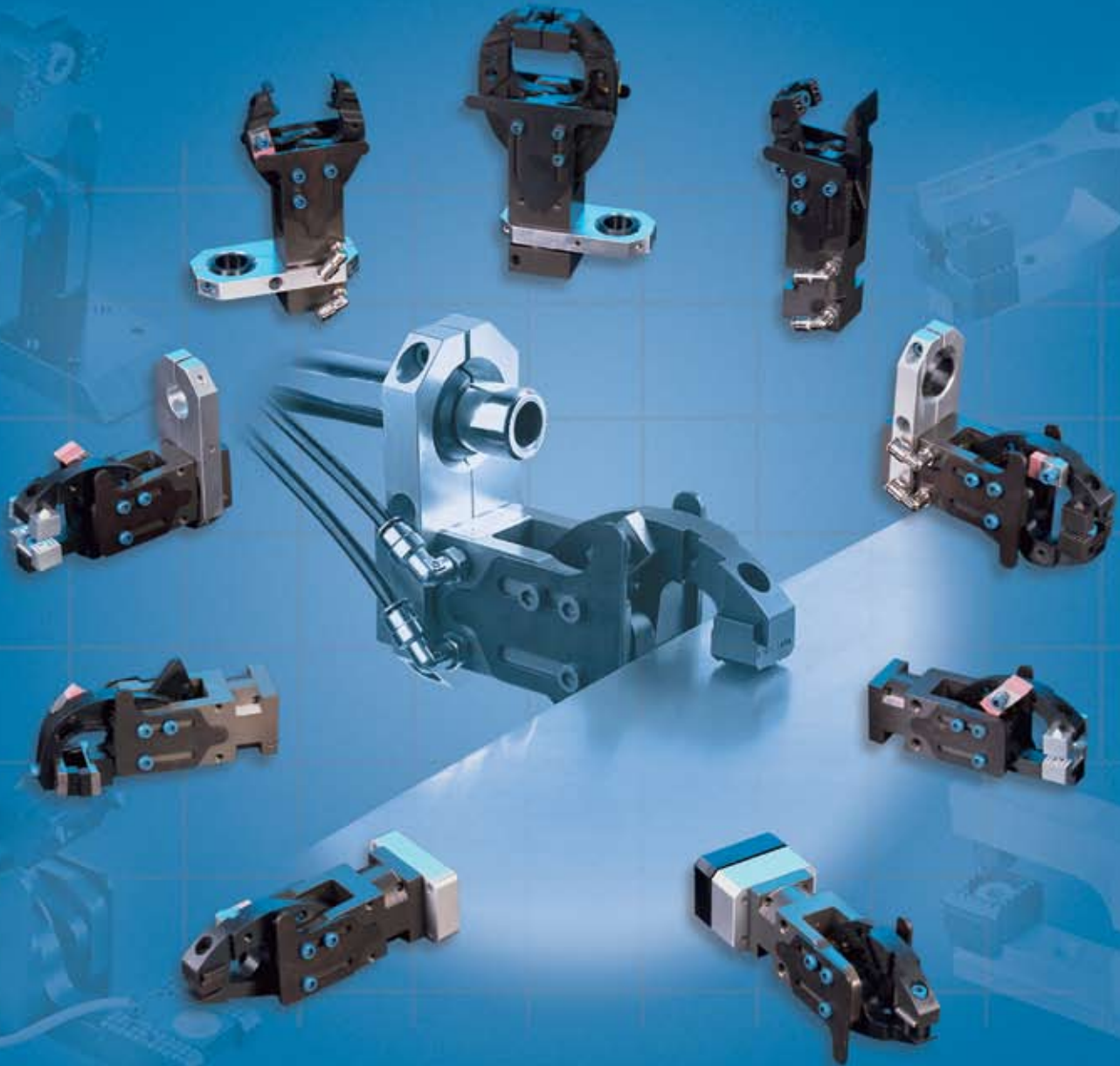


GRM CLAMPS & ACCESSORIES



Best Price, Best Design, Best Delivery

**ISO-9001
CERTIFIED**

Quality Management
System Certified

MCLAMP08-EU



PHD is a member of the
MAC Distributor Network



SOLUTIONS FOR INDUSTRIAL AUTOMATION

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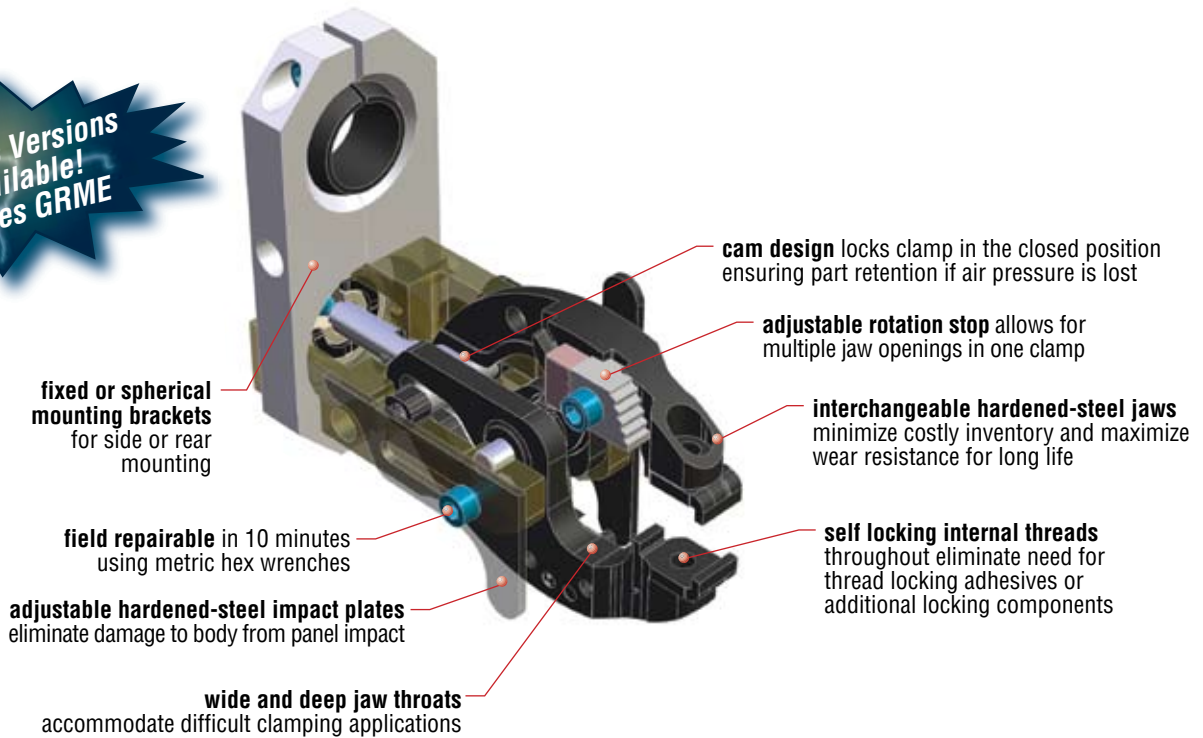
GRM Clamps



Greater Clamping Forces, Flexibility, Durability, & Low Cost

GRM
Clamps

Electric Versions Available! Series GRME



Major Benefits

- Simple design, long life, high clamp force, and fast field maintenance.
- Available in two sizes, 15 jaw styles, and 54 jaw openings to fit a wide range of clamping applications.
- Compact envelope size and high clamp force. Series GRM size 2 generates up to 225 lb [1000 N] of clamp force. The Series GRM size 4 generates up to 500 lb [2224 N] of clamp force for maximum flexibility and performance.
- Six modular designed jaw tips are offered for maximum clamping performance in a variety of applications.
- The jaws of the Series GRM Clamp lock in the closed position ensuring part retention if air pressure is lost due to line rupture or power loss.

Standard Features

- Lowest cost of ownership
- Non-adjustable color coded tips
- Modular mounting brackets
- Adjustable jaw rotations
- Integral shock pads
- Large jaw throat depth
- Self-locking internal threads
- Imperial and metric mounting
- Fully field repairable

Catalog Index

Jaw Styles.....	page 3
GRM Clamps Ordering Data.....	pages 4 & 5
Engineering Data.....	pages 6 & 7
GRM Dimensions.....	pages 8 to 19
Tip Mounting & Dimensions	pages 20 to 24
Mounting Thread & Bracket Dimensions	pages 25 to 28
Port Fittings Dimensions.....	page 29
GRM Accessories Section.....	pages 30 to 75

Refer to www.phdinc.com for parts breakdown and jaw rotation dimensions. Contact your local distributor for clamp unit pricing.

Patents for GRM Clamps & Accessories

International Patents

935516
69727306.7
1004410
69922915408
6948708

U.S. Patents

6,273,408 B1 6,056,281
5,941,513 6,530,616 B1
6,575,512 B2 6,048,013
6,641,189 B2 6,227,586 B1
6,322,118 B2 6,176,533 B1
6,276,733 B1 6,588,816 B1
6,557,916 B2 6,948,708 B2
6,302,462 B2

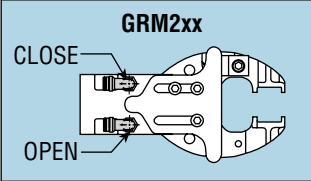
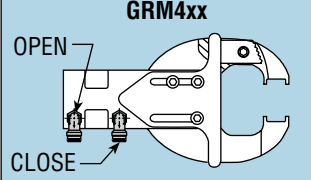
GRM JAW STYLES	JAW DESIGN BENEFITS	INDUSTRY USES	SIZE	CLAMP FORCE lb N	
JAW STYLE “S”  <p>Standard</p> <p>Unit dimensions on page 8.</p>	<ul style="list-style-type: none"> Accepts standard and custom tooling 	<ul style="list-style-type: none"> Sheet metal handling Automotive Assembly Molded carpet manufacturing General industrial automation 	2 4	225 500	1000 2224
JAW STYLES “C” & “D”  <p>Single Chisel Double Chisel</p> <p>Unit dimensions on pages 9 & 10.</p>	<ul style="list-style-type: none"> Compact lower jaw Blank loading Sheet separation applications 	<ul style="list-style-type: none"> Sheet metal handling Automotive Assembly Molded carpet manufacturing General industrial automation 	2	225	1000
JAW STYLES “H” & “J”  <p>Single Shovel Double Shovel</p> <p>Unit dimensions on page 11.</p>	<ul style="list-style-type: none"> Compact lower jaw Blank loading Sheet separation applications 	<ul style="list-style-type: none"> Sheet metal handling Automotive Assembly Molded carpet manufacturing General industrial automation 	2 4	225 500	1000 2224
JAW STYLES “L” & “M”  <p>Single Flat Shovel Double Flat Shovel</p> <p>Unit dimensions on page 12.</p>	<ul style="list-style-type: none"> Compact lower jaw No upper jaw swing through 	<ul style="list-style-type: none"> Limited space environments Material handling Assembly General industrial automation 	2	225	1000
JAW STYLE “F”  <p>Flange</p> <p>Unit dimensions on page 13.</p>	<ul style="list-style-type: none"> Ideal for bends and folds Ability to reach over flanges 	<ul style="list-style-type: none"> Material handling when clamping on bends, folds, and flanges Assembly Packaging 	2 4	225 500	1000 2224
JAW STYLES “N” & “P”  <p>Needlenose Hammerhead</p> <p>Unit dimensions on page 14.</p>	<ul style="list-style-type: none"> Compact jaw design Blank loading Integral tips machined in jaws 	<ul style="list-style-type: none"> Blank loading Limited space environments Automotive 	2	225	1000
JAW STYLE “K”  <p>Hook</p> <p>Unit dimensions on page 15.</p>	<ul style="list-style-type: none"> Short overall length Space savings between rails 	<ul style="list-style-type: none"> Limited space environments Automotive Assembly General industrial automation 	2	225	1000
JAW STYLE “G”  <p>Toolable</p> <p>Unit dimensions on page 16.</p>	<ul style="list-style-type: none"> Accepts custom tooling Large jaw opening 	<ul style="list-style-type: none"> Fabrication shops Automotive Material handling General industrial automation 	2 4	225 500	1000 2224
JAW STYLE “R”  <p>Short</p> <p>Unit dimensions on page 19.</p>	<ul style="list-style-type: none"> Accepts standard and custom tooling Compact jaw design 	<ul style="list-style-type: none"> Limited space environments Material handling Assembly General industrial automation 	2	330	1468

ORDERING DATA: SERIES GRM CLAMPS

TO ORDER SPECIFY:

Model, Unit Size, Mounting, Jaw Style Option, Design No., Jaw Opening (A & B), Jaw Tip Options (A & B), and Additional Options if desired.

PORT FITTINGS
 BLANK - No Fitting
 LAA - 90° Swivel Elbow, Metal
 LBB - 90° Swivel Elbow, Plastic
 LCC - 90° Swivel Elbow, Metal

JAW STYLE OPTION
 S - Standard Jaw
 C - Single Chisel Jaw
 D - Double Chisel Jaw
 F - Flange Jaw
 G - Toolable Jaw
 H - Single Shovel Jaw
 J - Double Shovel Jaw
 K - Hook Jaw
 L - Single Flat Shovel Jaw
 M - Double Flat Shovel Jaw
 N - "Needlenose" Jaw
 P - "Hammerhead" Jaw
 R - Short Jaw

JAW OPENING - JAW A
 00 - 0° Opening
 22 - 22-1/2° Opening
 25 - 25° Opening
 35 - 35° Opening
 40 - 40° Opening
 45 - 45° Opening
 50 - 50° Opening
 60 - 60° Opening
 70 - 70° Opening
 75 - 75° Opening
 85 - 85° Opening
 (See Note 1)

JAW TIP OPTIONS - JAW A
 BLANK - No Tip
 See charts on page 5

UNIT SIZE
 2 - 32 mm Short
 4 - 40 mm Long

GRM 2 S S - 2 - 75 DCB - 75 DDB - LAA - ADD'L OPTIONS

MODEL

		MOUNTING			
SIDE	T	Rear Mounting Threads (Standard)			
	C	90° Spherical Mounting Bracket			
REAR	R	Non-Spherical Mounting Bracket			
	S	Spherical Mounting Bracket			
	W	Oversize Spherical Mounting Bracket			
REAR	A	Rear Spherical Mounting Bracket			
	B	Oversize Rear Spherical Mtg Bracket			
	P	Rear Mounting Plate			

DESIGN NO.
 2 - Imperial
 6 - Metric
 (See Note 2)

JAW OPENING - JAW B
 00 - 0° Opening
 20 - 20° Opening
 22 - 22-1/2° Opening
 35 - 35° Opening
 40 - 40° Opening
 45 - 45° Opening
 60 - 60° Opening
 70 - 70° Opening
 75 - 75° Opening
 (See Note 1)

JAW TIP OPTIONS - JAW B
 BLANK - No Tip
 See charts on page 5

NOTES:

- 1) With the exception of jaw styles L and M, the 0° jaw rotates open slightly during the clamp cycle. The 0° jaw returns to 0° position as the opposing jaw reaches the fully open and fully closed position.
- 2) Metric units have metric ports and mounting. Imperial units have imperial ports and mounting.
- 3) See charts for available jaw combinations.
- 4) See the Accessories section for non-standard options.

JAW ROTATION COMBINATIONS

JAW STYLE OPTION S, C & D	JAW A				
	0	22	45	75	
JAW B	0	NO	YES	YES	YES
	22	YES	YES	NO	NO
	45	YES	NO	YES	NO
	75	YES	NO	NO	YES

JAW STYLE OPTION H & J	JAW A				
	0	22	45	75	
JAW B	0	NO	YES	YES	YES
	22	YES	NO	NO	NO
	45	YES	NO	NO	NO
	75	YES	NO	NO	NO

JAW STYLE OPTION G SIZE 2	JAW A				
	0	22	40	70	
JAW B	0	NO	NO	YES	NO
	22	NO	YES	NO	NO
	40	YES	NO	YES	NO
	70	NO	NO	NO	NO

JAW STYLE OPTION G SIZE 4	JAW A				
	0	22	40	70	
JAW B	0	NO	NO	YES	YES
	22	NO	YES	NO	NO
	40	YES	NO	YES	NO
	70	YES	NO	NO	YES

JAW STYLE OPTION L & M	JAW A			
	22	45	85	
JAW B	0	YES	YES	YES

JAW STYLE OPTION N & P	JAW A				
	0	22	45	75	
JAW B	0	NO	YES	YES	YES
	22	YES	YES	NO	NO
	45	YES	NO	YES	NO
	75	YES	NO	NO	YES

JAW STYLE OPTION K	JAW A		
	25	50	
JAW B	00	NO	YES
	20	YES	NO
	40	NO	YES

JAW STYLE OPTION F SIZE 2	JAW A		
	50	85	
JAW B	0	YES	YES
	22	YES	NO

JAW STYLE OPTION F SIZE 4	JAW A		
	50	85	
JAW B	0	YES	YES

JAW STYLE OPTION R	JAW A					
	0	22	35	45	60	
JAW B	0	NO	YES	NO	YES	YES
	22	YES	YES	NO	NO	NO
	35	NO	NO	YES	NO	NO
	45	YES	NO	NO	YES	NO
	60	YES	NO	NO	NO	YES

ORDERING DATA: SERIES GRM CLAMPS

JAW TIP OPTIONS

NOTES:

- 1) Cone point against cone point tip combinations are not allowed due to point overlap.
- 2) Red tips are available only on GRM size 2.

JAW STYLES S, C, D, H, J, K, L, M

	JAW TIP OPTIONS - JAW A			
	Material Thickness			
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm	4.01 to 5 mm*
Color	Black	Silver	Gold	Red
Single Cone Point	SCB	SCS	SCG	SCR
Double Cone Point	DCB	DCS	DCG	DCR
Single Diamond Point	SDB	SDS	SDG	SDR
Double Diamond Point	DDB	DDS	DDG	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB

JAW STYLE R

	JAW TIP OPTIONS - JAW A		
	Material Thickness		
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm
Color	Black	Silver	Red
Single Cone Point	SCB	SCS	SCR
Double Cone Point	DCB	DCS	DCR
Single Diamond Point	SDB	SDS	SDR
Double Diamond Point	DDB	DDS	DDR
Single Urethane Pad	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB

	JAW TIP OPTIONS - JAW B **			
	Material Thickness			
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm	4.01 to 5 mm*
Color	Black	Silver	Gold	Red
Single Cone Point	SCB	SCS	SCG	SCR
Double Cone Point	DCB	DCS	DCG	DCR
Single Diamond Point	SDB	SDS	SDG	SDR
Double Diamond Point	DDB	DDS	DDG	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB

	JAW TIP OPTIONS - JAW B		
	Material Thickness		
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm
Color	Black	Silver	Red
Single Cone Point	SCB	SCS	SCR
Double Cone Point	DCB	DCS	DCR
Single Diamond Point	SDB	SDS	SDR
Double Diamond Point	DDB	DDS	DDR
Single Urethane Pad	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB

*Material thickness for H, J, L, & M jaw styles = 4.01 to 4.5 mm

**Jaw B tip options are not available for jaw styles C, D, H, J, L, & M

JAW STYLE F

	JAW TIP OPTIONS - JAW A							
	Material Thickness							
	0 to .85 mm	.86 to 1.20 mm	1.21 to 1.52 mm	1.53 to 1.94 mm	1.95 to 2.29 mm	2.3 to 2.6 mm	2.61 to 3.0 mm	3.01 to 3.4 mm
Color	Black	Silver	Gold	Silver	Gold	Gold	Red	Red
Single Cone Point	SCB	SCS	SCG	SCS	SCG	SCG	SCR	SCR
Double Cone Point	DCB	DCS	DCG	DCS	DCG	DCG	DCR	DCR
Single Diamond Point Pad	SDB	SDS	SDG	SDS	SDG	SDG	SDR	SDR
Double Diamond Point Pad	DDB	DDS	DDG	DDS	DDG	DDG	DDR	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB	DUB	DUB	DUB	DUB

	JAW TIP OPTIONS - JAW B							
	Material Thickness							
	0 to .85 mm	.86 to 1.20 mm	1.21 to 1.52 mm	1.53 to 1.94 mm	1.95 to 2.29 mm	2.3 to 2.6 mm	2.61 to 3.0 mm	3.01 to 3.4 mm
Color	Black	Black	Black	Silver	Silver	Gold	Gold	Red
Single Cone Point	SCB	SCB	SCB	SCS	SCS	SCG	SCG	SCR
Single Diamond Point Pad	SDB	SDB	SDB	SDS	SDS	SDG	SDG	SDR
Double Diamond Point Pad	DDB	DDB	DDB	DDS	DDS	DDG	DDG	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB	DUB	DUB	DUB	DUB

ENGINEERING DATA: SERIES GRM CLAMPS

SIZE 2 SPECIFICATIONS

MODEL	UNIT WEIGHT*		TOTAL CLAMP FORCE at 87 psi [6 bar]		MAXIMUM EXTERNAL LOAD	
	lb	kg	lb	N	lb	N
GRM2xS-x-75-75	2.1	0.95	225	1000	300	1334
GRM2xS-x-45-45						
GRM2xS-x-22-22						
GRM2xS-x-75-00	2.0	0.91	225	1000	300	1334
GRM2xS-x-45-00						
GRM2xS-x-22-00						
GRM2xC-x-75-75	2.0	0.91	225	1000	300	1334
GRM2xC-x-45-45						
GRM2xC-x-22-22						
GRM2xC-x-75-00	2.0	0.91	225	1000	300	1334
GRM2xC-x-45-00						
GRM2xC-x-22-00						
GRM2xD-x-75-75	2.0	0.91	225	1000	300	1334
GRM2xD-x-45-45						
GRM2xD-x-22-22						
GRM2xD-x-75-00	2.0	0.91	225	1000	300	1334
GRM2xD-x-45-00						
GRM2xD-x-22-00						
GRM2xH-x-75-00	2.0	0.91	225	1000	300	1334
GRM2xH-x-45-00						
GRM2xH-x-22-00						
GRM2xJ-x-75-00	2.1	0.95	225	1000	300	1334
GRM2xJ-x-45-00						
GRM2xJ-x-22-00						
GRM2TL-x-85-00	2.5	1.13	225	1000	300	1334
GRM2TL-x-45-00						
GRM2TL-x-22-00						
GRM2TM-x-85-00	2.7	1.22	225	1000	300	1334
GRM2TM-x-45-00						
GRM2TM-x-22-00						
GRM2xF-x-85-00	2.1	0.95	225	1000	300	1334
GRM2xF-x-50-00						
GRM2xF-x-50-22						
GRM2xN-x-75-75	1.9	0.86	225	1000	300	1334
GRM2xN-x-45-45						
GRM2xN-x-22-22						
GRM2xN-x-75-00	1.9	0.86	225	1000	300	1334
GRM2xN-x-45-00						
GRM2xN-x-22-00						
GRM2xP-x-75-75	1.9	0.86	225	1000	300	1334
GRM2xP-x-45-45						
GRM2xP-x-22-22						
GRM2xP-x-75-00	1.9	0.86	225	1000	300	1334
GRM2xP-x-45-00						
GRM2xP-x-22-00						
GRM2xK-x-50-40	2.0	0.91	225	1000	300	1334
GRM2xK-x-25-20						
GRM2xK-x-50-00						
GRM2xG-x-40-40	2.3	1.04	225	1000	300	1334
GRM2xG-x-22-22						
GRM2xG-x-40-00						

*Weight is for basic clamp without mounting bracket or tips

SIZE 2 SPECIFICATIONS (continued)

MODEL	UNIT WEIGHT*		TOTAL CLAMP FORCE at 87 psi [6 bar]		MAXIMUM EXTERNAL LOAD	
	lb	kg	lb	N	lb	N
GRM2xR-x-60-60	1.96	0.89	330	1468	300	1334
GRM2xR-x-45-45						
GRM2xR-x-35-35						
GRM2xR-x-22-22	1.94	0.88	330	1468	300	1334
GRM2xR-x-60-00						
GRM2xR-x-45-00						
GRM2xR-x-22-00						

*Weight is for basic clamp without mounting bracket or tips

SIZE 4 SPECIFICATIONS

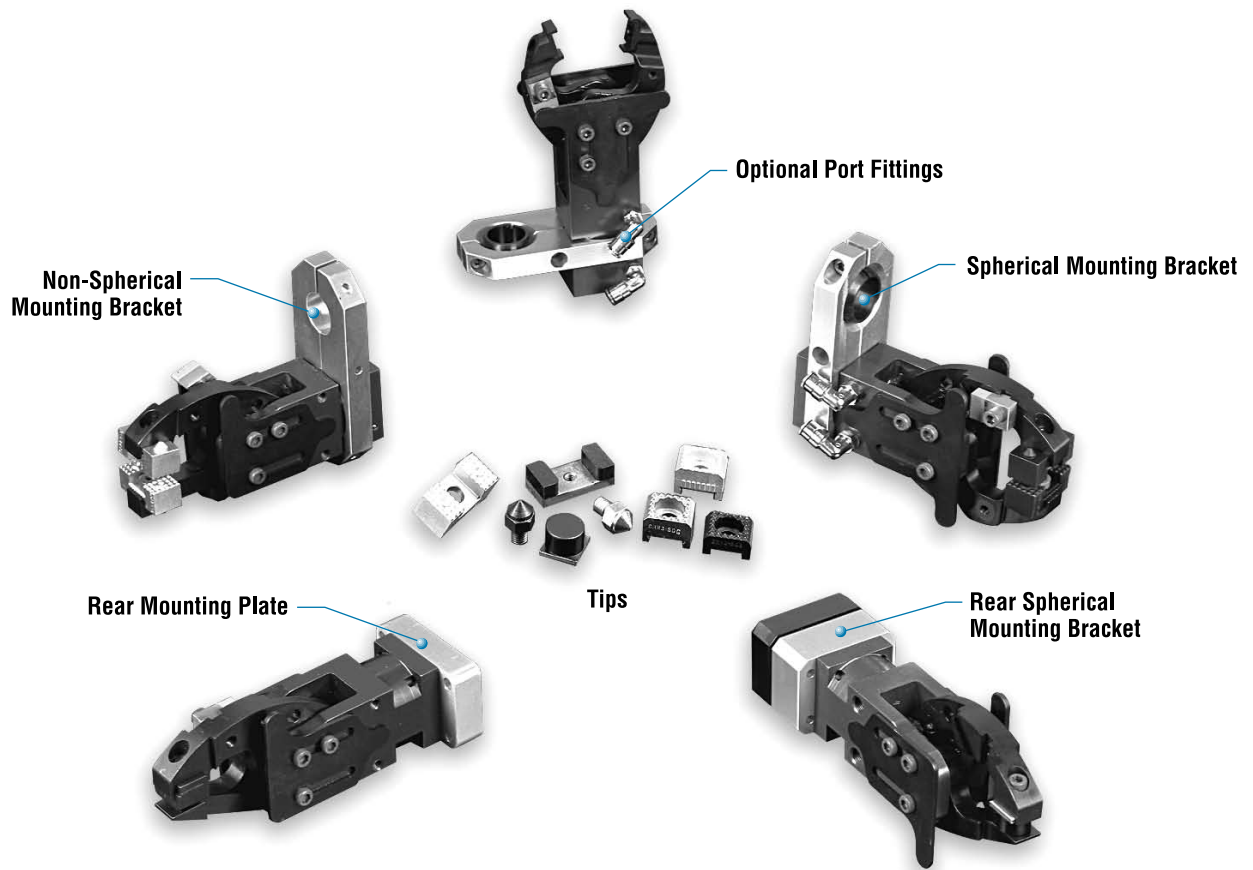
MODEL	UNIT WEIGHT*		TOTAL CLAMP FORCE at 87 psi [6 bar]		MAXIMUM EXTERNAL LOAD	
	lb	kg	lb	N	lb	N
GRM4xS-x-75-75	4.2	1.91	500	2224	450	2002
GRM4xS-x-45-45						
GRM4xS-x-22-22						
GRM4xS-x-75-00	4.0	1.81	500	2224	450	2002
GRM4xS-x-45-00						
GRM4xS-x-22-00						
GRM4xH-x-75-00	4.0	1.81	500	2224	450	2002
GRM4xH-x-45-00						
GRM4xH-x-22-00						
GRM4xJ-x-75-00	4.2	1.91	500	2224	450	2002
GRM4xJ-x-45-00						
GRM4xJ-x-22-00						
GRM4xF-x-85-00	4.3	1.95	500	2224	450	2002
GRM4xF-x-50-00						
GRM4xG-x-70-70	4.2	1.91	500	2224	450	2002
GRM4xG-x-40-40						
GRM4xG-x-22-22						
GRM4xG-x-70-00	4.2	1.91	500	2224	450	2002
GRM4xG-x-40-00						

*Weight is for basic clamp without mounting bracket or tips

SPECIFICATIONS	FOR ALL GRM CLAMP JAW STYLES
WORKING PRESSURE	30 psi min. - 100 psi max. [2 bar min. - 7 bar max.]
BODY	Hardcoat Aluminum
JAWS	Hardened Steel
SEALS	Bidirectional Piston Seal Lip Type Rod Seal
LUBRICATION	Permanent for Non-Lube Air
TEMPERATURE LIMITS	-20° to 180°F [-30° to 82°C]

MODEL	DISPLACEMENT OPEN OR CLOSE	
	in ³	cm ³
GRM2	1.15	18.8
GRM4	2.40	39.4

ENGINEERING DATA: SERIES GRM CLAMPS



MOUNTING OPTIONS

MTG. CODE	DESCRIPTION	WEIGHT ADDER			
		SIZE 2		SIZE 4	
		lb	kg	lb	kg
C	90° Spherical Mounting Bracket	.62	.28	.99	.45
R	Non-Spherical Mounting Bracket	.38	.17	.52	.24
S	Spherical Mounting Bracket	.49	.22	.64	.29
W	Oversize Spherical Mounting Bracket	.81	.37	.92	.42
A	Rear Spherical Mounting Bracket	1.00	.45	1.68	.76
B	Oversize Rear Spherical Mounting Bracket	1.67	.76	1.71	.78
P	Rear Mounting Plate	.24	.11	.56	.25
T	Rear Mounting Thread (Standard)	0	0	0	0

TIP OPTIONS

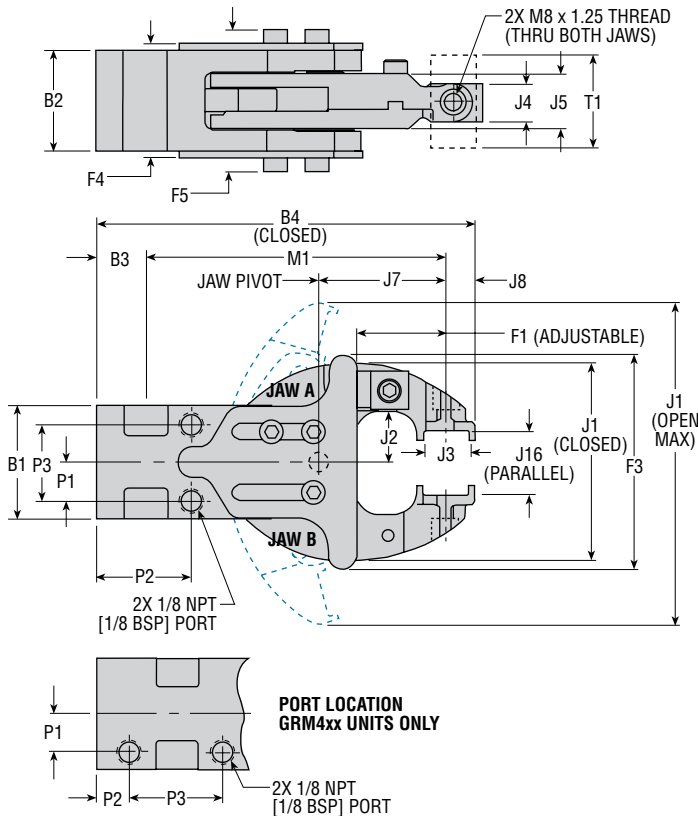
MODEL	TIP WEIGHT			
	SIZE 2		SIZE 4	
	lb	kg	lb	kg
SCx	.03	.01	.04	.02
SDx	.07	.03	.13	.06
DCx	.13	.06	.25	.11
DDx	.13	.06	.25	.11
SUB	.04	.02	.08	.04
DUB	.10	.05	.16	.07

For additional mounting, jaw, switch, and tip options, see the Series GRM Clamp Accessories section.

DIMENSIONS: STANDARD JAW STYLE "S" - SIZES 2 & 4

Standard Jaw

GRM2xS-x-xxxxx-xxxxx
GRM4xS-x-xxxxx-xxxxx



LETTER DIM	MODEL NUMBER			
	GRM2xS		GRM4xS	
	in	mm	in	mm
B1	1.910	48.5	2.176	55.3
B2	1.654	42.0	1.980	50.3
B3	.827	21.0	1.338	34.0
B4 (CLOSED)	6.437	163.5	8.799	223.5
F1 MAX	1.496	38.0	2.126	54.0
F1 MIN	.985	25.0	1.286	32.7
F3	3.602	91.5	5.120	130.0
F4	1.864	47.3	2.190	55.6
F5	2.336	59.3	2.662	67.6
J1 (CLOSED)	3.314	84.2	4.724	120.0
J1 (OPEN MAX)	5.444	138.3	6.894	175.1
J2 (CLOSED)	.866	22.0	1.360	34.5
J3*	.755	19.18	.755	19.18
J4*	.630	16.00	.785	19.94
J5	.906	23.0	1.136	28.9
J7	2.146	54.5	2.815	71.5
J8	.472	12.0	.492	12.5
J16 (PARALLEL)	1.074	27.3	1.584	40.2
P1	.650	16.5	.700	17.8
P2	1.575	40.0	.452	11.5
P3	1.300	33.0	1.772	45.0
M1	5.138	130.5	6.969	177.0
T1**	1.530	38.9	1.850	47.0

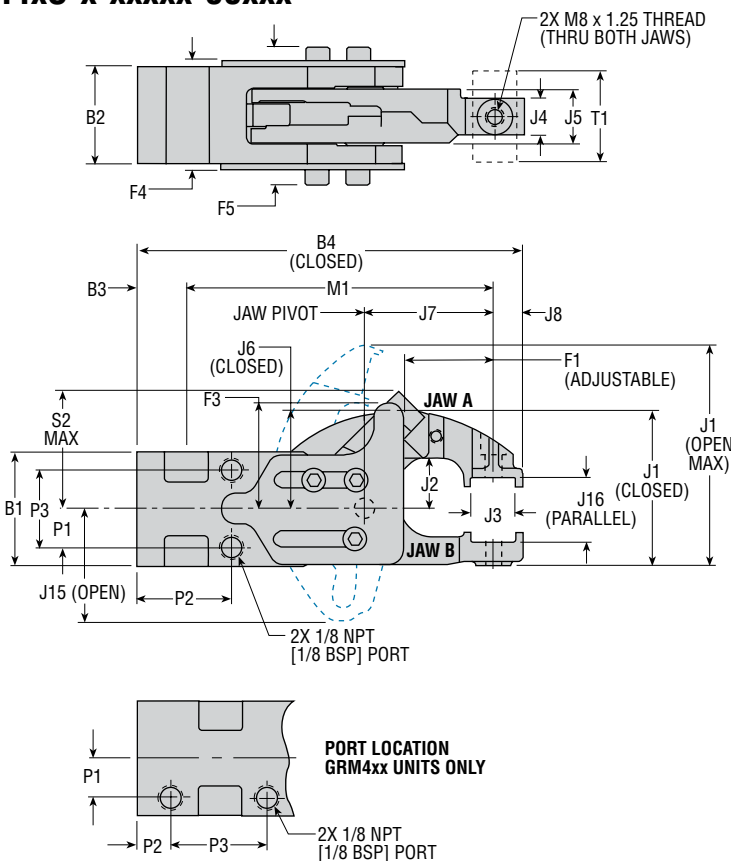
* TOLERANCE FOR J3 & J4 = ± .003 [± .076]

** T1 IS THE LARGEST TIP AVAILABLE.

NOTE:

SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.

GRM2xS-x-xxxxx-00xxx
GRM4xS-x-xxxxx-00xxx



LETTER DIM	MODEL NUMBER			
	GRM2xS		GRM4xS	
	in	mm	in	mm
B1	1.910	48.5	2.176	55.3
B2	1.654	42.0	1.980	50.3
B3	.827	21.0	1.338	34.0
B4 (CLOSED)	6.437	163.5	8.799	223.5
F1 MAX	1.496	38.0	2.126	54.0
F1 MIN	.985	25.0	1.286	32.7
F3	1.801	45.7	2.560	65.0
F4	1.864	47.3	2.190	55.6
F5	2.336	59.3	2.662	67.6
J1 (CLOSED)	2.579	65.5	3.532	89.7
J1 (OPEN MAX)	3.642	92.5	4.617	117.3
J2 (CLOSED)	.866	22.0	1.360	34.5
J3*	.755	19.18	.755	19.18
J4*	.630	16.00	.785	19.94
J5	.906	23.0	1.136	28.9
J6 (CLOSED)	1.657	42.1	2.362	60.0
J7	2.146	54.5	2.815	71.5
J8	.472	12.0	.492	12.5
J15 (OPEN)	1.864	47.3	2.542	64.6
J16 (PARALLEL)	1.074	27.3	1.584	40.2
P1	.650	16.5	.388	9.9
P2	1.575	40.0	.452	11.5
P3	1.300	33.0	1.772	45.0
M1	5.138	130.5	6.969	177.0
S2***	2.071	52.6	2.850	72.4
T1**	1.530	38.9	1.850	47.0

* TOLERANCE FOR J3 & J4 = ± .003 [± .076]

** T1 IS THE LARGEST TIP AVAILABLE.

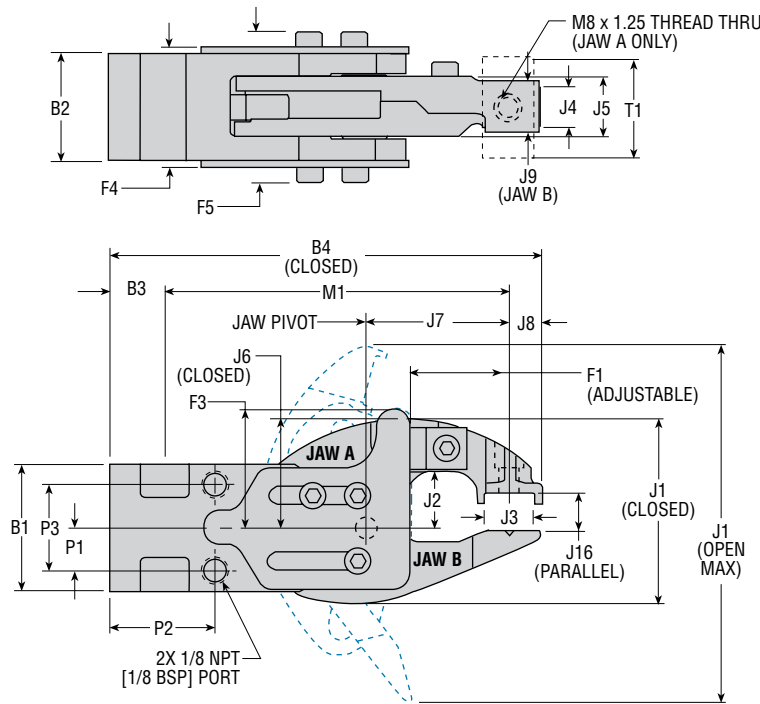
***S2 DIMENSION OCCURS ON 22°-00° ONLY.

