Padmount Solenoid Valve with NAMUR Interface

1/4 Turn Actuation for Process Applications

VFN Series: Conforming to NAMUR Standards

VFN200N/VFN2000N

3 way (3/2) and 4 way (5/2)

VFN2120N-X36

-X36 Horizontal M12 Electrical Connection

VFN2120N -X36 Hygienic Type Specifications

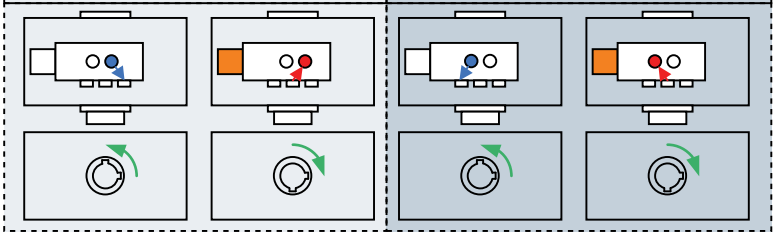
Valve Specifications	
Fluid	Air
Operating Pressure	22 to 131 psi (0.15 to 0.9 MPa)
Ambient & Fluid Temperature	14 to 140°F (–10 to 60°C)
Lubrication	Not required
Manual Override	Push Type/locking Type (tool required) Locking Type (manual)
Enclosure	Equivalent to IP67
Thread Port Size	1/4" NPT
Flow Characteristics (Cv)	0.8

Electrical Specifications	
Rated Voltage	24VDC
Allowable Voltage Fluctuation	-15 to +10% of
Coil Type	Class B
Power Consumption	0.5 W
Electrical Connector	Standard M12 (5-pin)
Body Material	Resin
Metal Parts/Hardware	Stainless Steel

Speed Control Kit Available **ATX842-DA000334**

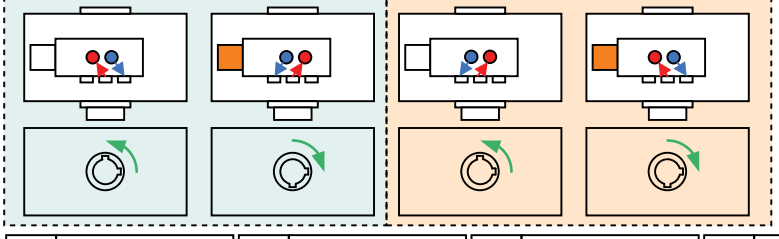
3-way Solenoid Valve Configuration (for Single acting actuator)

Right side port operation	Left side port operation
A-TYPE	C-TYPE



5-way Solenoid Valve Configuration (for Double acting actuator)

Normal function	Reverse function
B-TYPE	D-TYPE



How to Order

VFN2120N – 5B – 02 N – X36A

- **Voltage**
  - **3** 110VDC
  - **5** 24VDC
- **Manual override**
  - **B** Locking type (Tool required)
  - **C** Locking type (Manual)
- **Thread size**
  - **02** 1/4"
- **Thread type**
  - **N** NPT
- **3 port/5 port**
  - **A** 3 port Port #4 on Coil side
  - **B** 5 port Port #2 on Coil side
  - **C** 3 port Port #2 on Coil side
  - **D** 5 port Port #4 on Coil side

Valve Specifications	
Fluid	Air or inert gas
Working pressure range	21.8psi to 130psi (0.15 to 0.9 MPa)
Ambient & Fluid Temperature	14°F to 140°F (–10°C to +60°C)
Lubrication	Not required
Pilot operator manual override	Locking type
Enclosure	IP67
Port size	1/4" NPT
Cv factor	0.8
Actuator port	NAMUR mount
Rated voltage	24VDC & 110VAC

Solenoid is not energized	Solenoid is energized	Port Pressurized	Port exhausted

Note : Direction of rotary actuator may be different from the picture, it depends on the manufacturer of rotary actuator.

CE [Option]

NAMUR Interface 3 Port Solenoid Valve *VFN200N Series*

The interface surface complies with NAMUR.

- Can be directly installed on the industrial valve actuator that complies with NAMUR.

