

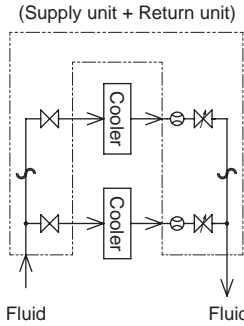
Integrated unit for water control One-fluid control

# WXU-H/HC Series

- Port size: Rc3/8, Rc1/2, Rc1
- Flow rate range: 0.5 to 32 L/min



## [Application examples]



A single unit serves as supply and return units of coolant piping. A single unit serves as supply. Each circuit can be controlled separately. Adjust flow rate by using the valve at return side.

## Common specifications

Item	WXU-H/HC
Working fluid	Water/hot water
Working pressure MPa	0 to 0.7
Proof pressure (water pressure) MPa	1.4
Fluid temperature °C	WXU-H:1 to 70/WXU-HC:1 to 85
Ambient temperature °C	5 to 50
Atmosphere	Place free of corrosive gas and explosive gas
Flow rate adjusting range %	0 to 100 (water) [with closing function]
Station No.	2 to 10 stations
Mounting orientation	Unrestricted
Sealant	Fluoro rubber
Port size	IN/OUT port
	Branching ports
	Rc1
	Rc3/8 or Rc1/2

## Weight

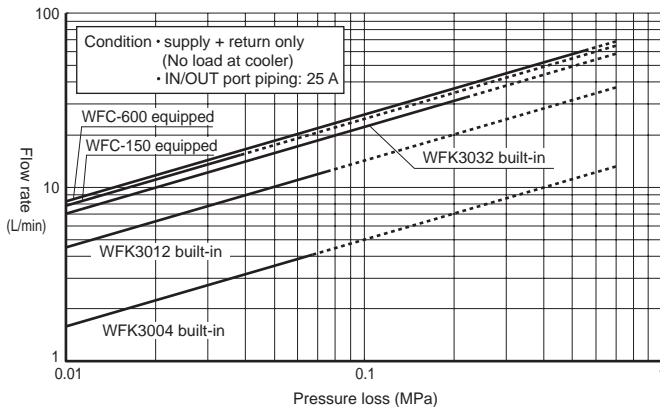
In-block (kg)	0.67
End block (kg)	0.63
One-station assembly (kg)	0.76
One-station assembly (WFC built-in)(kg)	1.00

## Flow characteristics

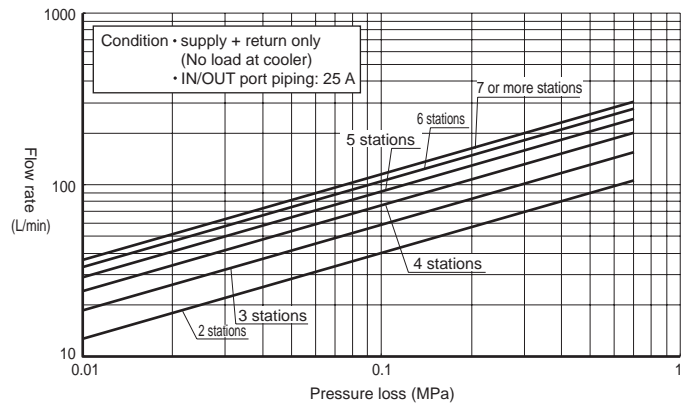
Supply/drain category	Configuration	Cv
	Flow rate sensor	
Supply side (one station)	-	3.00
	WFK3004	0.35
Return side (one station)	WFK3012	1.05
	WFK3032	1.80
	WFC-150	2.10
	WFC-600	2.30

Note: Make sure to check the flow rate of one station (each system) and overall unit. (Refer to "Reading the Flow Properties Table" on Page 26.)

### ● One station



### ● Overall unit



When the configuration of all one-station assembly machines is identical, the entire unit can be displayed in the model number by selecting the codes. When assembling units from different configurations of one-station assembly components, specify the configuration in "Manifold specifications" (page 22).

## How to order

- Karman vortex flow rate sensor

**WXU-H** - **6** - **L** - **15** - **12** - **A0N0**

**A** Station No.

**B** In-block position

**C** Port size (Branching ports)

**D** Flow rate range for flow sensor

**E** Flow rate sensor output (1)

**F** Flow rate sensor output (2)

Code	Description
<b>A Station No.</b>	
2	2 stations
to	to
10	10 stations
<b>B In-block position</b>	
L	Left
R	Right
W	Both sides
<b>C Port size (branching port)</b>	
10	Rc3/8
15	Rc1/2
<b>D Flow rate range for flow sensor</b>	
04	0.5 to 4.0 L/min
12	1.5 to 12 L/min
32	4.0 to 32 L/min

**F** Flow rate sensor output (2)

	Blank	N0	N1	P0	P1
Not required	Transistor output 1 point				
		NPN a contact	NPN b contact	PNP a contact	PNP b contact
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●

**E** Flow rate sensor output (1)

A0	0 to 5 VDC
A1	4 to 20 mADC
A2	1 to 5 VDC
A3	0 to 10 VDC
N0	NPN transistor output, 2 points (a contact)
N1	NPN transistor output, 2 points (b contact)
P0	PNP transistor output, 2 points (a contact)
P1	PNP transistor output, 2 points (b contact)

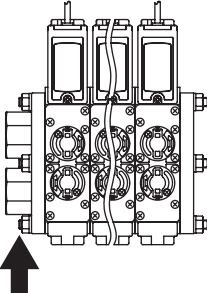
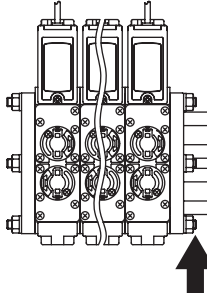
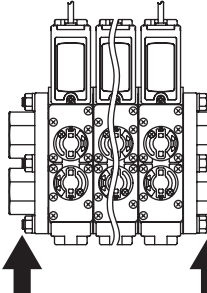
[Example of model No.]

**WXU-H-6-L-15-12-A0N0**

Model name: Integrated unit for water control One-fluid control

- A** Station No. : 6 stations
- B** In-block position : Left
- C** Port size : Rc1/2
- D** Flow rate range for flow sensor : 1.5 to 12 L/min
- E** Flow rate sensor output (1) : 0 to 5 VDC
- F** Flow rate sensor output(2) : NPN transistor output, 1 points (a contact)

## **B** In-block position

Code	L	R	W
Description	Left	Right	Both sides
Layout			

# WXU-H/HC Series

How to order

When the configuration of all one-station assembly machines is identical, the entire unit can be displayed in the model number by selecting the codes. When assembling units from different configurations of one-station assembly components, specify the configuration in "Manifold specifications" (page 23).

How to order

● Electromagnetic flow sensor

**WXU-HC** - **6** - **L** - **10** - **150** - **N** **V** - **C3**

**A** Station No.

**B** In-block position

**C** Port size  
(Branching ports)

**D** Flow rate range for flow sensor

**E** Switch output

**F** Analog output

**G** Cable

Code	Description		
<b>A Station No.</b>			
<b>2</b>	2 stations		
<b>to</b>	to		
<b>10</b>	10 stations		
<b>B In-block position</b>			
<b>L</b>	Left		
<b>R</b>	Right		
<b>W</b>	Both sides		
<b>C Port size (branching port)</b>			
	Flow rate range for flow sensor	150	600
<b>10</b>	Rc3/8	●	■
<b>15</b>	Rc1/2	■	●
<b>D Flow rate range for flow sensor</b>			
<b>150</b>	0.5 to 15 L/min		
<b>600</b>	2.0 to 60 L/min		
<b>E Switch output</b>			
<b>N</b>	NPN transistor output		
<b>P</b>	PNP transistor output		
<b>F Analog output</b>			
<b>V</b>	1 to 5 VDC		
<b>A</b>	DC4~20mA		
<b>G Cable</b>			
<b>Blank</b>	None		
<b>C3</b>	Cable (M12/4-conductor/3 m attached)		
<b>L3</b>	L-type cable (M12/4-conductor/3 m attached)		

[Example of model No.]

