ISO 14001 JQA-EM4057 NITTO KOHKI CO.,LTD. Headquarters Research Center

ISO 9001 JQA-2025 NITTO KOHKI CO.,LTD. Couplings Division

Products Comply with RoHS Directive

Cat.No.Ck047

Working pressure
3.5
3.5 MPa
(35 kgf/cm²)

Valve structure
Two-way shut-off

Applicable fluids
Water Hydraulic oil Chemicals Air Gas

NEW ZEROSPILL CUPLA

Minimizing spillage during disconnection keeps workshops clean.

NITTO KOHKI CO.,LTD.

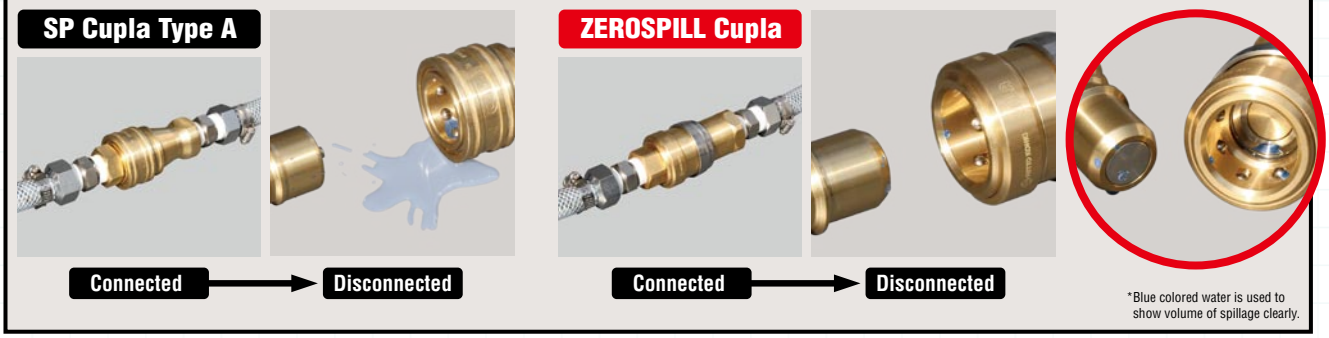
Main Features of ZEROSPILL CUPLA

Unique seal design reduces both liquid spillage and air ingress

To compare with Nitto SP Cupla Type A.

Volume of spillage:
about 96% less vs SP Cupla Type A

Volume of air ingress:
about 94% less vs SP Cupla Type A



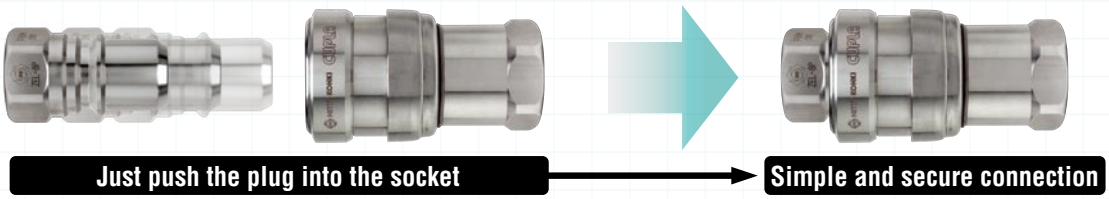
*Blue colored water is used to show volume of spillage clearly.

Reliable zero friction valve

New valve design offers smooth zero-friction movement resulting in reduced chance of malfunction caused by deterioration of valve parts.

Push-to-connect design One-hand easy operation

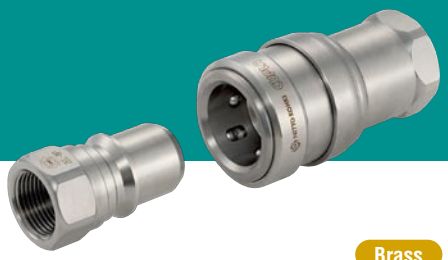
Just push the plug into the socket for simple and secure connection. This reduces connection time and improves efficiency.



