

For Multi-Port Connection (Automatic)

Multi Cupla

MALC-HSP Type for High Pressure Use

Low spill type for high pressure use

Working pressure



21.0 to 25.0 MPa
(214 to 255 kgf/cm²)

Valve structure



Two-way shut-off

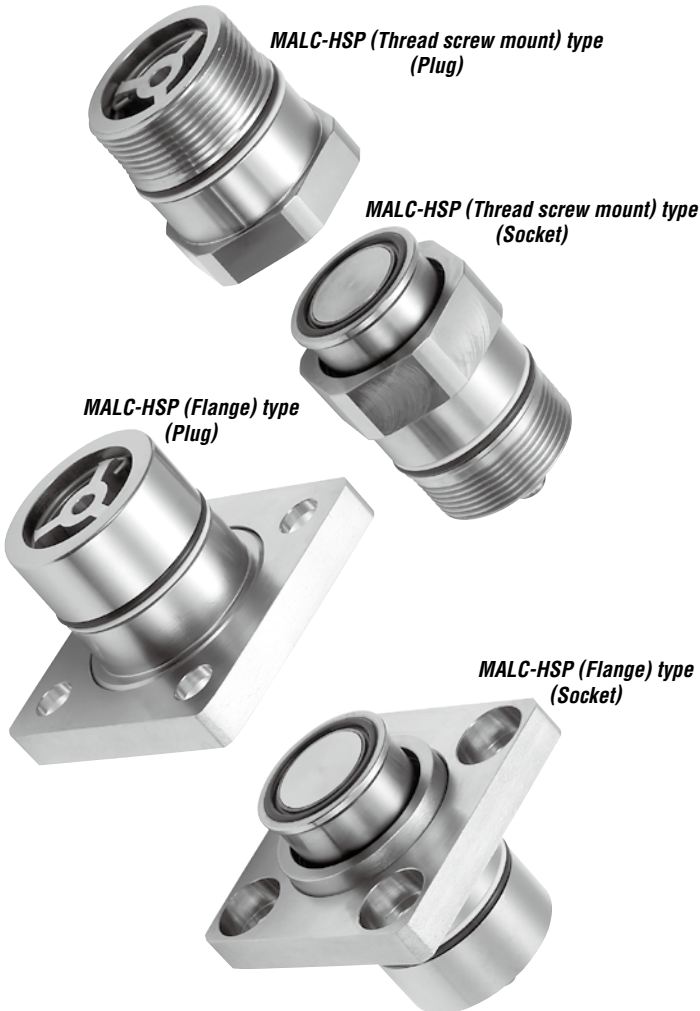
Applicable fluids



Hydraulic oil

A single operation enables simultaneous connections of multiple lines. A special design minimises air admixture in fluid lines upon connection. Suitable for high pressure hydraulic circuits.

- 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 2 mm axial eccentricity allowance, while the conventional Multi Cupla is only 0.6 mm.
- Special valve design enables connection of socket and plug under dynamic pressure of up to 8 MPa.
- When connected, the distance between the socket plate and plug plate is designed to be 30 mm for all sizes. This means any size of Cupla can be mounted and used on the same plate.
- Low spill valves minimize outflow of fluid and admixture of air into the fluid line.



Specifications			
Body material	Special steel (Autocatalytic nickel-phosphorus coating)		
Model	Thread screw mount	MALC-1HSP	MALC-2 to 8HSP
	Flange	—	MALC-2 to 8HSP-FL
Working pressure	MPa	25.0 (Either socket or plug only: 8.0)	21.0 (Either socket or plug only: 8.0)
	kgf/cm ²	255 (Either socket or plug only: 81)	214 (Either socket or plug only: 81)
	bar	250 (Either socket or plug only: 80)	210 (Either socket or plug only: 80)
	PSI	3630 (Either socket or plug only: 1160)	3050 (Either socket or plug only: 1160)
Sealing material	Sealing material	Mark	Working temperature range
Working temperature range	Fluoro rubber	FKM (X-100)	-20°C to +180°C

Max. Tightening Torque		Nm (kgf·cm)					
Model		1HSP	2HSP	3HSP	4HSP	6HSP	8HSP
Thread screw mount		30 {306}	50 {510}	53 {540}	65 {663}	80 {816}	95 {969}
Flange		—	9 {91}			30 {306}	

