

For Multi-Port Connection (Automatic)

Multi Cupla

MALC-SP Type for Medium Pressure Use

Low spill type for medium pressure use

Working pressure



1.5 to 7.0 MPa
(15 to 71 kgf/cm²)

Valve structure



Two-way shut-off
(Non-Spill)

Applicable fluids



Water



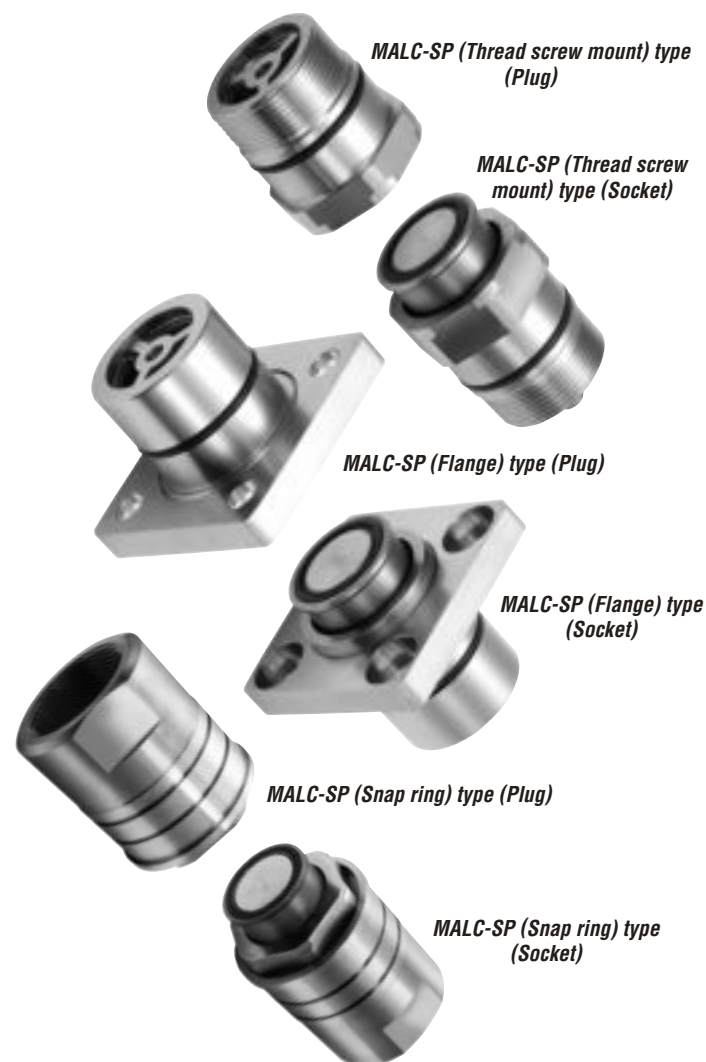
Hydraulic oil



Air

A single operation enables simultaneous connections of multiple lines. A special design for medium pressure use 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 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 pressure of up to 2 MPa. (up to 1.5 MPa for MALC-12SP.)
- When connected, the distance between the socket plate and the plug plate is designed to be 30 mm for all sizes. This means that 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		Socket body: Stainless steel (Autocatalytic nickel-phosphorus coating)		
Model	Thread screw mount	MALC-1SP	MALC-2 to 8SP	MALC-12SP
	Flange	—	MALC-2 to 8SP-FL	—
	Snap ring	—	MALC-8SP-10F	MALC-12SP(-F/-16F)
Working pressure *	MPa	7.0 (2.0)	5.0 (2.0)	1.5 (2.0)
	kgf/cm ²	71 (20)	51 (20)	15 (20)
	bar	70 (20)	50 (20)	15 (20)
	PSI	1020 (290)	725 (290)	218 (290)
Sealing material		Sealing material	Mark	Working temperature range
Working temperature range		Fluoro rubber	FKM (X-100)	-20°C to +180°C

* The value in brackets is working pressure of individual plug or socket.

Max. Tightening Torque

Nm {kgf·cm}

Model	1SP	2SP	3SP	4SP	6SP	8SP	12SP	12SP-16F
Thread screw mount	20 {204}	30 {306}	35 {357}	45 {460}	60 {612}	75 {765}	80 {816}	—
Flange	—	7 {71.5}	7 {71.5}	7 {71.5}	7 {71.5}	23 {235}	—	—
Snap ring	—	—	—	—	—	260 {2652}	280 {2856}	350 {3570}

Interchangeability

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

Min. Cross-Sectional Area

(mm²)

Model	1SP	2SP(-FL)	3SP(-FL)	4SP(-FL)	6SP(-FL)	8SP(-FL/-10F)	12SP(-F/-16F)
Min. cross-sectional area	26	49.5	87	153	227	347	795

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	1SP	2SP(-FL)	3SP(-FL)	4SP(-FL)	6SP(-FL)	8SP(-FL/-10F)	12SP(-F/-16F)
Volume of air	0.08	0.14	0.26	0.55	0.95	0.85	1.46

Volume of Spillage per Disconnection

Volume of spillage may vary depending upon the usage conditions.

(mL)

Model	1SP	2SP(-FL)	3SP(-FL)	4SP(-FL)	6SP(-FL)	8SP(-FL/-10F)	12SP(-F/-16F)
Volume of spillage	0.08	0.14	0.26	0.55	0.95	0.85	1.46

Load Required to Maintain Connection When Line Is Pressurized

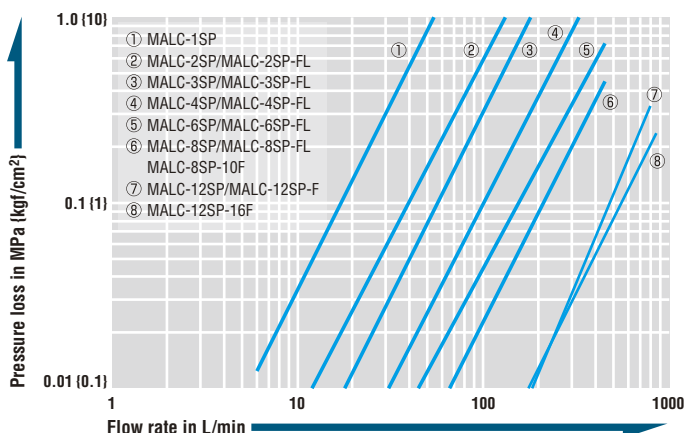
Model	1SP	2SP(-FL)	3SP(-FL)	4SP(-FL)	6SP(-FL)	8SP(-FL/-10F)	12SP(-F/-16F)
Maximum acceptable load N (kgf)	2800 {286}	4500 {459}	5600 {571}	10000 {1019}	14000 {1427}	15600 {1591}	8200 {837}
Minimum load required to maintain connection N (kgf) *	$P \times 170 + 85$ ($p \times 1.7 + 8.5$)	$P \times 345 + 180$ ($p \times 3.45 + 18$)	$P \times 460 + 190$ ($p \times 4.6 + 19$)	$P \times 855 + 260$ ($p \times 8.55 + 26$)	$P \times 1160 + 260$ ($p \times 11.6 + 26$)	$P \times 1360 + 310$ ($p \times 13.6 + 31$)	$P \times 2260 + 400$ ($p \times 22.6 + 40$)

* 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 : Water • Temperature : 19°C to 25°C



Acceptable distance between socket and plug

0 to 0.5 mm

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

