

# Pneumatic Parallel Grippers

## OPL 2 and 3-Finger

OPL is a compact two and three-finger parallel gripper featuring high reliability and a long service life, suitable for handling low weight or small components.

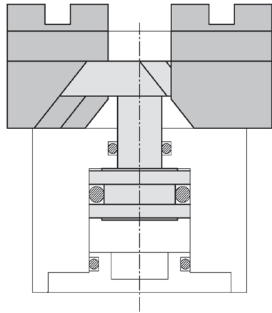
### Advantages

- Compact housing made of hard coated aluminum alloy.
- Sturdy C-slot with hardened steel gibs for effective jaw guidance, precise handling, and easy maintenance.
- Wedge-hook design for high-force transmission and jaw synchronization.
- Mounting from two sides in two screw directions for versatile and flexible integration
- Air supply via fitting screw connections.

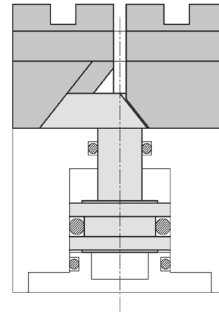


**EFFECTO**  
GROUP

## Open/Close Diagram

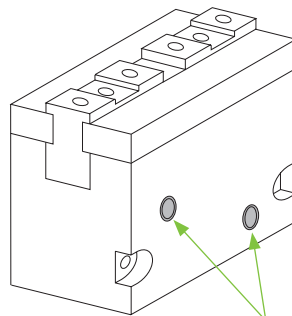


**OPEN**



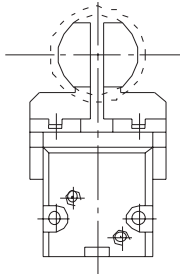
**CLOSED**

## Pneumatic Feed

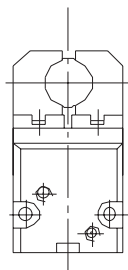


Pneumatic Connections

## Gripping Diagram



External Clamping



Internal Clamping

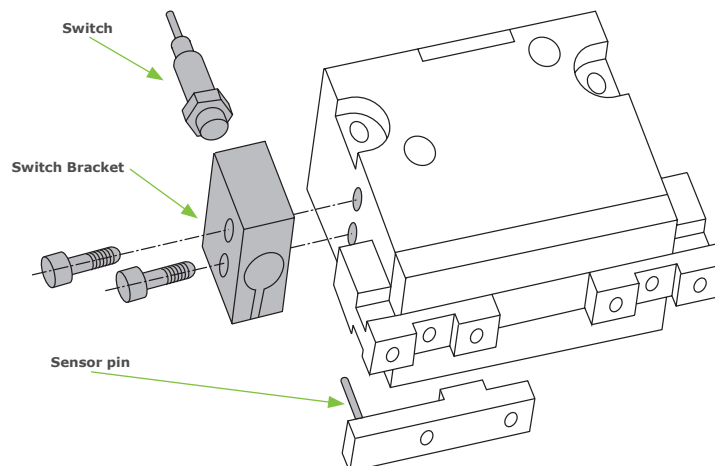
### Guidelines for the selection of a gripper model

Selection of the correct gripper model depends on the workpiece's weight, the friction coefficient between the fingers and the workpiece and the required motion of the application.

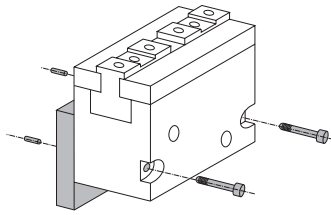
Due to inertial forces associated with motion, we recommend that the holding force of the gripper model should be from 10 to 20 times the workpiece's weight.

If the application presents high acceleration/deceleration or impacts during the motion, then a further safety margin should be considered.

