NITTO KOHKI

Ck031b

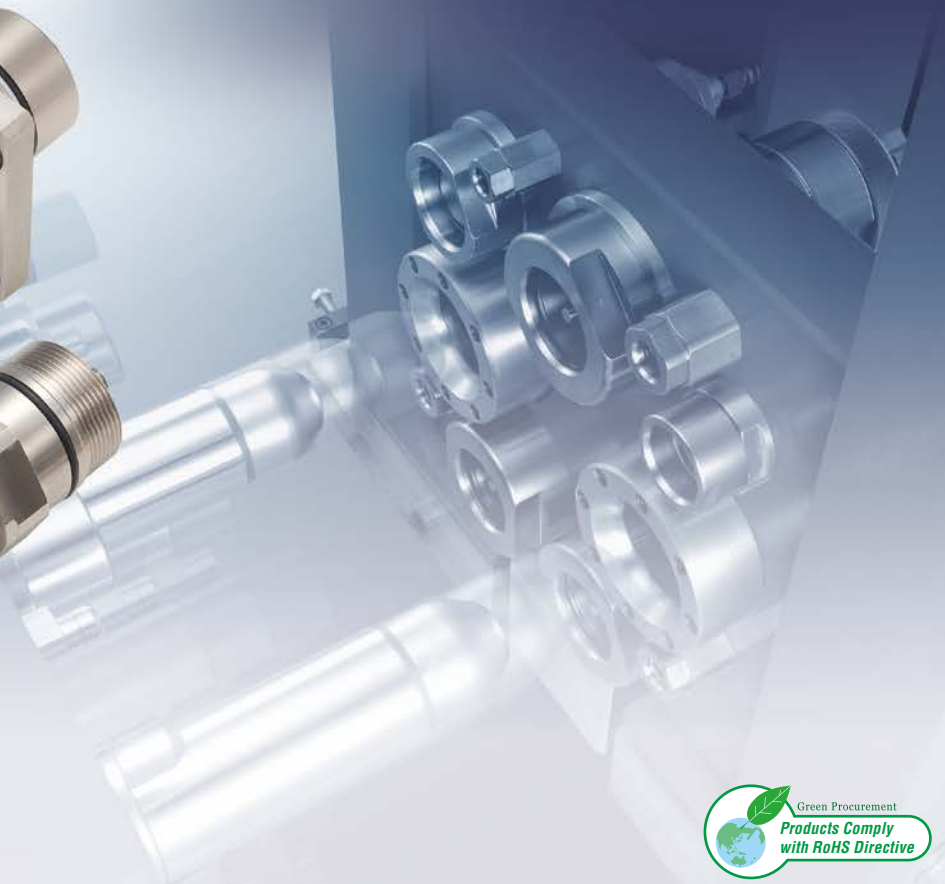
Multi-Port Connection Type Quick Connect Couplings

MULTI CUPLA

GENERAL CATALOG

CUPLA

Quick Connect Couplings



Green Procurement

Products Comply with RoHS Directive

Simultaneously connects multiple lines for different fluids and sizes with a single operation.

Contributes to increase efficiency in work, to secure reliability and safety, to improve productivity, and to reduce cost.

- **Excellent assistance in building automation and / or unmanned systems for machines that need quick replacement, connection / disconnection, transfer, and / or inspection.**
- **Minimizes setup time.**
- **Downsizes the plate for multiple piping.**
- **Prevents possible human errors in piping jobs.**

Plate Type

MULTI CUPLA
MAM Type

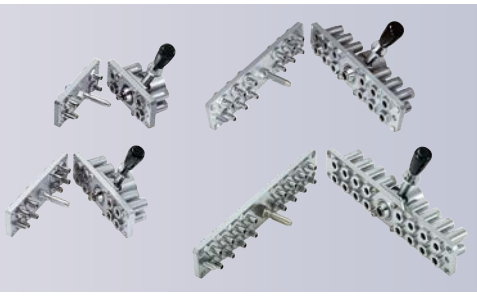


Plate Type

MULTI CUPLA
MAM-B Type

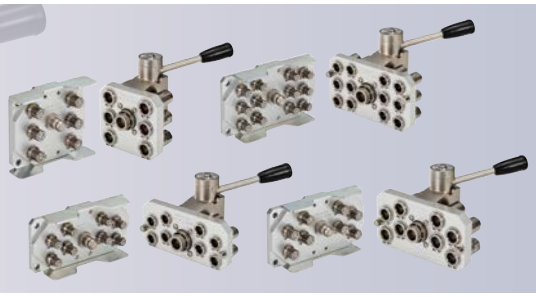


Plate Type

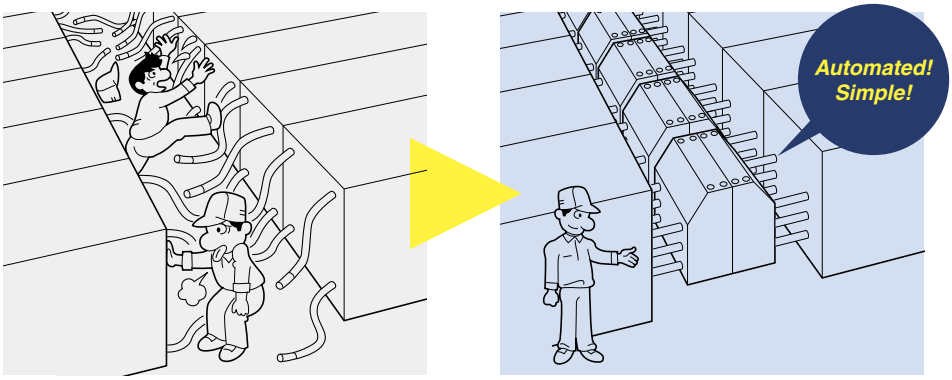
MULTI CUPLA
MAM-A Type

Individual Type

MULTI CUPLA
MALC Type
MAS / MAT Type

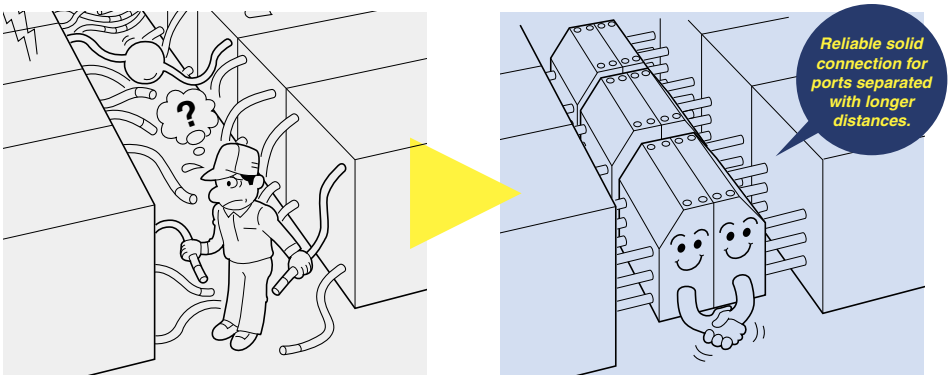
For improved productivity and realization of FMS (Flexible Manufacturing System)

Multi Cupla minimizes the setup time of piping connection jobs in mold changes, which enhances productivity, and realizes the Flexible Manufacturing System. This is especially important as manufacturing a wide variety of products necessitates frequent mold changes and setups.



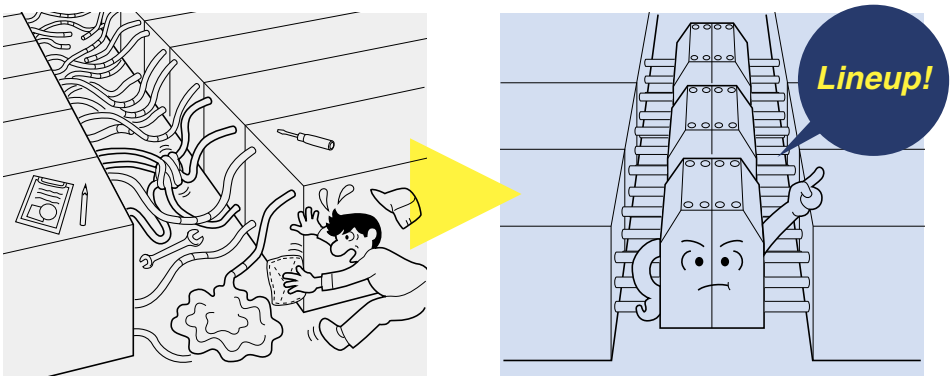
For improved safety and reliability

Piping changes within limited lead time increase the probability of connection errors and impair the safety of the work area. Multi Cupla removes the possibility of connection errors in multiple pipe connection systems by its own design and by the connection system it is constructed on. Safety and reliability in piping works can be enhanced further with the introduction of remote-control operation.



For space and energy saving, and clean factory site

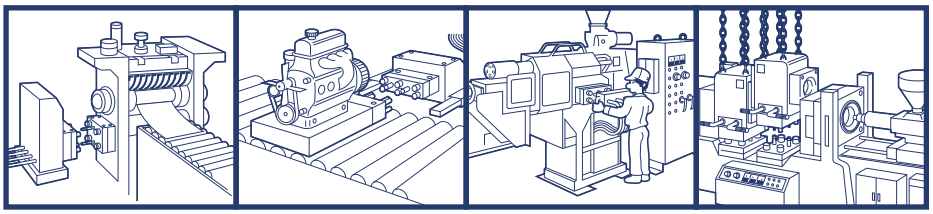
Individual manual piping systems do not have a well coordinated piping area and thus yields working loss due to piping disorders. Multi Cupla design realizes centralization of pipe connections, consolidation of piping circuits, space saving, energy saving, and a clean working environment.



Applications

Piping for rolling equipment exchange, or quick connection of piping to bar mill rolling and cold rolling.

Hydraulic and cooling-water piping for petroleum refinery plants, chemical factories, automobile assembly plants, factory automation, industrial robots, or machine tools.



CONTENTS

For Air | Multi-Port Connection

Multi Cupla

MAM Type

Working pressure: 0.7 MPa {7 kgf/cm²}
Valve structure: One-way shut-off
Applicable fluid: Air

Simultaneously connects several ports securely in one operation ! Greatly cuts cycle time in multiple ports replacement.

- Handles several ports at once.
- Simple action with lever enables easy connection/ disconnection manually.
- Comes with lock mechanism to prevent accidental disconnection.
- Valve on socket side only.

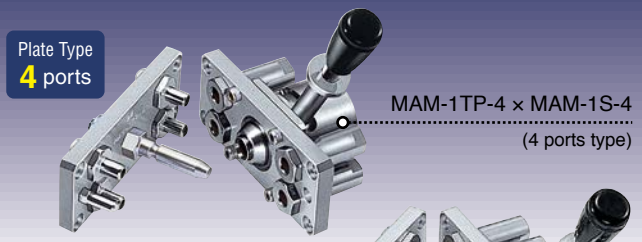
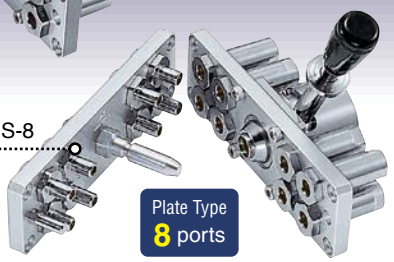


Plate Type 4 ports
MAM-1TP-4 × MAM-1S-4
(4 ports type)



MAM-1TP-8 × MAM-1S-8
(8 ports type)
Plate Type 8 ports

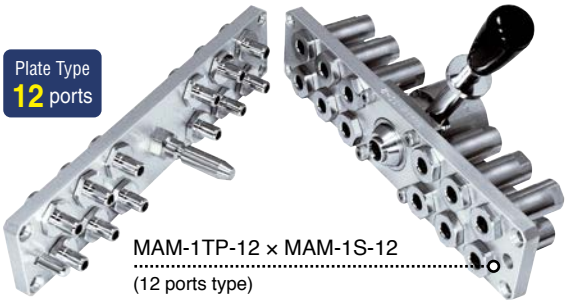


Plate Type 12 ports
MAM-1TP-12 × MAM-1S-12
(12 ports type)

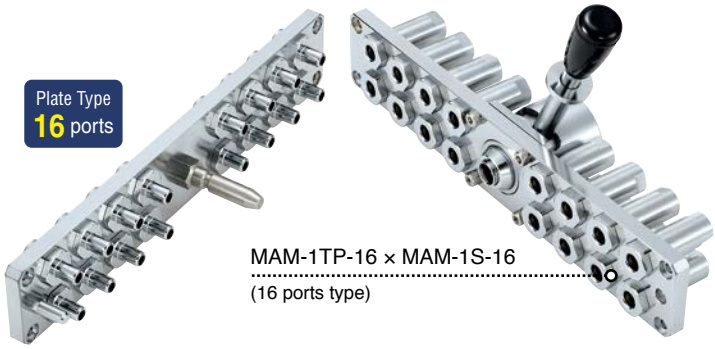


Plate Type 16 ports
MAM-1TP-16 × MAM-1S-16
(16 ports type)

Specifications

Body material	Cupla : Brass (Chrome plated) Plate: Aluminum alloy (4, 8, 12 ports) / Plate: Steel (16 ports) Locking unit : Steel and others			
Size (Thread)	Rc 1/8			
Pressure unit	MPa	kgf/cm²	bar	PSI
Working pressure	0.7	7	7	102
Proof pressure	1.0	10	10	145

Seal material / Working temperature range	Seal material	Mark	Working temperature range
	Nitrile rubber	NBR (SG)	−20°C to +60°C

Max. Tightening Torque — Nm {kgf•cm}

Torque	5 {51}

Interchangeability

No connection is possible between plates with different number of ports.

Min. Cross-Sectional Area — (mm²)

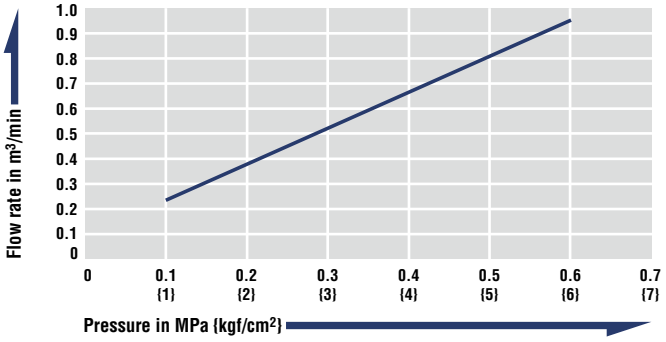
Per port	15.9

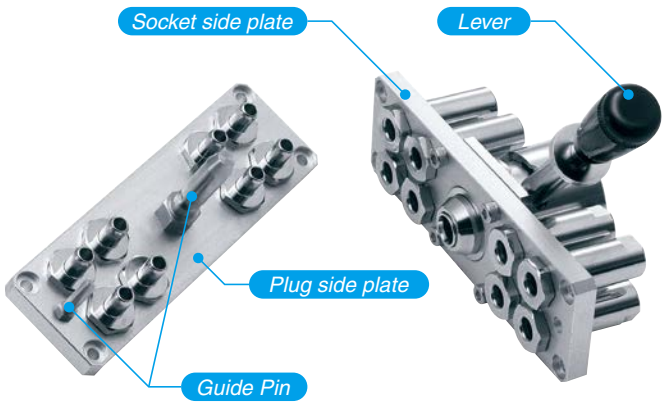
Suitability for Vacuum

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

Pressure - Flow Characteristics — Per port with Cupla

[Test conditions] •Fluid : Air •Temperature : Room temperature





Denotation of Model

MAM - 1 □ - □

- 4 : 4 ports / 8 : 8 ports
  12 : 12 ports / 16 : 16 ports
- S : Socket
  TP : Plug
- Size
  1 : 1/8"

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

Multi Cupla MAM Type

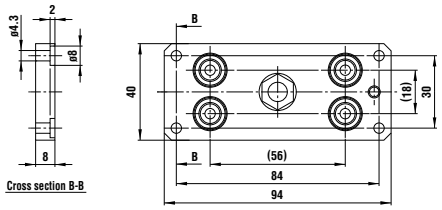
Models and Dimensions

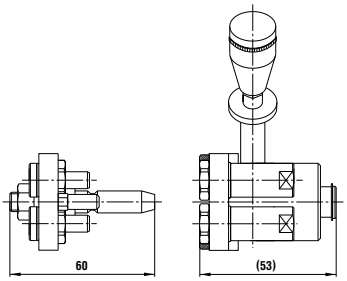
Model MAM-1TP-4 × MAM-1S-4 (4 ports type)

