




For Medium Pressure

# ZEROSPILL CUPLA

Low spill type for medium pressure use

<b>Working pressure</b>  3.5 MPa (35 kgf/cm <sup>2</sup> )	<b>Valve structure</b>  Two-way shut-off (Spill Reduction)	<b>Applicable fluids</b>  Water    Hydraulic oil    Chemicals    Air    Gas
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## Unique seal design reduces both liquid spillage and air ingress.

- New valve design offers smooth zero-friction movement.
- Push to connect design.
- A variety of body materials and sizes have been standardized to support a wide range of applications and situations.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.



Specifications				
Body material	Brass		Stainless steel (SUS 304)	
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	3.5	36	36	508
Seal material Working temperature range *1	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR	-20°C to +80°C	Standard material
	Fluoro rubber	FKM	-20°C to +180°C	Standard material
	Ethylene-propylene rubber	EPDM	-40°C to +150°C	Standard material

\*1: The operable temperature range depends on the operating conditions.

Maximum Tightening Torque		Nm {kgf·cm}				
Size (Thread)		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 flow can be bi-directional when socket and plug are connected.



### Interchangeability

Socket and plug of different sizes cannot be connected.

Minimum Cross-Sectional Area (mm <sup>2</sup> )					
Model	ZEL-2SP	ZEL-3SP	ZEL-4SP	ZEL-6SP	ZEL-8SP
Min. cross-sectional area	31	60.5	86.5	160.6	188.7

Suitability for Vacuum 1.3×10 <sup>-1</sup> Pa {1×10 <sup>-3</sup> mmHg}		
Socket only	Plug only	When connected
—	—	Operational

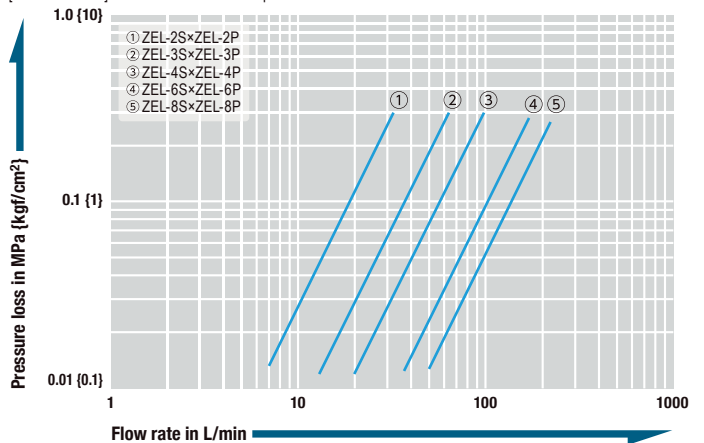
Admixture of Air on Connection <small>May vary depending upon the usage conditions.</small> (mL)					
Model	ZEL-2SP	ZEL-3SP	ZEL-4SP	ZEL-6SP	ZEL-8SP
Volume of air admixture	0.16	0.21	0.37	1.12	1.52

Volume of Spillage per Disconnection <small>May vary depending upon the usage conditions.</small> (mL)					
Model	ZEL-2SP	ZEL-3SP	ZEL-4SP	ZEL-6SP	ZEL-8SP
Volume of spillage	0.06	0.12	0.20	0.43	0.55

\* Repeated connections and disconnections of CUPLA or the use of fluids with low viscosity may cause some spillage.

### Flow Rate – Pressure Loss Characteristics

[Test conditions] - Fluid : Water - Temperature : 23°C±5°C



Models and Dimensions

**Plug Female thread**

Model	Application (Thread)	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 (Thread)	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 the same as those of the stainless steel couplings.

# Main Features

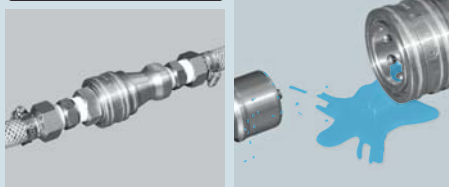
## Unique seal design reduces both liquid spillage and air ingress

### To compare with 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

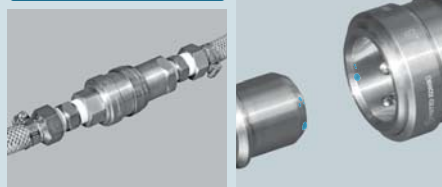
**SP CUPLA Type A**



Connected

Disconnected

**ZEROSPILL CUPLA**



Connected

Disconnected



\*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.



Just push the plug into the socket

Simple and secure connection

### Accessory

## CUPLA ADAPTER for Braided Hose Connection

Can be screwed into CUPLA with female threads, 3/8", 1/2", 3/4"



See page 166 for the details.