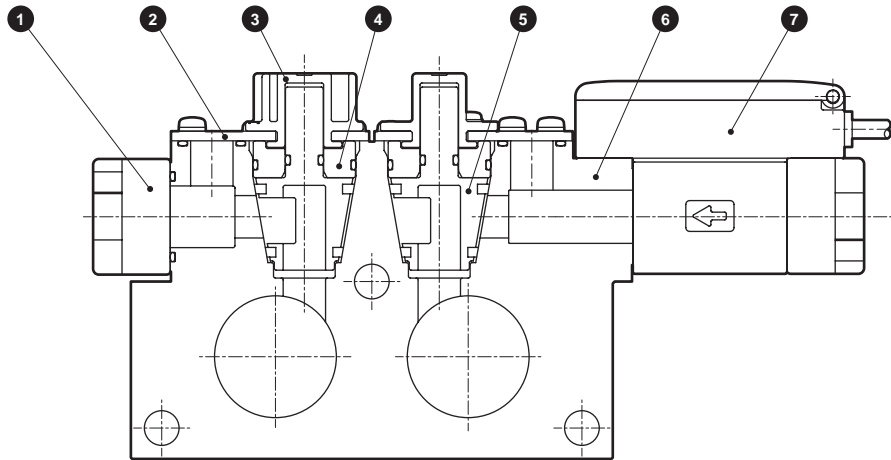
**WXU-HC-6-L-10-150-NV-C3**

Model name: Integrated unit for water control One-fluid control

- A** Station No. : 6 stations
- B** In-block position : Left
- C** Port size : Rc3/8
- D** Flow rate range : 0.5 to 15 L/min
- E** Switch output : NPN transistor output
- F** Analog output : 1 to 5 VDC
- G** Cable : Included

## Internal structure diagram and parts list

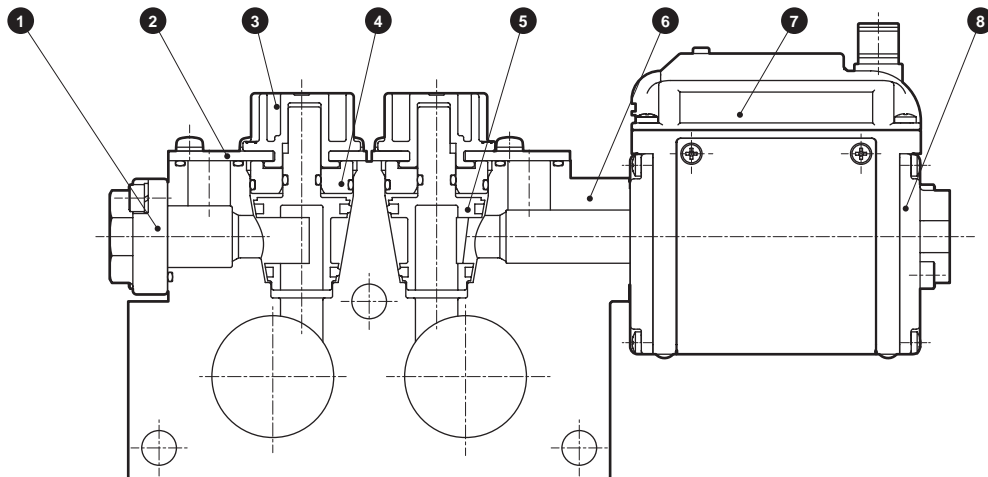
### ● Karman vortex flow rate sensor



[Valve is fully opened at shipment.]

Part No.	Part name	Material
1	Attachment	SCS13 Stainless steel casting
2	Plate	SUS304 Stainless steel
3	Knob	PBT Polybutylene terephthalate
4	Spacer	PPS Polyphenylene sulfide
5	Cock	PPS Polyphenylene sulfide FKM Fluoro rubber
6	Base	PPS Polyphenylene sulfide
7	Flow rate sensor [WFK3000 Series]	

### ● Electromagnetic flow sensor



[Valve is fully opened at shipment.]

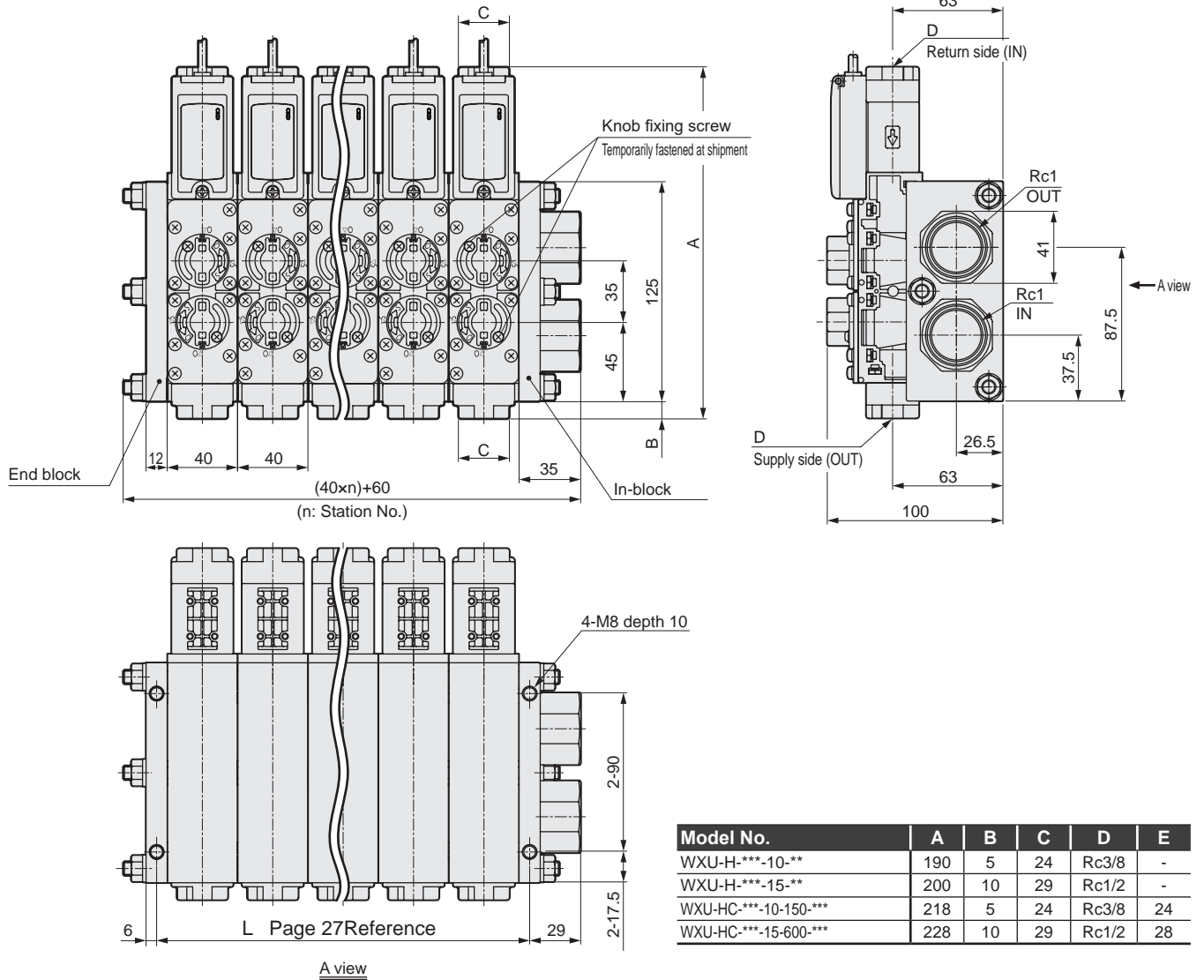
Part No.	Part name	Material
1	Attachment	SCS13 Stainless steel casting
2	Plate	SUS304 Stainless steel
3	Knob	PBT Polybutylene terephthalate
4	Spacer	PPS Polyphenylene sulfide
5	Cock	PPS Polyphenylene sulfide FFM Fluoro rubber
6	Base	PPS Polyphenylene sulfide
7	Flow rate sensor [WFC Series]	
8	Socket	CAC804 or C6931 Copper alloy

