

**For High Pressure**

# HYPER HSP CUPLA


Connects hydraulic piping even with residual pressure up to 20.6 MPa (210 kgf/cm<sup>2</sup>)

Working pressure



20.6 MPa  
(210 kgf/cm<sup>2</sup>)

Valve structure



Two-way shut-off

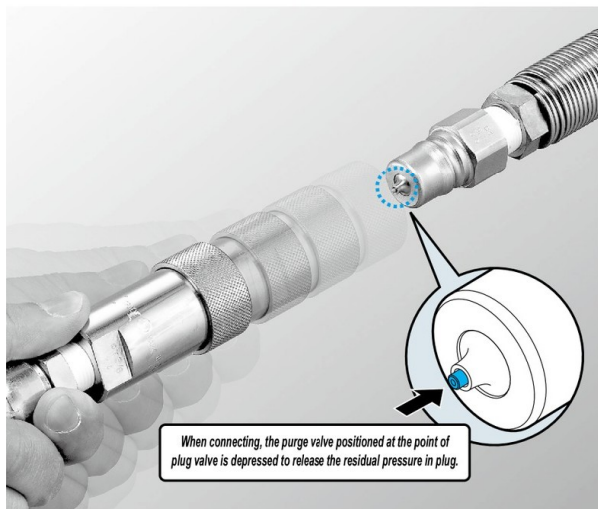
Applicable fluid



Hydraulic oil

**Purge function will set you free from the troublesome residual pressure elimination before connection and let you achieve efficient and frequent hydraulic pipe line coupling.**

- Both socket and plug have built-in automatic shut-off valves to prevent fluid spill out when disconnected.
- Interchangeable with standard HSP CUPLA plug or socket in the same size.



Specifications				
Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	20.6	210	206	2990
Seal material	Nitrile rubber	NBR (SG)	-20°C to +80°C	Standard material

Maximum Tightening Torque		Nm {kgf·cm}				
Size (Thread)		1/4"	3/8"	1/2"	3/4"	1"
Torque		28 {286}	45 {459}	90 {918}	100 {1020}	180 {1836}

**Flow Direction**

Fluid flow can be bi-directional when socket and plug are connected.

**Interchangeability**

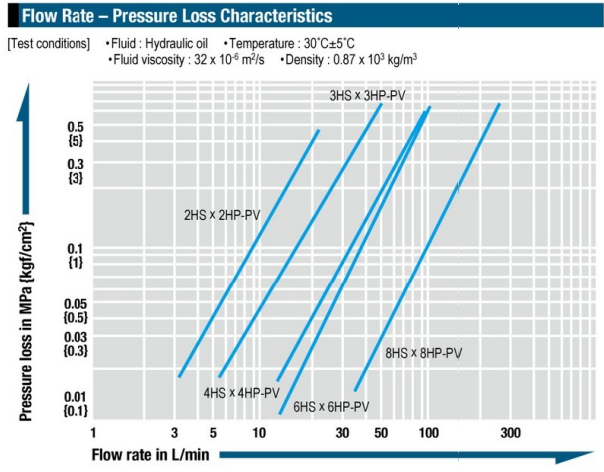
Interchangeable with standard HSP CUPLA plug or socket in the same size. Avoid connecting HYPER HSP CUPLA socket with HYPER HSP CUPLA plug. The residual pressure will not release.

Minimum Cross-Sectional Area		(mm <sup>2</sup> )				
Model		2HP-PV/2HS-PV	3HP-PV/3HS-PV	4HP-PV/4HS-PV	6HP-PV/6HS-PV	8HP-PV/8HS-PV
Minimum cross-sectional area		21	37	77	77	203

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

Admixture of Air on Connection		(mL)				
Model		2HP-PV/2HS-PV	3HP-PV/3HS-PV	4HP-PV/4HS-PV	6HP-PV/6HS-PV	8HP-PV/8HS-PV
Volume of air		0.7	1.9	3.5	3.5	12.4

Connection Load under Residual Pressure (For reference)		(N)				
Residual pressure / Model		2HP-PV/2HS-PV	3HP-PV/3HS-PV	4HP-PV/4HS-PV	6HP-PV/6HS-PV	8HP-PV/8HS-PV
at 5.0 MPa		50	85	85	85	100
at 10.0 MPa		70	85	85	85	130
at 15.0 MPa		100	100	100	100	170



*Note: Either socket or plug of HYPER HSP CUPLA must be used on the line where the residual pressure remains. The counterpart of HYPER HSP must be either plug or socket of standard HSP CUPLA.*

WAF : WAF stands for width across flats.

**Models and Dimensions**

**Plug HP type (Female thread)**

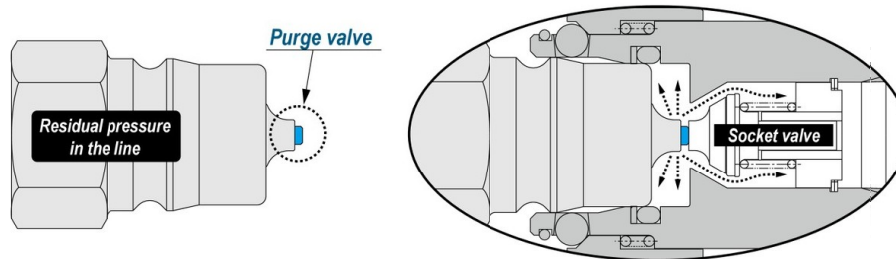
Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	øD	C	H(WAF)	T
2HP-PV	R 1/4	44	32	20.5	17.5	Hex.19	Rc 1/4
3HP-PV	R 3/8	72	38	25	22.5	Hex.23	Rc 3/8
4HP-PV	R 1/2	138	44	32	27.5	Hex.29	Rc 1/2
6HP-PV	R 3/4	147	50	35	27.5	Hex.32	Rc 3/4
8HP-PV	R 1	360	61	47	36	41	Rc 1

**Socket HS type (Female thread)**

Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
2HS-PV	R 1/4	136	49	(27.5)	19	Rc 1/4
3HS-PV	R 3/8	225	60	(33)	23	Rc 3/8
4HS-PV	R 1/2	485	(72)	(43)	35	Rc 1/2
6HS-PV	R 3/4	460	(72)	(43)	35	Rc 3/4
8HS-PV	R 1	1050	93	(58)	46	Rc 1

**Residual Pressure Release (or purge) Mechanism**

While connecting, the purge valve indicated with a circle is being pushed and releasing the residual pressure



**Note:** Either socket or plug of HYPER HSP CUPLA must be used on the line where the residual pressure remains. The counterpart of HYPER HSP must be either plug or socket of standard HSP CUPLA. HYPER HSP CUPLA can be connected under the residual pressure in the line, but cannot during pressurizing. It may lead to incomplete connection, durability deterioration or possible valve fly out.

Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

**For High Pressure**

# 210 CUPLA

For hydraulic pressure up to 20.6 MPa {210 kgf/cm<sup>2</sup>}

Working pressure

20.6 MPa  
{210 kgf/cm<sup>2</sup>}

Valve structure

Two-way shut-off

Applicable fluid

Hydraulic oil

**Standard hydraulic CUPLA for general purposes with a working pressure up to 20.6 MPa.**  
**Low pressure loss, suitable for hydraulic equipment.**

- General purpose hydraulic CUPLA with a working pressure of 20.6 MPa {210 kgf/cm<sup>2</sup>}.
- Structure is designed to reduce pressure loss to the lowest, and is best for hydraulic applications that need big flow rates.
- Both socket and plug have built-in automatic shut-off valves that prevent fluid outflow when disconnected.



Various end configurations

Specifications				
Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	20.6	210	206	2990
Seal material	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR (SG)	-20°C to +80°C	Standard material
Working temperature range	Fluoro rubber	FKM (X-100)	-20°C to +180°C	Available on request

Maximum Tightening Torque		Nm {kgf·cm}				
Size (Thread)		1/4"	3/8"	1/2"	3/4"	1"
Torque		28 {286}	45 {459}	90 {918}	100 {1020}	180 {1836}

**Flow Direction**

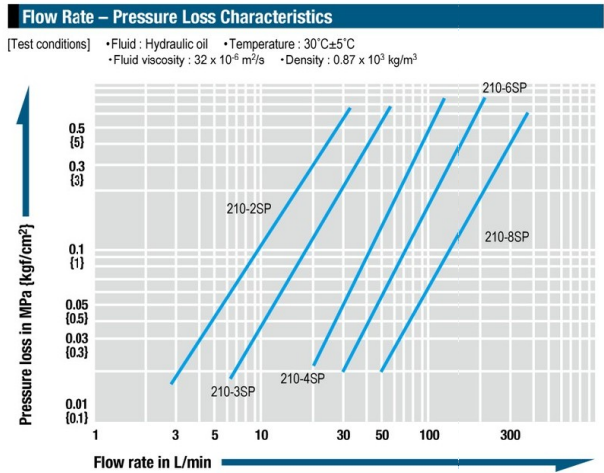
Fluid flow can be bi-directional when socket and plug are connected.

**Interchangeability**  
 Socket and plug of different sizes cannot be connected.

Minimum Cross-Sectional Area		(mm <sup>2</sup> )				
Model		210-2SP	210-3SP	210-4SP	210-6SP	210-8SP
Minimum cross-sectional area		24.5	42.8	77.4	146.5	235.6

Suitability for Vacuum		1.3 Pa {1 x 10 <sup>-2</sup> mmHg}	
Socket only		Plug only	When connected
—		—	Operational

Admixture of Air on Connection		May vary depending upon the usage conditions. (mL)				
Model		210-2SP	210-3SP	210-4SP	210-6SP	210-8SP
Volume of air		0.85	1.02	2.63	8.83	16.04



**⚠ Precautions for use**  
 There is no interchangeability between 210 CUPLA and HSP CUPLA or 280 CUPLA. Do not connect each other even if some sizes are approximate.



Models and Dimensions

WAF : WAF stands for width across flats.

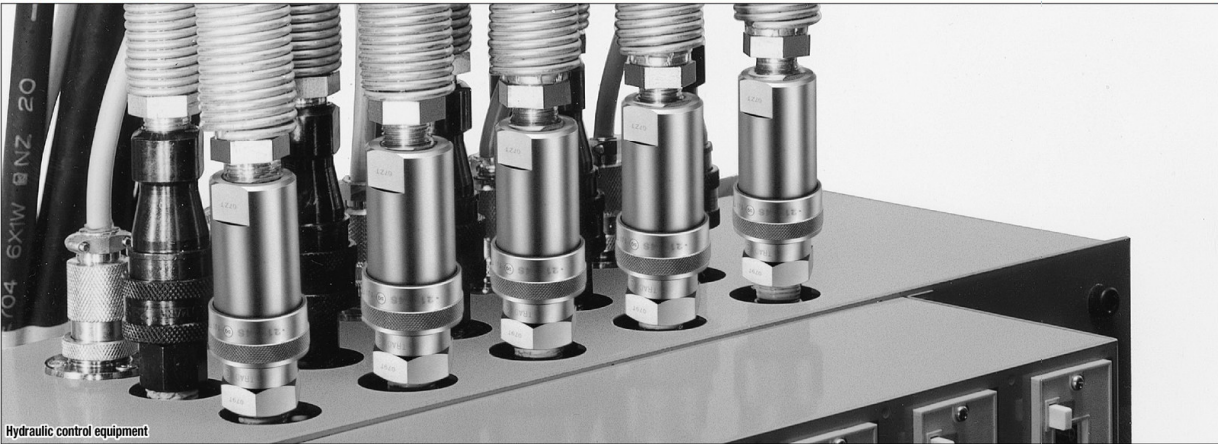
**Plug Female thread**

Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	C	H(WAF)	T
210-2P	R 1/4	39	33	18	Hex.19	Rc 1/4
210-3P	R 3/8	57	36	18.5	Hex.23	Rc 3/8
210-4P	R 1/2	90	42.5	24	Hex.27	Rc 1/2
210-6P	R 3/4	195	51	28	Hex.35	Rc 3/4
210-8P	R 1	293	61	35	Hex.41	Rc 1

**Socket Female thread**

Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
210-2S	R 1/4	158	50.5	(30)	22	Rc 1/4
210-3S	R 3/8	193	54	(33)	23	Rc 3/8
210-4S	R 1/2	330	65	(39)	29	Rc 1/2
210-6S	R 3/4	566	78.5	(48)	35	Rc 3/4
210-8S	R 1	861	95	(55)	41	Rc 1

Application Example



Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.



