

GRK SERIES GRK

PARALLEL GRIPPERS

Ideal for Assembly and Robotics

Highest Grip Force in Its Class



- Precision Jaw Movement
Wear Compensating
Over Life of Unit
- High Moment Capacity
Allows for Longer Tooling
and Greater Part Weights

Patent Pending


**ISO-9001
CERTIFIED**

Quality Management
System Certified

GRK01^A



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SOLUTIONS FOR INDUSTRIAL AUTOMATION

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ORDERING DATA: SERIES GRK PARALLEL GRIPPERS

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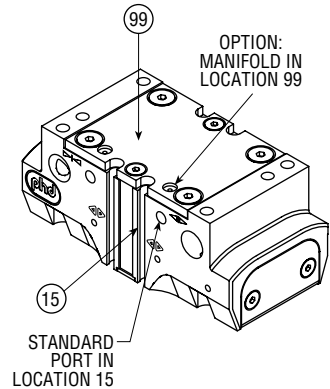
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Options &
Accessories
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TO ORDER SPECIFY:
Product, Design No.,
Size, Minimum Total Jaw
Travel, and any options
required.

DESIGN NO.
1 - Imperial
5 - Metric

OPTIONS (Omit if not required)
L11-UB99 - Manifold option in location 99
CB1 - 8 mm Threaded Inductive Proximity
Switch Ready with **one** switch mounting
bracket
CB2 - 8 mm Threaded Inductive Proximity
Switch Ready with **two** switch mounting
brackets
V1 - Fluoro-Elastomer & PTFE Gasket & Seals
FSR2 - Spring assist close
FSE2 - Spring assist open



GRK - 1 - 35 x 12 - L11-UB99

PRODUCT
High Precision Parallel Jaw Travel
High Moment Capacity
High Grip Force to Height Ratio

NOTE: Design No. indicates imperial
or metric mounting holes, dowel pin
holes, and ports.

PRODUCT SIZE	EQUIVALENT BORE DIA.		MINIMUM TOTAL JAW TRAVEL Total Travel Per Bore Size	
	mm	inch	mm	inch equivalent
35	35	1.378	6.5	.256
35	35	1.378	12	.472
46	46	1.811	8	.315
46	46	1.811	16	.630
58	58	2.283	10.5	.413
58	58	2.283	20	.787
75	75	2.953	12.5	.492
75	75	2.953	26	1.024

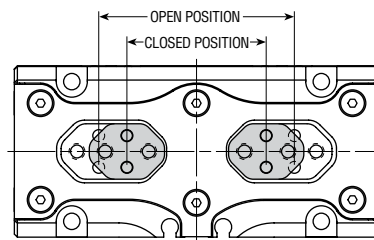
TOTAL JAW TRAVEL = OPEN POSITION - CLOSED POSITION

2 POSITION TEACHABLE MAGNETIC SWITCHES

PART NO.	SWITCH DESCRIPTION
JC1STP-2	PNP (Source), Solid State, 12-30 VDC, 2 meter cable
JC1STP-K	PNP (Source), Solid State, 12-30 VDC, Quick Connect

MATCHING CORDSET

PART NO.	DESCRIPTION
81284-1-001	M8, 4 pin, Straight Female Connector, 5 meter cable



MAGNETIC SWITCHES

PART NO.	SWITCH DESCRIPTION
JC1SDP-5	PNP (Source), Solid State, 10-30 VDC, 5 meter cable
JC1SDP-K	PNP (Source), Solid State, 10-30 VDC, Quick Connect
JC1SDN-5	NPN (Sink), Solid State, 10-30 VDC, 5 meter cable
JC1SDN-K	NPN (Sink), Solid State, 10-30 VDC, Quick Connect

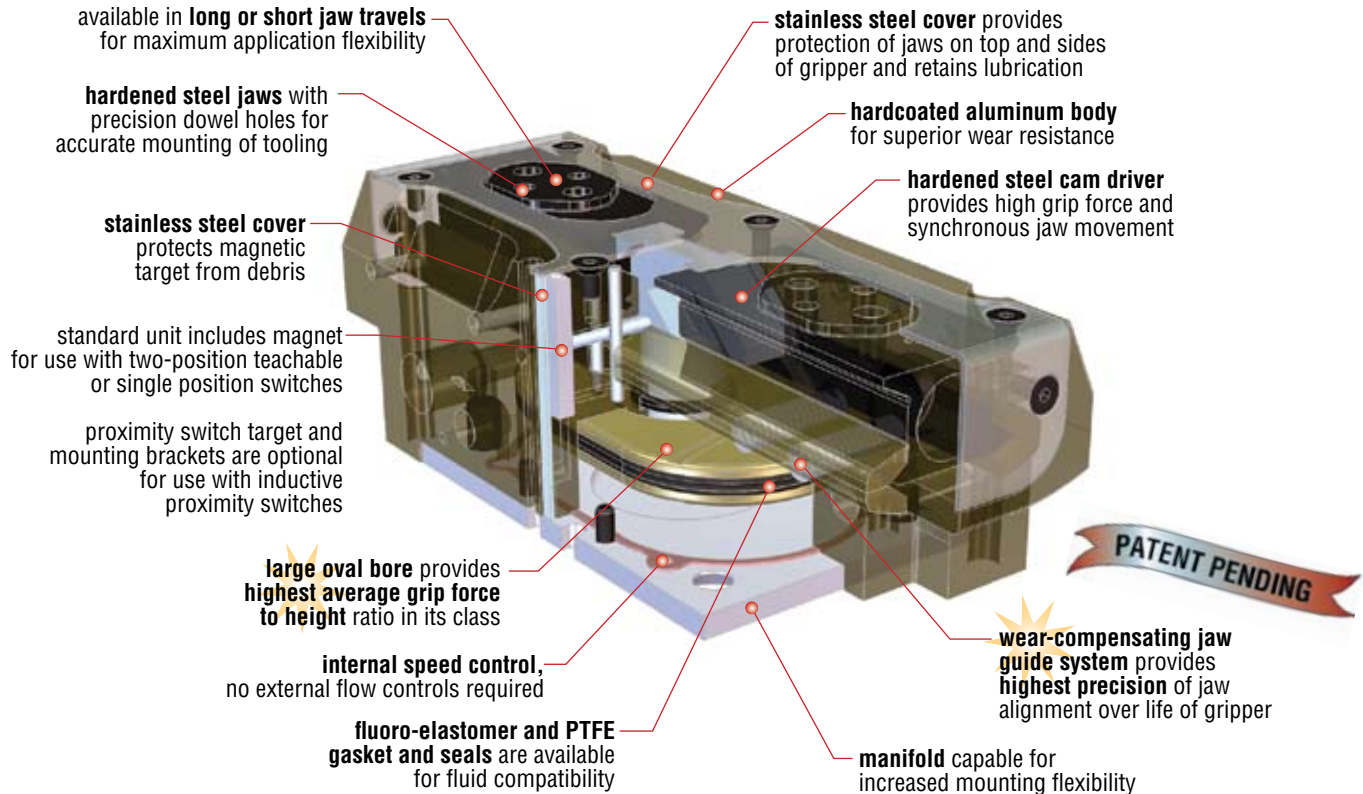
MATCHING CORDSET

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

8 mm THREADED INDUCTIVE PROXIMITY SWITCHES

PART NO.	SWITCH DESCRIPTION
51422-005-02	8mm Threaded Inductive Proximity Switch NPN (Sink) 10-30 VDC, 2 meter cable
51422-006-02	8mm Threaded Inductive Proximity Switch PNP (Source) 10-30 VDC, 2 meter cable

SERIES GRK PARALLEL GRIPPERS



On average 30% higher grip forces than previously cataloged!

Spring assist available on open or close. See pages 10 and 11 for detailed information.

Major Benefits

- Compact, low profile design provides high grip force and large moment capacities with low overall weight.
- Ultra-rigid, wear-compensating jaw guide system eliminates jaw "free-play" and dramatically reduces jaw deflection when gripping or moving loads over life of unit.
- True parallel jaw motion simplifies jaw tooling and is ideal for centering parts of various sizes.
- H7-tolerance dowel pin holes included for accurate alignment of tooling and gripper mounting.
- Rugged construction ensures long operating life.
- Two grip force/jaw travel combinations available for each size of gripper.
- Double acting for use in both internal and external gripping applications.
- Manifold porting capability allows for nested gripper installation.
- Mounting provided from top, bottom, front and back of gripper.
- Available with metric and imperial mounting threads and ports.
- Supplied "switch-ready" for easy integration of optional magnetic position sensing switches.
- Magnetic sensing for new two-position teachable switch available to simplify set-up and integration. Two teachable positions per switch.
- Inductive proximity switches available for discrete indication of jaw position (option -CB).
- Standard four working day delivery reduces integration time.

