




For Multi-Port Connection (Automatic)

Multi Cupla

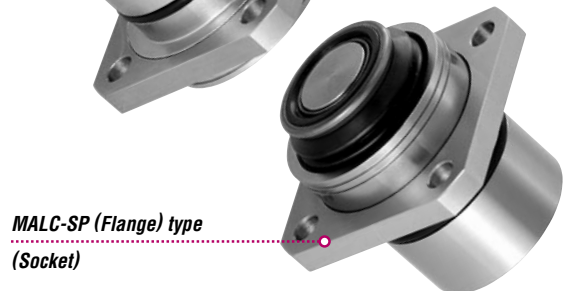
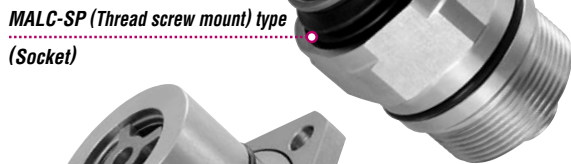
MALC-SP Type for Medium Pressure Use

Airless type for medium pressure use

<p>Working pressure</p>  <p>5.0 MPa (51 kgf/cm²)</p>	<p>Valve structure</p>  <p>Two-way shut-off (Non-Spill)</p>	<p>Applicable fluids</p>  <p>Water Hydraulic oil Air</p>
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A single operation makes simultaneous connections for multiple lines that have a variety of different fluids and sizes. A special design minimizes air admixture in fluid lines upon connection.

- Compared with conventional Multi Cuplas, approximately double flow rates are realized. This could reduce the size of required plates. (Rate of flow increase depends on Cupla sizes.)
- The MALC type realizes a 2mm axial eccentricity allowance, while the conventional Multi Cupla is only 0.6mm.
- Special valve design enables connection of socket and plug under dynamic pressure of up to 2MPa.
- When connected, the distance between the socket plate and the plug plate is designed to be 30mm for all sizes. This means that any size of Cupla can be mounted and used on the same plate.
- Airless structure valves prevent outflow of fluid and admixture of air into the fluid line.



Specifications			
Body material	Socket body: Stainless steel (Autocatalytic nickel-phosphorus coating)		
Working pressure MPa (kgf/cm ²)	5.0 (51) (Either socket or plug only: 2.0 (21))		
Pressure resistance MPa (kgf/cm ²)	7.5 (76.5) (Either socket or plug only: 3.0 (31))		
Sealing material	Sealing material	Mark	Working temperature range
Working temperature range	Fluoro rubber	FKM (X-100)	-20°C~+180°C

Max. Tightening Torque				N·m (kgf·cm)			
Model	2SP	3SP	4SP	6SP	2SP	3SP	4SP
Torque (Thread screw mount)	30 (306)	35 (357)	45 (460)	60 (612)			
Torque (Flange)	7 (71.5)						

Interchangeability
Socket and plug in the same size can be connected regardless of their end configurations.

Min. Cross-Sectional Area				(mm ²)			
Model	2SP	3SP	4SP	6SP	2SP	3SP	4SP
Min. cross-sectional area	49.5	87	153	227			

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

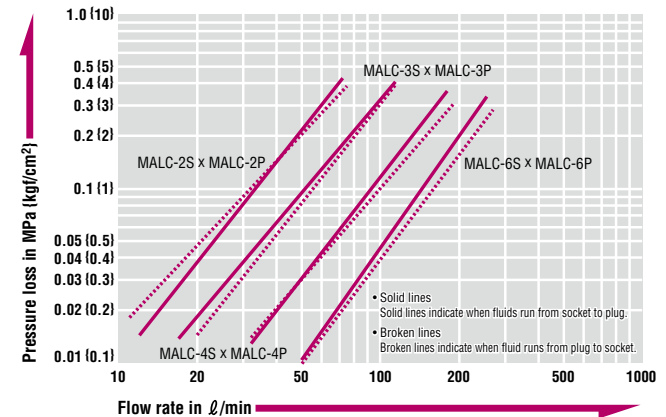
Admixture of Air on Connection				(mℓ)			
Model	2SP	3SP	4SP	6SP	2SP	3SP	4SP
Volume of air	0.13	0.13	0.17	0.17			

