For Inert Gas, Vacuum

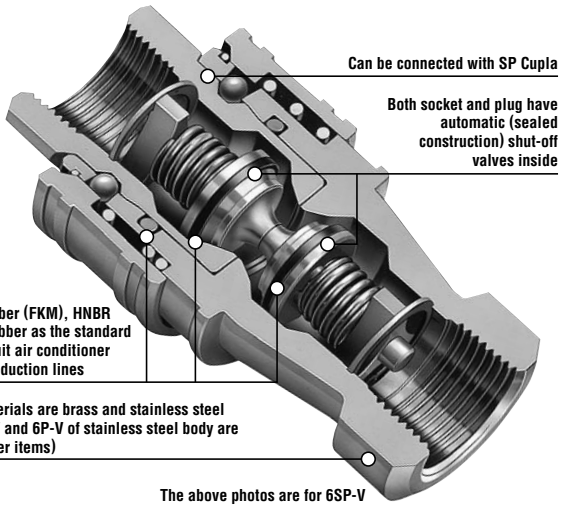
SP-V Cupla

For vacuum

Working pressure: 3.0~7.5 — 3.0~7.5MPa {31~76kgf/cm²}

Valve structure: Two-way shut-off

Applicable fluids: Inert gas, vacuum; gas; Air; Water



Can be connected with SP Cupla

Both socket and plug have automatic (sealed construction) shut-off valves inside

Adopted Fluoro-rubber (FKM), HNBR and Chloroprene rubber as the standard seal materials to suit air conditioner and refrigerator production lines

Standard body materials are brass and stainless steel (Note: Models 4P-V and 6P-V of stainless steel body are made-to order items)

The above photos are for 6SP-V

Automatic shut-off valves in both socket and plug for vacuum applications. Each can withstand a vacuum of as high as 1.3 x 10^{-1} Pa even when disconnected.

- Uses automatic shut-off valves with ultra-tight sealed construction in both socket and plug. Ideal for vacuum applications.
- Having automatic shut-off valves in both socket and plug facilitates easy fluid handling. Suitable for a wide range of vacuum applications as high as 1.3 x 10^{-1} Pa {1 x 10^{-3} mmHg} even when disconnected.
- Three types of seal material are available to suit any of the diversified production lines for air conditioners, refrigerators or similar.
- Can be connected with SP Cupla, Charge Cupla CS type and Charge Cupla CN type.

Specifications

Body material	Brass (standard material)		Stainless steel (standard material)	Stainless steel (made-to-order item)
Size	1/4" • 3/8"	1/2" • 3/4"	1/4" • 3/8"	1/2" • 3/4"
Working pressure MPa {kgf/cm²}	5.0 {51}	3.0 {31}	7.5 {76}	4.5 {46}
Pressure resistance MPa {kgf/cm²}	7.5 {76}	4.5 {46}	10.0 {102}	6.5 {66}

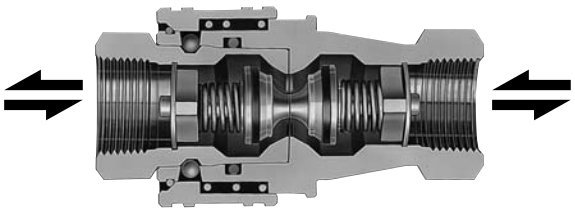
Seal material Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Chloroprene rubber	CR (C308)	-20°C~+80°C	Standard material
	Fluoro rubber	FKM (X-100)	-20°C~+180°C	Standard material
	Hydrogenated nitrile rubber	HNBR (H708)	-20°C~+120°C	Standard material

Max. Tightening Torque N•m {kgf•cm}

Size		1/4"	3/8"	1/2"	3/4"
Torque	Brass	9 {92}	12 {122}	30 {306}	50 {510}
	Stainless steel	14 {143}	22 {224}	60 {612}	90 {918}

Flow Direction

Fluid may flow in either direction from plug or from socket side when coupled.



Interchangeability

Socket and plug with different sizes cannot be connected to each other.
Interchangeable with SP Cuplas but take heed of flow rate reduction.

Min. Cross-Sectional Area (mm²)

Model	2SP-V	3SP-V	4SP-V	6SP-V
Min. Cross-Sectional Area	17	48	71	110

Suitability for Vacuum 1.3 x 10^{-1}Pa {1 x 10^{-3}mmHg}

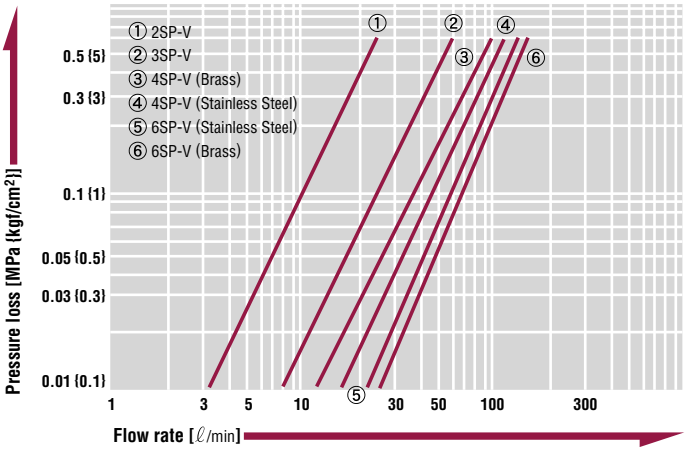
Socket only	Plug only	When connected
Operational	Operational	Operational

