE AREA in^2	EFFECTIVE AREA mm^2	BASE WEIGHT lb	BASE WEIGHT kg	MAX. STATIC LOAD SxL lb	MAX. STATIC LOAD SxL N	MAX. STATIC LOAD SxH lb	MAX. STATIC LOAD SxH N	TYPICAL DYNAMIC LOAD lb	TYPICAL DYNAMIC LOAD N
08	1/2	12	.197	5	.315	8	EXTEND	.078	50.3	.24	.11	—	—	46	205	0 - 1	0 - 4.5
	1	25					RETRACT	.058	37.4	.29	.13	—	—	33	147		
	1 1/2	40								.34	.15	—	—	26	116		
10	1/2	12	.236	6	.394	10	EXTEND	.122	78.7	.28	.13	60	267	82	365	1 - 2	4.5 - 8.9
	1	25					RETRACT	.091	58.7	.36	.16	44	196	59	262		
	1 1/2	40								.44	.20	34	151	46	205		
	2	—								.52	—	—	—	37	—		
	3	—								.68	—	—	—	27	—		
	4	—								.84	—	—	—	21	—		
14	1/2	12	.394	10	.551	14	EXTEND	.238	154	.79	.36	210	934	344	1530	2 - 6	8.9 - 26.7
	1	25					RETRACT	.195	126	.95	.43	190	845	254	1130		
	1 1/2	40								1.11	.50	150	667	202	898		
	2	—								1.27	—	—	—	165	—		
	3	—								1.59	—	—	—	123	—		
	4	—								1.91	—	—	—	98	—		
	5	—								2.23	—	—	—	81	—		
	6	—								2.55	—	—	—	69	—		
20	1	25	.472	12	.787	20	EXTEND	.487	314	1.72	.78	280	1245	378	1681	6 - 12	26.7 - 53.4
	2	50					RETRACT	.409	264	2.26	1.03	190	845	260	1156		
	3	75								2.80	1.27	150	667	198	881		
	4	—								3.34	—	—	—	158	—		
	5	—								3.88	—	—	—	133	—		
	6	—								4.42	—	—	—	114	—		
	7	—								4.96	—	—	—	100	—		
	8	—								5.50	—	—	—	89	—		
25	1	25	.630	16	.984	25	EXTEND	.761	491	2.79	1.27	423	1882	738	3284	10 - 16	44.5 - 71.2
	2	50					RETRACT	.639	412	3.62	1.64	419	1865	489	2176		
	3	75								4.45	2.02	323	1437	380	1691		
	4	—								5.27	—	—	—	312	—		
	5	—								6.10	—	—	—	264	—		
	6	—								6.92	—	—	—	229	—		
	7	—								7.75	—	—	—	202	—		
	8	—								8.58	—	—	—	180	—		
32	1	25	.787	20	1.260	32	EXTEND	1.247	805	3.89	1.76	528	2349	1325	5894	12 - 25	53.4 - 111
	2	50					RETRACT	1.071	691	4.97	2.25	523	2326	950	4226		
	3	75								6.05	2.74	520	2313	750	3336		
	4	—								7.13	—	—	—	605	—		
	5	—								8.21	—	—	—	515	—		
	6	—								9.24	—	—	—	445	—		
	7	—								10.32	—	—	—	393	—		
	8	—								11.40	—	—	—	352	—		
40	1	—	.984	25	1.575	40	EXTEND	1.948	1256.8	6.86	—	—	—	1947	—	16 - 75	71 - 334
	2	50					RETRACT	1.636	1055.5	8.57	3.86	—	—	1740	7740		
	3	75								10.28	4.64	—	—	1374	6112		
	4	100								11.99	5.41	—	—	1136	5053		
	5	—								13.70	—	—	—	968	—		
	6	—								15.41	—	—	—	843	—		
	7	—								17.12	—	—	—	747	—		
	8	—								18.83	—	—	—	671	—		
50	1	—	1.181	30	1.969	50	EXTEND	3.043	1963.2	10.94	—	—	—	2888	—	25 - 100	111 - 445
	2	50					RETRACT	2.556	1649.0	13.43	6.08	—	—	2859	12717		
	3	75								15.92	7.21	—	—	2282	10151		
	4	100								18.41	8.34	—	—	1899	8447		
	5	—								20.90	—	—	—	1626	—		
	6	—								23.39	—	—	—	1422	—		
	7	—								25.88	—	—	—	1263	—		
	8	—								28.37	—	—	—	1137	—		
63	1	—	1.374	34.9	2.480	63	EXTEND	4.832	3117.4	17.26	—	—	—	3823	—	75 - 150	334 - 668
	2	50					RETRACT	4.345	2803.2	20.64	9.34	—	—	3805	16925		
	3	75								24.03	10.87	—	—	3555	15813		
	4	100								27.41	12.41	—	—	2964	13185		
	5	—								30.79	—	—	—	2542	—		
	6	—								34.18	—	—	—	2225	—		
	7	—								37.56	—	—	—	1978	—		
	8	—								40.94	—	—	—	1781	—		

EFFECTIVE LOAD

All of the loads in this catalog are given at the front of the extended tool plate. When the load is attached to the tool plate, use the following formula and chart to calculate the effective load. **This method of finding the effective load must be used for all the load carrying specifications and charts in this catalog.**



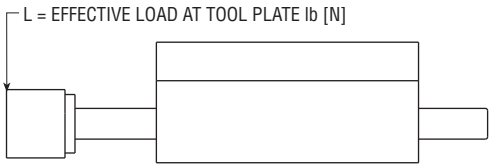
SIZE	TRAVEL in	TRAVEL mm	A in	A mm
08	1/2	12	.937	23.8
	1	25	1.437	36.5
	1-1/2	40	1.937	49.2
10	1/2	12	.937	23.8
	1	25	1.437	36.5
	1-1/2	40	1.937	49.2
	2	—	2.437	—
	3	—	3.437	—
	4	—	4.437	—
14	1/2	12	1.062	27.0
	1	25	1.562	39.7
	1-1/2	40	2.062	52.4
	2	—	2.562	—
	3	—	3.562	—
	4	—	4.562	—
	5	—	5.562	—
	6	—	6.562	—

