

GR84 SERIES

Toggle Lock Sheet Metal Grippers | Ordering Information

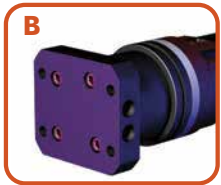
GR84-15 - BE - DD - 9S9 - RRSS - A1 - XX - 01

Cylinder Type & Porting

Step 1 - Cylinder Type Choose One

B **E**

- B** Flange Base
- C** Round Cylinder



Step 2 - Cylinder Ports Choose One

B **E**

- E** English (1/8 NPT)
- M** Metric (1/8 G)

Jaw Arm Option

Description

DD Double Arm

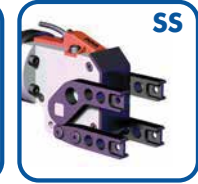
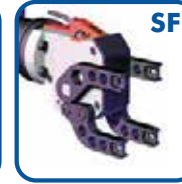
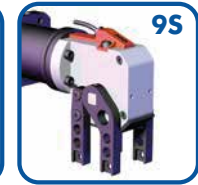
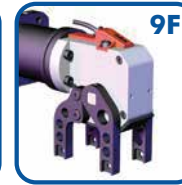
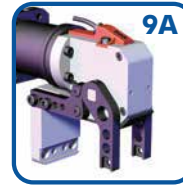


Jaw Arrangement & Opening

Step 1 - Jaw Arrangement Choose One

9S **9**

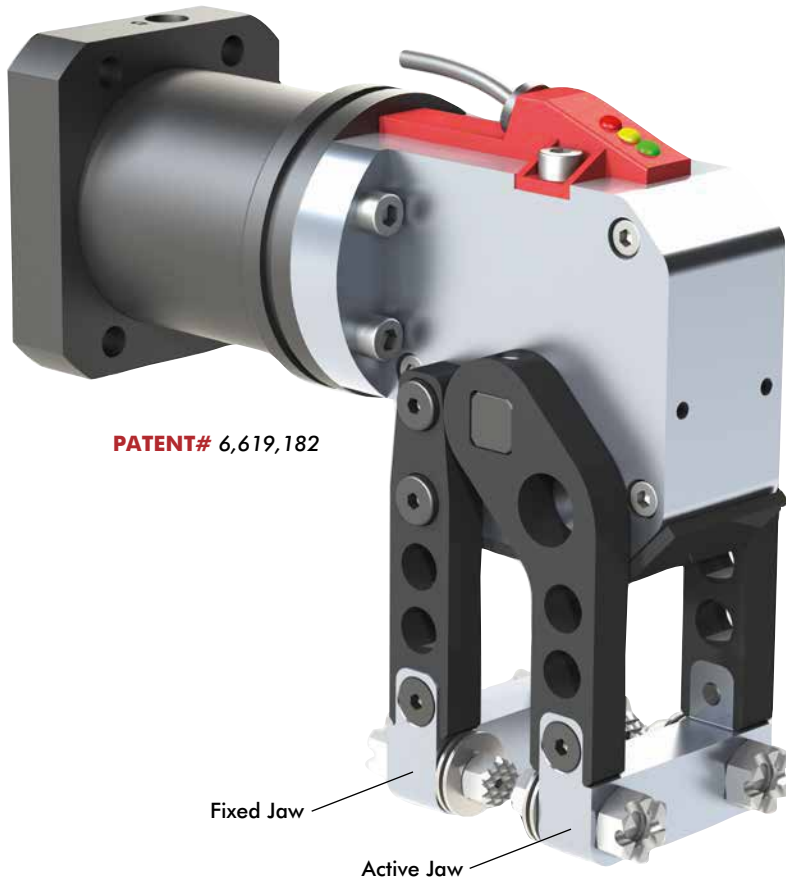
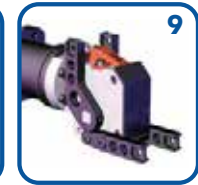
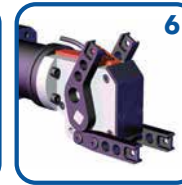
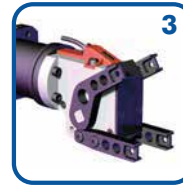
- 9A** 90° Grip Adj. Flange
- 9F** 90° Grip Flange
- 9S** 90° Grip Standard
- SA** Straight Adj. Flange
- SF** Straight Flange
- SS** Straight Standard



Step 2 - Active Jaw Opening Choose One

9S **9**

- 3** 30° Preset
- 6** 60° Preset
- 9** 90° Preset



PATENT# 6,619,182

Fixed Jaw

Active Jaw

For GR-84 Mounting Options

Please Refer to **GR1 Series** "Mounting Options" for style of mounting and use the "Replacement Part#" to order the Preferred Mounting Style (See pages SG-TLG-31 to 33).

Jaw Block & Insert Options

Step 1 - Active Jaw Block Option Choose One

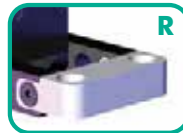
R R S S

X No Block
R Regular Block

N Blank Block (No Tips)
M Jaw Block for Block Inserts "B" Only



For **9F 9S SF SS**:
When choosing Active Jaw Block "M" Fixed Jaw Block must be "M"
M M B S



For **9A SA**:
When choosing Active Jaw Block "M" Fixed Jaw Block must be "K"
M K B S

Step 2 - Fixed Jaw Block Options Choose One Above -or-

R R S S

L Flange Block (for **9F** & **SF** Fixed Jaw Only)
K Adjustable Jaw Block (for **9A** & **SA** Fixed Jaw Only)

Step 3 - Active Jaw Insert Options Choose One

R R S S

P Point **T** Self-Adjusting Serrated **N** Non-Standard
C Cup **X** None
U Urethane **Z** Blank
S Serrated **B** Block (*See **STEP 4** below for **Block Insert Options**)



Step 4 - Fixed Jaw Insert Options Choose One Above

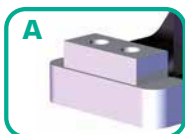
R R S S

-or-

Step 4 - "B" Block Insert Options Choose One
*(Active and Fixed Jaws Use Common Inserts)

M M B S

S Serrated
U Urethane
A Aluminum
N Non-Standard



(Sensing mounts can not be used with (B) Block Option inserts)

Guard Options

Description

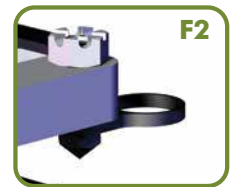
XX No Face Guard
01 Face Guard
02 Face + Skid Guard



