

For Multi-Port Connection (Automatic)

Multi Cupla

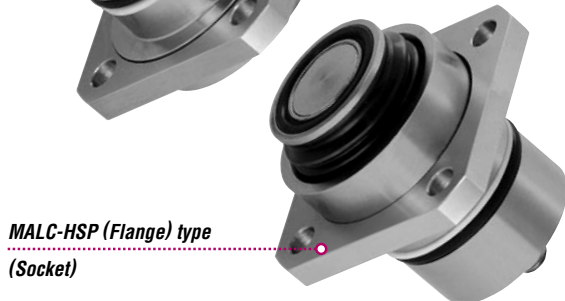
MALC-HSP Type For high pressure use

Airless type for high pressure use

Working pressure 21.0 21.0 MPa (214 kgf/cm ²)	Valve structure Two-way shut-off (Non-Spill)	Applicable fluids Hydraulic oil
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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 8MPa.
- When connected, the distance between the socket plate and plug plate is designed to be 30mm for all sizes. This means 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.
- Autocatalytic Nickel-Phosphorus coating is adopted for surface treatment over special steel body and internal parts. This coating is environment-friendly.



Specifications			
Body material	Special steel (Autocatalytic nickel-phosphorus coating)		
Working pressure MPa (kgf/cm ²)	21.0 {214} (Either socket or plug only: 8.0 {81})		
Pressure resistance MPa (kgf/cm ²)	31.5 {321} (Either socket or plug only: 12.0 {122})		
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	2HSP	3HSP	4HSP	6HSP
Torque (Thread screw mount)	50 {510}	53 {540}	65 {664}	80 {817}
Torque (Flange)	9 {92}			

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

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

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

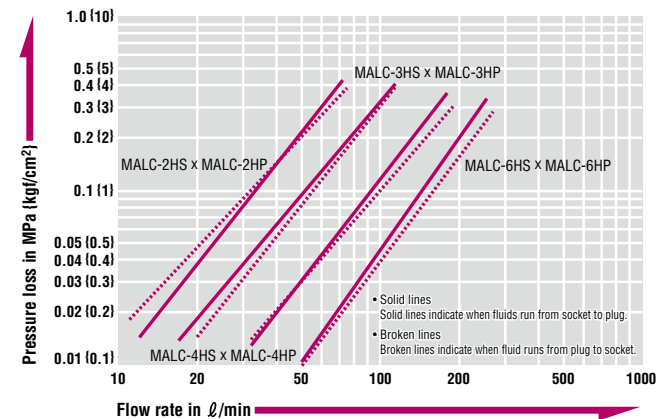
Admixture of Air on Connection				(mℓ)
Model	2HSP	3HSP	4HSP	6HSP
Volume of air	0.13	0.13	0.17	0.17

Load Required to Maintain Connection When Line Is Pressurized				
Model	2HSP	3HSP	4HSP	6HSP
Maximum acceptable load N (kgf)	16500 {1683}	22000 {2244}	40500 {4130}	55000 {5609}
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.

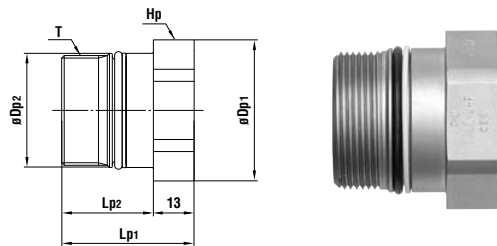
Flow Rate - Pressure Loss Characteristics

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



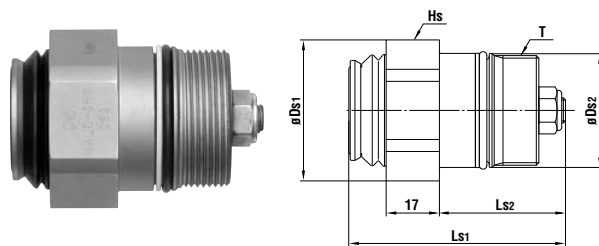
Models and Dimensions

Plug MALC-HSP type (Thread screw mount)



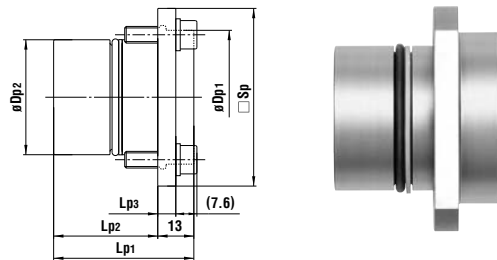
Model	Application	Mass (g)	Dimensions (mm)					
			$Lp1$	$Lp2$	$\phi Dp1$	$\phi Dp2$	Hp(WAF)	T
MALC-2HP	See the diagram below.	73	33	(20)	28	21.9	Hex.26	M20 x 1.5
MALC-3HP		96	33	(20)	32	25.9	Hex.29	M24 x 1.5
MALC-4HP		250	41	(28)	45	36.4	Hex.41	M35 x 1.5
MALC-6HP		357	50.5	(37.5)	50	41.4	Hex.46	M40 x 2

