

Parallel Robotic Hand Gripper

Model WPH



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

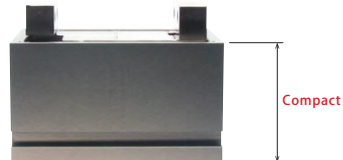
Wider Stroke

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 utilization.



High Accuracy and High Rigidity

The cross roller guide function allows for high rigidity and high accuracy opening/closing function.
Repeatability: ±0.01mm

Light Weight

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

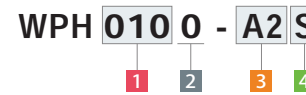
Long Life

Solid internal features provide for excellent durability.

Auto Switch Capability

Easy to install and adjust auto switches for gripper detection.

Model No. Indication



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

1 Cylinder Inner Diameter

- 010** : φ 10 mm
- 016** : φ 16 mm
- 020** : φ 20 mm

2 Design No.

- 0** : Revision Number

3 Auto Switch Type

- Blank** : Without Auto Switch
- A1 / A2** : 2-Wire Reed Auto Switch (Cable: 1m)
- A1L / A2L** : 2-Wire Reed Auto Switch (Cable: 3m)
- A2V** : L-Shaped 2-Wire Reed Auto Switch (Cable: 1m)
- A2VL** : L-Shaped 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)
- B3** : L-Shaped 3-Wire Solid State Auto Switch (Cable: 1m)
- B3L** : L-Shaped 3-Wire Solid State Auto Switch (Cable: 3m)

Application Table

Model No.	A1□	A2□	B1□	B2□	B3□
WPH0100		●		●	●
WPH0160		●		●	●
WPH0200	●		●		

※ Please refer to P.247~P.256 for details on auto switches.

4 Number of Auto Switch Provided*

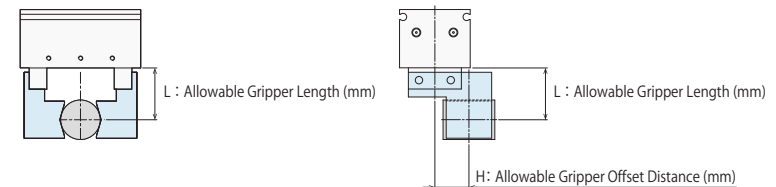
- Blank** : 2
- S** : 1

※ When selecting an auto switch option other than **Blank**.

Specifications

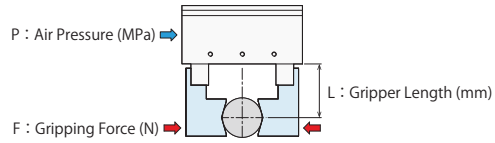
Model No.	WPH0100	WPH0160	WPH0200
Cylinder Inner Diameter	10	16	20
Gripping Force ^{※1} (Air Pressure : At 0.5MPa)	Close Side	N	N
		33	86
Full Stroke	15	20	20
Repeatability ^{※2}	±0.01		
Stroke Error	Opened State : -0.5 ~ +1 / Closed State : -1 ~ +0.5		
Allowable Gripper Length L (Air Pressure : at 0.5MPa) ^{※3}	40	50	60
Allowable Gripper Offset Distance H (Air Pressure : at 0.5MPa) ^{※3}	20	30	40
Maximum Cycle / min.	80		
Maximum Operating Pressure	0.7		
Minimum Operating Pressure	0.15		
Withstanding Pressure	1.05		
Operating Temperature Range	5 ~ 60		
Usable Fluid	Dry Air		
Weight	0.14	0.32	0.7

Notes :
 ※1. Gripping force indicates the calculated value of the tip of primary parallel base.
 ※2. Repeatability under the same condition (no load).
 ※3. L : Allowable Gripper Length (mm), H : Allowable Gripper Offset Distance (mm). (Air Pressure : at 0.5MPa)