Sensor Mounts

Description

XX No Sensor Mounts
F1 Ø18mm Sensor
F2 Ø12mm Sensor



Sensor Options

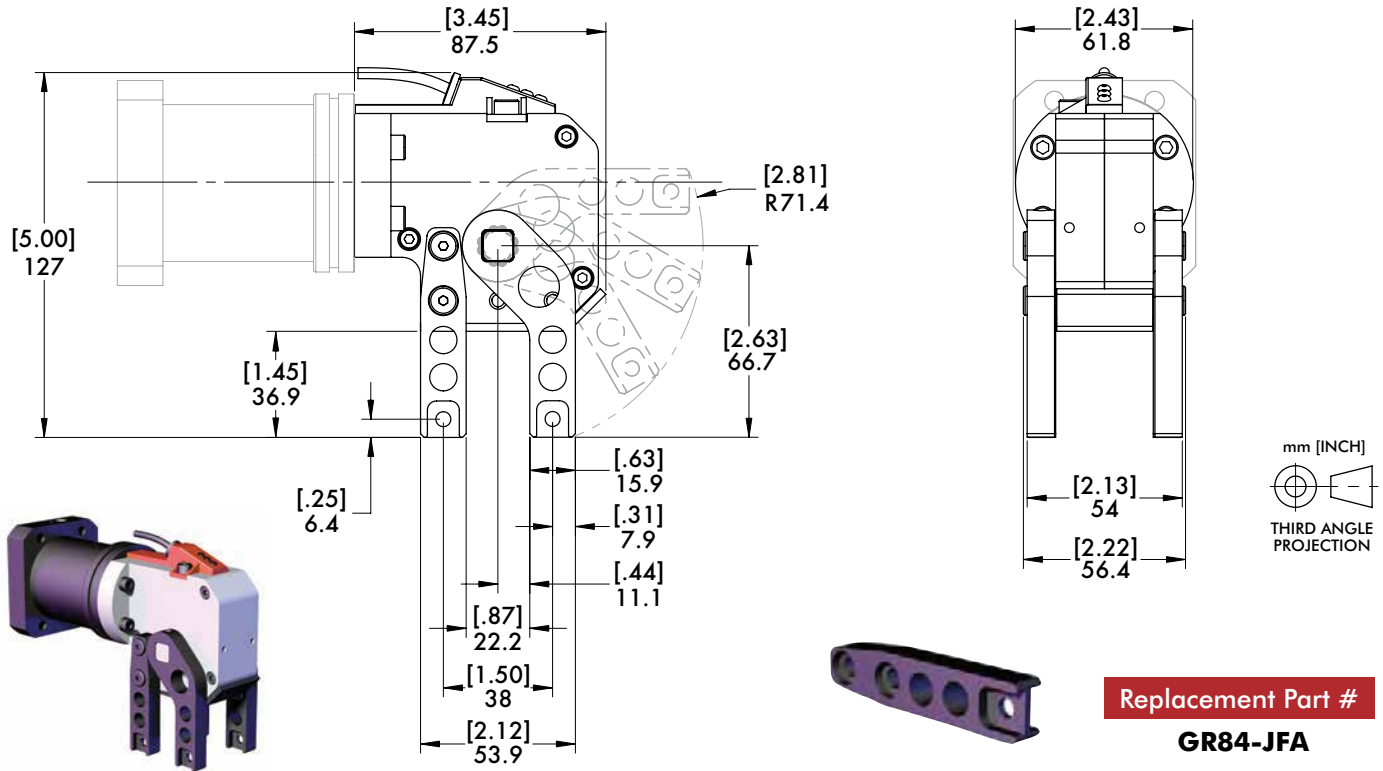
Description

A1 (Turck) VDC
B8 (Pepperl Fuchs) VDC
C8 (DE-STA-CO) VDC
C9 (Allen-Bradley) VDC
D1 (Turck) AC/DC
E3 (Namco) VDC
E4 (Pepperl Fuchs) VDC
E5 (Efcator) VDC
E6 (Baluff) VDC
XC Cover Only
(See page SG-TGL-13 for sensor specifications)

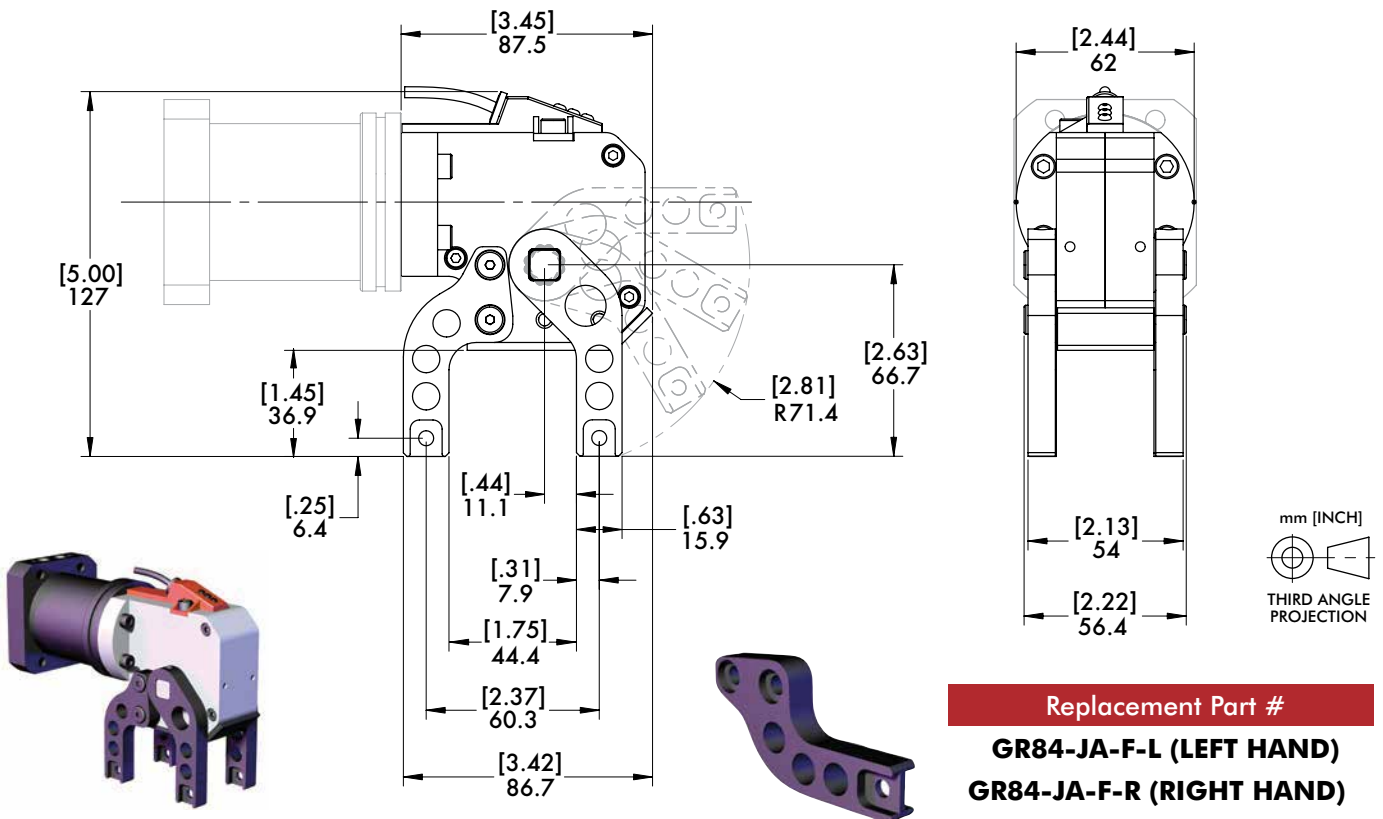
GR84 SERIES

Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

"9Sx" 90° Jaw Arrangement - Standard Fixed Jaw



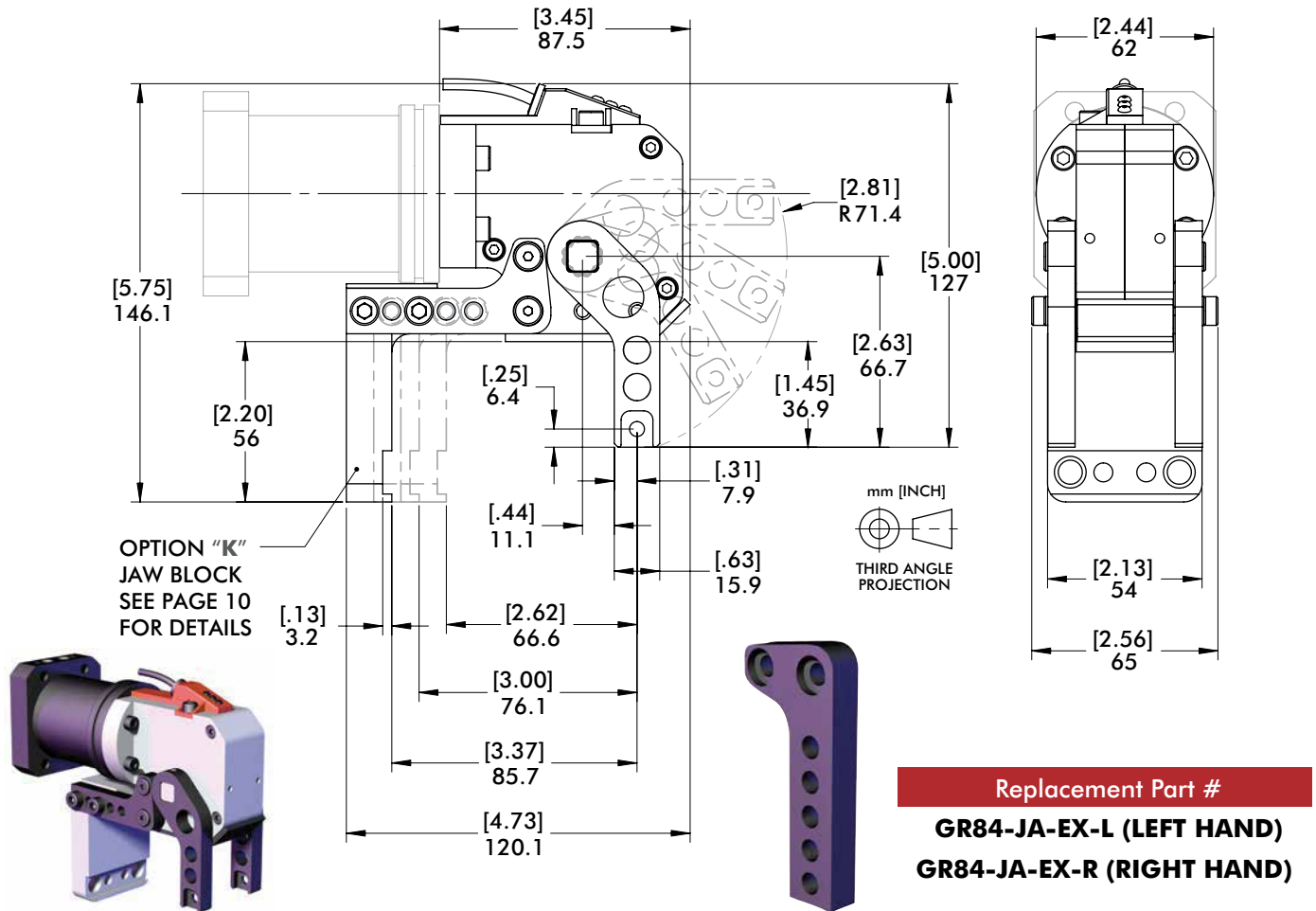
"9Fx" 90° Jaw Arrangement - Flange Fixed Jaw



