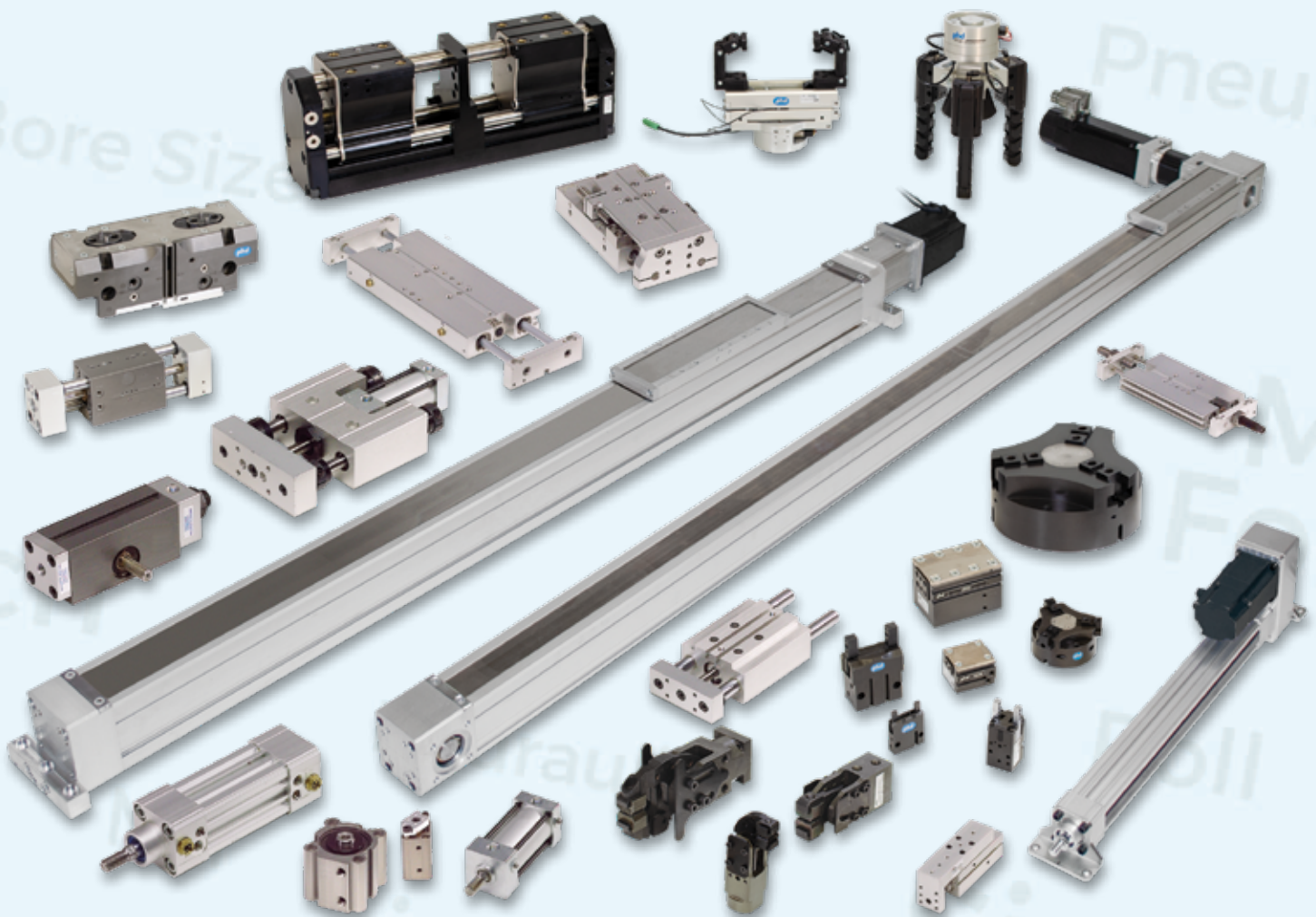








SELECTION GUIDE

Quick Specs to Compare PHD Product Types & Sizes



PNEUMATIC CYLINDERS



SERIES	SIZE	MAX. STROKE		MAX. FORCE	
		in	mm	lb	N
CRS Pneumatic Compact 	12	3-1/4	80	@ 150 psi [10 bar]	
	16	3-1/4	80	26	113
	20	4	100	47	201
	25	4	100	73	314
	32	4-1/2	115	114	491
	40	4-1/2	115	187	804
	50	5	125	292	1257
	63	7	175	456	1964
CTS Guided Pneumatic Compact 	12	2-1/2	60	@ 150 psi [10 bar]	
	16	2-3/4	70	26	113
	20	3-3/8	85	47	201
	25	3-3/8	85	73	314
	32	3-5/8	90	114	491
	40	3-7/8	95	187	804
	50	3-3/4	95	292	1257
	63	6	150	456	1964
OCQ Pneumatic Compact 	12	—	30	@ 145 psi [10 bar]	
	16	—	30	25	111
	20	—	50	45	200
	25	—	50	70	311
	32	—	100	110	489
	40	—	100	180	800
	50	—	100	282	1254
	63	—	100	441	1964
	80	—	100	700	3113
	100	—	100	1129	5022
CV Pneumatic Round ISO/VDMA 	CVC20	20	500	@ 150 psi [10 bar]	
	CVC25	20	500	73	314
	CVB20	30	750	114	491
	CVB25	30	750	73	314
	32	40	1000	114	491
	40	40	1000	187	804
	50	40	1000	292	1257
	63	40	1000	457	1964
	80	40	1000	725	3117
	100	40	1000	1169	5027
OCV Pneumatic Round ISO 	32	—	200	@ 150 psi [10 bar]	
	40	—	200	187	831
	50	—	200	292	1300
OCG Pneumatic Round Body 	20	8	200	@ 140 psi [10 bar]	
	25	12	300	68	302
	32	12	300	106	471
	40	12	300	174	774
	50	12	300	272	1209
	63	12	300	426	1895

NOTE: Consult PHD for longer strokes.

TOM THUMB® PNEUMATIC & HYDRAULIC CYLINDERS




tom thumb® SERIES	SIZE	MAX. STROKE		MAX. FORCE		
		in	mm	lb	N	