# WXU-H/HC Series

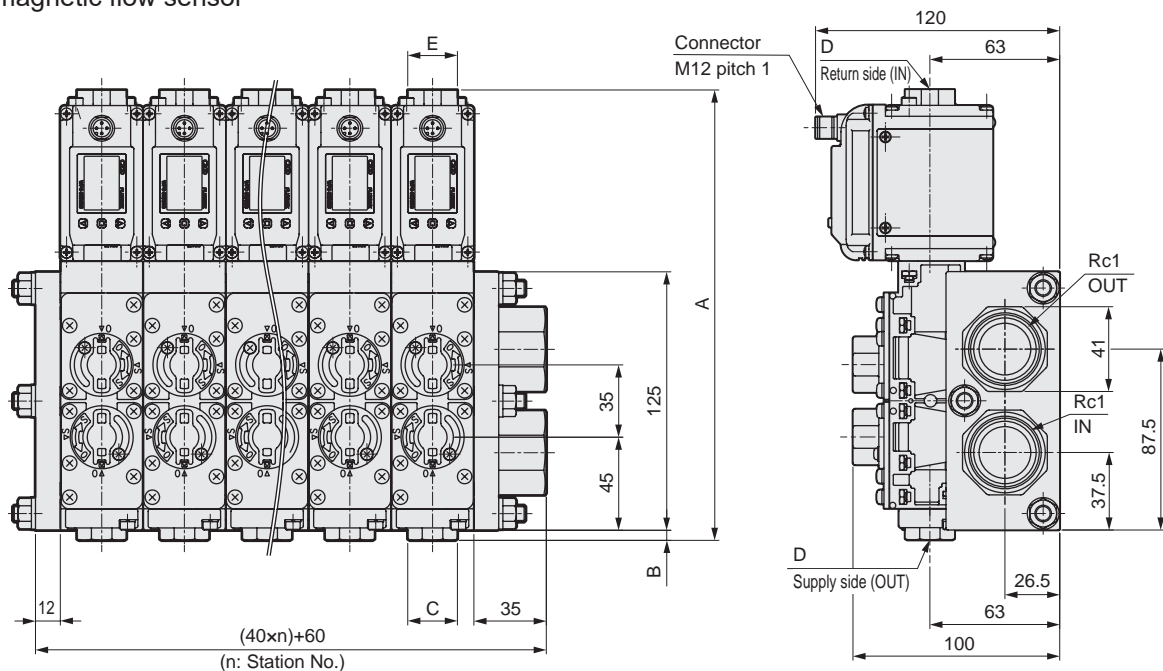
Dimensions

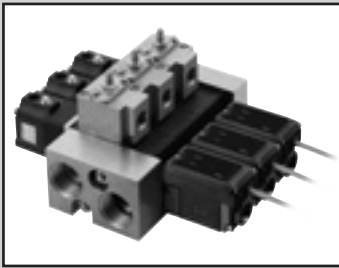
Dimensions

● Karman vortex flow rate sensor



● Electromagnetic flow sensor





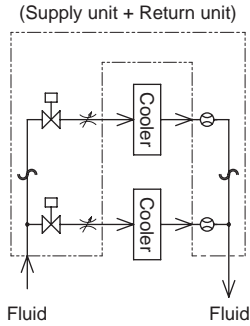
Integrated unit for water control One-fluid control

# WXU-J Series

- Port size: Rc3/8, Rc1/2, Rc3/4, Rc1
- Flow rate range: 0.5 to 32 L/min



## [Application examples]



A single unit serves as supply and return units of coolant piping. A single unit serves as supply. Each circuit can be controlled separately.

## Common specifications

Item	WXU-J
Working fluid	Water/hot water
Working pressure MPa	0 to 0.4 (Note)
Proof pressure (water pressure) MPa	1.0
Fluid temperature °C	1 to 70
Ambient temperature °C	5 to 50
Atmosphere	Place free of corrosive gas and explosive gas
Flow rate adjusting range %	0 to 100 (water) [with closing function]
Station No.	2 to 10 stations
Mounting orientation	Unrestricted
Sealant	Fluoro rubber
Port size	IN/OUT port
	Branching ports
	Rc3/4 or Rc1
	Rc3/8 or Rc1/2

Note: Contact CKD about use at pressures higher than working pressure.

## Weight

	Port size	
In-block (kg)	20A	1.30
	25 A	1.20
End block (kg)		1.05
One-station assembly (kg)	Supply side Cylinder valve	-
	Large flow rate specifications	1.29
	No	1.05

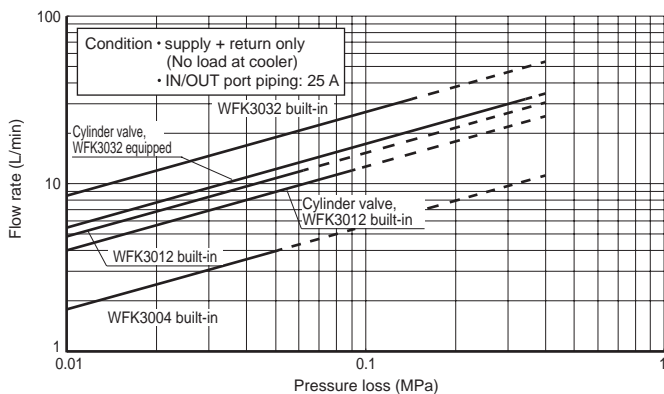
## Flow characteristics

Supply/drain category	Configuration		Cv
	Cylinder valve	Flow rate sensor	
Supply side (one station)	Large flow rate specifications	-	1.34
	No	-	2.51
Return side (one station)	-	WFK3004	0.41
		WFK3012	1.18
		WFK3032	2.82

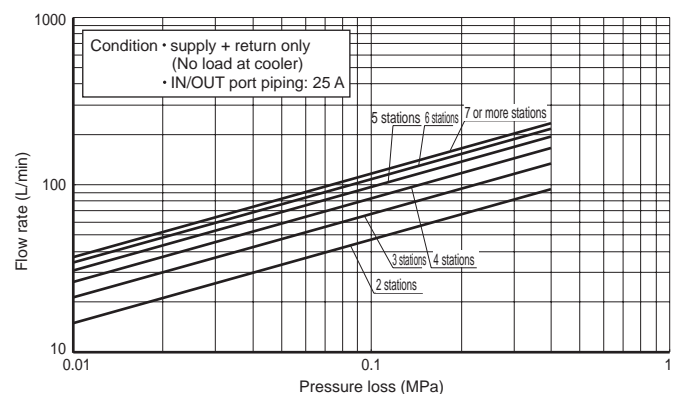
Note: Make sure to check the flow rate of one station (each system) and overall unit.

(Page 26 Refer to "Reading the Flow Properties Table".)

### ● One station



### ● Overall unit



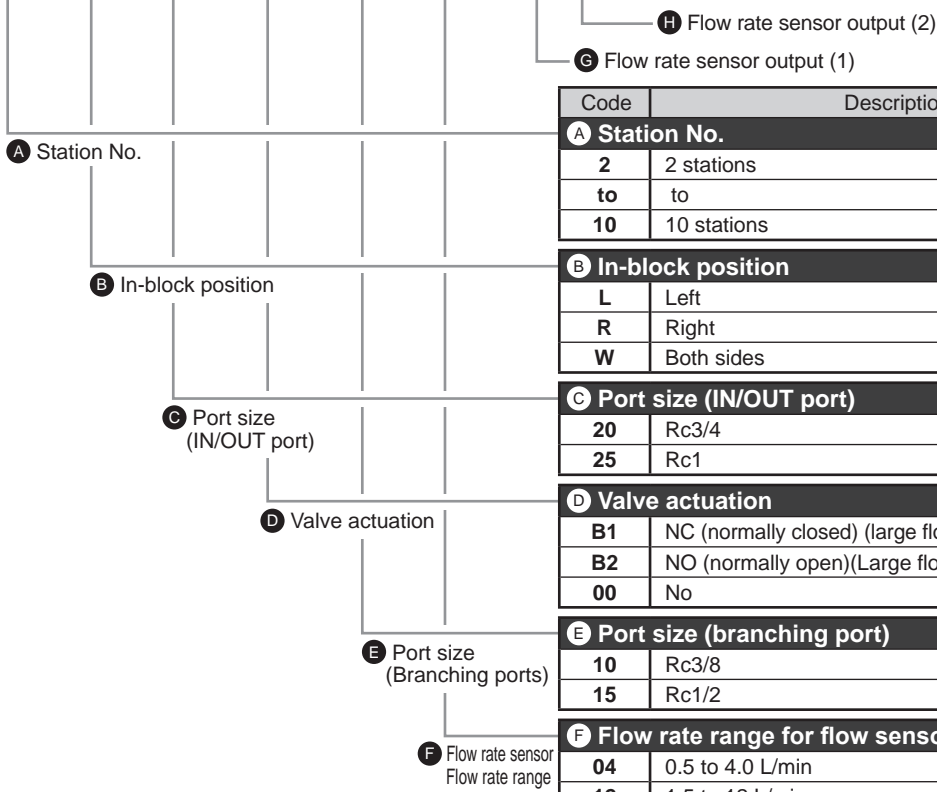
# WXU-J Series

How to order

When the configuration of all one-station assembly machines is identical, the entire unit can be displayed in the model number by selecting the codes. When assembling units from different configurations of one-station assembly components, specify the configuration in "Manifold specifications" (page 24).