SIZE	TRAVEL in	TRAVEL mm	A in	A mm
20	1	25	1.875	47.6
	2	50	2.875	73.0
	3	75	3.875	98.4
	4	—	4.875	—
	5	—	5.875	—
	6	—	6.875	—
	7	—	7.875	—
	8	—	8.875	—
25	1	25	2.074	52.7
	2	50	3.074	78.1
	3	75	4.074	103.5
	4	—	5.074	—
	5	—	6.074	—
	6	—	7.074	—
	7	—	8.074	—
	8	—	9.074	—
32	1	25	2.188	55.6
	2	50	3.188	81.0
	3	75	4.188	106.4
	4	—	5.188	—
	5	—	6.188	—
	6	—	7.188	—
	7	—	8.188	—
	8	—	9.188	—

SIZE	TRAVEL in	TRAVEL mm	A in	A mm
40	1	—	2.341	—
	2	50	3.431	86.3
	3	75	4.431	111.3
	4	100	5.431	136.3
	5	—	6.431	—
	6	—	7.431	—
	7	—	8.431	—
	8	—	9.431	—
50	1	—	2.627	—
	2	50	3.627	91.3
	3	75	4.627	116.3
	4	100	5.627	141.3
	5	—	6.627	—
	6	—	7.627	—
	7	—	8.627	—
	8	—	9.627	—
63	1	—	2.687	—
	2	50	3.687	92.8
	3	75	4.687	117.8
	4	100	5.687	142.8
	5	—	6.687	—
	6	—	7.687	—
	7	—	8.687	—
	8	—	9.687	—

BREAKAWAY

Breakaway pressure is affected by several factors including the load at the tool plate, slide travel, and lubrication condition of the unit. The following formulas yield approximate breakaway pressure for the Series SxL/SxH Slides.



APPROXIMATE BREAKAWAY PRESSURE

SIZE	SxL psi	SxL bar	SxH psi	SxH bar
08	—	—	(L x 13.78) + 20	(L x 0.214) + 1.38
10	(L x 7.03) + 20	(L x 0.109) + 1.38	(L x 8.34) + 20	(L x 0.129) + 1.38
14	(L x 2.87) + 20	(L x 0.044) + 1.38	(L x 3.48) + 20	(L x 0.054) + 1.38
20	(L x 1.17) + 20	(L x 0.018) + 1.38	(L x 1.47) + 20	(L x 0.023) + 1.38
25	(L x 0.69) + 20	(L x 0.011) + 1.38	(L x 0.87) + 20	(L x 0.013) + 1.38
32	(L x 0.37) + 20	(L x 0.006) + 1.38	(L x 0.48) + 20	(L x 0.008) + 1.38
40	—	—	(L x 0.31) + 20	(L x 0.0046) + 1.38
50	—	—	(L x 0.19) + 20	(L x 0.0029) + 1.38
63	—	—	(L x 0.10) + 20	(L x 0.0015) + 1.38

SIZING AND APPLICATION ASSISTANCE
See PHD Product Sizing Catalog for specific and complete sizing information.
Online sizing assistance is available at:
www.phdinc.com/apps/sizing

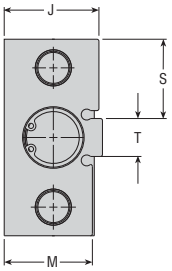
SLIDE SPEEDS

Slide speeds and time required for the slide to extend or retract are dependent upon many application conditions. The table below shows the approximate speed and time for units with no load and with a typical attached load weight as listed to the right of the table. **NOTE:** Flow controls are highly recommended to control impact velocity within maximum allowable kinetic energy as specified in the Sizing Catalog.