AV, HV, A Tie Rod Hydraulic & Pneumatic NFPA 3/4", 1", & 1-1/8"		3/4" A, AV	12	—	66	295
		1" A, AV	18	—	118	524
		1-1/8" A, AV	18	—	149	663
		3/4" HV	12	—	663	2948
		1" HV	18	—	1178	5240
		1-1/8" HV	18	—	1491	6632
AV, HV, A Tie Rod Hydraulic & Pneumatic NFPA, 1-3/8"		1-3/8" AV	24	—	223	991
		1-3/8" HV	24	—	2227	9907
TD Tie Rod Air/Oil Tandem		3/4" TD	6	—	125	557
		1" TD	9	—	224	997
		1-1/8" TD	9	—	282	1253
		1-3/8" TD	12	—	416	1850
		3/4" TD -X or -C	6	—	66	295
		1" TD -X or -C	9	—	118	524
		1-1/8" TD -X or -C	9	—	149	663
		1-3/8" TD -X or -C	12	—	223	991
AV2, HV2, A2 Tie Rod Back-to-Back 4-Position Hydraulic & Pneumatic		3/4" A2, AV2	6	—	66	295
		1" A2, AV2	9	—	118	524
		1-1/8" A2, AV2	9	—	149	663
		1-3/8" AV2	12	—	223	991
		3/4" HV2	6	—	663	2948
		1" HV2	9	—	1178	5240
		1-1/8" HV2	9	—	1491	6632
		1-3/8" HV2	12	—	2227	9907
A3V, H3V, A3 Tie Rod 3-Position Hydraulic & Pneumatic		3/4" A3, A3V	6	—	66	295
		1" A3, A3V	9	—	118	524
		1-1/8" A3, A3V	9	—	149	663
		1-3/8" A3V	12	—	223	991
		3/4" H3V	6	—	663	2948
		1" H3V	9	—	1178	5240
		1-1/8" H3V	9	—	1491	6632
		1-3/8" H3V	12	—	2227	9907
EA, EL, EH, ES Tie Rod Heavy Duty Hydraulic & Pneumatic		3/4" EA	6	—	66	295
		3/4" EL	6	—	221	983
		3/4" EH	6	—	1326	5898
		3/4" ES	6	—	2210	9830
		1-1/8" EA	6	—	149	663
		1-1/8" EL	6	—	497	2210
		1-1/8" EH	6	—	2982	13264
		1-1/8" ES	6	—	4970	22107
		1-3/8" EA	6	—	223	991
		1-3/8" EL	6	—	743	3305
		1-3/8" EH	6	—	4455	19816
		1-3/8" ES	6	—	7425	33028

NOTE: Consult PHD for longer strokes.