Industry/Process Uses

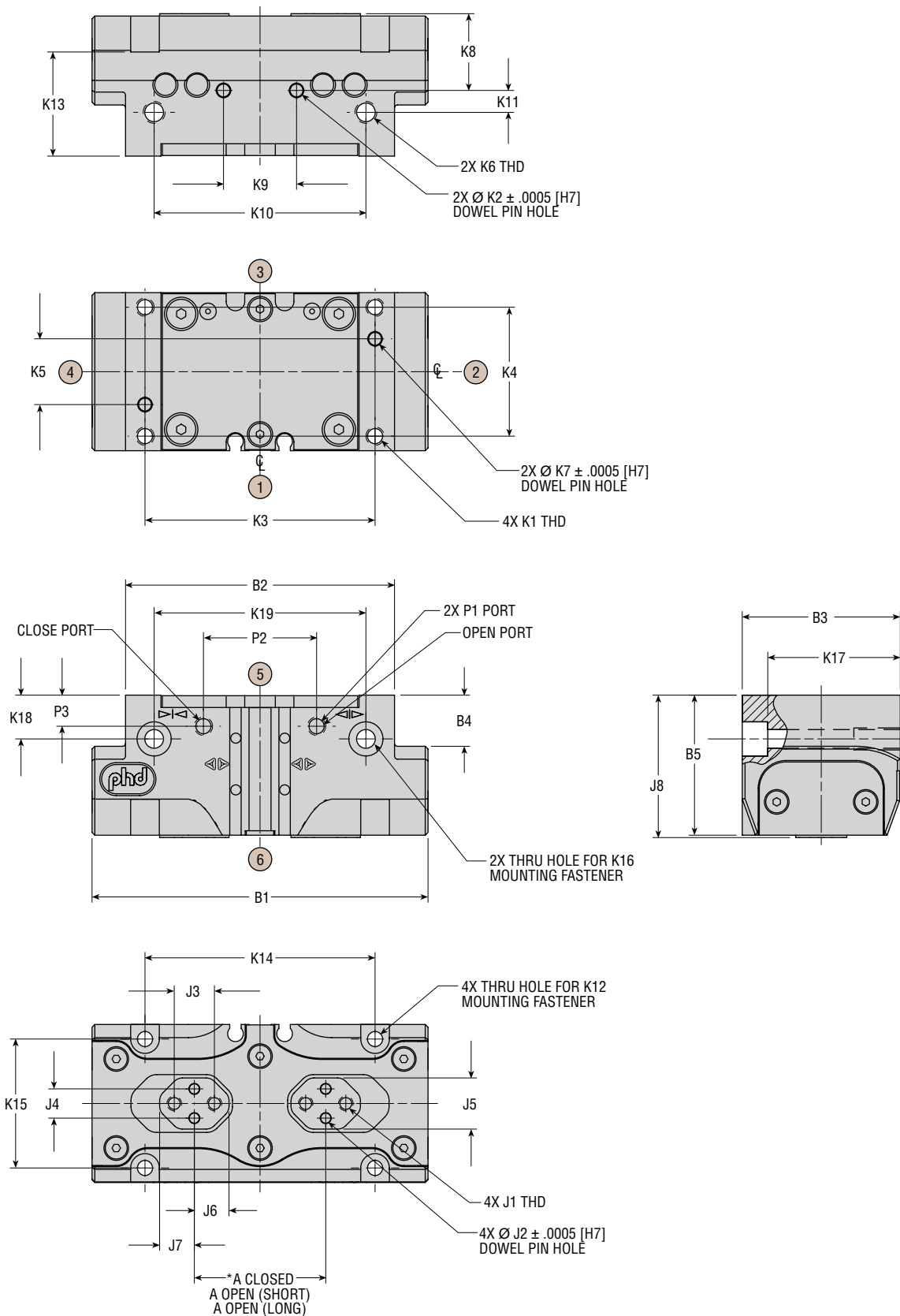
- Assembly machine and machine builders
- Robotic integrators
- Automotive
- Medical device manufacture
- Semiconductor manufacture
- Laboratory processing applications
- Clamping and fixturing during assembly operations
- Centering and registration of parts
- Incorporation into space restricted processing and manufacturing equipment

**Precision Jaw Movement -
Wear-compensating over life of unit**

**High Moments -
Provides for longer tooling and
greater part weights**

**High Grip Force to Height Ratio -
Significantly greater range of part handling**

DIMENSIONS: SERIES GRK PARALLEL GRIPPERS



DIMENSIONS: SERIES GRK PARALLEL GRIPPERS

LETTER DIM	MODEL NUMBER							
	GRK-x-35 X 6.5 or 12		GRK-x-46 X 8 or 16		GRK-x-58 X 10.5 or 20		GRK-x-75 X 12.5 or 26	
	in	mm	in	mm	in	mm	in	mm
MIN. TRAVEL PER JAW (SHORT)	.128	3.25	.158	4.00	.207	5.25	.246	6.25
MIN. TRAVEL PER JAW (LONG)	.236	6.0	.315	8.0	.394	10.0	.512	13.0
A CLOSED*	1.417	36.0	1.732	44.0	2.205	56.0	2.953	75.0
A OPEN SHORT*	1.673	42.5	2.047	52.0	2.618	66.5	3.445	87.5
A OPEN LONG*	1.890	48.0	2.362	60.0	2.992	76.0	3.976	101.0
B1	3.622	92.0	4.456	113.2	5.548	140.9	6.969	177.0
B2	2.900	73.7	3.520	89.4	4.520	114.8	5.640	143.3
B3	1.703	43.3	2.008	51.0	2.362	60.0	2.875	73.0
B4	.551	14.0	.720	18.3	.866	22.0	.980	24.9
B5	1.509	38.3	1.899	48.2	2.136	54.3	2.450	62.2
J1	8-32 x .236 DP	M4 x 0.7 x 6.0 DP	10-32 x .295 DP	M5 x 0.8 x 7.5 DP	1/4-28 x .295 DP	M6 x 1.0 x 7.5 DP	5/16-24 x .394 DP	M8 x 1.25 x 10.0 DP
J2	.1259 x .125 DP	3.0 x 3.1 DP	.1571 x .158 DP	4.0 x 4.0 DP	.1571 x .158 DP	4.0 x 4.0 DP	.1884 x .197 DP	5.0 x 5.0 DP
J3	.433	11.0	.551	14.0	.709	18.0	.827	21.0
J4	.3150	8.0	.3937	10.0	.4724	12.0	.5906	15.0
J5	.551	14.0	.669	17.0	.748	19.0	.984	25.0
J6	.374	9.5	.451	11.5	.569	14.5	.689	17.5
J7 SHORT	.472	12.0	.593	15.1	.750	19.1	.945	24.0
J7 LONG	.374	9.5	.455	11.6	.573	14.6	.689	17.5
J8	1.535	39.0	1.930	49.0	2.165	55.0	2.481	63.0
K1	10-32 x .394 DP	M5 x 0.8 x 10.0 DP	1/4-20 x .500 DP	M6 x 1.0 x 12.7 DP	5/16-18 x .630 DP	M8 x 1.25 x 16.0 DP	5/16-18 x .630 DP	M8 x 1.25 x 16.0 DP
K2	.1571 x .197 DP	4.0 x 5.0 DP	.1884 x .197 DP	5.0 x 5.0 DP	.2509 x .25 DP	6.0 x 6.3 DP	.2509 x .250 DP	6.0 x 6.3 DP
K3	2.4803	63.0	3.1496	80.0	4.0160	102.0	5.1181	130.0
K4	1.389	35.3	1.673	42.5	1.890	48.0	2.401	61.0
K5	.7087	18.0	.9843	25.0	.9843	25.0	1.5748	40.0
K6	1/4-20 x .500 DP	M6 x 1.0 x 12.7 DP	5/16-18 x .630 DP	M8 x 1.25 x 16.0 DP	5/16-18 x .630 DP	M8 x 1.25 x 16.0 DP	3/8-16 x .787 DP	M10 x 1.5 x 20.0 DP
K7	.1571 x .197 DP	4.0 x 5.0 DP	.1884 x .197 DP	5.0 x 5.0 DP	.2509 x .25 DP	6.0 x 6.3 DP	.2509 x .250 DP	6.0 x 6.3 DP
K8	.827	21.0	1.063	27.0	1.063	27.0	1.221	31.0
K9	.7874	20.0	1.1811	30.0	1.3780	35.0	1.9685	50.0
K10	2.283	58.0	2.677	68.0	3.425	87.0	4.331	110.0
K11	.236	6.0	.275	7.0	.374	9.5	.473	12.0
K12	#8	M4	#10	M5	1/4	M6	1/4	M6
K13	1.122	28.5	1.398	35.5	1.634	41.5	1.791	45.5
K14	2.480	63.0	3.150	80.0	4.016	102.0	5.118	130.0
K15	1.389	35.3	1.673	42.5	1.890	48.0	2.401	61.0
K16	#10	M5	1/4	M6	1/4	M6	5/16	M8
K17	1.428	36.3	1.693	43.0	1.850	47.0	2.285	58.0
K18	.472	12.0	.591	15.0	.728	18.5	.787	20.0
K19	2.283	58.0	2.677	68.0	3.425	87.0	4.331	110.0
P1	10-32	M5 x 0.8	10-32	M5 x 0.8	1/8 NPT	1/8 BSPP	1/8 NPT	1/8 BSPP
P2	1.220	31.0	1.299	33.0	2.165	55.0	2.677	68.0
P3	.335	8.5	.394	10.0	.531	13.5	.630	16.0

