NITTO KOHKI

C12en

Multi-Port Connection Type Quick Connect Couplings

# MULTI CUPLA

GENERAL CATALOG

CUPLA

Quick Connect Couplings

Green Procurement

Products Comply with RoHS Directive

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

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

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

Plate with CUPLA

## MULTI CUPLA MAM Type

Individual CUPLA **MAM Type**

MAS-1TP MAS-1S

Plate with CUPLA

## MULTI CUPLA MAM-B Type

Plate with CUPLA

## MULTI CUPLA MAM-A Type

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

Low spill type

MAM-A-ZEL Type

General purpose type

MAM-A-SP Type

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

MALC Type

MAS Type/MAT Type

## Nitto Kohki's environmentally-friendly Manufacturing

Green Procurement

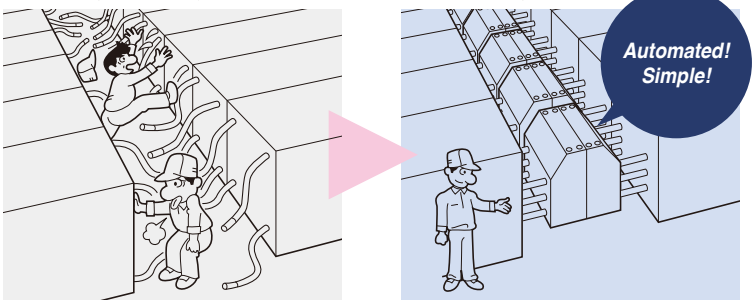
Please visit our website for applicable products.

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.

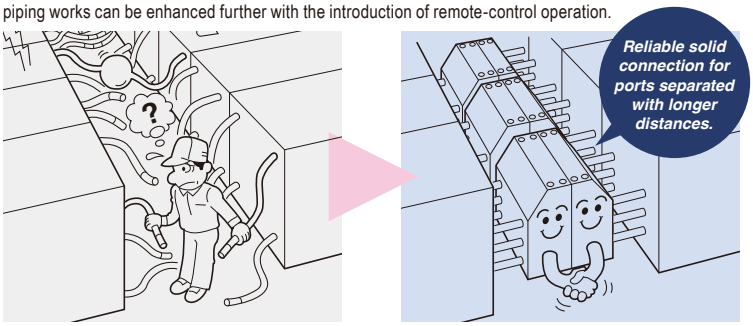
## For improved productivity and realization of FMS (Flexible Manufacturing System)

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.



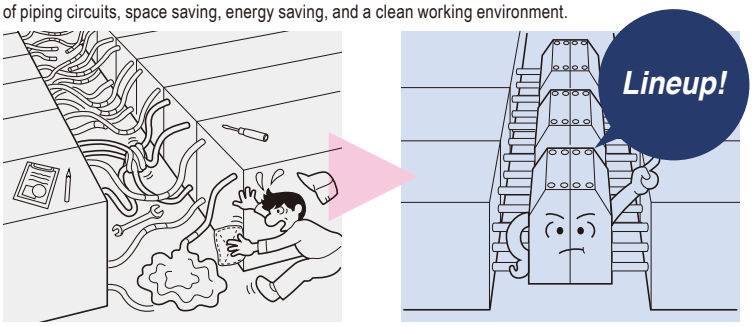

## For improved safety and reliability

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.



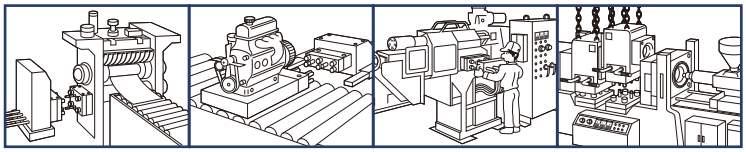

## For space and energy saving, and clean factory site

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.



## The meaning of each letter in the model name

Model name (In case of MAM-1TP-4 / MAM-B-1P8)

| | | | | | | |
|---|---|---|---|---|---|---|
| MAM | - | 1 | | TP | - | 4 |
| MAM-B | - | 1 | | P | | 8 |

| Series | |
|---|---|
| Type | Symbol |
| MAM Type | MAM |
| MAM-B Type | MAM-B |
| MAM-A Type | MAM-A |

| Size | |
|---|---|
| Size | Symbol |
| 1/8" | 1 |
| 1/4" | 2 |
| 3/8" | 3 |
| 1/2" | 4 |

| Socket or Plug | |
|---|---|
| Segment | Symbol |
| Socket | S |
| Plug | P |
| | TP* |

* MAM type only

| Number of ports | |
|---|---|
| Number of ports | Symbol |
| 4 ports | 4 |
| 6 ports | 6 |
| 8 ports | 8 |
| 12 ports | 12 |
| 16 ports | 16 |

## CONTENTS

## For Multi-Port Connection (Manual)

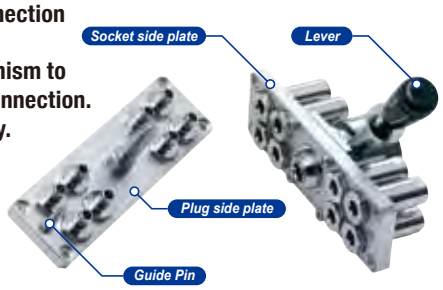
# MULTI CUPLA
## MAM Type

**Multiple air port system**

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

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

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




### Specifications

| | | | | |
|---|---|---|---|---|
| Body material | CUPLA : Brass (Chrome plated)<br>Plate (4, 8, 12 ports): Aluminum alloy / Plate (16 ports): Steel<br>Locking unit : Steel and others | | | |
| Size (Thread) | Rc 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} |

### Interchangeability

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

### Minimum Cross-Sectional Area — (mm²)

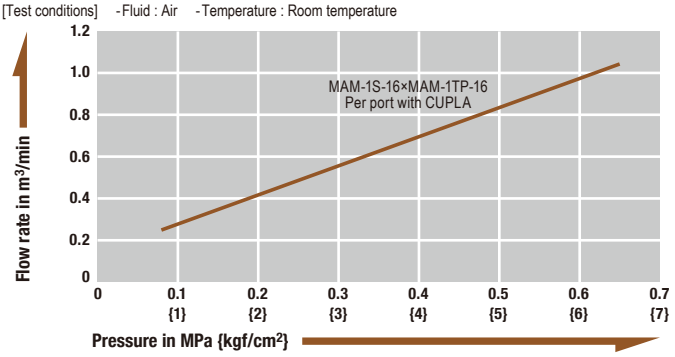
| | |
|---|---|
| Per port | 15.9 |

### 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 - Temperature : Room temperature




### Models and Dimensions

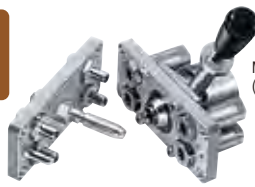
**WAF** : WAF stands for width across flats.

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

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

Plate with CUPLA **MAM Type**

**4** Ports

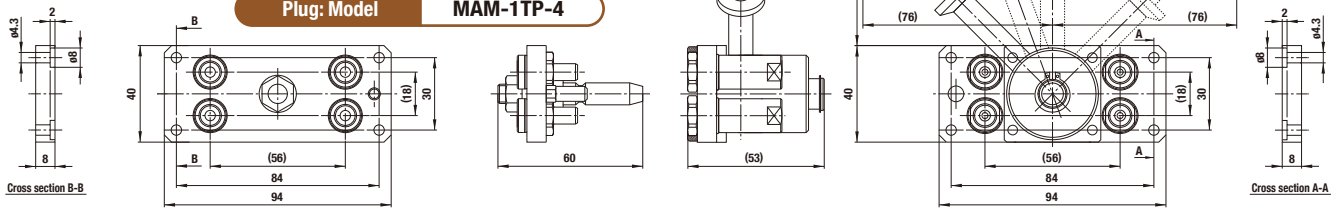


MAM-1TP-4×MAM-1S-4 (4 ports type)

Plug: Model **MAM-1TP-4**

Socket: Model **MAM-1S-4**

Dimensions (mm)

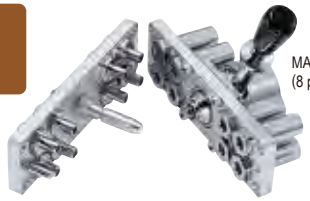



## Model MAM-1TP-8×MAM-1S-8 (8 ports type)

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

Plate with CUPLA **MAM Type**

**8** Ports

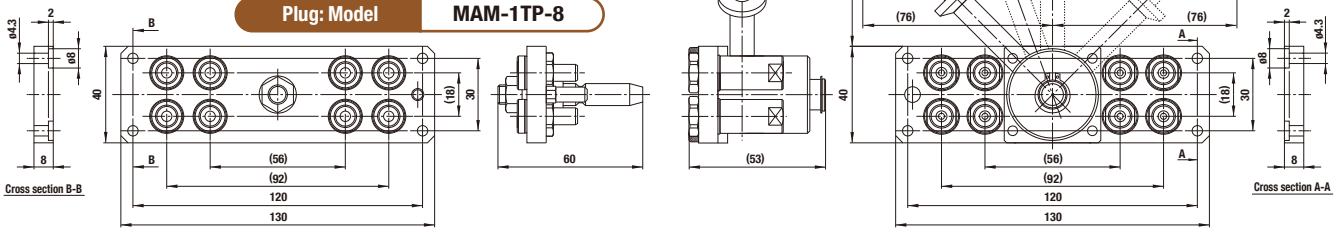


MAM-1TP-8×MAM-1S-8 (8 ports type)

Plug: Model **MAM-1TP-8**

Socket: Model **MAM-1S-8**

Dimensions (mm)



## Models and Dimensions

**WAF** : WAF stands for width across flats.

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

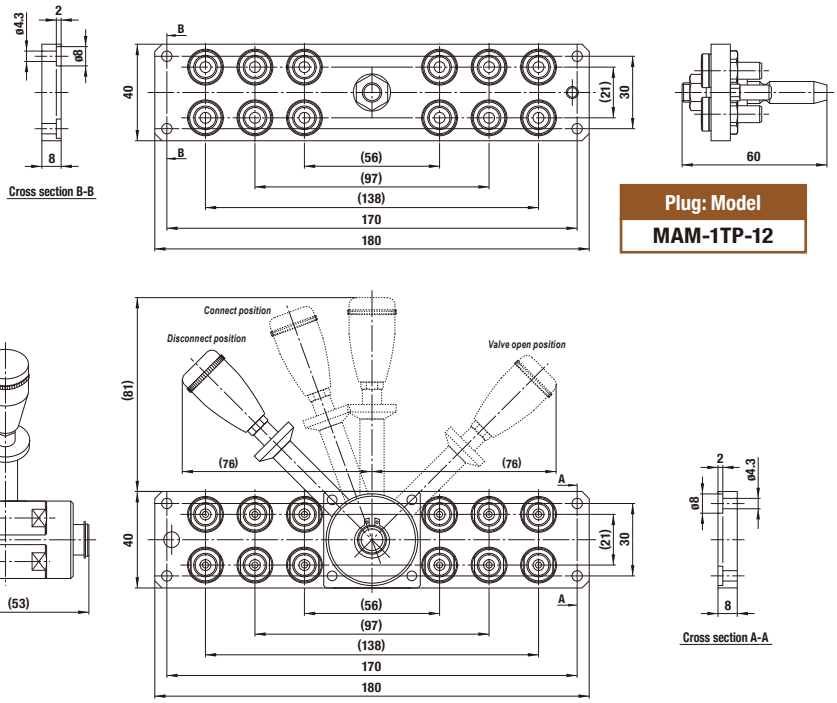
**Application (Thread): R 1/8** **Mass: 350 g (Plug), 800 g (Socket)**

Dimensions (mm)

**Plate with CUPLA MAM Type**

**12 Ports**

MAM-1TP-12×MAM-1S-12
(12 ports type)



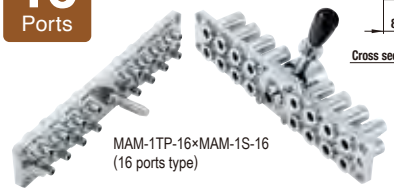

### Model MAM-1TP-16×MAM-1S-16 (16 ports type)

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

Dimensions (mm)

**Plate with CUPLA MAM Type**

**16 Ports**

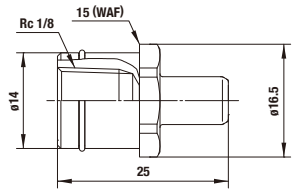


MAM-1TP-16×MAM-1S-16
(16 ports type)




### Plug Model MAS-1TP (Individual CUPLA)

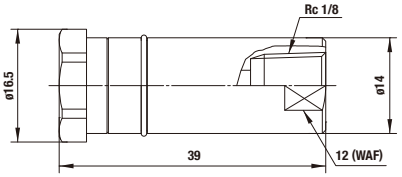
- **Application (Thread): R 1/8 Mass: 17 g**
- **Can be mounted on model MAM-1TP-4/MAM-1TP-8/MAM-1TP-12/MAM-1TP-16.**




Dimensions (mm)

### Socket Model MAS-1S (Individual CUPLA)

- **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.**




Dimensions (mm)

## For Multi-Port Connection (Manual)

# MULTI CUPLA

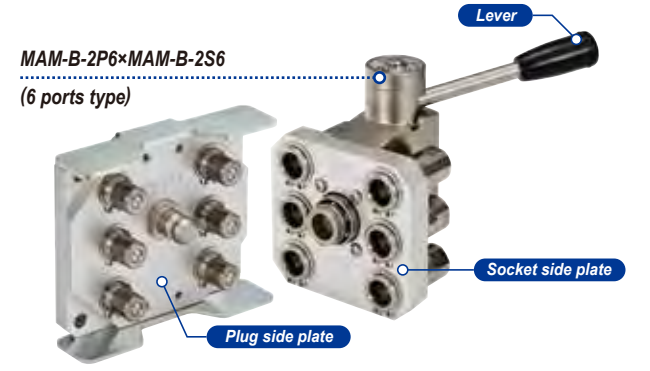
## MAM-B Type

### Multiple port system

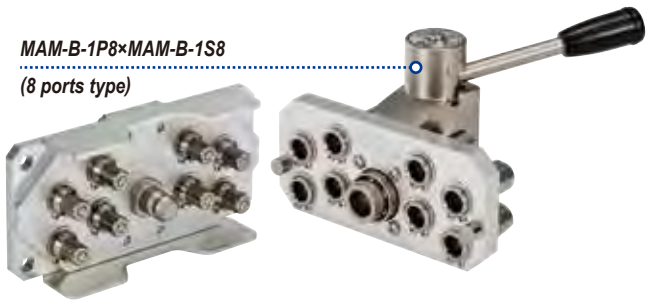
Working pressure: 1.0 MPa {10 kgf/cm²}
Valve structure: Two-way shut-off
Applicable fluids: Air, Water

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

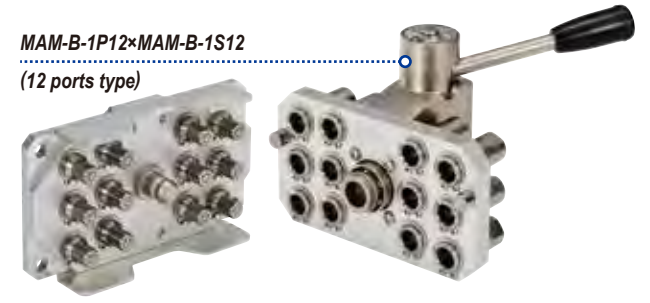
- Handles several ports at once.
- Simple manual lever action completes easy connection/disconnection.
- Two-stage lever operation prevents CUPLA from accidental dropping due to sudden detachment.
- Comes with lock mechanism to prevent accidental disconnection.
- Large flow equivalent to that of SP CUPLA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




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



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



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

### Specifications

| Model | | | | | |
|---|---|---|---|---|---|
| | Plug | MAM-B-1P8 | MAM-B-1P12 | MAM-B-2P6 | MAM-B-2P8 |
| | Socket | MAM-B-1S8 | MAM-B-1S12 | MAM-B-2S6 | MAM-B-2S8 |
| Number of ports | | 8 | 12 | 6 | 8 |
| Size (Thread) | | 1/8" | | 1/4" | |
| Body material | | CUPLA: Brass (Nickel plated) Plate: Aluminum alloy<br>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} |