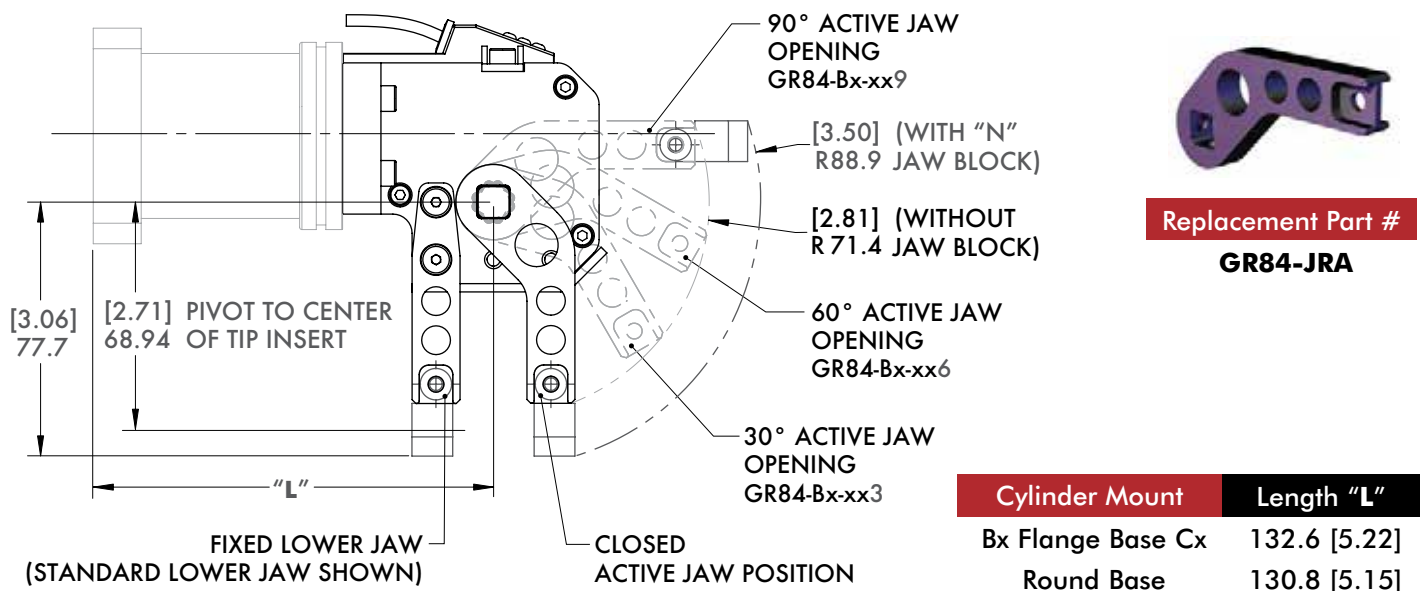
GR84 SERIES

Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

"9Ax" 90° Jaw Arrangement - Adjustable Fixed Jaw



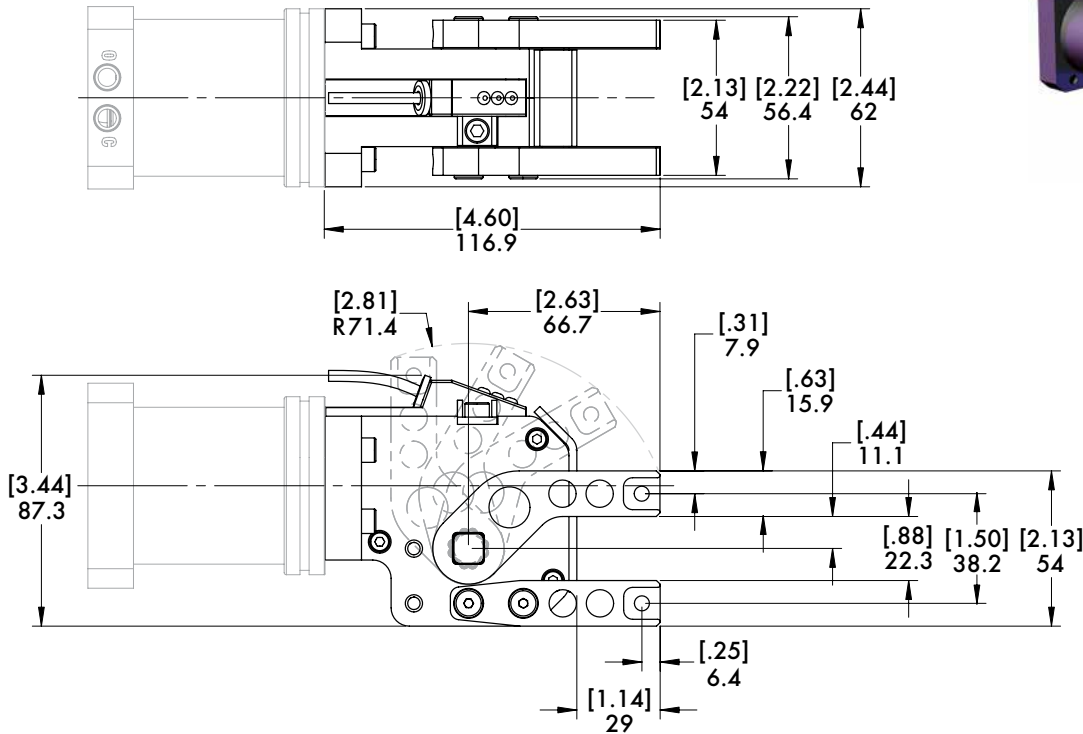
"xx3", "xx6", "xx9" 90° Jaw Arrangement - Preset Active Jaw Opening