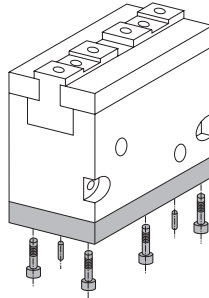
## Control Diagram



## Mounting

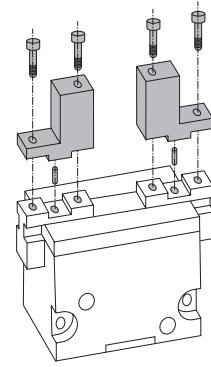


Side Mounting

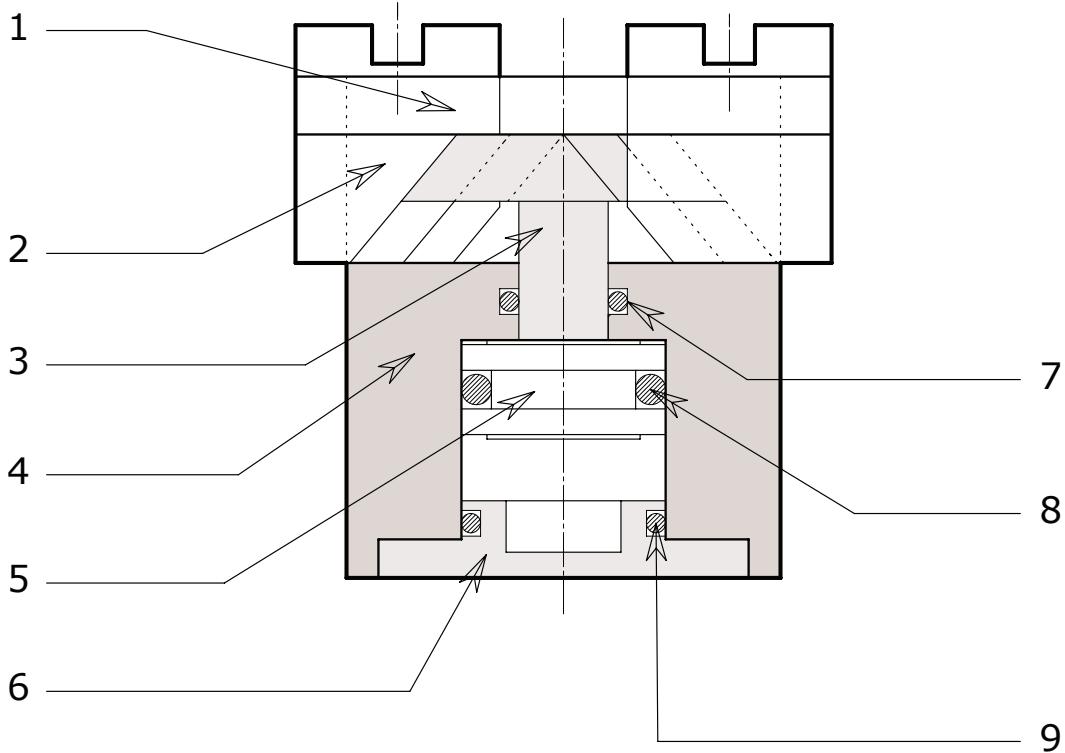
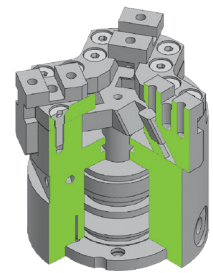
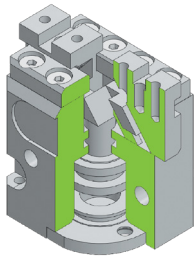