**For High Pressure**

# HSU CUPLA

Stainless steel CUPLA for high pressure up to 21.0 MPa (214 kgf/cm<sup>2</sup>)

Working pressure

21.0 MPa  
(214 kgf/cm<sup>2</sup>)

Valve structure

Two-way shut-off

Applicable fluids

Water Hydraulic oil Gas

The flow volume is increased by between 14 to 44% while at the same time the coupled length is reduced by at least 10% compared with the S210 CUPLA.

- Body material is excellent corrosion resistant stainless steel (SUS304). Suitable for use in tough / harsh environments such as offshore applications.
- Sleeve stopper mechanism can be engaged by rotating sleeve after connection.
- Despite having a stainless steel body, the working pressure, 21.0 MPa, of HSU CUPLA is comparable to that of special steel body CUPLA such as HSP CUPLA series.
- Both socket and plug have built-in automatic shut-off valves that prevent fluid outflow on disconnection.
- Hydrogenated nitrile rubber (HNBR) is used as a seal material for wide variety of liquids.



Specifications				
Body material	Stainless steel (SUS304)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	21.0	214	210	3050
Seal material	Hydrogenated nitrile rubber*		Mark	Working temperature range
Working temperature range			HNBR	-20°C to +120°C

\* The seal materials used in HSU CUPLA are not suitable for Freon gas.

Maximum Tightening Torque		N m {kgf·cm}			
Size (Thread)	1/4"	3/8"	1/2"	3/4"	1"
Torque	28 (286)	35 (357)	70 (714)	100 (1020)	180 (1836)

**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	HSU-2SP	HSU-3SP	HSU-4SP	HSU-6SP	HSU-8SP
Minimum cross-sectional area	27.1	48.2	84.2	143.6	221.2

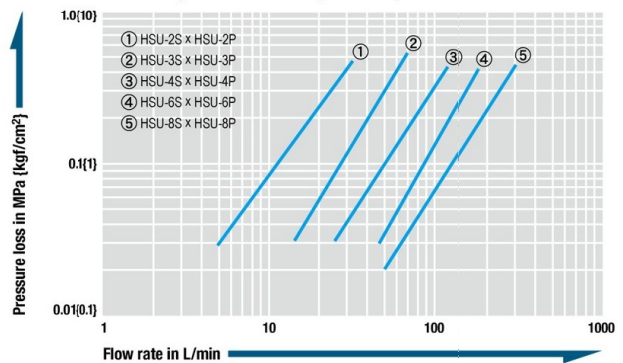
Suitability for Vacuum		1.3 × 10 <sup>-1</sup> Pa {1 × 10 <sup>-3</sup> mmHg}	
Socket only	Plug only	When connected	
—	—	Operational	

Admixture of Air on Connection		May vary depending upon the usage conditions. (mL)			
Model	HSU-2SP	HSU-3SP	HSU-4SP	HSU-6SP	HSU-8SP
Volume of air admixture	0.7	1.5	3.6	6.3	10.9

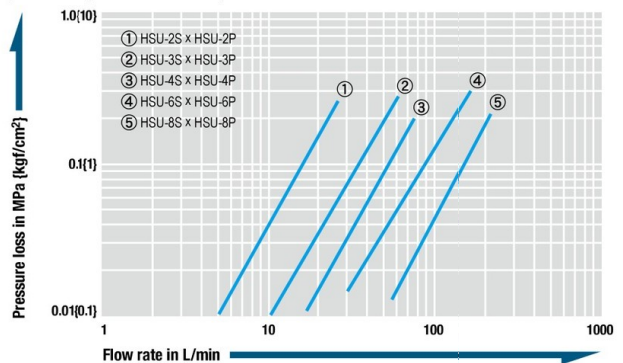
Volume of Spillage per Disconnection		May vary depending upon the usage conditions. (mL)			
Model	HSU-2SP	HSU-3SP	HSU-4SP	HSU-6SP	HSU-8SP
Volume of spillage	0.6	1.7	3.0	6.8	11.2

**Flow Rate – Pressure Loss Characteristics (Hydraulic oil / Water)**

[Test conditions] • Fluid : Hydraulic oil • Temperature : 30°C to 32°C  
• Fluid viscosity : 32 × 10<sup>-6</sup> m<sup>2</sup>/s • Density : 0.87 × 10<sup>3</sup> kg/m<sup>3</sup>



[Test conditions] • Fluid : Water • Temperature : 18°C



Models and Dimensions

**Plug Female thread**

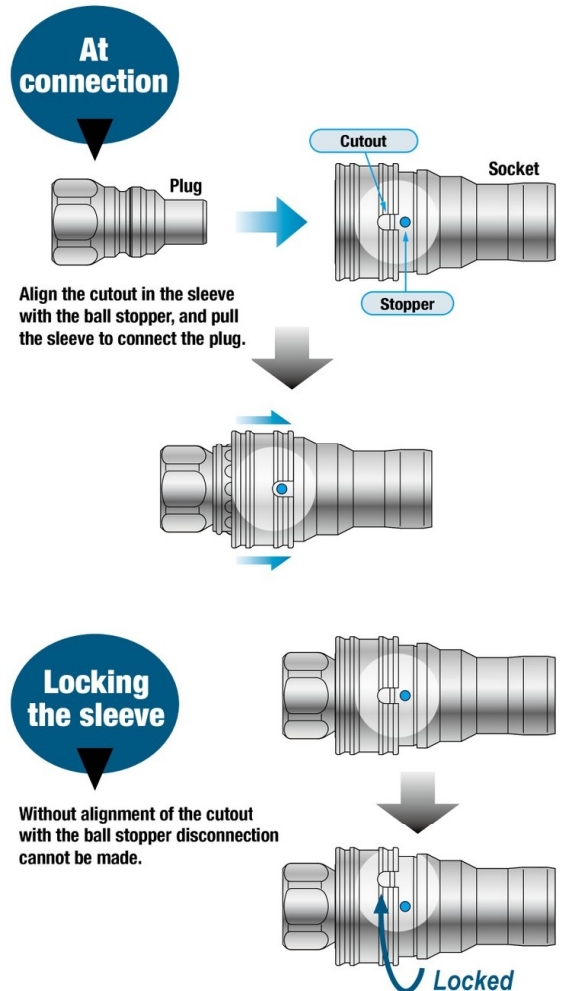
Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	C	øD	H (WAF)	T
HSU-2P	R 1/4	49	45.5	27.5	21	Hex.19	Rc 1/4
HSU-3P	R 3/8	86	51.5	32	26.5	Hex.24	Rc 3/8
HSU-4P	R 1/2	152	59	39	33	Hex.30	Rc 1/2
HSU-6P	R 3/4	295	74	51.5	42	Hex.38	Rc 3/4
HSU-8P	R 1	481	83	58	51	Hex.46	Rc 1

**Socket Female thread**

Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H (WAF)	T
HSU-2S	R 1/4	142	63	28	19	Rc 1/4
HSU-3S	R 3/8	255	71.5	35	24	Rc 3/8
HSU-4S	R 1/2	479	84	45	30	Rc 1/2
HSU-6S	R 3/4	953	106	55	38	Rc 3/4
HSU-8S	R 1	1432	118	65	46	Rc 1

Sleeve Stopper Mechanism

*Easy to operate sleeve stopper mechanism enhances operator safety.*



*Accidental disconnection is prevented.*

The stopper is marked with blue for visual understanding.


Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

**For High Pressure**

# S210 CUPLA


Stainless steel CUPLA for high pressure up to 20.6 MPa (210 kgf/cm<sup>2</sup>)

Working pressure




20.6 MPa  
(210 kgf/cm<sup>2</sup>)

Valve structure



Two-way shut-off

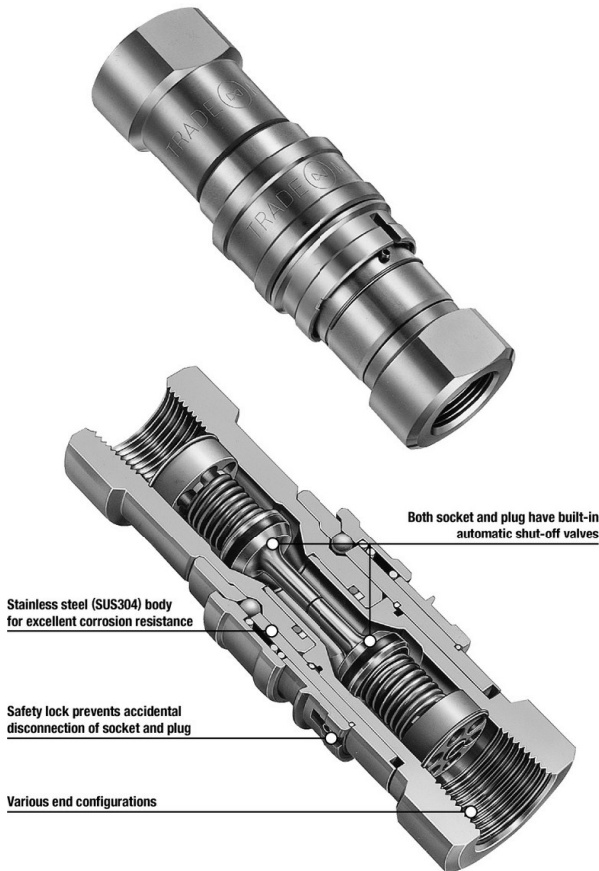
Applicable fluids



Water Hydraulic oil Gas

**Stainless steel for excellent corrosion resistance!**  
**The unique “inner seal mechanism” accepts a working pressure up to 20.6 MPa.**

- Body material is excellent corrosion resistant stainless steel (SUS304). Suited for use in tough conditions such as ocean development.
- Although it is made of stainless steel, the unique “inner seal mechanism” enables the working pressure of 20.6 MPa (210 kgf/cm<sup>2</sup>), the same as special steel's.
- Safety lock (accidental disconnection prevention mechanism) ensures tight and secured connection under vibration or impacts.
- Both socket and plug have built-in automatic shut-off valves that prevent fluid outflow on disconnection.



**Specifications**

Body material	Stainless steel (SUS304)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	20.6	210	206	2990
Seal material	Seal material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM (X-100)	-20°C to +180°C	Standard material
Working temperature range	Nitrile rubber	NBR (SG)	-20°C to +80°C	Made-to-order item

• The product comes with a dust cap.

**Maximum Tightening Torque Nm {kgf·cm}**

Size (Thread)	1/4"	3/8"	1/2"	3/4"	1"
Torque	28 {286}	35 {357}	70 {714}	100 {1020}	180 {1836}

**Flow Direction**



**Interchangeability**

Socket and plug of different sizes cannot be connected.

