Modular Gripping Products

Introduction

GR84 Enclosed Modular Mini-Clamp
- Offers several different jaw and tip options.
- Can be flange or cylinder mounted.
- High clamping force and fast opening and closing action.
- Locking Mechanism holds the part if air pressure is lost.
- Protected from contaminates.

GR1 Modular Gripper
- Can be flange or cylinder mounted.
- Offered in two cylinder sizes, 15 and 20 Series.
- Offered with several different jaw opening and point options.
- High clamping force and fast opening and closing action.
- Locking mechanism holds the part if air pressure is lost.

84A2 Modular CAM Style Gripper
- Offered with several different jaw opening and point options.
- High speed material movement in restricted spaces.
- High clamping force and fast opening and closing action.
- Roller and cam principal, self-locking at end stop position.
- Multiple mounting and jaw opening options.
- Small size, low weight.
GR1 Series Modular Gripper
Ordering Information

**MODEL**  **SERIES**  **CYLINDER**  **JAW ARRANGEMENT**

GR1 15 BE 045

**CYLINDER TYPE & PORTING**

**STEP 1**  **B E CYLINDER TYPE**

- **B** FLANGE BASE
- **E** ROUND CYLINDER

**STEP 2**  **B E CYLINDER PORTS**

- **B** ENGLISH (1/8 NPT)
- **E** METRIC (1/8 G)

**JAW ARRANGEMENT OPTIONS**

- **045** 45° ANGULAR
- **45C** 45° CHISEL
- **FCH** 45° FIXED CHISEL
- **9DJ** 90° DROP JAW
- **90F** 90° FIXED LOWER
- **9FS** 90° FIXED LOWER LIMITED STROKE
- **180** 180° ANGULAR

**PATENT#S** 6,619,182, 6,988,696, 6,361,095
GR1 Series Modular Gripper
Ordering Information

INSERTS  MOUNTS  PART PRESENT  OPEN/CLOSED
-  DPP  -  MXX  -  XXX  -  XXX

POINTS & TIP INSERT OPTIONS

STEP 1
D P P  POINT TIP OPTION  X = OMIT
SINGLE POINT  DOUBLE POINT

STEP 2
D P P  UPPER TIP INSERT OPTION  X = OMIT
POINT  CUP  URETHANE  SERRATED

STEP 3
D P P  LOWER TIP INSERT OPTION  X = OMIT

MOUNT OPTIONS

STEP 1
M X X  MOUNT TYPE  X = OMIT
PARALLEL SWIVEL MOUNT  REAR SWIVEL CLAMP MOUNT  REAR FIXED WELDED STYLE  REAR FIXED CLAMP MOUNT

STEP 2
M X X  MOUNT BALL/ROD SIZE  X = OMIT
1 = 1.00” W/METRIC FASTENERS  2 = 1.25” W/METRIC FASTENERS  3 = 25MM METRIC FASTENERS
4 = 30MM BODYBUILDER/METRIC  5 = 1.50” (TYPE C ONLY)  6 = 40MM (TYPE C ONLY)
7 = M1514 (TYPE D ONLY)

PART PRESENT
(SEE PAGE 40 FOR SENSOR SPECIFICATIONS)
A04 = TURCK (4-PIN)  P03 = P & F (4-PIN)  XXX = NO SENSOR

OPEN/CLOSED
(SEE PAGE 42 FOR SENSOR SPECIFICATIONS)
T04 = INTERNAL SENSOR  XXX = NO SENSOR

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GR1 Series Modular Gripper

“045” 45° Angular Jaw Arrangement - Single and Double Insert

**SINGLE INSERT OPTION**

5/16-24 UNF-2A

- [2.44] (Ø61.9)
- 28.6 [1.13]
- 36.9 [1.45]
- 84.5 [3.32]

**DOUBLE INSERT OPTION**

5/16-24 UNF-2A X2

- [2.31] (58.7)
- [1.13] (28.6)
- [1.45] (36.9)
- [3.33] (84.5)

**PATENT# 6,361,095**

For Limited Stroke Option

1. Loosen fasteners securing gripper body from cylinder.
2. Pull gripper body away so fasteners clear the spacer.
3. Rotate Spacer 90° (Fig. 2).
4. Reattach gripper body to cylinder and tighten fasteners.

