

For vacuum applications

SP-V CUPLA Type A

For air conditioner and refrigerator production lines

Stainless steel

fluid

Vacuum Air Water



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 x 10⁻¹ Pa (1 x 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).

CUPLA for refrigerant charging and evacuation

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)

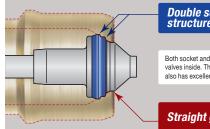
Increased durability by carrying out stress analysis and revising the packing shape.

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.



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

Both socket and plug have unique vacuum resistant automatic shut-off valves inside. The valve prevents fluid spill out on disconnection, and also has excellent vacuum resistance even after disconnection.

Straight guide

Unique straight guide stabilizes valve movement

conditioner and refrigerator have been developed. NITTO KOHMI, 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 ecc-friendly	Seal materials for refrigerants
	Various eco-friendly refrigerants for air conditioner and refrigerator have been developed. NITO KOHKI, having invested years in the research and development of excellent seal materials to withstand refrigerants and refrigerants insi, 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 (HCFC-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 x 10⁻¹ Pa (1 x 10⁻³ mmHg).





For vacuum applications

Specifications										
Model Application (Thread)			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
			Rc 1/4 Rc 3/8			Rc 1/2 Rc 3/4		3/4		
Body material *1			Brass, Stainless steel (SUS304)							
		MPa		5	.0		3.0			
	Brass	kgf/cm ²	51			31				
	Diass	bar	50			30				
Working pressure *2		PSI	725			435				
pressure -	Stainless steel	MPa		7.	.5			4	.5	
		kgf/cm ²	76				4	6		
		bar	75			45				
		PSI	1090				6	53		
Seal material			Seal m	aterial	Ma	ark	Wor temperat	king ure range	Rem	arks
			Chloropre	ne rubber	С	R	-20°C to	O°08+ c	0.	
Working temperature range *3			rubber	Fk	KM	-20°C to	+180°C	Standard material		
				jenated rubber	HN	BR*⁴	-20°C to	+120°C		

- *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.
 '4: 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}		
Torque	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.

Minimum Cross-Sectional Area Model 2S-V-A x 2P-V-A 3S-V-A x 3P-V-A 4S-V-A x 4P-V-A 6S-V-A x 6P-V-A Min. Cross-sectional area 27 51

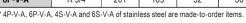
Suitability for Vacuum	1	.3 x 10 ⁻¹ Pa {1×10 ⁻³ mmHg}
Socket only	Plug only	When connected
Operational	Operational	Operational

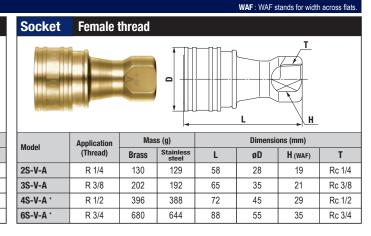
Admixture of Air on Connection May vary depending upon the usage conditions. (mL					
Model	2S-V-A x 2P-V-A	3S-V-A x 3P-V-A	4S-V-A x 4P-V-A	6S-V-A x 6P-V-A	
Volume of air admixture	1.1	2.7	3.9	11	

Volume of Spillage per D	Disconnection	May vary depending upon the usage conditions. (mL)			
Model	2S-V-A x 2P-V-A	3S-V-A x 3P-V-A	4S-V-A x 4P-V-A	6S-V-A x 6P-V-A	
Volume of spillage	0.8	2.1	3.4	9.5	

Flow Rate – Pressure Loss Characteristics [Test conditions] • Fluid : Water • Temperature : 23°C±5°C 1.0 {10} Cv value ① 2S-V-A×2P-V-A 1.38 ② 3S-V-A×3P-V-A 2.59 3 4S-V-A×4P-V-A 4.13 4 6S-V-A×6P-V-A 7.82 Pressure loss in MPa {kgf/cm²} 0.01 {0.1} 0.001 {0.01} 10 100 Flow rate in L/min

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







- Do not apply pressure to CUPLA socket or plug while they are disconnected. It will cause leakage or damage.
- Read without fail and observe the "Instruction sheet" that comes with the product and the following pages in the Quick Connect Couplings General Catalog; [Precautions Relating to the Use of All CUPLA] and "CUPLA for Inert Gas" in the [Safety Guide] page.

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