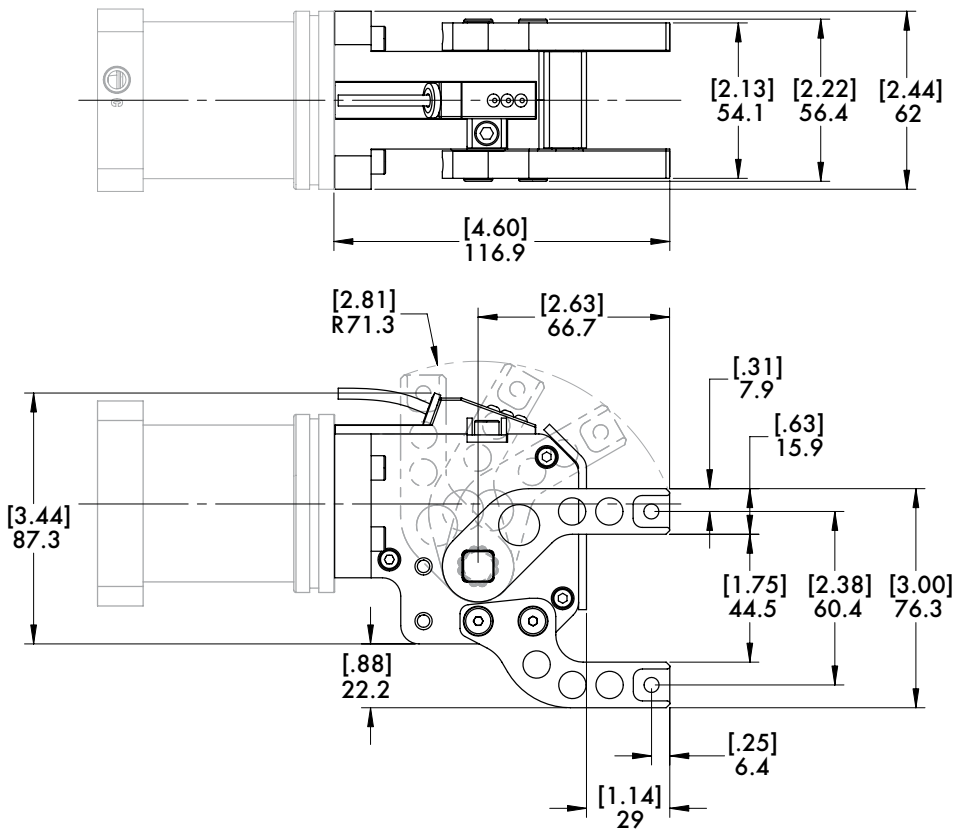
GR84 SERIES

Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

"SSx" Straight Jaw Arrangement - Standard Fixed Jaw



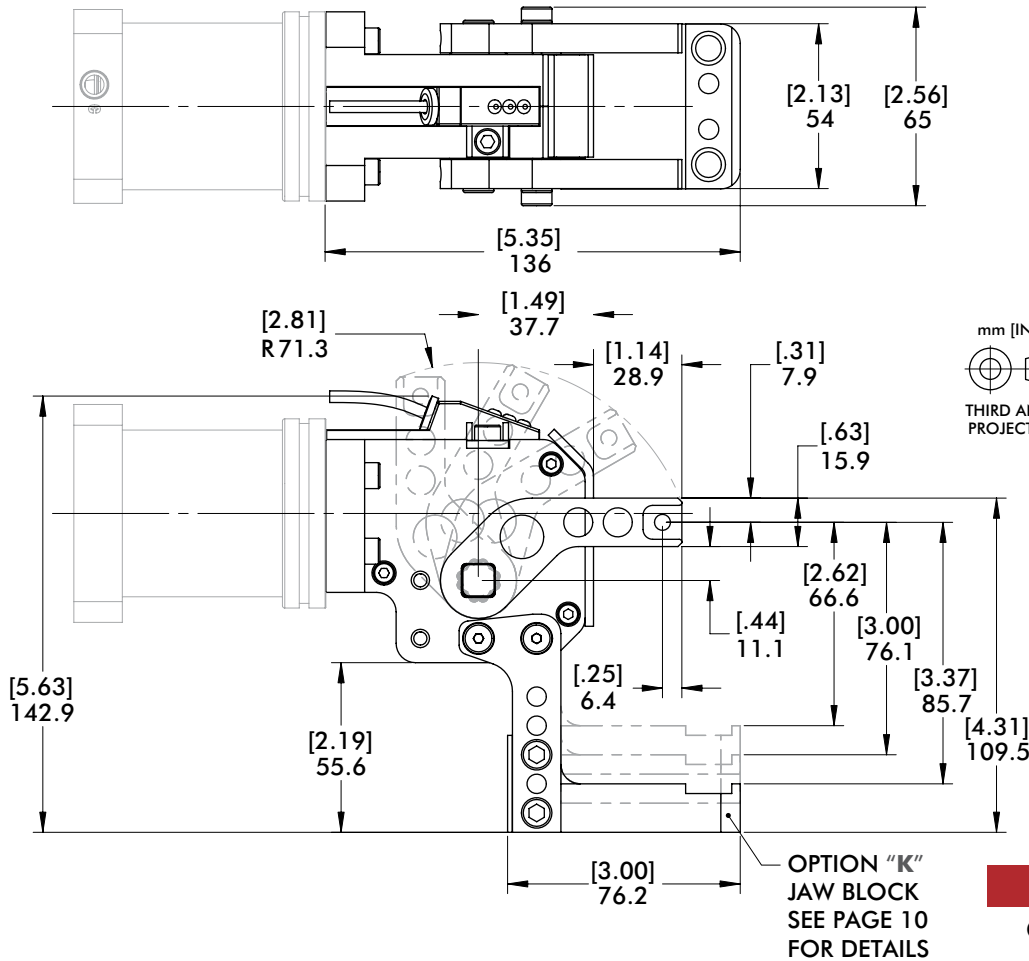
"SFx" Straight Jaw Arrangement - Flange Fixed Jaw



GR84 SERIES

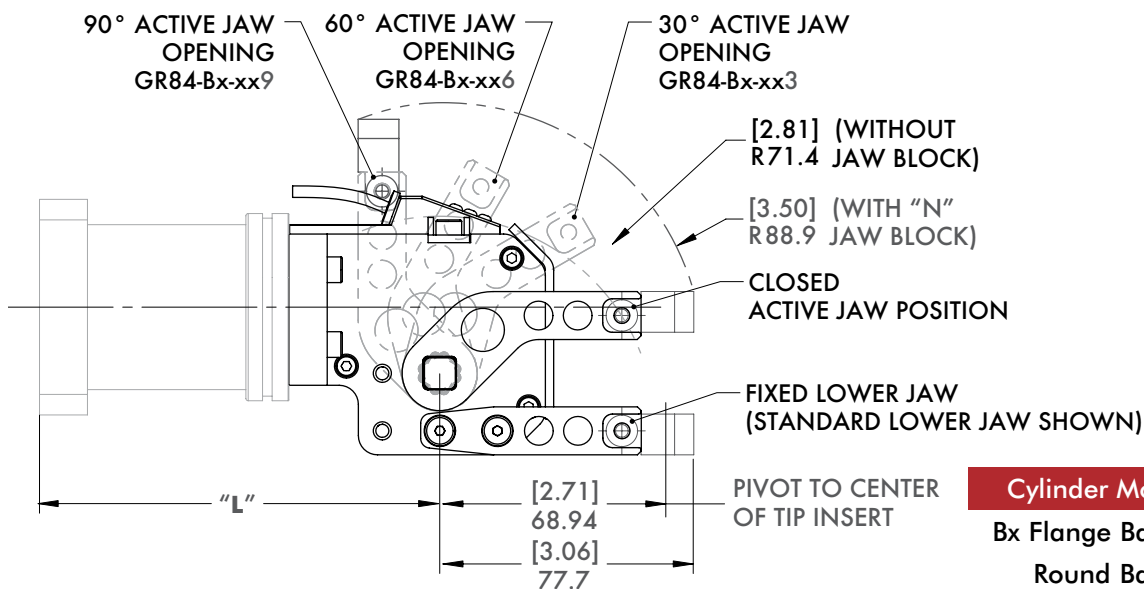
Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

"SAx" Straight Jaw Arrangement - Adjustable Fixed Jaw

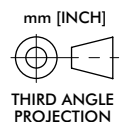


Replacement Part #
GR84-JA-EX-L (LEFT HAND)
GR84-JA-EX-R (RIGHT HAND)

"xx3", "xx6", "xx9" Straight Jaw Arrangement - Preset Active Jaw Opening



Replacement Part #
GR84-JRA

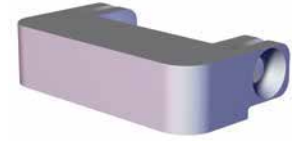
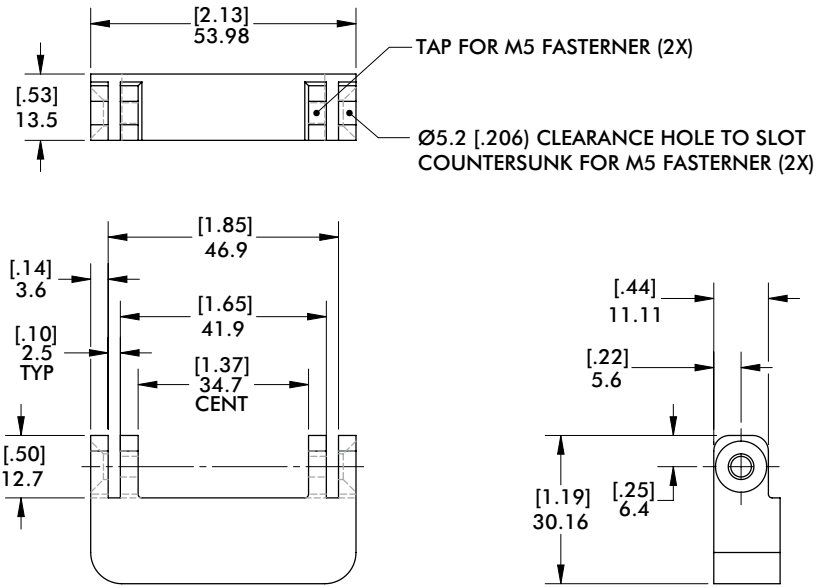