**Fig. 1**

**Fig. 2**
Modular Gripping Products

GR1 Series Modular Gripper

“45C” 45° Chisel Lower Jaw Arrangement - Single and Double Insert

For Limited Stroke Option

1. Loosen fasteners securing gripper body from cylinder.
2. Pull gripper body away so fasteners clear the spacer.
3. Rotate Spacer 90° (Fig. 2).
4. Reattach gripper body to cylinder and tighten fasteners.

Fig. 1 Fig. 2
GR1 Series Modular Gripper

“FCH” Fixed Chisel Jaw Arrangement - Single and Double Insert

For Limited Stroke Option

1. Loosen fasteners securing gripper body from cylinder.
2. Pull gripper body away so fasteners clear the spacer.
3. Rotate Spacer 90° (Fig. 2).
4. Reattach gripper body to cylinder and tighten fasteners.
GR1 Series Modular Gripper

“9DJ” 90° Drop Jaw Arrangement - Single and Double Insert

SINGLE INSERT OPTION

DOUBLE INSERT OPTION

For Limited Stroke Option

1. Loosen fasteners securing gripper body from cylinder.
2. Pull gripper body away so fasteners clear the spacer.
3. Rotate Spacer 90° (Fig. 2).
4. Reattach gripper body to cylinder and tighten fasteners.

PATENT# 6,361,095
GR1 Series Modular Gripper

“180°” 180° Angular Jaw Arrangement - Double Insert

Limited Stroke Ring is NOT Available
GR1 Series Modular Gripper

“180” 180° Angular Jaw Arrangement - Single Insert

SINGLE INSERT OPTION WITH TIP RISERS FOR TIP BLOCK INSERTS

Tip Risers for Block Inserts

Replacement Part #

GR0314-TR
GR1 Series Modular Gripper

“90F” and “9FS” Fixed Lower Jaw Arrangement - Double Insert

DOUBLE INSERT OPTION

“90F” OPENING JAW POSITION (50°)

“9FS” OPENING JAW POSITION (25°)

Limited Stroke Ring is NOT Available
GR1 Series Modular Gripper
Grip Force and Technical Information

045/45C/FCH

“045” 45° Angular
Weight: 1 kg [2.2 lb]
Grip Range: 0”- 0.125” [0 - 3mm]

“45C” 45° Chisel
Weight: 1 kg [2.2 lb]
Grip Range: 0”- 0.063” [0 - 1mm]

“FCH” 45° Fixed Chisel
Weight: 1 kg [2.2 lb]
Grip Range: 0”- 0.063” [0 - 1mm]

9DJ

“9DJ” 90° Drop Jaw
Weight: 1 kg [2.2 lb]
Grip Range: 0”- 0.125” [0 - 3mm]

90F/9FS

“90F” 90° Fixed Lower
Weight: 1.1 kg [2.6 lb]
Grip Range: 0”- 0.125” [0 - 3mm]

“9FS” 90° Fixed Lower with Limited Stroke
Weight: 1.1 kg [2.6 lb]
Grip Range: 0”- 0.125” [0 - 3mm]

180

“180” 180° Angular
Weight: 1.2 kg [2.7 lb]
Grip Range: 0”- 0.125” [0 - 3mm]

Technical Information
(for all GR1 Gripper Jaw Styles)

Air Requirements:
Recommended operationg Pressure: 2-6 bar [30-90 psi]
Ports: 1/8” BSPP [1/8” NPT]
Air flow controls recommended for maximum life
Operating Temperature: 0° - 93°C [32° - 200°F]
GR1 Series Modular Gripper

“Bx” Flange Base Cylinder

OPEN GRIPPER PORT
CLOSED GRIPPER PORT

150 SERIES
“RJM” REAR GRIPPER MOUNT SURFACE

150 SERIES
“GPC” GRIPPER PARALLEL CLAMP LOCK GROOVE

 Ø38.1 [Ø1.50”] BORE CYLINDER

GRIPPER HEAD MOUNTING SURFACE

CLOSED GRIPPER PORT
(OPTIONAL FOR LARGER AIR FITTINGS)