Plate Type
4 ports

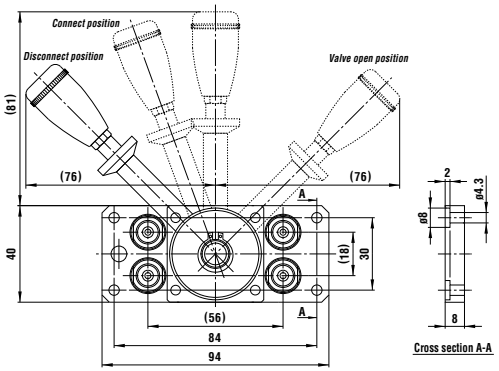
- **Application: R 1/8**
- **Mass: 150 g (Plug), 500 g (Socket)**

Plug: Model MAM-1TP-4





Socket: Model MAM-1S-4



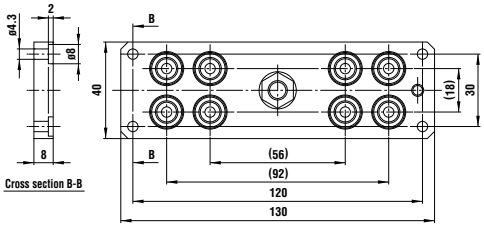
Dimensions (mm)

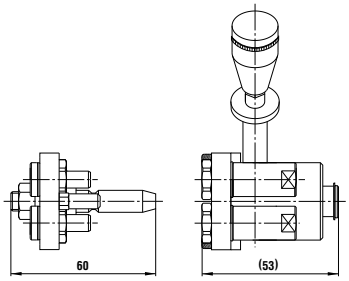
Model MAM-1TP-8 × MAM-1S-8 (8 ports type)

Plate Type
8 ports

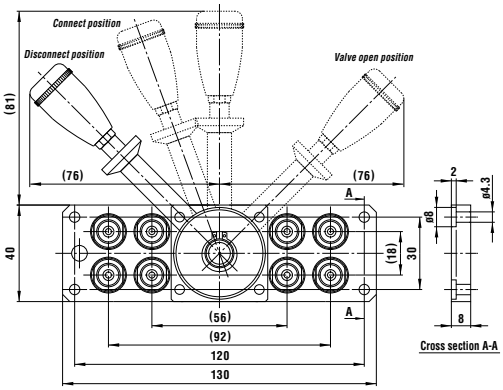
- **Application: R 1/8**
- **Mass: 250 g (Plug), 650 g (Socket)**

Plug: Model MAM-1TP-8





Socket: Model MAM-1S-8



Dimensions (mm)

Multi Cupla MAM Type

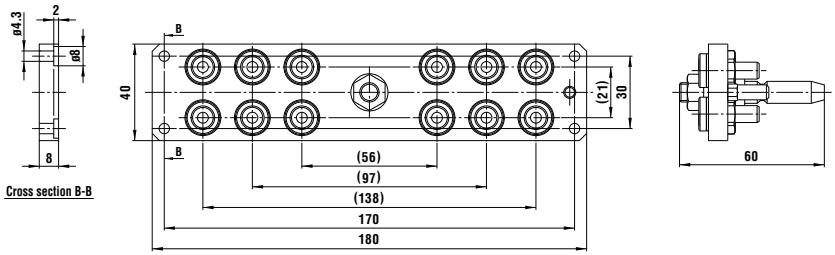
Models and Dimensions

Model MAM-1TP-12 × MAM-1S-12 (12 ports type)

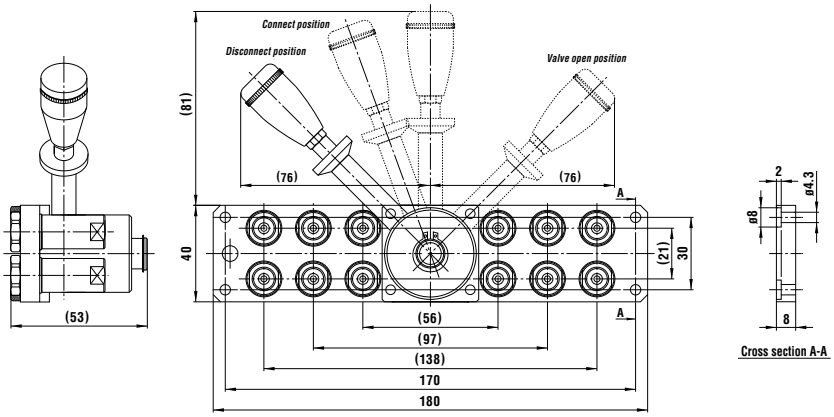
Plate Type 12 ports

- **Application: R 1/8**
- **Mass: 350 g (Plug), 800 g (Socket)**

Plug: Model MAM-1TP-12



Socket: Model MAM-1S-12



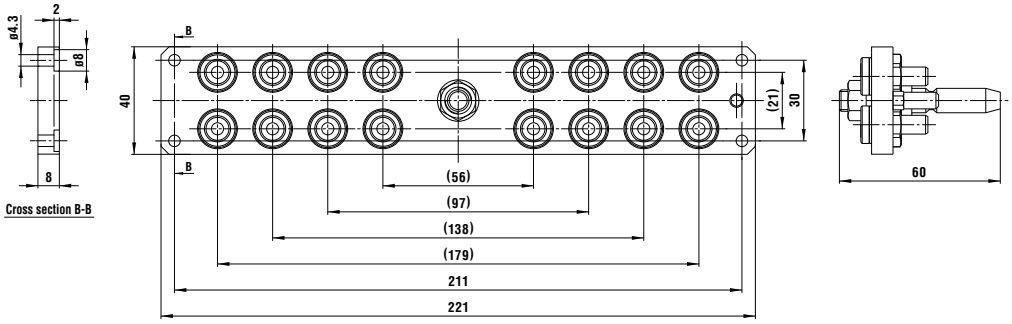
Dimensions (mm)

Model MAM-1TP-16 × MAM-1S-16 (16 ports type)

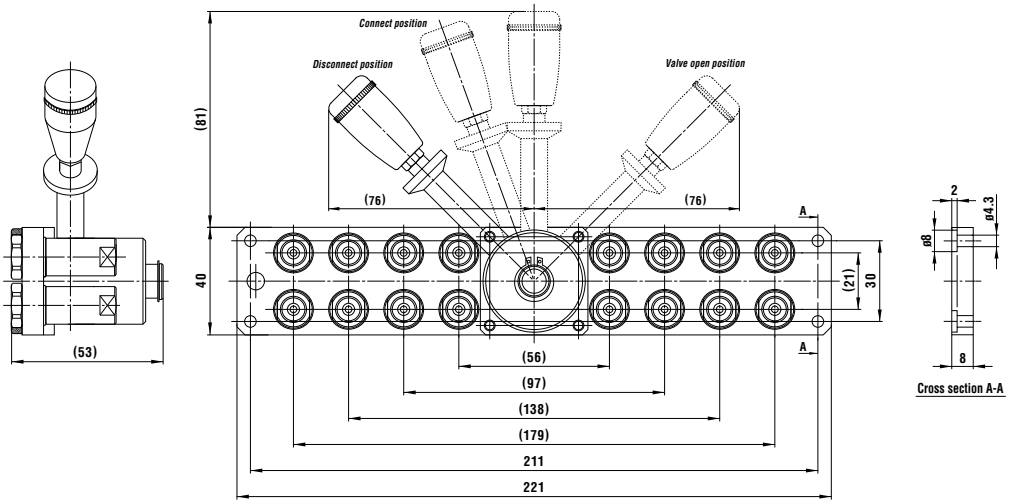
Plate Type 16 ports

- **Application: R 1/8**
- **Mass: 680 g (Plug), 1180 g (Socket)**

Plug: Model MAM-1TP-16



Socket: Model MAM-1S-16



Dimensions (mm)

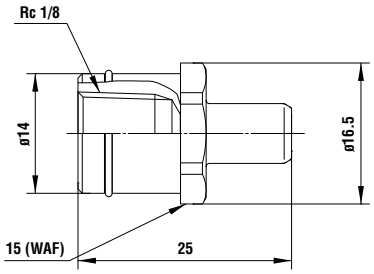
Multi Cupla MAM Type

Models and Dimensions

WAF : WAF stands for width across flats.

Plug Model MAS-1TP (Individual Cupla)

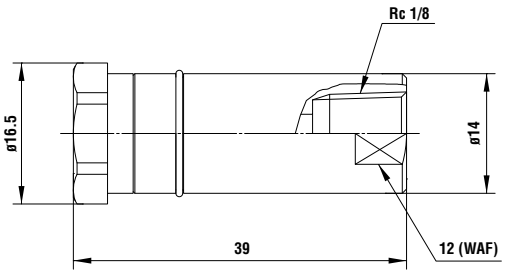
- **Application: R 1/8**
- **Mass: 17 g**
- Can be mounted on model MAM-1TP-4/MAM-1TP-8/MAM-1TP-12/MAM-1TP-16.



Dimensions (mm)

Socket Model MAS-1S (Individual Cupla)

- **Application: R 1/8**
- **Mass: 33 g**
- Can be mounted on model MAM-1S-4/MAM-1S-8/MAM-1S-12/MAM-1S-16.



Dimensions (mm)

For Air and Water | Multi-Port Connection

Multi Cupla

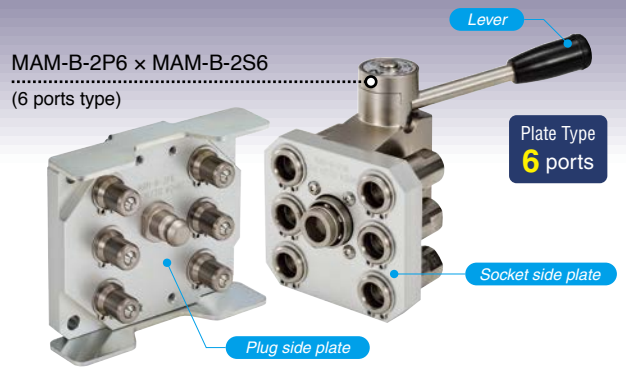
MAM-B Type

Working pressure: 1.0 — 1.0 MPa {10 kgf/cm²}
Valve structure: Two-way shut-off
Applicable fluids: Air, Water

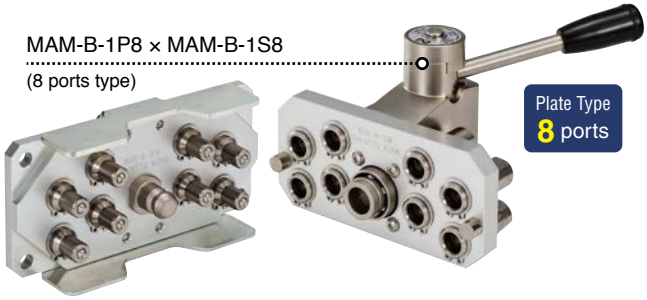
Simultaneously connects several ports securely in one operation. Greatly reduces changeover time in multiple ports replacement.

- Handles several ports at once.
- Simple manual lever action completes easy connection / disconnection.
- Two-stage lever operation prevents Cupla from accidental dropping due to sudden detachment.
- Comes with lock mechanism to prevent accidental disconnection.
- Large flow equivalent to that of SP Cupla Type A.
- Two kinds of plates are available for each size.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.
- Self-aligned valve design provides safety sealing of individual socket or plug when disconnected.

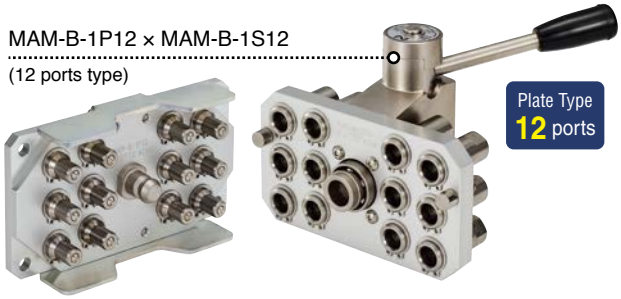
MAM-B-2P6 × MAM-B-2S6
(6 ports type)



MAM-B-1P8 × MAM-B-1S8
(8 ports type)



MAM-B-1P12 × MAM-B-1S12
(12 ports type)



Specifications

Model					
	Plug	MAM-B-1P8	MAM-B-1P12	MAM-B-2P6	MAM-B-2P8
	Socket	MAM-B-1S8	MAM-B-1S12	MAM-B-2S6	MAM-B-2S8
Number of ports		8	12	6	8
Size (Thread)		1/8"		1/4"	
Body material		Cupla: Brass (Nickel plated) Plate: Aluminum alloy Locking unit: Steel (Electroless nickel phosphorus plated)			
Pressure unit		MPa	kgf/cm²	bar	PSI
Working pressure		1.0	10	10	145
Proof pressure		1.5	15	15	218
Ambient temperature range		0°C to +60°C			
Seal material / Working temperature range		Sealing material	Mark	Working temperature range	Remarks
		Fluoro rubber	FKM (X-100)	−20°C to +180°C	Standard material

Max. Tightening Torque — Nm {kgf•cm}

Size (Thread)	1/8"	1/4"
Torque	5 {51}	9 {92}

Interchangeability

No connection is possible between plates with different number of ports.

Min. Cross-Sectional Area per Port — (mm²)

Model	1SP type	2SP type
Min. cross-sectional area	14	26

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

Socket only	Plug only	When connected
—	—	Operational

Admixture of Air on Connection per Port — May vary depending upon the usage conditions. (mL)

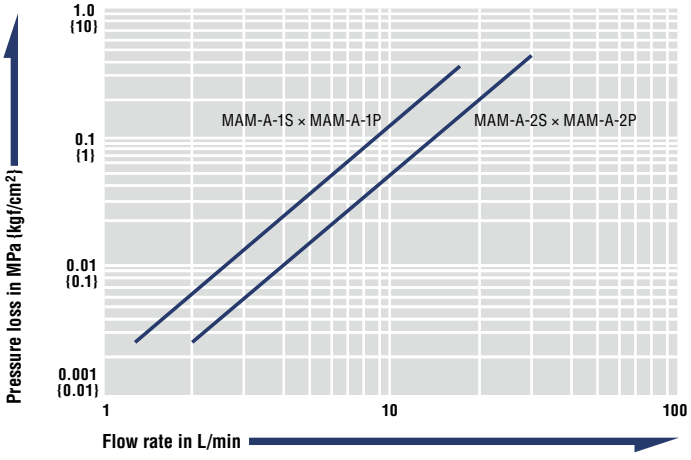
Model	1SP type	2SP type
Volume of air	0.6	1.1

Volume of Spillage on Disconnection per Port — May vary depending upon the usage conditions. (mL)

Model	1SP type	2SP type
Volume of spillage	0.4	0.8

Flow Rate - Pressure Loss Characteristics — Per port of Cupla

[Test conditions] •Fluid : Water •Temperature : 25°C ±5°C



Denotation of Model

MAM - B - □ □ □

□ (1st): 6 : 6 ports / 8 : 8 ports / 12 : 12 ports
□ (2nd): S : Socket / P : Plug
□ (3rd): Size — 1 : 1/8" / 2 : 1/4"

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

Multi Cupla MAM-B Type

Made-to-order Multi Cuplas are available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

WAF : WAF stands for width across flats.

