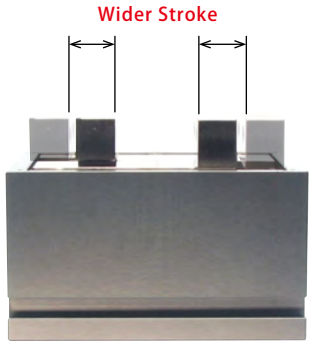
Parallel Robotic Hand Gripper

Model **WPH**

Compact Parallel Robotic Hand with High-Gripping Force
Ability to Install Auto Switches for Gripper Detection

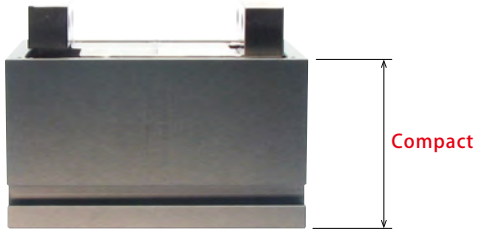
Wider Stroke

Wider opening and closing stroke allows for gripping various sizes of workpieces.



Compact Body with High Gripping Force

It is compact and has high gripping force, even with two internal cylinders. Reduction in height allows for less interference and optimal space utalization.



High Accuracy and High Rigidity

The cross roller guide function allows for high-accurate opening, closing and high rigidity.
Locating Repeatability: ±0.05mm

Light Weight

Reduced size and weight allows for best use of the robotic payload.

Long Life

Solid internal features provide for excellent durability.

Auto Switch Capability

Easy to install and adjust auto switches for gripper detection.

Model No. Indication

WPH 010 0 - A2 S

1 2 3 4

※ Only 1 2 are marked on the product. Please indicate the specifications of 3 4 if you need switches.

1 Cylinder Inner Diameter

010 : ϕ10 mm
016 : ϕ16 mm
020 : ϕ20 mm

2 Design No.

0 : Revision Number

3 Auto Switch Type

A1/A2 : 2-Wire Reed Auto Switch (Cable: 1m)
A1L/A2L : 2-Wire Reed Auto Switch (Cable: 3m)
B1/B2 : 3-Wire Solid State Auto Switch (Cable: 1m)
B1L/B2L : 3-Wire Solid State Auto Switch (Cable: 3m)

※ Please refer to P.173~P.180 for details on auto switches.

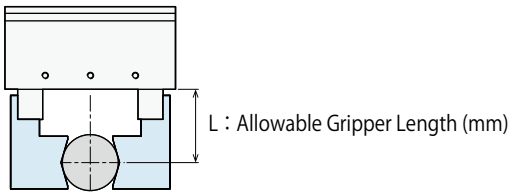
4 Number of Auto Switch Provided

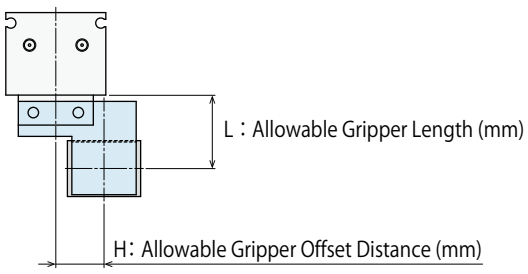
Blank : 2
S : 1

Specifications

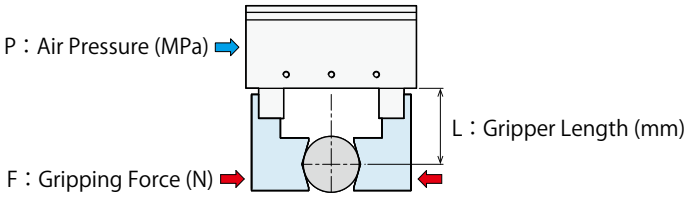
Model No.			WPH0100	WPH0160	WPH0200
Cylinder Inner Diameter		mm	10	16	20
Gripping Force ※1 (Air Pressure : At 0.5MPa)	Close Side	N	33	86	135
Full Stroke		mm	15	20	20
Locating Repeatability		mm	±0.05		
Stroke Error		mm	Opening : -0.5 ~ +1 / Closing : -1 ~ +0.5		
Allowable Gripper Length L (Air Pressure : at 0.5MPa) ※2		mm	40	50	60
Allowable Gripper Offset Distance H (Air Pressure : at 0.5MPa) ※2		mm	20	30	40
Maximum Cycle / min.			80		
Maximum Operating Pressure		MPa	0.7		
Minimum Operating Pressure		MPa	0.15		
Withstanding Pressure		MPa	1.05		
Operating Temperature Range		℃	5 ~ 60		
Usable Fluid			Dry Air		
Weight		kg	0.14	0.32	0.7

Notes
※1. Gripping force indicates the calculated value of the tip of primary parallel base.
※2. L : Allowable Gripper Length (mm), H : Allowable Gripper Offset Distance (mm). (Air Pressure : at 0.5MPa)





Gripping Force Performance Curve

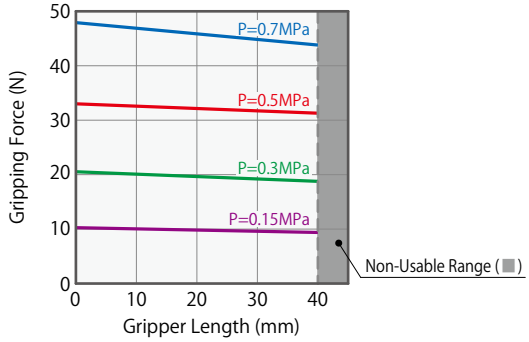


Notes

1. This chart and graph show the relationship among: F: Gripping Force (N), P: Air Pressure (MPa) and L: Gripper Length (mm).
2. Operation in the non-usable range may cause deformation, galling or air leakage.

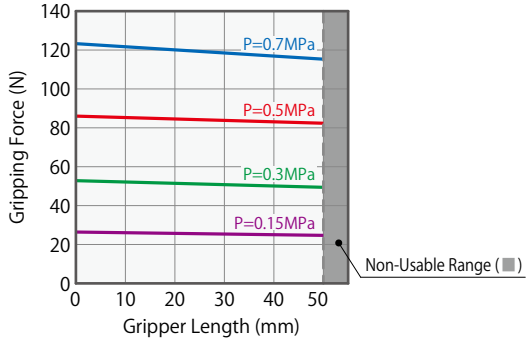
WPH0100

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=15	L=20	L=30	L=40
0.7	48	47	47	46	45	44
0.5	34	34	33	33	32	31
0.3	21	20	20	20	19	19
0.15	10	10	10	10	10	9



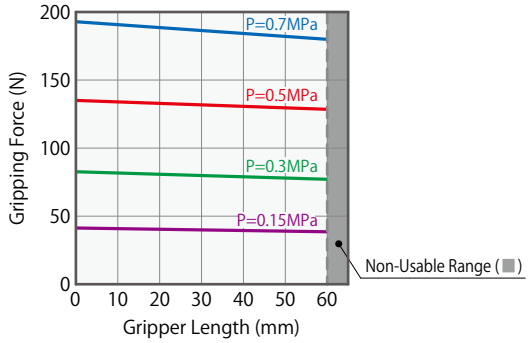
WPH0160

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=20	L=30	L=40	L=50
0.7	123	122	121	119	117	115
0.5	88	87	86	85	84	82
0.3	53	52	52	51	50	49
0.15	26	26	26	25	25	25



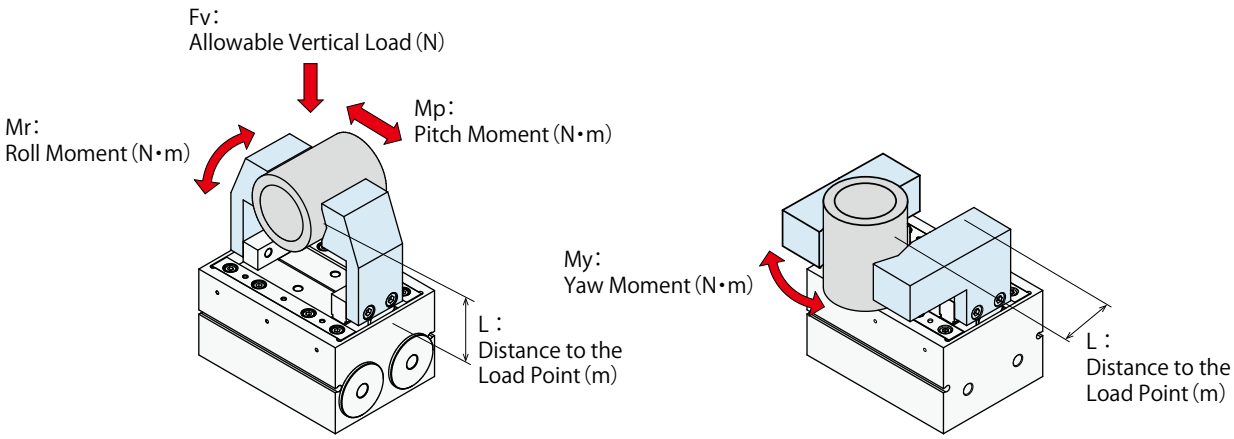
WPH0200

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=50	L=60
0.7	192	189	187	185	182	180
0.5	137	135	134	132	130	128
0.3	82	81	80	79	78	77
0.15	41	41	40	40	39	39



Allowable Load and Allowable Moment

Model No.	Fv：Allowable Vertical Load (N)	Maximum Allowable Moment (N・m)		
		Mp：Pitch Moment	My：Yaw Moment	Mr：Roll Moment
WPH0100	310	1.0	1.0	2.8
WPH0160	430	2.0	2.0	3.8
WPH0200	810	5.7	5.7	11.4



Notes

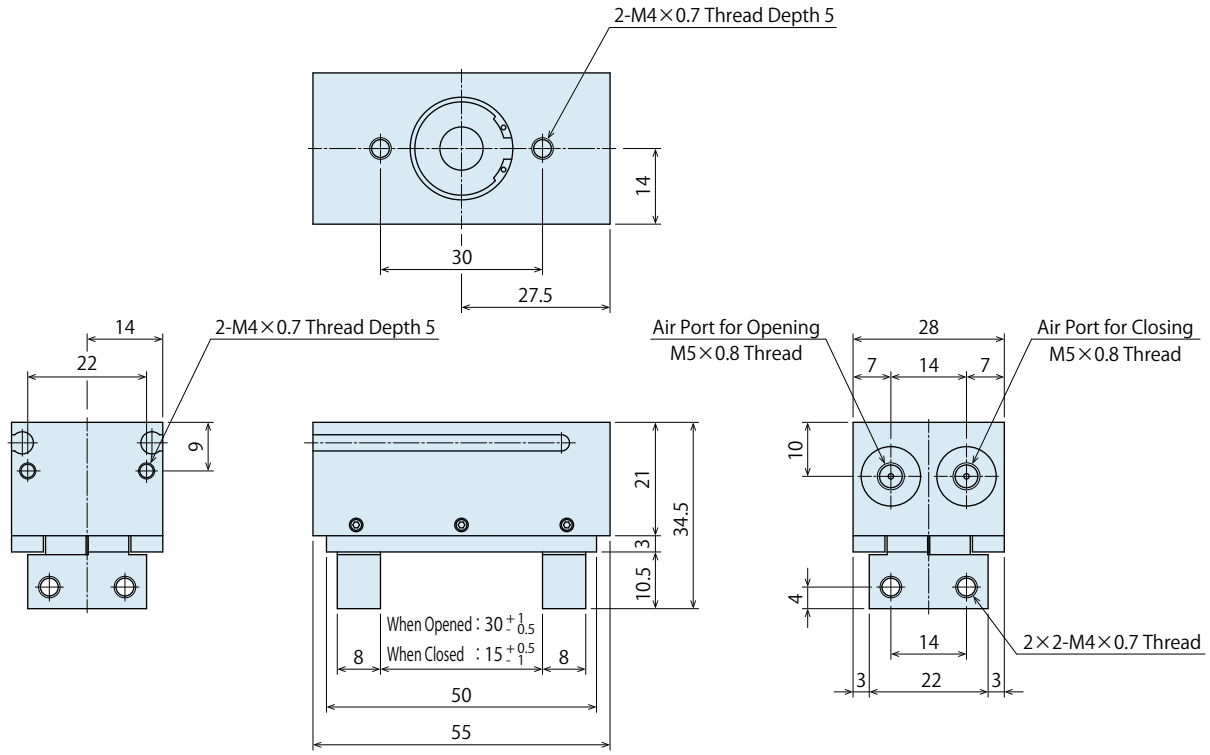
1. The values on the list are the static values.
2. The arrows show the direction of Fv: Allowable Vertical Load (N), Mp: Pitch Moment (N・m), My: Yaw Moment (N・m) and Mr: Roll Moment (N・m).

Allowable Load Calculation Formula

$$F：\text{Allowable Load (N)} = \frac{M：\text{Maximum Allowable Moment (N・m)}}{L：\text{Distance to the Load Point (m)}}$$

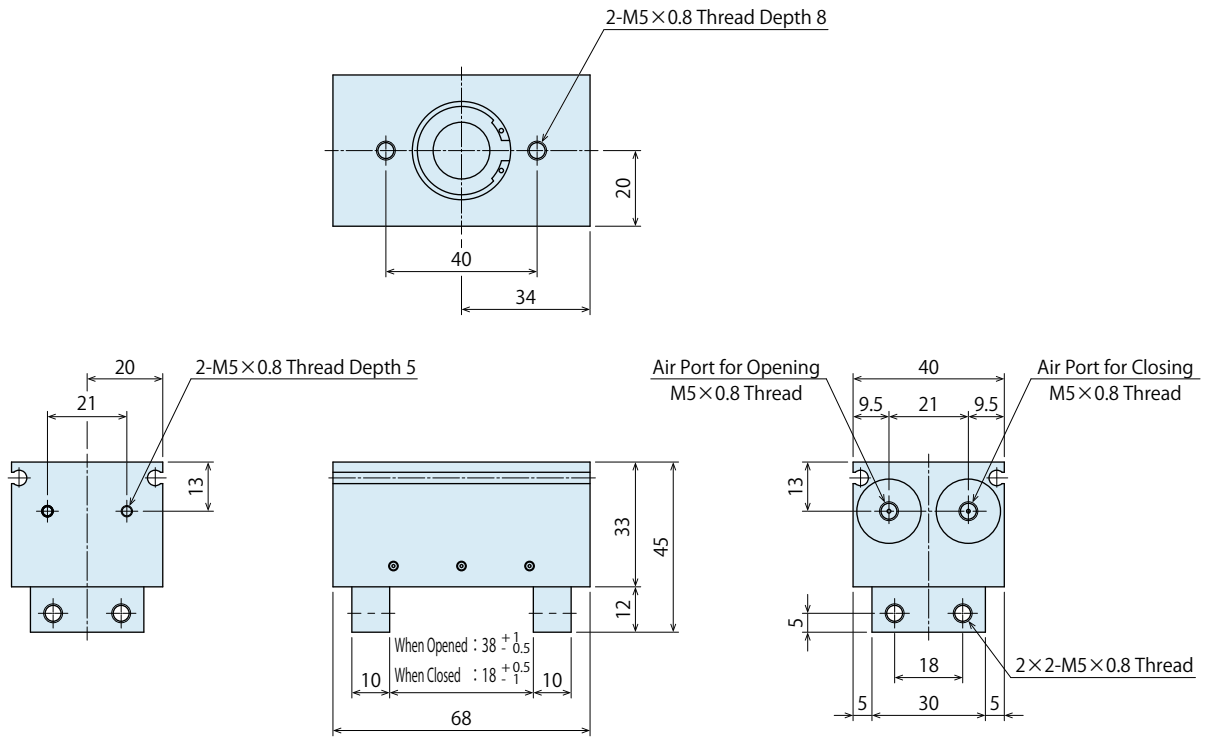
External Dimensions：WPH0100

※ The drawing shows the opened state of WPH0100.