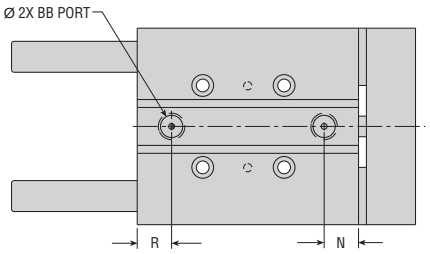
			NO LOAD, MAX VELOCITY						WITH GIVEN LOAD TOTAL, MAX KE WITH -AE OPTION							
			EXTEND			RETRACT			EXTEND			RETRACT			TOTAL MOVING LOAD WEIGHT	
	TRAVEL		TIME	PEAK SPEED		TIME	PEAK SPEED		TIME	IMPACT SPEED		TIME	IMPACT SPEED			
SIZE	in	mm	sec	in/sec	m/sec	sec	in/sec	m/sec	sec	in/sec	m/sec	sec	in/sec	m/sec	lb	N
08	1/2	12	.023	86	2.18	.026	70	1.78	.079	24	0.61	.079	24	0.61		
	1	25	.030	105	2.67	.034	93	2.36	.092	24	0.61	.092	24	0.61	1	4.4
	1-1/2	40	.037	130	3.30	.042	115	2.92	.110	24	0.61	.110	24	0.61		
10	1/2	12	.023	86	2.18	.026	84	2.13	.085	24	0.61	.085	24	0.61		
	1	25	.030	105	2.67	.033	100	2.54	.113	24	0.61	.119	24	0.61		
	1-1/2	40	.037	130	3.30	.040	120	3.05	.140	24	0.61	.152	24	0.61	2	8.9
	2	—	.044	130	3.30	.047	120	3.05	.165	24	0.61	.166	24	0.61		
	3	—	.058	130	3.30	.061	120	3.05	.216	24	0.61	.217	24	0.61		
	4	—	.072	130	3.30	.075	120	3.05	.268	24	0.61	.269	24	0.61		
14	1/2	12	.024	82	2.08	.024	82	2.08	.082	24	0.61	.082	24	0.61		
	1	25	.032	98	2.49	.032	98	2.49	.113	24	0.61	.114	24	0.61		
	1-1/2	40	.040	120	3.05	.040	120	3.05	.143	24	0.61	.145	24	0.61		
	2	—	.048	120	3.05	.048	120	3.05	.165	24	0.61	.166	24	0.61	4	17.8
	3	—	.064	120	3.05	.064	120	3.05	.216	24	0.61	.217	24	0.61		
	4	—	.080	120	3.05	.080	120	3.05	.268	24	0.61	.269	24	0.61		
	5	—	.096	120	3.05	.096	120	3.05	.320	24	0.61	.321	24	0.61		
	6	—	.112	120	3.05	.112	120	3.05	.371	24	0.61	.372	24	0.61		
20	1	25	.040	100	2.54	.040	100	2.54	.139	24	0.61	.143	24	0.61		
	2	50	.056	110	2.79	.056	110	2.79	.191	24	0.61	.195	24	0.61		
	3	75	.072	110	2.79	.072	110	2.79	.242	24	0.61	.246	24	0.61		
	4	—	.088	110	2.79	.088	110	2.79	.294	24	0.61	.298	24	0.61	10	44.5
	5	—	.104	110	2.79	.104	110	2.79	.346	24	0.61	.350	24	0.61		
	6	—	.120	110	2.79	.120	110	2.79	.397	24	0.61	.401	24	0.61		
	7	—	.136	110	2.79	.136	110	2.79	.449	24	0.61	.453	24	0.61		
	8	—	.152	110	2.79	.152	110	2.79	.501	24	0.61	.505	24	0.61		
25	1	25	.044	78	1.98	.047	78	1.98	.132	24	0.61	.137	24	0.61		
	2	50	.067	75	1.91	.070	75	1.91	.184	24	0.61	.189	24	0.61		
	3	75	.090	72	1.83	.093	72	1.83	.235	24	0.61	.240	24	0.61		
	4	—	.113	72	1.83	.116	72	1.83	.287	24	0.61	.292	24	0.61	16	71.2
	5	—	.136	72	1.83	.139	72	1.83	.339	24	0.61	.344	24	0.61		
	6	—	.159	72	1.83	.162	72	1.83	.390	24	0.61	.395	24	0.61		
	7	—	.182	72	1.83	.185	72	1.83	.442	24	0.61	.447	24	0.61		
	8	—	.205	72	1.83	.208	72	1.83	.494	24	0.61	.499	24	0.61		
32	1	25	.051	50	1.27	.057	42	1.07	.126	24	0.61	.132	24	0.61		
	2	50	.082	48	1.22	.093	40	1.02	.178	24	0.61	.184	24	0.61		
	3	75	.113	46	1.17	.129	38	0.97	.229	24	0.61	.235	24	0.61		
	4	—	.144	46	1.17	.165	38	0.97	.281	24	0.61	.287	24	0.61	25	111.2
	5	—	.175	46	1.17	.201	38	0.97	.333	24	0.61	.339	24	0.61		
	6	—	.206	46	1.17	.237	38	0.97	.384	24	0.61	.390	24	0.61		
	7	—	.237	46	1.17	.273	38	0.97	.436	24	0.61	.442	24	0.61		
	8	—	.268	46	1.1	.309	38	0.97	.488	24	0.61	.494	24	0.61		
40	1	—	.064	68	1.73	0.070	61	1.55	.131	24	0.61	0.142	24	0.61		
	2	50	.091	82	2.08	0.100	71	1.80	.183	24	0.61	0.194	24	0.61		
	3	75	.118	99	2.51	0.130	84	2.13	.234	24	0.61	0.245	24	0.61		
	4	100	.145	89	2.26	0.160	74	1.88	.286	24	0.61	0.297	24	0.61	35	156
	5	—	.172	78	1.98	0.190	63	1.60	.338	24	0.61	0.349	24	0.61		
	6	—	.199	68	1.73	0.220	59	1.50	.389	24	0.61	0.400	24	0.61		
	7	—	.226	59	1.50	0.250	54	1.37	.441	24	0.61	0.452	24	0.61		
	8	—	.253	59	1.50	0.280	54	1.37	.493	24	0.61	0.504	24	0.61		
50	1	—	.066	76	1.93	0.072	69	1.75	.198	24	0.61	0.256	24	0.61		
	2	50	.099	74	1.88	0.105	57	1.45	.250	24	0.61	0.308	24	0.61		
	3	75	.132	71	1.80	0.138	57	1.45	.301	24	0.61	0.359	24	0.61		
	4	100	.165	68	1.73	0.171	55	1.40	.353	24	0.61	0.411	24	0.61	47	209
	5	—	.198	65	1.65	0.204	52	1.32	.405	24	0.61	0.463	24	0.61		
	6	—	.231	60	1.52	0.237	50	1.27	.456	24	0.61	0.514	24	0.61		
	7	—	.264	57	1.45	0.270	47	1.19	.508	24	0.61	0.566	24	0.61		
	8	—	.297	54	1.37	0.303	44	1.12	.560	24	0.61	0.618	24	0.61		
63	1	—	.092	62	1.57	0.092	57	1.45	.146	24	0.61	0.169	24	0.61		
	2	50	.134	58	1.47	.140	54	1.37	1.98	24	0.61	0.221	24	0.61		
	3	75	.176	54	1.37	.188	52	1.32	.249	24	0.61	0.272	24	0.61		
	4	100	.218	50	1.27	.236	48	1.22	.301	24	0.61	0.324	24	0.61	61	272
	5	—	.260	48	1.22	.284	48	1.22	.353	24	0.61	0.376	24	0.61		
	6	—	.302	48	1.22	.332	48	1.22	.404	24	0.61	0.427	24	0.61		
	7	—	.344	48	1.22	.380	48	1.22	.456	24	0.61	0.479	24	0.61		
	8	—	.386	48	1.22	.428	48	1.22	.508	24	0.61	0.531	24	0.61		

NOTE: The approximate tabled time and speed is based on:
1) Sizes 08 - 32 mm- line pressure 87 psi, 2) Valve rated at 1.35 CV^2, 3) .28 I.D. tubing, 4) Horizontal operation
2) Sizes 40 & 50 mm- line pressure 87 psi, 2) Value rated at 5.1 CV^2, 3) .281 ID tubing, 4) Horizontal operation
3) Size 63 mm- line pressure 87 psi, 2) Value rated at 5.1 CV^2, 3) .39 ID tubing, 4) Horizontal operation