NOTES:

- 1) SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.
- 2) THE 0° JAW ROTATES 3° DURING THE CLAMP CYCLE, OPENING THE END OF THE JAW .079 [2.0]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

DIMENSIONS: SINGLE CHISEL JAW STYLE "C" - SIZE 2

GRM2xC-x-xxxxx-xx



LETTER DIM	MODEL NUMBER GRM2xC	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.437	163.5
F1 MAX	1.496	38.0
F1 MIN	.985	25.0
F3	1.801	45.7
F4	1.864	47.3
F5	2.336	59.3
J1 (CLOSED)	2.782	70.7
J1 (OPEN MAX)	5.257	133.5
J2 (CLOSED)	.866	22.0
J3*	.755	19.18
J4*	.630	16.00
J5	.906	23.0
J6 (CLOSED)	1.657	42.1
J7	2.146	54.5
J8	.472	12.0
J9	.800	20.3
J16 (PARALLEL)	.557	14.1
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	5.138	130.5
T1**	1.530	38.9

* TOLERANCE FOR J3 & J4 = ± .003 [± .076] (JAW A ONLY)

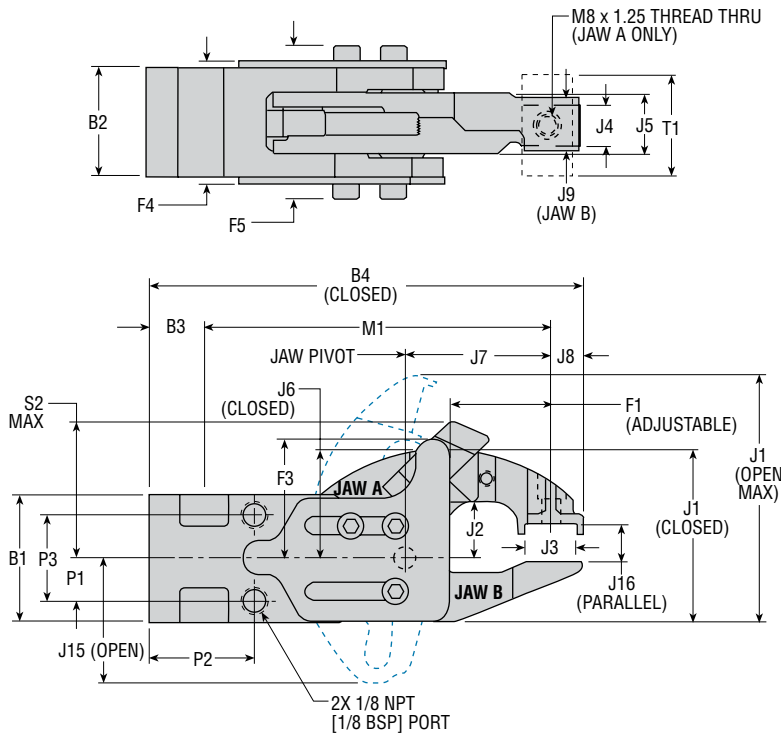
** T1 IS THE LARGEST TIP AVAILABLE.

NOTE:

SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.

Chisel Jaw

GRM2xC-x-xxxxx-00



LETTER DIM	MODEL NUMBER GRM2xC	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.437	163.5
F1 MAX	1.496	38.0
F1 MIN	.985	25.0
F3	1.801	45.7
F4	1.864	47.3
F5	2.336	59.3
J1 (CLOSED)	2.579	65.5
J1 (OPEN MAX)	3.642	92.5
J2 (CLOSED)	.866	22.0
J3*	.755	19.18
J4*	.630	16.00
J5	.906	23.0
J6 (CLOSED)	1.657	42.1
J7	2.146	54.5
J8	.472	12.0
J9	.800	20.3
J15 (OPEN)	1.864	47.3
J16 (PARALLEL)	.557	14.1
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	5.138	130.5
S2***	2.071	52.6
T1**	1.530	38.9

* TOLERANCE FOR J3 & J4 = ± .003 [± .076] (JAW A ONLY)

** T1 IS THE LARGEST TIP AVAILABLE.

***S2 DIMENSION OCCURS ON 22°-00° ONLY.

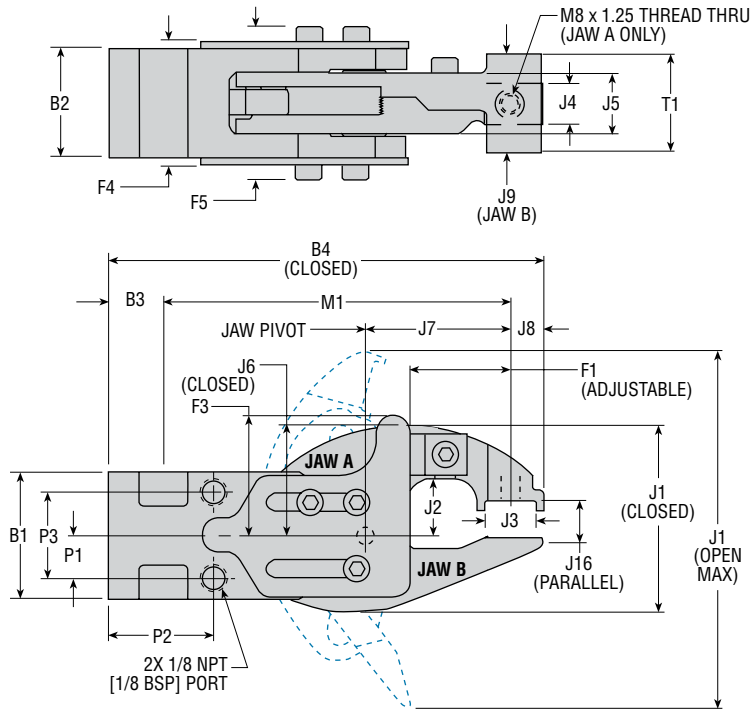
NOTES:

- SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.
- THE 0° JAW ROTATES 3° DURING THE CLAMP CYCLE, OPENING THE END OF THE JAW .079 [2.0]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

All dimensions are reference only unless specifically toleranced.

DIMENSIONS: DOUBLE CHISEL JAW STYLE "D" - SIZE 2

GRM2xD-x-xxxxx-xx

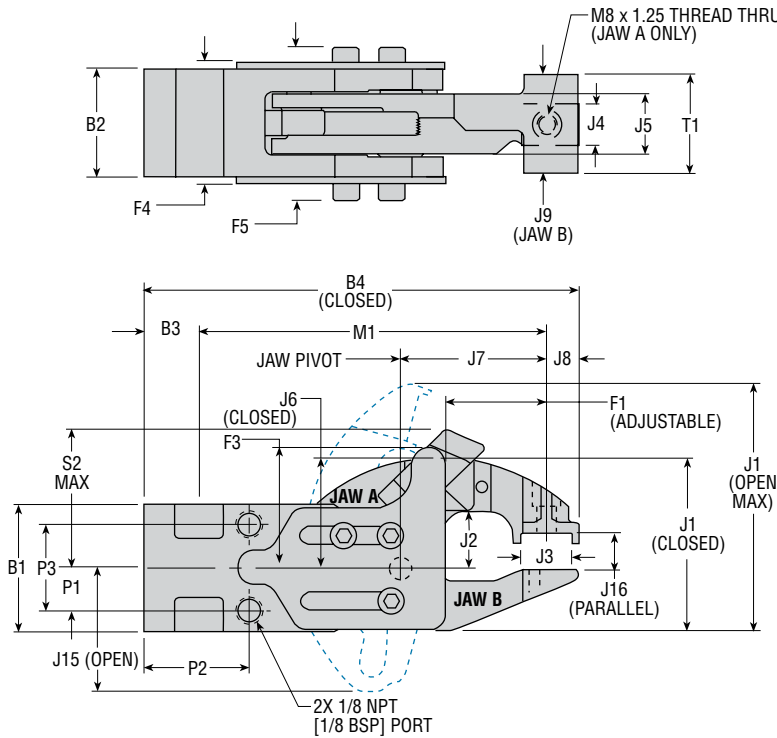


LETTER DIM	MODEL NUMBER	
	GRM2xD	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.437	163.5
F1 MAX	1.496	38.0
F1 MIN	.985	25.0
F3	1.801	45.7
F4	1.864	47.3
F5	2.336	59.3
J1 (CLOSED)	2.782	70.7
J1 (OPEN MAX)	5.257	133.5
J2 (CLOSED)	.866	22.0
J3*	.755	19.18
J4*	.630	16.00
J5	.906	23.0
J6 (CLOSED)	1.657	42.1
J7	2.146	54.5
J8	.472	12.0
J9	1.500	38.1
J16 (PARALLEL)	.557	14.1
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	5.138	130.5
T1**	1.530	38.9

* TOLERANCE FOR J3 & J4 = ± .003 [± .076] (JAW A ONLY)
 ** T1 IS THE LARGEST TIP AVAILABLE.

NOTE:
 SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.

GRM2xD-x-xxxxx-00



LETTER DIM	MODEL NUMBER	
	GRM2xD	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.437	163.5
F1 MAX	1.496	38.0
F1 MIN	.985	25.0
F3	1.801	45.7
F4	1.864	47.3
F5	2.336	59.3
J1 (CLOSED)	2.579	65.5
J1 (OPEN MAX)	3.642	92.5
J2 (CLOSED)	.866	22.0
J3*	.755	19.18
J4*	.630	16.00
J5	.906	23.0
J6 (CLOSED)	1.657	42.1
J7	2.146	54.5
J8	.472	12.0
J9	1.500	38.1
J15 (OPEN)	1.864	47.3
J16 (PARALLEL)	.557	14.1
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	5.138	130.5
S2***	2.071	52.6
T1**	1.530	38.9

* TOLERANCE FOR J3 & J4 = ± .003 [± .076] (JAW A ONLY)

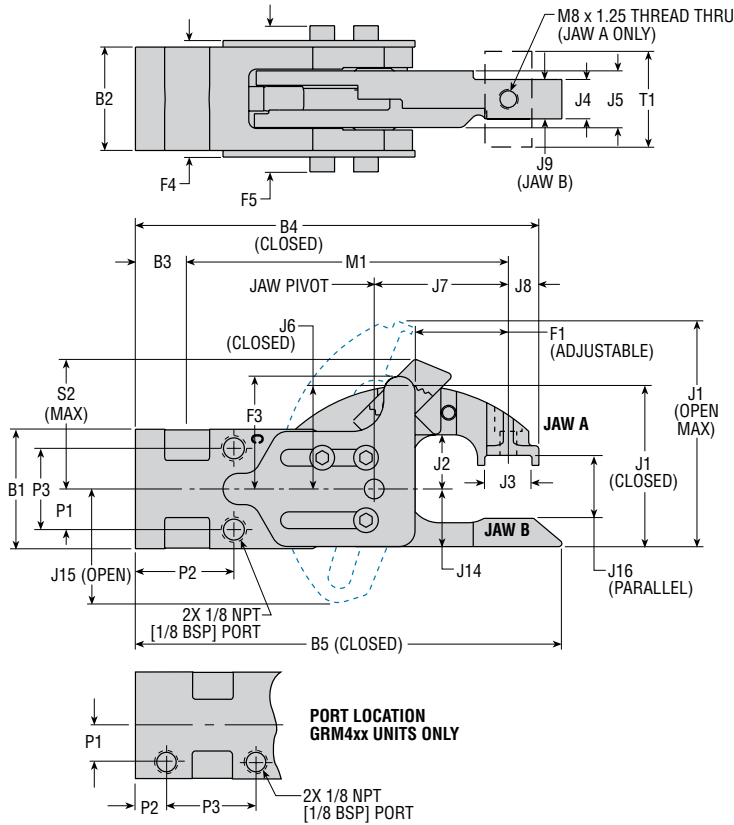
** T1 IS THE LARGEST TIP AVAILABLE.

***S2 DIMENSION OCCURS ON 22°-00° ONLY.

NOTES:
 1) SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.
 2) THE 0° JAW ROTATES 3° DURING THE CLAMP CYCLE, OPENING THE END OF THE JAW .079 [2.0]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

DIMENSIONS: SINGLE SHOVEL JAW STYLE "H" - SIZES 2 & 4

GRM2xH-x-xxxxx-00
GRM4xH-x-xxxxx-00



LETTER DIM	MODEL NUMBER			
	GRM2xH		GRM4xH	
	in	mm	in	mm
B1	1.910	48.5	2.176	55.3
B2	1.654	42.0	1.980	50.3
B3	.827	21.0	1.338	34.0
B4 (CLOSED)	6.437	163.5	8.799	223.5
B5 (CLOSED)	6.820	173.2	9.429	239.5
F1 MAX	1.496	38.0	2.126	54.0
F1 MIN	.985	25.0	1.286	32.7
F3	1.801	45.7	2.560	65.0
F4	1.864	47.3	2.190	55.6
F5	2.336	59.3	2.662	67.6
J1 (CLOSED)	2.579	65.5	3.532	89.7
J1 (OPEN MAX)	3.606	91.6	4.617	117.3
J2 (CLOSED)	.866	22.0	1.360	34.5
J3*	.755	19.18	.755	19.18
J4*	.630	16.00	.785	19.94
J5	.906	23.0	1.136	28.9
J6 (CLOSED)	1.657	42.1	2.362	60.0
J7	2.146	54.5	2.815	71.5
J8	.472	12.0	.492	12.5
J9	.630	16.0	.785	19.9
J14	.922	23.4	1.170	29.7
J15 (OPEN)	1.804	45.8	2.542	64.6
J16 (PARALLEL)	1.007	25.6	1.584	40.2
P1	.650	16.5	.388	9.9
P2	1.575	40.0	.452	11.5
P3	1.300	33.0	1.772	45.0
M1	5.138	130.5	6.969	177.0
S2***	2.071	52.6	2.850	72.4
T1**	1.530	38.9	1.850	47.0

* TOLERANCE FOR J3 & J4 = ± .003 [± .076] (JAW A ONLY)
** T1 IS THE LARGEST TIP AVAILABLE.

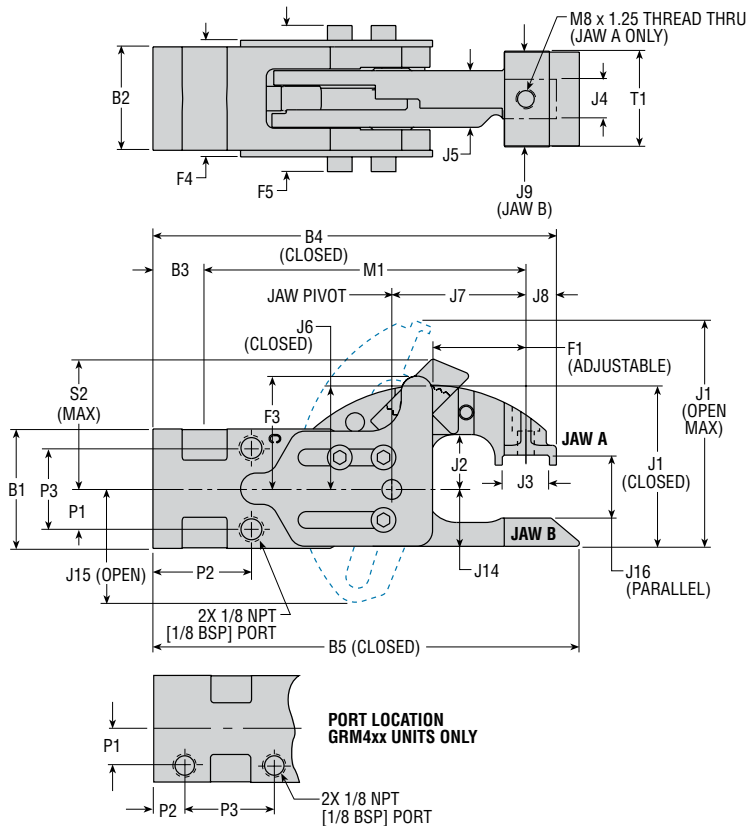
***S2 DIMENSION OCCURS ON 22°-00° ONLY.

NOTES:

- 1) SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.
- 2) THE 0° JAW ROTATES 1.7° DURING THE CLAMP CYCLE, OPENING THE END OF THE JAW .102 [2.6]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

DIMENSIONS: DOUBLE SHOVEL JAW STYLE "J" - SIZES 2 & 4

GRM2xJ-x-xxxxx-00
GRM4xJ-x-xxxxx-00



LETTER DIM	MODEL NUMBER			
	GRM2xJ		GRM4xJ	
	in	mm	in	mm
B1	1.910	48.5	2.176	55.3
B2	1.654	42.0	1.980	50.3
B3	.827	21.0	1.338	34.0
B4 (CLOSED)	6.437	163.5	8.799	223.5
B5 (CLOSED)	6.820	173.2	9.429	239.5
F1 MAX	1.496	38.0	2.126	54.0
F1 MIN	.985	25.0	1.286	32.7
F3	1.801	45.7	2.560	65.0
F4	1.864	47.3	2.190	55.6
F5	2.336	59.3	2.662	67.6
J1 (CLOSED)	2.579	65.5	3.532	89.7
J1 (OPEN MAX)	3.606	91.6	4.617	117.3
J2 (CLOSED)	.866	22.0	1.360	34.5
J3*	.755	19.18	.755	19.18
J4*	.630	16.00	.785	19.94
J5	.906	23.0	1.136	28.9
J6 (CLOSED)	1.657	42.1	2.362	60.0
J7	2.146	54.5	2.815	71.5
J8	.472	12.0	.492	12.5
J9	1.500	38.1	1.850	47.0
J14	.922	23.4	1.170	29.7
J15 (OPEN)	1.804	45.8	2.542	64.6
J16 (PARALLEL)	1.007	25.6	1.342	34.1
P1	.650	16.5	.388	9.9
P2	1.575	40.0	.452	11.5
P3	1.300	33.0	1.772	45.0
M1	5.138	130.5	6.969	177.0
S2***	2.071	52.6	2.850	72.4
T1**	1.530	38.9	1.850	47.0

* TOLERANCE FOR J3 & J4 = ± .003 [± .076] (JAW A ONLY)
** T1 IS THE LARGEST TIP AVAILABLE.

***S2 DIMENSION OCCURS ON 22°-00° ONLY.

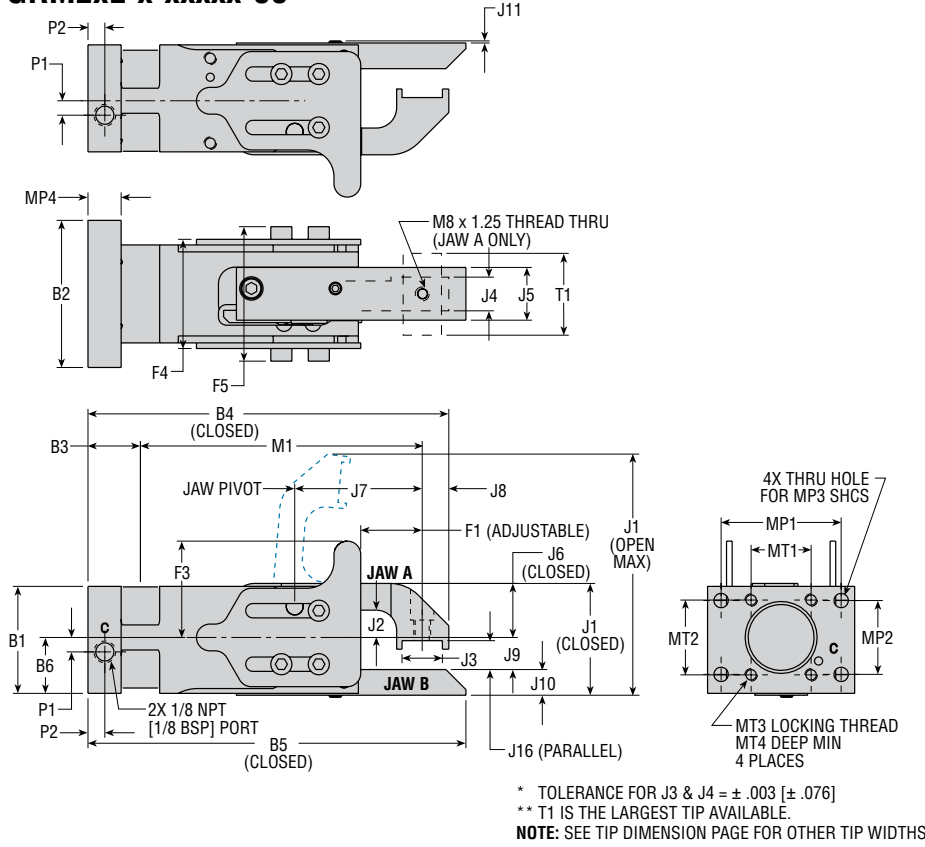
NOTES:

- 1) SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.
- 2) THE 0° JAW ROTATES 1.7° DURING THE CLAMP CYCLE, OPENING THE END OF THE JAW .102 [2.6]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

All dimensions are reference only unless specifically toleranced.

DIMENSIONS: SINGLE FLAT SHOVEL JAW STYLE "L" - SIZE 2

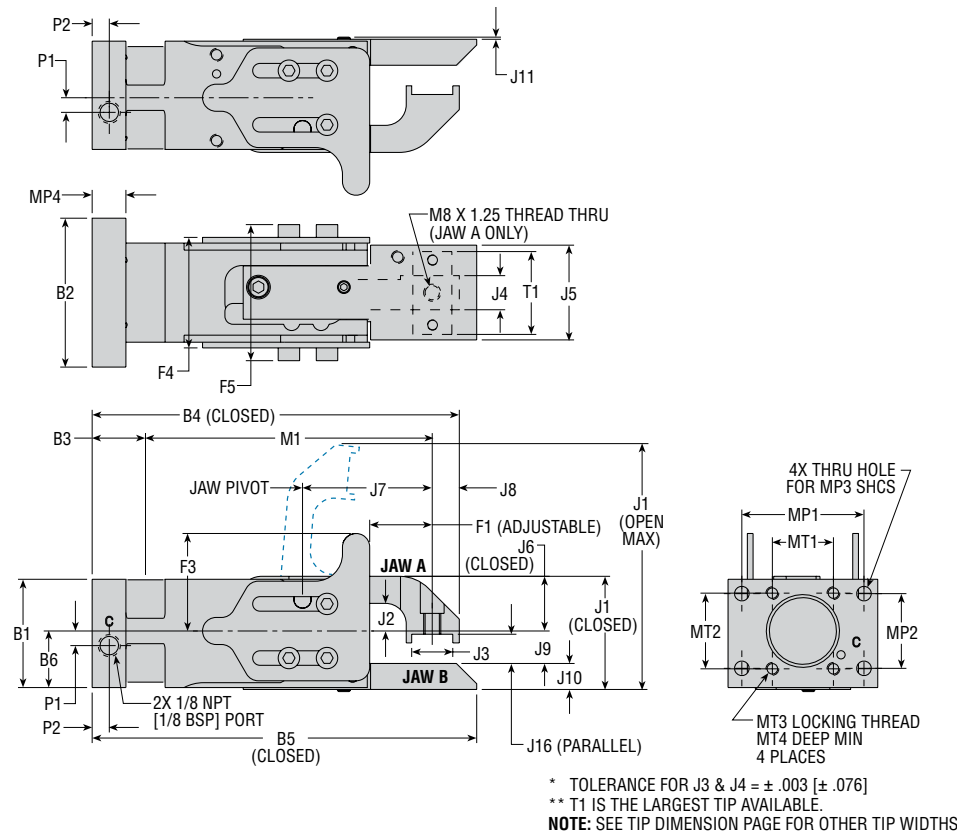
GRM2xL-x-xxxxx-00



LETTER DIM	MODEL NUMBER	
	GRM2xL	
	in	mm
B1	2.000	50.8
B2	2.750	69.9
B3	.980	24.9
B4 (CLOSED)	6.745	171.3
B5 (CLOSED)	7.065	179.5
B6	1.045	26.5
F1 MAX	1.145	29.1
F1 MIN	.623	15.8
F3	1.801	45.7
F4	2.041	51.8
F5	2.513	63.8
J1 (CLOSED)	2.090	53.1
J1 (OPEN MAX)	4.498	114.2
J2 (CLOSED)	.510	13.0
J3*	.755	19.18
J4*	.630	16.00
J5	.986	25.0
J6 (CLOSED)	1.010	25.7
J7	2.384	60.6
J8	.496	12.6
J9	.600	15.2
J10	.480	12.2
J11	.039	1.0
J16 (PARALLEL)	.540	13.7
P1	.270	6.9
P2	.315	8.0
M1	5.269	133.8
MP1	2.244	57.0
MP2	1.380	35.1
MP3	1/4	M6
MP4	.620	15.7
MT1	1.122	28.5
MT2	1.398	35.5
MT3	M6 x 1.0	
MT4	.420	10.7
T1**	1.530	38.9

DIMENSIONS: DOUBLE FLAT SHOVEL JAW STYLE "M" - SIZE 2

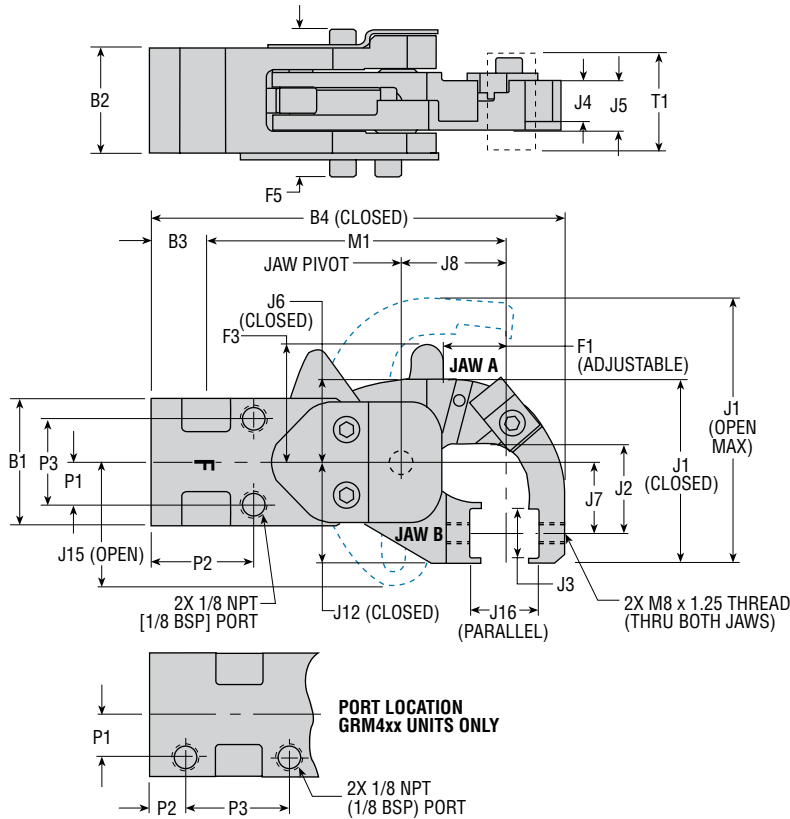
GRM2xM-x-xxxxx-00



LETTER DIM	MODEL NUMBER	
	GRM2xM	
	in	mm
B1	2.000	50.8
B2	2.750	69.9
B3	.980	24.9
B4 (CLOSED)	6.745	171.3
B5 (CLOSED)	7.065	179.5
B6	1.045	26.5
F1 MAX	1.145	29.1
F1 MIN	.623	15.8
F3	1.801	45.7
F4	2.041	51.8
F5	2.513	63.8
J1 (CLOSED)	2.090	53.1
J1 (OPEN MAX)	4.498	114.2
J2 (CLOSED)	.510	13.0
J3*	.755	19.18
J4*	.630	16.00
J5	1.750	44.5
J6 (CLOSED)	1.010	25.7
J7	2.384	60.6
J8	.496	12.6
J9	.600	15.2
J10	.480	12.2
J11	.039	1.0
J16 (PARALLEL)	.540	13.7
P1	.270	6.9
P2	.315	8.0
M1	5.269	133.8
MP1	2.244	57.0
MP2	1.380	35.1
MP3	1/4	M6
MP4	.620	15.7
MT1	1.122	28.5
MT2	1.398	35.5
MT3	M6 x 1.0	
MT4	.420	10.7
T1**	1.530	38.9

DIMENSIONS: FLANGE JAW STYLE "F" - SIZES 2 & 4

GRM2xF-x-xxxxx-00xxx
GRM4xF-x-xxxxx-00xxx



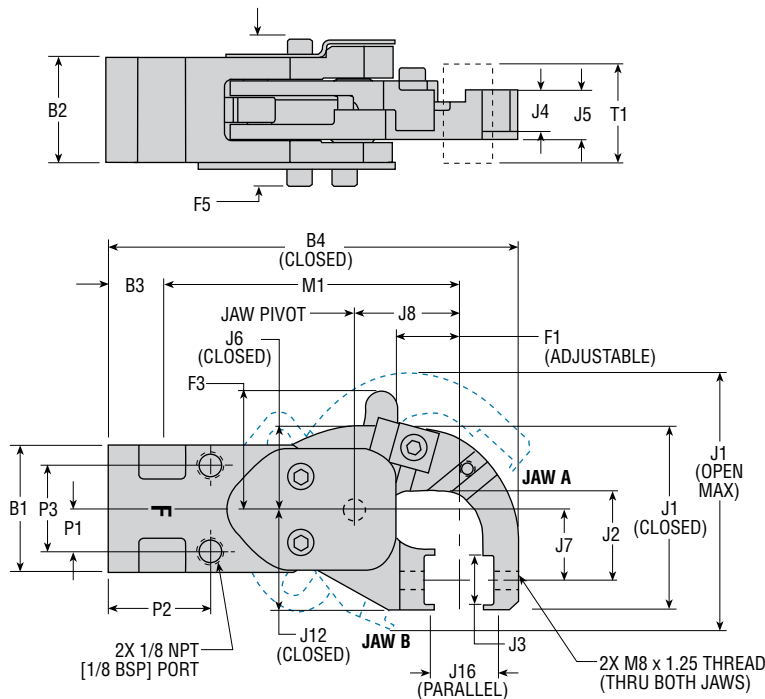
LETTER DIM	MODEL NUMBER	
	GRM2xF	GRM4xF
B1	1.910 48.5	2.176 55.3
B2	1.654 42.0	1.980 50.3
B3	.827 21.0	1.338 34.0
B4 (CLOSED)	6.358 161.5	8.692 220.8
F1 MAX	.965 24.5	1.339 34.0
F1 MIN	.453 11.5	.499 12.7
F3	1.801 45.7	2.560 65.0
F5	2.291 58.2	2.941 74.7
J1 (CLOSED)	2.787 70.8	3.757 95.4
J1 (OPEN MAX)	4.008 101.8	4.897 124.4
J2 (CLOSED)	1.350 34.3	2.008 51.0
J3*	.755 19.18	.755 19.18
J4*	.630 16.00	.785 19.94
J5	.768 19.5	.961 24.4
J6 (CLOSED)	1.270 32.3	2.087 53.0
J7	1.063 27.0	1.181 30.0
J8	1.621 41.2	2.028 51.5
J12 (CLOSED)	1.517 38.5	1.673 42.5
J15 (OPEN)	1.910 48.5	2.651 67.3
J16 (PARALLEL)	1.064 27.0	1.595 40.5
P1	.650 16.5	.700 17.8
P2	1.575 40.0	.452 11.5
P3	1.300 33.0	1.772 45.0
M1	4.613 117.2	6.182 157.0
T1**	1.530 38.9	1.850 47.0

* TOLERANCE FOR J3 & J4 = ± .003 [± .076]
** T1 IS THE LARGEST TIP AVAILABLE.

NOTES:

- 1) SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.
- 2) THE 0° JAW ROTATES 1.7° DURING THE CLAMP CYCLE, OPENING THE END OF THE JAW .035 [0.9]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

GRM2xF-x-50xxx-22xxx



LETTER DIM	MODEL NUMBER	
	GRM2xF	
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.358	161.5
F1 MAX	.965	24.5
F1 MIN	.453	11.5
F3	1.801	45.7
F5	2.291	58.2
J1 (CLOSED)	2.787	70.8
J1 (OPEN MAX)	3.974	100.9
J2 (CLOSED)	1.350	34.3
J3*	.755	19.18
J4*	.630	16.00
J5	.768	19.5
J6 (CLOSED)	1.270	32.3
J7	1.063	27.0
J8	1.621	41.2
J12 (CLOSED)	1.517	38.5
J16 (PARALLEL)	1.064	27.0
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	4.613	117.2
T1**	1.530	38.9

* TOLERANCE FOR J3 & J4 = ± .003 [± .076]
** T1 IS THE LARGEST TIP AVAILABLE.

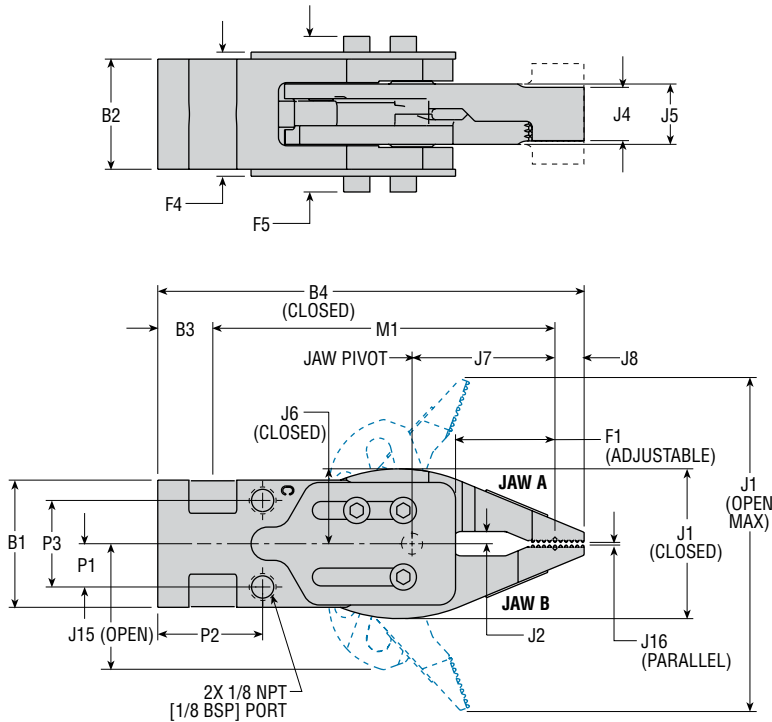
NOTE:

SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.

All dimensions are reference only unless specifically toleranced.

DIMENSIONS: JAW STYLES "N" & "P" - SIZE 2

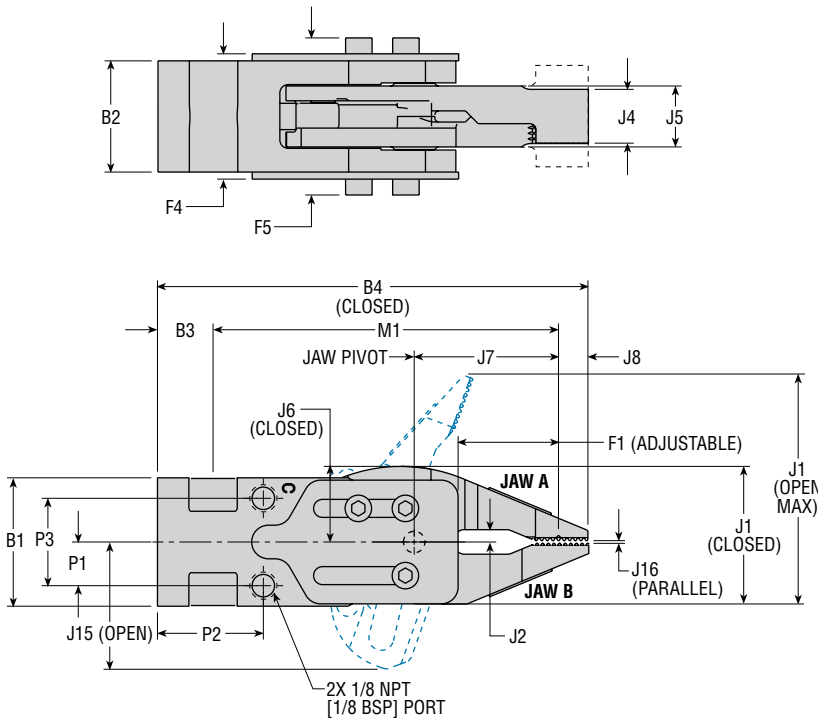
GRM2xN-x-xx-xx
GRM2xP-x-xx-xx



LETTER DIM	MODEL NUMBER	
	GRM2xN	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.403	162.6
F1 MAX	1.496	38.0
F1 MIN	.985	25.0
F4	1.864	47.3
F5	2.336	59.3
J1 (CLOSED)	2.250	57.2
J1 (OPEN MAX)	4.970	126.2
J2 (CLOSED)	.183	4.6
J4 - JAW STYLE N	.800	20.3
J4 - JAW STYLE P	1.500	38.1
J5	.906	23.0
J6	1.125	28.6
J7	2.146	54.5
J8	.438	11.1
J15 (OPEN)	1.876	47.7
J16 (PARALLEL)	.040	1.0
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	5.138	130.5

NOTES:
1) SEE MOUNTING BRACKET PAGES.

GRM2xN-x-xx-00
GRM2xP-x-xx-00

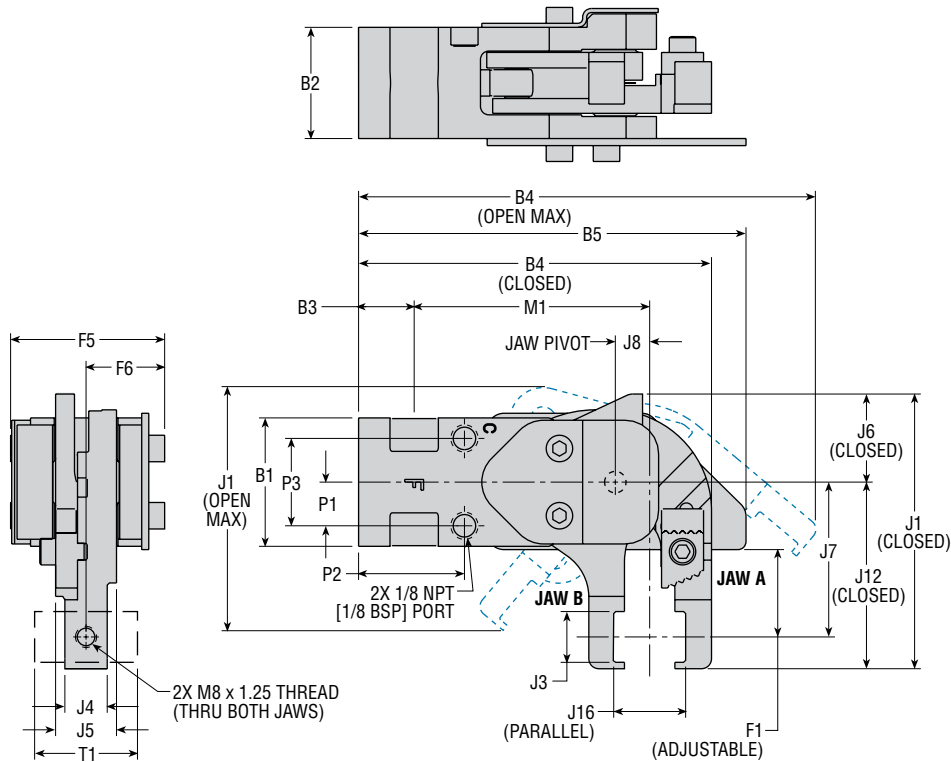


LETTER DIM	MODEL NUMBER	
	GRM2xP	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.403	162.6
F1 MAX	1.496	38.0
F1 MIN	.985	25.0
F4	1.864	47.3
F5	2.336	59.3
J1 (CLOSED)	2.045	51.9
J1 (OPEN MAX)	3.405	86.5
J2 (CLOSED)	.183	4.6
J4 - JAW STYLE N	.800	20.3
J4 - JAW STYLE P	1.500	38.1
J6	1.125	28.6
J7	2.146	54.5
J8	.438	11.1
J15 (OPEN)	1.876	47.7
J16 (PARALLEL)	.040	1.0
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	5.138	130.5

NOTES:
1) SEE MOUNTING BRACKET PAGES.
2) THE 0° JAW ROTATES 2.5° DURING THE CLAMP CYCLE, OPENING THE END OF THE JAW .118 [3.0]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

DIMENSIONS: HOOK JAW STYLE "K" - SIZE 2

GRM2xK-x-xxxxx-xxxxx



LETTER DIM	MODEL NUMBER GRM2xK	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	5.250	133.4
B4 (OPEN MAX)	6.804	172.8
B5	5.763	146.4
F1 MAX	1.004	25.5
F1 MIN	.788	20.0
F5	2.291	58.2
F6	1.169	29.7
J1 (CLOSED)	4.086	103.8
J1 (OPEN MAX)	3.754	95.4
J3*	.755	19.18
J4*	.630	16.00
J5	.906	23.0
J6 (CLOSED)	1.310	33.3
J7	2.303	58.5
J8	.511	13.0
J12 (CLOSED)	2.776	70.5
J16 (PARALLEL)	1.070	27.2
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	3.504	89.0
T1**	1.530	38.9

* TOLERANCE FOR J3 & J4 = ± .003 [± .076]
 ** T1 IS THE LARGEST TIP AVAILABLE.