NOTES:

- 1) DESIGNATED ϕ IS CENTERLINE OF UNIT
- 2) METRIC INFORMATION SHOWN IN []
- 3) CIRCLED NUMBERS INDICATE POSITIONS
- 4) *A OPEN REFLECTS SMALLEST POSSIBLE OPEN DIMENSION
A CLOSED REFLECTS LARGEST POSSIBLE CLOSED DIMENSION
- 5) ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED

ENGINEERING DATA: SERIES GRK PARALLEL GRIPPERS

SPECIFICATIONS	SERIES GRK	
	IMPERIAL	METRIC
OPERATING AIR PRESSURE	36 psi min. to 120 psi max.	2.5 bar min. to 8 bar max.
STANDARD UNIT	66 psi min. to 90 psi max.	4.6 bar min. to 6.2 bar max.
SPRING ASSIST UNIT	-20°F min. to +180°F max.	-28°C min. to +82°C max.
OPERATING TEMPERATURE	± .0004 inch of original position	± .01 mm of original position
GRIP REPEATABILITY	10 million cycles with standard seals	
RATED LIFE	Factory lubricated for rated life	
LUBRICATION		

SIZE	MINIMUM TOTAL JAW TRAVEL		TOTAL CLOSE GRIP FORCE AT 87 psi [6 bar]		GRIPPER WEIGHT		DISPLACEMENT		CLOSE OR OPEN TIME AT 87 psi [6 bar]	MAXIMUM TOOLING LENGTH		GRIP FORCE FACTOR			
	in	mm	lb	N	lb	kg	in³	cm³	sec	in	mm	INTERNAL GRIP		EXTERNAL GRIP	
35 x 6.5	.256	6.5	159	707	0.84	0.38	0.345	5.65	.050	4.00	102	1.92	124	1.83	118
35 x 12	.472	12	86	383								1.04	67	1.00	64
46 x 8	.315	8.0	292	1299	1.52	0.69	0.772	12.65	.070	5.00	127	3.63	234	3.36	217
46 x 16	.630	16	146	649								1.82	117	1.69	109
58 x 10.5	.413	10.5	454	2019	2.45	1.11	1.520	24.91	.090	6.38	162	5.63	363	5.23	337
58 x 20	.787	20	239	1063								2.96	191	2.75	178
75 x 12.5	.492	12.5	805	3581	4.33	1.96	3.185	52.19	.175	7.50	191	9.84	635	9.24	596
75 x 26	1.024	26	378	1681								4.60	297	4.34	280

UNIT	SPRING ASSIST GRIP FORCE								SPRING ASSIST WEIGHT ADDER lb kg		CLOSE OR OPEN TIME AT 87 psi [6 bar] IN SECONDS		
	S _F (SPRING ONLY)* SPRING CLOSE GRIP FORCE				S _F (SPRING ONLY)* SPRING OPEN GRIP FORCE								
	MINIMUM		MAXIMUM		MINIMUM		MAXIMUM				WITH SPRING	AGAINST SPRING	SPRING ONLY
	lb	N	lb	N	lb	N	lb	N					
35 x 6.5 FSR2	48	212	62	277	—	—	—	—	0.45	0.20	0.04	0.06	0.13
35 x 6.5 FSE2	—	—	—	—	47	208	60	267					
35 x 12 FSR2	26	115	34	150	—	—	—	—					
35 x 12 FSE2	—	—	—	—	25	113	33	145					
46 x 8 FSR2	88	389	122	543	—	—	—	—	0.76	0.34	0.06	0.08	0.14
46 x 8 FSE2	—	—	—	—	86	382	121	537					
46 x 16 FSR2	44	195	61	272	—	—	—	—					
46 x 16 FSE2	—	—	—	—	43	191	60	269					
58 x 10.5 FSR2	136	606	191	849	—	—	—	—	1.36	0.62	0.07	0.11	0.16
58 x 10.5 FSE2	—	—	—	—	134	595	189	839					
58 x 20 FSR2	72	319	100	446	—	—	—	—					
58 x 20 FSE2	—	—	—	—	70	313	99	441					
75 x 12.5 FSR2	242	1074	341	1518	—	—	—	—	2.47	1.12	0.16	0.20	0.18
75 x 12.5 FSE2	—	—	—	—	237	1055	338	1502					
75 x 26 FSR2	113	504	160	713	—	—	—	—					
75 x 26 FSE2	—	—	—	—	111	495	159	705					

*Spring force (S_F) varies with spring compression. The minimum spring grip force values occur with the spring at least compression (jaws fully closed on spring close units and fully open on spring open units). The maximum spring grip force values occur with the spring at most compression (jaws fully open on spring close units and fully closed on spring open units).

ENGINEERING DATA: SERIES GRK PARALLEL GRIPPERS

SIZE	AXIAL FORCE		MAXIMUM INDIVIDUAL MOMENTS					
	Fa		Mx		My		Mz	
	lb	N	in-lb	Nm	in-lb	Nm	in-lb	Nm
35	270	1201	880	99	655	74	400	45
46	430	1913	1390	157	1015	115	650	73
58	530	2358	2230	252	1630	184	900	102
75	740	3292	3280	371	2380	269	1280	145

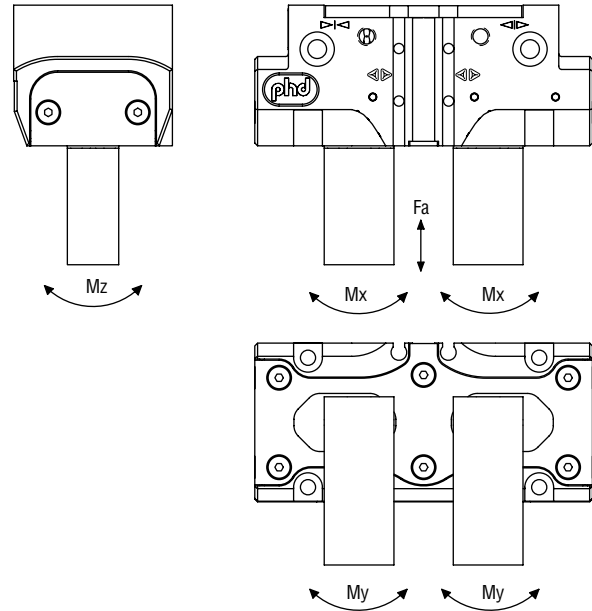
Fa: Total for both jaws

Mx: Maximum allowable moment per jaw, relative to the jaw mounting surface

My: Maximum allowable moment per jaw, relative to the geometric center of the jaw dowel hole pair

Mz: Maximum allowable moment per jaw, relative to the jaw mounting surface

When calculating the value for Fa, include the tooling weight, part weight, external forces, and accelerations. When calculating values for Mx, My, and Mz, include the grip force per jaw, tooling weight, part weight, external forces, and accelerations as applicable.