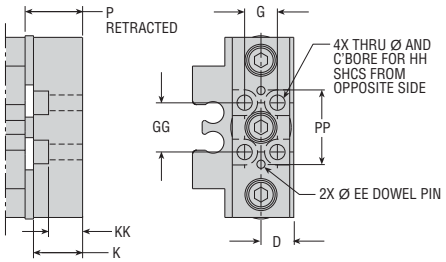
DIMENSIONS: SERIES SxL/SxH SLIDES - STANDARD TRAVELS



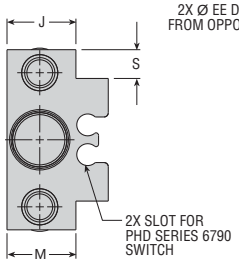
SIZES 14 through 63



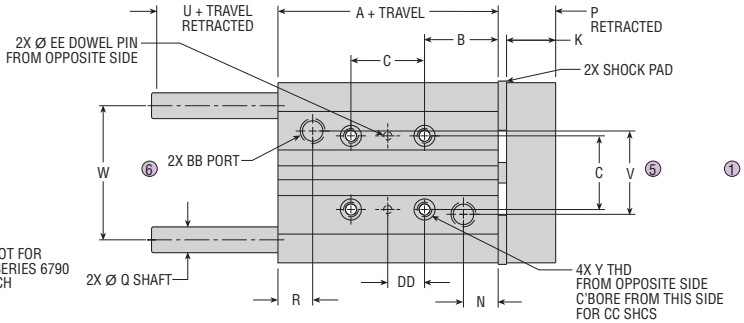
SIZES 14 through 63



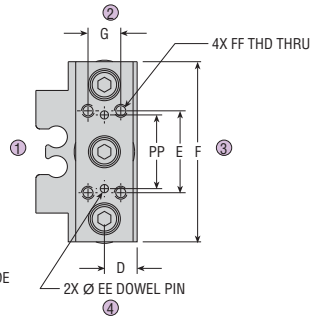
SERIES SBx
(TOOL PLATE)



SIZE 08 & 10

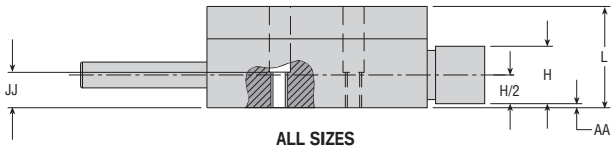


SIZE 08 & 10



SERIES SAx
(TOOL PLATE)

NOTE: CIRCLED NUMBERS INDICATE POSITION.



ALL SIZES

DOWEL HOLE DIAMETERS

SIZE	EE DOWEL HOLE	PRODUCTION DIAMETER	J3 OPTION TRANSITIONAL	J4 OPTION CLEARANCE FIT	J8 OPTION PRECISION FIT
08	.0625 x .16 DP [2 x 4 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.010 / -.000]
10	.0937 x .20 DP [2.5 x 5 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.010 / -.000]
14	.1250 x .24 DP [3 x 6 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.010 / -.000]
20	.1875 x .35 DP [4 x 9 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.012 / -.000]
25	.2500 x .47 DP [6 x 12 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.012 / -.000]
32	.2500 x .47 DP [6 x 12 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.012 / -.000]
40	.3125 x .63 DP [8 x 16 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.015 / -.000]
50	.3125 x .63 DP [8 x 16 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.015 / -.000]
63	.375 x .79 DP [10 x 20 DP]	* [+.010 / -.024]	+.0013 / +.0000 [+.033 / +.008]	+.0038 / +.0028 –	– [+.015 / -.000]

1) * ALL IMPERIAL HOUSINGS AND SB TOOL PLATES HAVE J3 DOWEL HOLES AS STANDARD
2) NUMBERS IN [ ] ARE FOR METRIC UNITS DESIGN #5

DOWEL HOLE AVAILABILITY

DESIGN NO.	ITEM	DOWEL HOLES	J3	J4	J8
1 (IMPERIAL)	HOUSING	(J3 STD)	STD	OPT	–
	SAx TOOL PLATE	NONE	OPT	OPT	–
	SBx TOOL PLATE	(J3 STD)	STD	OPT	–
2 (METRIC)	HOUSING	PD	OPT	–	OPT
	SAx TOOL PLATE	PD	OPT	–	OPT
	SBx TOOL PLATE	PD	OPT	–	OPT

NOTES:
1) SEE DOWEL HOLE DIAMETERS TABLE FOR DIMENSIONAL INFORMATION.
2) SEE OPTIONS SECTION FOR J3, J4, & J8 OPTONS.
3) STD = Standard OPT = Optional PD = Production Diameter

All dimensions are reference only unless specifically toleranced.

