

For Multi-Port Connection (Automatic)

# Multi Cupla MAS Type / MAT Type

7.0 MPa (71 kgf/cm<sup>2</sup>) general purpose type

Working pressure



7.0 MPa  
(71 kgf/cm<sup>2</sup>)

Valve structure



Two-way shut-off

Applicable fluids



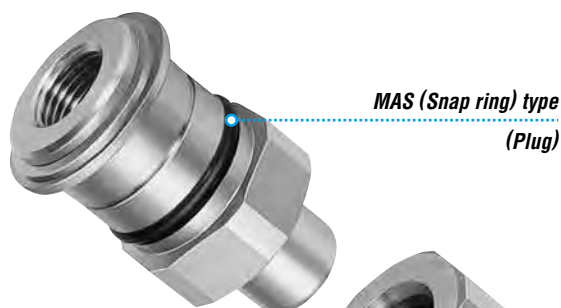
Air

Water

Hydraulic oil

## Connects multiple lines simultaneously with a single operation for different fluids and sizes.

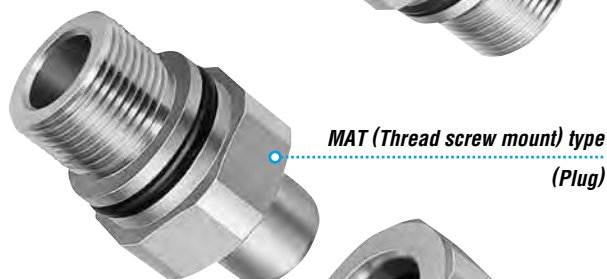
- Ideal for automated hydraulic or pneumatic cylinder operated systems that need to connect and disconnect several lines simultaneously.
- Automatic shut-off valves in both sockets and plugs ensure no outflow of fluid on disconnection.
- Body materials other than stainless steel are available, which 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 0.3mm.
- \* Cupla connection or disconnection with fluid under dynamic pressure cannot be made.



MAS (Snap ring) type  
(Plug)



MAT (Thread screw mount) type  
(Socket)



MAT (Thread screw mount) type  
(Plug)

MAS (Snap ring) type  
(Socket)

### 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

### Max. Tightening Torque

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.

### Min. Cross-Sectional Area

Model	2SP	3SP	4SP	6SP	8SP
Min. cross-sectional area	23	41	76	145	224

### Suitability for Vacuum

Socket only	Plug only	When connected
—	—	Operational

### Admixture of Air on Connection

Model	2SP	3SP	4SP	6SP	8SP
Volume of air	1.1	2.4	3.2	10.5	17.0

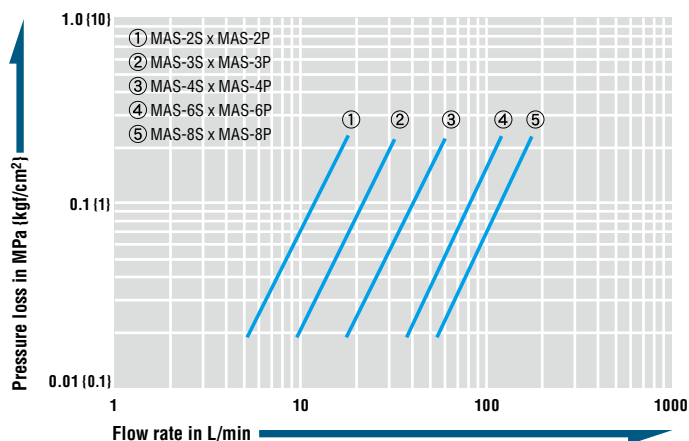
### Load Required to Maintain Connection When Line Is Pressurized

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 (px1.85+4.5)	Px310+70 (px3.1+7)	Px545+85 (px5.45+8.5)	Px850+95 (px8.5+9.5)	Px1225+120 (px12.25+12)

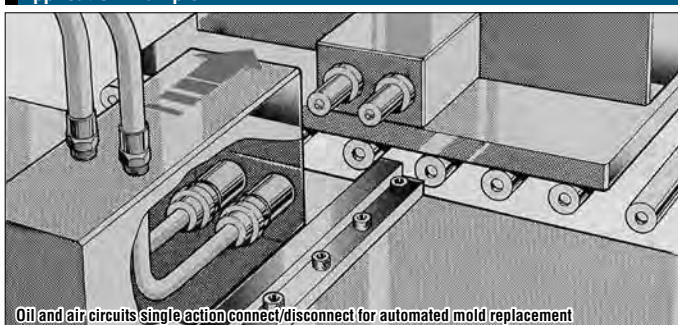
\* Assign the actual value of pressure [P (MPa), p (kgf/cm<sup>2</sup>)] to the above formula to calculate the load. Maintain the connection with the minimum load or more, but not more than the maximum acceptable load.