### 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 — $1.3\times10^{-1}$ Pa {$1\times10^{-3}$ 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 |

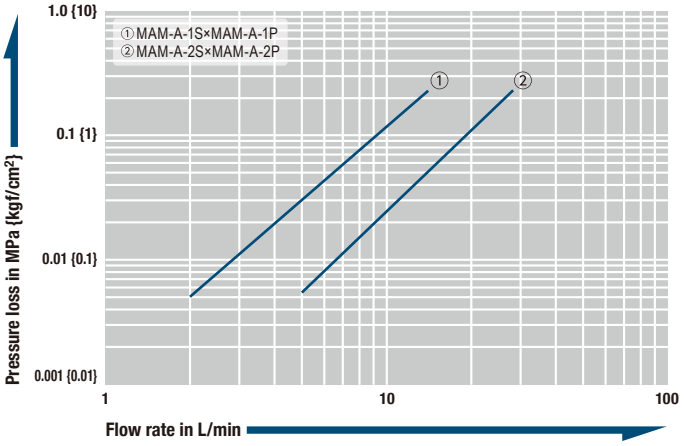
### Volume of Spillage on Disconnection per Port — (mL)

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



## Models and Dimensions

**WAF** : WAF stands for width across flats.

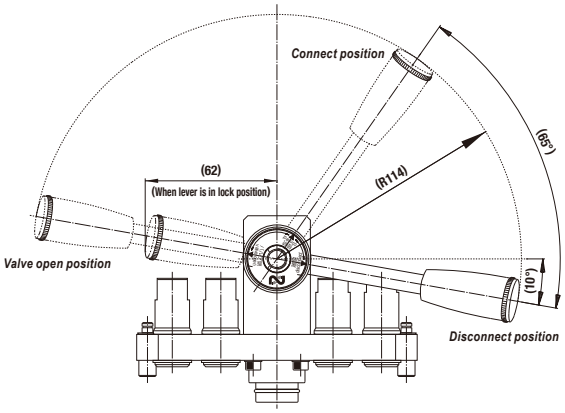
## Model MAM-B-1P8×MAM-B-1S8 (8 ports type)

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

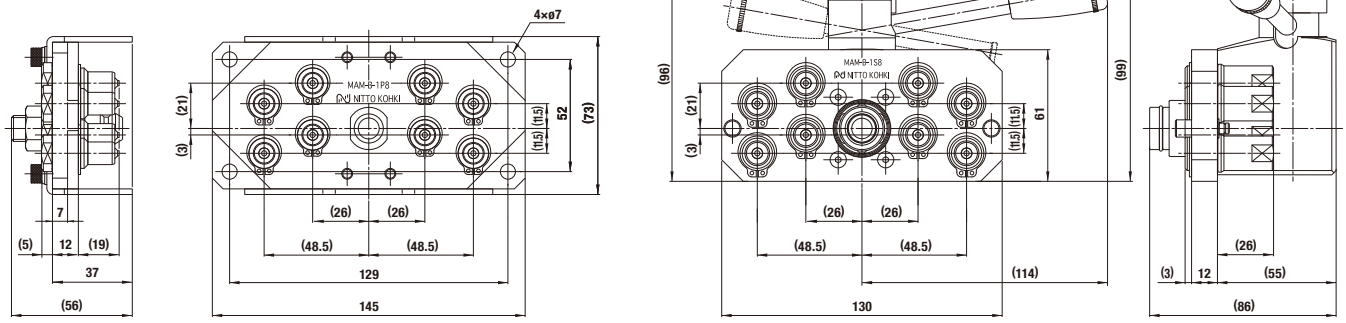
Dimensions (mm)

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

**Socket: Model MAM-B-1S8**




**Plug: Model MAM-B-1P8**



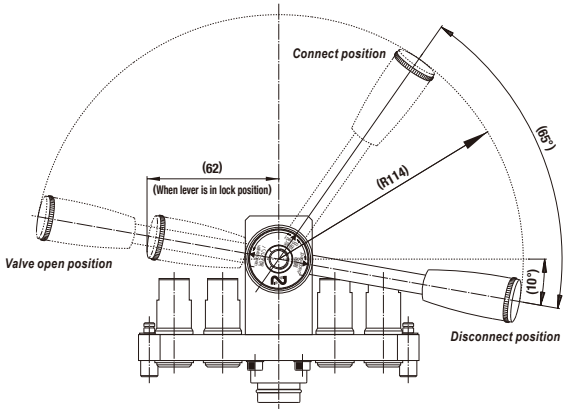

## Model MAM-B-1P12×MAM-B-1S12 (12 ports type)

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

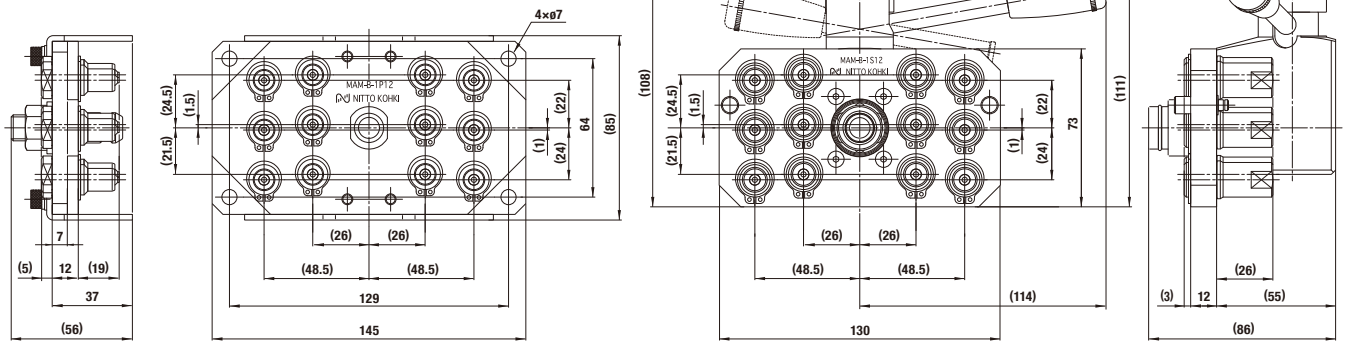
Dimensions (mm)

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

**Socket: Model MAM-B-1S12**

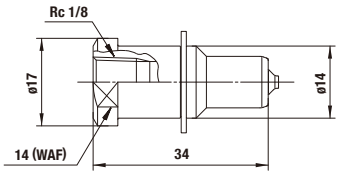



**Plug: Model MAM-B-1P12**




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

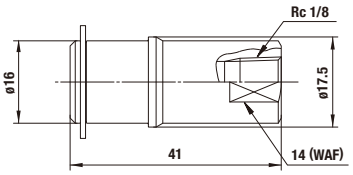
• Application (Thread): R 1/8 Mass: 25 g
• Can be mounted on model MAM-B-1P8 and MAM-B-1P12.




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.

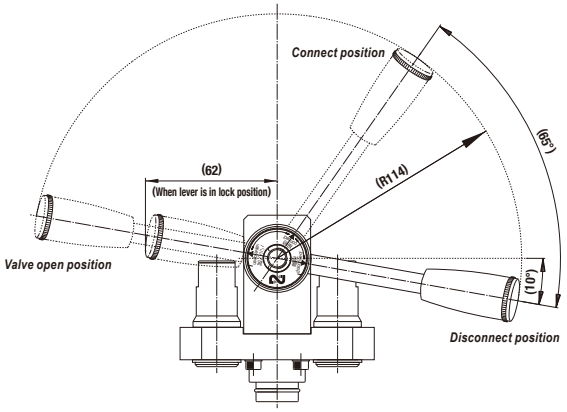
## Model MAM-B-2P6×MAM-B-2S6 (6 ports type)

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

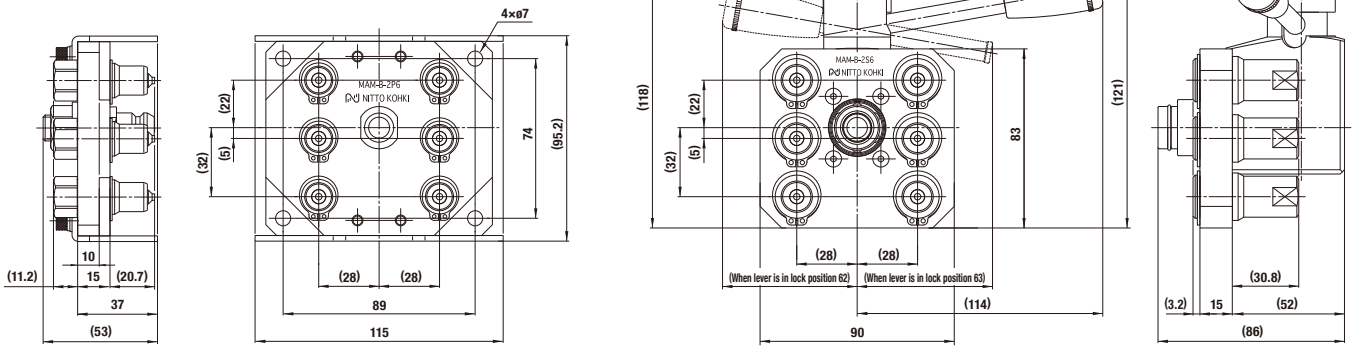
Dimensions (mm)

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

**Socket: Model MAM-B-2S6**




**Plug: Model MAM-B-2P6**



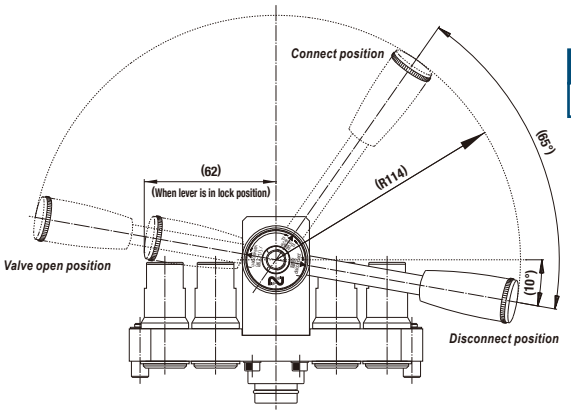

## Model MAM-B-2P8×MAM-B-2S8 (8 ports type)

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

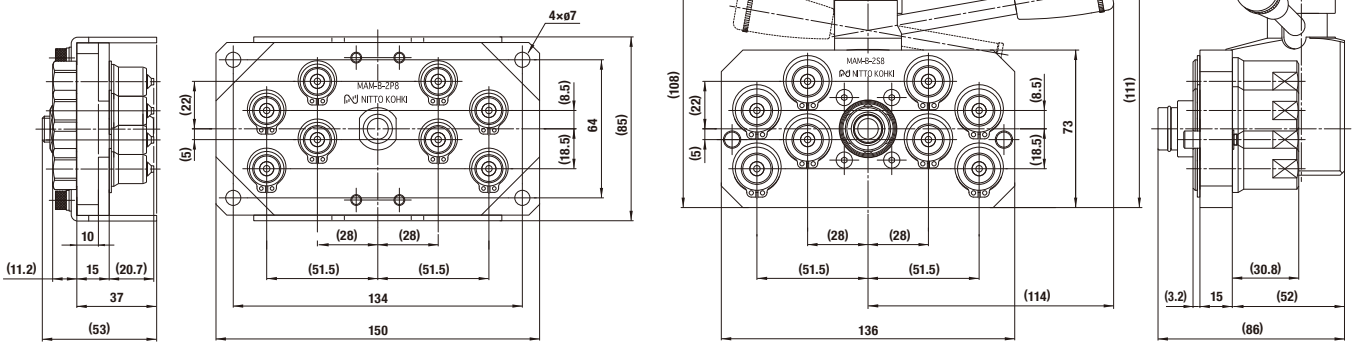
Dimensions (mm)

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

**Socket: Model MAM-B-2S8**

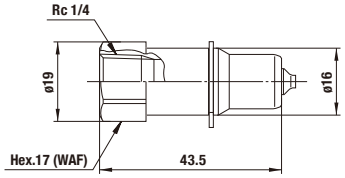



**Plug: Model MAM-B-2P8**




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

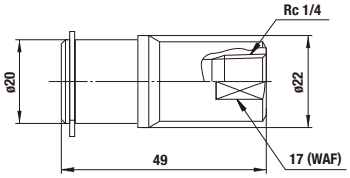
• Application (Thread): R 1/4 Mass: 40 g
• Can be mounted on model MAM-B-2P6 and MAM-B-2P8.




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)

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

## For Multi-Port Connection (Manual)

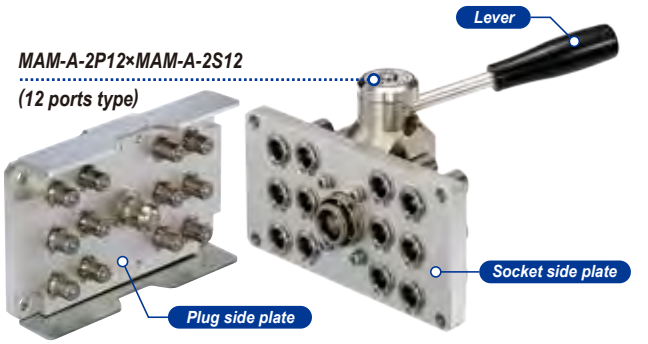
# MULTI CUPLA
## MAM-A Type

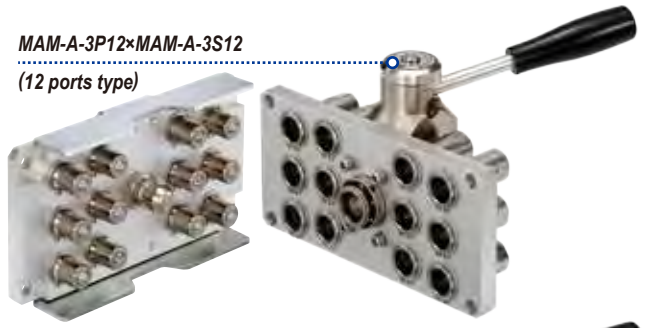
**Multiple port system**

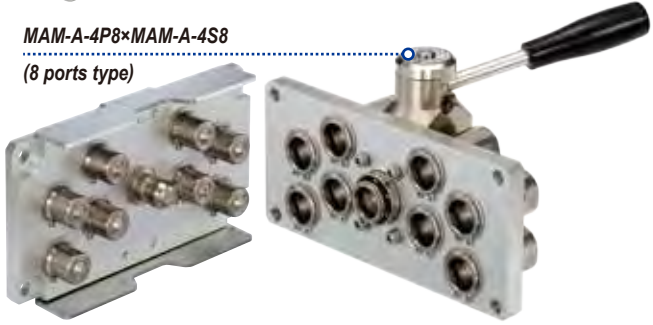
Working pressure: 1.0 MPa {10 kgf/cm²}
Valve structure: Two-way shut-off
Applicable fluids: Air, Water

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

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




## 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} |

## Interchangeability

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

## Minimum Cross-Sectional Area per Port — (mm²)

| Model | 2SP type | 3SP type | 4SP type |
|---|---|---|---|
| Minimum cross-sectional area | 26 | 51 | 73 |

## Suitability for Vacuum — $1.3\times10^{-1}$ Pa {$1\times10^{-3}$ mmHg}

| Socket only | Plug only | When connected |
|---|---|---|
| — | — | Operational |

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

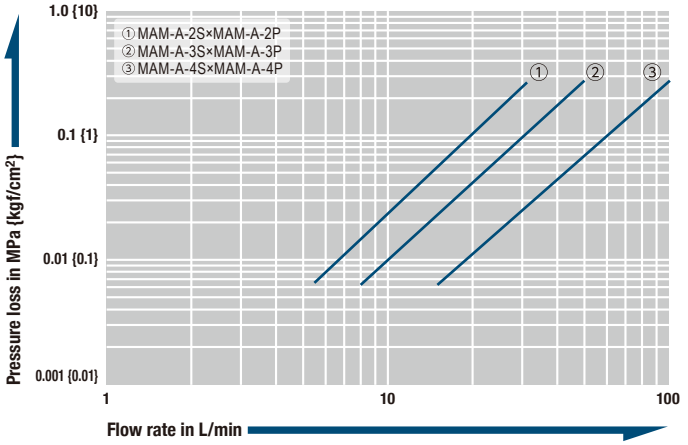
| Model | 2SP type | 3SP type | 4SP type |
|---|---|---|---|
| Volume of air | 1.1 | 2.7 | 3.9 |

