



Cat.NO. **Ck031a-w**



Quick Connect Coupling

Multi Cupla

General Catalog

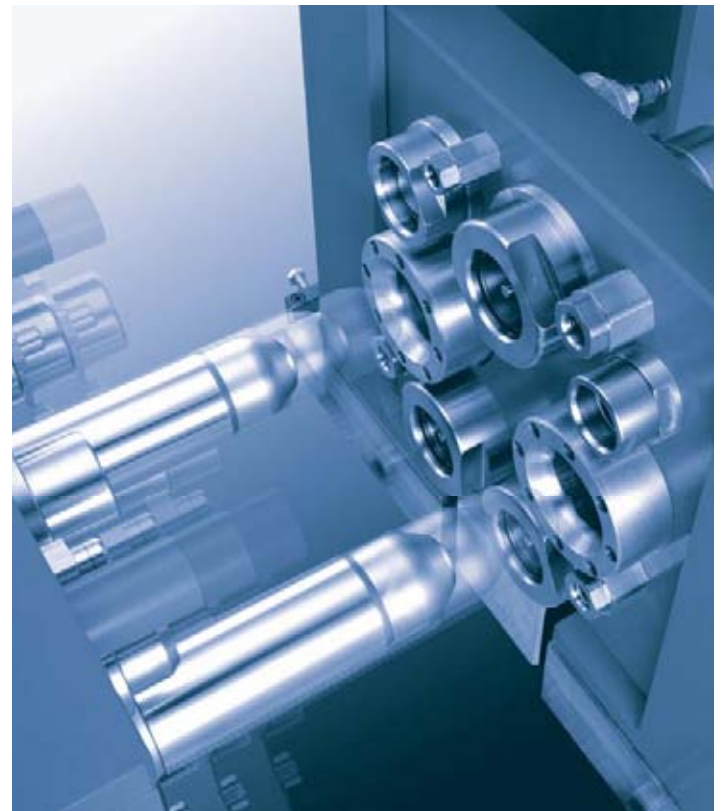
MAM Type / MAM-B Type

MAM-A Type / MAS Type / MAT Type

MALS Type / MALT Type

MALC-SP Type / MALC-HSP Type

MULTI CUPLA Series



MULTI CUPLA

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

Contributes to increase work efficiency, 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.



Multi Cupla MAS Type / MAT Type

Multi Cupla MALS Type / MALT Type



Multi Cupla MALC Type

Multi Cupla MAM Type

NEW

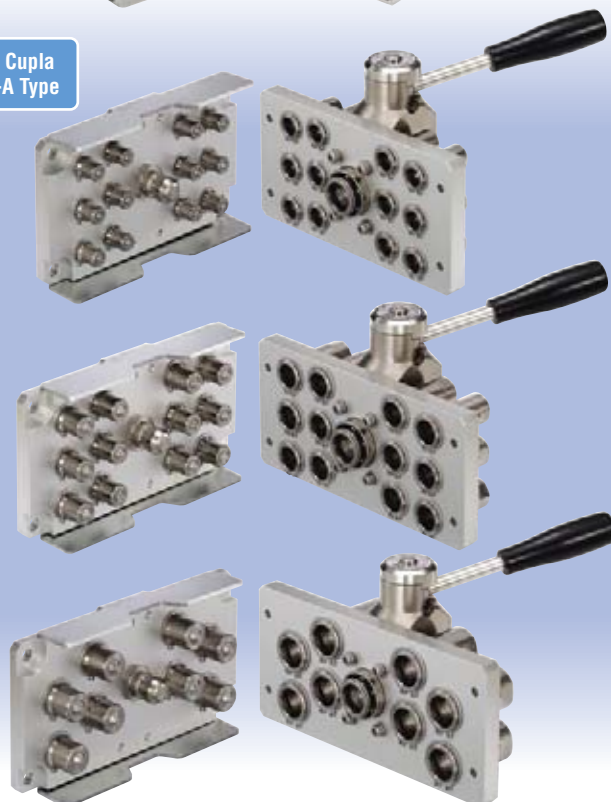


Multi Cupla MAM-B Type

NEW

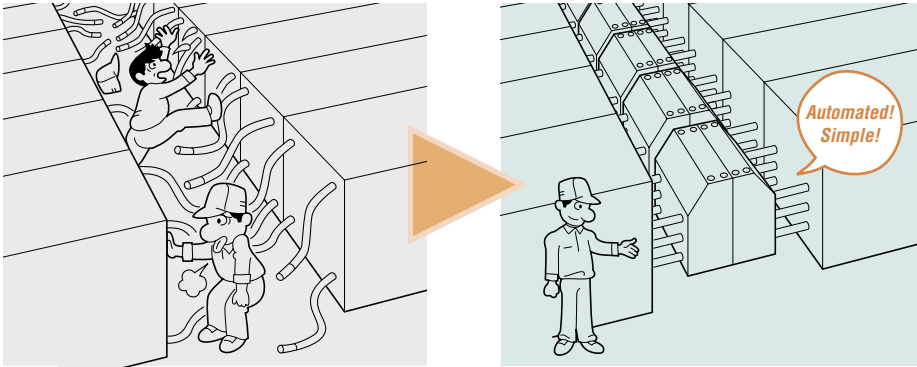


Multi Cupla MAM-A Type



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

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

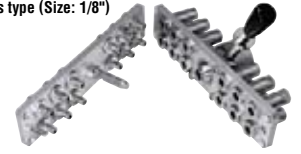


MAM Type

Page 3-5

For multiple air piping with simultaneous connection

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



MAM-B Type

Page 6-8

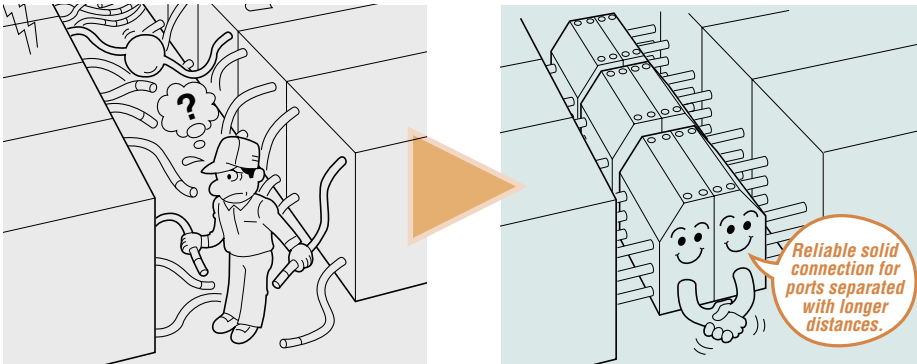
For multiple and simultaneous air/water piping

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



For improved safety and reliability

Piping changes within required 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.