- Locating Clamp
- Locating
- Clamp
- Support
- Valve - Coupler
- Cautions - Others
- Ball Lock Cylinder
- WKA
- FA Pneumatic Hole Clamp
- WKH
- Robotic Hand Parallel Gripper
- WPA
- Robotic Hand Parallel Gripper
- WPH
- Robotic Hand Three-Jaw Chuck
- WPP
- Robotic Hand Two-Jaw Chuck
- WPQ
- Auto Switch Proximity Switch
- JEP
- High-Power Pneumatic Hole Clamp
- SWE
- High-Power Pneumatic Swing Clamp
- WHE
- High-Power Pneumatic Link Clamp
- WCE
- Pneumatic Swing Clamp
- WHA
- Pneumatic Link Clamp
- WCA
- Air Flow Control Valve
- BZW
- Manifold Block
- WHZ-MD

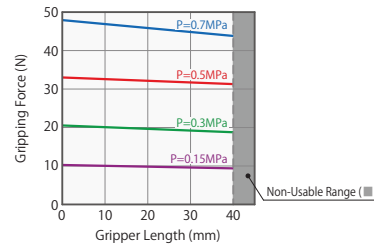
● Gripping Force Performance Curve



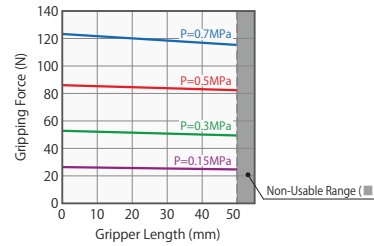
Notes:

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

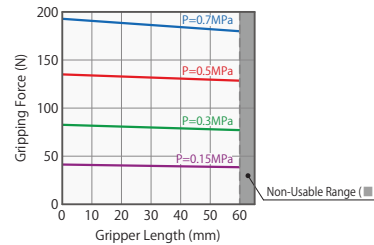
WPH0100 (N)						
Air Pressure (MPa)	Gripper Length L (mm)					
0.7	48	47	47	46	45	44
0.5	34	34	33	33	32	31
0.3	21	20	20	20	19	19
0.15	10	10	10	10	10	9



WPH0160 (N)						
Air Pressure (MPa)	Gripper Length L (mm)					
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

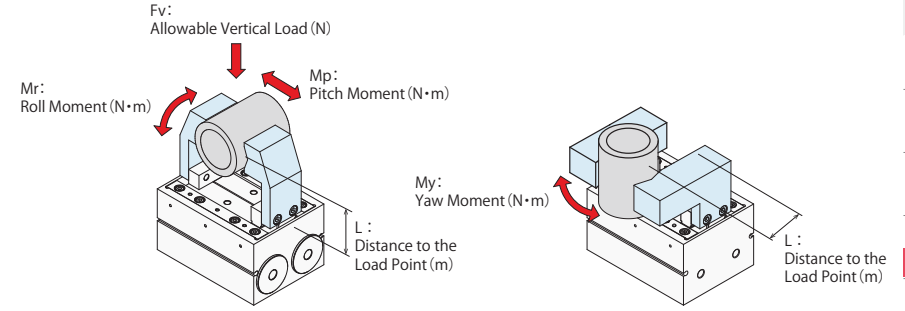


WPH0200 (N)						
Air Pressure (MPa)	Gripper Length L (mm)					
0.7	192	189	187	185	182	180
0.5	137	135	134	132	130	128
0.3	82	81	80	79	78	77
0.15	41	41	40	40	39	39



● 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 :

- The values on the list are the static values.
- 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).