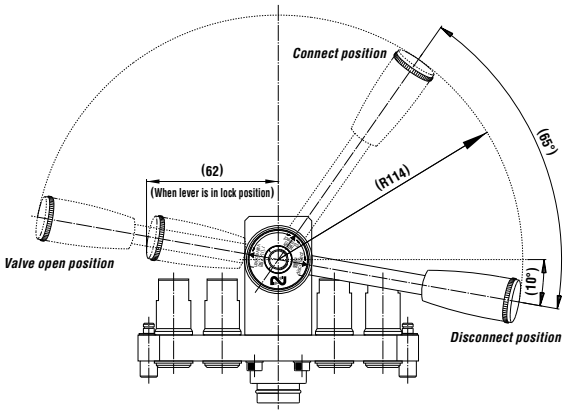
Model MAM-B-1P8 × MAM-B-1S8 (8 ports type)

Plate Type 8 ports

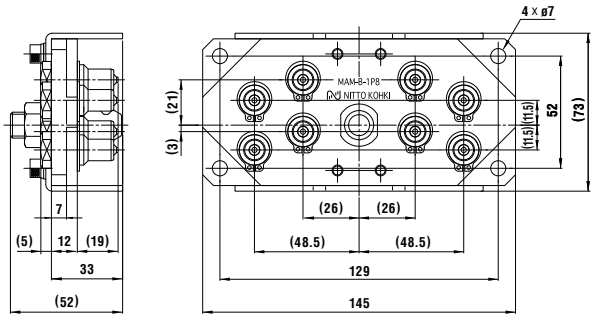
- **Application: R 1/8**
- **Mass: 660 g (Plug), 1210 g (Socket)**

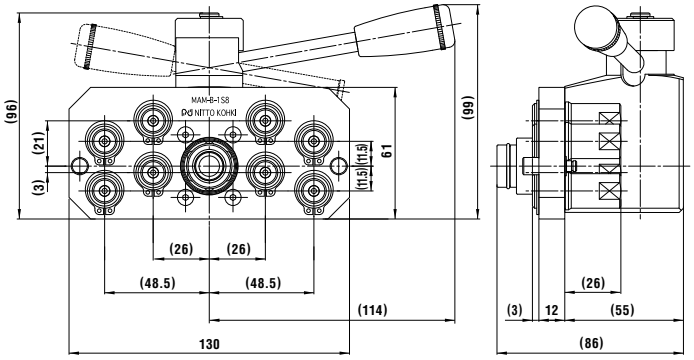
Dimensions (mm)

Socket: Model MAM-B-1S8



Plug: Model MAM-B-1P8





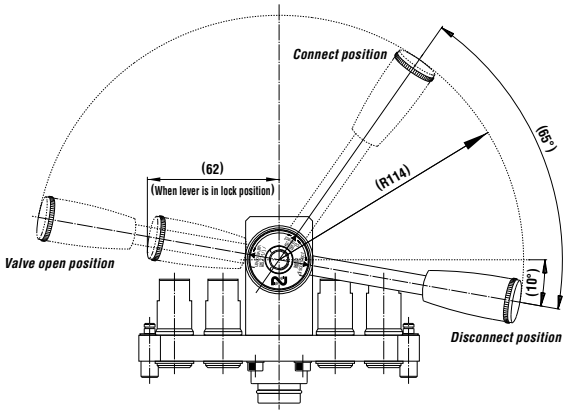
Model MAM-B-1P12 × MAM-B-1S12 (12 ports type)

Plate Type 12 ports

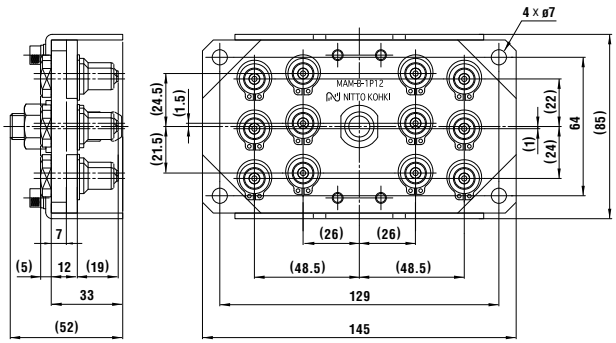
- **Application: R 1/8**
- **Mass: 790 g (Plug), 1430 g (Socket)**

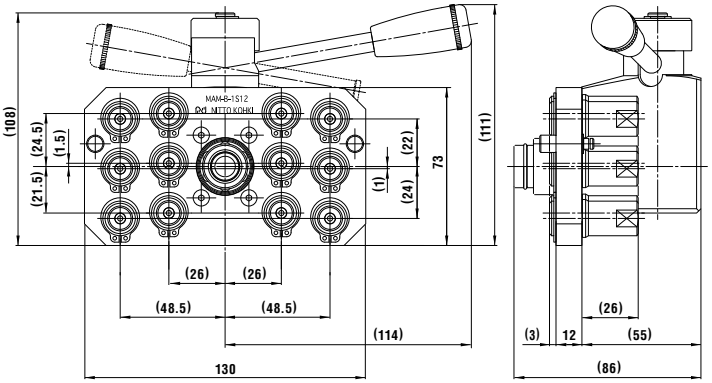
Dimensions (mm)

Socket: Model MAM-B-1S12



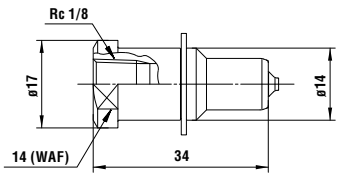
Plug: Model MAM-B-1P12





Plug Model MAM-A-1P (Individual Cupla)

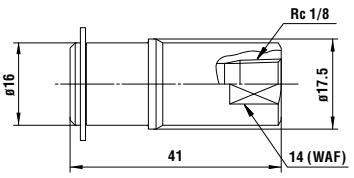
- **Application: R 1/8**
- **Mass: 25 g**
- Can be mounted on model MAM-B-1P8 and MAM-B-1P12.



Dimensions (mm)

Socket Model MAM-A-1S (Individual Cupla)

- **Application: R 1/8**
- **Mass: 49 g**
- Can be mounted on model MAM-B-1S8 and MAM-B-1S12.



Dimensions (mm)

Multi Cupla MAM-B Type

Made-to-order Multi Cuplas are available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

WAF : WAF stands for width across flats.

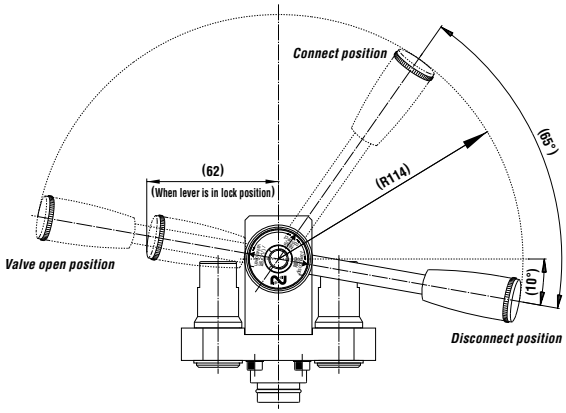
Model MAM-B-2P6 × MAM-B-2S6 (6 ports type)

Plate Type 6 ports

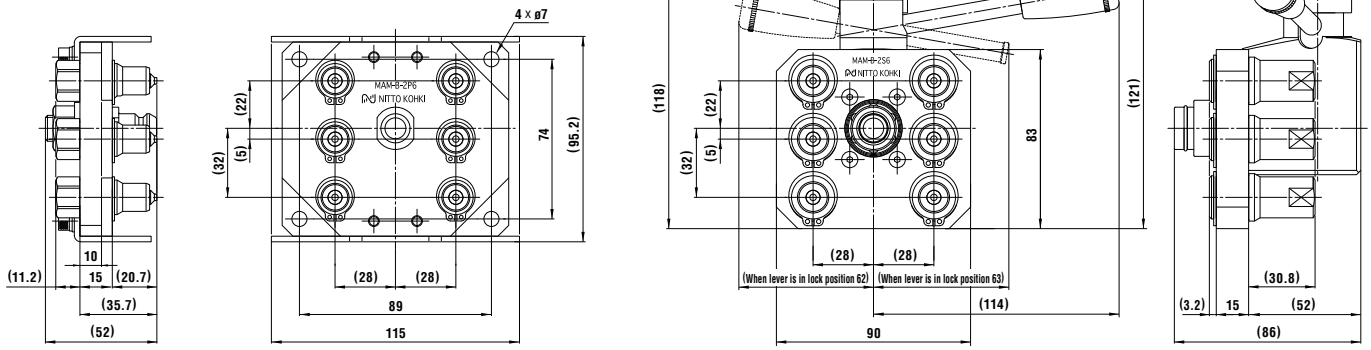
- **Application: R 1/4**
- **Mass: 740 g (Plug), 1280 g (Socket)**

Dimensions (mm)

Socket: Model MAM-B-2S6



Plug: Model MAM-B-2P6



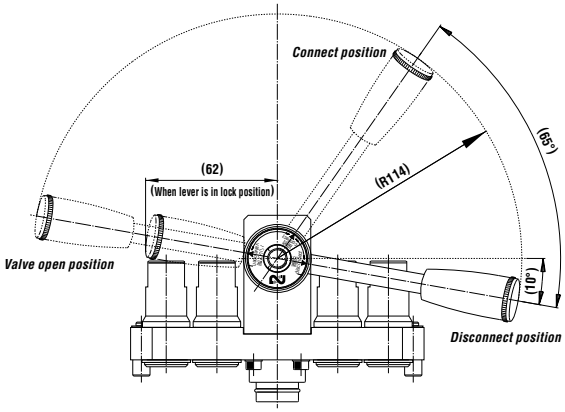
Model MAM-B-2P8 × MAM-B-2S8 (8 ports type)

Plate Type 8 ports

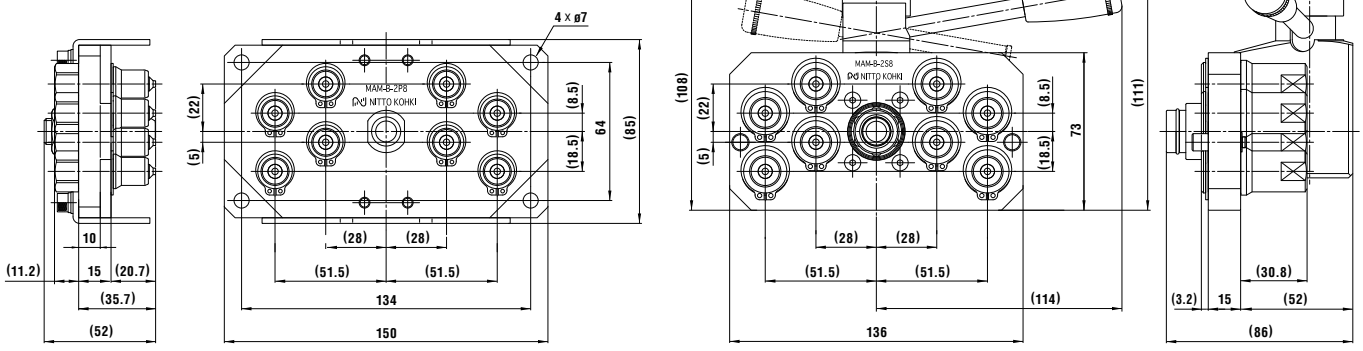
- **Application: R 1/4**
- **Mass: 920 g (Plug), 1550 g (Socket)**

Dimensions (mm)

Socket: Model MAM-B-2S8

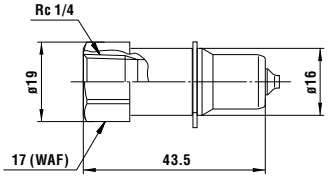


Plug: Model MAM-B-2P8



Plug Model MAM-A-2P (Individual Cupla)

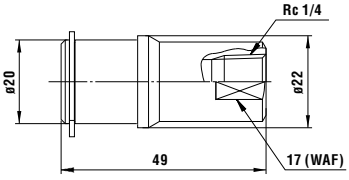
- **Application: R 1/4**
- **Mass: 40 g**
- Can be mounted on model MAM-B-2P6 and MAM-B-2P8.



Dimensions (mm)

Socket Model MAM-A-2S (Individual Cupla)

- **Application: R 1/4**
- **Mass: 82 g**
- Can be mounted on model MAM-B-2S6 and MAM-B-2S8.



Dimensions (mm)

For Air and Water | Multi-Port Connection

Multi Cupla

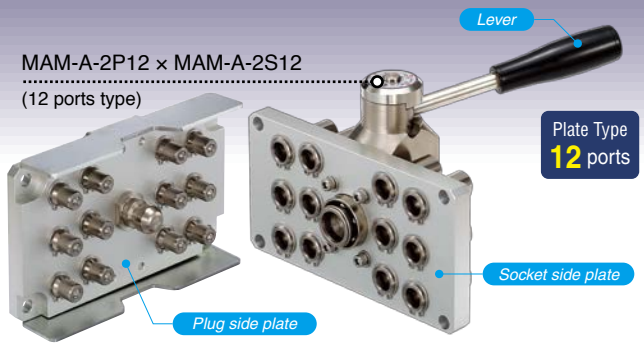
MAM-A Type

Working pressure: 1.0 MPa {10 kgf/cm²}
Valve structure: Two-way shut-off
Applicable fluids: Air, Water

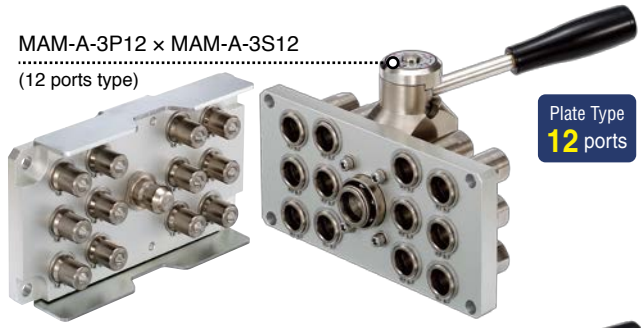
Simultaneously connects several ports securely in one operation. Greatly reduces changeover time in multiple ports replacement.

- Handles several ports at once.
- Simple manual lever action completes easy connection / disconnection.
- Two-stage lever operation prevents Cupla from accidental dropping due to sudden detachment.
- Comes with lock mechanism to prevent accidental disconnection.
- Large flow equivalent to that of SP Cupla Type A.
- Two kinds of plates are available for each size.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.
- Self-aligned valve design provides safety sealing of individual socket or plug when disconnected.

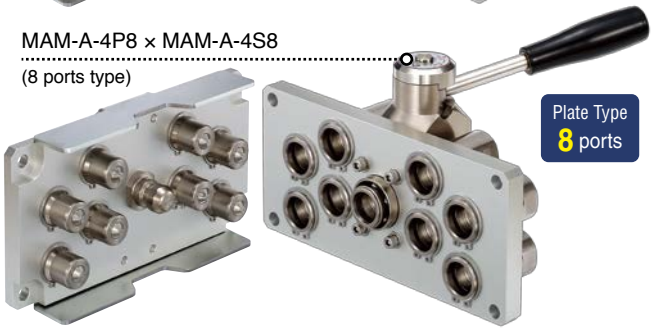
MAM-A-2P12 × MAM-A-2S12
(12 ports type)



MAM-A-3P12 × MAM-A-3S12
(12 ports type)



MAM-A-4P8 × MAM-A-4S8
(8 ports type)



Specifications

Model							
	Plug	MAM-A-2P6	MAM-A-2P12	MAM-A-3P6	MAM-A-3P12	MAM-A-4P4	MAM-A-4P8
	Socket	MAM-A-2S6	MAM-A-2S12	MAM-A-3S6	MAM-A-3S12	MAM-A-4S4	MAM-A-4S8
Number of ports		6	12	6	12	4	8
Size (Thread)		1/4"		3/8"		1/2"	
Body material		Cupla: Brass (Nickel plated) Plate: Aluminum alloy Locking unit: Steel (Electroless nickel phosphorus plated)					

Pressure unit	MPa	kgf/cm²	bar	PSI
Working pressure	1.0	10	10	145
Proof pressure	1.5	15	15	218
Ambient temperature range	0°C to +60°C			

Seal material / Working temperature range	Sealing material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM (X-100)	−20°C to +180°C	Standard material

Max. Tightening Torque — Nm {kgf·cm}

Size (Thread)	1/4"	3/8"	1/2"
Torque	9 {92}	12 {122}	30 {306}

Interchangeability

No connection is possible between plates with different number of ports.

Min. Cross-Sectional Area per Port — (mm²)

Model	2SP type	3SP type	4SP type
Min. cross-sectional area	26	51	73

Suitability for Vacuum — 1.3×10^{-1} Pa {1×10^{-3} mmHg}

Socket only	Plug only	When connected
—	—	Operational

Admixture of Air on Connection per Port — (mL)

May vary depending upon the usage conditions.