Wide variety of material options available

Body material	Brass, Stainless steel
Seal material	Nitrile rubber, Fluoro rubber, Ethylene-propylene rubber
Size	1/4", 3/8", 1/2", 3/4", 1"

ZEROSPILL CUPLA



Nitto Kohki's cutting-edge technology has created the eco-friendly ZEROSPILL CUPLA.

Specifications

Body material	Brass, Stainless steel (SUS 304)			
Applicable fluids *1	Water, Hydraulic oil, Air, Gas			
Size	1/4", 3/8", 1/2", 3/4", 1"			
Working pressure *2 MPa {kgf/cm²}	3.5 {35}			
Seal material Working temperature range *3	**Seal material**	**Mark**	**Working temperature range**	**Remarks**
	Nitrile rubber	NBR (SG)	−20°C – +80°C	Standard material
	Fluoro rubber	FKM (X-100)	−20°C – +180°C	Standard material
	Ethylene-propylene rubber	EPDM (EPT)	−40°C – +150°C	Standard material

*1: Applicable fluids vary depending upon body materials or seal materials.
*2: This is the normal allowable fluid pressure under continuous use.
*3: Working temperature range may vary depending upon the usage conditions.

Max. Tightening Torque N•m {kgf•cm}

Size		1/4"	3/8"	1/2"	3/4"	1"
Torque	Brass	9 {92}	12 {122}	30 {306}	50 {510}	65 {663}
	Stainless steel	14 {143}	22 {224}	60 {612}	90 {918}	120 {1224}

Flow Direction

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

Interchangeability

Different size socket and plug cannot be connected to each other.

Min. Cross-Sectional Area (mm²)

Size	1/4"	3/8"	1/2"	3/4"	1"
Min. cross-sectional area	31	60.5	86.5	160.6	188.7

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

Socket only	Plug only	When connected
—	—	Operational

Air Ingress on Connection (mL)

Size	1/4"	3/8"	1/2"	3/4"	1"
Volume of air admixture	0.16	0.21	0.37	1.12	1.52

• Volume of air admixture differs depending upon the usage conditions.

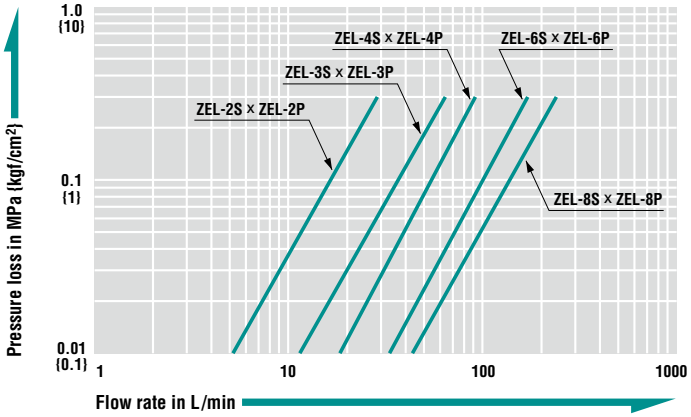
Volume of Spillage per Disconnection (mL)

Size	1/4"	3/8"	1/2"	3/4"	1"
Volume of spillage	0.06	0.12	0.20	0.43	0.55

• Volume of spillage varies depending upon the usage conditions.
• Repeated connections and disconnections of Cuplas or use of low viscosity fluids may cause some spillage.

Flow Rate – Pressure Loss Characteristics

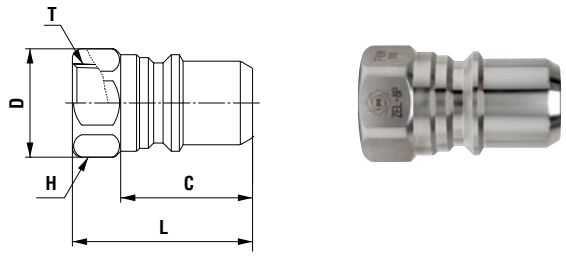
[Test conditions] •Fluid : Water •Temperature : 25°C – 27°C



Models and Dimensions

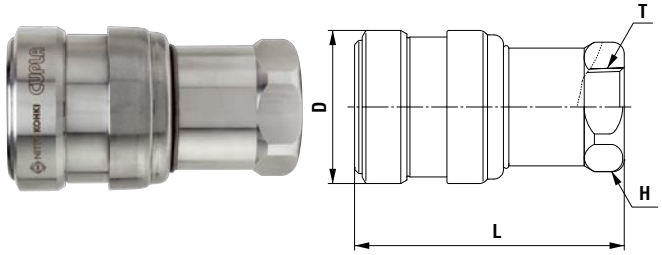
WAF : WAF stands for width across flat.