ELECTRIC CYLINDERS



SERIES - ELECTRIC	SCREW VERSION	SIZE	LEAD mm	TRAVEL MAX mm	MAX THRUST (SEE NOTE)		MAX SPEED (SEE NOTE)	
					lb	N	in/sec	mm/sec
								
ECP Electric IP69K	Lead - RL	32	3	500	67.5	300	2.3	60
			6		33.7	150	4.8	120
		40	4	600	112	500	2.3	60
			8		56	250	4.8	120
	50	4	750	180	800	3.15	80	
		8		90	400	6.3	160	
ECV Electric Ball Screw & Lead Screw	Lead - RL	20	1.5	400	67.5	300	0.6	15
			4		33.7	150	3.15	80
		25	1.5	400	112	500	1.2	30
			3		56	250	2.4	60
		32	3	500	180	800	2.4	60
	6		90		400	4.8	120	
Ball - RB	40	4	600	360	1600	3.15	80	
	50	4	750	562	2500	3.15	80	
		8		281	1250	6.3	160	
ECV Electric Ball Screw & Lead Screw	Ball - RB	32	5	1000	306	1360	19.6	500
			10		153	680	39.3	1000
		40	10	1000	546	2430	39.3	1000
	16		342		1520	63	1600	
	50	10	1000	991	4410	39.3	1000	
		20		564	2510	78.7	2000	



NOTE: Refer to performance charts in engineering section of PHD Electric Actuators catalog and online sizing for specific performance limitations of a configured actuator.

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Your Way**

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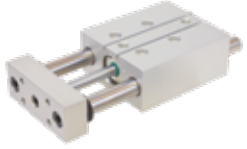


PNEUMATIC ESCAPEMENTS



SERIES	MODEL		MAXIMUM STROKE		TYPICAL LOAD	
	Imperial	Metric	in	mm	lb	N
160 Pneumatic Double Rod 	02	03	0.375	10	0.5	2.2
	12	13	0.500	12	1.0	4.4
	10, 14	11, 15	0.500	12	1.5	6.7
	22	23	0.750	20	2.5	11.1
	20, 24	21, 25	0.750	20	4.0	17.8
	42	43	1.250	32	35	155
LC Pneumatic Single Rod 	10		0.394	10	0.5	2.2
	12		0.472	12	1.0	4.4
	20		0.787	20	2.5	11.1
	32		1.260	32	35	155

PNEUMATIC THRUSTER SLIDES



SERIES	MODEL	MAX STANDARD TRAVEL		MAX THRUST*		MAX DYNAMIC MOMENTS						MAX LOAD HORIZONTAL**	
				lb	N	PITCH		YAW		ROLL		lb	kg
		in	mm			in-lb	Nm	in-lb	Nm	in-lb	Nm		
SHP Miniature Rail Thruster Table 	SHPx08	1.57	40	8	36	0.9	0.1	—	—	0.21	0.02	1.1	0.51
	SHPx12	1.57	40	17	76	1.8	0.2	—	—	0.48	0.1	2.3	1.0
	SHPx16	2.17	55	31	138	5.7	0.6	—	—	1.5	0.2	3.4	1.5
SIP Low Profile Miniature Rail Thruster Table 	SIP512	1.69	50	17	76	2	0.22	—	—	0.85	—	2.3	1.0
	SIP516	2.953	75	31	138	7.5	0.8	—	—	2.2	—	3.4	1.5
	SIP520	2.953	75	49	218	13	1.47	—	—	4.3	—	4.5	2.0
OSH Compact Table 	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
SxL & SxH Compact Thruster 	SxL10/SxH10	4	40	18	81	25	2.8	25	2.8	11	1.2	12	5.3
	SxL14/SxH14	6	40	36	159	109	12	109	12	42	5	32	15
	SxL20/SxH20	8	75	73	325	280	32	280	32	164	19	77	35
	SxL25/SxH25	8	75	114	508	500	56	500	56	317	36	115	52
	SxL32/SxH32	8	75	187	832	827	93	827	93	602	68	167	76
	SxH40	4	100	292	1300	960	108	960	108	320	36	248	112
	SxH50	4	100	456	2030	1745	197	1745	197	1740	197	333	151
	SxH63	4	100	725	3224	4070	460	4070	460	4070	460	427	194
OSX Light Duty Thruster 	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
OSP Compact Thruster 	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

* 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.