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

| 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



## Models and Dimensions

**WAF** : WAF stands for width across flats.

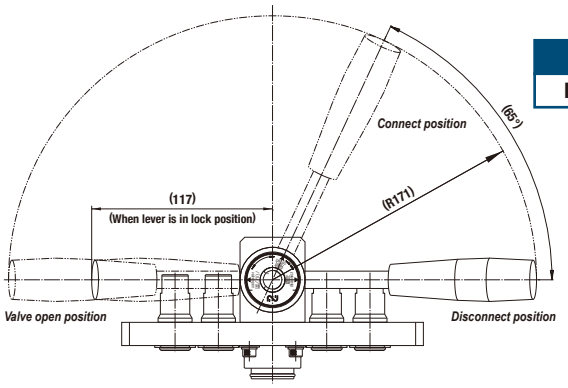
### Model MAM-A-2P12×MAM-A-2S12 (12 ports type)

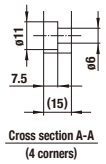
• Application (Thread): R 1/4 Mass: 1650 g (Plug), 2800 g (Socket)

Dimensions (mm)

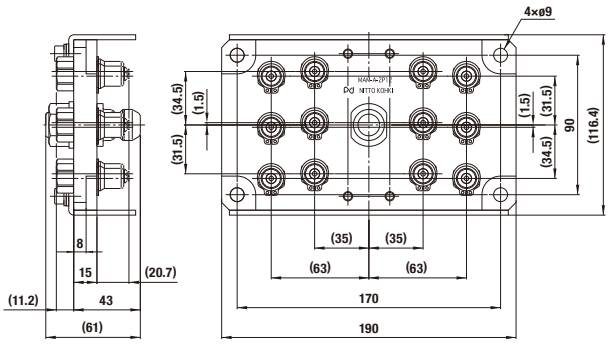
**Plate with CUPLA MAM-A Type** **12 Ports**

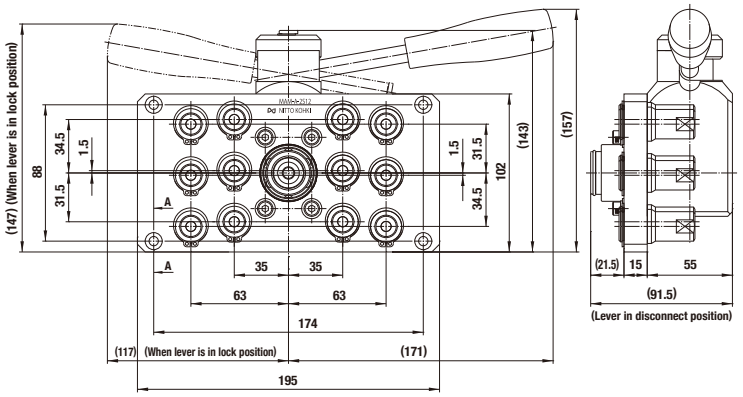
**Socket: Model MAM-A-2S12**



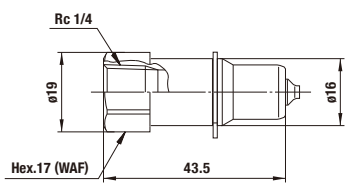

**Plug: Model MAM-A-2P12**




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

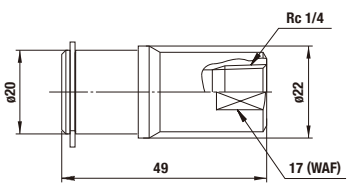
• Application (Thread): R 1/4 Mass: 40 g




Dimensions (mm)

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

• Application (Thread): R 1/4 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.

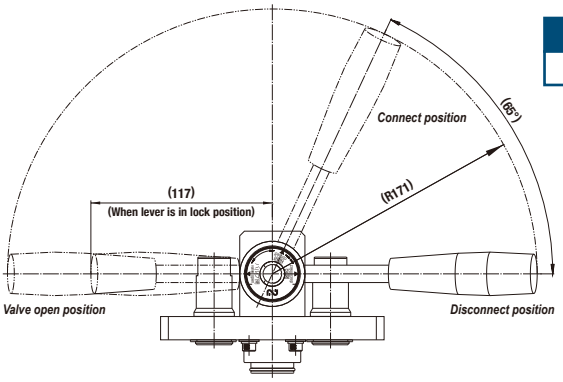
## Model MAM-A-3P6×MAM-A-3S6 (6 ports type)

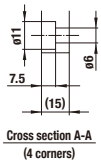
• Application (Thread): R 3/8 Mass: 1250 g (Plug), 2400 g (Socket)

Dimensions (mm)

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

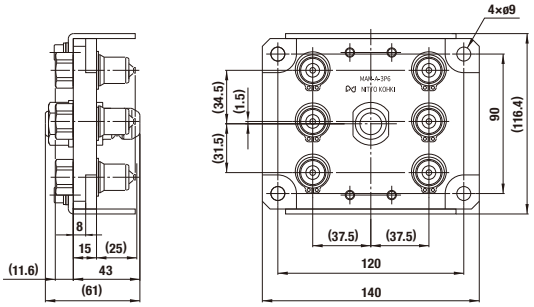
**Socket: Model MAM-A-3S6**

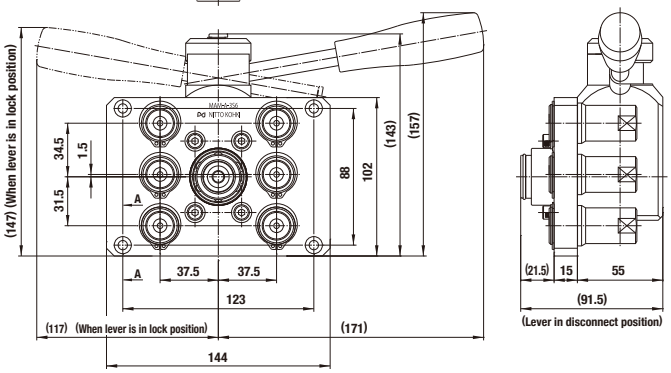



Cross section A-A
(4 corners)

**Plug: Model MAM-A-3P6**



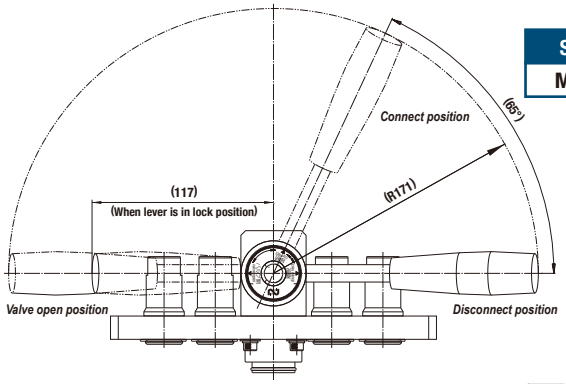

## Model MAM-A-3P12×MAM-A-3S12 (12 ports type)

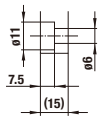
• Application (Thread): R 3/8 Mass: 1950 g (Plug), 3300 g (Socket)

Dimensions (mm)

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

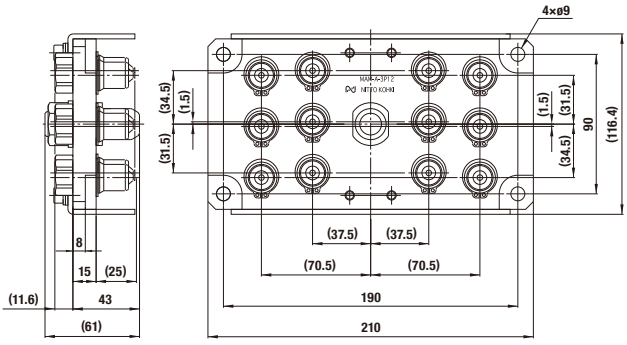
**Socket: Model MAM-A-3S12**

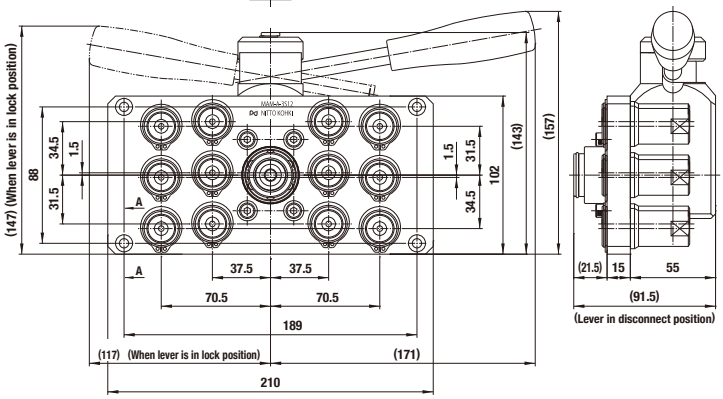



Cross section A-A
(4 corners)

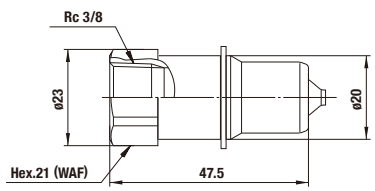
**Plug: Model MAM-A-3P12**




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

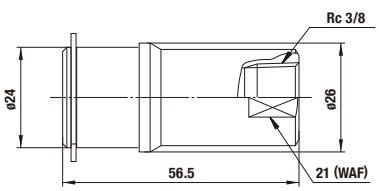
• Application (Thread): R 3/8 Mass: 62 g




Dimensions (mm)

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

• Application (Thread): R 3/8 Mass: 122 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.

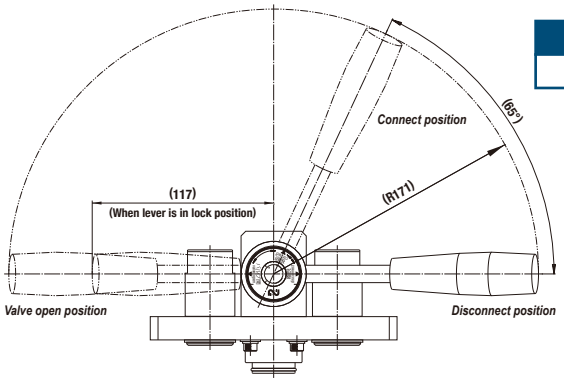
## Model MAM-A-4P4×MAM-A-4S4 (4 ports type)

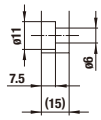
• Application (Thread): R 1/2 Mass: 1400 g (Plug), 2700 g (Socket)

Dimensions (mm)

**Plate with CUPLA MAM-A Type** **4 Ports**

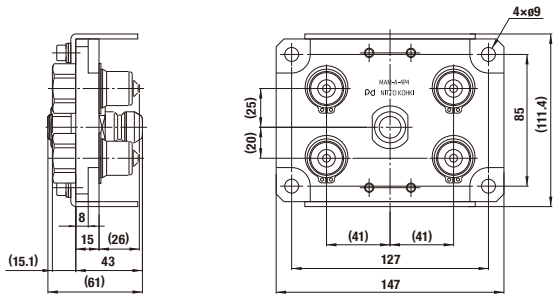
**Socket: Model MAM-A-4S4**

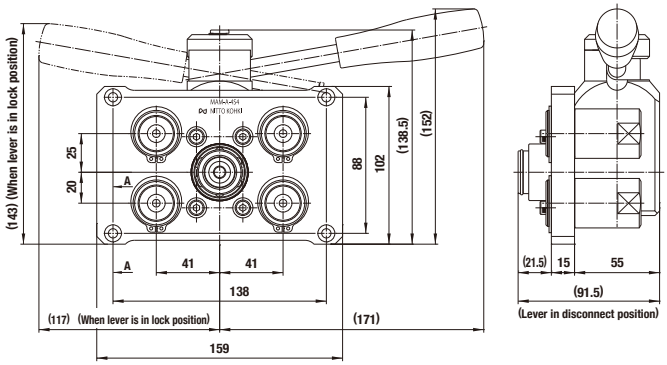



Cross section A-A
(4 corners)

**Plug: Model MAM-A-4P4**



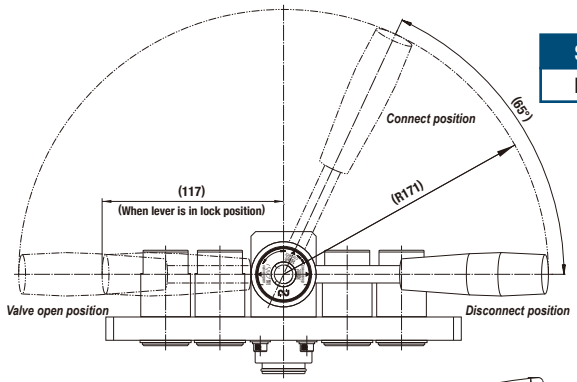

## Model MAM-A-4P8×MAM-A-4S8 (8 ports type)

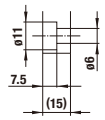
• Application (Thread): R 1/2 Mass: 2300 g (Plug), 4000 g (Socket)

Dimensions (mm)

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

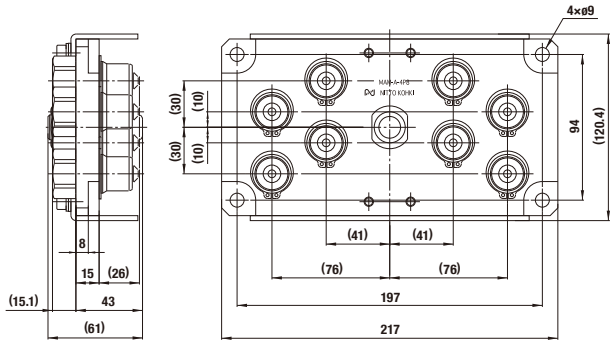
**Socket: Model MAM-A-4S8**

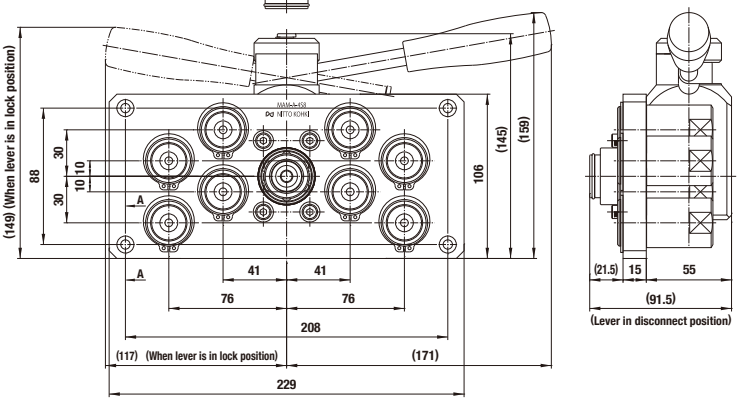



Cross section A-A
(4 corners)

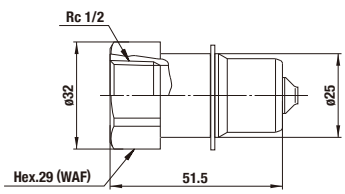
**Plug: Model MAM-A-4P8**




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

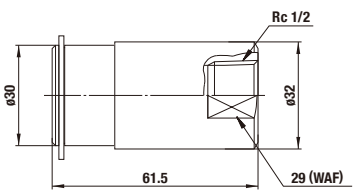
• Application (Thread): R 1/2 Mass: 127 g




Dimensions (mm)

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

• Application (Thread): R 1/2 Mass: 256 g




Dimensions (mm)

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

## For Multi-Port Connection (Manual)

# MULTI CUPLA

## MAM-A-SP Type

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

Working pressure: 1.0 — 1.0 MPa {10 kgf/cm²}

Valve structure: Two-way shut-off

Applicable fluids: Air, Water

# Individual CUPLA for mounting onto plates of MULTI CUPLA MAM-A / MAM-B Type.

- Large flow equivalent to that of SP CUPLA Type A.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.
- Self-aligned valve design provides safety sealing of individual socket or plug when disconnected.

