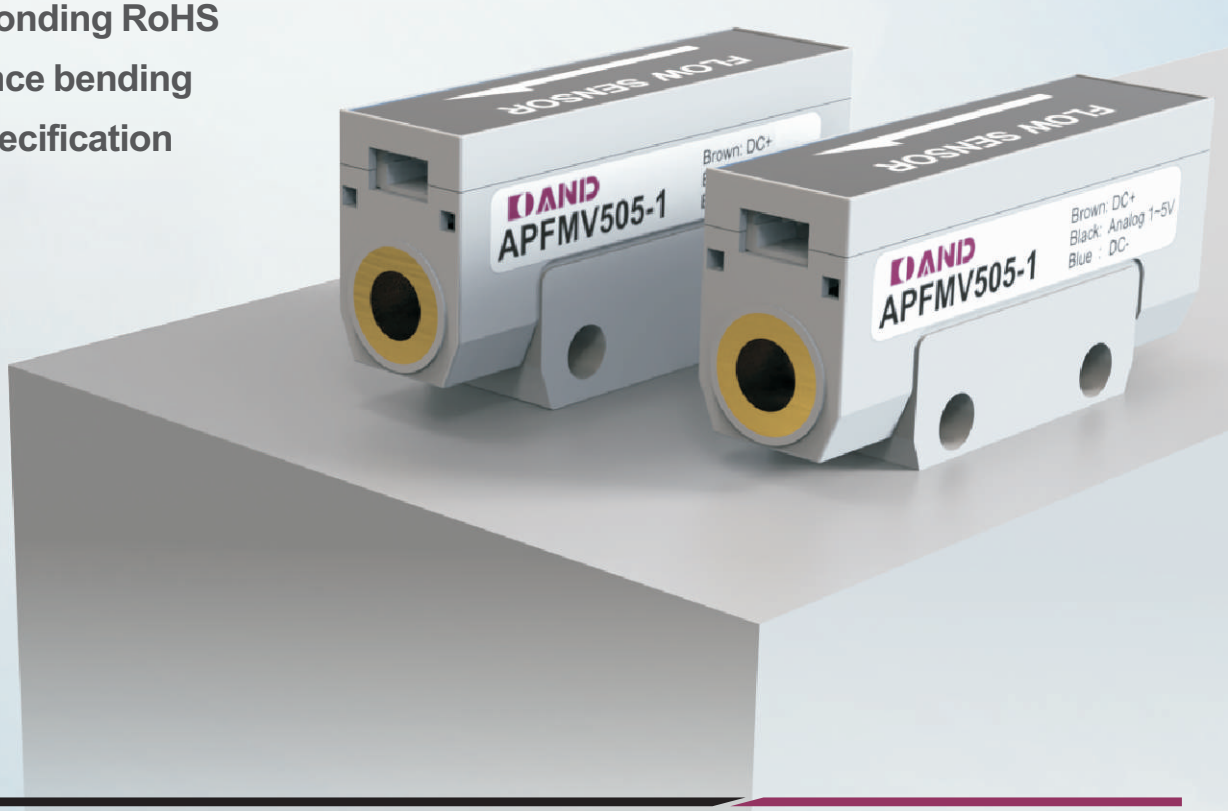
APFMV Series
FLOW SENSOR

Adsorption confirmation of tiny workpiece

- Corresponding speed: **below 5ms**
- Withstand voltage: **500kPa**
- Grease-free
- Corresponding RoHS
- Resistance bending cable specification



