

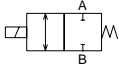
Solenoid valve for high vacuum

HVB²₃⁴₅12 Series

- Orifice: ϕ 1, ϕ 2, ϕ 3, ϕ 4.5, ϕ 6
- NC (normally closed) type

JIS symbol

- NC (normally closed) type



Common specifications

Descriptions	HVB*12
Working fluid	Air, vacuum, inert gas (*1)
Withstanding pressure MPa	5.0
Fluid temperature °C	5 to 55
Ambient temperature °C	0 to 55 (no freezing)
Heat proof class	B
Allowable voltage fluctuation	Rated voltage \pm 10%
Atmosphere	Not in explosive or corrosive environment
Valve structure	Direct acting poppet structure
Valve seat leakage Pa·m ³ /sHe	1.0 x 10 ⁻⁹ or less
External leakage Pa·m ³ /sHe	1.0 x 10 ⁻⁹ or less
Mounting attitude	Free
Number of endurance times	2,000,000 times

Individual specifications

Descriptions Model no.	Port size	Orifice (mm)	Cv flow factor (*4)	Working pressure range Pa (abs)	Max. working pressure (*5) (MPa)	Back pressure (*6) (MPa)	Rated voltage	Power consumption (W)		Weight (*8) (kg)
								AC	DC	
NC (normally closed) type										
HVB212	1/4" JXR male joint	1	0.04	1.0 x 10 ⁻⁶ to 1.0 x 10 ⁶	1.0	0.6		4.3	4	0.16
	1/4" double barbed joint NPT 1/8									
HVB312	1/4" JXR male joint	2	0.17	1.0 x 10 ⁻⁶ to 0.3 x 10 ⁶	0.3	0.15	100 VAC 50/60Hz	6.5	6	0.29
	1/4" double barbed joint NPT 1/8, 1/4									
HVB412	1/4" JXR male joint	3	0.33	1.0 x 10 ⁻⁶ to 1.0 x 10 ⁶	1.0	0.4	200 VAC 50/60Hz	8.3	8 (*7)	0.50
	1/4" double barbed joint NPT 1/4									
	3/8" JXR male joint	6	1.05	1.0 x 10 ⁻⁶ to 0.2 x 10 ⁶	0.1	0.05				
	3/8" double barbed joint NPT 3/8									
HVB512	1/4" JXR male joint	4.5	0.6	1.0 x 10 ⁻⁶ to 0.8 x 10 ⁶	0.8	0.2	12 VDC	11.8	11.5	0.69
	1/4" double barbed joint NPT 1/4									
	3/8" JXR male joint									
	3/8" double barbed joint NPT 3/8									

*1: The durability may drop remarkably depending on the degree of dryness.

*2: The JXR joint can be connected with the VCR joint.

*3: Keep the leakage current at value below or less.

*4: The listed Cv values are for the NPT connection.

*5: The maximum working pressure difference indicates the difference of the port B (high pressure side) and port A (low pressure side).

*6: Pressurizing from the A port with the B port released to atmosphere is possible.

*7: 12 VDC is 8.6 (W).

*8: The listed weights are for the grommet lead wire and NPT connection.

Leakage current	Voltage	100 VAC	200 VAC	24 VDC	12 VDC
	Model no.				
	HVB*12	2mA or less	1mA or less	1mA or less	2mA or less