Axial Mounting  
Bottom fixing

## Fingers Mounting



## Construction Diagram

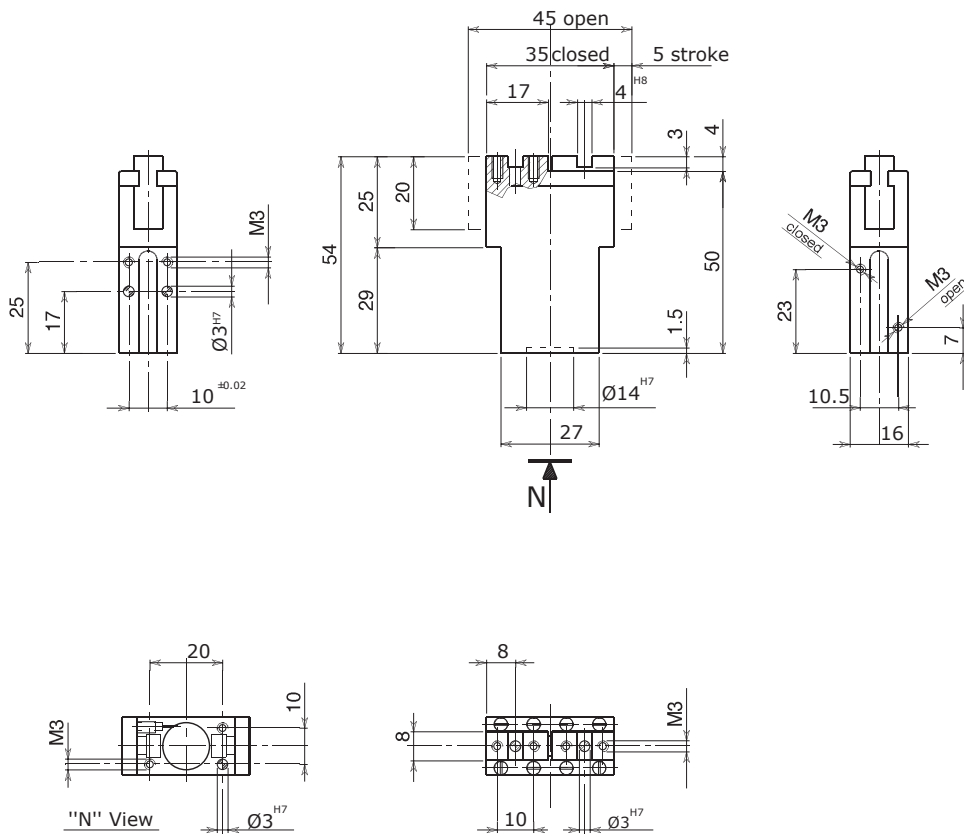


Nr.	Description	Material
01	GIB	Chrome Molybdenum Steel
02	JAW	Carbon Steel
03	DRIVE HUB	Chrome Molybdenum Steel
04	BODY	Aluminum Alloy
05	PISTON	Aluminum Alloy
06	CAP	Aluminum Alloy
07	SHAFT SEAL	NBR
08	PISTON SEAL	NBR
09	SEAL	NBR

# Dimensional Drawing



OPL 12



# TECHNICAL DATA

## OPL 12

Stroke per jaw	mm in	5 0.2
Fluid consumption double stroke	cm <sup>3</sup> in <sup>3</sup>	1.2 0.07
Closing force per jaw @ 6 bar	N lb	18 4
Opening force per jaw @ 6 bar	N lb	24 5
Total closing force @ 6 bar	N lb	36 8
Total opening force @ 6 bar	N lb	48 11
True clamping force per jaw only with spring	N lb	-
Recommended workpiece weight	Kg lb	0.18 0.40
Weight	Kg lb	0.08 0.18
Repeat accuracy	mm in	± 0.05 ± 0.002

\* Recommended workpiece weight is calculated for force-fit gripping with a coefficient of static friction of 0.15 and a safety factor of 3 against workpiece slippage.

Opening Pressure **2 - 8 bar (29 - 116 psi)**

Working Temperature **5 - 60 °C (41 - 140 °F)**

Noise Emission (Sound Pressure) **≤ 70 db(A) in any direction**

## Clamping Force Diagram

**Note:** "L" value, where the diagram's line ends, represents jaws' maximum length.



**F** = True clamping force per jaw - **L** = Reading distance  
Values read at a distance **L = 5 mm**



# TECHNICAL DATA

## OPL 30

Stroke per jaw	mm in	2.5 0.1
Fluid consumption double stroke	cm <sup>3</sup> in <sup>3</sup>	1.4 0.09
Closing force per jaw @ 6 bar	N lb	42 9.4
Opening force per jaw @ 6 bar	N lb	54 12
Total closing force @ 6 bar	N lb	84 19
Total opening force @ 6 bar	N lb	108 24
True clamping force per jaw only with spring	N lb	-
Recommended workpiece weight	Kg lb	0.42 0.90
Weight	Kg lb	0.10 0.22
Repeat accuracy	mm in	± 0.05 ± 0.002

\* Recommended workpiece weight is calculated for force-fit gripping with a coefficient of static friction of 0.15 and a safety factor of 3 against workpiece slippage.