Model	2SP type	3SP type	4SP type
Volume of air	1.1	2.7	3.9

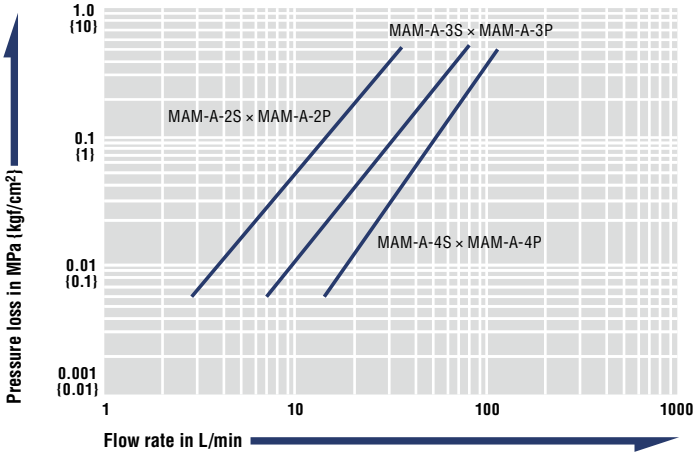
Volume of Spillage on Disconnection per Port — (mL)

May vary depending upon the usage conditions.

Model	2SP type	3SP type	4SP type
Volume of spillage	0.8	2.1	3.4

Flow Rate - Pressure Loss Characteristics — Per port of Cupla

[Test conditions] •Fluid : Water •Temperature : 25°C ±5°C



Denotation of Model

MAM - A - □ □ □

- 4 : 4 ports / 6 : 6 ports
- 8 : 8 ports / 12 : 12 ports
- S : Socket
- P : Plug
- Size
  2 : 1/4" / 3 : 3/8" / 4 : 1/2"

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

Multi Cupla MAM-A Type

Made-to-order Multi Cuplas are available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

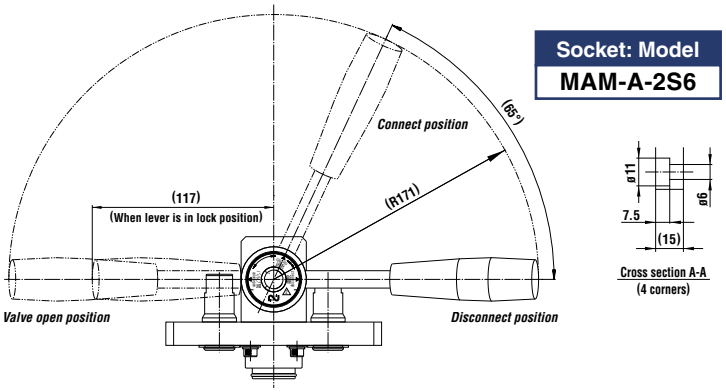
WAF : WAF stands for width across flats.

Model MAM-A-2P6 × MAM-A-2S6 (6 ports type)

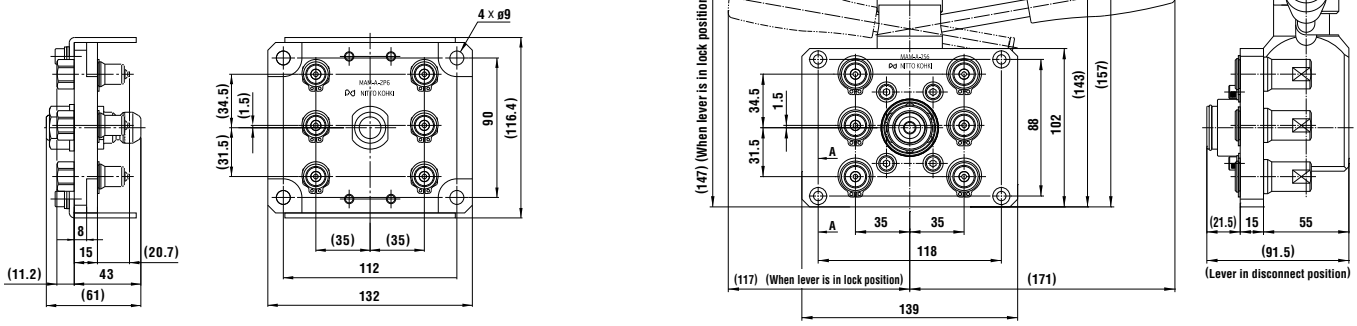
Plate Type 6 ports

- **Application: R 1/4**
- **Mass: 1100 g (Plug), 2150 g (Socket)**

Socket: Model MAM-A-2S6



Plug: Model MAM-A-2P6



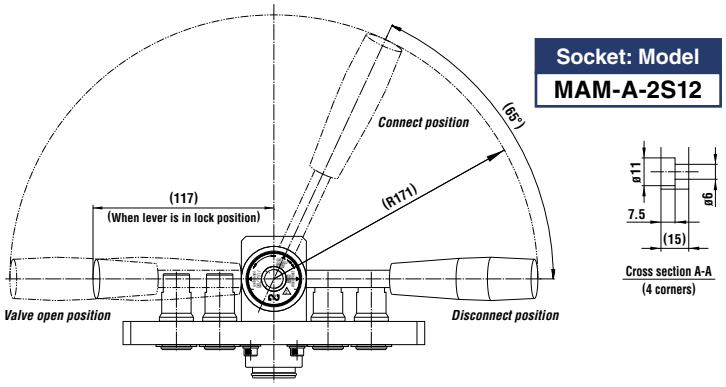
Dimensions (mm)

Model MAM-A-2P12 × MAM-A-2S12 (12 ports type)

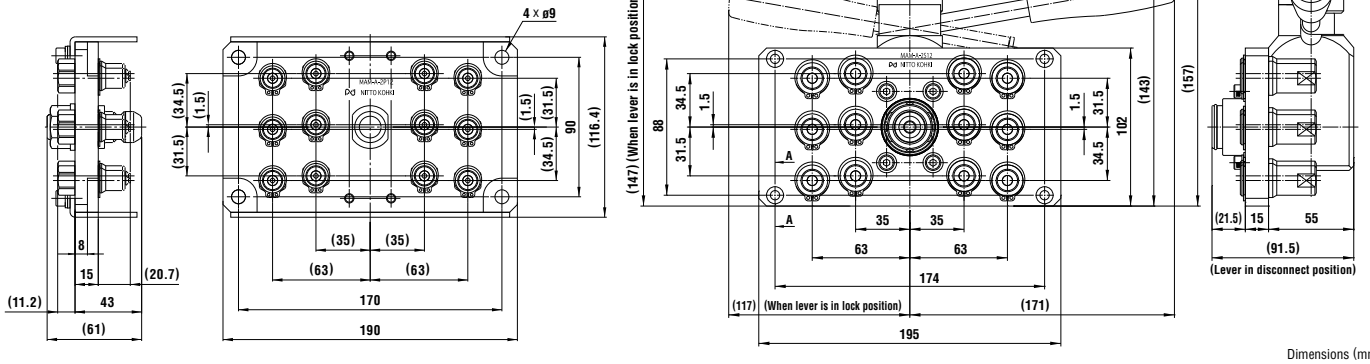
Plate Type 12 ports

- **Application: R 1/4**
- **Mass: 1650 g (Plug), 2800 g (Socket)**

Socket: Model MAM-A-2S12



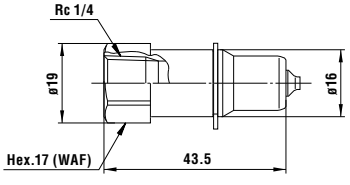
Plug: Model MAM-A-2P12



Dimensions (mm)

Plug Model MAM-A-2P (Individual Cupla)

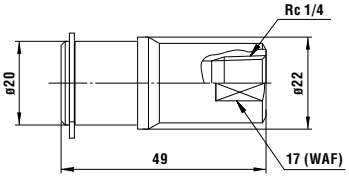
- **Application: R 1/4**
- **Mass: 40 g**



Dimensions (mm)

Socket Model MAM-A-2S (Individual Cupla)

- **Application: R 1/4**
- **Mass: 82 g**



Dimensions (mm)

Multi Cupla MAM-A Type

Made-to-order Multi Cuplas are available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

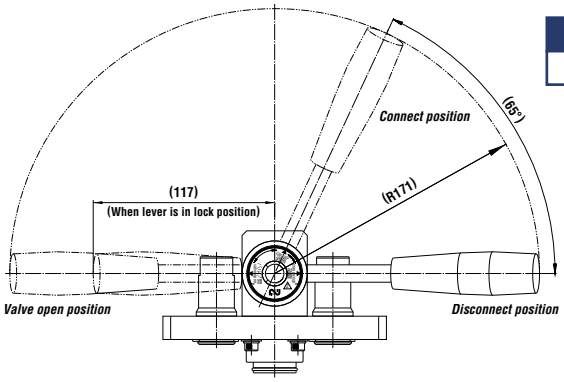
WAF : WAF stands for width across flats.

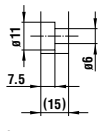
Model MAM-A-3P6 × MAM-A-3S6 (6 ports type)

Plate Type 6 ports

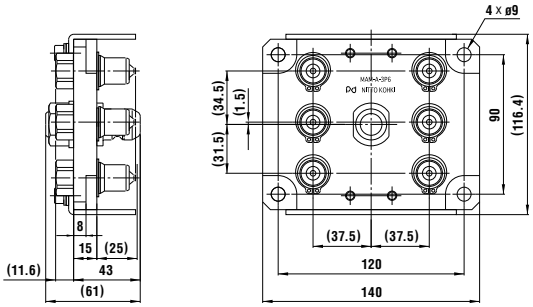
- **Application: R 3/8**
- **Mass: 1250 g (Plug), 2400 g (Socket)**

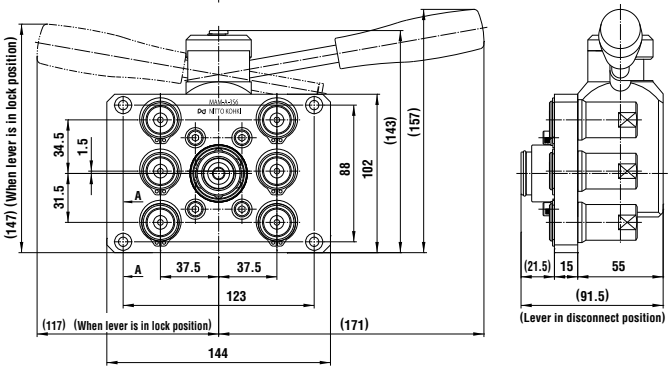
Socket: Model MAM-A-3S6





Plug: Model MAM-A-3P6





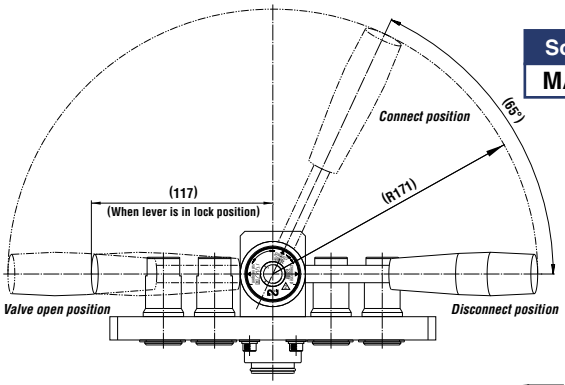
Dimensions (mm)

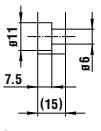
Model MAM-A-3P12 × MAM-A-3S12 (12 ports type)

Plate Type 12 ports

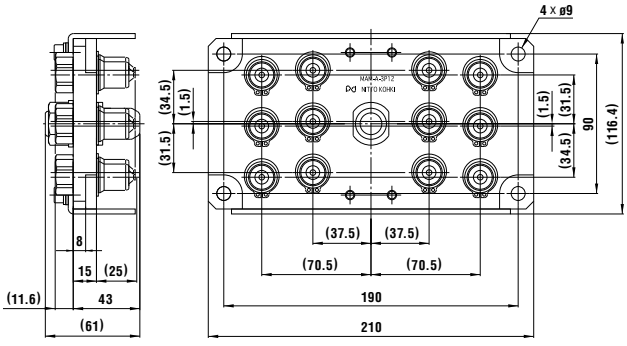
- **Application: R 3/8**
- **Mass: 1950 g (Plug), 3300 g (Socket)**

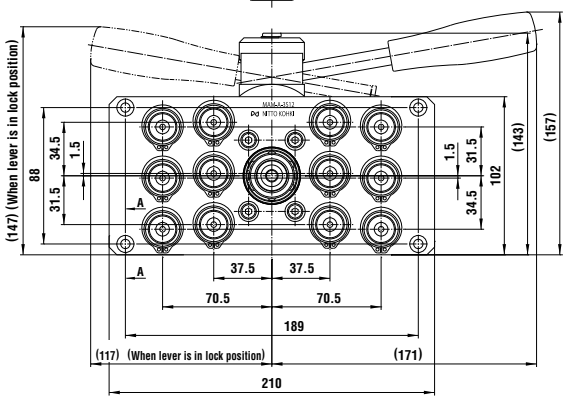
Socket: Model MAM-A-3S12

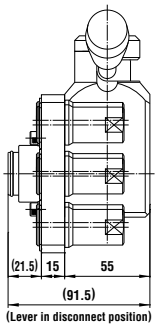




Plug: Model MAM-A-3P12



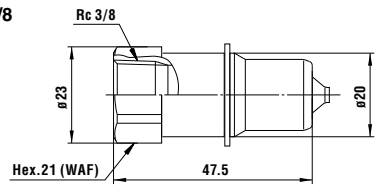




Dimensions (mm)

Plug Model MAM-A-3P (Individual Cupla)

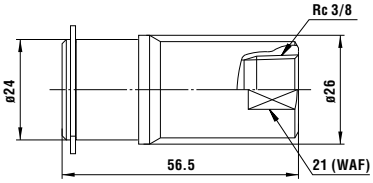
- **Application: R 3/8**
- **Mass: 62 g**



Dimensions (mm)

Socket Model MAM-A-3S (Individual Cupla)

- **Application: R 3/8**
- **Mass: 122 g**



Dimensions (mm)

Multi Cupla MAM-A Type

Made-to-order Multi Cuplas are available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

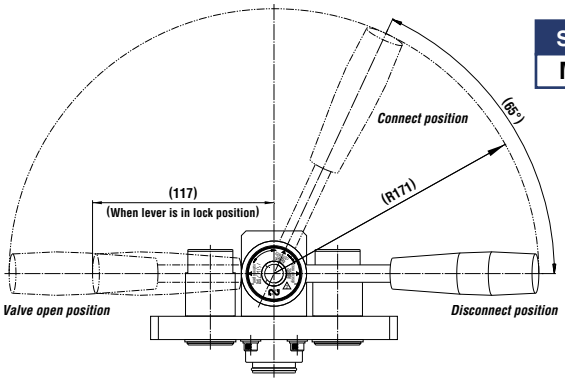
WAF : WAF stands for width across flats.