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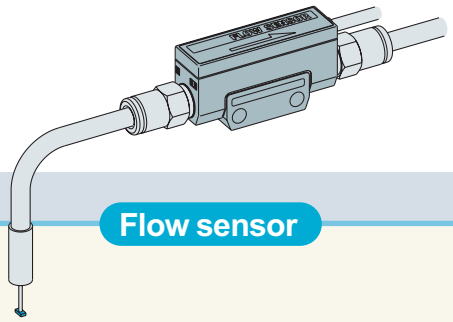
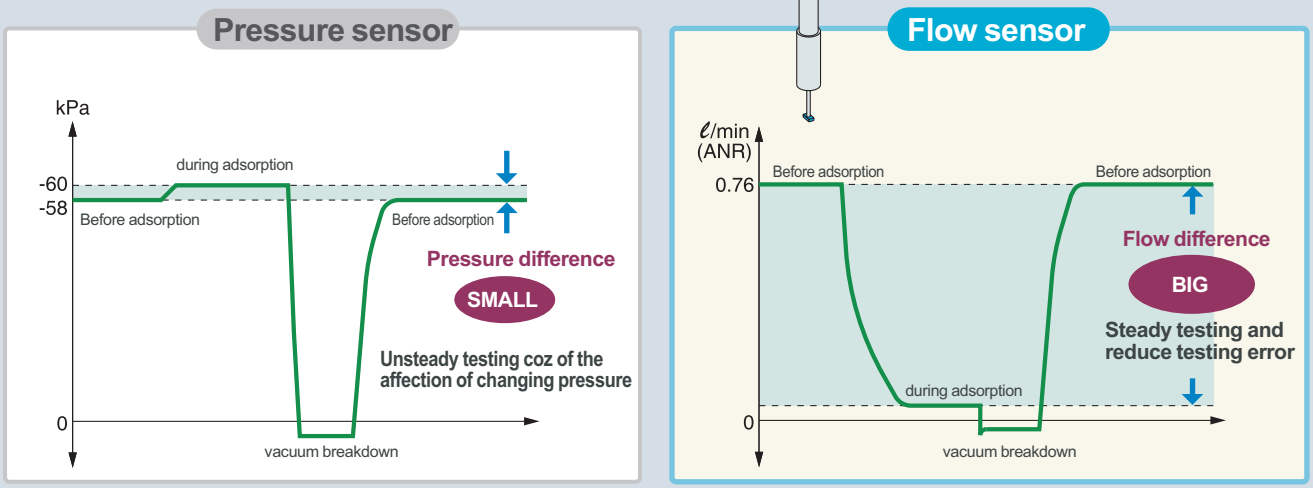
APFMV Series

FLOW SENSOR

Adsorption confirmation of tiny workpiece

It will be more accuracy adsorption confirmation by using flow sensor.

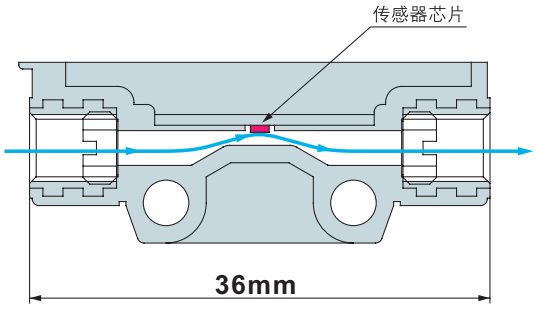




comparison criteria: (nozzle orifice: Φ0.3, Vacuum pressure: -60kPa)

Repeatability: under ±2% F.S

Because the flow path in front of the sensor chip is shaped into a cone, so stable detection, high repeatability and miniaturization are achieved.



- Corresponding speed: below 5ms
- Withstand voltage: 500kPa
- Grease-free
- Corresponding RoHS
- Resistance bending cable specification

Model		Rated flow range ℓ/min(ANR)
		-3 -2 -1 -0.5 0 0.5 1 2 3
APFMV	505	
	510	
	530	
	505F	
	510F	
	530F	