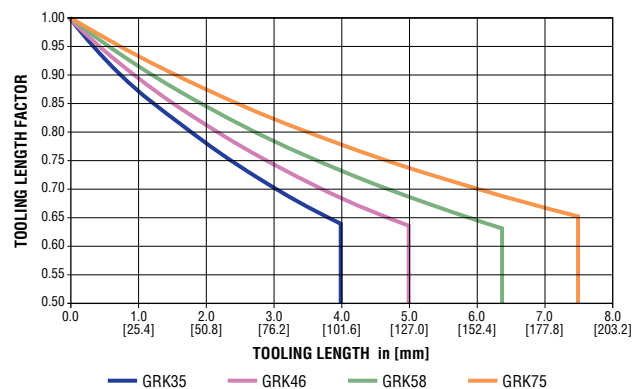
RECOMMENDATIONS

Design tooling so that the grip point is as close to the gripper surfaces as possible. The grip force factor (Gf) values given in the table on page 6 are for zero tooling length. As the grip point is moved away from the jaw surface, the applied moment causes jaw friction to increase, resulting in reduced effective grip force. Use the tooling length factor chart on the following page to calculate the effective grip force for a specific grip point.

The maximum load that grippers can handle will vary based on: size of the part being picked up, shape of the part, texture of the part, speed at which the part is transferred, working pressure, shape of the fingers, etc.

TOOLING LENGTH FACTOR

As the grip point is moved away from the jaw surface, the grip force is reduced due to additional friction generated by the grip induced moment. The tooling length factor allows calculation of the grip force at any grip point. The graph also indicates the maximum tooling length for each gripper size.



GRIP FORCE CALCULATION EQUATIONS:

IMPERIAL:

$$\text{Total Grip Force [lb]} = (\text{Pressure [psi]} \times \text{Gf}) \times \text{Tooling Length Factor}$$

$$\text{Total Grip Force With Springs [lb]} = ((\text{Pressure [psi]} \times \text{Gf}) \pm S_f [\text{lb}]) \times \text{Tooling Length Factor}$$

METRIC:

$$\text{Total Grip Force [N]} = (\text{Pressure [bar]} \times \text{Gf}) \times \text{Tooling Length Factor}$$

$$\text{Total Grip Force With Springs [N]} = ((\text{Pressure [bar]} \times \text{Gf}) \pm S_f [\text{N}]) \times \text{Tooling Length Factor}$$

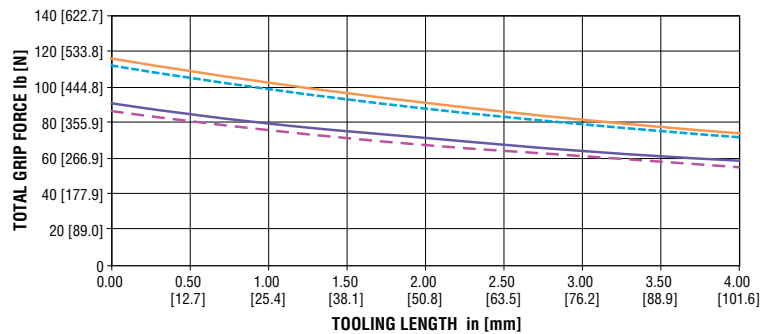
ENGINEERING DATA: SERIES GRK PARALLEL GRIPPERS

GRIP FORCE

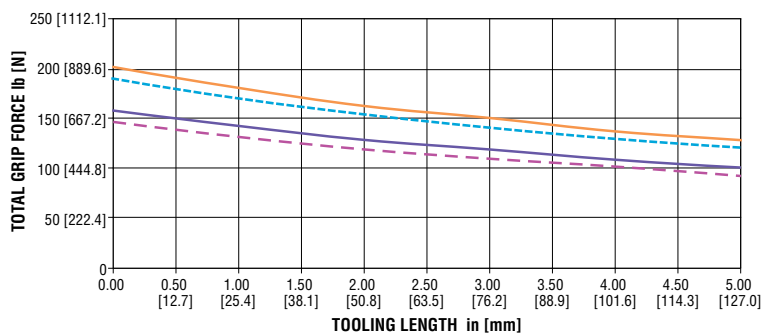
Total gripping force relative to tooling length is shown below at 87 psi [6 bar] pressure. Grip force per jaw equals the total grip force divided by two. The graphs also indicate the maximum tooling length for each gripper size.

On average 30% higher grip forces than previously cataloged!

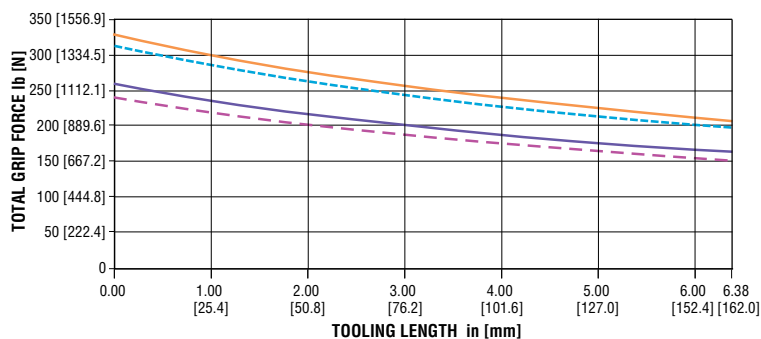
GRK35
12 mm LONG TRAVEL



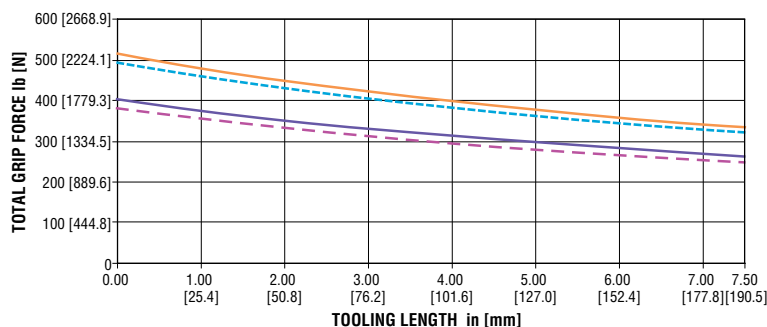
GRK46
16 mm LONG TRAVEL



GRK58
20 mm LONG TRAVEL



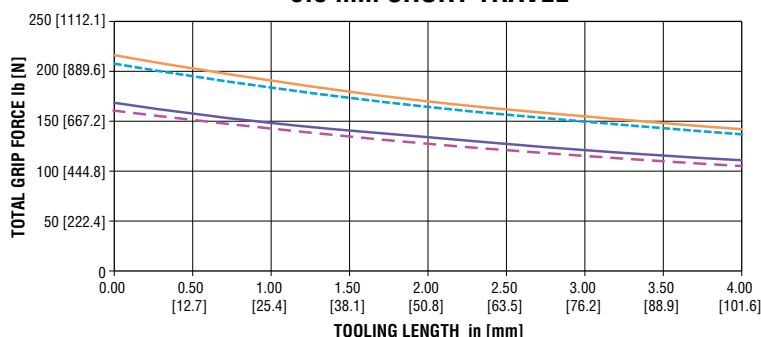
GRK75
26 mm LONG TRAVEL



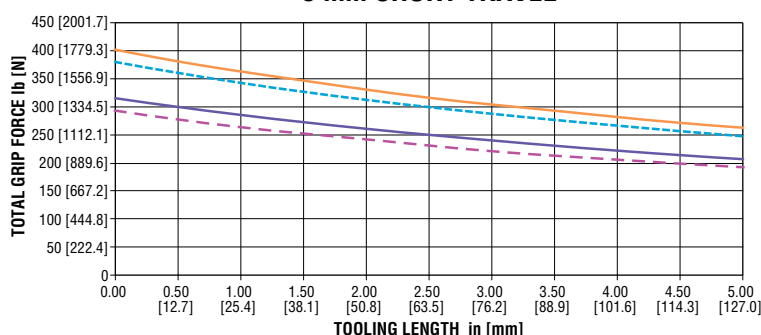
ENGINEERING DATA: SERIES GRK PARALLEL GRIPPERS

On average 30% higher grip forces than previously cataloged!