PNEUMATIC THRUSTER SLIDES





SERIES	MODEL	MAX STANDARD TRAVEL		MAX THRUST*		MAX DYNAMIC MOMENTS						MAX LOAD HORIZONTAL**	
						PITCH		YAW		ROLL			
		in	mm	lb	N	in-lb	Nm	in-lb	Nm	in-lb	Nm	lb	kg
SD & SE Versatile Thruster 	SDx22/SEx22	16	—	66	294	30	3.4	30	3.4	30	3.4	28	13
	SDx23/SEx23	18	—	119	527	48	5.4	48	5.4	48	5.4	50	23
	SDx24/SEx24	24	—	150	667	71	8.0	71	8.0	71	8.0	74	34
	SDx25/SEx25	24	—	224	994	104	12	104	12	104	12	140	64
	SDx26/SEx26	28	—	471	2095	149	17	149	17	149	17	235	107
SK & SL Robust Versatile Thruster 	SKx81/SLx81	—	300	66	294	34	3.8	34	3.8	34	3.8	25	11
	SKx82/SLx82	—	300	74	327	42	4.7	42	4.7	42	4.7	43	19
	SKx83/SLx83	—	450	114	507	69	7.8	69	7.8	69	7.8	63	29
	SKx84/SLx84	—	600	188	834	118	13	118	13	118	13	90	41
	SKx85/SLx85	—	600	293	1301	153	17	153	17	153	17	225	102
	SKx86/SLx86	—	700	456	2028	225	25	225	25	225	25	357	162
SCV Vertical Thruster 	SCVx2	6	150	74	327	36	4.1	36	4.1	36	4.1	14	6.4
	SCVx3	6	150	114	507	57	6.5	57	6.5	57	6.5	20	9.2
	SCVx4	8	200	188	834	78	8.8	78	8.8	78	8.8	27	12
	SCVx5	8	200	293	1301	97	11	97	11	97	11	28	13
	SCVx6	10	250	456	2028	235	27	235	27	235	27	53	24
	SCVx7	10	250	725	3223	235	27	235	27	235	27	53	24
	SCVx8	12	300	1169	5198	498	56	498	56	498	56	84	38
	SCVx9	12	300	1826	8120	514	58	514	58	514	58	84	38
OSCV Thruster 	OSCV74	—	200	188	834	78	8.8	78	8.8	78	8.8	27	12
	OSCV75	—	200	293	1301	97	11	97	11	97	11	28	13
	OSCV76	—	200	456	2028	235	27	235	27	235	27	53	24
STP Compact Rail Thruster Table 	STPDx08	3	75	23	104	23	2.6	19	2.1	8	0.9	4.6	2.1
	STPDx12	4	100	53	237	47	5.4	40	4.6	18	2.0	7.7	3.5
	STPDx16	5	125	93	416	66	7.5	56	6.3	27	3.1	9.7	4.4
	STPDx20	6	150	146	649	177	20	149	16.8	73	8.3	14	6.4
	STPDx25	6	150	228	1016	211	24	177	20.0	99	11.2	23	11
OSW Dual Bore Table 	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

* 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.

ELECTRIC THRUSTER SLIDES





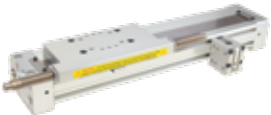
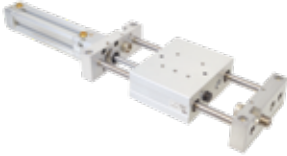
SERIES - ELECTRIC	SCREW VERSION	SIZE	LEAD	TRAVEL MAX	MAX THRUST (SEE NOTE)		MAX SPEED (SEE NOTE)		MAX MOMENT						MAX PAYLOAD (SEE NOTE)		
					mm	mm	lb	N	in/sec	mm/sec	PITCH		YAW		ROLL		lb
											in-lb	Nm	in-lb	Nm	in-lb	Nm	
ESCV Electric Vertical Thruster 	Lead - RL	2	1.5	150	67.5	300	0.60	15	36	4.1	36	4.1	36	4.1	14	6.4	
			4		33.7	150	3.15	80									
		3	1.5	150	112	500	1.20	30	57	6.5	57	6.5	57	6.5	20	9.2	
			3		56	250	2.40	60									
		4	3	200	180	800	2.40	60	78	8.8	78	8.8	78	8.8	27	12	
	6		90		400	4.80	120										
	5	4	200	360	1600	3.15	80	97	11	97	11	97	11	28	13		
		8		180	800	6.30	160										
	Ball - RB	6	4	4	250	562	2500	3.15	80	235	27	235	27	235	27	53	24
				8		281	1250	6.30	160								
10				1360		19.6	500	78	9								
Ball - RB	5	10	10	200	546	2430	39.3	1000	97	11	97	11	97	11	28	13	
			16		342	1520	63.0	1600									
			20		991	4410	39.3	1000									235
ESK / ESL Electric Thruster 	Lead - RL	2	1.5	300	67.5	300	0.6	150	42	4.7	42	4.7	42	4.7	43	19.3	
			4		33.7	150	3.15	80									
		3	1.5	450	112	500	1.2	30	69	7.8	69	7.8	69	7.8	63	28.5	
			3		56	250	2.4	60									
		4	3	600	180	800	2.4	60	118	13	118	13	118	13	90	40.8	
	6		90		400	4.8	120										
	5	4	600	360	1600	3.15	80	153	17	153	17	153	17	225	102		
		8		180	800	6.3	160										
	Ball - RB	6	4	4	700	562	2500	3.15	80	225	25	225	25	225	25	357	162.2
				8		281	1250	6.3	160								
10				1360		19.6	500	118	13								
Ball - RB	5	10	10	600	546	2430	39.3	1000	153	17	153	17	153	17	225	102	
			16		342	1520	63	1600									
			20		991	4410	39.3	1000									225
			20		564	2510	78.7	2000									