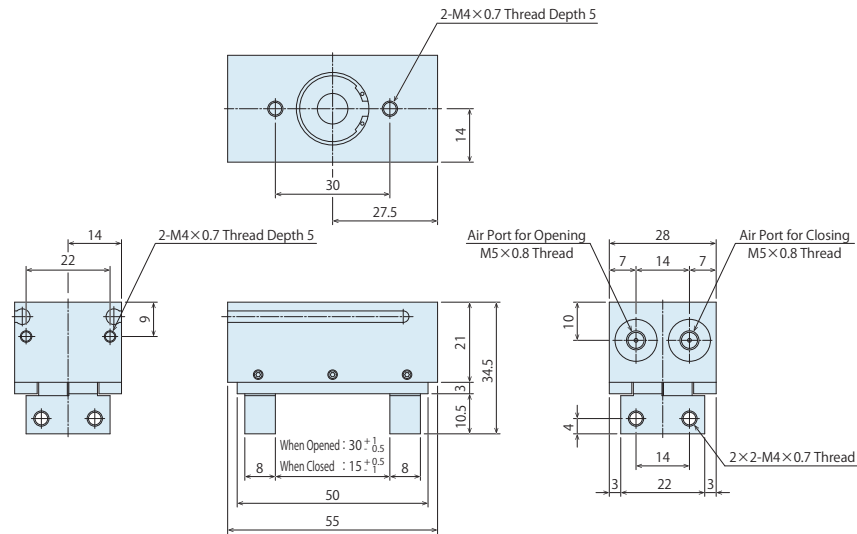
● Allowable Load Calculation Formula

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

- Locating + Clamp
- Locating
- Clamp
- Support
- Valve · Coupler
- Cautions · Others
- Ball Lock Cylinder
 - WKA
- FA Pneumatic Hole Clamp
 - WKH
- Robotic Hand Parallel Gripper
 - WPA
 - Robotic Hand Parallel Gripper
 - WPH
- Robotic Hand Three-Jaw Chuck
 - WPP
- Robotic Hand Two-Jaw Chuck
 - WPQ
- Auto Switch Proximity Switch
 - JEP
- High-Power Pneumatic Hole Clamp
 - SWE
- High-Power Pneumatic Swing Clamp
 - WHE
- High-Power Pneumatic Link Clamp
 - WCE
- Pneumatic Swing Clamp
 - WHA
- Pneumatic Link Clamp
 - WCA
- Air Flow Control Valve
 - BZW
- Manifold Block
 - WHZ-MD

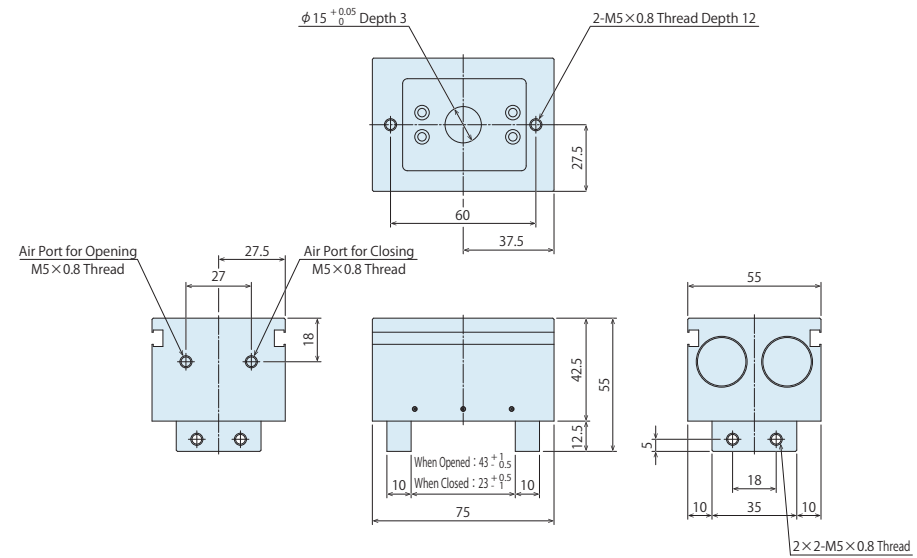
External Dimensions : WPH0100

※ The drawing shows the opened state of WPH0100.



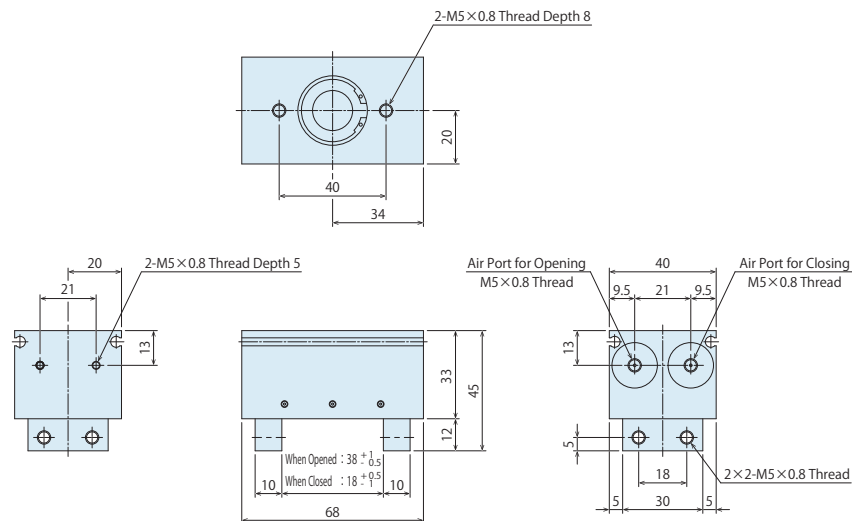
External Dimensions : WPH0200

※ The drawing shows the opened state of WPH0200.