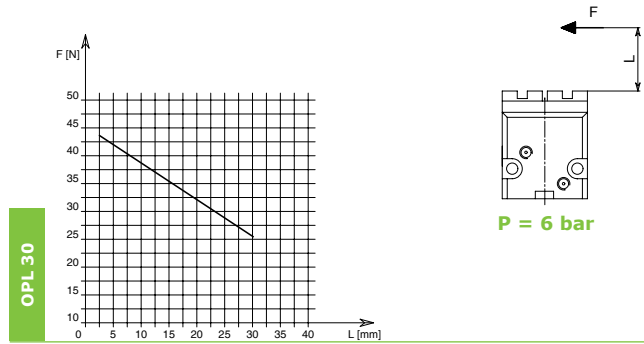
Opening Pressure **2 - 8 bar (29 - 116 psi)**

Working Temperature **5 - 60 °C (41 - 140 °F)**

Noise Emission (Sound Pressure) **≤ 70 db(A) in any direction**

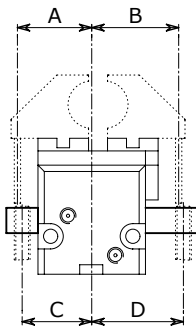
## Clamping Force Diagram

**Note:** "L" value, where the diagram's line ends, represents jaws' maximum length.

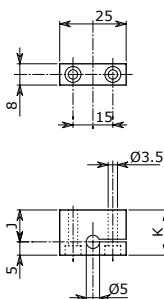


**F** = True clamping force per jaw - **L** = Reading distance  
Values read at a distance **L = 5 mm**

## Open-Closed Control Position with External Switches



		A	B	C	D
<b>OPL 30</b>	mm	21	23.5	19.5	25
	in	0.83	0.93	0.77	0.98



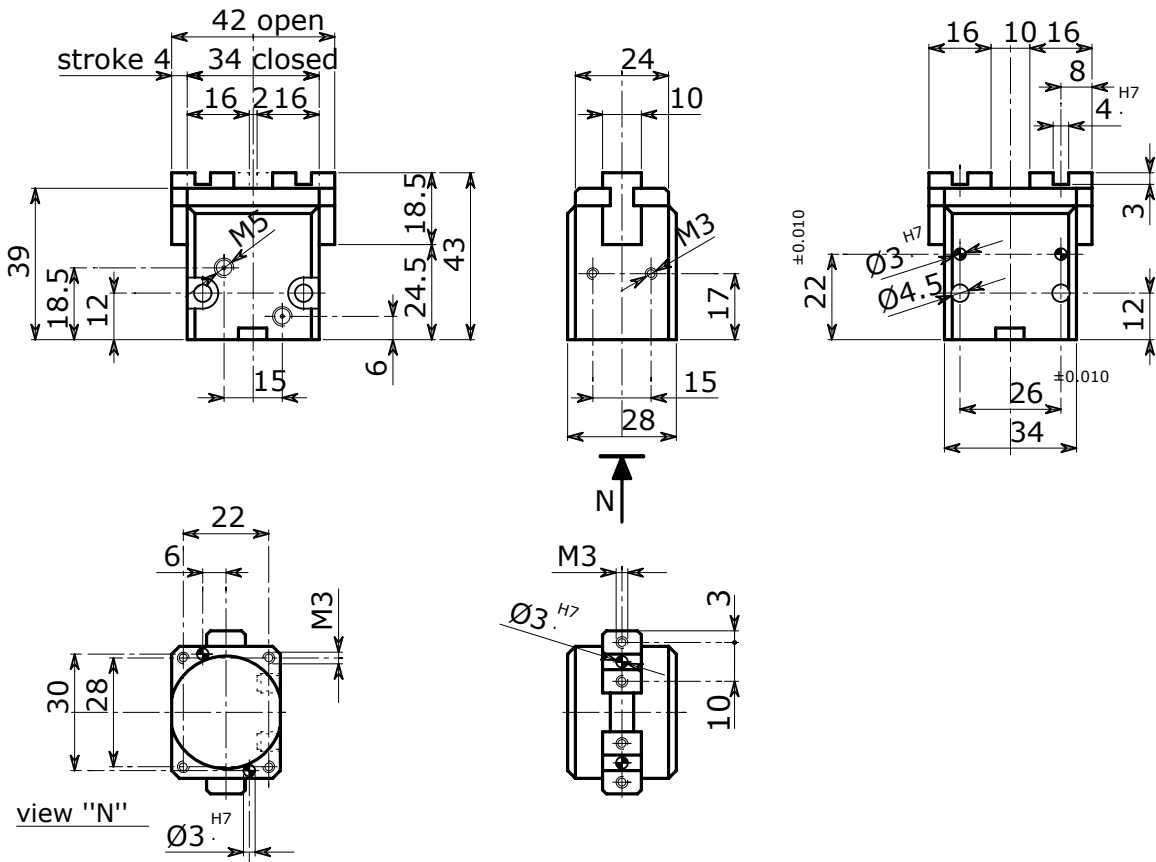
		Closed control		Open control	
		J	K	J	K
<b>OPL 30</b>	mm	5	10	10.5	15.5
	in	0.20	0.40	0.41	0.61