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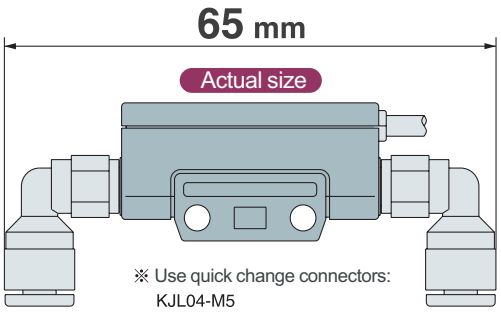
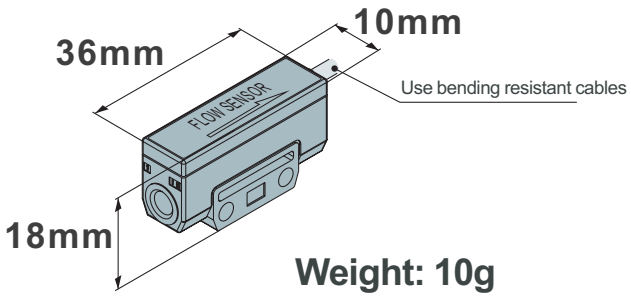
Reduce piping space

Because it it no need straight pipe,so the Installation space can be reduced.





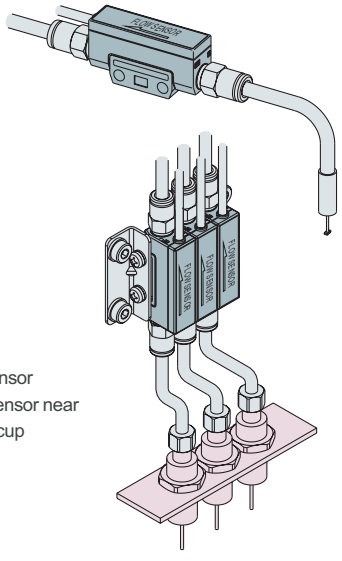
Weight: 10g

Measuring flow range ℓ/min	Model
0~0.5	**APFMV505**
0~1	**APFMV510**
0~3	**APFMV530**
-0.5~0.5	**APFMV505F**
-1~1	**APFMV510F**
-3~3	**APFMV530F**

Case

Adsorption confirmation of tiny workpiece

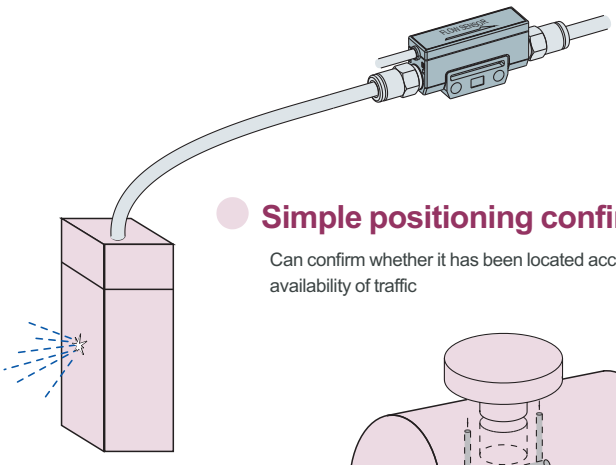
- Confirm the adsorption of tiny workpiece
- Suitable for tiny nozzle
- Detect whether the nozzle is blocked or damaged



