NITTO KOHKI

Ck064

Quick connect coupling for inert gas and vacuum

For vacuum applications

SP-V CUPLA Type A

For air conditioner and refrigerator production lines

Applicable fluid	Inert gas Vacuum Air Water

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 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).

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: 25˚C±5˚C)

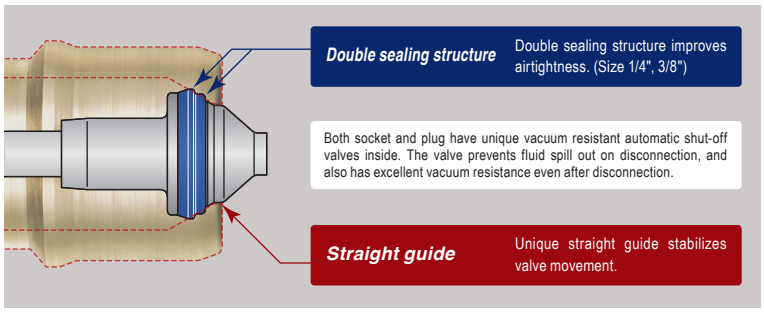
Increased durability by carrying out stress analysis and revising the packing shape.

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 (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).

Green Procurement
Products Comply with RoHS Directive

CUPLA

Specifications

Body material *1			Brass, Stainless steel (SUS304)							
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	
Working pressure *2	Brass	MPa	5.0				3.0			
		kgf/cm²	51				31			
		bar	50				30			
		PSI	725				435			
	Stainless steel	MPa	7.5				4.5			
		kgf/cm²	76				46			
		bar	75				45			
		PSI	1090				653			

Seal material	Mark	Working temperature range	Remarks
Chloroprene rubber	CR	-20˚C to +80˚C	Standard material
Fluoro rubber	FKM	-20˚C to +180˚C	
Hydrogenated nitrile rubber	HNBR	-20˚C to +120˚C	

Seal material *3
Working temperature range *4

*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: No lubricant 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.
*4: The working temperature range depends upon the operating conditions.

Maximum Tightening Torque — N·m {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.

Minimum Cross-Sectional Area — (mm²)

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	73	178

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 — (mL)

May vary depending upon the usage conditions.

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

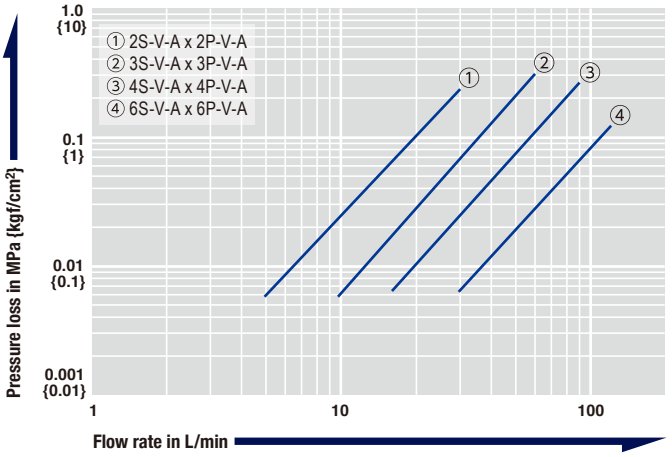
Volume of Spillage per Disconnection — (mL)

May vary depending upon the usage conditions.

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

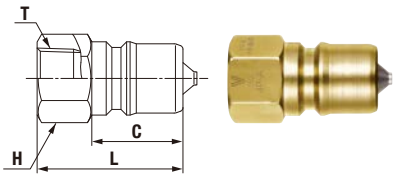
[Test conditions] • Fluid : Water • Temperature : 25˚C±5˚C



Models and Dimensions

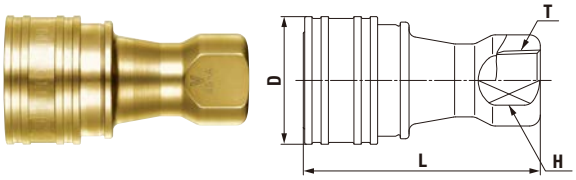
WAF : WAF stands for width across flats.

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

Socket Female thread



Model	Application (Thread)	Mass (g)		Dimensions (mm)			
		Brass	Stainless steel	L	øD	H (WAF)	T
2S-V-A	R 1/4	130	129	58	28	19	Rc 1/4
3S-V-A	R 3/8	202	192	65	35	21	Rc 3/8
4S-V-A *	R 1/2	396	388	72	45	29	Rc 1/2
6S-V-A *	R 3/4	680	644	88	55	35	Rc 3/4

* 4P-V-A, 6P-V-A, 4S-V-A and 6S-V-A of stainless steel are made-to-order items.

⚠ Safety Guide

- 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.

NITTO KOHKI CO., LTD.

Web www.nitto-kohki.co.jp/e

Head Office
9-4, Nakaikegami 2-chome, Ohta-ku, Tokyo 146-8555, Japan
Tel : +81-3-3755-1111 Fax : +81-3-3753-8791
E-mail : overseas@nitto-kohki.co.jp

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