How to order

**WXU-J - 6 - L - 25 - B1 - 15 - 12 - A0N0**



Code	Description
<b>A Station No.</b>	
2	2 stations
to	to
10	10 stations
<b>B In-block position</b>	
L	Left
R	Right
W	Both sides
<b>C Port size (IN/OUT port)</b>	
20	Rc3/4
25	Rc1
<b>D Valve actuation</b>	
B1	NC (normally closed) (large flow rate specifications)
B2	NO (normally open)(Large flow rate specifications)
00	No
<b>E Port size (branching port)</b>	
10	Rc3/8
15	Rc1/2
<b>F Flow rate range for flow sensor</b>	
04	0.5 to 4.0 L/min
12	1.5 to 12 L/min
32	4.0 to 32 L/min

		<b>H Flow rate sensor output (2)</b>				
		Blank	N0	N1	P0	P1
		Not required	Transistor output 1 point			
			NPN a contact	NPN b contact	PNP a contact	PNP b contact
<b>G Flow rate sensor output (1)</b>						
A0	0 to 5 VDC	●	●	●	●	●
A1	4 to 20 mADC	●	●	●	●	●
A2	1 to 5 VDC	●	●	●	●	●
A3	0 to 10 VDC	●	●	●	●	●
N0	NPN transistor output, 2 points (a contact)	●	/	/	/	/
N1	NPN transistor output, 2 points (b contact)	●	/	/	/	/
P0	PNP transistor output, 2 points (a contact)	●	/	/	/	/
P1	PNP transistor output, 2 points (b contact)	●	/	/	/	/

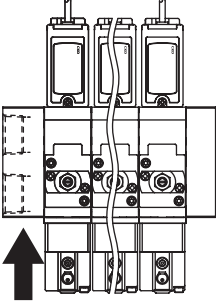
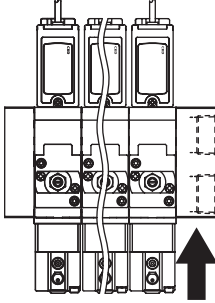
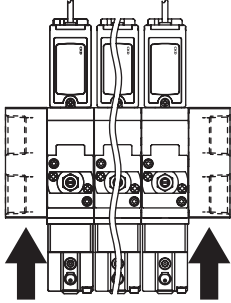
[Example of model No.]

**WXU-J-6-L-25-B1-15-12-A0N0**

Model name: Integrated unit for water control One-fluid control

- A Station No. : 6 stations
- B In-block position : Left
- C Port size : Rc1
- D Valve actuation : NC (normally closed) (large flow rate specifications)
- E Port size : Rc1/2
- F Flow rate range for flow sensor : 1.5 to 12 L/min
- G Flow rate sensor output (1) : 0 to 5 VDC
- H Flow rate sensor output (2) : NPN transistor output, 1 points (a contact)

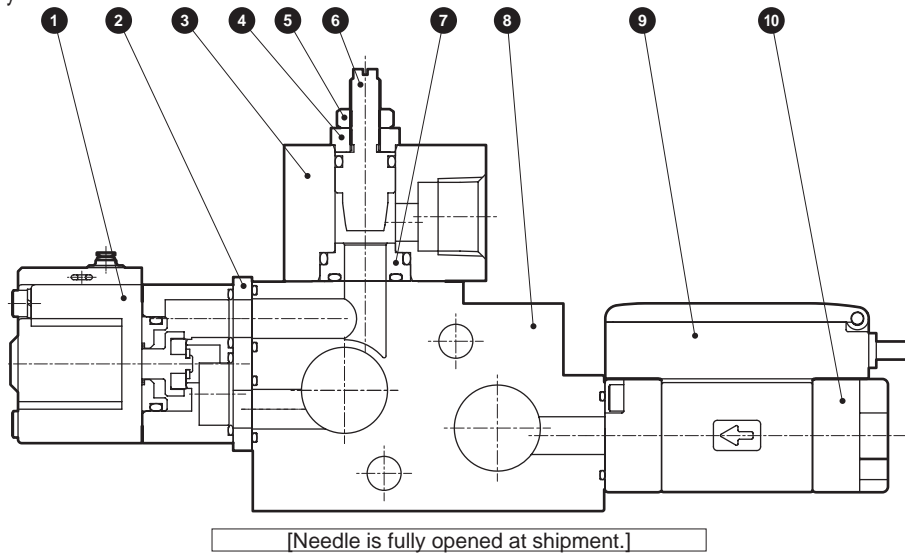
### B In-block position

Code	L	R	W
Description	Left	Right	Both sides
Layout			

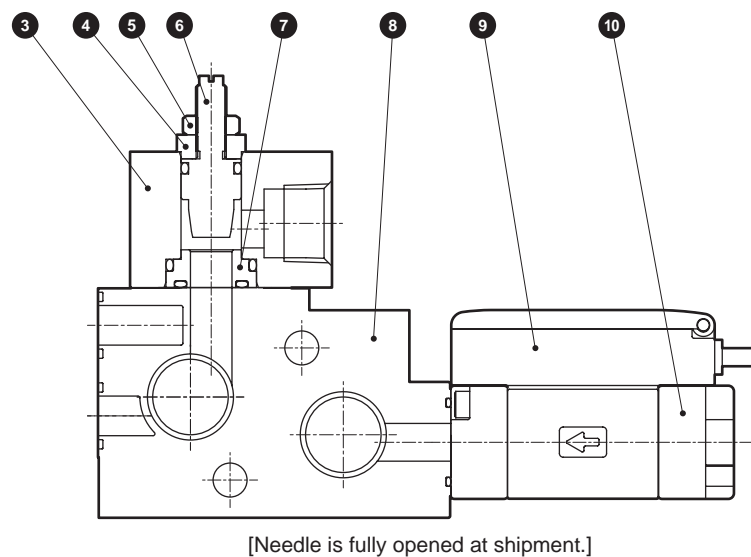
### Internal structure diagram and parts list

#### ● One-station assembly

• With valve



• Without valve



Part No.	Part name	Material	
1	Cylinder valve [GNAB Series]		
2	Plate	SUS304	Stainless steel
3	Needle block	SUS304	Stainless steel
4	Needle stopper	SUS304	Stainless steel
5	Hexagon nut	SWCH	Carbon steel for cold rolling