DIMENSIONS: SERIES SxL/SxH SLIDES - STANDARD TRAVELS

LETTER	MODEL NUMBER																							
	Sxxx08						Sxxx10						Sxxx14						Sxxx20					
DIM	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
BORE	8mm						10 mm						14 mm						20 mm					
TRAVEL	1/2	[12]	1	[25]	1-1/2	[40]	1/2	[12]	1	[25]	1-1/2	[40]	1/2	[12]	1	[25]	1-1/2	[40]	1	[25]	2	[50]	3	[75]
A			1.181	[30.0]					1.181	[30.0]					1.378	[35.0]					1.875	[48.0]		
B			.562	[14.0]					.562	[14.0]					.562	[14.0]					.625	[18.0]		
C			.562	[14.0]					.625	[16.0]					.875	[22.0]					1.250	[30.0]		
D			.250	[7.0]					.375	[10.0]					.500	[13.0]					.750	[19.0]		
E			.625	[16.0]					.750	[20.0]					1.000	[26.0]					1.500	[40.0]		
F			1.375	[35.0]					1.625	[41.5]					2.244	[57.0]					3.000	[76.0]		
G			.250	[8.0]					.375	[10.0]					.500	[14.0]					.750	[20.0]		
H			.438	[12.0]					.610	[15.5]					.827	[21.0]					1.220	[31.0]		
J			.526	[14.0]					.768	[20.0]					.972	[25.0]					1.446	[36.7]		
K			.375	[10.0]					.375	[10.0]					.500	[14.0]					.750	[20.0]		
L			.773	[19.8]					.902	[23.4]					1.142	[29.3]					1.500	[38.0]		
M			.526	[14.0]					.768	[20.0]					.972	[25.0]					1.346	[34.2]		
N			.265	[6.7]					.282	[7.2]					.342	[8.7]					.525	[13.3]		
P			.437	[11.5]					.437	[11.5]					.562	[15.5]					.875	[23.0]		
Q			.197	[5.0]					.236	[6.0]					.394	[10.0]					.472	[12.0]		
R			.265	[6.7]					.220	[5.6]					.342	[8.9]					.525	[13.3]		
S			.220	[5.6]					.327	[8.3]					.990	[25.1]					1.240	[31.5]		
T			N/A						N/A						.263	[6.7]					.519	[13.2]		
U	.447	[12.8]	.447	[12.2]	.597	[11.4]	.447	[12.8]	.447	[12.2]	.597	[11.4]	.558	[15.5]	.558	[14.9]	.708	[14.1]	.620	[17.4]	.620	[18.2]	.620	[19.1]
V			.624	[15.8]					.670	[17.0]					N/A						N/A			
W			1.024	[26.0]					1.181	[30.0]					1.614	[41.0]					2.126	[54.0]		
Y			#4-40 x .27 DP	[M3 x .5 x 7 DP]					#6-32 x .39 DP	[M4 x .7 x 10 DP]					#10-24 x .50 DP	[M5 x .8 x 12 DP]					1/4-20 x .63 DP	[M6 x 1 x 16 DP]		
AA			.031	[1.0]					.070	[2.3]					.087	[2.5]					.140	[3.5]		
BB			#10-32	[M5]					#10-32	[M5]					#10-32	[M5]					1/8 NPT	[G1/8 BSPP]		
CC			#2	[M2]					#4	[M3]					#6	[M4]					#10	[M5]		
DD			.281	[7.0]					.312	[8.0]					.438	[11.0]					.625	[15.0]		
EE			SEE TABLE						SEE TABLE						SEE TABLE						SEE TABLE			
FF			#3-48	[M2.5 x .45]					#4-40	[M3 x .5]					#6-32	[M4 x .7]					#10-24	[M5 x .8]		
GG			.375	[10.0]					.500	[10.0]					.750	[18.0]					1.000	[24.0]		
HH			#3	[M2]					#4	[M3]					#6	[M4]					#10	[M5]		
JJ			.270	[7.5]					.512	[13.5]					.769	[19.5]					1.104	[28.0]		
KK			.260	[7.4]					.250	[6.6]					.270	[8.2]					.534	[14.5]		
PP			.562	[14.0]					.625	[16.0]					.875	[22.0]					1.250	[30.0]		

LETTER	MODEL NUMBER																							
	Sxxx32						Sxxx40						Sxxx50						Sxxx63					
DIM	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
BORE	32 mm						40 mm						50 mm						63 mm					
TRAVEL	1	[25]	2	[50]	3	[75]	1	—	2	[50]	3	[75]	1	—	2	[50]	3	[75]	1	—	2	[50]	3	[75]
A			2.126	[54.0]					2.402	[61.0]					2.701	[68.6]					3.445	[87.5]		
B			.813	[22.0]					.630	[16.0]					.512	[13.0]					.670	[17.0]		
C			1.688	[42.0]					2.1850	[55.5]					2.7559	[70.0]					3.2087	[81.5]		
D			1.000	[25.0]					1.063	[27.0]					1.319	[33.5]					1.575	[40.0]		
E			2.000	[52.0]					2.362	[60.0]					2.953	[75.0]					3.543	[90.0]		
F			3.937	[100.0]					5.512	[140.0]					6.496	[165.0]					7.640	[194.1]		
G			1.000	[26.0]					1.260	[32.0]					1.575	[40.0]					1.969	[50.0]		
H			1.732	[44.0]					1.890	[48.0]					2.402	[61.0]					2.913	[74.0]		
J			1.946	[49.0]					2.043	[51.9]					2.569	[65.3]					3.100	[78.7]		
K			1.000	[26.0]					1.181	[30.0]					1.378	[35.0]					1.437	[36.5]		
L			1.986	[50.0]					2.223	[56.5]					2.665	[67.7]					3.355	[85.2]		
M			1.791	[45.1]					2.043	[51.9]					2.569	[65.3]					3.100	[78.7]		
N			.575	[14.6]					.728	[18.5]					0.797	[20.2]					.984	[25.0]		
P			1.197	[31.0]					1.431	[36.3]					1.628	[41.4]					1.687	[42.8]		
Q			.787	[20.0]					.984	[25.0]					1.181	[30.0]					1.375	[35.0]		
R			.575	[14.6]					.650	[16.5]					0.690	[17.5]					.984	[25.0]		
S			1.529	[38.8]					2.340	[59.4]					2.810	[71.4]					3.290	[83.6]		
T			.879	[22.3]					.840	[21.3]					0.870	[22.1]					1.060	[26.9]		
U	.827	[21.8]	.827	[22.6]	.827	[23.4]	1.124	—	1.124	[30.2]	1.124	[31.0]	1.167	—	1.167	[31.2]	1.167	[32.0]	1.282	—	1.282	[34.2]	1.282	[35.0]
V			N/A						N/A						N/A						N/A			
W			2.875	[73.0]					3.818	[97.0]					4.606	[117.0]					5.394	[137.0]		
Y			5/16-18 x .88 DP	[M8 x 1.25 x 20 DP]					3/8-16 x .84 DP	[M10 x 1.5 x 20 DP]					3/8-16 x .94	[M10 x 1.5 x 25 DP]					1/2-13 x 1.05 DP	[M12 x 1.75 x 26.5 DP]		
AA			.134	[3.0]					.118	[3.0]					.118	[3.0]					.119	[3.0]		
BB			1/8 NPT	[G1/8 BSPP]					1/8 NPT	[1/8 BSPP]					1/8 NPT	[1/8 BSPP]					1/4 NPT	[1/4 BSPP]		
CC			1/4	[M6]					5/16	[M8]					5/16	[M8]					3/8	[M10]		
DD			.844	[21.0]					1.0925	[27.75]					1.3780	[35.0]					1.6044	[40.75]		
EE			SEE TABLE						SEE TABLE						SEE TABLE						SEE TABLE			
FF			1/4-20	[M6 x 1]					5/16-18	[M8 x 1.25]					3/8-16	[M10 x 1.5]					1/2-13	[M12 x 1.75]		
GG			1.500	[38.0]					1.969	[50.0]					2.362	[60.0]					2.756	[70.0]		
HH			1/4	[M6]					5/16	[M8]					3/8	[M10]					1/2	[M12]		
JJ			1.520	[38.2]					1.625	[40.0]					2.000	[50.0]					2.500	[65.0]		
KK			.645	[17.0]					.844	[21.4]					0.977	[24.3]					0.912	[23.9]		
PP			1.688	[42.0]					2.165	[55.0]					2.559	[65.0]					3.150	[80.0]		