Plug Female thread



Model	Application	Mass (g)		Dimensions (mm)				
		Brass	Stainless steel	L	C	øD	H (WAF)	T
ZEL-2P	R 1/4	34	32	39	26.1	19	Hex. 17	Rc 1/4
ZEL-3P	R 3/8	67	63	44.5	32	25	Hex. 23	Rc 3/8
ZEL-4P	R 1/2	117	109	52.5	36.8	32	Hex. 29	Rc 1/2
ZEL-6P	R 3/4	264	248	68.5	48	39.5	Hex. 36	Rc 3/4
ZEL-8P	R 1	359	339	76.5	56	46	Hex. 42	Rc 1

Socket Female thread



Model	Application	Mass (g)		Dimensions (mm)			
		Brass	Stainless steel	L	øD	H (WAF)	T
ZEL-2S	R 1/4	133	125	(56)	28	Hex. 21	Rc 1/4
ZEL-3S	R 3/8	255	239	(66)	35	Hex. 27	Rc 3/8
ZEL-4S	R 1/2	404	382	(76)	42	Hex. 32	Rc 1/2
ZEL-6S	R 3/4	829	784	(95.5)	55	Hex. 42	Rc 3/4
ZEL-8S	R 1	1406	1326	(114.5)	65	Hex. 50	Rc 1

• The photos above show stainless steel model ZEL-8P and ZEL-8S. The profiles of brass couplings are just the same as those of stainless steel couplings.

Accessories for O-ring Maintenance

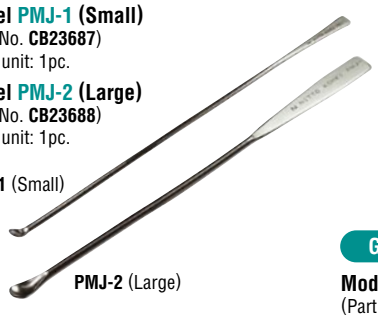
The quality of seal materials plays an important role in maintaining the performance of the ZEROSPILL Cupla. Please periodically apply a small amount of Nitto Kohki's genuine grease to the O-rings or balls to retain the Cupla's full performance.

• When ordering, please always indicate part number, part name, and quantity.

Jig for O-ring replacement

Model PMJ-1 (Small)
(Part No. **CB23687**)
Sales unit: 1pc.

Model PMJ-2 (Large)
(Part No. **CB23688**)
Sales unit: 1pc.



PMJ-1 (Small)

PMJ-2 (Large)

Grease for O-ring

5mL container

Model GRE-S2 (Silicon base oil) for EPDM O-ring
(Part No. **CB28791**)
Sales unit: 1pc.

Grease for O-ring

5mL container

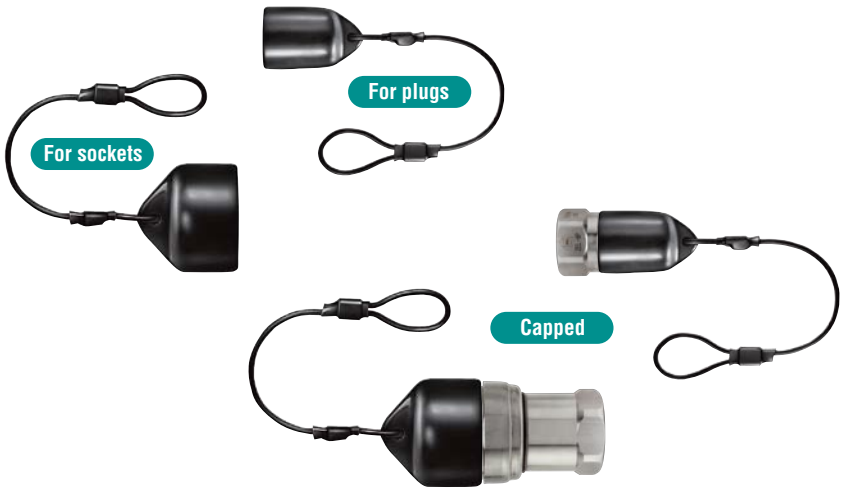
Model GRE-M1 (Mineral base oil) for NBR / FKM O-ring
(Part No. **CB23701**)
Sales unit: 1pc.