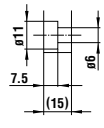
Model MAM-A-4P4 × MAM-A-4S4 (4 ports type)

Plate Type 4 ports

- **Application: R 1/2**
- **Mass: 1400 g (Plug), 2700 g (Socket)**

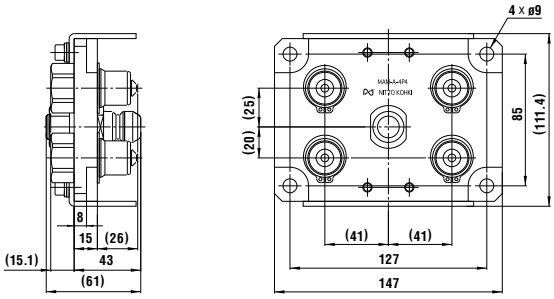
Socket: Model MAM-A-4S4

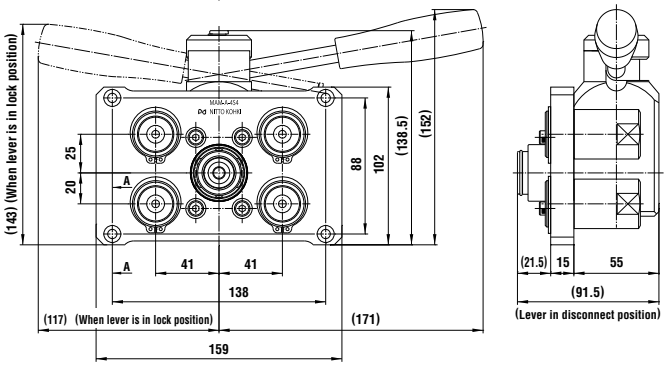




Cross section A-A (4 corners)

Plug: Model MAM-A-4P4





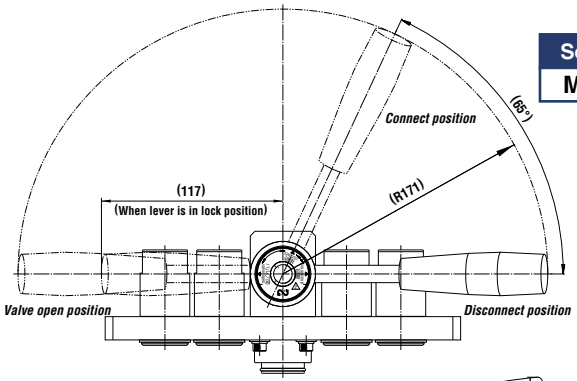
Dimensions (mm)

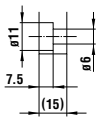
Model MAM-A-4P8 × MAM-A-4S8 (8 ports type)

Plate Type 8 ports

- **Application: R 1/2**
- **Mass: 2300 g (Plug), 4000 g (Socket)**

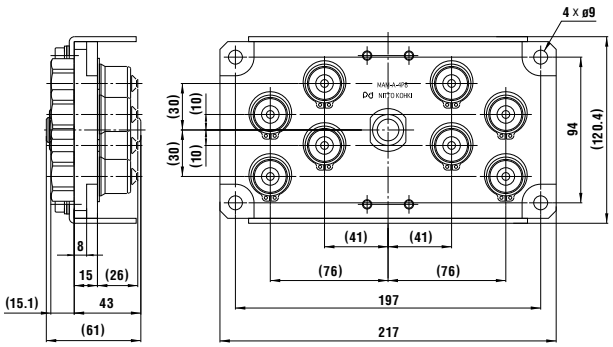
Socket: Model MAM-A-4S8

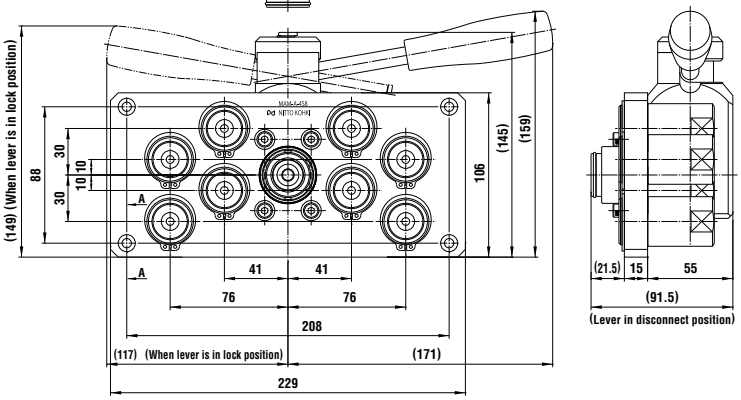




Cross section A-A (4 corners)

Plug: Model MAM-A-4P8

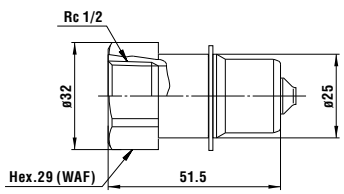




Dimensions (mm)

Plug Model MAM-A-4P (Individual Cupla)

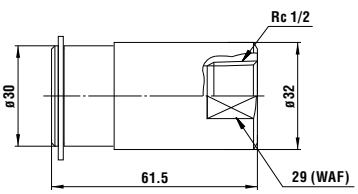
- **Application: R 1/2**
- **Mass: 127 g**



Dimensions (mm)

Socket Model MAM-A-4S (Individual Cupla)

- **Application: R 1/2**
- **Mass: 256 g**



Dimensions (mm)

For Low Pressure | One-way Shut-off Type

Multi Cupla

MALC-01 Type for Low Pressure Use

Working pressure: 1.0 MPa {10 kgf/cm²}
Valve structure: One-way shut-off
Applicable fluids: Air, Water

Solo use of socket is possible. Suitable for operation of ejector pins to open / close valve gates in molding.

- Solo use of socket is possible.
- As in the case of Multi Cupla MALC-SP type and MALC-HSP type, the distance between the socket plate and the plug plate is designed to be 30 mm when connected. This means the Multi Cupla MALC-01 type can also be installed mixed with any size of MALC-SP type and MALC-HSP type on the same plate.
- A 2 mm axial eccentricity allowance eliminates precise centering at installation.
- Compact size with " thread screw mount " and "with flange" types available.

MALC-01 (Thread screw mount) type (Plug)

MALC-01 (Thread screw mount) type (Socket)

MALC-01 (Flange) type (Plug)

MALC-01 (Flange) type (Socket)

Specifications

Applicable fluids	Air, Water			
Body material	Socket: Brass (Electroless nickel phosphorus plated) Plug: Brass (Nickel plated)			
Pressure unit	MPa	kgf/cm²	bar	PSI
Working pressure	1.0	10	10	145
Proof pressure	1.5	15	15	218
Seal material Working temperature range	Sealing material	Mark	Working temperature range	
	nitrile rubber	NBR (SG)	−20°C to +80°C	

Max. Tightening Torque — N m {kgf•cm}

Thread screw mount	15 {153}
Flange	1.5 {15}

Interchangeability

Socket and plug of MALC-01 Type can be connected regardless of end configuration. Not interchangeable with MALC-SP Type (for medium pressure use) MALC-1SP or MALC-HSP Type (for high pressure use) MALC-1HSP.

Min. Cross-Sectional Area — (mm²)

Min. cross-sectional area	28

Suitability for Vacuum

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

Load Required to Maintain Connection When Line Is Pressurized

F = (P × 160) + 50 { f = p × 1.6 + 5 }

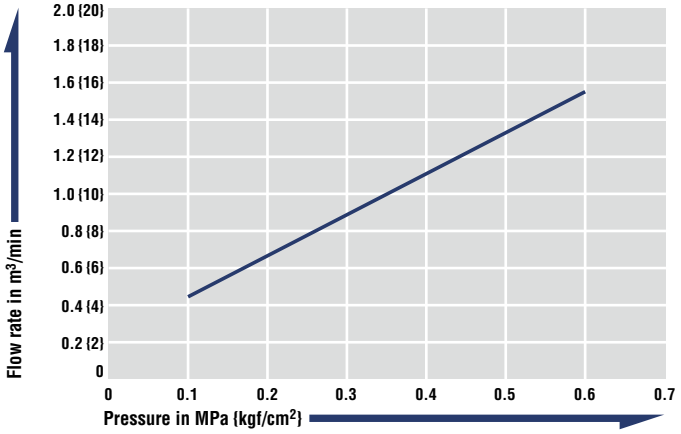
Minimum load required to maintain connection F [N] {f [kgf]}

Actual value of pressure P [MPa] {p [kgf/cm²]}

Assign the actual value of pressure [P (MPa), p (kgf /cm²)] to the above formula. Maintain the connection with this load [F (N), f (kgf)] or more. However, the maximum acceptable load is 500 N {51 kgf}.

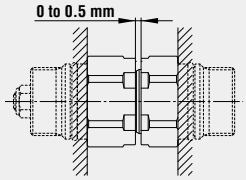
Pressure - Flow Characteristics

[Test conditions] •Fluid : Air •Temperature : Room temperature



Acceptable distance between plates

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

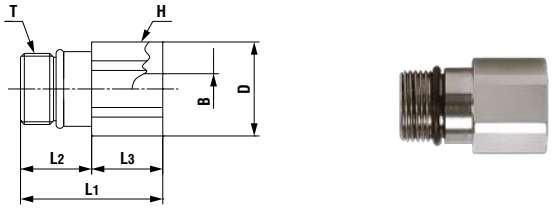


Multi Cupla MALC-01 Type

Models and Dimensions

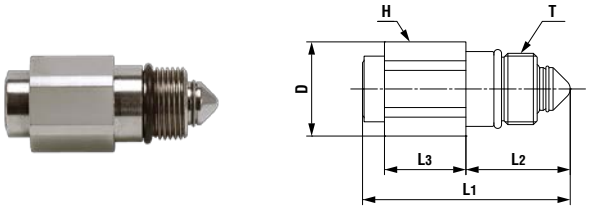
WAF : WAF stands for width across flats.

Plug MALC-01TP type (Thread screw mount)



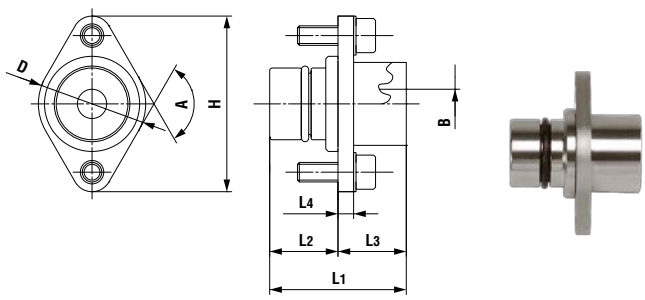
Model	Application	Mass (g)	Dimensions (mm)						
			L1	L2	L3	øD	øB	H (WAF)	T
MALC-01TP	See drawings below.	40	28	(14)	14	18.5	6	Hex.17	M14×1

Socket MALC-01S type (Thread screw mount)



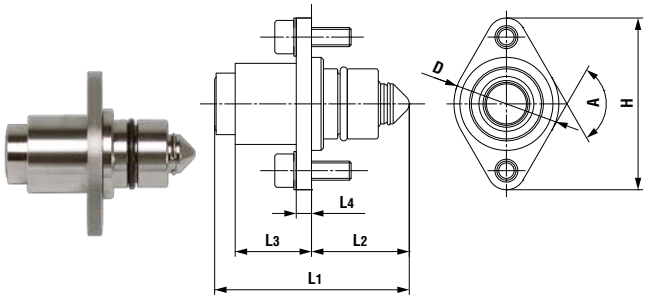
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H (WAF)	T
MALC-01S	See drawings below.	39	(41)	(20.5)	16	18.5	Hex.17	M14×1

Plug MALC-01TP-FL type (With flange)



Model	Application	Mass (g)	Dimensions (mm)							
			L1	L2	L3	L4	øD	A	øB	H
MALC-01TP-FL	See drawings below.	52	28	(14)	14	3.2	(22)	120°	6	36

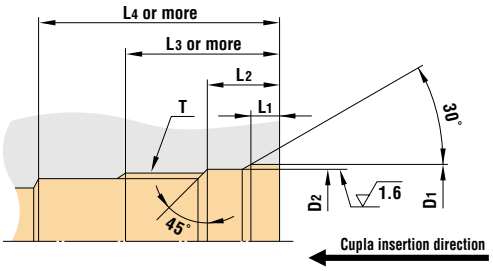
Socket MALC-01S-FL type (With flange)



Model	Application	Mass (g)	Dimensions (mm)						
			L1	L2	L3	L4	øD	A	H
MALC-01S-FL	See drawings below.	51	(41)	(20.5)	16	3.2	(22)	120°	36

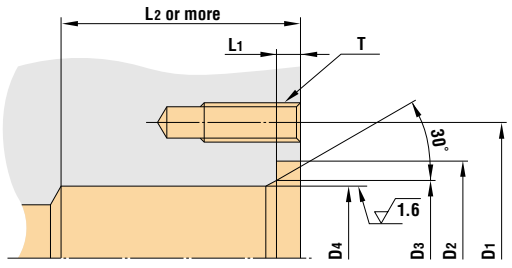
Dimensions of End Configurations

MALC-01TP / 01S type (Thread screw mount)



Model	Dimensions (mm)						
	øD1	øD2	L1	L2	L3	L4	T
MALC-01S	$15.8^{+0.05}_{0}$	$14.8^{+0.05}_{0}$	3	$7.5^{+0.2}_{0}$	16	25	M14 × 1
MALC-01TP						18	

MALC-01TP-FL / 01S-FL type (With flange)

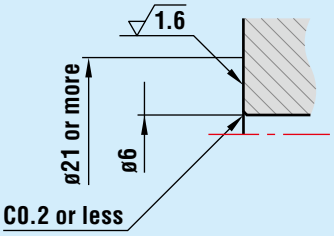


Model	Dimensions (mm)						
	D1	øD2	øD3	øD4	L1	L2	T
MALC-01S-FL	PCD28	20	16	$14.8^{+0.05}_{0}$	$2.5^{+0.1}_{0}$	25	2×M4×0.7 Thread depth 10 mm or more
MALC-01TP-FL						16	

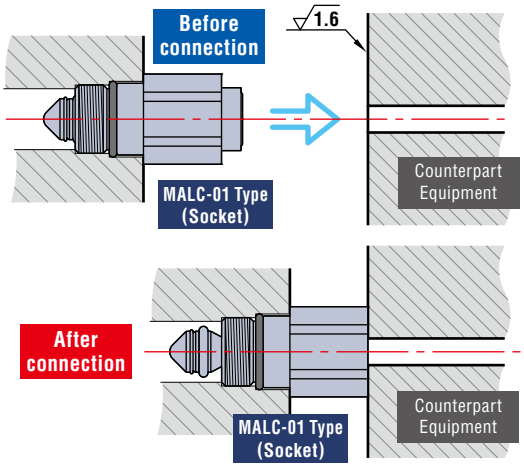
Solo use of socket is possible

The shape of counterpart for solo use of socket

The shape of counterpart for connection



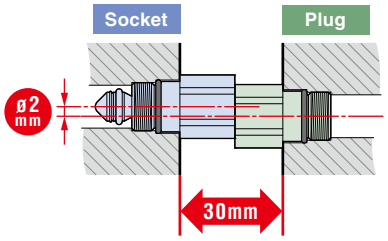
The angle of inclination between the socket and counterpart must be within 0.5 degrees.



Distance between plates is 16 mm for solo use of socket.

As in the case of Multi Cupla MALC-SP type and MALC-HSP type, the distance between the socket plate and the plug plate is designed to be 30 mm when connected. This means the Multi Cupla MALC-01 type can also be installed mixed with any size of MALC-SP type and MALC-HSP type on the same plate.

A 2 mm axial eccentricity allowance.



For Medium Pressure | Low Spill Type

Multi Cupla

MALC-SP 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: Stainless steel (Electroless nickel phosphorus plated)		
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 (1.5)
	kgf/cm²	71 (20)	51 (20)	15 (15)
	bar	70 (20)	50 (20)	15 (15)
	PSI	1020 (290)	725 (290)	218 (218)
Proof pressure *	MPa	10.5 (3.0)	7.5 (3.0)	2.3 (2.3)
	kgf/cm²	107 (31)	76 (31)	23 (23)
	bar	105 (30)	75 (30)	23 (23)
	PSI	1530 (435)	1090 (435)	334 (334)
Seal material / Working temperature range		Sealing material	Mark	Working temperature range
		Fluoro rubber	FKM (X-100)	−20°C to +180°C

* The value in brackets is working pressure or proof 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 (mL)

May vary depending upon the usage conditions.

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 (mL)

May vary depending upon the usage conditions.

