

"LPG" Series Parallel Grippers

Operational Features

Toolbars

extend toward and retract away from each other while maintaining absolute parallelism.

Stainless Steel Guide Shafts (4)

Integral Tube and Tie Rod Cylinder

Metal Covers (2)

Mounting Styles

MH1 – Through hole (4)
MH2 – Tapped hole (4)
Can be mounted with port side up or down.

Cross Tapped Holes

on each toolbar allows tooling mounting on any surface of the toolbars.

Sealed Ball Bearings

Double Rack & Pinion

(factory lubricated)
transfers force from inboard pair of guide shafts to the outboard pair for precise, synchronous motion.

Frelon® Linear Bearing (8)

How it works

The LPG Gripper shown above is an adaptation of Fabco-Air's EZ Series linear slides. Its jaws are a pair of toolbars which extend to the front away from the gripper mechanism (TBF tooling style).

An integral, double acting air cylinder drives the shorter toolbar and inboard pair of guide shafts. A double rack and pinion arrangement transfers force to the outboard guide shafts holding the wider toolbar. The toolbars (jaws) extend toward and retract away from each other with absolute parallelism and precise synchronous motion.

High Load Carrying Capacity

Bearings in the LPG Gripper have a very high load carrying capacity so that load is only limited by the strength of the guide shafts to resist deflection. Centering is accurate to within .002" repeatability, providing virtually "play free" gripping. Side-to-side play is less than .002".

Choice of Mounting Styles

The LPG Gripper can be mounted with the port side up or down because the end caps are machined on both the top and bottom surfaces. The end caps are available with through holes (Code MH1) or tapped mounting holes (Code MH2).

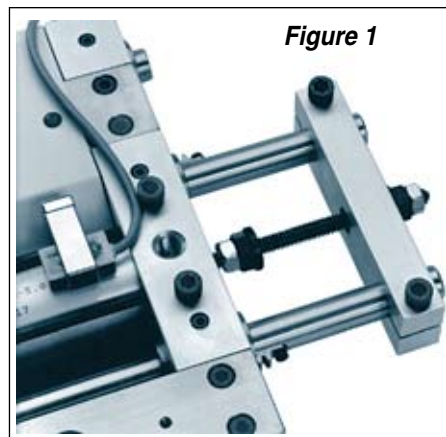


Figure 1

Mounting Note:

The LPG Gripper should be mounted to a flat plate at least as wide and as long as the gripper end caps. All four bolt holes must be used to secure the unit and maintain end cap alignment. Covers are mounted on the side opposite the mounting surface. Mounting surface shields the bottom side of the rack and pinion.

Sensors

The LPG Gripper is available with a magnetic band on the piston and several types of magnetically operated tie rod mounted sensors. Reed switches and electronic sensors are offered in pre-wired and quick disconnect styles.

Optional Dowel Holes for End Cap and Toolbar Mounting Surfaces

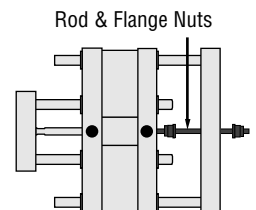
Dowel hole & slot option provides convenient and precise mounting of LPG Gripper end caps as well as attachment of tooling to the toolbars.

Adjustable Stops

The stop (Figure 1) consists of a single threaded rod with flange and lock nuts at each end. When both toolbars are up front (TBF tooling style), a clamp bar is added to the inboard guide shafts at the rear to stop against the flange nuts.

When a toolbar is mounted at both ends (TFR tooling style), the threaded rod is placed through a clearance hole in the center of the rear toolbar.

Positioning toolbars front and rear allows large parts to be gripped and/or centered.



Bumpers

LPG Series Grippers are available with urethane bumpers for quieter operation. Bumpers must be used in conjunction with adjustable stops. A urethane washer is placed against each flange nut.