NOTE: UNITS IN [ ] ARE IN mm

DIMENSIONS: SERIES SxH SLIDES - LONG TRAVELS

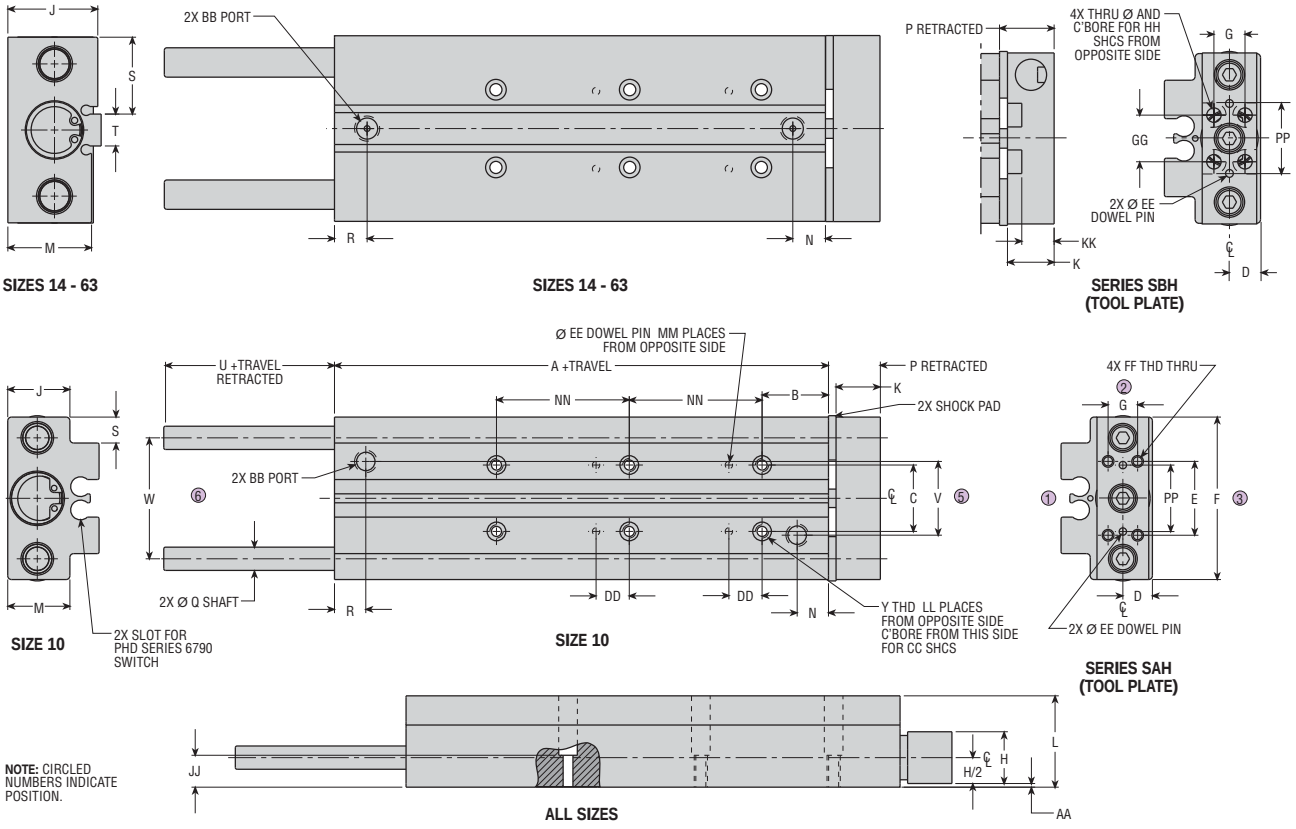


TABLE 2 - DOWEL HOLE DIAMETERS

MODEL	EE DOWEL HOLE	PRODUCTION DIAMETER	J3 OPTION TRANSITIONAL	J4 OPTION CLEARANCE FIT	J8 OPTION PRECISION FIT
08	.0625 x .16 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
10	.0937 x .20 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
14	.1250 x .24 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
20	.1875 x .35 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
25	.2500 x .47 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
32	.2500 x .47 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
40	.3125 x .63 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
	[8 x 16 DP]	[+.010 / -.024]	+.033 / +.008	—	+.015 / -.000
50	.3125 x .63 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
	[8 x 16 DP]	[+.010 / -.024]	+.033 / +.008	—	+.015 / -.000
63	.375 x .79 DP	*	+.0013 / +.0000	+.0038 / +.0028	—
	[10 x 20 DP]	[+.010 / -.024]	+.033 / +.008	—	+.015 / -.000