- Pack the sensor
- Install the sensor near the suction cup

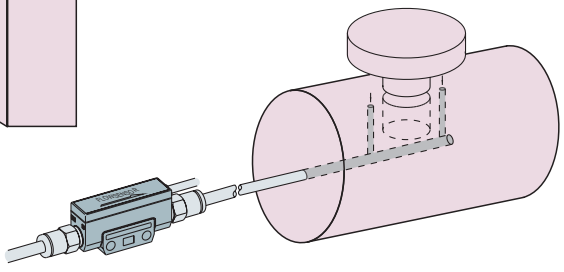
Simple leak tests be performed

- Can confirm whether the molding product has leakage holes



Simple positioning confirmation

Can confirm whether it has been located according to availability of traffic

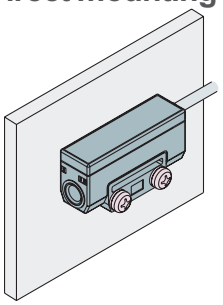


APFMV Series

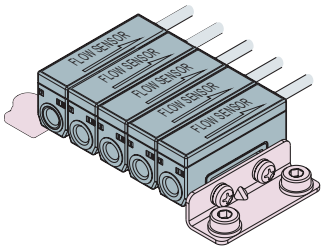
FLOW SENSOR

Installation method

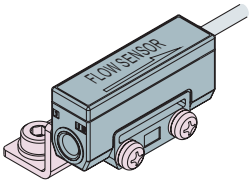
- Direct mounting



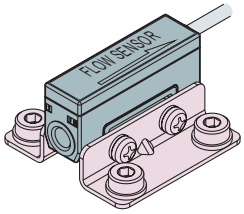
- Packaged installation



- Single side bracket installation



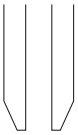
- Mounting on both sides of bracket



Nozzle size and flow characteristics(Approximate value)

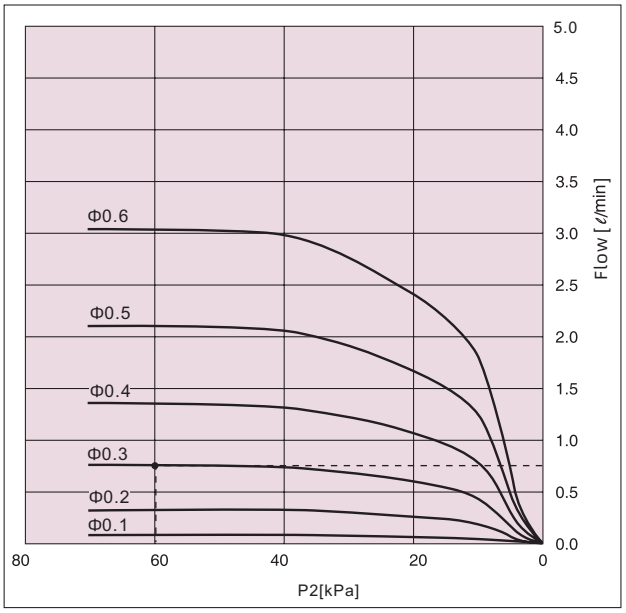
Please use it flexibly as a reference for selecting the genera measuring range of the sensor

P2: Nozzle internal pressure

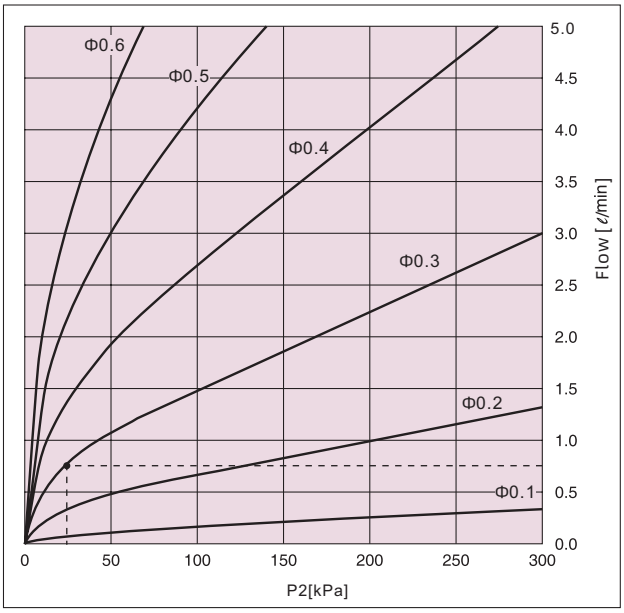


P1: barometric pressure

Nozzle aperture flow characteristics(vacuum)

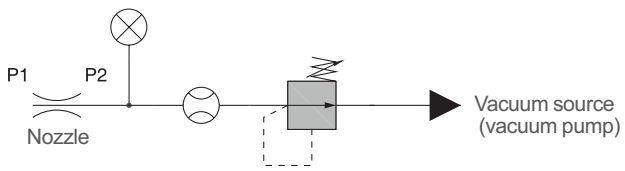


Nozzle orifice flow characteristic(Positive pressure)