How to Order

VFN212 N – 5 D Z □ – 02 N – □ – □

NAMUR Interface

Voltage

3	110 to 120 VAC, 50/60 Hz
4	220 VAC, 50/60 Hz
5	24 VDC
6	12 VDC
7	240 VAC, 50/60 Hz

Electrical entry

T	Conduit terminal
D	DIN terminal
DO	DIN terminal (Without connector)

Thread type

Nil	Rc (PT)
F	G (PF)
N	NPT

Solenoid

Nil	Single solenoid
D	Double solenoid

Manual override

Nil	Non-locking push type (Flush)
A	Non-locking push type (Extended)
B	Locking type (Tool required)

Light/Surge voltage suppressor

Nil	None
Z	With light/surge voltage suppressor

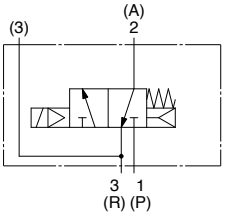
CE marking

Nil	–
Q	CE marked product

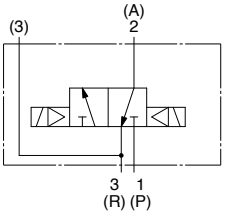
Specifications

Symbol

Single solenoid



Double solenoid

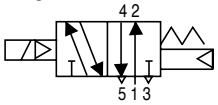


Valve specifications	**Fluid**		Air
	Valve type		Normally closed
	Max. operating pressure		0.9 MPa (130 psi)
	Min. operating pressure		0.15 MPa (22 psi)
	Ambient and fluid temperature		14 to 140ºF (–10 to +60ºC) Note 1)
	Lubrication		Not required
	Pilot valve manual override		Non-locking push type (Flush/Extended)/Locking type (Tool required)
	Enclosure		Dustproof
	Port size		1/4
	Other		Cylinder ports should be NAMUR hole pattern.
Electrical specifications	**Coil rated voltage**		12, 24 VDC, 110 to 120, 220, 240 VAC (50/60 Hz)
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent
	Apparent power AC (Power consumption)	**Inrush**	5.0 VA/60 Hz, 5.6 VA/50 Hz
		Holding	2.3 VA (1.5 W)/60 Hz, 3.4 VA (2.1 W) 9/50 Hz
	Power consumption DC		1.8 W
	Electrical entry		Conduit terminal, DIN terminal

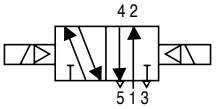
Note 1) Use dry-air at low temperature.

NAMUR Interface 5 Port Solenoid Valve *VFN2000N Series*

Symbol
Single solenoid



Double solenoid



Specifications

Valve	Fluid		Air/Inert gas
	Max. operating pressure		0.9 MPa {130 PSI}
	Min. operating pressure		0.15 MPa {22 PSI}
	Ambient and fluid temperature		14 to 140ºF (–10 to +60ºC) (1)
	Lubrication		Not required
	Pilot operator manual override		Non-locking push type (Flush)
	Enclosure		Dustproof
	Port size		1/4
	Other		Cylinder ports should be NAMUR hole pattern.
Electrical entry	Allowable voltage range		–15 to +10% of rated voltage
	Coil insulation		Class B or equivalent
	Apparent power AC (Power consumption)	Inrush	5.0 VA/60 Hz, 5.6 VA/50 Hz
		Holding	2.3 VA (1.5 W)/60 Hz, 3.4 VA (2.1 W)/50 Hz
	Power consumption DC		1.8 W
	Electrical entry		Conduit terminal, DIN terminal

Note 1) Use dry-air at low temperature.

How to Order

VFN2 [1] 20 [N] – [5] [D] [Z] [ ] – 02 [N]

Solenoid

1	Single solenoid
2	Double solenoid

NAMUR Interface

Voltage

3	110 to 120 VAC, 50/60 Hz
4	220 VAC, 50/60 Hz
5	24 VDC
6	12 VDC
7	240 VAC, 50/60 Hz

Note) Hazardous location solenoid enclosure available upon request (Consult sales)

Electrical entry

T	Conduit terminal
D	DIN terminal
DO	DIN terminal (Without connector)