External Dimensions : WPH0160

※ The drawing shows the opened state of WPH0160.

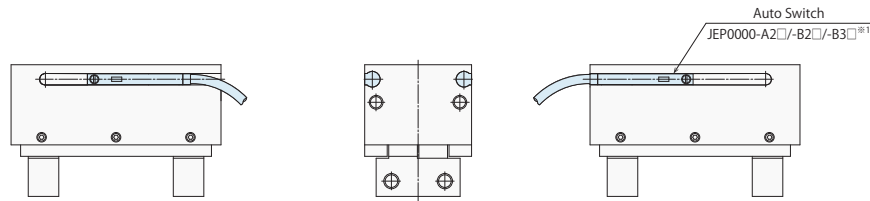


Locating Clamp
Locating
Clamp
Support
Valve - Coupler
Cautions - Others
Ball Lock Cylinder
WKA
FA Pneumatic Hole Clamp
WKH
Robotic Hand Parallel Gripper
WPA
Robotic Hand Parallel Gripper
WPH
Robotic Hand Three-Jaw Chuck
WPP
Robotic Hand Two-Jaw Chuck
WPO
Auto Switch Proximity Switch
JEP
High-Power Pneumatic Hole Clamp
SWE
High-Power Pneumatic Swing Clamp
WHE
High-Power Pneumatic Link Clamp
WCE
Pneumatic Swing Clamp
WHA
Pneumatic Link Clamp
WCA
Air Flow Control Valve
BZW
Manifold Block
WHZ-MD

External Dimensions : Auto Switch

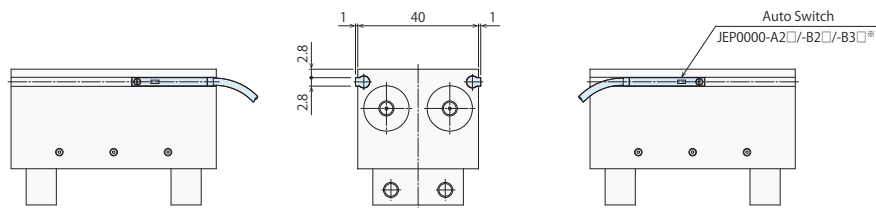
※ This drawing shows the installation image of Auto Switch JEP0000-A1□ / A2□ and JEP0000-B1□ / B2□.
Installation image of L-Shaped Auto Switch -A2V□ and -B3□ is different from this.
Adjust installation position depending on the stroke position.

For WPH0100



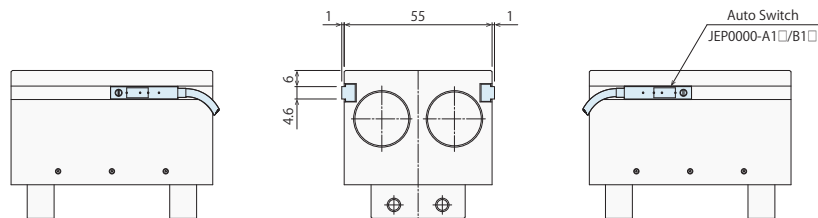
Note :
※1. External dimension of JEP0000-A2V□/-B3□ is different from this.

For WPH0160



Note :
※1. External dimension of JEP0000-A2V□/-B3□ is different from this.