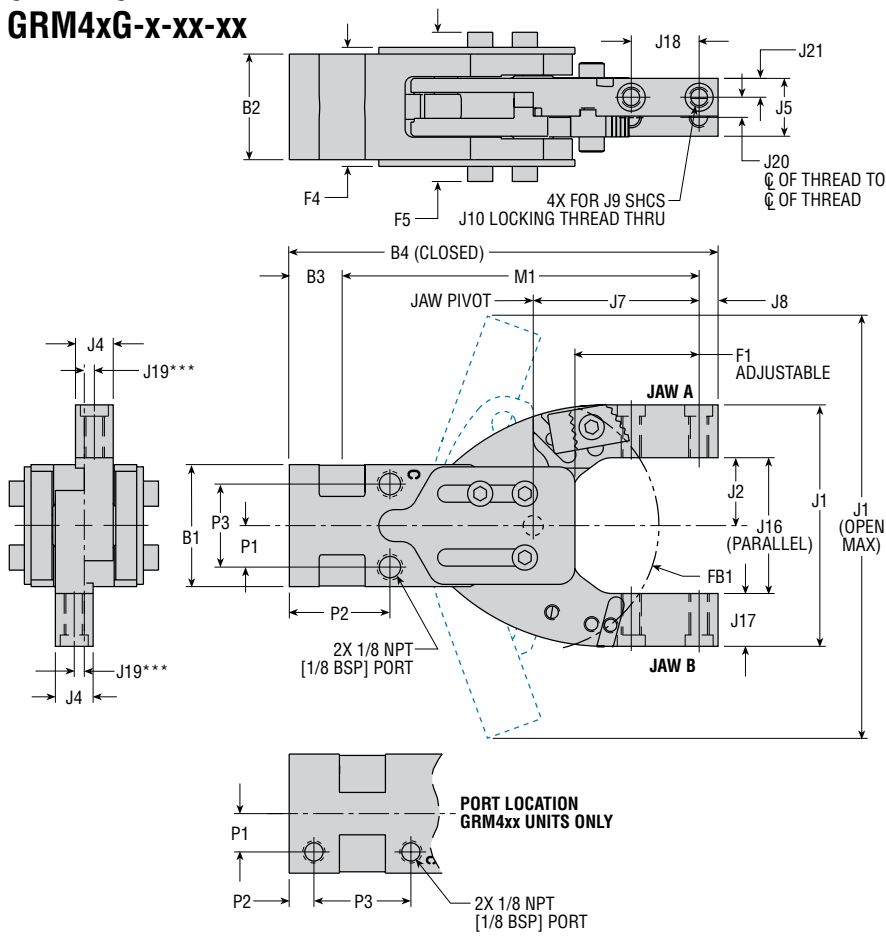
NOTES:

- 1) SEE TIP DIMENSIONS AND MOUNTING BRACKET PAGES.
- 2) THE 0° JAW ROTATES 2° DURING THE CLAMP CYCLE, OPENING THE END OF THE JAW .098 [2.5]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

All dimensions are reference only unless specifically toleranced.

DIMENSIONS: TOOLABLE JAW STYLE "G" - SIZES 2 & 4

GRM2xG-x-xx-xx GRM4xG-x-xx-xx

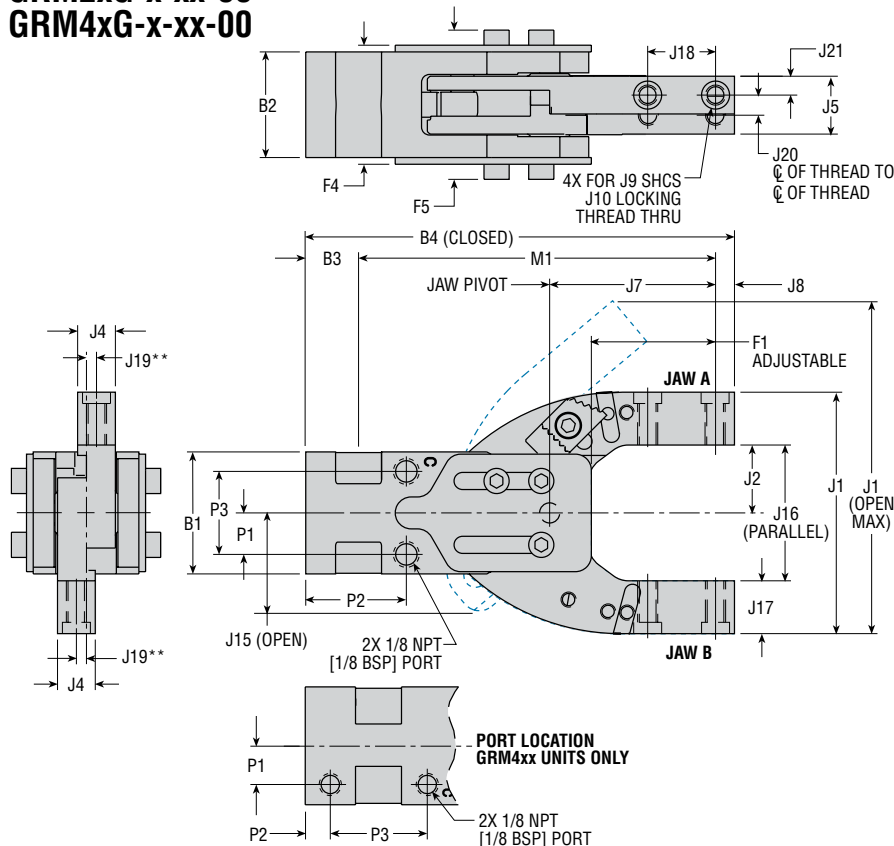


LETTER DIM	MODEL NUMBER	
	GRM2xG	GRM4xG
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.713	170.5
F1 MAX	1.948	49.5
F1 MIN	1.437	36.5
F4	1.864	47.3
F5	2.336	59.3
J1 (PARALLEL)	3.780	96.0
J1 (OPEN MAX)	6.616	168.0
J2 (PARALLEL)	1.063	27.0
J4*	.591	15.01
J5	.906	23.0
J7	2.598	66.0
J8	.296	7.5
J9	1/4	M6
J10	M8 x 1.25	M10 x 1.5
J16 (PARALLEL)	2.126	54.0
J17	.827	21.0
J18	1.063	27.0
J19	.158	4.0
J20	.316	8.0
J21	.295	7.5
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	5.590	142.0
FB1**	—	2.677

* TOLERANCE FOR J4 DIM = ± .003 [± .076]
 ** FB1 IS A CLEARANCE FOR JAWS TO PASS EACH OTHER FOR 70° x 70° JAW ROTATIONS ONLY
 *** J19 DIMENSION IS \bar{C} OF CLAMP TO \bar{C} OF THREAD

NOTE: SEE MOUNTING BRACKET PAGE.

GRM2xG-x-xx-00 GRM4xG-x-xx-00



LETTER DIM	MODEL NUMBER	
	GRM2xG	GRM4xG
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	6.713	170.5
F1 MAX	1.948	49.5
F1 MIN	1.437	36.5
F4	1.864	47.3
F5	2.336	59.3
J1 (PARALLEL)	3.780	96.0
J1 (OPEN MAX)	5.198	132.0
J2 (PARALLEL)	1.063	27.0
J4*	.591	15.01
J5	.906	23.0
J7	2.598	66.0
J8	.296	7.5
J9	1/4	M6
J10	M8 x 1.25	M10 x 1.5
J15 (OPEN)	—	2.542
J16 (PARALLEL)	2.126	54.0
J17	.827	21.0
J18	1.063	27.0
J19	.158	4.0
J20	.316	8.0
J21	.295	7.5
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	5.590	142.0

* TOLERANCE FOR J4 DIM = ± .003 [± .076]
 ** J19 DIMENSION IS \bar{C} OF CLAMP TO \bar{C} OF THREAD

NOTE: SEE MOUNTING BRACKET PAGES.

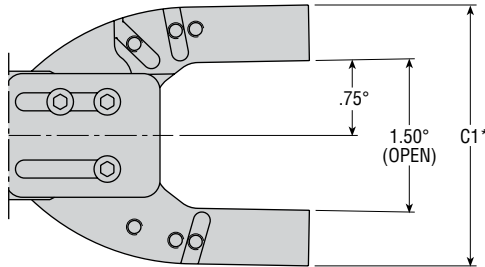
EFFECTIVE CLAMPING RANGE: TOOLABLE JAW STYLE "G"

The effective clamping range is defined as the range where the clamp develops the greatest amount of grip force. The effective clamping range occurs between the beginning (C1) and ending jaw positions as shown below. Within this clamping range the jaws are locked in position even if pressure is lost. The effective clamping range, for each jaw, is from .75° open to -0.5° closed (past parallel).

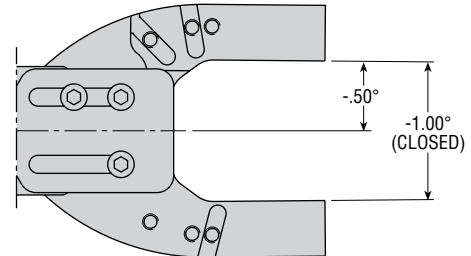
LETTER DIM	MODEL NUMBER			
	GRM2xG		GRM4xG	
	in	mm	in	mm
C1	3.855	97.9	4.815	122.3

* C1 DIMENSION IS THE BEGINNING OF THE EFFECTIVE CLAMPING RANGE MEASURED AT THE CORNER OF THE JAW

BEGINNING CLAMPING RANGE



ENDING POSITION



NOTES:

- 1) NUMBERS IN [] ARE FOR METRIC UNITS AND ARE IN mm.
- 2) ANGULAR DIMENSIONS ARE MEASURED IN DEGREES.

TOTAL CLAMP FORCE (Cf)

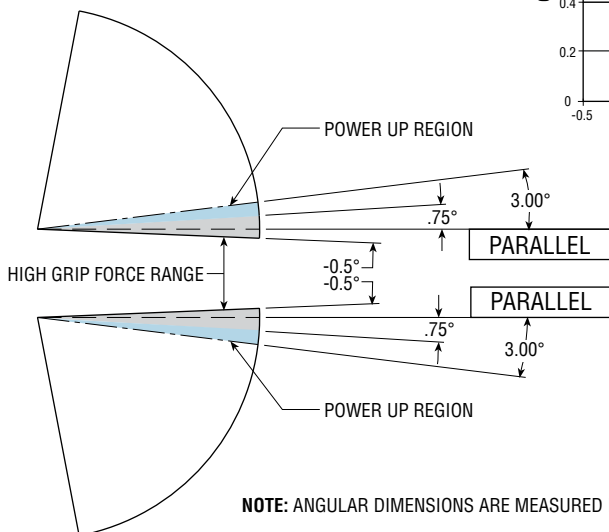
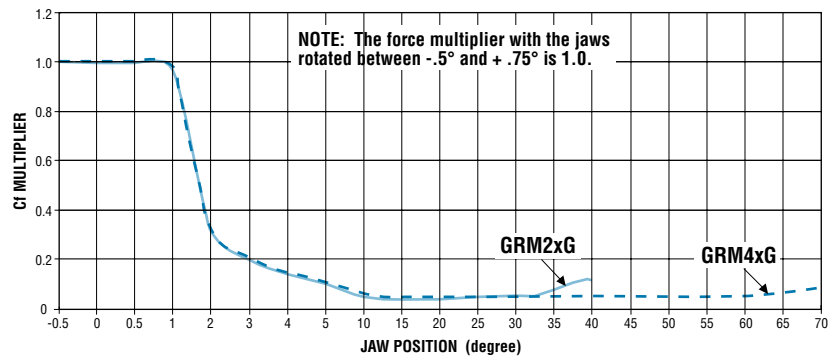
To achieve maximum clamp force, custom tooling must be designed to grip the part with the jaws located in the high force range. The greatest amount of clamp force occurs during the last 1.25° of each jaw's rotation. Refer to the picture for high grip force range.

MODEL	Cf External Grip	
	Imperial	Metric
GRM2xG-x-xx-xx	5.55	9083
GRM4xG-x-xx-xx	16.2	26503

$$\frac{\text{PRESSURE (psi)} \times \text{Cf} \times \text{Cf MULTIPLIER}}{\text{DISTANCE FROM JAW PIVOT (in)}} = \text{TOTAL FORCE (lb)}$$

$$\frac{\text{PRESSURE (bar)} \times \text{Cf} \times \text{Cf MULTIPLIER}}{\text{DISTANCE FROM JAW PIVOT (mm)}} = \text{TOTAL FORCE (N)}$$

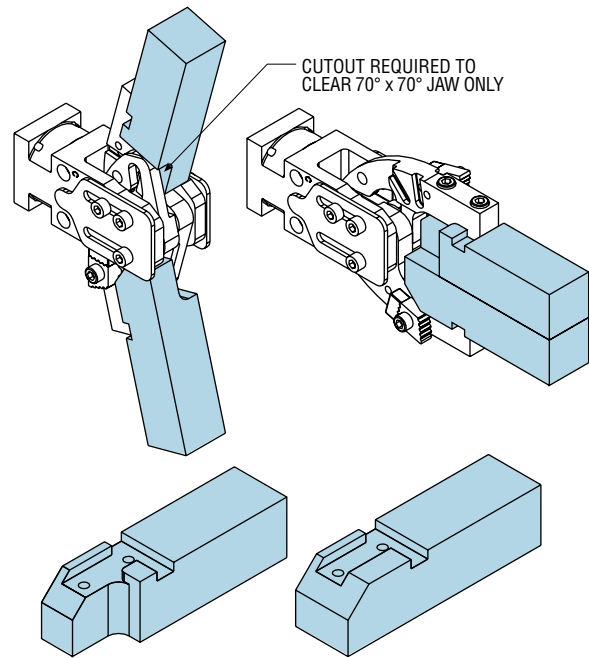
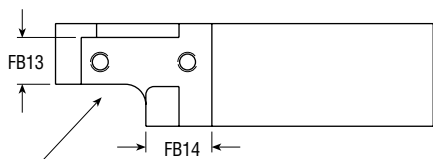
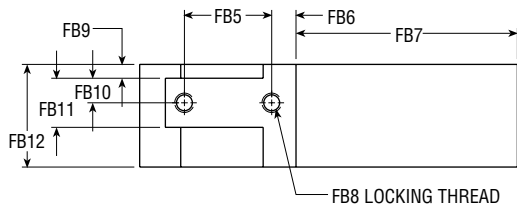
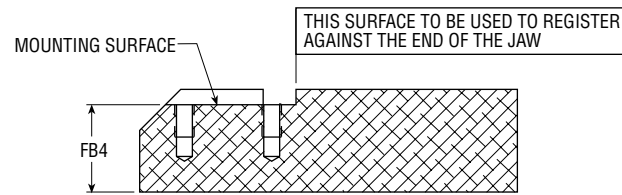
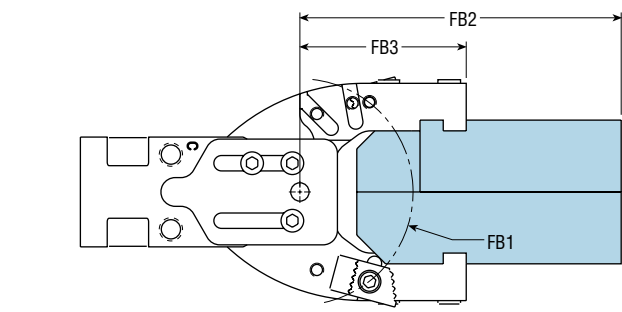
CLAMP FORCE MULTIPLIER FOR GRM2xG AND GRM4xG



NOTE: ANGULAR DIMENSIONS ARE MEASURED IN DEGREES.

All dimensions are reference only unless specifically toleranced.

FINGER BLANKS: TOOLABLE JAW STYLE "G"



INFORMATION FOR APPLYING FINGER BLANKS OR CUSTOM TOOLING

1. Finger blanks are made from 6061 aluminum. The outside surfaces are vibratory polished.
2. G jaws are made from 4140 steel, through hardened 30 to 35 Rc. They are machinable; customers can modify the jaws to mount special tooling. Consult PHD on jaw modifications.
3. G jaws are not in line with each other. They are shifted off center by dimension J19 (see chart). This is necessary to clear the cam portion of the opposite jaw when opening 70°. Finger blanks or custom tooling must also clear this cam area when opening 70° (see dim FB1 on dimensional page). Consider the J19 offset dimension when modifying finger blanks or making special tooling so that the tooling can align properly. Jaw width is controlled so tooling can be slotted to key into place. The end of the jaws are accurately machined to provide a tooling length registration stop. Jaw mounting threads J10 (see chart) can accept fasteners from inside or outside. They are self-locking when the fasteners are installed from the outside (as shown) and torqued properly. Use the mounting geometry shown shaded on finger blanks (45° chamfer, cutout for 70° opening, thread locations and J19 offset dimensions) to design custom tooling.
4. Standard aluminum finger blanks can be used without the need for speed controls on the clamp. Dual rotation stops must be used on G jaws as shown. For custom finger blanks that are heavier, longer, or wider than the finger blanks shown, consult PHD for approval.

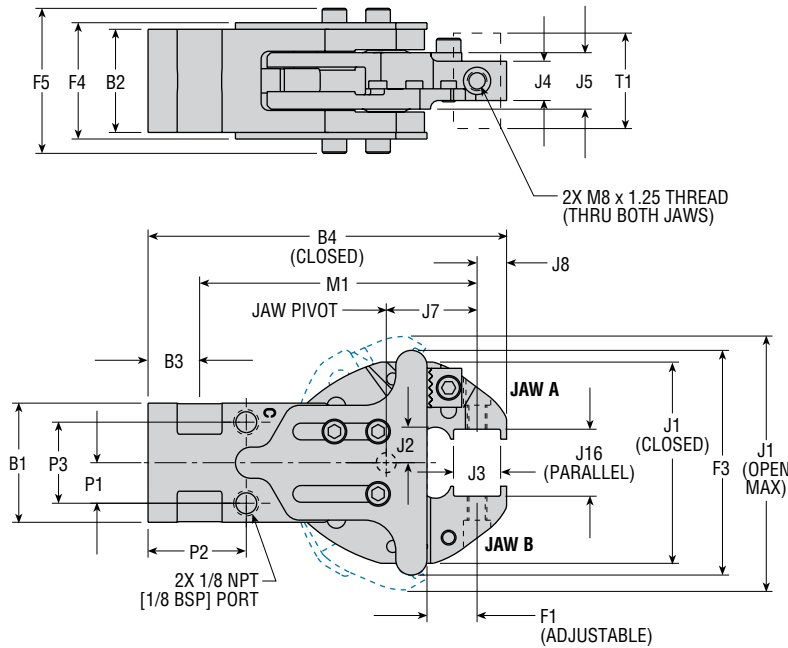
LETTER DIM	MODEL NUMBER			
	GRM2xG		GRM4xG	
	in	mm	in	mm
FB1	—	—	2.677	68.0
FB2	4.921	125.0	6.142	156.0
FB3	2.894	73.5	3.504	89.0
FB4	1.063	27.0	1.250	31.8
FB5	1.063	27.0	1.181	30.0
FB6	.296	7.5	.354	9.0
FB7	2.027	51.5	2.638	67.0
FB8	M6 x 1.0		M8 x 1.25	
FB9	.168	4.3	.178	4.5
FB10	.299	7.6	.334	8.5
FB11	.598	15.2	.667	16.9
FB12	1.250	31.8	1.500	38.1
FB13	—	—	.640	16.3
FB14	—	—	.822	20.9

MODEL NUMBER	JAW ROTATIONS	FINGER BLANK KIT NUMBER	WEIGHT PER FINGER BLANK	
			lb	kg
GRM2x	70-70	N/A	—	—
	All Other Rot.	65225-02	.64	.29
GRM4x	70-70	65226-01	1.10	.50
	All Other Rot.	65226-02	.96	.44

KIT INCLUDES:
1 FINGER BLANK
2 MOUNTING SCREWS

DIMENSIONS: SHORT CLAMP JAW STYLE "R" - SIZE 2

GRM2xR-x-xxxxx-xxxxx

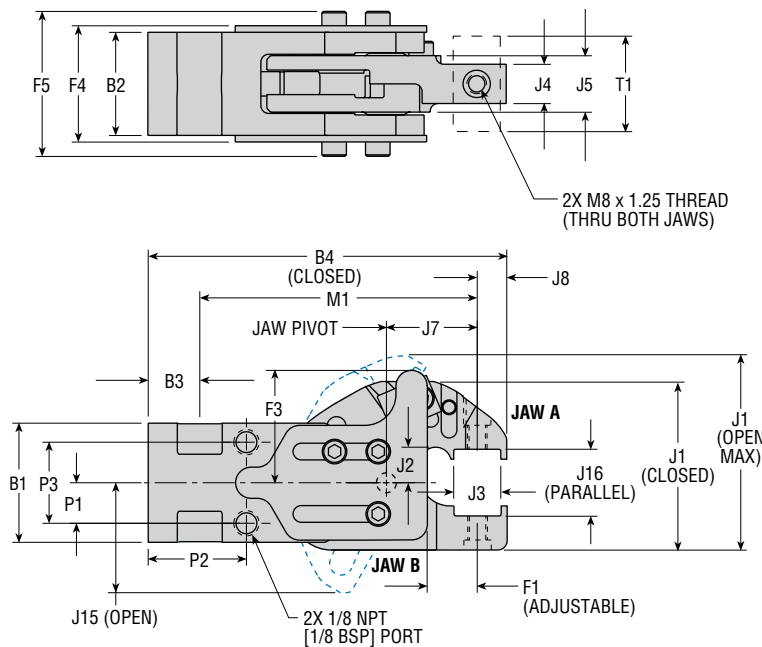


LETTER DIM	MODEL NUMBER GRM2xR	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	5.748	146.0
F1 MAX	.803	20.4
F1 MIN	.292	7.4
F3	3.602	91.5
F4	1.864	47.3
F5	2.336	59.3
J1 (CLOSED)	3.226	81.9
J1 (OPEN MAX)	4.060	103.1
J2 (CLOSED)	.570	14.5
J3*	.755	19.2
J4*	.630	16.0
J5	.906	23.0
J7	1.456	37.0
J8	.472	12.0
J16 (PARALLEL)	1.074	27.3
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	4.448	113.0
T1**	1.530	38.9

* TOLERANCE FOR J3 & J4 = ± .003 [± .076]
 ** T1 IS THE LARGEST TIP AVAILABLE.

NOTE: SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.

GRM2xR-x-xxxxx-00xxx



LETTER DIM	MODEL NUMBER GRM2xR	
	in	mm
B1	1.910	48.5
B2	1.654	42.0
B3	.827	21.0
B4 (CLOSED)	5.748	146.0
F1 MAX	.803	20.4
F1 MIN	.292	7.4
F3	1.801	45.7
F4	1.864	47.3
F5	2.336	59.3
J1 (CLOSED)	2.695	68.5
J1 (OPEN MAX)	3.112	79.0
J2 (CLOSED)	.570	14.5
J3*	.755	19.2
J4*	.630	16.0
J5	.906	23.0
J6	1.613	41.0
J7	1.456	37.0
J8	.472	12.0
J15 (OPEN)	1.811	46.0
J16 (PARALLEL)	1.074	27.3
P1	.650	16.5
P2	1.575	40.0
P3	1.300	33.0
M1	4.448	113.0
T1**	1.530	38.9

* TOLERANCE FOR J3 & J4 = ± .003 [± .076]
 ** T1 IS THE LARGEST TIP AVAILABLE.

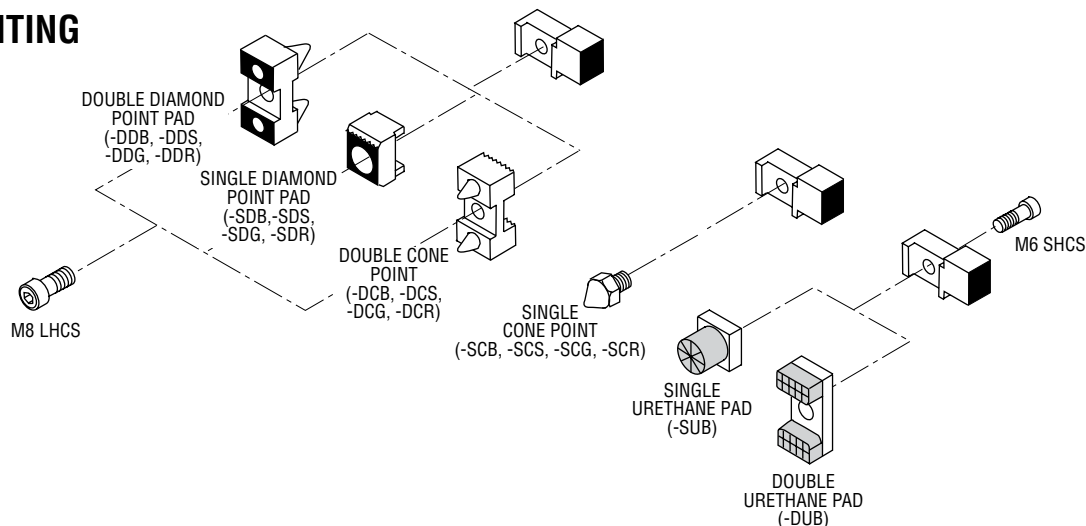
NOTES:

- 1) SEE TIP DIMENSION AND MOUNTING BRACKET PAGES.
- 2) THE 0° JAW ROTATES 3° DURING THE CLAMP CYCLE. OPENING THE END OF THE JAW .079 [2.0]. THE JAW RETURNS TO THE 0° POSITION AS THE OPPOSING JAW REACHES FULL OPEN OR CLOSED.

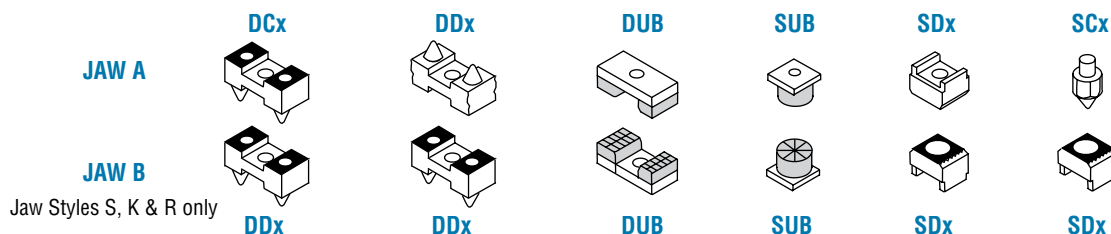
All dimensions are reference only unless specifically toleranced.

TIP MOUNTING: JAW STYLES "S, C, D, K, L, M, & R"

TIP MOUNTING



RECOMMENDED TIP COMBINATIONS (See Tip Dimensions page.)



JAW TIP OPTIONS - JAW STYLES S, C, D, K, L, & M

	JAW A			
	Material Thickness			
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm	4.01 to 5 mm*
Color	Black	Silver	Gold	Red
No tip	Blank	Blank	Blank	Blank
Single Cone Point	SCB	SCS	SCG	SCR
Double Cone Point	DCB	DCS	DCG	DCR
Single Diamond Point	SDB	SDS	SDG	SDR
Double Diamond Point	DDB	DDS	DDG	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB

	JAW B			
	Material Thickness			
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm	4.01 to 5 mm*
Color	Black	Silver	Gold	Red
No tip	Blank	Blank	Blank	Blank
Single Cone Point	SCB	SCS	SCG	SCR
Double Cone Point	DCB	DCS	DCG	DCR
Single Diamond Point	SDB	SDS	SDG	SDR
Double Diamond Point	DDB	DDS	DDG	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB

JAW TIP OPTIONS - JAW STYLE R

	JAW A		
	Material Thickness		
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm
Color	Black	Silver	Red
No tip	Blank	Blank	Blank
Single Cone Point	SCB	SCS	SCR
Double Cone Point	DCB	DCS	DCR
Single Diamond Point	SDB	SDS	SDR
Double Diamond Point	DDB	DDS	DDR
Single Urethane Pad	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB

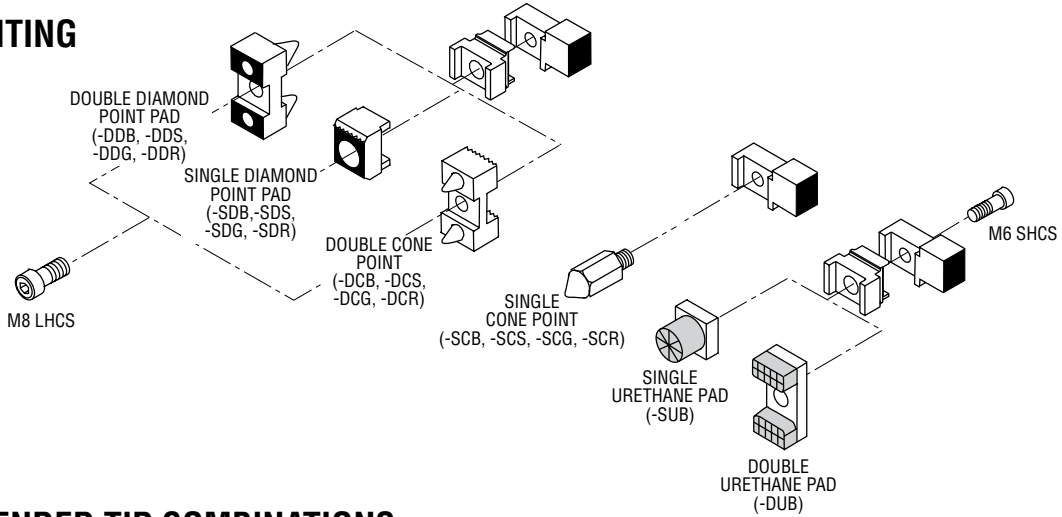
	JAW B		
	Material Thickness		
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm
Color	Black	Silver	Red
No tip	Blank	Blank	Blank
Single Cone Point	SCB	SCS	SCR
Double Cone Point	DCB	DCS	DCR
Single Diamond Point	SDB	SDS	SDR
Double Diamond Point	DDB	DDS	DDR
Single Urethane Pad	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB

NOTES:

- 1) Cone point against cone point tip combinations are not allowed due to point overlap.
- 2) Red tips are available only on GRM size 2.
- 3) *Material thickness for L and M jaw styles = 4.01 to 4.5 mm.
- 4) Jaw B tip options are not available for jaw styles C, D, L, & M

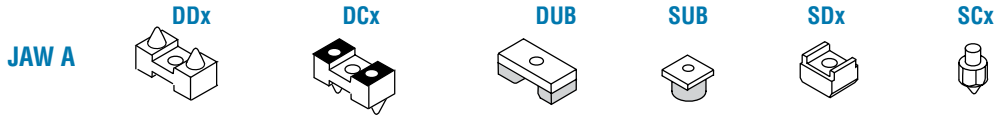
TIP MOUNTING: SHOVEL JAW STYLES "H & J"

TIP MOUNTING



RECOMMENDED TIP COMBINATIONS

(See Tip Dimensions page.)



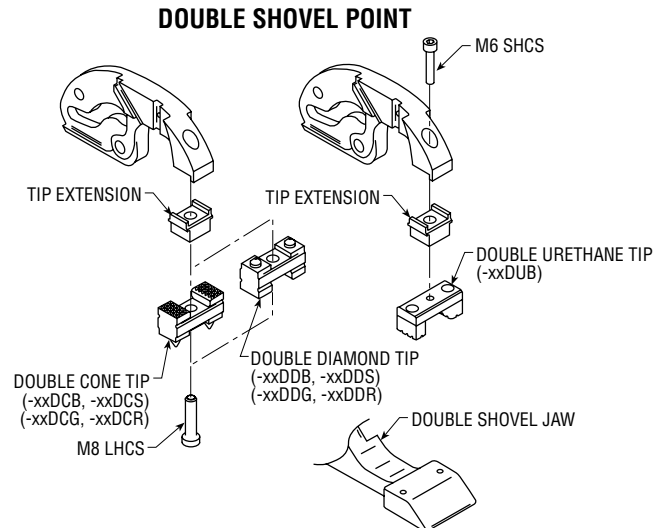
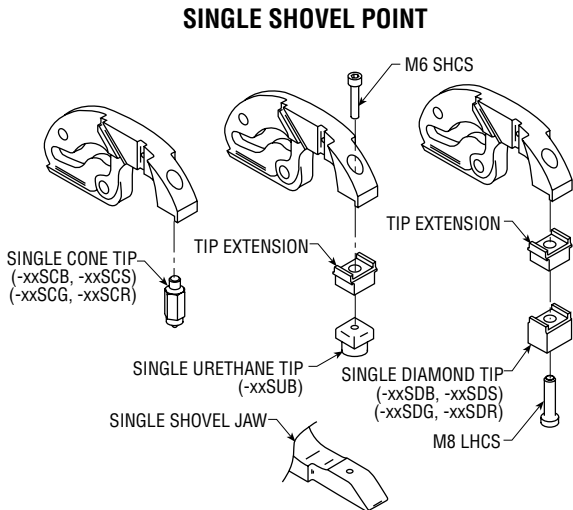
JAW TIP OPTIONS - JAW STYLES H & J

	JAW A			
	Material Thickness			
	0 to 1.50 mm	1.51 to 3 mm	3.01 to 4 mm	4.01 to 4.5 mm
Color	Black	Silver	Gold	Red
No tip	Blank	Blank	Blank	Blank
Single Cone Point	SCB	SCS	SCG	SCR
Double Cone Point	DCB	DCS	DCG	DCR
Single Diamond Point	SDB	SDS	SDG	SDR
Double Diamond Point	DDB	DDS	DDG	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB

NOTES:

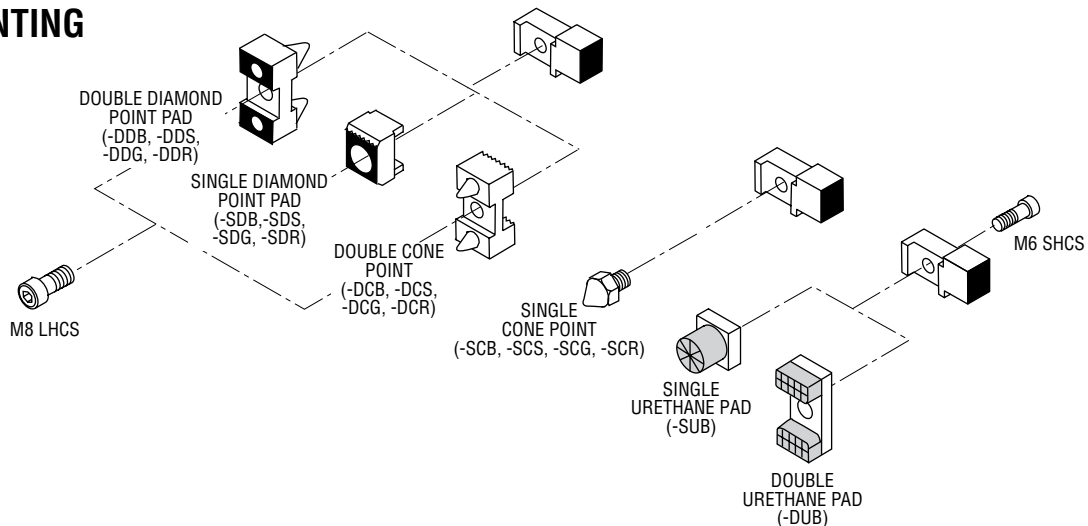
- 1) Cone point against cone point tip combinations are not allowed due to point overlap.
- 2) Red tips are available only on GRM size 2.

TIP COMBINATIONS



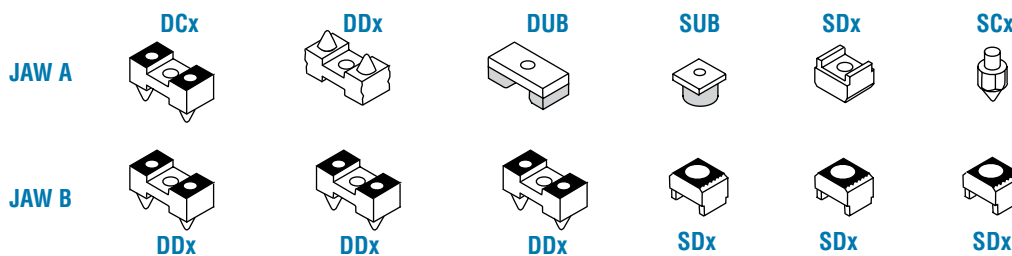
TIP MOUNTING: FLANGE JAW STYLE "F"

TIP MOUNTING



RECOMMENDED TIP COMBINATIONS

(See Tip Dimensions page.)



JAW TIP OPTIONS - JAW STYLE F

85° & 50° - JAW A								
	Material Thickness							
	0 to .85 mm	.86 to 1.20 mm	1.21 to 1.52 mm	1.53 to 1.94 mm	1.95 to 2.29 mm	2.3 to 2.6 mm	2.61 to 3.0 mm	3.01 to 3.4 mm
Color	Black	Silver	Gold	Silver	Gold	Gold	Red	Red
No Tip	Blank	Blank	Blank	Blank	Blank	Blank	Blank	Blank
Single Cone Point	SCB	SCS	SCG	SCS	SCG	SCG	SCR	SCR
Double Cone Point	DCB	DCS	DCG	DCS	DCG	DCG	DCR	DCR
Single Diamond Point Pad	SDB	SDS	SDG	SDS	SDG	SDG	SDR	SDR
Double Diamond Point Pad	DDB	DDS	DDG	DDS	DDG	DDG	DDR	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB	DUB	DUB	DUB	DUB

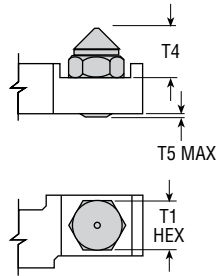
85° & 50° - JAW B								
	Material Thickness							
	0 to .85 mm	.86 to 1.20 mm	1.21 to 1.52 mm	1.53 to 1.94 mm	1.95 to 2.29 mm	2.3 to 2.6 mm	2.61 to 3.0 mm	3.01 to 3.4 mm
Color	Black	Black	Black	Silver	Silver	Gold	Gold	Red
No Tip	Blank	Blank	Blank	Blank	Blank	Blank	Blank	Blank
Single Cone Point	SCB	SCB	SCB	SCS	SCS	SCG	SCG	SCR
Single Diamond Point Pad	SDB	SDB	SDB	SDS	SDS	SDG	SDG	SDR
Double Diamond Point Pad	DDB	DDB	DDB	DDS	DDS	DDG	DDG	DDR
Single Urethane Pad	SUB	SUB	SUB	SUB	SUB	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB	DUB	DUB	DUB	DUB	DUB

NOTES:

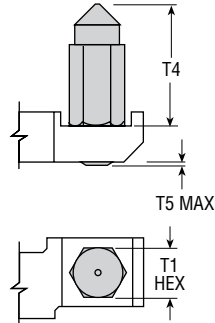
- 1) Cone point against cone point tip combinations are not allowed due to point overlap.
- 2) Red tips are available only on GRM size 2.