NOTES:
1) * ALL IMPERIAL HOUSINGS AND SB TOOL PLATES HAVE J3 DOWEL HOLES AS STANDARD
2) NUMBERS IN [ ] ARE FOR METRIC UNITS DESIGN #5

DOWEL HOLE AVAILABILITY

DESIGN NO.	ITEM	DOWEL HOLES	J3	J4	J8
1 (IMPERIAL)	HOUSING	(J3 STD)	STD	OPT	–
	SAx TOOL PLATE	NONE	OPT	OPT	–
	SBx TOOL PLATE	(J3 STD)	STD	OPT	–
2 (METRIC)	HOUSING	PD	OPT	–	OPT
	SAx TOOL PLATE	PD	OPT	–	OPT
	SBx TOOL PLATE	PD	OPT	–	OPT

NOTES:
1) SEE DOWEL HOLE DIAMETERS TABLE FOR DIMENSIONAL INFORMATION.
2) STD = Standard OPT = Optional

All dimensions are reference only unless specifically toleranced.

DIMENSIONS: SERIES SxH SLIDES - LONG TRAVELS

LETTER	MODEL NUMBER										
	SxxH10	SxHx14	SxHx20	SxHx25	SxHx32	SxH140	SxH540	SxH150	SxH550	SxH163	SxH563
DIM		in	in	in	in	in	mm	in	mm	in	mm
BORE	10 mm	14 mm	20 mm	25 mm	32 mm	40 mm		50 mm		63 mm	
A	1.181	1.378	1.875	2.126	2.126	2.402	61.0	2.701	68.6	3.445	87.5
B	.562	.562	.625	.787	.813	.630	16.0	.512	13.0	.670	17.0
C	.625	.875	1.250	1.496	1.688	2.1850	55.5	2.7559	70.0	3.2087	81.5
D	.375	.500	.750	.820	1.000	1.063	27.0	1.319	33.5	1.575	40.0
E	.750	1.000	1.500	1.575	2.000	2.362	60.0	2.953	75.0	3.543	90.0
F	1.625	2.244	3.000	3.543	3.937	5.512	140.0	6.496	165.0	7.640	194.1
G	.375	.500	.750	.787	1.000	1.260	32.0	1.575	40.0	1.969	50.0
H	.610	.827	1.220	1.375	1.732	1.890	48.0	2.402	61.0	2.913	74.0
J	.768	.972	1.446	1.682	1.946	2.043	51.9	2.569	65.3	3.100	78.7
K	.375	.500	.750	.875	1.000	1.181	30.0	1.378	35.0	1.437	36.5
L	.902	1.142	1.500	1.682	1.986	2.223	56.5	2.666	67.7	3.355	85.2
M	.768	.972	1.346	1.682	1.791	2.043	51.9	2.569	65.3	3.100	78.7
N	.282	.342	.525	.575	.575	.728	18.5	.797	20.2	.984	25.0
P	.437	.562	.875	1.074	1.197	1.431	36.3	1.628	41.4	1.687	42.8
Q	.236	.394	.472	.630	.787	.984	25.0	1.181	30.0	1.375	35.0
R	.220	.342	.525	.575	.575	.650	16.5	.690	17.5	.984	25.0
S	.327	.990	1.240	1.457	1.529	2.340	59.4	2.810	71.4	3.290	83.6
T	—	.263	.519	.629	.879	.840	21.3	.870	22.1	1.060	26.9
U	.447	.558	.733	.885	.827	1.125	31.8	1.167	32.8	1.282	35.8
V	.670	—	—	—	—	—	—	—	—	—	—
W	1.181	1.614	2.126	2.598	2.875	3.818	97.0	4.606	117.0	5.394	137.0
Y	#6-32 x .39 DP	#10-24 x .50 DP	1/4-20 x .63 DP	5/16-18 x .75 DP	5/16-18 x .88 DP	3/8-16 x .84 DP	M10 x 1.5 x 20 DP	3/8-16 x .94 DP	M10 x 1.5 x 25 DP	1/2-13 x 1.05 DP	M12 x 1.75 x 26.5 DP
AA	.070	.087	.140	.132	.134	.118	3.0	.118	3.0	.119	3.0
BB	#10-32	#10-32	1/8 NPT	1/8 NPT	1/8 NPT	1/8 NPT	1/8 BSPP	1/8 NPT	1/8 BSPP	1/4 NPT	1/4 BSPP
CC	#4	#6	#10	1/4	1/4	5/16	M8	5/16	M8	3/8	M10
DD	.312	.438	.625	.748	.844	1.0925	27.75	1.3780	35.0	1.6044	40.75
EE	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2
FF	#4-40	#6-32	#10-24	1/4-20	1/4-20	5/16-18	M8 x 1.25	3/8-16	M10 x 1.5	1/2-13	M12 x 1.75
GG	.500	.750	1.000	1.118	1.500	1.969	50.0	2.362	60.0	2.756	70.0
HH	#4	#6	#10	1/4	1/4	5/16	M8	3/8	M10	1/2	M12
JJ	.512	.769	1.104	1.421	1.520	1.625	40.0	2.000	50.0	2.500	65.0
KK	.250	.270	.534	0.614	.645	.844	21.4	.977	24.3	.912	23.9
LL	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1	SEE TABLE 1
MM	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2	SEE TABLE 2
NN	1.250	1.750	2.500	2.992	3.375	3.347	85.0	3.898	99.0	4.213	107.0
PP	.625	.875	1.250	.1496	1.688	2.165	55.0	2.559	65.0	3.150	80.0

* LONG TRAVEL METRIC SLIDES AVAILABLE AS STANDARD AS 100 mm TRAVEL. CONSULT PHD FOR ADDITIONAL TRAVEL LENGTHS

TABLE 1 - STROKE RELATED DIMENSIONS

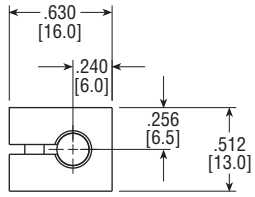
BORE	10 mm		14 mm		20 mm		25 & 32 mm		40, 50 & 63 mm	
LETTER DIM / TRAVEL	LL	MM	LL	MM	LL	MM	LL	MM	LL	MM
2.0 in	4	2	4	2	—	—	—	—	—	—
3.0 in	4	2	4	2	—	—	—	—	—	—
100 mm	—	—	—	—	—	—	—	—	4	2
4.0 in	6	4	6	4	4	2	4	2	4	2
5.0 in	—	—	6	4	6	4	4	2	4	2
6.0 in	—	—	6	4	6	4	4	2	4	2
7.0 in	—	—	—	—	6	4	6	4	6	4
8.0 in	—	—	—	—	6	4	6	4	6	4

NOTES:
1) SEE TABLE ON PREVIOUS PAGE FOR DOWEL HOLE OPTION AVAILABILITY.
2) SEE OPTIONS SECTION FOR J3, J4, & J8 OPTIONS.