Admixture of air on connection (mℓ)

Model	2SP-V	3SP-V	4SP-V	6SP-V
Volume of air	1.02	2.40	3.20	10.50

Flow Rate – Pressure Loss Characteristics

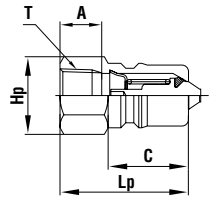
[Test conditions] •Fluid : water •Temperature: 25°C ±5°C



Models and Dimensions

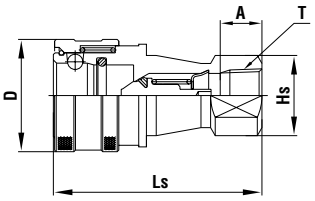
WAF : WAF stands for width across flats.

Plug Female thread



Model	Application	Mass (g)		Dimensions (mm)				
		Brass	Stainless steel	Lp	Hp(WAF)	C	A	T
2P-V	R 1/4	39	34	36	Hex.17	22	13	Rc 1/4
3P-V	R 3/8	67	59	40	Hex.21	25	13	Rc 3/8
4P-V	R 1/2	123	118	44	Hex.29	28	15	Rc 1/2
6P-V	R 3/4	211	202	52	Hex.35	36	17	Rc 3/4

Socket Female thread



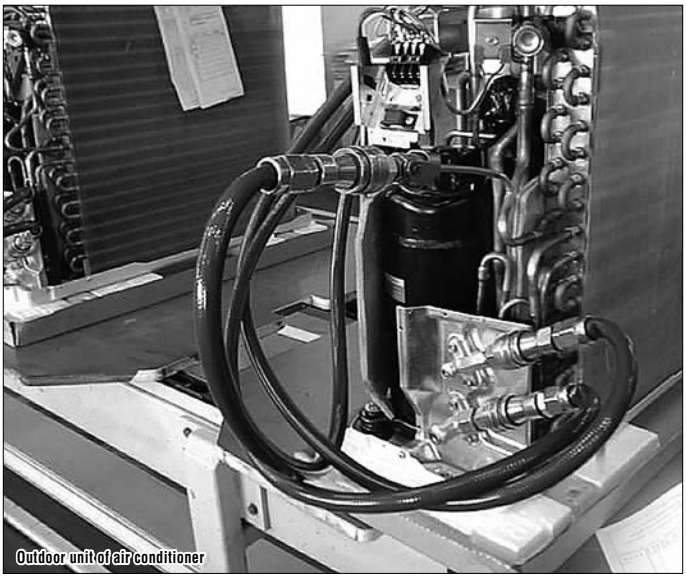
Model	Application	Mass (g)		Dimensions (mm)				
		Brass	Stainless steel	Ls	øD	Hs(WAF)	A	T
2S-V	R 1/4	136	127	58	28	Two flats 19 x ø22	13	Rc 1/4
3S-V	R 3/8	217	197	65	35	Two flats 21 x ø25	13	Rc 3/8
4S-V	R 1/2	421	393	72	45	Two flats 29 x ø35	15	Rc 1/2
6S-V	R 3/4	709	658	88	55	Two flats 35 x ø41	17	Rc 3/4

Seal materials for HFC134a (hydrochlorofluorocarbon)

Freon R11 and R12 gas coolants have been replaced with hydrochlorofluorocarbons in car air conditioners and refrigerators. With many years of research on seal materials resistant to fluorocarbon gases and freezer oils, the seal materials suitable for new hydrochlorofluorocarbons (such as HFG134a, HFC407C, HFC410A andHFC404A) have been developed.

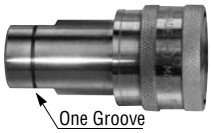
	Packing material	
	Hydrogenated nitrile rubber	Chloroprene rubber
Mark	HNBR (H708)	CR (C308)
Features	Resistant to hydrochlorofluorocarbons (HFC134a, HFC407, HFC410A, HFC404A), and PAG type and ester type oils. Also resistant to heat up to 120˚C.	Excellent resistance to conventional Freons (R12 and R22) and also hydrochlorofluorocarbon R134a.
Application	Refrigerator production lines Air conditioner production lines	Air conditioner production lines

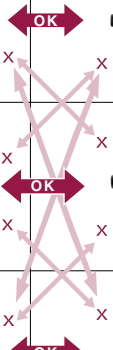
Application example


Outdoor unit of air conditioner

Comparison of External Appearance

When both Freon gases and hydrochlorofluorocarbons are used simultaneously in the production lines, SP-V-GN type and SP-V-GNN type (non-interchangeable with standard SP-V and each others) may be required in order to prevent connections to improper lines by mistakes. They are made-to-order items. For details please contact Nitto Kohki direct or its distributor in your country.

	Socket	Plug
SP-V Cupla		
SP-V-GN Cupla	 One Groove	 One Groove
SP-V-GNN Cupla	 Two Grooves	 Two Grooves



X indicates incompatibility.