**Minimum Cross-Sectional Area (mm<sup>2</sup>)**

Model	S210-2SP	S210-3SP	S210-4SP	S210-6SP	S210-8SP
Minimum cross-sectional area	24	47	84	153	233

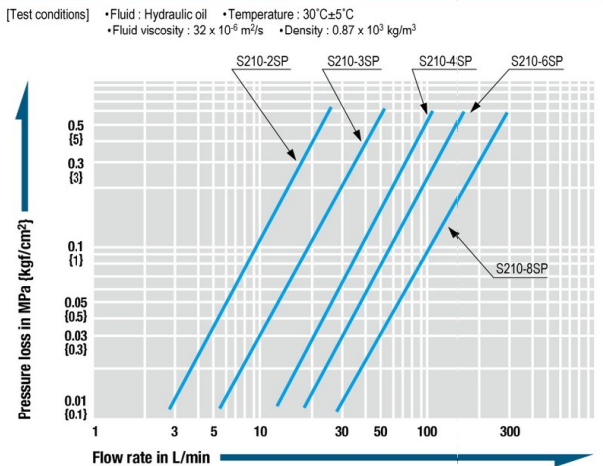
**Suitability for Vacuum 1.3 Pa {1 x 10<sup>-2</sup> mmHg}**

Socket only	Plug only	When connected
—	—	Operational

**Admixture of Air on Connection May vary depending upon the usage conditions. (mL)**

Model	S210-2SP	S210-3SP	S210-4SP	S210-6SP	S210-8SP
Volume of air	0.8	1.6	3.2	6.3	14.3

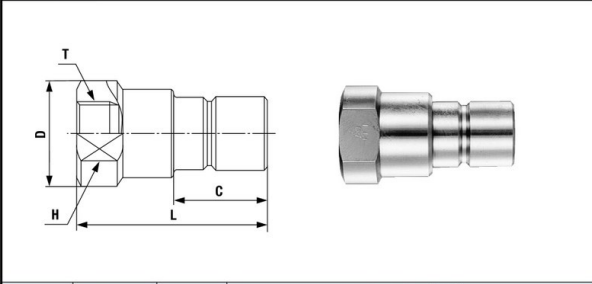
**Flow Rate – Pressure Loss Characteristics**





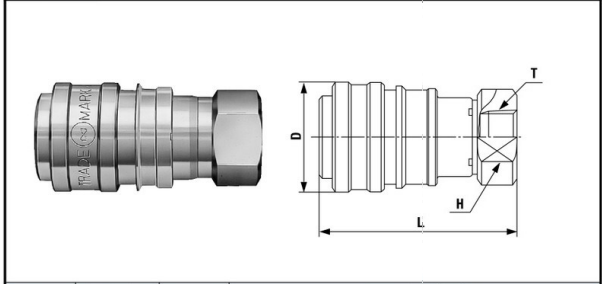
Models and Dimensions

Plug Female thread



Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	C	øD	H(WAF)	T
S210-2P	R 1/4	74	50.5	20	22	19	Rc 1/4
S210-3P	R 3/8	127	59	24	28	24	Rc 3/8
S210-4P	R 1/2	239	70.5	28	35	30	Rc 1/2
S210-6P	R 3/4	446	81.5	35.5	44	38	Rc 3/4
S210-8P	R 1	939	100	47.5	58	50	Rc 1

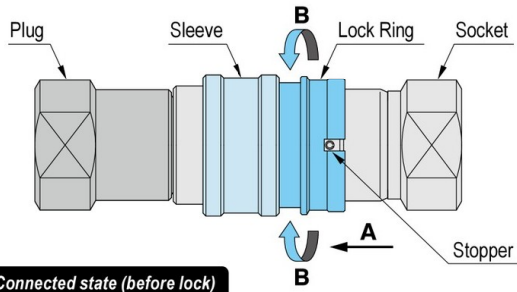
Socket Female thread



Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
S210-2S	R 1/4	137	(59)	27	19	Rc 1/4
S210-3S	R 3/8	226	(68.5)	32	24	Rc 3/8
S210-4S	R 1/2	406	(81)	39.7	30	Rc 1/2
S210-6S	R 3/4	710	(97.5)	48	38	Rc 3/4
S210-8S	R 1	1381	(118)	62	50	Rc 1

How to operate the Safety Lock

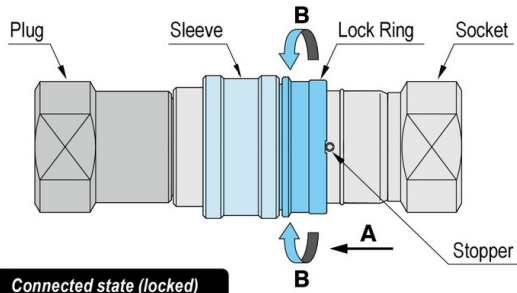
How to lock



Connected state (before lock)

Slide the Lock Ring in the direction of the arrow A and rotate it in either direction simultaneously. When the Stopper is aligned with the shallow cutout on the Lock Ring, the CUPLA will be locked.

How to unlock



Connected state (locked)

Slide the Lock Ring in the direction of the arrow A and rotate it in either direction simultaneously. When the Stopper is aligned with the deeper cutout on the Lock Ring, the CUPLA will be unlocked.

Application Example



Ocean development

Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

**For High Pressure**

# 280 CUPLA

For hydraulic pressure up to 27.5 to 31.5 MPa {281 to 321 kgf/cm<sup>2</sup>}

Working pressure

27.5 to 31.5 MPa  
{281 to 321 kgf/cm<sup>2</sup>}

Valve structure

Two-way shut-off

Applicable fluid

Hydraulic oil

**Generic CUPLA copes with high pressure lines in hydraulic equipment! Low pressure loss is ideal for hydraulic equipment.**

- Conforms to international standard ISO 7241-1A.
- General purpose hydraulic CUPLA with the working pressure up to 27.5 to 31.5 MPa {281 to 321 kgf/cm<sup>2</sup>}.
- Structure keeps pressure loss extremely low, particularly ideal for hydraulic applications requiring high flow rates.
- Both socket and plug have built-in automatic shut-off valves to prevent fluid spill out when disconnected.
- Special steel body material is adopted for its excellent strength and additional quenching treatment is done to withstand hydro pressure impacts.



Specifications				
Body material	Special steel (Bright chromate conversion coating : silver color)			
Size (Thread)	1/4", 3/8"		1/2", 3/4", 1"	
Working pressure	MPa	31.5	27.5	
	kgf/cm <sup>2</sup>	321	281	
	bar	315	275	
	PSI	4570	3990	
Seal material	Nitrile rubber	NBR (SG)	Working temperature range	-20°C to +80°C
Working temperature range	Standard material			

Maximum Tightening Torque		Nm {kgf·cm}				
Size (Thread)	1/4"	3/8"	1/2"	3/4"	1"	
Torque	28 {286}	40 {408}	80 {816}	100 {1020}	180 {1836}	

**Flow Direction**

Fluid flow can be bi-directional when socket and plug are connected.

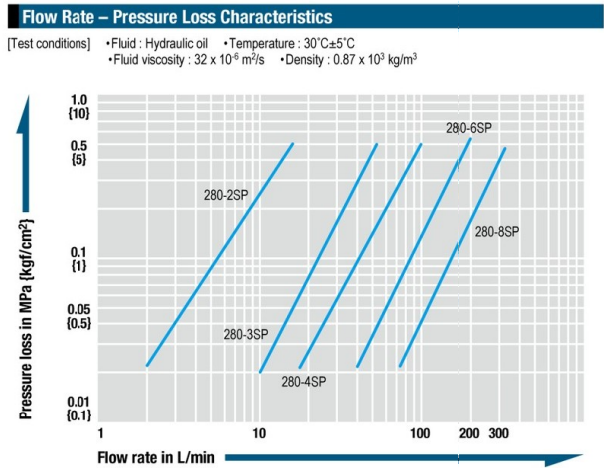
**Interchangeability**

Socket and plug of different sizes cannot be connected. Can be connected with products whose mating part dimensions are in compliance with ISO7241-1A.

Minimum Cross-Sectional Area		(mm <sup>2</sup> )				
Model	280-2SP	280-3SP	280-4SP	280-6SP	280-8SP	
Minimum cross-sectional area	11.4	42.8	79.1	146.5	235.6	

Suitability for Vacuum		1.3 Pa {1 x 10 <sup>-2</sup> mmHg}		
Socket only	Plug only	When connected		
—	—	Operational		

Admixture of Air on Connection		May vary depending upon the usage conditions. (mL)				
Model	280-2SP	280-3SP	280-4SP	280-6SP	280-8SP	
Volume of air	0.37	1.02	2.63	8.83	16.04	



**⚠ Precautions for use**

There is no interchangeability between 280 CUPLA and HSP CUPLA or 210 CUPLA. Do not connect each other even if some sizes are approximate.

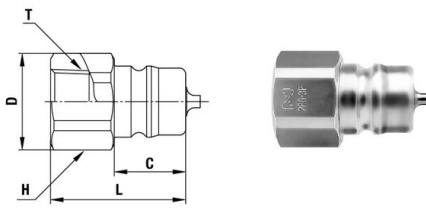


WAF : WAF stands for width across flats.

Models and Dimensions

Plug

Female thread

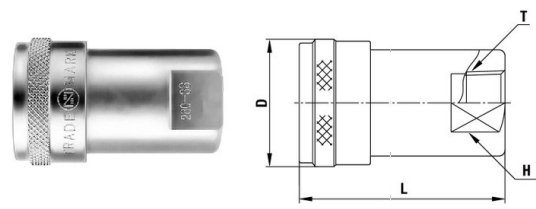


Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	øD	C	H(WAF)	T
280-2P	R 1/4	35	31.5	20.5	15	Hex.19	Rc 1/4
280-3P	R 3/8	59	35	25	18.5	Hex.23	Rc 3/8
280-4P	R 1/2	115	44	32	24.5	Hex.29	Rc 1/2
280-6P	R 3/4	178	52.5	35	28	Hex.32	Rc 3/4
280-8P	R 1	331	63.5	44	35	41	Rc 1

\* Internal structural design of 280-6S and 280-8S is partly different from the above drawing.

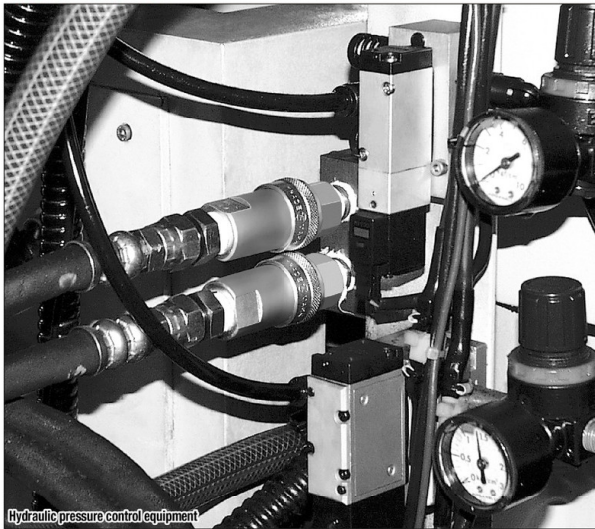
Socket

Female thread

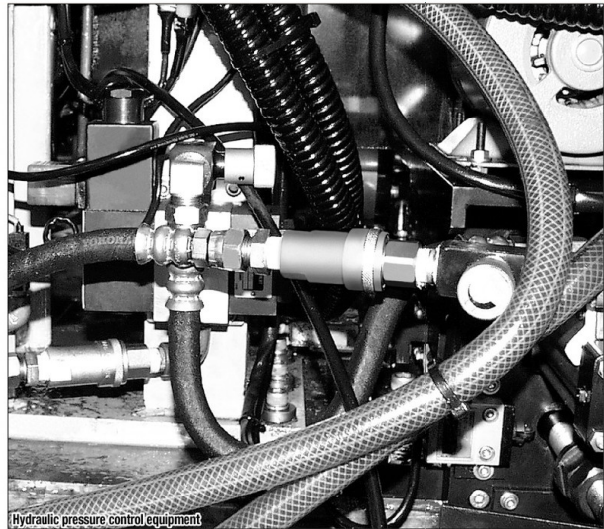


Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
280-2S	R 1/4	110	(46)	(27)	19	Rc 1/4
280-3S	R 3/8	185	(53)	(33)	23	Rc 3/8
280-4S	R 1/2	335	66.5	(39)	29	Rc 1/2
280-6S	R 3/4	571	(81)	(48)	35	Rc 3/4
280-8S	R 1	871	98	(55)	41	Rc 1

Application Example



Hydraulic pressure control equipment



Hydraulic pressure control equipment

Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.




**For High Pressure**

# 350 CUPLA


For hydraulic pressures up to 34.5 MPa {352 kgf/cm<sup>2</sup>}

Working pressure




**34.5**  
34.5 MPa  
(352 kgf/cm<sup>2</sup>)

Valve structure



Two-way shut-off  
(Non-Spill)

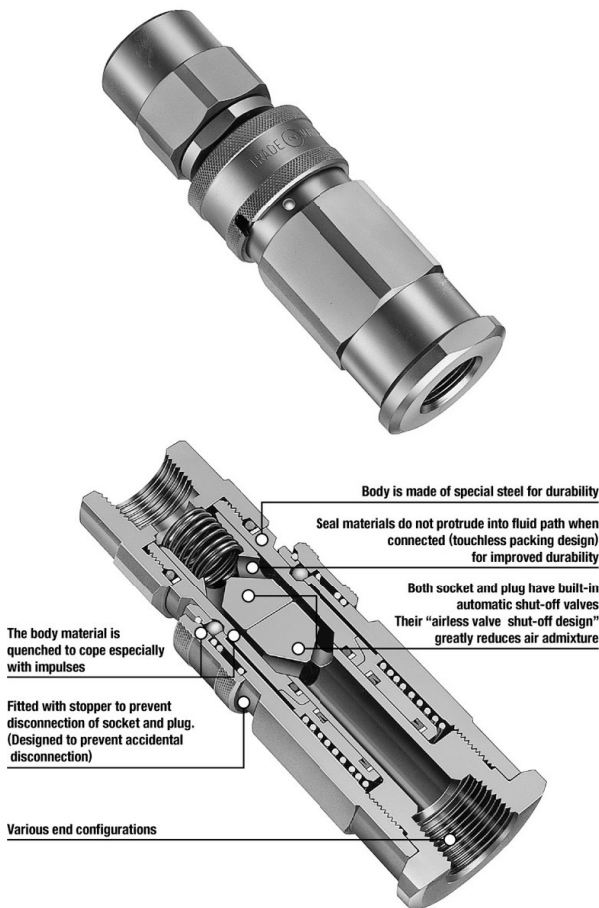
Applicable fluid



Hydraulic oil

**Their “airless valve shut-off design” greatly reduces air admixture! Ideal for hydraulic lines with larger pressure fluctuations.**

- Sleeve stopper mechanism can be engaged by rotating sleeve after connection.
- Both socket and plug have built-in automatic shut-off valves to prevent fluid spill out when disconnected.