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

Min. Cross-Sectional Area		(mm ²)					
Model		1HSP	2HSP	3HSP	4HSP	6HSP	8HSP
Min. cross-sectional area		26	49.5	87	153	227	347

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

Admixture of Air on Connection		Admixture of air may vary depending upon the usage conditions. (mL)					
Model		1HSP	2HSP	3HSP	4HSP	6HSP	8HSP
Volume of air		0.08	0.14	0.26	0.55	0.95	0.85

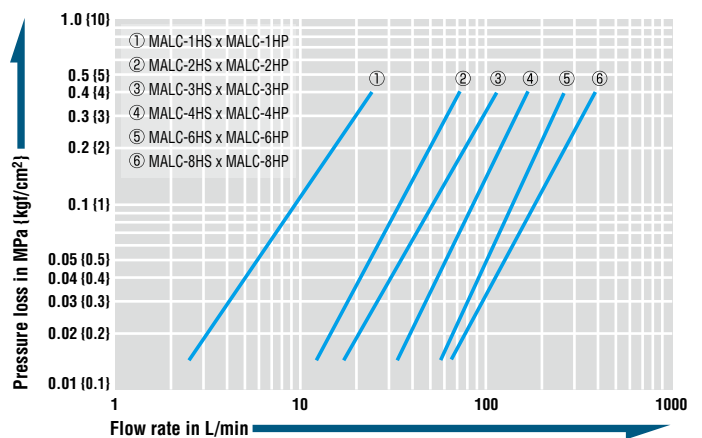
Volume of Spillage per Disconnection		Volume of spillage may vary depending upon the usage conditions. (mL)					
Model		1HSP	2HSP	3HSP	4HSP	6HSP	8HSP
Volume of spillage		0.08	0.14	0.26	0.55	0.95	0.85

Load Required to Maintain Connection When Line Is Pressurized							
Model		1HSP	2HSP	3HSP	4HSP	6HSP	8HSP
Maximum acceptable load N (kgf)		9300 {948}	16500 {1683}	22000 {2244}	40500 {4130}	55000 {5609}	64500 {6577}
Minimum load required to maintain connection N (kgf) *		Px170+85 {p×1.7+8.5}	Px345+180 {p×3.45+18}	Px460+190 {p×4.6+19}	Px855+260 {p×8.55+26}	Px1160+260 {p×11.6+26}	Px1360+310 {p×13.6+31}

* 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.

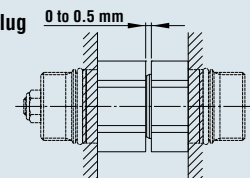
Flow Rate - Pressure Loss Characteristics

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



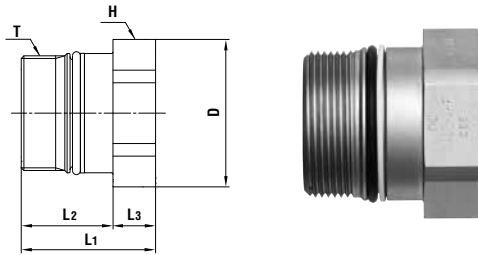
Acceptable distance between Socket and Plug

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



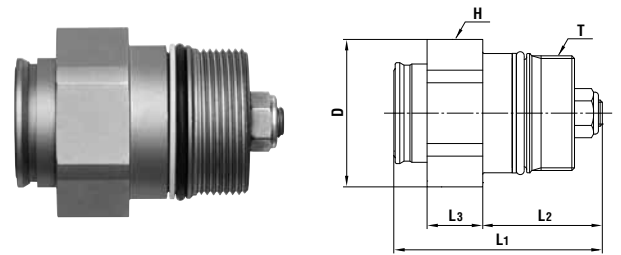
Models and Dimensions

Plug MALC-1 to 8HP type (Thread screw mount)



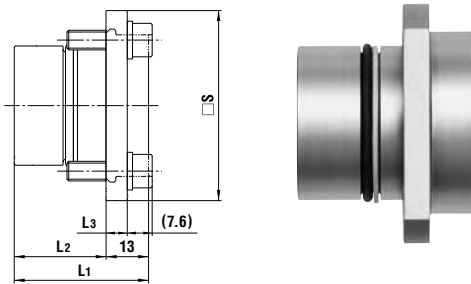
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	ϕD	H(WAF)	T
MALC-1HP	See P117	39	32	(18)	14	21	Hex.19	M16 x 1
MALC-2HP	See P117	73	33	(20)	13	28	Hex.26	M20 x 1.5
MALC-3HP	See P117	96	33	(20)	13	32	Hex.29	M24 x 1.5
MALC-4HP	See P117	250	41	(28)	13	45	Hex.41	M35 x 1.5
MALC-6HP	See P117	357	50.5	(37.5)	13	50	Hex.46	M40 x 2
MALC-8HP	See P117	391	53	(41)	12	54	Hex.50	M45 x 2