Cylinder Mount	Length "L"
Bx Flange Base Cx	132.6 [5.22]
Round Base	130.8 [5.15]

GR84 SERIES

Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

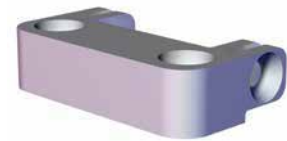
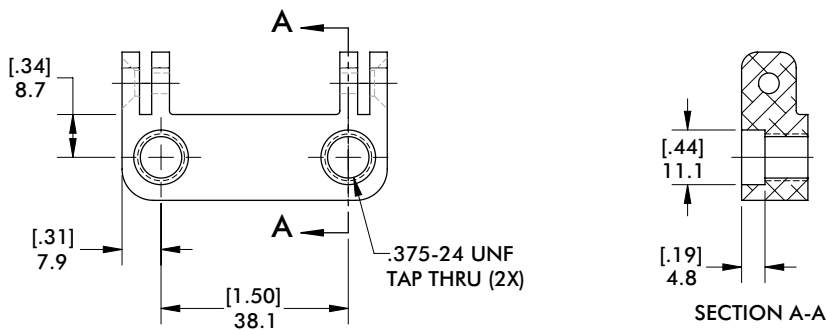
"N" Blank Jaw Block



Replacement Part #

GR84-JB

"R" Point Insert Jaw Block



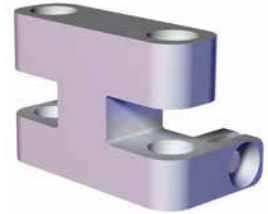
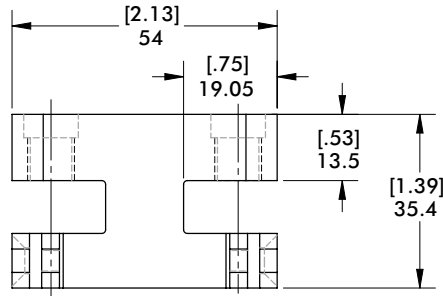
Replacement Part #

GR84-JB-3824

GR84 SERIES

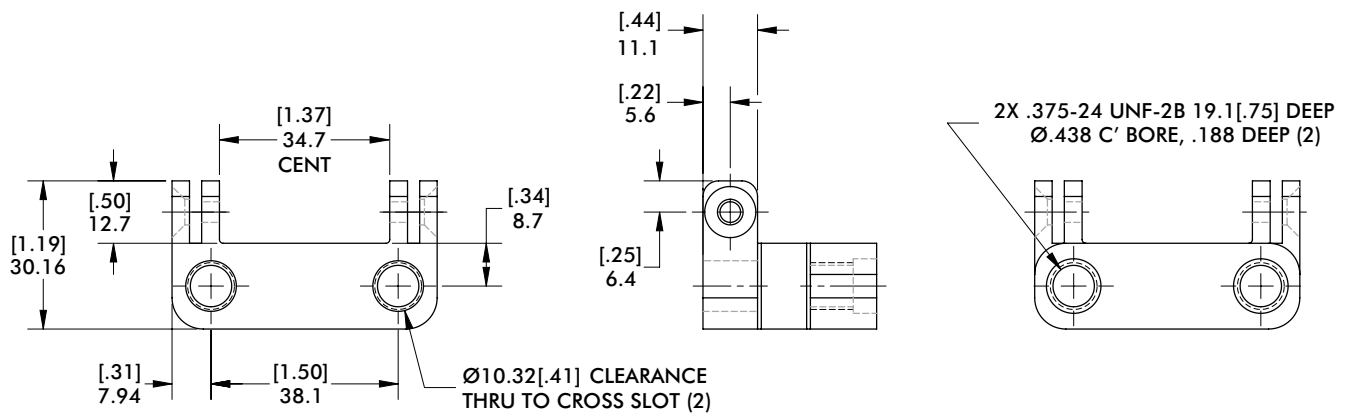
Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

"L" Flange Point Insert Jaw Block

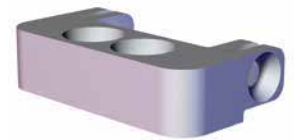


Replacement Part #

GR84-JB-F-3824

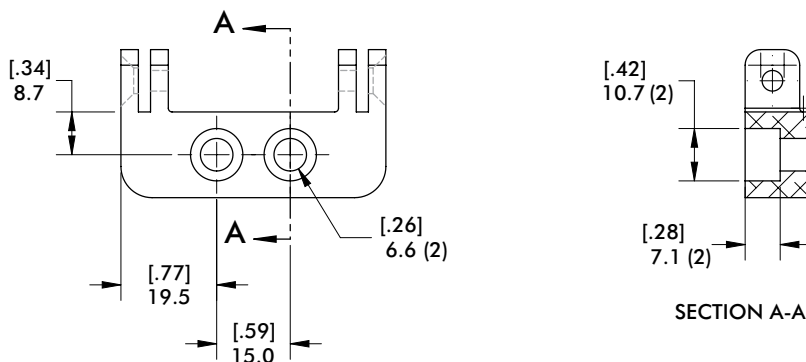


"M" Block Insert Jaw Block



Replacement Part #

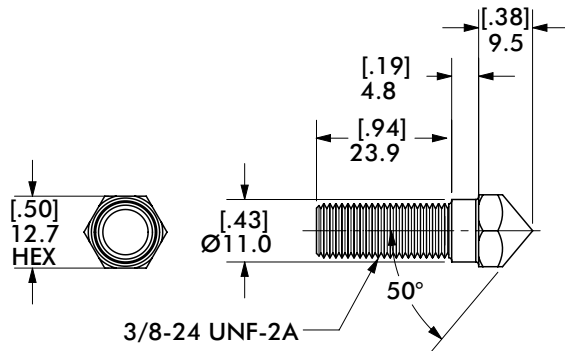
GR84-JB-BM6



GR84 SERIES

Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

"P", "C", "S", "T", "U" Jaw Inserts



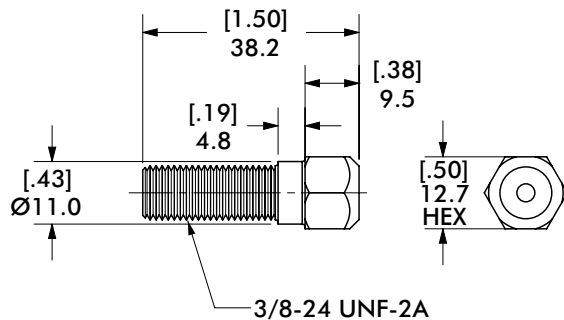
"P"



Point Jaw Inserts

Replacement Part #

GR0107



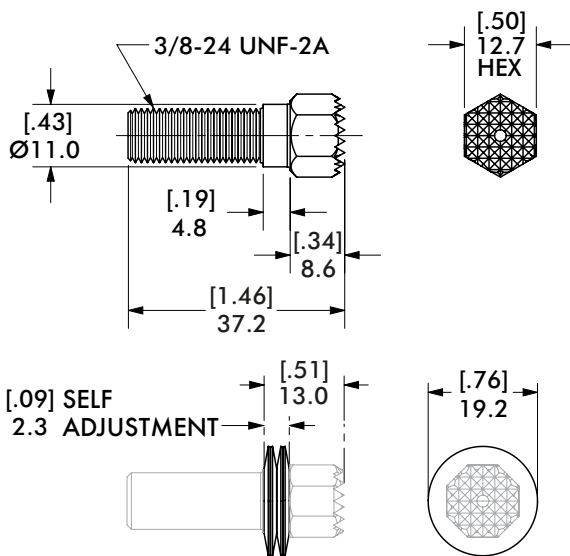
"C"