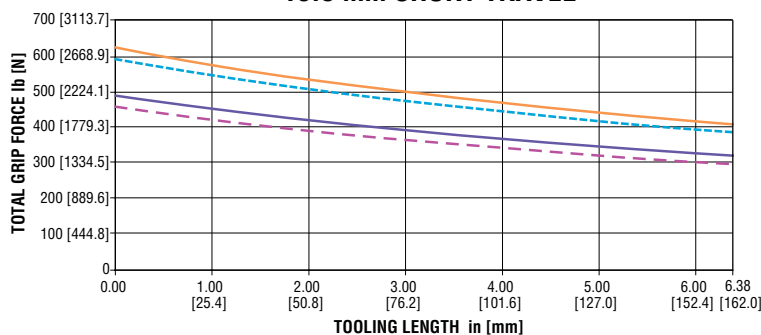
GRK35 6.5 mm SHORT TRAVEL



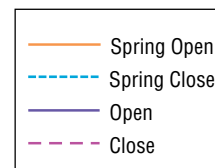
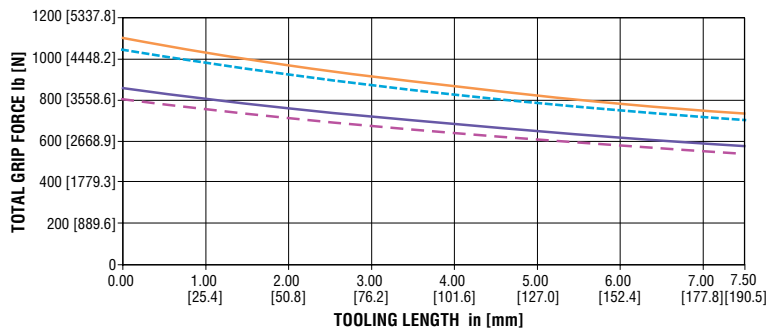
GRK46 8 mm SHORT TRAVEL



GRK58 10.5 mm SHORT TRAVEL



GRK75 12.5 mm SHORT TRAVEL



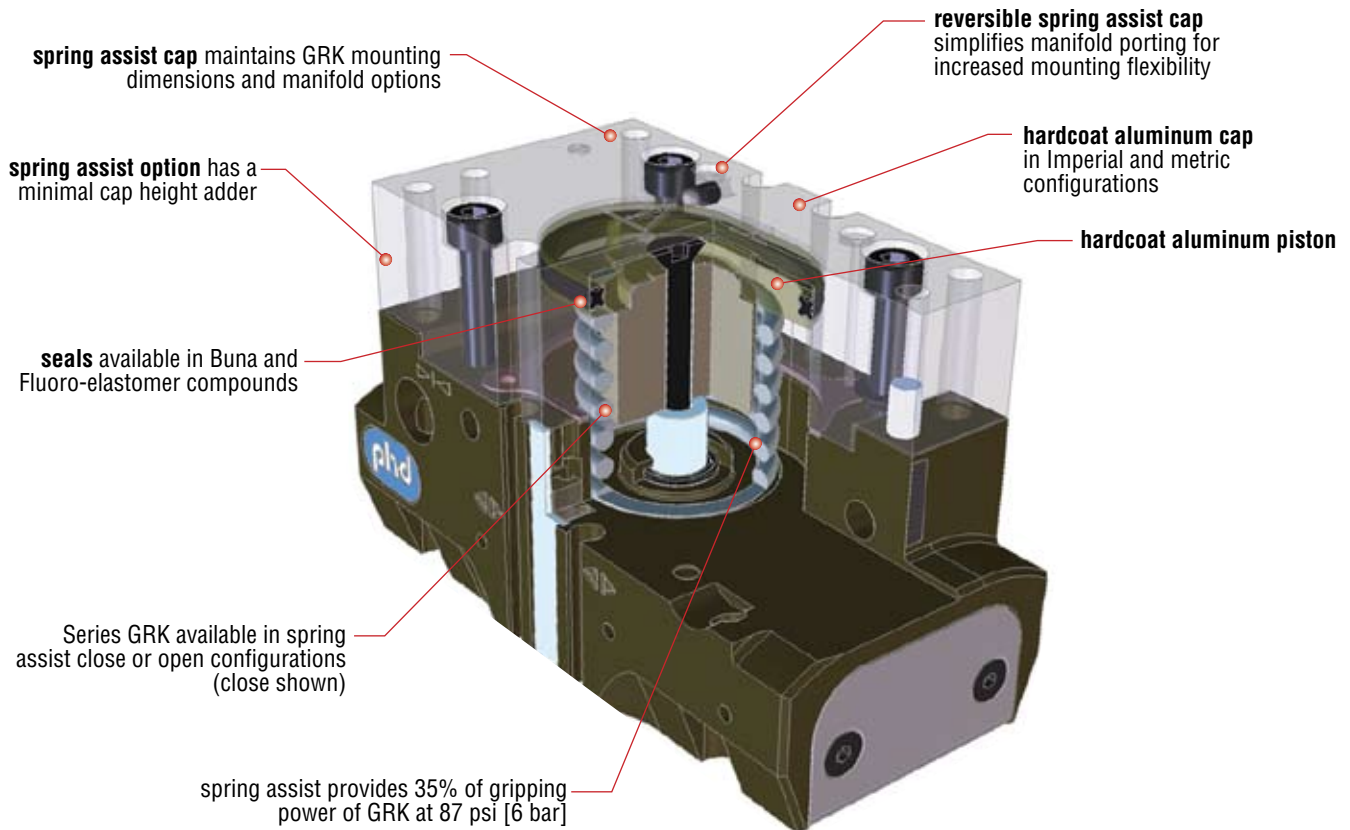
OPTIONS: SERIES GRK PARALLEL GRIPPERS

FSR2

SPRING ASSIST CLOSE

FSE2

SPRING ASSIST OPEN



Major Benefits

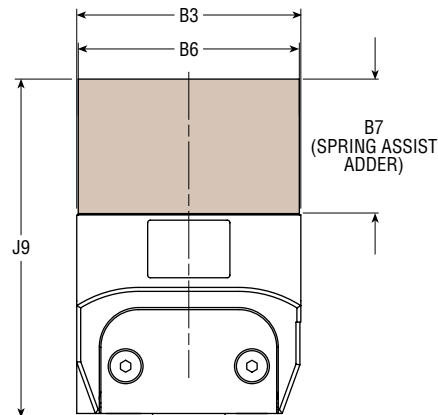
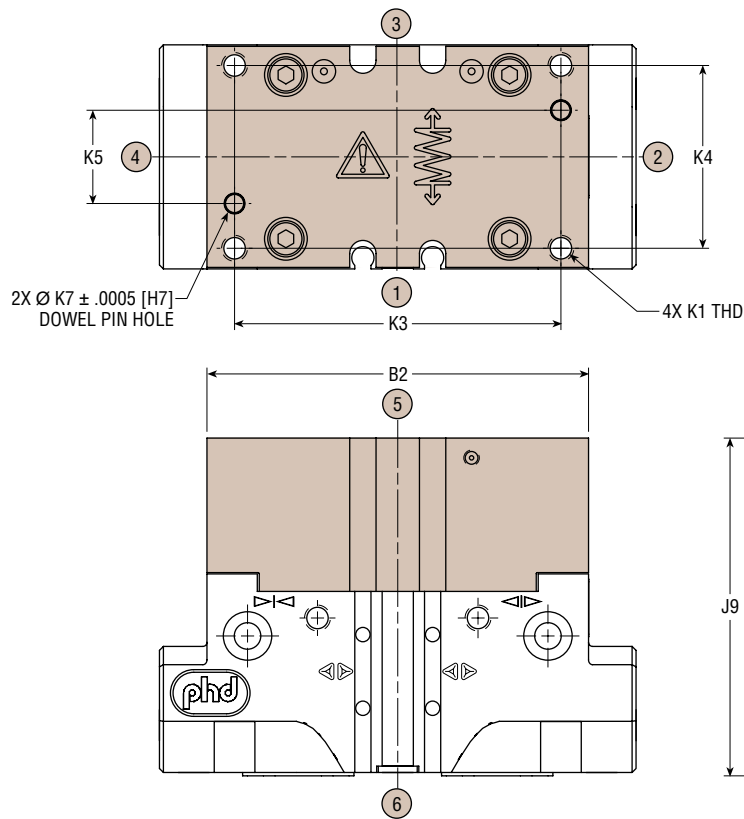
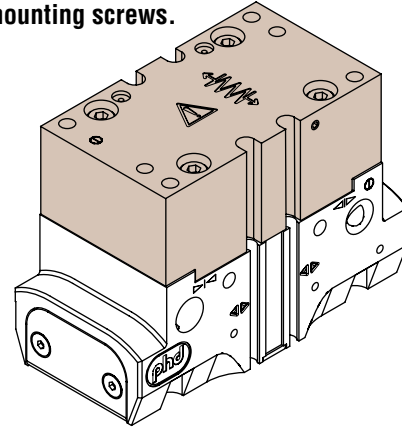
The GRK spring assist option provides all the benefits of the standard GRK with the following additional benefits:

- Provides a mechanical method to retain part in case of pressure loss.
- Increases gripping force.
- Provide single acting gripping actuation.