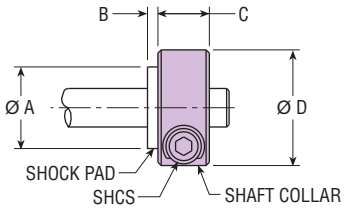
AE TRAVEL ADJUSTMENT ON EXTEND

This option provides both travel adjustment stop collars and shock pads on extension only. The travel adjustment stop collars provide infinite adjustment while the shock pads provide excellent noise reduction and energy absorption capability.

NOTE: AE travel adjustments are available as a kit. To specify, give the full unit description -H9031. Each travel adjustment kit contains 2 steel shaft collars, 2 shock pads, and 2 SHCS.



SIZE 08 ONLY



UNIT SIZE	LETTER DIMENSION [mm] A	B	C	D
8	.375 [9.5]	.064 [1.6]	— —	— —
10	.500 [12.7]	.064 [1.6]	.315 [8.0]	.709 [18.0]
14	.591 [15.0]	.064 [1.6]	.433 [11.0]	.875 [22.2]
20	.865 [22.0]	.125 [3.2]	.511 [13.0]	1.125 [28.6]
25	.945 [24.0]	.199 [5.0]	.511 [13.0]	1.375 [34.9]
32	1.125 [28.6]	.199 [5.0]	.590 [15.0]	1.500 [38.1]
40	1.500 [38.1]	.250 [6.4]	.708 [18.0]	2.026 [51.5]
50	1.750 [44.5]	.250 [6.4]	.749 [19.0]	2.345 [59.6]
63	2.120 [53.8]	.250 [6.4]	.866 [22.0]	2.750 [69.9]

TRAVEL ADJUSTMENT KIT

UNIT SIZE	KIT NUMBER STANDARD	Z1 OPTION	COLLAR SCREWS MAX TORQUE
8	73439-1	73439-2	22 in/lb [2.5 Nm]
10	73440-1	73440-2	22 in/lb [2.5 Nm]
14	73441-1	73441-2	50 in/lb [5.6 Nm]
20	73442-1	73442-1	100 in/lb [11.3 Nm]
25	74822-1	74822-2	100 in/lb [11.3 Nm]
32	73443-1	73443-2	150 in/lb [16.9 Nm]
40	79636-1	79636-2	350 in/lb [39.5 Nm]
50	79637-1	79637-2	350 in/lb [39.5 Nm]
63	79638-1	79638-2	700 in/lb [79.1 Nm]

J3 TRANSITIONAL FIT DOWEL PIN HOLES

This option provides transitional fit dowel pin holes in the tool plate and housing, providing a compromise fit between clearance and interference. Transitional fits are used where accuracy of location is important, but a small amount of clearance in order to simplify the installation of dowel pins is permissible.

J4 CLEARANCE FIT DOWEL PIN HOLES

Specifying this option provides clearance fit dowel pin holes in the tool plate and housing. Clearance fits are used when extra clearance is needed due to inaccuracies of attached tooling. Available on imperial units only.

J8 PRECISION FIT DOWEL PIN HOLES

Specifying this option provides H7 tolerance precision fit dowel pin holes in the tool plate and housing. Precision fits are used where accuracy of location is of prime importance and for parts requiring rigidity and alignment. Available on metric units only.

Q6 TOTAL CORROSION RESISTANT GUIDE SHAFTS

This option provides stainless steel hard chrome guide shafts on the Series SxL Slides and corrosion resistant coating on the Series SxH Slides for use in applications where moisture may corrode untreated, hardened and ground shafts.

NOTE: For sizes and locations, see dimension pages.

Z1 TOTAL CORROSION RESISTANT UNIT

This option includes Q6 guide shafts and provides stainless steel or electroless nickel plating on all other externally exposed ferrous parts. This optional plating can be used for protecting the slide from severe or corrosive environments.

M MAGNET FOR PHD SERIES 6790 MINIATURE REED AND SOLID STATE SWITCHES

This option equips the unit with a magnetic piston for use with PHD's Series 6790 Switch. The switch housing is completely contained by the slide housing and provides a very compact switch design. The switches mount easily to the slide housing using two small grooves located on the top of the unit and are locked into place with a set screw. See Switches and Sensors section for additional switch information and complete specifications.

PART NO.	DESCRIPTION
67902-1-02	NPN (Sink) or PNP (Source) DC Reed, 2 m cable
67902-1-05	NPN (Sink) or PNP (Source) DC Reed, 5 m cable
67903-1-02	NPN (Sink) DC Solid State, 2 m cable
67903-1-05	NPN (Sink) DC Solid State, 5 m cable
67904-1-02	PNP (Source) DC Solid State, 2 m cable
67904-1-05	PNP (Source) DC Solid State, 5 m cable
67922-1	NPN (Sink) or PNP (Source) DC Reed, Quick Connect
67929-2	AC Reed, Current Limited, Quick Connect
67923-1	NPN (Sink) DC Solid State, Quick Connect
67924-1	PNP (Source) DC Solid State, Quick Connect
63549-02	2 m Cordset with Quick Connect
63549-05	5 m Cordset with Quick Connect

NOTES:

1) Switch set screw torque to 16 in-oz [.11 Nm] max.
2) See Switches and Sensors section for additional switch information and complete specification.