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PNEUMATIC & ELECTRIC RODLESS SLIDES



SERIES - PNEUMATIC	MODEL	MAX STANDARD TRAVEL		MAX THRUST*		MAX DYNAMIC MOMENTS						MAX LOAD HORIZONTAL**	
		in	mm	lb	N	PITCH		YAW		ROLL		lb	kg
						in-lb	Nm	in-lb	Nm	in-lb	Nm		
SM Gantry 	SMxx08	3	75	18	80	13	1.5	13	1.5	2.9	0.3	4.5	2.0
	SMxx12	4	100	41	180	57	6.4	57	6.4	12	1.4	16	7.3
	SMxx16	5	125	71	314	153	17	153	17	37	4.2	36	16
	SMxx25	6	150	176	781	322	36	322	36	97	11	60	27
	SMxx32	6	150	281	1248	605	68	605	68	225	25	80	36
SFP Rodless Gantry Rail 	SFP527	70.8	1800	102	454	325	37	236	27	197	22	533	242
	SFP540	133.8	3400	226	1006	1040	118	895	101	560	63	1273	577
SFM Multi-Position Rodless Gantry Rail 	SFM527	70.8	1800	102	454	325	37	236	27	197	22	533	242
	SFM540	133.8	3400	226	1006	1040	118	895	101	560	63	1273	577
SG High Load Gantry 	SGxx1	12	305	66	294	59	6.7	59	6.7	59	6.7	49	22
	SGxx2	12	305	74	327	84	9.5	84	9.5	84	9.5	56	25
	SGxx3	16	405	114	507	115	13	115	13	115	13	72	33
	SGxx4	20	510	188	834	355	40	355	40	355	40	186	84
	SGxx5	24	610	293	1301	713	81	713	81	713	81	340	154
	SGxx6	36	915	293	1301	1301	147	1301	147	1301	147	565	256

* 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.

SERIES - ELECTRIC	DRIVE MODE	SIZE	LEAD	TRAVEL MAX	MAX THRUST*		MAX SPEED*		MAX MOMENT*				MAX PAYLOAD*			
					mm	mm	lb	N	in/sec	mm/sec	PITCH/YAW		ROLL		lb	kg
											in-lb	Nm	in-lb	Nm		
ESU -RT Belt-Driven Linear Actuator 	Belt - RT	55	160	5500	326.0	1450	197.0	5000	3363	380	381	43	1103	4903		
		56	192		586.0	2610			6328	715	832	94	1720	7648		
		58	256		1222.0	5440			12975	1466	1469	166	2567	11410		
ESU -RB Ball Screw Linear Actuator 	Ball - RB	55	10	1000	547	2430	39.3	1000	3363	380	381	43	1103	4903		
			16		342	1520	63	1600	6328	715	832	94	1720	7648		
		56	10		992	4410	39.3	1000	6328	715	832	94	1720	7648		
			20		565	2510	78.7	2000								
		58	10		2297	10210	39.3	1000	12975	1466	1469	166	2567	11410		
32	1233	5478.0	126	3200												



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**Your Motor
Your Way**

The "Your Motor, Your Way" process allows users to employ this technology operated by the motor and controls of their choice. If you prefer a complete package, your local PHD distributor can provide motors and controls to fit your application needs. PHD provides the best offering of electric actuators with the flexibility to configure Your Motor, Your Way!