O-ring	Part number			Sales unit
	NBR	FKM	EPDM	
For ZEL-2S	CQ40611	CQ40740	CQ40742	1pc.
For ZEL-3S	CQ40628	CQ40744	CQ40746	1pc.
For ZEL-4S	CQ40645	CQ40748	CQ40750	1pc.
For ZEL-6S	CQ40662	CQ40752	CQ40754	1pc.
For ZEL-8S	CQ40679	CQ40756	CQ40758	1pc.

Dip Mold Cap (Dust Cap)

Optional Dust caps are available to prevent dust and debris from entering the fluid line, to retain seal integrity and to maximize the O-ring's life.

• When ordering, please always indicate part number, part name, and quantity.



	Cap for ZEROSPILL Cupla	Part number	Sales unit
Socket	For ZEL-2S	CA96463	1pc.
	For ZEL-3S	CA96464	1pc.
	For ZEL-4S	CB28786	1pc.
	For ZEL-6S	CA96466	1pc.
	For ZEL-8S	CA96467	1pc.

	Cap for ZEROSPILL Cupla	Part number	Sales unit
Plug	For ZEL-2P	CA96454	1pc.
	For ZEL-3P	CB28790	1pc.
	For ZEL-4P	CA96456	1pc.
	For ZEL-6P	CA96457	1pc.
	For ZEL-8P	CA96472	1pc.

⚠ Safety Guide

⚠ Warning

• Do not pressurize the socket or plug with fluid while disconnected. This may cause possible valve blow out.
• Do not use Cuplas continuously under any pressure exceeding the rated working pressure.

⚠ Caution

• Use a liquid or paste type thread sealant when assembling taper pipe male thread joints in Cupla.
• Do not tighten up screws on Cupla in excess of the rated maximum tightening torque. This may cause damage on thread.
• Do not apply any artificial impact, bend, or tension other than necessary in connection and disconnection. This may cause leakage or damage.
• Do not use in a place where dust or metal dust may be around. This may cause malfunction or leakage.
• Use only within the range of rated temperature. Otherwise this may damage the seal material inside and cause leakage.
• Use Cuplas only for the purpose of quick connective couplings.
• A shut-off valve must be installed between pressure source and the Cupla.
• Do not use as a swivel joint.
• Direct hookup to a vibration or impact device may result in reduced lifetime.
• Do not connect/disconnect under dynamic pressure or static residual pressure.
• There is a small amount of spillage during disconnection. Pay careful attention when handling socket or plug if the fluid is in high temperature or may be hazardous.
• Do not strike the tip of an automatic shut-off valve with a hammer or the like. This may cause leakage or malfunction.
• Fluid must be cleaned through filters before reach to Cuplas.
• O-rings in Cuplas must remain lubricated at all times.
• If the sleeve of socket does not slide well, apply a small amount of grease GRE-S1 (Silicon base series) on the balls of the socket with your fingers. Grease GRE-S1 (Part No.CB23702) is available from us as optional maintenance accessory.
• Always select the right seal and body materials that are suitable for the fluid to be used.
• Do not connect with other brands' quick connective couplings.
• Do not disassemble.
• Design and keep the fluid flow speed through Cuplas below 8 m/s for hydraulic use.
• Check up on Cuplas periodically. If any disorder is shown, stop using the Cuplas until properly repaired or replaced with new ones.
• After connection, try to pull the plug and socket apart to check secure connection. Incomplete connection may cause accidental disconnection of the socket and plug under dynamic pressure.

★Specifications and designs are subject to change at any time without notice.

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