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 with CUPLA

MULTI CUPLA MAM Type

Individual CUPLA **MAM Type**

MAM-1TP MAM-1S

Plate with CUPLA

MULTI CUPLA MAM-B Type

Plate with CUPLA

MULTI CUPLA MAM-A Type

Individual CUPLA **For MAM-A Type** **For MAM-B Type**

General purpose type

MAM-A-SP Type

Low spill type

MAM-A-ZEL Type

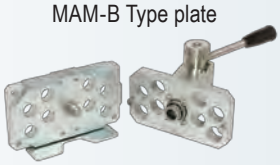
The MAM-A-ZEL type is sold only as individual CUPLA.

Plate without CUPLA

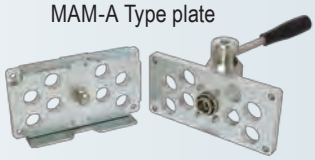
Plates with lock unit

MULTI CUPLA MAM-A Type MAM-B Type

MAM-B Type plate



MAM-A Type plate



Individual CUPLA

MULTI CUPLA MALC Type MAS / MAT Type

MAS Type/MAT Type

MALC Type

Nitto Kohki's environmentally-friendly Manufacturing

Green Procurement

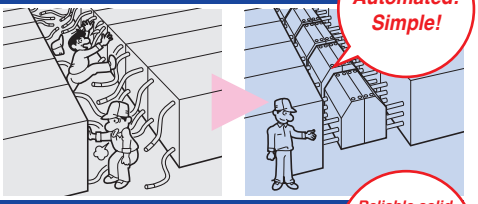
Please visit our website for applicable products.

www.nitto-kohki.co.jp/e/

Nitto Kohki has made every effort in developing "Environmental Improvement Plans" through the implementation of ISO14001, to execute environmentally conscious business activities on a company-wide basis. As a part of our ongoing commitment to the environment, we are also commited to reduce and/or exclude restricted chemical substances from our products as designated by RoHS directives, laws and regulations of chemical substances. Some products may not be compliant, so please check our corporate website for the latest status.

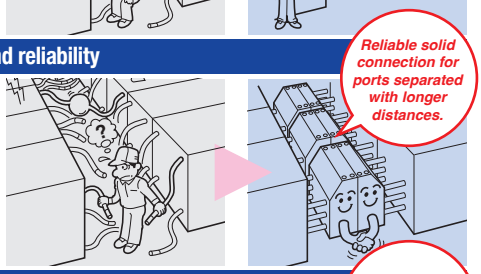
For improved productivity and realization of FMS (Flexible Manufacturing System)

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.



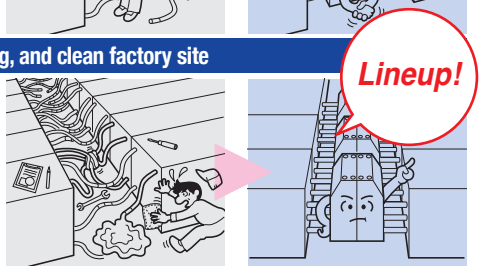
For improved safety and reliability

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

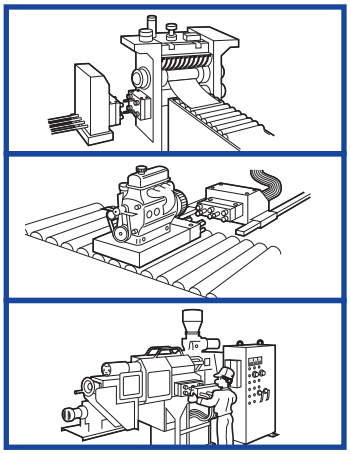
Individual manual piping systems do not have a well coordinated piping area and thus yields working loss due to piping disorders. MULTI CUPLA design realizes centralization of pipe connections, consolidation of piping circuits, space saving, energy saving, and a clean working environment.



Applications

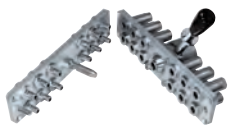
Piping for rolling equipment exchange, or quick connection of piping to bar mill rolling and cold rolling.

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



CONTENTS

Plate with CUPLA — P3–6



MAM Type — For air

Plate with CUPLA for multiple and simultaneous piping

- 4 ports type (Size: 1/8")
- 8 ports type (Size: 1/8")
- 12 ports type (Size: 1/8")
- 16 ports type (Size: 1/8")

Plate with CUPLA — P7–9

MAM-B Type — For air/water

Plate with CUPLA for multiple and simultaneous piping

- 6 ports type (Size: 1/4")
- 8 ports type (Size: 1/8", 1/4")
- 12 ports type (Size: 1/8")

Plate with CUPLA — P11–14

MAM-A Type — For air/water

Plate with CUPLA for multiple and simultaneous piping

- 4 ports type (Size: 1/2")
- 6 ports type (Size: 3/8")
- 8 ports type (Size: 1/2")
- 12 ports type (Size: 1/4", 3/8")

Individual CUPLA — P15–16

For MAM-A Type For MAM-B Type — For air/water

Individual CUPLA

- Size: 1/8" (MAM-A-SP Type only), 1/4", 3/8", 1/2"

Plate without CUPLA (with lock unit) — P15–21

MAM-A Type MAM-B Type — For air/water

Plates for multiple and simultaneous piping

- 4 ports type (Size: 1/2")
- 6 ports type (Size: 1/4", 3/8")
- 8 ports type (Size: 1/2")
- 12 ports type (Size: 1/4", 3/8")

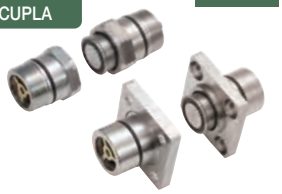
Individual CUPLA — P23–24

MALC-01 Type — For air/water

Individual CUPLA (Low pressure type)

- Size: M14

Individual CUPLA — P25–27



MALC-SP Type — For air/water hydraulic oil

Individual CUPLA (Medium pressure type)

- Size: M16 to M62, etc.

Individual CUPLA — P29–31

MALC-HSP Type — For hydraulic oil

Individual CUPLA (High pressure type)

- Size: M16 to M45, etc.

Individual CUPLA — P33–34

MAS Type/MAT Type — For air/water hydraulic oil

Individual CUPLA (Medium pressure type)

- Size: 1/4", 3/8", 1/2", 3/4", 1"

Accessories — P35–40

AUTO CLAMP UNIT for MULTI CUPLA

- For MAS Type, MAT Type, MALC-01 Type, MALC-SP Type, MALC-HSP Type

Accessories — P41–45

Adapter for MULTI CUPLA MALC Type

- For MALC-01 Type, MALC-SP Type, MALC-HSP Type

Multiple air port system

MULTI CUPLA

MAM Type

Working pressure: 0.7 MPa {7 kgf/cm²}

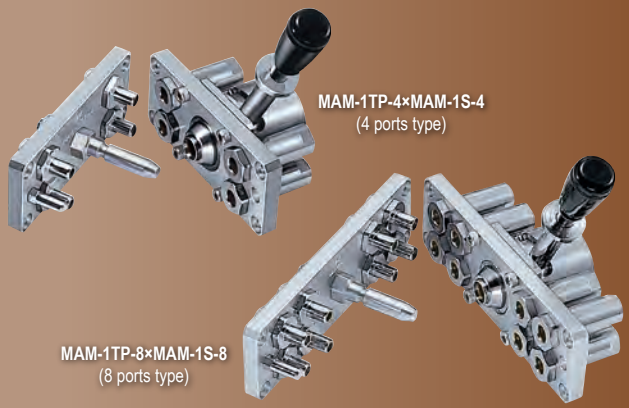
Valve structure: One-way shut-off

Applicable fluid: Air

VIDEO

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.



MAM-1TP-4×MAM-1S-4
(4 ports type)

MAM-1TP-8×MAM-1S-8
(8 ports type)

MAM-1TP-12×MAM-1S-12
(12 ports type)

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)	1/8"			
Pressure unit	**MPa**	**kgf/cm²**	**bar**	**PSI**
Working pressure	0.7	7	7	102

Seal material **Working temperature range** *1	**Seal material**	**Mark**	**Working temperature range**
	Nitrile rubber	NBR	−20˚C to +60˚C

*1: The operable temperature range depends on the operating conditions.

Maximum Tightening Torque — Nm {kgf·cm}

Torque	5 {51}

Flow Direction

Fluid flow can be bi-directional when socket and plug are connected

Interchangeability

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

Minimum Cross-Sectional Area — (mm²)

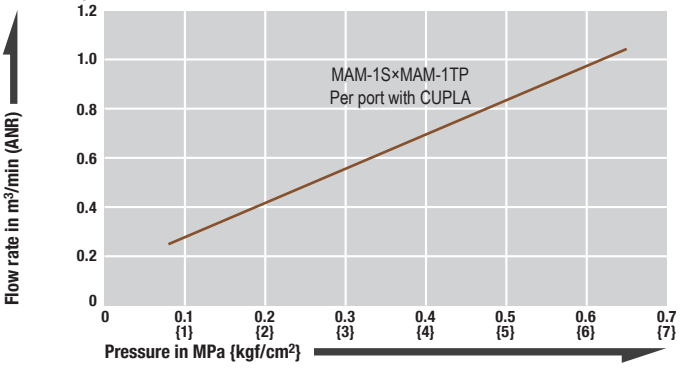
Per port	15.9

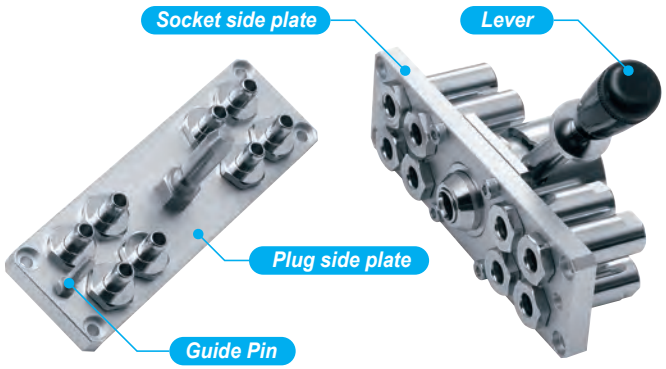
Suitability for Vacuum

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

Pressure - Flow Characteristics — Per port with CUPLA

[Test conditions] -Fluid : Air





The meaning of each letter in the model name

MAM-①②-③

① Size ... **1** : 1/8"

② **S** : Socket , **TP** : Plug

③ Number of ports ... **4** : 4 ports , **8** : 8 ports , **12** : 12 ports , **16** : 16 ports

Models and Dimensions

WAF : WAF stands for width across flats.

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

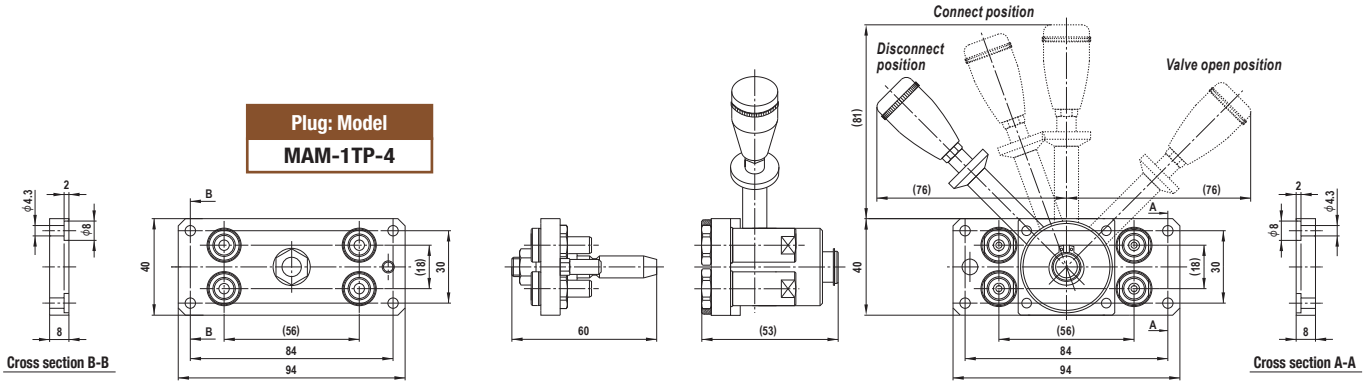
Application (Thread): R 1/8 **Mass: 150 g (Plug), 500 g (Socket)**

Dimensions (mm)

Plate with CUPLA MAM Type **4 Ports**

Socket: Model MAM-1S-4

Plug: Model MAM-1TP-4



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

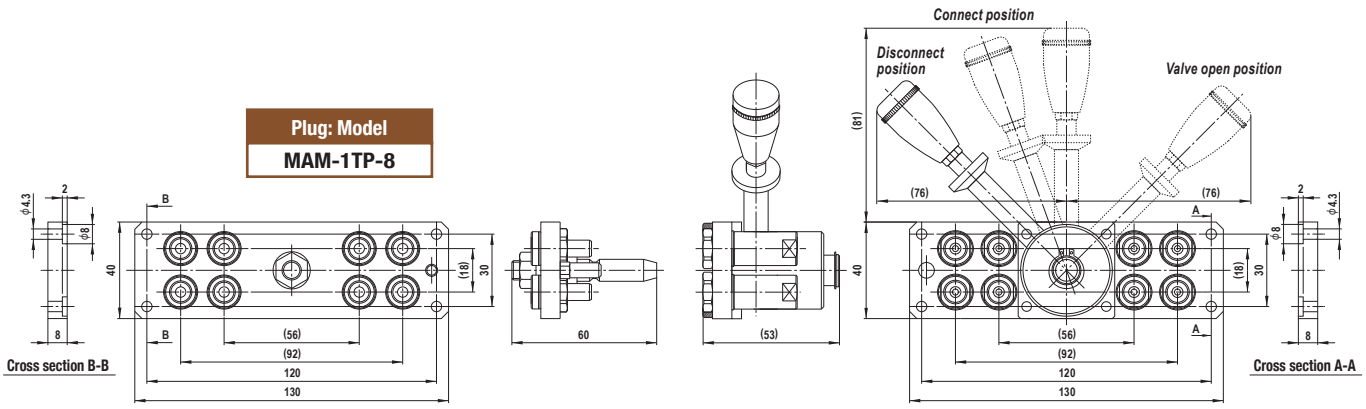
Application (Thread): R 1/8 **Mass: 250 g (Plug), 650 g (Socket)**

Dimensions (mm)

Plate with CUPLA MAM Type **8 Ports**

Socket: Model MAM-1S-8

Plug: Model MAM-1TP-8



Models and Dimensions

WAF : WAF stands for width across flats.

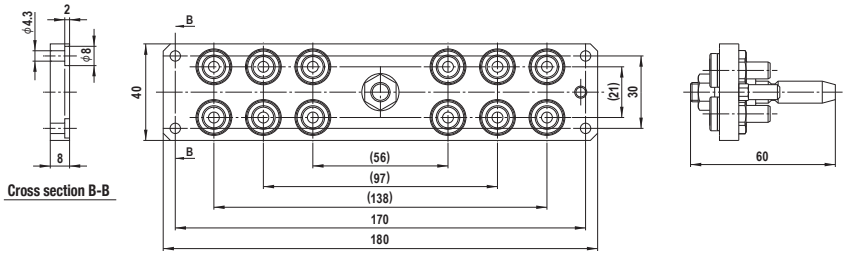
Model MAM-1TP-12×MAM-1S-12 (12 ports type)

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

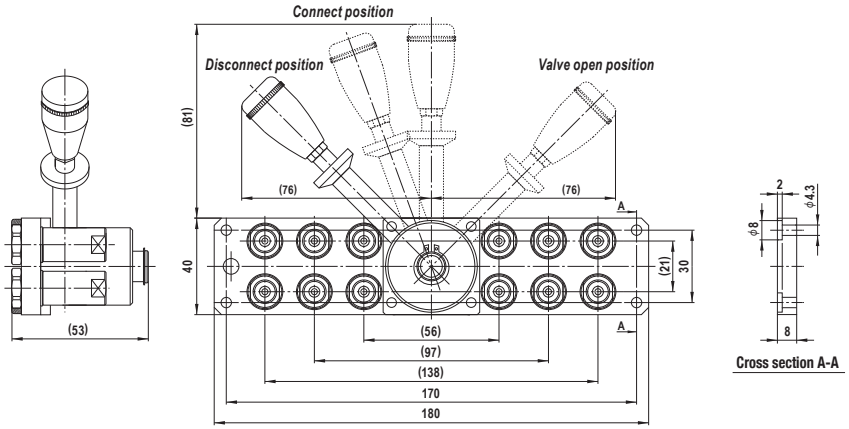
Dimensions (mm)

Plate with CUPLA MAM Type **12 Ports**

Plug: Model
MAM-1TP-12



Socket: Model
MAM-1S-12



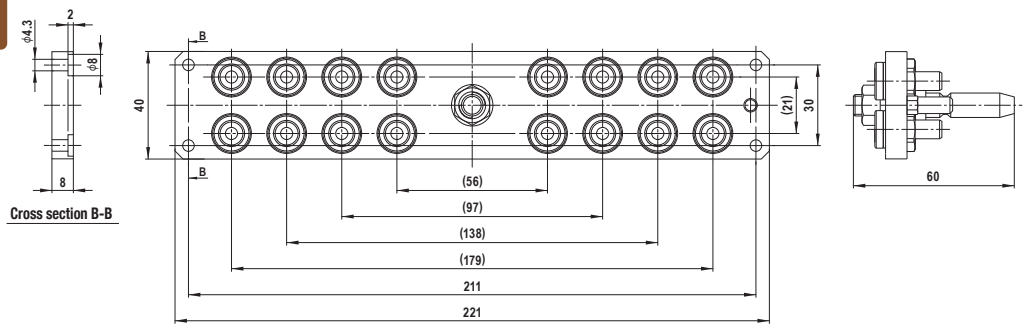
Model MAM-1TP-16×MAM-1S-16 (16 ports type)

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

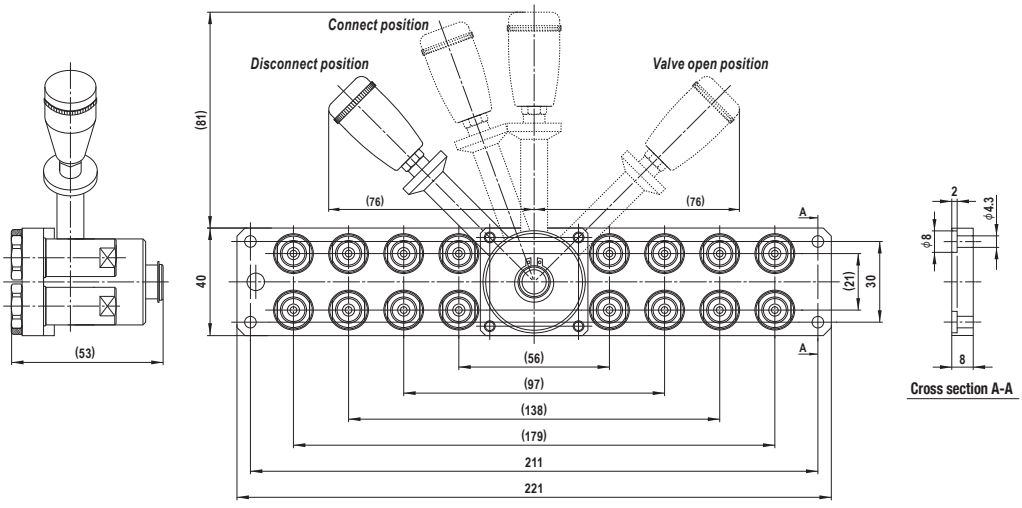
Dimensions (mm)

Plate with CUPLA MAM Type **16 Ports**

Plug: Model
MAM-1TP-16



Socket: Model
MAM-1S-16



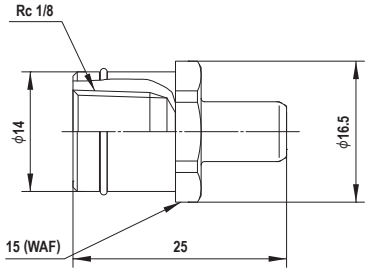
Models and Dimensions

WAF : WAF stands for width across flats.

Plug Model MAS-1TP (Individual CUPLA)

Dimensions (mm)

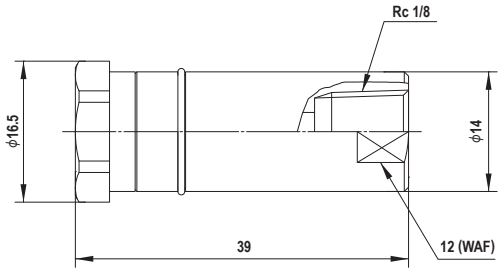
- Application (Thread): R 1/8 Mass: 17 g
- Can be mounted on model MAM-1TP-4/MAM-1TP-8/MAM-1TP-12/MAM-1TP-16.



Socket Model MAS-1S (Individual CUPLA)

Dimensions (mm)

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



Multiple port system

MULTI CUPLA

MAM-B Type

Working pressure: 1.0 MPa {10 kgf/cm²}

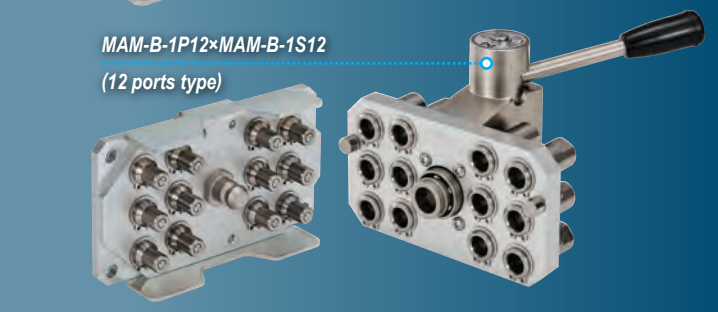
Valve structure: Two-way shut-off

Applicable fluids: Air, Water

VIDEO

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

- Handles several ports at once.
- Simple manual lever action completes easy connection/disconnection.
- The adoption of a two-stage lever prevents CUPLA from accidental dropping caused by 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 from spilling out on disconnection.
- The self-aligning valve design ensures stable sealing of individual sockets or plugs when disconnected.



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 (Nickel plated)			
Pressure unit		MPa	kgf/cm²	bar	PSI
Working pressure		1.0	10	10	145
Ambient temperature range		0˚C to +60˚C			
Seal material / Working temperature range *1		Sealing material	Mark	Working temperature range	Remarks
		Fluoro rubber	FKM	-20˚C to +180˚C	Standard material

*1: The operable temperature range depends on the operating conditions.

Maximum Tightening Torque — Nm {kgf•cm}

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

Flow Direction

Fluid flow can be bi-directional when socket and plug are connected.

Interchangeability

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

Minimum Cross-Sectional Area per Port — (mm²)

Model	1SP type	2SP type
Minimum 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 — (mL)

May vary depending upon the usage conditions.

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

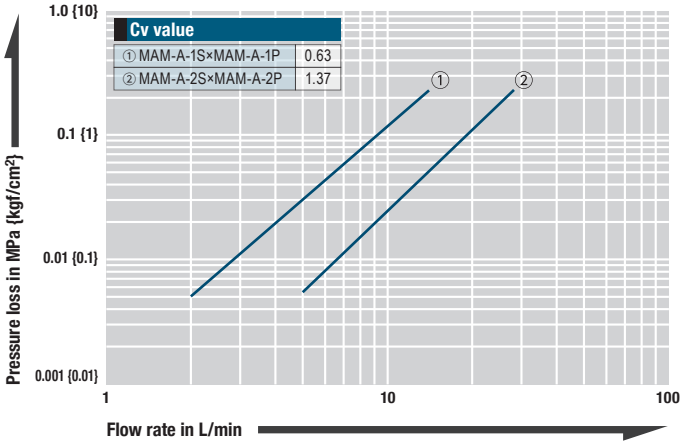
Volume of Spillage on Disconnection per Port — (mL)

May vary depending upon the usage conditions.

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 : 23˚C±5˚C



The meaning of each letter in the model name

MAM-B-①②③

① Size ... **1** : 1/8", **2** : 1/4"

② **S** : Socket , **P** : Plug

③ Number of ports ... **6** : 6 ports , **8** : 8 ports , **12** : 12 ports

Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

WAF : WAF stands for width across flats.