TIP DIMENSIONS: SERIES GRM CLAMPS

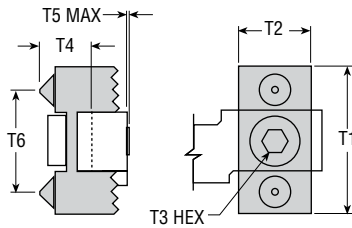
**-SCB, -SCS,
-SCG, -SCR**
SINGLE CONE POINT



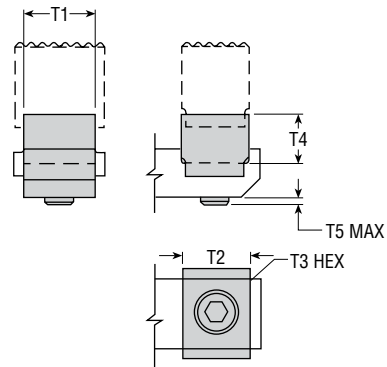
**-SCB, -SCS,
-SCG, -SCR**
SINGLE CONE POINT
(FOR JAW STYLE H ONLY)



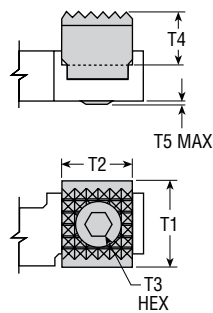
-DCB, -DCS, -DCG, -DCR
DOUBLE CONE POINT



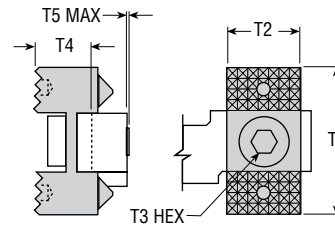
**TIP EXTENSION - FOR USE WITH:
-SDB, -SDS, -SDG, -SDR, -DCB, -DCS, -DCG, -DCR,
-DDB, -DDS, -DDG, -DDR, -SUB, -DUB**
(FOR JAW STYLES H & J ONLY)



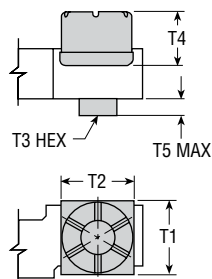
**-SDB, -SDS,
-SDG, -SDR**
SINGLE DIAMOND
POINT PAD



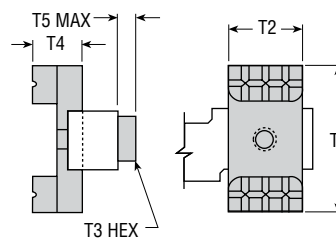
-DDB, -DDS, -DDG, -DDR
DOUBLE DIAMOND POINT PAD



-SUB
SINGLE URETHANE PAD



-DUB
DOUBLE URETHANE PAD



(See next page for Tip Dimensions chart.)

TIP DIMENSIONS: SERIES GRM CLAMPS

OPTION CODE	PART COLOR	UNIT SIZE	KIT NUMBER	LETTER DIMENSION											
				T1		T2		T3		T4		T5		T6	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
-SCB	BLACK	2	GRM2-SCB-1	.511	13.0	—	—	—	—	.545	13.8	.039	1.0	—	—
		4	GRM4-SCB-1	.511	13.0	—	—	—	—	.804	20.4	.039	1.0	—	—
-SCS	SILVER	2	GRM2-SCS-1	.511	13.0	—	—	—	—	.520	13.2	.039	1.0	—	—
		4	GRM4-SCS-1	.511	13.0	—	—	—	—	.779	19.8	.039	1.0	—	—
-SCG	GOLD	2	GRM2-SCG-1	.511	13.0	—	—	—	—	.507	12.9	.039	1.0	—	—
		4	GRM4-SCG-1	.511	13.0	—	—	—	—	.766	19.5	.039	1.0	—	—
-SCR	RED	2	GRM2-SCR-1	.511	13.0	—	—	—	—	.497	12.6	.039	1.0	—	—
-SDB	BLACK	2	GRM2-SDB-1	.900	22.9	.750	19.0	.197	5.0	.535	13.6	.059	1.5	—	—
		4	GRM4-SDB-1	.984	25.0	.750	19.0	.197	5.0	.794	20.2	—	—	—	—
-SDS	SILVER	2	GRM2-SDS-1	.900	22.9	.750	19.0	.197	5.0	.510	13.0	.059	1.5	—	—
		4	GRM4-SDS-1	.984	25.0	.750	19.0	.197	5.0	.769	19.5	—	—	—	—
-SDG	GOLD	2	GRM2-SDG-1	.900	22.9	.750	19.0	.197	5.0	.497	12.6	.059	1.5	—	—
		4	GRM4-SDG-1	.984	25.0	.750	19.0	.197	5.0	.756	19.2	—	—	—	—
-SDR	RED	2	GRM2-SDR-1	.900	22.9	.750	19.0	.197	5.0	.487	12.4	.059	1.5	—	—
-SUB	BLACK	2	GRM2-SUB-1	.748	19.0	.748	19.0	.197	5.0	.535	13.6	.236	6.0	—	—
		4	GRM4-SUB-1	.748	19.0	.748	19.0	.197	5.0	.800	20.3	.236	6.0	—	—
-DCB	BLACK	2	GRM2-DCB-1	1.530	38.9	.750	19.0	.197	5.0	.555	14.1	.039	1.0	1.070	27.2
		4	GRM4-DCB-1	1.850	47.0	.750	19.0	.197	5.0	.804	20.4	—	—	1.375	35.0
-DCS	SILVER	2	GRM2-DCS-1	1.530	38.9	.750	19.0	.197	5.0	.530	13.5	.039	1.0	1.070	27.2
		4	GRM4-DCS-1	1.850	47.0	.750	19.0	.197	5.0	.779	19.8	—	—	1.375	35.0
-DCG	GOLD	2	GRM2-DCG-1	1.530	38.9	.750	19.0	.197	5.0	.517	13.1	.039	1.0	1.070	27.2
		4	GRM4-DCG-1	1.850	47.0	.750	19.0	.197	5.0	.766	19.5	—	—	1.375	35.0
-DCR	RED	2	GRM2-DCR-1	1.530	38.9	.750	19.0	.197	5.0	.507	12.9	.039	1.0	1.070	27.2
-DDB	BLACK	2	GRM2-DDB-1	1.530	38.9	.750	19.0	.197	5.0	.535	13.6	.039	1.0	—	—
		4	GRM4-DDB-1	1.850	47.0	.750	19.0	.197	5.0	.794	20.2	—	—	—	—
-DDS	SILVER	2	GRM2-DDS-1	1.530	38.9	.750	19.0	.197	5.0	.510	13.0	.039	1.0	—	—
		4	GRM4-DDS-1	1.850	47.0	.750	19.0	.197	5.0	.769	19.5	—	—	—	—
-DDG	GOLD	2	GRM2-DDG-1	1.530	38.9	.750	19.0	.197	5.0	.497	12.6	.039	1.0	—	—
		4	GRM4-DDG-1	1.850	47.0	.750	19.0	.197	5.0	.756	19.2	—	—	—	—
-DDR	RED	2	GRM2-DDR-1	1.530	38.9	.750	19.0	.197	5.0	.487	12.4	.039	1.0	—	—
-DUB	BLACK	2	GRM2-DUB-1	1.530	38.9	.748	19.0	.197	5.0	.545	13.8	.236	6.0	—	—
		4	GRM4-DUB-1	1.850	47.0	.748	19.0	.197	5.0	.794	20.2	.236	6.0	—	—
-SCB*	BLACK	2	62148-37	.511	13.0	—	—	—	—	.992	25.2	.039	1.0	—	—
		4	62148-33	.511	13.0	—	—	—	—	1.344	34.1	.039	1.0	—	—
-SCS*	SILVER	2	62148-38	.511	13.0	—	—	—	—	.967	24.6	.039	1.0	—	—
		4	62148-34	.511	13.0	—	—	—	—	1.319	33.5	.039	1.0	—	—
-SCG*	GOLD	2	62148-39	.511	13.0	—	—	—	—	.954	24.2	.039	1.0	—	—
		4	62148-36	.511	13.0	—	—	—	—	1.306	33.2	.039	1.0	—	—
-SCR*	RED	2	62148-47	.511	13.0	—	—	—	—	.944	24.0	.039	1.0	—	—
		TIP EXT.**	—	2	62148-40	.680	16.0	.750	19.0	.197	5.0	.451	11.6	—	—
		4	62148-35	.785	19.9	.750	19.0	.197	5.0	.540	13.7	.130	3.3	—	—

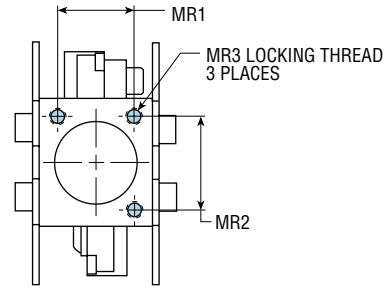
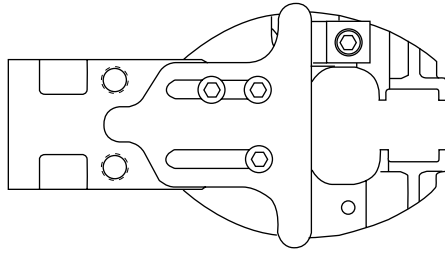
* FOR USE WITH JAW STYLE H ONLY ** FOR USE WITH JAW STYLES H & J ONLY

MOUNTING THREAD DIMENSIONS: SERIES GRM CLAMPS

REAR MOUNTING THREADS

STANDARD IN ALL CLAMPS

GRM2 T

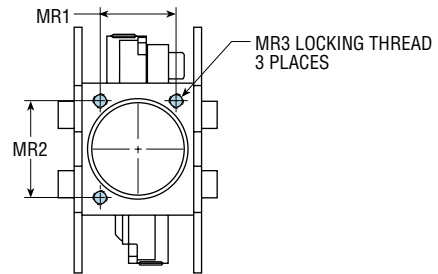
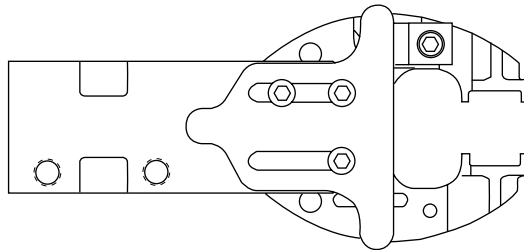


LETTER DIM	MODEL NUMBER			
	GRM2Tx		GRM4Tx	
MR1	1.122	28.5	1.496	38.0
MR2	1.398	35.5	1.693	43.0
MR3	M6 x 1.0 x .413 [10.5] DP		M8 x 1.25 x .512 [13.0] DP	

NOTE:

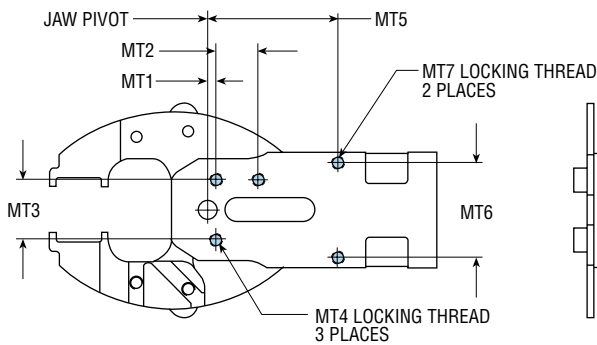
1) NUMBERS IN [] ARE FOR METRIC UNITS AND ARE IN mm.

GRM4 T

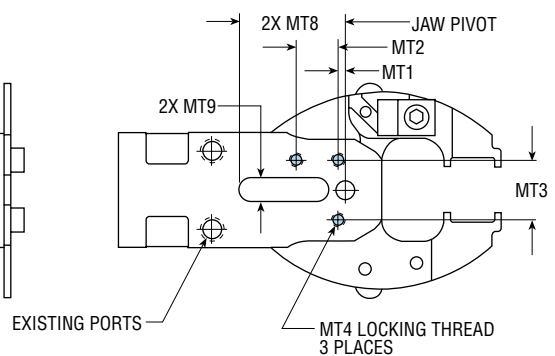


OTHER POSSIBLE MOUNTING THREADS

ALL GRM JAW STYLES (including Flange Jaw Style)



ALL GRM JAW STYLES (excluding Flange Jaw Style)



NOTES:

- 1) THE IMPACT PLATES HOLD THE PINS, JAW BUSHING, AND SLIDER BUSHINGS IN PLACE. TAKE CARE NOT TO LOSE THEM IF THE COVERS ARE REMOVED. IF AN IMPACT PLATE IS REPLACED BY A CUSTOMER MOUNTING PLATE, THE PIVOT PIN AND SLIDER BUSHING SLOT MUST BE COVERED WITH A SMOOTH SURFACE TO CONTAIN THE PARTS.
- 2) FASTENERS THAT ATTACH CUSTOM PLATES MUST NOT BE THREADED INTO THE SIDES OF THE BODY MORE THAN 8 mm OR THEY MAY INTERFERE WITH AND DAMAGE THE JAWS.
- 3) NUMBERS IN [] ARE FOR METRIC UNITS AND ARE IN mm.

LETTER DIM	MODEL NUMBER			
	GRM2xx		GRM4xx	
MT1	.131	3.3	.216	5.5
MT2	.700	17.8	1.000	25.4
MT3	1.000	25.4	1.400	35.6
MT4	M6 x 1.0 x .315 [8.0] DP		M6 x 1.0 x .354 [9.0] DP	
MT5	2.159	54.8	3.026	76.9
MT6	1.586	40.3	1.250	31.8
MT7	M6 x 1.0 x .250 [6.3] DP		M6 x 1.0 x .472 [12.0] DP	
MT8	1.783	45.3	2.520	64.0
MT9	.374	9.5	.465	11.8

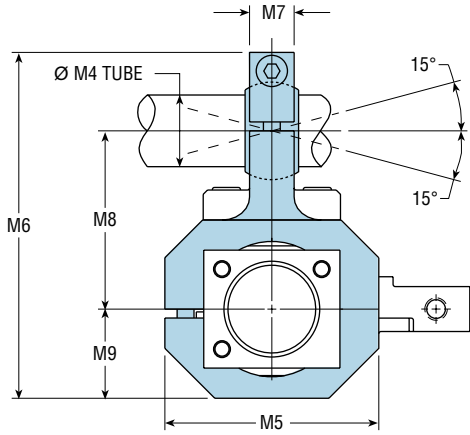
All dimensions are reference only unless specifically toleranced.

MOUNTING BRACKET DIMENSIONS: SERIES GRM CLAMPS

90° SPHERICAL MOUNTING BRACKET

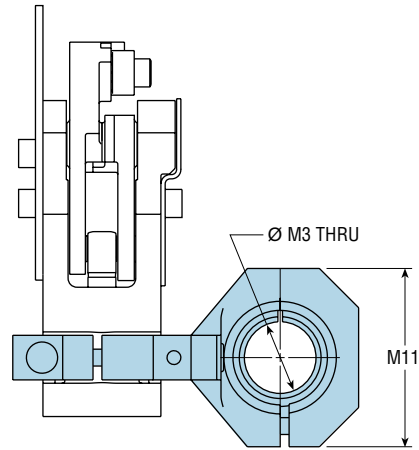
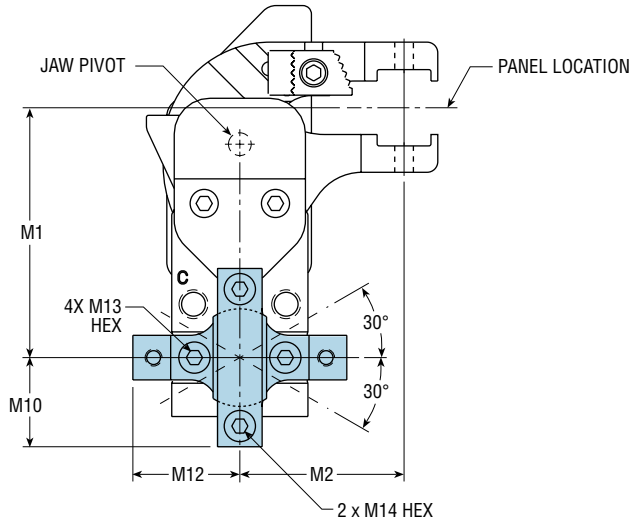
GRM
Clamps

GRMx C



LETTER DIM	MODEL NUMBER			
	GRM2Cx		GRM4Cx (GRM2Cx-B08)	
	in	mm	in	mm
M1	3.504	89.0	3.976	101.0
M2	2.303	58.5	2.303	58.5
M3*	1.006	25.13	1.006	25.13
M4	1.000	25.0	1.000	25.0
M5	3.000	76.2	3.500	88.9
M6	4.850	123.2	5.900	149.9
M7	.800	20.3	.800	20.3
M8	2.500	63.5	3.350	85.1
M9	1.250	31.8	1.450	36.8
M10	1.250	31.8	1.750	44.5
M11	2.500	63.5	2.500	63.5
M12	1.500	38.1	1.250	31.8
M13	.197	5.0	.197	5.0
M14	.236	6.0	.236	6.0

*TOLERANCE FOR M3 = ± .001 [±0.03]



NOTES:

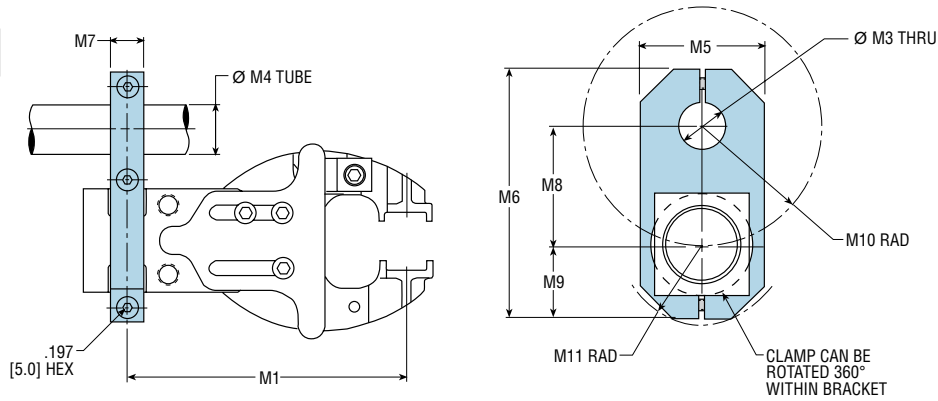
- 1) NUMBERS IN [] ARE FOR METRIC UNITS AND ARE IN mm.
- 2) BRACKET MAY ROTATE 360° ABOUT M4 TUBE AND CLAMP BODY.

KIT DESCRIPTION	KIT NUMBER			
	GRM2Cx		GRM4Cx (GRM2Cx-B08)	
	IMPERIAL	METRIC	IMPERIAL	METRIC
90° SPHERICAL MOUNTING BRACKET	64658-02	64658-03	64658-04	64658-05

MOUNTING BRACKET DIMENSIONS: SERIES GRM CLAMPS

NON-SPHERICAL MOUNTING BRACKET

GRMx **R**



NOTES:

- 1) NUMBER IN [] ARE FOR METRIC UNITS AND ARE IN mm.
- 2) BRACKET MAY ROTATE 360° ABOUT M4 TUBE.

LETTER	MODEL NUMBER					
	GRM2Rx		GRM2RR		GRM4Rx	
DIM	in	mm	in	mm	in	mm
M1	5.138	130.5	4.448	113.0	6.969	177.0
M3*	1.006	25.15	1.006	25.15	1.006	25.15
M4	1.000	25.0	1.000	25.0	1.000	25.0
M5	2.244	57.0	2.244	57.0	2.618	66.5
M6	5.197	132.0	5.197	132.0	5.315	135.0
M7	.625	15.9	.625	15.9	.750	19.1
M8	2.500	63.5	2.500	63.5	2.500	63.5
M9	1.476	37.5	1.476	37.5	1.594	40.5
M10	2.500	63.5	2.500	63.5	2.500	63.5
M11	1.565	39.8	1.565	39.8	1.707	43.4

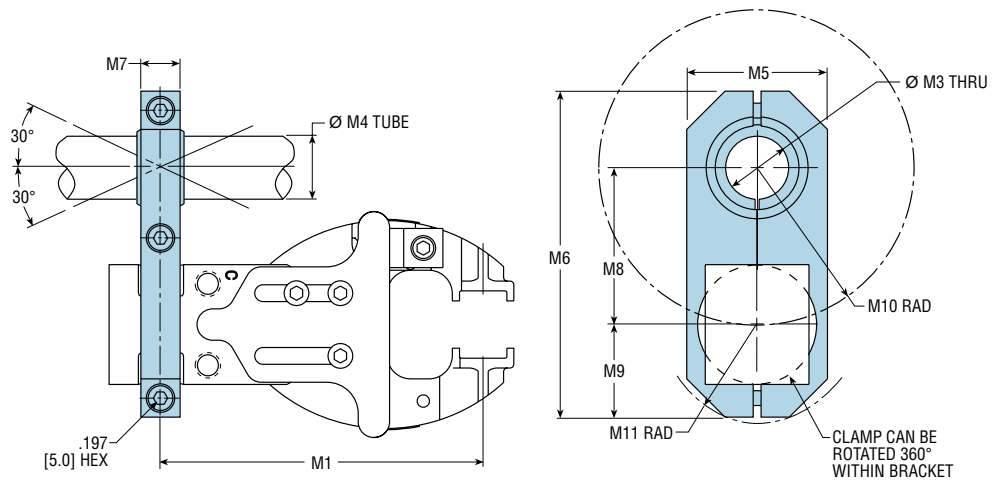
* - TOLERANCE FOR M3 = ±.006 [±0.15]

KIT DESCRIPTION	KIT NUMBER			
	GRM2Rx		GRM4Rx	
	IMPERIAL	METRIC	IMPERIAL	METRIC
NON-SPHERICAL MOUNTING BRACKET	62149-02	62196-02	64646-02	64648-02

SPHERICAL MOUNTING BRACKET

GRMx **S**

GRMx **W**



NOTES:

- 1) NUMBER IN [] ARE FOR METRIC UNITS AND ARE IN mm.
- 2) BRACKET MAY ROTATE 360° ABOUT M4 TUBE.
- 3) W IS FOR OVERSIZE SPHERICAL MOUNTING BRACKET.

LETTER	MODEL NUMBER					
	GRM2Sx		GRM2SR		GRM4Sx	
DIM	in	mm	in	mm	in	mm
M1	5.138	130.5	4.448	113.0	6.969	177.0
M3*	1.006	25.13	1.006	25.13	1.006	25.13
M4	1.000	25.0	1.000	25.0	1.000	25.0
M5	2.244	57.0	2.244	57.0	2.618	66.5
M6	5.197	132.0	5.197	132.0	5.315	135.0
M7	.625	15.9	.625	15.9	.750	19.1
M8	2.500	63.5	2.500	63.5	2.500	63.5
M9	1.476	37.5	1.476	37.5	1.594	40.5
M10	2.500	63.5	2.500	63.5	2.500	63.5
M11	1.565	39.8	1.565	39.8	1.707	43.4

* TOLERANCE FOR M3 = ±.001 [±0.03]

LETTER	MODEL NUMBER					
	GRM2Wx		GRM2WR		GRM4Wx	
DIM	in	mm	in	mm	in	mm
M1	5.138	130.5	4.448	113.0	6.969	177.0
M3*	1.258	33.93	1.258	33.93	1.258	33.93
M4**	1.250	33.3	1.250	33.3	1.250	33.3
M5	2.618	66.5	2.618	66.5	2.618	66.5
M6	6.064	154.0	6.064	154.0	6.299	160.0
M7	.625	15.9	.625	15.9	.750	19.1
M8	3.130	79.5	3.130	79.5	3.130	79.5
M9	1.476	37.5	1.476	37.5	1.711	43.5
M10	3.130	79.5	3.130	79.5	3.130	79.5
M11	1.565	39.8	1.565	39.8	1.816	46.1

* TOLERANCE FOR M3 = ±.002 [±0.05]

**TOLERANCE FOR [33.3] = [+0.5/-0.0]

KIT DESCRIPTION	KIT NUMBER			
	GRM2Sx		GRM4Sx	
	IMPERIAL	METRIC	IMPERIAL	METRIC
SPHERICAL MOUNTING BRACKET	62149-01	62196-01	64646-01	64648-01

KIT DESCRIPTION	KIT NUMBER			
	GRM2Wx		GRM4Wx	
	IMPERIAL	METRIC	IMPERIAL	METRIC
OVERSIZE SPHERICAL MOUNTING BRACKET	62201-01	62201-03	64647-01	64649-01

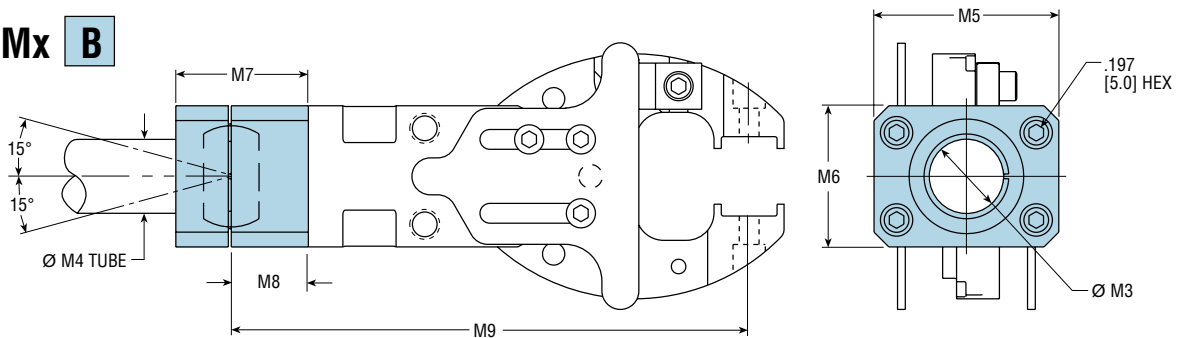
All dimensions are reference only unless specifically toleranced.

MOUNTING BRACKET DIMENSIONS: SERIES GRM CLAMPS

REAR SPHERICAL MOUNTING BRACKET

GRMx **A**

GRMx **B**



NOTES:

- 1) THE SPHERICAL FUNCTION CAN BE ELIMINATED BY ALIGNING THE TUBE WITH THE CLAMP CENTERLINE AND PUSHING IT IN UNTIL IT BOTTOMS. AT THIS POINT, THE TUBE CAN SPIN, BUT NOT SWIVEL THE 15°.
- 2) NUMBERS IN [] ARE FOR METRIC UNITS AND ARE IN mm.
- 3) TUBE CAN SPIN 360° ABOUT M4 TUBE.
- 4) B IS FOR OVERSIZE REAR SPHERICAL MOUNTING BRACKET

LETTER DIM	MODEL NUMBER					
	GRM2Ax		GRM2AR		GRM4Ax	
	in	mm	in	mm	in	mm
M3*	1.006	25.13	1.006	25.13	1.006	25.13
M4	1.000	25.0	1.000	25.0	1.000	25.0
M5	2.500	63.5	2.500	63.5	3.000	76.2
M6	1.910	48.5	1.910	48.5	2.240	56.9
M7	1.791	45.5	1.791	45.5	1.791	45.5
M8	1.043	26.5	1.043	26.5	1.043	26.5
M9	7.008	178.0	6.318	160.5	9.646	245.0

* TOLERANCE FOR M3 = ±.001 [±0.03]

LETTER DIM	MODEL NUMBER					
	GRM2Bx		GRM2BR		GRM4Bx	
	in	mm	in	mm	in	mm
M3*	1.258	33.93	1.258	33.93	1.258	33.93
M4**	1.250	33.3	1.250	33.3	1.250	33.3
M5	3.000	76.2	3.000	76.2	3.000	76.2
M6	2.240	56.9	2.240	56.9	2.500	63.5
M7	2.087	53.0	2.087	53.0	2.087	53.0
M8	1.305	33.1	1.305	33.1	1.305	33.1
M9	7.270	184.7	6.580	167.1	9.908	251.7

* TOLERANCE FOR M3 = ±.002 [±0.05]

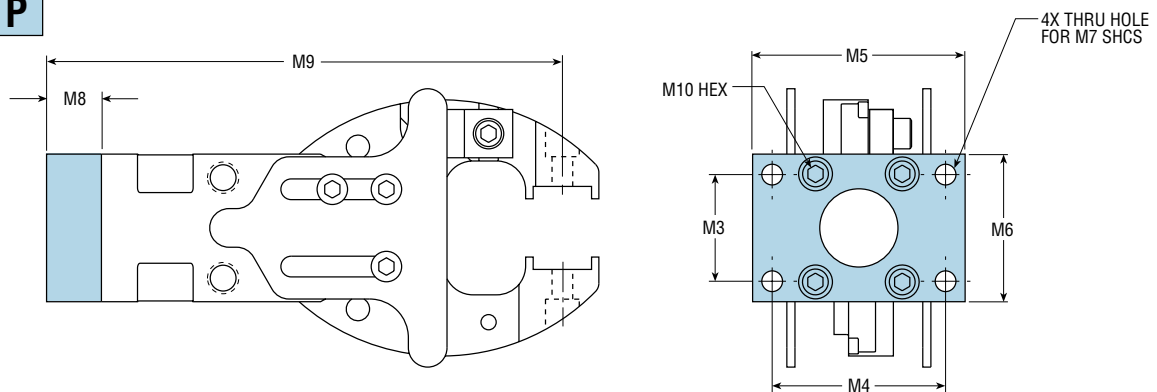
**TOLERANCE FOR [33.3] = [+0.5/-0.0]

KIT DESCRIPTION	KIT NUMBER			
	GRM2Ax		GRM4Ax	
	IMPERIAL	METRIC	IMPERIAL	METRIC
REAR SPHERICAL MOUNTING BRACKET	65008-03	65008-05	65008-04	65008-06

KIT DESCRIPTION	KIT NUMBER			
	GRM2Bx		GRM4Bx	
	IMPERIAL	METRIC	IMPERIAL	METRIC
OVERSIZE REAR SPHERICAL MOUNTING BRACKET	65016-03	65016-04	65016-05	65016-06

REAR MOUNTING PLATE

GRMx **P**



LETTER DIM	MODEL NUMBER					
	GRM2Px		GRM2PR		GRM4Px	
	in	mm	in	mm	in	mm
M3	1.380	35.1	1.380	35.1	1.890	48.0
M4	2.244	57.0	2.244	57.0	2.992	76.0
M5	2.750	69.9	2.750	69.9	3.750	95.3
M6	1.910	48.5	1.910	48.5	2.500	63.5
M7	1/4	M6	1/4	M6	5/16	M8
M8	.710	18.0	.710	18.0	.846	21.5
M9	6.675	169.5	5.985	152.0	9.154	232.5
M10	.197	5.0	.197	5.0	.236	6.0

KIT DESCRIPTION	KIT NUMBER			
	GRM2Px		GRM4Px	
	IMPERIAL	METRIC	IMPERIAL	METRIC
REAR MOUNTING PLATE	65004-03	65004-03	65004-04	65004-04

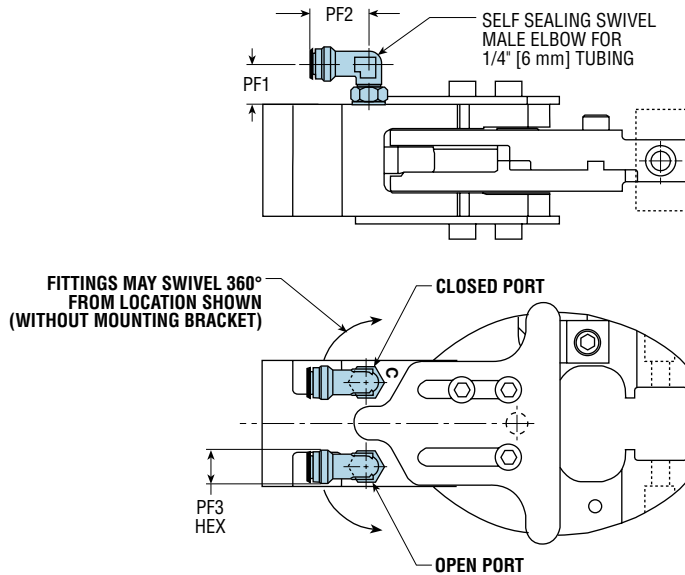
PORT FITTING DIMENSIONS: SERIES GRM CLAMPS

-LAA OPTION - Metal Fittings

-LBB OPTION - Plastic Fittings

-LCC OPTION - Metal Fittings

SIZE 2



LETTER DIMENSION	PORT FITTING OPTION	
	in	mm
PF1 (MIN)	.629	15.0
PF1 (MAX)	.748	19.0
PF2	.885	22.0
PF3 - LAA	.472	12.0
- LBB	.437	11.1
- LCC	.472	12.0
PF4 - LAA	1/4	6.0
- LBB	1/4	6.0
- LCC	—	8.0

TO ORDER FITTING SEPARATELY,

FOR LAA OPTION:

PART NO. 62178-003 -IMPERIAL

PART NO. 62195-005 -METRIC

FOR LBB OPTION:

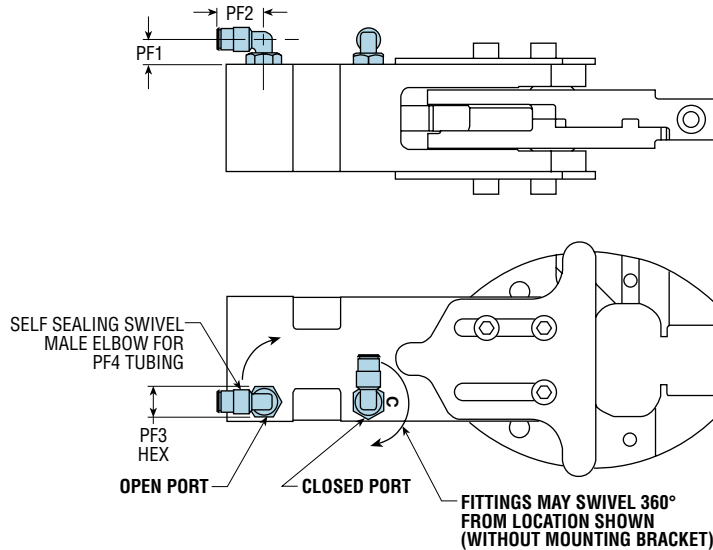
PART NO. 71120-001 -IMPERIAL

PART NO. 71121-001 -METRIC

FOR LCC OPTION:

PART NO. 62195-007 -METRIC

SIZE 4



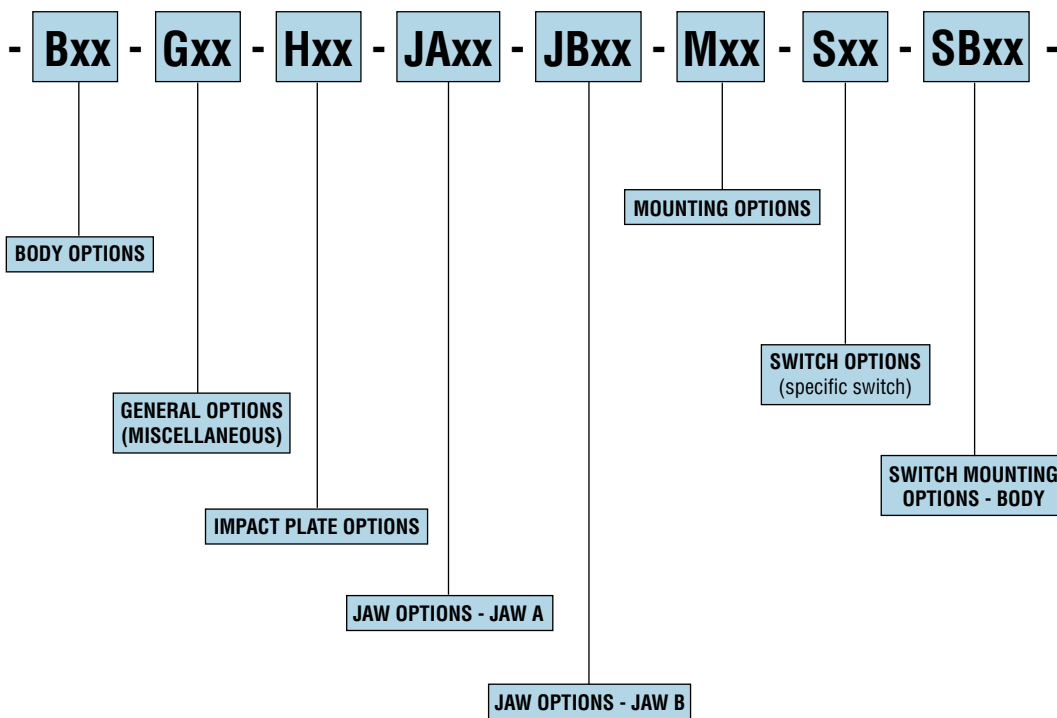
NOTE: CLOSED PORTS ARE MARKED WITH THE LETTER C.

ORDERING DATA: CLAMP ACCESSORIES

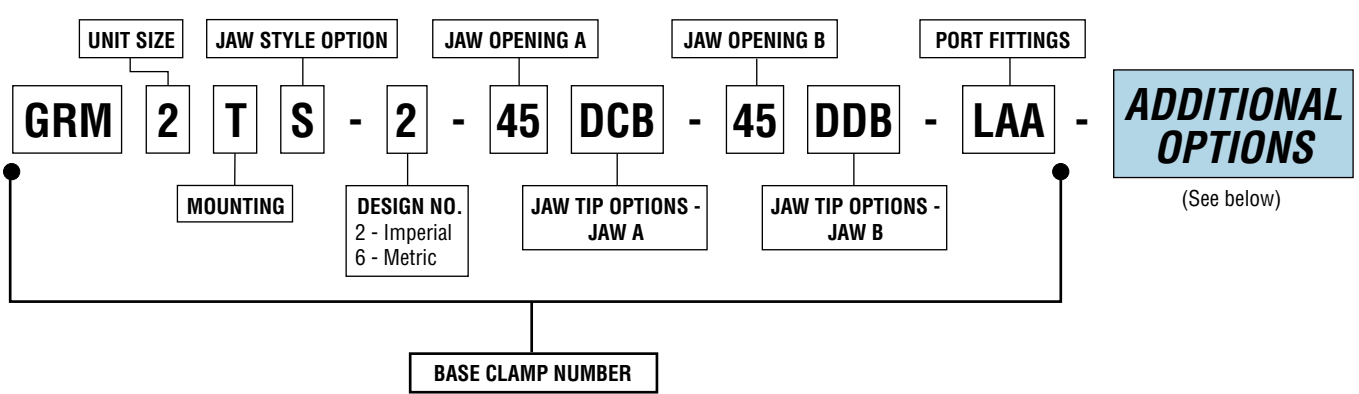
GRM Accessories Index

Body Options	pages 32 to 35
General Options	pages 36 to 39
Impact Plate Options.....	pages 40 & 41
Jaw Options	pages 42 & 43
Mounting Options	pages 44 to 46
Switch Options.....	page 47
Switch Mounting Body Options.....	page 48
Switch Mounting Options.....	pages 49 to 58
Tip Options.....	pages 59 to 73
Seal Options.....	page 74
Kits.....	page 75

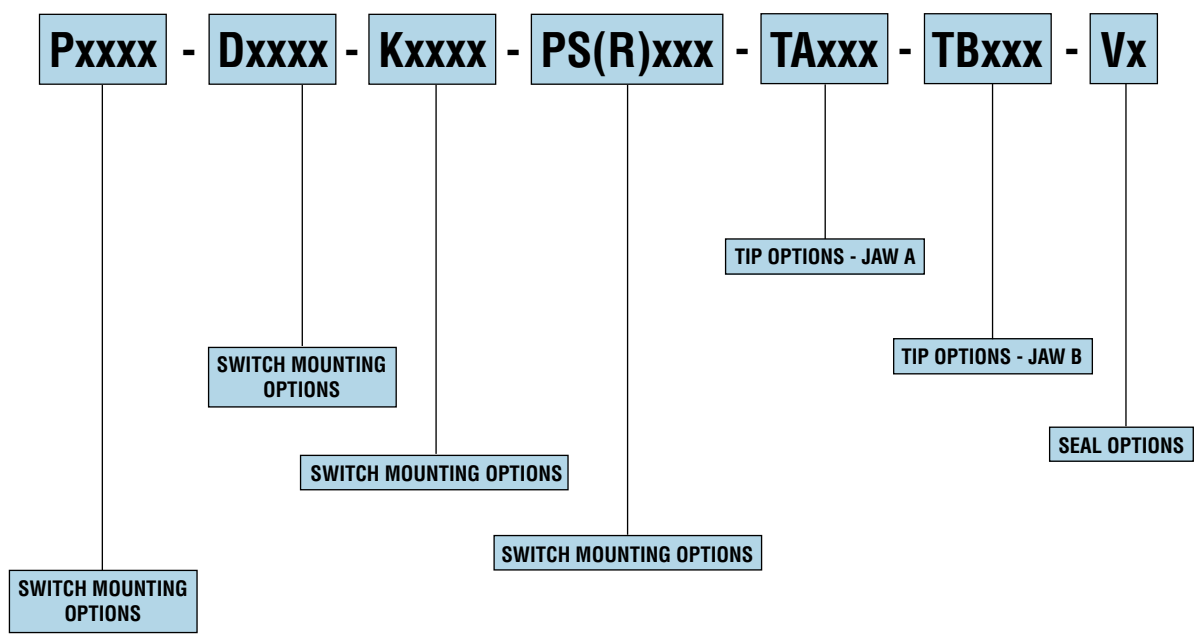
ADDITIONAL



Example:



OPTIONS



GENERAL NOTES:

1) For ordering data:

SHADED CODES are required for this option.