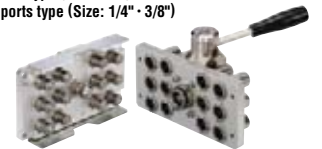


MAM-A Type

Page 9-12

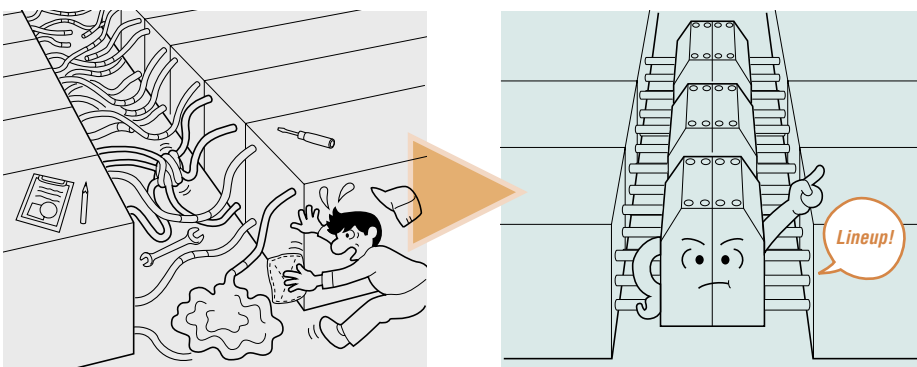
For multiple and simultaneous air/water piping

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



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.



MAS/MAT Type

Page 13-14

General-purpose type for hydraulic, air and water piping

- Size: 1/4" - 3/8" - 1/2" - 3/4" - 1"
- M20 - M24 - M30 - M39 - M45



MALS/MALT Type

Page 14

Airless type for hydraulic systems which can also be used for air systems

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



MALC Type

for medium and high pressure applications

Page 15-18

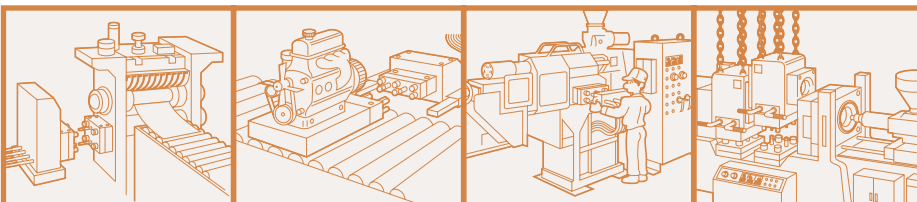
Low pressure loss airless type for water, hydraulic, and air piping. High pressure type is designed for hydraulic only.

- MALC-SP (Medium pressure type)
- MALC-HSP (High pressure type)



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.



Multiple port type for air

Multi Cupla

MAM Type

Working pressure



0.7 MPa
(7 kgf/cm²)

Valve structure



One-way shut-off

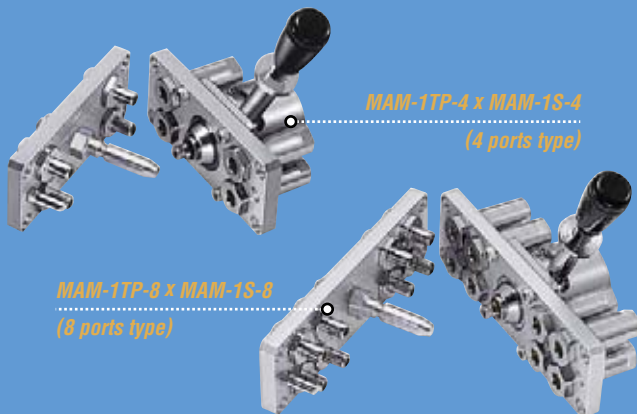
Applicable fluids



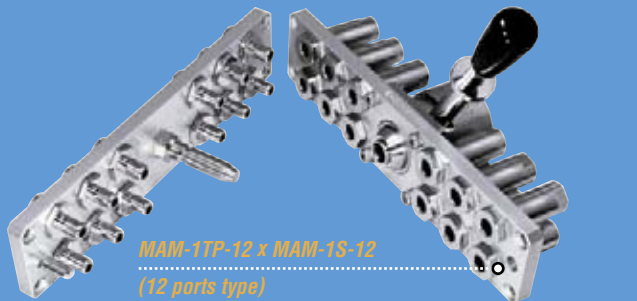
Air

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.
- Comes with lock mechanism to prevent accidental disconnection.
- Valve on socket side only.



MAM-1TP-8 x MAM-1S-8
(8 ports type)



NEW



Specifications

Body material	Cupla: Brass (Chrome-plated)		
	Plate: Aluminum alloy (4, 8, 12 ports) / Plate: Steel (16 ports)		
	Locking unit: Steel and others		
Size	1/8"		
Working pressure MPa (kgf/cm ²)	0.7 {7}		
Pressure resistance MPa (kgf/cm ²)	1.0 {10}		
Seal material	Seal material	Mark	Working temperature range
Working temperature range	Nitrile rubber	NBR (SG)	0°C~+60°C

Max. Tightening Torque

N·m (kgf·cm)

Torque	5 {51}
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Interchangeability

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

Min. Cross-Sectional Area

(mm²)

