For Multi-Port Connection (Automatic)

Multi Cupla

MAS Type / MAT Type

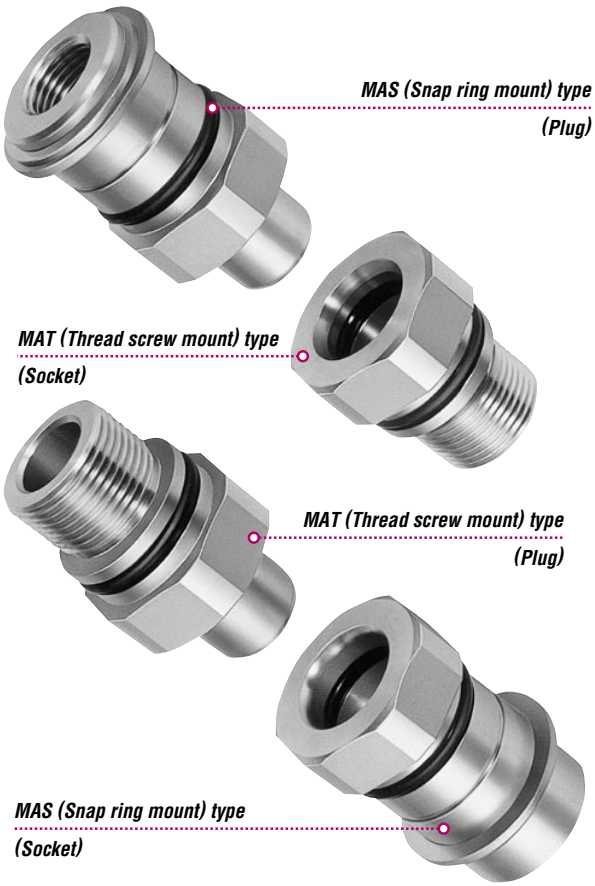
7.0MPa {71kgf/cm²} general purpose type

Working pressure: 7.0 MPa {71 kgf/cm²}
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 with fluid under dynamic pressure cannot be made.



Specifications

Body material	Stainless steel (Autocatalytic nickel-phosphorus coating)		
Size	1/4" • 3/8" • 1/2" • 3/4" • 1", M20 • M24 • M30 • M39 • M45		
Working pressure MPa {kgf/cm²}	7.0 {71}		
Pressure resistance MPa {kgf/cm²}	10.0 {102}		
Sealing material / Working temperature range	Sealing material	Mark	Working temperature range
	Fluoro rubber	FKM (X-100)	−20°C~+180°C

Max. Tightening Torque N•m {kgf•cm}

Size	1/4"	3/8"	1/2"	3/4"	1"
Torque (MAS type)	14 {143}	22 {224}	60 {612}	90 {918}	120 {1224}

Size	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 (mm²)

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

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

Socket only	Plug only	When connected
—	—	Operational

Admixture of Air on Connection (mℓ)

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

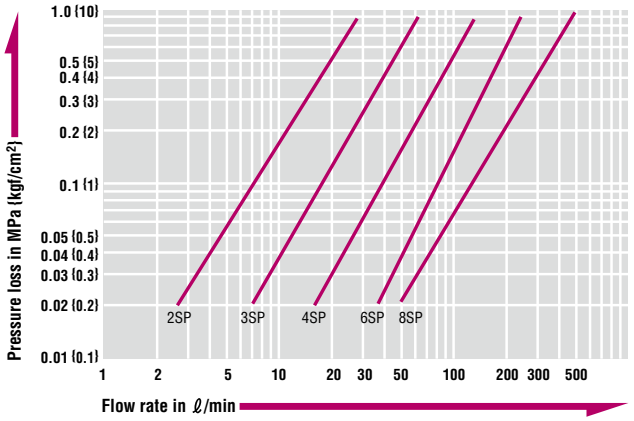
Load Required to Maintain Connection When Line Is Pressurized