The exciting parallel gripper for large parts, long strokes

How to Order

Gripper Sizing Guide

Model	Guide Shaft Diameter	Bore	Stroke (Min)	Standard Stroke Lengths	Grip Force Per Jaw at 100 psi	
					Cyl Extend	Cyl Retract
LPG50	1/2"	1-1/8"	2"	2" to 12" by 2" increments	99 lbs	88 lbs
LPG75	3/4"	2"	4"	4" to 12" by 2" increments 16" to 24" by 4" increments	310 lbs	280 lbs

Stop Options

- 00** – No stop options desired
01 – Threaded rod with extend & retract flange stop nuts
U1 – Type 01 Stop Package with Urethane Bumpers

EXAMPLE Model Stroke End Cap Mounting Style Integral options Sensor Options Tooling Style Toolbar Options Stop Options

LPG50 – 8 – MH1 – V – J73B – TBF – B – 00

End Cap Mounting Style

- MH1** – Through Mounting Holes
MH2 – Tapped Mounting Holes

Integral Options

- D** – Dowel hole & slot in endcaps
V – Viton seals

Sensor Codes (Use "S000" if NO Sensors are desired)

Select a code for sensor type and indicate position in the box ().

Example: J73 B

Electronic sensors & magnetic reed switches are actuated by a magnetic band on the piston.

E = Cylinder extend position only

R = Cylinder retract position only

B = Both extend & retract positions

*M = 3 sensors include E, R, and a mid-position

*Note – Can be used for sensing parts presence

Magnetic Piston & Clamp-On Sensors ("J")

Single sensor – 2" stroke minimum; Dual sensors – 4" stroke minimum.

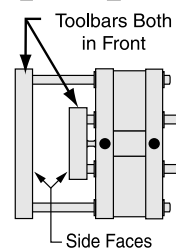
9 Ft. Rewired	Quick Discon. w/5M cord set	Sensor Type	LED	Electrical Characteristics
J70	J71	Reed	Yes	5-120 VDC/VAC, 0.5 Amp Max, 10 Watt Max, SPST N.O., 3.5 Voltage Drop
J72	J73	Electronic	Yes	Sourcing PNP 6-24 VDC, 0.50 Amp Max, 1.0 Voltage Drop
J74	J75	Electronic	Yes	Sinking NPN 6-24 VDC, 0.50 Amp Max, 1.0 Voltage Drop

Magnetic Piston

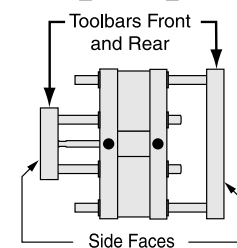
- J800** Customer supplies the sensors and mounting clamps
E800 Includes Dovetail Mounting Rail; customer supplies sensors

Tooling Style

TBF – Toolbars Both in Front



TFR – Toolbars Front & Rear



Toolbar Options

B – Blank Toolbar (No mounting holes; no dowel holes)

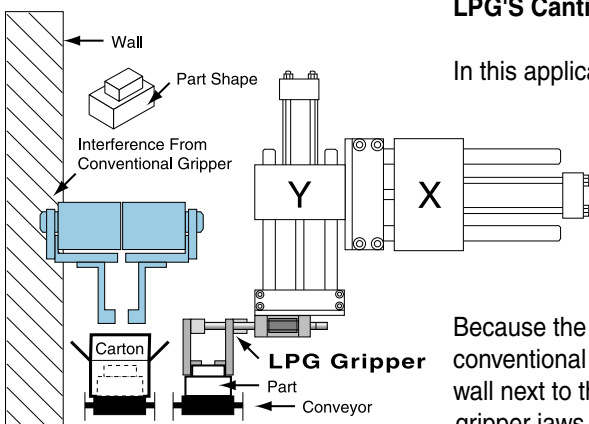
D – Toolbar Dowel Holes & Slots located on top and side mounting faces
 See dowel hole & slot configurations on page 22 & 23.

Magnetic Piston & Dovetail Style Sensors ("E")

For 2" Stroke & longer on all models

9 Ft. Rewired	Quick Discon. w/5M cord set	Sensor Type	LED	Electrical Characteristics
E70	E71	Reed	Yes	5-120 VDC/VAC, 0.03 Amp Max, 4 Watt Max, 2.0 Voltage Drop
E72	E73	Electronic	Yes	Sourcing PNP 6-24 VDC, 0.20 Amp Max, 0.5 Voltage Drop
E74	E75	Electronic	Yes	Sinking NPN 6-24 VDC, 0.20 Amp Max, 0.5 Voltage Drop
E76	E77	Reed	No	0-120 VDC/VAC, 0.5 Amp Max, 5 Watt Max, 0 Voltage Drop