Per port	15.9
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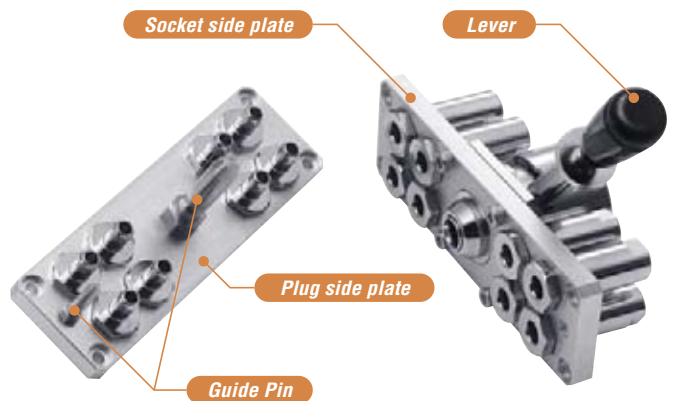
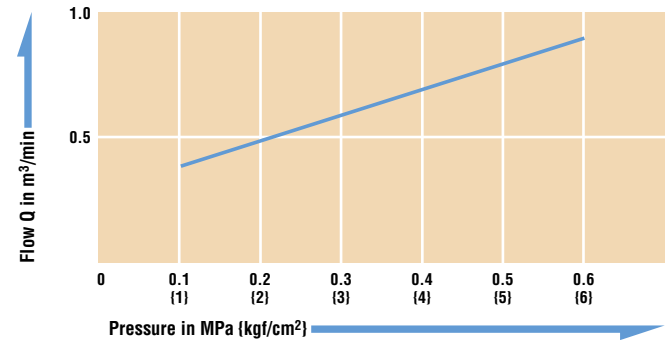
Suitability for Vacuum

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

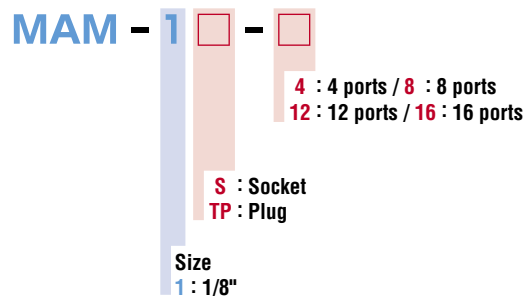
Pressure - Flow Characteristics

Per port with Cupla

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



Denotation of Model



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

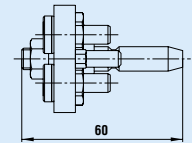
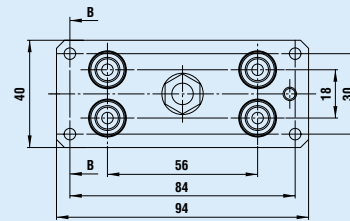
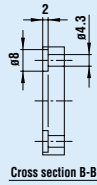
Models and Dimensions

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

• Application: R1/8 Mass: 150g (Plug), 500g (Socket)

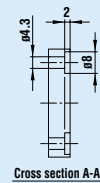
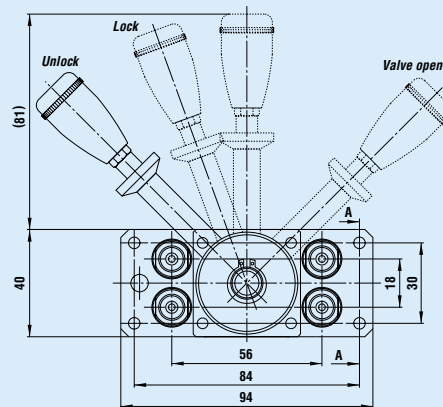
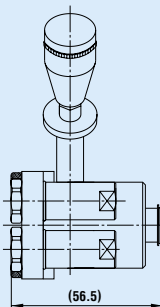
Plug: Model

MAM-1TP-4



Socket: Model

MAM-1S-4



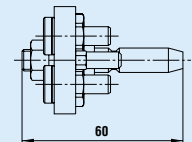
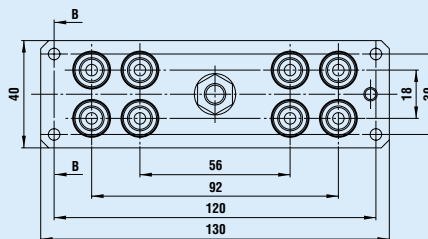
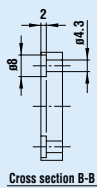
Dimensions (mm)

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

• Application: R1/8 Mass: 250g (Plug), 650g (Socket)

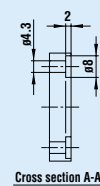
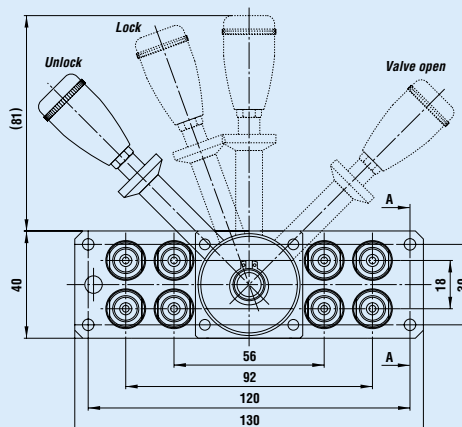
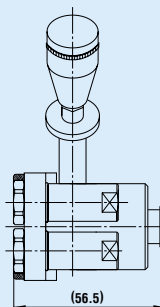
Plug: Model

MAM-1TP-8



Socket: Model

MAM-1S-8



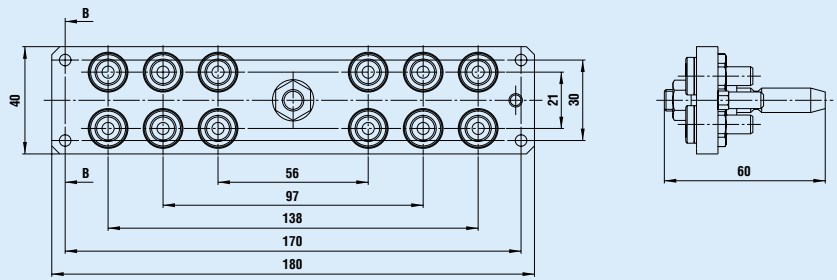
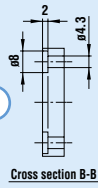
Dimensions (mm)

Models and Dimensions

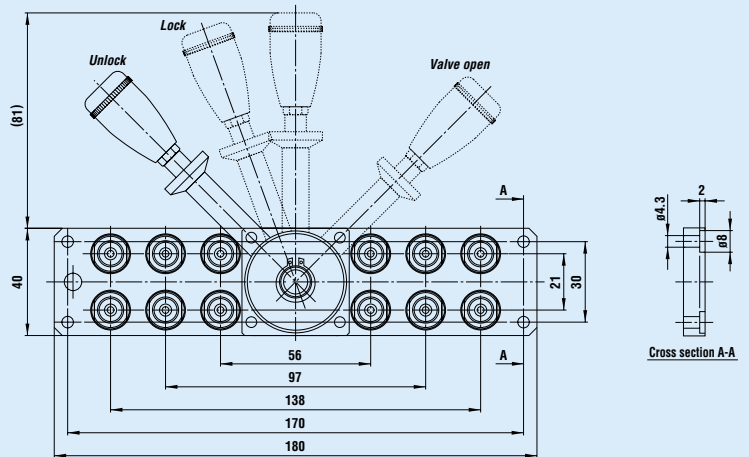
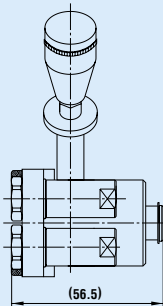
Model **MAM-1TP-12** × **MAM-1S-12** (12 ports type)