STROKE TRAVEL

OPEN GRIPPER PORT
CLOSED GRIPPER PORT

150 SERIES
“GPC” GRIPPER PARALLEL CLAMP LOCK GROOVE

Ø38.1 [Ø1.50”] BORE CYLINDER

GRIPPER HEAD MOUNTING SURFACE

OPEN GRIPPER PORT
CLOSED GRIPPER PORT

150 SERIES
“GPC” GRIPPER PARALLEL CLAMP LOCK GROOVE

Ø38.1 [Ø1.50”] BORE CYLINDER

MINI CLAMP/GRIPPER HEAD MOUNTING SURFACE

Replacement Part #
GR1-CYL-B

Replacement Part #
GR1-CYL-C

CYLINDER PORTS
E = 1/8” NPT (ENGLISH)
M = 1/8” G (METRIC)

PATENT# 6,619,182

PATENT# 6,619,182

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Modular Gripping Products

GR1 Series Modular Gripper

“P”, “C”, “S”, “U” Jaw Inserts

**“P”**
- **Point Jaw Inserts**
- **Replacement Part #** GR0304

**“C”**
- **Cup Jaw Inserts**
- **Replacement Part #** GR0305

**“S”**
- **Serrated Jaw Inserts**
- **Replacement Part #** GR0341

**“U”**
- **Urethane Jaw Inserts**
- **Replacement Part #** GR0338
GR1 Series Modular Gripper
“S30” and “D30” 30° Angle Serrated Block Inserts

“S30” Single Upper/Lower 30° Angle Insert Block
Replacement Part #
GR1-INS-SD30S

“D30” Double Upper/Lower 30° Angle Insert Block
Replacement Part #
GR1-INS-D30S

“SOF” and “DOF” Offset Serrated Block Inserts

“SOF” Single Upper Offset Insert Block
Replacement Part #
GR1-INS-SDUOS

“SOF” Single Lower Offset Insert Block
Replacement Part #
GR1-INS-SDLOS

“DOF” Double Upper Offset Insert Block
Replacement Part #
GR1-INS-DUOS

“DOF” Double Lower Offset Insert Block
Replacement Part #
GR1-INS-DLOS

Subject to Technical Modifications Without Notice
GR1 Series Modular Gripper

“SDB” and “DDB” Draw Bead Serrated Block Inserts

“SDB”

Single Upper Draw Bead Insert Block
Replacement Part #
GR1-INS-SDBB

Single Lower Draw Bead Insert Block
Replacement Part #
GR1-INS-SDLOS

“DDB”

Double Upper Draw Bead Insert Block
Replacement Part #
GR1-INS-DDB

Double Lower Draw Bead Insert Block
Replacement Part #
GR1-INS-DLOS

“SED” Extended Draw Bead Serrated Block Inserts

“SED”

Upper Extended Draw Bead Insert Block
Replacement Part #
GR1-INS-SDBB-3

Lower Extended Draw Bead Insert Block
Replacement Part #
GR1-INS-SDLOS-3
GR1 Series Modular Gripper

“MAX” Swivel Parallel Gripper Mounts

Special patented design allows user to replace ball without disassembly

**MA4** and **MB4** Mounts to the 30mm BodyBuilder™ octagonal extruded aluminum boom. For more information on this octagonal boom, please refer to the BodyBuilder™ Robotic End Effector Systems Catalog.
GR1 Series Modular Gripper
“MB1” and “MB3” Rear Swivel Gripper Mount

**Mounting Option** | **Rod/Ball “X”** | **Replacement Part#**
---|---|---
MB1 | Ø1.00” | CPI-RJM-150-100S
MB3 | Ø25mm | CPI-RJM-150-25S

“MB2” and “MB4” Rear Swivel Gripper Mount

**Mounting Option** | **Rod/Ball “X”** | **Replacement Part#**
---|---|---
MB2 | Ø1.25” | CPI-RJM-150-125S
MB4* | 30mm BB | CPI-RJM-150-30BBS

Snap-In Ball
Special patented design allows user to replace ball without disassembly

**PATENT# 6,988,696**

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**GR1 Series Modular Gripper**

**“MCx” Rear Fixed Welded Mount**

<table>
<thead>
<tr>
<th>Mounting Option</th>
<th>Rod “X”</th>
<th>Replacement Part#</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC1</td>
<td>Ø1.00”</td>
<td>CPI-RJM-150-100</td>
</tr>
<tr>
<td>MC3</td>
<td>Ø25mm</td>
<td>CPI-RJM-150-25</td>
</tr>
<tr>
<td>MC5</td>
<td>Ø1.50”</td>
<td>CPI-RJM-150-150</td>
</tr>
<tr>
<td>MC6</td>
<td>Ø40mm</td>
<td>CPI-RJM-150-40</td>
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</table>