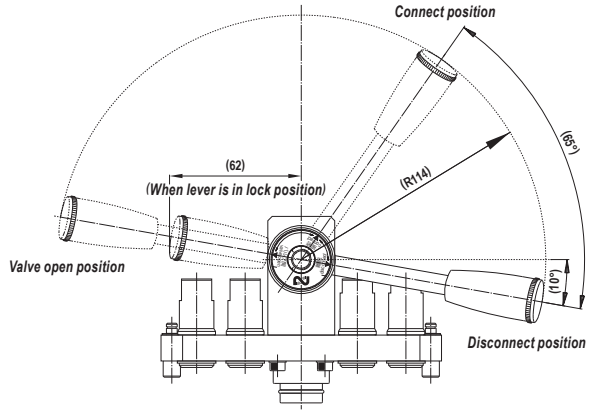
Model MAM-B-1P8×MAM-B-1S8 (8 ports type / Plate size: Small)

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

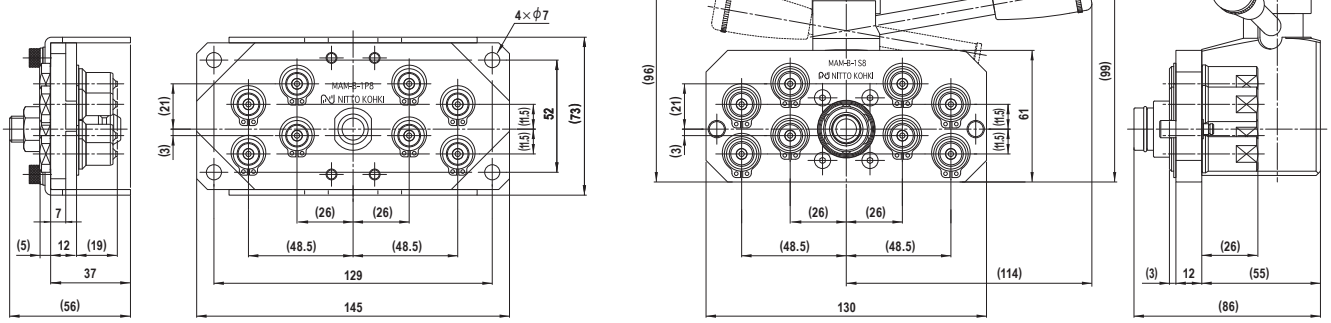
Dimensions (mm)

Plate with CUPLA **MAM-B Type** **8** Ports

Socket: Model
MAM-B-1S8



Plug: Model
MAM-B-1P8



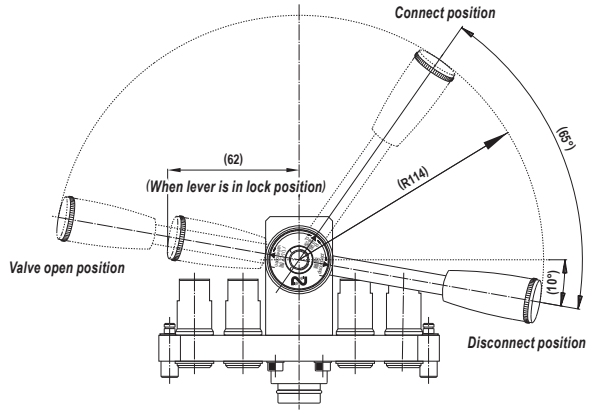
Model MAM-B-1P12×MAM-B-1S12 (12 ports type / Plate size: Large)

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

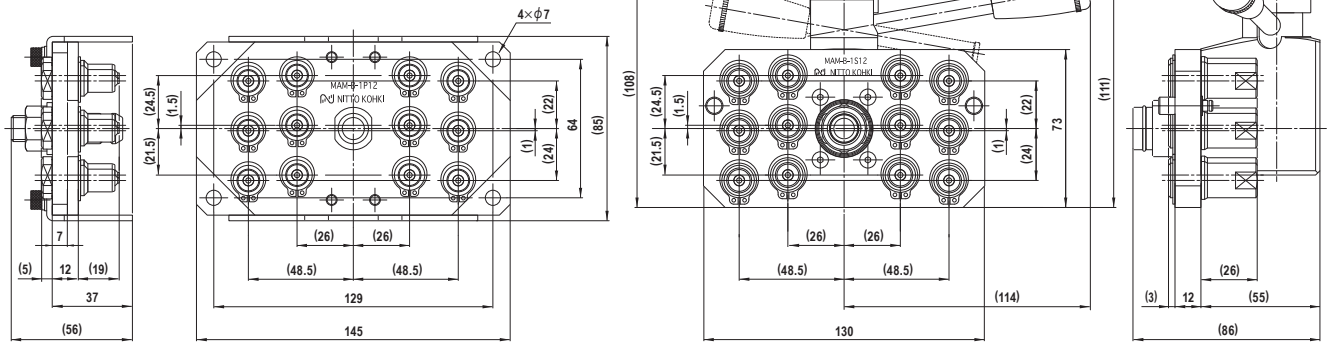
Dimensions (mm)

Plate with CUPLA **MAM-B Type** **12** Ports

Socket: Model
MAM-B-1S12



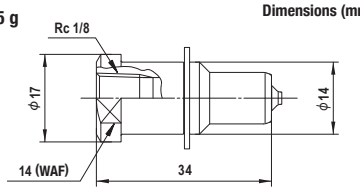
Plug: Model
MAM-B-1P12



Plug — Model MAM-A-1P (Individual CUPLA)

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

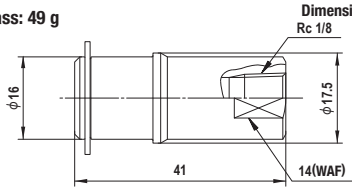
Dimensions (mm)



Socket — Model MAM-A-1S (Individual CUPLA)

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

Dimensions (mm)



Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

WAF : WAF stands for width across flats.

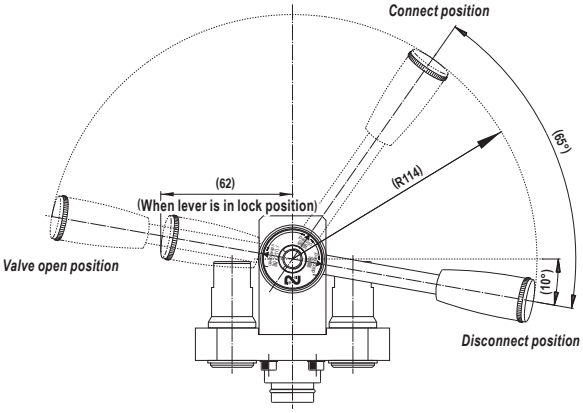
Model MAM-B-2P6×MAM-B-2S6 (6 ports type / Plate size: Small)

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

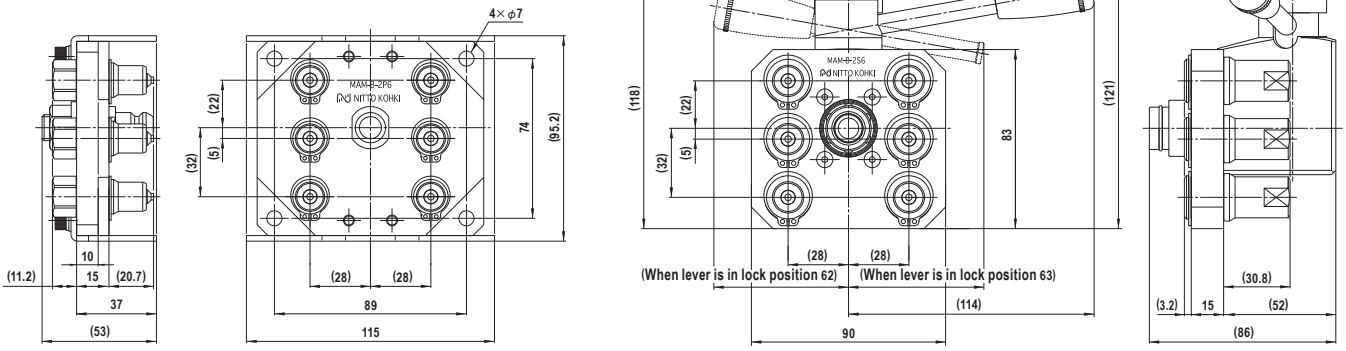
Dimensions (mm)

Plate with CUPLA **MAM-B Type** **6** Ports

Socket: Model MAM-B-2S6



Plug: Model MAM-B-2P6



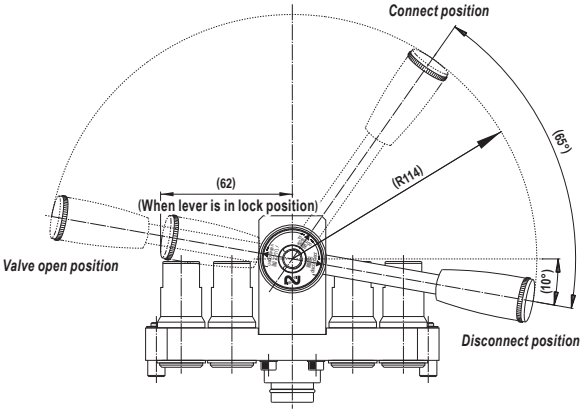
Model MAM-B-2P8×MAM-B-2S8 (8 ports type / Plate size: Large)

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

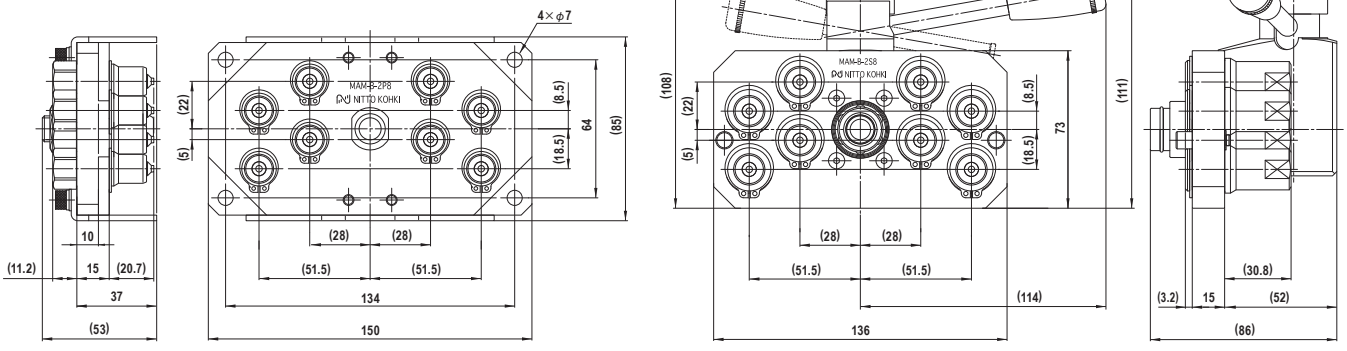
Dimensions (mm)

Plate with CUPLA **MAM-B Type** **8** Ports

Socket: Model MAM-B-2S8



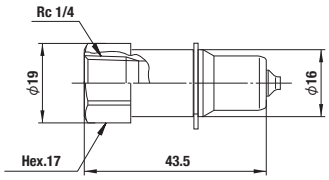
Plug: Model MAM-B-2P8



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

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

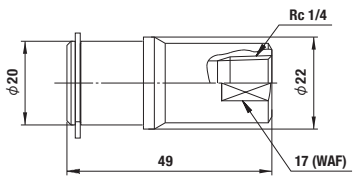
Dimensions (mm)



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

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

Dimensions (mm)



Multiple port system

MULTI CUPLA

MAM-A Type

Working pressure: 1.0 MPa {10 kgf/cm²}

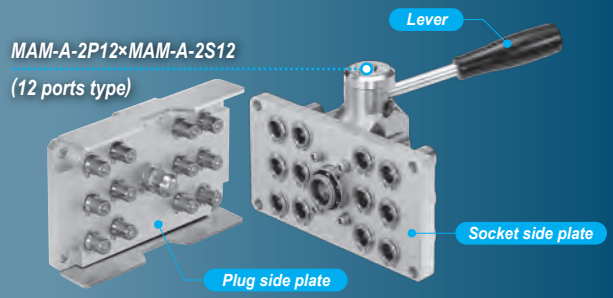
Valve structure: Two-way shut-off

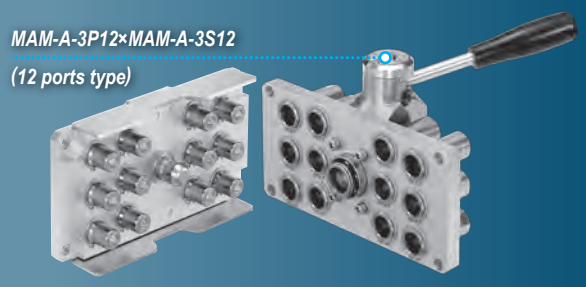
Applicable fluids: Air, Water

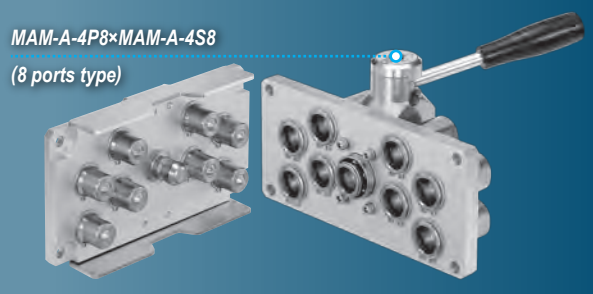
VIDEO

Simultaneously connects multiple ports/pipe securely in one operation! Greatly reduces changeover time in multiple ports/pipes replacement.

- Handles several ports at once.
- Simple manual lever action completes easy connection/disconnection.
- The adoption of a two-stage lever prevents CUPLA from accidental dropping caused by 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 from spilling out on disconnection.
- The self-aligning valve design ensures stable sealing of individual sockets or plugs when disconnected.







Specifications

Model	Plug	MAM-A-2P12	MAM-A-3P6	MAM-A-3P12	MAM-A-4P4	MAM-A-4P8
	Socket	MAM-A-2S12	MAM-A-3S6	MAM-A-3S12	MAM-A-4S4	MAM-A-4S8
Number of ports		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 (Nickel plated)				

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

Seal material Working temperature range *1	Sealing material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM	-20°C to +180°C	Standard material

*1: The operable temperature range depends on the operating conditions.

Maximum Tightening Torque — Nm {kgf•cm}

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

Flow Direction

Fluid flow can be bi-directional when socket and plug are connected.

Interchangeability

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

Minimum Cross-Sectional Area per Port — (mm²)

Model	2SP	3SP	4SP
Minimum 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

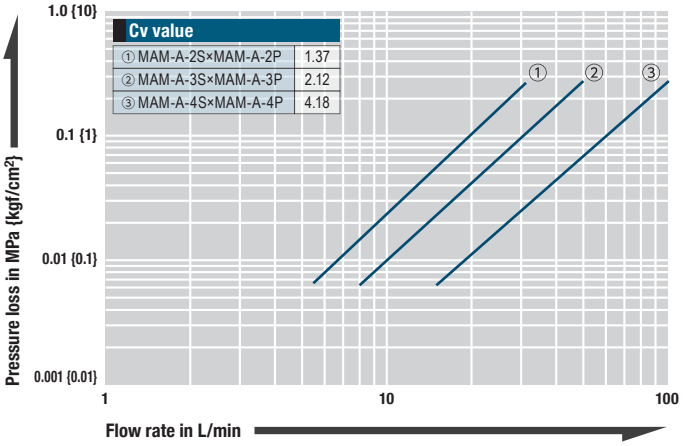
Volume of Spillage on Disconnection per Port — (mL)

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 : 23°C±5°C



The meaning of each letter in the model name

MAM-A-①②③

① Size ... **2** : 1/4" , **3** : 3/8" , **4** : 1/2"

② **S** : Socket , **P** : Plug

③ Number of ports ... **4** : 4 ports , **6** : 6 ports , **8** : 8 ports , **12** : 12 ports

Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

WAF : WAF stands for width across flats.

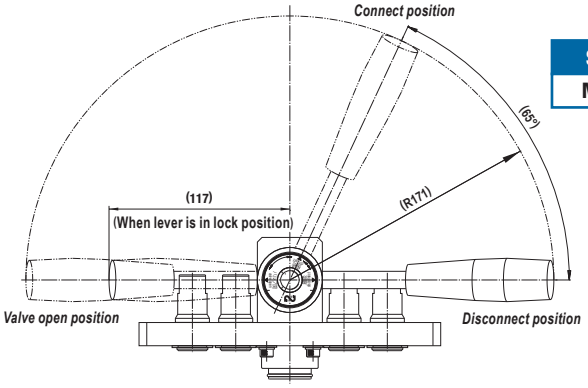
Model MAM-A-2P12×MAM-A-2S12 (12 ports type / Plate size: Large)

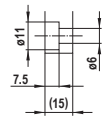
Application (Thread): R 1/4 **Mass: 1650 g (Plug), 2800 g (Socket)**

Dimensions (mm)

Plate with CUPLA MAM-A Type **12 Ports**

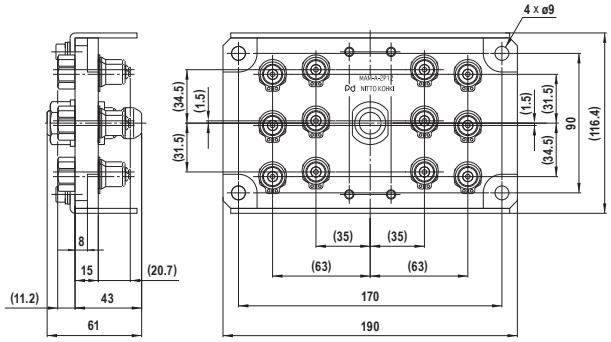
Socket: Model MAM-A-2S12

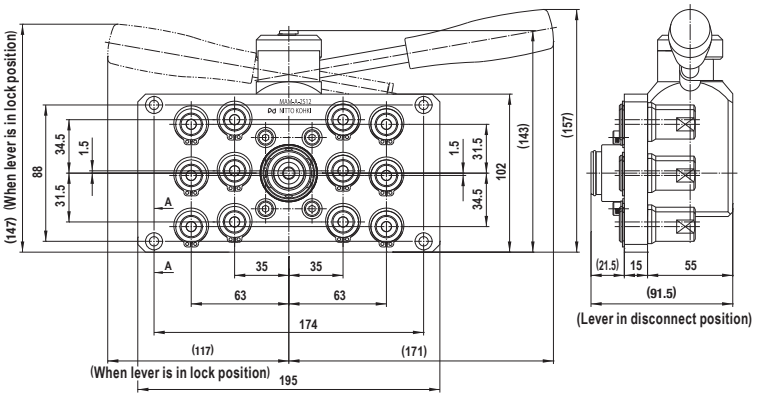




Cross section A-A
(4 corners)

Plug: Model MAM-A-2P12



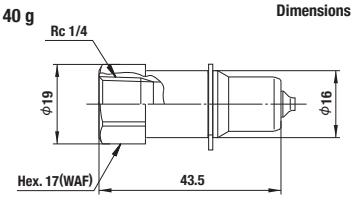


Plug Model MAM-A-2P (Individual CUPLA)

- Application (Thread): R 1/4
- Can be mounted on model MAM-A-2P12

Mass: 40 g

Dimensions (mm)

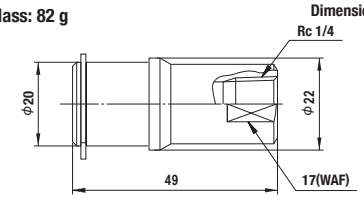


Socket Model MAM-A-2S (Individual CUPLA)

- Application (Thread): R 1/4
- Can be mounted on model MAM-A-2S12

Mass: 82 g

Dimensions (mm)



Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

WAF : WAF stands for width across flats.

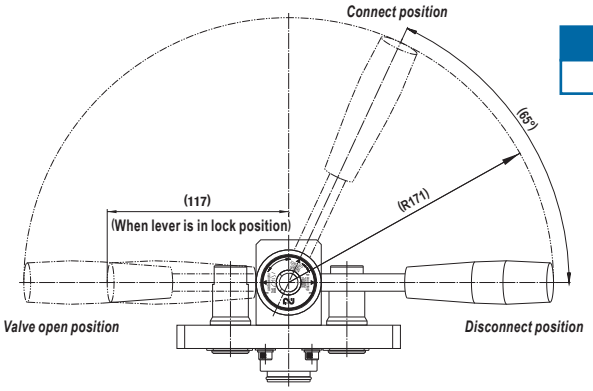
Model MAM-A-3P6×MAM-A-3S6 (6 ports type / Plate size: Small)

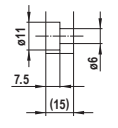
Application (Thread): R 3/8 **Mass: 1250 g (Plug), 2400 g (Socket)**

Dimensions (mm)

Plate with CUPLA **MAM-A Type** **6** Ports

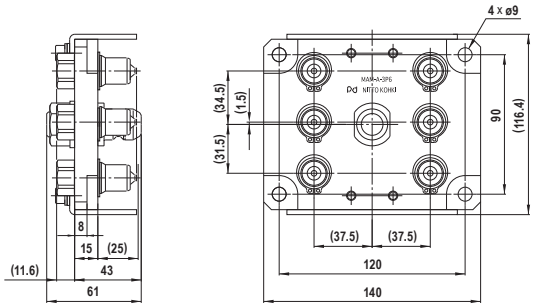
Socket: Model MAM-A-3S6

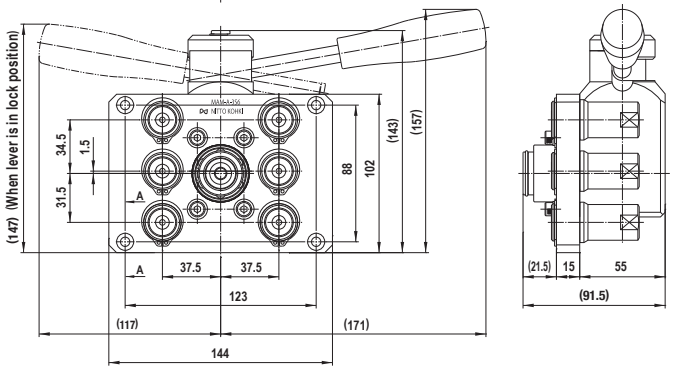




Cross section A-A
(4 corners)

Plug: Model MAM-A-3P6





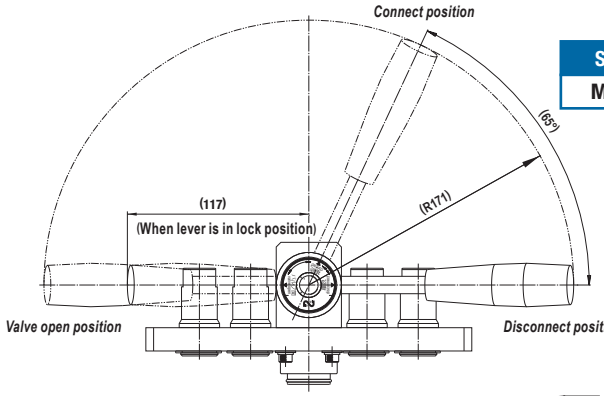
Model MAM-A-3P12×MAM-A-3S12 (12 ports type / Plate size: Large)

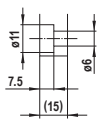
Application (Thread): R 3/8 **Mass: 1950 g (Plug), 3300 g (Socket)**

Dimensions (mm)

Plate with CUPLA **MAM-A Type** **12** Ports

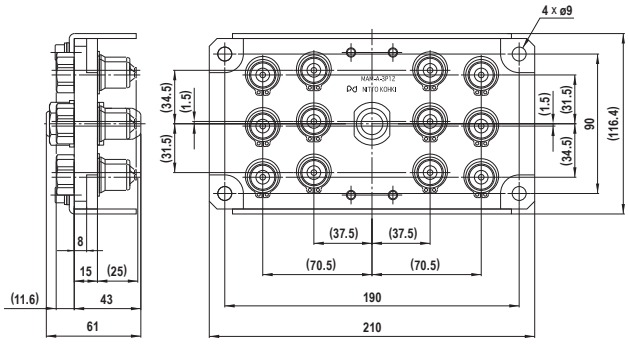
Socket: Model MAM-A-3S12

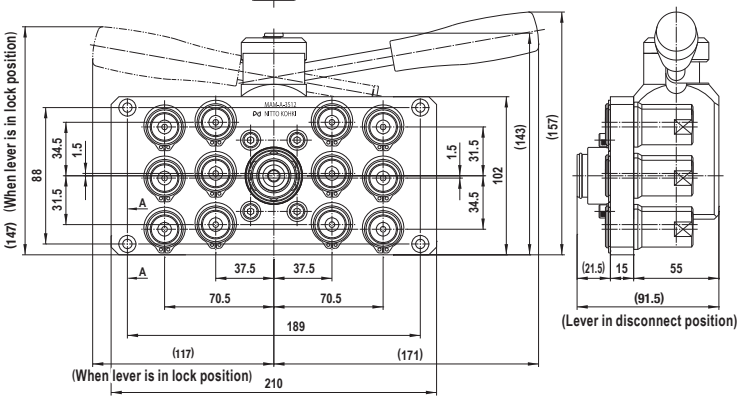




Cross section A-A
(4 corners)

Plug: Model MAM-A-3P12

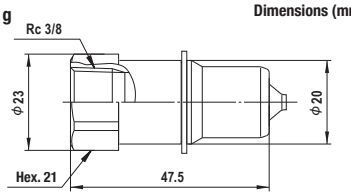




Plug Model MAM-A-3P (Individual CUPLA)

- Application (Thread): R 3/8 Mass: 62 g
- Can be mounted on model MAM-A-3P6 and MAM-A-3P12.

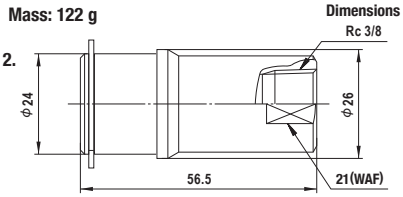
Dimensions (mm)



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

- Application (Thread): R 3/8 Mass: 122 g
- Can be mounted on model MAM-A-3S6 and MAM-A-3S12.

Dimensions (mm)



Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

WAF : WAF stands for width across flats.