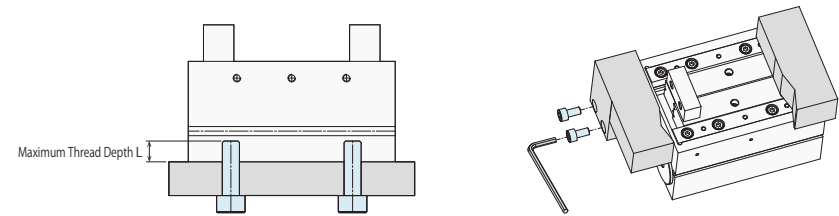
For WPH0200



Installation Method

Tightening Torque for Cylinder Body

Tightening Torque for Gripper



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

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

- Locating Clamp
- Locating
- Clamp**
- Support
- Valve · Coupler
- Cautions · Others
- Ball Lock Cylinder
- WKA
- FA Pneumatic Hole Clamp
- WKH
- Robotic Hand Parallel Gripper
- WPA
- Robotic Hand Parallel Gripper**
- WPH**
- Robotic Hand Three-Jaw Chuck
- WPP
- Robotic Hand Two-Jaw Chuck
- WPQ
- Auto Switch Proximity Switch
- JEP
- High-Power Pneumatic Hole Clamp
- SWE
- High-Power Pneumatic Swing Clamp
- WHE
- High-Power Pneumatic Link Clamp
- WCE
- Pneumatic Swing Clamp
- WHA
- Pneumatic Link Clamp
- WCA
- Air Flow Control Valve
- BZW
- Manifold Block
- WHZ-MD

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
- A2V : 2-Wire L-Shaped Reed Auto Switch
- B1 : 3-Wire Solid State Auto Switch
- B2 : 3-Wire Solid State Auto Switch
- B3 : 3-Wire L-Shaped 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

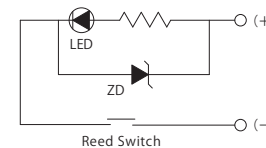
Switch Type	2-Wire Reed Auto Switch		3-Wire Solid State Auto Switch			3-Wire Proximity Switch for Gripping Detection	
Model No.	JEP0000-A1□	JEP0000-A2□ JEP0000-A2V□	JEP0000-B1□	JEP0000-B2□	JEP0000-B3□	JEP0000-P	JEP0000-P2
WKH2000		●		●	●		
WPS0160-C		●		●	●		
WPS0200-C		●		●	●		
WPA0120		●		●	●		
WPA0160		●		●	●		
WPA0200		●		●	●		
WPA0250		●		●	●		
WPH0100		●		●	●		
WPH0160		●		●	●		
WPH0200	●		●				
WPP0300						●	●
WPP0400						●	●
WPP0500						●	●
WPP0600						●	●
WPP0800						●	●
WPQ0250						●	●
WPQ0400						●	
WPQ0500						●	
WPQ0600						●	
WPQ0800						●	

JEP0000-A□□ (2-Wire Reed Auto Switch)

Specifications

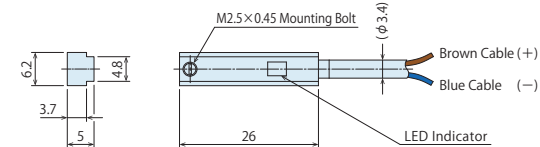
Model No.	JEP0000-A1	JEP0000-A1L	JEP0000-A2	JEP0000-A2L	JEP0000-A2V	JEP0000-A2VL
Name	Reed Auto Switch					
Wiring Type	2-Wire					
Applicable Load	Relay, Programmable Logic Controller (PLC)					
Load Voltage / Load Current	Less than DC24V / 40mA Less than AC100V / 20mA					
Internal Voltage Drop	Less than 3V					
Operating Time	1ms					
Ambient Temperature	-10~70°C					
Withstand Voltage	AC1500V (There should be no abnormalities in 1 min. application.)					
Leakage Current	0					
Shock Resistance	30G					
Protection Circuit	None					
Protection Grade	IP67 (IEC Standard)					
Indicator Light	Red LED illuminates when turned ON					
Electric Cable Length	1m	3m	1m	3m	1m	3m

Electric Circuit Diagram

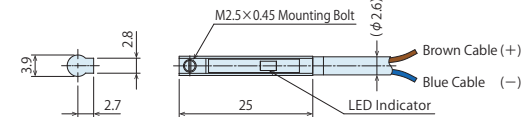


Note :
1. Auto switch will instantly break due to over loading current if turning on the auto switches without connecting the load. (Refer to Notes on Wiring 4) and 5) on P.305.)