**“MD7” Rear Fixed Clamp Mount**

<table>
<thead>
<tr>
<th>Mounting Option</th>
<th>Rod/Ball “X”</th>
<th>Replacement Part#</th>
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</thead>
<tbody>
<tr>
<td>MD7</td>
<td>Ø1.00”</td>
<td>M1514</td>
</tr>
</tbody>
</table>
GR1 Series Modular Gripper
18mm Swivel Proximity Sensor Mount

**POS. 1 = NON ROTATING MOUNTING**
**POS. 2 = 360° ROTATIONAL MOUNTING**

**POS. 2: 360° ROTATION OPTION ALONG ONE AXIS**

Replacement Part# CPI-GPM-15-18
GR1 Series Modular Gripper
“A04” and “P03” Sensor Options

“A04” (Turck) Replacement Part# “Bi 5-Q08-VP6X2-0.2M-R54.4T” ....10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
“P03” (P & F) Replacement Part# “NBB5-F104M-E2-C-200MM-V1” ....10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
(Sensors include “GR0326” Proximity Switch Mount when ordered with GR1-15 Series.)

Proximity Switch Mount for “A04” and “P03” Sensor Options

Barrel Style Proximity Switch Mount
GR1 Series Modular Gripper

Ø18mm and Ø12mm Inline Proximity Switch Mount

Replace Part#
CPI-PM-15D-18

Replace Part#
CPI-PM-15D-12

Ø18mm and Ø12mm Offset Proximity Switch Mount

Replace Part#
CPI-PM-15S-18

Replace Part#
CPI-PM-15S-12
GR1 Series Modular Gripper
“T04” Open/Closed Sensor Option

This sensor option can only be used at full stroke.

This sensor option is used in conjunction with a special gripper body used in place of the standard gripper body in order for the sensor to function properly.

Replacement Part#
CPI-GR1-15-TK-DC-T04

This Sensor Part Number is used on the following GR1 Gripper Styles

“T04” Proximity Switch Wiring

PIN 1) BROWN: POSITIVE POWER
PIN 2) BLACK: SIGNAL FOR GRIPPER CLOSED
PIN 3) BLUE: NEGATIVE POWER
PIN 4) BLACK: SIGNAL FOR GRIPPER OPEN

3 amps, 250 volts, VDC
4-Pin Euro Micro Connector
Modular Gripping Products

GR1 Series Modular Gripper
“T04” Sensor Open/Closed Target Position

CLOSED POSITION

SENSOR TARGET 1
JAW SLIDE
SENSOR TARGET 2
JAW PIVOT

OPEN POSITION

SENSOR TARGET 1
JAW SLIDE
SENSOR TARGET 2
JAW PIVOT

“045” 45° Angular
“45C” 45° Chisel
“FCH” 45° Fixed Chisel
“9DJ” 90° Drop Jaw

CLOSED POSITION

SENSOR TARGET 1
JAW SLIDE
SENSOR TARGET 2
JAW PIVOT

OPEN POSITION

SENSOR TARGET 1
JAW SLIDE
SENSOR TARGET 2
JAW PIVOT

“90F” 90° Fixed Lower
“9FS” 90° Fixed Lower with Limited Stroke
“180” 180° Angular
GR1-20 Series Modular Gripper

Ordering Information

<table>
<thead>
<tr>
<th>CYLINDER</th>
<th>INSERTS</th>
<th>MOUNTS</th>
<th>OPEN/CLOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>GR1-20</td>
<td>BE 180</td>
<td>Dxx Mxx (BLANK)</td>
<td></td>
</tr>
</tbody>
</table>

**CYLINDER TYPE & PORTING**

**STEP 1**

<table>
<thead>
<tr>
<th>CYLINDER PORTING</th>
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<tbody>
<tr>
<td>E ENGLISH (1/8 NPT)</td>
</tr>
<tr>
<td>M METRIC (1/8 G)</td>
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</tbody>
</table>

**OPEN/CLOSED SENSING**

(SEE PAGE 42 FOR SENSOR SPECIFICATIONS)