• Application: R1/8 Mass: 350g (Plug), 800g (Socket)

Plug: Model **MAM-1TP-12**



Socket: Model **MAM-1S-12**

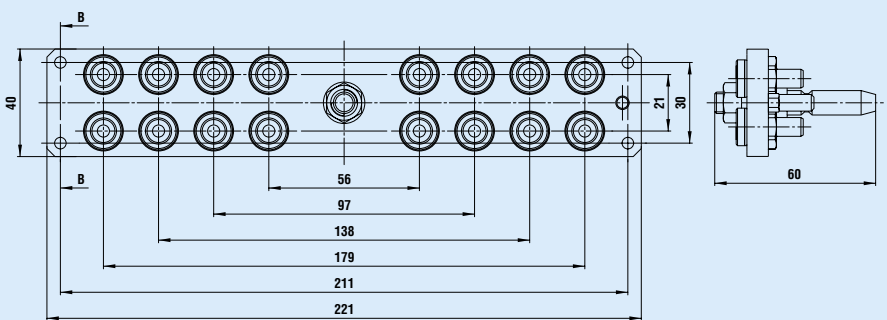
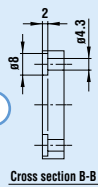


Dimensions (mm)

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

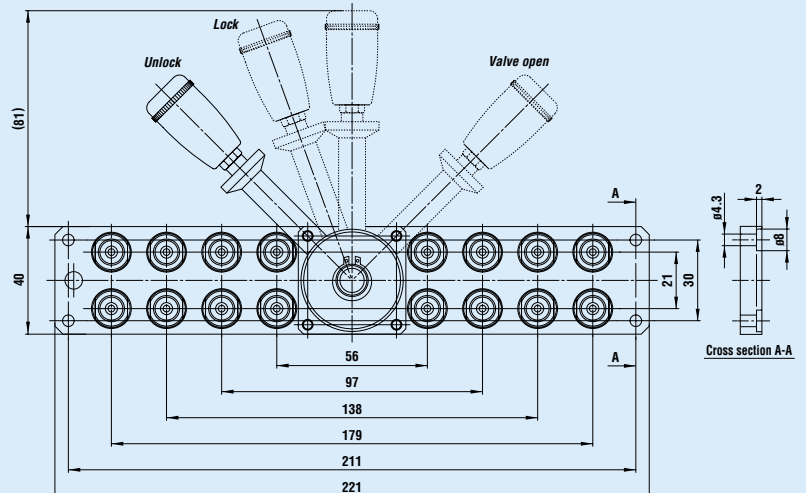
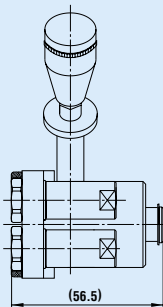
• Application: R1/8 Mass: 680g (Plug), 1180g (Socket)

Plug: Model **MAM-1TP-16**



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Socket: Model **MAM-1S-16**



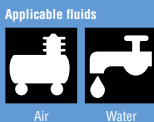
Dimensions (mm)



Multiple port system for air/water

Multi Cupla

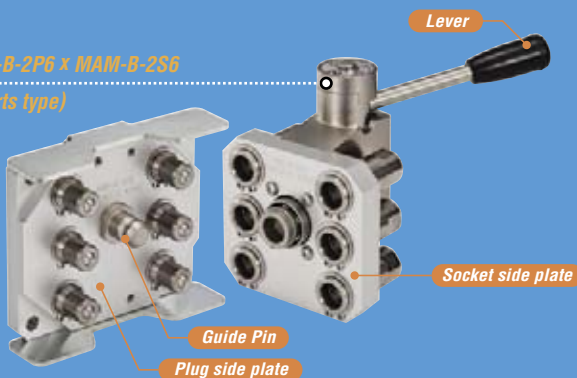
MAM-B Type



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

- 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.

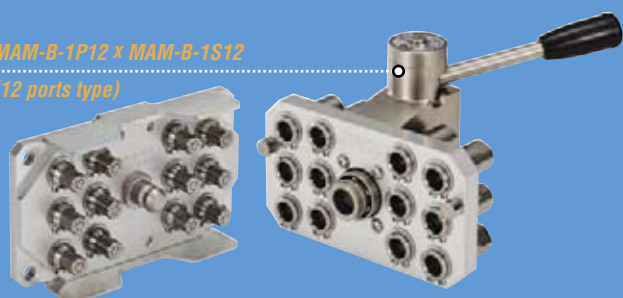
MAM-B-2P6 x MAM-B-2S6
(6 ports type)



MAM-B-1P8 x MAM-B-1S8
(8 ports type)



MAM-B-1P12 x 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	1/8"			1/4"	
Body material	Cupla: Brass (Nickel-plated)			Plate: Aluminum alloy	
	Locking unit: Steel (with Autocatalytic Nickel-Phosphorus coating)				
Working pressure MPa (kgf/cm ²)	1.0 {10}				
Pressure resistance MPa (kgf/cm ²)	1.5 {15}				
Ambient temperature range	0°C~+60°C				
Sealing material	Sealing material	Mark	Working temperature range		
Working temperature range	Fluoro rubber	FKM (X-100)	-20°C~+180°C		

Max. Tightening Torque		N·m (kgf·cm)
Size	1/8"	1/4"
Torque	5 {51}	9 {92}

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

Min. Cross-Sectional Area per Port		(mm ²)
Model	1SP	2SP
Min. Cross-Sectional Area	14	26