Selected example(under vacuum)

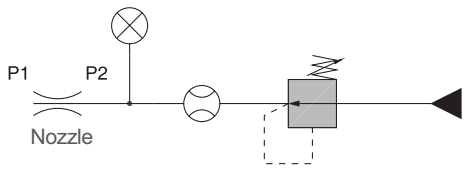
Condition Nozzle inner diameter：Φ0.3、P1：0[kPa]、
P2：60[kPa]
Obtain the flow rate at 0.7~0.8[ℓ/min] from the graph
→Selected PFMV510-1。



Note* Due to the leakage or pressure loss of the piping system, the estimated value is not consistent with the situation, so please check the actual measurement.

Selected example(under Positive pressure)

Condition Nozzle inner diameter：Φ0.3、P1：0[kPa]、
P2：20[kPa]
Obtain the flow rate at 0.7~0.8[ℓ/min] from the graph
→Selected PFMV510-1。



APFMV Series FLOW SENSOR

Type representation

APFMV5 05 – 1 – □

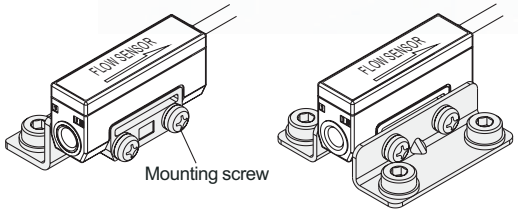
Measuring flow range

05	0.0~0.5ℓ/min
10	0.0~1.0ℓ/min
30	0.0~3.0ℓ/min
05F	-0.5~0.5ℓ/min
10F	-1.0~1.0ℓ/min
30F	-3.0~3.0ℓ/min

Output specification

1	Analog output(1~5V)

Optional (same package)

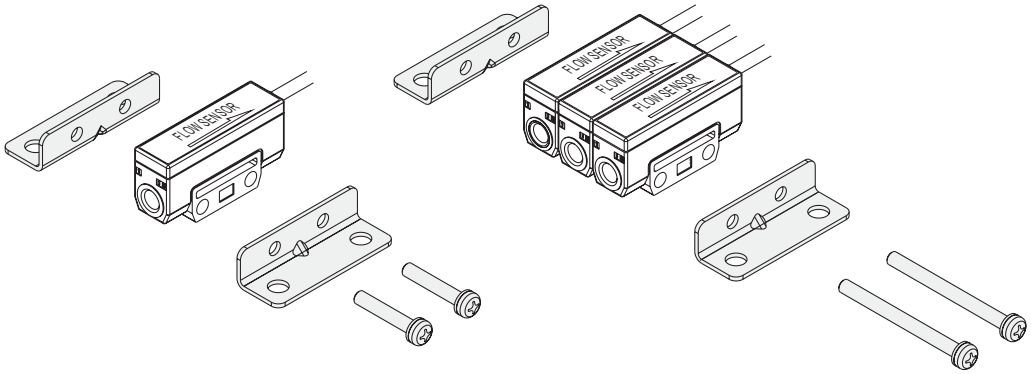
un marked	Without L-bracket
A	Attached L-bracket 

＊ 2pcs of L-bracket (with 2pcs of small screws) will be attached into the same package

Optional (parts model)

If you need a single part or use packaged installation,please order separately according to the following models.

