




For Inert Gas and Vacuum

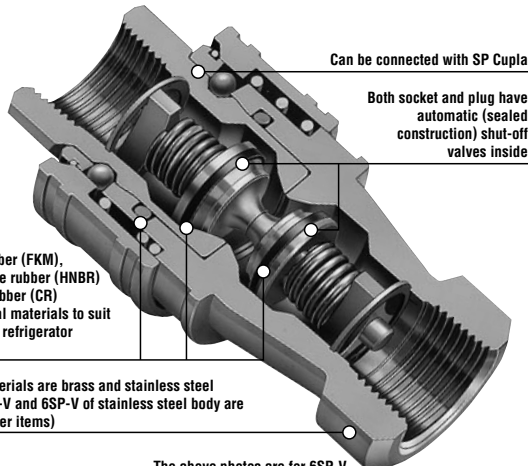
# SP-V Cupla

For vacuum

<p><b>Working pressure</b></p>  <p>3.0~7.5MPa (31~76kgf/cm<sup>2</sup>)</p>	<p><b>Valve structure</b></p>  <p>Two-way shut-off</p>	<p><b>Applicable fluids</b></p>  <p>Inert gas, Vacuum Gas Air Water</p>
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**Automatic shut-off valves in both socket and plug for vacuum applications. Each can withstand a vacuum of as high as  $1.3 \times 10^{-1}$  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  $1.3 \times 10^{-1}$  Pa ( $1 \times 10^{-3}$  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.



The above photos are for 6SP-V

## Specifications

<b>Body material</b>	Brass (Standard material)	Stainless steel (Standard material)	Stainless steel (Made-to-order item)
<b>Size</b>	1/4" • 3/8"	1/2" • 3/4"	1/4" • 3/8"    1/2" • 3/4"
<b>Working pressure</b> MPa (kgf/cm <sup>2</sup> )	5.0 (51)	3.0 (31)	7.5 (76)    4.5 (46)
<b>Pressure resistance</b> MPa (kgf/cm <sup>2</sup> )	7.5 (76)	4.5 (46)	10.0 (102)    6.5 (66)
<b>Seal material</b> <b>Working temperature range</b>	<b>Seal material</b>	<b>Mark</b>	<b>Working temperature range</b> <b>Remarks</b>
	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

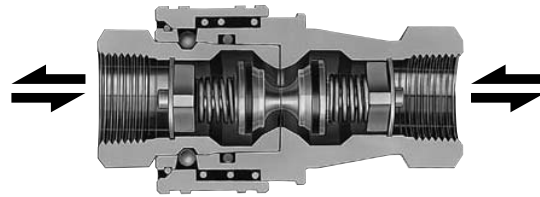
## Max. Tightening Torque

N·m (kgf·cm)

<b>Size</b>		1/4"	3/8"	1/2"	3/4"
<b>Torque</b>	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

(mm<sup>2</sup>)

<b>Model</b>	2SP-V	3SP-V	4SP-V	6SP-V
<b>Min. cross-sectional area</b>	17	48	71	110

## Suitability for Vacuum

$1.3 \times 10^{-1}$ Pa ( $1 \times 10^{-3}$ mmHg)

<b>Socket only</b>	<b>Plug only</b>	<b>When connected</b>
Operational	Operational	Operational

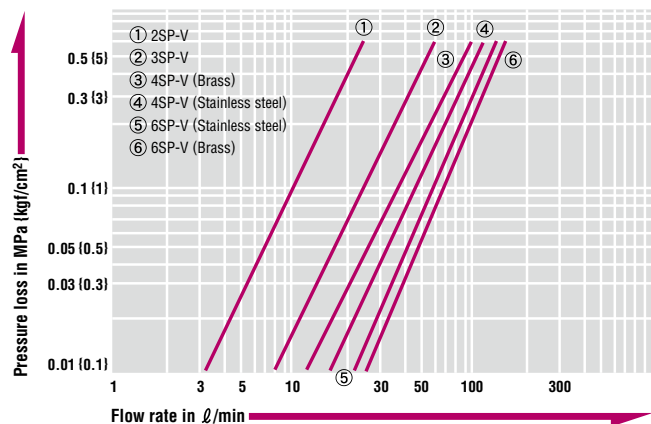
## Admixture of Air on Connection

(mℓ)

<b>Model</b>	2SP-V	3SP-V	4SP-V	6SP-V
<b>Volume of air</b>	1.02	2.40	3.20	10.50

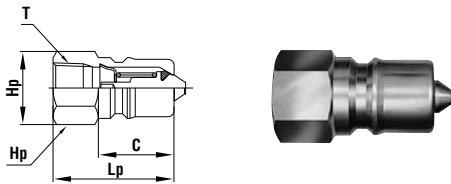
## Flow Rate – Pressure Loss Characteristics

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



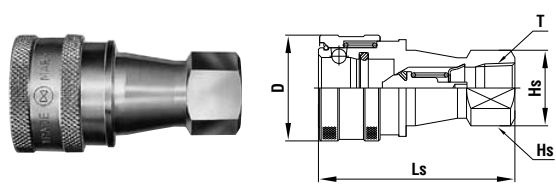
Models and Dimensions

**Plug Female thread**



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

**Socket Female thread**



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

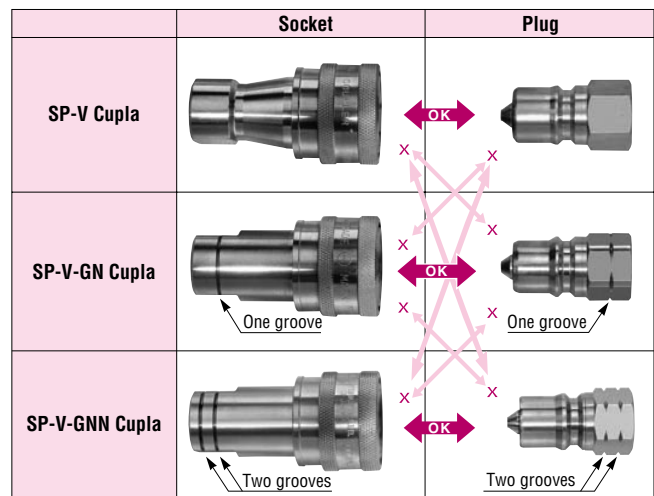
**Seal Materials for HFC (Hydrochlorofluorocarbon)**

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 HFC134a, HFC407C, HFC410A and HFC404A) 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 HFC134a.
Application	Refrigerator production lines Air conditioner production lines	Air conditioner production lines

**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.



X indicates incompatibility.

**Application Example**



Outdoor unit of air conditioner