LPG'S Cantilevered Jaw Arrangement avoids interference

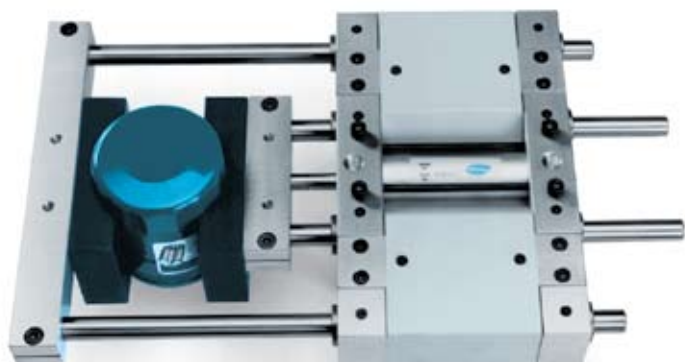


In this application an LPG Gripper is attached to a pick and place mechanism. "L shaped" fingers attached to the gripper jaws are positioned over a product conveyor in an automated shipping system. As each product passes under the gripper, the "L-shaped" fingers stop it. The fingers then grasp the product by clamping on its island area on top. Next the product is lifted, carried over to the carton positioned on the adjacent shipping conveyor, and placed inside.

Because the jaws must open perpendicular to the direction of conveyor travel, a conventional gripper (shown in blue) could not be used. It would interfere with the wall next to the carton conveyor. Only the LPG's cantilevered design permits the gripper jaws to be positioned as required without interference.

"LPG" Series Parallel Grippers

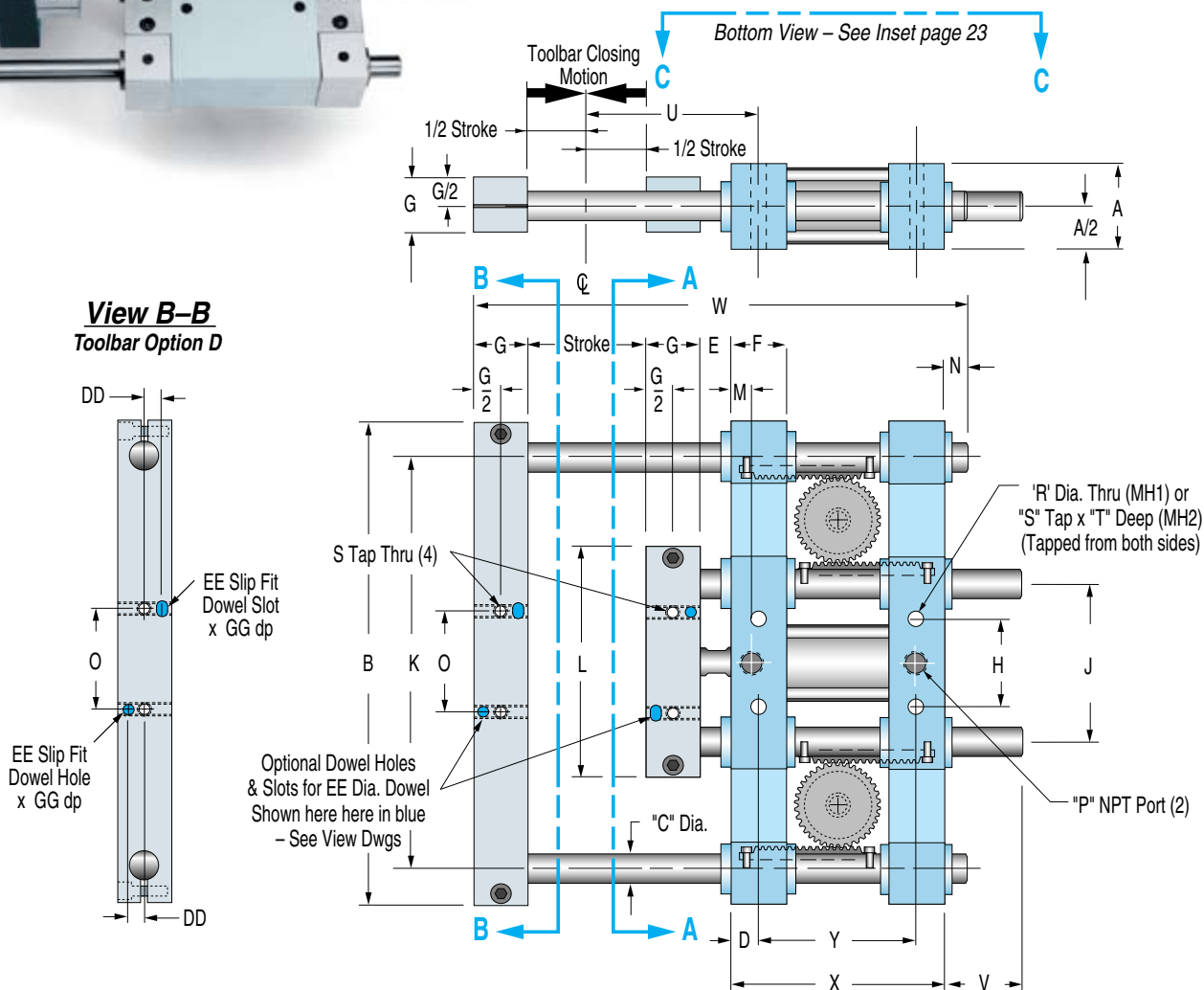
TBF Configurations (Toolbars Both in Front)