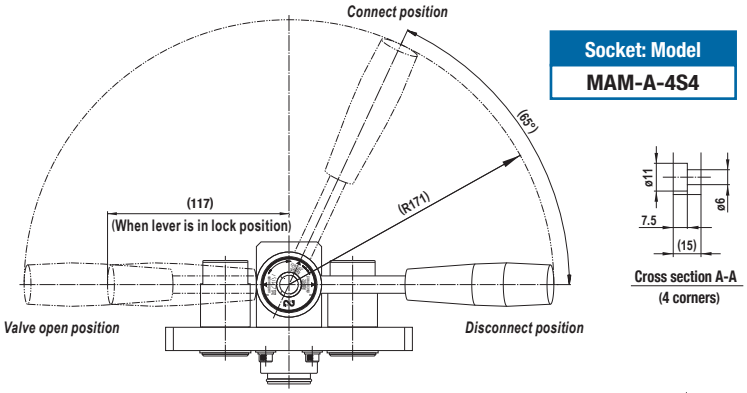
Model MAM-A-4P4×MAM-A-4S4 (4 ports type / Plate size: Small)

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

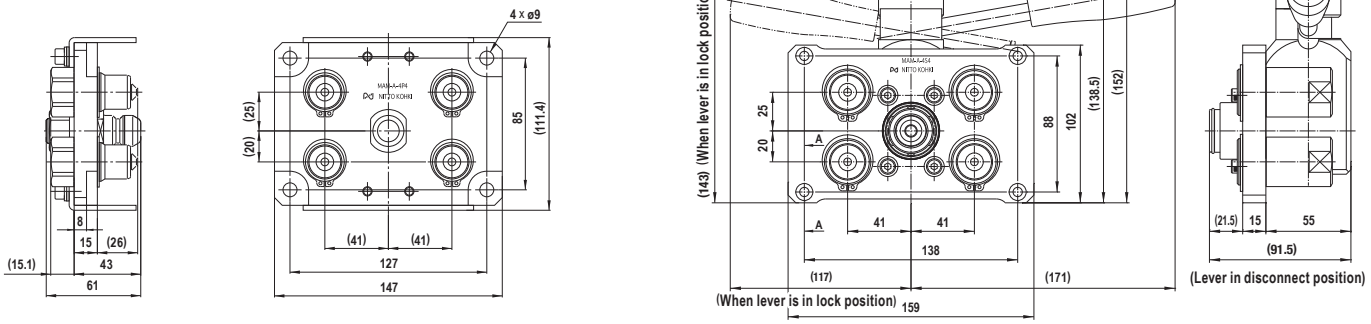
Dimensions (mm)

Plate with CUPLA MAM-A型 — 4 Ports

Socket: Model MAM-A-4S4



Plug: Model MAM-A-4P4



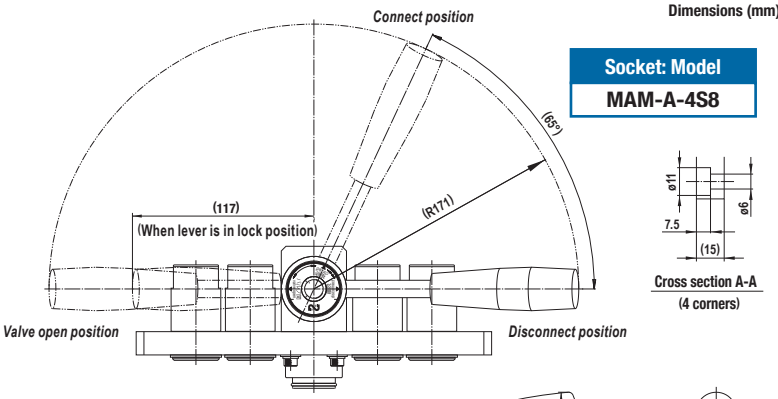
Model MAM-A-4P8×MAM-A-4S8 (8 ports type / Plate size: Large)

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

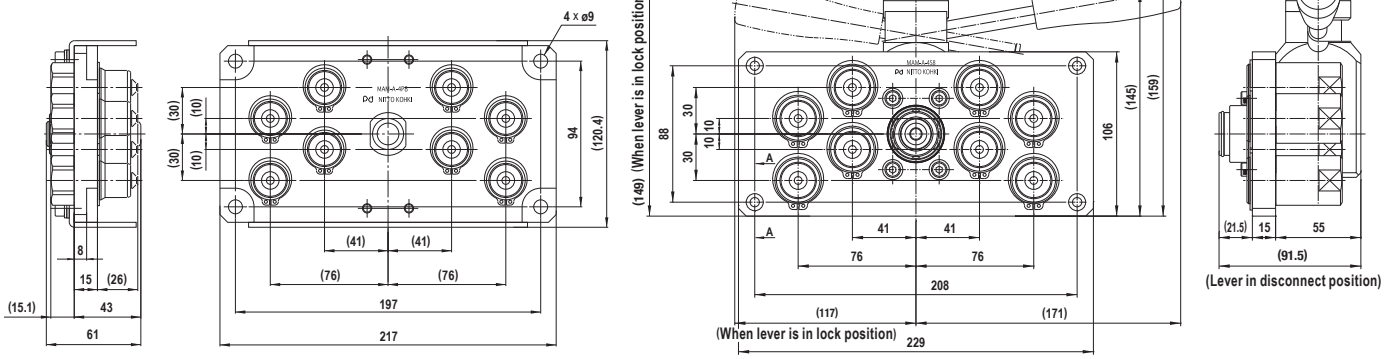
Dimensions (mm)

Plate with CUPLA MAM-A型 — 8 Ports

Socket: Model MAM-A-4S8



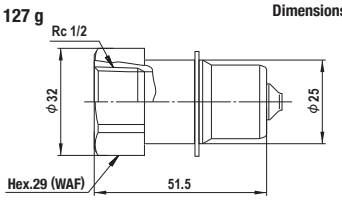
Plug: Model MAM-A-4P8



Plug — Model MAM-A-4P (Individual CUPLA)

- **Application (Thread): R 1/2** **Mass: 127 g**
- **Can be mounted on model MAM-A-4P4 and MAM-A-4P8.**

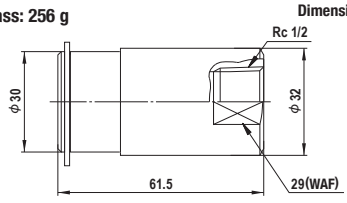
Dimensions (mm)



Socket — Model MAM-A-4S (Individual CUPLA)

- **Application (Thread): R 1/2** **Mass: 256 g**
- **Can be mounted on model MAM-A-4S4 and MAM-A-4S8.**

Dimensions (mm)



For mounting onto plates of
MULT CUPLA MAM-A / MAM-B Type

MULTI CUPLA

Individual CUPLA for mounting onto plates of MAM-A / MAM-B type.

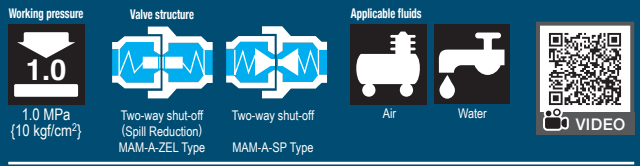
Low spill type

MAM-A-ZEL Type

(Excluding size Rc 1/8)

General purpose type

MAM-A-SP Type



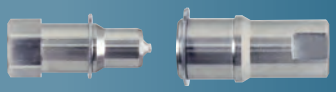
The ZEL type in the MULTI CUPLA manual series is designed to minimize spillage.

Individual CUPLA

Low spillage

MAM-A-ZEL Type

MAM-A-SP Type

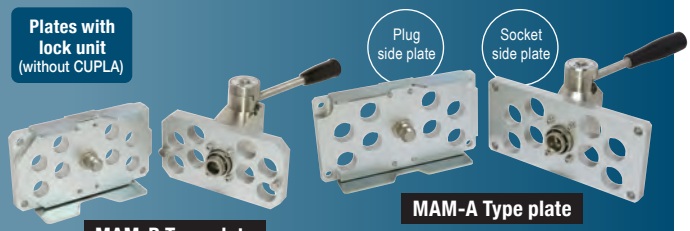


Size

1/4 | 3/8 | 1/2

CUPLA is sold separately. Choose based on your application requirements.

Plates with lock unit (without CUPLA)



MAM-A Type plate

MAM-B Type plate

Mounting Example:
MAM-A Type plate with MAM-A-ZEL plug and socket

Number of ports

4 ports | 6 ports | 8 ports | 12 ports

Individual CUPLA can be mounted on MAM-A and MAM-B plates. (For 1/8 size plates, only MAM-A-SP is available.)

Specifications (Individual CUPLA)

Model	Plug	MAM-A-ZEL-2P	MAM-A-ZEL-3P	MAM-A-ZEL-4P	
	Socket	MAM-A-ZEL-2S	MAM-A-ZEL-3S	MAM-A-ZEL-4S	
Size (Thread)		1/4"	3/8"	1/2"	
Body material		Brass (Nickel plated)			
Pressure unit		MPa	kgf/cm²	bar	PSI
Working pressure		1.0	10	10	145
Seal material / Working temperature range *1		Sealing material	Mark	Working temperature range	Remarks
		Fluoro rubber	FKM	-20°C to +180°C	Standard material

- The specifications when used with individual CUPLA mounted onto the plate, conform to the specifications of the individual CUPLA.
- Fluid flow can be bi-directional when socket and plug are connected.

*1: The operable temperature range depends on the operating conditions.

Maximum Tightening Torque (Individual plates) Nm {kgf·cm}

Plate type		MAM-B Type			
Model	Plug	MAM-B-1P8-CL	MAM-B-1P12-CL	MAM-B-2P6-CL	MAM-B-2P8-CL
	Socket	MAM-B-1S8-CL	MAM-B-1S12-CL	MAM-B-2S6-CL	MAM-B-2S8-CL
Number of ports		8	12	6	8
Body material		● Plate: Aluminum alloy ● Lock unit : Steel (Nickel plated)			
Ambient temperature range		0°C to +60°C			

Plate type		MAM-A Type					
Model	Plug	MAM-A-2P6-CL	MAM-A-2P12-CL	MAM-A-3P6-CL	MAM-A-3P12-CL	MAM-A-4P4-CL	MAM-A-4P8-CL
	Socket	MAM-A-2S6-CL	MAM-A-2S12-CL	MAM-A-3S6-CL	MAM-A-3S12-CL	MAM-A-4S4-CL	MAM-A-4S8-CL
Number of ports		6	12	6	12	4	8
Body material		● Plate: Aluminum alloy ● Lock unit : Steel (Nickel plated)					
Ambient temperature range		0°C to +60°C					

Maximum 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 or different size.

Minimum Cross-Sectional Area per Port (mm²)

Model	MAM-A-ZEL-2S×MAM-A-ZEL-2P	MAM-A-ZEL-3S×MAM-A-ZEL-3P	MAM-A-ZEL-4S×MAM-A-ZEL-4P
Minimum cross-sectional area	31	60.5	86.5

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)

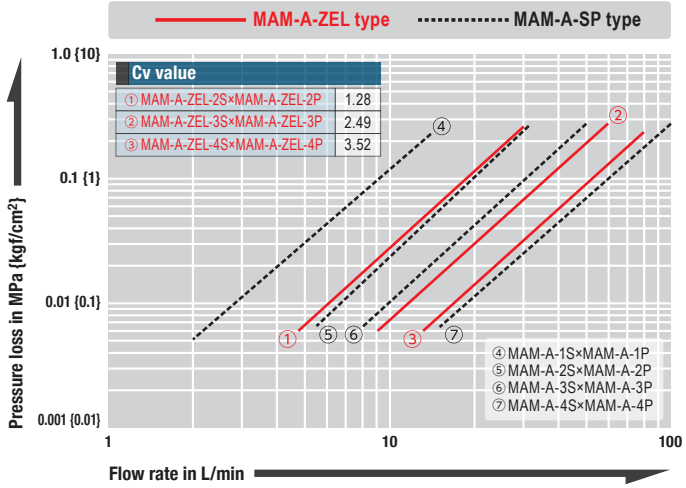
Model	MAM-A-ZEL-2S×MAM-A-ZEL-2P	MAM-A-ZEL-3S×MAM-A-ZEL-3P	MAM-A-ZEL-4S×MAM-A-ZEL-4P
Volume of air	0.16	0.21	0.39

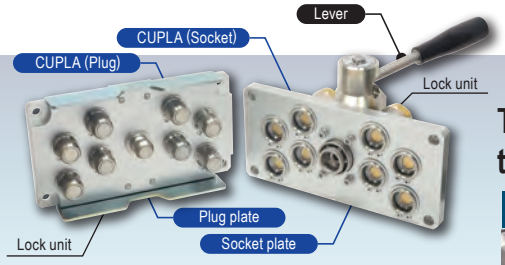
Volume of Spillage on Disconnection per Port May vary depending upon the usage conditions. (mL)

Model	MAM-A-ZEL-2S×MAM-A-ZEL-2P	MAM-A-ZEL-3S×MAM-A-ZEL-3P	MAM-A-ZEL-4S×MAM-A-ZEL-4P
Volume of spillage	0.06	0.12	0.15

Pressure - Flow Characteristics Per port with CUPLA

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





Models of above CUPLA	Plug	Socket
CAPLA	MAM-A-ZEL-4P	MAM-A-ZEL-4S
Plate	MAM-A-4P8-CL	MAM-A-4S8-CL

Plates and CUPLA can be customized

The greater number of ports, the chance of spillage increases...

Eliminate the problem!!

Typical spillage (6 ports of size 1/4")

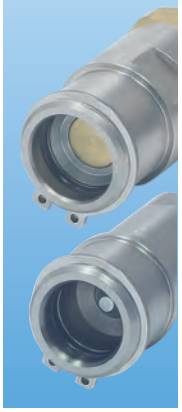
4.8 mL → 0.36 mL

(May vary. Depends on the application.)

Low spill type

1 Decide the [Type] and [Size] of CUPLA to be used

CUPLA



Low spill type

Plug	Size (Thread)	Model
MAM-A-ZEL Type  See page 15	1/8	–
	1/4	MAM-A-ZEL-2P
	3/8	MAM-A-ZEL-3P
	1/2	MAM-A-ZEL-4P

Interchangeable — Same size only

Socket	Size (Thread)	Model
MAM-A-ZEL Type  See page 15	1/8	–
	1/4	MAM-A-ZEL-2S
	3/8	MAM-A-ZEL-3S
	1/2	MAM-A-ZEL-4S

No interchangeability

General purpose type

Plug	Size (Thread)	Model
MAM-A-SP Type  See page 15	1/8	MAM-A-1P
	1/4	MAM-A-2P
	3/8	MAM-A-3P
	1/2	MAM-A-4P

Interchangeable — Same size only

Socket	Size (Thread)	Model
MAM-A-SP Type  See page 15	1/8	MAM-A-1S
	1/4	MAM-A-2S
	3/8	MAM-A-3S
	1/2	MAM-A-4S

MAM-A-ZEL and MAM-A-SP Type can be mounted on the same plates.

Note: MAM-A-ZEL Type is not interchangeable with the MAM-A-SP Type.

One way valve for MAM-A-ZEL (Plug without valve) and valve-less MAM-A-SP (Plug and Socket without valve) are available on request as made-to-order versions.

In such case, the model name ends with "-VL".

(ex: MAM-A-2P-VL)

2 Specify the required number of [Ports]

3 Select the [Plate]

Note: If CUPLA size is 1/4" and the number of ports is 6, either plate for MAM-A or MAM-B can be used. (Choose either one by the outer dimensions)

Plate

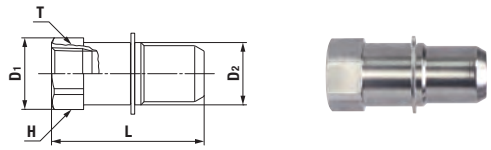
Coupling body		Size (Thread)	Number of ports	Plate model of Plug side	Plate model of Socket side	Outer dimensions
MAM-A-ZEL Type	MAM-A-SP Type	1/8	8	MAM-B-1P8-CL	MAM-B-1S8-CL	See page 17
			12	MAM-B-1P12-CL	MAM-B-1S12-CL	See page 17
		1/4	6	MAM-A-2P6-CL	MAM-A-2S6-CL	See page 19
				MAM-B-2P6-CL	MAM-B-2S6-CL	See page 18
			8	MAM-B-2P8-CL	MAM-B-2S8-CL	See page 18
			12	MAM-A-2P12-CL	MAM-A-2S12-CL	See page 19
		3/8	6	MAM-A-3P6-CL	MAM-A-3S6-CL	See page 20
			12	MAM-A-3P12-CL	MAM-A-3S12-CL	See page 20
		1/2	4	MAM-A-4P4-CL	MAM-A-4S4-CL	See page 21
			8	MAM-A-4P8-CL	MAM-A-4S8-CL	See page 21

In order to balance the force of system pressure, place each CUPLA symmetrically from the lock unit (center).

Models and Dimensions (See page 12 to 14 for MAM-A-SP Type)

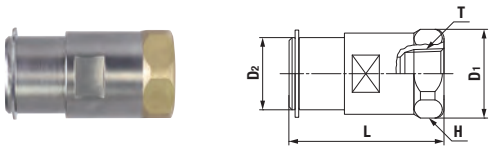
WAF : WAF stands for width across flats.

Plug MAM-A-ZEL Type (Individual CUPLA)



Model	Application (Thread)	Mass (g)	Dimensions (mm) L	øD1	øD2	H	T
MAM-A-ZEL-2P	R 1/4	42	47	19	16	Hex.17	Rc 1/4
MAM-A-ZEL-3P	R 3/8	64	49	23	20	Hex.21	Rc 3/8
MAM-A-ZEL-4P	R 1/2	123	55	32	25	Hex.29	Rc 1/2

Socket MAM-A-ZEL Type (Individual CUPLA)



Model	Application (Thread)	Mass (g)	Dimensions (mm) L	øD1	øD2	H	T
MAM-A-ZEL-2S	R 1/4	78	(46)	23	20	Hex.21	Rc 1/4
MAM-A-ZEL-3S	R 3/8	129	(51.5)	29.5	24	Hex.27	Rc 3/8
MAM-A-ZEL-4S	R 1/2	210	(59)	35	30	Hex.32	Rc 1/2

Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

Model MAM-B-1P8-CL×MAM-B-1S8-CL (8 Ports Type / Plate size : Small)

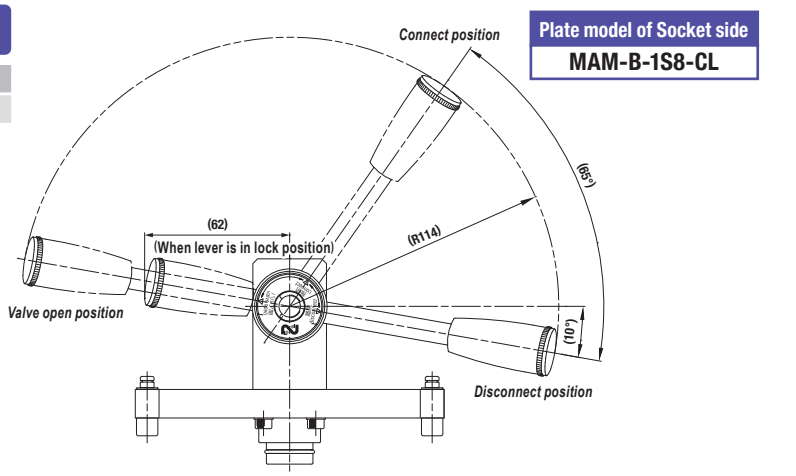
• Application (Thread): R 1/8 Mass: 460 g (Plug), 818 g (Socket)

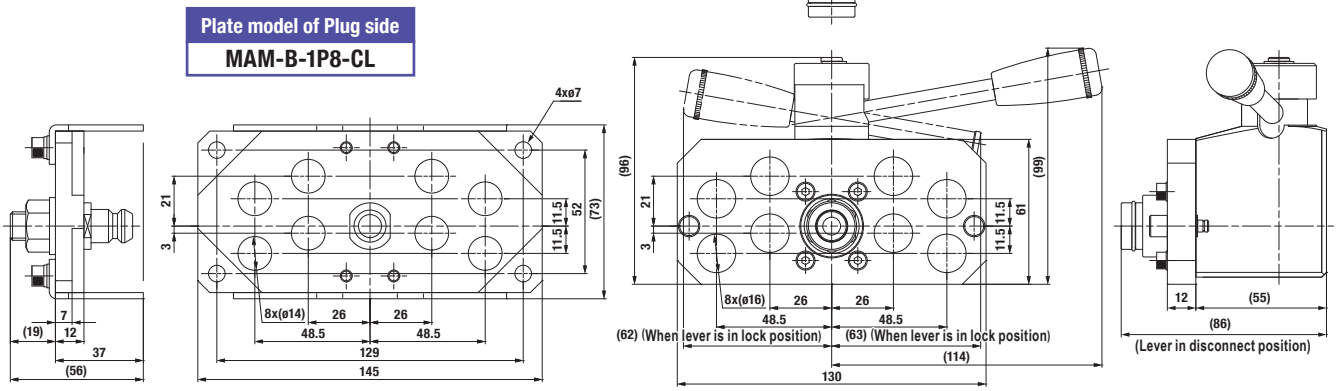
Dimensions (mm)

Plate without CUPLA MAM-B Type

8 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-1P	MAM-A-1S





Model MAM-B-1P12-CL×MAM-B-1S12-CL (12 Ports Type / Plate size : Large)

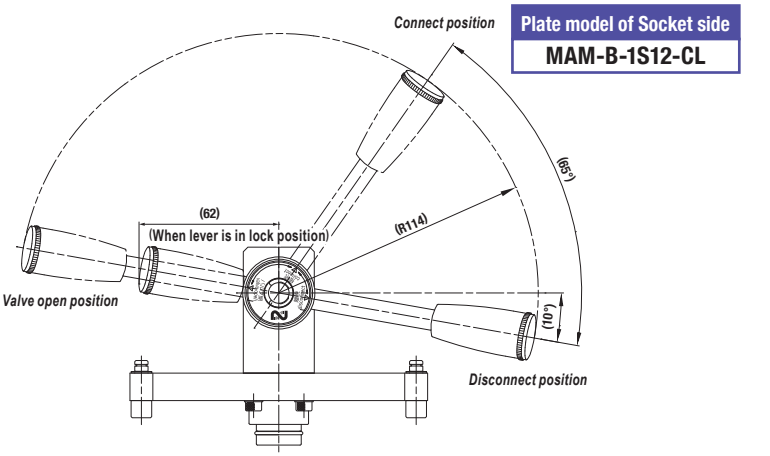
• Application (Thread): R 1/8 Mass: 490 g (Plug), 842 g (Socket)

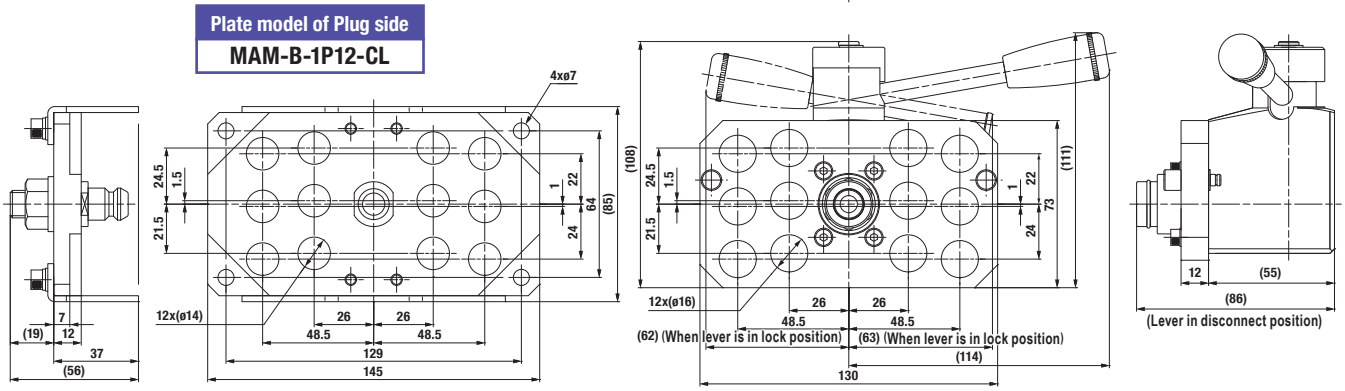
Dimensions (mm)

Plate without CUPLA MAM-B Type

12 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-1P	MAM-A-1S





Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

Model MAM-B-2P6-CL×MAM-B-2S6-CL (6 Ports Type / Plate size : Small)

• Application (Thread): R 1/4 Mass: 500 g (Plug), 788 g (Socket)

Dimensions (mm)

Plate without CUPLA MAM-B Type

6 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-2P	MAM-A-2S
	MAM-A-ZEL-2P	MAM-A-ZEL-2S

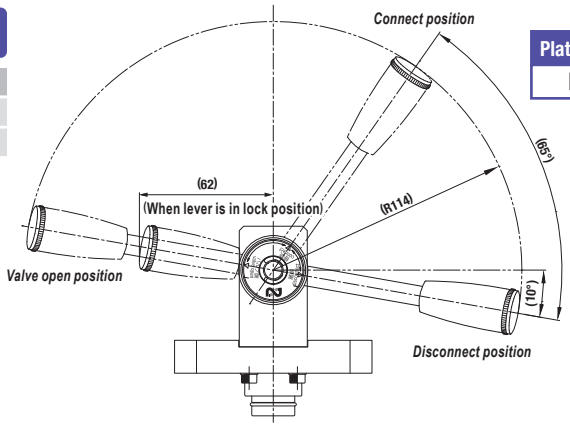
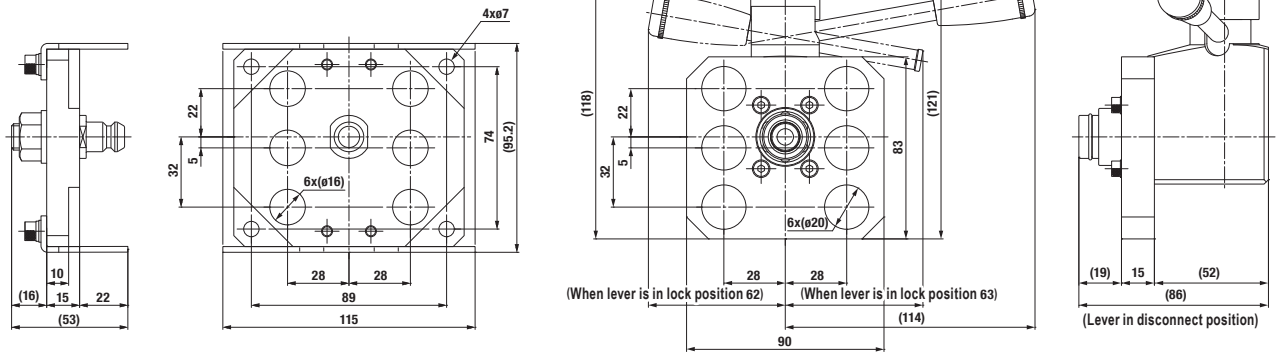