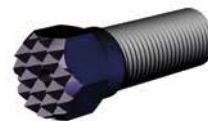
Cup Jaw Inserts

Replacement Part #

GR0108



"S"

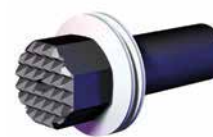


Serrated Jaw Inserts

Replacement Part #

GR0342

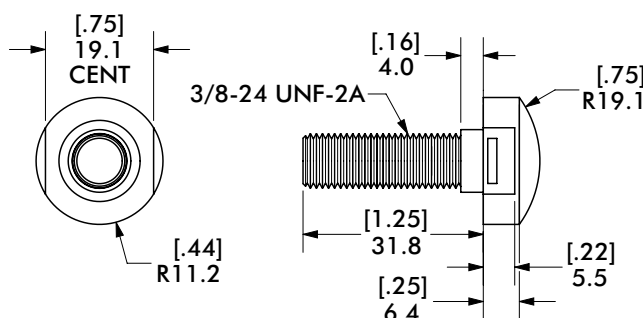
"T"



Self-Adjusting Serrated Jaw Inserts

Includes (1) GR0342 and (4) Belleville Washers
Part# 329-TPR-BDA-047

Self-adjusting jaw inserts require jaw blocks to have clearance holes in place of the standard tap thread in order for the inserts to function properly.



"U"



Urethane Jaw Inserts

Replacement Part #

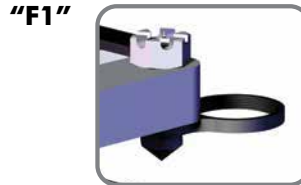
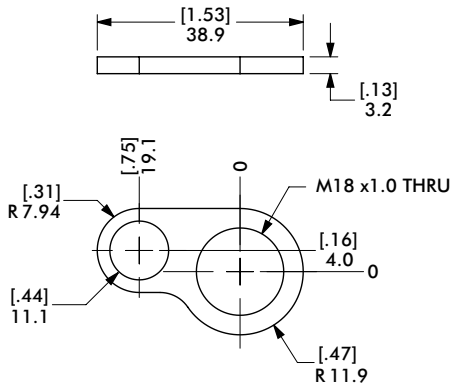
GR0353

GR84 SERIES

Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

"F1" Ø18mm Sensor Mount

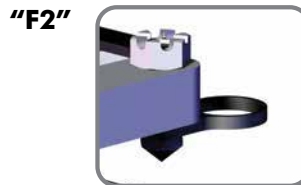
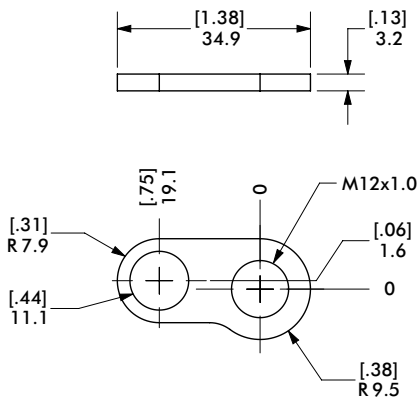
(Can only be used with "K" and "M" jaw blocks)



Replacement Part #
CPI-PM-18

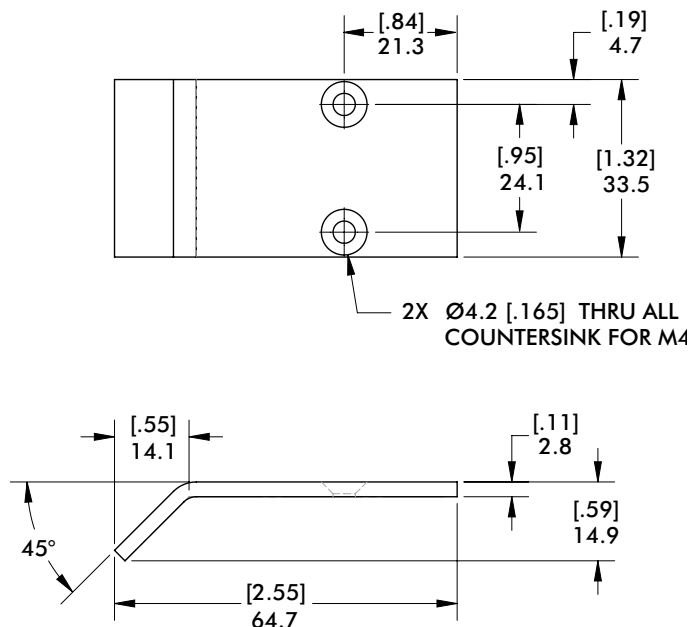
"F2" Ø12mm Sensor Mount

(Can only be used with "K" and "M" jaw blocks)



Replacement Part #
CPI-PM-12

"01", "02" Face and Skid Guard



FACE GUARD



FACE AND SKID GUARD

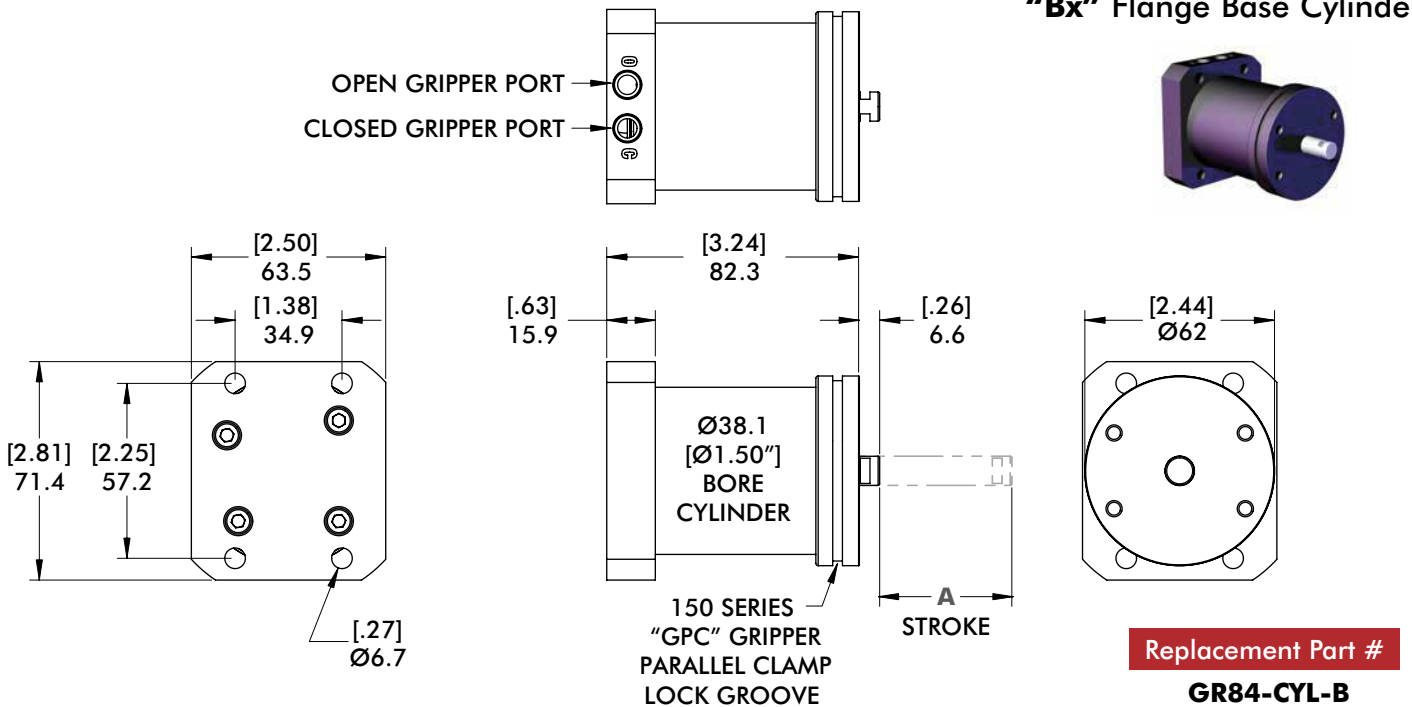


Replacement Part #
GR84-JFG

GR84 SERIES

Toggle Lock Sheet Metal Grippers | Dimensions and Ordering Information

"Bx" Flange Base Cylinder

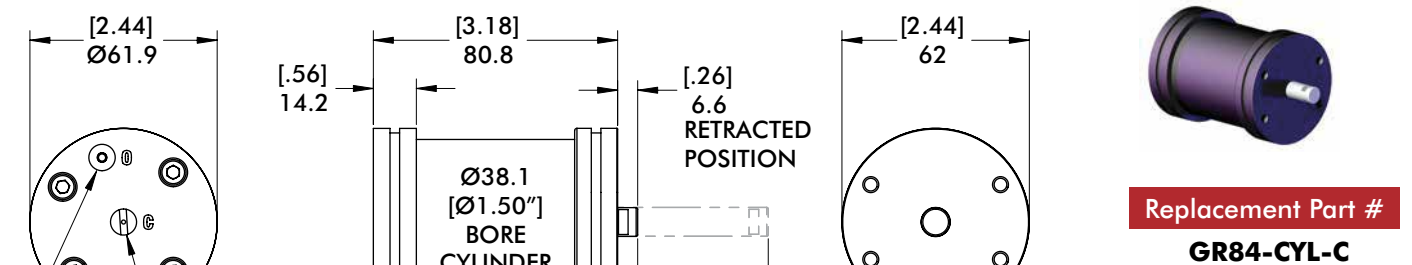


CYLINDER PORTS
E = 1/8" NPT (ENGLISH)
M = 1/8" G (METRIC)