### MULTI CUPLA series and plates that can mount MAM-A-SP Type


**MAM-B Type** (See page 5 to 7)

**MAM-A Type** (See page 9 to 12)

**MAM-B Type plate** (See page 16 to 17)

**MAM-A Type plate** (See page 18 to 20)



### Specifications (Individual CUPLA)

| Model | | | | | |
|---|---|---|---|---|---|
| | Plug | MAM-A-1P | MAM-A-2P | MAM-A-3P | MAM-A-4P |
| | Socket | MAM-A-1S | MAM-A-2S | MAM-A-3S | MAM-A-4S |
| Size (Thread) | | Rc 1/8 | Rc 1/4 | Rc 3/8 | Rc 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 individual CUPLA.

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

### Maximum Tightening Torque — Nm {kgf·cm}

| Size (Thread) | Rc 1/8 | Rc 1/4 | Rc 3/8 | Rc 1/2 |
|---|---|---|---|---|
| Torque | 5 {51} | 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-1S×MAM-A-1P | MAM-A-2S×MAM-A-2P | MAM-A-3S×MAM-A-3P | MAM-A-4S×MAM-A-4P |
|---|---|---|---|---|
| Minimum cross-sectional area | 14 | 26 | 51 | 73 |

### Suitability for Vacuum — $1.3\times10^{-1}$ Pa {$1\times10^{-3}$ mmHg}

| Socket only | Plug only | When connected |
|---|---|---|
| — | — | Operational |

### Admixture of Air on Connection per Port — (mL)

May vary depending upon the usage conditions.

| Model | MAM-A-1S×MAM-A-1P | MAM-A-2S×MAM-A-2P | MAM-A-3S×MAM-A-3P | MAM-A-4S×MAM-A-4P |
|---|---|---|---|---|
| Volume of air | 0.6 | 1.1 | 2.7 | 3.9 |

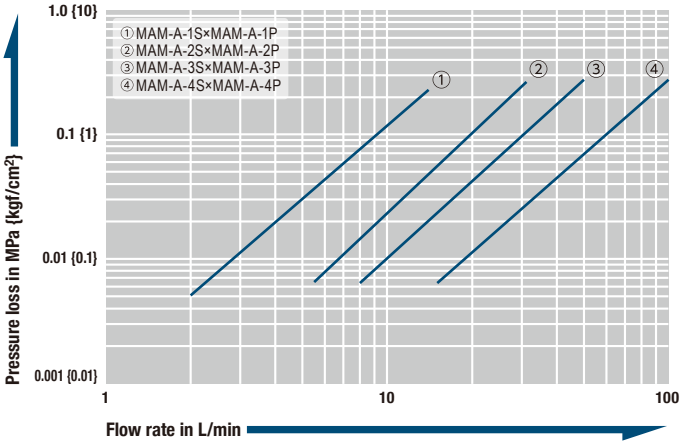
### Volume of Spillage on Disconnection per Port — (mL)

May vary depending upon the usage conditions.

| Model | MAM-A-1S×MAM-A-1P | MAM-A-2S×MAM-A-2P | MAM-A-3S×MAM-A-3P | MAM-A-4S×MAM-A-4P |
|---|---|---|---|---|
| Volume of spillage | 0.4 | 0.8 | 2.1 | 3.4 |

### Flow Rate - Pressure Loss Characteristics

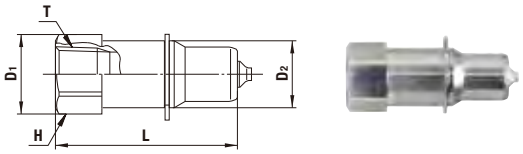
[Test conditions] - Fluid : Water - Temperature : 23˚C±5˚C




### Models and Dimensions

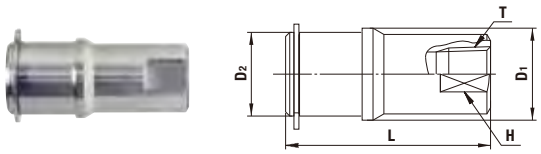
**WAF** : WAF stands for width across flats.

#### Plug — For mounting onto plug side plate (Female thread)




| Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|---|---|---|---|---|---|---|---|
| | | | L | øD1 | øD2 | H (WAF) | T |
| MAM-A-1P | R 1/8 | 25 | 34 | 17 | 14 | 14 | Rc 1/8 |
| MAM-A-2P | R 1/4 | 40 | 43.5 | 19 | 16 | Hex.17 | Rc 1/4 |
| MAM-A-3P | R 3/8 | 62 | 47.5 | 23 | 20 | Hex.21 | Rc 3/8 |
| MAM-A-4P | R 1/2 | 127 | 51.5 | 32 | 25 | Hex.29 | Rc 1/2 |

#### Socket — For mounting onto socket side plate (Female thread)




| Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|---|---|---|---|---|---|---|---|
| | | | L | øD1 | øD2 | H (WAF) | T |
| MAM-A-1S | R 1/8 | 49 | 41 | 17.5 | 16 | 14 | Rc 1/8 |
| MAM-A-2S | R 1/4 | 82 | 49 | 22 | 20 | 17 | Rc 1/4 |
| MAM-A-3S | R 3/8 | 122 | 56.5 | 26 | 24 | 21 | Rc 3/8 |
| MAM-A-4S | R 1/2 | 256 | 61.5 | 32 | 30 | 29 | Rc 1/2 |

Valve-less (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**)

## For Multi-Port Connection (Manual)

# MULTI CUPLA

## MAM-A-ZEL Type

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

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

# Individual CUPLA for mounting onto plates of MULTI CUPLA MAM-A / MAM-B Type. Their "airless valve shut-off design" greatly reduces both liquid spillage and air admixture.

- Original valve stucture reduces both liquid spillage and air admixture on connection and disconnection.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.

## MULTI CUPLA series and plates that can mount MAM-A-ZEL Type

**MAM-B Type*** (See page 5 to 7)
**MAM-B Type plate*** (See page 16 to 17)
**MAM-A Type** (See page 9 to 12)
**MAM-A Type plate** (See page 18 to 20)

*Excluding size Rc 1/8



**Typical spillage**
(6 ports of size 1/4")
**4.8mL → 0.36mL**
(May vary. Depends on the application.)

## Specifications (Individual CUPLA)

| Model | | 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) | | Rc 1/4 | Rc 3/8 | Rc 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 |

- Do not use in an environment where there is impulse pressure.
*1: The operable temperature range depends on the operating conditions.

## Maximum Tightening Torque — Nm {kgf·cm}

| Size (Thread) | Rc 1/4 | Rc 3/8 | Rc 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 — $1.3\times10^{-1}$ Pa {$1\times10^{-3}$ mmHg}

| Socket only | Plug only | When connected |
|---|---|---|
| — | — | Operational |

## Admixture of Air on Connection per Port — (mL)

May vary depending upon the usage conditions.

| Model | 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 |

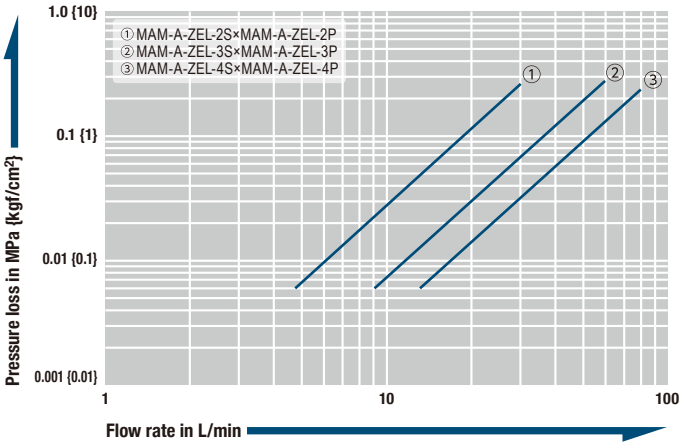
## Volume of Spillage on Disconnection per Port — (mL)

May vary depending upon the usage conditions.

| 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 |

## Flow Rate - Pressure Loss Characteristics

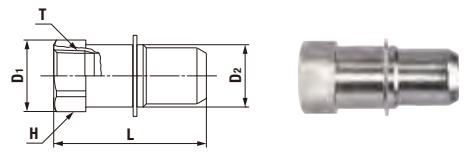
[Test conditions] - Fluid : Water - Temperature : 23˚C±5˚C




## Models and Dimensions

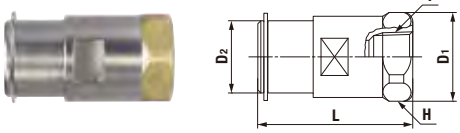
**WAF** : WAF stands for width across flats.

### Plug — For mounting onto plug side plate (Female thread)




| 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 — For mounting onto socket side plate (Female thread)




| 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 | 24 | 29.5 | Hex.27 | Rc 3/8 |
| MAM-A-ZEL-4S | R 1/2 | 210 | 59 | 35 | 30 | Hex.32 | Rc 1/2 |

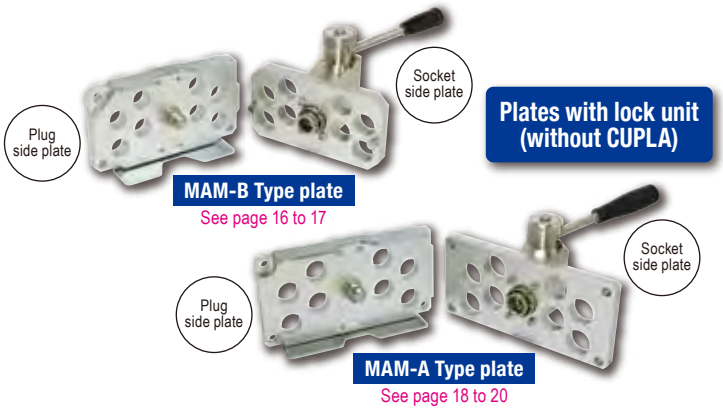
One way valve types (Plug without valve) are available on request as made-to-order versions.
In such case, the model name ends with "**-VL**". (ex: MAM-A-ZEL-2P-**VL**)

For Multi-Port Connection (Manual)

# MULTI CUPLA

## Plate for mounting MAM-A-ZEL / MAM-A-SP Type

## Plates for mounting MULTI CUPLA MAM-A-ZEL and MAM-A-SP Type.

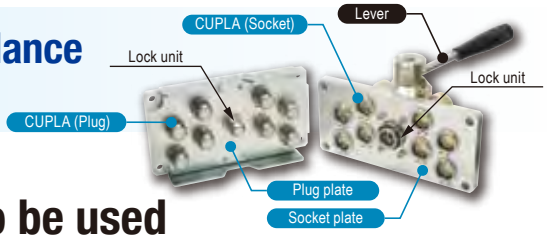



**Plates with lock unit (without CUPLA)**

### Specifications (Individual plate)

| Plate type | | MAM-B Type | | | | MAM-A Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | Plug side | MAM-B-1P8-CL | MAM-B-1P12-CL | MAM-B-2P6-CL | MAM-B-2P8-CL | 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 side | MAM-B-1S8-CL | MAM-B-1S12-CL | MAM-B-2S6-CL | MAM-B-2S8-CL | 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 | | 8 | 12 | 6 | 8 | 6 | 12 | 6 | 12 | 4 | 8 |
| Body material | | Aluminum alloy | | | | | | | | | |
| Ambient temperature range | | 0˚C to +60˚C | | | | | | | | | |

## Select the most suitable combination in accordance with your operating conditions.




## 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 14 | 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 14 | 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 13 | 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 13 | 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 [Port]s

## 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 16 |
| | | | 12 | MAM-B-1P12-CL | MAM-B-1S12-CL | See page 16 |
| | | 1/4 | 6 | MAM-A-2P6-CL | MAM-A-2S6-CL | See page 18 |
| | | | | MAM-B-2P6-CL | MAM-B-2S6-CL | See page 17 |
| | | | 8 | MAM-B-2P8-CL | MAM-B-2S8-CL | See page 17 |
| | | | 12 | MAM-A-2P12-CL | MAM-A-2S12-CL | See page 18 |
| | | 3/8 | 6 | MAM-A-3P6-CL | MAM-A-3S6-CL | See page 19 |
| | | | 12 | MAM-A-3P12-CL | MAM-A-3S12-CL | See page 19 |
| | | 1/2 | 4 | MAM-A-4P4-CL | MAM-A-4S4-CL | See page 20 |
| | | | 8 | MAM-A-4P8-CL | MAM-A-4S8-CL | See page 20 |

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

## 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 (See page 13) | Plug | Socket |
|---|---|---|
| | MAM-A-1P | MAM-A-1S |

**Plate model of Socket side**
**MAM-B-1S8-CL**

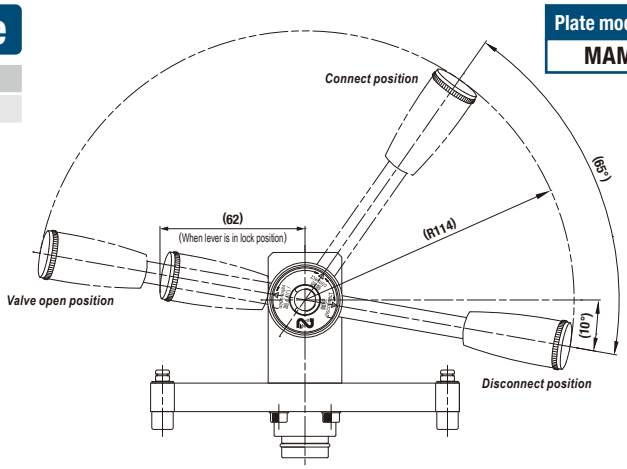
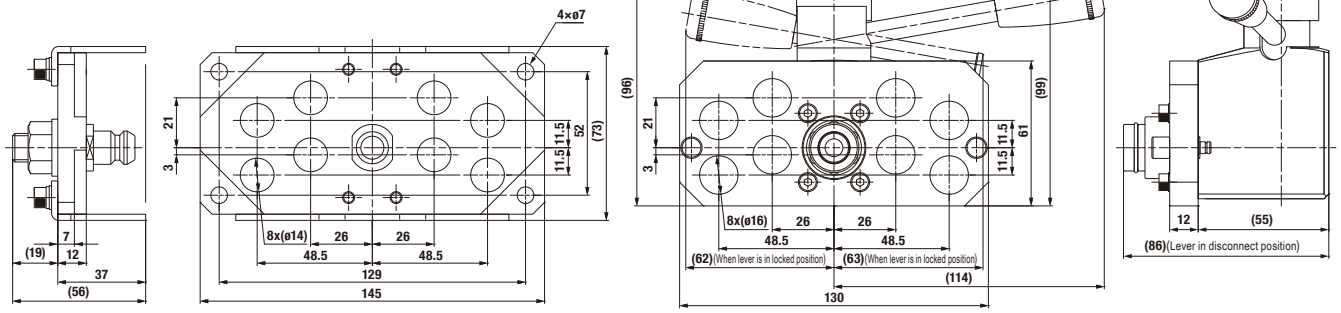



**Plate model of Plug side**
**MAM-B-1P8-CL**




### Model MAM-B-1P12-CL×MAM-B-1S12-CL (8 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 (See page 13) | Plug | Socket |
|---|---|---|
| | MAM-A-1P | MAM-A-1S |

**Plate model of Socket side**
**MAM-B-1S12-CL**

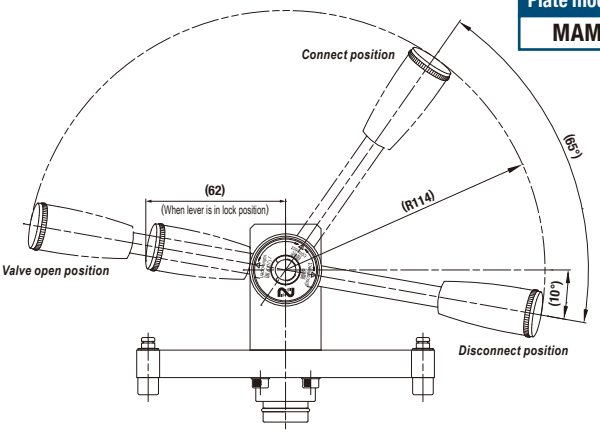
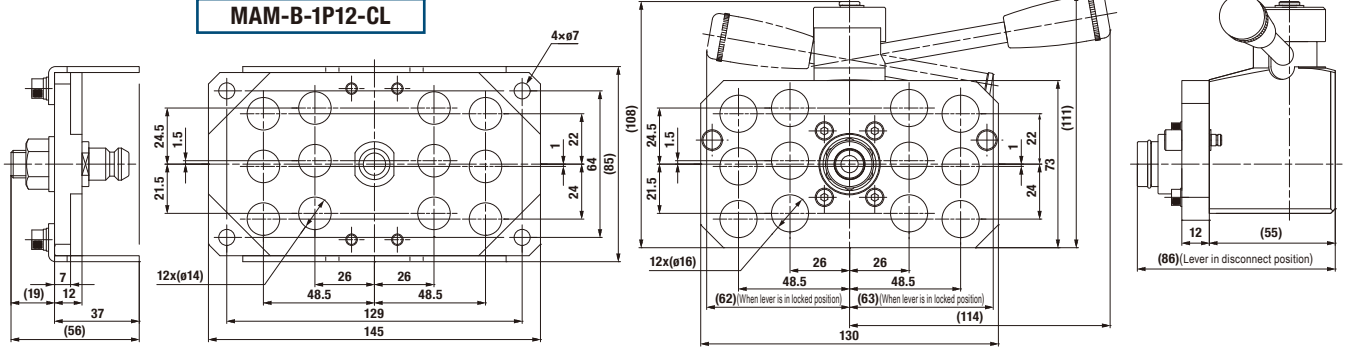