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

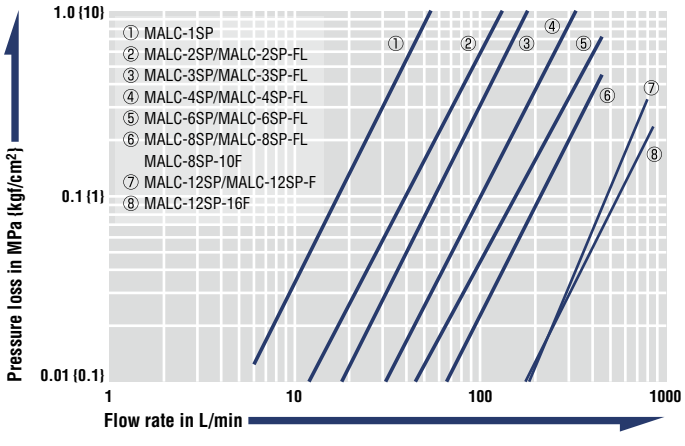
Load Required to Maintain Connection When Line Is Pressurized

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 × 170 + 85 {p × 1.7 + 8.5}	P × 345 + 180 {p × 3.45 + 18}	P × 460 + 190 {p × 4.6 + 19}	P × 855 + 260 {p × 8.55 + 26}	P × 1160 + 260 {p × 11.6 + 26}	P × 1360 + 310 {p × 13.6 + 31}	P × 2260 + 400 {p × 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

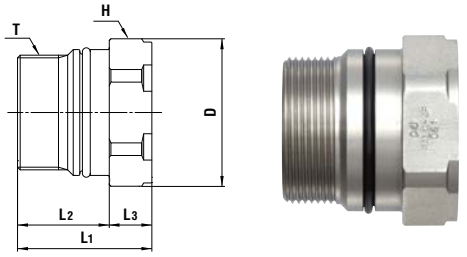


Multi Cupla MALC-SP Type

Models and Dimensions

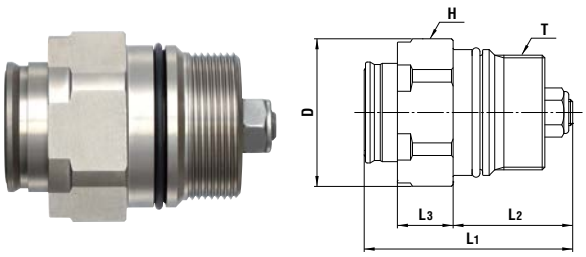
WAF : WAF stands for width across flats.

Plug MALC-1 to 12P type (Thread screw mount)



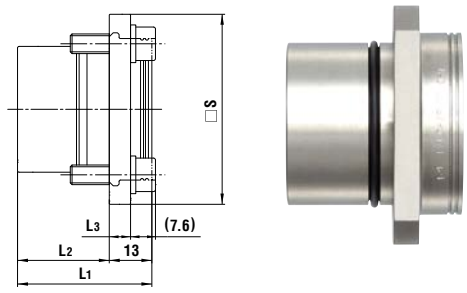
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H (WAF)	T
MALC-1P	See P19	40	32	(18)	14	21	Hex.19	M16 × 1
MALC-2P		75	33	(20)	13	28	Hex.26	M20 × 1.5
MALC-3P		95	33	(20)	13	32	Hex.29	M24 × 1.5
MALC-4P		248	41	(28)	13	45	Hex.41	M35 × 1.5
MALC-6P		369	50.5	(37.5)	13	50	Hex.46	M40 × 2
MALC-8P		399	53	(41)	12	54	Hex.50	M45 × 2
MALC-12P		724	57	(45)	12	74	Hex.67	M62 × 2

Socket MALC-1 to 12S type (Thread screw mount)



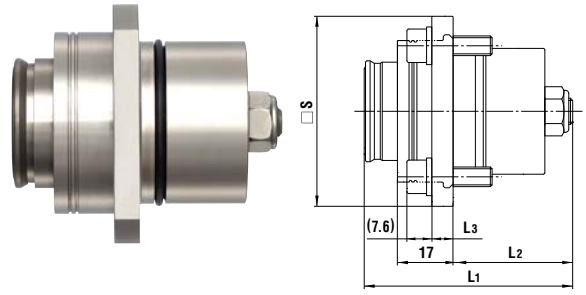
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H (WAF)	T
MALC-1S	See P19	53	(45)	(23)	16	21	Hex.19	M16 × 1
MALC-2S		95	(49)	(26)	17	28	Hex.26	M20 × 1.5
MALC-3S		120	(51)	(26)	17	32	Hex.29	M24 × 1.5
MALC-4S		306	(64)	(36.5)	17	45	Hex.41	M35 × 1.5
MALC-6S		471	(78.5)	(47.5)	17	50	Hex.46	M40 × 2
MALC-8S		590	(86)	(53)	18	54	Hex.50	M45 × 2
MALC-12S		1176	(98)	(60)	18	74	Hex.67	M62 × 2

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



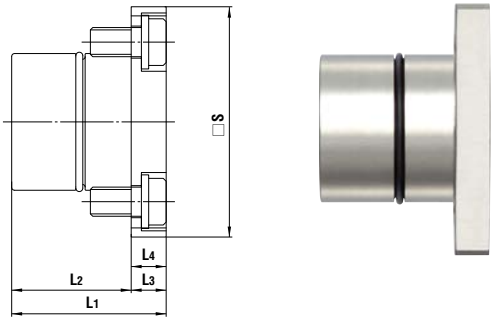
Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-2P-FL	See P19	146	30	(17)	6	40
MALC-3P-FL		180	33	(20)	6	45
MALC-4P-FL		390	41	(28)	6.5	58
MALC-6P-FL		553	50.5	(37.5)	6.5	64

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



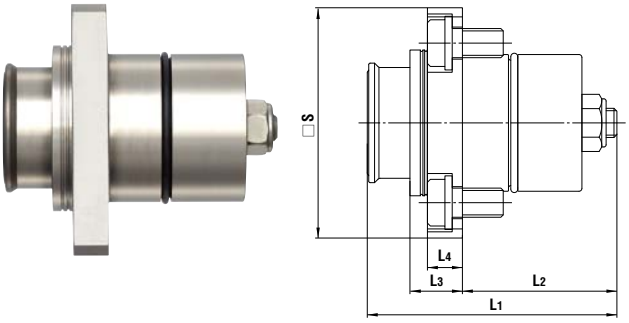
Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-2S-FL	See P19	173	(49)	(26)	6	40
MALC-3S-FL		208	(51)	(26)	6	45
MALC-4S-FL		449	(64)	(36.5)	6.5	58
MALC-6S-FL		663	(78.5)	(47.5)	6.5	64

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



Model	Application	Mass (g)	Dimensions (mm)				
			L1	L2	L3	L4	□S
MALC-8P-FL	See P19	796	53	(41)	12	12	79

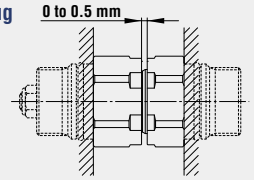
Socket MALC-8S-FL type (With flange)



Model	Application	Mass (g)	Dimensions (mm)				
			L1	L2	L3	L4	□S
MALC-8S-FL	See P19	978	(86)	(53)	18	12	79

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.

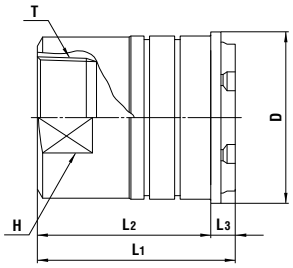


Multi Cupla MALC-SP Type

Models and Dimensions

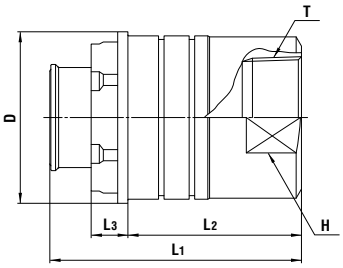
WAF : WAF stands for width across flats.

Plug MALC-8 / 12P type (With snap ring)



Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H (WAF)	T
MALC-8P-10F	See drawings below.	1182	(87)	75	(12)	64	54	Rc 1 1/4
MALC-12P-F		2054	(97)	85	(12)	84	58	Rc 1 1/2
MALC-12P-16F		2128	(97)	85	(12)	84	71	Rc 2

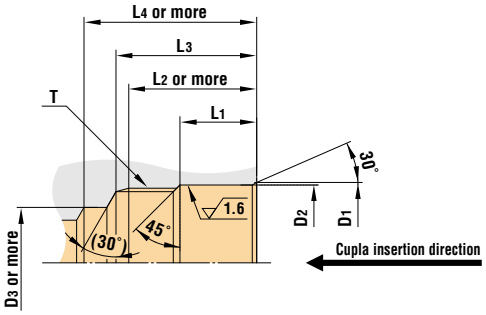
Socket MALC-8 / 12S type (With snap ring)



Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H (WAF)	T
MALC-8S-10F	See drawings below.	1373	(108)	75	(18)	64	54	Rc 1 1/4
MALC-12S-F		2505	(123)	85	(18)	84	58	Rc 1 1/2
MALC-12S-16F		2579	(123)	85	(18)	84	71	Rc 2

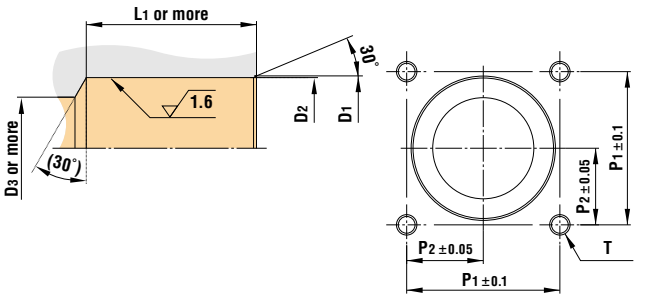
Dimensions of End Configurations

MALC-1 to 12SP type (Thread screw mount)



Model	Dimensions (mm)							
	øD1	øD2	øD3	L1	L2	L3	L4	T
MALC-1S MALC-1P	$18.3^{+0.1}_{0}$	$17.3^{+0.06}_{0}$	13	11	20	22	25	M16 × 1
MALC-2S MALC-2P	$24^{+0.1}_{0}$	$23^{+0.06}_{0}$	16	11.5	22	25	28	M20 × 1.5
MALC-3S MALC-3P	$27.6^{+0.1}_{0}$	$26.6^{+0.08}_{0}$	18	11	22	25	29	M24 × 1.5
MALC-4S MALC-4P	$39.5^{+0.1}_{0}$	$38.5^{+0.08}_{0}$	26	15.5	30	33	40.5	M35 × 1.5
MALC-6S MALC-6P	$45^{+0.1}_{0}$	$44^{+0.08}_{0}$	30	20	40	44	51.5	M40 × 2
MALC-8S MALC-8P	$48^{+0.3}_{0}$	$47^{+0.08}_{0}$	35	27	43	47	55	M45 × 2
MALC-12S MALC-12P	$66^{+0.3}_{0}$	$64^{+0.1}_{0}$	45	30	50	54	65	M62 × 2

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



Model	Dimensions (mm)						
	øD1	øD2	øD3	L1	P1	P2	T
MALC-2S-FL MALC-2P-FL	$24^{+0.1}_{0}$	$23^{+0.06}_{0}$	16	28 19	28	14	4 × M6 Thread depth 17 mm or more
MALC-3S-FL MALC-3P-FL	$27.6^{+0.1}_{0}$	$26.6^{+0.08}_{0}$	18	28 22	31	15.5	
MALC-4S-FL MALC-4P-FL	$39.5^{+0.1}_{0}$	$38.5^{+0.08}_{0}$	26	39 30.5	40	20	
MALC-6S-FL MALC-6P-FL	$45^{+0.1}_{0}$	$44^{+0.08}_{0}$	30	50 40	45	22.5	
MALC-8S-FL MALC-8P-FL	$48^{+0.3}_{0}$	$47^{+0.08}_{0}$	35	53 43	55	27.5	4 × M10 Thread depth 15 mm or more

MALC-8 / 12P type (With snap ring)

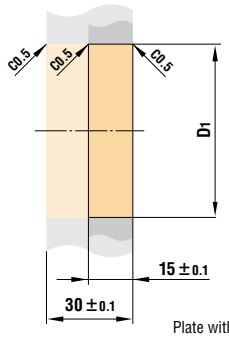


Plate with 15 mm or 30 mm thickness can be mounted.

Model	Dimensions (mm)
	øD1
MALC-8S-10F MALC-8P-10F	$60.1^{+0.1}_{0}$
MALC-12S-F MALC-12P-F	$80.1^{+0.1}_{0}$
MALC-12S-16F MALC-12P-16F	$80.1^{+0.1}_{0}$

For High Pressure | Low Spill Type

Multi Cupla

MALC-HSP Type for High Pressure Use

Working pressure: 21.0 to 25.0 MPa {214 to 255 kgf/cm²}
Valve structure: Two-way shut-off (Non-Spill)
Applicable fluid: Hydraulic oil

A single operation enables simultaneous connections of multiple lines. A special design minimizes 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 (Electroless nickel phosphorus plated)		
Model	Thread screw mount	MALC-1HSP	MALC-2 to 8HSP	
	Flange	-	MALC-2 to 8HSP-FL	
Working pressure *	MPa	25.0 (8.0)	21.0 (8.0)	
	kgf/cm²	255 (81)	214 (81)	
	bar	250 (80)	210 (80)	
	PSI	3630 (1160)	3050 (1160)	
Proof pressure *	MPa	37.5 (12)	31.5 (12)	
	kgf/cm²	382 (122)	321 (122)	
	bar	375 (120)	315 (120)	
	PSI	5440 (1740)	4570 (1740)	
Seal material / Working temperature range		Sealing material	Mark	Working temperature range
		Fluoro rubber	FKM (X-100)	-20°C to +180°C

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

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

(mm²)

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

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

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

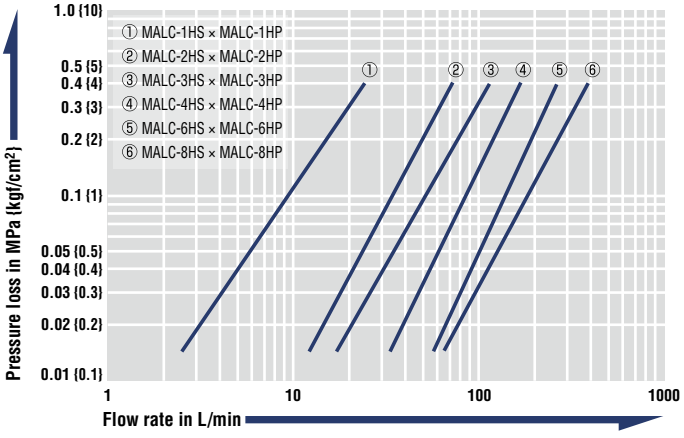
Load Required to Maintain Connection When Line Is Pressurized

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} *	P×170+85 {p×1.7+8.5}	P×345+180 {p×3.45+18}	P×460+190 {p×4.6+19}	P×855+260 {p×8.55+26}	P×1160+260 {p×11.6+26}	P×1360+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} m^2/s •Density : 0.87 × 10^3 kg/m^3

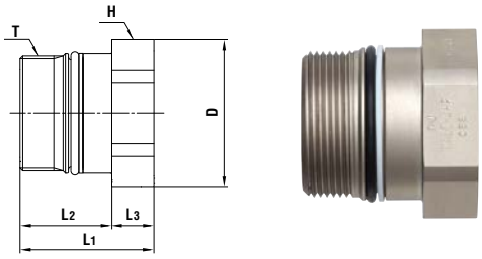


Multi Cupla MALC-HSP Type

Models and Dimensions

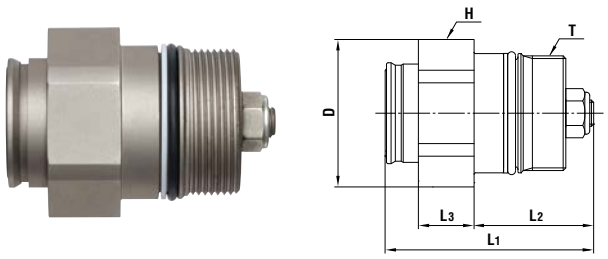
WAF : WAF stands for width across flats.