**Specifications**

Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	34.5	352	345	5000
Seal material	Fluoro rubber	FKM (X-100)	Working temperature range	Standard material
Working temperature range	-20°C to +180°C			

**Maximum Tightening Torque Nm {kgf·cm}**

Size (Thread)	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"
Torque	28 {286}	40 {408}	80 {816}	150 {1530}	250 {2550}	500 {5100}	500 {5100}

**Flow Direction**



**Interchangeability**

Socket and plug of different sizes cannot be connected. However, 350-2SP with 350-3SP or 350-10SP with 350-12SP can be connected with each other.

**Minimum Cross-Sectional Area (mm<sup>2</sup>)**

Model	350-2SP	350-3SP	350-4SP	350-6SP	350-8SP	350-10SP	350-12SP
Minimum cross-sectional area	34.2	34.2	73.0	149.6	227.0	452.4	452.4

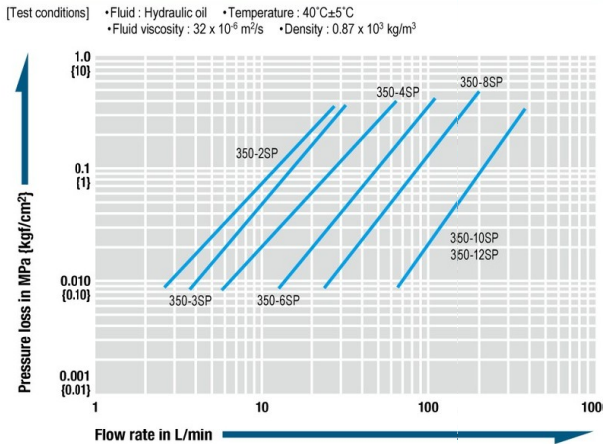
**Suitability for Vacuum**

Not suitable for vacuum application in either connected or disconnected condition.

**Admixture of Air on Connection** May vary depending upon the usage conditions. (mL)

Model	350-2SP	350-3SP	350-4SP	350-6SP	350-8SP	350-10SP	350-12SP
Volume of air	0.1	0.1	0.2	0.3	0.5	0.9	0.9

**Flow Rate – Pressure Loss Characteristics**

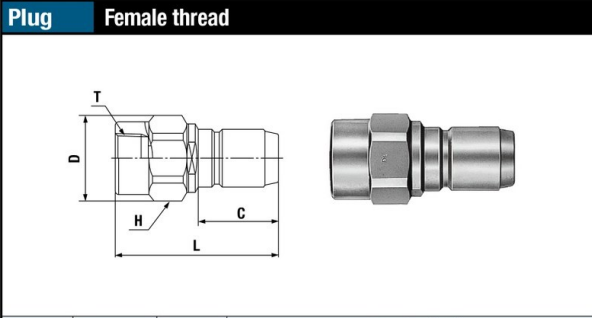


**⚠ Precautions for use**

**Do not connect / disconnect CUPLA when pressure is applied or remaining.**

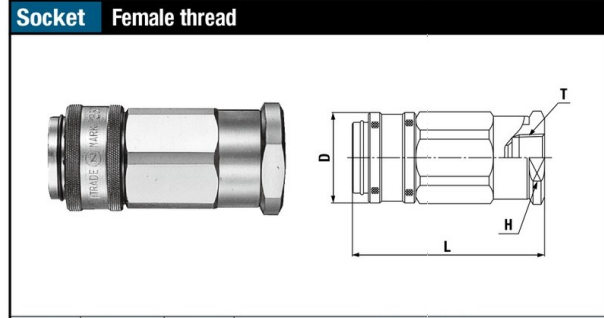
**Models and Dimensions**

Product appearance may vary by size. / WAF : WAF stands for width across flats.



Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	C	øD	H(WAF)	T
350-2P	R 1/4	170	(72)	36	29	Hex.27	Rc 1/4
350-3P	R 3/8	167	(72)	36	29	Hex.27	Rc 3/8
350-4P	R 1/2	245	85	40.5	30	Hex.27	Rc 1/2
350-6P	R 3/4	415	87	44.5	40	Hex.36	Rc 3/4
350-8P	R 1	950	111	57	55	Hex.50	Rc 1
350-10P	R 1 1/4	2,700	(144)	75	78	Hex.70	Rc 1 1/4
350-12P	R 1 1/2	2,600	(144)	75	78	Hex.70	Rc 1 1/2

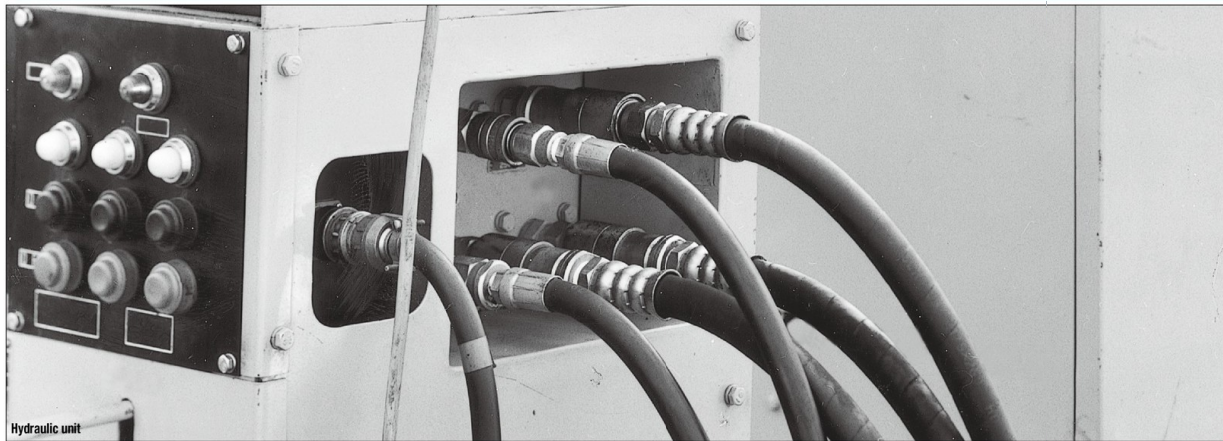
\* G thread is available on request.



Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
350-2S	R 1/4	360	(82)	(34)	Hex.30	Rc 1/4
350-3S	R 3/8	353	(82)	(34)	Hex.30	Rc 3/8
350-4S	R 1/2	545	(93.5)	(41)	Hex.36	Rc 1/2
350-6S	R 3/4	976	(105.5)	(49)	46 x ø52	Rc 3/4
350-8S	R 1	1,740	(129)	(63)	55 x ø62	Rc 1
350-10S	R 1 1/4	5,600	(180)	89	Hex.80 x ø90	Rc 1 1/4
350-12S	R 1 1/2	5,500	(180)	89	Hex.80 x ø90	Rc 1 1/2

\* G thread is available on request.

**Application Example**



**Optional Accessory**

# PURGE ADAPTER

Residual Pressure Purge Adapter for Hydraulic Lines

- Can be attached to hydraulic lines to purge residual pressure effectively.
- See page 153 for the details.

**Specifications**

Model	PAD-2	PAD-3FM	PAD-4FM	PAD-6FM	PAD-8FM
Body material	Steel (Nickel plated)				
Application (Thread)	R 1/4	R 3/8 x Rc 3/8	R 1/2 x Rc 1/2	R 3/4 x Rc 3/4	R 1 x Rc 1
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI	
Working pressure	35.0	357	350	5080	
Drain outlet port	For 8 mm OD tube		Application: Rc 1/8 (Max. Tightening Torque: 5 Nm)		
Applicable fluids	Hydraulic oil				
Seal material	Nitrile rubber	Mark	Working temperature range	Remarks	
Working temperature range		NBR (SG)	-5°C to +80°C	Standard material	



Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.



**For High Pressure**

# FLAT FACE CUPLA

## F35

For hydraulic pressures up to 35.0 MPa [357 kgf/cm<sup>2</sup>] with flat contact face

Working pressure




35.0 MPa  
(357 kgf/cm<sup>2</sup>)

Valve structure



Two-way shut-off  
(Non-Spill)

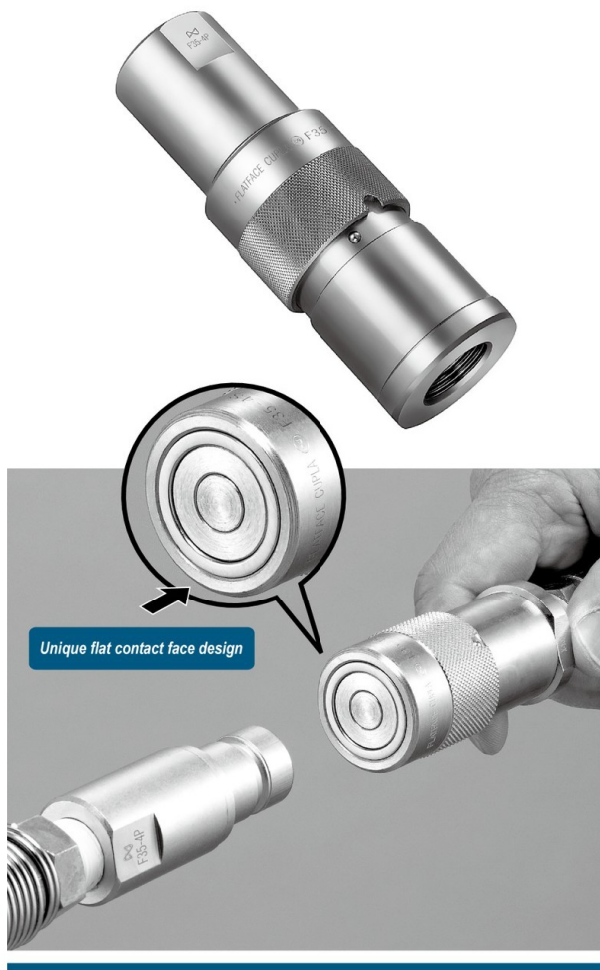
Applicable fluid



Hydraulic oil

## Flat contact face design reduces spill upon disconnection.

- Flat contact face design makes it easy to clean dust and foreign matter adhered on the surface of coupling so as to prevent them from entering inside and thus causing faulty operation of connection or disconnection.
- Flat contact face design minimizes air admixture during connection to keep the possible malfunction of equipment caused by the air bubbles in the hydraulic line at minimum level.
- Push-to-connect operation.
- Sleeve stopper mechanism is engaged by rotating sleeve after connection. It prevents accidental disconnection even when vibration or impact is applied to the CUPLA.
- The special design reduces pressure loss considerably, and especially suited to hydraulic applications in which big flow is needed. Both socket and plug have built-in automatic shut-off valves that prevent fluid spill out on disconnection.



### Specifications

Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	35.0	357	350	5080
Seal material	Seal material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM (X-100)	-20°C to +180°C	Standard material
Working temperature range	Nitrile rubber	NBR (SG)	-20°C to +80°C	Made-to-order item

### Maximum Tightening Torque Nm [kgf·cm]

Size (Thread)	1/4"	3/8"	1/2"	3/4"	1"
Torque	28 (286)	40 (408)	80 (816)	150 (1530)	250 (2550)

### Flow Direction



### Interchangeability

Socket and plug of different sizes cannot be connected.