BORDERED CODES will normally be ordered.

All unshaded model codes are for example only.

For compatibility with other units, consult PHD.

BODY OPTIONS: CLAMP ACCESSORIES

- **Bxx**

BODY OPTIONS		
B04	-	Larger port orifices
B05	-	Blade mounting
B06	-	Rear plate mount with side ports
B07	-	Rear plate mount with rear ports
B08	-	High force clamp "2 x 4"
B08A	-	High force clamp "2 x 4" with rear ports
B09	-	Position 2 ports

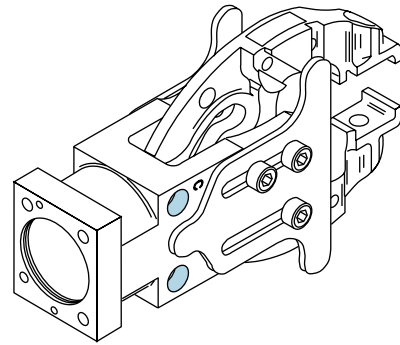
B04 LARGER PORT ORIFICES

This option enlarges both port orifices in the body. It allows the jaws to open or close much faster than standard. Expect 22° clamps to open or close faster than 45° clamps, and 45° clamps to open or close faster than 75° clamps.

Available on GRM2.

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -B04



BODY PART NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE & MODEL	PORTS	
	IMPERIAL	METRIC
2xC, D, H, J, N, P, R, & S	65312-11	65312-12
2xF & K	65314-11	65314-12

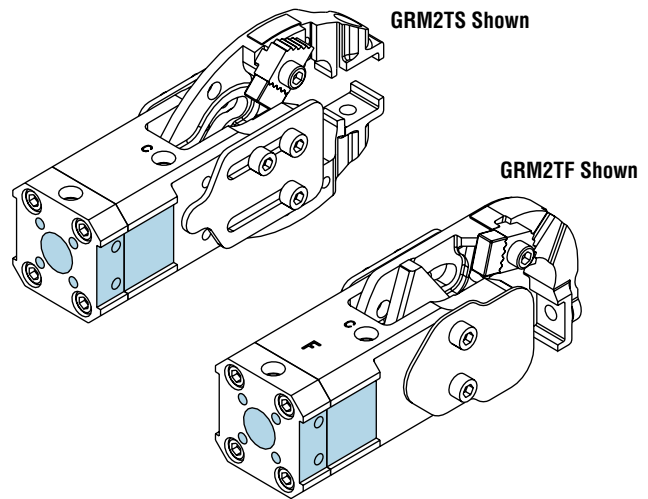
B05 BLADE MOUNTING

This option provides mounting that interchanges with Destaco 84A32 series clamps. The body sides have mounting grooves with two M6 threads per side. The rear surface of the body has four M6 threads. The ports have been moved to position 2. Jaw styles C, D, G, H, J, N, P, R, S, F, and K are available with the B05 body. For jaw dimensions from the pivot pin forward, see the Series GRM section. Mounts R, S, W, A, B, P, and C do not fit on a B05 body.

Available on GRM2.

Example Ordering Data:

GRM2 T S-2-45DCB-45DDB -LAA -B05



BODY KIT NUMBERS

CLAMP SIZE & MODEL	KIT	
	IMPERIAL	METRIC
2xC, D, G, H, J, N, P, R, & S	65321-03	65321-04
2xF & K	65321-05	65321-06

Kit includes:

- 1 Body and Cap
- 1 Cap Seal and 1 Rod Seal
- 4 Cap Mounting Screws

IMPACT PLATE KITS

CLAMP SIZE & MODEL	IMPACT PLATE EARS	KIT NUMBER
2xF & K	0 ears	63967-05

Kit includes:

- 2 Impact Plates
- Mounting Screws

For non-standard impact plate kits, see Impact Plates section.

BODY OPTIONS: CLAMP ACCESSORIES

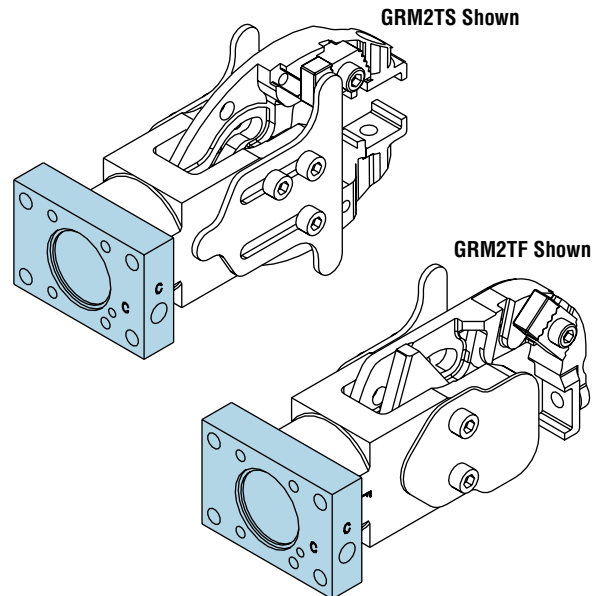
B06 REAR PLATE MOUNT WITH SIDE PORTS

This option provides a rear mounting plate integral to the body, ports are located on the sides of the plate. The rear surface has four M6 threads identical to the T mount and four thru holes identical to the P mount. Overall length is .55 in [14.0 mm] shorter than a standard body with a bolt on P mounting plate. The one piece body is compatible with R, S, W, A & B mounts.

Available on GRM2.

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -B06



REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE & MODEL	BODY ASSEMBLY NO.	
	IMPERIAL	METRIC
2xC, D, G, H, J, N, P, R, & S	65337-11	65337-12
2xF & K	65338-11	65338-12

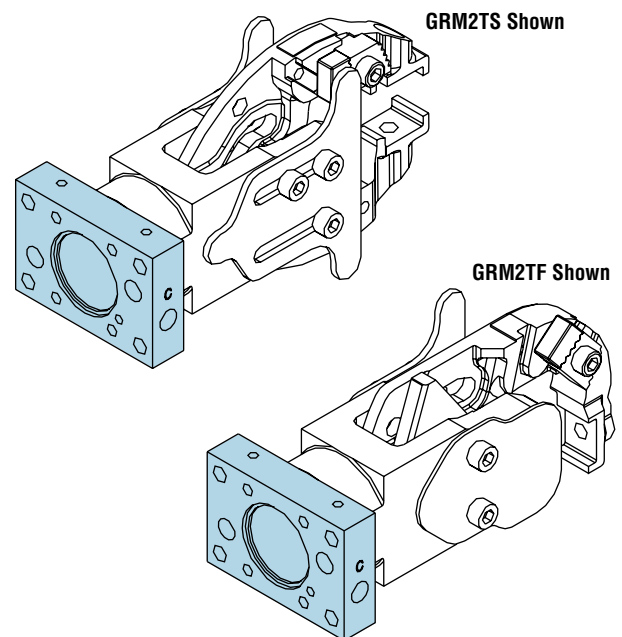
B07 REAR PLATE MOUNT WITH REAR PORTS

This option provides a rear mounting plate integral to the body, ports are located on the rear and sides of the plate. Removable port plugs are installed in the side ports, with the rear ports open.

The rear surface has four M6 threads identical to the T mount and four thru holes identical to the P mount. Overall length is .55 in [14.0 mm] shorter than a standard body with a bolt on P mounting plate. The one piece body is compatible with R, S, W, A & B mounts. Available on GRM2.

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -B07



REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE & MODEL	BODY ASSEMBLY NO.	
	IMPERIAL	METRIC
2xC, D, G, H, J, N, P, R, & S	65341-11	65341-12
2xF & K	65342-11	65342-12

BODY OPTIONS: CLAMP ACCESSORIES

Body Options

B08 HIGH FORCE CLAMP "2 X 4"

This option provides a clamp with more force (460 lb [2046 N] with an S jaw style, 360 lb [1601 N] with a K jaw style). The cylinder portion of the clamp body houses a larger cylinder providing more clamp force with little added size and only a .45 lb [0.2 kg] weight adder over GRM2 clamps.

Jaw styles C, D, G, H, J, N, P, R, S, F, and K are available with the B08 body. All GRM2 standard and accessory tips fit the B08. The larger cylinder requires the larger GRM4 mounting brackets. Available on GRM2.

Example Ordering Data:

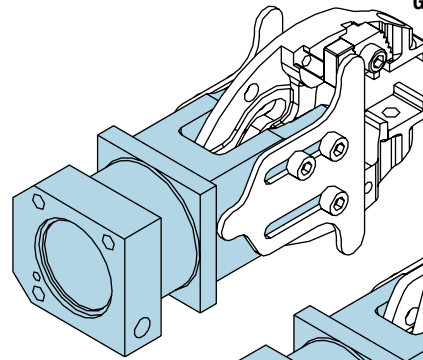
GRM **2** SS-2-45DCB-45DDB-LAA **-B08**

SPECIFICATIONS

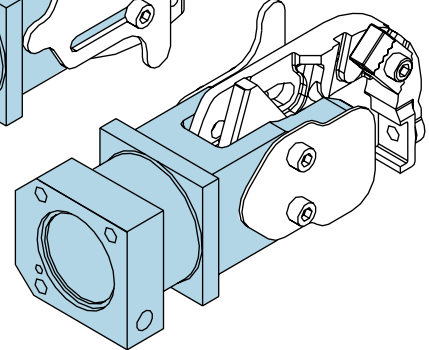
CLAMP SIZE & MODEL	WEIGHT ADDER		TOTAL CLAMP FORCE		DISPLACEMENT			
			at 87 psi [6 bar]		OPEN		CLOSE	
	lb	kg	lb	N	in ³	cm ³	in ³	cm ³
2xC, D, G, H, J, N, P, & S	.45	0.20	460	2046	1.95	32	1.83	30
2xR	.45	0.20	676	3007	1.95	32	1.83	30
2xK	.45	0.20	360	1601	1.95	32	1.83	30
2xF	.45	0.20	460	2046	1.95	32	1.83	30

NOTE: 1) For tips, use GRM2 weights, dimensions, and kit numbers.
2) For mounting brackets, use GRM4 weights, dimensions, and kit numbers.

GRM2TS Shown



GRM2TF Shown



MOUNTING BRACKET KIT NUMBERS (use size 4 brackets)

MOUNTING STYLE	IMPERIAL	METRIC
T	none (std)	none (std)
A	65008-04	65008-06
B	65016-05	65016-06
C	64658-04	64658-05
P	65004-04	65004-04
R	64646-02	64648-02
S	64646-01	64648-01
W	64647-01	64649-01

B08A HIGH FORCE CLAMP "2 X 4" WITH REAR PORTS

This option provides a clamp with more force (see specification table below) and ports located in the slides and rear of the clamp. Removable port plugs are installed in the side ports, with the rear ports open. The cylinder portion of the clamp body houses a larger cylinder providing more clamp force with little added size and only a .82 lb [0.37 kg] weight adder over GRM2 clamps.

Jaw styles C, D, G, H, J, N, P, R, S, F, and K are available with the B08A accessory. All GRM2 standard and accessory tips fit the B08A. The larger cylinder requires the larger GRM4 mounting brackets. (Mounting style A, B, and P are **NOT** available with this accessory.)

Available on GRM2.

Example Ordering Data:

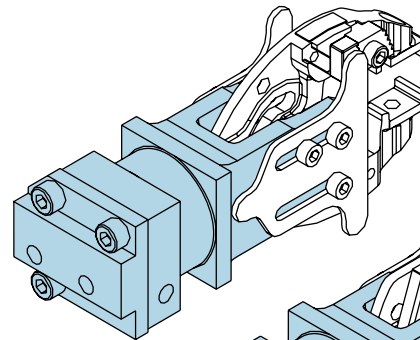
GRM **2** TS-2-45DCB-45DDB-LAA **-B08A**

SPECIFICATIONS

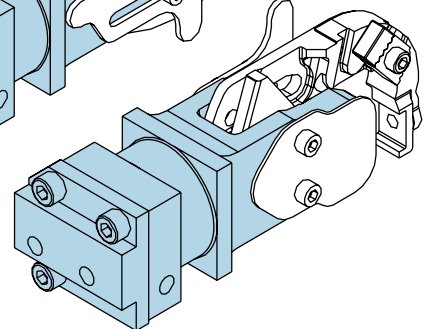
CLAMP SIZE & MODEL	WEIGHT ADDER		TOTAL CLAMP FORCE		DISPLACEMENT			
			at 87 psi [6 bar]		OPEN		CLOSE	
	lb	kg	lb	N	in ³	cm ³	in ³	cm ³
2xC, D, G, H, J, N, P, & S	.82	0.37	460	2046	1.95	32	1.83	30
2xR	.82	0.37	676	3007	1.95	32	1.83	30
2xK	.82	0.37	360	1601	1.95	32	1.83	30
2xF	.82	0.37	460	2046	1.95	32	1.83	30

NOTES: 1) For tips, use GRM2 weights, dimensions, and kit numbers.
2) For mounting brackets, use GRM4 weights, dimensions, and kit numbers.

GRM2TS Shown



GRM2TF Shown



MOUNTING BRACKET KIT NUMBERS (use size 4 brackets)

MOUNTING STYLE	IMPERIAL	METRIC
T	none (std)	none (std)
C	64658-04	64658-05
R	64646-02	64648-02
S	64646-01	64648-01
W	64647-01	64649-01

NOTE: Mounting style A, B, & P not available with this accessory.

BODY OPTIONS: CLAMP ACCESSORIES

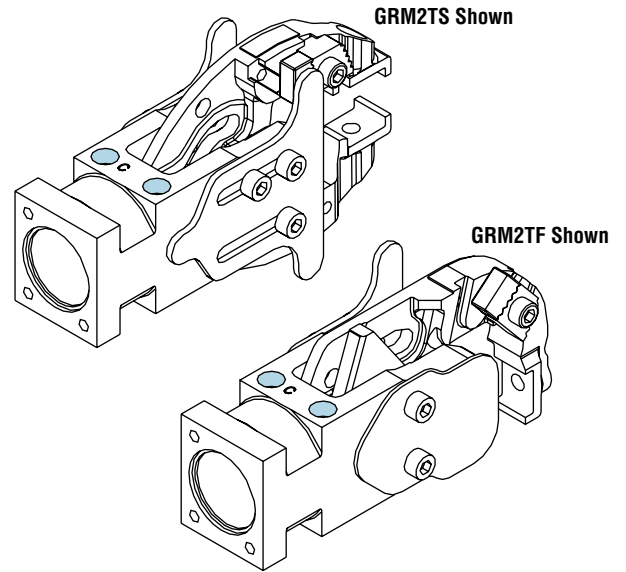


POSITION 2 PORTS

This option provides both ports in position 2 of clamp (jaw A side of clamp). All jaw styles are available with the B09 body option. Available on GRM2.

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -B09



Body Options

BODY PART NUMBER IF ORDERED SEPARATELY

CLAMP SIZE & MODEL	PORTS	
	IMPERIAL	METRIC
2xC, D, H, J, N, P, R, & S	65368-11	65368-12
2xF & K	65371-11	65371-12

GENERAL OPTIONS: CLAMP ACCESSORIES

- **Gxx**

GENERAL (MISCELLANEOUS) OPTIONS

- G01 - Continuity path
- G02 - Continuity path
- G07 - Aluminum jaw clamp
- G08 - Lifting jaws
- G09 - Lifting jaws
- G10 - Flip over jaw clamp

General Options

G01 to G02 CONTINUITY PATH

This option provides a continuity path through the clamp for low voltage current. The current can be used as a signal to indicate a panel present. If a circuit is made (through one clamp, the panel, and the opposite clamp) then a panel is being gripped. The controller senses a high/low condition. No proximity switches are required.

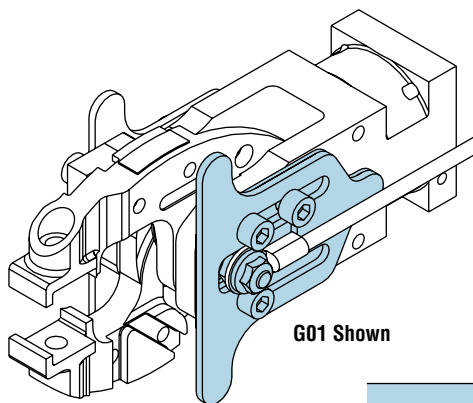
A special pivot pin with a M6 thread on one end extends through the retaining plate and hardened impact plate. Full impact plate adjustment is retained. A flanged locknut is provided to clamp your connector against the shoulder of the M6 thread.

No special tips, jaws, or switches are required.

The continuity feature does not work with urethane tips.

The G02 accessory is not available for GRMxxF clamps.

Available on GRM2 and GRM4.



ACCESSORY	M6 THREAD POSITION
G01	3 Opp Ports
G02	1 Port Side

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -G01

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

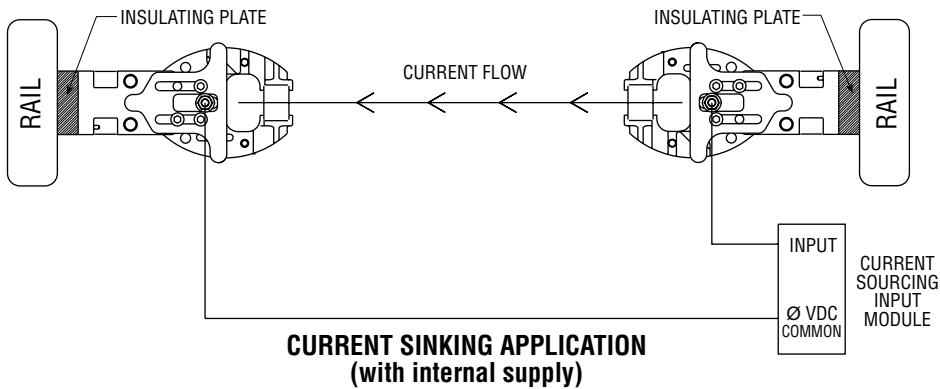
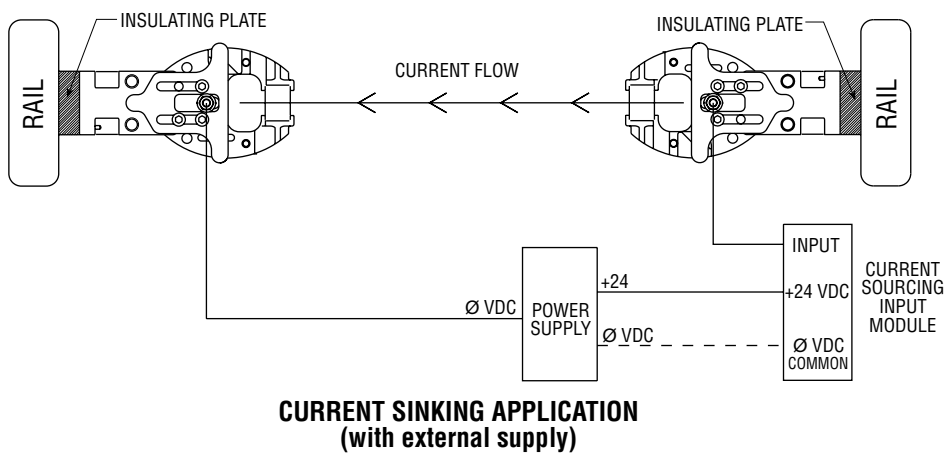
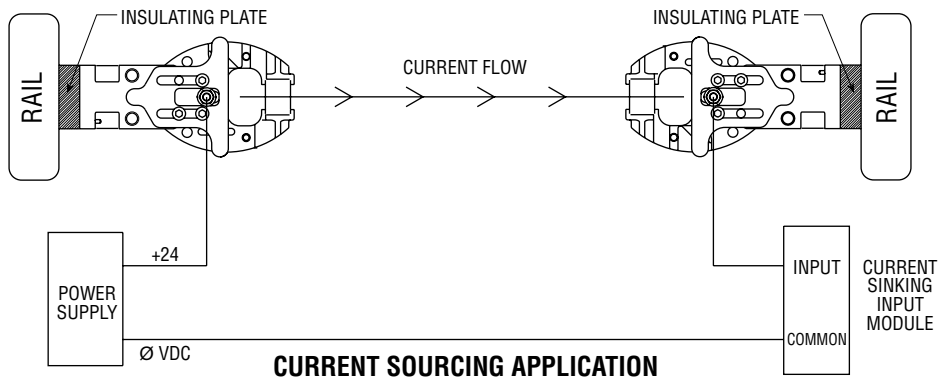
CLAMP SIZE	ACCESSORY	JAW ROTATION	IMPACT PLATE EARS	KIT NUMBER
2xS, C, & D	G01, G02	75x75, 45x45, 22x22	2	65467-05
2xS, C, D, H, & J	G01, G02	75x00, 45x00, 22x00	1	65467-04
2xR	G01, G02	60x60, 45x45, 35x35, 22x22	2	65467-05
2xR	G01, G02	60x00, 45x00, 22x00	1	65467-04
2xF	G01	85x00, 50x00, 50x22	1	65467-06
2xX	G01, G02	special	0	65467-03
4xS	G01, G02	75x75, 45x45, 22x22	2	65467-09
4xS, H, & J	G01, G02	75x00, 45x00, 22x00	1	65467-08
4xF	G01	85x00, 50x00	1	65467-10
4xX	G01, G02	special	0	65467-07

Kit includes:
 Pivot Pin
 Retaining Plate
 Impact Plate
 Flange Locknut
 3 Screws

(Continued on next page.)

GENERAL OPTIONS: CLAMP ACCESSORIES

WIRING SCHEMATICS



GENERAL OPTIONS: CLAMP ACCESSORIES

G07

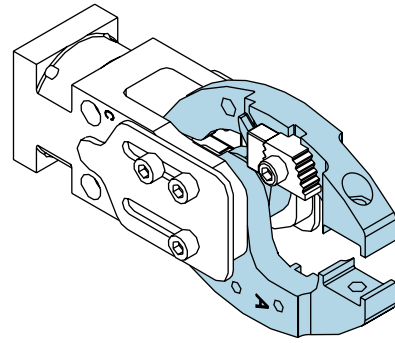
ALUMINUM JAW CLAMP (Both Jaws Rotate)

This option provides a GRM clamp with hardcoated aluminum jaws that reduce the weight of the clamp by 0.6 lb [0.3 kg]. Both jaws accept all Series GRM standard and accessory tips. Jaw rotations are the same as standard GRM clamps. Consult PHD for additional accessory compatibility. Not available with G01 and G02 options.

No-ear impact plates are standard with this option.
Available on GRM2.

Example Ordering Data:

GRM2T **S** -2-45DCB-45DDB-LAA **-G07**



GRM2TS-2-45-45 Shown

SPECIFICATIONS

CLAMP SIZE & MODEL	WEIGHT REDUCER		LENGTH ADDER		TOTAL CLAMP FORCE at 87 psi [6 bar]	
	lb	kg	in	mm	lb	N
2xS	.60	.30	.197	5.0	145	645

JAW PART NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	JAW PART NUMBER
2	65202-01

REPLACEMENT KIT NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	65275-03

Kit includes:

- 1 Jaw Driver Pin
- 1 Pivot Pin
- 4 Slider Bushings
- 1 O-Ring
- O-Ring used with 0° Jaws only

G07

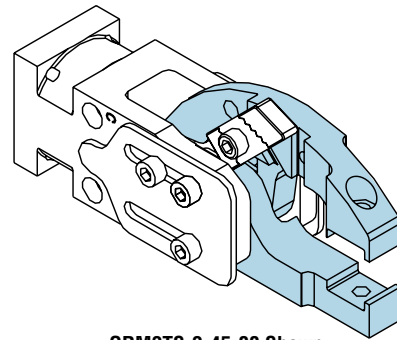
ALUMINUM JAW CLAMP (Jaw A Rotates Only)

This option provides a GRM clamp with hardcoated aluminum jaws that reduce the weight of the clamp by 0.6 lb [0.3 kg]. Both jaws accept all Series GRM standard and accessory tips. Jaw rotations are the same as standard GRM clamps. Consult PHD for additional accessory compatibility. Not available with G01 and G02 options.

No-ear impact plates are standard with this option.
Available on GRM2.

Example Ordering Data:

GRM2T **S** -2-45DCB-**00** DDB-LAA **-G07**



GRM2TS-2-45-00 Shown

SPECIFICATIONS

CLAMP SIZE & MODEL	WEIGHT REDUCER		LENGTH ADDER		TOTAL CLAMP FORCE at 87 psi [6 bar]	
	lb	kg	in	mm	lb	N
2xS	.60	.30	.197	5.0	145	645

JAW PART NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	JAW ROTATION	JAW PART NUMBER
2	00°	65241-01
2	22°, 45°, 75°	65202-01

REPLACEMENT KIT NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	65275-03

Kit includes:

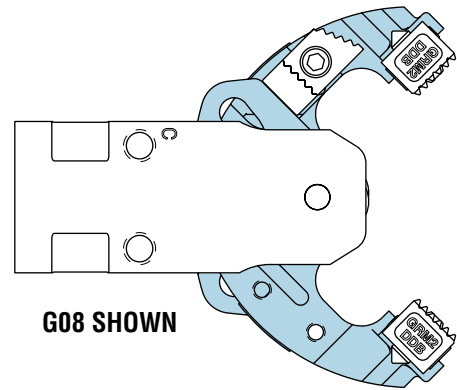
- 1 Jaw Driver Pin
- 1 Pivot Pin
- 4 Slider Bushings
- 1 O-Ring
- O-Ring used with 0° Jaws only

GENERAL OPTIONS: CLAMP ACCESSORIES

G08 or G09 LIFTING JAWS

These options provide standard jaws with special cam slots that increase the clamp's ability to pick up heavier loads as the jaws begin to close. Both jaws accept all Series GRM standard and accessory tips. These jaws have shorter locking ramps and require a different tip color code versus material thickness (see chart below). New red tips replace gold tips for panel thickness of 2.5 - 3.5 mm for this accessory only. G08 jaws (colored gold) open a maximum of 45° and have the greatest lifting ability. G09 jaws (colored silver) open a maximum of 75° with more lifting ability than the standard S jaw style.

Available on GRM2.



G08 SHOWN

Example Ordering Data:

GRM2T **S** -2- **75** DCB- **75** DDB-LAA **-G08**

SPECIFICATIONS

CLAMP SIZE & OPTIONS	LIFTING FORCE AT 87 psi [6 bar]	
	lb	N
GRM2-G08	20	89
GRM2-G09	11	49
GRM2-B08-G08	35	155
GRM2-B08-G09	21	93

JAW TIP COMBINATIONS - JAW A OR B

	MATERIAL THICKNESS		
	0 to 1.5 mm	1.5 to 2.5 mm	2.5 to 3.5 mm
Color	Black	Silver	Red
No tip	Blank	Blank	Blank
Single Cone Point	SCB	SCS	SCR
Double Cone Point	DCB	DCS	DCR
Single Diamond Point	SDB	SDS	SDR
Double Diamond Point	DDB	DDS	DDR
Single Urethane Pad	SUB	SUB	SUB
Double Urethane Pad	DUB	DUB	DUB

JAW PART NUMBERS IF ORDERED SEPARATELY

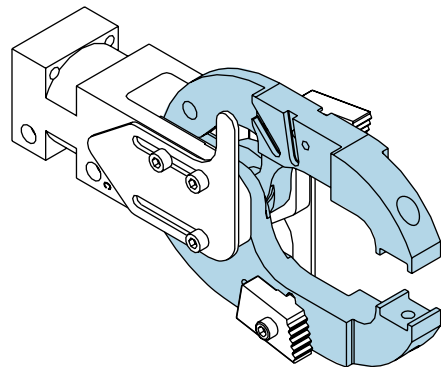
OPTION	PART NUMBER	ROTATION
G08	65268-02	22° x 22°, 45° x 45°
G09	65269-02	22° x 22°, 45° x 45°, 75° x 75°

General Options

G10 FLIP OVER JAW CLAMP (For Use with Series GRM4xS Clamps Only)

This option provides jaws that are longer than standard. They are useful when you need to reach over panels with uneven edges or cutouts that occur frequently in flip over applications.

Available on GRM4.



Example Ordering Data:

GRM4T **S** -2-80DCB-80DDB-LAA **-G10**

SPECIFICATIONS

MODEL	UNIT WEIGHT		TOTAL CLAMP FORCE	
	lb	kg	lb	N
GRM4xS-x-80-80				
GRM4xS-x-45-45	5.3	2.40	326	1450
GRM4xS-x-22-22				

JAW PART NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	JAW ROTATION	JAW PART NUMBER
4	80°, 45°, 22°	65255-01

IMPACT PLATE OPTIONS: CLAMP ACCESSORIES

- Hxx

IMPACT PLATE OPTIONS NON-STANDARD POSITION	
H01	3
H02	1
H03	3
H04	1
H05	3
H06	1
H07	3
H08	1
H09	1
H10	1
H11	3
H12	3
H13	—

Impact Plate Options

H01 to H08

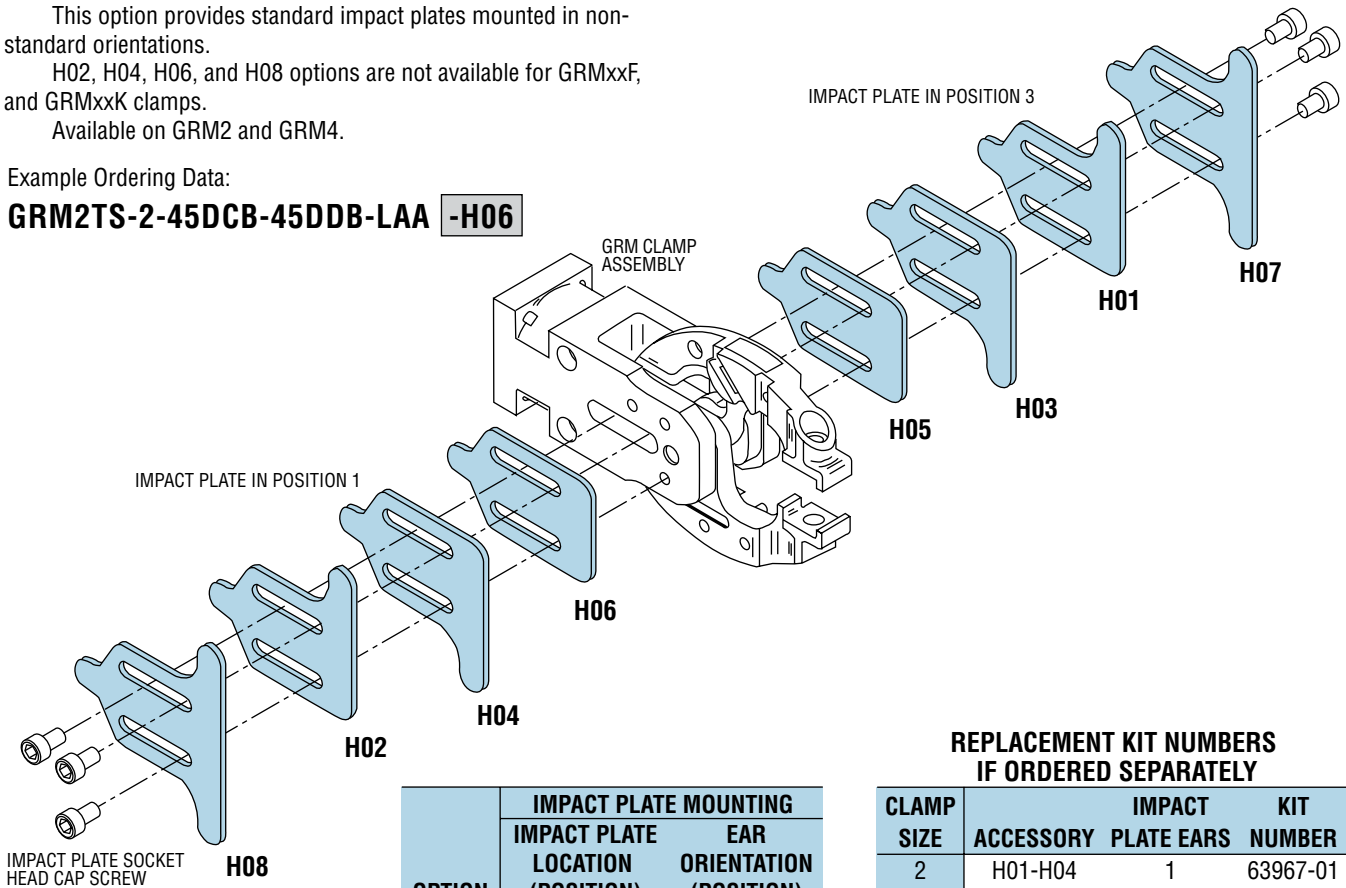
This option provides standard impact plates mounted in non-standard orientations.

H02, H04, H06, and H08 options are not available for GRMxxF, and GRMxxK clamps.

Available on GRM2 and GRM4.

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -H06



OPTION	IMPACT PLATE MOUNTING	
	IMPACT PLATE LOCATION (POSITION)	EAR ORIENTATION (POSITION)
H01	3	2
H02	1	2
H03	3	4
H04	1	4
H05	3	—
H06	1	—
H07	3	—
H08	1	—

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	IMPACT ACCESSORY	IMPACT PLATE EARS	KIT NUMBER
2	H01-H04	1	63967-01
2	H05-H06	0	63967-04
2	H07-H08	2	63967-02
4	H01-H04	1	64638-01
4	H05-H06	0	64638-04
4	H07-H08	2	64638-02

Kit includes:
2 Impact Plates
6 Screws

IMPACT PLATE OPTIONS: CLAMP ACCESSORIES

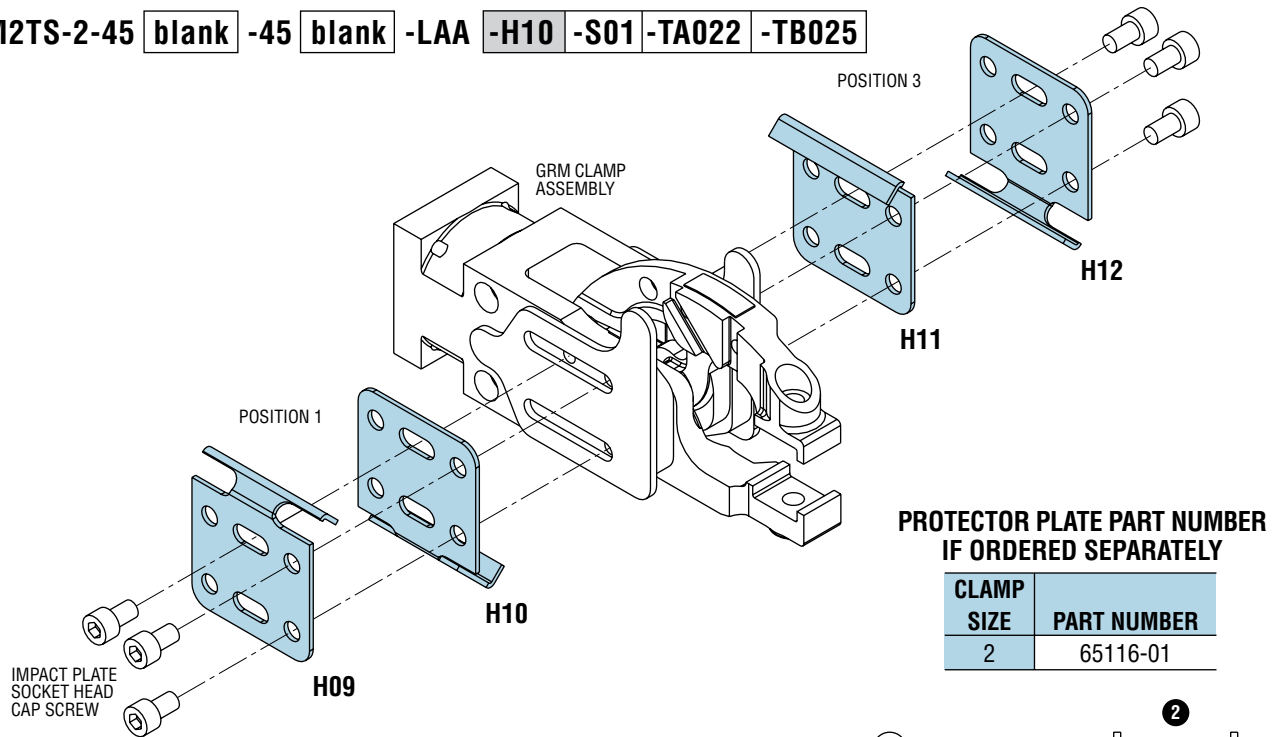
H09 to H12 CABLE PROTECTION PLATE

This option provides a steel cable protector plate for S01 switches. H09 and H10 options are not available for GRMxxF and GRMxxK clamps.

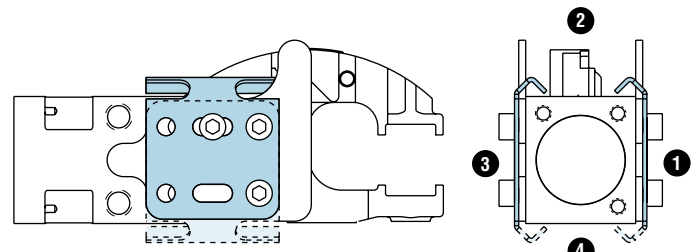
Available on GRM2.

Example Ordering Data:

GRM2TS-2-45 **blank** -45 **blank** -LAA **-H10** -S01 -TA022 -TB025



OPTION	PROTECTOR PLATE MOUNTING	
	PROTECTOR PLATE LOCATION (POSITION)	CORDSET LOCATION (POSITION)
H09	1	2
H10	1	4
H11	3	2
H12	3	4



NOTE: NUMBERS IN CIRCLES INDICATE POSITION (POSITION 1 IS PORT SIDE OF CLAMP).