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



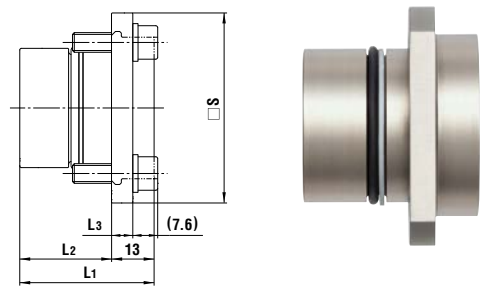
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H (WAF)	T
MALC-1HP	See P22	39	32	(18)	14	21	Hex.19	M16 × 1
MALC-2HP		73	33	(20)	13	28	Hex.26	M20 × 1.5
MALC-3HP		96	33	(20)	13	32	Hex.29	M24 × 1.5
MALC-4HP		250	41	(28)	13	45	Hex.41	M35 × 1.5
MALC-6HP		357	50.5	(37.5)	13	50	Hex.46	M40 × 2
MALC-8HP		391	53	(41)	12	54	Hex.50	M45 × 2

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



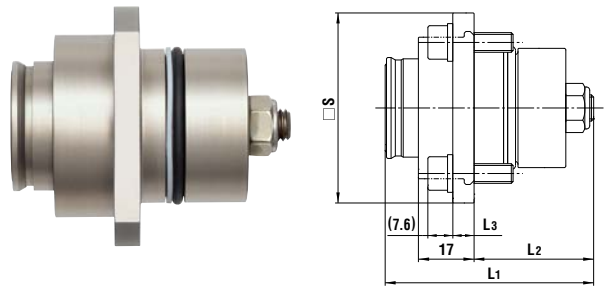
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H (WAF)	T
MALC-1HS	See P22	51	(45)	(23)	16	21	Hex.19	M16 × 1
MALC-2HS		89	(49)	(26)	17	28	Hex.26	M20 × 1.5
MALC-3HS		117	(51)	(26)	17	32	Hex.29	M24 × 1.5
MALC-4HS		290	(64)	(36.5)	17	45	Hex.41	M35 × 1.5
MALC-6HS		447	(78.5)	(47.5)	17	50	Hex.46	M40 × 2
MALC-8HS		579	(86)	(53)	18	54	Hex.50	M45 × 2

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



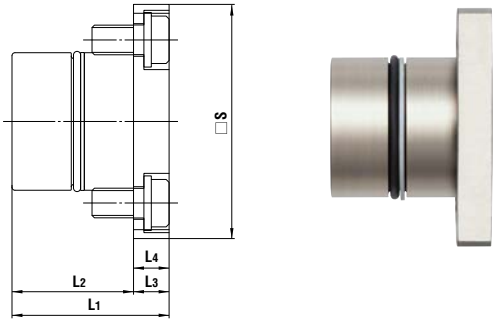
Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-2HP-FL	See P22	142	30	(17)	6	40
MALC-3HP-FL		179	33	(20)	6	45
MALC-4HP-FL		367	41	(28)	6.5	58
MALC-6HP-FL		514	50.5	(37.5)	6.5	64

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



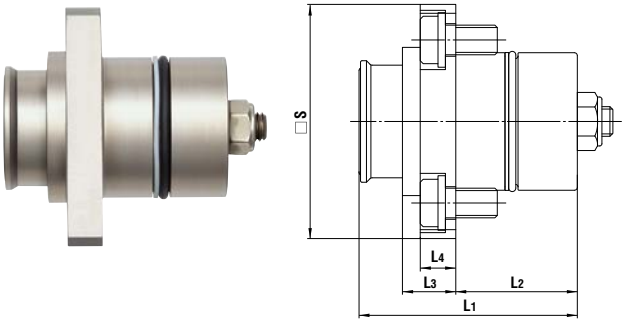
Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-2HS-FL	See P22	163	(49)	(26)	6	40
MALC-3HS-FL		200	(51)	(26)	6	45
MALC-4HS-FL		418	(64)	(36.5)	6.5	58
MALC-6HS-FL		611	(78.5)	(47.5)	6.5	64

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



Model	Application	Mass (g)	Dimensions (mm)				
			L1	L2	L3	L4	□S
MALC-8HP-FL	See P22	786	53	(41)	12	12	79

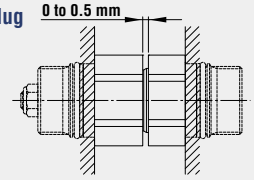
Socket MALC-8HS-FL type (With flange)



Model	Application	Mass (g)	Dimensions (mm)				
			L1	L2	L3	L4	□S
MALC-8HS-FL	See P22	964	(86)	(53)	18	12	79

Acceptable distance between Socket and Plug

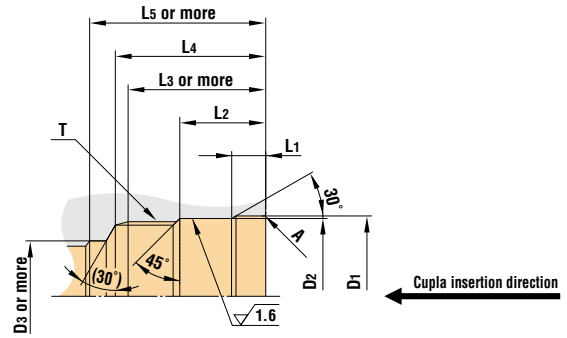
Plug and socket must be used in contact with each other.
Maximum 0.5 mm distance between socket and plug is acceptable.



Multi Cupla MALC-HSP Type

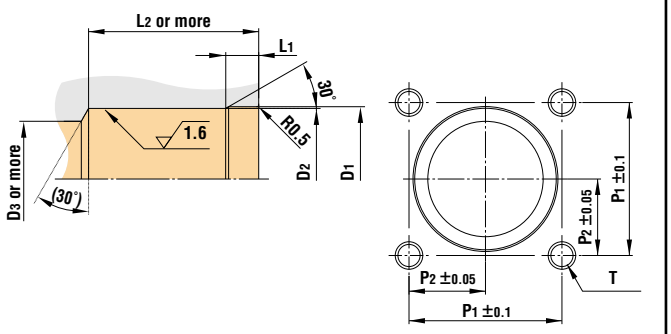
Dimensions of End Configurations

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



Model	Dimensions (mm)									
	øD1	øD2	øD3	L1	L2	L3	L4	L5	T	A
MALC-1HS MALC-1HP	$17.8^{+0.1}_{0}$	$16.8^{+0.06}_{0}$	13	$3.5^{+0.2}_{0}$	11	20	22	25	M16 × 1	C0.2
MALC-2HS MALC-2HP	$23^{+0.1}_{0}$	$22^{+0.06}_{0}$	16	$2.8^{+0.2}_{0}$	11	22	25	28	M20 × 1.5	R0.5
MALC-3HS MALC-3HP	$27.1^{+0.1}_{0}$	$26^{+0.08}_{0}$	18	$2.8^{+0.2}_{0}$	11	22	25	29	M24 × 1.5	R0.5
MALC-4HS MALC-4HP	$37.7^{+0.3}_{0}$	$36.5^{+0.08}_{0}$	26	$6^{\pm0.2}$	18	30	33	40.5	M35 × 1.5	R0.5
MALC-6HS MALC-6HP	$42.5^{+0.3}_{0}$	$41.5^{+0.08}_{0}$	30	$6^{\pm0.2}$	23	40	44	51.5	M40 × 2	R0.5
MALC-8HS MALC-8HP	$47.5^{+0.3}_{0}$	$46.5^{+0.08}_{0}$	35	$10.5^{\pm0.2}$	27	43	47	55	M45 × 2	R0.5

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



Model	Dimensions (mm)							
	øD1	øD2	øD3	L1	L2	P1	P2	T
MALC-2HS-FL	$23^{+0.1}_{0}$	$22^{+0.06}_{0}$	16	$2.8^{+0.2}_{0}$	28	28	14	4 × 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	$6^{\pm0.2}$	39	40	20	
MALC-4HP-FL					30.5			
MALC-6HS-FL	$42.5^{+0.3}_{0}$	$41.5^{+0.08}_{0}$	30	$6^{\pm0.2}$	50	45	22.5	
MALC-6HP-FL					40			
MALC-8HS-FL	$47.5^{+0.3}_{0}$	$46.5^{+0.08}_{0}$	35	$10.5^{\pm0.2}$	53	55	27.5	4 × M10 Thread depth 15 mm or more
MALC-8HP-FL					43			

For Medium Pressure | 7.0 MPa { 71 kgf/cm² }

Multi Cupla

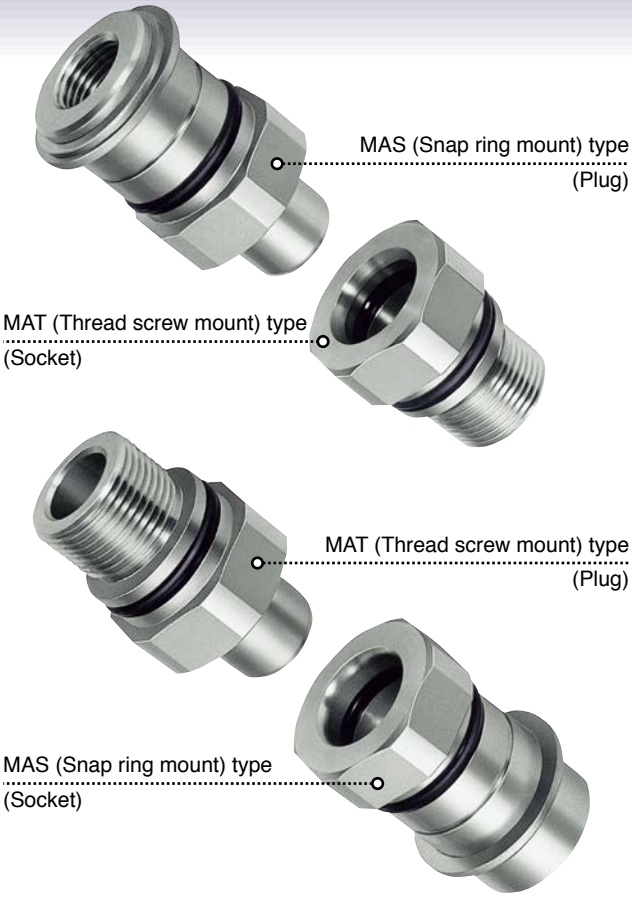
MAS Type / MAT Type

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 or disconnection with fluid under dynamic pressure cannot be made.



Specifications

Body material	Stainless steel (Electroless nickel phosphorus plated)			
Pressure unit	MPa	kgf/cm²	bar	PSI
Working pressure	7.0	71	70	1020
Proof pressure	10.0	102	100	1450

Seal material / Working temperature range	Sealing material	Mark	Working temperature range
	Fluoro rubber	FKM (X-100)	-20°C to +180°C

Max. Tightening Torque — Nm {kgf•cm}

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

Size (Thread)	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 — 1.3×10^{-1} Pa {1×10^{-3} mmHg}

Socket only	Plug only	When connected
—	—	Operational

Admixture of Air on Connection — May vary depending upon the usage conditions. (mL)

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

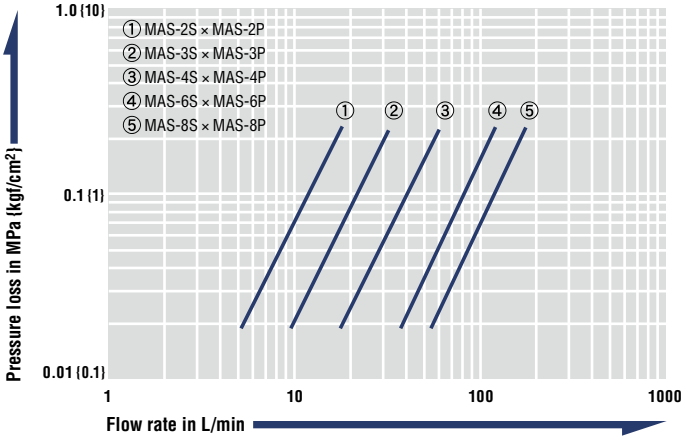
Load Required to Maintain Connection When Line Is Pressurized

Model	2SP	3SP	4SP	6SP	8SP
Maximum acceptable load N {kgf}	3200 {327}	5200 {531}	9200 {939}	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+85 {p×5.45+8.5}	P×850+95 {p×8.5+9.5}	P×1225+120 {p×12.25+12}

* 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 : 20°C ± 5°C

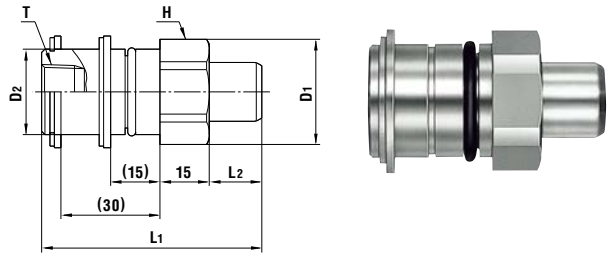


Multi Cupla MAS Type / MAT Type

Models and Dimensions

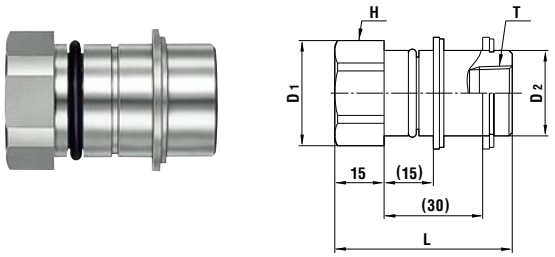
WAF : WAF stands for width across flats.

Plug MAS type (With snap ring)



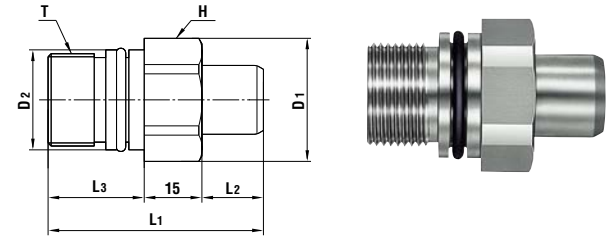
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	øD1	øD2	H (WAF)	T
MAS-2P	R 1/4	150	65	14	28	21.9	Hex.26	Rc 1/4
MAS-3P	R 3/8	203	67	16	35	25.9	Hex.32	Rc 3/8
MAS-4P	R 1/2	412	73	20	44	35.9	Hex.41	Rc 1/2
MAS-6P	R 3/4	579	76.5	23.5	50	41.9	Hex.46	Rc 3/4
MAS-8P	R 1	720	78	24	58	47.9	Hex.54	Rc 1

Socket MAS type (With snap ring)



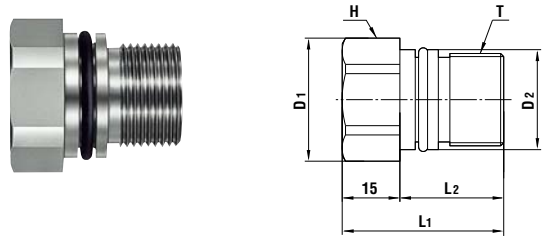
Model	Application	Mass (g)	Dimensions (mm)				
			L	øD1	øD2	H (WAF)	T
MAS-2S	R 1/4	126	51.5	28	21.9	Hex.26	Rc 1/4
MAS-3S	R 3/8	171	55	35	25.9	Hex.32	Rc 3/8
MAS-4S	R 1/2	406	65	44	35.9	Hex.41	Rc 1/2
MAS-6S	R 3/4	604	76	50	41.9	Hex.46	Rc 3/4
MAS-8S	R 1	825	87	58	47.9	Hex.54	Rc 1

Plug MAT type (Thread screw mount)



Model	Application	Mass (g)	Dimensions (mm)						
			L1	L2	L3	øD1	øD2	H (WAF)	T
MAT-2P	See drawings below.	121	53	14	(24)	28	21.9	Hex.26	M20×1.5
MAT-3P		164	56	16	(25)	32	25.9	Hex.29	M24×1.5
MAT-4P		332	67	20	(32)	44	35.9	Hex.41	M30×2
MAT-6P		453	73	23.5	(34.5)	50	41.9	Hex.46	M39×2
MAT-8P		571	76	24	(37)	54	47.9	Hex.50	M45×2

Socket MAT type (Thread screw mount)

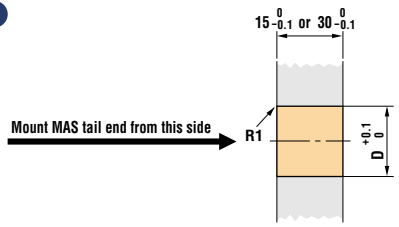


Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	øD1	øD2	H (WAF)	T
MAT-2S	See drawings below.	95	39	(24)	28	21.9	Hex.26	M20×1.5
MAT-3S		124	42	(27)	32	25.9	Hex.29	M24×1.5
MAT-4S		246	48	(33)	44	35.9	Hex.41	M30×2
MAT-6S		382	58	(43)	50	41.9	Hex.46	M39×2
MAT-8S		506	66	(51)	54	47.9	Hex.50	M45×2

• MAT type must be coupled with MAS type.