### Minimum Cross-Sectional Area (mm<sup>2</sup>)

Model	F35-2SP	F35-3SP	F35-4SP	F35-6SP	F35-8SP
Minimum cross-sectional area	21.2	32.2	78.5	149.6	227.0

### Suitability for Vacuum

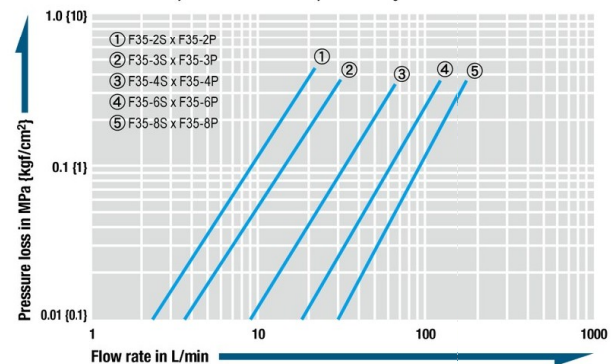
Not suitable for vacuum application in either connected or disconnected condition.

### Admixture of Air on Connection May vary depending upon the usage conditions. (mL)

Model	F35-2SP	F35-3SP	F35-4SP	F35-6SP	F35-8SP
Volume of air	0.1	0.1	0.2	0.3	0.4

### Flow Rate – Pressure Loss Characteristics

[Test conditions] • Fluid : Hydraulic oil • Temperature : 30°C±5°C  
 • Fluid viscosity : 32 x 10<sup>-6</sup> m<sup>2</sup>/s • Density : 0.87 x 10<sup>3</sup> kg/m<sup>3</sup>



### ⚠ Precautions for use

Do not connect / disconnect CUPLA when pressure is applied or remaining.



WAF : WAF stands for width across flats.

Models and Dimensions

**Plug Female thread**

Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	C	øD	H(WAF)	T
F35-2P	R 1/4	106	58	18.8	21.5	19	Rc 1/4
F35-3P	R 3/8	190	67.5	24	27	24	Rc 3/8
F35-4P	R 1/2	290	78	28.5	31.7	27	Rc 1/2
F35-6P	R 3/4	460	84.5	31	40	36	Rc 3/4
F35-8P	R 1	1000	108	39	50	46	Rc 1

**Socket Female thread**

Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
F35-2S	R 1/4	182	(57.5)	(28)	26 x ø28.5	Rc 1/4
F35-3S	R 3/8	320	(70)	(34)	30	Rc 3/8
F35-4S	R 1/2	490	(78)	(41)	36	Rc 1/2
F35-6S	R 3/4	815	(85)	(49)	46 x ø50	Rc 3/4
F35-8S	R 1	1520	(104)	(63)	55	Rc 1

Application Example



Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

**For High Pressure**

# FLAT FACE CUPLA FF

For hydraulic pressure up to 35.0 MPa {357 kgf/cm<sup>2</sup>} with flat contact face

Working pressure



35.0 MPa  
{357 kgf/cm<sup>2</sup>}

Valve structure



Two-way shut-off  
(Non-Spill)

Applicable fluid



Hydraulic oil

**Compared with Nitto Kohki's conventional 35 MPa CUPLA, the flow volume is increased 1.5 to 2 times.**

\*Increase ratio of each flow volume depends on the CUPLA size.

- "Airless valve shut-off" design minimizes spillage volume on disconnection and admixture volume of air on connection.
  - Best suited for hydraulic lines with drastic high pressure pulsation such as in die-casting machines.
  - Sleeve stopper design preventing accidental disconnection under vibration or impacts enhances workability and safety.
  - Sizes are Rc 3/8, Rc 1/2, Rc 3/4, and Rc 1.
- \*Only the same size of socket and plug can be connected.



**Offset concave flat face enables quick and smooth connection**

**Unique flat face design**

Concaved offset for the flat face on socket guides plug for quick and smooth centering and connection, but still easy to wipe off dirt and dusts.

**Hexagon nut for easy mount**

Specifications				
Body material	Special steel (Nickel plated)			
Size (Thread)	3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	35.0	357	350	5080
Seal material	Nitrile rubber	NBR	-20°C to +80°C	Standard material

Maximum Tightening Torque		Nm {kgf-cm}		
Size (Thread)	3/8"	1/2"	3/4"	1"
Torque	40 {408}	80 {816}	150 {1530}	250 {2550}

**Flow Direction**

Fluid flow can be bi-directional when socket and plug are connected.

**Interchangeability**

Socket and plug of different sizes cannot be connected.

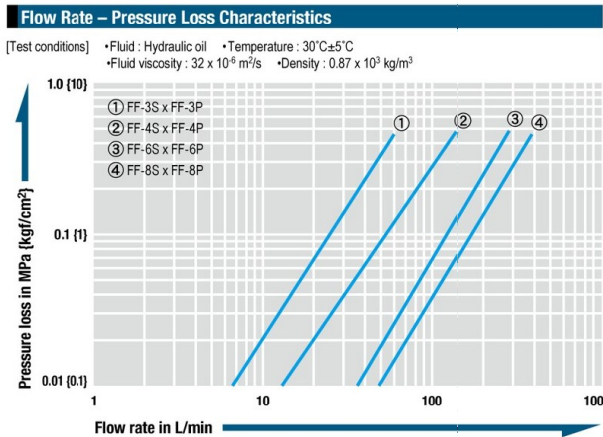
Minimum Cross-Sectional Area		(mm <sup>2</sup> )		
Model	FF-3S x FF-3P	FF-4S x FF-4P	FF-6S x FF-6P	FF-8S x FF-8P
Minimum cross-sectional area	51	106	215	332

**Suitability for Vacuum**

Not suitable for vacuum application in either connected or disconnected condition.

Admixture of Air on Connection		May vary depending upon the usage conditions. (mL)		
Model	FF-3S x FF-3P	FF-4S x FF-4P	FF-6S x FF-6P	FF-8S x FF-8P
Volume of air admixture	0.018	0.029	0.033	0.080

Volume of Spillage per Disconnection		May vary depending upon the usage conditions. (mL)		
Model	FF-3S x FF-3P	FF-4S x FF-4P	FF-6S x FF-6P	FF-8S x FF-8P
Volume of spillage	0.009	0.023	0.031	0.110



**⚠ Precautions for use**

Do not connect / disconnect CUPLA when pressure is applied or remaining.

WAF: WAF stands for width across flats.

**Models and Dimensions**

**Plug Female thread**

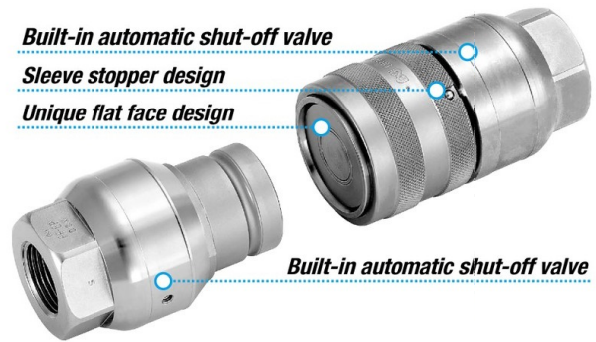
Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	øD	A	H (WAF)	T
FF-3P	R 3/8	252	(66)	34	20.5	Hex.29	Rc 3/8
FF-4P	R 1/2	409	(74)	42	22.8	Hex.32	Rc 1/2
FF-6P	R 3/4	709	(82.5)	54	27	Hex.41	Rc 3/4
FF-8P	R 1	1314	(96.5)	66	29.5	Hex.54	Rc 1

**Socket Female thread**

Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H (WAF)	T
FF-3S	R 3/8	345	(71)	(35.5)	Hex.29	Rc 3/8
FF-4S	R 1/2	608	(84)	(44)	Hex.32	Rc 1/2
FF-6S	R 3/4	1053	(95)	(54)	Hex.41	Rc 3/4
FF-8S	R 1	1865	(109.5)	(66)	Hex.54	Rc 1

**Applications**

- Hydraulic piping for die-casting machines
- Casting machines
- Electric furnaces
- Molding presses
- Forging press
- Powdery alloy presses
- Extrusion molding machines
- Machine tools
- Iron manufacturing blast furnaces
- Continuous casting machines
- Rolling mills
- Pipe forging machines
- Furnace opening / closing machines
- Glass molding machines, etc.



Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.



**For High Pressure**

# 450B CUPLA

For hydraulic pressure up to 44.1 MPa {450 kgf/cm<sup>2</sup>}

Working pressure

44.1 MPa  
{450 kgf/cm<sup>2</sup>}

Valve structure

Two-way shut-off

Applicable fluid

Hydraulic oil

## Metal-touch valve system with superior durability! Sleeve stopper mechanism gives secure connection.

- CUPLA for higher working pressure up to 44.1 MPa {450 kgf/cm<sup>2</sup>}.
- Sleeve stopper mechanism can be engaged by rotating sleeve after connection.
- Both socket and plug have metal-touch automatic shut-off valves that prevent fluid spill out on disconnection.



Specifications				
Body material	Special steel (Nickel plated)			
Size (Thread)	3/8"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	44.1	450	441	6400
Seal material Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR (SG)	-20°C to +80°C	Standard material
	Fluoro rubber	FKM (X-100)	-20°C to +180°C	Made-to-order item
Stand-alone leakage rate on either socket or plug	0.1 mL/min at 0.3 MPa {3 kgf/cm <sup>2</sup> }			

Maximum Tightening Torque		Nm {kgf·cm}
Torque	40 {408}	

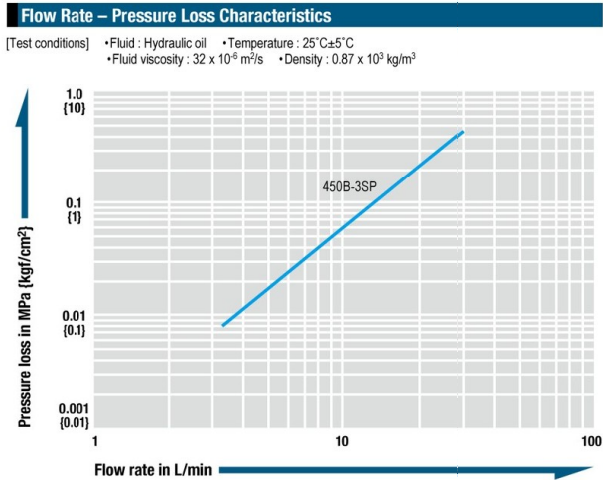
**Flow Direction**

Fluid flow can be bi-directional when socket and plug are connected.

Minimum Cross-Sectional Area	(mm <sup>2</sup> )
Minimum cross-sectional area	37

Suitability for Vacuum			1.3 Pa {1 x 10 <sup>-2</sup> mmHg}
Socket only	Plug only	When connected	
-	-	Operational	

Admixture of Air on Connection		(mL)
Volume of air admixture		1.43



**Models and Dimensions** WAF : WAF stands for width across flats.

**Plug Female thread**

Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	C	øD	H(WAF)	T
450B-3P	R 3/8	95	37.5	22.5	28	24	Rc 3/8

**Socket Female thread**

Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
450B-3S	R 3/8	285	59.5	(36)	24	Rc 3/8


Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

**For High Pressure**

# 700R CUPLA


For hydraulic pressure up to 68.6 MPa {700 kgf/cm<sup>2</sup>}

Working pressure




68.6 MPa  
(700 kgf/cm<sup>2</sup>)

Valve structure



Two-way shut-off

Applicable fluid



Hydraulic oil

## High pressure CUPLA for working pressures up to 68.6 MPa.

- Metal-touch valves use no rubber seal, and thus ensure excellent durability.
- Both socket and plug have metal touch automatic shut-off valves that prevent fluid spill out on disconnection.



### Specifications

Body material	Special steel (Nickel plated)			
Size (Thread)	3/8", 1/2"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	68.6	700	686	9950
Seal material	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR (SG)	-20°C to +80°C	Standard material
Working temperature range	Fluoro rubber	FKM (X-100)	-20°C to +180°C	Made-to-order item
Stand-alone leakage rate on either socket or plug	For 700R-3SP, 0.05 mL/min at 0.2 MPa {2 kgf/cm <sup>2</sup> } For 700R-4SP, 0.5 mL/min at 0.3 MPa {3 kgf/cm <sup>2</sup> }			

\* Do not use in an environment where there is impulse pressure.

