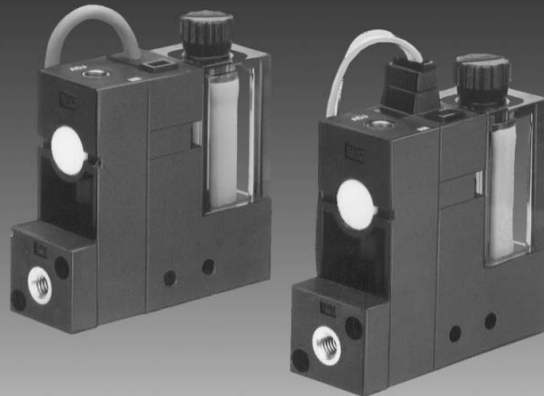


# Adsorption Confirmation Switch Series ZSP1

For General Pneumatics



ZSE   
ISE

PSE

ZSE3

PS

ZSE1   
ISE1

ZSP

ISA2

IS

ZSM

PF2

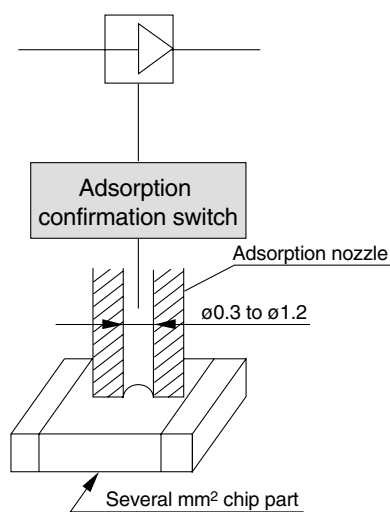
IF

Data

Can be integrated with ZX ejector system.

**Best suited for small diameter nozzles**

ø0.3 to ø1.2



**Suction filter comes as standard**

## How to Order

**Vacuum**    **ZSP1** —   — **15**   

**Available nozzle diameter**

<b>S</b>	ø0.3 to ø0.7
<b>B</b>	ø0.5 to ø1.2

**Connection**

<b>0X</b>	With suction filter M5 x 0.8 (For mounting on ZX ejector)
<b>0XY</b>	With suction filter M6 x 1 (For mounting on ZX ejector)

**Output specifications**

<b>15</b>	NPN open collector 30 V, 80 mA
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**Wiring specifications**

<b>Nil</b>	Grommet type (Lead wire: 0.6 m)
<b>L</b>	Grommet type (Lead wire: 3 m)
<b>C</b>	Connector type (Lead wire: 0.6 m)
<b>CL</b>	Connector type (Lead wire: 3 m)
<b>CN</b>	Without connector

## ⚠ Precautions


Be sure to read before handling. Refer to pages 16-14-3 to 16-14-4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to pages 16-1-11 to 16-1-13 for Precautions on every series.

### ⚠ Caution

If a positive pressure is applied to the switch, such as a vacuum break, the output will turn ON (illuminating the indicator light). Make sure that the output will not negatively affect the equipment.

## With Connector/How to Order

- Without lead wire (Connector 1 pc. Socket 3 pcs.) ..... **ZS-10-A**
- With lead wire ..... **ZS-10-5A-**

 Note) When ordering switch with 5 m long lead wire, indicate both part numbers.  
Ex.) **ZSP1-□0X-15CN** ..... 1 pc.  
**ZS-10-5 A-50** ..... 1 pc.

**Lead wire length**

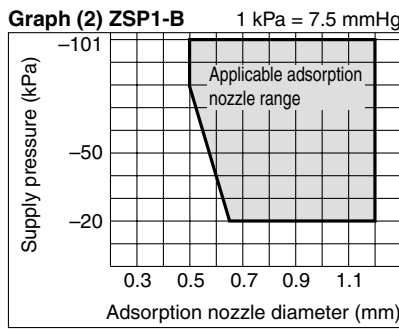
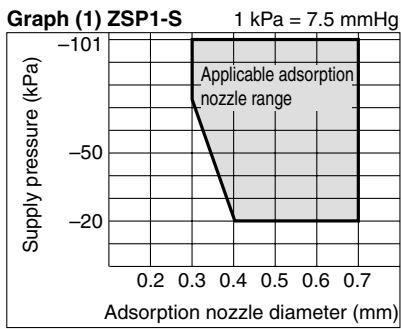
<b>Nil</b>	0.6 m
<b>30</b>	3 m
<b>50</b>	5 m