Socket MALC-HSP type (Thread screw mount)



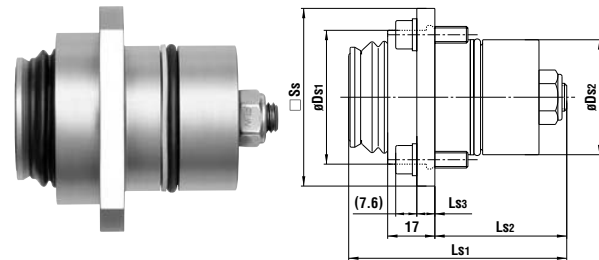
Model	Application	Mass (g)	Dimensions (mm)					
			$Ls1$	$Ls2$	$\phi Ds1$	$\phi Ds2$	Hs(WAF)	T
MALC-2HS	See the diagram below.	89	(49)	(26)	28	21.9	Hex.26	M20 x 1.5
MALC-3HS		117	(51)	(26)	32	25.9	Hex.29	M24 x 1.5
MALC-4HS		290	(64)	(36.5)	45	36.4	Hex.41	M35 x 1.5
MALC-6HS		447	(78.5)	(47.5)	50	41.4	Hex.46	M40 x 2

Plug MALC-HSP type (With flange)



Model	Application	Mass (g)	Dimensions (mm)					
			$Lp1$	$Lp2$	$Lp3$	$\phi Dp1$	$\phi Dp2$	ϕSp
MALC-2HP-FL	See the diagram below.	142	30	(17)	6	27.2	21.9	40
MALC-3HP-FL		179	33	(20)	6	30.7	25.9	45
MALC-4HP-FL		367	41	(28)	6.5	43.2	36.4	58
MALC-6HP-FL		514	50.5	(37.5)	6.5	48.2	41.4	64

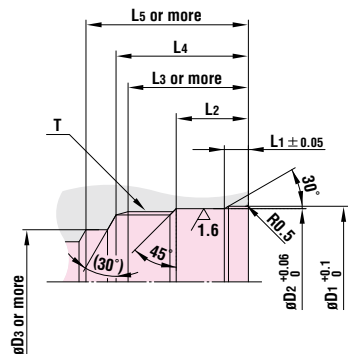
Socket MALC-HSP type (With flange)



Model	Application	Mass (g)	Dimensions (mm)					
			$Ls1$	$Ls2$	$Ls3$	$\phi Ds1$	$\phi Ds2$	ϕSs
MALC-2HS-FL	See the diagram below.	163	(49)	(26)	6	27.2	21.9	40
MALC-3HS-FL		200	(51)	(26)	6	30.7	25.9	45
MALC-4HS-FL		418	(64)	(36.5)	6.5	43.2	36.4	58
MALC-6HS-FL		611	(78.5)	(47.5)	6.5	48.2	41.4	64

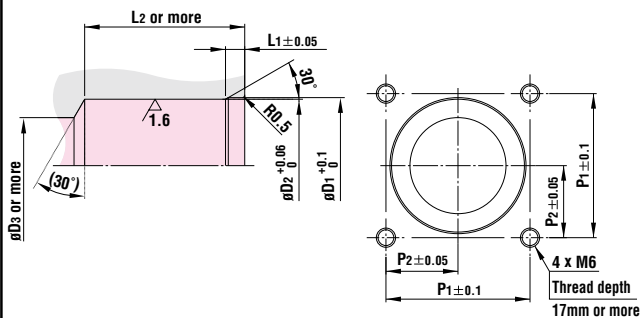
Dimensions of End Configurations

MALC-HSP type (Thread screw mount)



Model	Dimensions (mm)								
	$\phi D1$	$\phi D2$	$\phi D3$	$L1$	$L2$	$L3$	$L4$	$L5$	T
MALC-2HS	23	22	16	2.8	11	22	25	28	M20 x 1.5
MALC-2HP									
MALC-3HS	27.1	26	18	2.8	11	22	25	29	M24 x 1.5
MALC-3HP									
MALC-4HS	37.7	36.5	26	6	18	30	33	40.5	M35 x 1.5
MALC-4HP									
MALC-6HS	42.5	41.5	30	6	23	40	44	51.5	M40 x 2
MALC-6HP									

MALC-HSP type (With flange)



Model	Dimensions (mm)						
	$\phi D1$	$\phi D2$	$\phi D3$	$L1$	$L2$	$P1$	$P2$
MALC-2HS-FL	23	22	16	2.8	28	28	14
MALC-2HP-FL					19		
MALC-3HS-FL	27.1	26	18	2.8	28	31	15.5
MALC-3HP-FL					22		
MALC-4HS-FL	37.7	36.5	26	6	39	40	20
MALC-4HP-FL					30.5		
MALC-6HS-FL	42.5	41.5	30	6	50	45	22.5
MALC-6HP-FL					40		