H13 IMPACT PLATE OPTION FOR Pxxxx OR Dxxxx

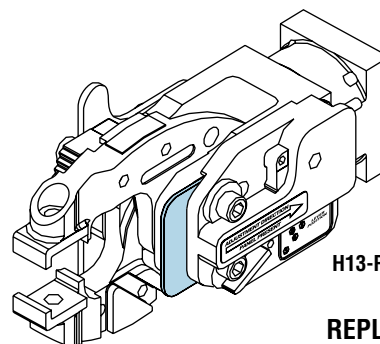
This option provides an impact plate mounted below the switch housing of Pxxxx or Dxxxx options. The impact plate protrudes past the face of the switch housing protecting it from damage. No-ear impact plates are standard with this option.

The H13 option is not required when ordering the Kxxxx option (impact plates are standard with this option).

Available on GRM2 and GRM4.

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA **-H13** -P3D00



H13-P3Dxx Shown

REPLACEMENT KIT NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	72210-03
4	72210-04

Kit Includes: 1 Impact Plate

JAW OPTIONS: CLAMP ACCESSORIES

- **JAx**

JAW OPTIONS - JAW A
JA02 - Drop jaw clamp

- **JBxx**

JAW OPTIONS - JAW B
JB01 - Double chisel modified for use with TA025 through TA027 options
JB02 - Drop jaw clamp
JB03x - Switch mounting jaw clamp for use with Series GRM2xM Clamps only

JB01 DOUBLE CHISEL ON JAW B

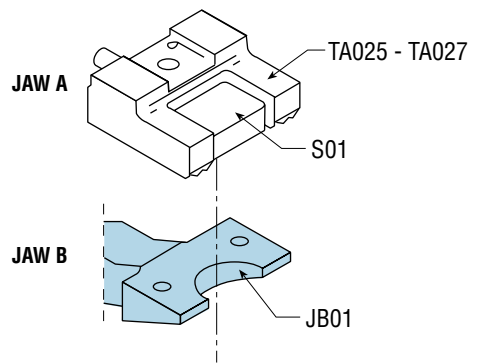
This option modifies a chisel jaw to work with the optional tip TA025-TA027 and switch S01. It removes material from the front of the chisel directly in line with the switch sensing area, allowing the jaws to close with no panel gripped and the switch will not sense the jaw tip.

Available on GRM2.

See S01 switch installed option and TA025 through TA027 tip options.

Example Ordering Data:

GRM2T **D** -2-45 **blank** -00-LAA **-JB01** **-S01** -TA025 through TA027



JAW PART NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	ROTATION			
	0°	22°	45°	75°
2	65206-02	65207-02	65207-02	65207-02

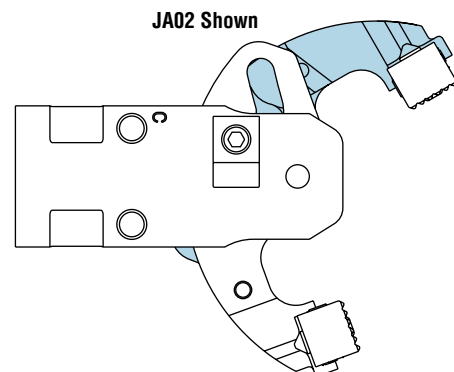
Jx02 DROP JAW CLAMP (A on Jaw A, B on Jaw B)

This option provides a standard jaw with a special cam slot that reduces jaw opening. Assembled with a normal rotation jaw, it creates a clamp with jaws that open different amounts. Providing reduced opening (30°) for die clearance on one side and maximum opening (75°) for panel clearance on the other side. Using the stop reduces rotation of both jaws to 22 x 45 for additional flexibility. All components are standard per the GRM section except the reduced jaw.

Available on GRM2.

Example Ordering Data:

GRM2T **S** -2- **30** DCB- **75** DDB-LAA **-JA02**



JAW PART NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	JAW NO.
	22° or 30°
2	65208-02

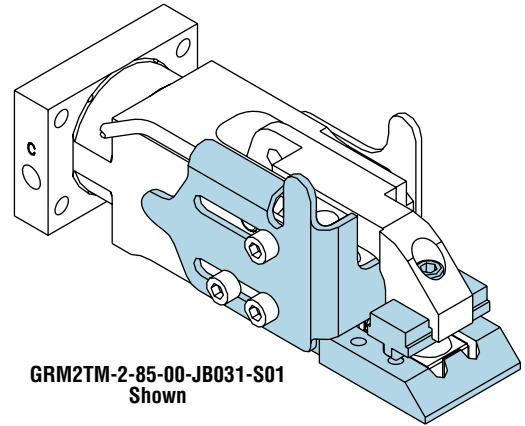
JAW OPTIONS: CLAMP ACCESSORIES

JB03x SWITCH MOUNTING JAW CLAMP (For Use With Series GRM2xM Clamps Only)

This option provides a lower flat shovel jaw with the ability to mount the S01 switch accessory. It can be ordered with or without a specially designed double cone point tip. This tip is designed in such a way that the S01 switch will not give a false reading when there is no panel between the jaws. Also included is a special impact plate that protects the switch cable as it is routed away from the switch.

Available on GRM2xM.

This accessory does not include the switch.



GRM2TM-2-85-00-JB031-S01
Shown

ACCESSORY	DESCRIPTION
JB030	Switch ready jaw - No tip included
JB031	Switch ready jaw - Black tip included
JB032	Switch ready jaw - Silver tip included
JB033	Switch ready jaw - Gold tip included

Example Ordering Data:

GRM2T **M** -2-85 **blank** -00-LAA **-JB031** **-S01**

CLAMP SIZE	KIT/PART DESCRIPTION	KIT/PART NUMBER	MATERIAL THICKNESS
GRM2	Jaw Kit - No tip	73068-03	—
	Tip Kit - Black	73068-04	0-1.5 mm
	Tip Kit - Silver	73068-05	1.51-3.0 mm
	Tip Kit - Gold	73068-06	3.01-4.0 mm
	Switch Kit - S01	65136-11	—

MOUNTING OPTIONS: CLAMP ACCESSORIES

- Mxx

MOUNTING OPTIONS

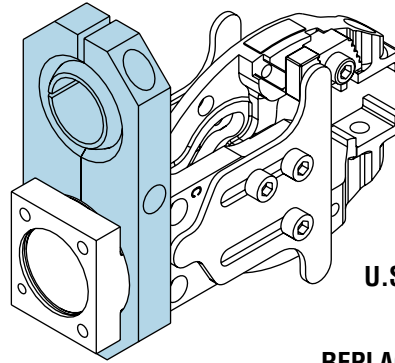
- M01 - 30 mm spherical mounting bracket
- M02 - 30 mm non-spherical mounting bracket
- M03 - Rigid rear mounting bracket
- M04 - Rigid rear mounting bracket
- M07 - 32 mm spherical mounting bracket
- M27 - 1 in spherical mounting bracket (M8 SHCS)
- M28 - 25 mm spherical mounting bracket (M8 SHCS)
- M29 - 1.25 in spherical mounting bracket (M8 SHCS)
- M30 - 33.3 mm spherical mounting bracket (M8 SHCS)
- M36 - 30 mm spherical mounting bracket (M8 SHCS)
- M37 - 32 mm spherical mounting bracket (M8 SHCS)

M01 30 mm SPHERICAL MOUNTING BRACKET

This option provides a spherical side mounting bracket for a 30 mm tube.
Available on GRM2 and GRM4.

Example Ordering Data:

GRM2 **T** S-2-45DCB-45DDB-LAA **-M01**



U.S. PATENT #5,941,513

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

Kit includes:
2 Bracket Halves
1 Spherical Ball
3 Screws

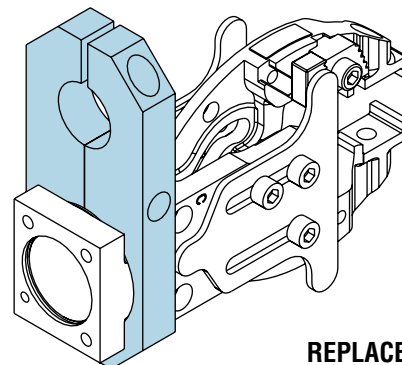
CLAMP SIZE	KIT NUMBER
2	65001-01
4	65001-06

M02 30 mm NON-SPHERICAL MOUNTING BRACKET

This option provides a non-spherical side mounting bracket for a 30 mm tube.
Available on GRM2 and GRM4.

Example Ordering Data:

GRM2 **T** S-2-45DCB-45DDB-LAA **-M02**



REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

Kit includes:
2 Bracket Halves
3 Screws

CLAMP SIZE	KIT NUMBER
2	65001-02
4	65001-07

MOUNTING OPTIONS: CLAMP ACCESSORIES

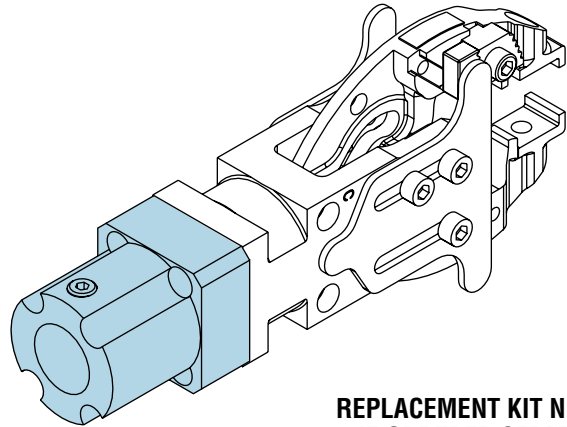
M03 RIGID REAR MOUNTING BRACKET

This option provides an aluminum rear mounting bracket for a 1.0 inch [25.0 mm] diameter tube internally or a 1.874 inch [47.6 mm] diameter externally.

Available on GRM2 and GRM4.

Example Ordering Data:

GRM2 **T** S-2-45DCB-45DDB-LAA **-M03**



REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	65002-03
4	65002-04

Kit includes:
Rear Mounting Bracket
3 Screws

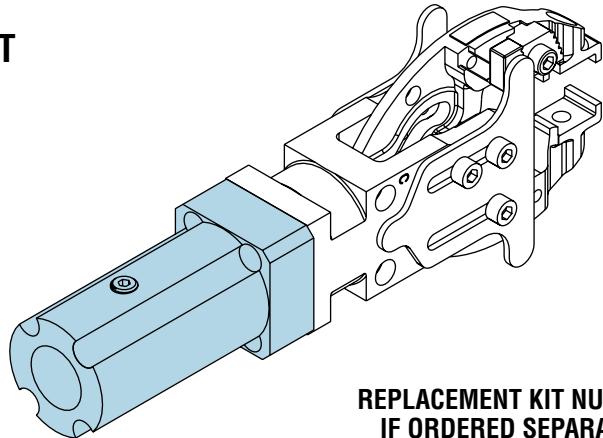
M04 RIGID REAR MOUNTING BRACKET

This option provides an aluminum rear mounting bracket for a 1.0 in [25.0 mm] diameter tube internally or a 1.874 in [47.6 mm] diameter externally.

Available on GRM2 and GRM4.

Example Ordering Data:

GRM2 **T** S-2-45DCB-45DDB-LAA **-M04**



REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	65029-03
4	65029-04

Kit includes:
Rear Mounting Bracket
3 Screws
2 Set Screws

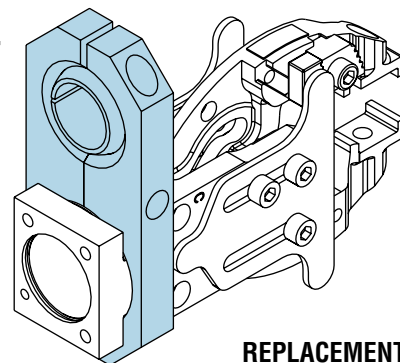
M07 32 mm SPHERICAL MOUNTING BRACKET

This option provides a spherical side mounting bracket for a 32 mm tube.

Available on GRM2 and GRM4.

Example Ordering Data:

GRM2 **T** S-2-45DCB-45DDB-LAA **-M07**



U.S. PATENT #5,941,513

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	62223-04
4	62223-05

Kit includes:
2 Bracket Halves
1 Spherical Ball
3 Screws

MOUNTING OPTIONS: CLAMP ACCESSORIES

M27 1 in SPHERICAL MOUNTING BRACKET

M30 33.3 mm SPHERICAL MOUNTING BRACKET

M28 25.0 mm SPHERICAL MOUNTING BRACKET

M36 30.0 mm SPHERICAL MOUNTING BRACKET

M29 1.25 in SPHERICAL MOUNTING BRACKET

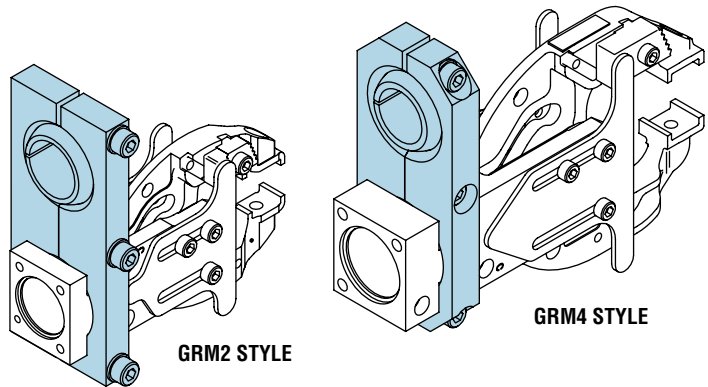
M37 32.0 mm SPHERICAL MOUNTING BRACKET

These options provide a spherical side-mounting bracket for 1 in, 1.25 in, 25.0 mm, 30.0 mm, 32.0 mm, or 33.3 mm mounting tubes. The mounting bracket uses M8 screws for bracket assembly instead of M6 screws.

Available on GRM2 and GRM4.

Example Ordering Data:

GRM2 **T** **S-2-45DCB-45DDB-LAA** **-M27**



GRM2 STYLE

GRM4 STYLE

U.S. PATENT #5,941,513

GRMxxx SPHERICAL BRACKET KITS WITH M8 SHCS

OPTION CODE	KIT NUMBER		MOUNTING ROD DIAMETER
	GRM2xx	GRM4xx	
M27	62149-04	64646-06	1.0 in
M28	62196-04	64648-05	25.0 mm
M29	62201-04	64647-02	1.25 in
M30	62201-05	64649-02	33.3 mm
M36	65001-11	65001-12	30.0 mm
M37	62223-07	62223-08	32.0 mm

Kit includes:
 2 Bracket Halves
 1 Spherical Ball
 3 Screws
 3 Washers

SWITCH OPTIONS: CLAMP ACCESSORIES

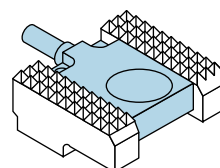
- **Sxx**

SWITCH OPTIONS (specific switch)
S01 - Turck Bi5-Q08-AP6X2-0.25M-RS4T/S34

S01

SWITCH INSTALLED- TURCK Bi5-Q08-AP6X2-0.25M-RS4T/S34

This option mounts the Turck Q08 switch (Bi5-Q08-AP6X2-0.25M-RS4T/S34) into the special switch mounting tips Tx025, 026, 027, 045, 046, 047, or 055. Available on GRM2.



Example Ordering Data:

GRM2TS-2-45 **blank** -45 **blank** -LAA **-S01** -Tx025 through Tx027 -Tx022 through Tx024

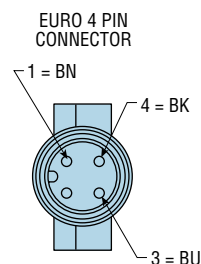
REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER	TURCK SWITCH NO.
2	65136-03	Bi5-Q08-AP6X2-0.25M-RS4T/S34

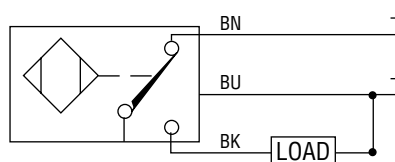
MATCHING CORDSET 2 METERS LONG		
2	65413-00-02	RK 4T-2

Kit includes:

- 1 Turck Q08 Switch
- 2 Screws to mount switch
- 2 Cable Clamps
- 2 Screws to mount clamps
- 1 Wire Tie



WIRING DIAGRAM



OUTPUT: AP6X2

SHORT CIRCUIT AND OVERLOAD PROTECTED AND WFI

SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

- **SBxx**

SWITCH MOUNTING OPTIONS - BODY		
	SWITCH COVER POSITION	SWITCH EXIT
SB05 - 5 mm threaded switch cover	1	2 or 4
SB06 - 5 mm threaded switch cover	3	2 or 4
SB07 - 12 mm switch option	3	2
SB08 - 12 mm switch option	3	4
SB11 - 8 mm switch option	3	2
SB12 - 8 mm switch option	3	4
SB13 - 5 mm switch option	3	2
SB14 - 5 mm switch option	3	4

SB05 5 mm THREADED SWITCH COVER - POSITION 1

SB06 5 mm THREADED SWITCH COVER - POSITION 3

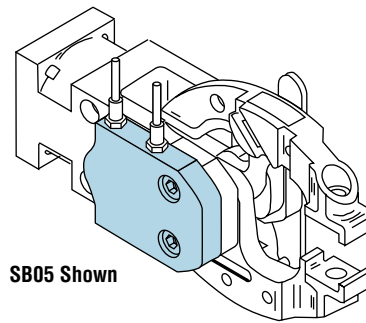
These options provide jaw open and closed sensing by fixing an aluminum housing to the side of the clamp body, mounting commercially available 5 mm metal sensing switches that sense the drive pin as the clamp opens and closes. The switch location is not adjustable.

Available on GRM2.

Options SB05 and SB06 are not available with flange units.

Example Ordering Data:

GRM2TS-2- 75 DCB-75DDB-LAA -SB05



SB05 Shown

For use with customer supplied Turck 5 mm proximity switch Bi1-EG05-AP6X-V1331 or equivalent.

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	65401-03

Kit includes:

Housing and all pins and screws required for installation.
Switches are not included.

SB07 **SB11** **SB13** 12, 8, or 5 mm SWITCH COVER SWITCH EXIT - POSITION 2

SB08 **SB12** **SB14** 12, 8, or 5 mm SWITCH COVER SWITCH EXIT - POSITION 4

These options provide jaw open and closed sensing or panel present by fixing an aluminum housing to the side of the clamp body, which accommodates 5, 8, or 12 mm switches. The switches sense the position of a target on the drive pin as the clamp opens and closes. The switch locations are adjustable. The switch cover is not available on the port side of the clamp.

For use with the following customer supplied Turck proximity switches or equivalent: (shielded switches only)

5 mm = Bi1-EG05-AP6X-V1331

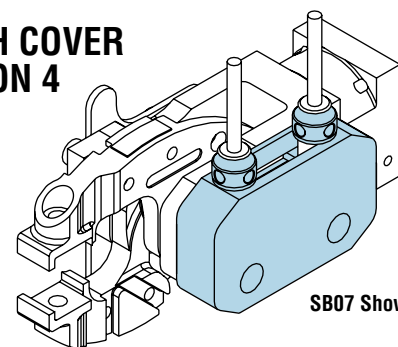
8 mm = Bi1.5U-EG08-AP6X-H1341

12 mm = Bi3U-EM12-AP6X-H1141

Available on GRM2.

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -SB07



SB07 Shown

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

Modification to body required if ordering as a kit

CLAMP SIZE	OPTION	SWITCH THREAD SIZE	KIT NUMBER
2	SB07 or SB08	12 mm	65411-06
2	SB11 or SB12	8 mm	65411-05
2	SB13 or SB14	5 mm	65411-03
2xF or 2xK	SB07 or SB08	12 mm	65411-10
2xF or 2xK	SB11 or SB12	8 mm	65411-09
2xF or 2xK	SB13 or SB14	5 mm	65411-07

Kit includes:

Housing and all pins and screws required for installation. Switches are not included.

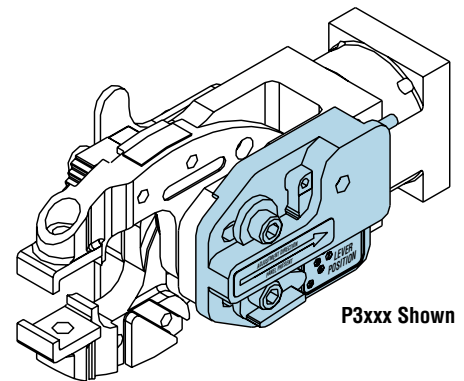
SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

- Pxxxx

SWITCH MOUNTING OPTIONS
PxNxx - Panel Present Detection without switch
PxAxx - Panel Present Detection with 4-Pin AC/DC switch
PxBxx - Panel Present Detection with 3-Pin AC/DC switch
PxCxx - Panel Present Detection with 4-Pin DC switch
PxDxx - Panel Present Detection with 4-Pin DC switch
PxExx - Panel Present Detection with 3-Pin DC switch
PxFxx - Panel Present Detection with 3-Wire DC switch
PxGxx - Panel Present Detection with 3-Pin AC/DC switch

Pxxxx PANEL PRESENT DETECTION

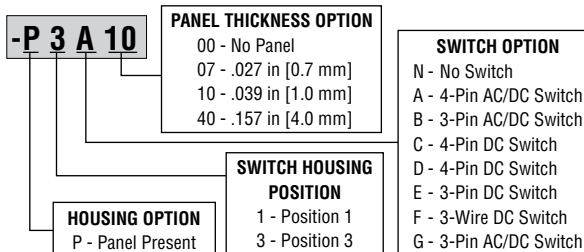
Panel present detection is a process where signaling devices detect the presence of a part. The Series GRM Clamp accommodates this option by affixing an adjustable housing and switch to the side of the clamp body. The internal switch senses the position of a target on the drive pin that travels in the housing. The location of the target relates directly to jaw position and the thickness of material being clamped. This option is an excellent choice for panel present detection and will function within a wide range of material thicknesses .027 to .157 in [0.7 to 4.0 mm]. Steel tips are recommended. For urethane tip applications, refer to Tx068 and Tx069 of the Accessories section. Single cone point to single diamond tips are not recommended for panels .039 in [1.0 mm] and below. Single diamond to single diamond tips are recommended for panels .039 in [1.0 mm] and below.



AVAILABLE ON	ACCESSORY	BODY OPTION	JAW OPTION	HOUSING POSITION
GRM2	P3Nxx	STD	C, D, G, H, J, N, P, R, S, F, K	3
	P1Nxx or P3Nxx	STD	L, M	1 or 3
	P1Nxx or P3Nxx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
	P3Nxx	B05, B06, B07, B08, B08A, B09	F, K	3
	P3xxx	STD	C, D, G, H, J, N, P, R, S, F, K	3
	P1xxx or P3xxx	STD	L, M	1 or 3
GRM4	P1xxx or P3xxx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
	P3xxx	B05, B06, B07, B08, B08A, B09	F, K	3
	P3Nxx	STD	G, H, J, S, F	3
	P3xxx	STD	G, H, J, S, F	3

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA



Switch Option - Refer to page 55 for specifications.

Panel Thickness Option - Housing may be preset at the factory for panel thickness in .004 in [0.1 mm] increments.

Material Thickness Range - .027 to .157 in [0.7 to 4.0 mm]

P1x00 and P3x00 options do not require factory setup. For compatibility with other units, consult PHD.

Switch Mounting Options

SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT		
	ACCESSORY	NUMBER	DESCRIPTION
2	PxN00	71964-03	Housing w/o switch kit
	PxA00	71964-04	Housing w/4-pin AC/DC switch kit
	PxB00	71964-15	Housing w/3-pin AC/DC switch kit
	PxC00	71964-35	Housing w/4-pin DC switch kit
	PxD00	71964-05	Housing w/4-pin DC switch kit
	PxE00	71964-64	Housing w/3-pin DC switch kit
	PxF00	71964-76	Housing w/3-wire DC switch kit
	PxG00	71964-88	Housing w/3-pin AC/DC switch kit
2xF or 2xK	PxN00	71964-06	Housing w/o switch kit
	PxA00	71964-07	Housing w/4-pin AC/DC switch kit
	PxB00	71964-16	Housing w/3-pin AC/DC switch kit
	PxC00	71964-53	Housing w/4-pin DC switch kit
	PxD00	71964-08	Housing w/4-pin DC switch kit
	PxE00	71964-65	Housing w/3-pin DC switch kit
	PxF00	71964-77	Housing w/3-wire DC switch kit
	PxG00	71964-89	Housing w/3-pin AC/DC switch kit
2xL or 2xM	PxN00	71964-27	Housing w/o switch kit
	PxA00	71964-28	Housing w/4-pin AC/DC switch kit
	PxB00	71964-29	Housing w/3-pin AC/DC switch kit
	PxC00	71964-54	Housing w/4-pin DC switch kit
	PxD00	71964-30	Housing w/4-pin DC switch kit
	PxE00	71964-66	Housing w/3-pin DC switch kit
	PxF00	71964-78	Housing w/3-wire DC switch kit
	PxG00	71964-90	Housing w/3-pin AC/DC switch kit
4	PxN00	71964-36	Housing w/o switch kit
	PxA00	71964-37	Housing w/4-pin AC/DC switch kit
	PxB00	71964-39	Housing w/3-pin AC/DC switch kit
	PxC00	71964-60	Housing w/4-pin DC switch kit
	PxD00	71964-38	Housing w/4-pin DC switch kit
	PxE00	71964-72	Housing w/3-pin DC switch kit
	PxF00	71964-84	Housing w/3-wire DC switch kit
	PxG00	71964-96	Housing w/3-pin AC/DC switch kit
4xF	PxN00	71964-40	Housing w/o switch kit
	PxA00	71964-41	Housing w/4-pin AC/DC switch kit
	PxB00	71964-43	Housing w/3-pin AC/DC switch kit
	PxC00	71964-61	Housing w/4-pin DC switch kit
	PxD00	71964-42	Housing w/4-pin DC switch kit
	PxE00	71964-73	Housing w/3-pin DC switch kit
	PxF00	71964-85	Housing w/3-wire DC switch kit
	PxG00	71964-97	Housing w/3-pin AC/DC switch kit

Kit includes: Housing and all pins and screws required for installation.

REPLACEMENT SWITCH NUMBERS IF ORDERED SEPARATELY

SWITCH OPTION	SWITCH TYPE	PHD SWITCH NUMBER	TURCK PART NUMBER
A	4-PIN AC/DC - N.O.	72121-001	Bi 2-Q10S-AZ31X-0.2M-SB 4T/S1597
B	3-PIN AC/DC - N.O.	72121-003	Bi 2-Q10S-AZ31X-0.2M-SB 3T
C	4-PIN DC - N.O. - NPN	72121-004	Bi 2-Q10S-AN6X-0.2M-RS 4T
D	4-PIN DC - N.O. - PNP	72121-002	Bi 2-Q10S-AP6X-0.2M-RS 4T
E	3-PIN DC - N.O. - PNP	72121-005	Bi 2-Q10S-AP6X-0.2M-PSG 3M
F	3-WIRE DC - N.O. - PNP	72121-008	Bi 2-Q10S-AP6X
G	3-PIN AC/DC - N.O.	72121-009	Bi 2-Q10S-AZ31X-0.2M-PSG 3F

MATCHING CORDSETS 2 METERS LONG

SWITCH OPTION	PHD PART NUMBER	CORDSET PART NUMBER
A	—	—
B	76817-00-02	KB 3T-2
C	65413-00-02	RK 4T-2
D	65413-00-02	RK 4T-2
E	75733-00-02	PKG 3M-2
F	—	—
G	75733-00-02	PKG 3M-2

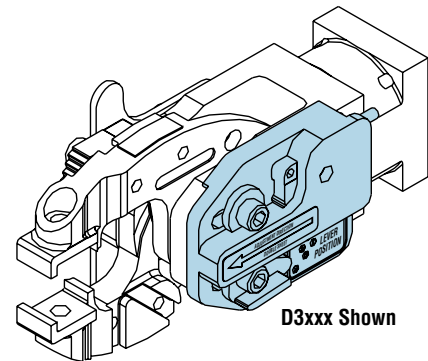
SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

- Dxxxx

SWITCH MOUNTING OPTIONS
DxNxx - Double Sheet Detection without switch
DxAxx - Double Sheet Detection with 4-Pin AC/DC switch
DxBxx - Double Sheet Detection with 3-Pin AC/DC switch
DxCxx - Double Sheet Detection with 4-Pin DC switch
DxDxx - Double Sheet Detection with 4-Pin DC switch
DxExx - Double Sheet Detection with 3-Pin DC switch
DxFxx - Double Sheet Detection with 3-Wire DC switch
DxGxx - Double Sheet Detection with 3-Pin AC/DC switch

Dxxxx DOUBLE SHEET DETECTION

Double sheet detection is a process where signaling devices detect the presence of multiple parts. The Series GRM Clamp accommodates this option by affixing an adjustable housing and switch to the side of the clamp body. The internal switch senses the position of a target on the drive pin that travels in the housing. The location of the target relates directly to jaw position and the thickness of material being clamped. This option is an excellent choice for backup or redundant signaling detection and will function within a wide range of material thicknesses .027 to .157 in [0.7 to 4.0 mm]. Steel tips are recommended. For urethane tip applications, refer to Tx068 and Tx069 of the Accessories section. Single cone point to single diamond tips are not recommended for panels .039 in [1.0 mm] and below. Single diamond to single diamond tips are recommended for panels .039 in [1.0 mm] and below.



AVAILABLE ON	ACCESSORY	BODY OPTION	JAW OPTION	HOUSING POSITION
GRM2	D3Nxx	STD	C, D, G, H, J, N, P, R, S, F, K	3
	D1Nxx or D3Nxx	STD	L, M	1 or 3
	D1Nxx or D3Nxx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
	D3Nxx	B05, B06, B07, B08, B08A, B09	F, K	3
	D3xxx	STD	C, D, G, H, J, N, P, R, S, F, K	3
	D1xxx or D3xxx	STD	L, M	1 or 3
	D1xxx or D3xxx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
GRM4	D3Nxx	STD	G, H, J, S, F	3
	D3xxx	STD	G, H, J, S, F	3

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -D 3 A 10

HOUSING OPTION	PANEL THICKNESS OPTION	SWITCH OPTION
D - Double Sheet	00 - No Panel 07 - .027 in [0.7 mm] 10 - .039 in [1.0 mm] 40 - .157 in [4.0 mm]	N - No Switch A - 4-Pin AC/DC Switch B - 3-Pin AC/DC Switch C - 4-Pin DC Switch D - 4-Pin DC Switch E - 3-Pin DC Switch F - 3-Wire DC Switch G - 3-Pin AC/DC Switch
	SWITCH HOUSING POSITION	
	1 - Position 1 3 - Position 3	

Switch Option - Refer to page 55 for specifications.

Panel Thickness Option - Housing may be preset at the factory for panel thickness in .004 in [0.1 mm] increments.

Material Thickness Range - .027 to .157 in [0.7 to 4.0 mm]

D1x00 and D3x00 options do not require factory setup. For compatibility with other units, consult PHD.

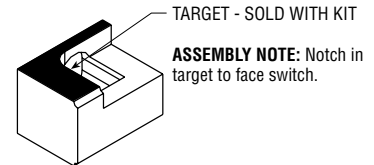
Switch Mounting Options

SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT		
	ACCESSORY	NUMBER	DESCRIPTION
2	DxN00	71964-09	Housing w/o switch kit
	DxA00	71964-10	Housing w/4-pin AC/DC switch kit
	DxB00	71964-17	Housing w/3-pin AC/DC switch kit
	DxC00	71964-55	Housing w/4-pin DC switch kit
	DxD00	71964-11	Housing w/4-pin DC switch kit
	DxE00	71964-67	Housing w/3-pin DC switch kit
	DxF00	71964-79	Housing w/3-wire DC switch kit
	DxG00	71964-91	Housing w/3-pin AC/DC switch kit
2xF or 2xK	DxN00	71964-12	Housing w/o switch kit
	DxA00	71964-13	Housing w/4-pin AC/DC switch kit
	DxB00	71964-18	Housing w/3-pin AC/DC switch kit
	DxC00	71964-56	Housing w/4-pin DC switch kit
	DxD00	71964-14	Housing w/4-pin DC switch kit
	DxE00	71964-68	Housing w/3-pin DC switch kit
	DxF00	71964-80	Housing w/3-wire DC switch kit
	DxG00	71964-92	Housing w/3-pin AC/DC switch kit
2xL or 2xM	DxN00	71964-23	Housing w/o switch kit
	DxA00	71964-24	Housing w/4-pin AC/DC switch kit
	DxB00	71964-25	Housing w/3-pin AC/DC switch kit
	DxC00	71964-57	Housing w/4-pin DC switch kit
	DxD00	71964-26	Housing w/4-pin DC switch kit
	DxE00	71964-69	Housing w/3-pin DC switch kit
	DxF00	71964-81	Housing w/3-wire DC switch kit
	DxG00	71964-93	Housing w/3-pin AC/DC switch kit
4	DxN00	71964-44	Housing w/o switch kit
	DxA00	71964-45	Housing w/4-pin AC/DC switch kit
	DxB00	71964-47	Housing w/3-pin AC/DC switch kit
	DxC00	71964-62	Housing w/4-pin DC switch kit
	DxD00	71964-46	Housing w/4-pin DC switch kit
	DxE00	71964-74	Housing w/3-pin DC switch kit
	DxF00	71964-86	Housing w/3-wire DC switch kit
	DxG00	71964-98	Housing w/3-pin AC/DC switch kit
4xF	DxN00	71964-48	Housing w/o switch kit
	DxA00	71964-49	Housing w/4-pin AC/DC switch kit
	DxB00	71964-51	Housing w/3-pin AC/DC switch kit
	DxC00	71964-63	Housing w/4-pin DC switch kit
	DxD00	71964-50	Housing w/4-pin DC switch kit
	DxE00	71964-75	Housing w/3-pin DC switch kit
	DxF00	71964-87	Housing w/3-wire DC switch kit
	DxG00	71964-99	Housing w/3-pin AC/DC switch kit

Kit includes: Housing and all pins and screws required for installation.



REPLACEMENT SWITCH NUMBERS IF ORDERED SEPARATELY

SWITCH OPTION	SWITCH TYPE	PHD SWITCH NUMBER	TURCK PART NUMBER
A	4-PIN AC/DC - N.O.	72121-001	Bi 2-Q10S-AZ31X-0.2M-SB 4T/S1597
B	3-PIN AC/DC - N.O.	72121-003	Bi 2-Q10S-AZ31X-0.2M-SB 3T
C	4-PIN DC - N.O. - NPN	72121-004	Bi 2-Q10S-AN6X-0.2M-RS 4T
D	4-PIN DC - N.O. - PNP	72121-002	Bi 2-Q10S-AP6X-0.2M-RS 4T
E	3-PIN DC - N.O. - PNP	72121-005	Bi 2-Q10S-AP6X-0.2M-PSG 3M
F	3-WIRE DC - N.O. - PNP	72121-008	Bi 2-Q10S-AP6X
G	3-PIN AC/DC - N.O.	72121-009	Bi 2-Q10S-AZ31X-0.2M-PSG 3F

MATCHING CORDSETS 2 METERS LONG

SWITCH OPTION	PHD PART NUMBER	CORDSET PART NUMBER
A	—	—
B	76817-00-02	KB 3T-2
C	65413-00-02	RK 4T-2
D	65413-00-02	RK 4T-2
E	75733-00-02	PKG 3M-2
F	—	—
G	75733-00-02	PKG 3M-2

SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

- Kxxxx

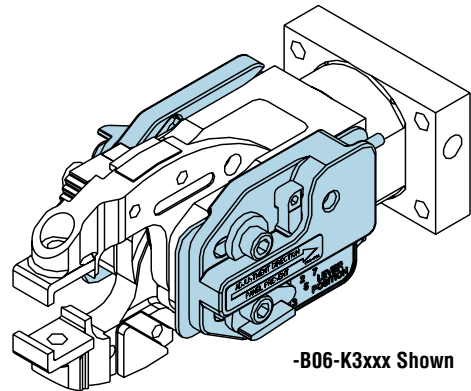
SWITCH MOUNTING OPTIONS

- KxNxx - Panel Present and Double Sheet Detection without switch
- KxAxx - Panel Present and Double Sheet Detection with 4-Pin AC/DC switch
- KxBxx - Panel Present and Double Sheet Detection with 3-Pin AC/DC switch
- KxCxx - Panel Present and Double Sheet Detection with 4-Pin DC switch
- KxDxx - Panel Present and Double Sheet Detection with 4-Pin DC switch
- KxExx - Panel Present and Double Sheet Detection with 3-Pin DC switch
- KxFxx - Panel Present and Double Sheet Detection with 3-Wire DC switch
- KxGxx - Panel Present and Double Sheet Detection with 3-Pin AC/DC switch

Kxxxx

PANEL PRESENT AND DOUBLE SHEET DETECTION

This option provides panel present and double sheet detection on one Series GRM clamp. This is accomplished by affixing two adjustable housings and switches to the sides of the clamp body. The internal switches sense the position of the targets on the drive pin that travels in the housings. The location of the targets relates directly to jaw position and the thickness of the material being clamped. This option is an excellent choice for panel present detection and backup or redundant signaling detection. This option will also function within a wide range of material thicknesses .027 to .157 in [0.7 to 4.0 mm]. Steel tips are recommended. For urethane tip applications, refer to Tx068 and Tx069 of the Accessories section. Single cone point to single diamond tips are not recommended for panels .039 in [1.0 mm] and below. Single diamond to single diamond tips are recommended for panels .039 in [1.0 mm] and below.

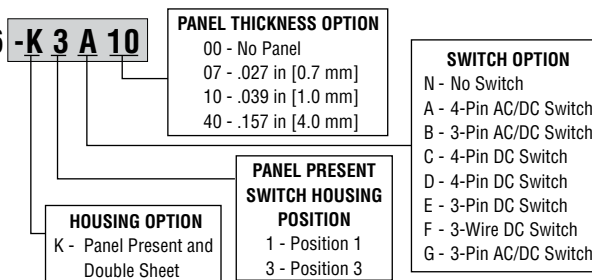


Specific body options are required for this option. See the chart below for available bodies.

AVAILABLE ON	ACCESSORY	BODY OPTION	JAW OPTION	HOUSING POSITION
GRM2	K1Nxx or K3Nxx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 and 3
	K1xxx or K3xxx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 and 3
	K1Nxx or K3Nxx	STD	L, M	1 and 3
	K1xxx or K3xxx	STD	L, M	1 and 3

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA-B06 -K 3 A 10



Switch Option - Refer to page 55 for specifications.

Panel Thickness Option - Housings may be preset at the factory for panel thickness in .004 in [0.1 mm] increments.

Material Thickness Range - .027 to .157 in [0.7 to 4.0 mm]

K1x00 and K3x00 options do not require factory setup. For compatibility with other units, consult PHD.

SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT		
	ACCESSORY	NUMBER	DESCRIPTION
2	KxN00	71964-19	Housing w/o switch kit
	KxA00	71964-20	Housing w/4-pin AC/DC switch kit
	KxB00	71964-22	Housing w/3-pin AC/DC switch kit
	KxC00	71964-58	Housing w/4-pin DC switch kit
	KxD00	71964-21	Housing w/4-pin DC switch kit
	KxE00	71964-70	Housing w/3-pin DC switch kit
	KxF00	71964-82	Housing w/3-wire DC switch kit
	KxG00	71964-94	Housing w/3-pin AC/DC switch kit
2xL or 2xM	KxN00	71964-31	Housing w/o switch kit
	KxA00	71964-32	Housing w/4-pin AC/DC switch kit
	KxB00	71964-33	Housing w/3-pin AC/DC switch kit
	KxC00	71964-59	Housing w/4-pin DC switch kit
	KxD00	71964-34	Housing w/4-pin DC switch kit
	KxE00	71964-71	Housing w/3-pin DC switch kit
	KxF00	71964-83	Housing w/3-wire DC switch kit
	KxG00	71964-95	Housing w/3-pin AC/DC switch kit

Kit includes: Housing and all pins and screws required for installation.