Load Required to Maintain Connection When Line Is Pressurized				
Model	2SP	3SP	4SP	6SP
Maximum acceptable load N (kgf)	4500 (459)	5600 (571)	10000 (1019)	14000 (1427)
Minimum load required to maintain connection N (kgf) *	Px345+180 (px3.45+18)	Px460+190 (px4.6+19)	Px855+260 (px8.55+26)	Px1160+260 (px11.6+26)

* Assign the actual value of pressure [P(MPa), 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.

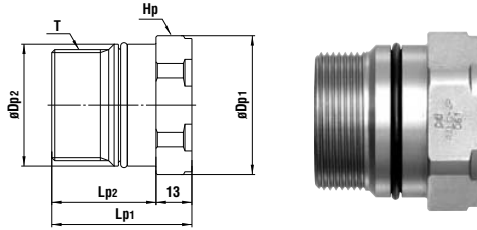
Flow Rate - Pressure Loss Characteristics

[Test conditions] • Fluid : Hydraulic oil • Temperature : 30°C ± 5°C
• Fluid viscosity : 32 × 10⁻⁶m²/s • Density : 0.8659 × 10³kg/m³



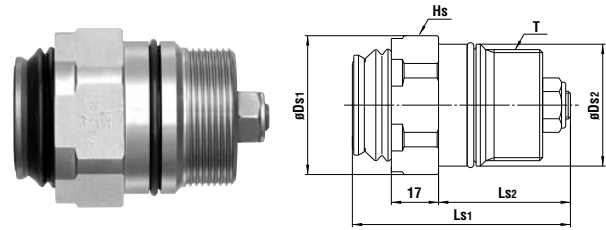
Models and Dimensions

Plug MALC-SP type (Thread screw mount)



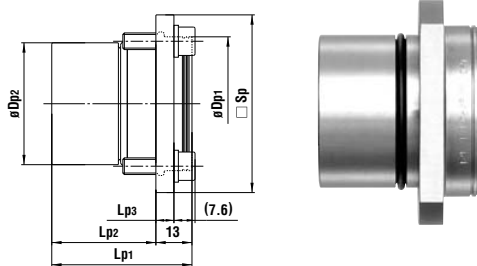
Model	Application	Mass (g)	Dimensions (mm)					
			$Lp1$	$Lp2$	$\sigma Dp1$	$\sigma Dp2$	Hp(WAF)	T
MALC-2P	See the diagram below.	75	33	(20)	28	22.9	Hex.26	M20 x 1.5
MALC-3P		95	33	(20)	32	26.5	Hex.29	M24 x 1.5
MALC-4P		248	41	(28)	45	38.4	Hex.41	M35 x 1.5
MALC-6P		369	50.5	(37.5)	50	43.9	Hex.46	M40 x 2

Socket MALC-SP type (Thread screw mount)



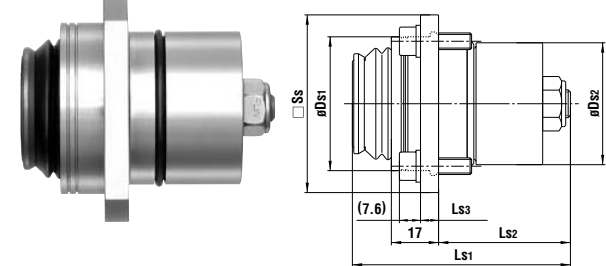
Model	Application	Mass (g)	Dimensions (mm)					
			$Ls1$	$Ls2$	$\sigma Ds1$	$\sigma Ds2$	Hs(WAF)	T
MALC-2S	See the diagram below.	95	(49)	(26)	28	22.9	Hex.26	M20 x 1.5
MALC-3S		120	(51)	(26)	32	26.5	Hex.29	M24 x 1.5
MALC-4S		306	(64)	(36.5)	45	38.4	Hex.41	M35 x 1.5
MALC-6S		471	(78.5)	(47.5)	50	43.9	Hex.46	M40 x 2