Plate model of Socket side
MAM-B-2S6-CL

Plate model of Plug side
MAM-B-2P6-CL



製品型式 MAM-B-2P8-CL×MAM-B-2S8-CL (8 Ports Type / Plate size : Large)

• Application (Thread): R 1/4 Mass: 600 g (Plug), 894 g (Socket)

Dimensions (mm)

Plate without CUPLA MAM-B Type

8 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-2P	MAM-A-2S
	MAM-A-ZEL-2P	MAM-A-ZEL-2S

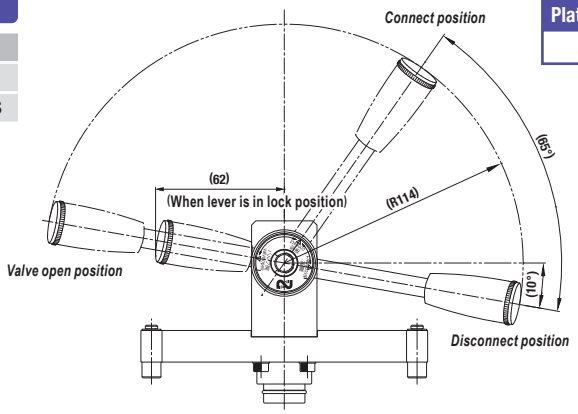
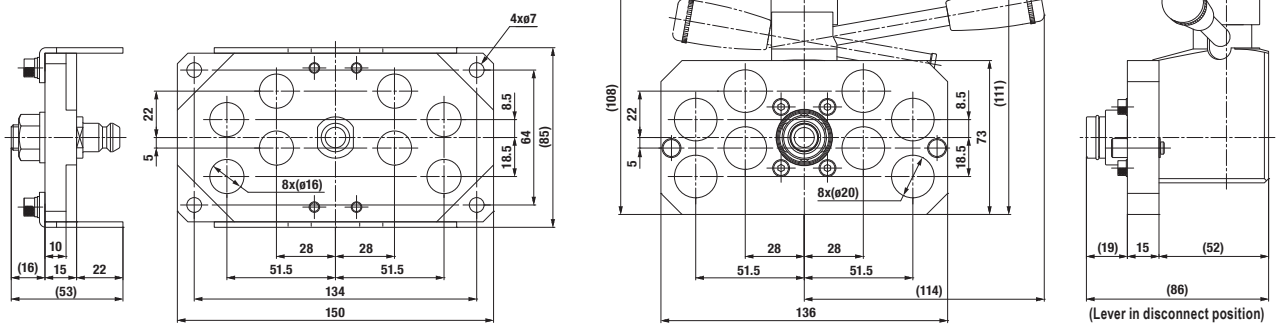


Plate model of Socket side
MAM-B-2S8-CL

Plate model of Plug side
MAM-B-2P8-CL



Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

Model MAM-A-2P6-CL×MAM-A-2S6-CL (6 Ports Type / Plate size : Small)

• Application (Thread): R 1/4 Mass: 860 g (Plug), 1658 g (Socket)

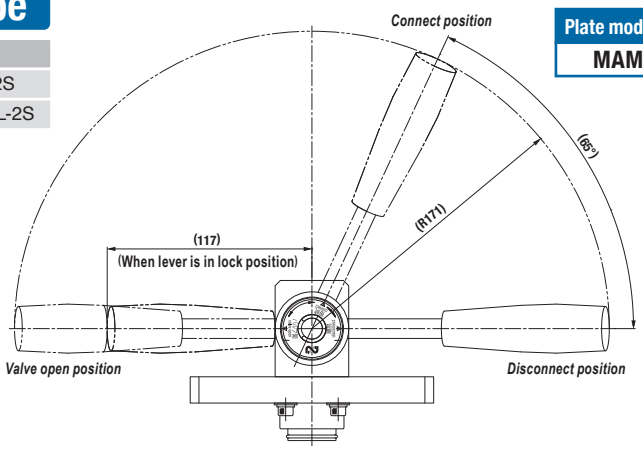
Dimensions (mm)

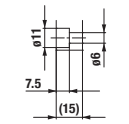
Plate without CUPLA MAM-A Type

6 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-2P	MAM-A-2S
	MAM-A-ZEL-2P	MAM-A-ZEL-2S

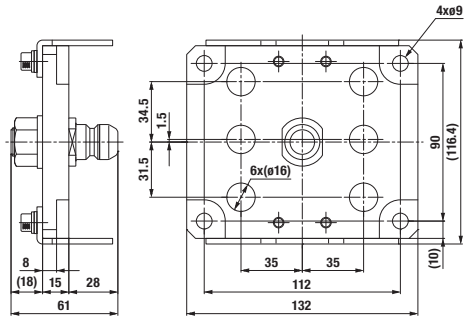
Plate model of Socket side
MAM-A-2S6-CL

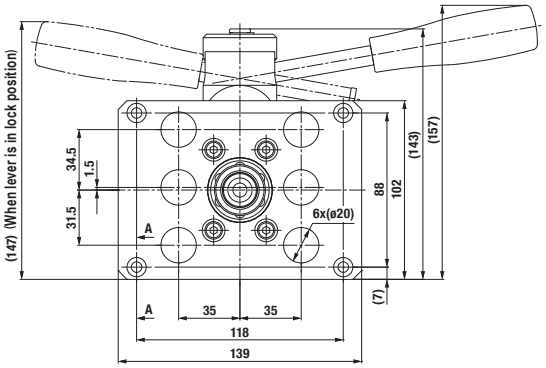


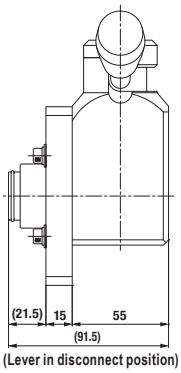


Cross section A-A
(4 corners)

Plate model of Plug side
MAM-A-2P6-CL







(Lever in disconnect position)

Model MAM-A-2P12-CL×MAM-A-2S12-CL (12 Ports Type / Plate size : Large)

• Application (Thread): R 1/4 Mass: 1170 g (Plug), 1816 g (Socket)

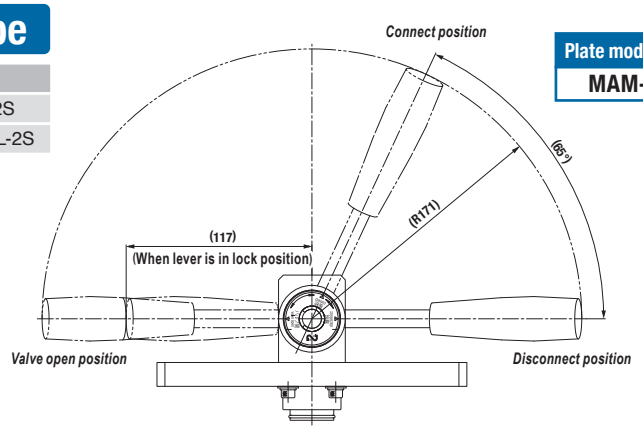
Dimensions (mm)

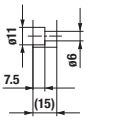
Plate without CUPLA MAM-A Type

12 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-2P	MAM-A-2S
	MAM-A-ZEL-2P	MAM-A-ZEL-2S

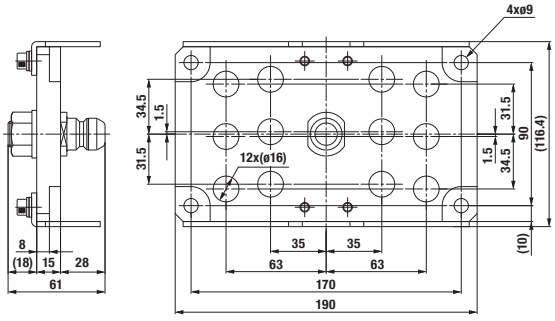
Plate model of Socket side
MAM-A-2S12-CL

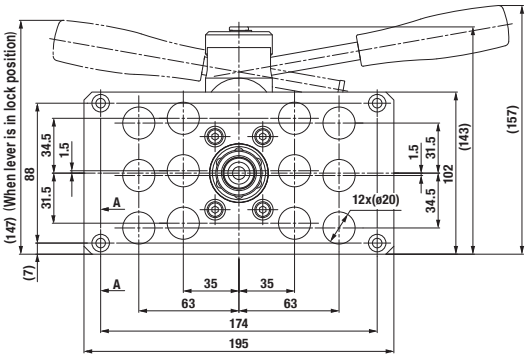


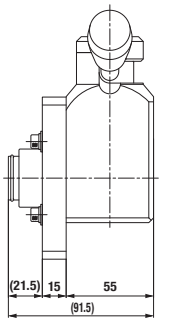


Cross section A-A
(4 corners)

Plate model of Plug side
MAM-A-2P12-CL







(Lever in disconnect position)

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

Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

Model MAM-A-3P6-CL×MAM-A-3S6-CL (6 Ports Type / Plate size : Small)

• Application (Thread): R 3/8 Mass: 878 g (Plug), 1668 g (Socket)

Dimensions (mm)

Plate without CUPLA MAM-A Type

6 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-3P	MAM-A-3S
	MAM-A-ZEL-3P	MAM-A-ZEL-3S

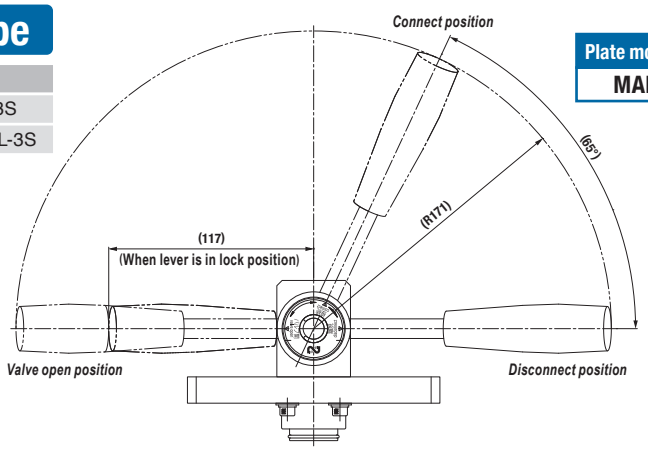
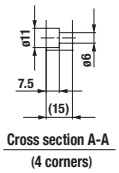
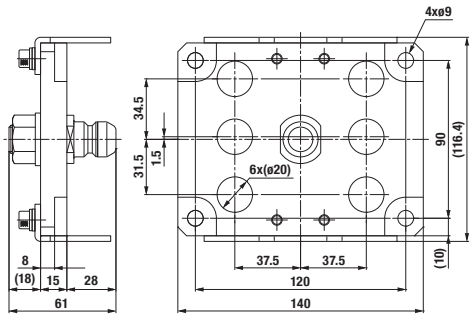


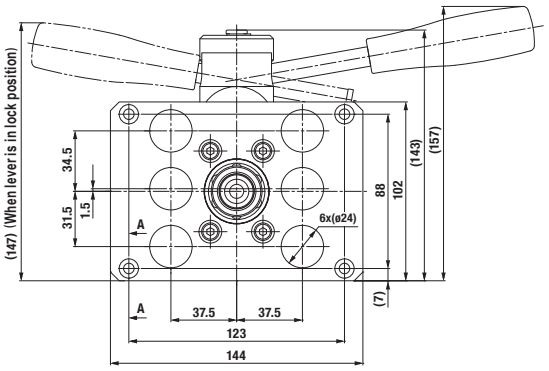
Plate model of Socket side
MAM-A-3S6-CL

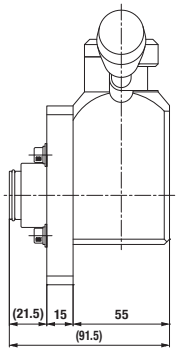


Cross section A-A
(4 corners)

Plate model of Plug side
MAM-A-3P6-CL







(Lever in disconnect position)

Model MAM-A-3P12-CL×MAM-A-3S12-CL (12 Ports Type / Plate size : Large)

• Application (Thread): R 3/8 Mass: 1206 g (Plug), 1836 g (Socket)

Dimensions (mm)

Plate without CUPLA MAM-A Type

12 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-3P	MAM-A-3S
	MAM-A-ZEL-3P	MAM-A-ZEL-3S

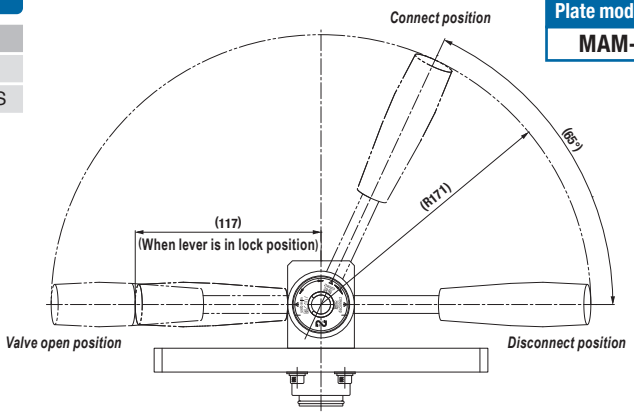
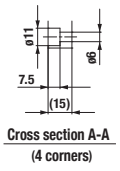
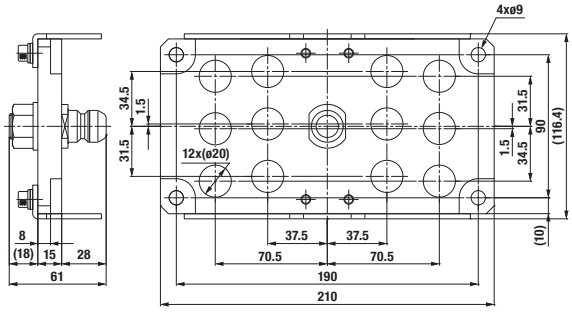


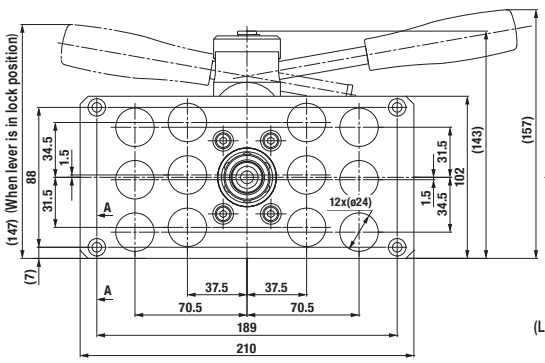
Plate model of Socket side
MAM-A-3S12-CL

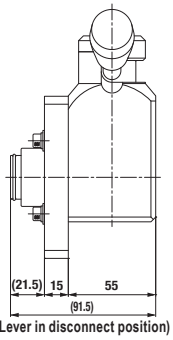


Cross section A-A
(4 corners)

Plate model of Plug side
MAM-A-3P12-CL







(Lever in disconnect position)

Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.

Models and Dimensions

Model MAM-A-4P4-CL×MAM-A-4S4-CL (4 Ports Type / Plate size : Small)

• Application (Thread): R 1/2 Mass: 892 g (Plug), 1676 g (Socket)

Dimensions (mm)

Plate without CUPLA MAM-A Type

4 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-4P	MAM-A-4S
	MAM-A-ZEL-4P	MAM-A-ZEL-4S

Plate model of Socket side
MAM-A-4S4-CL

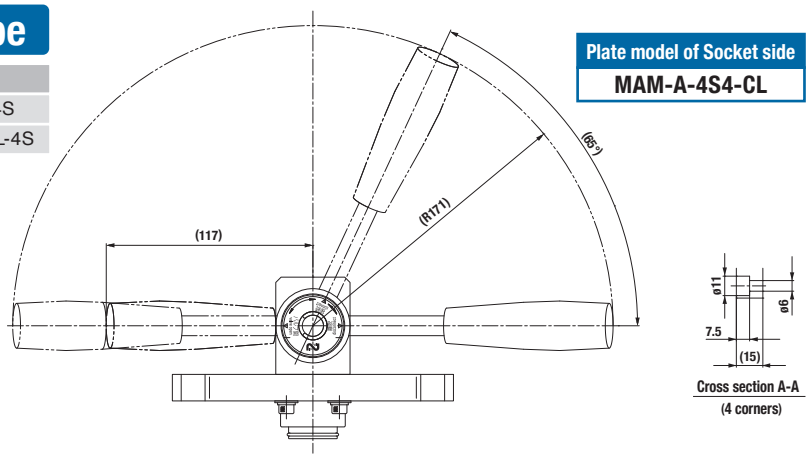
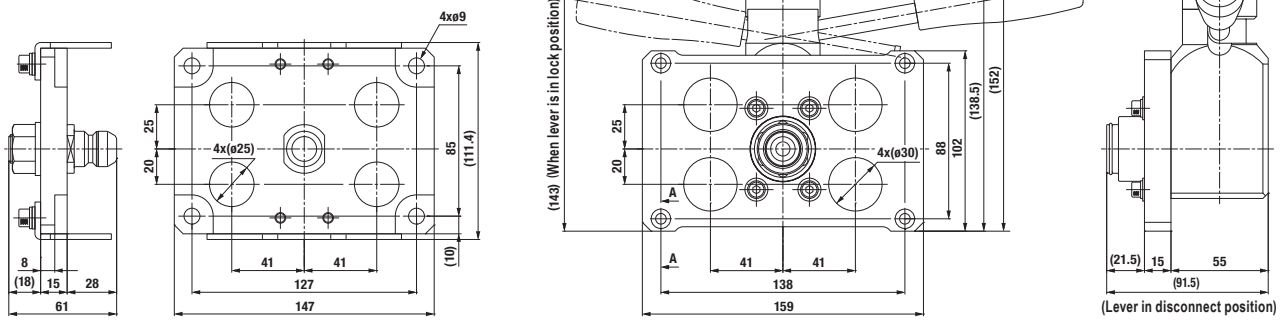


Plate model of Plug side
MAM-A-4P4-CL



製品型式 MAM-A-4P8-CL×MAM-A-4S8-CL (8 ports type / Plate size: Large)

• Application (Thread): R 1/2 Mass: 1284 g (Plug), 1952 g (Socket)

Dimensions (mm)

Plate without CUPLA MAM-A Type

8 Ports

Applicable CUPLA	Plug	Socket
	MAM-A-4P	MAM-A-4S
	MAM-A-ZEL-4P	MAM-A-ZEL-4S

Plate model of Socket side
MAM-A-4S8-CL

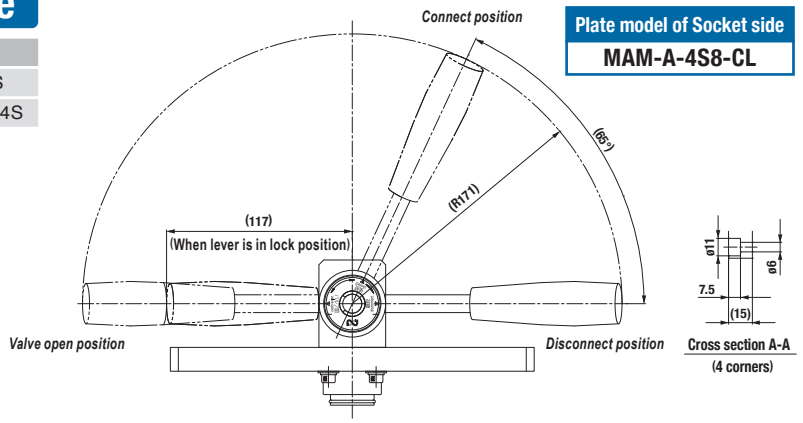
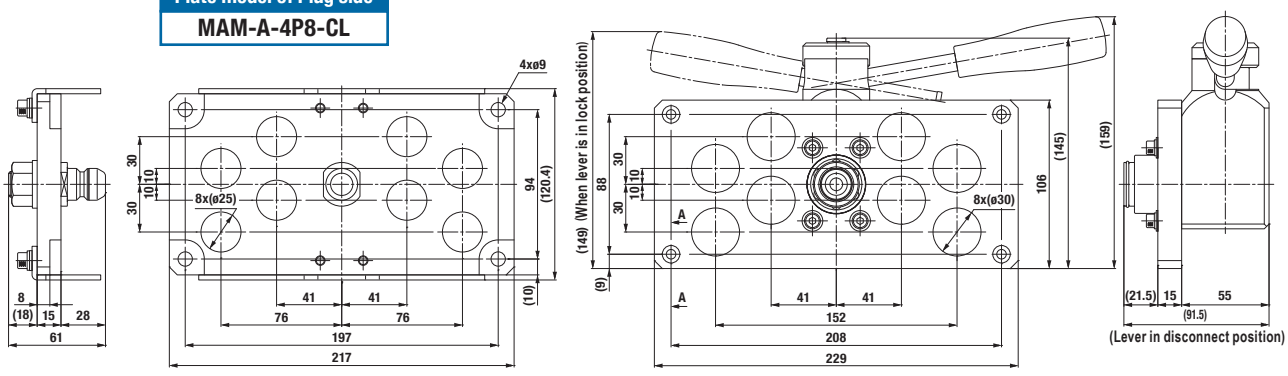


Plate model of Plug side
MAM-A-4P8-CL



One-way shut-off type for low pressure use

MULTI CUPLA

MALC-01 Type

for Low Pressure Use

Working pressure: 0.7 MPa {7 kgf/cm²}

Valve structure: One-way shut-off

Applicable fluid: Air

VIDEO -Promotion-

VIDEO -Application-

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 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.
- An axial eccentricity allowance of 2 mm eliminates precise centering at installation.
- Compact size with " thread screw mount " and "flange mount" types available.
- Adapters are also available separately. (See page 41 for details)

Specifications

Body material	Socket: Brass (Nickel plated) Plug: Brass (Nickel plated)			
Pressure unit	MPa	kgf/cm²	bar	PSI
Working pressure	1.0	10	10	145

Seal material	Sealing material	Mark	Working temperature range
Working temperature range *1	Nitrile rubber	NBR	−20°C to +80°C

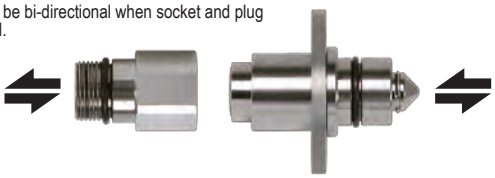
*1: The operable temperature range depends on the operating conditions.
- Flange mount type comes with bolts for mounting.

Maximum Tightening Torque — Nm {kgf·cm}

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

Flow Direction

Fluid flow can be bi-directional when socket and plug are connected.



Interchangeability

- Sockets and plugs can be connected regardless of end configurations.
- Not interchangeable with MALC-SP Type (for medium pressure use) MALC-1SP or MALC-HSP Type (for high pressure use) MALC-1HSP.

Minimum Cross-Sectional Area — (mm²)

Minimum 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

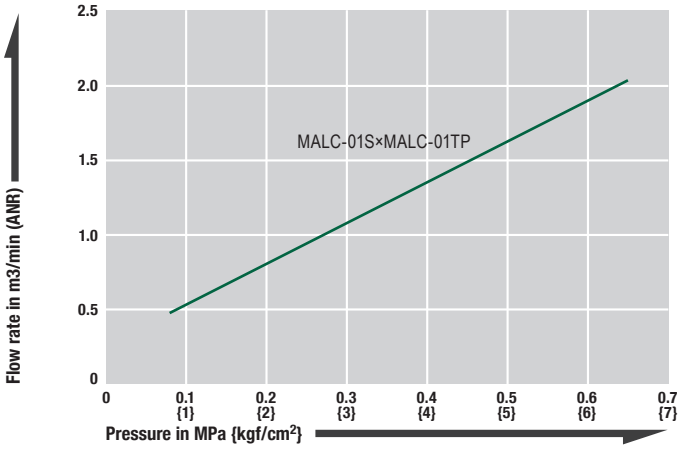
$$F = (P \times 160) + 50 \{ f = p \times 1.6 + 5 \}$$

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}.

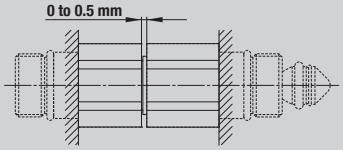
Pressure - Flow Characteristics

[Test conditions] - Fluid : Air



Acceptable distance between CUPLA

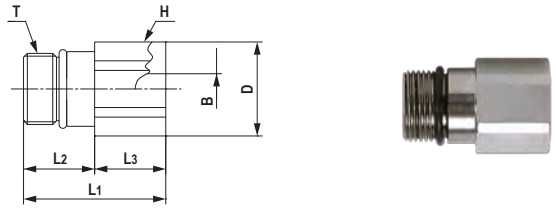
Socket and plug or plate must be used in contact with each other. Maximum 0.5 mm distance between socket and plug or plate is acceptable.



Models and Dimensions

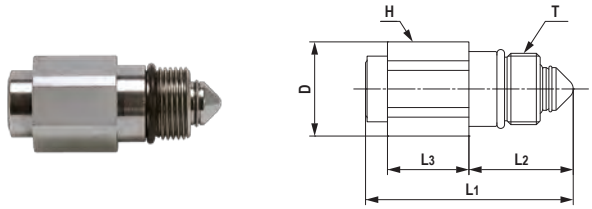
WAF : WAF stands for width across flats.