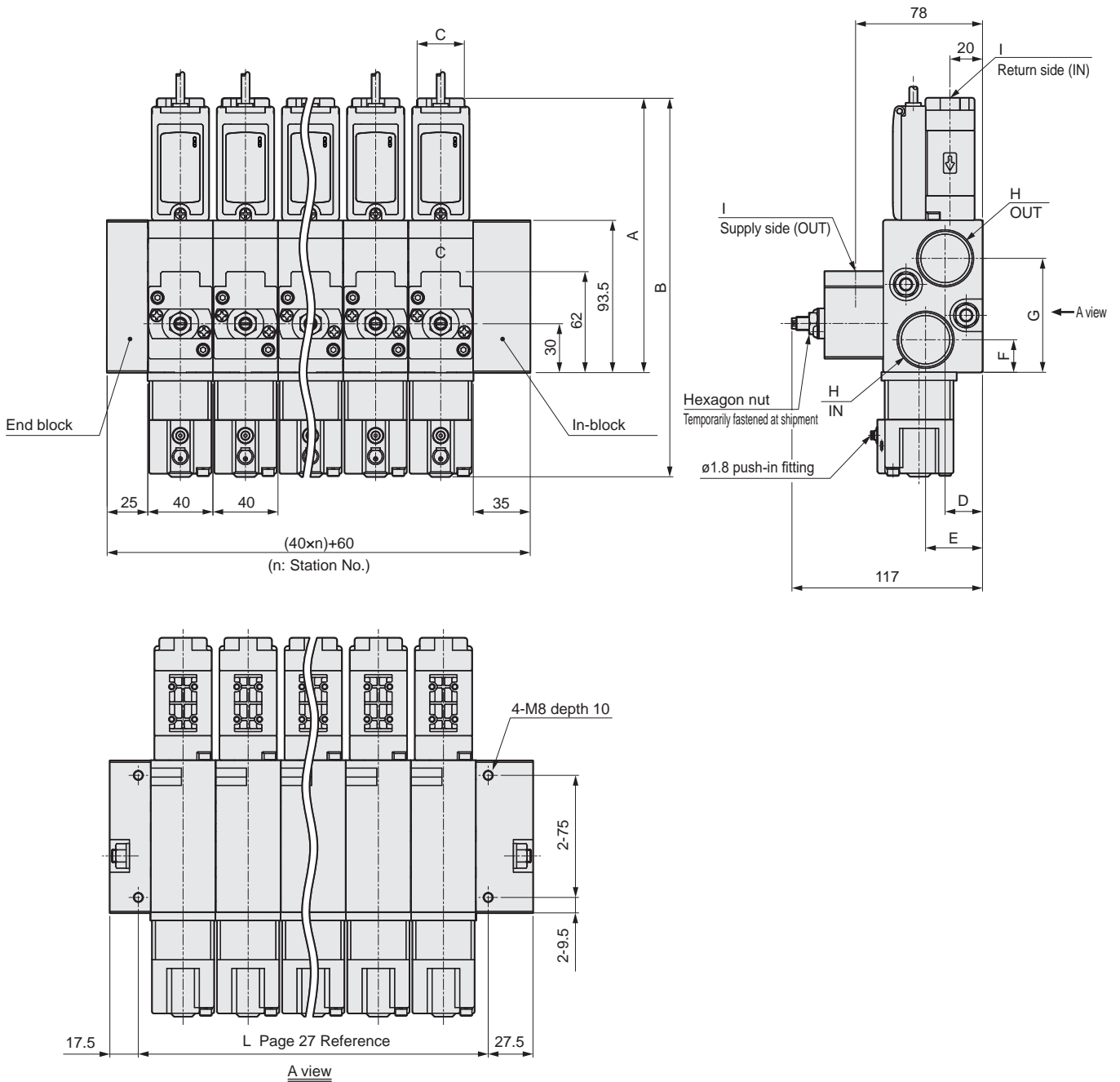
Part No.	Part name	Material	
6	Needle	SUS304	Stainless steel
7	Valve body	PP	Polypropylene
8	Base	PPS	Polyphenylene sulfide
9	Flow rate sensor [WFK3000 Series]		
10	Attachment	SCS13	Stainless steel casting



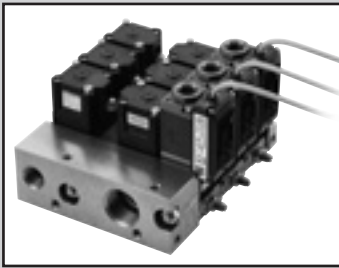
# WXU-J Series

Dimensions

Dimensions



Model No.	A	B	C	D	E	F	G	H	I
WXU-J-***-20-***-10	164	228	24	22	33	24	65	Rc3/4	Rc3/8
WXU-J-***-25-***-10	164	228	24	23	35	20	70	Rc1	Rc3/8
WXU-J-***-20-***-15	169	233	29	22	33	24	65	Rc3/4	Rc1/2
WXU-J-***-25-***-15	169	233	29	23	35	20	70	Rc1	Rc1/2



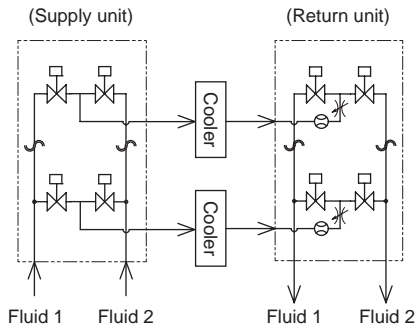
Integrated unit for water control Two-fluid control

# WXU-P Series

- Port size: Rc3/8, Rc1/2, Rc1
- Flow rate range: 0.5 to 32 L/min



## [Application examples]



It enables flow of two kinds of fluid (e.g., water and air). Suitable for systems with both coolant and air purge. Each circuit can be controlled separately. (2 units are used)

## Common specifications

Item	WXU-P	
Working fluid	Water, hot water, air	
Working pressure MPa	0 to 0.4 (Note)	
Proof pressure (water pressure) MPa	1.0	
Fluid temperature °C	1 to 70	
Ambient temperature °C	5 to 50	
Atmosphere	Place free of corrosive gas and explosive gas	
Flow rate adjusting range %	15 to 100 (water)	
Station No.	2 to 6 stations	
Mounting orientation	Unrestricted	
Sealant	Fluoro rubber	
Port size	Port for fluid 1	Rc1
	Port for fluid 2	Rc1/2
	Branching ports	Rc3/8 or Rc1/2

Note: Contact CKD about use at pressures higher than working pressure.

## Weight

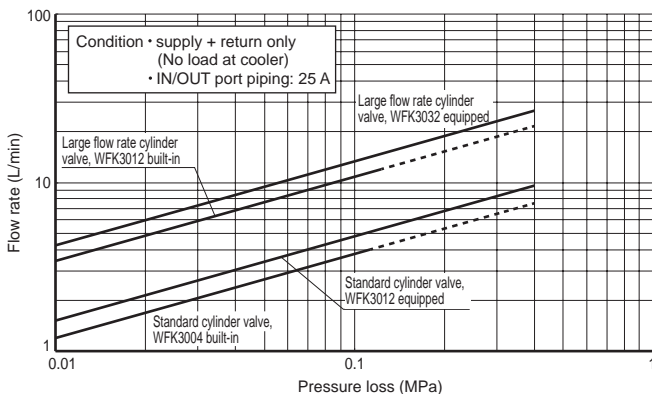
In-block (kg)				2.60
End block (kg)				0.70
One-station assembly (kg)	Supply/drain category	For fluid 1 Cylinder valve	For fluid 2 Cylinder valve	-
	Supply side	Standard specifications	Standard specifications	0.87
		Large flow rate specifications	Standard specifications	0.90
	Return side	Standard specifications	Standard specifications	1.14
Large flow rate specifications		Standard specifications	1.17	

## Flow characteristics

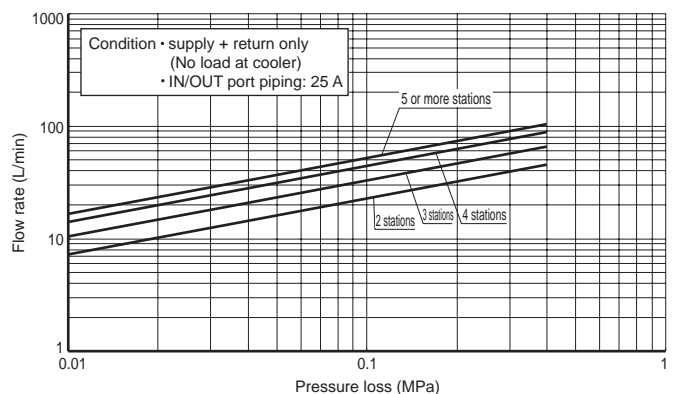
Supply/drain category	Configuration		Fluid 1 side Cv	Fluid 2 side	
	Cylinder valve	Flow rate sensor		C[dm³/(s·bar)]	b
Supply side (one station)	Standard specifications	-	0.44	1.4	0.2
	Large flow rate specifications	-	1.28	3.0	0.1
Return side (one station)	Standard specifications	WFK3004	0.33	1.4	0.2
		WFK3012	0.52		
	Large flow rate specifications	WFK3012	0.94	3.0	0.1
		WFK3032	1.37		

Note: Make sure to check the flow rate of one station (each system) and overall unit. (Refer to "Reading the Flow Properties Table" on Page 26.)