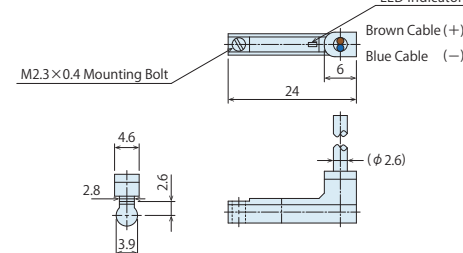
External Dimensions : JEP0000-A1□



External Dimensions : JEP0000-A2□



External Dimensions : JEP0000-A2V□



Locating Clamp

Locating

Clamp

Support

Valve · Coupler

Cautions · Others

Ball Lock Cylinder

WKA

FA Pneumatic Hole Clamp

WKH

Robotic Hand Parallel Gripper

WPA

Robotic Hand Parallel Gripper

WPH

Robotic Hand Three-Jaw Chuck

WPP

Robotic Hand Two-Jaw Chuck

WPQ

Auto Switch Proximity Switch

JEP

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

Pneumatic Swing Clamp

WHA

Pneumatic Link Clamp

WCA

Air Flow Control Valve

BZW

Manifold Block

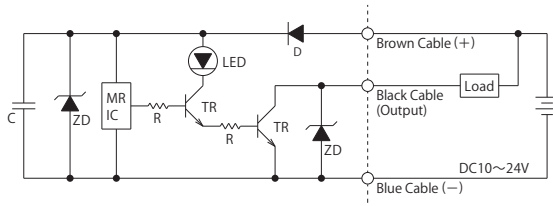
WHZ-MD

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

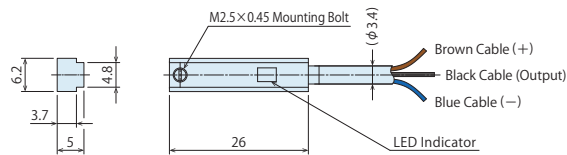
● Specifications

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)			
Output Type	NPN			
Load Voltage / Load Current	Less than DC10~24V / 100mA			
Internal Voltage Drop	Less than 0.7V			
Operating Time	1ms			
Ambient Temperature	-10~70°C			
Withstand Voltage	AC2000V (There should be no abnormalities in 1 min. application.)			
Leakage Current	0			
Shock Resistance	30G			
Protection Grade	IP67 (IEC Standard)			
Indicator Light	Red LED illuminates when turned ON			
Electric Cable Length	1m	3m	1m	3m