Model	Digit	Remark
AZS-36-A1	1 Digit	Attach with 2pcs of L-Bracket、2pcs of M3x15L small screws for installation
AZS-36-A2	2 Digit	Attach with 2pcs of L-Bracket、2pcs of M3x25L small screws for installation
AZS-36-A3	3 Digit	Attach with 2pcs of L-Bracket、2pcs of M3x35L small screws for installation
AZS-36-A4	4 Digit	Attach with 2pcs of L-Bracket、2pcs of M3x45L small screws for installation
AZS-36-A5	5 Digit	Attach with 2pcs of L-Bracket、2pcs of M3x55L small screws for installation



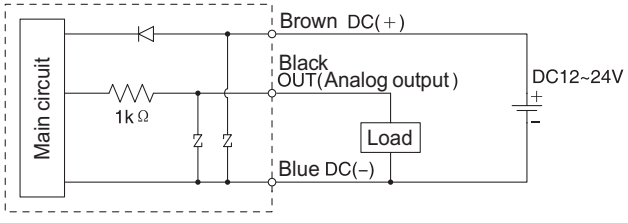
APFMV Series FLOW SENSOR

Specification

Model		APFMV505
Applicable fluid		Dry air, N_2 (The air quality rating is JIS B 8392-1 1.1.2~1.6.2:2003)
Rated flow range (* Note 1)		0~0.5 ℓ/min
Precision		Blow ±5%F.S. (* Note 3)
Repeatability		Blow ±2%F.S. (* Note 3)
Pressure characteristic (0 kpa standard (* Note 4))		Blow ±2%F.S. (0~300kPa) Blow ±5%F.S. (−70~0kPa)
Temperature characteristic (25℃ standard)		Blow±2%F.S.(15~35℃) Blow±5%F.S.(0~50℃)
Rated pressure range (* Note 5)		−70kPa~300kPa
Working pressure range (* Note 6)		−100kPa~400kPa
Compression resistance		500kPa
Analog output(nonlinear output)		Output voltage:1~5V、Output resistance:about 1kΩ
Response time		Blow 5ms (90%反应)
Supply voltage		DC12~24V±10%、Fluctuation (p-p) less than 10% (with reverse protection)
Current consumption		Blow 16mA
Environmental Resistance	Protection architecture	IP40
	Operating fluid temperature	0~50℃ (No icing, no condensation)
	Using temperature range	0~50℃ (No icing, no condensation)
	Storage temperature range	−10~60℃ (No icing, no condensation)
	Service humidity range	35~85%R.H. (No condensation)
	Storage humidity range	35~85%R.H. (No condensation)
	Voltage resistance	AC1000V、1min. The entire charging section is between the frame
	Insulation resistance	Over 50MΩ (DC500V Megohm meter) The entire charging section is between the frame
	Vibration resistance	10~150Hz, Complex amplitude 1.5mm, Max 98m/s², XYZ 2 hours in each direction (no power)
	Impact resistance	980m/s², X、Y、Z 3 times in each direction (no power)
	Connection diameter	M5×0.8(Tightening torque:1~1.5N·m)
	Material of the connecting fluid part	PPS、Si、Au、SUS316、C3604 (No electrolytic nickel plating)
Wire		3-core vinyl rubber insulated flexible cable ø2.6, 0.15mm², 2m
Quality		10g(Wire free)

Remark:
*1)Volume flow conversion value at 20°C,101.3kPa,65%RH standard state (ANR)
*2)When the flow rate is 0, the analog output signal is 3V. The output signal changes to 5V when the flow direction is IN-OUT, and the output signal changes to 1V when the flow direction is OUT-IN.
*3)The %F.S. in the table is analog signal 4V (1-5V) representing the full range
*4)The OkPa here means air opening
*5)It means the pressure range to meet product specifications
*6)It means the available pressure range

Internal loop and wiring example



Wire specifications

Rated temperature		80℃
Rated voltage		1000V
Core Number		3
Conductor	Material	Copper alloy wire
	Constitute	7/11/0.05mm
	External diameter	0.58mm
Insulator	Material	Irradiated cross-linked polyvinyl chloride (XL-PVC)
	External diameter	0.88mm
	Standard thickness	0.15mm
	Tonality	Brown, Blue, Black
Wire sheath	Material	Irradiation crosslinked polyoxyethylene
	Standard thickness	0.35mm
	Tonality	Light Grey (Equivalent to the symbol N7 in the Munsell color system)
Product outer diameter		$2.6^{+0.1}_{-0.15}$