Light/Surge voltage suppressor

Nil	None
Z	With light/surge voltage suppressor

Manual override/Classification

Nil	Non-locking push type (Flush)
A	Non-locking push type (Extended)
B	Locking type (Tool required)

Thread type

Nil	Rc (PT)
F	G (PF)
N	NPT

Booster Relay *IL100 Series*

How to Order

IL 100 – N 02 [ ] – [ ]

Booster relay

Thread type

Nil	Rc
N	NPT*
F	G*

* Semi-standard

Port size

02	1/4
03	3/8

Accessories

Nil	None
B	With bracket

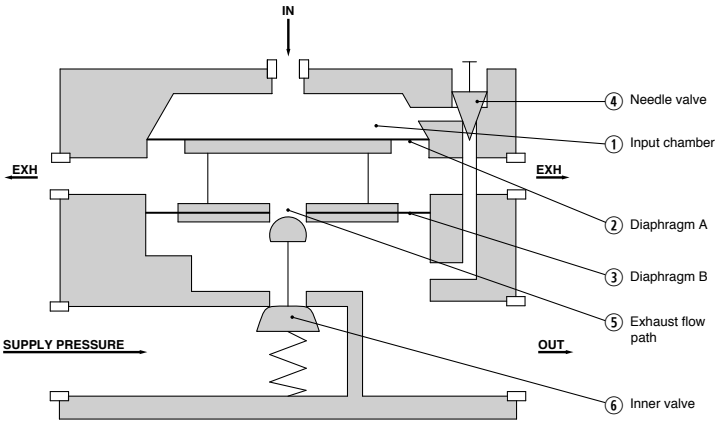
Suffix

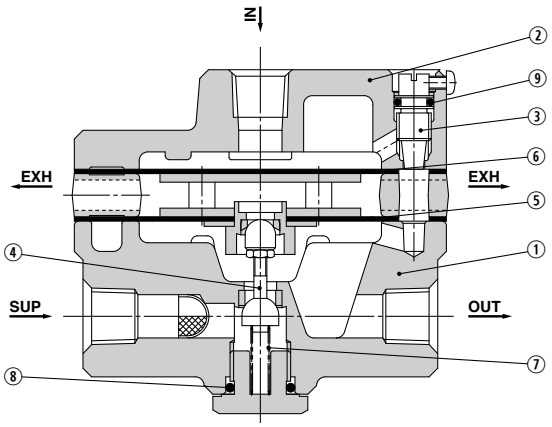
Nil	Standard
T	High temperature 23 to 212ºF (–5 to 100ºC)
L	Low temperature -22 to 140ºF (–30 to 60ºC)
S	Copper-free
ST	Copper-free/ High temperature 23 to 212ºF (–5 to 100ºC)
SL	Copper-free/ Low temperature -22 to 140ºF (–30 to 60ºC)

Standard Specifications

Supply pressure	Max. 145 psi (1.0 MPa)
Input pressure	Max. 101.5 psi (0.7 MPa)
Output pressure	Max. 101.5 psi (0.7 MPa)
Pressure ratio	1 : 1
Air consumption	3 L/min (ANR) or less (OUT = 72.5 psi/0.5 MPa)
Linearity	Within ±1%
Hysteresis	Within 1%
Ambient and Fluid Temperature	23 to 140ºF (–5 to 60ºC)
Weight	20oz (560 g)

Signal pressure enters the input chamber ① and diaphragm A ② and exerts a downward force on diaphragm B ③ . When the force of the input chamber ① exceeds the force of diaphragm B ③ , inner valve ⑥ is inseated allowing air flow out the secondary supply port. On signal pressure exhaust the supply valve closes and exhaust flow path ⑤ is opened to allow vent of the secondary air supply to atmosphere. Input and output ports are connected by a needle valve ④ . Adjustment ensures that exact equalization occurs between the signal and output supply. The above function allows a low volume signal to provide high volume output with pressure ratio remaining (1:1) for signal to output.