**Plate model of Plug side**
**MAM-B-1P12-CL**




**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-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 (See page 13 to 14)

| 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**

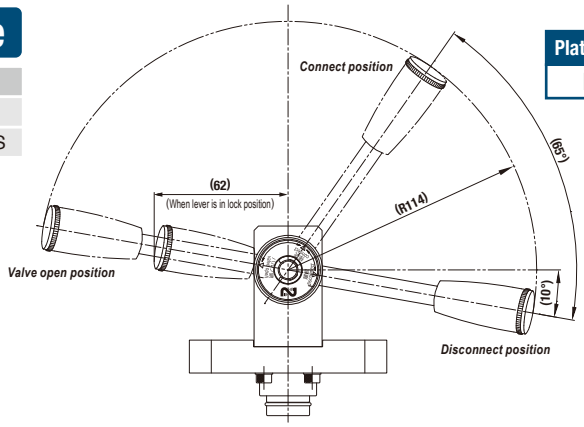
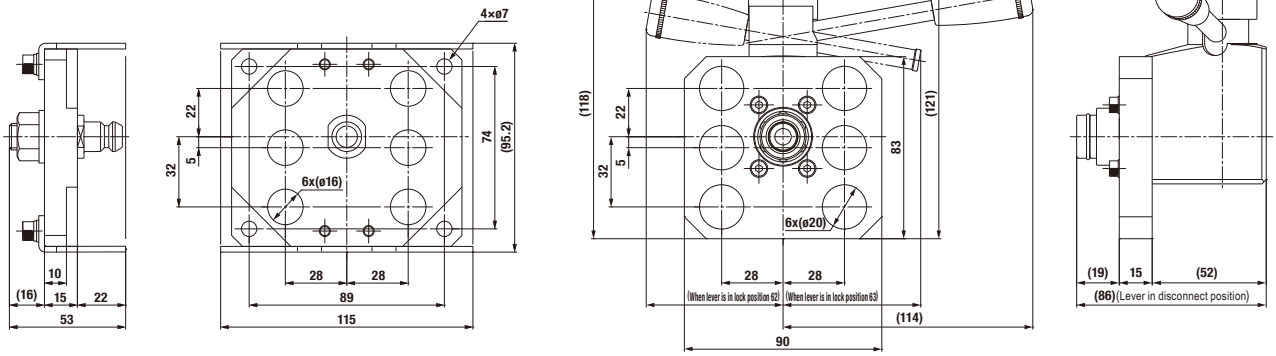



**Plate model of Plug side**
**MAM-B-2P6-CL**




### Model 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 (See page 13 to 14)

| 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**

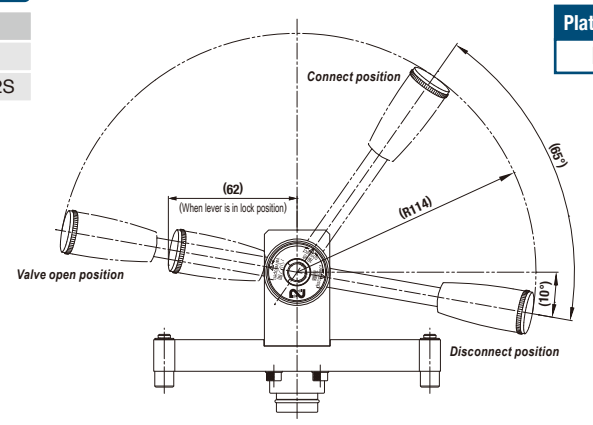
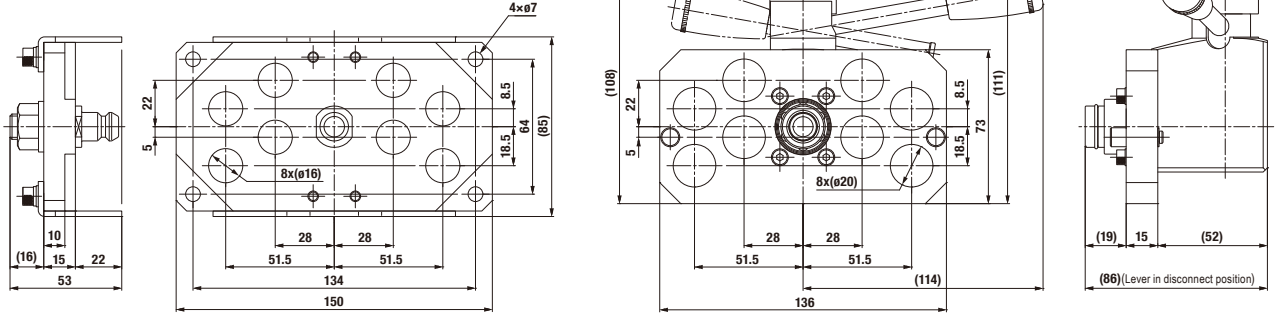



**Plate model of Plug side**
**MAM-B-2P8-CL**




**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 (See page 13 to 14)

| 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**

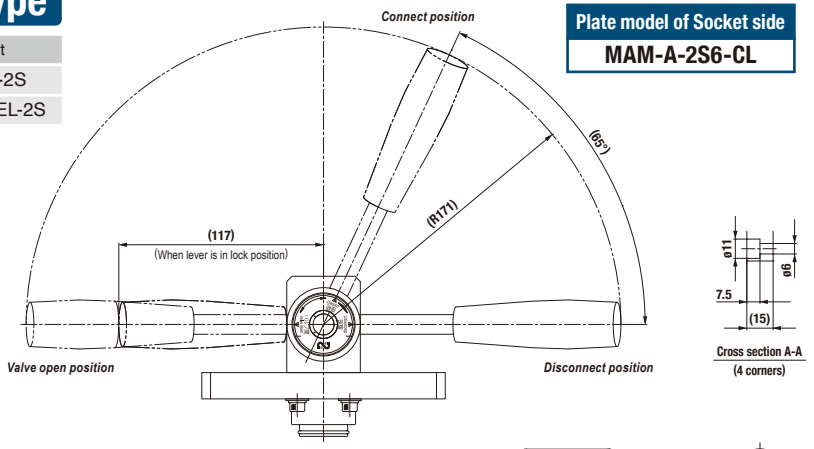
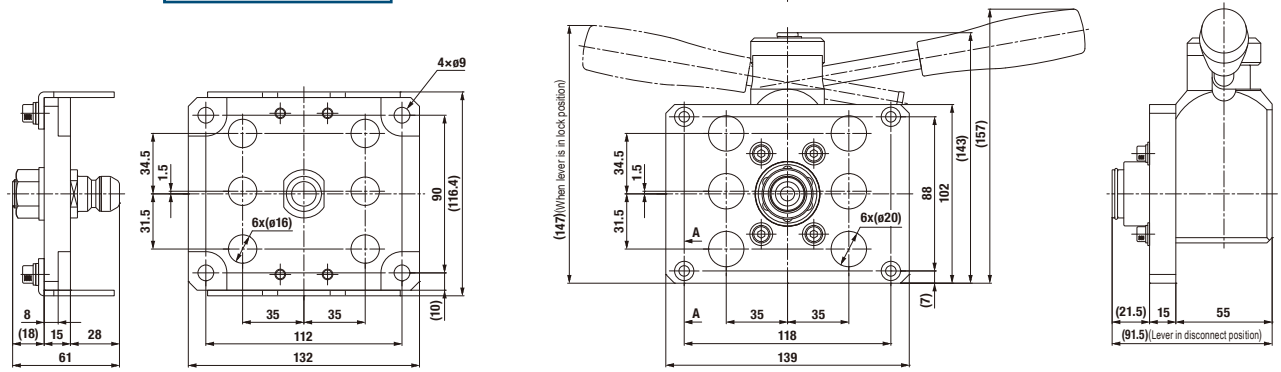



**Plate model of Plug side**
**MAM-A-2P6-CL**




### 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 (See page 13 to 14)

| 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**

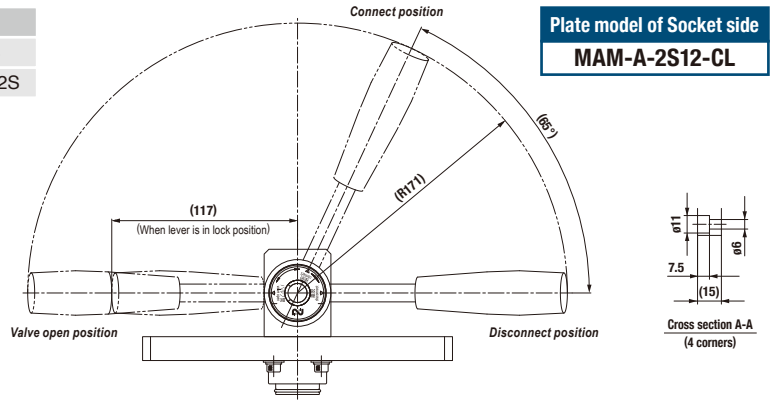
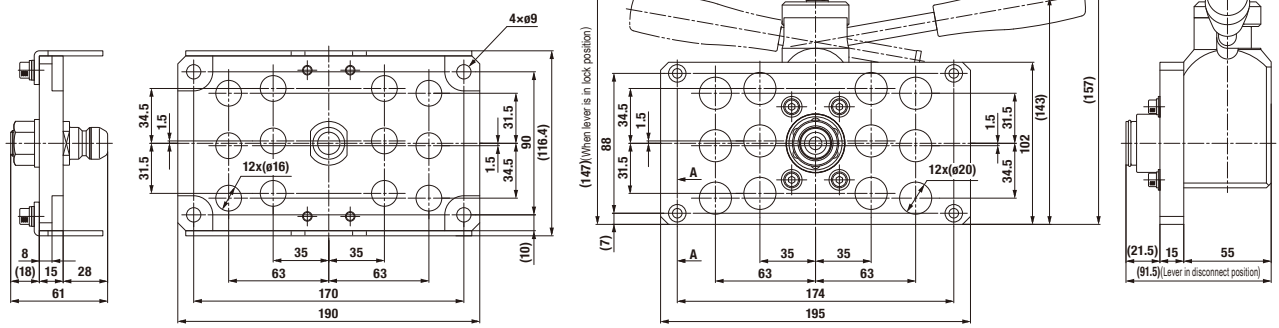



**Plate model of Plug side**
**MAM-A-2P12-CL**




**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-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 (See page 13 to 14)

| 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**

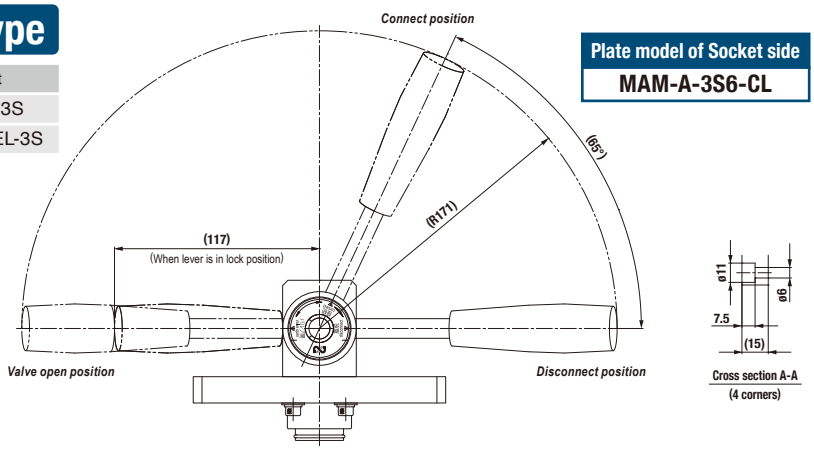
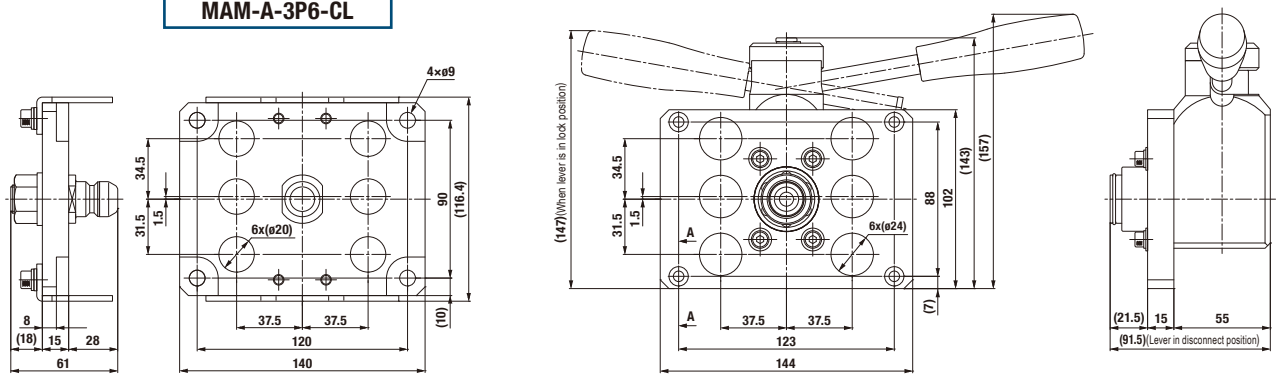



**Plate model of Plug side**
**MAM-A-3P6-CL**




### 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 (See page 13 to 14)

| 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**

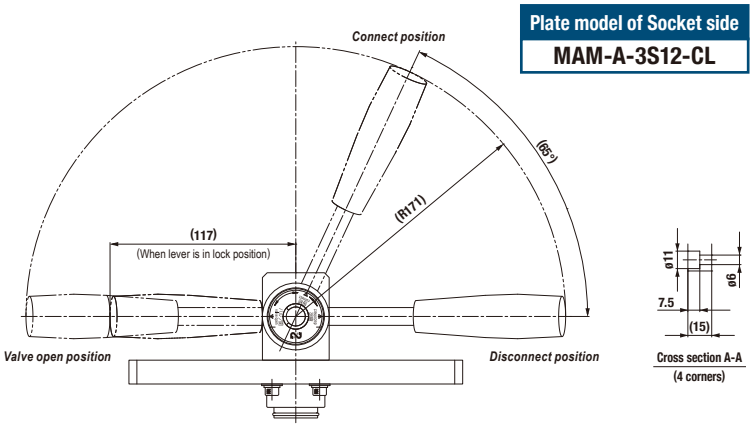
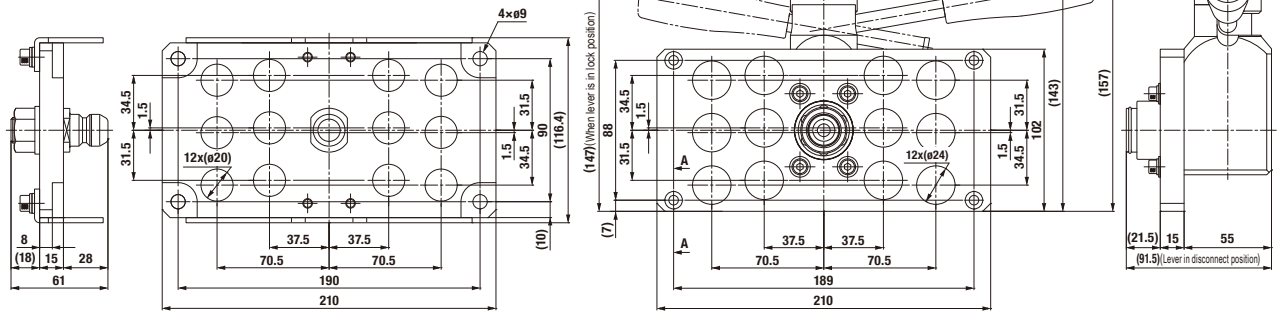