## Specifications

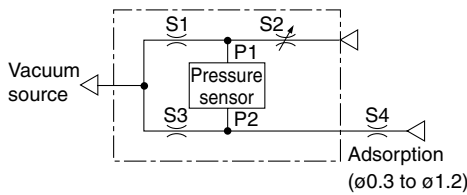
Model	ZSP1-S	ZSP1-B
Fluid	Air	
Operating pressure range	-20 to -101 kPa	
Applicable adsorption nozzle dia.	ø0.3 to ø0.7 (Refer to "Graph (1)" on page 16-7-3.)	ø0.5 to ø1.2 (Refer to "Graph (2)" on page 16-7-3.)
Hysteresis	0.5 kPa	
Internal orifice	ø0.5	ø0.8
Supply voltage	12 to 24 VDC (Ripple ±10% or less)	
Output type	NPN open collector 30 V, 80 mA	
Indicator light	ON: When output is ON.	
Current consumption	17 mA or less at 24 VDC	
Operating temperature range	0 to 60°C (With no condensation)	
Port size	M5 x 0.8	
Lead wire	Grommet type	Grommet oil-resistant vinyl heavy-duty code 3-wire, ø3.4, 0.2 mm <sup>2</sup>
	Connector type	Heat-resistant vinyl electrical wire ø1.55, 0.31 mm <sup>2</sup>

## Applicable Adsorption Nozzle Range

Relation between supply pressure and adsorption nozzle diameter is shown in the below graph.



## Pneumatic Circuit and Principle



The air pressure forms a bridge circuit inside the unit with a vacuum applied to the circuit, but with the adsorption nozzle "S4" open, adjust needle "S2" so that (P1 = P2). When parts are absorbed by nozzle "S4", the resulting (P2 - P1) differential will be detected by the pressure sensor.

## Internal Circuit and Wiring Example

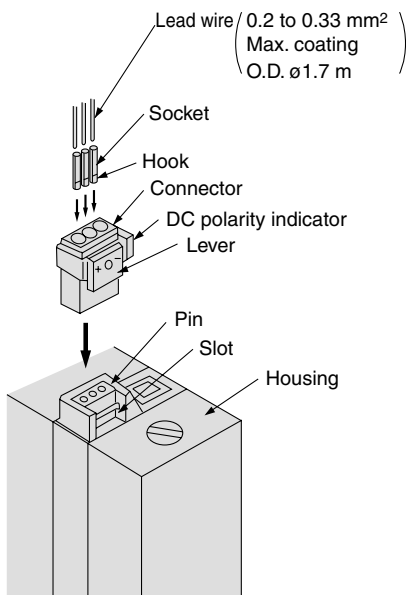
Lead wire colors inside ( ) are those prior to conformity to IEC standards.



## How to Use Connector

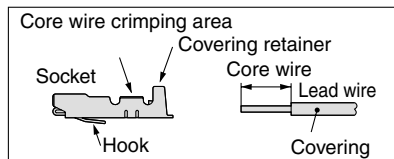
### 1. Attaching and detaching connectors

- When assembling the connector to the switch housing, push the connector straight onto the pins until the lever locks into the housing slot.
- When removing the connector from the switch housing, push the lever down to unlock it from the slot and then withdraw the connector straight off of the pin.



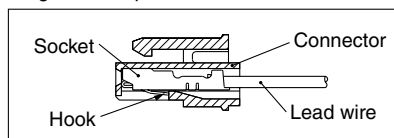
### 2. Crimping of lead wires and sockets

Strip 3.2 to 3.7 mm at the end of the lead wires, insert the ends of the core wires evenly into the sockets, and then crimp with a crimping tool. When this is done, take care that the coverings of the lead wires do not enter the core wire crimping area. (Crimping tool: model no. DXT170-75-1)



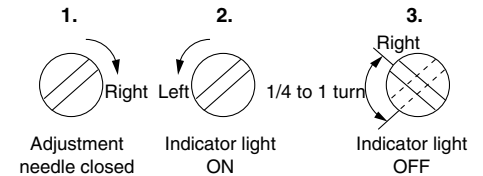
### 3. Attaching and detaching lead wires with sockets

- Attaching**  
Insert the sockets into the square holes of the connector (with +, 0, - indication), and continue to push the sockets all the way in until they lock by hooking into the seats in the connector. (When they are pushed in their hooks open and they are locked automatically.) Then confirm that they are locked by pulling lightly on the lead wires.
- Detaching**  
To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (about 1 mm). If the socket will be used again, first spread the hook outward.

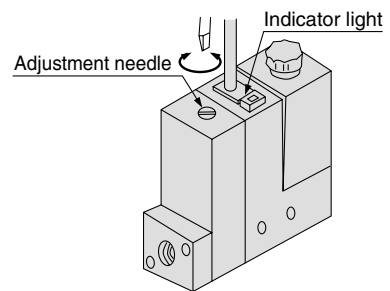


## How to Set Adsorption Confirmation Adjustment Needle

- Supply the vacuum and electrical power source to the unit. Rotate an adjustment needle clockwise until it stops.
- With the adsorption nozzle away from a work-piece (open), turn the adjustment needle counter-clockwise until the indicator light turns on.
- From the above 2. position, turn the adjustment needle 1/4 to 1 turn clockwise.