OPTIONS: SERIES GRK PARALLEL GRIPPERS

The spring assist option maintains a minimum gripping force if air pressure is reduced or lost. The FSR2 option acts as a closing force, and the FSE2 option acts as an opening force. The spring assist option also provides single acting actuation of the gripper and increases grip force in a specific direction when used with air pressure. Working pressure for spring assist units is 66 psi min. to 90 psi max. [4.6 bar min. to 6.2 bar max.]. For spring grip forces, see table on page 6.

WARNING:
Do not remove spring housing mounting screws.



LETTER DIM	MODEL NUMBER							
	GRK-x-35 X 6.5 or 12		GRK-x-46 X 8 or 16		GRK-x-58 X 10.5 or 20		GRK-x-75 X 12.5 or 26	
	in	mm	in	mm	in	mm	in	mm
B2	2.900	73.7	3.520	89.4	4.520	114.8	5.640	143.3
B3	1.703	43.3	2.008	51.0	2.362	60.0	2.875	73.0
B6	1.681	42.7	1.986	50.4	2.340	59.4	2.843	72.2
B7	1.025	26.0	1.260	32.0	1.595	40.5	1.928	49.0
J9	2.560	65.0	3.189	81.0	3.760	95.5	4.409	112.0
K1	10-32 x .394	M5 x 0.8 x 10.0 DP	1/4-20 x .500 DP	M6 x 1.0 x 12.7 DP	5/16-18 x .630 DP	M8 x 1.25 x 16.0 DP	5/16-18 x .630 DP	M8 x 1.25 x 16.0 DP
K3	2.4803	63.0	3.1496	80.0	4.0160	102.0	5.1181	130.0
K4	1.389	35.3	1.673	42.5	1.890	48.0	2.401	61.0
K5	.7087	18.0	.9843	25.0	.9843	25.0	1.5748	40.0
K7	.1571 x .197 DP	4.0 x 5.0 DP	.1884 x .197 DP	5.0 x 5.0 DP	.2509 x .25 DP	6.0 x 6.3 DP	.2509 x .250 DP	6.0 x 6.3 DP

NOTES:

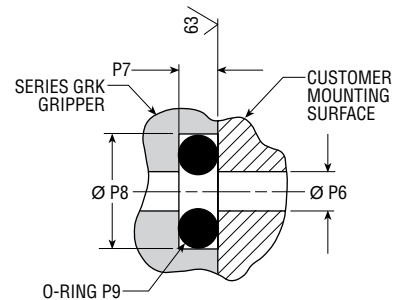
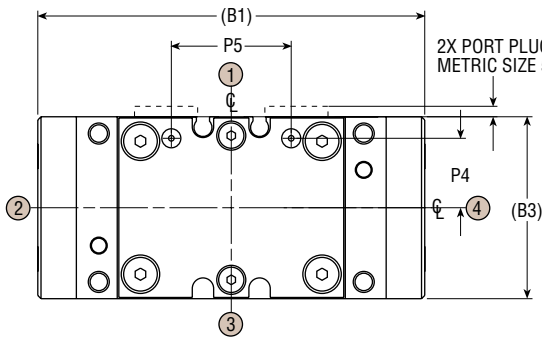
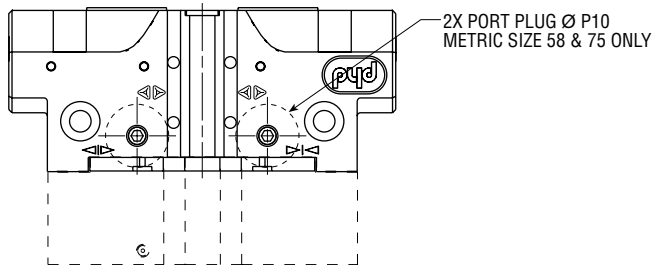
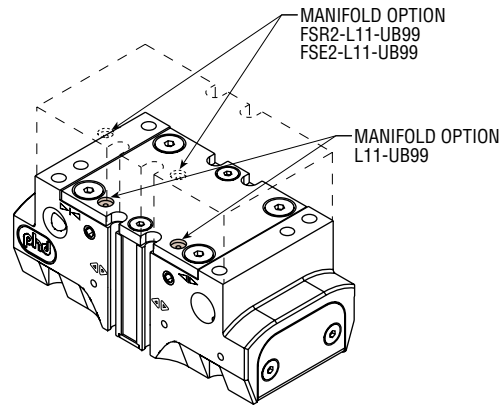
- 1) ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED
- 2) METRIC INFORMATION SHOWN IN []
- 3) CIRCLED NUMBERS INDICATE POSITIONS

OPTIONS: SERIES GRK PARALLEL GRIPPERS

L11-UB99

MANIFOLD PORTS

With this option the gripper is configured for manifold mounting on the indicated mounting face. The standard ports are plugged. O-ring seals are provided for mounting between the gripper and the manifold.



MANIFOLD PORTING DIMENSIONS
For customer use (dimensions required on customer mounting surface)

REPLACEMENT MANIFOLD SEAL KITS

SIZE	KIT NUMBER
35	80778-035
46	80778-046
58	80778-058
75	80778-075

Kit includes O-rings

LETTER DIM	MODEL NUMBER							
	GRK-x-35 X 6.5 or 12		GRK-x-46 X 8 or 16		GRK-x-58 X 10.5 or 20		GRK-x-75 X 12.5 or 26	
	in	mm	in	mm	in	mm	in	mm
P4	.650	16.5	.765	19.4	.837	21.3	1.110	28.2
P5	1.122	28.5	1.200	30.5	2.087	53.0	2.480	63.0
P6	.052	1.3	.064	1.6	.076	1.9	.109	2.8
P7	.042	1.1	.042	1.1	.042	1.1	.042	1.1
P8	.178	4.5	.216	5.5	.216	5.5	.236	6.0
P9 O-RING*	1.5 mm x 1.5 mm		2.5 mm x 1.5 mm		2.5 mm x 1.5 mm		3 mm x 1.5 mm	
P10	—	—	—	—	.591	15.0	.591	15.0
P11	—	—	—	—	.098	2.5	.098	2.5
(B1)	3.622	92.0	4.456	113.2	5.548	140.9	6.969	177.0
(B3)	1.703	43.3	2.008	51.0	2.362	60.0	2.875	73.0

NOTES:

- 1) DESIGNATED ϕ IS CENTERLINE OF UNIT
- 2) ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED
- 3) CIRCLED NUMBERS INDICATE POSITIONS
- 4) *I.D. x CROSS-SECTION

OPTIONS: SERIES GRK PARALLEL GRIPPERS



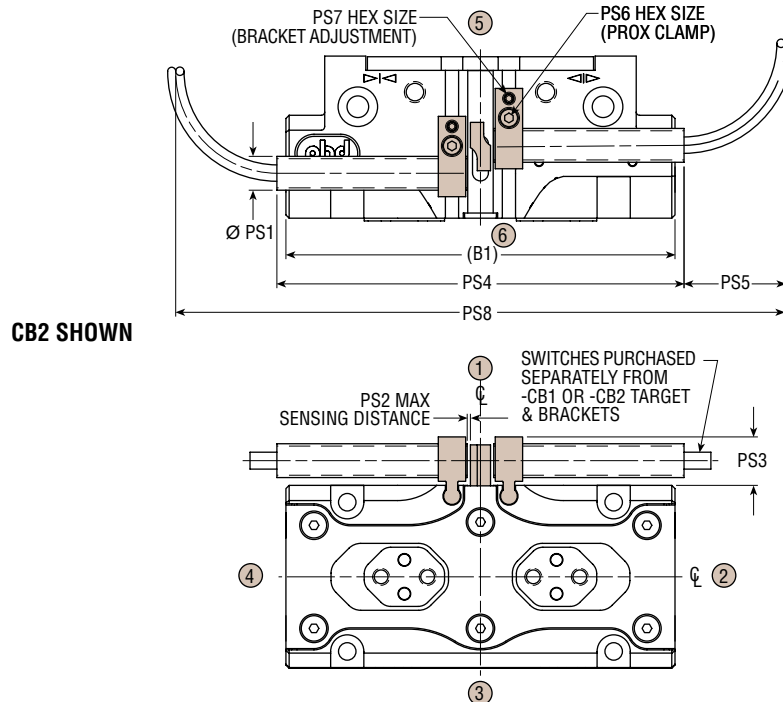
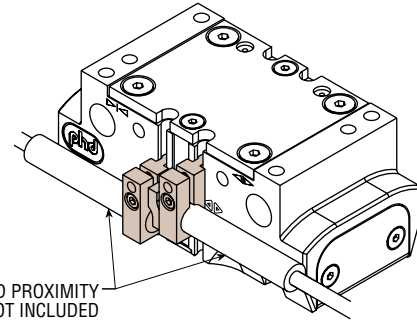
**8 mm THREADED INDUCTIVE PROXIMITY SWITCH
READY WITH ONE SWITCH MOUNTING BRACKET**



**8 mm THREADED INDUCTIVE PROXIMITY SWITCH
READY WITH TWO SWITCH MOUNTING BRACKETS**

With this option the gripper includes a target extending from the front of the gripper along with one or two 8 mm threaded inductive proximity switch mounting brackets.