Socket MALC-1 to 8HS type (Thread screw mount)



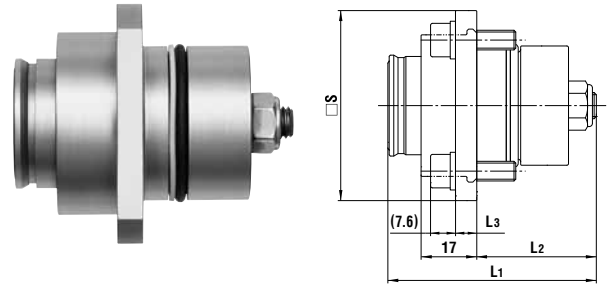
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	ϕD	H(WAF)	T
MALC-1HS	See P117	51	(45)	(23)	16	21	Hex.19	M16 x 1
MALC-2HS	See P117	89	(49)	(26)	17	28	Hex.26	M20 x 1.5
MALC-3HS	See P117	117	(51)	(26)	17	32	Hex.29	M24 x 1.5
MALC-4HS	See P117	290	(64)	(36.5)	17	45	Hex.41	M35 x 1.5
MALC-6HS	See P117	447	(78.5)	(47.5)	17	50	Hex.46	M40 x 2
MALC-8HS	See P117	579	(86)	(53)	18	54	Hex.50	M45 x 2

Plug MALC-2 to 6HP-FL type (With flange)



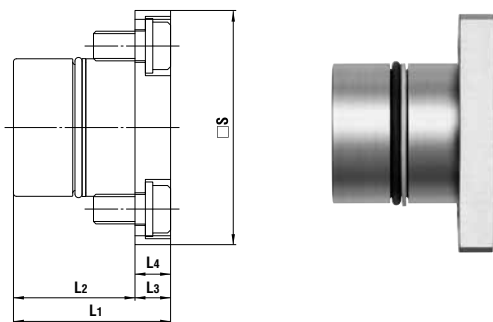
Model	Application	Mass (g)	Dimensions (mm)				□ S
			L1	L2	L3	□ S	
MALC-2HP-FL	See P117	142	30	(17)	6	40	
MALC-3HP-FL	See P117	179	33	(20)	6	45	
MALC-4HP-FL	See P117	367	41	(28)	6.5	58	
MALC-6HP-FL	See P117	514	50.5	(37.5)	6.5	64	

Socket MALC-2 to 6HS-FL type (With flange)



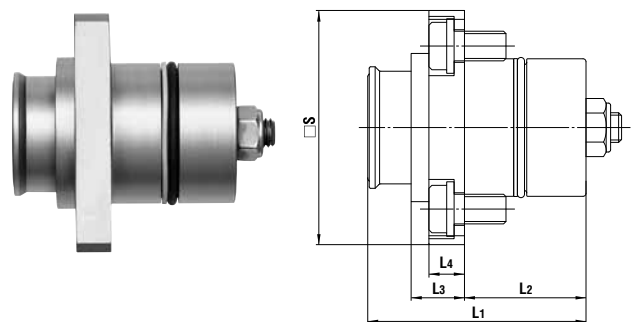
Model	Application	Mass (g)	Dimensions (mm)				□ S
			L1	L2	L3	□ S	
MALC-2HS-FL	See P117	163	(49)	(26)	6	40	
MALC-3HS-FL	See P117	200	(51)	(26)	6	45	
MALC-4HS-FL	See P117	418	(64)	(36.5)	6.5	58	
MALC-6HS-FL	See P117	611	(78.5)	(47.5)	6.5	64	

Plug MALC-8HP-FL type (With flange)



Model	Application	Mass (g)	Dimensions (mm)					□ S
			L1	L2	L3	L4	□ S	
MALC-8HP-FL	See P117	786	53	(41)	12	12	79	