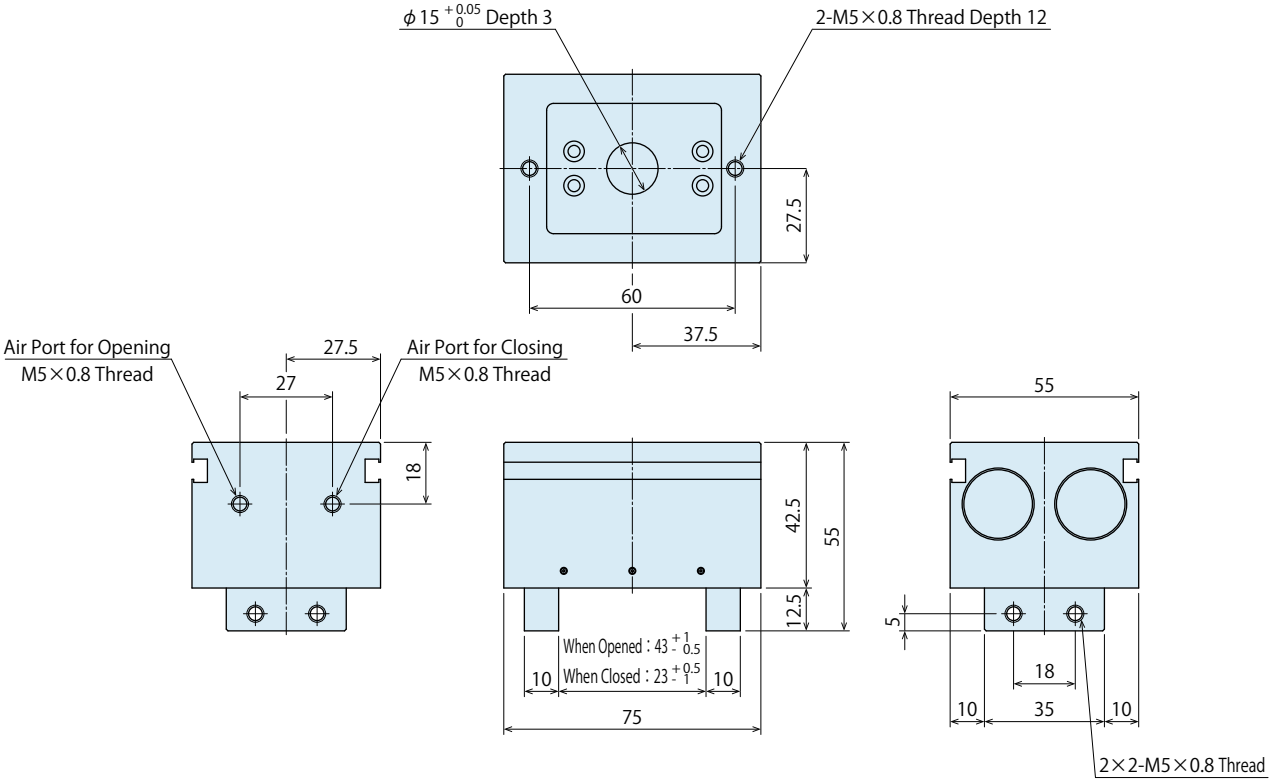
External Dimensions：WPH0160

※ The drawing shows the opened state of WPH0160.



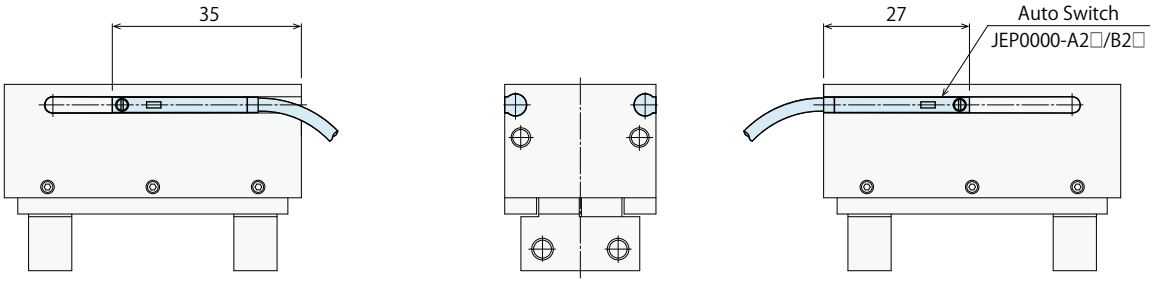
External Dimensions : WPH0200

※ The drawing shows the opened state of WPH0200.

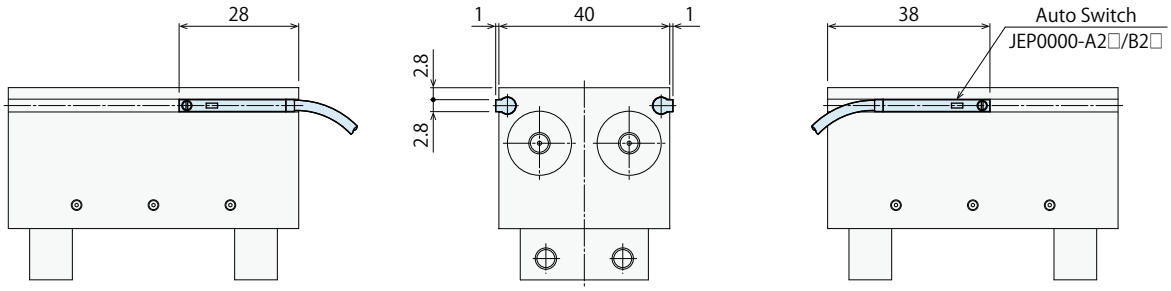


External Dimensions : Auto Switch

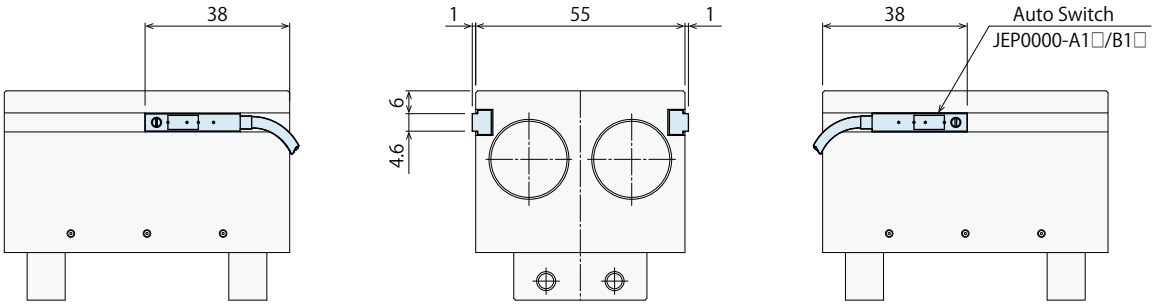
For WPH0100



For WPH0160

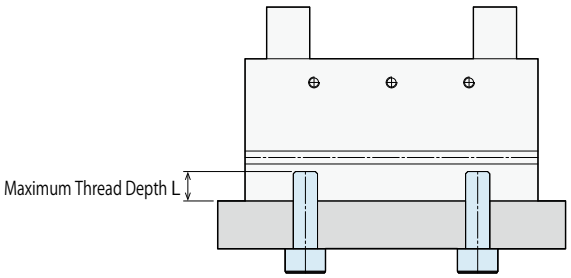


For WPH0200



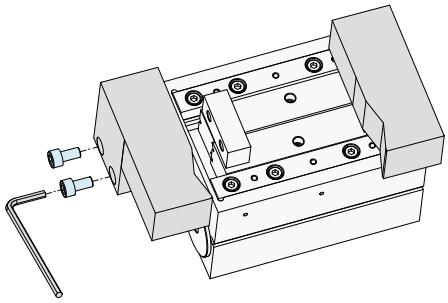
Installation Method

Tightening Torque for Cylinder Body



Model No.	Thread Size	Tightening Torque (N・m)	Max. Thread Depth L (mm)
WPH0100	M4×0.7	2.5	5
WPH0160	M5×0.8	5.0	8
WPH0200	M5×0.8	5.0	12

Tightening Torque for Gripper



Model No.	Thread Size	Tightening Torque (N・m)	Max. Thread Depth L (mm)
WPH0100	M4×0.7	2.5	8
WPH0160	M5×0.8	5.0	10
WPH0200	M5×0.8	5.0	10

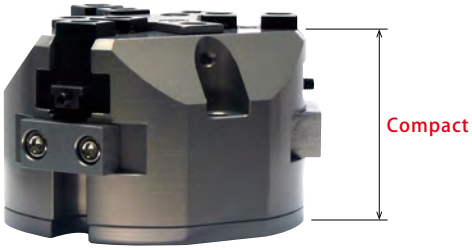
Three-Jaw Chuck

Model **WPP**

High Gripping Force with Wider Stroke
Compact, Light Weight, Powerful, Solid and Durable!!

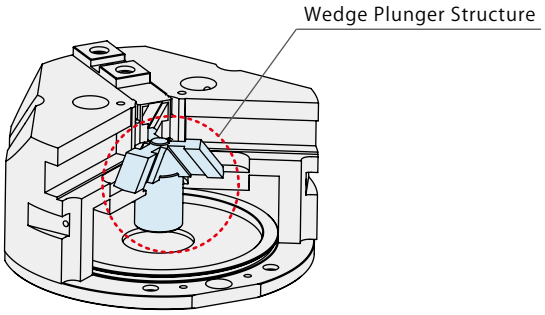
Compact and Light Weight

Small footprint by reducing overall height



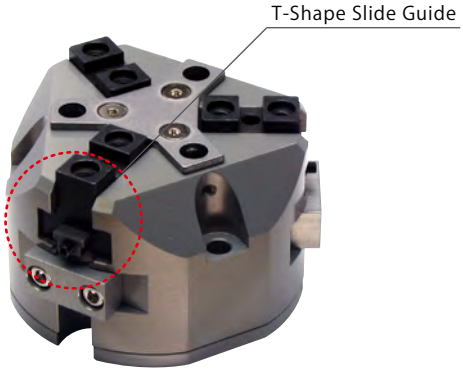
Strong and Stable Gripping Force

High gripping force is generated by wedge plunger structure. Limiting backlash at the end of stroke enables stable and powerful gripping.



Wider Stroke

Allowable stroke is increased by T-shape slide guide.



High Rigidity

The metal guides provide for higher and excellent rigidity.

Long Life

The body is manufactured with resistance to foreign substance, cutting oil and coolant for excellent durability.

Proximity Switch for Gripping Detection

The Three-Jaw Chuck design allows for easy proximity switch installation.

Model No. Indication

WPP 030 0 - P2 S - C

1 2 3 4 5

※ Only 1 2 are marked on the product. Please indicate the specifications of 3 4 5 if you need switches.

1 Cylinder Inner Diameter

030 : φ30 mm
040 : φ40 mm
050 : φ50 mm
060 : φ60 mm
080 : φ80 mm

2 Design No.

0 : Revision Number

3 Proximity Switch Type

P : 3-Wire Proximity Switch for Gripping Detection (Length: 32mm)
P2 : 3-Wire Proximity Switch for Gripping Detection (Length: 16mm)

※ Please refer to P.173~P.180 for details on proximity switches.

4 Number of Proximity Switch Provided

Blank : 2
S : 1

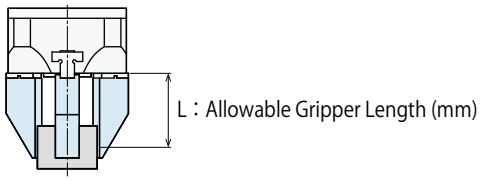
5 Option

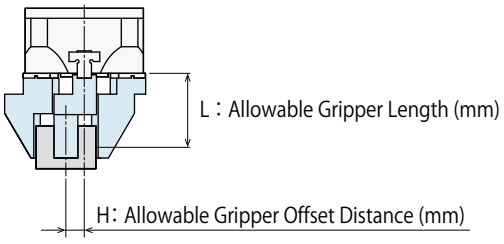
Blank : Without Center Pusher
C : With Center Pusher

Specifications

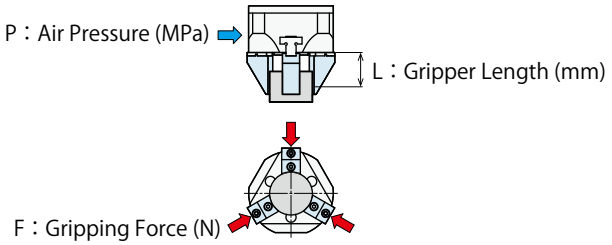
Model No.			WPP0300	WPP0400	WPP0500	WPP0600	WPP0800
Cylinder Inner Diameter		mm	30	40	50	60	80
Gripping Force ※1	Close Side	N	187	335	537	799	1451
(Air Pressure：At 0.5MPa)	Open Side	N	211	375	586	848	1589
Full Stroke		mm	8	12	14	16	20
Locating Repeatability		mm	±0.03				±0.08
Stroke Error		mm	Opening：-0.5 ～ +1 / Closing：-1 ～ +0.5				
Allowable Gripper Length L (Air Pressure：at 0.5MPa) ※2		mm	40	50	60	80	100
Allowable Gripper Offset Distance H (Air Pressure：at 0.5MPa) ※2		mm	40	50	60	80	100
Maximum Cycle / min.			70				40
Maximum Operating Pressure		MPa	0.7				
Minimum Operating Pressure		MPa	0.3				
Withstanding Pressure		MPa	1.05				
Operating Temperature Range		℃	5 ～ 60				
Usable Fluid			Dry Air				
Weight		kg	0.2	0.38	0.6	0.75	1.37

Notes
※1. Gripping force indicates the calculated value of the tip of primary jaw base.
※2. L：Allowable Gripper Length (mm), H：Allowable Gripper Offset Distance (mm). (Air Pressure：at 0.5MPa)





Gripping Force Performance Curve : Closed State

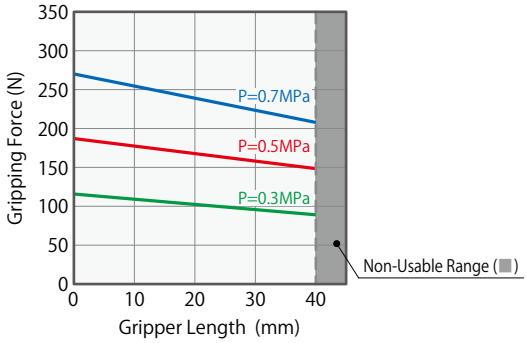


Notes

1. This chart and graph show the relationship among: F: Gripping Force (N), P: Air Pressure (MPa) and L: Gripper Length (mm).
2. Operation in the non-usable range may cause deformation, galling or air leakage.