Component Parts

No.	Description	Material	Note
1	**Valve**	Aluminum alloy	Silver baking finish
2	**Cover**	Aluminum alloy	Silver baking finish
3	**Throttle valve**	Stainless steel	
4	**Inner valve**	Stainless steel	
5	**Diaphragm assembly**	Aluminum alloy/NBR/Resin	Chromated
6	**Diaphragm**	NBR	
7	**Valve spring**	Stainless steel	
8	**O-ring**	NBR	
9	**O-ring**	NBR	

Lock-Up Valve *IL201/211/220 Series*

Single acting, Double acting: Retains pressure at the operating area as emergency operation until the air source is recovered to its normal state.
3 Port: Changes the supply port if a trouble occurs.

How to Order

IL 201 – N 02 [ ] – [ ]

Action

201	Single acting
211	Double acting
220	3 Port

Thread type

Nil	Rc
N	NPT*
F	G*

∗ Semi-standard

Port size

02	1/4

Accessories

Nil	None
B	With bracket

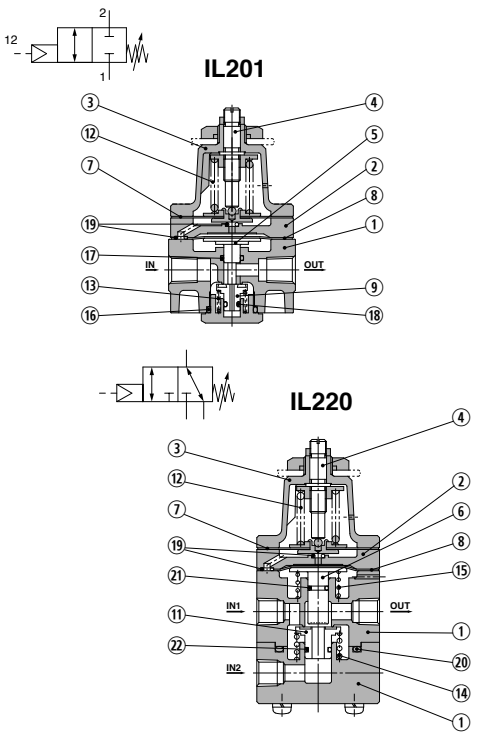
Suffix

Nil	Standard
T	High temperature 23 to 212ºF (–5 to 100ºC)
L	Low temperature -22 to 140ºF (–30 to 60ºC)
S	External Parts Copper Free
ST	External PartsCopper-Free High temperature 23 to 212ºF (–5 to 100ºC)
SL	External PartsCopper-Free Low temperature -22 to 140ºF (–30 to 60ºC)

Standard Specifications

Model	IL201	IL211	IL220
Action	Single acting	Double acting	3 Port
Signal pressure	Max. 145 psi (1.0 MPa) Note 1)		
Set pressure range	21 to 101.5 psi (0.14 to 0.7 MPa) Note 1)		
Shut-off pressure	Max. 101.5 psi (0.7 MPa)		
Ambient and fluid temperature	23 to 140ºF (–5 to 60ºC)		
Differential Note 2)	1.45 psi (0.01 MPa)		
Weight	15.9 oz (450 g)	22.6 oz (640 g)	24.7 oz (700 g)

Note 1) Provide a differential pressure of 0.1 MPa or more between the signal pressure and set pressure. If the differential pressure is small, the internal part is worn out due to the structure of this product and the bleed amount from the exhaust port increases, which may affect the characteristics.
Note 2) Pressure difference between lock activated and lock released



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Silver baking finish
2	**Pilot body**	Aluminum alloy	Silver baking finish
3	**Bonnet**	Aluminum alloy	Silver baking finish
4	**Adjusting screw**	Stainless steel	
5	**Piston**	Brass	
6	**Piston rod**	Brass	
7	**Diaphragm assembly**	Aluminum alloy/Brass/NBR	Chromated
8	**Diaphragm**	NBR	
9	**Piston valve**	Brass/NBR	
10	**Piston valve**	Brass/NBR	
11	**Valve**	Brass/NBR	
12	**Adjusting spring**	Steel wire	Zinc chromated
13	**Valve spring**	Stainless steel	
14	**Valve spring**	Stainless steel	
15	**Piston spring**	Stainless steel	
16	**O-ring**	NBR	
17	**O-ring**	NBR	
18	**O-ring**	NBR	
19	**O-ring**	NBR	
20	**O-ring**	NBR	
21	**O-ring**	NBR	
22	**O-ring**	NBR	

Filter Regulator *AW30/40-X2622*

- **External parts material: Stainless steel 316**
- **Ambient and fluid temperature: -40 to 176ºF (-40 to 80ºC)**
- **NACE International Standards compliant**

The JIS component standards of the external parts and the component measurement results of the certificate for materials are within the ANSI/NACE standards.