Model	2SP	3SP	4SP	6SP	8SP
Maximum acceptable load N {kgf}	3200 {327}	5200 {531}	9000 {919}	13900 {1419}	20200 {2062}
Minimum load required to maintain connection N {kgf} *	P×185+45 {p×1.85+4.5}	P×310+70 {p×3.1+7}	P×545+75 {p×5.45+7.5}	P×850+95 {p×8.5+9.5}	P×1225+120 {p×12.25+12}

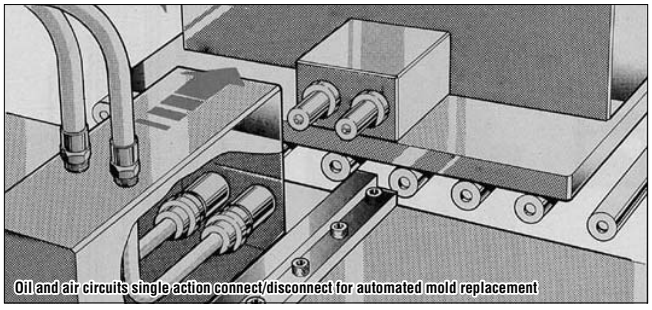
* Assign the actual value of pressure [P(MP), p(kgf/cm²)] to the above formula to calculate the load. Maintain the connection with the minimum load or more, but not more than the maximum acceptable load.

Flow Rate - Pressure Loss Characteristics

[Test conditions] •Fluid : Hydraulic oil •Temperature : 30°C ± 5°C
•Fluid viscosity : 32 x 10⁻⁶m²/s •Density : 0.87 x 10³kg/m³



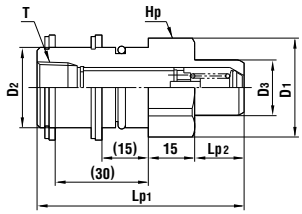
Application Example


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

Models and Dimensions

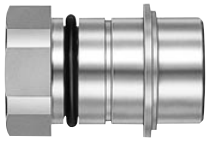
WAF : WAF stands for width across flat.

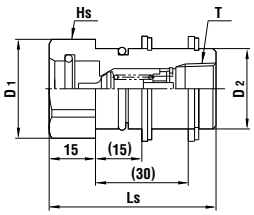
Plug MAS type (Snap ring mount type)



Model	Application	Mass (g)	Dimensions (mm)						
			Lp_1	Lp_2	$øD_1$	$øD_2$	$øD_3$	Hp(WAF)	T
MAS-2P	R 1/4	150	65	14	28	21.9	14	Hex.26	Rc 1/4
MAS-3P	R 3/8	203	67	16	35	25.9	18	Hex.32	Rc 3/8
MAS-4P	R 1/2	412	73	20	44	35.9	24	Hex.41	Rc 1/2
MAS-6P	R 3/4	579	76.5	23.5	50	41.9	30	Hex.46	Rc 3/4
MAS-8P	R 1	720	78	24	58	47.9	36	Hex.54	Rc 1

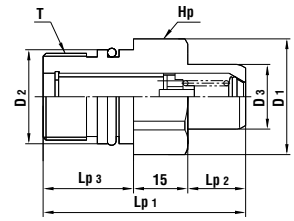
Socket MAS type (Snap ring mount type)

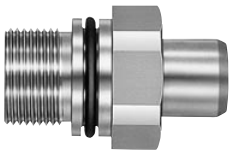




Model	Application	Mass (g)	Dimensions (mm)				
			Ls	$øD_1$	$øD_2$	Hp(WAF)	T
MAS-2S	R 1/4	126	51.5	28	21.9	Hex.26	Rc 1/4
MAS-3S	R 3/8	171	55	35	25.9	Hex.32	Rc 3/8
MAS-4S	R 1/2	406	65	44	35.9	Hex.41	Rc 1/2
MAS-6S	R 3/4	604	76	50	41.9	Hex.46	Rc 3/4
MAS-8S	R 1	825	87	58	47.9	Hex.54	Rc 1

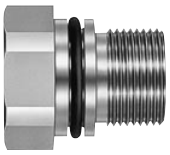
Plug MAT type (Thread screw mount type)