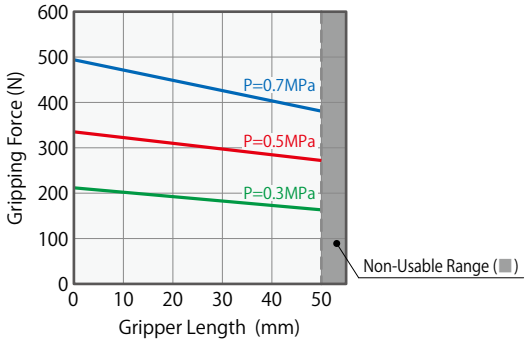
WPP0300

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=15	L=20	L=30	L=40
0.7	279	263	249	235	222	208
0.5	193	188	178	168	158	148
0.3	116	113	107	101	95	89



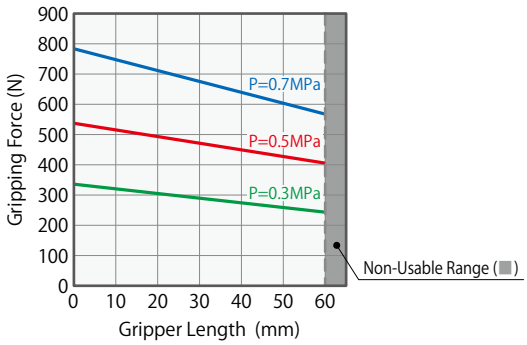
WPP0400

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=20	L=30	L=40	L=50
0.7	494	483	442	422	401	381
0.5	353	345	316	301	287	272
0.3	212	207	190	181	172	163



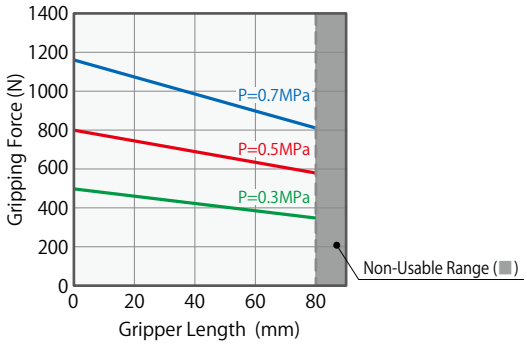
WPP0500

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=50	L=60
0.7	769	711	682	654	625	567
0.5	549	508	487	467	446	405
0.3	329	305	292	280	268	243



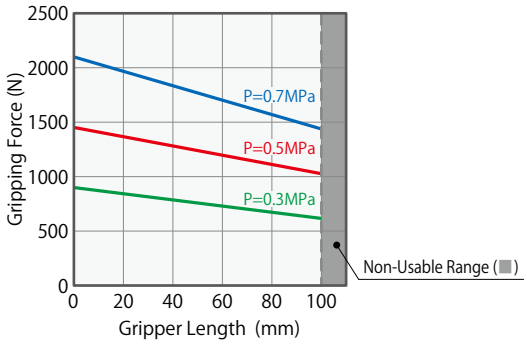
WPP0600

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=60	L=80
0.7	1142	1068	1031	994	884	810
0.5	815	763	739	710	631	579
0.3	489	458	442	426	379	347

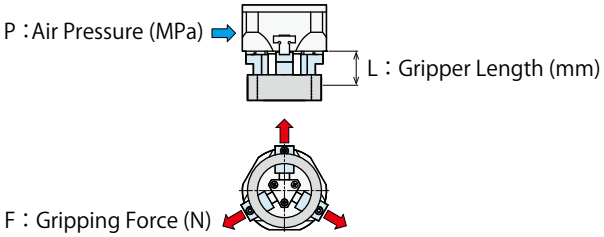


WPP0800

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=40	L=60	L=80	L=100
0.7	2070	1955	1840	1667	1552	1437
0.5	1478	1396	1314	1191	1109	1027
0.3	889	838	788	714	665	616



Gripping Force Performance Curve : Opened State

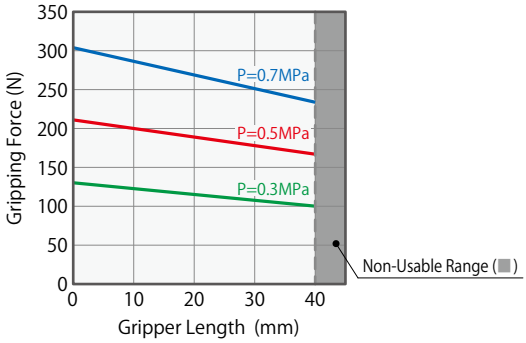


Notes

1. This chart and graph show the relationship among: F: Gripping Force (N), P: Air Pressure (MPa) and L: Lever Length (mm).
2. Operation in the non-usable range may cause deformation, galling or air leakage.

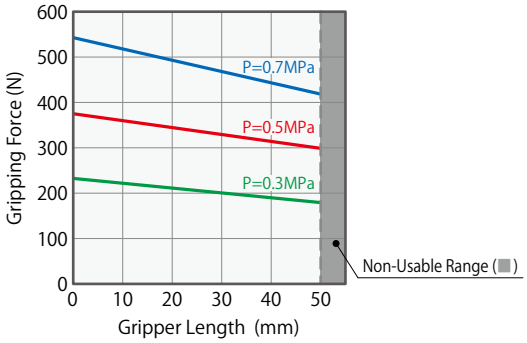
WPP0300

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=15	L=20	L=30	L=40
0.7	304	296	280	265	244	234
0.5	217	211	200	184	178	167
0.3	130	127	120	114	107	100



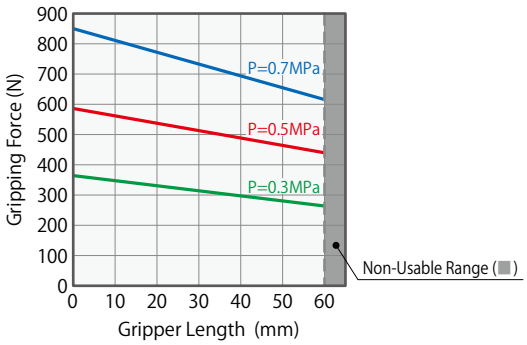
WPP0400

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=20	L=30	L=40	L=50
0.7	543	531	486	463	441	418
0.5	388	379	347	331	315	299
0.3	233	228	208	199	189	179



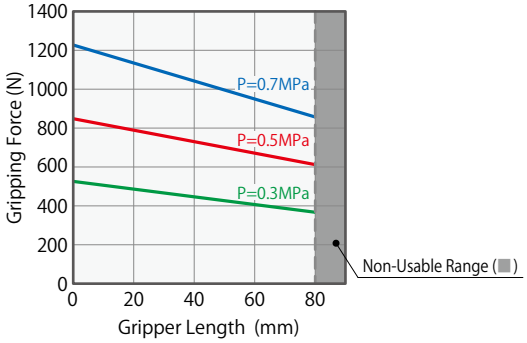
WPP0500

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=50	L=60
0.7	834	772	740	704	678	616
0.5	596	551	529	507	484	440
0.3	358	331	317	304	291	264



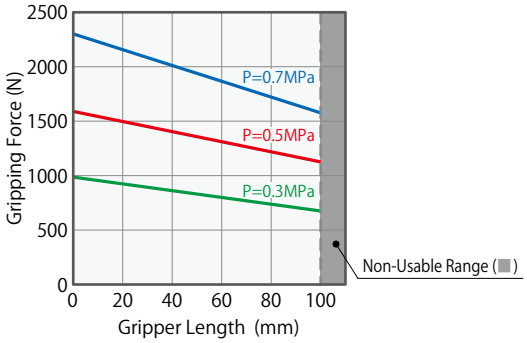
WPP0600

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=60	L=80
0.7	1207	1129	1090	1052	935	857
0.5	862	807	779	751	668	612
0.3	517	484	467	451	401	367



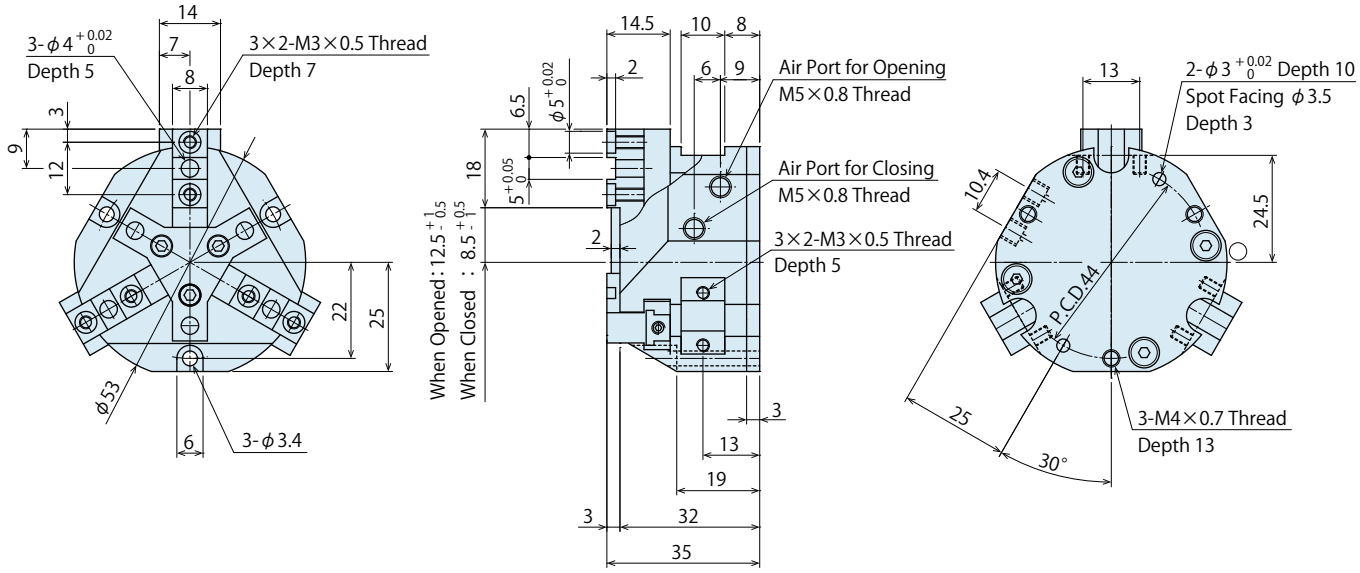
WPP0800

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=40	L=60	L=80	L=100
0.7	2269	2143	2017	1828	1702	1576
0.5	1621	1531	1441	1306	1216	1126
0.3	973	918	864	783	729	675



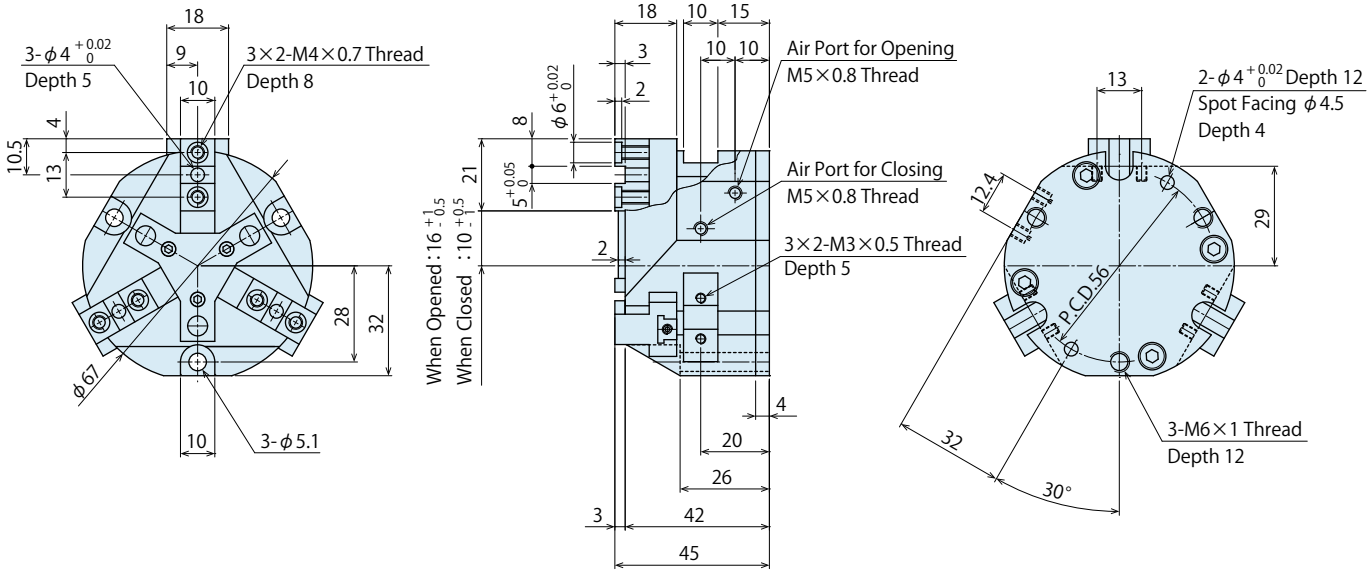
External Dimensions : WPP0300

※ The drawing shows the opened state of WPP0300.



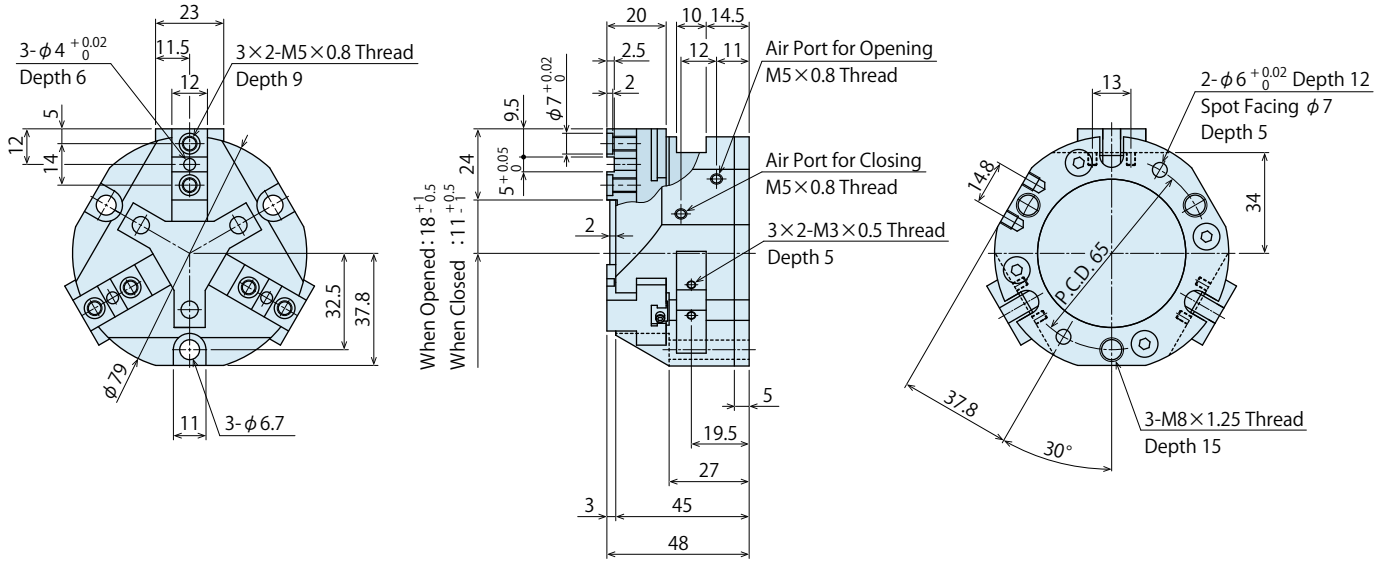
External Dimensions : WPP0400

※ The drawing shows the opened state of WPP0400.