How to order

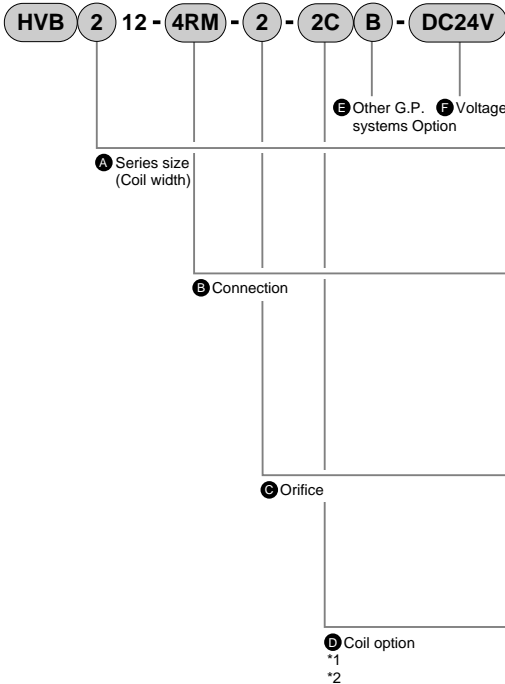


Table 1: Joint type and orifice combinations

	Connection			Orifice					
	E	Joint type	Size	Z #1	2 #2	3 #3	5 #4.5	6 #6	
HVB212	4RM	JXR male	1/4"	●	●				
	4S	Double barbed	1/4"	●	●				
	6N	NPT	1/8"	●	●				
HVB312	4RM	JXR male	1/4"		●	●			
	4S	Double barbed	1/4"		●	●			
	6N	NPT	1/8"		●	●			
	8N	NPT	1/4"		●	●			
HVB412	4RM	JXR male	1/4"			●	●		
	6RM	JXR male	3/8"					●	
	4S	Double barbed	1/4"			●	●		
	6S	Double barbed	3/8"					●	
	8N	NPT	1/4"			●	●		
HVB512	4RM	JXR male	1/4"				●		
	6RM	JXR male	3/8"					●	
	4S	Double barbed	1/4"				●		
	6S	Double barbed	3/8"					●	
	10N	NPT	3/8"					●	

<Example of model number>
HVB212-4RM-2-2CB-DC24V

Series: HVB212

- A** Series size : 22mm
- B** Connection : 1/4" JXR male joint
- C** Orifice : ϕ 2
- D** Coil option : Grommet lead wire
- E** Other options : Mounting plate
- F** Voltage : 24 VDC

*1: The surge suppressor is incorporated as a standard with the full wave rectifier type.

*2: The compact terminal box (Pg9) is used when HVB212 (D) 2G/2HS is selected.

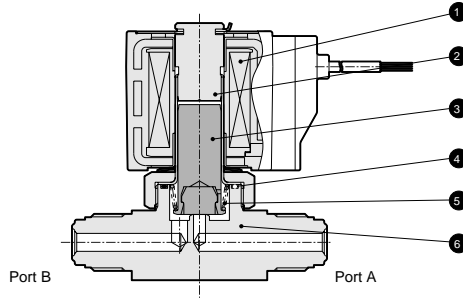
Symbol	Descriptions	Model no.			
		HVB212	HVB312	HVB412	HVB512
A Series size					
2	22mm	●			
3	28mm		●		
4	34mm			●	
5	40mm				●
B Connection method (Refer to Table 1)					
4RM	1/4" JXR male joint	●	●	●	●
6RM	3/8" JXR male joint			●	●
4S	1/4" double barbed joint	●	●	●	●
6S	3/8" double barbed joint			●	●
6N	NPT 1/8	●	●		
8N	NPT 1/4		●	●	●
10N	NPT 3/8			●	●
C Orifice (Refer to Table 1)					
Z	ϕ 1	●			
2	ϕ 2		●		
3	ϕ 3			●	
5	ϕ 4.5				●
6	ϕ 6				●
D Coil option					
For AC					
2CR	Standard With grommet lead wire and all wave rectifier	●	●	●	●
For DC					
2C	Standard Grommet lead wire	●	●	●	●
2CS	Option Grommet lead wire Surge suppressor	●	●	●	●
		●	●	●	●
2G	Option DIN terminal box (Pg11)	●	●	●	●
2HS	Option DIN terminal box + light Surge suppressor (Pg11)	●	●	●	●
		●	●	●	●
E Other options					
Blank	Standard Blank	●	●	●	●
B	Option Mounting plate	●	●	●	●
		●	●	●	●
F Voltage					
100 VAC	100 VAC 50/60Hz	●	●	●	●
200 VAC	200 VAC 50/60Hz	●	●	●	●
24 VDC	24 VDC	●	●	●	●
12 VDC	12 VDC	●	●	●	●

Select from the combinations marked with a ● above.