Plug MALC-SP type (With flange)



Model	Application	Mass (g)	Dimensions (mm)					
			$Lp1$	$Lp2$	$Lp3$	$\sigma Dp1$	$\sigma Dp2$	Sp
MALC-2P-FL	See the diagram below.	146	30	(17)	6	27.2	22.9	40
MALC-3P-FL		180	33	(20)	6	30.7	26.5	45
MALC-4P-FL		390	41	(28)	6.5	43.2	38.4	58
MALC-6P-FL		553	50.5	(37.5)	6.5	48.2	43.9	64

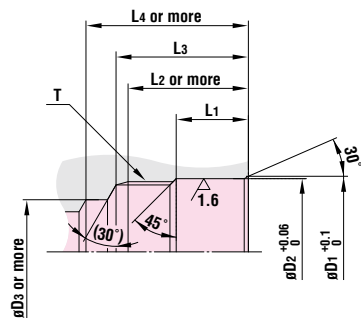
Socket MALC-SP type (With flange)



Model	Application	Mass (g)	Dimensions (mm)					
			$Ls1$	$Ls2$	$Ls3$	$\sigma Ds1$	$\sigma Ds2$	Ss
MALC-2S-FL	See the diagram below.	173	(49)	(26)	6	27.2	22.9	40
MALC-3S-FL		208	(51)	(26)	6	30.7	26.5	45
MALC-4S-FL		449	(64)	(36.5)	6.5	43.2	38.4	58
MALC-6S-FL		663	(78.5)	(47.5)	6.5	48.2	43.9	64

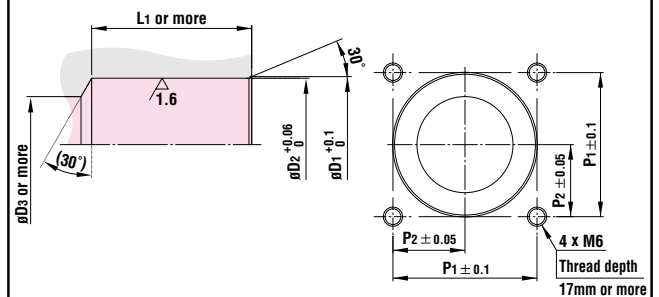
Dimensions of End Configurations

MALC-SP type (Thread screw mount)



Model	Dimensions (mm)							
	$\sigma D1$	$\sigma D2$	$\sigma D3$	$L1$	$L2$	$L3$	$L4$	T
MALC-2S	24	23	16	11.5	22	25	28	M20 x 1.5
MALC-2P								
MALC-3S	27.6	26.6	18	11	22	25	29	M24 x 1.5
MALC-3P								
MALC-4S	39.5	38.5	26	15.5	30	33	40.5	M35 x 1.5
MALC-4P								
MALC-6S	45	44	30	20	40	44	51.5	M40 x 2
MALC-6P								

MALC-SP type (With flange)



Model	Dimensions (mm)					
	$\sigma D1$	$\sigma D2$	$\sigma D3$	$L1$	$P1$	$P2$
MALC-2S-FL	24	23	16	28	28	14
MALC-2P-FL						
MALC-3S-FL	27.6	26.6	18	28	31	15.5
MALC-3P-FL						
MALC-4S-FL	39.5	38.5	26	39	40	20
MALC-4P-FL						
MALC-6S-FL	45	44	30	50	45	22.5
MALC-6P-FL						