REPLACEMENT SWITCH NUMBERS IF ORDERED SEPARATELY

SWITCH OPTION	SWITCH TYPE	PHD SWITCH NUMBER	TURCK PART NUMBER
A	4-PIN AC/DC - N.O.	72121-001	Bi 2-Q10S-AZ31X-0.2M-SB 4T/S1597
B	3-PIN AC/DC - N.O.	72121-003	Bi 2-Q10S-AZ31X-0.2M-SB 3T
C	4-PIN DC - N.O. - NPN	72121-004	Bi 2-Q10S-AN6X-0.2M-RS 4T
D	4-PIN DC - N.O. - PNP	72121-002	Bi 2-Q10S-AP6X-0.2M-RS 4T
E	3-PIN DC - N.O. - PNP	72121-005	Bi 2-Q10S-AP6X-0.2M-PSG 3M
F	3-WIRE DC - N.O. - PNP	72121-008	Bi 2-Q10S-AP6X
G	3-PIN AC/DC - N.O.	72121-009	Bi 2-Q10S-AZ31X-0.2M-PSG 3F

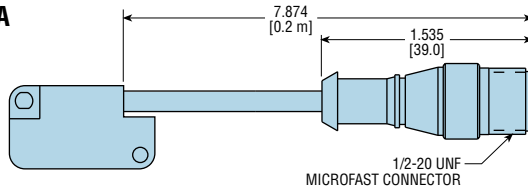
MATCHING CORDSETS 2 METERS LONG

SWITCH OPTION	PHD PART NUMBER	CORDSET PART NUMBER
A	—	—
B	76817-00-02	KB 3T-2
C	65413-00-02	RK 4T-2
D	65413-00-02	RK 4T-2
E	75733-00-02	PKG 3M-2
F	—	—
G	75733-00-02	PKG 3M-2

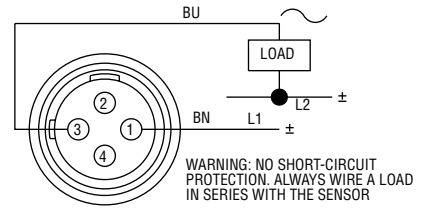
SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

FOR Pxxxx PANEL PRESENT DETECTION
 Dxxxx DOUBLE SHEET DETECTION
 Kxxxx PANEL PRESENT & DOUBLE SHEET DETECTION

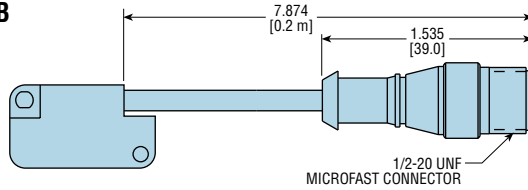
SWITCH OPTION A



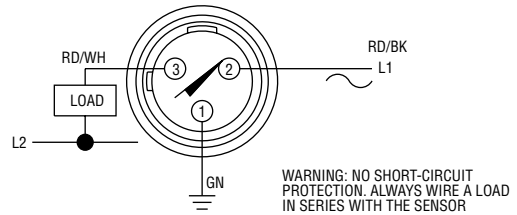
Bi 2-Q10S-AZ31X-0.2M-SB 4T/S1597



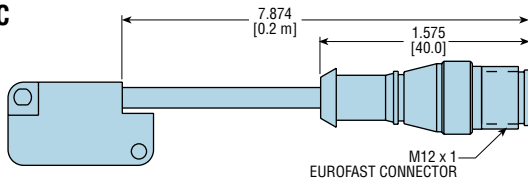
SWITCH OPTION B



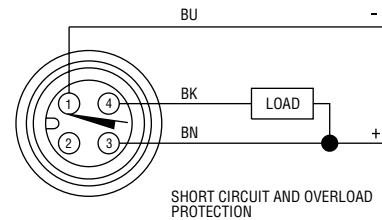
Bi 2-Q10S-AZ31X-0.2M-SB 3T



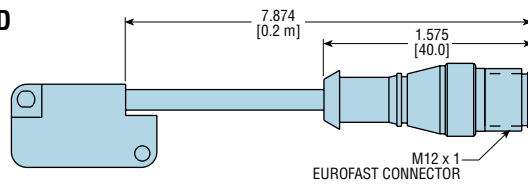
SWITCH OPTION C



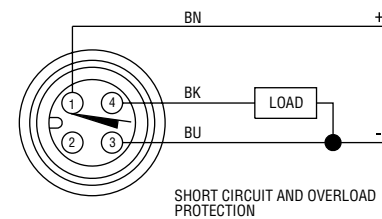
Bi 2-Q10S-AN6X-0.2M-RS 4T



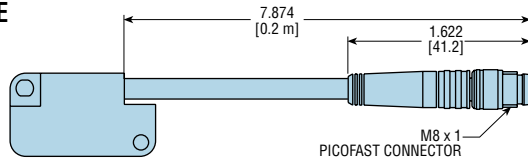
SWITCH OPTION D



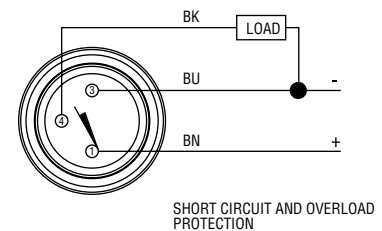
Bi 2-Q10S-AP6X-0.2M-RS 4T



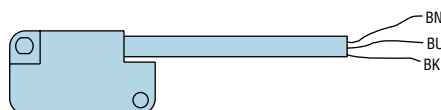
SWITCH OPTION E



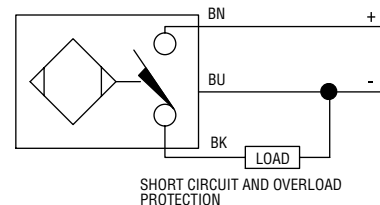
Bi 2-Q10S-AP6X-0.2M-PSG 3M



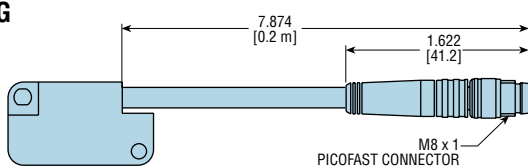
SWITCH OPTION F



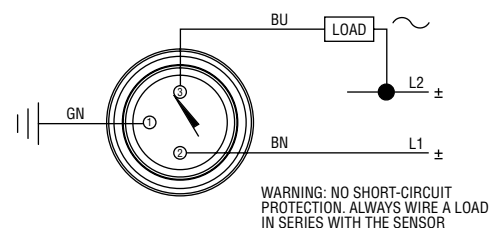
Bi 2-Q10S-AP6X



SWITCH OPTION G



Bi 2-Q10S-AZ31X-0.2M-PSG 3F



Switch Mounting Options

SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

- PS(R)xxx

SWITCH MOUNTING OPTIONS	
PS(R)xNx	- Positional Sensing Detection without switch
PS(R)xAx	- Positional Sensing Detection with 5-Pin AC/DC switch (Turck)
PS(R)xDx	- Positional Sensing Detection with 4-Pin PNP DC switch (P + F)
PS(R)xEx	- Positional Sensing Detection with 4-Pin PNP DC switch (Turck)
PS(R)xFx	- Positional Sensing Detection with 4-Pin PNP DC switch (Efector)
PS(R)xHx	- Positional Sensing Detection with 4-Pin NPN DC switch (P + F)
PS(R)xJx	- Positional Sensing Detection with 4-Pin NPN DC switch (Turck)

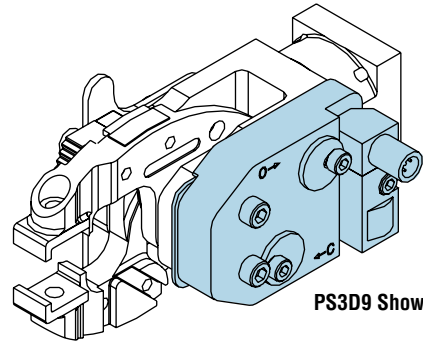
PS(R)xxx POSITIONAL SENSING DETECTION

This option provides jaw open and jaw closed sensing by affixing an aluminum housing to the side of the clamp body. The adjustable switches sense the position of a target on the drive pin as the clamp opens and closes.

PS positions satellite switch S02 to sense open and S01 to sense close. PR positions satellite switch S01 to sense open and S02 to sense close. See tables on switch option page for satellite switch to quick disconnect pin number relationships.

For use with the following PHD or customer supplied switches or equivalent:

- Ni 2-Q6.5-ADZ32-0.16-FSB 5.4X4/S304 (Turck) IN 5375 (Efector)
- NBN2-F581-160S6-E8-V1 (P + F) NBN2-F581-160S6-E10-V1 (P + F)
- Ni 2-Q6.5-0.16-BDS-2AP6X3-H1141/S34 (Turck) Ni 2-Q6.5-AN6-0.16-FS 4.4X3/S304 (Turck)

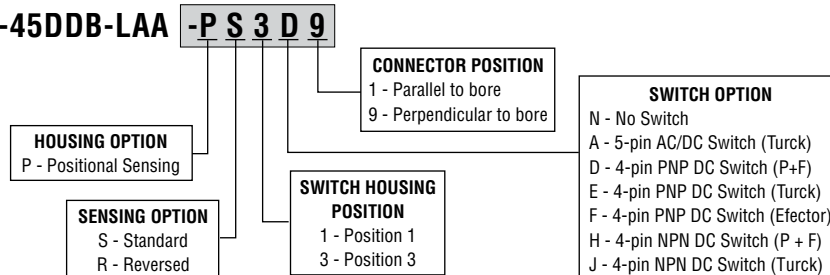


PS3D9 Shown

AVAILABLE ON	ACCESSORY	BODY OPTION	JAW OPTION	HOUSING POSITION
GRM2	PS(R)3Nx	STD	C, D, G, H, J, N, P, R, S, F, K	3
	PS(R)xNx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
	PS(R)3Nx	B05, B06, B07, B08, B08A, B09	F, K	3
	PS(R)3A1	STD	C, D, G, H, J, N, P, R, S, F, K	3
	PS(R)xA1	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
	PS(R)3A1	B05, B06, B07, B08, B08A, B09	F, K	3
	PS(R)3Dx, PS(R)3Ex, PS(R)3Fx	STD	C, D, G, H, J, N, P, R, S, F, K	3
	PS(R)xDx, PS(R)xEx, PS(R)xFx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
	PS(R)3Dx, PS(R)3Ex, PS(R)3Fx	B05, B06, B07, B08, B08A, B09	F, K	3
	PS(R)3Hx	STD	C, D, G, H, J, N, P, R, S, F, K	3
	PS(R)xHx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
	PS(R)3Hx	B05, B06, B07, B08, B08A, B09	F, K	3
GRM4	PS(R)3Jx	STD	C, D, G, H, J, N, P, R, S, F, K	3
	PS(R)xJx	B05, B06, B07, B08, B08A, B09	C, D, G, H, J, N, P, R, S	1 or 3
	PS(R)3Jx	B05, B06, B07, B08, B08A, B09	F, K	3
	PS(R)3Nx	STD	G, H, J, S, F	3
	PS(R)3A1	STD	G, H, J, S, F	3
	PS(R)3Dx	STD	G, H, J, S, F	3
	PS(R)3Ex	STD	G, H, J, S, F	3
	PS(R)3Fx	STD	G, H, J, S, F	3
	PS(R)3Hx	STD	G, H, J, S, F	3
	PS(R)3Jx	STD	G, H, J, S, F	3

Example Ordering Data:

GRM2TS-2-45DCB-45DDB-LAA -P S 3 D 9



Switch Option-Refer to page 58 for specifications.

Connector Position-

-PS(R)xA1, -PS(R)xD1, -PS(R)xE1, -PS(R)xF1, -PS(R)xH1, and -PS(R)xJ1 options not recommended for use with C mounts.

Connector position 1 will limit rotation about the clamp body for the following mounts: R, S, and W.

SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT		
	ACCESSORY	NUMBER	DESCRIPTION
2	PS(R)xNx	72914-03	Housing w/o switch kit
	PS(R)xA1	72914-07	Housing w/5-pin AC/DC (Turck) switch kit
	PS(R)xDx	72914-04	Housing w/4-pin DC (P+F) switch kit
	PS(R)xEx	72914-09	Housing w/4-pin DC (Turck) switch kit
	PS(R)xFx	72914-22	Housing w/4-pin DC (Efector) switch kit
	PS(R)xHx	72914-34	Housing w/4-pin DC (P+F) switch kit
	PS(R)xJx	72914-35	Housing w/4-pin DC (Turck) switch kit
2xF or 2xK	PS(R)xNx	72914-05	Housing w/o switch kit
	PS(R)xA1	72914-08	Housing w/5-pin AC/DC (Turck) switch kit
	PS(R)xDx	72914-06	Housing w/4-pin DC (P+F) switch kit
	PS(R)xEx	72914-10	Housing w/4-pin DC (Turck) switch kit
	PS(R)xFx	72914-23	Housing w/4-pin DC (Efector) switch kit
	PS(R)xHx	72914-36	Housing w/4-pin DC (P+F) switch kit
	PS(R)xJx	72914-37	Housing w/4-pin DC (Turck) switch kit
4	PS(R)xNx	72914-14	Housing w/o switch kit
	PS(R)xA1	72914-18	Housing w/5-pin AC/DC (Turck) switch kit
	PS(R)xDx	72914-15	Housing w/4-pin DC (P+F) switch kit
	PS(R)xEx	72914-20	Housing w/4-pin DC (Turck) switch kit
	PS(R)xFx	72914-24	Housing w/4-pin DC (Efector) switch kit
	PS(R)xHx	72914-38	Housing w/4-pin DC (P+F) switch kit
	PS(R)xJx	72914-39	Housing w/4-pin DC (Turck) switch kit
4xF	PS(R)xNx	72914-16	Housing w/o switch kit
	PS(R)xA1	72914-19	Housing w/5-pin AC/DC (Turck) switch kit
	PS(R)xDx	72914-17	Housing w/4-pin DC (P+F) switch kit
	PS(R)xEx	72914-21	Housing w/4-pin DC (Turck) switch kit
	PS(R)xFx	72914-25	Housing w/4-pin DC (Efector) switch kit
	PS(R)xHx	72914-40	Housing w/4-pin DC (P+F) switch kit
	PS(R)xJx	72914-41	Housing w/4-pin DC (Turck) switch kit
4xG	PS(R)xNx	72914-27	Housing w/o switch kit
	PS(R)xA1	72914-28	Housing w/5-pin AC/DC (Turck) switch kit
	PS(R)xDx	72914-29	Housing w/4-pin DC (P+F) switch kit
	PS(R)xEx	72914-30	Housing w/4-pin DC (Turck) switch kit
	PS(R)xFx	72914-31	Housing w/4-pin DC (Efector) switch kit
	PS(R)xHx	72914-42	Housing w/4-pin DC (P+F) switch kit
	PS(R)xJx	72914-43	Housing w/4-pin DC (Turck) switch kit

Kit includes: Housing and all pins and screws required for installation.

REPLACEMENT SWITCH KIT NUMBERS IF ORDERED SEPARATELY

SWITCH OPTION	SWITCH TYPE	PHD SWITCH KIT NUMBER	SWITCH PART NUMBER
A	5-PIN AC/DC-N.O.	72914-11	Ni 2-Q6.5-ADZ32-0.16-FSB 5.4X4/S304
D	4-PIN DC - N.O. - PNP	72914-12	NBN2-F581-160S6-E8-V1
E	4-PIN DC - N.O. - PNP	72914-13	Ni 2-Q6.5-0.16-BDS-2AP6X3-H1141/S34
F	4-PIN DC - N.O. - PNP	72914-26	IN 5375
H	4-PIN DC - N.O. - NPN	72914-32	NBN2-F581-160S6-E10-V1
J	4-PIN DC - N.O. - NPN	72914-33	Ni-2-Q6.5-AN6-0.16-FS 4.4X3/S304

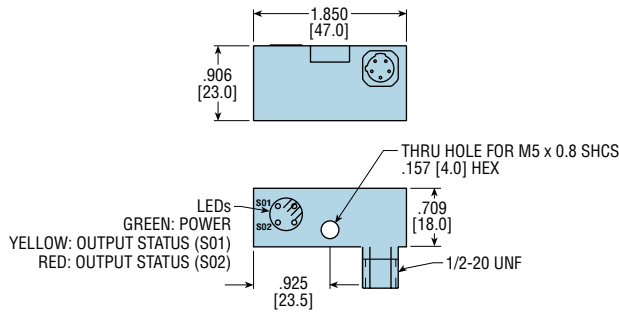
MATCHING CORDSETS 2 METERS LONG

SWITCH OPTION	PHD PART NUMBER	CORDSET PART NUMBER
A	73317-00-02	KB 5T-2
D	65440-001-02	V1-G-YE2M-PVC
E	78039-00-02	RK 4.4T-2
F	65440-001-02	V1-G-YE2M-PVC
H	65440-001-02	V1-G-YE2M-PVC
J	78039-00-02	RK 4.4T-2

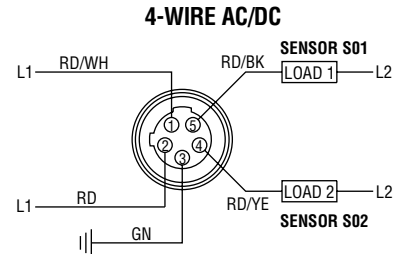
SWITCH MOUNTING OPTIONS: CLAMP ACCESSORIES

FOR PS(R)xxxx POSITIONAL SENSING DETECTION

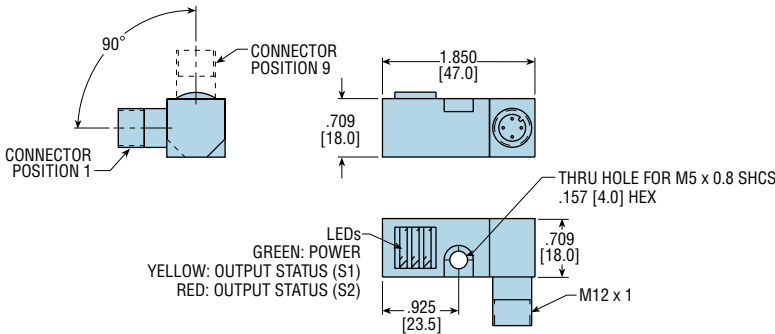
SWITCH OPTION A **Turck Part #: Ni 2-Q6.5-ADZ32-0.16-FSB 5.4X4/S304**



OPTION CODE	SATELLITE		QUICK DISCONNECT PIN NUMBER
	UNCLAMPED	CLAMPED	
PSxA1	S02	S01	S01 = PIN 5
PRxA1	S01	S02	S02 = PIN 4

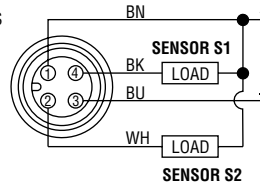


SWITCH OPTION D **P + F Part #: NBN2-F581-160S6-E8-V1 (PNP)** SWITCH OPTION H **P + F Part #: NBN2-F581-160S6-E10-V1 (NPN)**

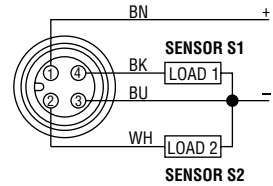


OPTION CODE	SATELLITE		QUICK DISCONNECT PIN NUMBER
	UNCLAMPED	CLAMPED	
PSxxx	S2	S1	S1 = PIN 4
PRxxx	S1	S2	S2 = PIN 2

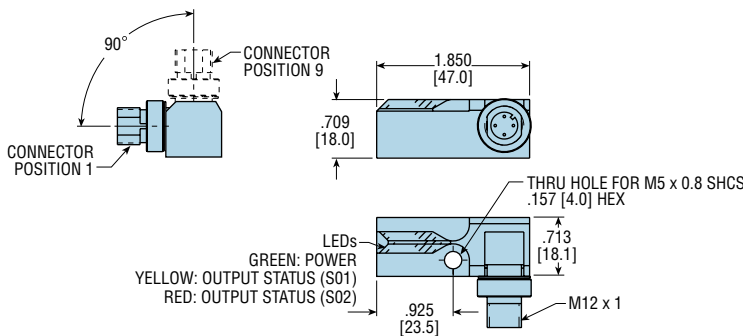
4-WIRE DC (V1 TYPE) NPN DUAL NORMALLY OPEN



4-WIRE DC (V1 TYPE) PNP DUAL NORMALLY OPEN

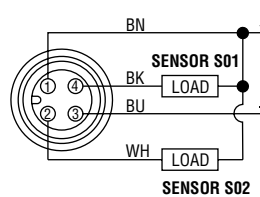


SWITCH OPTION E **Turck Part #: Ni 2-Q6.5-0.16-BDS-2AP6X3-H1141/S34 (PNP)** SWITCH OPTION J **Turck Part #: Ni-2-Q6.5-AN6-0.16-FS 4.4X3/S304 (NPN)**

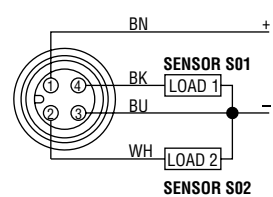


OPTION CODE	SATELLITE		QUICK DISCONNECT PIN NUMBER
	UNCLAMPED	CLAMPED	
PSxxx	S02	S01	S01 = PIN 4
PRxxx	S01	S02	S02 = PIN 2

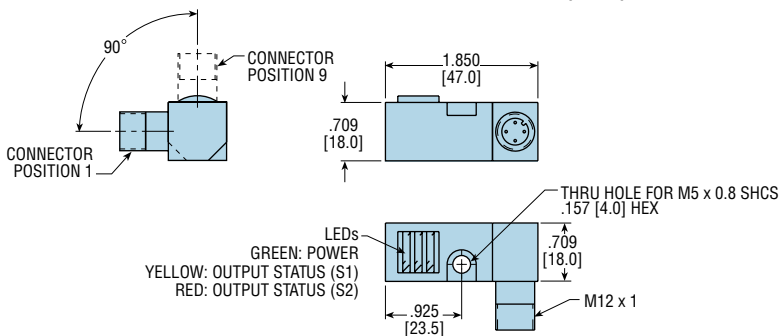
4-WIRE DC (V1 TYPE) NPN DUAL NORMALLY OPEN



4-WIRE DC PNP DUAL NORMALLY OPEN

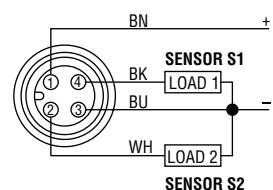


SWITCH OPTION F **Efector Part #: IN 5375 (PNP)**



OPTION CODE	SATELLITE		QUICK DISCONNECT PIN NUMBER
	UNCLAMPED	CLAMPED	
PSxFx	S2	S1	S1 = PIN 4
PRxFx	S1	S2	S2 = PIN 2

4-WIRE DC PNP DUAL NORMALLY OPEN



TIP OPTIONS: CLAMP ACCESSORIES

- TAxXX

TIP OPTIONS - JAW A			
CODE	TIP	COLOR	USE WITH OPTION:
TA001*	- 30° single diamond	black	TB001
TA002*	- 30° single diamond	silver	TB002
TA003**	- 30° single diamond	black	TB003
TA004**	- 30° single diamond	silver	TB004
TA005	- Single socket	black	See Tx005-010
TA006	- Single socket	silver	"
TA007	- Single socket	gold	"
TA008	- Single ball	black	"
TA009	- Single ball	silver	"
TA010	- Single ball	gold	"
TA017	- Tip extension (duckbill)	—	TB017
TA018	- Tip extension (wing tip)	—	TB018
TA019	- Sharp cone point	black	See Tx019-021
TA020	- Sharp cone point	silver	"
TA021	- Sharp cone point	gold	"
TA022	- Double cone point	black	See Tx022-027
TA023	- Double cone point	silver	"
TA024	- Double cone point	gold	"
TA025	- Double diamond point	black	"
TA026	- Double diamond point	silver	"
TA027	- Double diamond point	gold	"
TA030	- Short offset	—	TB031-TB033
TA031	- Long offset	black	TB030
TA032	- Long offset	silver	TB030
TA033	- Long offset	gold	TB030
TA034*	- 30° Double diamond	black	TB034
TA035*	- 30° Double diamond	silver	TB035
TA036*	- 30° Double diamond	gold	TB036
TA037**	- 30° Double diamond	black	TB037
TA038**	- 30° Double diamond	silver	TB038
TA039**	- 30° Double diamond	gold	TB039
TA040	- Hard urethane	red	TB040
TA041	- Hard urethane	red	TB041
TA042	- Double no scratch	black	See Tx042-047
TA043	- Double no scratch	silver	"
TA044	- Double no scratch	gold	"
TA045	- Double no scratch	black	"
TA046	- Double no scratch	silver	"
TA047	- Double no scratch	gold	"
TA052	- Double urethane	yellow	TB055
TA055	- Double urethane	yellow	TB052
TA060	- Drawbead	black	TB030
TA061	- Drawbead	silver	TB030
TA063	- Sharp double cone point	black	See Tx063-065
TA064	- Sharp double cone point	silver	"
TA065	- Sharp double cone point	gold	"
TA066	- Hard urethane	blue	See Tx066-069
TA067	- Hard urethane	blue	"
TA068	- Hard urethane	blue	"
TA069	- Hard urethane	yellow	"
TA071	- 15° single diamond	black	See Tx071-082
TA072	- 15° single diamond	silver	"
TA073	- 15° single diamond	gold	"
TA074	- 15° single diamond	black	"
TA075	- 15° single diamond	silver	"
TA076	- 15° single diamond	gold	"
TA077	- 15° double diamond	black	"
TA078	- 15° double diamond	silver	"
TA079	- 15° double diamond	gold	"
TA080	- 15° double diamond	black	"
TA081	- 15° double diamond	silver	"
TA082	- 15° double diamond	gold	"
TA083	- Drawbead	black	See Tx083-084
TA084	- Drawbead	black	"

* upward mounting

** downward mounting

- TBxXX

TIP OPTIONS - JAW B			
CODE	TIP	COLOR	USE WITH OPTION:
TB001*	- 30° single diamond	black	TA001
TB002*	- 30° single diamond	silver	TA002
TB003**	- 30° single diamond	black	TA003
TB004**	- 30° single diamond	silver	TA004
TB005	- Single socket	black	See Tx005-010
TB006	- Single socket	silver	"
TB007	- Single socket	gold	"
TB008	- Single ball	black	"
TB009	- Single ball	silver	"
TB010	- Single ball	gold	"
TB017	- Tip extension (duckbill)	—	TA017
TB018	- Tip extension (wing tip)	—	TA018
TB019	- Sharp cone point	black	See Tx019-021
TB020	- Sharp cone point	silver	"
TB021	- Sharp cone point	gold	"
TB022	- Double cone point	black	See Tx022-027
TB023	- Double cone point	silver	"
TB024	- Double cone point	gold	"
TB025	- Double diamond point	black	"
TB026	- Double diamond point	silver	"
TB027	- Double diamond point	gold	"
TB030	- Short offset	—	TA031-TA033
TB031	- Long offset	black	TA030
TB032	- Long offset	silver	TA030
TB033	- Long offset	gold	TA030
TB034*	- 30° Double diamond	black	TA034
TB035*	- 30° Double diamond	silver	TA035
TB036*	- 30° Double diamond	gold	TA036
TB037**	- 30° Double diamond	black	TA037
TB038**	- 30° Double diamond	silver	TA038
TB039**	- 30° Double diamond	gold	TA039
TB040	- Hard urethane	red	TA040
TB041	- Hard urethane	red	TA041
TB042	- Double no scratch	black	See Tx042-047
TB043	- Double no scratch	silver	"
TB044	- Double no scratch	gold	"
TB045	- Double no scratch	black	"
TB046	- Double no scratch	silver	"
TB047	- Double no scratch	gold	"
TB052	- Double urethane	yellow	TA055
TB055	- Double urethane	yellow	TA052
TB060	- Drawbead	black	TA030
TB061	- Drawbead	silver	TA030
TB063	- Sharp double cone point	black	See Tx063-065
TB064	- Sharp double cone point	silver	"
TB065	- Sharp double cone point	gold	"
TB066	- Hard urethane	blue	See Tx066-069
TB067	- Hard urethane	blue	"
TB068	- Hard urethane	blue	"
TB069	- Hard urethane	yellow	"
TB071	- 15° single diamond	black	See Tx071-082
TB072	- 15° single diamond	silver	"
TB073	- 15° single diamond	gold	"
TB074	- 15° single diamond	black	"
TB075	- 15° single diamond	silver	"
TB076	- 15° single diamond	gold	"
TB077	- 15° double diamond	black	"
TB078	- 15° double diamond	silver	"
TB079	- 15° double diamond	gold	"
TB080	- 15° double diamond	black	"
TB081	- 15° double diamond	silver	"
TB082	- 15° double diamond	gold	"
TB083	- Drawbead	black	See Tx083-084
TB084	- Drawbead	black	"

* upward mounting

** downward mounting

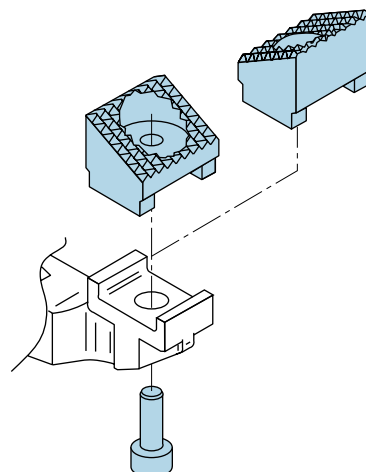
TIP OPTIONS: CLAMP ACCESSORIES

Tx001 to Tx004 30° SINGLE DIAMOND TIP (A on Jaw A, B on Jaw B)

This option provides single diamond tips with the gripping surface on a 30° angle. The tips can be used to grip angled surfaces while keeping the clamp parallel, decreasing the space required by the clamp. These tips are a set and must be used as a pair.

Tx001 to Tx004 accessories are only available for GRM2xK, GRM2xR, and GRM2xS clamps. Tx003 to Tx004 (downward mounting) are not available for GRM2xF clamps. For other GRM2xF applications, consult PHD.

Available on GRM2.



Example Ordering Data:

GRM 2 TS-2-45 blank -45 blank -LAA -TA001 -TB001

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

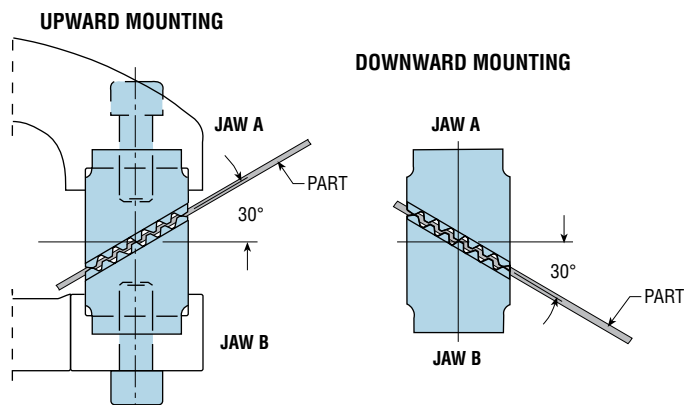
CLAMP SIZE	KIT NUMBER	TIP COLOR
2	65106-01	black
2	65106-02	silver

Kit includes:
1 30° Single Diamond Tip
1 Mounting Screw

FOR K, R, AND S JAW STYLES ONLY

TIP OPTION	MATERIAL THICKNESS (mm)	TIP COLOR	MOUNTING ORIENTATION
TA001/TB001	0 - 1.5	black	upward
TA002/TB002	1.51 - 3.0	silver	upward
TA003/TB003	0 - 1.5	black	downward
TA004/TB004	1.51 - 3.0	silver	downward

Assembling the tips rotated 180° turns upward mounting into downward mounting.

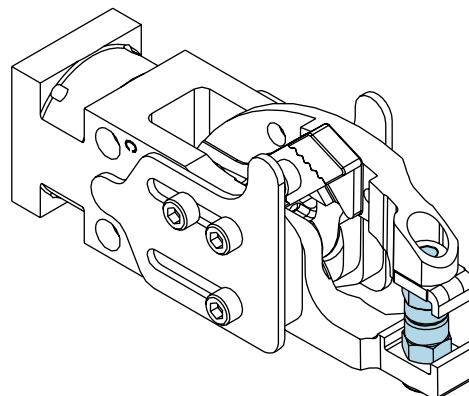


TIP OPTIONS: CLAMP ACCESSORIES

Tx005 to Tx010 NO SCRATCH TIPS (A on Jaw A, B on Jaw B)

No scratch tips reduce the “fines” or flakes generated when transferring galvanized panels. The tips have smooth curved surfaces that grip the panels, but don’t scratch the plating, therefore eliminating most “fines” that cause dirty dies and marked panels.

These tips are a set. The ball tip needs to be matched to a socket tip. Both the ball and socket need to be specified based on the material thickness.



AVAILABLE ON	ACCESSORY
GRM2	TA or TB005, 6, or 7
	TA or TB008, 9, or 10
GRM4	TA or TB005, 6, or 7
	TA or TB008, 9, or 10

A tip must be specified for jaw A and jaw B.

Example Ordering Data:

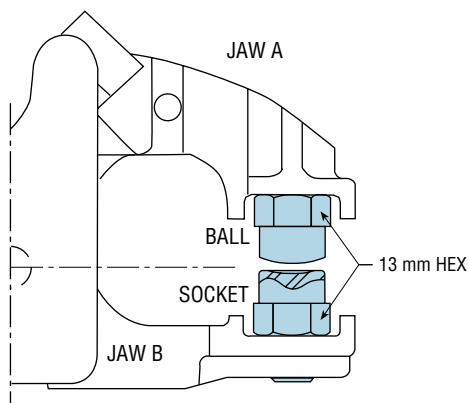
GRM2TS-2-45 **blank** -45 **blank** -LAA -TA008 -TB005

RECOMMENDED TIP COMBINATIONS

STANDARD JAW STYLE				MATERIAL THICKNESS (mm)		
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 4.00
		2 or 4	A	ball	TA	008
B	socket		TB	005	006	007

FLANGE JAW STYLE				MATERIAL THICKNESS (mm)					
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 0.85	.86 to 1.2	1.21 to 1.52	1.53 to 1.94	1.95 to 2.29	2.30 to 2.6
		2xF	A	ball	TA	008	009	010	009
B	socket		TB	005	005	005	006	006	007

SHORT JAW STYLE				MATERIAL THICKNESS (mm)	
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 1.50	1.51 to 3.00
		2xR	A	ball	TA
B	socket		TB	005	006



CLAMP SIZE	CODE TA OR TB KIT NUMBERS					
	005	006	007	008	009	010
2	65100-13	65100-14	65100-15	65100-16	65100-17	65100-18
4	65100-19	65100-20	65100-21	65100-22	65100-23	65100-24

Kit includes:
1 Tip

TIP OPTIONS: CLAMP ACCESSORIES

Tx017

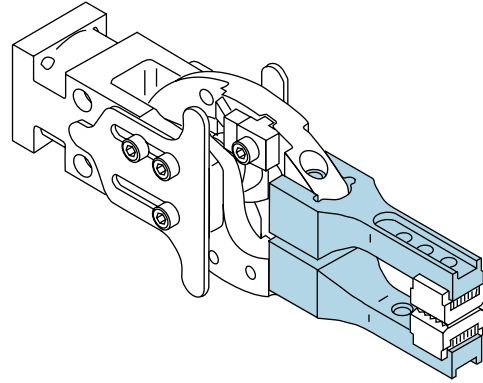
DUCKBILL TIP EXTENSION (A on Jaw A, B on Jaw B)

The Duckbill provides a tip mounting beam that reaches forward to clamp parts in small confined areas. The Duckbill itself mounts to standard jaws, providing a long beam with multiple tip mounting threads in front of the jaw.

Standard tips can be attached to these threads. Tips should be specified normally (black, silver, and gold) for the material thickness on that jaw style. Tips will be mounted on outboard threads as shown.

Available on GRM2.

A Duckbill must be specified on jaw A and jaw B.



Example Ordering Data:

GRM2T **S** -2-45 **SDB** -45 **SDB** -LAA **-TA017** **-TB017**

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	65133-03

Kit includes:
1 Duckbill
1 Mounting Screw

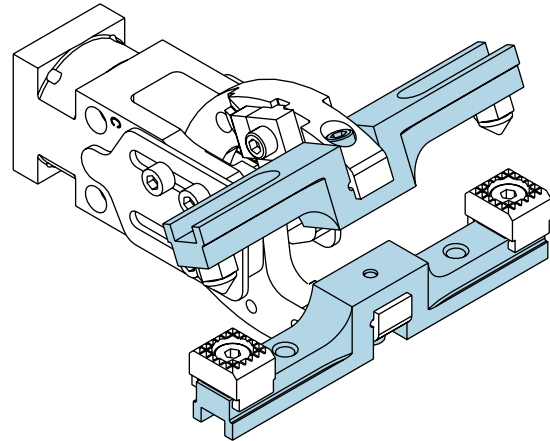
Tx018

WING TIP EXTENSION (A on Jaw A, B on Jaw B)

The wing tip provides a tip mounting beam that reaches sideways, providing a long beam with multiple tip mounting threads on both sides of the clamp. Spreading the tips out, causing less deflection in thin panels, standard tips can be attached at these threads. Tips should be specified normally (black, silver, or gold) for the material thickness on that jaw style. Tips should be ordered separately as kits.

Available on GRM2 and GRM4.

A wing tip must be specified on jaw A and jaw B.



Example Ordering Data:

GRM2T **S** -2-45 **blank** -45 **blank** -LAA **-TA018** **-TB018**

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

If ordering as a kit, modification to impact plates may be required

CLAMP SIZE	KIT NUMBER
2	65134-03
4	65134-04

Kit includes:
1 Wing Tip
1 Mounting Screw
1 Impact Plate modification print

IMPACT PLATE REPLACEMENT KIT THAT REQUIRES NO MODIFICATION

CLAMP SIZE	KIT NUMBER
2	63967-04
4	64638-04

Kit includes:
2 Impact Plates
6 Screws

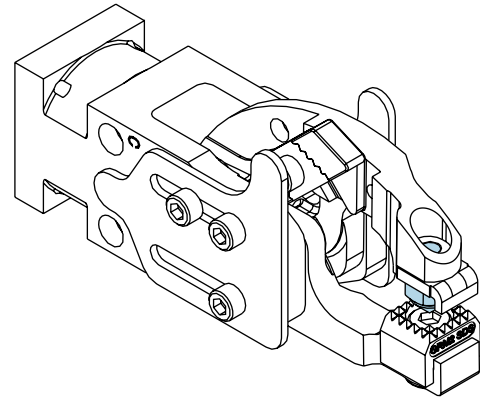
TIP OPTIONS: CLAMP ACCESSORIES

Tx019 to **Tx021** SHARP CONE POINT TIP (A on Jaw A, B on Jaw B)

Sharp cone points have a tip that is very sharp (less than .015 in [0.4 mm]). They should be used with a single diamond tip (SDB, SDS, SDG, or SDR) mounted opposite them or a single chisel (C).

Tips should be specified (black, silver, gold, or red) for the material thickness and jaw style. Sharp cones can be used on jaw A or jaw B.

Available on GRM2 and GRM4.