### Maximum Tightening Torque Nm {kgf·cm}

Size (Thread)	3/8"	1/2"
Torque	40 (408)	85 (867)

### 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	700R-3SP	700R-4SP
Minimum cross-sectional area	34	55

### Suitability for Vacuum 1.3 Pa {1 × 10<sup>-2</sup> mmHg}

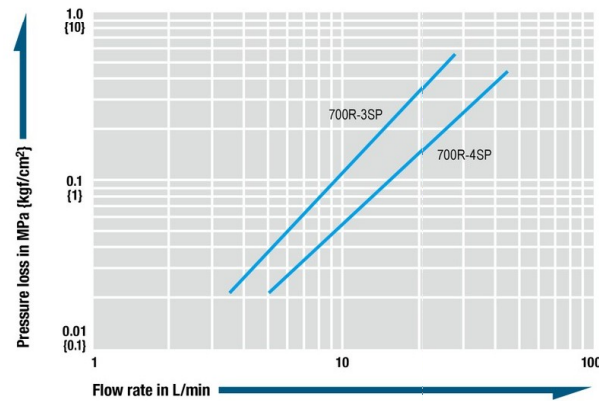
Socket only	Plug only	When connected
—	—	Operational

### Admixture of Air on Connection May vary depending upon the usage conditions. (mL)

Model	700R-3SP	700R-4SP
Volume of air admixture	1.0	2.2

### Flow Rate – Pressure Loss Characteristics

[Test conditions] • Fluid : Hydraulic oil • Temperature : 30°C±5°C  
• Fluid viscosity : 32 × 10<sup>-6</sup> m<sup>2</sup>/s • Density : 0.87 × 10<sup>3</sup> kg/m<sup>3</sup>



### Models and Dimensions

#### Plug Female thread

Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	C	øD	H(WAF)	T
700R-3P	R 3/8	210	54	18	(39.5)	24	Rc 3/8
700R-4P	R 1/2	418	70	22	(50)	27	Rc 1/2

#### Socket Female thread

Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
700R-3S	R 3/8	270	(73)	(39.5)	22	Rc 3/8
700R-4S	R 1/2	562	(91)	(50)	27	Rc 1/2

Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.




## For Multi-Port Connection (Manual)

# MULTI CUPLA

## MAM Type


Multiple air port system

Working pressure




0.7 MPa  
(7 kgf/cm<sup>2</sup>)

Valve structure



One-way shut-off

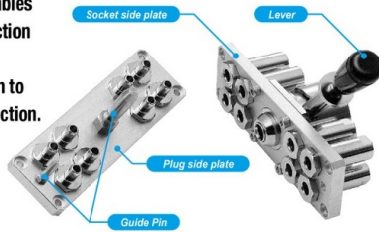
Applicable fluid



Air

**Simultaneously connects several ports securely in one operation!**  
**Greatly cuts cycle time in multiple ports replacement.**

- Handles several ports at once.
- Simple action with lever enables easy connection / disconnection manually.
- Comes with lock mechanism to prevent accidental disconnection.
- Valve on socket side only.



### Specifications

Body material	CUPLA : Brass (Chrome plated) Plate : Aluminum alloy (4, 8, 12 ports) / Plate : Steel (16 ports) Locking unit : Steel and others			
Size (Thread)	Rc 1/8			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	0.7	7	7	102
Seal material	Seal material	Mark	Working temperature range	
Working temperature range	Nitrile rubber	NBR (SG)	-20°C to +60°C	

### Maximum Tightening Torque Nm (kgf·cm)

Torque	5 (51)
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### Interchangeability

No connection is possible between plates with different number of ports.

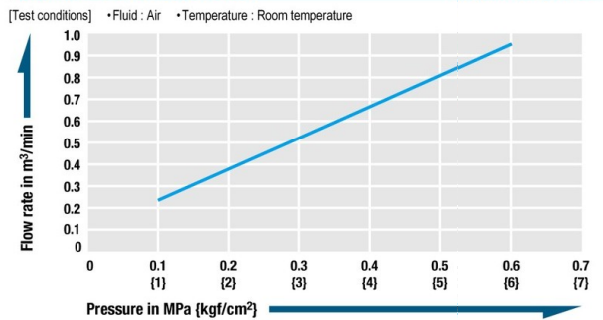
### Minimum Cross-Sectional Area (mm<sup>2</sup>)

Per port	15.9
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### Suitability for Vacuum

Not suitable for vacuum application in either connected or disconnected condition.

### Pressure - Flow Characteristics Per port with CUPLA



### Models and Dimensions

WAF : WAF stands for width across flats.

#### Model MAM-1TP-4 × MAM-1S-4 (4 port type)

Application (Thread): R 1/8    Mass: 150 g (Plug), 500 g (Socket)

**Plug: Model MAM-1TP-4**

**Socket: Model MAM-1S-4**

#### Model MAM-1TP-8 × MAM-1S-8 (8 port type)

Application (Thread): R 1/8    Mass: 250 g (Plug), 650 g (Socket)

**Plug: Model MAM-1TP-8**

**Socket: Model MAM-1S-8**



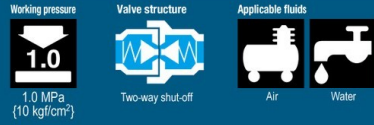


For Multi-Port Connection (Manual)

# MULTI CUPLA

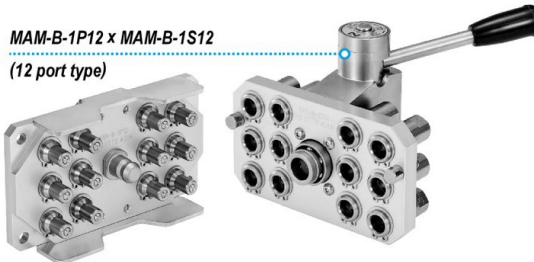
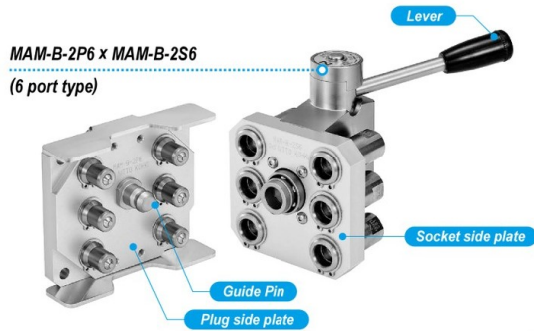
## MAM-B Type

Multiple port system



Simultaneously connects several ports securely in one operation. Greatly reduces changeover time in multiple ports replacement.

- Handles several ports at once.
- Simple manual lever action completes easy connection / disconnection.
- Two-stage lever operation prevents CUPLA from accidental dropping due to sudden detachment.
- Comes with lock mechanism to prevent accidental disconnection.
- Large flow equivalent to that of SP CUPLA Type A.
- Two kinds of plates are available for each size.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.
- Self-aligned valve design provides safety sealing of individual socket or plug when disconnected.



Specifications					
Model	Plug	MAM-B-1P8	MAM-B-1P12	MAM-B-2P6	MAM-B-2P8
	Socket	MAM-B-1S8	MAM-B-1S12	MAM-B-2S6	MAM-B-2S8
Number of ports	8		12	6	8
Size (Thread)	1/8"			1/4"	
Body material	CUPLA: Brass (Nickel plated) Plate: Aluminum alloy Locking unit: Steel (Nickel plated)				
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI	
Working pressure	1.0	10	10	145	
Ambient temperature range	0°C to +60°C				
Seal material	Fluoro rubber	FKM (X-100)	Mark	Working temperature range	Remarks
Working temperature range	-20°C to +180°C		Standard material		

Maximum Tightening Torque		Nm [kgf·cm]	
Size (Thread)	1/8"	1/4"	
Torque	5 {51}	9 {92}	

**Interchangeability**  
No connection is possible between plates with different number of ports or different size.

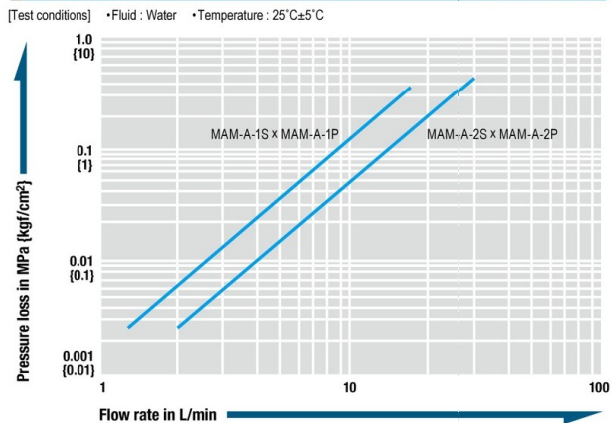
Minimum Cross-Sectional Area per Port (mm <sup>2</sup> )		
Model	1SP type	2SP type
Minimum cross-sectional area	14	26

Suitability for Vacuum 1.3 x 10 <sup>-1</sup> Pa [1 x 10 <sup>-3</sup> mmHg]		
Socket only	Plug only	When connected
—	—	Operational

Admixture of Air on Connection per Port <small>May vary depending upon the usage conditions.</small> (mL)		
Model	1SP type	2SP type
Volume of air	0.6	1.1

Volume of Spillage on Disconnection per Port <small>May vary depending upon the usage conditions.</small> (mL)		
Model	1SP type	2SP type
Volume of spillage	0.4	0.8

**Flow Rate - Pressure Loss Characteristics** Per port of CUPLA

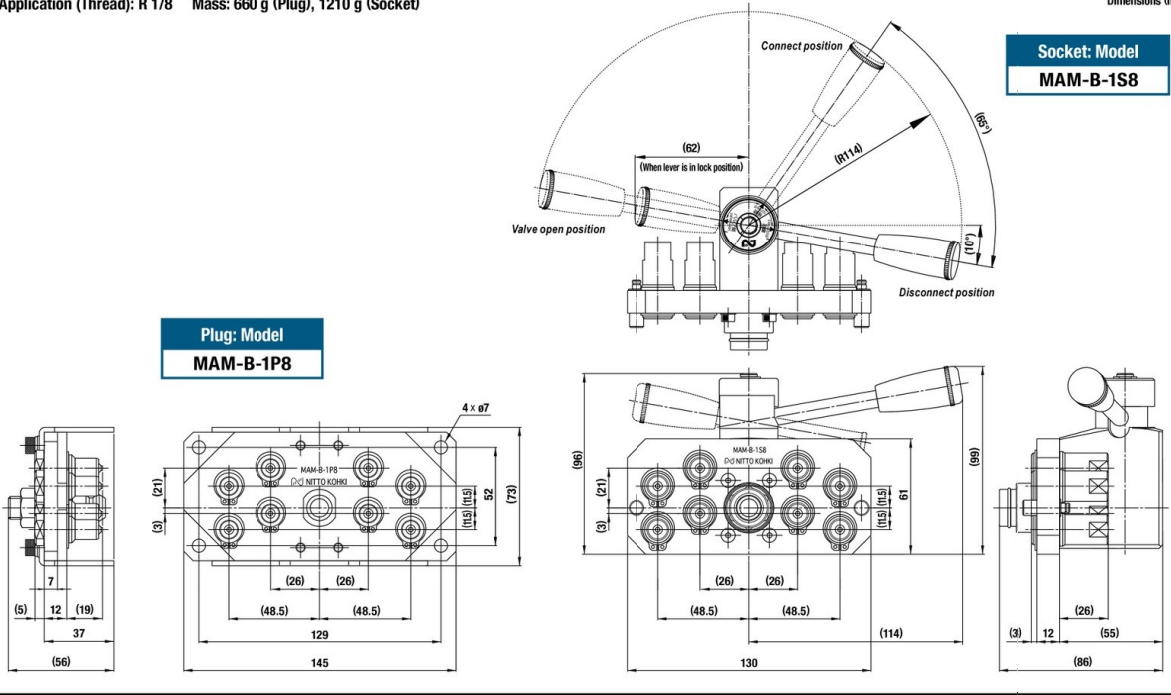


Models and Dimensions

Model MAM-B-1P8 x MAM-B-1S8 (8 port type)

• Application (Thread): R 1/8 Mass: 660 g (Plug), 1210 g (Socket)