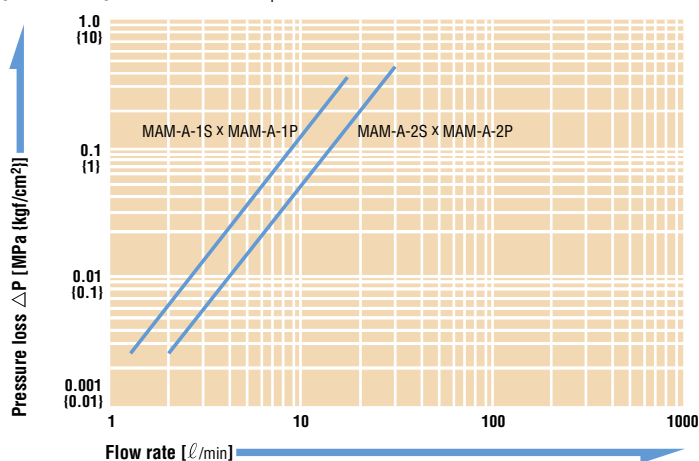
Suitability for Vacuum			1.3 x 10 ⁻¹ Pa {1 x 10 ⁻³ mmHg}
Socket only	Plug only	When connected	
—	—	Operational	

Admixture of Air on Connection per Port		(mℓ)
Model	1SP	2SP
Volume of air	0.6	1.1

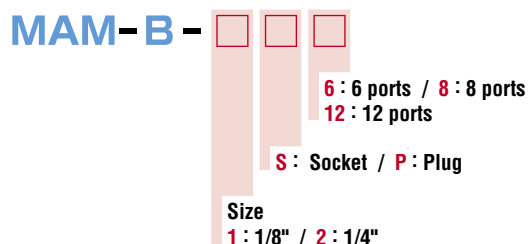
Volume of Spillage on Disconnection per Port		(mℓ)
Model	1SP	2SP
Volume of Spillage	0.4	0.8

Flow Rate - Pressure Loss Characteristics Per port of Cupla

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



Denotation of Model



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

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

Models and Dimensions

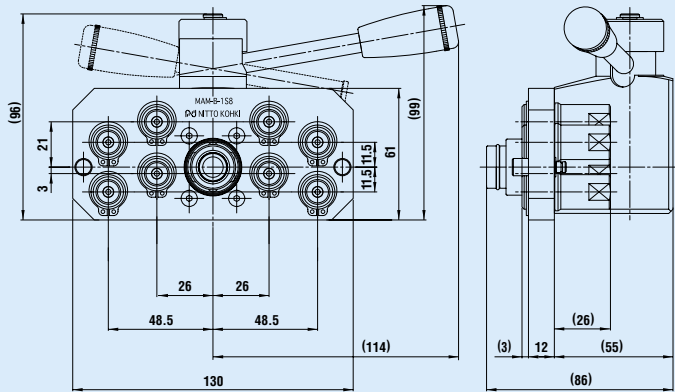
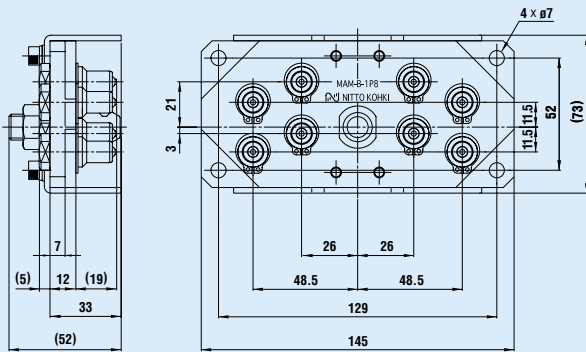
WAF : WAF stands for width across flats.

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

• Application: R1/8 Mass: 660g (Plug), 1210g (Socket)

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

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



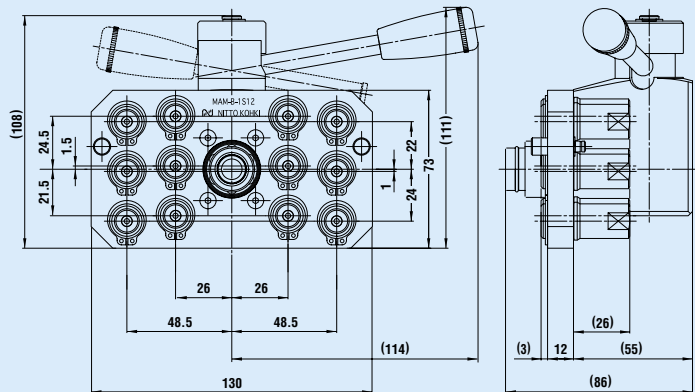
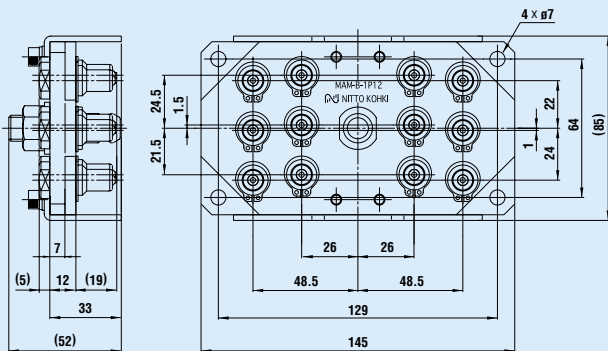
Dimensions (mm)

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

• Application: R1/8 Mass: 790g (Plug), 1430g (Socket)

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

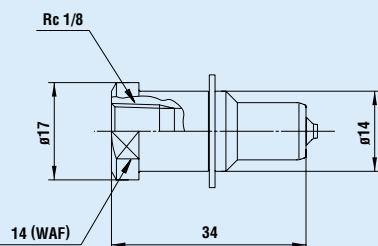
Socket: Model **MAM-B-1S12**



Dimensions (mm)

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

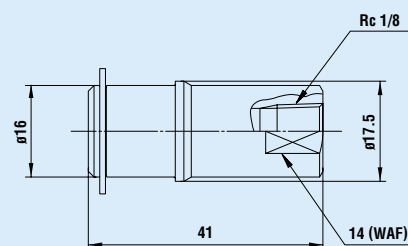
• Application: R1/8 Mass: 25g
• Can be mounted on model MAM-B-1P8 and MAM-B-1P12.



Dimensions (mm)

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

• Application: R1/8 Mass: 49g
• Can be mounted on model MAM-B-1S8 and MAM-B-1S12.