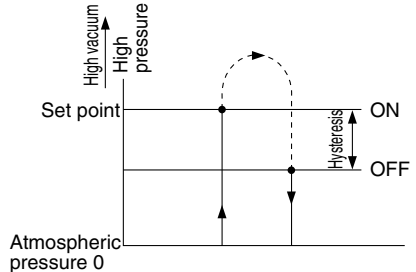


- Re-adjust the needle so the indicator light turns ON only when the work adsorption is steady.



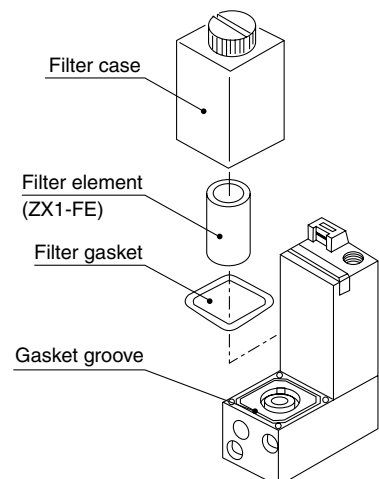
## Hysteresis

Hysteresis is the pressure difference between the ON pressure and the OFF pressure of the output signal. The set pressure is the pressure selected to switch from OFF to ON condition.



## How to Replace Filter Element

If the filter element becomes clogged, leading to a reduced adsorption force or delayed response time, stop the operation and re-place the element. (Element part number ZX1-FE) Verify that the filter gasket is placed properly in the gasket groove before installing an element.



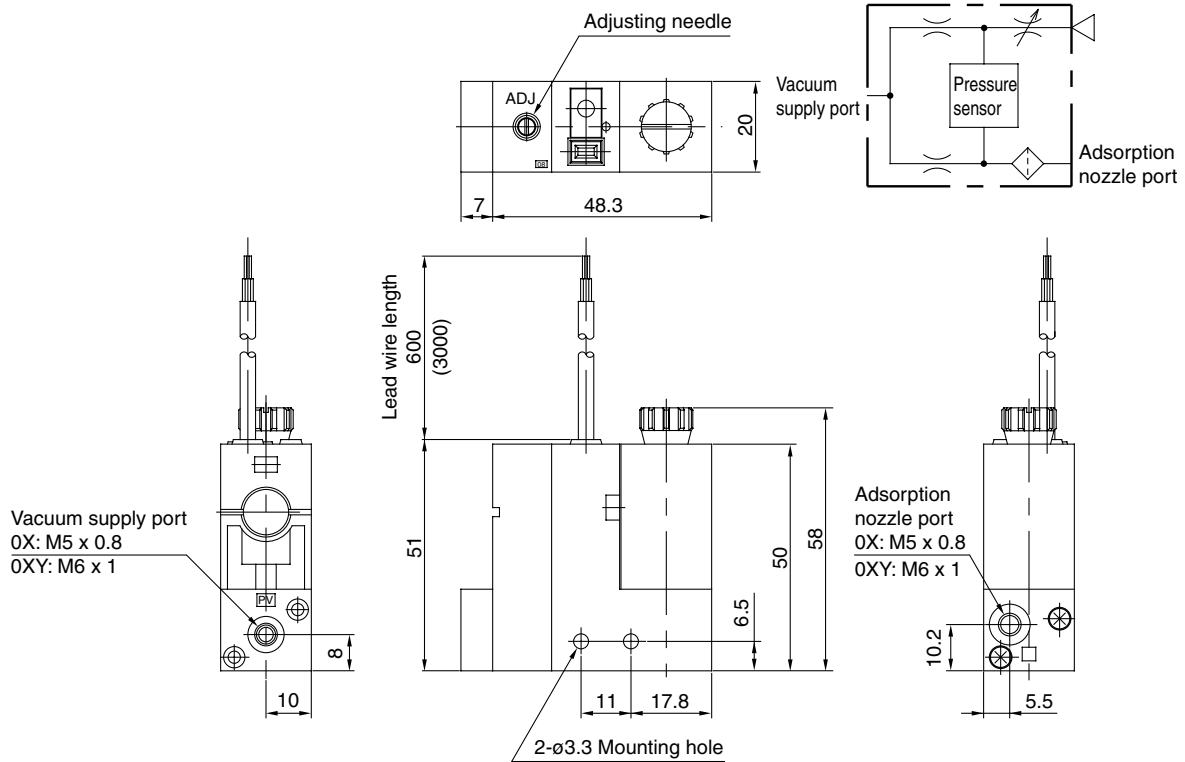
- ZSE
- ISE
- PSE
- ZSE3
- PS
- ZSE1
- ZSP
- ISA2
- IS
- ZSM
- PF2
- IF
- Data

# Series ZSP1

## Dimensions

**Grommet type:**

ZSP1-□OX□-□



**Connector type:**

ZSP1-□OX□-□C