The **TBF** Configuration places the toolbars (jaws) in a cantilevered, or overhung arrangement, allowing the gripper jaws to be placed over the part to be gripped, while the body of the gripper is positioned clear of the part and its travel path.

Drawings show the LPG in its shortest possible stroke.

In both TBF & TFR configurations these grippers cannot be manufactured with less stroke than shown in the charts below.



Gripper Dimensions

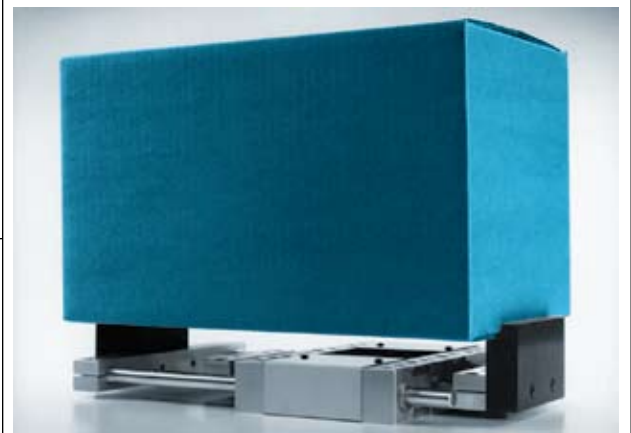
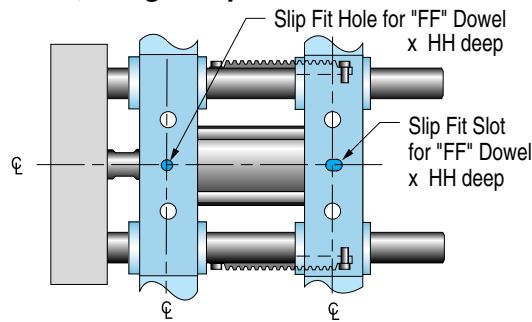
Models LPG 50 & LPG 75																						
Model	Stroke	A	B	C	D	DD	E	EE	F	FF	G	GG	H	HH	J	K	L	M	N	O	P	T
LPG 50	2" – 12"	1.470	8.38	.500	.50	.312	.50	3/16	1.00	1/4	1.00	.19	1.562	.25	2.750	7.125	4.00	.38	.38	1.750	1/8	.62
LPG 75	4" – 24"	2.470	13.38	.750	.62	.500	.75	1/4	1.25	3/8	1.50	.25	2.750	.38	4.500	11.500	6.38	.50	.44	2.750	1/4	1.00

Offering new levels of parts gripping versatility

TFR Configurations (Toolbars at Front & Rear)