**Plate model of Plug side**
**MAM-A-3P12-CL**




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-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)

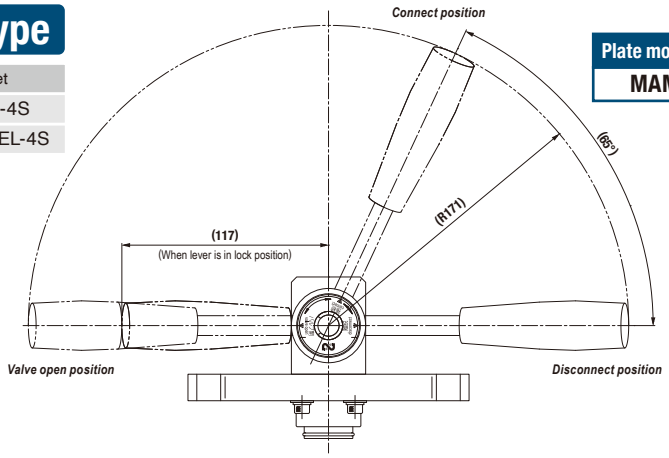
**Plate without CUPLA MAM-A Type**

**4 Ports**

Applicable CUPLA (See page 13 to 14)

| 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**



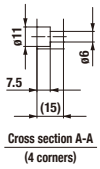
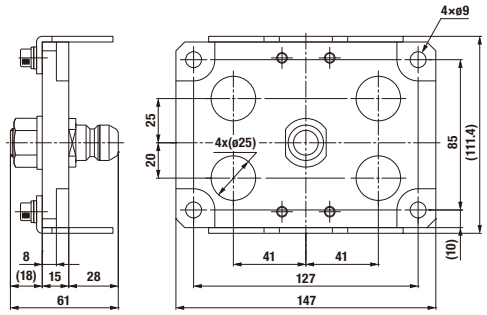
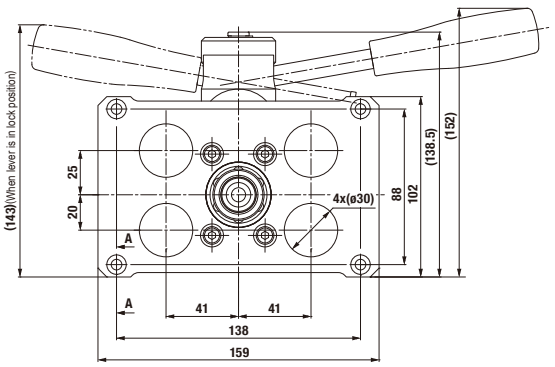
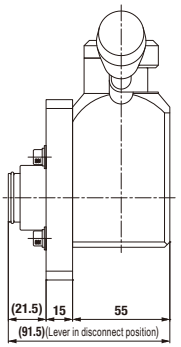




**Plate model of Plug side**
**MAM-A-4P4-CL**




### Model 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)

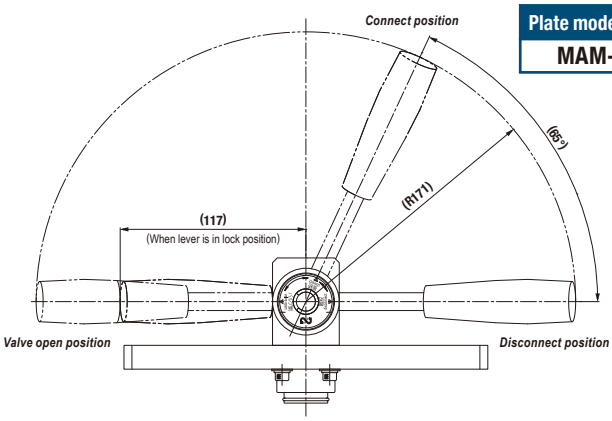
**Plate without CUPLA MAM-A Type**

**8 Ports**

Applicable CUPLA (See page 13 to 14)

| 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**



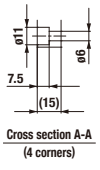
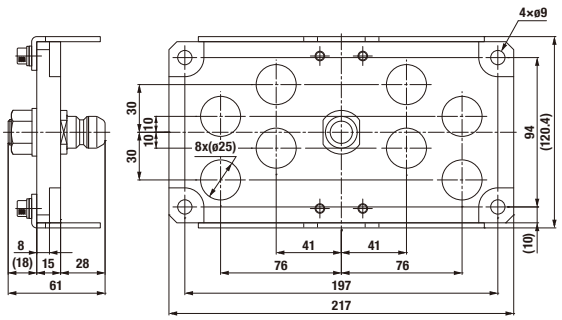
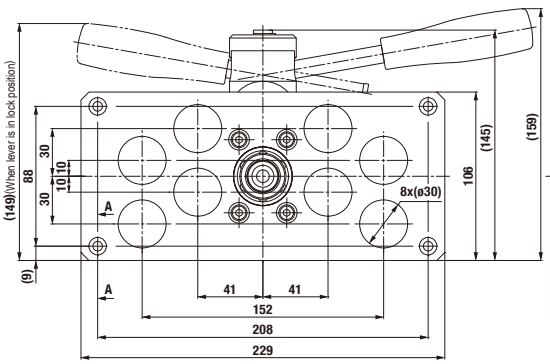
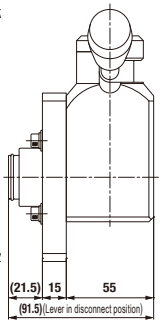




**Plate model of Plug side**
**MAM-A-4P8-CL**



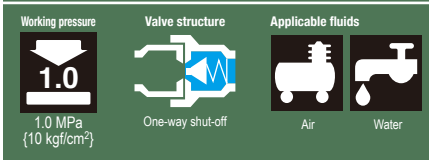

**Made-to-order MULTI CUPLA is available on request, such as a combination of different sizes on the flange plate.**

## For Multi-Port Connection (Automatic)

# MULTI CUPLA

## MALC-01 Type for Low Pressure Use

**One-way shut-off type for Low pressure use**




# 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 "with flange" types available.**


## Specifications

| | | | | |
|---|---|---|---|---|
| **Body material** | Socket: Brass (Nickel plated)<br>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.

## Maximum Tightening Torque — Nm {kgf·cm}

| | |
|---|---|
| **Thread screw mount** | 15 {153} |
| **Flange** | 1.5 {15} |

## 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

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

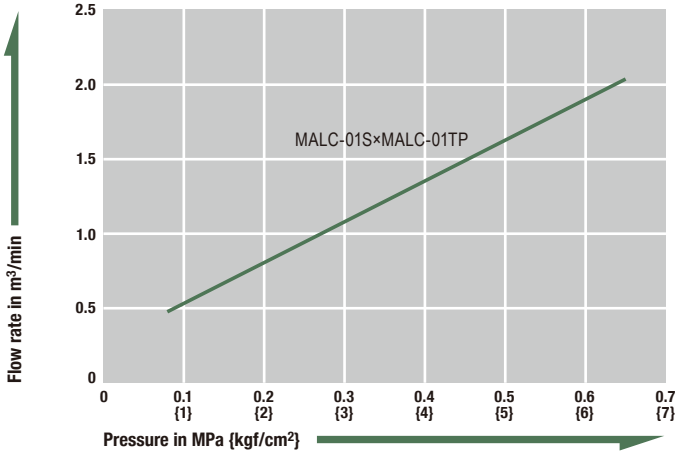
**Minimum load required to maintain connection F [N] {f [kgf]}**

**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}.**

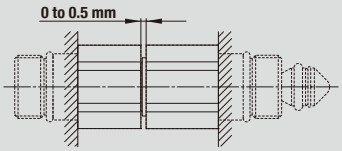
## Pressure - Flow Characteristics

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




## Acceptable distance between plates

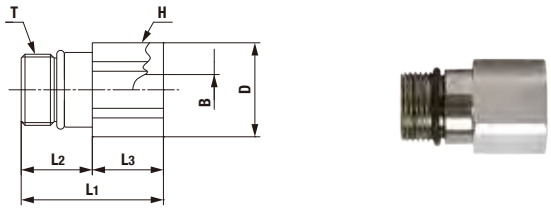
Socket and plug or plate must be used in contact with each other. Maximum 0.5 mm distance between socket and plug or plate is acceptable.



## Models and Dimensions

**WAF** : WAF stands for width across flats.

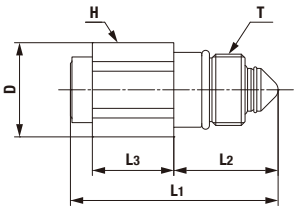
### Plug MALC-01TP type (Thread screw mount)





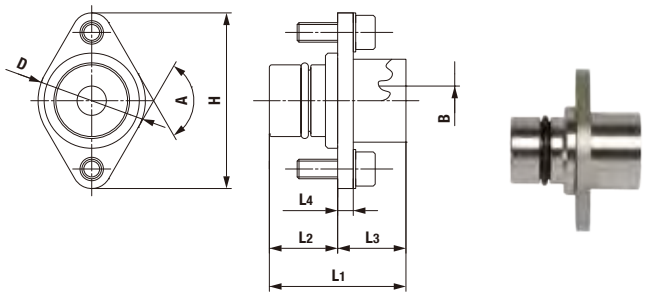

| Model | Application | Mass (g) | Dimensions (mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | øD | øB | H(WAF) | T |
| MALC-01TP | See drawings below. | 40 | 28 | (14) | 14 | 18.5 | 6 | Hex.17 | M14×1 |

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




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

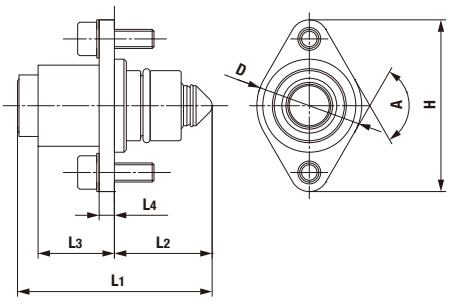
### Plug MALC-01TP-FL type (With flange)






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

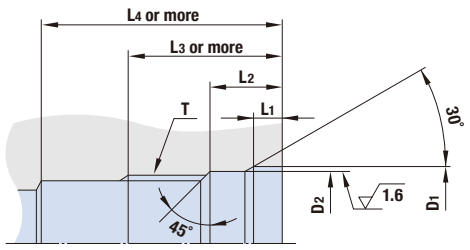
### Socket MALC-01S-FL type (With flange)




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

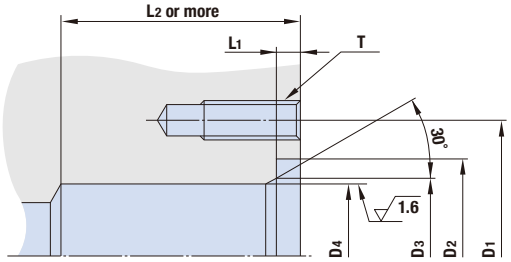
## Dimensions for mounting

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




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

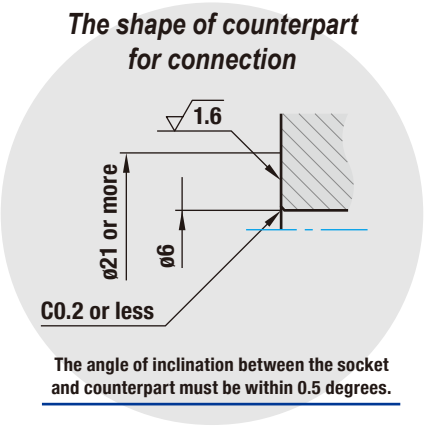
### MALC-01TP-FL / 01S-FL type (With flange)



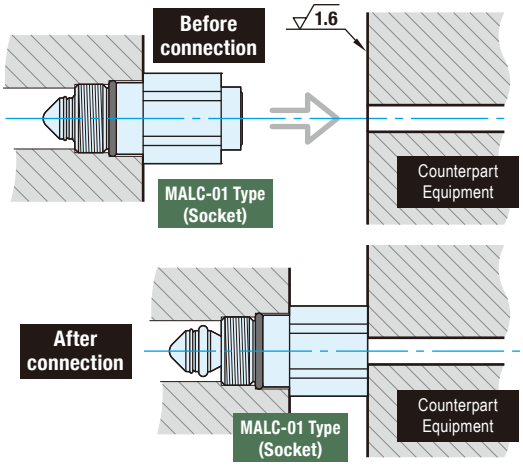

| Model | Dimensions (mm) | | | | | | |
|---|---|---|---|---|---|---|---|
| | D1 | øD2 | øD3 | øD4 | L1 | L2 | T |
| MALC-01S-FL | PCD28 | 20 | 16 | 14.8 $^{+0.05}_{0}$ | 2.5 $^{+0.1}_{0}$ | 25 | 2×M4×0.7 Thread depth 10 mm or more |
| MALC-01TP-FL | | | | | | 16 | |

## Solo use of socket is possible

### The shape of counterpart for solo use of socket



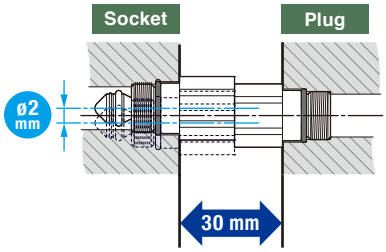

The angle of inclination between the socket and counterpart must be within 0.5 degrees.




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.*



## For Multi-Port Connection (Automatic)

# MULTI CUPLA

## MALC-SP Type for Medium Pressure Use

**Low spill type for medium pressure use**

Working pressure: 1.5 to 7.0 MPa {15 to 71 kgf/cm²}

Valve structure: Two-way shut-off (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 could reduce the size of required plates. (Rate of flow increase depends on CUPLA sizes.)**
- **The MALC type realizes a 2 mm axial eccentricity allowance, while conventional MULTI CUPLA is only 0.6 mm.**
- **Special valve design enables connection of socket and plug under pressure of up to 2 MPa. (up to 1.5 MPa for MALC-12SP.)**
- **When connected, the distance between the socket plate and the plug plate is designed to be 30 mm for all sizes. This means that any size of CUPLA can be mounted and used on the same plate.**
- **Low spill valves minimize outflow of fluid and admixture of air into the fluid line.**

*MALC-SP (Thread screw mount) type (Plug)*

*MALC-SP (Thread screw mount) type (Socket)*

*MALC-SP (Flange) type (Plug)*

*MALC-SP (Flange) type (Socket)*

*MALC-SP (Snap ring) type (Plug)*

*MALC-SP (Snap ring) type (Socket)*

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

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

## 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} |

## 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 |

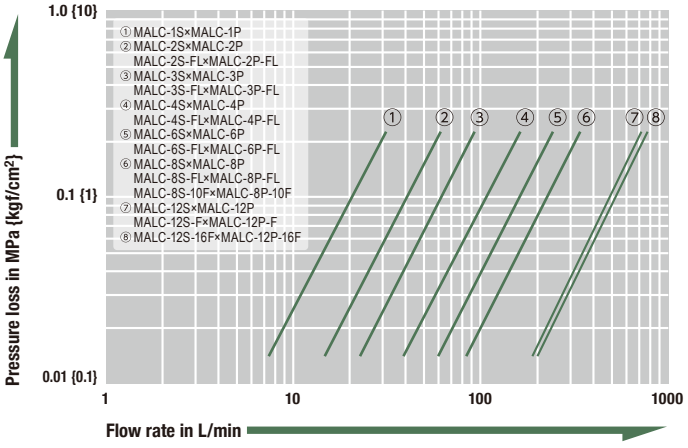
## Load Required to Maintain Connection When Line Is Pressurized

| 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

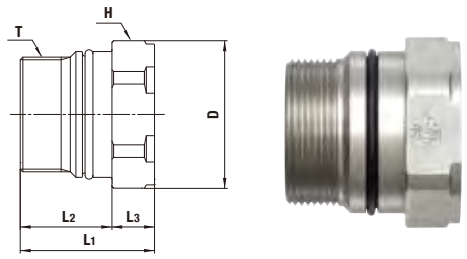
[Test conditions] - Fluid : Water - Temperature : 23˚C±5˚C