Plug MALC-01TP type (Thread screw mount)



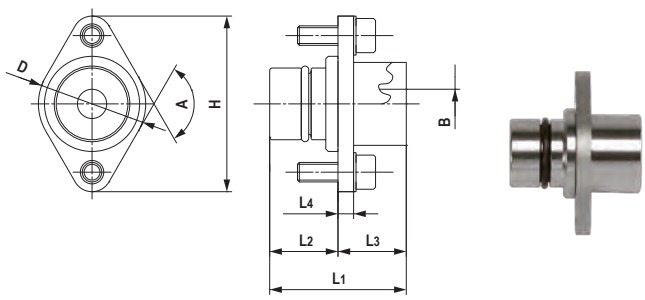
Model	Application	Mass (g)	Dimensions (mm)						
			L1	L2	L3	ϕD	ϕB	H(WAF)	T
MALC-01TP	See drawings below.	40	28	(14)	14	18.5	6	Hex.17	M14×1

Socket MALC-01S type (Thread screw mount)



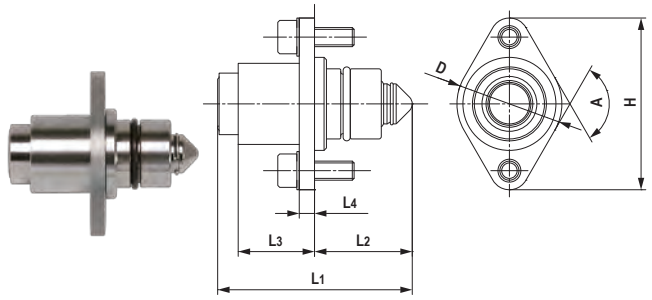
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	ϕD	H(WAF)	T
MALC-01S	See drawings below.	39	(41)	(20.5)	16	18.5	Hex.17	M14×1

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



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

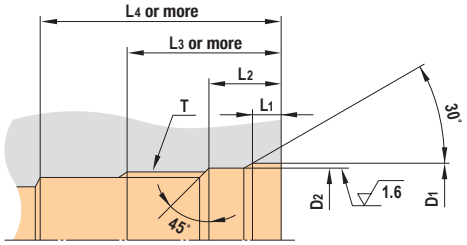
Socket MALC-01S-FL type (With flange)



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

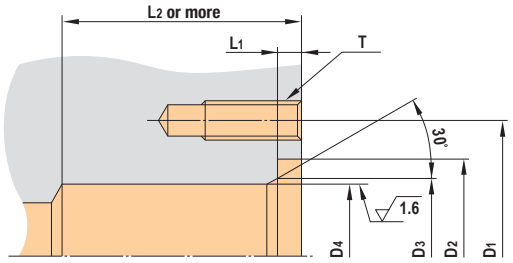
Dimensions for Mounting

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



Model	Dimensions (mm)						
	ϕD1	ϕD2	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)

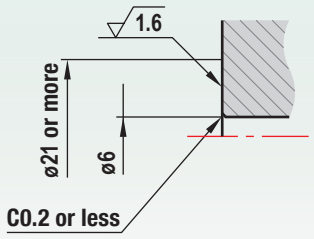


Model	Dimensions (mm)						
	D1	ϕD2	ϕD3	ϕD4	L1	L2	T
MALC-01S-FL	PCD28	20	16	14.8 +0.05 0	2.5 +0.1 0	25	2×M4×0.7 Thread depth 10 mm or more
MALC-01TP-FL						16	

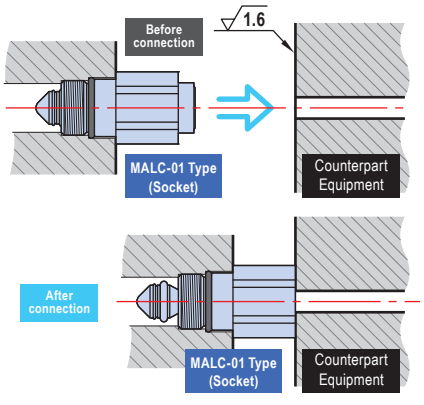
Solo use of socket is possible

The shape of counterpart for solo use of socket

The shape of counterpart for connection



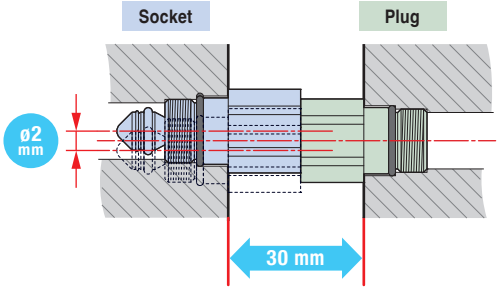
The angle of inclination between the socket and counterpart must be within 0.5 degrees.



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 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.



Low spill type for medium pressure use

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 (Spill Reduction)

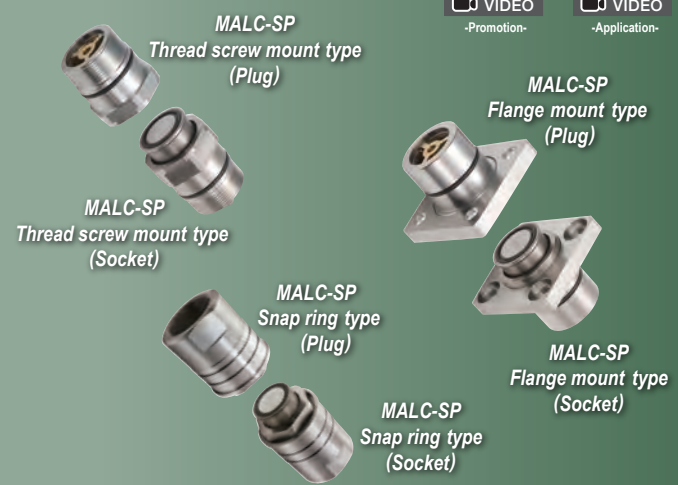
Applicable fluids: Water, Hydraulic oil, Air

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 CUPLA, approximately double flow rates are realized. This contributes to reducing the size of required plates. (Rate of flow increase depends on CUPLA sizes.)
- The MALC type allows for an axial eccentricity tolerance of up to 2 mm, while conventional MULTI CUPLA is only 0.6 mm.
- Special valve design enables connection of sockets and plugs 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 standardized at 30 mm for all sizes. This allows any size of CUPLA to be mounted and used on the same plate.
- Low spill valves minimize outflow of fluid and admixture of air into the fluid line.
- Adapters are also available separately. (See page 41 for details)

VIDEO -Promotion-

VIDEO -Application-



Cv value

① MALC-1S×MALC-1P	1.41	② MALC-2S×MALC-2P MALC-2S-FL×MALC-2P-FL	2.78
③ MALC-3S×MALC-3P MALC-3S-FL×MALC-3P-FL	4.26	④ MALC-4S×MALC-4P MALC-4S-FL×MALC-4P-FL	7.38
⑤ MALC-6S×MALC-6P MALC-6S-FL×MALC-6P-FL	11.10	⑥ MALC-8S×MALC-8P MALC-8S-FL×MALC-8P-FL	15.54
⑦ MALC-12S-F×MALC-12P-F MALC-12S-FL×MALC-12P-FL	34.16	⑧ MALC-12S-16F×MALC-12P-16F	36.55

Specifications

Body material		Stainless steel (Socket body: Nickel 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 (Individual unit)	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)
Seal material Working temperature range *1		Sealing material Fluoro rubber	Mark FKM	Working temperature range –20˚C to +180˚C

*1: The operable temperature range depends on the operating conditions.
- Flange mount type comes with bolts for mounting.

Maximum 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}

Flow Direction

Fluid flow can be bi-directional when socket and plug are connected.

Interchangeability

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

Minimum 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 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 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

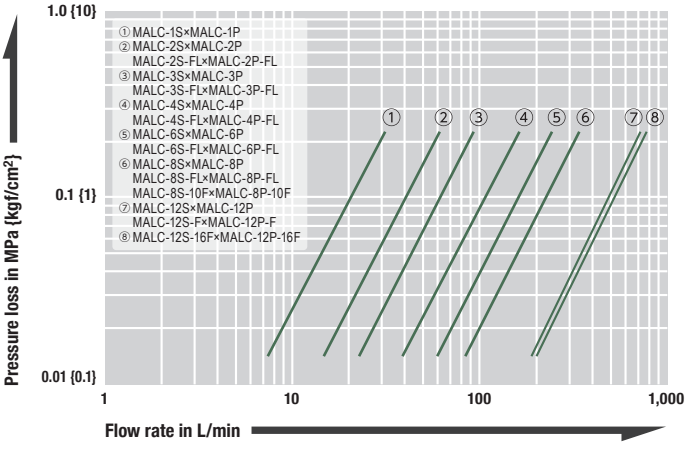
Load Required to Maintain Connection When Line Is Pressurized

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} *1	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}

*1: 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

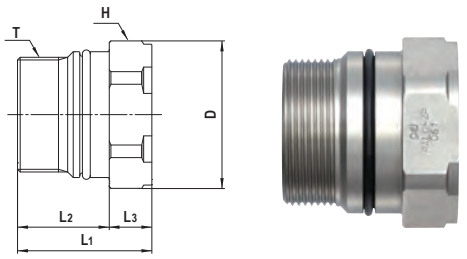
[Test conditions] - Fluid : Water - Temperature : 23˚C±5˚C



Models and Dimensions

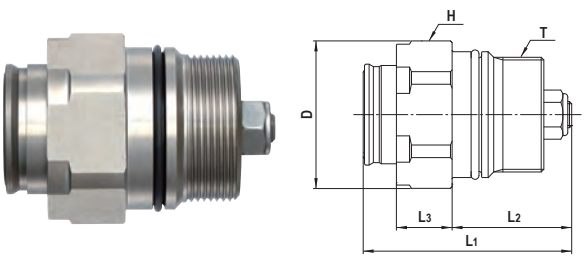
WAF : WAF stands for width across flats.

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



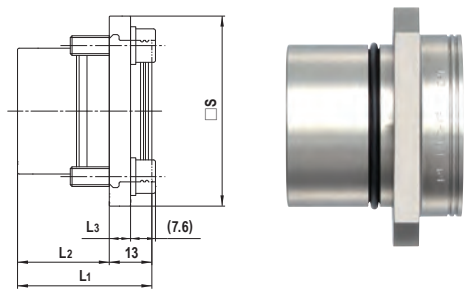
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H(WAF)	T
MALC-1P	See page 27	40	32	(18)	14	21	Hex.19	M16×1
MALC-2P		75	33	(20)	13	28	Hex.26	M20×1.5
MALC-3P		95	33	(20)	13	32	Hex.29	M24×1.5
MALC-4P		248	41	(28)	13	45	Hex.41	M35×1.5
MALC-6P		369	50.5	(37.5)	13	50	Hex.46	M40×2
MALC-8P		399	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)



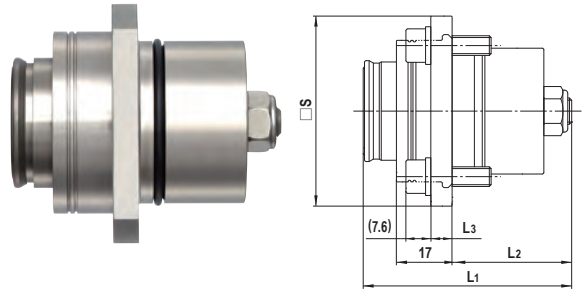
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	øD	H(WAF)	T
MALC-1S	See page 27	53	(45)	(23)	16	21	Hex.19	M16×1
MALC-2S		95	(49)	(26)	17	28	Hex.26	M20×1.5
MALC-3S		120	(51)	(26)	17	32	Hex.29	M24×1.5
MALC-4S		306	(64)	(36.5)	17	45	Hex.41	M35×1.5
MALC-6S		471	(78.5)	(47.5)	17	50	Hex.46	M40×2
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)



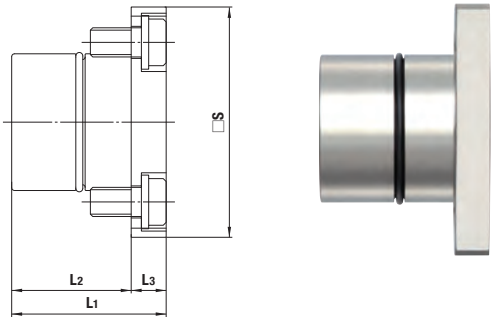
Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-2P-FL	See page 27	146	30	(17)	6	40
MALC-3P-FL		180	33	(20)	6	45
MALC-4P-FL		390	41	(28)	6.5	58
MALC-6P-FL		553	50.5	(37.5)	6.5	64

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



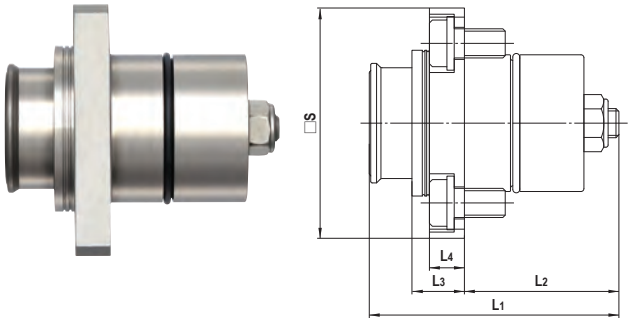
Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-2S-FL	See page 27	173	(49)	(26)	6	40
MALC-3S-FL		208	(51)	(26)	6	45
MALC-4S-FL		449	(64)	(36.5)	6.5	58
MALC-6S-FL		663	(78.5)	(47.5)	6.5	64

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



Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-8P-FL	See page 27	796	53	(41)	12	79

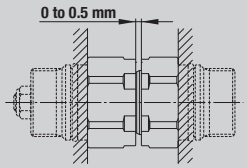
Socket MALC-8S-FL type (With flange)



Model	Application	Mass (g)	Dimensions (mm)				
			L1	L2	L3	L4	□S
MALC-8S-FL	See page 27	978	(86)	(53)	18	12	79

Acceptable distance between socket and plug

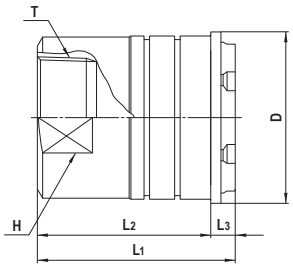
Plug and socket must be used in contact with each other.
Maximum 0.5 mm distance between socket and plug is acceptable.



Models and Dimensions

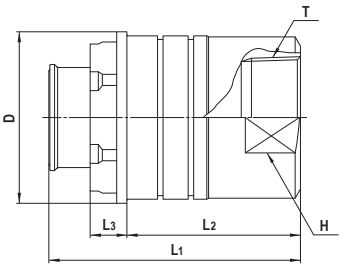
WAF : WAF stands for width across flats.

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



Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	ϕD	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

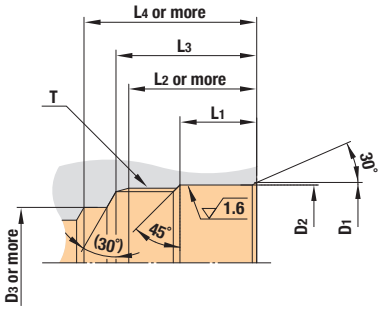
Socket MALC-8 / 12S type (With snap ring)



Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	ϕD	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

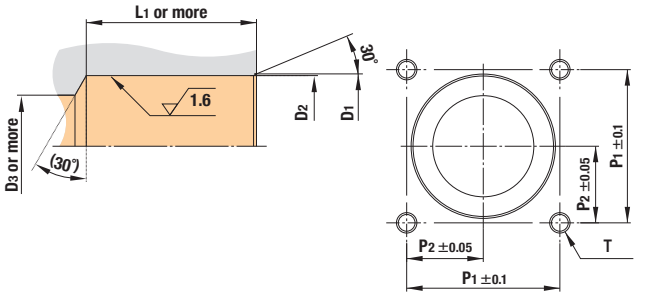
Dimensions for Mounting

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



Model	Dimensions (mm)							
	ϕD1	ϕD2	ϕD3	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 x 1
MALC-2S MALC-2P	24 +0.1 0	23 +0.06 0	16	11.5	22	25	28	M20 x 1.5
MALC-3S MALC-3P	27.6 +0.1 0	26.6 +0.08 0	18	11	22	25	29	M24 x 1.5
MALC-4S MALC-4P	39.5 +0.1 0	38.5 +0.08 0	26	15.5	30	33	40.5	M35 x 1.5
MALC-6S MALC-6P	45 +0.1 0	44 +0.08 0	30	20	40	44	51.5	M40 x 2
MALC-8S MALC-8P	48 +0.3 0	47 +0.08 0	35	27	43	47	55	M45 x 2
MALC-12S MALC-12P	66 +0.3 0	64 +0.1 0	45	30	50	54	65	M62 x 2

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



Model	Dimensions (mm)						
	ϕD1	ϕD2	ϕD3	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)

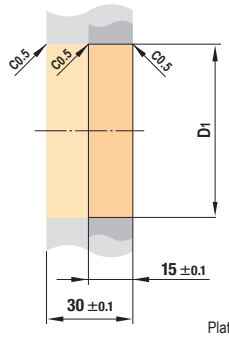


Plate with 15 mm or 30 mm thickness can be mounted.

Model	Dimensions (mm)
	ϕD1
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

Low spill type for high pressure use

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 (Spill Reduction)

Applicable fluids: Hydraulic oil

VIDEO -Promotion-

VIDEO -Application-

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

- Compared with conventional MULTI CUPLA, approximately double the flow rates are achieved. This contributes to reducing the size of required plates. (Rate of flow increase depends on CUPLA sizes.)
- The MALC type allows for an axial eccentricity tolerance of up to 2 mm, while the conventional MULTI CUPLA is only 0.6 mm.
- Special valve design enables connection of sockets and plugs under dynamic pressure of up to 8 MPa.
- When connected, the distance between the socket plate and plug plate is standardized at 30 mm for all sizes. This allows any size of CUPLA to 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 (Nickel plated)	
Model	Thread screw mount		MALC-1HSP	MALC-2 to 8HSP
	Flange		–	MALC-2 to 8HSP-FL
Working pressure (Individual unit)		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)

Seal material Working temperature range *1	Sealing material	Mark	Working temperature range
	Fluoro rubber	FKM	–20˚C to +180˚C

*1: The operable temperature range depends on the operating conditions.
- Flange mount type comes with bolts for mounting.

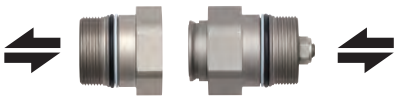
Maximum Tightening Torque

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}	9 {91}	9 {91}	9 {91}	30 {306}

Flow Direction

Fluid flow can be bi-directionalwhen socket and plug are connected.



Interchangeability

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

Minimum 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

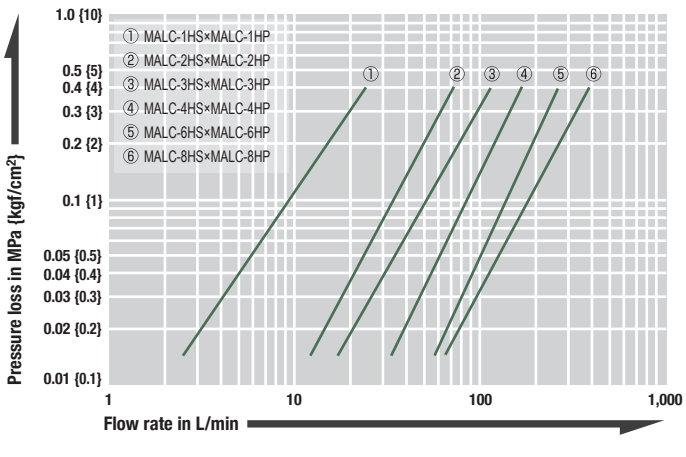
Load Required to Maintain Connection When Line Is Pressurized

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 *1 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}

*1: 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

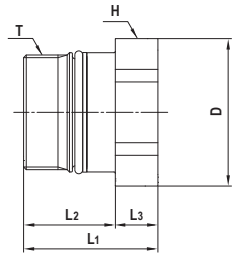
[Test conditions] - Fluid : Hydraulic oil - Temperature : 30˚C±5˚C
- Fluid viscosity : 32×10^{-6} m²/s - Density : 0.87×10^{3} kg/m³



Models and Dimensions

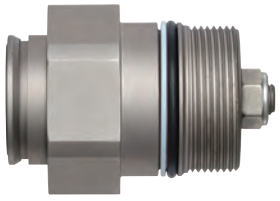
WAF : WAF stands for width across flats.

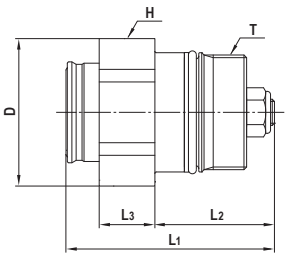
Plug MALC-1 to 8HP type (Thread screw mount)



Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	ϕD	H(WAF)	T
MALC-1HP	See page 31	39	32	(18)	14	21	Hex.19	M16 x 1
MALC-2HP		73	33	(20)	13	28	Hex.26	M20 x 1.5
MALC-3HP		96	33	(20)	13	32	Hex.29	M24 x 1.5
MALC-4HP		250	41	(28)	13	45	Hex.41	M35 x 1.5
MALC-6HP		357	50.5	(37.5)	13	50	Hex.46	M40 x 2
MALC-8HP		391	53	(41)	12	54	Hex.50	M45 x 2

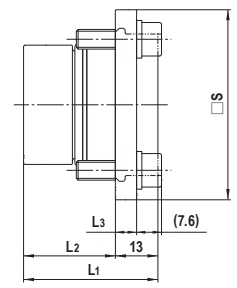
Socket MALC-1 to 8HS type (Thread screw mount)





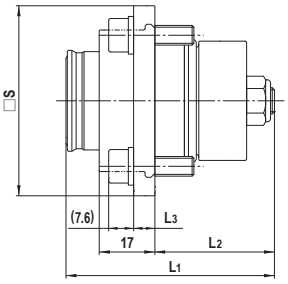
Model	Application	Mass (g)	Dimensions (mm)					
			L1	L2	L3	ϕD	H(WAF)	T
MALC-1HS	See page 31	51	(45)	(23)	16	21	Hex.19	M16 x 1
MALC-2HS		89	(49)	(26)	17	28	Hex.26	M20 x 1.5
MALC-3HS		117	(51)	(26)	17	32	Hex.29	M24 x 1.5
MALC-4HS		290	(64)	(36.5)	17	45	Hex.41	M35 x 1.5
MALC-6HS		447	(78.5)	(47.5)	17	50	Hex.46	M40 x 2
MALC-8HS		579	(86)	(53)	18	54	Hex.50	M45 x 2

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



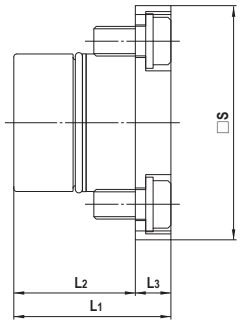
Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-2HP-FL	See page 31	142	30	(17)	6	40
MALC-3HP-FL		179	33	(20)	6	45
MALC-4HP-FL		367	41	(28)	6.5	58
MALC-6HP-FL		514	50.5	(37.5)	6.5	64

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



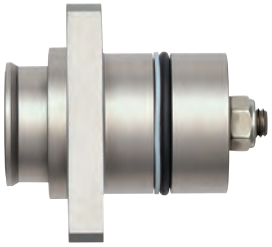
Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-2HS-FL	See page 31	163	(49)	(26)	6	40
MALC-3HS-FL		200	(51)	(26)	6	45
MALC-4HS-FL		418	(64)	(36.5)	6.5	58
MALC-6HS-FL		611	(78.5)	(47.5)	6.5	64

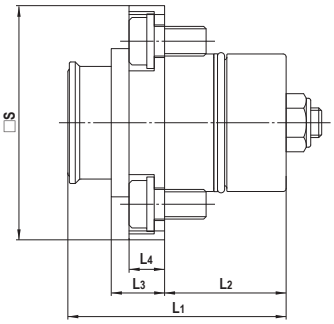
Plug MALC-8HP-FL type (With flange)



Model	Application	Mass (g)	Dimensions (mm)			
			L1	L2	L3	□S
MALC-8HP-FL	See page 31	786	53	(41)	12	79

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

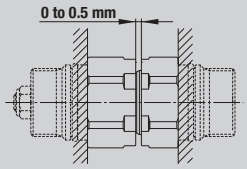




Model	Application	Mass (g)	Dimensions (mm)				
			L1	L2	L3	L4	□S
MALC-8HS-FL	See page 31	964	(86)	(53)	18	12	79

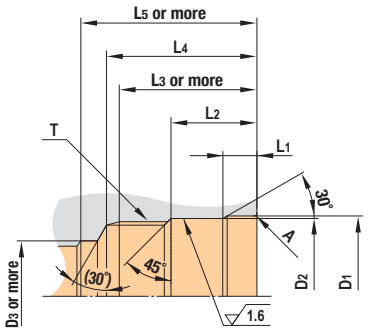
Acceptable distance between socket and plug

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



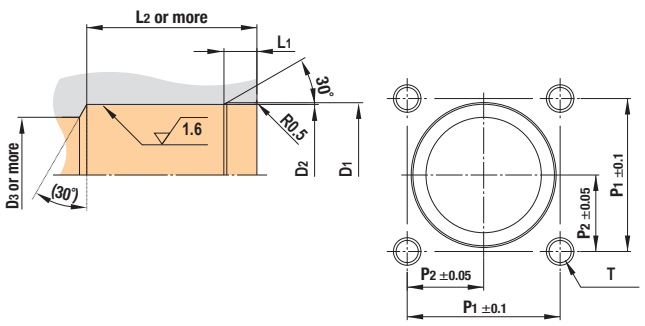
Dimensions for Mounting

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



Model	Dimensions (mm)									
	φD1	φD2	φD3	L1	L2	L3	L4	L5	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	$6^{\pm0.2}$	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	$6^{\pm0.2}$	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	$10.5^{\pm0.2}$	27	43	47	55	M45 x 2	R0.5
MALC-8HP										

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



Model	Dimensions (mm)							
	φD1	φD2	φD3	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			

7.0 MPa {71 kgf/cm²} general-purpose type

MULTI CUPLA

MAS Type／MAT Type

Working pressure: 7.0 MPa {71 kgf/cm²}

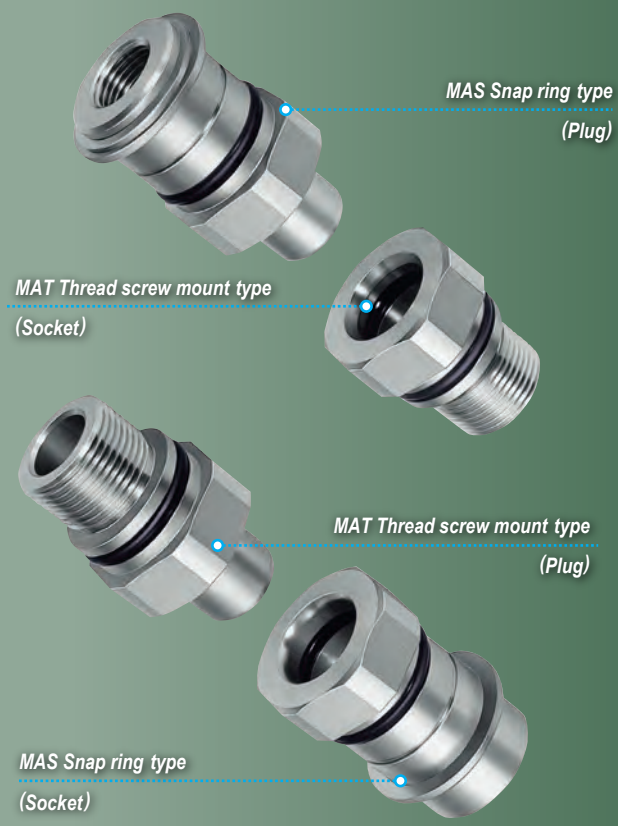
Valve structure: Two-way shut-off

Applicable fluids: Air, Water, Hydraulic oil

Connects multiple lines simultaneously with a single operation for different fluids and sizes.