**STEP 2**

<table>
<thead>
<tr>
<th>POINT</th>
<th>CUP</th>
<th>URETHANE</th>
<th>SERRATED</th>
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<tbody>
<tr>
<td>P</td>
<td>C</td>
<td>T</td>
<td>S</td>
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</tbody>
</table>

**STEP 3**

<table>
<thead>
<tr>
<th>LOWER TIP INSERT OPTION</th>
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<tbody>
<tr>
<td>X = OMIT</td>
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</tbody>
</table>

**POINTS & TIP INSERT OPTIONS**

FOR TIP INSERT DIMENSIONS AND REPLACEMENT PART#S, PLEASE REFER TO GR84 MINI CLAMP TIP INSERT OPTIONS.

**MOUNT OPTIONS**

**STEP 1**

<table>
<thead>
<tr>
<th>MOUNT TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A PARALLEL SWIVEL MOUNT</td>
</tr>
<tr>
<td>C REAR FIXED WELDED STYLE</td>
</tr>
<tr>
<td>D REAR FIXED CLAMP MOUNT</td>
</tr>
</tbody>
</table>

**STEP 2**

<table>
<thead>
<tr>
<th>MOUNT BALL/ROD SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = 1.00&quot; ROD/BALL MOUNT (A &amp; C ONLY)</td>
</tr>
<tr>
<td>3 = 25MM ROD/BALL MOUNT (A &amp; C ONLY)</td>
</tr>
<tr>
<td>7 = M-1514 (D OPTION ONLY)</td>
</tr>
</tbody>
</table>

**X = OMIT**

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GR1-20 Series Modular Gripper

180° Angular Jaw Arrangement - Double Insert

CLOSED GRIPPER PORT
OPEN GRIPPER PORT

200 SERIES
“GPC” GRIPPER
PARALLEL CLAMP
LOCK GROOVE

OPEN GRIPPER PORT

FULL OPENING
JAW POSITION

CLOSED GRIPPER PORT
(OPTIONAL FOR
LARGER AIR FITTINGS)

Gripper Ports

E = 1/8" NPT (ENGLISH)
M = 1/8" G (METRIC)

4X .375-24 UNF-2B 19.1 [.75] DEEP

REAR MOUNTING PATTERN

BORE CYLINDER

Ø50.8
[Ø2.00”]

[2.58] 65.6
[8.29] 210.5
[2.09] 53.0
[.84] 21.3

[3.08] 78.2

[7.35] 186.7

[9.77] 248.1

[2.42] 61.4

[2.58] 65.6
[8.29] 210.5
[2.09] 53.0
[.84] 21.3

[1.92] 48.7

[4.06] 103.2

[3.13] 79.4

[5.41] R137.5

[.34] 47.6

[4] Ø8.6

[3.00] 76.2

[1.88] 47.6

[3.75] 95.3

[3.00] 76.2

[3.08] 78.2

[2.25] 57.2

[79.4] 3.13

[53.0] 2.09

[21.3] .84

[19.1] .75

[2.25] 57.2

[79.4] 3.13

[53.0] 2.09

[21.3] .84

[19.1] .75
GR1-20 Series Modular Gripper

“MAX” Swivel Parallel Gripper Mounts

Snap-In Ball
Special patented design allows user to replace ball without disassembly

Mounting Option | Rod/Ball “X” | Replacement Part# |
--- | --- | --- |
MA1 | Ø1.00” | CPI-GPC-200-100S-DC |
MA3 | Ø25mm | CPI-GPC-200-25MS-DC |

“MCx” Rear Fixed Welded Mount

Mounting Option | Rod/Ball “X” | Replacement Part# |
--- | --- | --- |
MC1 | Ø1.00” | CPI-RJM-200-100 |
MC3 | Ø25mm | CPI-RJM-200-25 |

PATENT# 6,988,696
GR1-20 Series Modular Gripper

“MD7” Rear Fixed Clamp Mount

Technical Information

Air Requirements:
Recommended operationg Pressure: 2-6 bar [30-90 psi]
Ports: 1/8” BSPP [1/8” NPT]
Air flow controls recommended for maximum life
Operating Temperature:
0° - 93°C [32° - 200°F]

Weight:
2.4 kg [5.4 lb]

Grip Range:
0” - 0.125” [0 - 3mm]