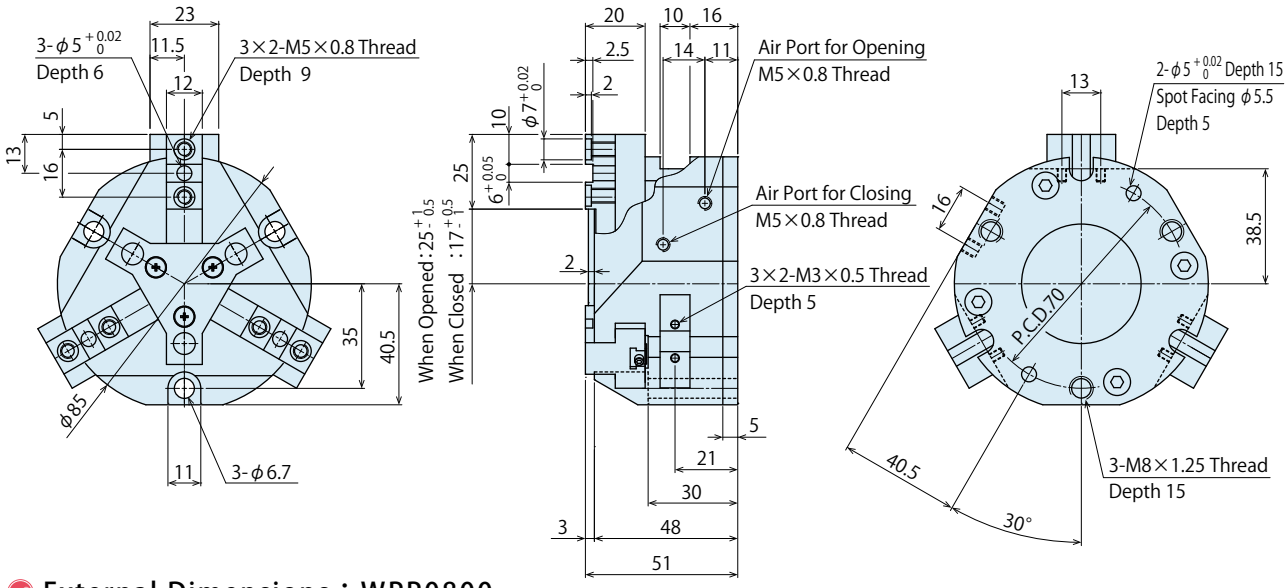
External Dimensions : WPP0500

※ The drawing shows the opened state of WPP0500.



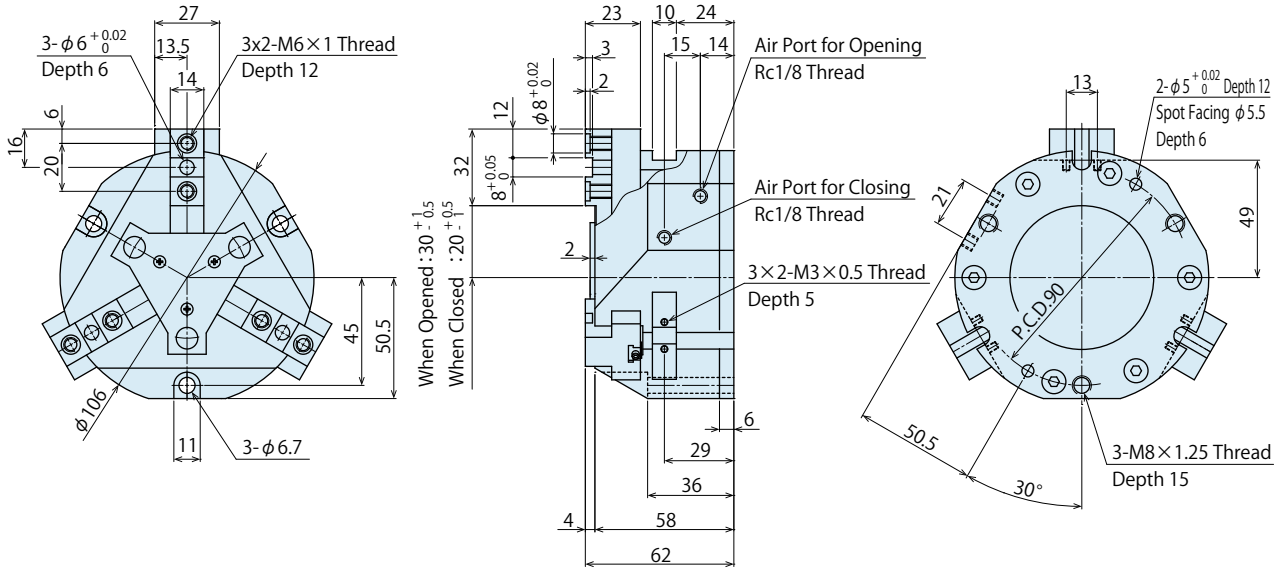
External Dimensions : WPP0600

※ The drawing shows the opened state of WPP0600.



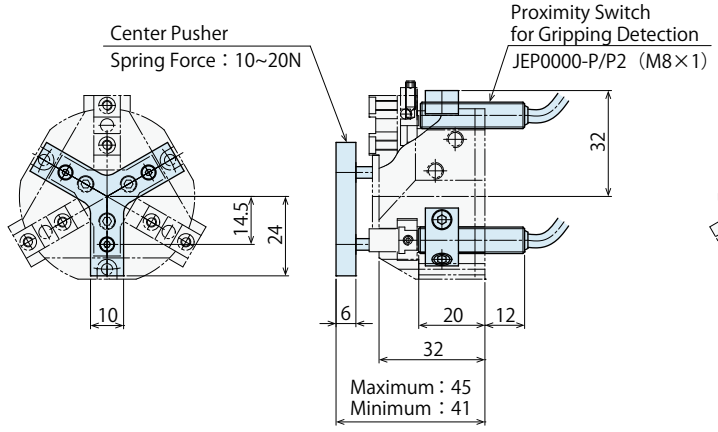
External Dimensions : WPP0800

※ The drawing shows the opened state of WPP0800.

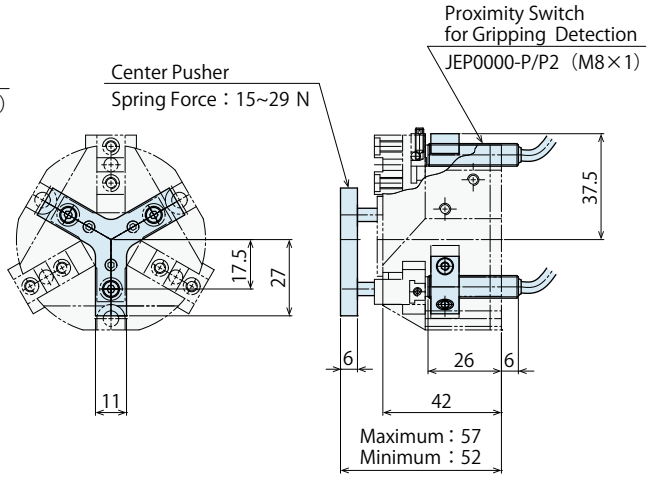


External Dimensions：Proximity Switch for Gripping Detection, Center Pusher

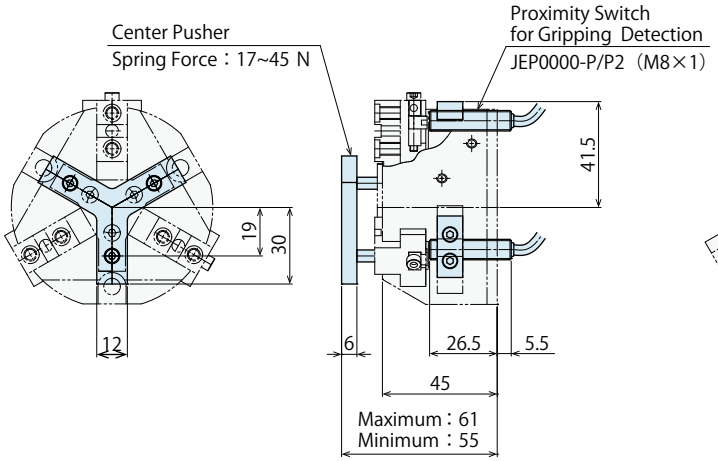
WPP0300-□□□-C



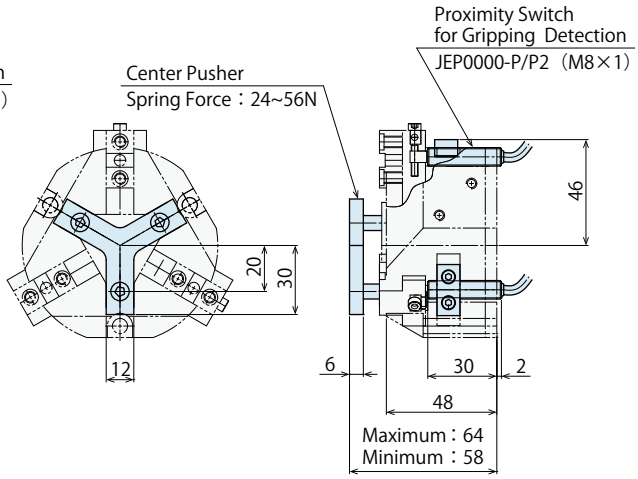
WPP0400-□□□-C



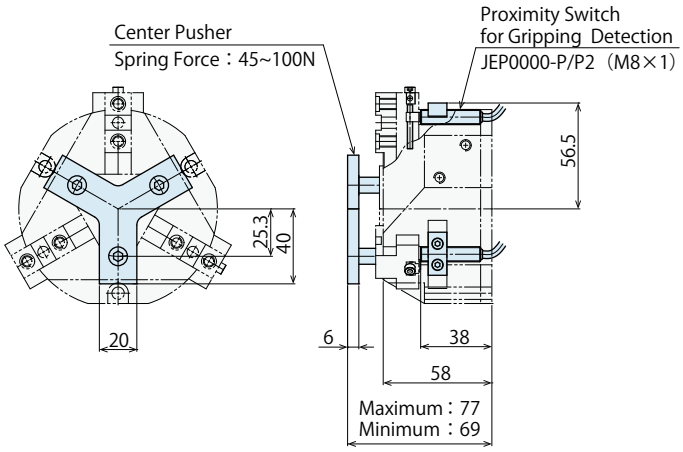
WPP0500-□□□-C



WPP0600-□□□-C



WPP0800-□□□-C

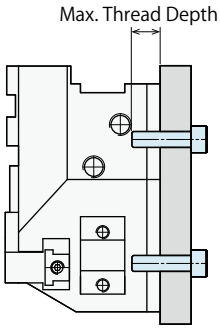


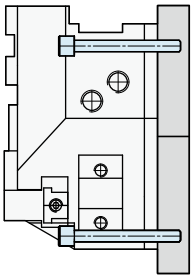
Note

1. If choosing Proximity Switch for Gripping Detection Type P (Length 32mm) for WPP0300~0600, the switch sticks out from the bottom surface of the body. For Type P2 (Length 16mm), the sensor is set into the body.

Installation Method

Tightening Torque for Cylinder Body

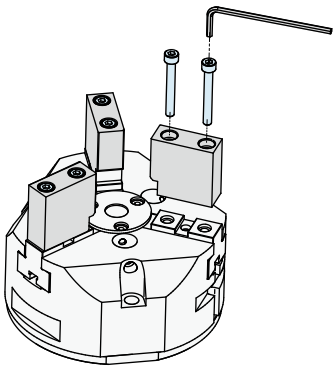




Model No.	Thread Size	Tightening Torque (N・m)	Max. Thread Depth L (mm)
WPP0300	M4×0.7	2.5	13
WPP0400	M6×1	7.9	12
WPP0500	M8×1.25	15.4	15
WPP0600	M8×1.25	15.4	15
WPP0800	M8×1.25	15.4	15

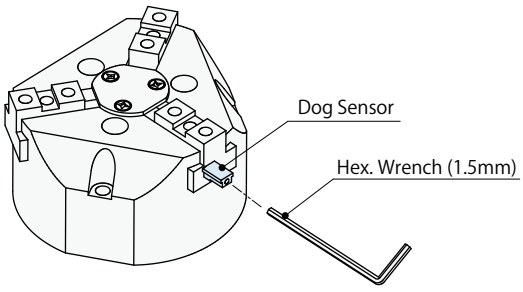
Model No.	Thread Size	Tightening Torque (N・m)
WPP0300	M3×0.5	1.1
WPP0400	M5×0.8	5.0
WPP0500	M6×1	7.9
WPP0600	M6×1	7.9
WPP0800	M6×1	7.9

Tightening Torque for Gripper



Model No.	Thread Size	Tightening Torque (N・m)	Max. Thread Depth L (mm)
WPP0300	M3×0.5	1.1	7
WPP0400	M4×0.7	2.5	8
WPP0500	M5×0.8	5.0	9
WPP0600	M5×0.8	5.0	9
WPP0800	M6×1	7.9	12

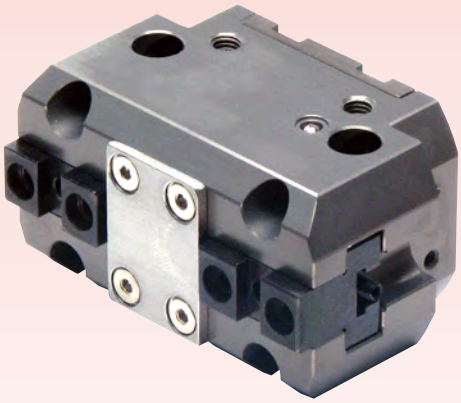
Dog Sensor Installation Method



Proximity Switch is used for opening and closing detection of the cylinder.
Match the dog sensor to the detection position and tighten it with the hexagon wrench (1.5mm).

Two-Jaw Chuck

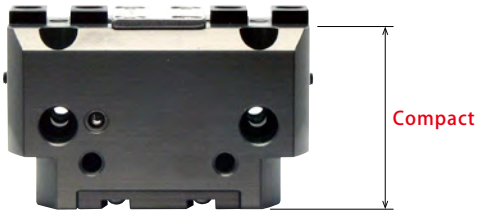
Model **WPQ**



High Gripping Force with Wider Stroke
Compact, Light Weight, Powerful, Solid and Durable!

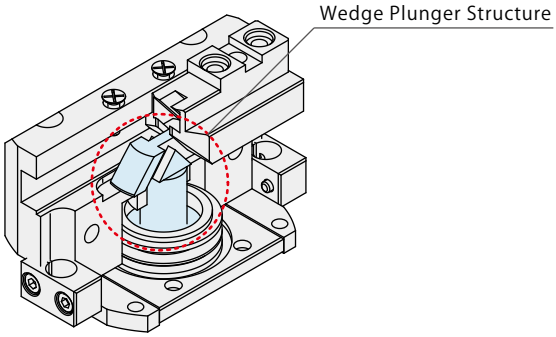
Compact and Light Weight

Reduced height for smaller footprint.



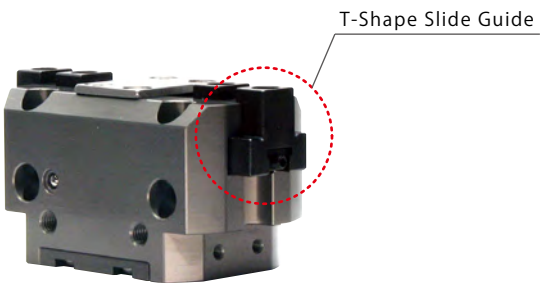
Strong and Stable Gripping Force

High gripping force is generated by wedge plunger structure. Limiting backlash at the end of stroke enables stable and powerful gripping.



Wider Stroke

Allowable stroke is increased by T-shape slide guide.



High Rigidity

The metal guides provide for higher and excellent rigidity.

Long Life

The body is designed and manufactured to be resistant to foreign substances, cutting oil and coolant for longer durability.

Proximity Switch Installation for Gripping Detection

The Two-Jaw Chuck design allows for easy proximity switch installation.

Model No. Indication

WPQ 025 0 - P2 S
1 2 3 4

※ Only 1 2 are marked on the product. Please indicate the specifications of 3 4 if you need switches.

1 Cylinder Inner Diameter

025 : ϕ25 mm
040 : ϕ40 mm
050 : ϕ50 mm
060 : ϕ60 mm
080 : ϕ80 mm

2 Design No.

0 : Revision Number

3 Proximity Switch Type

P : 3-Wire Proximity Switch for Gripping Detection (Length: 32mm)
P2 : 3-Wire Proximity Switch for Gripping Detection (Length: 16mm)

※ Please refer to P.173~P.180 for details on proximity switches.