Dimensions (mm)

Models and Dimensions

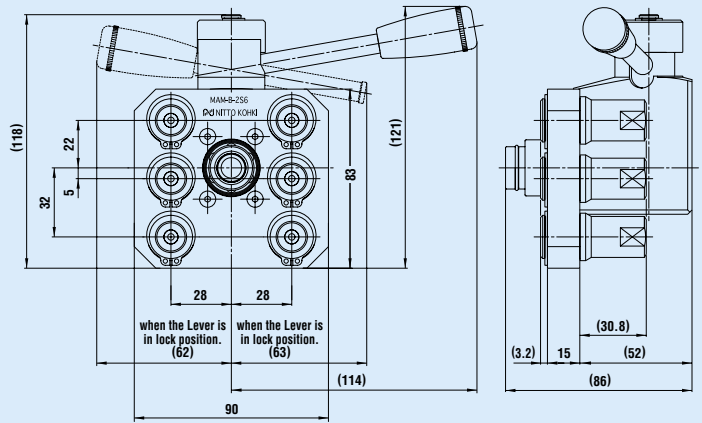
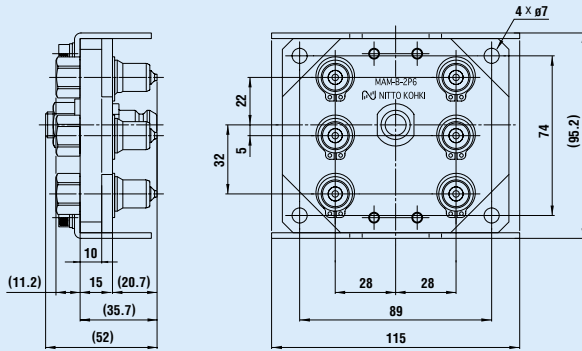
WAF : WAF stands for width across flats.

Model MAM-B-2P6 × MAM-B-2S6 (6 ports)

- Application: R1/4 Mass: 740g (Plug), 1280g (Socket)

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

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



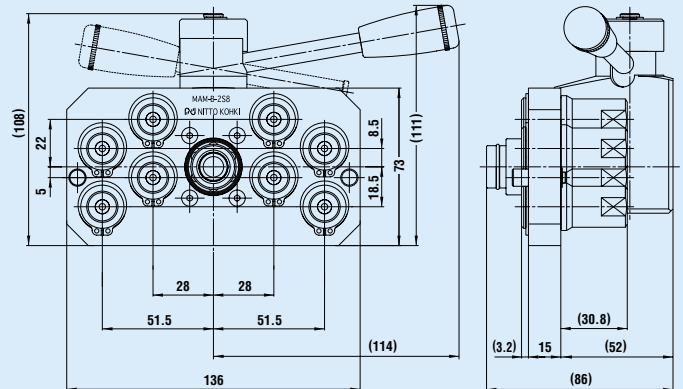
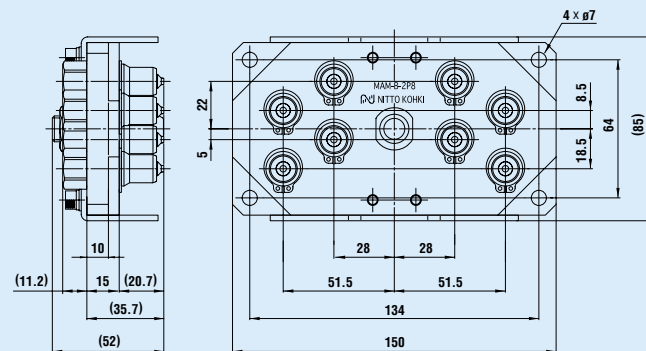
Dimensions (mm)

Model MAM-B-2P8 × MAM-B-2S8 (8 ports)

- Application: R1/4 Mass: 920g (Plug), 1550g (Socket)

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

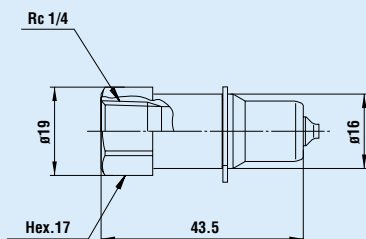
Socket: Model **MAM-B-2S8**



Dimensions (mm)

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

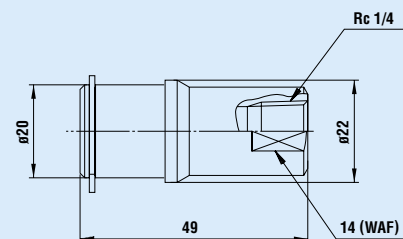
- Application: R1/4 Mass: 40g
- Can be mounted on model MAM-B-2P6 and MAM-B-2P8.



Dimensions (mm)

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

- Application: R1/4 Mass: 82g
- Can be mounted on model MAM-B-2S6 and MAM-B-2S8.

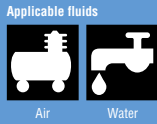


Dimensions (mm)

Multiple port system for air/water

Multi Cupla

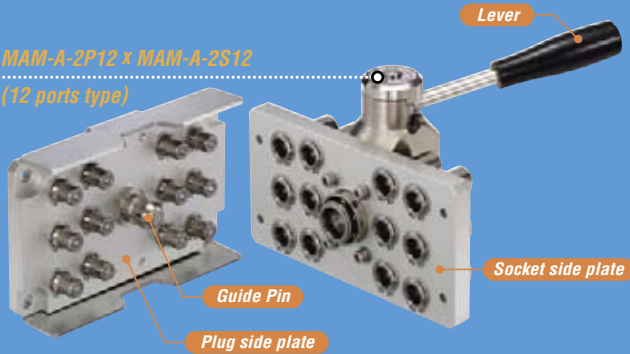
MAM-A Type



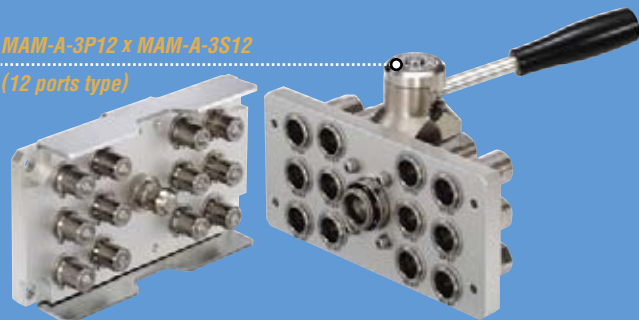
Simultaneously connects several ports securely in one operation!
Greatly reduces changeover time in multiple ports replacement.