SERIES GRM CLAMPS








	JAW STYLE (units shown are size 2)	SIZE	TOTAL GRIP FORCE		MAX. WEIGHT		JAW DESIGN & BENEFITS
			lb	N	lb	kg	
'S' Standard		0	135	600	0.54	0.24	Sizes 2 & 4 - Jaws have wide and deep jaw throats to accommodate non-flat applications Size 1 has same grip force as size 2
		1	225	1001	0.97	0.44	
		2	225	1001	2.10	0.95	
		4	500	2224	4.20	1.91	
'C' Single Chisel		2	225	1001	2.00	0.91	Compact lower jaw Blank loading Sheet separation applications
'D' Double Chisel							
'H' Single Shovel		2	225	1001	2.10	0.95	Blank loading and sheet separation applications
'J' Double Shovel		4	500	2224	4.20	1.91	Adjustable external rotation stop allows for multiple jaw openings in one clamp
'L' Single Flat Shovel		2	225	1001	2.70	1.22	Completely fixed lower jaw Upper jaw does not swing through bottom of clamp Ideal for limited spaces
'M' Double Flat Shovel							
'F' Flange		0	135	600	0.53	0.24	Adjustable external rotation stop allows for multiple jaw openings in one clamp (for sizes 2 & 4 only) Ideal to grip on bends or flanges
		1	180	801	1.23	0.56	
		2	225	1001	2.10	0.95	
		4	500	2224	4.30	1.95	
'N' Needlenose		2	225	1001	1.90	0.86	Jaws lock in closed position over wide panel thickness range (0.0 to 4.0 mm) Ideal for limited spaces and blank loading applications Integral diamond points eliminate need for tip options
'P' Hammerhead							
'K' Hook		2	225	1001	2.00	0.91	Short overall length to save space between rails Commonly used with 'C' style mounting brackets
'G' Toolable		2	225	1001	2.30	1.04	Designed with large space between jaws to accommodate non-flat and large material applications
		4	500	2224	4.20	1.91	
'R' Short		2	330	1468	1.96	0.89	Ideal for limited space environments Higher grip force in smaller package

AUTOMATED WORKHOLDING CLAMPS

*Maximum force is calculated at 87 psi 6 bar.







SERIES	SIZE	TOTAL STROKE		THEORETICAL CLAMP FORCE*	
		in	mm	lb	N
PA Pneumatic Swing Clamp 	2	1.043	26.5	46	204
	3	1.181	30	82	365
	4	1.181	30	143	636
	5	1.161	29.5	223	992
	6	1.181	30	378	1682
	PB Versatile Pneumatic Swing Clamp 	S2	0.768	19.5	51
L2		1.161	29.5	51	226
S3		0.984	25	81	360
L3		1.378	35	81	360
S4		0.984	25	143	636
L4		1.378	35	143	636
S5		1.535	39	223	992
L5		2.716	69	223	992
PEC Pneumatic Power Clamp 	22	MAX. HOLDING TORQUE		CLAMP TORQUE*	
		in-lb	Nm	in-lb	Nm
	23	663	75	125	14
	33	1593	180	250	28
	34	1593	180	400	45
	45	3363	380	900	102
PLK Modular Pneumatic Pin Clamp 	505	CLAMP STROKE		CLAMP FORCE*	
		in	mm	lb	N
	510	—	10	223	991
PLKD Pneumatic Disappearing Pin Clamp 	505	CLAMP STROKE		CLAMP FORCE*	
		in	mm	lb	N
	510	—	10	223	991

AUTOMATED WORKHOLDING CLAMPS







*Maximum force is calculated at 87 psi 6 bar.



SERIES	SIZE					
PLC Robust Pneumatic Pin Clamp		CLAMP STROKE	TOTAL CLAMP FORCE			
			mm	lb	N	
		5	125	223	991	
		6	125	379	1684	
PSP Pneumatic Shot Pin Actuator		63 mm BORE / CLAMP STROKE	FORCE EXTEND			
				lb	N	
		6	25 and 50	387	FORCE RETRACT	
				287	1721	1277
PNC Pneumatic Identification Stamping Clamp		MAX. OPENING PER JAW	TOTAL CLAMP FORCE*			
				lb	N	
		44	16°	9005	40032	
		55	16°	14790	65754	
		55-B01	16°	25404	112944	
66	16°	48330	215000			
PFC Pneumatic Frame Clamp		MINIMUM DISTANCE	CLAMP FORCE			
			in	mm	lb	N
		4-Jaw Style L	3.93	100.0	11250	50040
4-Jaw Style W	1.437	36.5	7200	32027		