### ● One station



### ● Overall unit

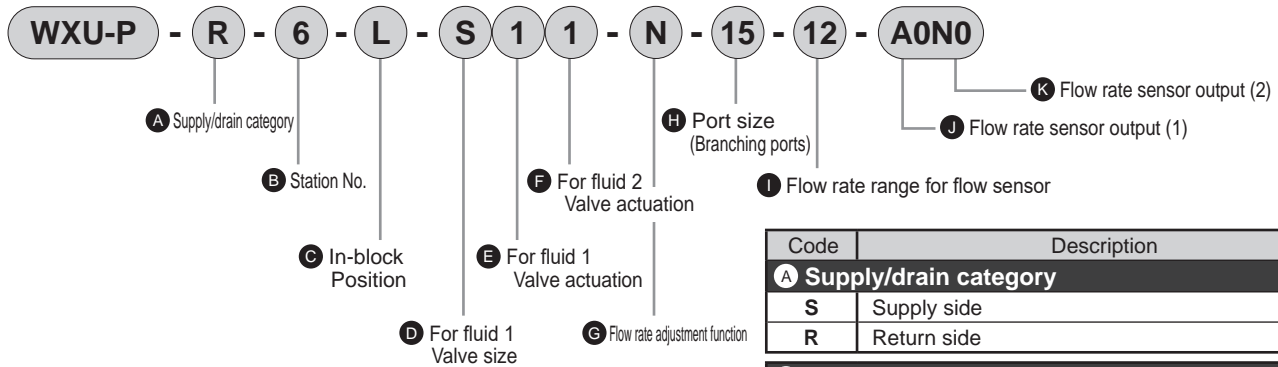


# WXU-P Series

How to order

When the configuration of all one-station assembly machines is identical, the entire unit can be displayed in the model number by selecting the codes. When assembling units from different configurations of one-station assembly components, specify the configuration in "Manifold specifications" (page 25).

How to order



[Example of model No.]

## WXU-P-R-6-L-S11-N-15-12-A0N0

Model name: Integrated unit for water control Two-fluid control

- A Supply/drain category : Return side
- B Station No. : 6 stations
- C In-block position : Left
- D Valve size for fluid 1 : Standard specifications
- E Valve actuation for fluid 1 : NC (normally closed)
- F Valve actuation for fluid 2 : NC (normally closed)
- G Flow rate adjustment function : With flow rate adjustment function
- H Port size : Rc1/2
- I Flow rate range for flow sensor : 1.5 to 12 L/min
- J Flow rate sensor output (1) : 0 to 5 VDC
- K Flow rate sensor output (2) : NPN transistor output, 1 points (a contact)

Code	Description
<b>A Supply/drain category</b>	
S	Supply side
R	Return side

<b>B Station No.</b>	
2	2 stations
to	to
6	6 stations

<b>C In-block position</b>	
L	Left
R	Right
W	Both sides

<b>D Valve size for fluid 1</b>	
S	Standard specifications
B	Large flow rate specifications

<b>E Valve actuation for fluid 1</b>	
1	NC (normally closed)
2	NO (normally open)

<b>F Valve actuation for fluid 2</b>	
1	NC (normally closed)
2	NO (normally open)

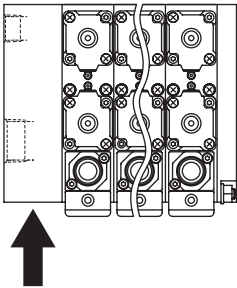
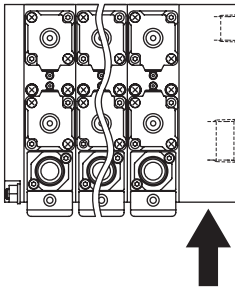
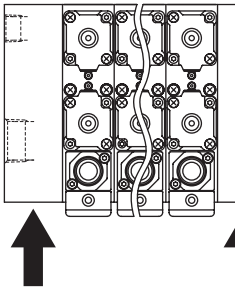
<b>G Flow rate adjustment function</b>	
N	With flow rate adjustment function
0	None

<b>H Port size (branching port)</b>	
10	Rc3/8
15	Rc1/2

<b>I Flow rate range for flow sensor</b>	
04	0.5 to 4.0 L/min
12	1.5 to 12 L/min
32	4.0 to 32 L/min
00	Without flow rate sensor (A Supply/drain category "S")

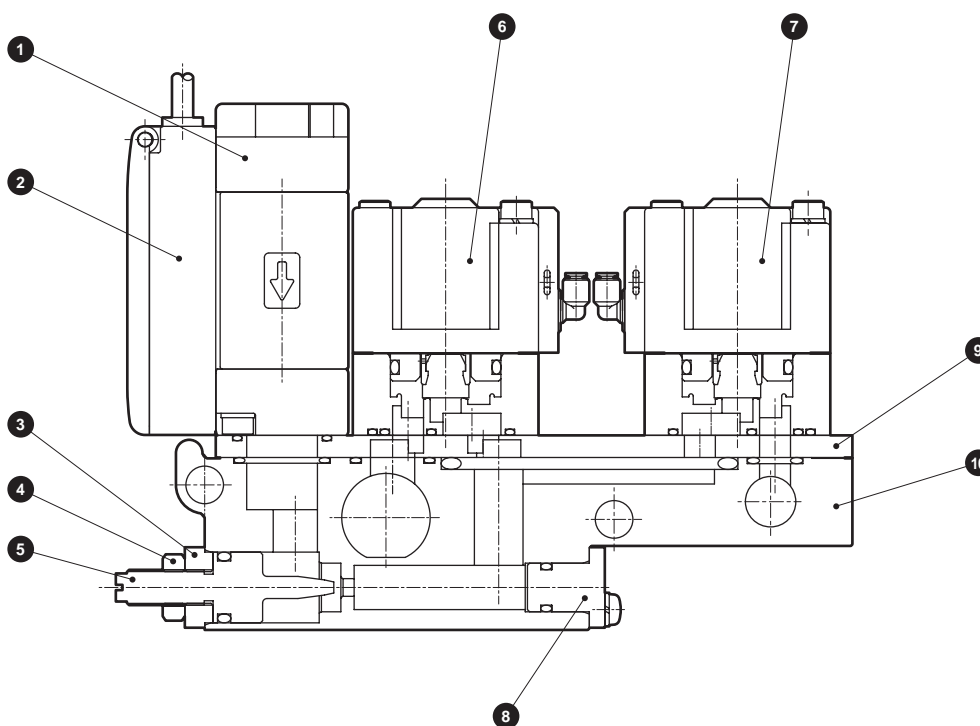
		<b>K Flow rate sensor output (2)</b>				
		Blank	N0	N1	P0	P1
<b>J Flow rate sensor output (1)</b>	Not required	Transistor output 1 point				
		NPN a contact	NPN b contact	PNP a contact	PNP b contact	
A0	0 to 5 VDC	●	●	●	●	●
A1	4 to 20 mADC	●	●	●	●	●
A2	1 to 5 VDC	●	●	●	●	●
A3	0 to 10 VDC	●	●	●	●	●
N0	NPN transistor output 2 points (a contact)	●	/	/	/	/
N1	NPN transistor output 2 points (b contact)	●	/	/	/	/
P0	PNP transistor output 2 points (a contact)	●	/	/	/	/
P1	PNP transistor output 2 points (b contact)	●	/	/	/	/
000	Without flow rate sensor (A Water supply category "S")	●	/	/	/	/

### ● In-block position

Code	L	R	W
Description	Left	Right	Both sides
Layout			

### Internal structure diagram and parts list

#### ● One-station assembly



[Needle is fully opened at shipment.]