## Models and Dimensions

**WAF** : WAF stands for width across flats.

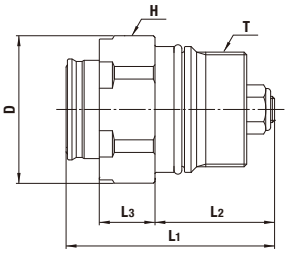
### Plug MALC-1 to 12P type (Thread screw mount)





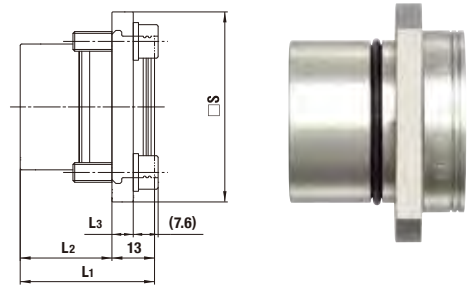

| Model | Application | Mass (g) | Dimensions (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | øD | H(WAF) | T |
| MALC-1P | See page 25 | 40 | 32 | (18) | 14 | 21 | Hex.19 | M16×1 |
| MALC-2P | | 75 | 33 | (20) | 13 | 28 | Hex.26 | M20×1.5 |
| MALC-3P | | 95 | 33 | (20) | 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 25 | 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 |

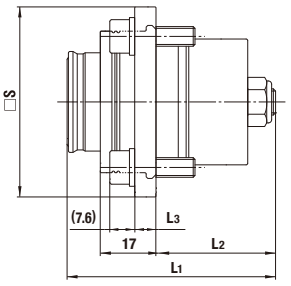
### Plug MALC-2 to 6P-FL type (With flange)





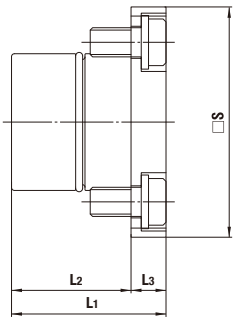

| Model | Application | Mass (g) | Dimensions (mm) | | | |
|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | □S |
| MALC-2P-FL | See page 25 | 146 | 30 | (17) | 6 | 40 |
| MALC-3P-FL | | 180 | 33 | (20) | 6 | 45 |
| MALC-4P-FL | | 390 | 41 | (28) | 6.5 | 58 |
| MALC-6P-FL | | 553 | 50.5 | (37.5) | 6.5 | 64 |

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



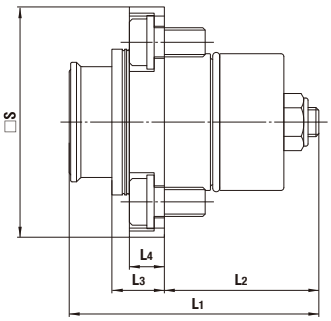

| Model | Application | Mass (g) | Dimensions (mm) | | | |
|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | □S |
| MALC-2S-FL | See page 25 | 173 | (49) | (26) | 6 | 40 |
| MALC-3S-FL | | 208 | (51) | (26) | 6 | 45 |
| MALC-4S-FL | | 449 | (64) | (36.5) | 6.5 | 58 |
| MALC-6S-FL | | 663 | (78.5) | (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 25 | 796 | 53 | (41) | 12 | 79 |

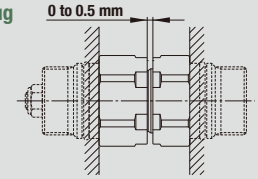
### Socket MALC-8S-FL type (With flange)




| Model | Application | Mass (g) | Dimensions (mm) | | | | |
|---|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | L4 | □S |
| MALC-8S-FL | See page 25 | 978 | (86) | (53) | 18 | 12 | 79 |

### Acceptable distance between socket and plug

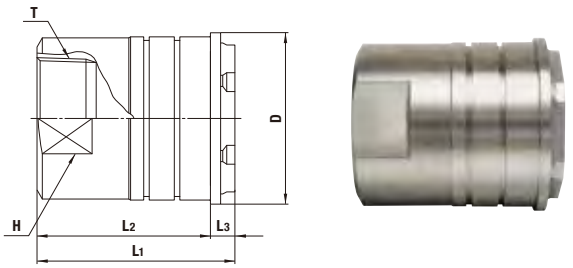
Plug and socket must be used in contact with each other.
Maximum 0.5 mm distance between socket and plug is acceptable.



## Models and Dimensions

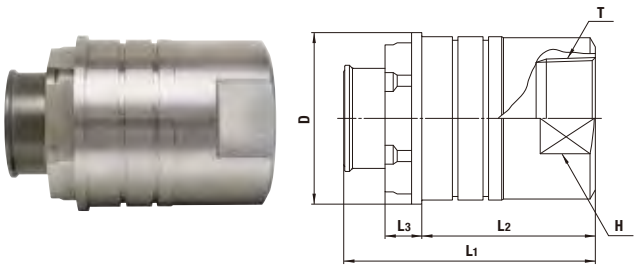
**WAF** : WAF stands for width across flats.

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




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

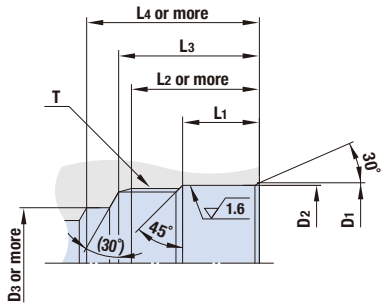
### Socket MALC-8 / 12S type (With snap ring)




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

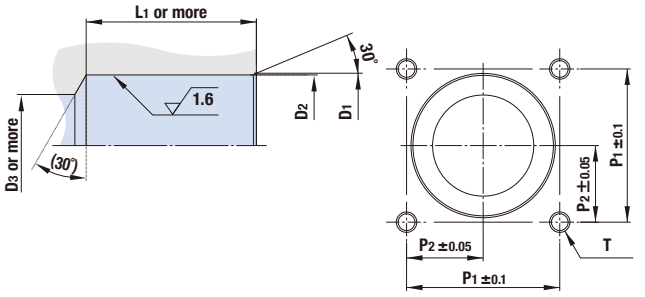
## Dimensions for mounting

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




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

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




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

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

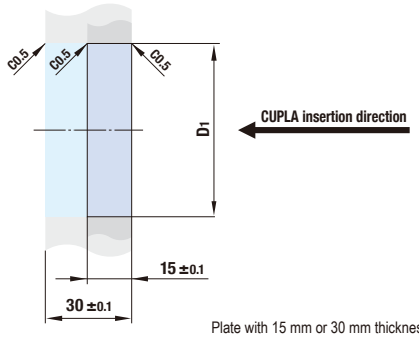



Plate with 15 mm or 30 mm thickness can be mounted.

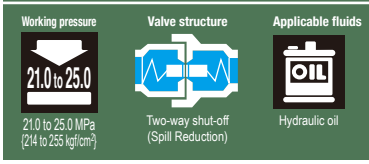
| Model | Dimensions (mm) |
|---|---|
| | øD1 |
| MALC-8S-10F<br>MALC-8P-10F | 60.1 +0.1 0 |
| MALC-12S-F<br>MALC-12P-F | 80.1 +0.1 0 |
| MALC-12S-16F<br>MALC-12P-16F | 80.1 +0.1 0 |

## For Multi-Port Connection (Automatic)

# MULTI CUPLA

## MALC-HSP Type for High Pressure Use

**Low spill type for high pressure use**




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

- **Compared with conventional MULTI CUPLA, approximately double flow rates are realized. This could reduce the size of required plates. (Rate of flow increase depends on CUPLA sizes.)**
- **The MALC type realizes a 2 mm axial eccentricity allowance, while conventional MULTI CUPLA is only 0.6 mm.**
- **Special valve design enables connection of socket and plug under dynamic pressure of up to 8 MPa.**
- **When connected, the distance between the socket plate and plug plate is designed to be 30 mm for all sizes. This means any size of CUPLA can be mounted and used on the same plate.**
- **Low spill valves minimize outflow of fluid and admixture of air into the fluid line.**

*MALC-HSP (Thread screw mount) type (Plug)*

*MALC-HSP (Thread screw mount) type (Socket)*

*MALC-HSP (Flange) type (Plug)*

*MALC-HSP (Flange) type (Socket)*

## 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** | **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.

## 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} | | | | 30 {306} |

## 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 |

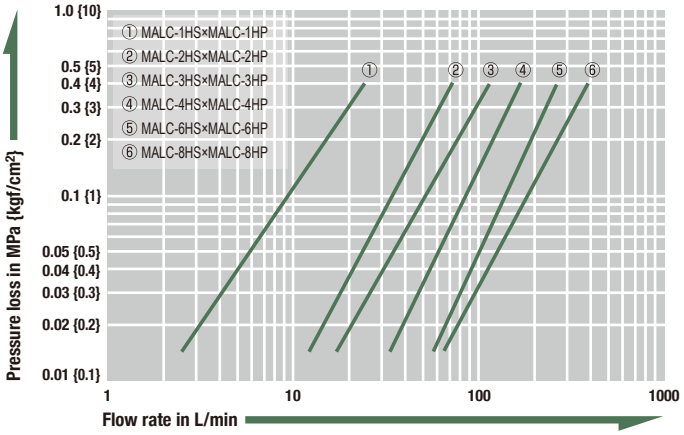
## Load Required to Maintain Connection When Line Is Pressurized

| **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 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} |

*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

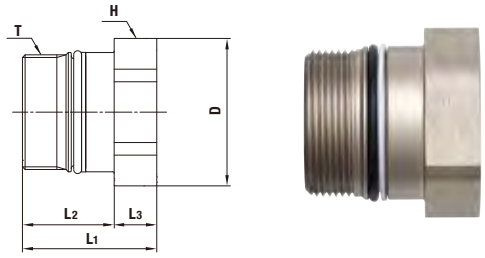
[Test conditions] -Fluid : Hydraulic oil -Temperature : 30˚C±5˚C
-Fluid viscosity : $32\times10^{-6}$ m²/s -Density : $0.87\times10^{3}$ kg/m³



## Models and Dimensions

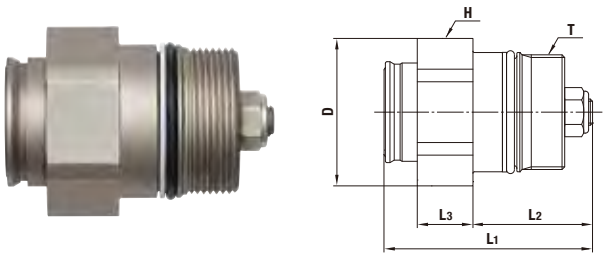
**WAF** : WAF stands for width across flats.

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



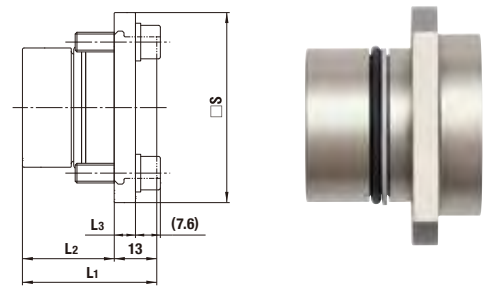

| Model | Application | Mass (g) | Dimensions (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | øD | H(WAF) | T |
| MALC-1HP | See page 28 | 39 | 32 | (18) | 14 | 21 | Hex.19 | M16×1 |
| MALC-2HP | | 73 | 33 | (20) | 13 | 28 | Hex.26 | M20×1.5 |
| MALC-3HP | | 96 | 33 | (20)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

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



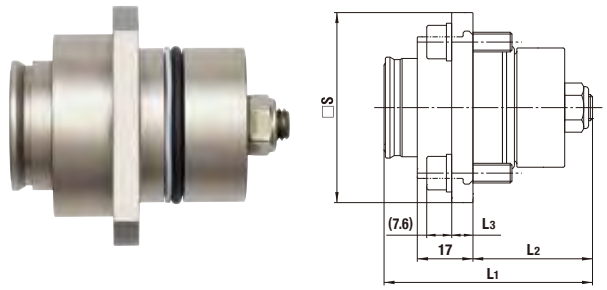

| Model | Application | Mass (g) | Dimensions (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | øD | H(WAF) | T |
| MALC-1HS | See page 28 | 51 | (45) | (23) | 16 | 21 | Hex.19 | M16×1 |
| MALC-2HS | | 89 | (49) | (26) | 17 | 28 | Hex.26 | M20×1.5 |
| MALC-3HS | | 117 | (51)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

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



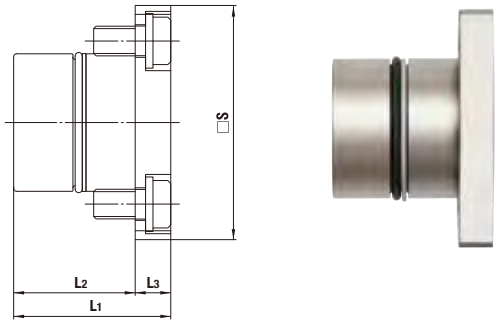

| Model | Application | Mass (g) | Dimensions (mm) | | | |
|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | □S |
| MALC-2HP-FL | See page 28 | 142 | 30 | (17) | 6 | 40 |
| MALC-3HP-FL | | 179 | 33 | (20) | 6 | 45 |
| MALC-4HP-FL | | 367 | 41 | (28) | 6.5 | 58 |
| MALC-6HP-FL | | 514 | 50.5 | (37.5)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

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



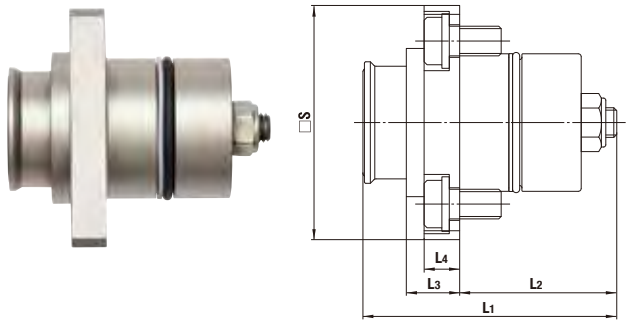

| Model | Application | Mass (g) | Dimensions (mm) | | | |
|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | □S |
| MALC-2HS-FL | See page 28 | 163 | (49) | (26) | 6 | 40 |
| MALC-3HS-FL | | 200 | (51) | (26) | 6 | 45 |
| MALC-4HS-FL | | 418 | (64) | (36.5) | 6.5 | 58 |
| MALC-6HS-FL | | 611 | (78.5) | (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 28 | 786 | 53 | (41) | 12 | 79 |

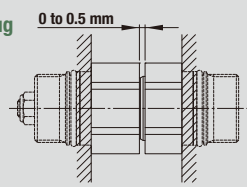
### Socket MALC-8HS-FL type (With flange)




| Model | Application | Mass (g) | Dimensions (mm) | | | | |
|---|---|---|---|---|---|---|---|
| | | | L1 | L2 | L3 | L4 | □S |
| MALC-8HS-FL | See page 28 | 964 | (86) | (53) | 18 | 12 | 79 |

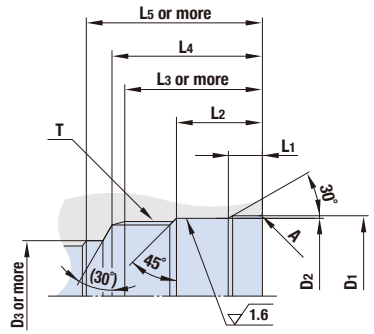
### Acceptable distance between Socket and Plug