PATENT# 6,619,182

Jaw Opening	30°	60°	90°
STROKE "A"	21.3 [.84]	32.8 [1.29]	42.9 [1.69]

"Cx" Round Base Cylinder



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

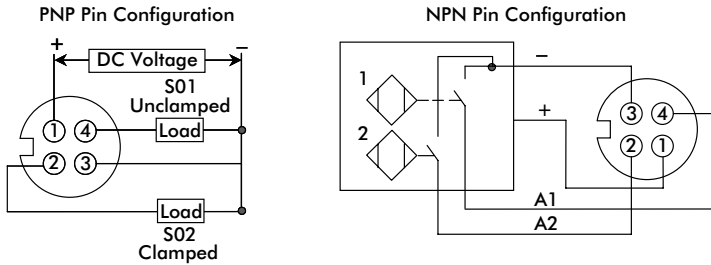
PATENT# 6,619,182

Jaw Opening	30°	60°	90°
STROKE "A"	21.3 [.84]	32.8 [1.29]	42.9 [1.69]

GR84 SERIES

Toggle Lock Sheet Metal Grippers | Technical Information and Ordering Information

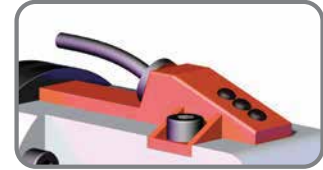
Wiring Diagram of Electrical Sensing System



"A1"



"C8"

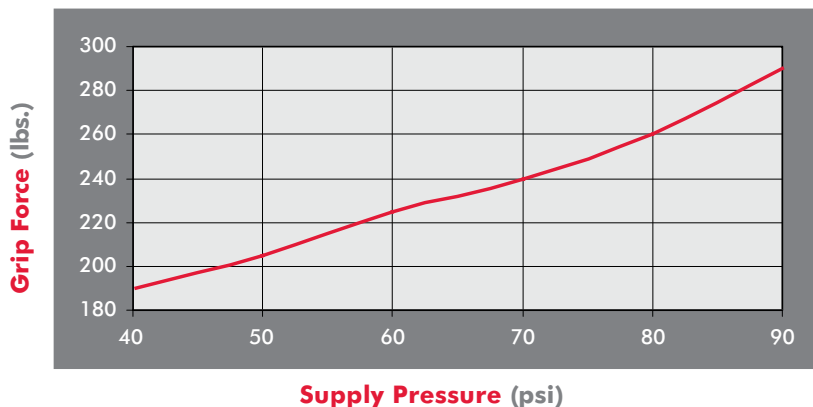


Open/Closed Sensor Options:

"A1" (Turck) Replacement Part# "8EA-054-1"+"GR84-SB"	10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
<i>(Fasteners required for "A1" replacement: (2) M5x0.5 10mm FHCS, (1) M4 x 0.7 20mm SHCS)</i>	
"B8" (Pepperl Fuchs) Replacement Part# "8EA-031-1"	10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
"C8" (DE-STA-CO Brand)	10...30 VDC 150mA, PNP, 4-Pin, M8, Pico
"C9" (Allen-Bradley) Replacement Part# "8EA-1006-1"	10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
"D1" (Turck) Replacement Part# "8EA-1002-1"	20...250 AC/DC 150mA, 5-Pin, 1/2-20, Mini
"E3" (Namco) Replacement Part# "8EA-1007-1"	10...30 VDC 150mA, NPN, 4-Pin, M12
"E4" (Pepperl Fuchs) Replacement Part# "8EA-1010-1"	10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
"E5" (Efector) Replacement Part# "8EA-1012-1"	10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
"E6" (Baluff) Replacement Part# "8EA-1019-1"	10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
"XC" Cover Only Replacement Part# "GR84-SC"	No Sensor Supplied

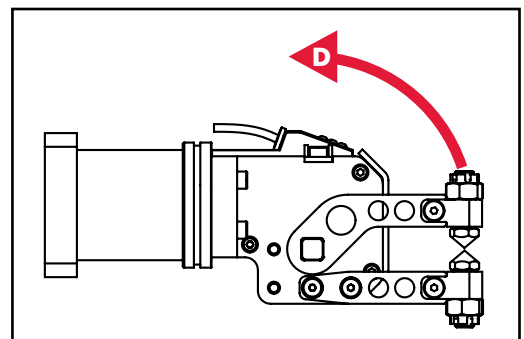
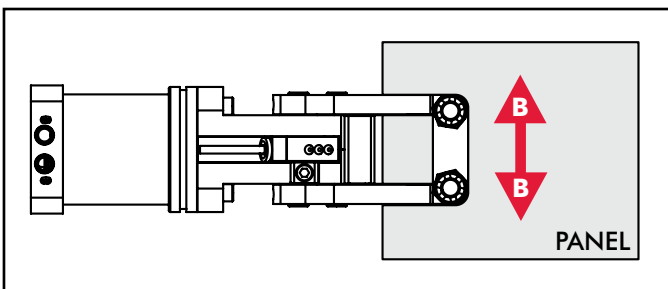
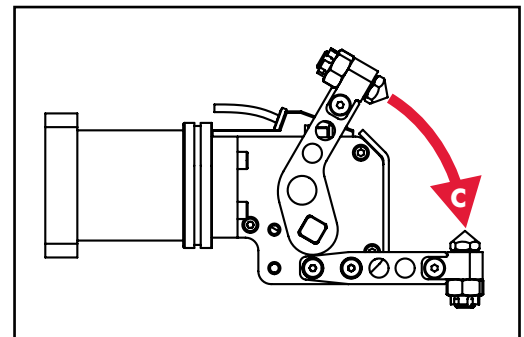
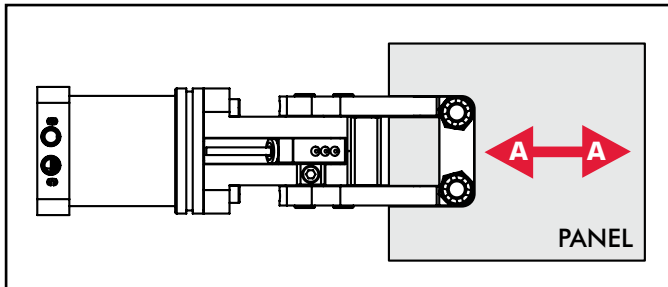
Specifications:

Weight:	3.2 lb [1.5 kg]
Grip Range (Standard and Flange with Jaw Inserts)	0 to 0.31" [0mm - 8mm]
Arm Position Tolerance:	±0.33°
Arm Lateral Tolerance:	±0.3mm
Cycle Speed @ 60 psi:	0.6 Sec (Open/Closed)
Displacement Per Cycle @ 60psi:	6.0 in3
Max Air Consumption @ 100 cycles/min:	34 ft3/min
Reliability:	
Mean Time Between Failure:	3.5 Million Cycles
Mean Time To Repair:	30 Minutes



Self-locking Linkage System

The GR84 Mini-Clamp utilizes a self-locking linkage system. If the air is lost while fully closed, the mini-clamp will continue to hold the part. The amount of air required to achieve the high gripping forces is greater than pressure to release or open the mini-clamp. If there is a slight drop of pressure during the opening cycle, the mini-clamp will still release the part. Other self locking systems can jam and require more air to release the part than it would need to grip it.