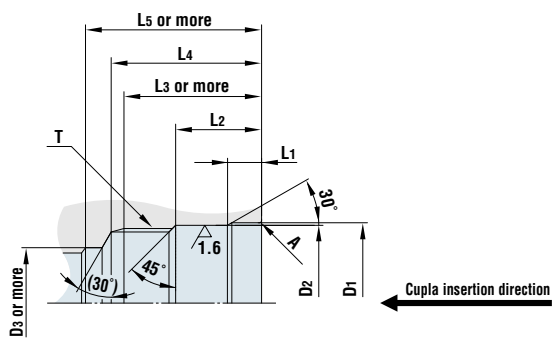
Socket MALC-8HS-FL type (With flange)



Model	Application	Mass (g)	Dimensions (mm)					□ S
			L1	L2	L3	L4	□ S	
MALC-8HS-FL	See P117	964	(86)	(53)	18	12	79	

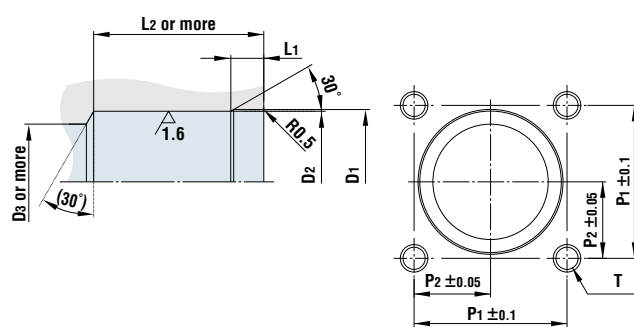
Dimensions of End Configurations

MALC-1 to 8HSP type (Thread screw mount)



Model	Dimensions (mm)									
	øD ₁	øD ₂	øD ₃	L ₁	L ₂	L ₃	L ₄	L ₅	T	A
MALC-1HS	17.8 ^{+0.1} ₀	16.8 ^{+0.06} ₀	13	3.5 ^{+0.2} ₀	11	20	22	25	M16 x 1	C0.2
MALC-1HP										
MALC-2HS	23 ^{+0.1} ₀	22 ^{+0.06} ₀	16	2.8 ^{+0.2} ₀	11	22	25	28	M20 x 1.5	R0.5
MALC-2HP										
MALC-3HS	27.1 ^{+0.1} ₀	26 ^{+0.08} ₀	18	2.8 ^{+0.2} ₀	11	22	25	29	M24 x 1.5	R0.5
MALC-3HP										
MALC-4HS	37.7 ^{+0.3} ₀	36.5 ^{+0.08} ₀	26	6 ^{+0.2}	18	30	33	40.5	M35 x 1.5	R0.5
MALC-4HP										
MALC-6HS	42.5 ^{+0.3} ₀	41.5 ^{+0.08} ₀	30	6 ^{+0.2}	23	40	44	51.5	M40 x 2	R0.5
MALC-6HP										
MALC-8HS	47.5 ^{+0.3} ₀	46.5 ^{+0.08} ₀	35	10.5 ^{+0.2}	27	43	47	55	M45 x 2	R0.5
MALC-8HP										

MALC-2 to 8HSP-FL type (With flange)



Model	Dimensions (mm)							
	øD ₁	øD ₂	øD ₃	L ₁	L ₂	P ₁	P ₂	T
MALC-2HS-FL	23 ^{+0.1} ₀	22 ^{+0.06} ₀	16	2.8 ^{+0.2} ₀	28	28	14	4 x M6 Thread depth 17 mm or more
MALC-2HP-FL					19			
MALC-3HS-FL	27.1 ^{+0.1} ₀	26 ^{+0.08} ₀	18	2.8 ^{+0.2} ₀	28	31	15.5	
MALC-3HP-FL					22			
MALC-4HS-FL	37.7 ^{+0.3} ₀	36.5 ^{+0.08} ₀	26	6 ^{+0.2}	39	40	20	
MALC-4HP-FL					30.5			
MALC-6HS-FL	42.5 ^{+0.3} ₀	41.5 ^{+0.08} ₀	30	6 ^{+0.2}	50	45	22.5	4 x M10 Thread depth 15 mm or more
MALC-6HP-FL					40			
MALC-8HS-FL	47.5 ^{+0.3} ₀	46.5 ^{+0.08} ₀	35	10.5 ^{+0.2}	53	55	27.5	
MALC-8HP-FL					43			