How to Order

AW **30** – **N** **03** ☐ – **2** – **X2622** ☐

① ② ③ ④ ⑤ ⑥

Stainless steel 316 specification

· Option/Semi-standard: Select one each for **a** to **d**.
· Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AW30-03C-2R-X2622A

				Symbol	Description	① Body size 30	① Body size 40
②	Thread type			**Nil**	Rc	●	●
				N	NPT	●	●
				F	G	●	●
				+			
③	Port size			**02**	1/4	●	●
				03	3/8	●	●
				04	1/2	–	●
				06	3/4	–	●
				+			
④	Option i	**a**	Float type auto drain	**Nil**	Without option	●	●
				C Note 1)	Float type auto drain (N.C.)	●	●
				+			
⑤	Semi-standard	**b**	Bowl	**2** Note 2)	Metal bowl	●	●
				+			
		c	Flow direction	**Nil**	Flow direction: Left to right	●	●
				R	Flow direction: Right to left	●	●
				+			
⑥	Option ii	**d**	Pressure gauge Note 3) Bracket	**Nil**	Without option	●	●
				A	Round type pressure gauge (without limit indicator)	●	●
				B	With bracket	●	●
				C	Round type pressure gauge (without limit indicator), With bracket	●	●

Note 1) When the float type auto drain is selected, the fluid temperature range is 23 to 140ºF (-5 to 60ºC)(no freezing), and the maximum operating pressure is 145 psi (1.0 MPa). Take measures if the fluid temperature is likely to be out of the specified range due to the ambient temperature.
Note 2) Only metal bowl is available.
Note 3) The pressure gauge is shipped together, but not assembled. AW30: G43-10-☐01-X3 or AW40: G43-10-☐02-X3 is included.

Specifications

Fluid	Air
Ambient and fluid temperature	–40 to 176ºF (–40 to 80ºC)(no freezing)
Proof pressure	435 psi (3.0 MPa)
Maximum operating pressure	290 psi (2.0 MPa)
Set pressure range	7.2 to 123 psi (0.05 to 0.85 MPa)
Nominal filtration rating	5 μm
Drain capacity (cm^3)	AW30: 20, AW40: 80
Construction	Relieving type
Weight	AW30: 42 oz (1.19 kg), AW40: 12 oz (3.40 kg)

Applicable Model

Model	AW30	AW40
Port size	1/4, 3/8	1/4, 3/8, 1/2, 3/4

One-touch Fittings

Series KQG2

Seal parts: Special **FKM**

Insert Fittings

Series KFG2

Rubber material is not used.
(Except swivel elbow)

Material
Stainless Steel 316

Fluid Temperature

23 to 302°F
-5 to 150°C

-85 to 500°F
-65 to 260°C
(Swivel elbow: 23 to 302°F, -5 to 150°F)

Grease-free/Can be used with steam.

How to Order

KQ G 2 H 06 – □ 01 S

Body Material	
G	SUS316
B	Metal

Model	
H	Male Connector
	Straight Union
	Different Diameter Straight
L	Male Elbow
	Elbow
T	Male Branch Tee
	Union Tee
	Different Diameter Tee
U	Union "Y"
	Different Dia. Union "Y"
E	Bulkhead Union
	Bulkhead Thread Connector
F	Female Connector
S	Hex. Socket Head Male Connector
P	Plug
W	Extended Male Elbow
R	Plug-in Reducer

Thread Size	
Nil	R Thread
N	NPT Thread
G	G Thread

Applicable Tubing O.D.			
mm size		inch size	
23	ø3.2	01	ø1/8"
04	ø4	03	ø5/32"
06	ø6	07	ø1/4"
08	ø8	09	ø5/16"
10	ø10	11	ø3/8"
12	ø12	13	ø1/2"
16	ø16		