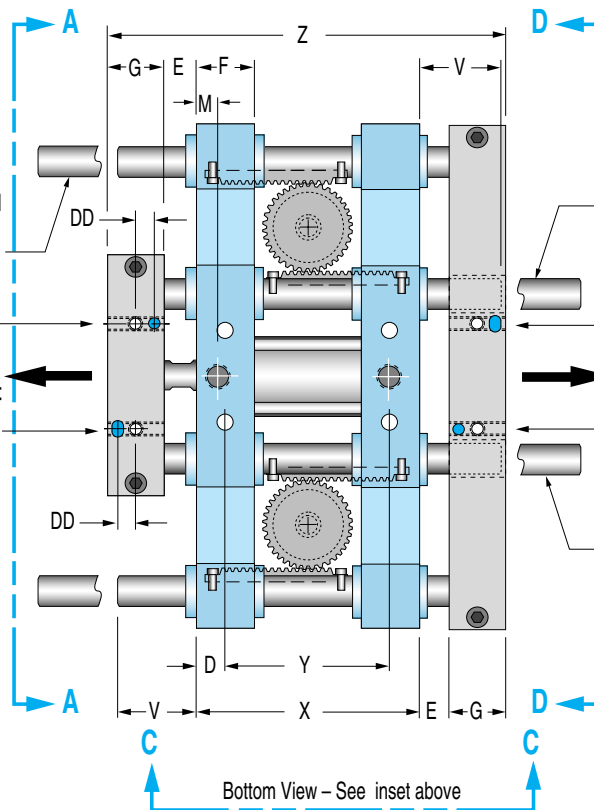
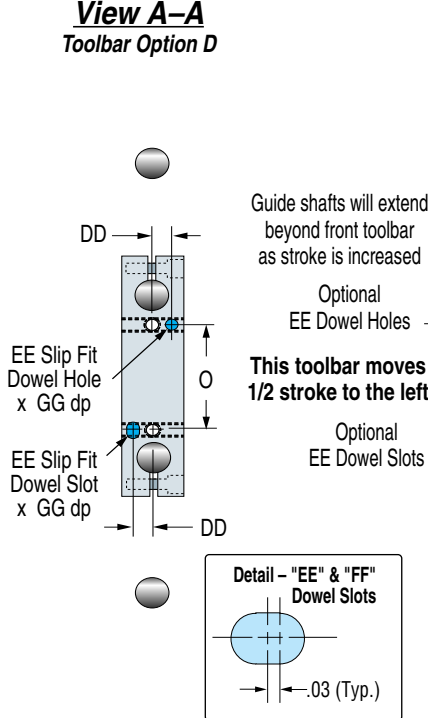
The **TFR** Configuration places one toolbar (jaw) at the front and the other toolbar (jaw) at the rear, providing a "wide stance" jaw arrangement for gripping larger parts.

View C-C, Integral Option "D"

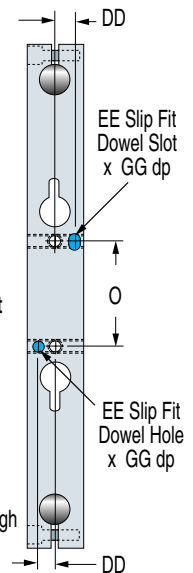


Pictured above is a special, dual-purpose LPG Gripper. The addition of a special rear toolbar provides "wide stance jaws (TFR)" for gripping the large carton shown. Standard "cantilevered jaws (TBF)" for smaller parts gripping can be seen beneath the carton to the left.

View A-A Toolbar Option D



View D-D Toolbar Option D



Model LPG 50 Standard Stroke Lengths						
	2.0	4.0	6.0	8.0	10.0	12.0
U	3.000	4.000	5.000	6.000	7.000	8.000
V	1.38	2.38	3.38	4.38	5.38	6.38
W	8.63	11.63	14.63	17.63	20.63	23.63
X	3.75	4.75	5.75	6.75	7.75	8.75
Y	2.750	3.750	4.750	5.750	6.750	7.750
Z	6.75	7.75	8.75	9.75	10.75	11.75

Model LPG 75 Standard Stroke Lengths								
	4.0	6.0	8.0	10.0	12.0	16.0	20.0	24.0
U	4.875	5.875	6.875	7.875	8.875	10.875	12.875	14.875
V	2.44	3.44	4.44	5.44	6.44	8.44	10.44	12.44
W	13.81	16.81	19.81	22.81	25.81	31.81	37.81	43.81
X	5.625	6.625	7.625	8.625	9.625	11.625	13.625	15.625
Y	4.375	5.375	6.375	7.375	8.375	10.375	12.375	14.375
Z	10.125	11.125	12.125	13.125	14.125	16.125	18.125	20.125