NOTE: Inductive proximity switches are shown for reference only. Switches are not included with this option. See Series 51422 switches on page 14.



LETTER DIM	MODEL NUMBER							
	GRK-x-35 X 6.5 or 12		GRK-x-46 X 8 or 16		GRK-x-58 X 10.5 or 20		GRK-x-75 X 12.5 or 26	
	in	mm	in	mm	in	mm	in	mm
PS1	8 mm THREADED		8 mm THREADED		8 mm THREADED		8 mm THREADED	
PS2	.030	.8	.030	.8	.030	.8	.030	.8
PS3	.460	11.7	.460	11.7	.460	11.7	.460	11.7
PS4	3.790	96.3	3.790	96.3	3.790	96.3	3.790	96.3
PS5	.945	24.0	.945	24.0	.945	24.0	.945	24.0
PS6	.079	2.0	.079	2.0	.079	2.0	.079	2.0
PS7	.051	1.3	.051	1.3	.051	1.3	.051	1.3
PS8	5.674	144.1	5.674	144.1	5.674	144.1	5.674	144.1
(B1)	3.622	92.0	4.456	113.2	5.548	140.9	6.969	177.0

NOTES:

- 1) DESIGNATED ϕ IS CENTERLINE OF UNIT
- 2) ALL DIMENSIONS ARE REFERENCE ONLY UNLESS SPECIFICALLY TOLERANCED
- 3) CIRCLED NUMBERS INDICATE POSITIONS

OPTIONS & ACCESSORIES: SERIES GRK GRIPPERS



FLUORO-ELASTOMER & PTFE SEALS & GASKETS

Fluoro-elastomer seals and PTFE gasket and plugs are available to achieve seal compatibility with certain fluids. Seal compatibility should be checked with the fluid manufacturer for proper application.

SERIES 51422 8 mm THREADED INDUCTIVE PROXIMITY SWITCH

This switch provides high reliability by the use of solid state sensing technology. The Series 51422 switch is suitable for plant environments where dirt and contamination create difficulties for electromechanical and other types of switches. Includes LED indicator for convenient means of positioning.

PART NO.	SWITCH DESCRIPTION
51422-005-02	8mm Threaded Inductive Proximity Switch NPN (Sink) 10-30 VDC, 2 meter cable
51422-006-02	8mm Threaded Inductive Proximity Switch PNP (Source) 10-30 VDC, 2 meter cable

See Switch and Sensors section in PHD's main catalog for complete switch specifications.

USING SERIES JC1ST TEACHABLE SWITCHES WITH SERIES GRK

The switches perform best when gripping part(s) in the "Optimal Part Detection Range" which is the middle area of the jaw travel. As the position to be sensed moves nearer to either end of jaw travel (area "B") the switching point accuracy will decrease.

Once the first position is taught, the jaws must travel a "minimum distance" before the second position can be taught. This minimum distance equals the Minimum Difference in Part Size that can be detected based on total jaw travel. See Travel Distance Chart for these distances as it pertains to the model of GRK gripper you will be using.

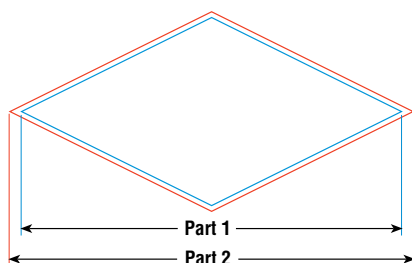
NOTE: Minimum Difference in Part Size can fall anywhere within the Optimal Part Detection Range.

When one taught position is full open or full closed, then each jaw must travel "B" distance before the next point can be taught.

Use this data in applying the Series JC1ST Teachable Switches in your specific application.

In the event that the positions you need to sense are less than "Minimum Difference in Part Size", you may need to utilize a JC1ST Teachable and the JC1SD switch combination to achieve your requirements.

The JC1ST Teachable and the JC1SD Switches can be used in combinations for more than two sensing outputs.



Part 2 - Part 1 = Minimum Difference in Part Size

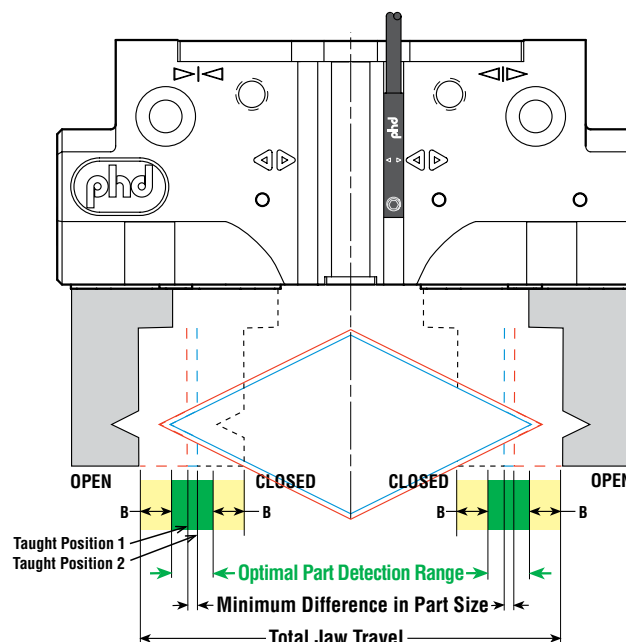
NOTE: The distances in the illustration are exaggerated for visual demonstration.

TRAVEL DISTANCE CHART GRK SHORT TRAVEL

SIZE	MINIMUM DIFFERENCE IN PART SIZE		B		TOTAL JAW TRAVEL		OPTIMAL PART DETECTION RANGE	
	mm	inch	mm	inch	mm	inch	mm	inch
35	1.27	0.050	0.86	0.034	6.50	0.256	3.05	0.120
46	1.27	0.050	0.89	0.035	8.00	0.315	4.45	0.175
58	1.27	0.050	1.27	0.050	10.5	0.413	5.41	0.213
75	1.27	0.050	1.60	0.063	12.5	0.492	6.10	0.240

GRK LONG TRAVEL

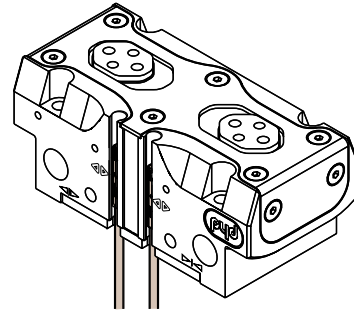
SIZE	MINIMUM DIFFERENCE IN PART SIZE		B		TOTAL JAW TRAVEL		OPTIMAL PART DETECTION RANGE	
	mm	inch	mm	inch	mm	inch	mm	inch
35	2.54	0.100	1.50	0.059	12.0	0.472	6.00	0.236
46	2.54	0.100	1.65	0.065	16.0	0.630	9.40	0.370
58	2.54	0.100	2.29	0.090	20.0	0.787	10.85	0.427
75	2.54	0.100	3.22	0.127	26.0	1.024	13.11	0.516



ACCESSORIES: SERIES GRK GRIPPERS

SERIES JC1ST TWO POSITION TEACHABLE MAGNETIC SWITCH

This switch provides the ability to identify two separately programmable jaw positions with a single switch. Programmable capability means no “fine-tuning.” With switch properly aligned, just place jaws in desired position and program. Solid-state sensing technology provides a highly reliable switch. Elliptical housing allows for easy “drop-in” installation. Includes LED indicators for convenient means of positioning and programming. Available with cable or 8 mm threaded Quick Connect.