Example Ordering Data:

GRM2TS-2-45 **blank** **-45** **SDB** **-LAA** **-TA019**

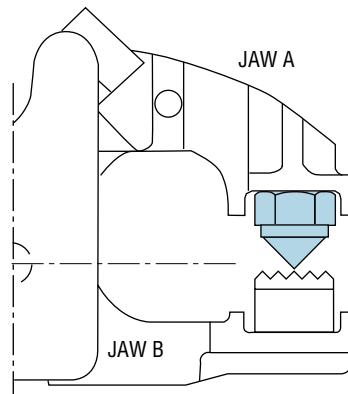
RECOMMENDED TIP COMBINATIONS

STANDARD JAW STYLE			MATERIAL THICKNESS (mm)			
CLAMP SIZE	JAW	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 4.00	4.01 to 4.38
2 or 4	A	TA	019	020	021	021
	B	SDx	SDB	SDS	SDG	SDR

FLANGE JAW STYLE			MATERIAL THICKNESS (mm)						
CLAMP SIZE	JAW	TIP CODE	0 to 0.85	.86 to 1.20	1.21 to 1.52	1.53 to 1.94	1.95 to 2.29	2.30 to 2.60	2.61 to 3.00
2xF	A	TA	019	020	021	020	021	021	021
	B	SDx	SDB	SDB	SDB	SDS	SDS	SDG	SDR

SHORT JAW STYLE			MATERIAL THICKNESS (mm)		
CLAMP SIZE	JAW	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 3.38
2xR	A	TA	019	020	021
	B	SDx	SDB	SDS	SDR

For simplicity, these tables show the sharp cone on jaw A.



REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	CODE TA OR TB KIT NOS. AND PRICES			Kit includes: 1 Tip
	019	020	021	
2	65131-01	65131-02	65131-03	
4	65131-04	65131-05	65131-06	

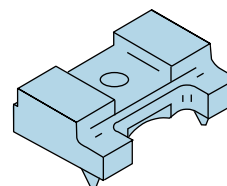
TIP OPTIONS: CLAMP ACCESSORIES

Tx022 to **Tx027** **DOUBLE CONE AND DIAMOND TIP FOR MOUNTING FLAT PROXIMITY SWITCH (A ON JAW A, B ON JAW B)**

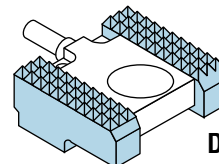
This option provides panel sensing with a diamond tip that mounts and protects a proximity switch (S01) in a very small tip package. A special matching cone point tip (Tx022 - 024) is required. Both diamond and cone point tips mount on standard and flange style jaws, creating a very flexible sensing package. Both the cone point and diamond tip need to be specified based on jaw style and material thickness.

Available on GRM2.

A tip must be specified for jaw A and jaw B.



DOUBLE CONE
Tx022 - 024



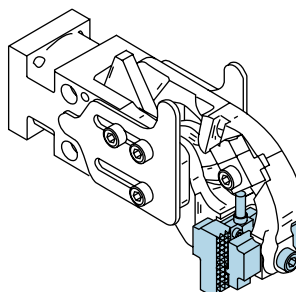
DOUBLE DIAMOND
Tx025 - Tx027

Example Ordering Data:

GRM2TS-2-45 **blank** -45 **blank** -LAA **-S01** **-TA022** **-TB025**

RECOMMENDED TIP COMBINATIONS

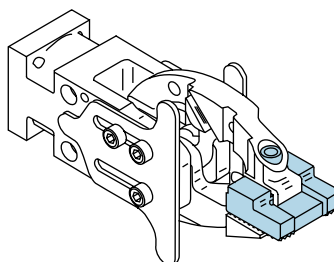
FLANGE JAW STYLE				MATERIAL THICKNESS (mm)						
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 0.85	.86 to 1.2	1.21 to 1.52	1.53 to 1.94	1.95 to 2.29	2.30 to 2.6	
2	A	cone	TA	022	023	024	023	024	024	
	B	diamond	TB	025	025	025	026	026	027	



GRM2TF-2-85-00-S01-TA022-TB025

RECOMMENDED TIP COMBINATIONS

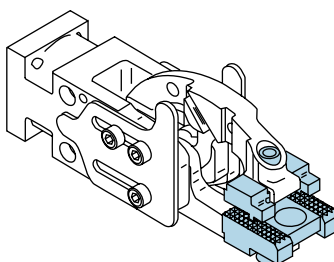
CHISEL JAW STYLE				MATERIAL THICKNESS (mm)		
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 4.00
2	A	diamond	TA	025	026	027



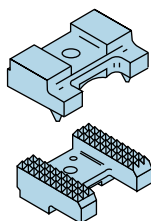
GRM2TD-2-75-00-JB01-S01-TA025
NOTE: JB01 REQUIRED FOR CHISEL JAW

RECOMMENDED TIP COMBINATIONS

STANDARD & SHORT JAW STYLES				MATERIAL THICKNESS (mm)		
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 4.00
2	A	cone	TA	022	023	024
	B	diamond	TB	025	026	027
2xR	A	cone	TA	022	023	—
	B	diamond	TB	025	026	—



GRM2TS-2-75-00-S01-TA022-TB025
or **GRM2TS-2-75-75-S01-TA022-TB025**



OPTION	TIP COLOR	KIT NO.
Tx022	black	65136-04
Tx023	silver	65136-05
Tx024	gold	65136-06
Tx025	black	65136-07
Tx026	silver	65136-08
Tx027	gold	65136-09

Kit includes:
1 Tip
1 Mounting Screw

Kit includes:
1 Tip
1 Mounting Screw and Washer

TIP OPTIONS: CLAMP ACCESSORIES

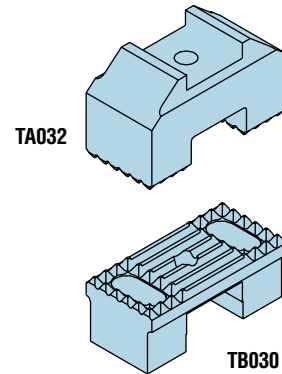
Tx030 to Tx033 SHORT & LONG OFFSET TIP (A ON JAW A, B ON JAW B)

Offset tips are double diamonds with the gripping surface shifted off the centerline providing more clearance to clamp panels with flanges up to 1.125 in [28.5 mm] long. These tips are a set and must be used as a pair. The short tip -030 is used for all material thicknesses. The long tip, -031, -032, or 033 is specified based on the material thickness.

Tx030 to Tx033 accessories are only available for GRM2xK and GRM2xS. Tx030 to Tx032 are only available for GRM2xR clamps.

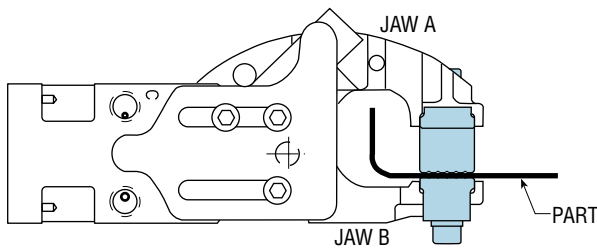
Available on GRM2.

A tip must be specified for jaw A and jaw B.



Example Ordering Data:

GRM2T **S** -2-45 **blank** -45 **blank** -LAA -TA031 -TB030



CLAMP SIZE	KIT NUMBER	TYPE	CODE	MATERIAL THICKNESS (mm)	TIP COLOR
2	65405-03	long	TA or TB031	0 - 1.5	black
	65405-04	long	TA or TB032	1.51 - 3.0	silver
	65405-05	long	TA or TB033	3.01 - 4.0	gold
2xR	65405-03	long	TA or TB031	0 - 1.5	black
	65405-04	long	TA or TB032	1.51 - 3.0	silver

Kit includes:

- 1 Short Tip -Tx030
- 1 Long Tip specified -Tx031 through Tx033
- 2 Mounting Screws
- 1 Washer

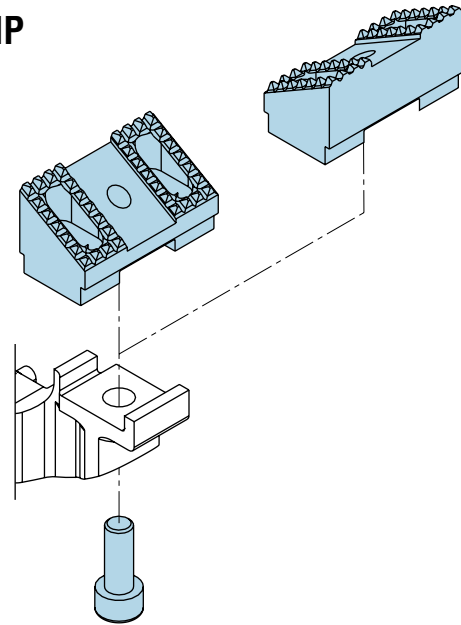
TIP OPTIONS: CLAMP ACCESSORIES

Tx034 to Tx039 30° DOUBLE DIAMOND TIP (A ON JAW A, B ON JAW B)

This option provides double diamond tips with the gripping surface on a 30° angle. The tips can be used to grip angled surfaces while keeping the clamp parallel, decreasing the space required by the clamp. These tips are a set and must be used as a pair.

Tx034 to Tx039 accessories are only available for GRM2xK and GRM2xS clamps. Tx034, Tx035, Tx037, and Tx038 are only available for GRM2xR clamps. Tx037 to Tx039 (downward mounting) are not available for GRM2xF clamps. For other GRM2xF applications, consult PHD.

Available on GRM2.



Example Ordering Data:

GRM 2 TS-2-45 blank -45 blank -LAA -TA034 -TB034

FOR K AND S JAW STYLES

TIP OPTION	MATERIAL THICKNESS (mm)	TIP COLOR	MOUNTING ORIENTATION
TA034/TB034	0 - 1.5	black	upward
TA035/TB035	1.51 - 3.0	silver	upward
TA036/TB036	3.01 - 4.0	gold	upward
TA037/TB037	0 - 1.5	black	downward
TA038/TB038	1.51 - 3.0	silver	downward
TA039/TB039	3.01 - 4.0	gold	downward

FOR R JAW STYLE

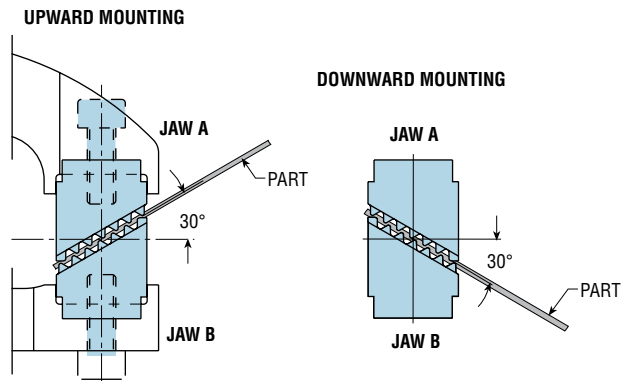
TIP OPTION	MATERIAL THICKNESS (mm)	TIP COLOR	MOUNTING ORIENTATION
TA034/TB034	0 - 1.5	black	upward
TA035/TB035	1.51 - 3.0	silver	upward
TA037/TB037	0 - 1.5	black	downward
TA038/TB038	1.51 - 3.0	silver	downward

Assembling the tips rotated 180° turns upward mounting into downward mounting.

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER	TIP COLOR
2	65149-03	black
2	65149-04	silver
2	65149-05	gold

Kit includes:
1 30° Double Diamond Tip
1 Mounting Screw



TIP OPTIONS: CLAMP ACCESSORIES

Tx040 to **Tx041**

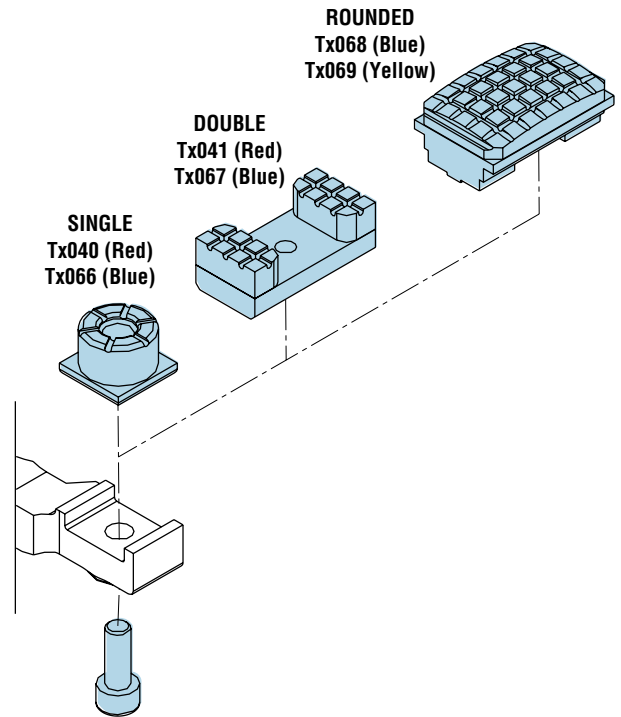
Tx066 to **Tx069**

HARD URETHANE TIPS (A ON JAW A, B ON JAW B)

This option provides harder urethane tips. They are made from 93 Durometer Shore A colored red and 85 Durometer Shore A colored blue or yellow for easy identification. These tips provide greater resistance to panel slippage and more resistance to wear than our standard 75 Durometer black tips (DUB or SUB). All dimensions and mounting hardware are identical to the standard urethane tips. These tips accommodate 0 to 3.0 mm material thickness on all jaw styles, except on flange jaws.

AVAILABLE ON	ACCESSORY
GRM2	TA040 or TB040 TA066 or TB066
GRM4	TA040 or TB040
GRM2	TA041 or TB041 TA067 or TB067
GRM4	TA041 or TB041
GRM2	TA068 or TB068 TA069 or TB069

A tip must be specified for jaw A and jaw B.



Example Ordering Data:

GRM2TS-2-45 **blank** -45 **blank** -LAA **-TA041** **-TB041**

RECOMMENDED TIP COMBINATION

When Used With Panel Present Or Double Sheet Options

ACCESSORY CODE	MATERIAL THICKNESS (mm)				
	GRM2xS	GRMxC	GRMxD	GRMxF	GRMxR
Tx040, Tx041, Tx066, Tx067, Tx068	0 - 3.0	0 - 3.0	0 - 3.0	0 - 2.0	0 - 2.25
Tx069	0 - 3.0	0 - 3.0	0 - 3.0	0 - 2.0	—

KIT NUMBERS IF ORDERED SEPARATELY

SIZE	OPTION	STYLE	TIP COLOR	DUROMETER	KIT NO.
2	Tx040	single	red	93 Shore A	65163-03
4	Tx040	single	red	93 Shore A	65163-05
2	Tx041	double	red	93 Shore A	65163-04
4	Tx041	double	red	93 Shore A	65163-06
2	Tx066	single	blue	85 Shore A	65163-07
2	Tx067	double	blue	85 Shore A	65163-08
2	Tx068	rounded	blue	85 Shore A	65174-05
2	Tx069	rounded	yellow	85 Shore A	65174-08

Kit includes:

- 1 Hard Urethane Tip
- 1 Mounting Screw

K AND S JAW STYLES				MATERIAL THICKNESS (mm)	
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	.70 to 1.50	1.51 to 3.00
2	A	rounded	TA	069	068
	B	rounded	TB	069	068

R JAW STYLE				MATERIAL THICKNESS (mm)	
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	.70 to 1.50	
2	A	rounded	TA	068	
	B	rounded	TB	068	

F JAW STYLE				MATERIAL THICKNESS (mm)		
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	.70 to 1.20	1.21 to 1.52	1.53 to 1.90
2	A	rounded	TA	069	068	068
	B	rounded	TB	069	069	068

TIP OPTIONS: CLAMP ACCESSORIES

Tx042 to **Tx047** **DOUBLE NO SCRATCH TIPS FOR MOUNTING FLAT PROXIMITY SWITCH (A on Jaw A, B on Jaw B)**

No scratch double tips reduce the “fines” or flakes generated when transferring galvanized panels. The tips have smooth curved surfaces that grip the panels but don’t scratch the plating and therefore eliminate most fines that cause dirty dies and marked panels.

They allow panel sensing by providing a protected mounting location for the (S01) proximity switch. Both round and flat tips mount on standard and flange style jaws, creating a very flexible sensing package. These tips are a set. The round tip needs to be matched to a flat tip. Both the round and flat tip need to be specified based on jaw style and material thickness.

Available on GRM2.

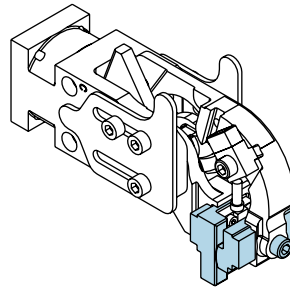
A tip must be specified for jaw A and jaw B.

Example Ordering Data:

GRM2TS-2-45 **blank** -45 **blank** -LAA **-S01** **-TA042** **-TB045**

RECOMMENDED TIP COMBINATION

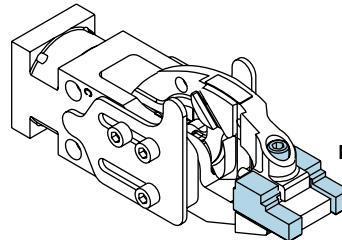
FLANGE JAW STYLE			MATERIAL THICKNESS (mm)						
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to .85	.86 to 1.2	1.21 to 1.52	1.53 to 1.94	1.95 to 2.29	2.30 to 2.6
2	A	rounded	TA	042	043	044	043	044	044
	B	flat	TB	045	045	045	046	046	047



GRM2TF-2-85-00-S01-TA042-TB045

RECOMMENDED TIP COMBINATION

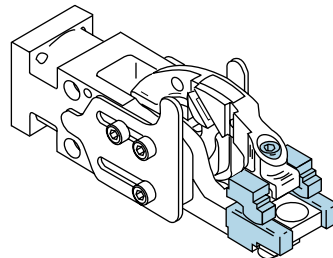
STANDARD JAW STYLE			MATERIAL THICKNESS (mm)			
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 4.00
2	A	flat	TA	042	043	044



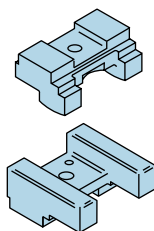
GRM2TD-2-75-00-JB01-S01-TA045
NOTE: JB01 REQUIRED FOR CHISEL JAW

RECOMMENDED TIP COMBINATION

STANDARD & SHORT JAW STYLES			MATERIAL THICKNESS (mm)			
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 4.00
2	A	rounded	TA	042	043	044
	B	flat	TB	045	046	047
2xR	A	rounded	TA	042	043	—
	B	flat	TB	045	046	—



GRM2TS-2-75-00-S01-TA042-TB045



OPTION	TIP COLOR	KIT NO.
Tx042	black	65151-04
Tx043	silver	65151-05
Tx044	gold	65151-06
Tx045	black	65151-07
Tx046	silver	65151-08
Tx047	gold	65151-09

Kit includes:

- 1 Tip
- 1 Mounting Screw

Kit includes:

- 1 Tip
- 1 Mounting Screw and Washer

TIP OPTIONS: CLAMP ACCESSORIES

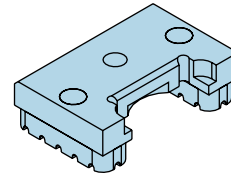
Tx052 or **Tx055**

DOUBLE URETHANE TIPS FOR MOUNTING FLAT PROXIMITY SWITCH (A on Jaw A, B on Jaw B)

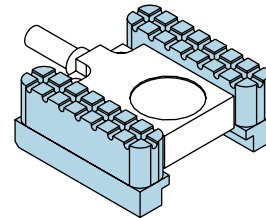
This option provides panel sensing with a double urethane tip that mounts and protects a proximity switch (S01) in a very small package. A special matching shorter urethane tip (Tx052) is required. Urethane tips eliminate marks in show surfaces. Both short and long tips mount on standard and flange style jaws, creating a very flexible sensing package. These tips are a set. The short tip needs to be matched to a long tip.

Available on GRM2.

A tip must be specified for jaw A and jaw B.



DOUBLE URETHANE (SHORT) Tx052



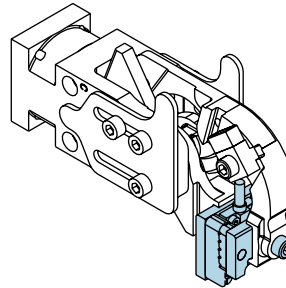
DOUBLE URETHANE (LONG) Tx055

Example Ordering Data:

GRM2TS-2-45 **blank** -45 **blank** -LAA -S01 -TA052 -TB055

RECOMMENDED TIP COMBINATION

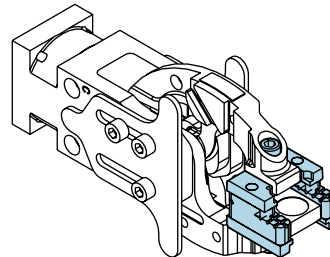
FLANGE JAW STYLE				MATERIAL THICKNESS (mm)	
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 2.00	
2	A	short	TA	052	
	B	long	TB	055	



GRM2TF-2-85-00-S01-TA052-TB055

RECOMMENDED TIP COMBINATION

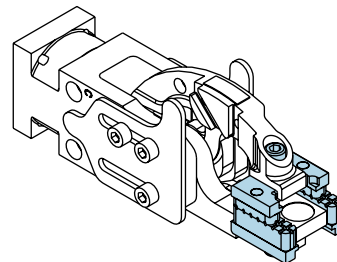
STANDARD JAW STYLE				MATERIAL THICKNESS (mm)	
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 3.00	
2	A	short	TA	052	
	B	long	TB	055	



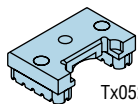
GRM2TS-2-75-75-S01-TA052-TB055

RECOMMENDED TIP COMBINATION

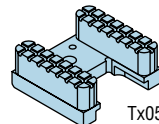
STANDARD & SHORT JAW STYLES				MATERIAL THICKNESS (mm)	
CLAMP SIZE	JAW	TIP TYPE	TIP CODE	0 to 2.25	0 to 3.00
2	A	short	TA	—	052
	B	long	TB	—	055
2xR	A	short	TA	052	—
	B	long	TB	055	—



GRM2TS-2-75-00-S01-TA052-TB055



Tx052



Tx055

OPTION	TIP COLOR	KIT NO.
Tx052	red	65150-04
Tx055	red	65150-05

Kit includes:

- 1 Tip
- 1 Mounting Screw

TIP OPTIONS: CLAMP ACCESSORIES

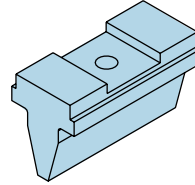
Tx060 to **Tx061** DRAWBEAD AND OFFSET TIP (A on Jaw A, B on Jaw B)

The drawbead tip is a double tip that is shaped similar to the inside of a drawbead. This shape allows it to transfer the panels by gripping the center of the drawbead. The opposite tip is a short double diamond that grips the other side of the panel. These tips grip the bottom of the drawbead (not the sides), so material thickness is needed. These tips are a set; the short diamond tip -030 is used for all material thicknesses. The long drawbead tip, -060 and -061, is specified based on the material thickness. Available for GRM2xK, GRM2xR, and GRM2xS jaw styles only.

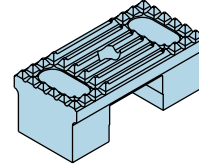
Available on GRM2.

A tip must be specified for jaw A and jaw B.

DRAWBEAD
Tx060 - 061



SHORT OFFSET DIAMOND
Tx030

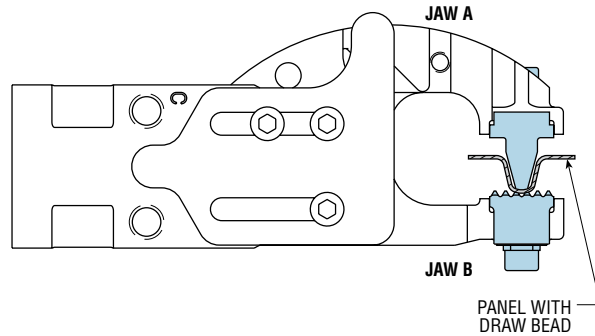


Example Ordering Data:

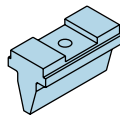
GRM2T **S** -2-45 **blank** -45 **blank** -LAA **-TA060** **TB030**

RECOMMENDED TIP COMBINATION

CLAMP SIZE	K, R, & S JAW STYLES		MATERIAL THICKNESS (mm)	
	JAW	TIP TYPE	TIP CODE	
2	A	drawbead	TA	0 to 1.50
	B	diamond	TB	1.51 to 3.00

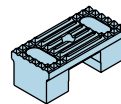


DRAWBEAD
Tx060 - 061



Kit includes:
1 Drawbead Tip
1 Mounting Screw

SHORT OFFSET DIAMOND
Tx030



Kit includes:
1 Offset Tip
1 Mounting Screw and Washer

FOR STANDARD JAW STYLES ONLY

CLAMP SIZE	KIT NUMBER	TYPE	CODE	MATERIAL THICKNESS (mm)	TIP COLOR
2	65171-03	long	TA or TB060	0 - 1.5	black
	65171-04	long	TA or TB061	1.51 - 3.0	silver
	65405-06	short	TA or TB030	0 - 3.0	black

TIP OPTIONS: CLAMP ACCESSORIES

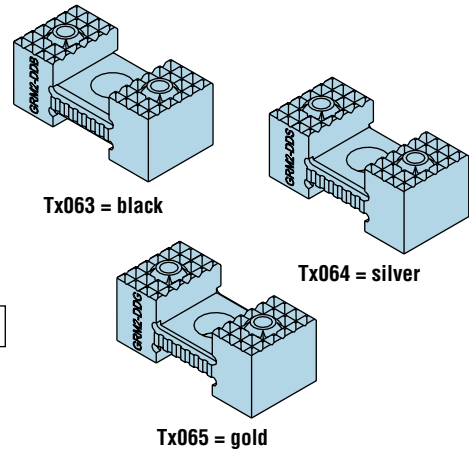
Tx063 to Tx065 SHARP DOUBLE CONE POINT TIP (A on Jaw A, B on Jaw B)

Sharp cone points have a tip that is very sharp (less than .015 in [0.4 mm]). They should be used with a double diamond tip (DDB, DDS, or DDG) mounted opposite them or a chisel or shovel jaw.

Tips should be specified (black, silver, or gold) for the material thickness and jaw style. Sharp cones can be used on jaw A or jaw B. Available on GRM2.

Example Ordering Data:

GRM2S **S** -2-45 **blank** -45 **blank** -LAA **-TA063** **-TB063**



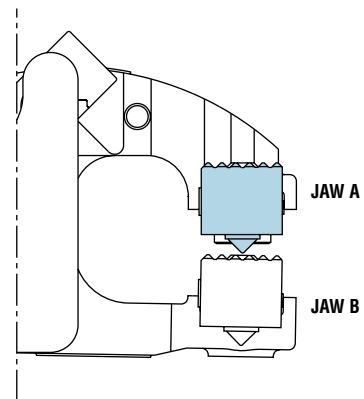
RECOMMENDED TIP COMBINATION

For simplicity, these tables show the sharp cone point tip on jaw A.

STANDARD JAW STYLE			MATERIAL THICKNESS (mm)			
CLAMP SIZE	JAW	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 4.00	4.01 to 4.38
2	A	TA	063	064	065	065
	B	DDx	DDB	DDS	DDG	DDR

SHORT JAW STYLE			MATERIAL THICKNESS (mm)		
CLAMP SIZE	JAW	TIP CODE	0 to 1.50	1.51 to 3.00	3.01 to 3.38
2xR	A	TA	063	064	065
	B	DDx	DDB	DDS	DDR

FLANGE JAW STYLE			MATERIAL THICKNESS (mm)						
CLAMP SIZE	JAW	TIP CODE	0 to 0.85	.86 to 1.20	1.21 to 1.52	1.53 to 1.94	1.95 to 2.29	2.30 to 2.60	2.61 to 3.00
2	A	TA	063	064	065	064	065	065	065
	B	DDx	DDB	DDB	DDB	DDS	DDS	DDG	DDR



If sharp cones are ordered on jaw A & B, they will be mounted as shown.

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	CODE TA OR TB KIT NOS.		
	063	064	065
2	71231-03	71231-04	71231-05

Kit includes:
1 Tip
1 Mounting Screw

TIP OPTIONS: CLAMP ACCESSORIES

Tx071 to Tx082 15° SINGLE OR DOUBLE DIAMOND TIP (A on Jaw A, B on Jaw B)

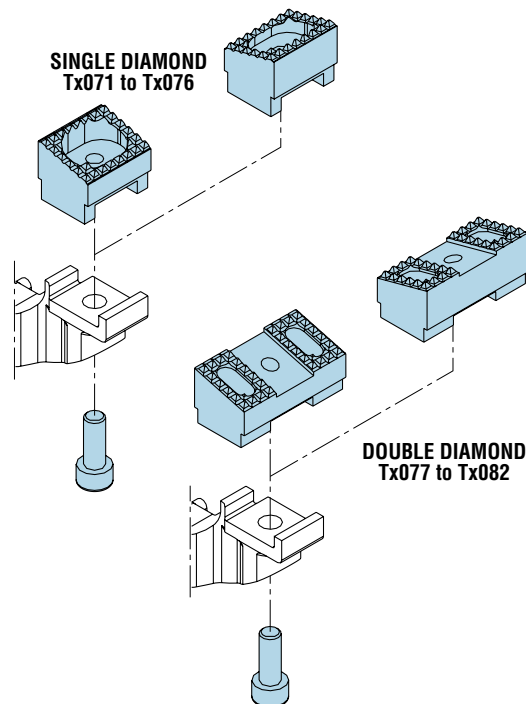
This option provides single or double diamond tips with the gripping surface on a 15° angle. The tips can be used to grip angled surfaces while keeping the clamp parallel, decreasing the space required by the clamp. These tips are a set and must be used as a pair.

Tx071 to Tx082 accessories are only available for GRM2xK and GRM2xS clamps. Tx071, Tx072, Tx074, Tx075, Tx077, Tx078, Tx080, and Tx081 are only available for GRM2xR clamps. Tx074 to Tx076 and Tx080 to Tx082 (downward mounting) are not available for GRM2xF clamps. For other GRM2xF applications, consult PHD.

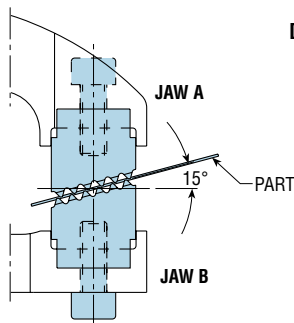
Available on GRM2.

Example Ordering Data:

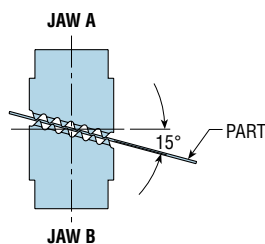
GRM 2 TS-2-45 blank -45 blank -LAA -TA071 -TB071



UPWARD MOUNTING



DOWNWARD MOUNTING



Assembling the tips rotated 180° turns upward mounting into downward mounting.

FOR K AND S JAW STYLES

TIP OPTION	MATERIAL THICKNESS (mm)	TIP COLOR	TIP STYLE	MOUNTING ORIENTATION
TA071/TB071	0 - 1.5	black	single	upward
TA072/TB072	1.51 - 3.0	silver	single	upward
TA073/TB073	3.01 - 4.0	gold	single	upward
TA074/TB074	0 - 1.5	black	single	downward
TA075/TB075	1.51 - 3.0	silver	single	downward
TA076/TB076	3.01 - 4.0	gold	single	downward
TA077/TB077	0 - 1.5	black	double	upward
TA078/TB078	1.51 - 3.0	silver	double	upward
TA079/TB079	3.01 - 4.0	gold	double	upward
TA080/TB080	0 - 1.5	black	double	downward
TA081/TB081	1.51 - 3.0	silver	double	downward
TA082/TB082	3.01 - 4.0	gold	double	downward

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	OPTION	TIP STYLE	TIP COLOR	KIT NUMBER
2	Tx071, Tx074	single	black	71229-03
2	Tx072, Tx075	single	silver	71229-04
2	Tx073, Tx076	single	gold	71229-05
2	Tx077, Tx080	double	black	71229-06
2	Tx078, Tx081	double	silver	71229-07
2	Tx079, Tx082	double	gold	71229-08

Kit includes: 1 15° Single or Double Diamond Tip
1 Mounting Screw

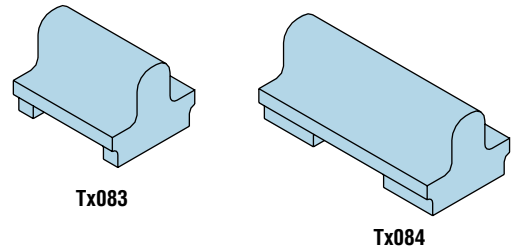
FOR R JAW STYLE

TIP OPTION	MATERIAL THICKNESS (mm)	TIP COLOR	TIP STYLE	MOUNTING ORIENTATION
TA071/TB071	0 - 1.5	black	single	upward
TA072/TB072	1.51 - 3.0	silver	single	upward
TA074/TB074	0 - 1.5	black	single	downward
TA075/TB075	1.51 - 3.0	silver	single	downward
TA077/TB077	0 - 1.5	black	double	upward
TA078/TB078	1.51 - 3.0	silver	double	upward
TA080/TB080	0 - 1.5	black	double	downward
TA081/TB081	1.51 - 3.0	silver	double	downward

TIP OPTIONS: CLAMP ACCESSORIES

Tx083 to Tx084 SINGLE OR DOUBLE DRAWBEAD TIP (A on Jaw A, B on Jaw B)

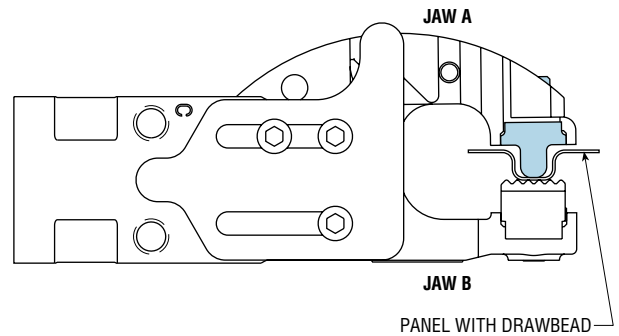
The drawbead tip is a single or double tip that is shaped similarly to the inside of a drawbead. This shape allows the clamp to transfer panels by gripping the center of the drawbead. The opposite tip is a standard single or double diamond point tip on K, R, and S jaw styles. Standard tips must be called out in the model number and specified (black, silver, or gold) for the material thickness. Single and double diamond point tips are not required on C, D, H, J, L, and M jaw styles. Available on GRM2.



Example Ordering Data:

GRM2T **S** -2-45 **blank** -45 **SDB** -LAA **-TA083**

GRM2T **M** -2-45 **blank** -00 -LAA **-TA084**



RECOMMENDED TIP COMBINATION

CLAMP SIZE	K, R, S JAW STYLES			MATERIAL THICKNESS (mm)	
	JAW	TIP TYPE	TIP CODE	0 to 3.00	0 to 3.00
2	A	drawbead	TA	083	084
	B	diamond	—	SDB	DDB

CLAMP SIZE	C, D, H, J, L, M JAW STYLES			MATERIAL THICKNESS (mm)	
	JAW	TIP TYPE	TIP CODE	0 to 3.00	0 to 3.00
2	A	drawbead	TA	083	084

REPLACEMENT KIT NUMBERS IF ORDERED SEPARATELY

CLAMP SIZE	OPTION	TIP STYLE	KIT NUMBER
2	Tx083	Single	75646-03
	Tx084	Double	75646-04

Kit includes:

- 1 Drawbead Tip
- 1 Mounting Screw

SEAL OPTIONS: CLAMP ACCESSORIES

- Vx

SEAL OPTIONS
V2 - Fluoro-elastomer seals for fluid compatibility

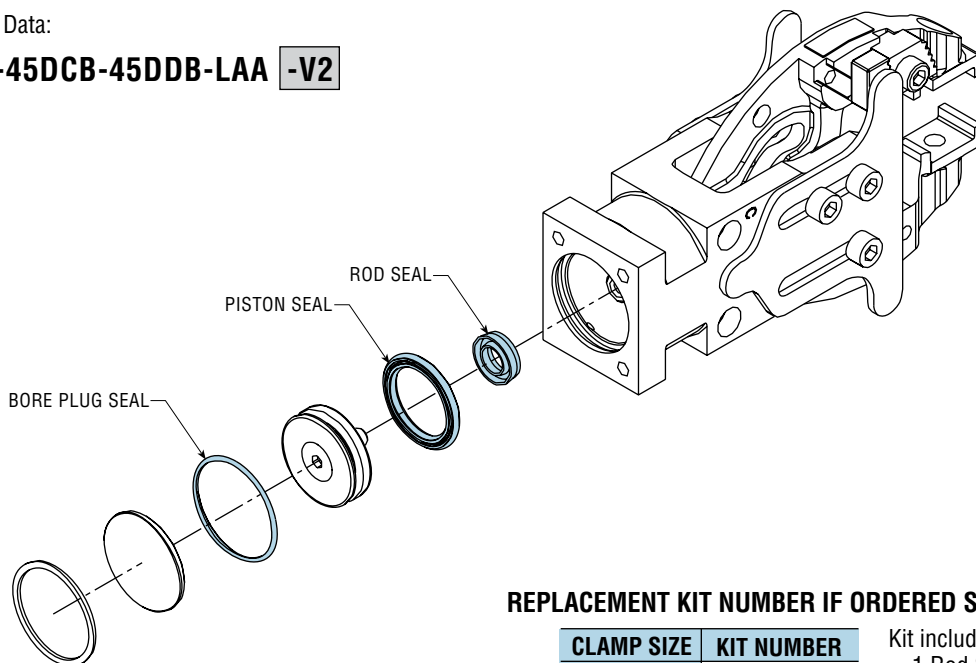
V2 FLUORO-ELASTOMER SEALS FOR FLUID COMPATIBILITY

This option provides a Series GRM Clamp with fluoro-elastomer seals that are compatible with certain fluids. Seal compatibility should be checked with the fluid manufacturer for proper application. **This option is not for high temperature applications.** Consult PHD Clamp Division for high temperature applications.

Available on GRM2.

Example Ordering Data:

GRM **2** TS-2-45DCB-45DDB-LAA **-V2**



REPLACEMENT KIT NUMBER IF ORDERED SEPARATELY

CLAMP SIZE	KIT NUMBER
2	65498-03
GRM2-B08	65498-04
GRM2-B08A	65498-04

Kit includes:
1 Rod Seal
1 Piston Seal
1 Bore Plug Seal

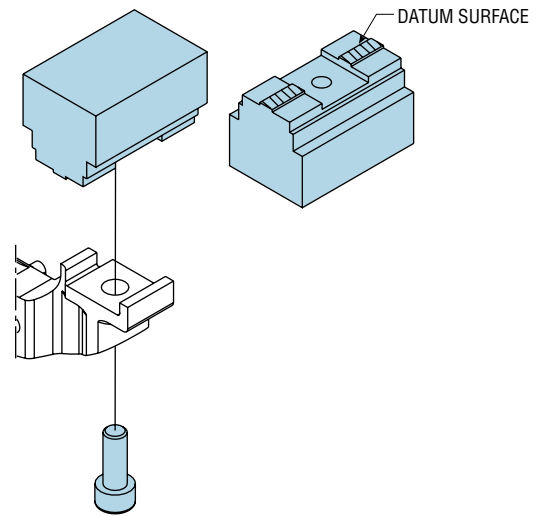
KITS (CUSTOMER MOUNTED): CLAMP ACCESSORIES

MACHINEABLE TIPS (STEEL & URETHANE)

This customer-mounted tip provides a steel or urethane blank that can be machined to match panel contours. It has extra stock on all sides, so it can be fitted to many applications. The steel blank is made of unplated 4140 steel hardened to 27 - 32 Rc, and coated with a rust preventative oil dip, it can be machined and used as is or sent out for additional hardening and plating. The 90 Durometer red urethane blank is bonded to a steel interface that includes the mounting thread. Care should be taken when using these tips to ensure the jaws close to the correct dimension, so that full grip force and the locking feature are achieved. Do this by contouring both tips to match the panel's shape and thickness so that the dimension measured from the datum surface on back of one tip (including the panel) to the datum surface on the other tip is within the range specified. This tip can be mounted on moving and fixed standard and flange jaws.

CLAMP SIZE	KIT	
	NUMBER	MATERIAL
2	65174-03	Steel
2	65174-04	Urethane

Kit includes:
1 Machineable Tip
1 Mounting Screw



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