PNEUMATIC PARALLEL GRIPPERS









SERIES	SIZE	GRIP FORCE (NOTE 1)		NOMINAL TOTAL JAW TRAVEL		
		lb	N	in	mm	
GRA Pneumatic Micro 	6	2.55	11	0.158	4.0	
	10	8.2	37	0.197	5.0	
	16	18.2	81	0.354	9.0	
	20	27.7	123	0.512	13.0	
GRS Pneumatic Low Profile 	19x4.5	30	135	0.177	4.5	
	25x6.5 (Jaw Style 4)	35	156	0.256	6.5	
	25x7 (Jaw Style 3)	42	187	0.276	7	
	27x4.5	68	302	0.177	4.5	
	27x7	48	213	0.276	7	
	28x6	77	341	0.250	6.35	
	28x10	48	213	0.394	10	
	32x8	109	485	0.315	8	
	32x13	70	310	0.512	13	
	40x13	170	756	0.512	13	
	40x19	109	485	0.748	19	
	50x19	235	1045	0.750	19	
	50x28	157	697	1.102	28	
63x32	398	1770	1.260	32		
63x44	289	1287	1.732	44		
GRD Pneumatic Miniature 		SHORT JAW TRAVEL		SHORT JAW TRAVEL		
		3	33	147	0.187	4.75
		4	40	178	0.335	8.5
		5	87	387	0.315	8.0
	6	136	604	0.423	10.75	
		LONG JAW TRAVEL		LONG JAW TRAVEL		
		5	54	240	0.502	12.75
	6	91	406	0.699	17.75	
GRH Pneumatic Long Travel 	8	12	53	1.969	50	
	12	27	120	2.953	75	
	16	48	214	3.937	100	
	20	75	334	4.921	125	
GRW Pneumatic Wide Body 	16	36	160	0.79	20	
	25	90	400	2.09	53	
	32	170	756	2.56	65	
	40	207	921	3.58	91	
	50	429	1908	4.61	117	
GRK Pneumatic Heavy Duty 	35x6.5	159	707	0.256	6.5	
	35x12	86	383	0.472	12	
	46x8	292	1299	0.315	8.0	
	46x16	146	649	0.630	16	
	58x10.5	454	2019	0.413	10.5	
	58x20	239	1063	0.787	20	
	75x12.5	805	3581	0.492	12.5	
	75x26	378	1681	1.024	26	
	92x32	543	2415	1.260	32	
	112x50	821	3652	1.969	50	
	133x60	1120	4984	2.362	60	
170x70	1636	7276	2.756	70		

NOTE 1: Gripping force shown for parallel units is at zero tooling length and 87 psi [6 bar] (pneumatic). The values shown are minimum produced. Optional spring assist can increase the gripping force shown or can be a safety device on the following types: Series 190/191, GRD, 5300, GRC, and GRT. The spring option can also be used to allow single acting operation of Series GRC, GRD, 5300, most 190/191, and GRT Grippers.

PNEUMATIC PARALLEL GRIPPERS






	SERIES	SIZE	GRIP FORCE (NOTE 1)		NOMINAL TOTAL JAW TRAVEL	
			lb	N	in	mm
GRC Pneumatic Rotary (with SHURGRIP option)		3	96	427	1.00	25.5
		4	209	930	1.53	39
		5	383	1704	2.00	51
		6	870	3870	3.07	78
GRT Pneumatic 3-Jaw			(NOTE 2)			
		1	44	196	0.236	6
		2	112	499	0.315	8
		3	168	747	0.472	12
		4	218	971	0.630	16
		5	378	1683	0.787	20
		6	569	2531	1.024	26
		7	880	3912	1.260	32
8	1452	6459	1.575	40		
GRL Pneumatic Narrow Body		14x7	28	124	0.28	7
		14x13	30	132	0.51	13
		16x20	41	182	0.79	20
		16x26	41	182	1.02	26
GRF Pneumatic Direct Replacement		19x4.5	30	135	0.177	4.5
		25x6.5 (Jaw Style 4)	35	156	0.256	6.5
		25x7 (Jaw Style 3)	42	187	0.276	7
		28x6	77	341	0.250	6
		28x10	48	213	0.394	10
		32x8	116	516	0.315	8
190, 191 Pneumatic Micro			SHORT JAW TRAVEL		SHORT JAW TRAVEL	
		6	5.3	24	0.157	4
		7	10.6	47	0.276	7
		8	21.8	97	0.394	10
		9	42.6	190	0.512	13
			LONG JAW TRAVEL		LONG JAW TRAVEL	
		6	3.2	14	0.315	8
		7	8.1	36	0.433	11
		8	13.1	58	0.630	16
9	23.5	105	0.866	22		
OGZ Miniature Parallel		10	2.5	11	0.16	4
		16	7.6	34	0.24	6
		20	9.4	42	0.39	10
		25	14.6	65	0.55	14

NOTE 1: Gripping force shown for parallel units is at zero tooling length and 87 psi [6 bar] (pneumatic). The values shown are minimum produced. Optional spring assist can increase the gripping force shown or can be a safety device on the following types: Series 190/191, GRD, 5300, GRC, and GRT. The spring option can also be used to allow single acting operation of Series GRC, GRD, 5300, most 190/191, and GRT Grippers.