### Flow Rate - Pressure Loss Characteristics

[Test conditions] • Fluid : Water • Temperature : 20°C ± 5°C



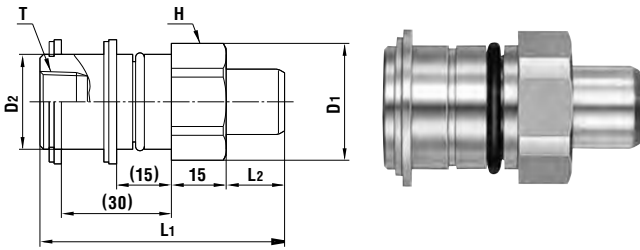
### Application Example



Oil and air circuits single action connect/disconnect for automated mold replacement

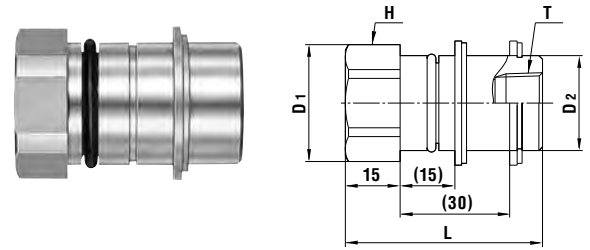
Models and Dimensions

**Plug MAS type (With snap ring)**



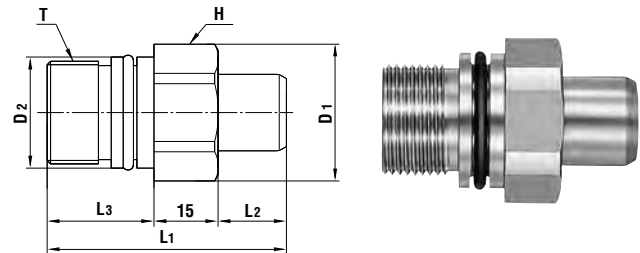
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	∅D1	∅D2	H(WAF)	T
MAS-2P	R 1/4	150	65	14	28	21.9	Hex.26	Rc 1/4
MAS-3P	R 3/8	203	67	16	35	25.9	Hex.32	Rc 3/8
MAS-4P	R 1/2	412	73	20	44	35.9	Hex.41	Rc 1/2
MAS-6P	R 3/4	579	76.5	23.5	50	41.9	Hex.46	Rc 3/4
MAS-8P	R 1	720	78	24	58	47.9	Hex.54	Rc 1

**Socket MAS type (With snap ring)**



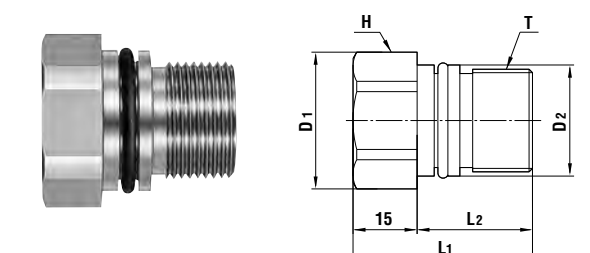
Model	Application	Mass (g)	Dimensions (mm)				
			L	∅D1	∅D2	H(WAF)	T
MAS-2S	R 1/4	126	51.5	28	21.9	Hex.26	Rc 1/4
MAS-3S	R 3/8	171	55	35	25.9	Hex.32	Rc 3/8
MAS-4S	R 1/2	406	65	44	35.9	Hex.41	Rc 1/2
MAS-6S	R 3/4	604	76	50	41.9	Hex.46	Rc 3/4
MAS-8S	R 1	825	87	58	47.9	Hex.54	Rc 1

**Plug MAT type (Thread screw mount)**



Model	Application	Mass (g)	Dimensions (mm)						
			L1	L2	L3	∅D1	∅D2	H(WAF)	T
MAT-2P	See drawings below.	121	53	14	(24)	28	21.9	Hex.26	M20x1.5
MAT-3P		164	56	16	(25)	32	25.9	Hex.29	M24x1.5
MAT-4P		332	67	20	(32)	44	35.9	Hex.41	M30x2
MAT-6P		453	73	23.5	(34.5)	50	41.9	Hex.46	M39x2
MAT-8P		571	76	24	(37)	54	47.9	Hex.50	M45x2

**Socket MAT type (Thread screw mount)**



Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	∅D1	∅D2	H(WAF)	T
MAT-2S	See drawings below.	95	39	(24)	28	21.9	Hex.26	M20x1.5
MAT-3S		124	42	(27)	32	25.9	Hex.29	M24x1.5
MAT-4S		246	48	(33)	44	35.9	Hex.41	M30x2
MAT-6S		382	58	(43)	50	41.9	Hex.46	M39x2
MAT-8S		506	66	(51)	54	47.9	Hex.50	M45x2

• MAT type must be coupled with MAS type.

Dimensions of End Configurations

**MAS Type**

Mount MAS tail end from this side →

Model	Dimensions (mm)	
	∅D	T
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)				
	∅A	G	F	T	
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>+0.08</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