# Dimensional Drawing



OPL 35

OPL 35



# TECHNICAL DATA

## OPL 35

Stroke per jaw	mm in	4 0.16
Fluid consumption double stroke	cm <sup>3</sup> in <sup>3</sup>	1.7 0.1
Closing force per jaw @ 6 bar	N lb	30 7
Opening force per jaw @ 6 bar	N lb	43 10
Total closing force @ 6 bar	N lb	60 14
Total opening force @ 6 bar	N lb	86 19
True clamping force per jaw only with spring	N lb	-
Recommended workpiece weight	Kg lb	0.30 0.70
Weight	Kg lb	0.13 0.28
Repeat accuracy	mm in	± 0.05 ± 0.002

\* Recommended workpiece weight is calculated for force-fit gripping with a coefficient of static friction of 0.15 and a safety factor of 3 against workpiece slippage.

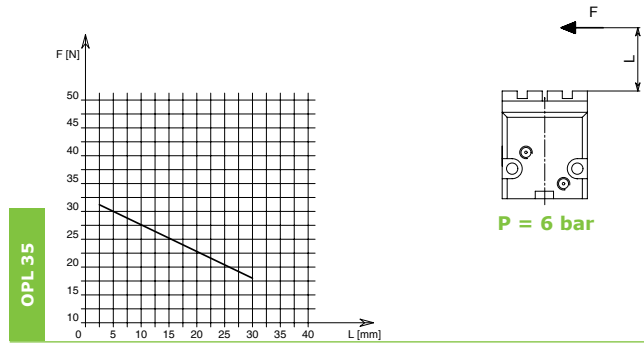
Opening Pressure **2 - 8 bar (29 - 116 psi)**