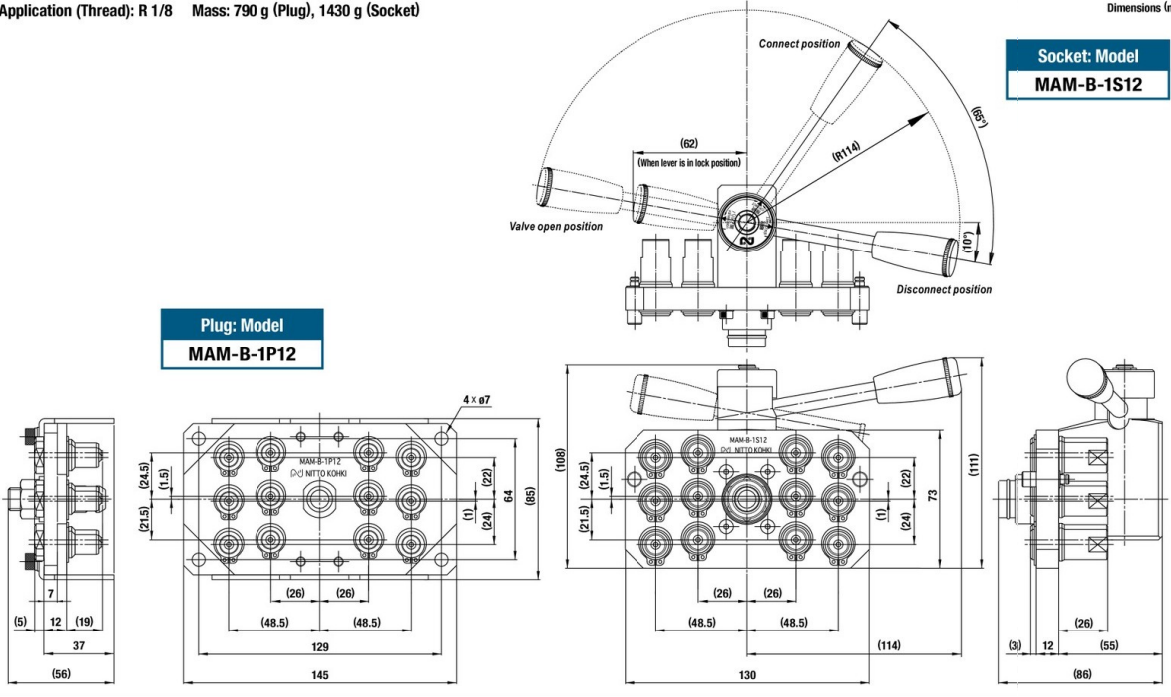
Dimensions (mm)



Model MAM-B-1P12 x MAM-B-1S12 (12 port type)

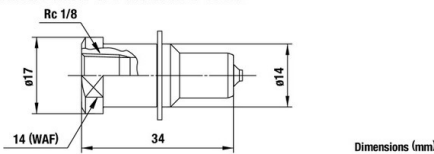
• Application (Thread): R 1/8 Mass: 790 g (Plug), 1430 g (Socket)

Dimensions (mm)



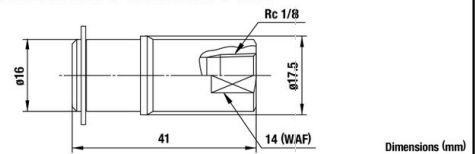
Plug Model MAM-A-1P (Individual CUPLA)

• Application (Thread): R 1/8 Mass: 25 g  
 • Can be mounted on model MAM-B-1P8 and MAM-B-1P12.



Socket Model MAM-A-1S (Individual CUPLA)

• Application (Thread): R 1/8 Mass: 49 g  
 • Can be mounted on model MAM-B-1S8 and MAM-B-1S12.



Made-to-order MULTI CUPLA are available on request, such as a combination of different sizes on the flange plate.

Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.



**Models and Dimensions**

**Model MAM-B-2P6 × MAM-B-2S6 (6 port type)**

• Application (Thread): R 1/4 Mass: 740 g (Plug), 1280 g (Socket)

Dimensions (mm)

**Socket: Model**  
**MAM-B-2S6**

**Plug: Model**  
**MAM-B-2P6**

**Model MAM-B-2P8 × MAM-B-2S8 (8 port type)**

• Application (Thread): R 1/4 Mass: 920 g (Plug), 1550 g (Socket)

Dimensions (mm)

**Socket: Model**  
**MAM-B-2S8**

**Plug: Model**  
**MAM-B-2P8**

**Plug Model MAM-A-2P (Individual CUPLA)**

- Application (Thread): R 1/4 Mass: 40 g
- Can be mounted on model MAM-B-2P6 and MAM-B-2P8.

Dimensions (mm)

**Socket Model MAM-A-2S (Individual CUPLA)**

- Application (Thread): R 1/4 Mass: 82 g
- Can be mounted on model MAM-B-2S6 and MAM-B-2S8.

Dimensions (mm)

Made-to-order MULTI CUPLA are available on request, such as a combination of different sizes on the flange plate.

Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

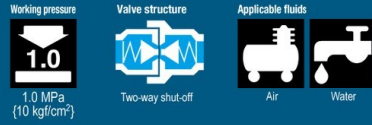


For Multi-Port Connection (Manual)

# MULTI CUPLA

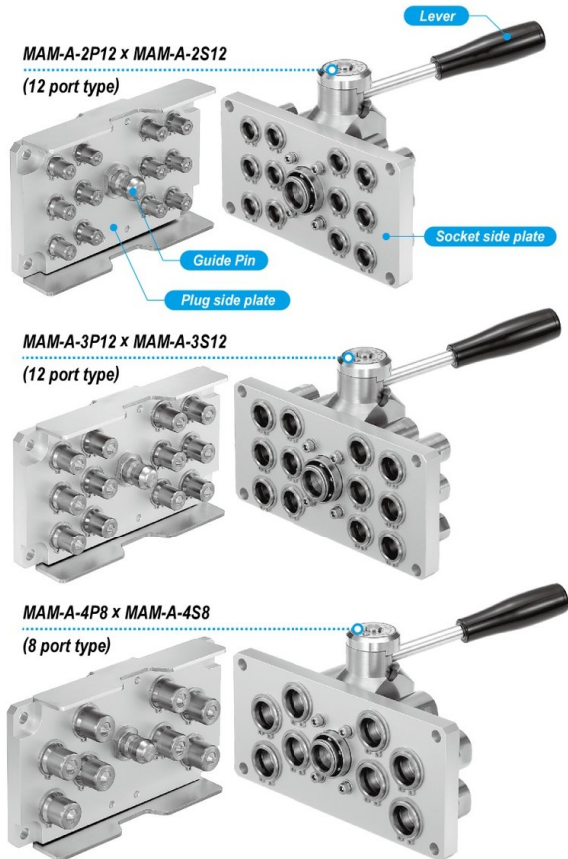
## MAM-A Type

Multiple port system



Simultaneously connects several ports securely in one operation!  
Greatly reduces changeover time in multiple ports replacement.

- Handles several ports at once.
- Simple manual lever action completes easy connection / disconnection.
- Two-stage lever operation prevents CUPLA from accidental dropping due to sudden detachment.
- Comes with lock mechanism to prevent accidental disconnection.
- Large flow equivalent to that of SP CUPLA Type A.
- Two kinds of plates are available for each size.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.
- Self-aligned valve design provides safety sealing of individual socket or plug when disconnected.



Specifications							
Model	Plug	MAM-A-2P6	MAM-A-2P12	MAM-A-3P6	MAM-A-3P12	MAM-A-4P4	MAM-A-4P8
	Socket	MAM-A-2S6	MAM-A-2S12	MAM-A-3S6	MAM-A-3S12	MAM-A-4S4	MAM-A-4S8
Number of ports		6	12	6	12	4	8
Size (Thread)		1/4"		3/8"		1/2"	
Body material		CUPLA: Brass (Nickel plated) Plate: Aluminum alloy Locking unit: Steel (Nickel plated)					
Pressure unit		MPa	kgf/cm <sup>2</sup>	bar	PSI		
Working pressure		1.0	10	10	145		
Ambient temperature range		0°C to +60°C					
Seal material		Fluoro rubber	FKM (X-100)		Working temperature range	-20°C to +180°C	
Working temperature range		Standard material					

Maximum Tightening Torque		Nm [kgf·cm]		
Size (Thread)		1/4"	3/8"	1/2"
Torque		9 {92}	12 {122}	30 {306}

**Interchangeability**  
No connection is possible between plates with different number of ports or different size.

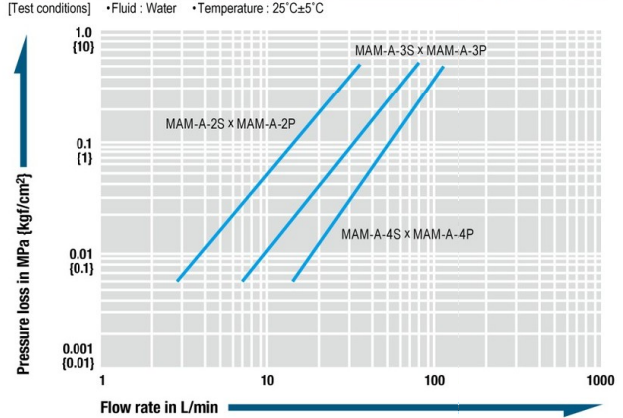
Minimum Cross-Sectional Area per Port (mm <sup>2</sup> )			
Model	2SP type	3SP type	4SP type
Minimum cross-sectional area	26	51	73

Suitability for Vacuum			1.3 x 10 <sup>-1</sup> Pa [1 x 10 <sup>-3</sup> mmHg]
Socket only	Plug only	When connected	
—	—	Operational	

Admixture of Air on Connection per Port <small>May vary depending upon the usage conditions.</small> (mL)			
Model	2SP type	3SP type	4SP type
Volume of air	1.1	2.7	3.9

Volume of Spillage on Disconnection per Port <small>May vary depending upon the usage conditions.</small> (mL)			
Model	2SP type	3SP type	4SP type
Volume of spillage	0.8	2.1	3.4

**Flow Rate - Pressure Loss Characteristics** Per port of CUPLA













For Multi-Port Connection (Automatic)

# MULTI CUPLA

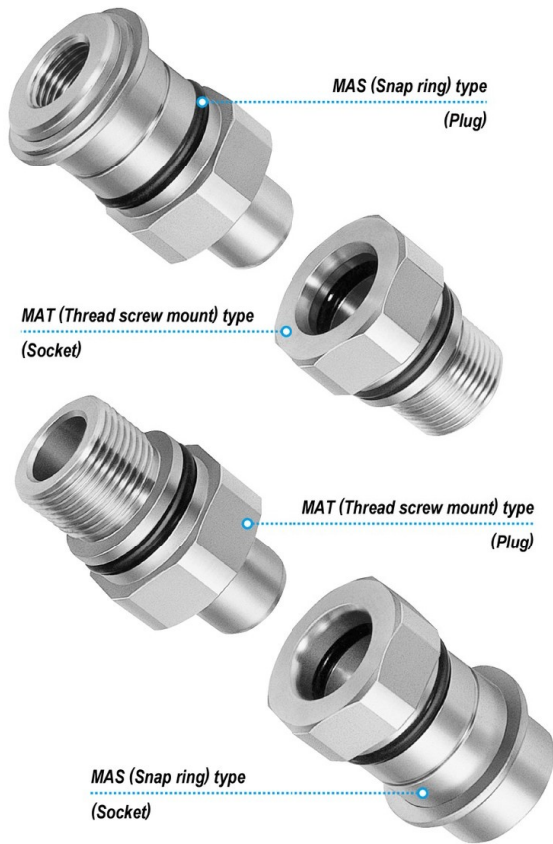
## MAS Type / MAT Type

7.0 MPa {71 kgf/cm<sup>2</sup>} general purpose type

<p>Working pressure</p> <p>7.0 MPa {71 kgf/cm<sup>2</sup>}</p>	<p>Valve structure</p> <p>Two-way shut-off</p>	<p>Applicable fluids</p> <p>Air Water Hydraulic oil</p>
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### Connects multiple lines simultaneously with a single operation for different fluids and sizes.

- Ideal for automated hydraulic or pneumatic cylinder operated systems that need to connect and disconnect several lines simultaneously.
  - Automatic shut-off valves in both sockets and plugs ensure no outflow of fluid on disconnection.
  - Body materials other than stainless steel are available, which can be ordered with or without valves (made-to-order products).
  - Snap ring and screw thread-in types to mount on the base plate are standardized.
  - MAS type can accept axial eccentricity between socket and plug. The allowance of eccentricity is within the radius range of 0.3 mm.
- \* CUPLA connection or disconnection with fluid under dynamic pressure cannot be made.