Connection Thread/Applicable Tubing O.D.		
Thread Connection	M5	M5 x 0.8
	32	10-32UNF
	01	1/8
	02	1/4
	03	3/8
	04	1/2
Tube Connect	00	Same Tube Size
	23	ø3.2
	04	ø4
	06	ø6
	08	ø8
	10	ø10
	12	ø12
	16	ø16
	01	ø1/8"
	03	ø5/32"
	07	ø1/4"
	09	ø5/16"
	11	ø3/8"
	13	ø1/2"

KF G 2 H 0604 – □ 01 S

Body Material	
G	SUS316

Model	
H	Male Connector
	Straight Union
L	Elbow
	Male Elbow
T	Male Branch Tee
	Union Tee
E	Bulkhead Union
F	Female Connector
V	Swivel Elbow

Kind of Thread	
-	R Thread
N	NPT Thread

w/ Thread Size	
Nil	Non
S	w/ Thread Seal

Thread	Tube	Applicable
Thread Connection	01	1/8
	02	1/4
	03	3/8
	04	1/2
Tube Connect	00	Same Tube Size

Applicable Tubing		
mm size	0425	ø4 x ø2.5
	0403	ø4 x ø3
	0604	ø6 x ø4
	0806	ø8 x ø6
	1075	ø10 x ø7.5
	1008	ø10 x ø8
	1209	ø12 x ø9
	1210	ø12 x ø10
	1613	ø16 x ø13
inch size	0122	ø1/8" x ø2.18"
	0325	ø5/32" x ø2.5"
	0704	ø1/4" x ø5/32"
	0906	ø5/16" x ø6"
	1163	ø3/8" x ø1/4"
	1395	ø1/2" x ø3/8"

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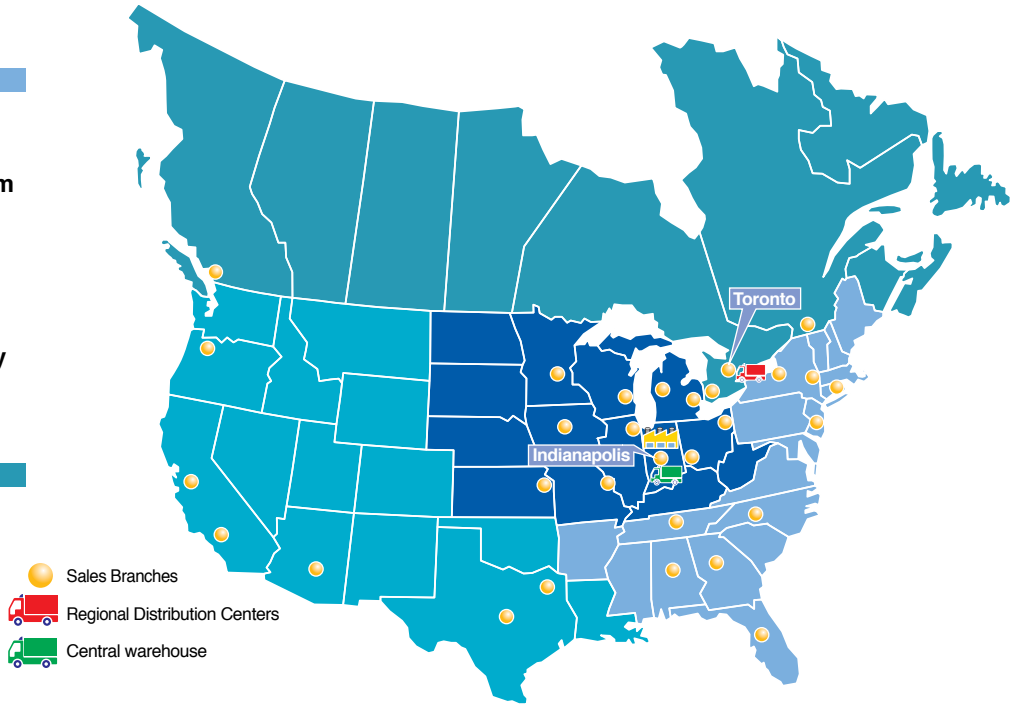

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