

For vacuum applications

SP-V CUPLA Type A

For air conditioner and refrigerator production lines

Applicable fluid

Inert gas
Vacuum
Air
Water

Stainless steel

Brass

CUPLA for refrigerant charging and evacuation

Excellent sealing structure with a built-in automatic shut-off valve developed for refrigerant charging and evacuation. Both socket and plug are completely sealed when disconnected, withstanding up to vacuum of 1.3×10^{-1} Pa (1×10^{-3} mmHg). Three types of seal material are available to suit for production lines of air conditioners, refrigerators, etc (charging, evacuation and inspection work).

The "V" mark is engraved on the hex. part of the plug and the flat part of the socket to distinguish from SP CUPLA Type A.

The flow rate is increased by up to 141% more than that of conventional SP-V CUPLA.

(Test conditions: • Fluid: Water • Temperature: 23 °C±5°C)

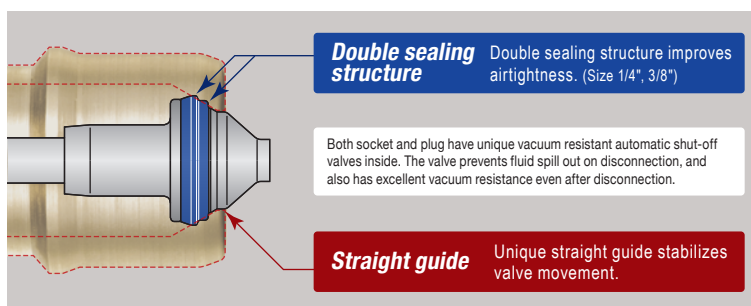
Increased durability by carrying out stress analysis and revising the packing shape.

A straight guide is incorporated to stabilize valve return movement.

A double sealing structure improves airtightness. (Size 1/4", 3/8")

Three types of seal material are available.

Holds vacuum even when disconnected.



Seal materials for refrigerants

Various eco-friendly refrigerants for air conditioner and refrigerator have been developed. NITTO KOHKI, having invested years in the research and development of excellent seal materials to withstand refrigerants and refrigerant oils, has made early attempts to develop and manufacture the seal materials for these eco-friendly refrigerants.

Seal material	Hydrogenated nitrile rubber	Chloroprene rubber
Mark	HNBR	CR
Features	Resistant to hydrofluorocarbons (HFC-134a, HFC-407C, HFC-410A, HFC-404A), and PAG type and ester type oils. Also resistant to heat up to 120°C	Excellent resistance to hydrofluorocarbons (HFC-22 and HFC-134a)
Application	Refrigerator production lines Air conditioner production lines	Air conditioner production lines

Chloroprene rubber (CR), Fluoro rubber (FKM), and Hydrogenated nitrile rubber (HNBR) are available for various fluids.

Withstands a vacuum up to 1.3×10^{-1} Pa (1×10^{-3} mmHg).

Specifications

Model			2S-V-A	2P-V-A	3S-V-A	3P-V-A	4S-V-A	4P-V-A	6S-V-A	6P-V-A
			Socket	Plug	Socket	Plug	Socket	Plug	Socket	Plug
Application (Thread)			Rc 1/4		Rc 3/8		Rc 1/2		Rc 3/4	
Body material ^{*1}			Brass, Stainless steel (SUS304)							
Working pressure ^{*2}	Brass	MPa	5.0				3.0			
		kgf/cm ²	51				31			
		bar	50				30			
		PSI	725				435			
	Stainless steel	MPa	7.5				4.5			
		kgf/cm ²	76				46			
		bar	75				45			
		PSI	1090				653			
Seal material Working temperature range ^{*3}			Seal material	Mark		Working temperature range		Remarks		
			Chloroprene rubber	CR		-20℃ to +80℃		Standard material		
			Fluoro rubber	FKM		-20℃ to +180℃				
			Hydrogenated nitrile rubber	HNBR ^{*4}		-20℃ to +120℃				

*1: Stainless steel models (Rc 1/2 and Rc 3/4) are made-to-order items.

*2: The normal allowable fluid pressure under continuous use.

Continuously exceeding the working pressure may cause leakage or damage.

*3: The working temperature range depends upon the operating conditions.

*4: HNBR which can be used for refrigeration oil and refrigerant applications such as HFC-134a is adopted.

*5: No grease is applied to the O-ring of the socket for HNBR seal material products when shipping.

Be sure to apply refrigerating machine oil before use.

Maximum Tightening Torque		Nm {kgf·cm}			
Size (Thread)		Rc 1/4	Rc 3/8	Rc 1/2	Rc 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 flow can be bi-directional when socket and plug are connected.



Interchangeability

Socket and plug of different sizes cannot be connected. Interchangeable with SP CUPLA Type A, SP-V CUPLA and SP CUPLA of the same size but take heed of flow rate change.

Models and Dimensions

Plug

Female thread

Model	Application (Thread)	Mass (g)		Dimensions (mm)			
		Brass	Stainless steel	L	C	H (WAF)	T
2P-V-A	R 1/4	37	32	36	22	Hex.17	Rc 1/4
3P-V-A	R 3/8	63	56	40	25	Hex.21	Rc 3/8
4P-V-A *	R 1/2	118	109	44	28	Hex.29	Rc 1/2
6P-V-A *	R 3/4	201	189	52	36	Hex.35	Rc 3/4