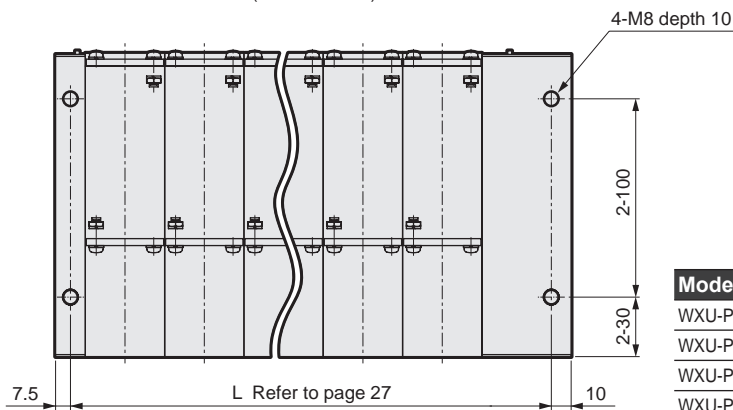
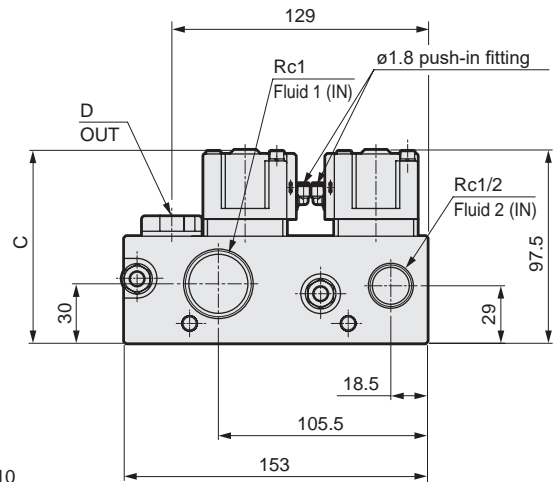
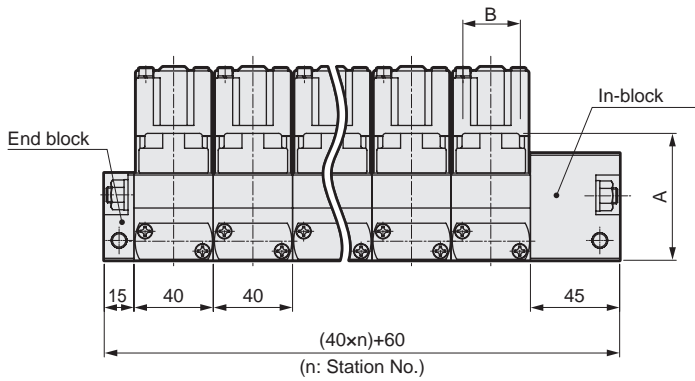
Part No.	Part name		Material
1	Attachment	SCS13	Stainless steel casting
2	Flow rate sensor [WFK3000 Series]		
3	Needle stopper	SUS304	Stainless steel
4	Hexagon nut	SWCH	Carbon steel for cold rolling
5	Needle	SUS304	Stainless steel
6	Cylinder valve for fluid 1 [GNAB Series]		
7	Cylinder valve for fluid 2 [GNAB Series]		
8	Plug	SUS304	Stainless steel
9	Plate	SUS304	Stainless steel
10	Base	PPS	Polyphenylene sulfide

# WXU-P Series

## Dimensions

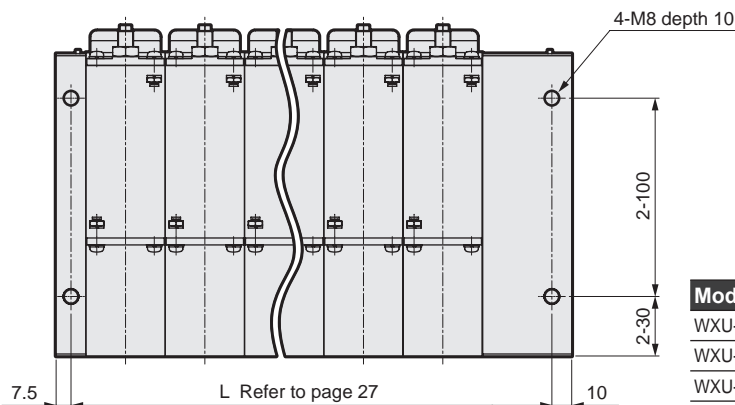
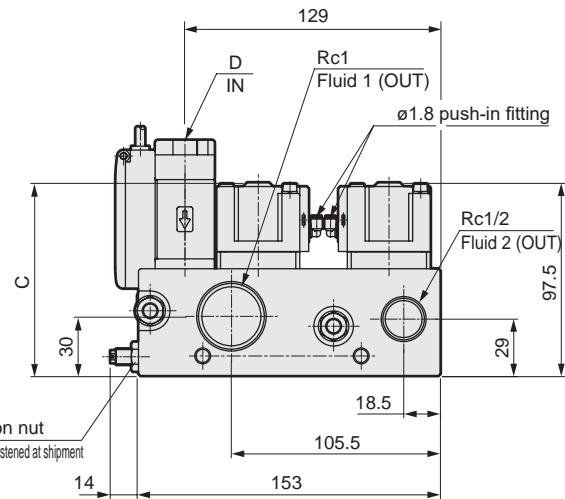
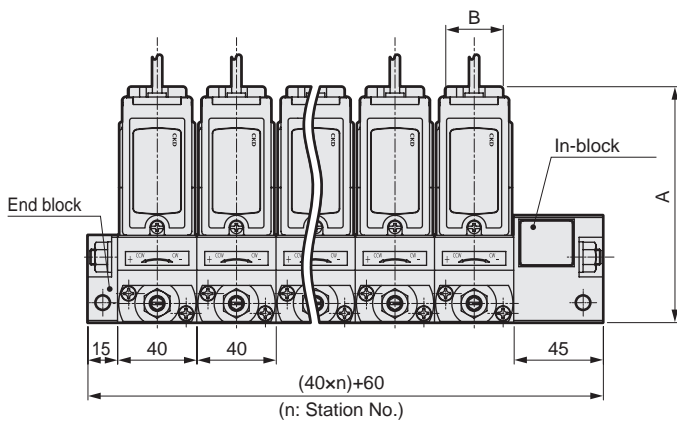
## Dimensions

### ● WXU-P-S



Model No.	A	B	C	D
WXU-P-S-***-S-***-10	59	24	97.5	Rc3/8
WXU-P-S-***-B-***-10	59	24	103	Rc3/8
WXU-P-S-***-S-***-15	64	29	97.5	Rc1/2
WXU-P-S-***-B-***-15	64	29	103	Rc1/2

### ● WXU-P-R



Model No.	A	B	C	D
WXU-P-R-***-S-***-10	114	24	97.5	Rc3/8
WXU-P-R-***-B-***-10	114	24	103	Rc3/8
WXU-P-R-***-S-***-15	119	29	97.5	Rc1/2
WXU-P-R-***-B-***-15	119	29	103	Rc1/2

**Specifications of mounted devices**

**Specifications of valve part**

Item	GNAB-X □	
	Standard specifications	Large flow rate specifications
Valve seat leakage cm <sup>3</sup> /min	0.12 or less (pneumatic pressure)	
Orifice size mm	7	10
Cv	1.0	1.6
C[dm <sup>3</sup> /(s·bar)]	3.8 (*1)	-
b	0.3	-
Pilot air pressure MPa	NC (normally closed): 0.25 to 0.7 NO (normally open): (*2)	
Pilot connection	ø1.8 push-in fitting for fiber tube (* Contact CKD separately for other connections.)	

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .  
\*2 For the NO pilot air pressure, Page 31.