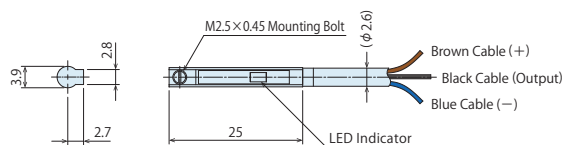
● Electric Circuit Diagram



● External Dimensions : JEP0000-B1□



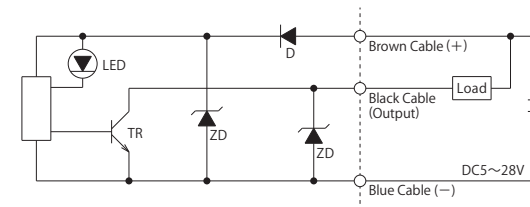
● External Dimensions : JEP0000-B2□



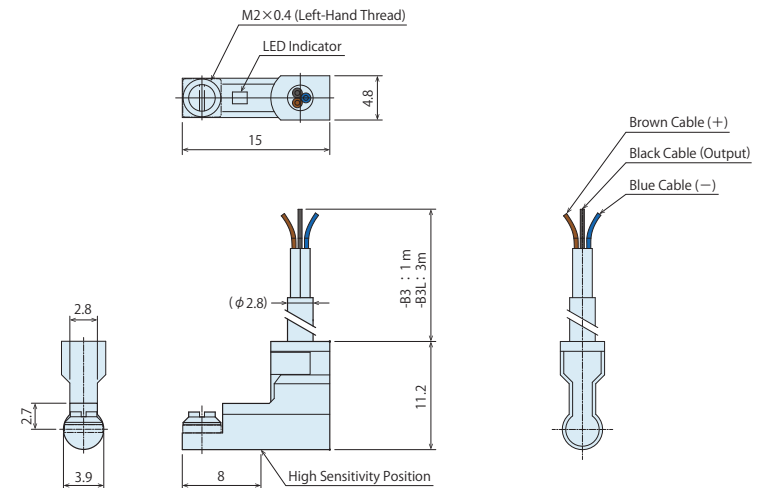
● Specifications

Model No.	JEP0000-B3	JEP0000-B3L
Name	Solid State Auto Switch	
Wiring Type	3-Wire	
Applicable Load	Relay, Programmable Logic Controller (PLC)	
Output Type	NPN	
Load Voltage / Load Current	Less than DC5~28V / 0.1~40mA	
Internal Voltage Drop	Max. 0.5V	
Leakage Current	Max. 50 μA (DC24V)	
Current Consumption	Max. 10 mA	
Response Time	Max. 1ms	
Ambient Temperature	0~60°C	
Withstand Voltage	AC1500V (There should be no abnormalities in 1 min. application.)	
Insulation Resistance	More than 100MΩ / DC500V (Between the Case and Signal Cable)	
Shock Resistance	30G	
Protection Grade	IP67(IEC Standard)	
Indicator Light	Red LED illuminates when turned ON	
Electric Cable Length	1m	3m

● Electric Circuit Diagram



● External Dimensions : JEP0000-B3□



- Locating Clamp
- Locating
- Clamp
- Support
- Valve - Coupler
- Cautions - Others
- Ball Lock Cylinder
- WKA
- FA Pneumatic Hole Clamp
- WKH
- Robotic Hand Parallel Gripper
- WPA
- Robotic Hand Parallel Gripper
- WPH
- Robotic Hand Three-Jaw Chuck
- WPP
- Robotic Hand Two-Jaw Chuck
- WPQ
- Auto Switch Proximity Switch
- JEP
- High-Power Pneumatic Hole Clamp
- SWE
- High-Power Pneumatic Swing Clamp
- WHE
- High-Power Pneumatic Link Clamp
- WCE
- Pneumatic Swing Clamp
- WHA
- Pneumatic Link Clamp
- WCA
- Air Flow Control Valve
- BZW
- Manifold Block
- WHZ-MD

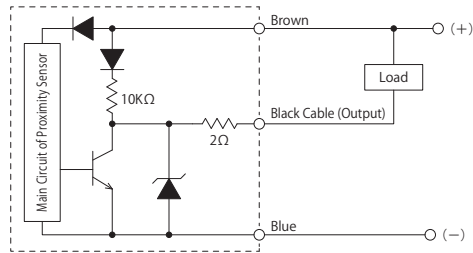
● JEP0000-P□ (3-Wire Proximity Switch for Gripping Detection)

● MEMO

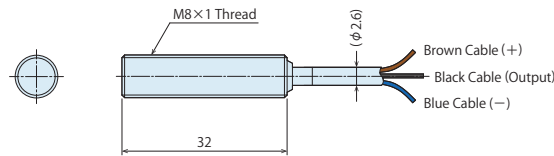
● Specifications

Model No.	JEP0000-P	JEP0000-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°C	
Withstand Voltage	AC2000V (There should be no abnormalities in 1 min. application.)	
Protection Grade	IP67 (IEC Standard)	
Indicator Light	Red LED illuminates when turned ON	
Electric Cable Length	2m	

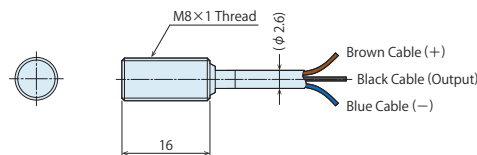
● Electric Circuit Diagram



● External Dimensions : JEP0000-P



● External Dimensions : JEP0000-P2



- Locating Clamp
- Locating
- Clamp**
- Support
- Valve · Coupler
- Cautions · Others

- Ball Lock Cylinder
- WKA
- FA Pneumatic Hole Clamp
- WKH
- Robotic Hand Parallel Gripper
- WPA
- Robotic Hand Parallel Gripper
- WPH
- Robotic Hand Three-Jaw Chuck
- WPP
- Robotic Hand Two-Jaw Chuck
- WPQ
- Auto Switch Proximity Switch**
- JEP**
- High-Power Pneumatic Hole Clamp
- SWE
- High-Power Pneumatic Swing Clamp
- WHE
- High-Power Pneumatic Link Clamp
- WCE
- Pneumatic Swing Clamp
- WHA
- Pneumatic Link Clamp
- WCA
- Air Flow Control Valve
- BZW
- Manifold Block
- WHZ-MD

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 due to 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.209 for WPA, P.217 for WPH, P.225 for WPP and P.236 for WPO. 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.