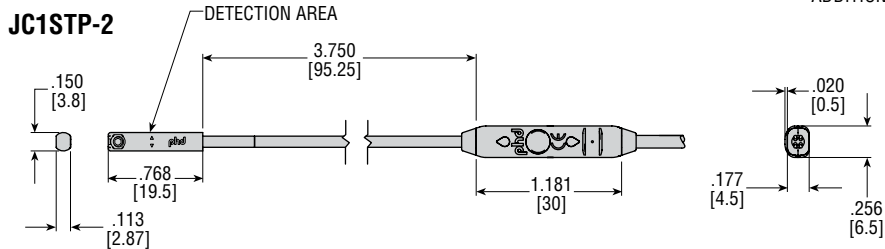
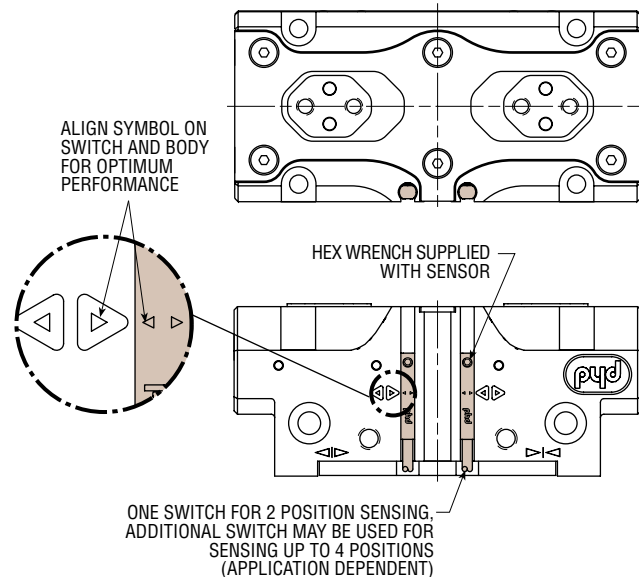


PART NO.	SWITCH DESCRIPTION
JC1STP-2	PNP (Source), Solid State, 12-30 VDC, 2 meter cable
JC1STP-K	PNP (Source), Solid State, 12-30 VDC, Quick Connect

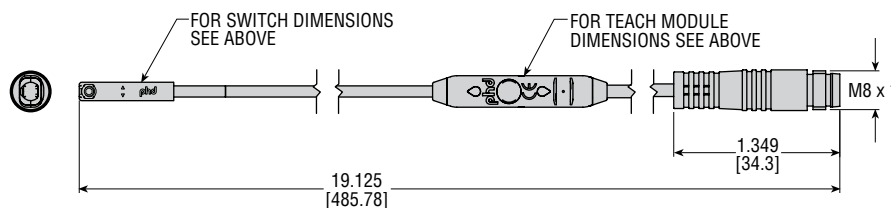
MATCHING CORDSET

PART NO.	DESCRIPTION
81284-1-001	M8, 4 pin, Straight Female Connector, 5 meter cable

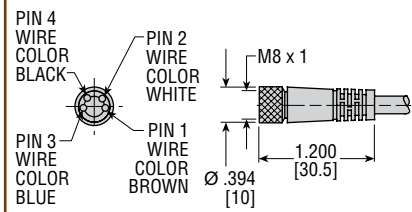
SPECIFICATIONS	JC1STP-x
OPERATING PRINCIPLE	Programmable Magnetic Field Characterization
INPUT VOLTAGE	12 - 30 VDC
NUMBER & TYPE OF OUTPUTS	Two PNP (source), separately adjustable
OUTPUT CURRENT	100 mA max., Short Circuit Protection
VOLTAGE DROP	≤ 2.2 VDC
SWITCH BURDEN	≤ 15 mA
ENVIRONMENTAL	IP67
OPERATING TEMP.	-20°C to 75°C
TYPICAL DETECTION AREA	0 - 50 mm



JC1STP-K (Quick Connect)



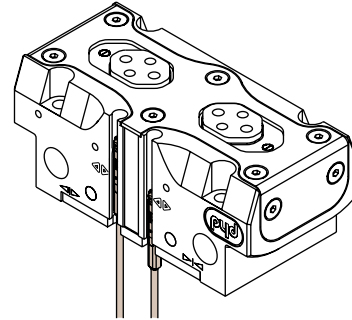
81284-1-001 CORDSET



ACCESSORIES: SERIES GRK GRIPPERS

SERIES JC1SD MAGNETIC SWITCH

This switch provides the ability to identify a single jaw position. Solid-state sensing technology provides a highly reliable switch. Elliptical housing allows for easy “drop-in” installation. Includes LED indicator for convenient means of positioning. Available with PNP or NPN output. Available with cable or 8 mm threaded Quick Connect.

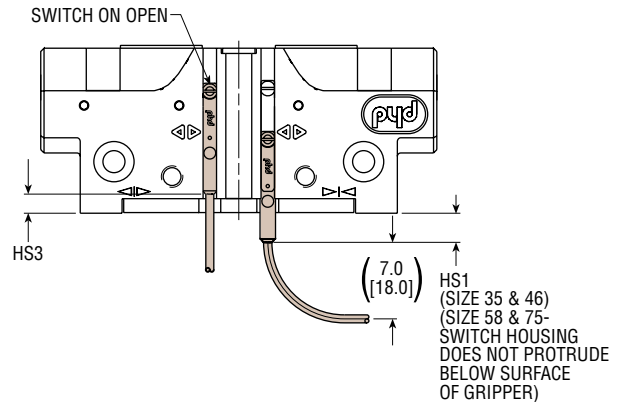


PART NO.	SWITCH DESCRIPTION
JC1SDP-5	PNP (Source), Solid State, 10-30 VDC, 5 meter cable
JC1SDP-K	PNP (Source), Solid State, 10-30 VDC, Quick Connect
JC1SDN-5	NPN (Sink), Solid State, 10-30 VDC, 5 meter cable
JC1SDN-K	NPN (Sink), Solid State, 10-30 VDC, Quick Connect

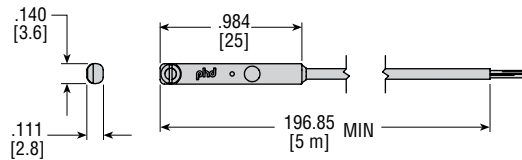
MATCHING CORDSET

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

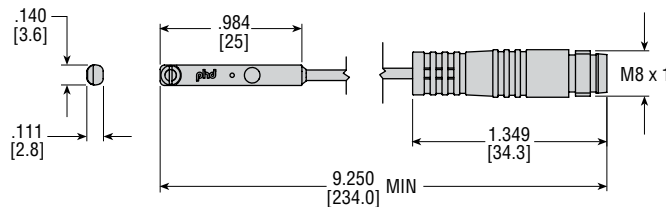
SPECIFICATIONS	JC1SDP-x	JC1SDN-x
OPERATING PRINCIPLE	Solid State Detection of Moving Magnet	
INPUT VOLTAGE	10 - 30 VDC	
OUTPUT TYPE	PNP (source)	NPN (sink)
OUTPUT CURRENT	100 mA max., Short Circuit Protection	
VOLTAGE DROP	≤ 2.5 VDC	
SWITCH BURDEN	≤ 8 mA	
ENVIRONMENTAL	IP67	
OPERATING TEMP.	-25°C to 75°C	



JC1SDx-5

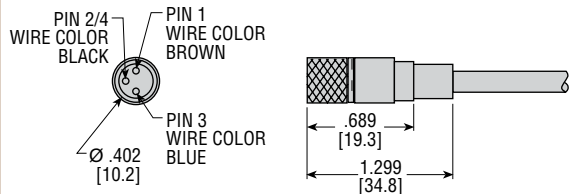


JC1SDx-K (Quick Connect)



LETTER DIM	MODEL NUMBER							
	GRK-x-35 X 6.5 or 12		GRK-x-46 X 8 or 16		GRK-x-58 X 10.5 or 20		GRK-x-75 X 12.5 or 26	
HS1	.220	5.6	.015	.4	—	—	—	—
HS3	.125	3.2	.430	10.9	.640	16.3	.850	21.6

63549-xx CORDSET



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