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



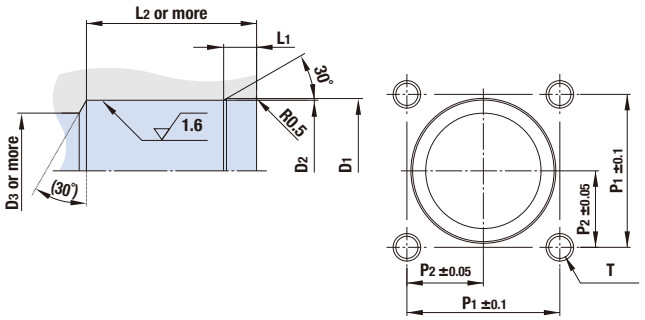
## Dimensions for mounting

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




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

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



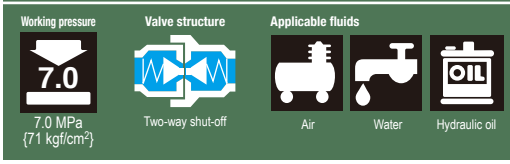

| Model | Dimensions (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | øD1 | øD2 | øD3 | L1 | L2 | P1 | P2 | T |
| MALC-2HS-FL | 23 $^{+0.1}_{0}$ | 22 $^{+0.06}_{0}$ | 16 | 2.8 $^{+0.2}_{0}$ | 28 | 28 | 14 | 4×M6<br>Thread depth<br>17 mm or more |
| MALC-2HP-FL | | | | | 19 | | | |
| MALC-3HS-FL | 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<br>Thread depth<br>15 mm or more |
| MALC-8HP-FL | | | | | 43 | | | |

## For Multi-Port Connection (Automatic)

# MULTI CUPLA

## MAS Type / MAT Type

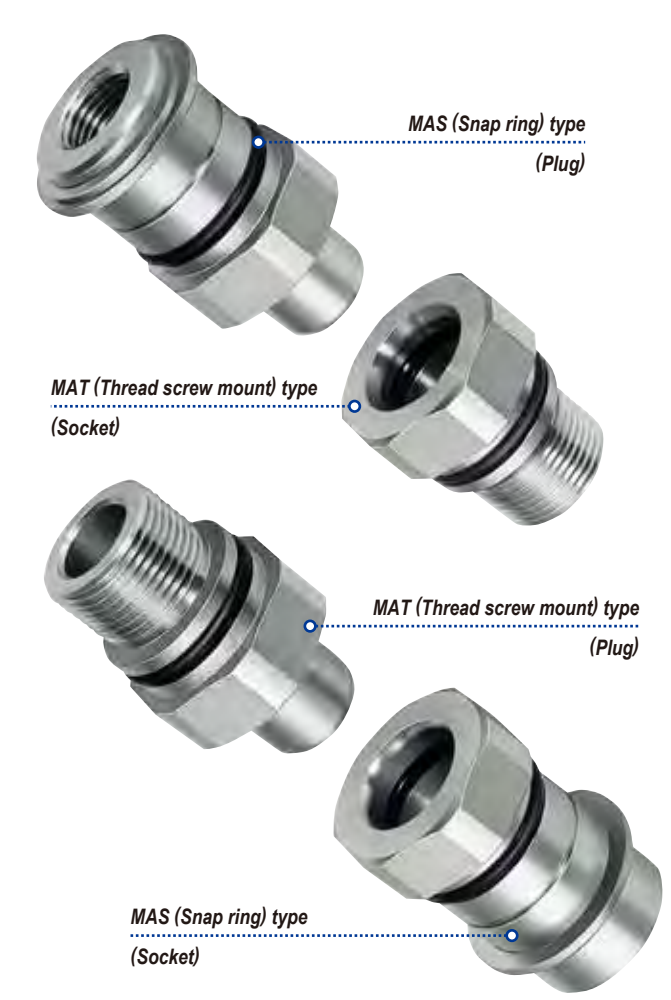
**7.0 MPa {71 kgf/cm²} general purpose type**




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

- Ideal for automated hydraulic or pneumatic cylinder operated systems that need to connect and disconnect several lines simultaneously.
- Automatic shut-off valves in both sockets and plugs ensure no outflow of fluid on disconnection.
- Body materials other than stainless steel are available, which can be ordered with or without valves (made-to-order products).
- Snap ring and screw thread-in types to mount on the base plate are standardized.
- MAS type can accept axial eccentricity between socket and plug. The allowance of eccentricity is within the radius range of 0.3 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 | Sealing material | Mark | Working temperature range |
|---|---|---|---|
| Working temperature range *1 | 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} |

## 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 — $1.3\times10^{-1}$ Pa {$1\times10^{-3}$ mmHg}

| Socket only | Plug only | When connected |
|---|---|---|
| – | – | Operational |

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

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

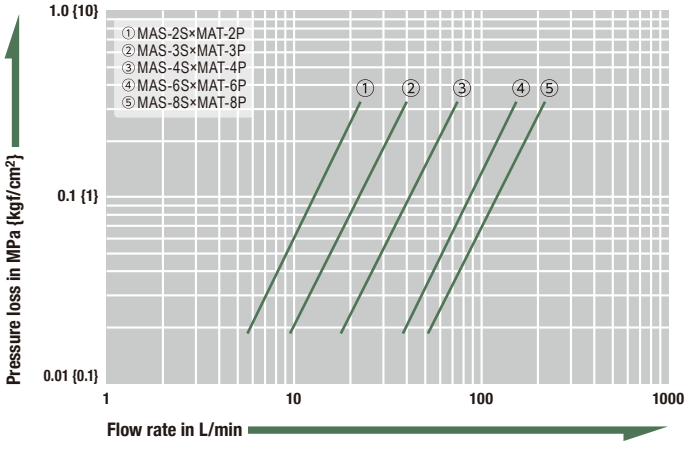
## Load Required to Maintain Connection When Line Is Pressurized

| Model | 2SP | 3SP | 4SP | 6SP | 8SP |
|---|---|---|---|---|---|
| Maximum acceptable load N {kgf} | 3200 {327} | 5200 {531} | 9200 {939} | 13900 {1419} | 20200 {2062} |
| Minimum load required to maintain connection N {kgf} *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} |

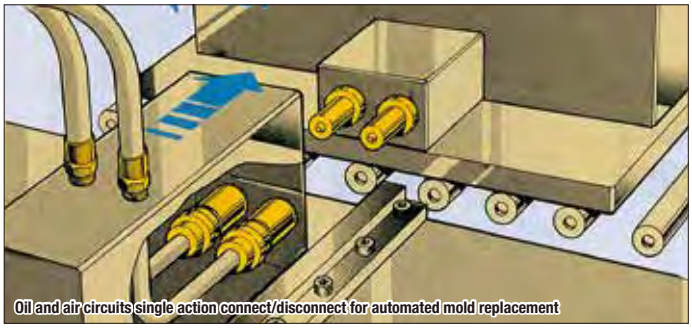
*1: Assign the actual value of pressure [P (MPa), p (kgf/cm²)] to the above formula to calculate the load. Maintain the connection with the minimum load or more, but not more than the maximum acceptable load.

## Flow Rate - Pressure Loss Characteristics

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




## Application Example

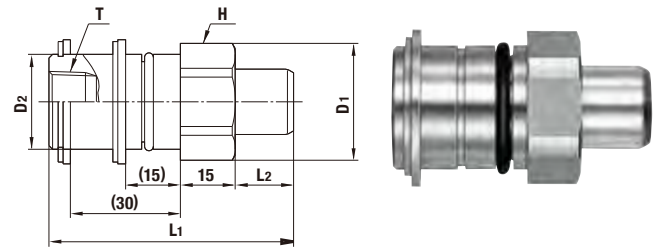


Oil and air circuits single action connect/disconnect for automated mold replacement

## Models and Dimensions

**WAF** : WAF stands for width across flats.

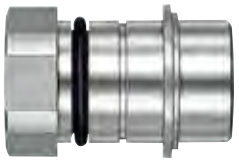
### Plug MAS type (With snap ring)

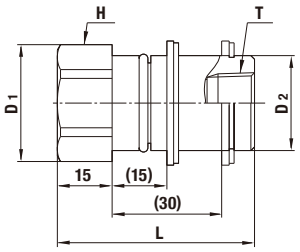





| Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | $L_1$ | $L_2$ | $øD_1$ | $øD_2$ | H(WAF) | T |
| MAS-2P | R 1/4 | 150 | 65 | 14 | 28 | 21.9 | Hex.26 | Rc 1/4 |
| MAS-3P | R 3/8 | 203 | 67 | 16 | 35 | 25.9 | Hex.32 | Rc 3/8 |
| MAS-4P | 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 |

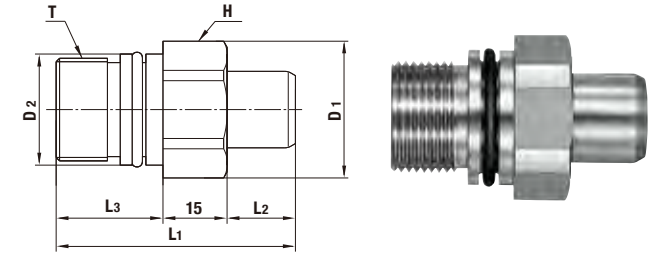
### Socket MAS type (With snap ring)






| Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|---|---|---|---|---|---|---|---|
| | | | L | $øD_1$ | $øD_2$ | 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)

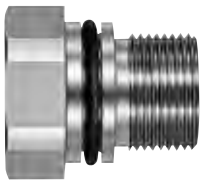


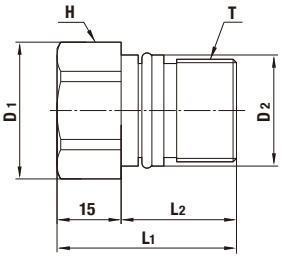



| Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | $L_1$ | $L_2$ | $L_3$ | $øD_1$ | $øD_2$ | H(WAF) | T |
| MAT-2P | See drawings below. | 121 | 53 | 14 | (24) | 28 | 21.9 | Hex.26 | M20×1.5 |
| MAT-3P | | 164 | 56 | 16 | (25) | 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)

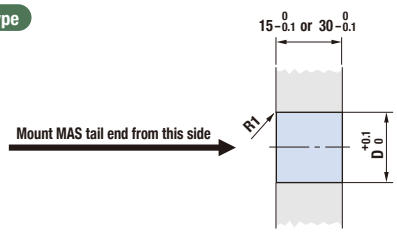





| Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | $L_1$ | $L_2$ | $øD_1$ | $øD_2$ | H(WAF) | T |
| MAT-2S | See drawings below. | 95 | 39 | (24) | 28 | 21.9 | Hex.26 | M20×1.5 |
| MAT-3S | | 124 | 42 | (27) | 32 | 25.9 | Hex.29 | M24×1.5 |
| 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 |

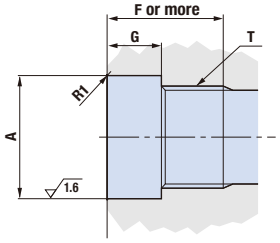
## Dimensions for mounting

**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 |

# 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 they are 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 All 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 are within their rated temperature range. Otherwise this can lead to leakage through seal deterioration or damage. It cannot be used continuously at its lowest or highest rated working temperature.
- The durability of 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.

# 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".

## Nitto Kohki's Quality Products


### Machines and Tools to Achieve Energy and Labor Savings in Processing Work

Machines and tools are used at various processing sites for such work as cutting, polishing, scaling, drilling and chamfering of steel materials. We have created a product line up of pneumatic, electric and hydraulic machines and tools to match the diversification of processing methods and the conditions of work operations.


### Compressors, Vacuum Pumps and Their Applied Products

NITTO KOHKI pumps are unique products featuring a linear-motor-driven free piston system. NITTO KOHKI has made available a complete series of air compressors and suction pumps that incorporate this uniquely functional design. These are quite appropriate as air sources or suction power units for various pneumatically operated equipment and apparatus in advanced industries.


### High Precision “delvo” Electric Screwdrivers for Professional Use

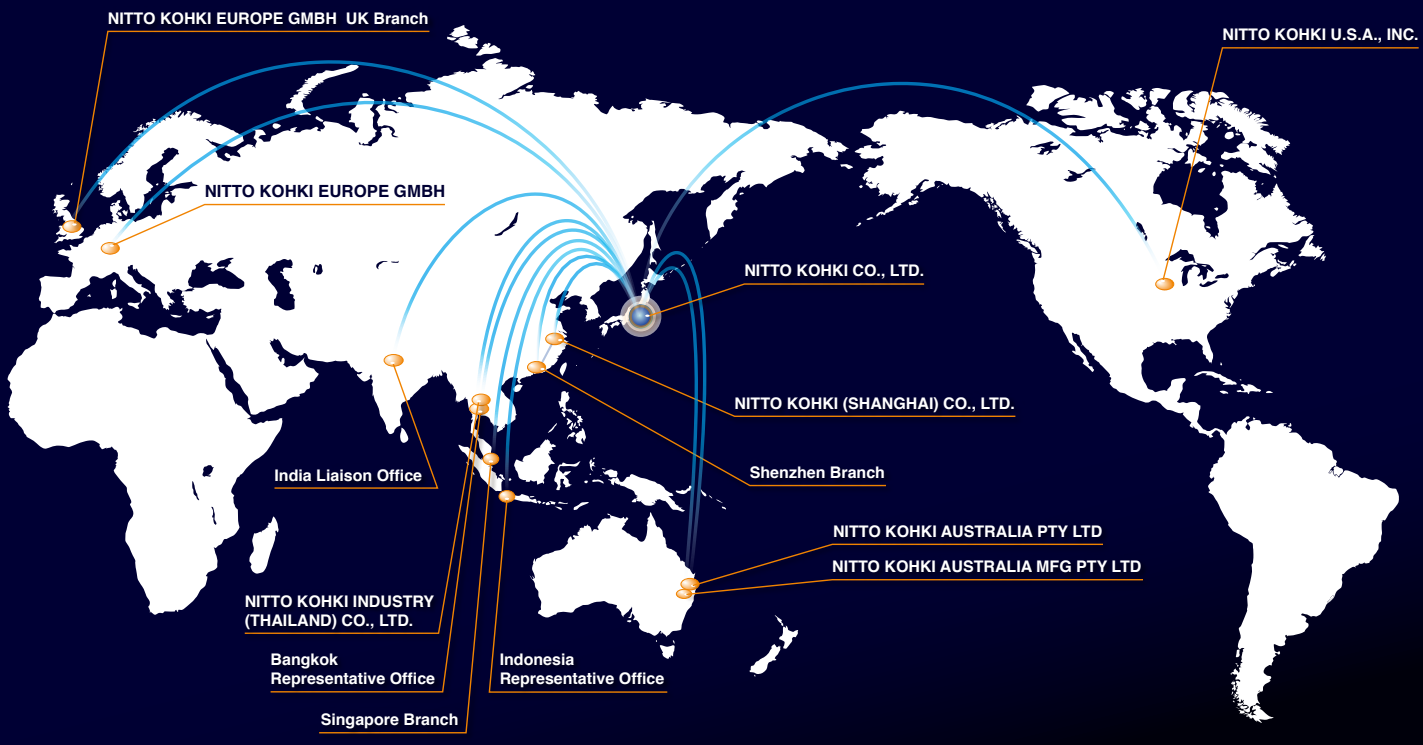
NITTO KOHKI Electric Screwdriver "delvo" is high-quality tools for professional use, with special emphasis on precise control of torque and long life. They apply just the correct amount of torque –with sure, positive control always at your fingertips. They are smooth and shockless in operation, too.


### Door Closer "AUTO-HINGE" Series

#### 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.

# NITTO KOHKI´s GLOBAL NETWORK





NITTO KOHKI CO., LTD.


NITTO KOHKI U.S.A., INC.


NITTO KOHKI EUROPE GMBH


NITTO KOHKI EUROPE GMBH
UK Branch


NITTO KOHKI AUSTRALIA PTY LTD
NITTO KOHKI AUSTRALIA MFG PTY LTD


NITTO KOHKI (SHANGHAI) CO., LTD.

## Visit our website to get more information

### NITTO KOHKI's Official YouTube Global Channel

https://www.youtube.com/c/NittoKohkiGLOBAL

# CUPLA

## Quick Connect Couplings



Japanese
www.nitto-kohki.co.jp/network/jp/

Vietnamese
www.nitto-kohki.co.jp/network/vi/

English
www.nitto-kohki.co.jp/network/

Indonesian
www.nitto-kohki.co.jp/network/id/

Thai
www.nitto-kohki.co.jp/network/th/

Spanish
www.nitto-kohki.co.jp/network/es/

YouTube
www.youtube.com/c/NittoKohkiGLOBAL

eCatalog
www.nitto-kohki.co.jp/e/prd/d_cat/

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