- Effective for automated systems that connect/disconnect multiple lines simultaneously using hydraulic or pneumatic cylinders.
- 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 0.3 mm.

* CUPLA connection or disconnection with fluid under dynamic pressure cannot be made.



Specifications

Body material	Stainless steel (Nickel plated)			
Pressure unit	MPa	kgf/cm²	bar	PSI
Working pressure	7.0	71	70	1020

Seal material / Working temperature range *1	Sealing material	Mark	Working temperature range
	Fluoro rubber	FKM	-20˚C to +180˚C

*1: The operable temperature range depends on the operating conditions.

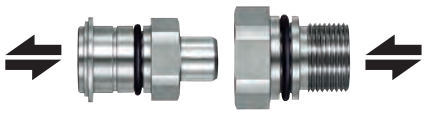
Maximum Tightening Torque — Nm {kgf·cm}

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}

Flow Direction

Fluid flow can be bi-directional when socket and plug are connected.



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.

Minimum 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 — (mL)

May vary depending upon the usage conditions.

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

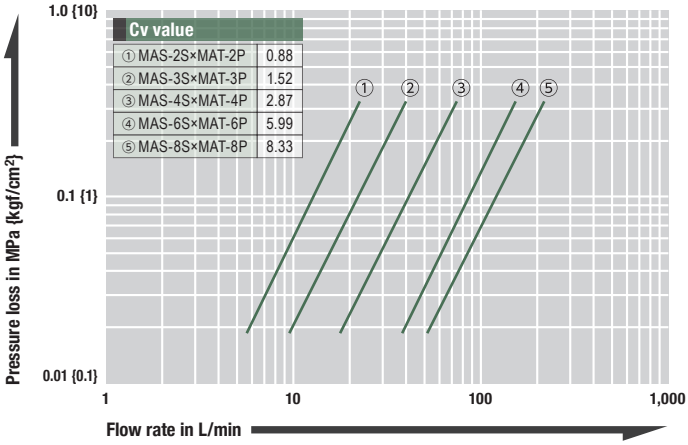
Load Required to Maintain Connection When Line Is Pressurized

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} *1	Px185+45 {px1.85+4.5}	Px310+70 {px3.1+7}	Px545+85 {px5.45+8.5}	Px850+95 {px8.5+9.5}	Px1225+120 {px12.25+12}

*1: 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.

Pressure - Flow Characteristics

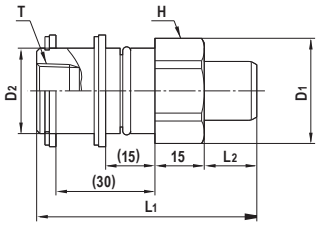
[Test conditions] - Fluid : Water - Temperature : 23˚C±5˚C

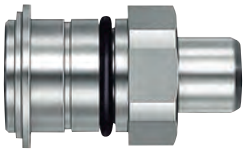


Models and Dimensions

WAF : WAF stands for width across flats.

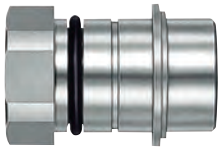
Plug MAS type (With snap ring)

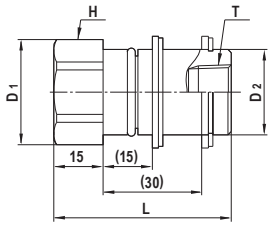




Model	Application (Thread)	Mass (g)	Dimensions (mm)					
			L_1	L_2	ϕD_1	ϕD_2	H(WAF)	T
MAS-2P	R 1/4	150	65	14	28	21.9	Hex.26	Rc 1/4
MAS-3P	R 3/8	203	67	16	35	25.9	Hex.32	Rc 3/8
MAS-4P	R 1/2	412	73	20	44	35.9	Hex.41	Rc 1/2
MAS-6P	R 3/4	579	76.5	23.5	50	41.9	Hex.46	Rc 3/4
MAS-8P	R 1	720	78	24	58	47.9	Hex.54	Rc 1

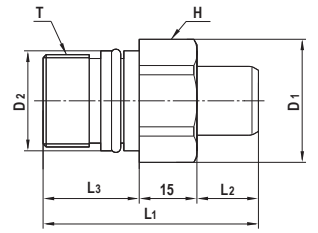
Socket MAS type (With snap ring)

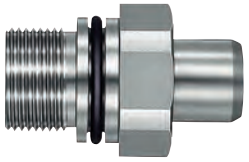




Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	ϕD_1	ϕD_2	H(WAF)	T
MAS-2S	R 1/4	126	51.5	28	21.9	Hex.26	Rc 1/4
MAS-3S	R 3/8	171	55	35	25.9	Hex.32	Rc 3/8
MAS-4S	R 1/2	406	65	44	35.9	Hex.41	Rc 1/2
MAS-6S	R 3/4	604	76	50	41.9	Hex.46	Rc 3/4
MAS-8S	R 1	825	87	58	47.9	Hex.54	Rc 1

Plug MAT type (Thread screw mount)

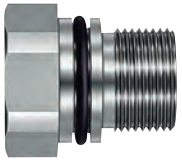


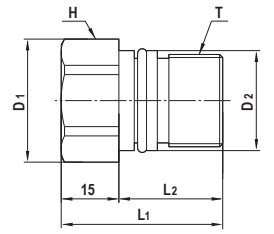


Model	Application (Thread)	Mass (g)	Dimensions (mm)						
			L_1	L_2	L_3	ϕD_1	ϕD_2	H(WAF)	T
MAT-2P	See drawings below.	121	53	14	(24)	28	21.9	Hex.26	M20×1.5
MAT-3P		164	56	16	(25)	32	25.9	Hex.29	M24×1.5
MAT-4P		332	67	20	(32)	44	35.9	Hex.41	M30×2
MAT-6P		453	73	23.5	(34.5)	50	41.9	Hex.46	M39×2
MAT-8P		571	76	24	(37)	54	47.9	Hex.50	M45×2

• MAT type must be coupled with MAS type.

Socket MAT type (Thread screw mount)

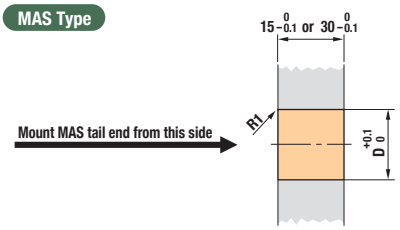




Model	Application (Thread)	Mass (g)	Dimensions (mm)					
			L_1	L_2	ϕD_1	ϕD_2	H(WAF)	T
MAT-2S	See drawings below.	95	39	(24)	28	21.9	Hex.26	M20×1.5
MAT-3S		124	42	(27)	32	25.9	Hex.29	M24×1.5
MAT-4S		246	48	(33)	44	35.9	Hex.41	M30×2
MAT-6S		382	58	(43)	50	41.9	Hex.46	M39×2
MAT-8S		506	66	(51)	54	47.9	Hex.50	M45×2

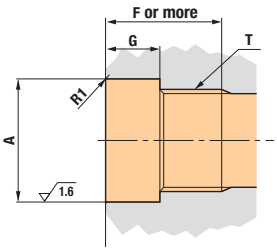
Dimensions for Mounting

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
			Plug	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

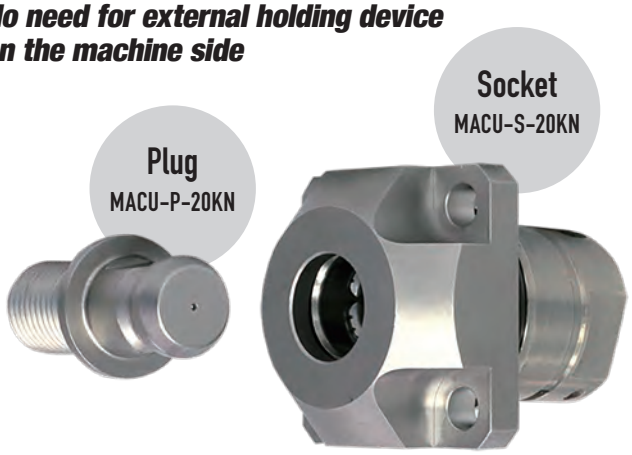
AUTO CLAMP UNIT
for MULTI CUPLA
For retaining reaction force

For MAS Type / MAT Type / MALC Type

VIDEO

To retain reaction force of MULTI CUPLA

No need for external holding device on the machine side



Retains the reaction force of MULTI CUPLA (20 kN per set)

Equipped with an air-drive **lock/unlock mechanism**

Ready with mounting hole for proximity sensor

*Please prepare a sensor available on the market.

Specifications

Model		Socket		Plug
		MACU-S-20KN		MACU-P-20KN
Body material (Surface treatment)		Special steel, Brass (Nickel plated)		Special steel (Nickel plated)
Size (Thread)		Air supply port for sleeve actuation	Hexagon socket head cap screw	M20×1.5
		Rc 1/8	M8×1.25	
Maximum acceptable load *1		20 kN		
Allowable eccentricity *2		Within 0.6 mm dia.		
Ambient temperature range *3		0˚C to +80˚C		
Air supply port for sleeve actuation	Working pressure range *3, *4	0.35 MPa to 0.7MPa, 3.5 kgf/cm^2 to 7.0 kgf/cm^2, 3.5 bar to 7.0 bar, 51 PSI to 102 PSI		
	Seal material / Mark	Nitrile rubber / NBR		
	Applicable fluids *5	Air		

*1: This shows the acceptable value of the load that is constantly applied to one set of AUTO CLAMP UNIT.
*2: The allowable eccentricity shown indicates the eccentricity of the center axes of the socket and plug of AUTO CLAMP UNIT.
The allowable eccentricity of each MULTI CUPLA varies depending on the product. Install within the allowable eccentricity of each product.
*3: The operating speed of the sleeve differs depending on the ambient temperature and the pressure applied to the air supply port.
*4: This indicates the pressure range in which the sleeve actuates when pressurized from the air supply port for sleeve actuation.
*5: Do not use anything other than air as the fluid.

Maximum tightening torque

Nm {kgf•cm}

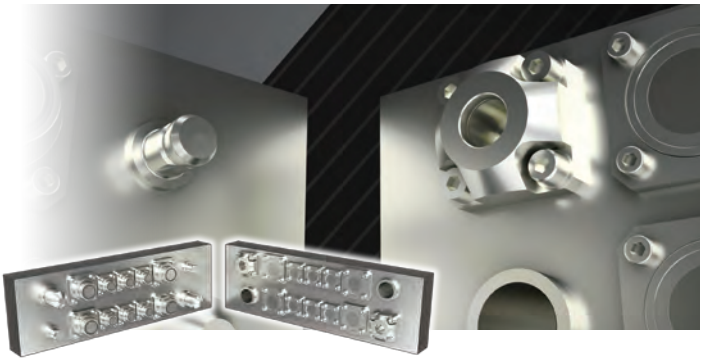
Size (Thread)	Rc1/8	M8×1.25	M20×1.5
Torque	5 {51}	22 {224}	120 {1224}

Applicable MULTI CUPLA

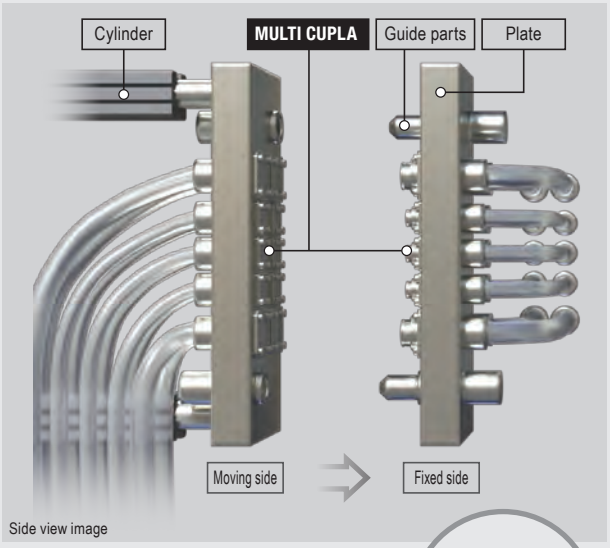
MAS Type	MAT Type	MALC-01 Type	MALC-SP Type	MALC-HSP Type

When ordering, please indicate Model Name or part number.

Differences between retaining by **AUTO CLAMP UNIT** and retaining by cylinders



Retaining by cylinders

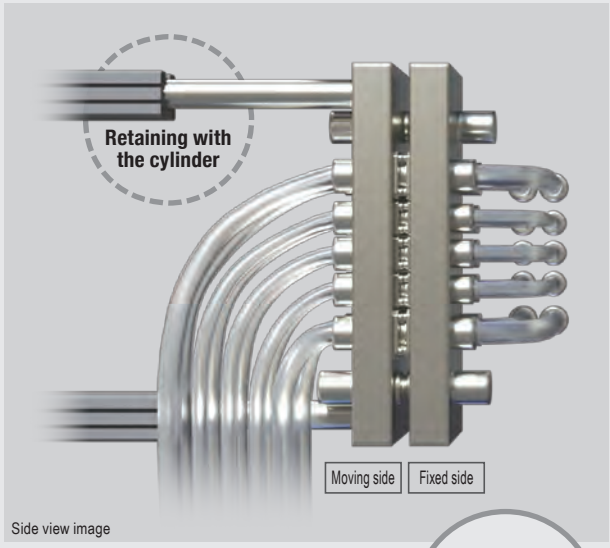


Side view image

Connection force by the cylinder (above picture)

Model: MALC-3S×MALC-3P×6 ports
Model: MALC-4S×MALC-4P×4 ports

Required connection force (unpressurized)
2180 N



Side view image

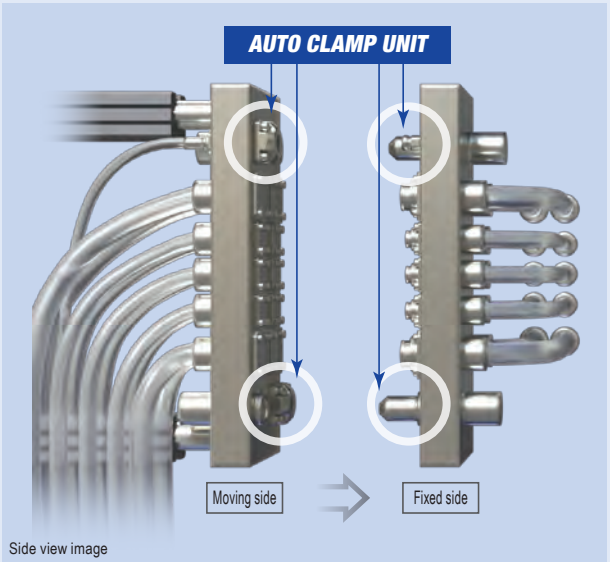
Holding force by the cylinder (above picture)

Model: MALC-3S×MALC-3P×6 ports
Model: MALC-4S×MALC-4P×4 ports

The holding force depends on the size of MULTI CUPLA, the pressure of the fluid, and the number of ports.

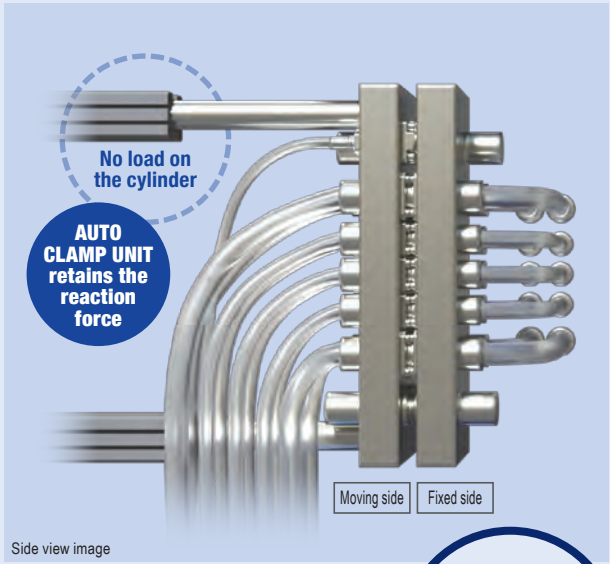
Required holding force after connection (When the fluid pressure is 5.0 MPa)
33080 N

Retaining by AUTO CLAMP UNIT



Side view image

Applicable MULTI CUPLA	
MULTI CUPLA MAS Type / MAT Type	MULTI CUPLA MALC-SP Type
MULTI CUPLA MALC-01 Type	MULTI CUPLA MALC-HSP Type



Side view image

AUTO CLAMP UNIT retains the reaction force of MULTI CUPLA

Please arrange AUTO CLAMP UNIT considering of the holding force and balance.

The holding force by AUTO CLUMP UNIT (per 1 set)
20 kN (20000 N)

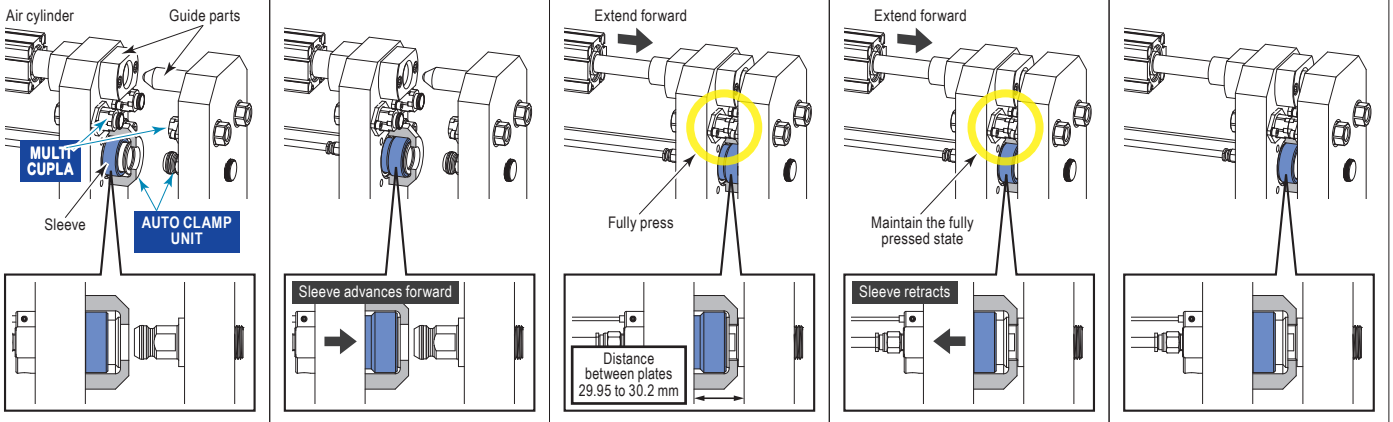
When ordering, please indicate Model Name or part number.

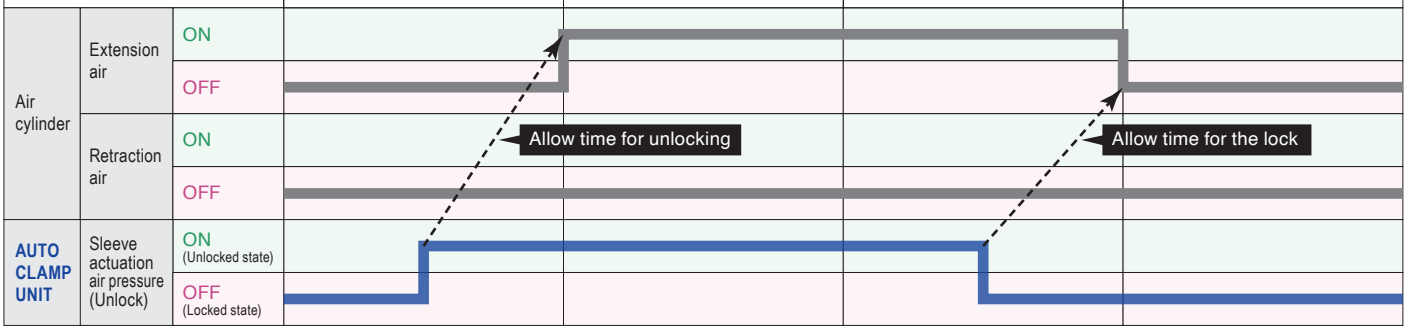
VIDEO
-Precautions-

AUTO CLAMP UNIT Operating procedure (The procedure when using an air cylinder for the power mechanism is shown as an example.)

Connection procedure

Initial state	① Unlock	② Start connection / Fully press CUPLA	③ Lock	④ Connection completed
	Pressurize from the air supply port for sleeve actuation to unlock.	At unlocked state, extend air cylinder until CUPLA is fully pressed. *1	In the state of ②, reduce the pressure in the air supply port for sleeve actuation to 0 to lock.	Connection completed (Since the load is maintained by AUTO CLAMP UNIT, the extended state of the cylinder may be released.).

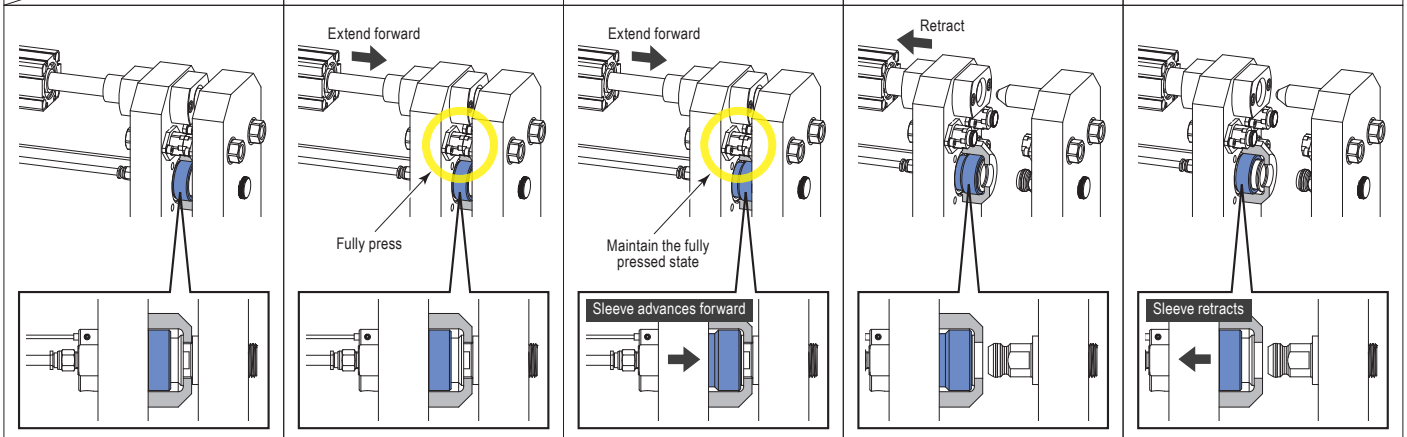


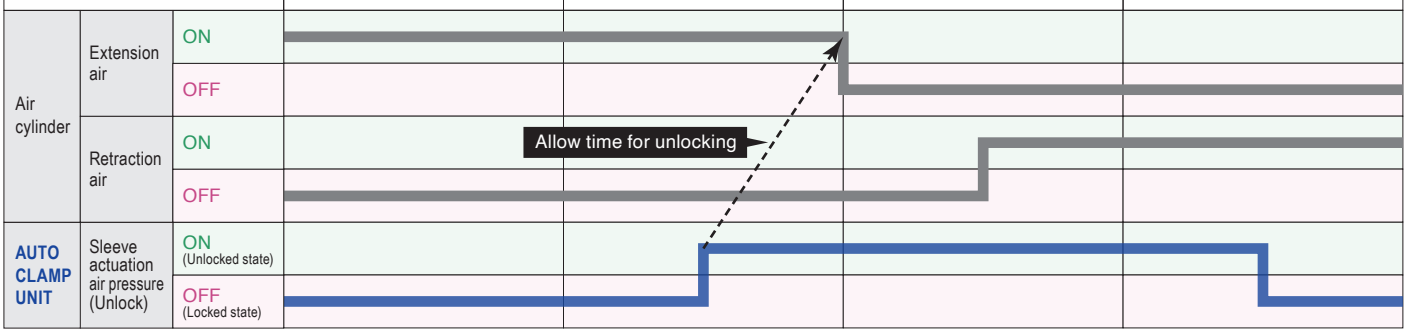


*1: Be sure to unlock when extending the air cylinder forward. If the air cylinder is extended forward while it is locked, AUTO CLAMP UNIT may be damaged.