HNB/G
 USB/G
 FAB/G
 FGB/G
 FVB
 FWB/G
 FHB
 FLB
 AB
 AG
 AP/AD
 APK/
 ADK
 For
 dry air
 Explosion
 proof
 HVB/
 HVL
 SAB/
 SVB
 NP/NAP/
 NVP
 CHB/G
 MXB/G
 Other G.P.
 systems
 PD/FAD/
 PJ
 CVE/
 CVSE
 CPE/
 CPD
 Medical
 analysis
 Custom
 order

Solenoid valve for high vacuum

Internal structure and main parts materials

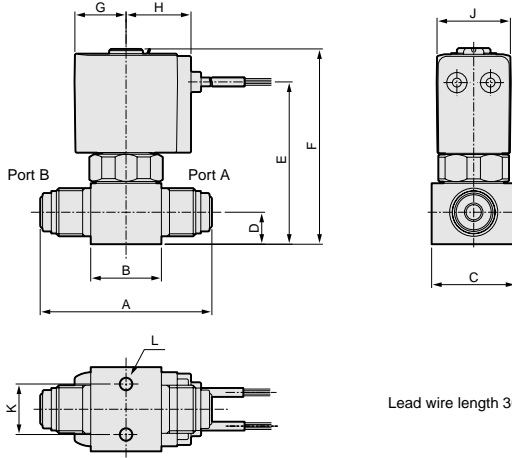


No.	Parts name	Material	No.	Parts name	Material
1	Coil assembly	(Molded coil)	4	O ring	FKM Fluoro rubber
2	Core assembly tightening torque	SUS405, SUS316L	5	Spring	SUS304 Stainless steel
3	Plunger assembly	SUS405, FKM	6	Body	SUS304 or SCS13 Stainless steel

Dimensions

● Grommet lead wire (voltage: DC type) and JXR male joint type

HVB*12-^{4RM}[-]-^{2C}
6RM



Lead wire length 300 mm

Model no.	A	B	C	D	E	F	G	H	J	K	L
HVB212-4RM	51	21	25	9.5	48	58	15.5	19.5	22	15	M4 x 0.7 depth 6
HVB312-4RM	64	30	25	9.5	53.5	64.5	18.5	22.5	28	18	M5 x 0.8 depth 8
HVB412-4RM	64	34	32	11.6	66	79.5	22.5	26	34	18	M5 x 0.8 depth 8
HVB412-6RM	75	34	32	11.6	66	79.5	22.5	26	34	18	M5 x 0.8 depth 8
HVB512-4RM	64	34	32	11.6	71.5	86.5	26	29.5	40	18	M5 x 0.8 depth 8
HVB512-6RM	75	34	32	11.6	71.5	86.5	26	29.5	40	18	M5 x 0.8 depth 8

Dimensions

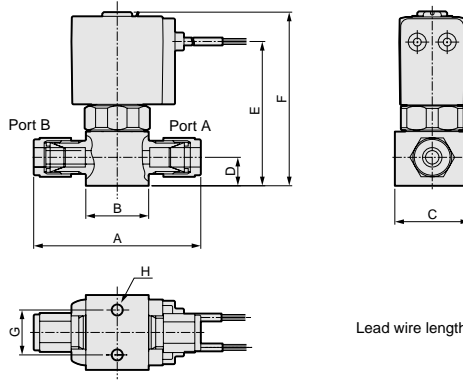
- Grommet lead wire (voltage: DC type) and double barbed joint type

HVB*12-

4S
6S

-*-

2C



Lead wire length 300 mm

Model no.	A	B	C	D	E	F	G	H
HVB212-4S	56	21	25	9.5	48	58	15	M4 x 0.7 depth 6
HVB312-4S	69	30	25	9.5	53.5	64.5	18	M5 x 0.8 depth 8
HVB412-4S	69	34	32	11.6	66	79.5	18	M5 x 0.8 depth 8
HVB412-6S	80	34	32	11.6	66	79.5	18	M5 x 0.8 depth 8
HVB512-4S	69	34	32	11.6	71.5	86.5	18	M5 x 0.8 depth 8
HVB512-6S	80	34	32	11.6	71.5	86.5	18	M5 x 0.8 depth 8

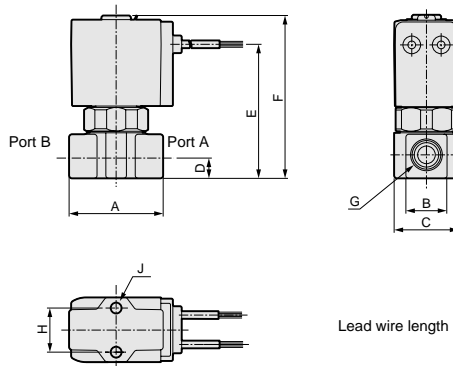
- Grommet lead wire (voltage: DC type) and NPT type