Single Jaw Arm Styles				
Pressure	"A"	"B"	"C"	"D"
2.8 bar [40 psi]	31.8 kg [70 lb]	31.8 kg [70 lb]	86.2 kg [190 lb]	294.8 kg [650 lb]
3.4 bar [50 psi]	34.0 kg [75 lb]	34.0 kg [75 lb]	93.0 kg [205 lb]	294.8 kg [650 lb]
4.1 bar [60 psi]	36.3 kg [80 lb]	36.3 kg [80 lb]	102.1 kg [225 lb]	294.8 kg [650 lb]
4.8 bar [70 psi]	38.6 kg [85 lb]	38.6 kg [85 lb]	108.9 kg [240 lb]	294.8 kg [650 lb]
5.5 bar [80 psi]	40.8 kg [90 lb]	40.8 kg [90 lb]	117.9 kg [260 lb]	294.8 kg [650 lb]
6.2 bar [90 psi]	43.1 kg [95 lb]	43.1 kg [95 lb]	131.5 kg [290 lb]	294.8 kg [650 lb]

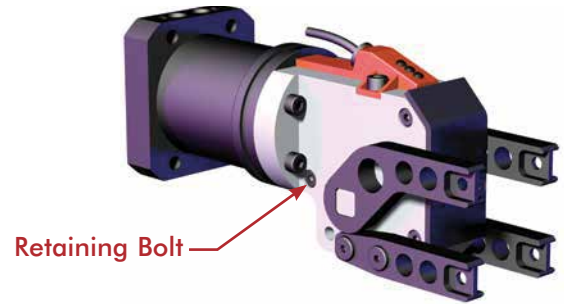
Double Jaw Arm Styles				
Pressure	"A"	"B"	"C"	"D"
2.8 bar [40 psi]	34.0 kg [75 lb]	34.0 kg [75 lb]	86.2 kg [190 lb]	589.4 kg [1300 lb]
3.4 bar [50 psi]	36.3 kg [80 lb]	36.3 kg [80 lb]	93.0 kg [205 lb]	589.4 kg [1300 lb]
4.1 bar [60 psi]	38.6 kg [85 lb]	38.6 kg [85 lb]	102.1 kg [225 lb]	589.4 kg [1300 lb]
4.8 bar [70 psi]	40.8 kg [90 lb]	40.8 kg [90 lb]	108.9 kg [240 lb]	589.4 kg [1300 lb]
5.5 bar [80 psi]	43.1 kg [95 lb]	43.1 kg [95 lb]	117.9 kg [260 lb]	589.4 kg [1300 lb]
6.2 bar [90 psi]	45.4 kg [100 lb]	45.4 kg [100 lb]	131.5 kg [290 lb]	589.4 kg [1300 lb]

GR84 SERIES

Toggle Lock Sheet Metal Grippers | Technical Information

Jaw Opening Adjustment

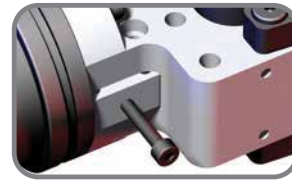
The **GR84** Modular Mini-Clamp offers a feature allowing the jaw opening angle to be changed in the field. The **GR84** Modular Mini-Clamp is ordered with a preset jaw opening angle. Follow the instructions below to change the jaw opening angle.



With the jaws in the closed position and the air off, loosen and remove *Retaining Bolt*.

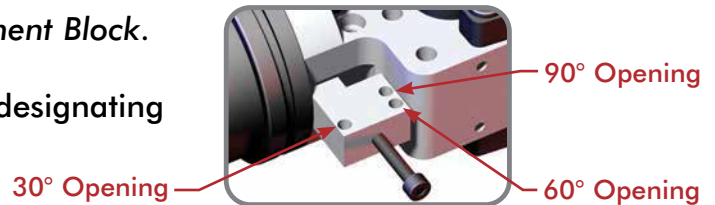


Thread retaining bolt into the bottom of the *Stroke Adjustment Block*.

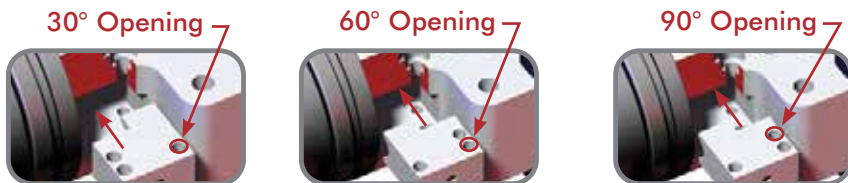


Use *Retaining Bolt* to remove the *Stroke Adjustment Block*.

There are holes in the *Stroke Adjustment Block* designating three different jaw opening angles.



Position the *Stroke Adjustment Block* so the *Retaining Bolt* hole aligns with the desired jaw opening hole.



Replace and tighten *Retaining Bolt* to secure the stroke adjustment block in the new position.



Once the mechanical adjustment is complete, the sensor must be relocated to detect the new target location.

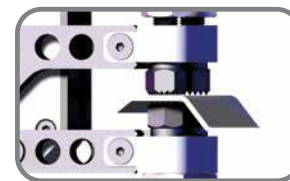
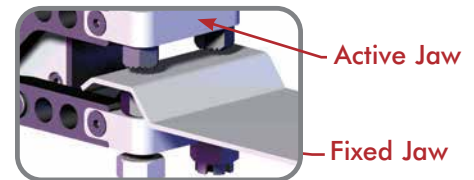
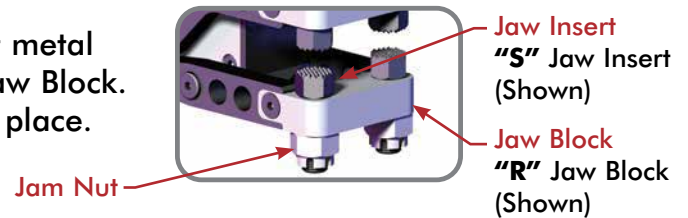


Jaw Opening Adjustment

All Jaw Inserts can be adjusted for different sheet metal thicknesses. The *Jaw Insert* is threaded into the *Jaw Block*. The *Jam Nut* is used to secure the *Jaw Insert* into place.

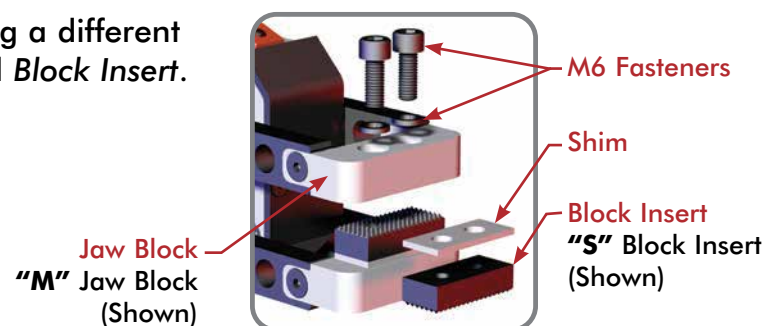
(This procedure can be used for both the GR84 Mini-Clamp and GR1 Grippers)

- Loosen jam nuts to allow jaw inserts to be adjusted.
- Adjust jaw inserts fully toward jaw blocks.
- Adjust jaw inserts on the fixed jaw toward panel to establish panel location.
- Hold fixed jaw inserts in place and tighten jam nuts.
- With panel in position, and clamp in closed position, adjust the jaw inserts on the active jaw. (Make sure to close the clamp by air pressure and not by hand.)
- Turn the jaw inserts by hand until they make contact with the panel and can no longer turn.
- Open the clamp and continue to turn the active jaw Inserts (1) turn further toward the part. This ensures there will be a tight grip on the panel.
- Hold active jaw inserts in place and tighten jam nuts.



Block Insert Adjustment

Block Insert height can be adjusted by placing a different thickness *Shim* between the *Jaw Block* and *Block Insert*.



Manual Lock Override

The GR84 Modular Mini-Clamp's manual lock override enables the gripper to be release from the closed position. This lock override eliminates the need to cycle air to the mini-clamp in order to open the jaws, if the part needs to be removed.

- With the air off, using a 3mm hex wrench, rotate the *Release Screw* approximately 15° clockwise.
- Once unlocked, the Mini-Clamp Jaws can be manually opened.