Disconnection procedure

Initial state	① Fully press CUPLA	② Unlock	③ Start disconnection	④ Disconnection completed
	Extend air cylinder until CUPLA is fully pressed. *1	Unlock in the state of ①.	Retract the air cylinder in the state of ②.	Disconnection completed.





*1: To prevent accidental disconnection, the structure is such that the lock will not release unless tensile force is removed. Refer to "Precautions when connecting and disconnecting sockets and plugs" on page 39. Be sure to extend the air cylinder to fully connect CUPLA to remove the tensile force applied to AUTO CLAMP UNIT.

AUTO CLAMP UNIT Proximity sensor installation

By attaching a proximity sensor*, the locked state can be detected.

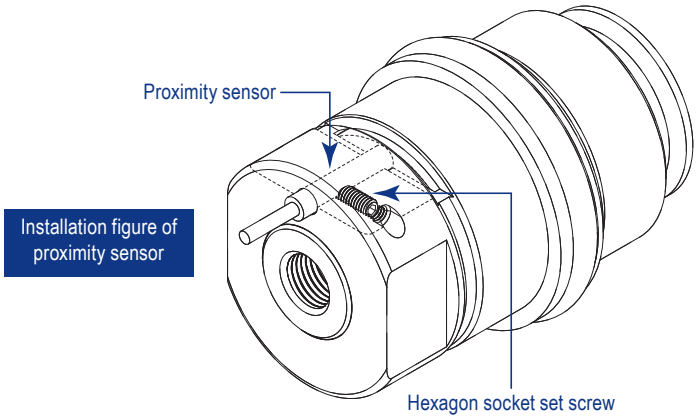
*Please prepare a sensor available on the market.

Attachable proximity sensor (Shielded type)

The locked state of this product can be detected by sensing the position of the sleeve by mounting a proximity sensor (Shielded type) available on the market.
Refer to the table below for the proximity sensor, select and check whether it can be used at your end.

Do not use non-shielded proximity sensors. It may not detect the locked state by not being able to detect the sleeve position.

Sensor head dimensions	
Outer diameter	3.5 to 4 mm
Length	12.5 mm or more



Installation figure of proximity sensor

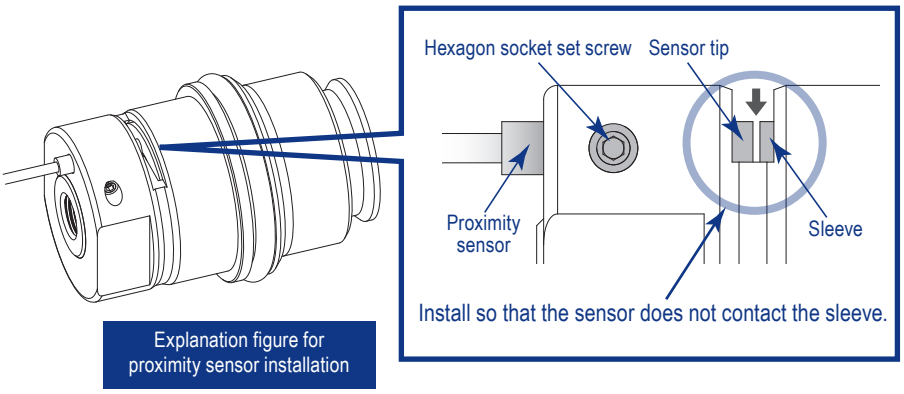
How to mount proximity sensor

Mount the proximity sensor before attaching AUTO CLAMP UNIT to the plate.

How to mount
Insert the proximity sensor into the mounting part, position the proximity sensor by using shims or spacers so that it does not contact the sleeve (*1), and fix it with the hexagon socket set screw (*2, *3).
(Refer to the figure on the right)

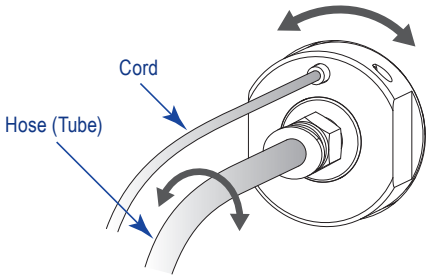
*1: If the proximity sensor is fixed in contact with the sleeve, the sensor may be damaged when the sleeve is activated.
*2: The hexagon socket set screw for fixing is not included with this product. Please refer to the table below for selection.
*3: Those that exceed 8 mm in length may interfere with the mounting hole of this product and cannot be mounted.

Specifications for Hexagon socket set screw	
Size (Thread)	M3×0.5
Length	8 mm or less
Tip shape	Recommended by sensor manufacturer
Maximum tightening torque	



Explanation figure for proximity sensor installation

Depending on the piping conditions of the air supply port for sleeve actuation, the socket cover may sway along with the hose or tube during operation of connection and/or disconnection.
To prevent wire breakage, fix the proximity sensor cord in a slack state. (Refer to the figure on the right)

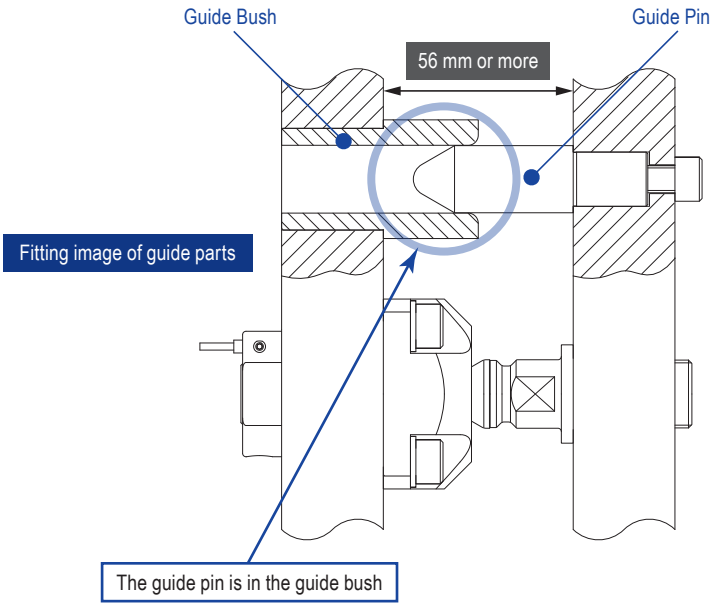


Swaying image of socket cover

AUTO CLAMP UNIT Guide Pin, Guide Bush / Precautions when connecting and disconnecting sockets and plugs

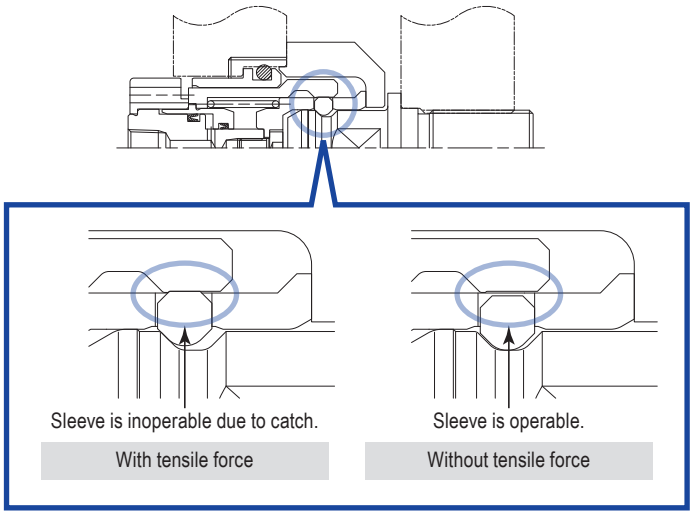
About guide parts

AUTO CLAMP UNIT cannot be used as a guide part for connecting MULTI CUPLA.
To prevent misconnection, be sure to install and use guiding parts such as guide pins and guide bushes.
Before connecting the socket and plug (distance between plates is 56 mm or more), make sure that guiding parts such as guide pins and guide bushes are connected and positioned. (Refer to the figure on the right)



Precautions when connecting and disconnecting sockets and plugs

In order to prevent unexpected disconnection, when tensile force exists, the locking chuck gets caught in the step of the inner diameter of the sleeve and does not move even when pressurized.
When actuating the sleeve, remove the tensile force applied to this product before doing so.



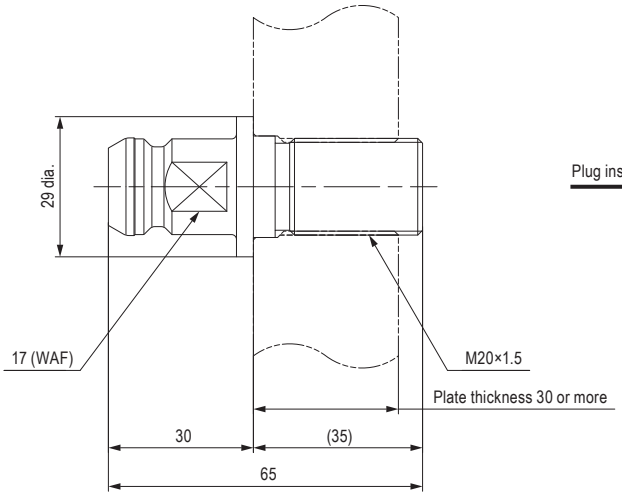
AUTO CLAMP UNIT Outer dimensions / Applications (thread)

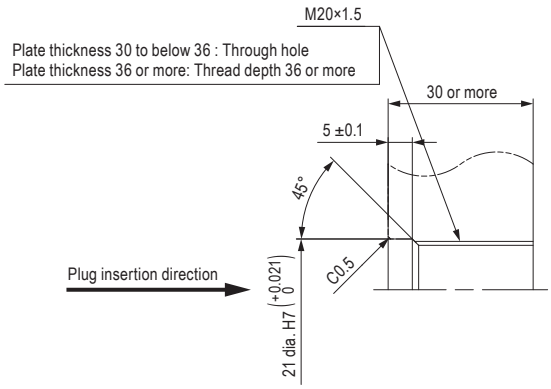
Outer dimensions / Application (thread) Keep the center axis eccentricity of the Socket and Plug within 0.6 mm diameter. **WAF** : WAF stands for width across flats.

Plug Model: MACU-P-20KN

Mass: 155 g

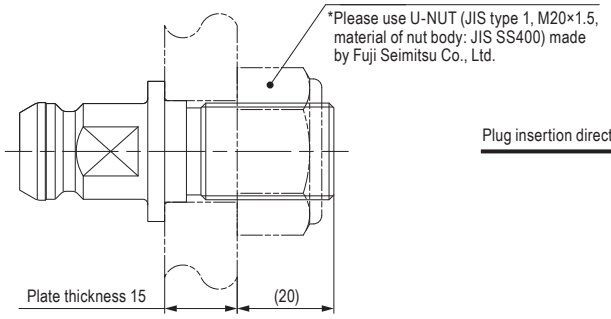
When the plate thickness is 30 or more

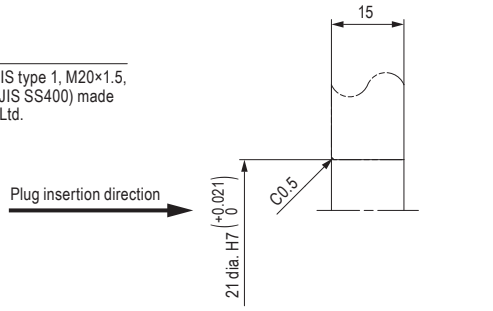




Application (thread)

When the plate thickness is 15



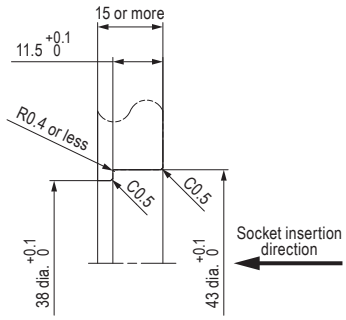


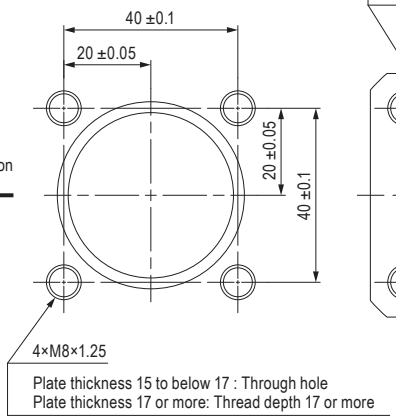
Application (thread)

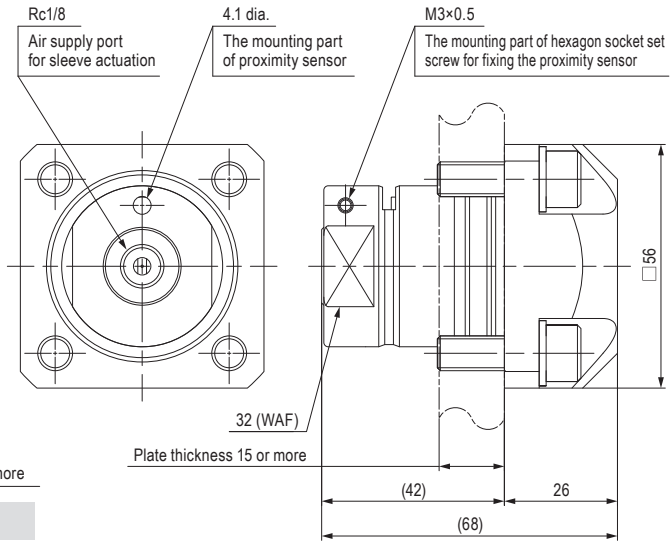
Dimensions (mm)

Socket Model: MACU-S-20KN

Mass: 707 g







Application (thread)

Dimensions (mm)

Adapter for MULTI CUPLA MALC Type

For male thread mounting for MULTI CUPLA

For **MALC Type**

VIDEO

MULTI CUPLA MALC Type

Thread screw mount type

By using adapter...

The machining of the plate **is simplified**

The thickness of the plate **is reduced**

To reduce plate thickness and to simplify the machining of the plate

Specifications (MALC-01 Type and MALC-SP Type)

Type (Adapter)		Adapter for MALC-01 Type	Adapter for MALC-SP Type				
Material (Adapter)		Brass	Stainless Steel				
Model (Adapter)		MALC-01SP-2FAD	MALC-1SP-2FAD	MALC-2SP-3FAD	MALC-3SP-4FAD	MALC-4SP-6FAD	MALC-6SP-8FAD
Working pressure range *1, 3	When connected	1.0 MPa, 10 kgf/cm², 10 bar, 145 PSI	7.0 MPa, 71 kgf/cm², 70 bar, 1015 PSI	5.0 MPa, 51 kgf/cm², 50 bar, 725 PSI			
	Individual plug or socket		2.0 MPa, 20 kgf/cm², 20 bar, 290 PSI				
Working temperature range *2, *3		-20˚C to +80˚C	-20˚C to +180˚C				
Applicable fluids *3		Air, water	Water, air, hydraulic oil				
Allowable eccentricity		1.4 mm dia.	1.4 mm dia.				
Allowable inclination *3		0.5 degrees	0.5 degrees				
Acceptable distance between plates *3		0 to 0.5 mm	0 to 0.5 mm				

Specifications (MALC-HSP Type)

Type (Adapter)		Adapter for MALC-HSP Type					
Material (Adapter)		Steel (Nickel plated)					
Model (Adapter)		MALC-1HSP-2FAD	MALC-2HSP-3FAD	MALC-3HSP-4FAD	MALC-4HSP-6FAD	MALC-6HSP-8FAD	MALC-8HSP-10FAD
Working pressure range *1, 3	When connected	25.0 MPa, 255 kgf/cm², 250 bar, 3630 PSI	21.0 MPa, 214 kgf/cm², 210 bar, 3050 PSI				
	Individual plug or socket	8.0 MPa, 81 kgf/cm², 80 bar, 1160 PSI					
Working temperature range *2, *3		-20˚C to +180˚C					
Applicable fluids *3		Hydraulic oil					
Allowable eccentricity		1.4 mm dia.					
Allowable inclination *3		0.5 degrees					
Acceptable distance between plates *3		0 to 0.5 mm					

*1: This shows the normal allowable fluid pressure under continuous use. Exceeding the working pressure may cause damage and leakage.
*2: This shows the minimum and maximum working temperature range of the seal material used in the product.
Continuous use at the minimum or maximum temperature is not recommended. The operable temperature range depends on the operating conditions.
*3: The working pressure, working temperature range, applicable fluid, allowable inclination and acceptable distance between plates conforms to those of MALC Type Thread screw mount type.

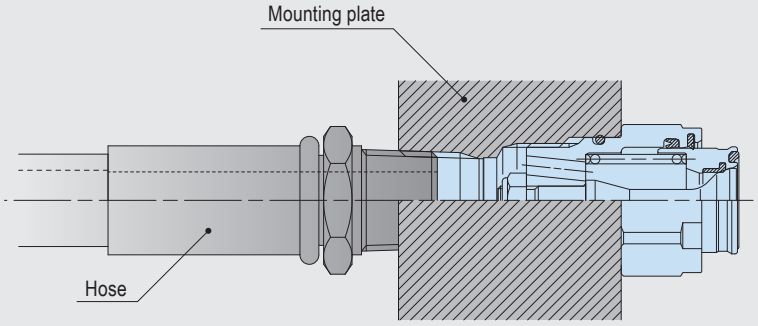
Maximum Tightening Torque

Nm {kgf•cm}

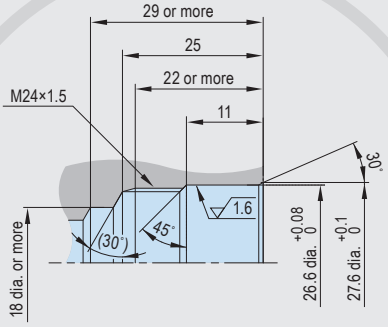
Model (Adapter)	Maximum Tightening Torque		
	Thread screw mount part	Tapered pipe thread	Hexagon socket head cap screw
MALC-01SP-2FAD	15 {153}	9 {92}	2.7 {28}
MALC-1SP-2FAD	20 {204}	14 {143}	2.7 {28}
MALC-2SP-3FAD	30 {306}	22 {224}	
MALC-3SP-4FAD	35 {357}	60 {612}	
MALC-4SP-6FAD	45 {460}	90 {918}	5.4 {55}
MALC-6SP-8FAD	60 {612}	120 {1224}	
MALC-1HSP-2FAD	30 {306}	28 {286}	2.7 {28}
MALC-2HSP-3FAD	50 {510}	45 {459}	
MALC-3HSP-4FAD	53 {540}	90 {918}	
MALC-4HSP-6FAD	65 {663}	100 {1020}	5.4 {55}
MALC-6HSP-8FAD	80 {816}	180 {1836}	
MALC-8HSP-10FAD	95 {969}	290 {2958}	

It reduces plate thickness and simplifies the machining of the plate for MULTI CUPLA MALC Type (Thread screw mount type)

MULTI CUPLA
Installation example of MALC-3S



MULTI CUPLA MALC Type (Thread screw mount)

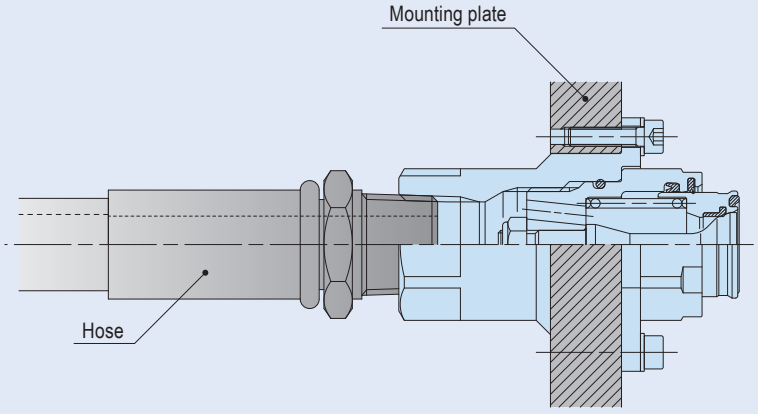


Dimensions for mounting MALC-3S

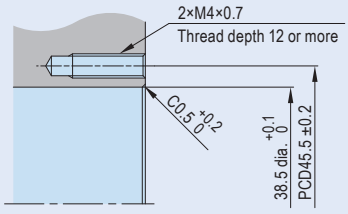
Dimensions (mm)

For MALC Type
Installation example of adapter

Reduces total cost of equipment



MULTI CUPLA MALC Type
Thread screw mount + Adapter



Dimensions for mounting MALC-3SP-4FAD

Dimensions (mm)

When ordering, please indicate Model Name or part number.

Adapter for MALC Type Applicable MULTI CUPLA

Adapter for MALC Type Applicable MULTI CUPLA

Model (Adapter)	Model of MULTI CUPLA MALC-01 Type (Thread screw mount type)
MALC-01SP-2FAD	MALC-01S
	MALC-01TP

Adapter for MALC-SP Type Applicable MULTI CUPLA

Model (Adapter)	Model of MULTI CUPLA MALC-SP Type (Thread screw mount type)
MALC-1SP-2FAD	MALC-1S
	MALC-1P
MALC-2SP-3FAD	MALC-2S
	MALC-2P
MALC-3SP-4FAD	MALC-3S
	MALC-3P
MALC-4SP-6FAD	MALC-4S
	MALC-4P
MALC-6SP-8FAD	MALC-6S
	MALC-6P

Adapter for MALC-HSP Type Applicable MULTI CUPLA

Model (Adapter)	Model of MULTI CUPLA MALC-HSP Type (Thread screw mount type)
MALC-1HSP-2FAD	MALC-1HS
	MALC-1HP
MALC-2HSP-3FAD	MALC-2HS
	MALC-2HP
MALC-3HSP-4FAD	MALC-3HS
	MALC-3HP
MALC-4HSP-6FAD	MALC-4HS
	MALC-4HP
MALC-6HSP-8FAD	MALC-6HS
	MALC-6HP
MALC-8HSP-10FAD	MALC-8HS
	MALC-8HP

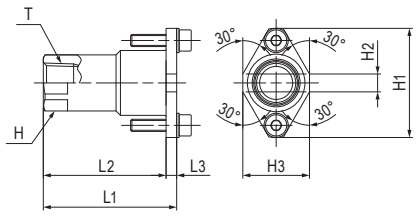
Adapter for MALC Type Outer dimensions / Applications (MALC-01 Type) / Pressure - Flow Characteristics (MALC-01 Type)

Outer dimensions (MALC-01SP-2FAD Type)

WAF : WAF stands for width across flats.

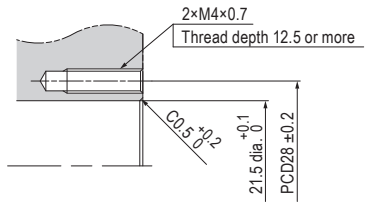
Adapter MALC-01SP-2FAD Type

*Please refer to below for applications of thread.



Model	Mass (g)	Dimensions (mm)							
		L1	L2	L3	øH1	H2	H3	T	H (WAF)
MALC-01SP-2FAD	66	44	(40.5)	3.5	36	(5.9)	22	Rc1/4	Hex.17

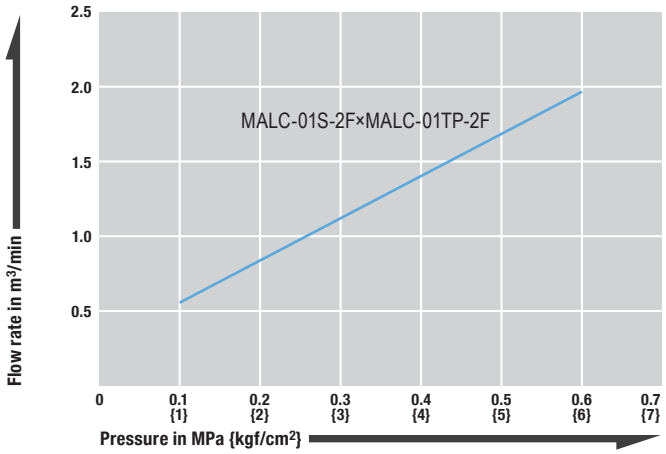
Application of thread (MALC-01SP-2FAD Type)



Dimensions (mm)

Pressure - Flow Characteristics (MALC-01SP-2FAD Type)

[Test conditions] - Fluid: Air



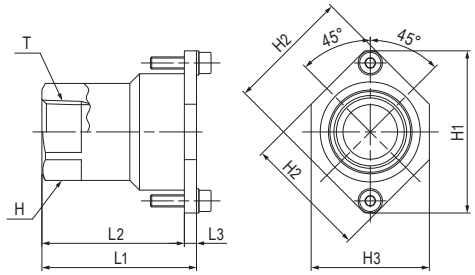
*When adapters are mounted on both MALC-01S and MALC-01TP

Outer dimensions (MALC-1SP-2FAD to MALC-6SP-8FAD Type)

WAF : WAF stands for width across flats.