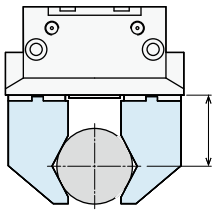
4 Number of Proximity Switch Provided

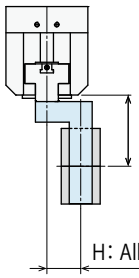
Blank : 2
S : 1

Specifications

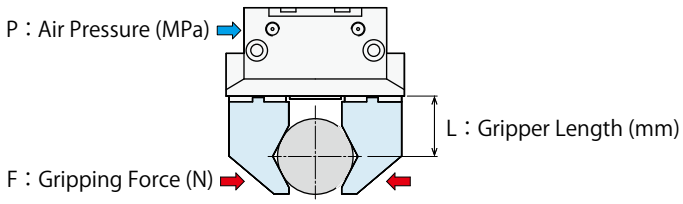
Model No.			WPQ0250	WPQ0400	WPQ0500	WPQ0600	WPQ0800
Cylinder Inner Diameter		mm	25	40	50	60	80
Gripping Force ※1	Close Side	N	121	322	497	778	1049
(Air Pressure：At 0.5MPa)	Open Side	N	147	373	592	876	1118
Full Stroke		mm	12	20	26	32	50
Locating Repeatability		mm	±0.03	±0.08			±0.1
Stroke Error		mm	Opening：-0.5 ～ +1 / Closing：-1 ～ +0.5				
Allowable Gripper Length L (Air Pressure：at 0.5MPa) ※2		mm	35	50	60	80	110
Allowable Gripper Offset Distance H (Air Pressure：at 0.5MPa) ※2		mm	35	50	60	80	110
Maximum Cycle / min.			100	60			30
Maximum Operating Pressure		MPa	0.7				
Minimum Operating Pressure		MPa	0.3				
Withstanding Pressure		MPa	1.05				
Operating Temperature Range		℃	5 ～ 60				
Usable Fluid			Dry Air				
Weight		kg	0.27	0.75	1.3	2.4	5.0

Notes
※1. Gripping force indicates the calculated value of the tip of primary jaw base.
※2. L：Allowable Gripper Length (mm), H：Allowable Gripper Offset Distance (mm). (Air Pressure：at 0.5MPa)





Gripping Force Performance Curve : Closed State

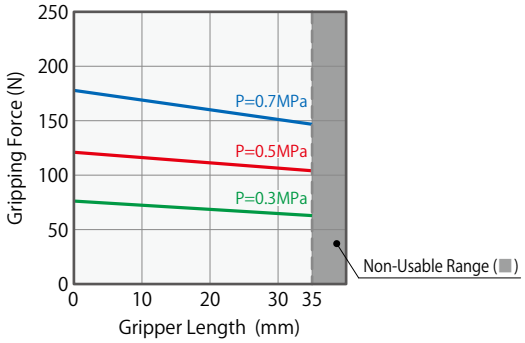


Notes

1. This chart and graph show the relationship among: F: Gripping Force (N), P: Air Pressure (MPa) and L: Gripper Length (mm).
2. Operation in the non-usable range may cause deformation, galling or air leakage.

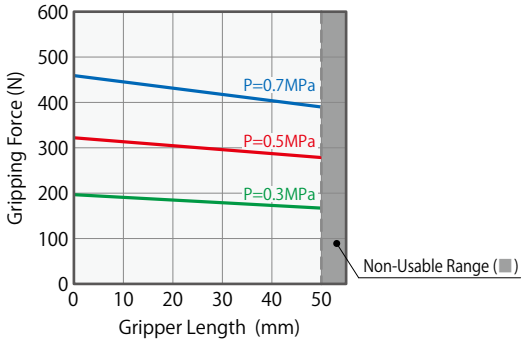
WPQ0250

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=15	L=20	L=30	L=35
0.7	178	174	166	158	150	142
0.5	127	124	119	113	107	102
0.3	76	75	71	68	64	60



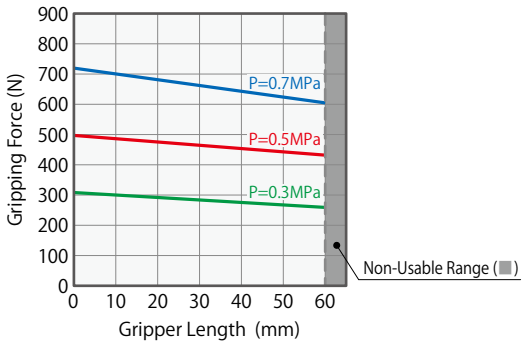
WPQ0400

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=20	L=30	L=40	L=50
0.7	459	453	428	415	402	390
0.5	328	323	305	296	287	278
0.3	197	194	183	178	172	167



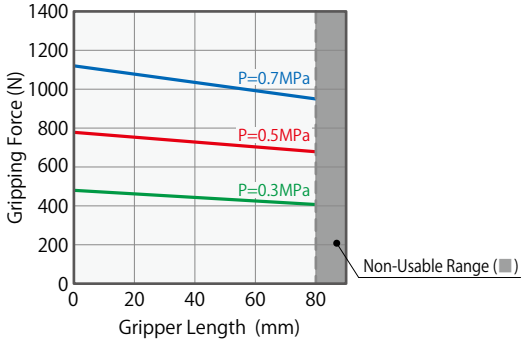
WPQ0500

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=50	L=60
0.7	712	681	666	650	635	605
0.5	508	486	476	465	454	432
0.3	305	292	285	279	272	259



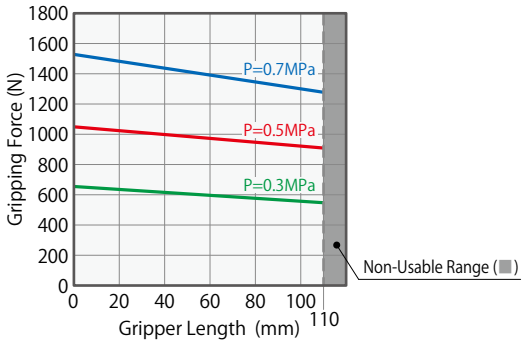
WPQ0600

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=60	L=80
0.7	1111	1075	1057	1039	985	958
0.5	793	768	755	742	704	678
0.3	476	461	453	445	422	407

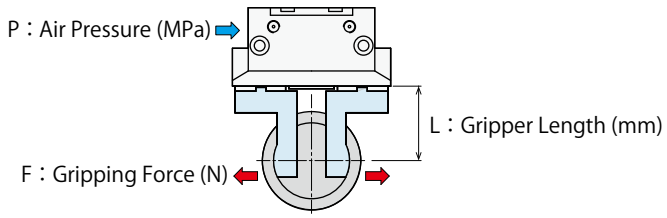


WPQ0800

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=20	L=40	L=60	L=80	L=100	L=110
0.7	1477	1436	1376	1335	1295	1280
0.5	1055	1026	983	954	925	910
0.3	633	616	590	572	555	550



Gripping Force Performance Curve : Opened State

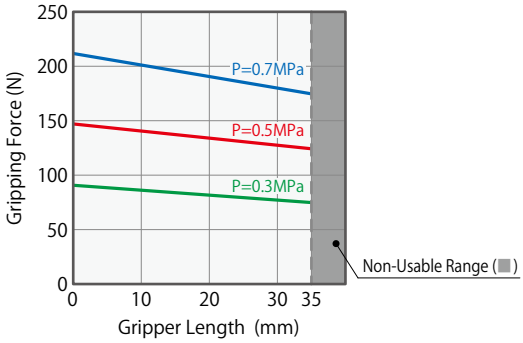


Notes

1. This chart and graph show the relationship among: F: Gripping Force (N), P: Air Pressure (MPa) and L: Gripper Length (mm).
2. Operation in the non-usable range may cause deformation, galling or air leakage.

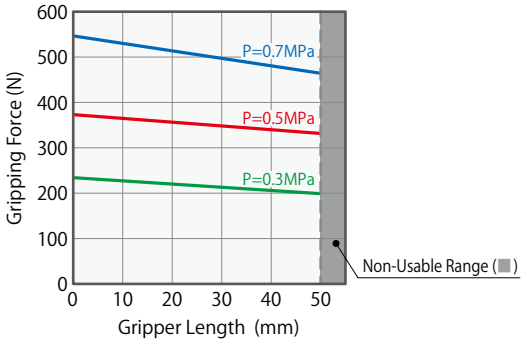
WPQ0250

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=15	L=20	L=25	L=35
0.7	212	207	198	188	179	169
0.5	151	148	141	134	128	121
0.3	91	89	85	81	77	73



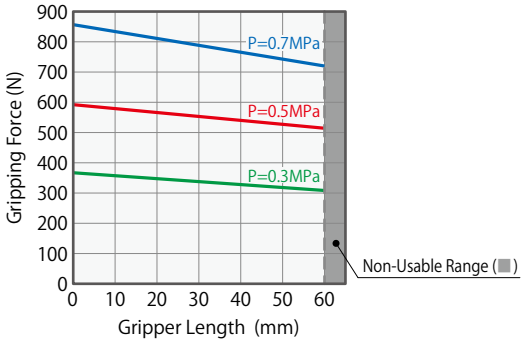
WPQ0400

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=5	L=10	L=20	L=30	L=40	L=50
0.7	546	539	504	494	479	464
0.5	390	385	364	353	342	331
0.3	234	231	218	212	205	199



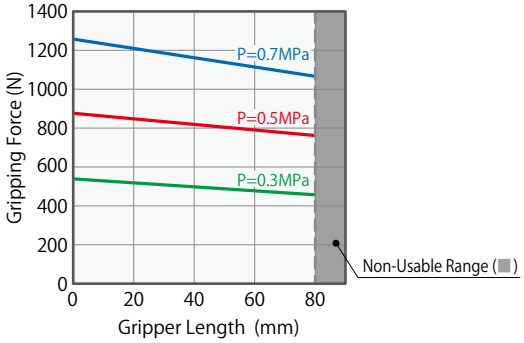
WPQ0500

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=50	L=60
0.7	847	811	793	774	750	720
0.5	605	579	566	553	540	514
0.3	363	347	340	332	324	308



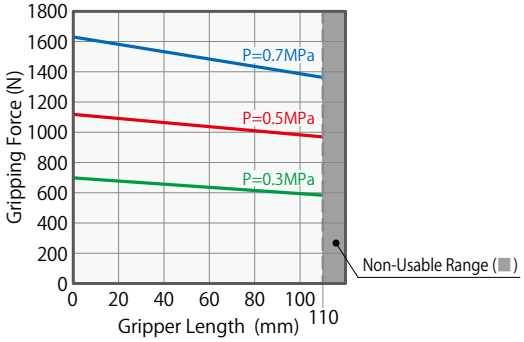
WPQ0600

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=10	L=20	L=30	L=40	L=60	L=80
0.7	1247	1207	1187	1167	1106	1066
0.5	891	862	848	833	790	761
0.3	534	517	509	500	474	457



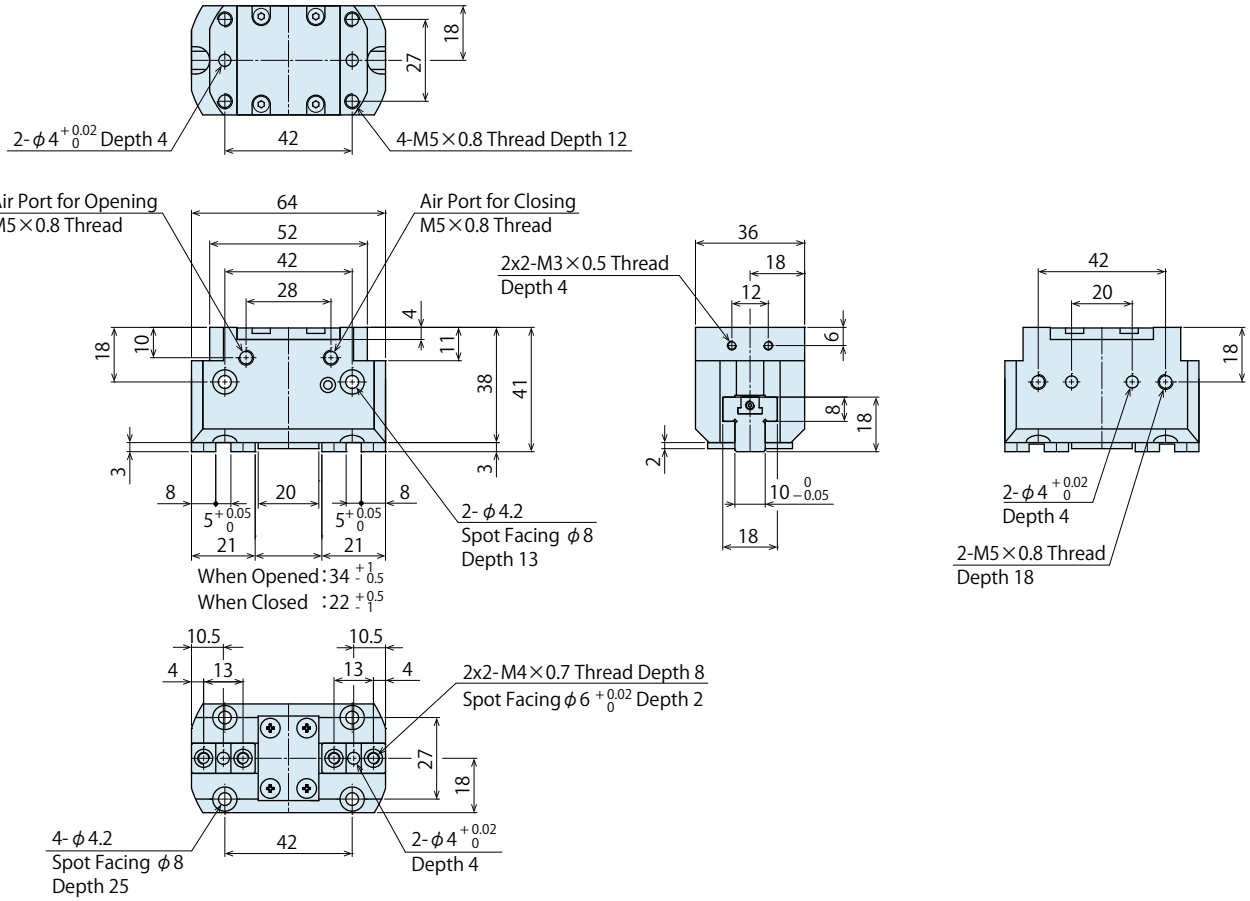
WPQ0800

Air Pressure (MPa)	Gripping Force (N) Gripper Length L (mm)					
	L=20	L=40	L=60	L=80	L=100	L=110
0.7	1575	1532	1468	1424	1381	1338
0.5	1125	1094	1048	1017	987	970
0.3	675	657	629	610	592	573