**Specifications of WFK30\*\*S flow sensor part (sensor)**

- Flow rate sensor output (1): -A0, -A1, -A2, -A3
- Flow rate sensor output (2): Blank

Item	04 (WFK3004S)	12 (WFK3012S)	32 (WFK3032S)
Flow rate range L/min	0.5 to 4.0	1.5 to 12	4.0 to 32
Accuracy	±2.5% F.S.		
Analog output	-A0:DC0 to 5V, -A1:DC4 to 20mA, -A2:DC1 to 5V, -A3:DC0 to 10V		
Service voltage	12 to 24 VDC ±10% (MAX 80 mA) -A3 is DC15 to 24V		

**WFK30\*\*C Specifications of flow sensor part (sensor/switch)**

- Flow rate sensor output (1): -A0, -A1, -A2, -A3
- Flow rate sensor output (2): N0, N1, P0, P1

Item	04 (WFK3004C)	12 (WFK3012C)	32 (WFK3032C)
Flow rate range L/min	0.5 to 4.0	1.5 to 12	4.0 to 32
Accuracy	±2.5% F.S. ±1 digit		
Output	Display	Instantaneous flow rate 2-digit LED display	
	Analog output	-A0:DC0 to 5V, -A1:DC4 to 20mA, -A2:DC1 to 5V, -A3:DC0 to 10V	
	Switch output	1-point transistor output (select NPN/PNP) MAX.DC50mA Internal voltage drop: (NPN) 2.0 V or less, (PNP) 2.5 V or less	
Service voltage	12 to 24 VDC ±10% (MAX 80 mA)		

**Specifications of WFK30\*\*M flow sensor part (switch)**

- Flow rate sensor output : -N0, -N1, -P0, -P1
- Flow rate sensor output (2): Blank

Item	04 (WFK3004M)	12 (WFK3012M)	32 (WFK3032M)
Flow rate range L/min	0.5 to 4.0	1.5 to 12	4.0 to 32
Accuracy	±2.5% F.S. ±1 digit		
Output	Display	Instantaneous flow rate 2-digit LED display	
	Switch output	2-point transistor output (select NPN/PNP) MAX.DC50mA Internal voltage drop: (NPN) 2.0 V or less, (PNP) 2.5 V or less	
Service voltage	12 to 24 VDC ±10% (MAX 80 mA)		

**Flow rate sensor wiring method**

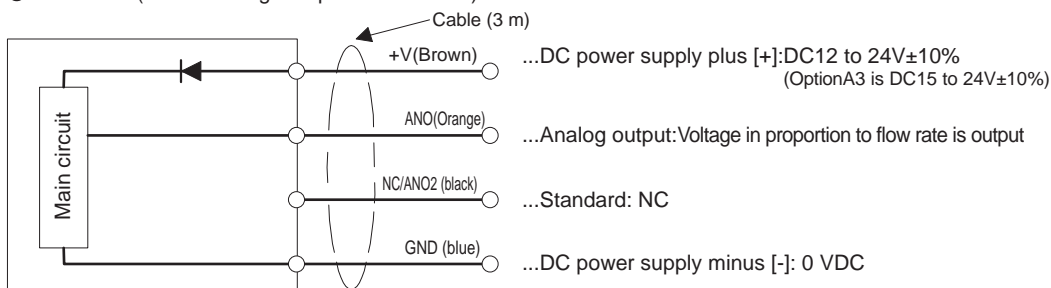
- Always read the safety precautions before wiring.
- A 4-conductor cable 0.2 mm<sup>2</sup> is used.
- Optional

Sensor (Analog output)                      Switch (Switch output)

- A + 0; (0-5[V]) -N0; (NPN a-contact, 2 points)
- A + 1; (4-20[mA]) -N1; (NPN b-contact, 2 points)
- A + 2; (1-5[V]) -P0; (PNP a-contact, 2 points)
- A + 3; (0-10[V]) -P1; (PNP b-contact, 2 points)

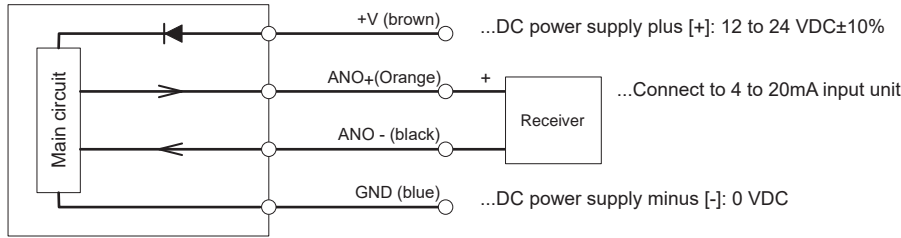
\* There is one point for sensor/switch alarm output.

**WFK3\*\*\*S (sensor voltage output: -A0/-A2/-A3)**



# Specifications of mounted devices

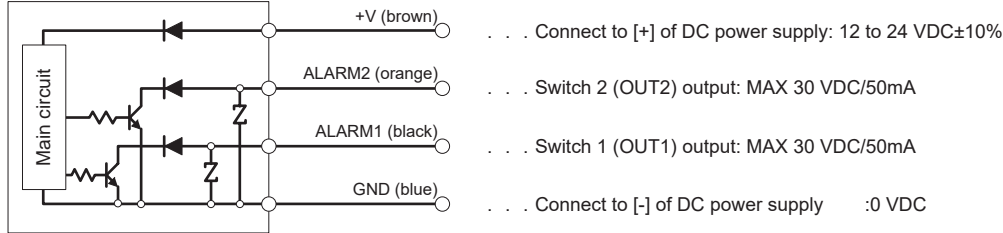
## ● WFK3\*\*\*S (sensor current output: -A1)



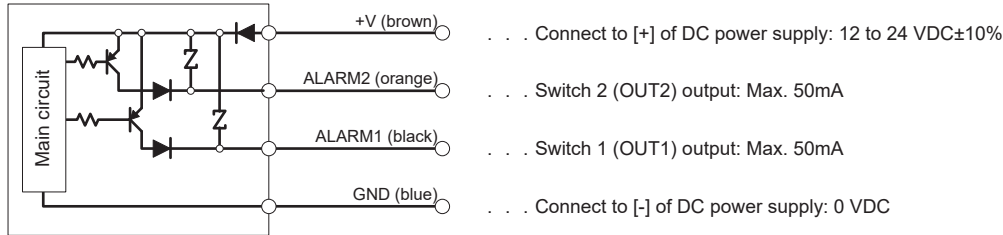
\*Note

When connecting two or more flow rate sensors to the upper-level input circuit (receiver), carefully prevent signal interference.

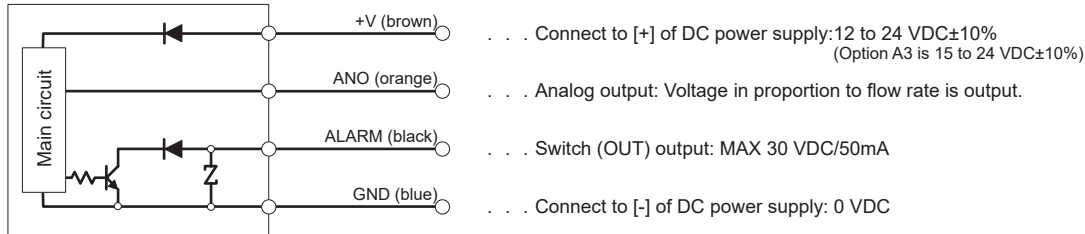
## ● WFK3\*\*\*M (Switch NPN output: -N0/-N1)



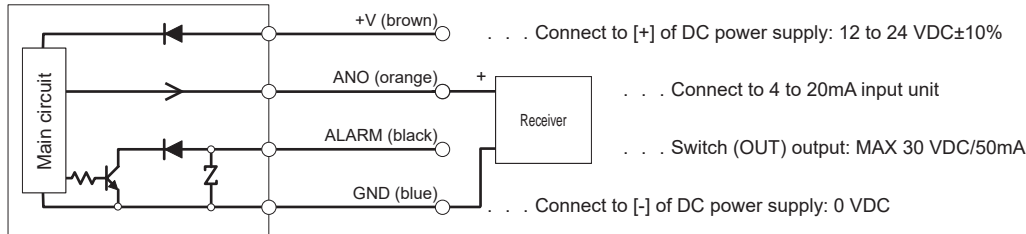
## ● WFK3\*\*\*M (Switch PNP output: -P0/-P1)



## ● WFK3\*\*\*C (sensor voltage output: -A0/-A2/-A3, switch type NPN output: N0/N1)



## ● WFK3\*\*\*C (sensor current output specifications: -A1, switch type NPM output specifications: N0, N1)



## ● WFK3\*\*\*C (sensor voltage output: -A0/-A2/-A3, switch type PNP output: P0, P1)