Specifications				
Body material	Stainless steel (Nickel plated)			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	7.0	71	70	1020
Seal material	Sealing material	Mark		Working temperature range
Working temperature range	Fluoro rubber	FKM (X-100)		-20°C to +180°C

Maximum Tightening Torque					Nm (kgf·cm)
Size (Thread)	1/4"	3/8"	1/2"	3/4"	1"
Torque (MAS type)	14 {143}	22 {224}	60 {612}	90 {918}	120 {1224}
Size (Thread)	M20	M24	M30	M39	M45
Torque (MAT type)	50 {510}	50 {510}	50 {510}	70 {714}	80 {816}

- #### Interchangeability
- MAS & MAT or MAS & MAS types of the same size are to be connected.
  - Connection between the same MAT types is virtually not possible because there is no allowance for eccentricity.

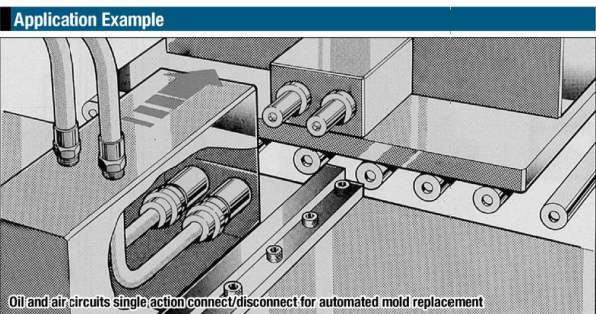
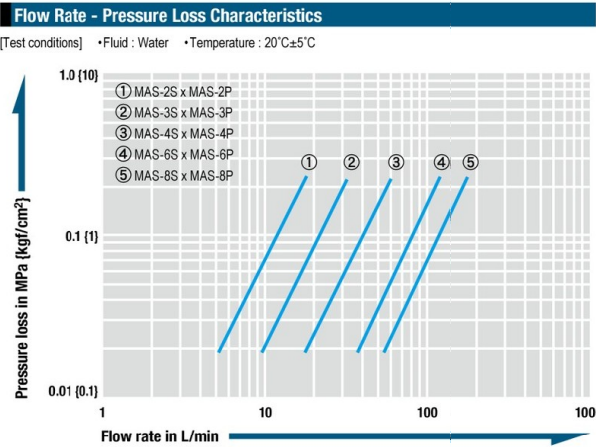
Minimum Cross-Sectional Area					(mm <sup>2</sup> )
Model	2SP	3SP	4SP	6SP	8SP
Min. cross-sectional area	23	41	76	145	224

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

Admixture of Air on Connection					May vary depending upon the usage conditions.	(mL)
Model	2SP	3SP	4SP	6SP	8SP	
Volume of air	1.1	2.4	3.2	10.5	17.0	

Load Required to Maintain Connection When Line Is Pressurized					
Model	2SP	3SP	4SP	6SP	8SP
Maximum acceptable load N (kgf)	3200 {327}	5200 {531}	9200 {939}	13900 {1419}	20200 {2062}
Minimum load required to maintain connection N (kgf) *	Px185+45 {p×1.85+4.5}	Px310+70 {p×3.1+7}	Px545+85 {p×5.45+8.5}	Px850+95 {p×8.5+9.5}	Px1225+120 {p×12.25+12}

\* Assign the actual value of pressure [P (MPa), p (kgf/cm<sup>2</sup>)] to the above formula to calculate the load. Maintain the connection with the minimum load or more, but not more than the maximum acceptable load.

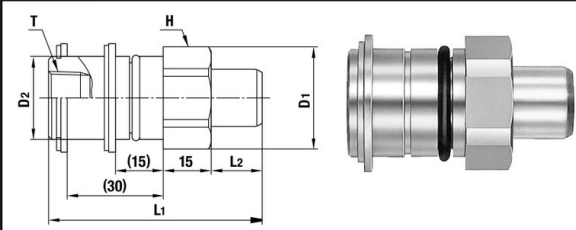


MULTI CUPLA MAS Type / MAT Type

WAF : WAF stands for width across flats.

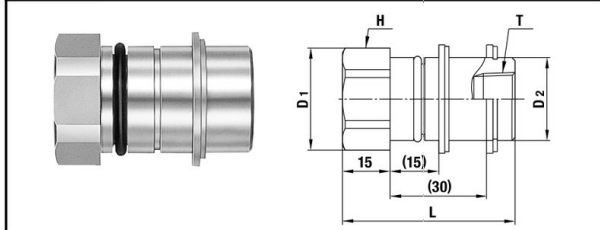
Models and Dimensions

Plug MAS type (With snap ring)



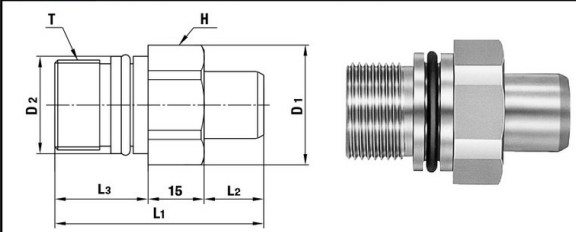
Model	Application (Thread)	Mass (g)	Dimensions (mm)					
			L1	L2	øD1	øD2	H(WAF)	T
MAS-2P	R 1/4	150	65	14	28	21.9	Hex.26	Rc 1/4
MAS-3P	R 3/8	203	67	16	35	25.9	Hex.32	Rc 3/8
MAS-4P	R 1/2	412	73	20	44	35.9	Hex.41	Rc 1/2
MAS-6P	R 3/4	579	76.5	23.5	50	41.9	Hex.46	Rc 3/4
MAS-8P	R 1	720	78	24	58	47.9	Hex.54	Rc 1

Socket MAS type (With snap ring)



Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	øD1	øD2	H(WAF)	T
MAS-2S	R 1/4	126	51.5	28	21.9	Hex.26	Rc 1/4
MAS-3S	R 3/8	171	55	35	25.9	Hex.32	Rc 3/8
MAS-4S	R 1/2	406	65	44	35.9	Hex.41	Rc 1/2
MAS-6S	R 3/4	604	76	50	41.9	Hex.46	Rc 3/4
MAS-8S	R 1	825	87	58	47.9	Hex.54	Rc 1

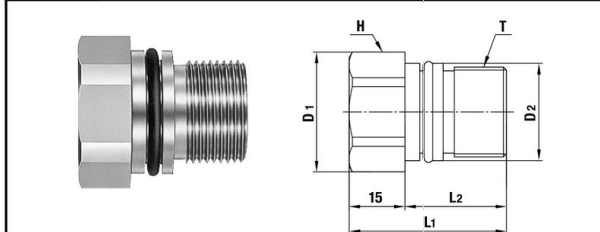
Plug MAT type (Thread screw mount)



Model	Application (Thread)	Mass (g)	Dimensions (mm)						
			L1	L2	L3	øD1	øD2	H(WAF)	T
MAT-2P	See drawings below.	121	53	14	(24)	28	21.9	Hex.26	M20 x 1.5
MAT-3P		164	56	16	(25)	32	25.9	Hex.29	M24 x 1.5
MAT-4P		332	67	20	(32)	44	35.9	Hex.41	M30 x 2
MAT-6P		453	73	23.5	(34.5)	50	41.9	Hex.46	M39 x 2
MAT-8P		571	76	24	(37)	54	47.9	Hex.50	M45 x 2

\* MAT type must be coupled with MAS type.

Socket MAT type (Thread screw mount)



Model	Application (Thread)	Mass (g)	Dimensions (mm)					
			L1	L2	øD1	øD2	H(WAF)	T
MAT-2S	See drawings below.	95	39	(24)	28	21.9	Hex.26	M20 x 1.5
MAT-3S		124	42	(27)	32	25.9	Hex.29	M24 x 1.5
MAT-4S		246	48	(33)	44	35.9	Hex.41	M30 x 2
MAT-6S		382	58	(43)	50	41.9	Hex.46	M39 x 2
MAT-8S		506	66	(51)	54	47.9	Hex.50	M45 x 2

Dimensions of End Configurations

**MAS Type**

Model	Dimensions (mm)	
	øD	
MAS-2S / MAS-2P	23	
MAS-3S / MAS-3P	27	
MAS-4S / MAS-4P	37	
MAS-6S / MAS-6P	43	
MAS-8S / MAS-8P	49	

**MAT Type**

Model	Dimensions (mm)				
	øA	G	F		T
			Plug	Socket	
MAT-2S / MAT-2P	22 <sup>+0.06</sup> / <sub>0</sub>	13	25		M20 x 1.5
MAT-3S / MAT-3P	26 <sup>+0.06</sup> / <sub>0</sub>	13	26	28	M24 x 1.5
MAT-4S / MAT-4P	36 <sup>+0.06</sup> / <sub>0</sub>	16	34	35	M30 x 2
MAT-6S / MAT-6P	42 <sup>+0.08</sup> / <sub>0</sub>	17	36.5	45	M39 x 2
MAT-8S / MAT-8P	48 <sup>+0.08</sup> / <sub>0</sub>	17	39	53	M45 x 2

Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.



**For Multi-Port Connection (Automatic)**

# MULTI CUPLA

## MALC-01 Type for Low Pressure Use

One-way shut-off type for Low pressure use

Working pressure: **1.0** (1.0 MPa, 10 kgf/cm<sup>2</sup>)

Valve structure: One-way shut-off

Applicable fluids: Air, Water

**Solo use of socket is possible.**  
**Suitable for operation of ejector pins to open / close valve gates in molding.**

- Solo use of socket is possible.
- As in the case of MULTI CUPLA MALC-SP type and MALC-HSP type, the distance between the socket plate and the plug plate is designed to be 30 mm when connected. This means the MULTI CUPLA MALC-01 type can also be installed mixed with any size of MALC-SP type and MALC-HSP type on the same plate.
- An axial eccentricity allowance of 2 mm eliminates precise centering at installation.
- Compact size with " thread screw mount " and "with flange" types available.



Specifications				
Body material	Socket: Brass (Nickel plated) Plug: Brass (Nickel plated)			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	1.0	10	10	145
Seal material	Nitrile rubber		Mark	Working temperature range
Working temperature range			NBR (SG)	-20°C to +80°C

Maximum Tightening Torque		Nm {kgf·cm}
Thread screw mount	15 {153}	
Flange	1.5 {15}	

**Interchangeability**

- Sockets and plugs can be connected regardless of end configurations.
- Not interchangeable with MALC-SP Type (for medium pressure use) MALC-1SP or MALC-HSP Type (for high pressure use) MALC-1HSP.

Minimum Cross-Sectional Area		(mm <sup>2</sup> )
Minimum cross-sectional area	28	

**Suitability for Vacuum**  
 Not suitable for vacuum application in either connected or disconnected condition.

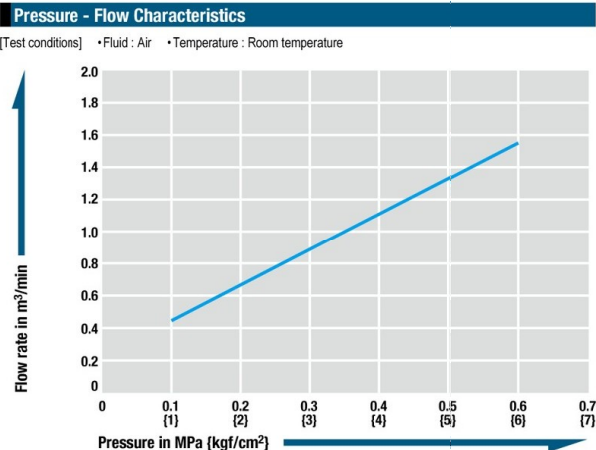
**Load Required to Maintain Connection When Line Is Pressurized**

$$F = (P \times 160) + 50 \{ f = p \times 1.6 + 5 \}$$

Minimum load required to maintain connection F [N] {f [kgf]}

Actual value of pressure P [MPa] {p [kgf/cm<sup>2</sup>]}

Assign the actual value of pressure [P (MPa), p (kgf/cm<sup>2</sup>)] to the above formula. Maintain the connection with this load [F (N), f (kgf)] or more. However, the maximum acceptable load is 500 N [51 kgf].



**Acceptable distance between plates**

Socket and plug or plate must be used in contact with each other. Maximum 0.5 mm distance between socket and plug or plate is acceptable.