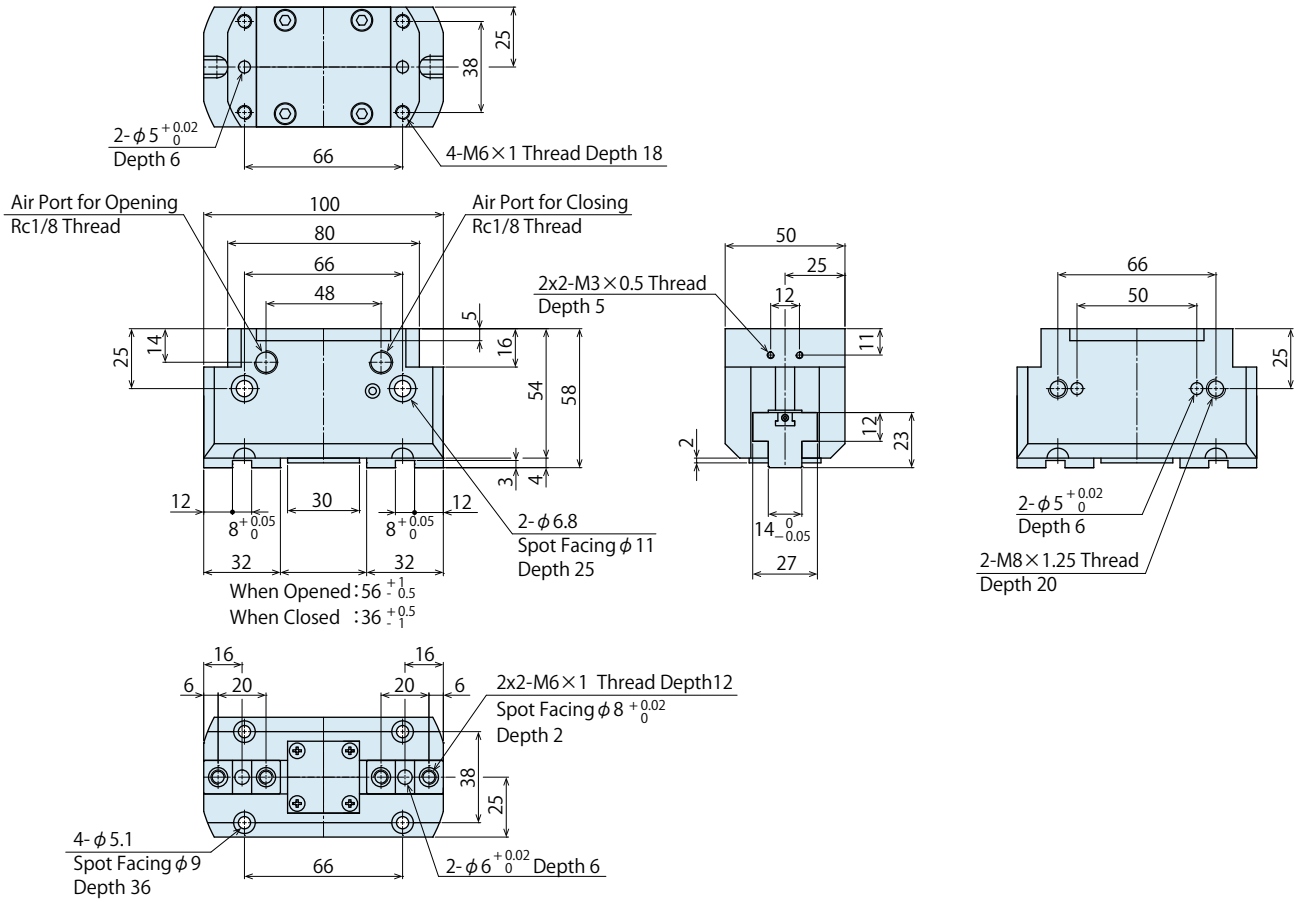
External Dimensions : WPQ0250

※ The drawing shows the closed state of WPQ0250.



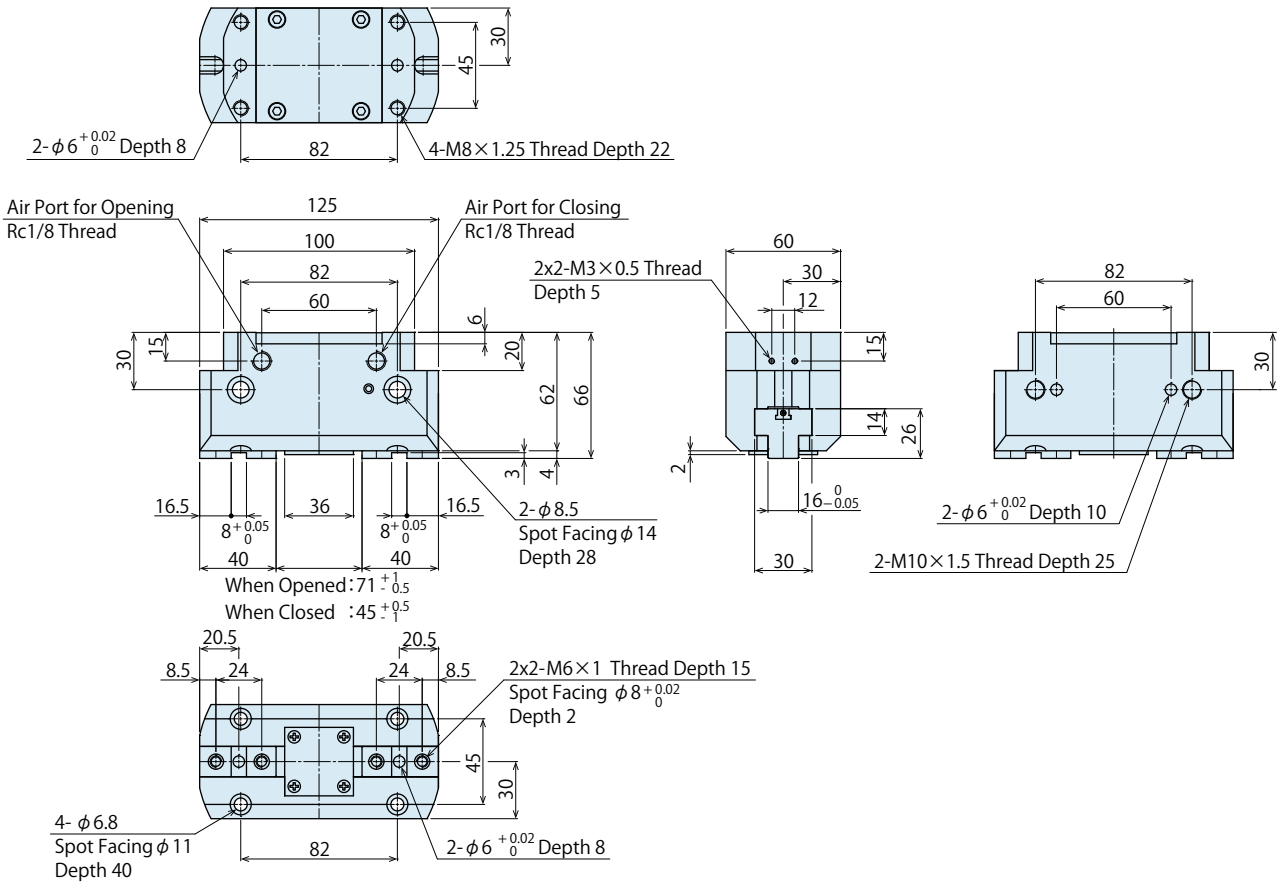
External Dimensions : WPQ0400

※ The drawing shows the closed state of WPQ0400.



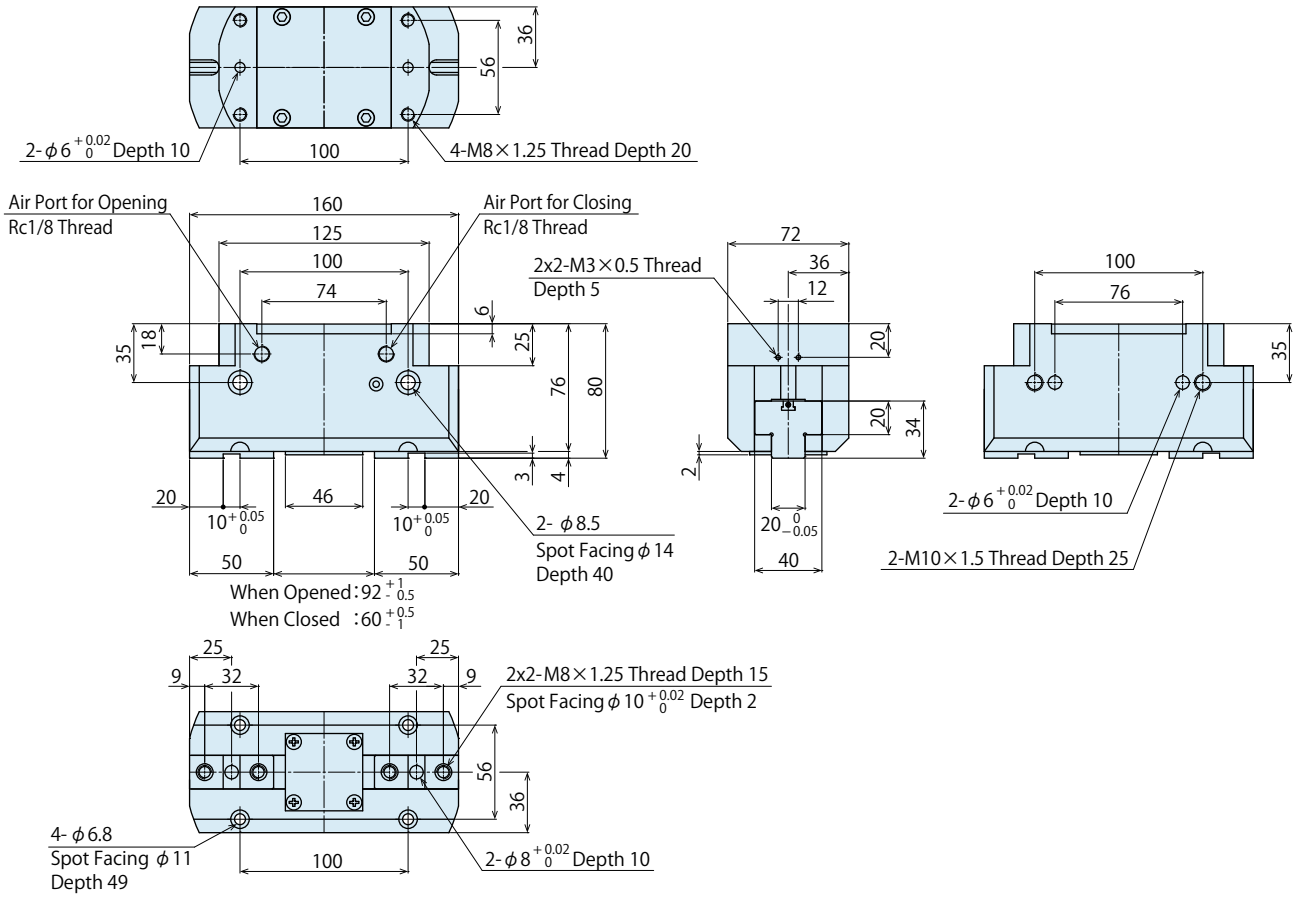
External Dimensions : WPQ0500

※ The drawing shows the closed state of WPQ0500.



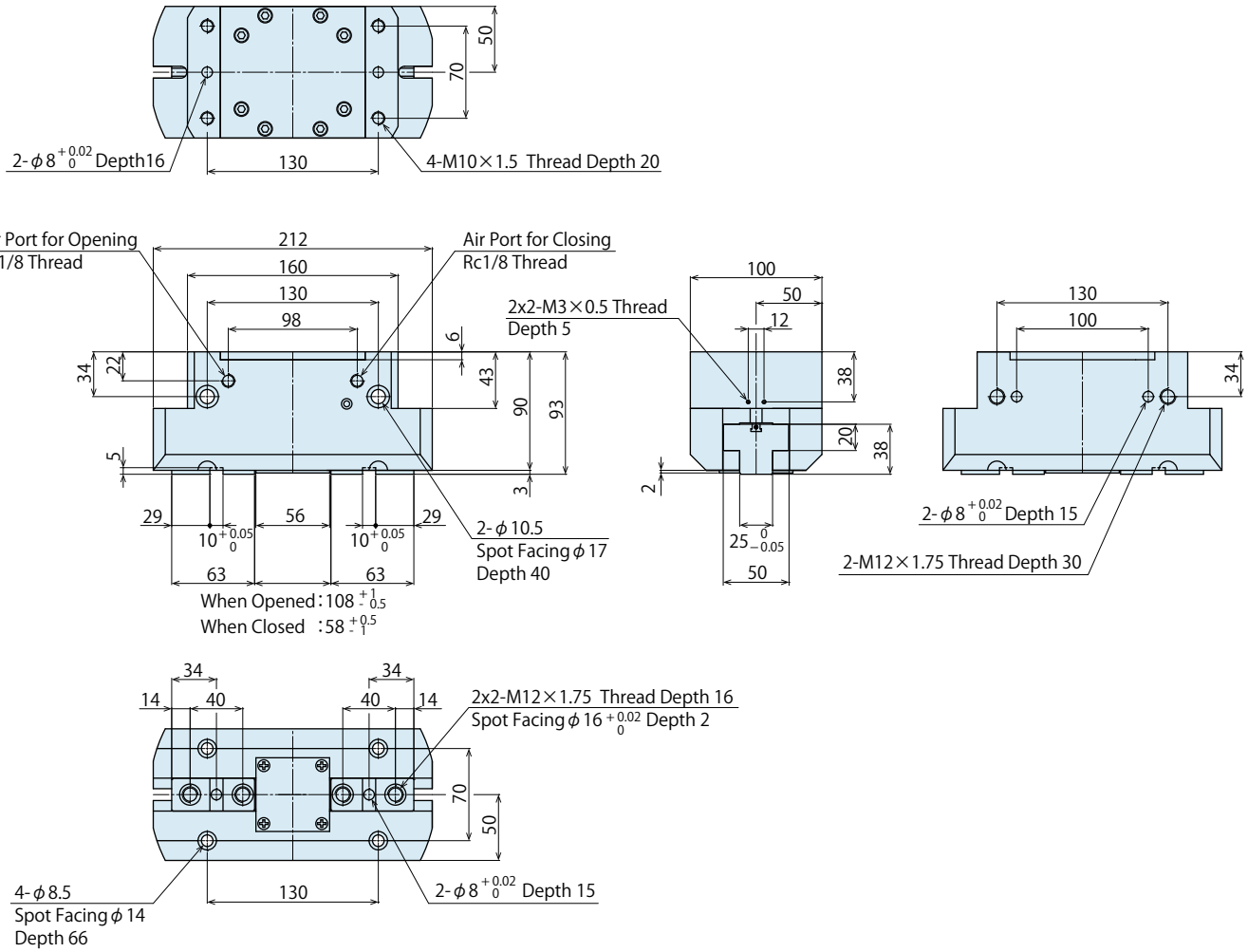
External Dimensions : WPQ0600

※ The drawing shows the closed state of WPQ0600.



External Dimensions：WPQ0800

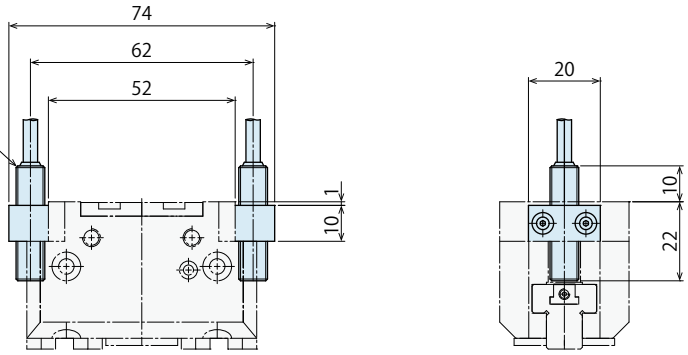
※ The drawing shows the closed state of WPQ0800.