HVB*12-

6N
8N
10N

-*-

2C



Lead wire length 300 mm

Model no.	A	B	C	D	E	F	G	H	J	
HVB212-6N	32	14	22	8	45.5	56	NPT 1/8	15	M4 x 0.7 depth 6	
HVB312- <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>6N</td></tr></table>	6N	36	18	28	11	57.5	68.5	NPT 1/8, NPT 1/4	18	M5 x 0.8 depth 6
6N										
HVB412- <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>8N</td></tr></table>	8N	40	21	34	12	67	81	NPT 1/4, NPT 3/8	18	M5 x 0.8 depth 8
8N										
HVB512- <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>8N</td></tr></table>	8N	40	21	34	12	73.5	89	NPT 1/4, NPT 3/8	18	M5 x 0.8 depth 8
8N										

HNB/G

USB/G

FAB/G

FGB/G

FVB

FWB/G

FHB

FLB

AB

AG

AP/AD

APK/ADK

For dry air

Explosion proof

HVB/HVL

SAB/SVB

NP/NAP/NVP

CHB/G

MXB/G

Other G.P. systems

PD/FAD/PJ

CVE/CVSE

CPE/CPD

Medical analysis

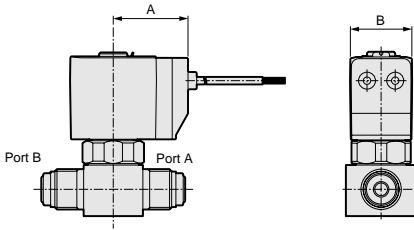
Custom order

Solenoid valve for high vacuum

Optional dimensions

- Grommet lead wire (voltage: AC type) and all wave rectifier
HVB*12-*-*-[2CR]

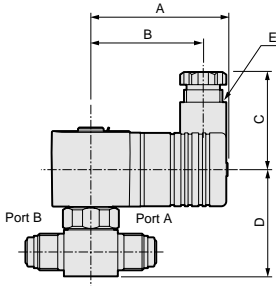
Refer to grommet lead wire (DC type) dimensions on the previous page for the common dimensions.



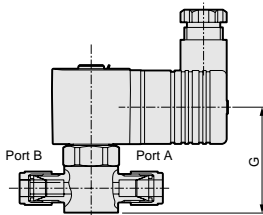
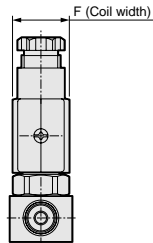
Model no.	A	B
HVB212	26.5	22
HVB312	29.5	28
HVB412	34	34
HVB512	37.5	40

- DIN terminal box (with light and surge suppressor)

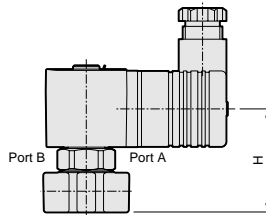
HVB*12-*-*-[
2G
2HS]



JXR male joint: 4RM and 6RM



Double barbed joint: 4S and 6S

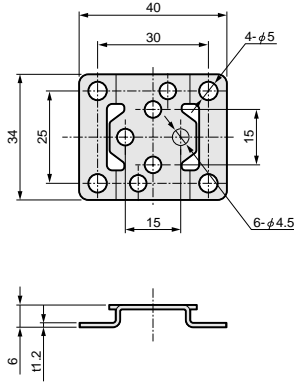


NPT joint: 6N, 8N and 10N

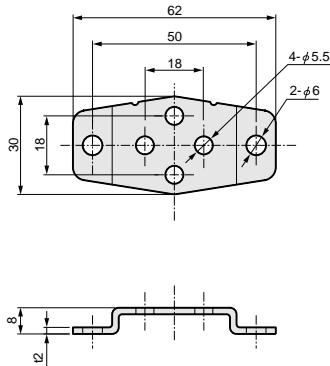
Model no.	A	B	C	D	E	F	G	H
HVB212	53	44	38	41.5	Pg9	22	41.5	39
HVB312	58.5	47	42	47.5	Pg11	28	47.5	51
HVB412	62	50.5	42	59.5	Pg11	34	59.5	61
HVB512	65.5	54	42	67	Pg11	40	67	69.5

Optional dimensions

- Mounting plate
HVB212-***-** [B]



- Mounting plate
HVB $\frac{3}{5}$ 12-***-** [B]



HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
For dry air
Explosion proof
HVB/HVL
SAB/SVB
NP/NAP/NVP
CHB/G
MXB/G
Other G.P. systems
PD/FAD/PJ
CVE/CVSE
CPE/CPD
Medical analysis
Custom order

Solenoid valve for high vacuum