Working Temperature **5 - 60 °C (41 - 140 °F)**

Noise Emission (Sound Pressure) **≤ 70 db(A) in any direction**

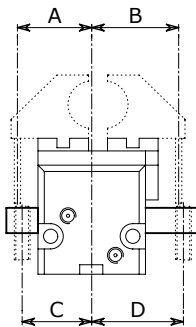
## Clamping Force Diagram

**Note:** "L" value, where the diagram's line ends, represents jaws' maximum length.

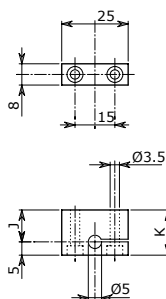


**F** = True clamping force per jaw - **L** = Reading distance  
Values read at a distance **L = 5 mm**

## Open-Closed Control Position with External Switches



		A	B	C	D
<b>OPL 35</b>	mm	23.5	27.5	22	29
	in	0.93	1.08	0.87	1.14

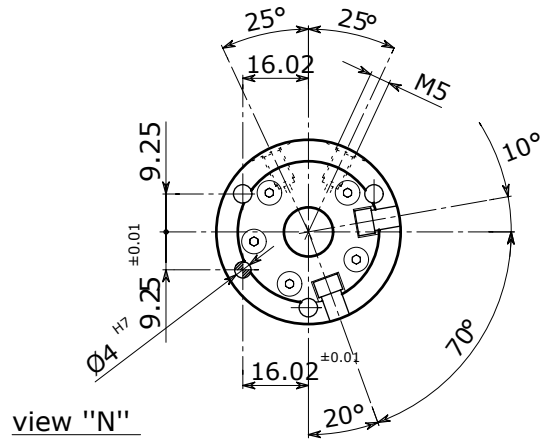
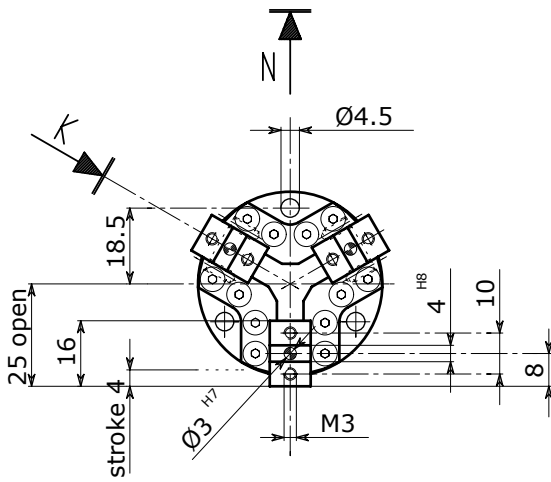
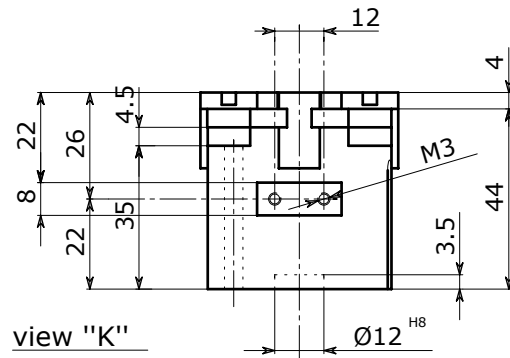
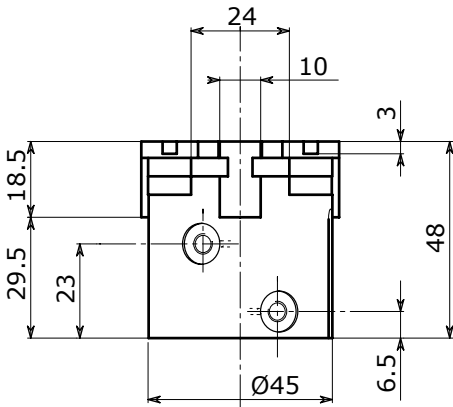


		Closed control		Open control	
		J	K	J	K
<b>OPL 35</b>	mm	5	10	12	17
	in	1.12	2.25	0.47	0.67

# Dimensional Drawing



## OPL 45-3



# TECHNICAL DATA

## OPL 45-3

Stroke per jaw	mm in		4 0.16
Fluid consumption double stroke	cm <sup>3</sup> in <sup>3</sup>		3.4 0.21
Closing force per jaw @ 6 bar	N lb		45 10
Opening force per jaw @ 6 bar	N lb		53 12
Total closing force @ 6 bar	N lb		135 30
Total opening force @ 6 bar	N lb		159 36
True clamping force per jaw only with spring	N lb		- -
Recommended workpiece weight	Kg lb		0.68 1.50
Weight	Kg lb		0.25 0.55
Repeat accuracy	mm in		± 0.05 ± 0.002

\* Recommended workpiece weight is calculated for force-fit gripping with a coefficient of static friction of 0.15 and a safety factor of 3 against workpiece slippage.

Opening Pressure **2 - 7 bar (29 - 102 psi)**

Working Temperature **5 - 60 °C (41 - 140 °F)**

Noise Emission (Sound Pressure) **≤ 70 db(A) in any direction**

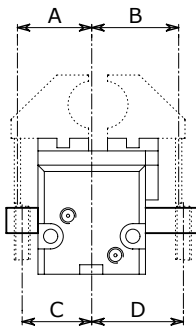
## Clamping Force Diagram

**Note:** "L" value, where the diagram's line ends, represents jaws' maximum length.

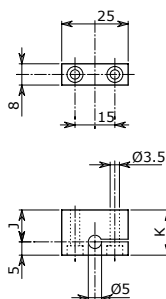


**F** = True clamping force per jaw - **L** = Reading distance  
Values read at a distance **L = 5 mm**

## Open-Closed Control Position with External Switches



		A	B	C	D
<b>OPL 45-3</b>	mm	26.5	30.5	25	32
	in	1.04	1.20	0.98	1.26



		Closed control		Open control	
		J	K	J	K
<b>OPL 45-3</b>	mm	5	10	12	17
	in	1.12	2.25	0.47	0.67

OPL 45-3



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