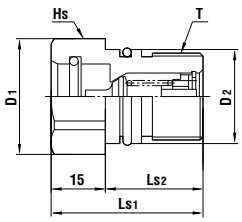




Model	Application	Mass (g)	Dimensions (mm)							
			Lp_1	Lp_2	Lp_3	$øD_1$	$øD_2$	$øD_3$	Hp(WAF)	T
MAT-2P	See the diagram below.	121	53	14	(24)	28	21.9	14	Hex.26	M20x1.5
MAT-3P		164	56	16	(25)	32	25.9	18	Hex.29	M24x1.5
MAT-4P		332	67	20	(32)	44	35.9	24	Hex.41	M30x2
MAT-6P		453	73	23.5	(34.5)	50	41.9	30	Hex.46	M39x2
MAT-8P		571	76	24	(37)	54	47.9	36	Hex.50	M45x2

Socket MAT type (Thread screw mount type)

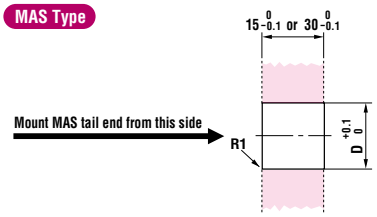




Model	Application	Mass (g)	Dimensions (mm)					
			Ls_1	Ls_2	$øD_1$	$øD_2$	Hp(WAF)	T
MAT-2S	See the diagram below.	95	39	(24)	28	21.9	Hex.26	M20x1.5
MAT-3S		124	42	(27)	32	25.9	Hex.29	M24x1.5
MAT-4S		246	48	(33)	44	35.9	Hex.41	M30x2
MAT-6S		382	58	(43)	50	41.9	Hex.46	M39x2
MAT-8S		506	66	(51)	54	47.9	Hex.50	M45x2

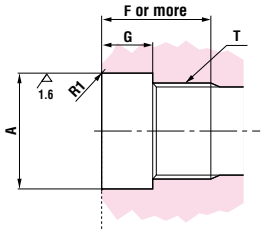
Tail End Configuration

MAS Type



Size	Diameter (mm)
	øD
1/4"	23
3/8"	27
1/2"	37
3/4"	43
1"	49

MAT Type



Size	Dimensions (mm)				
	øA	G	F		T
			Pulg	Socket	
1/4"	+0.06 0	13	25	25	M20 x 1.5
3/8"		13	26	28	M24 x 1.5
1/2"	+0.08 0	16	34	35	M30 x 2
3/4"		17	36.5	45	M39 x 2
1"		17	39	50	M45 x 2

14.0MPa {142kgf/cm²} Airless Type

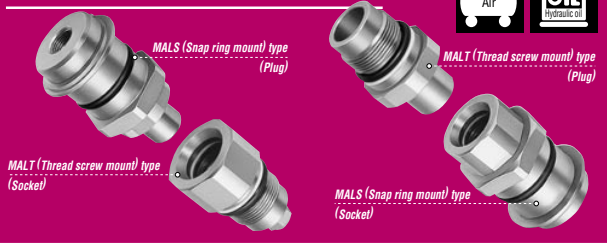
Multi Cupla

MALS Type / MALT Type

Working pressure 14.0MPa {142kgf/cm²}

Valve structure Two-way shut-off

Applicable fluids Air, Hydraulic oil



Minimal air admixture during Cupla connection

- Special valve structure allows minimal air admixture in fluid lines during Cupla connection.
- Liquid bleeding on Cuplas disconnection is very little, which makes it best for frequent connection/ disconnection applications.
- Snap ring and thread screw mount types to mount on the base plate are standard.
- MALS type can accept axial eccentricity of socket and plug, or allow a plate hole position tolerance of ±0.3mm because of the O-ring around the body.

Specifications

Body material	Steel (Autocatalytic nickel-phosphorus coating)		
Size	1/4" • 3/8" • 1/2" • 3/4"		
Working pressure MPa {kgf/cm²}	14.0 {142}		
Pressure resistance MPa {kgf/cm²}	20.6 {210}		
Sealing material Working temperature range	Sealing material	Mark	Working temperature range
	Fluoro rubber	FKM (X-100)	−20°C~+180°C

Please check with us for details on these products.

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