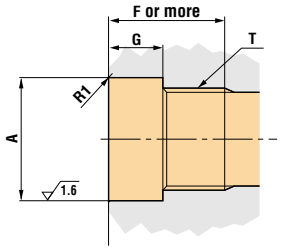
Dimensions of End Configurations

MAS Type



Model	Dimensions (mm)
	øD
MAS-2S / MAS-2P	23
MAS-3S / MAS-3P	27
MAS-4S / MAS-4P	37
MAS-6S / MAS-6P	43
MAS-8S / MAS-8P	49

MAT Type



Model	Dimensions (mm)				
	øA	G	F		T
			Pulg	Socket	
MAT-2S / MAT-2P	22 +0.06 0	13	25		M20×1.5
MAT-3S / MAT-3P	26 +0.06 0	13	26	28	M24×1.5
MAT-4S / MAT-4P	36 +0.08 0	16	34	35	M30×2
MAT-6S / MAT-6P	42 +0.08 0	17	36.5	45	M39×2
MAT-8S / MAT-8P	48 +0.08 0	17	39	53	M45×2

Safety Guide

Be sure to read this page before using Cupla.

Safety Precautions

The safety precautions provide instructions for the safe use of Nitto Kohki Cuplas to avoid the potential danger of bodily harm or damage to surrounding property. The safety precautions are categorized under the headings Danger, Warning and Caution, in accordance with the degree of potential hazard to the body or surrounding property, if the Cuplas are used incorrectly. They are all important notes for safety and must be followed as well as in accordance with International standards #1 and other local safety regulations #2.

#1: ISO 4413, Hydraulic Fluid Power – General rules relating to systems ISO 4414, Pneumatic Fluid Power – General rules relating to systems
#2: Industrial Health & Safety law (for example)

⚠ DANGER — **Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

⚠ WARNING — **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ CAUTION — **Indicates a potentially hazardous situation which, if not avoided, may result in personal injury or property damage.**

⚠ DANGER

Stop using the Cupla immediately if there is any anticipated danger of operation or reduced safety.

⚠ WARNING

The enclosed safety precautions are only a guideline. When using Nitto Kohki Cuplas, you are requested to pay particular attention to possible hazardous situations for the application which are not stated in the safety precautions.

Caution When Selecting Cuplas

⚠ DANGER

- Connection to a coupling of another brand may cause imperfect connection or disconnection, reduced air tightness, impaired pressure resistance or durability, reduced flow rate and potentially result in an unexpected accident and therefore must be avoided. Nitto Kohki cannot accept liability for any accident that may result by mixed use with the coupling of another brand. Please be sure to check for our marks on the right hand side of this page, which are always inscribed on Nitto Kohki Cupla products, when you order and purchase.
- Do not use Cuplas under conditions and environments other than specified in the catalog.

⚠ WARNING

- Please consult us prior to use if Cuplas are required for use on machines, equipment or systems (hereafter referred to as “equipment, systems, etc.”) for sustaining or controlling human life or body.
- When Cuplas are used for the purpose of ensuring safety, please consult us beforehand.
- The compatibility of the product with specific equipment, systems, etc. must be determined by the person designing the equipment, systems, etc. or the person who decides its specifications based on necessary analysis and test result. The expected performance and safety assurance of the equipment, systems, etc. will be the responsibility of the person who has determined its compatibility with the product.
- If Cuplas are to be used for the following applications, please consult us:
  - Vehicles, aircraft and associated equipment systems that accommodate people
  - Medical facilities or suction equipment that directly affects human body
  - Equipment that directly comes into contact with and runs food, drugs or medicines, drinking water, atomic energy equipment or equipment that ensures safety.
- Selecting the wrong type of seal material may cause a leak. In making your selection, please check the compatibility of the seal material with the type of fluid and temperature used in the application.
- Please consult us prior to selection or use of Cuplas when they are intended for use with corrosive or flammable gases/liquids and/or in atmospheres of these types of gases and liquids.

Warranty and Disclaimer

Our responsibilities for the defects in our products shall be as follows:

- We shall be responsible for any defects in design, material or workmanship of our products, if it is apparent that such defects are due to reasons solely attributable to us.
- Our responsibilities shall be limited to one of the following, as determined by us:
  (a) repair of any defective products or parts thereof,
  (b) replacement of any defective products or parts thereof; or
  (c) compensation for loss and damages incurred by you, which shall in no case exceed the amount of your purchase price for the defective products.
- We shall in no case be liable for any special, indirect or consequential loss or damages, whether such loss or damages are those arising from work stoppage, impairment of other goods or death or personal injury.

Performance, Dimensions and Its Limitation

Please note the performance charts and outside dimensions in this catalog do not take into account any tolerances found in mass production.
The information is an average, to be a guide for selecting models and to enable technical appraisal by users.

Beware of Imitations

Recently, similar products which invite misidentification or confusion with Nitto Kohki Cuplas have appeared on the market.
Connection with such a similar product to a Nitto Kohki Cupla may cause:

1. Imperfect connection or disconnection
2. Reduced air tightness
3. Impaired pressure resistance or durability
4. Reduced flow rate

and could result in unexpected accidents.
Therefore, connection other than with a Nitto Kohki Cupla must be avoided.
Please be sure to check for our original marks on the right hand side of this page, which are always inscribed on Nitto Kohki Cupla products, when you order and purchase.

Note:
Nitto Kohki cannot accept any liability for any accident that may occur as a result of using couplings of another brand in conjunction with our own.

Markings

Safety Guide

Be sure to read this page before using Cupla.

Before using a CUPLA, please read the instructions given below and be sure to observe all precaustions.

Working pressure: The normal allowable fluid pressure under continuous use. Continuously exceeding the working pressure may cause leakage or damage.

Proof Pressure: The maximum pressure, up to which the performance of the cupla will not be affected - even if the max working pressure is temporarily exceeded.

Working temperature range: The minimum and maximum temperature, in-between which the Cupla with the seal material can be used. However, it does not mean that they can be used continuously at the minimum or maximum working temperatures. Please check with us if you need Cuplas in such extreme applications.

Overall Multi Cuplas

⚠Caution

- Prior to use, check the compatibility of the seal material and body material against the temperature and the fluid to be used. Selecting the wrong seal material will lead to leakage. As to the use of any special paint or solvent, make thoroughly sure of the material compatibility.
- Only use Cuplas that are within their rated temperature range. Otherwise this can lead to leakage through seal deterioration or damage. It cannot be used continuously at its lowest or highest rated working temperature.
- The durability of the Cupla differs depending on the operating environment and conditions (pressure and temperature etc.). If necessary, conduct performance evaluation test under your actual operating environment and conditions. Also, stress corrosion cracking may occur if used under corrosive environment. Take note of usage conditions.
- When cleaning Cuplas, care must be taken not to use any material that will affect the seal and body materials.
- Apply a fluoropolymer resin sealant tape on male tapered pipe threads to ensure no leak. (Applies to Snap ring mount Type, MAM Type, MAM-A Type, MAM-B Type)
- Do not exceed the recommended maximum torque when screwing in to the male or female thread of a Cupla for installation. It will cause damage.
- Prior to use, always perform a leak test after installing the Cupla.
- Always install a shut-off valve between the pressure source and the Cupla.
- Do not use with any fluid or medium other than what is specified, to do so could cause leakage or damage.
- The use of inline filters is strongly advised and recommended. To prevent damage, the fluid should be clean before reaching the Cupla.
- Do not use Cuplas in areas or environment where dust such as sand or metal powder can get in to the Cuplas. It will lead to malfunction or leakage.
- Do not let paint stick to the Cupla. It will cause malfunction or leakage.
- Be careful not to put scratches or dents on the Cupla. Scratches on the sealing parts will cause leakage.
- Do not apply any artificial impact, bend or tension. It will cause leakage or damage.
- Connecting the Cuplas directly to vibrating or impacting equipment will result in reduced lifetime.
- Use only as quick connect couplings for fluid pipelines.
- Only use Cuplas in a combination with Nitto Kohki's Cuplas.

MAM Type

⚠Warning

- Do not connect / disconnect with fluid still under dynamic pressure or static residual pressure exceeding the maximum working pressure. It will cause damage to the Cupla.
- Do not drop Multi Cuplas. It will cause deformation of the plate.

⚠Caution

- Do not use Cuplas continuously exceeding the rated working pressure. It will cause leakage or damage.
- Make sure that O-rings and Packing seals are lubricated with grease or oil at all times. If not, the O-rings will get damaged and cause leakage.
- Do not deform the stop ring when installing Cuplas. If the stop ring is widened, it may come off from its groove and lead to poor connection or damage of the Cupla. Also change the stop ring with a new one when replacing the Cupla.
- Install hoses symmetrically from the locking unit when they are connected to the Cupla in order to distribute the reaction force evenly. Failure to do so will lead to breakage.
- Connect after making sure that the lever is in the "connect" position. It will not connect if it is not in the "connect" position.
- Do not force turning the lever. It will cause breakage.
- Do not disassemble Cuplas. It will cause leakage or damage.

MAM-A Type / MAM-B Type

⚠Warning

- Do not connect or disconnect Cuplas while they are pressurized or residual pressure of more than 0.6 MPa remains. It will cause damage to the Cuplas.
- Do not use Cuplas continuously exceeding the rated working pressure. It will cause leakage or damage.
- Do not drop Multi Cuplas. It will cause deformation of the plate.

⚠Caution

- Make sure that O-rings and Packing seals are lubricated with grease or oil at all times. If not, the O-rings will get damaged and cause leakage.
- Install the C type retaining ring by using a pair of snap ring pliers. If the C type retaining rings are expanded too much, it will come off from its groove and lead to poor connection or breakage. Also change the retaining ring with a new one when replacing the Cupla.
- Install hoses symmetrically from the locking unit when they are connected to the Cupla in order to distribute the reaction force evenly. Failure to do so will lead to breakage.
- Connect after making sure that the lever is in the "connect" position. It will not connect if it is not in the "connect" position.
- Do not force turning the lever. It will cause breakage.
- Do not strike the tip of an automatic shut-off valve with a hammer or a similar tool. It will cause leakage or malfunction.
- Use it in the state that the fluid does not freeze in the case of water. If it freezes, it will cause damage to the Cupla.
- Design and keep the fluid flow speed through the Cupla below 8 m/s. It will cause damage to the valve if used at 8 m/s or over.
- Do not disassemble Cuplas. It will cause leakage or damage.

⚠ Caution for Storing Cuplas

- Store Cuplas in a place where no dust or foreign matter gets in. If fluid flows while the dust or foreign matter is present inside Cuplas, the dust or foreign matter may go into the equipment connected to the Cupla and may cause malfunction.
- Store Cuplas indoors away from water or moisture.
- Store Cuplas in a shaded, dry and well-ventilated place.
- Do not to drop Cuplas. It will deform or damage Cuplas.
- If Cuplas are stored or not being used for a long period of time, check their appearance, function and performance before use.

MALC-01 Type

⚠Caution

- Do not use Cuplas continuously exceeding the rated working pressure. It will cause leakage or damage.
- Keep the center axis eccentricity of the Socket, Plug and/or hole in the plate within 2 mm diameter. Failure to do so will lead to leakage or breakage. For the dimensions of end configurations for processing on plates, see the page in this catalog where MALC-01 Type is described.
- Obliquity of socket and plug must be within 0.5 degrees during connection or disconnection. If installed exceeding 0.5 degrees, it will cause leakage or damage.
- When connecting, connect socket and plug together tightly without a gap. However, it can be used even when the gap is 0.5 mm. If the gap exceeds 0.5 mm the flow will be reduced.
- For the load required to maintain connection when the Cupla is connected, see the page in this catalog where MALC-01 Type is described. Connection exceeding the maximum acceptable load will cause breakage. Connecting below the minimum load required to maintain connection will result in reduced flow.
- When using water, judge whether the Cupla can be used or not by conducting a performance evaluation test under your actual operating environment and conditions. Leakage may occur according to rust or foreign matter in the piping or solidified minerals. Use it in the state that the fluid does not freeze in the case of water. If it freezes, it will cause damage to the Cupla.
- Design and keep the fluid flow speed through the Cupla below 8 m/s. It will cause damage to the valve if used at 8 m/s or over.
- Do not drop the Cupla. It will cause leakage or malfunction.
- Do not disassemble Cuplas. It will cause leakage or damage.

MALC-SP Type / MALC-HSP Type

⚠Danger

- Do not use uncoupled socket or plug continuously exceeding its rated working pressure. It will cause leakage or damage. (Applies to MALC Type Cupla)

⚠Warning

- Do not use Cuplas continuously exceeding the rated working pressure. It will cause leakage or damage.
- Do not disassemble Cuplas. It will cause leakage or damage.

⚠Caution

- Keep the center axis eccentricity of the Socket and Plug within 2mm diameter. Failure to do so will lead to leakage or breakage.
- Obliquity of socket and plug must be within 0.5 degrees during connection or disconnection. If installed exceeding 0.5 degrees, it will cause leakage or damage.
- Install the C type retaining ring by using a pair of snap ring pliers. If the C type retaining rings are expanded too much, it will come off from its groove and lead to poor connection or breakage. Also change the retaining ring with a new one when replacing the Cupla. (Applies to Snap ring mount Type)
- Care must be taken when installing Cuplas not to overtighten or cross thread, this can cause damage and lead to leakage. (Applies to MALC-SP Type Cupla)
- When connecting, connect socket and plug together tightly without a gap. However, it can be used even when the gap is 0.5 mm. If the gap exceeds 0.5 mm the flow will be reduced.
- For the load required to maintain connection when the Cupla is connected, see the page in this catalog where MALC-SP Type or MALC-HSP Type is described. Connection exceeding the maximum acceptable load will cause breakage. Connecting below the minimum load required to maintain connection will result in reduced flow.
- Do not strike the tip of an automatic shut-off valve with a hammer or a similar tool. It will cause leakage or malfunction.
- Use it in the state that the fluid does not freeze in the case of water. If it freezes, it will cause damage to the Cupla.
- Design and keep the fluid flow speed through the Cupla below 8 m/s. It will cause damage to the valve if used at 8 m/s or over.
- Do not drop the Cupla. It will cause leakage or malfunction.

MAS Type / MAT Type

⚠Warning

- Do not apply pressure to a Cupla socket or plug while they are disconnected. It will cause leakage or damage.
- Do not use Cuplas continuously exceeding the rated working pressure. It will cause leakage or damage.

⚠Caution

- Make sure that O-rings and Packing seals are lubricated with grease or oil at all times. If not, the O-rings will get damaged and cause leakage.
- Keep the center axis eccentricity of the Socket and Plug within 0.6 mm diameter. Failure to do so will lead to leakage or breakage.
- Install the C type retaining ring by using a pair of snap ring pliers. If the C type retaining rings are expanded too much, it will come off from its groove and lead to poor connection or breakage. Also change the retaining ring with a new one when replacing the Cupla. (Applies to MAS Type Cupla)
- Care must be taken when installing Cuplas not to overtighten or cross thread, this can cause damage and lead to leakage.
- When connecting, connect socket and plug together tightly without a gap. If the gap exceeds 0.5 mm the flow will be reduced.
- For the load required to maintain connection when the Cupla is connected, see the page in this catalog where MAS Type / MAT Type is described. Connection exceeding the maximum acceptable load will cause breakage. Connecting below the minimum load required to maintain connection will result in reduced flow.
- Do not connect/disconnect with fluid still under dynamic pressure or static residual pressure. It will cause damage to the valve.
- Do not strike the tip of an automatic shut-off valve with a hammer or a similar tool. It will cause leakage or malfunction.
- Use it in the state that the fluid does not freeze in the case of water. If it freezes, it will cause damage to the Cupla.
- Design and keep the fluid flow speed through the Cupla below 8 m/s. It will cause damage to the valve if used at 8 m/s or over.
- Do not drop the Cupla. It will cause leakage or malfunction.
- Do not disassemble Cuplas. It will cause leakage or damage.

บริษัท นานดีอินเตอร์เทรด จำกัด
NANDEE INTER-TRADE CO., LTD.
314,316,318,320,322 ซอยจันทน์32 ถนนจันทน์ แขวงทุ่งวัดดอน เขตสาทร กทม. 10120

: 0-2675-8239
: @nandeeintertrade
: nandeeintertrade
: www.nandee.co.th
: marketing@nandee.co.th
sales@nandee.co.th