Locating Clamp
Locating
Clamp
Support
Valve - Coupler
Cautions - Others
Ball Lock Cylinder
WKA
FA Pneumatic Hole Clamp
WKH
Robotic Hand Parallel Gripper
WPA
Robotic Hand Parallel Gripper
WPH
Robotic Hand Three-Jaw Chuck
WPP
Robotic Hand Two-Jaw Chuck
WPO
Auto Switch Proximity Switch
JEP
High-Power Pneumatic Hole Clamp
SWE
High-Power Pneumatic Swing Clamp
WHE
High-Power Pneumatic Link Clamp
WCE
Pneumatic Swing Clamp
WHA
Pneumatic Link Clamp
WCA
Air Flow Control Valve
BZW
Manifold Block
WHZ-MD

ⓘ 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.

Locating Clamp
Locating Clamp
Clamp
Support
Valve • Coupler
Cautions • Others
Ball Lock Cylinder
WKA
FA Pneumatic Hole Clamp
WKH
Robotic Hand Parallel Gripper
WPA
Robotic Hand Parallel Gripper
WPH
Robotic Hand Three-Jaw Chuck
WPP
Robotic Hand Two-Jaw Chuck
WPO
Auto Switch Proximity Switch
JEP
High-Power Pneumatic Hole Clamp
SWE
High-Power Pneumatic Swing Clamp
WHE
High-Power Pneumatic Link Clamp
WCE
Pneumatic Swing Clamp
WHA
Pneumatic Link Clamp
WCA
Air Flow Control Valve
BZW
Manifold Block
WHZ-MD

Cautions

● Notes on Handling

- 1) It should be handled by qualified personnel.
 - The hydraulic machine and air compressor should be handled and maintained by qualified personnel.
- 2) Do not handle or remove the machine unless the 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 temperature cools down.
 - ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
- 3) Do not touch clamp (cylinder) while clamp (cylinder) is working. Otherwise, your hands may be injured due to clinching.

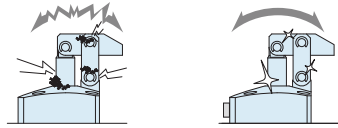


4) Do not disassemble or modify.

- If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

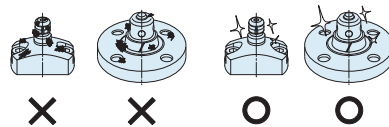
● Maintenance and Inspection

- 1) Removal of the Machine and Shut-off of Pressure Source
 - 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.
 - Make sure there is no abnormality in the bolts and respective parts before restarting.
- 2) Regularly clean the area around the piston rod and plunger.
 - If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning, fluid leakage and air leaks.



3) Regularly clean the reference surfaces (taper reference surface and seating surface) of locating products (SWT/SWQ/VRA/VRC/VX/VXF/WVS/VWM/VWK).

- Locating products (except VRA/VRC/VX/VXF and SWR without air blow port) can remove contaminants with cleaning functions. When installing pallets make sure there is no thick sludge like substances on pallets.
- Continuous use with dirt on components will lead to locating functions not work properly, leaking and malfunction.



4) Regularly tighten pipings, mounting bolts, nuts, snap rings and cylinders to ensure proper use.

5) Make sure the hydraulic fluid has not deteriorated.

- 6) Make sure there is smooth action and no abnormal noise.
 - Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.

7) The products should be stored in the cool and dark place without direct sunshine or moisture.

8) Please contact us for overhaul and repair.

● 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.

- Locating + Clamp
- Locating
- Clamp
- Support
- Valve + Coupler
- Cautions + Others
- Cautions
 - Installation Notes
 - Maintenance/Inspection
 - Warranty
- Sales Offices