External Dimensions：Proximity Switch for Gripping Detection

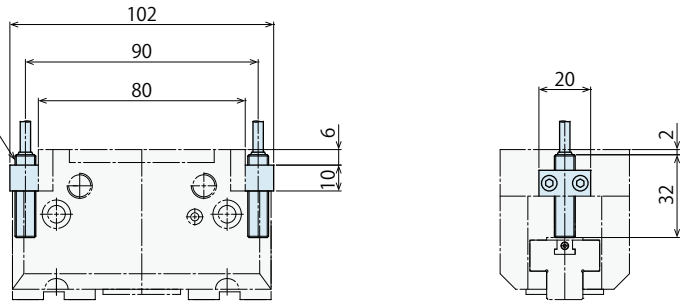
WPQ0250

Proximity Switch for Gripping Detection
JEP0000-P/P2（M8×1）



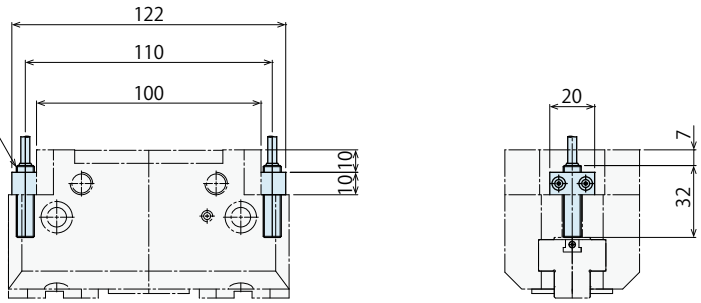
WPQ0400

Proximity Switch for Gripping Detection
JEP0000-P（M8×1）



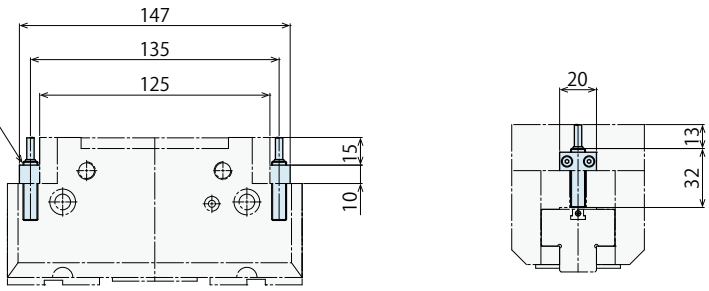
WPQ0500

Proximity Switch for Gripping Detection
JEP0000-P（M8×1）



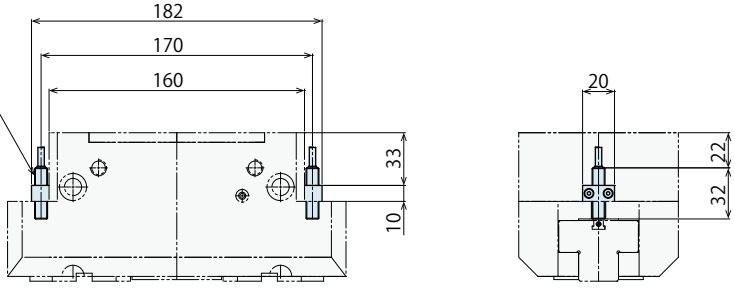
WPQ0600

Proximity Switch for Gripping Detection
JEP0000-P（M8×1）



WPQ0800

Proximity Switch for Gripping Detection
JEP0000-P（M8×1）

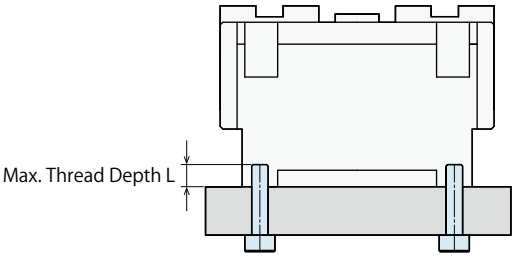


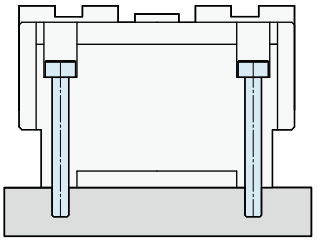
Note

1. Proximity Switch for Gripping Detection Type P2 (Length 16mm) cannot be installed in WPQ0400 or larger sizes.

Installation Method

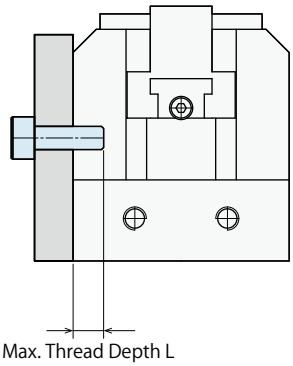
Tightening Torque for Cylinder Body

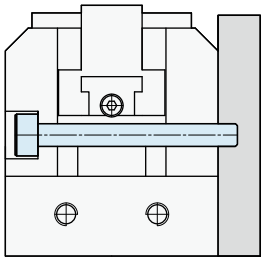




Model No.	Thread Size	Tightening Torque (N・m)	Max. Thread Depth L (mm)
WPQ0250	M5×0.8	5.0	12
WPQ0400	M6×1	7.9	18
WPQ0500	M8×1.25	15.4	20
WPQ0600	M8×1.25	15.4	20
WPQ0800	M10×1.5	35.3	20

Model No.	Thread Size	Tightening Torque (N・m)
WPQ0250	M4×0.7	2.5
WPQ0400	M5×0.8	5.0
WPQ0500	M6×1	7.9
WPQ0600	M6×1	7.9
WPQ0800	M8×1.25	15.4

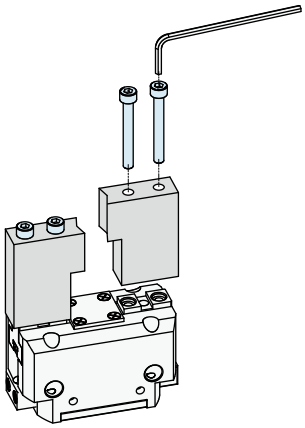




Model No.	Thread Size	Tightening Torque (N・m)	Max. Thread Depth L (mm)
WPQ0250	M5×0.8	5.0	15
WPQ0400	M8×1.25	15.4	14
WPQ0500	M10×1.5	35.3	18
WPQ0600	M10×1.5	35.3	18
WPQ0800	M12×1.75	65.7	25

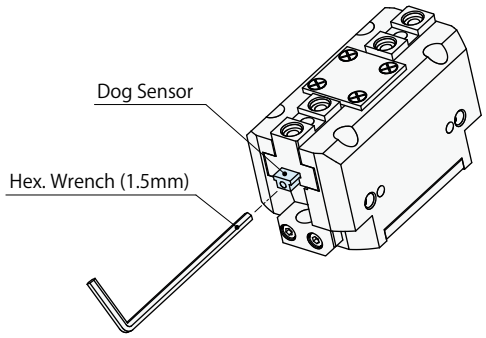
Model No.	Thread Size	Tightening Torque (N・m)
WPQ0250	M4×0.7	2.5
WPQ0400	M6×1	7.9
WPQ0500	M8×1.25	15.4
WPQ0600	M8×1.25	15.4
WPQ0800	M10×1.5	35.3

Tightening Torque for Gripper



Model No.	Thread Size	Tightening Torque (N・m)	Max. Thread Depth L (mm)
WPQ0250	M4×0.7	2.5	8
WPQ0400	M6×1	7.9	12
WPQ0500	M6×1	7.9	15
WPQ0600	M8×1.25	15.4	15
WPQ0800	M12×1.75	65.7	16

Installation Method for Dog Sensor



Proximity Switch is used for opening and closing detection of the cylinder.
Match the dog sensor to the detection position and tighten it with the hexagon wrench (1.5mm).

Cautions

Notes for Design

1) Check Specifications

- For model WPH:
  Maximum operating air pressure is 0.7 MPa.
  Minimum operating air pressure is 0.15 MPa.
  For model WPP/WPQ:
  Maximum operating air pressure is 0.7 MPa.
  Minimum operating air pressure is 0.3 MPa.
  However, the maximum operating pressure and gripping force may change depending on the gripper length.
  Please use appropriate air pressure in order to avoid deformation, galling or air leakage caused by overload applied to the robotic hand.

2) Notes for Circuit Design

- Please design the air circuit properly and review the circuit design in advance in order to avoid malfunction or breakage of the device.

3) Protective Cover Installation

- If the moving parts of the robot or robotic hand may endanger human life, please install the protection cover.

4) Please supply filtered clean dry air.

- Oil supply with a lubricator etc. is unnecessary.

5) Adjustment of Operating Speed

- If the operating speed of the robotic hand is very fast, it leads to wear-out or malfunction of the parts. Please prepare a speed controller to adjust speed in order not to exceed the appropriate opening and closing time.

Installation Notes

1) Check the Fluid to Use

- Please supply filtered clean dry air.
  (Install drain removing device.)
- Oil supply with a lubricator etc. is unnecessary.
  Oil supply with a lubricator may cause loss of the initial lubricant. The operation under low pressure and low speed may be unstable.
  (When using secondary lubricant, please supply lubricant continuously. Otherwise, the initial grease applied from KOSMEK will be removed from the secondary lubricant.)

2) Procedure before Piping

- The pipeline, piping connector and fixture circuits should be cleaned and flushed thoroughly.
  The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
- There is no filter provided with this product for prevention of contaminants in the air circuit.

3) Applying Sealing Tape

- Wrap with tape 1 to 2 times following the screwing direction.
- Pieces of the sealing tape can lead to air leaks and malfunction.
- When piping, be careful that contaminant such as sealing tape does not enter the products.

4) Cylinder Body Installation

- Please tighten the cylinder body with the tightening torque listed on each product page:
  P.152 for WPH, P.160 for WPP, and P.169 for WPQ.

5) Trial Operation Method

- Avoid supplying large air flow right after the installation.
  The operating time will be very fast and the robotic hand may be seriously damaged. Please install the speed controller near the air source and gradually supply air pressure.

6) Adjustment of Operating Speed

- If the operating speed of the robotic hand is very fast, it leads to wear-out or malfunction of the parts.
  Please prepare a speed controller to adjust speed in order not to exceed the appropriate opening and closing time.

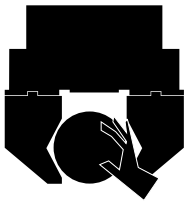
KOSMEK Harmony in Innovation

Notes on Handling

1) It should be handled by qualified personnel.
- The hydraulic and pneumatic equipment should be handled and maintained by qualified personnel.

2) Do not handle or remove the equipment unless safety protocols are ensured.
① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
② Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
③ After stopping the machine, do not remove until the equipment cools down.
④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.

3) In order to avoid injury, please do not touch the robotic hand or robot while they are operating.



4) Do not disassemble or modify.
- If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

※ Please refer to P.363 for common cautions. • Maintenance/Inspection • Warranty

Model No. Indication

JEP 000 0 - A1 L

1 2 3

1 Design No.

0 : Revision Number

2 Switch Type

A1 : 2-Wire Reed Auto Switch
A2 : 2-Wire Reed Auto Switch
B1 : 3-Wire Solid State Auto Switch
B2 : 3-Wire Solid State Auto Switch
P : 3-Wire Proximity Switch for Gripping Detection (Length 32mm)
P2 : 3-Wire Proximity Switch for Gripping Detection (Length 16mm)

3 Electric Cable Length ※1

Blank : 1m
L : 3m

Note
※1. 3 Electric Cable Length is chosen only for A□/B□ Auto Switch of 2 Switch Type.
For P□: Proximity Switch for Gripping Detection, electric cable length is all 2m.

Application Table

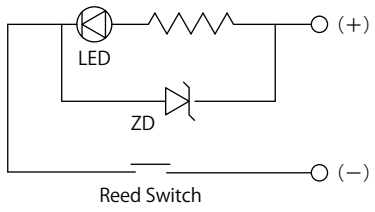
Switch Type	2-Wire Reed Auto Switch		3-Wire Solid State Auto Switch		3-Wire Proximity Switch for Gripping Detection	
Model No.	JEP0000-A1□	JEP0000-A2□	JEP0000-B1□	JEP0000-B2□	JEP0000-P	JEP0000-P2
WPH0100		●		●		
WPH0160		●		●		
WPH0200	●		●			
WPP0300					●	●
WPP0400					●	●
WPP0500					●	●
WPP0600					●	●
WPP0800					●	●
WPQ0250					●	●
WPQ0400					●	
WPQ0500					●	
WPQ0600					●	
WPQ0800					●	

JEP0000-A□□ (2-Wire Reed Auto Switch)

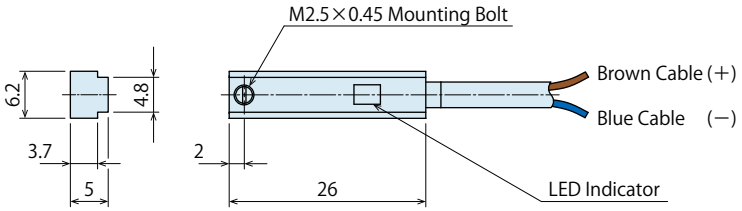
Specifications

Model No.	JEP0000-A1	JEP0000-A1L	JEP0000-A2	JEP0000-A2L
Name	Reed Auto Switch			
Wiring Type	2-Wire			
Applicable Load	Relay, Programmable Logic Controller (PLC)			
Load Voltage / Load Current	Less than DC24V / 40mA Less than AC100V / 20mA			
Internal Voltage Drop	Less than 3V			
Operating Time	1ms			
Ambient Temperature	-10～70℃			
Withstand Voltage	AC1500V (There should be no abnormalities in 1 min. application.)			
Leakage Current	0			
Shock Resistance	30G			
Enclosure Rating	IP67 (IEC Standard)			
Protection Circuit	None			
Indicator Light	Red LED illuminates when turned ON			
Electric Cable Length	1m	3m	1m	3m

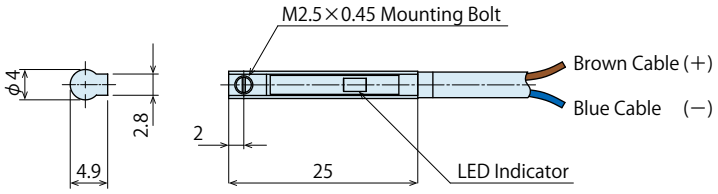
Electric Circuit Diagram



External Dimensions：JEP0000-A1□



External Dimensions：JEP0000-A2□

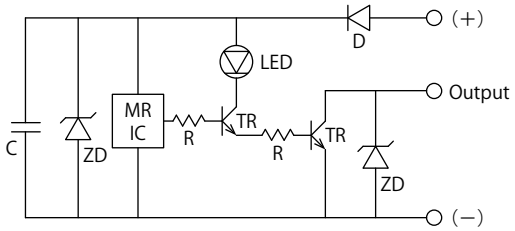


JEP0000-B□□ (3-Wire Solid State Auto Switch)

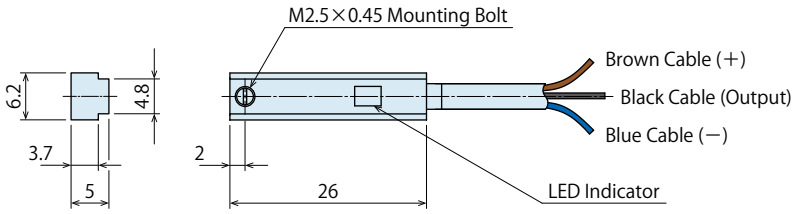
Specifications

Model No.	JEP0000-B1	JEP0000-B1L	JEP0000-B2	JEP0000-B2L
Name	Solid State Auto Switch			
Wiring Type	3-Wire			
Applicable Load	Relay, Programmable Logic Controller (PLC)			
Load Voltage / Load Current	Less than DC10～24V / 100mA			
Internal Voltage Drop	Less than 0.7V			
Operating Time	1ms			
Withstand Voltage	AC2000V (There should be no abnormalities in 1 min. application.)			
Leakage Current	0			
Indicator Light	Red LED illuminates when turned ON			
Electric Cable Length	1m	3m	1m	3m