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

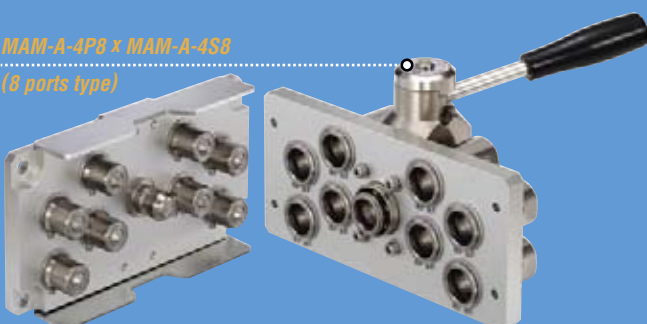
MAM-A-2P12 x MAM-A-2S12
(12 ports type)



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



MAM-A-4P8 x MAM-A-4S8
(8 ports type)



Specifications

Model	Plug	MAM-A-2P6	MAM-A-2P12	MAM-A-3P6	MAM-A-3P12	MAM-A-4P4	MAM-A-4P8
	Socket	MAM-A-2S6	MAM-A-2S12	MAM-A-3S6	MAM-A-3S12	MAM-A-4S4	MAM-A-4S8
Number of ports		6	12	6	12	4	8
Size		1/4"		3/8"		1/2"	
Body material		Cupla: Brass (Nickel-plated)				Plate: Aluminum alloy	
		Locking unit: Steel (with Autocatalytic Nickel-Phosphorus coating)					
Working pressure MPa (kgf/cm ²)		1.0 (10)					
Pressure resistance MPa (kgf/cm ²)		1.5 (15)					
Ambient temperature range		0°C~+60°C					
Sealing material	Sealing material	Fluoro rubber		Mark		FKM (X-100)	
Working temperature range	Working temperature range	-20°C~+180°C					

Max. Tightening Torque

N·m (kgf·cm)

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

Interchangeability

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

Min. Cross-Sectional Area per Port

(mm²)

Model	2SP	3SP	4SP
Min. Cross-Sectional Area	26	51	73

Suitability for Vacuum

1.3 x 10⁻¹Pa (1 x 10⁻³mmHg)

Socket only	Plug only	When connected
—	—	Operational

Admixture of Air on Connection per Port

(mℓ)

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

Volume of Spillage on Disconnection per Port

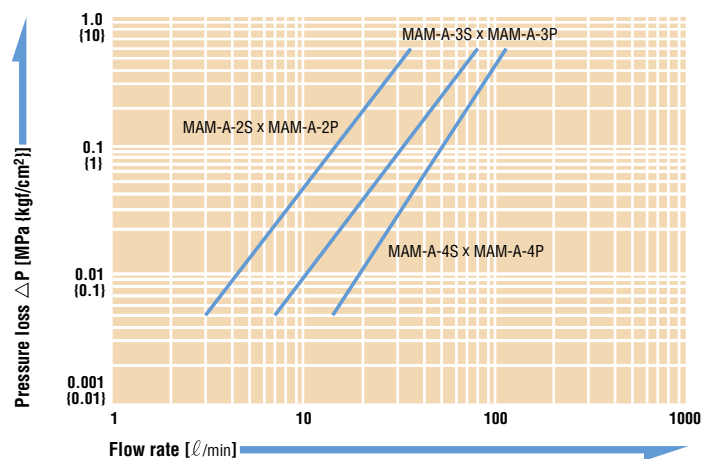
(mℓ)

Model	2SP	3SP	4SP
Volume of Spillage	0.8	2.1	3.4

Flow Rate - Pressure Loss Characteristics

Per port of Cupla

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



Denotation of Model

MAM-A - [] [] []

4 : 4 ports / 6 : 6 ports
 8 : 8 ports / 12 : 12 ports

S : Socket / P : Plug

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

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

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

Models and Dimensions

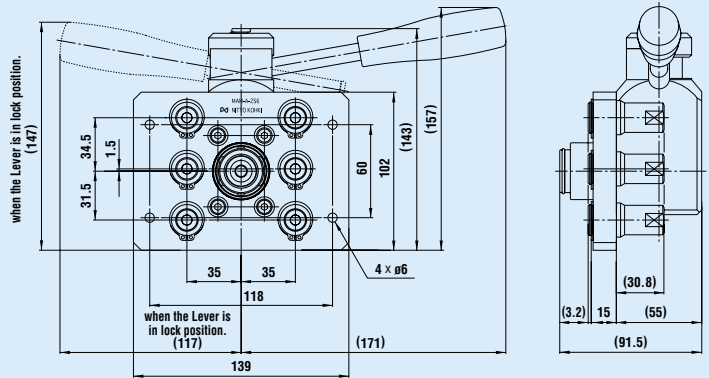
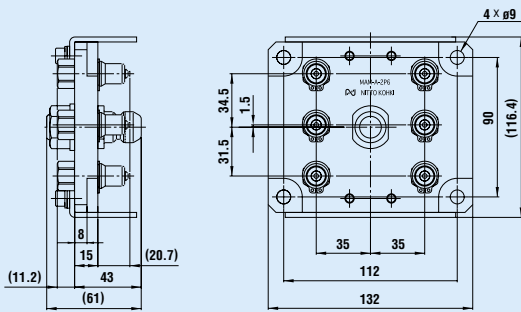
WAF : WAF stands for width across flats.

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

• Application: R1/4 Mass: 1100g (Plug), 2150g (Socket)