NOTE 2: Represents the change in jaw movement as a diameter change.

PNEUMATIC & ELECTRIC PARALLEL GRIPPERS



	SERIES	SIZE	GRIP FORCE (NOTE 1)		NOMINAL TOTAL JAW TRAVEL	
			lb	N	in	mm
5300 Pneumatic Heavy Duty		6	128	570	0.62	15.8
		7	261	1164	1.00	25.4
		8	488	2172	1.31	33.3
		9	980	4356	1.80	45.8
GRR Pneumatic High Capacity		63x150			5.91	150
		63x200			7.87	200
		63x250	704	3131	9.84	250
		63x300			11.81	300
		63x350			13.80	350
EGRR Electric Heavy Duty			(NOTE 2)			
		63x150			5.91	150
		63x200			7.87	200
		63x250	800	3559	9.84	250
		63x300			11.81	300
		63x350			13.80	350



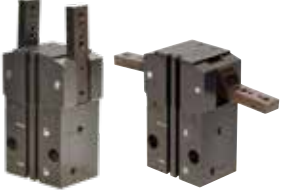

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NOTE 1: Gripping force shown for parallel units is at zero tooling length and 87 psi [6 bar] (pneumatic). The values shown are minimum produced. Optional spring assist can increase the gripping force shown or can be a safety device on the following types: Series 190/191, GRD, 5300, GRC, and GRT. The spring option can also be used to allow single acting operation of Series GRC, GRD, 5300, most 190/191, and GRT Grippers.

NOTE 2: Gripping force shown is at zero tooling length and 34 in-lb [3.8 Nm] of torque.

PNEUMATIC ANGULAR GRIPPERS









	SERIES	SIZE	GRIP FORCE		MINIMUM DISTANCE (NOTE 1)	
			lb	N	in	mm
GRV Pneumatic Micro		6	2.2	10.0	0.323	8.2
		10	6.4	28.7	0.378	9.6
		16	17.3	77.2	0.548	13.9
		20	28.5	127.1	0.595	15.1
8400 Pneumatic Micro		0	11.7	52	0.20	5.1
		1	19.7	88	0.30	7.6
		2	55	244	0.40	10
		3	81	359	0.62	16
GRB Pneumatic 180°		12	13	57	0.44	11.3
		16	28	124	0.56	14.3
		20	79	353	0.67	17.0
		32	179	797	0.92	23.4
		40	265	1180	1.21	30.8
		50	549	2443	1.90	48.3
5300 Pneumatic Heavy Duty		2	201	894	0.81	21
		3	499	2220	0.97	25
		4	1025	4559	1.20	30
		5	2167	9639	1.68	43

NOTE 1: Above gripping force is at the corresponding minimum distance (from the jaw pivot) at 87 psi [6 bar] (pneumatic). Optional spring assist can increase the gripping force or be a safety device on the Series 5300.

PNEUMATIC & HYDRAULIC ROTARY ACTUATORS



SERIES	SIZE	MAX TORQUE OUTPUT
ORQ Pneumatic Compact Table 	12 mm	0.06 in-lb at 100 psi [0.10 Nm at 7 bar]
	16 mm - 40 mm	0.16 to 2.29 in-lb at 145 psi [0.26 to 3.76 Nm at 10 bar]
RL Pneumatic Compact 	12 mm - 63 mm	4.4 to 544 in-lb at 150 psi [0.5 to 59.4 Nm at 10 bar]
RA Pneumatic High Load 	20 mm - 50 mm	14 to 228 in-lb at 150 psi [1.6 to 24.9 Nm at 10 bar]
RI Pneumatic High Force 	25 mm - 50 mm	37 to 476 in-lb at 100 psi [4.3 to 54.6 Nm at 7 bar]
1000-8000 Pneumatic & Hydraulic Heavy Duty 	1 in - 3 in	Pneumatic: 58 to 3,180 in-lb at 150 psi [6.4 to 347 Nm at 10 bar] Hydraulic: 585 to 31,800 in-lb at 1500 psi [66 to 3579 Nm at 103 bar]
2000-8000 Air/Oil Tandem 	1 in - 3 in	58 to 1,590 in-lb at 150 psi [6.4 to 174 Nm at 10 bar]
2000-8000 Pneumatic & Hydraulic Multi-Position 	1 in - 3 in	Pneumatic: 58 to 1,590 in-lb at 150 psi [6.4 to 174 Nm at 10 bar] Hydraulic: 585 to 15,900 in-lb at 1500 psi [66 to 1789 Nm at 103 bar]