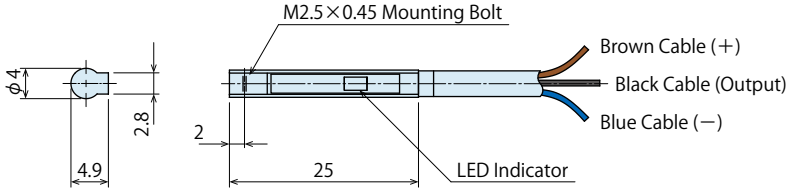
Electric Circuit Diagram



External Dimensions：JEP0000-B1□



External Dimensions：JEP0000-B2□

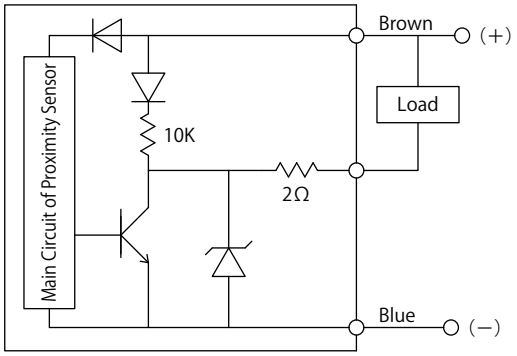


JEP0000-P□ (3-Wire Proximity Switch for Gripping Detection)

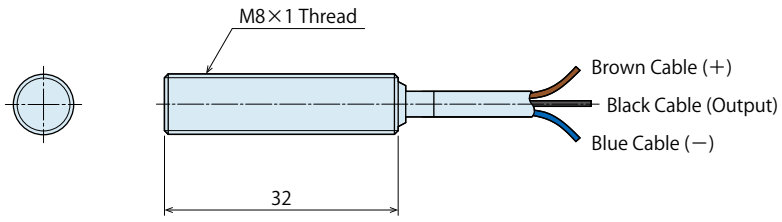
Specifications

Model No.	JEP0000-P	EP0000-P2
Name	Proximity Switch for Gripping Detection	
Wiring Type	3-Wire	
Output Type	NPN	
Moving Distance	1.5±0.15mm	
Voltage Range	DC10～30V	
Opening / Closing Voltage	Less than 200mA	
Current Consumption	Less than 10mA	
Response Frequency	800Hz	
Ambient Temperature	-25～70℃	
Withstand Voltage	AC2000V (There should be no abnormalities in 1 min. application.)	
Indicator Light	Red LED illuminates when turned ON	
Electric Cable Length	2m	

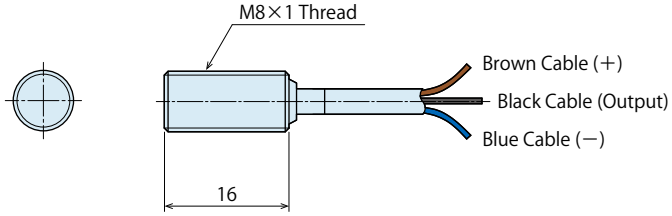
Electric Circuit Diagram



External Dimensions : JEP0000-P



External Dimensions : JEP0000-P2



Cautions

Notes for Design

1) Check the Specifications

- Please use each product according to the specifications. The product may be damaged or malfunction if used outside the range of load or specifications.

2) Notes on Use in the Interlock Circuit

- When the auto switch is used for an interlock signal that requires high reliability, please use a double interlock system by providing a mechanical protection function. Or by using another switch (sensor) together with the auto switch. Also, please perform periodic maintenance and confirm proper operation.

3) Wiring should be prepared as short as possible.

- For the reed auto switch, if the wiring length to the load is longer, inrush current to the auto switch increases and the life span will be shortened. (Remains ON)
- If the wiring length of the solid state auto switch is long, we recommend installing the ferrite core on both ends of the electric cable for noise control.

4) Please avoid using loads that generate surge voltage.

- If driving loads that generate surge voltage such as relay, please use the auto switch equipped with junction protective circuit or install protective box.
- If surge voltage is repeatedly applied to the auto switch even with the Zener Diode for surge protection, it may damage the contact. When directly driving loads generating surge voltage, such as solenoid valves, use the auto switch equipped with surge absorption element.
- The magnet switch is equipped with surge absorption element. However, please provide an absorption element, such as varistor, if there is large surge-generating equipment. Example: Motors or welding machines.

5) Leakage Current

- In case of 2-wire solid state auto switch, the leakage current that activates internal circuit of the auto switch may flow even in OFF state. If the load operating current (the controller is in OFF state) does not satisfy the specified leakage current, it may result in restoration defect (remains ON state). If it does not satisfy the specifications, please use 3-wire auto switch. Also, n parallel connections will multiply leakage current flowing to the load by n times.

6) Internal Voltage Drop of the Auto Switch

- Due to voltage drop (refer to internal voltage drop on the specifications) caused by internal resistance of LED, voltage drop of n auto switches connected in series will be multiplied by n times.
  As a result, in some cases the load will not activate even if the auto switch drives properly.

7) When wiring is disconnected, or when forcibly activating the auto switch for action confirmation, carefully design the circuit to avoid reverse current.

- The auto switch may malfunction or be damaged when reverse current occurs.

8) When multiple cylinders or robotic hands are placed close together.

- Please provide enough space when using multiple actuators such as cylinders or robotic hands equipped with auto switches. (If allowable distance of each actuator is specified please follow specified instructions.) If they are too close, auto switches may malfunction due to magnetic interference.

9) Secure space for maintenance and inspection

- Please secure space for maintenance and inspection of auto switches when setting actuators such as cylinders and robotic hands equipped with auto switches.

Notes on Operating Environment

1) Never use the product in an atmosphere with explosive gases.
- Auto switches are not designed to prevent explosion. Do not use the product in an atmosphere with explosive gases since it may cause serious explosions.

2) Do not use the product in an area where a magnetic field is generated.
- Auto switches may malfunction, or internal magnet actuators, such as cylinders or robotic hands, equipped with auto switches will be demagnetized.

3) Do not use the product in an environment where the auto switches are continuously exposed to water or coolant.
- Although IEC standard IP67 structure is satisfied, please avoid using auto switches in an environment where continuously exposed to water or coolant. This may cause insulation failure or malfunction.

4) Do not use the product in an environment with oil or chemicals.
- If auto switches are used in an environment with coolant or cleaning solvent, even in a short time, they may be adversely affected by improper insulation, malfunction due to swelling of potting resin and or hardening of electric cable.

5) Do not use the product in an environment subject to large temperature cycle.
- Heat cycles other than ordinary changes in temperature may adversely affect the internal structure of auto switches.

6) Avoid accumulation of steel dust and close connection of magnetic materials.
- An amount of steel chips or steel dusts, such as sputters of welding accumulate around an actuator. Cylinders, robotic hand equipped with auto switches and or magnetic materials (those attracted by magnet) are gathered closely to the actuator. These can weaken internal magnet actuators.

7) Do not use the product in an environment with excessive impact.
- Under the condition of the excessive impact of more than 30G, the contact of the reed auto switch will malfunction and the indicator light may signal or may be disconnected.

Installation Notes

1) Do not drop or bump.
- Do not drop, bump or apply excessive impact on auto switches. The auto switches may be damaged and cause malfunction.

2) Tighten auto switches with appropriate tightening torque.
- Please follow the tightening torque below.
Excessive tightening torque may damage the screw, fitting or main body of the auto switches.
Also, mounting position may be shifted with insufficient tightening torque.

Screw Size	Tightening Torque(N·m)
M2×0.4	0.1
M2.5×0.45	0.25
M3×0.5	0.5

3) Do not carry cylinders or robotic hands by holding the electric cables of auto switches.
- It may break the electric cable or damage the internal element.

4) Do not fix auto switches with the screws other than attached in main body of the auto switches.
- Using non-designated screws may damage auto switches.

5) Install the auto switches at the center of the operating area.
- Mounting position of auto switches should be adjusted so that a detected object (piston etc.) stops at the center of operating range. (Mounting position shown in the catalog shows the most suitable fixed position of stroke end.) Please refer to P.151 for WPH, P.159 for WPP and P.168 for WPQ.
If the auto switches are mounted at the edge of operating range (near the boundary of ON and OFF), output movement may be unstable.

6) Mounting position of the auto switches should be adjusted by checking actual operating state.
- Depending on the installation environment, actuators such as cylinders and robotic hands may not operate properly even if they are mounted to the appropriate position. Make sure to check the operating condition even when mounting them at the middle of the stroke.

Cautions

Notes on Wiring

1) Check the insulation of wiring.
- Insulation failure (interference with other circuit, ground fault, and insulation failure between terminals) may send excessive voltage or current to the auto switches causing damage.

2) Do not place wires and auto switch cables close to other cables and high voltage cables.
- Otherwise, surge voltages will be induced creating noise and leading to malfunctions.

3) Repeated bending stress or stretching force should be avoided on electric cables.
- Wiring with bending stress or stretching force repeatedly applied on electric cables will prematurely breakdown. Bending stress or stretching force applied on the connecting area of electric cables and main body of the auto switches will damage the electric cables. Auto switches or wires should not be moving especially near the connecting areas.

4) Make sure to check the load state (connection and current value) before turning on the power.
- For 2-Wire Type
  Auto switches will instantly break due to over loading current if turning on the auto switches without connecting the load (Shorted Load Circuit).
  The above statement is also applied to the condition when the brown cable (+, output) of 2-wire type is directly connected to the (+) power terminal of a fixture and etc.

5) Avoid shorted load circuit.
- Reed Auto Switch
  Auto switches will instantly break due to over loading current if turning on the auto switch in load short circuit condition.
- Solid State Auto Switch
  Be aware of auto switch breakages when products with PNP output is not equipped with short-circuit protection.

6) Avoid wrong wiring
- Reed Auto Switch
  The electric circuit has polarities. The brown cable is "+" , and the blue cable is "−" . The reed switch can operate even with reversed connection, but LED light will not illuminate.
  Also, flowing excessive current will damage LED and it will not operate properly.
- Solid State Auto Switch
  In case of 2-wire type, even if connected reversely, the auto switch will not be damaged due to protection circuit, but it is always ON.
  If reversely connected under short circuit condition, the auto switch will be damaged.
  In case of 3-wire type, even if the connections are reversed (power supply line "+" and "−"), the auto switch will be protected by a protection circuit.
  However, if connecting the power supply "+" to the blue cable and "−" to the black cable, the auto switch will be damaged.

Notes on Handling

1) It should be handled by qualified personnel.
- The hydraulic and pneumatic equipment should be handled and maintained by qualified personnel.

2) Do not handle or remove the machine unless the safety is ensured.
① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
② Please remove the equipment after the preventative devices are in place, the pressure source and power source are shut off, and no pressure exists in the hydraulic and air circuit.
③ After stopping the product, do not remove until it cools down.
④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.

3) Do not disassemble or modify.
- If the product is taken apart or modified, the warranty will be voided even within the warranty period.

● Maintenance • Inspection

Conduct the below maintenances and inspections periodically in order to avoid unintended malfunctions and to ensure the safety.

1) Removal of equipment and shutdown of pressure source
- Please remove the equipment after the preventative devices are in place. Ensure the pressure sources and power sources are shut off, and no pressure exists in the air circuits.
- Make sure there is no abnormality in the bolts and respective parts before restarting.

2) Never touch terminals while the power is on.
- It will cause electric shock, malfunction and damage to the auto switches.

3) Retightening of Mounting Screws
- Retighten the screws after adjusting the mounting position when the mounting position of the auto switches is shifted due to the looseness of the mounting screws.

4) Check if the electric cable is damaged or not.
- Damaged cables may cause insulation failure.
  Exchange the auto switch or repair the reed if there is damage on the electric cable.

5) Check the setting position of the detector.
- Confirm the set position is stopped at the center of the detecting range (the area that red LED illuminates).

6) Cleaning Auto Switches
- The auto switch should be clean. Do not use benzene, paint thinner or alcohol for cleaning. Doing so will cause scratches on the product and indications may be erased. If it is hard to remove stains from the product, wipe it out with a cloth soaked in a neutral detergent diluted with water.
  Wipe with a dry cloth to remove wet residue.

7) Product Storage
- Keep the product out of direct sunlight in a cool area where it is protected from water and humidity.

8) Please contact us for auto switch replacements.

※ Please refer to P.364 for common cautions. • Warranty

Warranty

1) Warranty Period

- The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope

- If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense.
  Defects or failures caused by the following are not covered.

① If the stipulated maintenance and inspection are not carried out.
② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
③ If it is used or handled in inappropriate way by the operator.
(Including damage caused by the misconduct of the third party.)
④ If the defect is caused by reasons other than our responsibility.
⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
⑥ Other caused by natural disasters or calamities not attributable to our company.
⑦ Parts or replacement expenses due to parts consumption and deterioration.
(Such as rubber, plastic, seal material and some electric components.)

Damages excluding from direct result of a product defect shall be excluded from the warranty.

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Philippines (Philippines Exclusive Distributor) G.E.T. Inc, Phil.	**TEL.+63-2-310-7286**	FAX. +63-2-310-7286 Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines 1427
Europe (Europe Exclusive Distributor) KOS-MECH GmbH	**TEL. +43-463-287587-10**	FAX. +43-463-287587-20 Schleppeplatz 2 9020 Klagenfurt Austria
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Nagoya Sales Office	**TEL.0566-74-8778**	FAX.0566-74-8808 〒446-0076　愛知県安城市美園町2丁目10番地1
Fukuoka Sales Office	**TEL.092-433-0424**	FAX.092-433-0426 〒812-0006　福岡県福岡市博多区上牟田1丁目8-10-101

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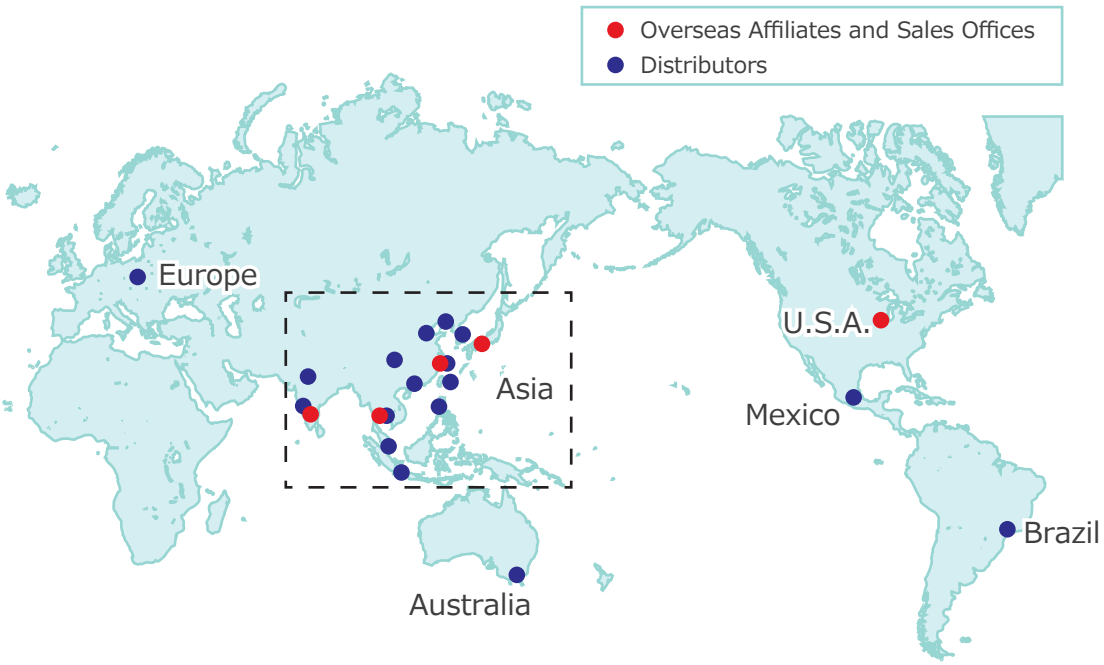

Asia Detailed Map

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