Adapter MALC-1SP-2FAD to MALC-3SP-4FAD Type

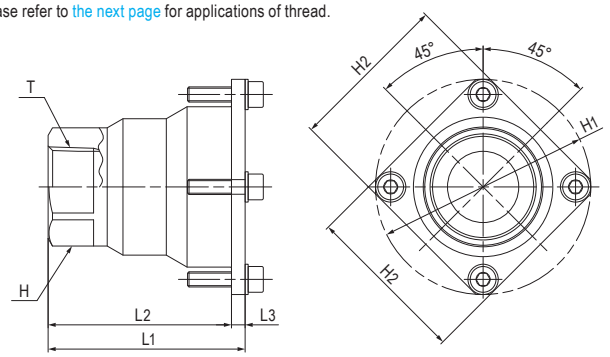
*Please refer to the next page for applications of thread.



Model	Mass (g)	Dimensions (mm)							
		L1	L2	L3	øH1	H2	H3	H (WAF)	T
MALC-1SP-2FAD	93	43	(39.5)	3.5	41.5	32	27	Hex.19	Rc1/4
MALC-2SP-3FAD	140	46	(42.5)	3.5	49	37.5	34.5	Hex.23	Rc3/8
MALC-3SP-4FAD	209	51	(47)	4	53.5	40.5	39	Hex.29	Rc1/2

Adapter MALC-4SP-6FAD, MALC-6SP-8FAD Type

*Please refer to the next page for applications of thread.



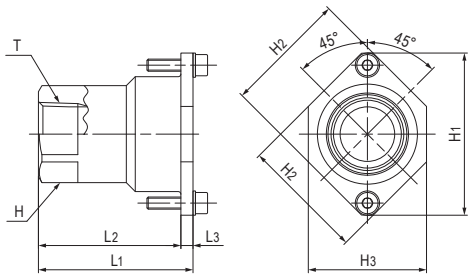
Model	Mass (g)	Dimensions (mm)						
		L1	L2	L3	øH1	H2	H (WAF)	T
MALC-4SP-6FAD	426	65	(60.5)	4.5	71	53.5	Hex.35	Rc3/4
MALC-6SP-8FAD	608	78	(73)	5	77.5	60	Hex.41	Rc1

Outer dimensions (MALC-1HSP-2FAD to MALC-8HSP-10FAD Type)

WAF : WAF stands for width across flats.

Adapter MALC-1HSP-2FAD to MALC-3HSP-4FAD Type

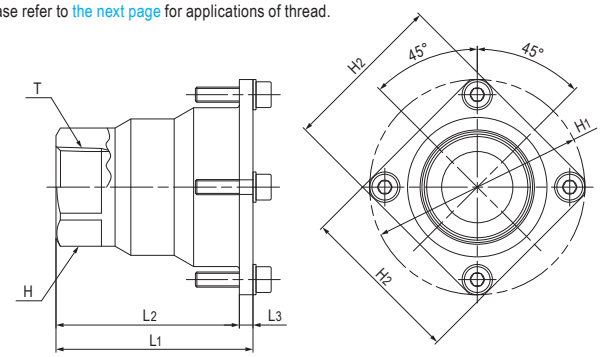
*Please refer to the next page for applications of thread.



Model	Mass (g)	Dimensions (mm)							
		L1	L2	L3	øH1	H2	H3	H (WAF)	T
MALC-1HSP-2FAD	92	43	(39.5)	3.5	41.5	32	27	Hex.19	Rc1/4
MALC-2HSP-3FAD	140	46	(42.5)	3.5	49	37.5	34.5	Hex.23	Rc3/8
MALC-3HSP-4FAD	206	51	(47)	4	53.5	40.5	39	Hex.29	Rc1/2

Adapter MALC-4HSP-6FAD to MALC-8HSP-10FAD Type

*Please refer to the next page for applications of thread.

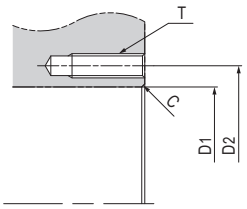


Model	Mass (g)	Dimensions (mm)						
		L1	L2	L3	øH1	H2	H (WAF)	T
MALC-4HSP-6FAD	429	65	(60.5)	4.5	71	53.5	Hex.35	Rc3/4
MALC-6HSP-8FAD	621	78	(73)	5	77.5	60	Hex.41	Rc1
MALC-8HSP-10FAD	909	82	(77)	5	82	64.5	Hex.55	Rc1 1/4

When ordering, please indicate Model Name or part number.

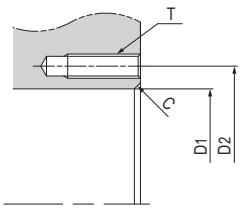
Adapter for MALC Type Applications (MALC-SP, MALC-HSP Type) / Flow Rate - Pressure Loss Characteristics (MALC-SP, MALC-HSP Type)

Applications of thread (MALC-1SP-2FAD to MALC-6SP-8FAD Type)



Model	Dimensions (mm)			
	C	øD1	D2	T
MALC-1SP-2FAD	0.5 $^{+0.2}_{0}$	26.5 $^{+0.1}_{0}$	PCD33.5±0.2	2×M4×0.7 Thread depth 12.5 or more
MALC-2SP-3FAD	0.5 $^{+0.2}_{0}$	34 $^{+0.1}_{0}$	PCD41±0.2	
MALC-3SP-4FAD	0.5 $^{+0.2}_{0}$	38.5 $^{+0.1}_{0}$	PCD45.5±0.2	2×M4×0.7 Thread depth 12 or more
MALC-4SP-6FAD	0.5 $^{+0.2}_{0}$	53 $^{+0.1}_{0}$	PCD61±0.2	4×M5×0.8 Thread depth 15 or more
MALC-6SP-8FAD	0.5 $^{+0.2}_{0}$	59.5 $^{+0.1}_{0}$	PCD67.5±0.2	

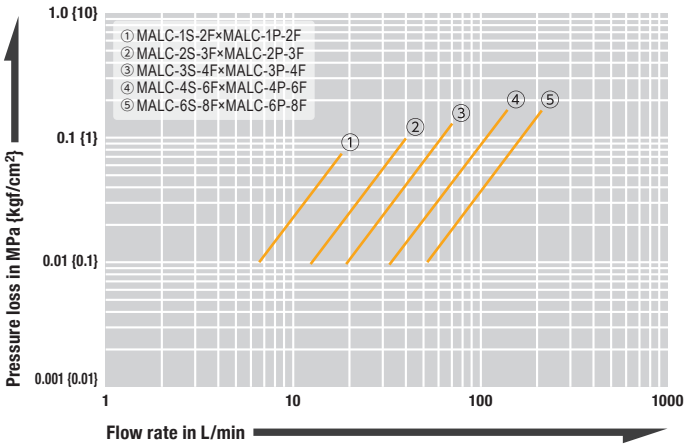
Applications of thread (MALC-1HSP-2FAD to MALC-8HSP-10FAD Type)



Model	Dimensions (mm)			
	C	øD1	D2	T
MALC-1HSP-2FAD	0.5 $^{+0.2}_{0}$	26 $^{+0.1}_{0}$	PCD33.5±0.2	2×M4×0.7 Thread depth 12.5 or more
MALC-2HSP-3FAD	1 $^{+0.2}_{0}$	33.5 $^{+0.1}_{0}$	PCD41±0.2	
MALC-3HSP-4FAD	1 $^{+0.2}_{0}$	38 $^{+0.1}_{0}$	PCD45.5±0.2	2×M4×0.7 Thread depth 12 or more
MALC-4HSP-6FAD	1 $^{+0.2}_{0}$	52.5 $^{+0.1}_{0}$	PCD61±0.2	4×M5×0.8 Thread depth 15.5 or more
MALC-6HSP-8FAD	1 $^{+0.2}_{0}$	59 $^{+0.1}_{0}$	PCD67.5±0.2	4×M5×0.8 Thread depth 15 or more
MALC-8HSP-10FAD	1 $^{+0.2}_{0}$	63.5 $^{+0.1}_{0}$	PCD72±0.2	

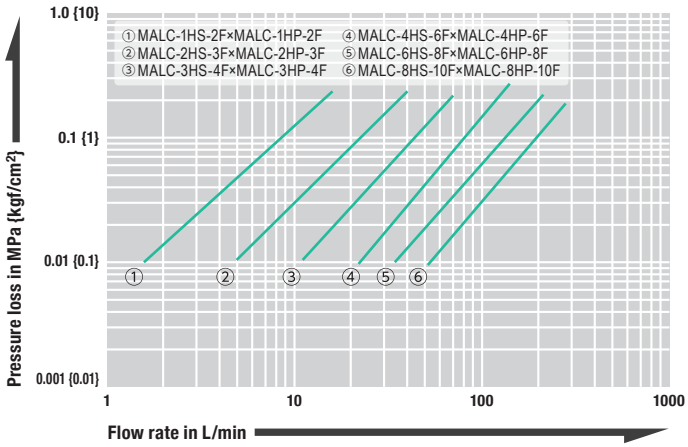
Flow Rate - Pressure Loss Characteristics (MALC-1SP-2FAD to MALC-6SP-8FAD Type)

[Test conditions] - Fluid: Water - Temperature: 23˚C±5˚C



Flow Rate - Pressure Loss Characteristics (MALC-1HSP-2FAD to MALC-8HSP-10FAD Type)

[Test conditions] -Fluid: Hydraulic oil -Temperature: 30˚C±5˚C
-Fluid viscosity: 32×10^{-6} m²/s -Density: 0.87×10^{3} kg/m³



Safety Guide

Working Pressure: The normal allowable fluid pressure under continuous use. Exceeding the working pressure may cause damage and leakage.
Working Temperature Range: This shows the minimum and maximum working temperature range of the seal material used in the product. Continuous use at the minimum or maximum temperature is not recommended. Please contact us for consultation. The operable temperature range depends on the operating conditions.

Safety Precautions

The safety precautions provide instructions for the safe use of NITTO KOHKI coupling "CUPLA" 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 CUPLA is 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 product immediately if there is any anticipated danger of operation or reduced safety.

⚠ WARNING

The enclosed safety precautions are only a guideline. When using CUPLA, 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 CUPLA

⚠ 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 coupling "CUPLA" when you order and purchase.
- Do not use CUPLA under conditions and environments other than specified in the catalog.

⚠ WARNING

- Please consult us prior to use if CUPLA is required for use on machines, equipment or systems (hereafter referred to as “equipment, systems, etc.”) for sustaining or controlling human life or body.
- When CUPLA is 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 CUPLA is 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 CUPLA when it is intended for use with corrosive or flammable gases/liquids and/or in atmospheres of these types of gases and liquids.

Markings

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 or standard value 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 coupling "CUPLA" have appeared on the market.
Connection with such a similar product to NITTO KOHKI coupling "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 NITTO KOHKI coupling "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 coupling "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.

⚠ Precautions Relating to the Use of MULTI CUPLA products

Be sure to read the "Instruction Sheet" that comes with the product or "Caution" on the package before use.

Overall MULTI CUPLA

⚠ 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 CUPLA that is 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 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 CUPLA, 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 CUPLA for installation. It will cause damage.
- Prior to use, always perform a leak test after installing CUPLA.
- Always install a shut-off valve between the pressure source and 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 CUPLA.
- Do not use CUPLA in areas or environment where dust such as sand or metal powder can get in to CUPLA. It will lead to malfunction or leakage.
- Do not let paint stick to CUPLA. It will cause malfunction or leakage.
- Be careful not to put scratches or dents on 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 CUPLA directly to vibrating or impacting equipment will result in reduced lifetime.
- Use only as quick connect couplings for fluid pipelines.
- Only use CUPLA in a combination with NITTO KOHKI coupling "CUPLA".

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 CUPLA.
- Do not drop MULTI CUPLA. It will cause deformation of the plate.

⚠ Caution

- Do not use CUPLA 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 CUPLA. If the stop ring is widened, it may come off from its groove and lead to poor connection or damage of CUPLA. Also change the stop ring with a new one when replacing CUPLA.
- Install hoses symmetrically from the locking unit when they are connected to 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 CUPLA. It will cause leakage or damage.

MAM-A Type / MAM-B Type

⚠ Warning

- Do not connect or disconnect CUPLA while they are pressurized or residual pressure of more than 0.6 MPa remains. It will cause damage to CUPLA.
- Do not use CUPLA continuously exceeding the rated working pressure. It will cause leakage or damage.
- Do not drop MULTI CUPLA. 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 CUPLA.
- Install hoses symmetrically from the locking unit when they are connected to 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 CUPLA.
- Design and keep the fluid flow speed through CUPLA below 8 m/s. It will cause damage to the valve if used at 8 m/s or over.
- Do not disassemble CUPLA. It will cause leakage or damage.

MAS Type / MAT Type

⚠ Warning

- Do not apply pressure to CUPLA socket or plug while they are disconnected. It will cause leakage or damage.
- Do not use CUPLA 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 CUPLA. (Applies to MAS Type CUPLA)
- Care must be taken when installing CUPLA 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 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 CUPLA.
- Design and keep the fluid flow speed through CUPLA below 8 m/s. It will cause damage to the valve if used at 8 m/s or over.
- Do not drop CUPLA. It will cause leakage or malfunction.
- Do not disassemble CUPLA. It will cause leakage or damage.

MALC-01 Type

⚠ Caution

- Do not use CUPLA 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 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 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 CUPLA.
- Design and keep the fluid flow speed through CUPLA below 8 m/s. It will cause damage to the valve if used at 8 m/s or over.
- Do not drop CUPLA. It will cause leakage or malfunction.
- Do not disassemble CUPLA. 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 CUPLA continuously exceeding the rated working pressure. It will cause leakage or damage.
- Do not disassemble CUPLA. It will cause leakage or damage.

⚠ Caution

- Keep the center axis eccentricity of the Socket and Plug within 2 mm 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 CUPLA. (Applies to Snap ring mount Type)
- Care must be taken when installing CUPLA 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 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 CUPLA.
- Design and keep the fluid flow speed through CUPLA below 8 m/s. It will cause damage to the valve if used at 8 m/s or over.
- Do not drop CUPLA. It will cause leakage or malfunction.

⚠ Precautions Relating to the Use of Accessories for MULTI CUPLA

Be sure to read the "Instruction Sheet" that comes with the product or "Caution" on the package before use.

Accessory for MULTI CUPLA

AUTO CLAMP UNIT

Safety precautions

- Read without fail and observe the "Safety Guide" in the Quick Connect Couplings General Catalog.
- For the cautions of the fluid to be used, please contact the manufacturer of the fluid.
- Observe the warnings and cautions below. If not observed, it could result in leakage of the fluid or damage to this product and cause burns, injury to the body by dangerous fluid such as chemical agent or high temperature fluid. It could also result in serious damage to the product or other machinery by the damage of this product. Stop using this product immediately if this happens.

⚠ WARNING

- Do not use beyond the maximum acceptable load.
- Do not apply any artificial impact, bend or tension.
- Do not connect or disconnect AUTO CLAMP UNIT while MULTI CUPLA is under dynamic pressure or residual pressure is remaining.

⚠ CAUTION

- After installation, be sure to check the operation of connection and disconnection of this product (Sleeve lock at connection and unlock at disconnection) before using.
- Do not operate the sleeve outside the working pressure range.
- Connect and disconnect according to the appropriate operating procedure (Refer to "Operating procedure" on page 37.).

SAFETY GUIDE

- Only use AUTO CLAMP UNIT within the ambient temperature range.
- This product is a clamping unit for maintaining connection of MULTI CUPLA (see "Applicable MULTI CUPLA" above). This product cannot be used as a guide part for connecting MULTI CUPLA. To prevent misconnection, be sure to install and use guiding parts such as guide pins and guide bushes.For the specifications and precautions of MULTI CUPLA, refer to our Quick Connect Couplings General Catalog or the instructions attached to MULTI CUPLA.
- Before connecting the socket and plug (distance between plates is 56 mm or more), make sure that guiding parts such as guide pins and guide bushes are connected and positioned (See "About guide parts" on page 39.).
- Install the socket and plug within ø0.6 mm of eccentricity of their center axes.
- To connect / disconnect this product, fully press MULTI CUPLA (distance between plates 29.95 to 30.2 mm) and pressurize from the air supply port and operate the sleeve. To prevent accidental disconnection, the sleeve does not move even if pressure is applied from the air supply port when tensile force is applied.
- Refer to our Quick Connect Couplings General Catalog and make sure that the total of the holding force when connecting MULTI CUPLA (total of "Minimum load required to maintain connection" described in the catalog) and the tensile force due to the weight (for vertical use) of the connecting mate (Plate, MULTI CUPLA, AUTO CLAMP UNIT, Hose, etc.) does not exceed the maximum acceptable load of AUTO CLAMP UNIT.
- Select the material and thickness of the plate for AUTO CLAMP UNIT and MULTI CUPLA considering of the reaction force received from MULTI CUPLA (=load of MULTI CUPLA at connected state) and tightening torque of the mounting screw.
- When attaching MULTI CUPLA to a plate, consider the counter force of each MULTI CUPLA (= holding force of MULTI CUPLA at connection) in order to prevent poor connection / disconnection of MULTI CUPLA due to inclination or warp of the plate and leakage at connection, and arrange it so that it is not biased from AUTO CLAMP UNIT.
- Apply a fluoropolymer resin sealant tape on male tapered pipe threads to ensure no leak.
- Do not exceed the recommended maximum torque when installing AUTO CLAMP UNIT.
- Do not use AUTO CLAMP UNIT in areas or environment where dust such as sand or metal powder can get into AUTO CLAMP UNIT.
- Do not let paint stick to AUTO CLAMP UNIT.
- Do not drop AUTO CLAMP UNIT.
- Connecting AUTO CLAMP UNIT directly to vibrating or impacting equipment will result in reduced lifetime.
- Do not use this product for any purpose other than maintaining the connection of MULTI CUPLA.
- Do not disassemble AUTO CLAMP UNIT.
- Check AUTO CLAMP UNIT regularly. Stop using immediately if anything unusual is found on AUTO CLAMP UNIT.

Adapter for MULTI CUPLA MALC Type

Safety precautions

- Read without fail and observe the "Safety Guide" in the general Quick Connect Couplings Catalog.
- For the cautions of the fluid to be used, please contact the manufacturer of the fluid.
- Observe the warnings and cautions below. If not observed, it could result in leakage of the fluid or damage to this product and cause burns, injury to the body by dangerous fluid such as chemical agent or high temperature fluid. It could also result in serious damage to the product or other machinery by the damage of this product. Stop using this product immediately if this happens. Since this product is used in combination with a MALC Type Thread screw mount type socket/plug, the contents of the assembled product are also included.

⚠ WARNING

- Do not use uncoupled socket or plug continuously exceeding its rated working pressure.
- Do not use CUPLA continuously exceeding the rated working pressure.

⚠ CAUTION

- When CUPLA is in high temperature state, wear protective equipment such as gloves, etc., and handle with extra care.
- Do not connect or disconnect when CUPLA is in high temperature state.
- Do not strike the tip of an automatic shut-off valve with a hammer or a similar tool.
- Design and keep the fluid flow speed through CUPLA below 8 m/s for liquid use.

SAFETY GUIDE

- Only use CUPLA that is within their rated temperature range.
- Keep the center axis eccentricity of the Socket and Plug within 1.4 mm diameter.
- Obliquity of socket and plug must be within 0.5 degrees during connection or disconnection.
- 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.
- Select the material and thickness of the plate for CUPLA considering of the reaction force received from CUPLA (=load at connected state) and tightening torque of the hexagon socket head cap screw.
- Apply a fluoropolymer resin sealant tape on male tapered pipe threads to ensure no leak.
- Care must be taken when installing CUPLA not to overtighten or cross thread, this can cause damage and lead to leakage. (Applies to MALC-SP Type CUPLA)
- Install the Adapter onto the Thread screw mount type socket/plug before installing onto the plate. The hexagon part or bolt may deform if the Adapter is installed onto the plate in advance.
- Do not exceed the recommended maximum torque when screwing in to the male or female thread of CUPLA for installation.
- Prior to use, always perform a leak test after installing CUPLA.
- Always install a shut-off valve between the pressure source and CUPLA.
- The use of inline filters is strongly advised and recommended.
- Do not use CUPLA in areas or environment where dust such as sand or metal powder can get in to CUPLA.
- Do not let paint stick to CUPLA.
- Be careful not to put scratches or dents on CUPLA.
- Use it in the state that the fluid does not freeze in the case of water. If it freezes, it will cause damage to CUPLA.
- Do not apply any artificial impact or bend.
- Do not drop CUPLA.
- Connecting CUPLA directly to vibrating or impacting equipment will result in reduced lifetime.
- Use only as quick connect couplings for fluid pipelines.
- Do not disassemble CUPLA.
- Check CUPLA regularly. Stop using immediately if anything unusual is found on CUPLA.
- When cleaning CUPLA, care must be taken not to use any material that will affect the seal and body materials.

⚠ Caution for Storing CUPLA

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

Nitto Kohki's Laborsaving Products

Nitto Kohki is capturing the needs of users by introducing to the world not only "CUPLA" quick connect couplings, but also next-generation laborsaving devices, including various "Power and Machine Tools", high precision "delvo" electric screwdrivers, linear-motor-driven free piston "compressors / vacuum pumps", and door closer "AUTO-HINGE".

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NITTO KOHKI Electric Screwdriver "delvo" is high-quality tools for professional use, with special emphasis on precise control of torque and long life. They apply just the correct amount of torque –with sure, positive control always at your fingertips. They are smooth and shockless in operation, too.

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Center Hang Type / Flag Type / Sliding Door Closer

Door closer is a product which allows doors to be closed quietly and safely. Used for various doors worldwide such as medical institutions, wellness centers, offices and transportation equipment. The door closing is automatically controlled by the action of springs and hydraulics, resulting in an armless and clean door.

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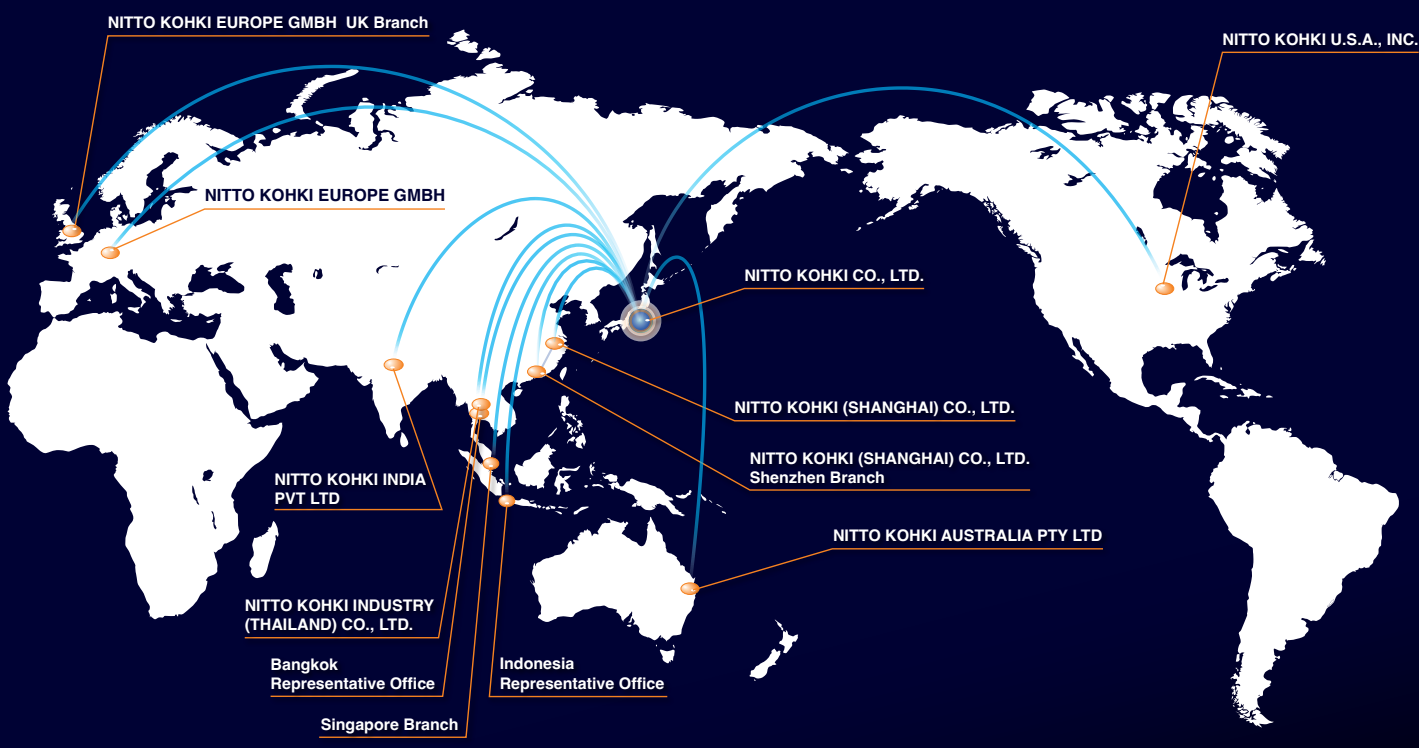


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