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

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



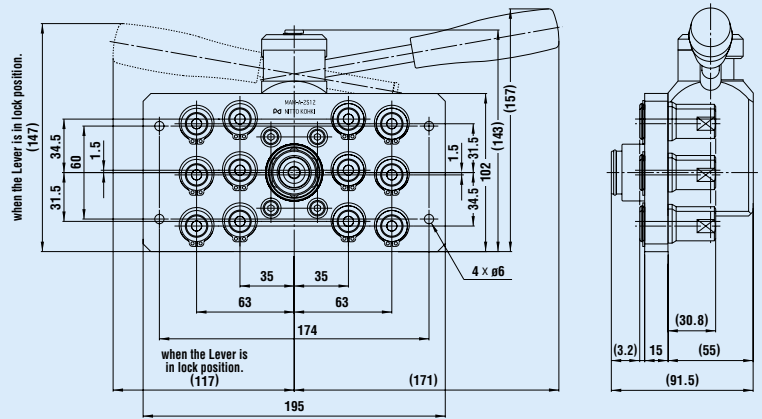
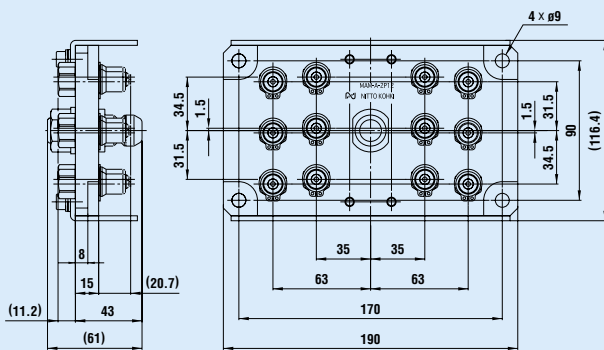
Dimensions (mm)

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

• Application: R1/4 Mass: 1650g (Plug), 2800g (Socket)

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

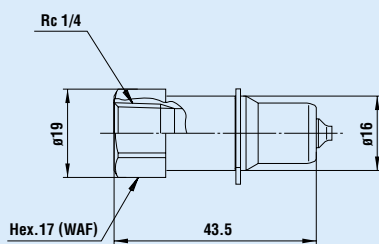
Socket: Model **MAM-A-2S12**



Dimensions (mm)

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

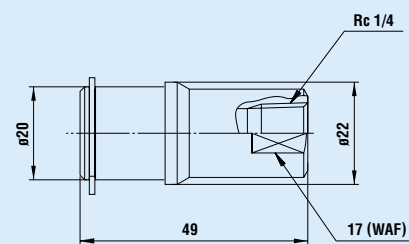
• Application: R1/4 Mass: 40g



Dimensions (mm)

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

• Application: R1/4 Mass: 82g



Dimensions (mm)

Models and Dimensions

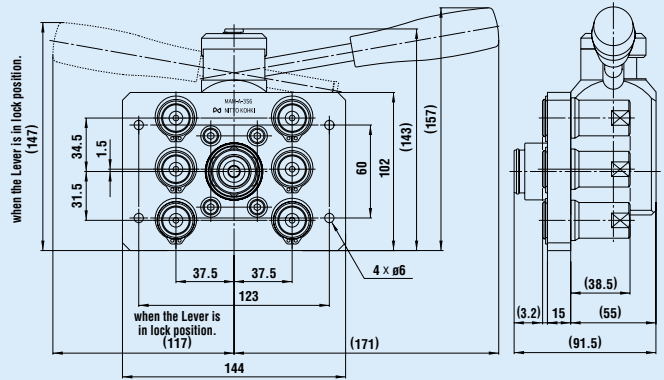
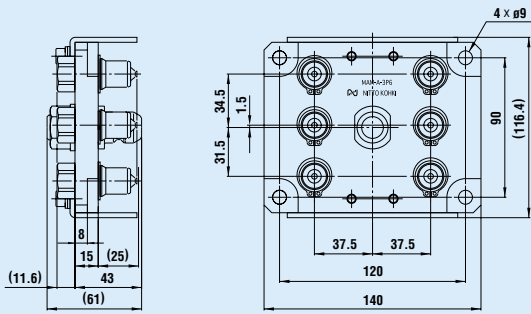
WAF : WAF stands for width across flats.

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

• Application: R3/8 Mass: 1250g (Plug), 2400g (Socket)

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

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



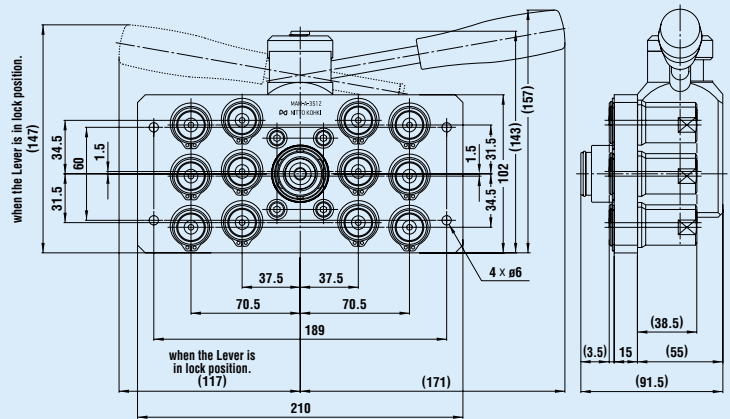
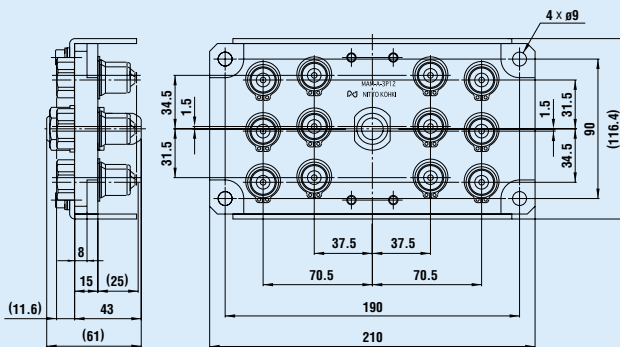
Dimensions (mm)

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

• Application: R3/8 Mass: 1950g (Plug), 3300g (Socket)

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

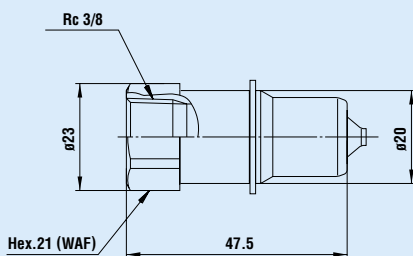
Socket: Model **MAM-A-3S12**



Dimensions (mm)

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

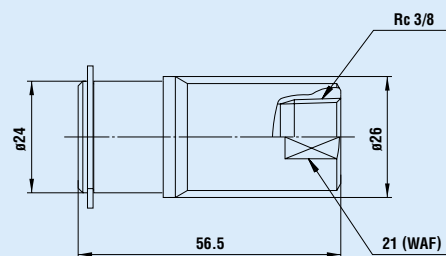
• Application: R3/8 Mass: 62g



Dimensions (mm)

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

• Application: R3/8 Mass: 122g



Dimensions (mm)

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

Models and Dimensions

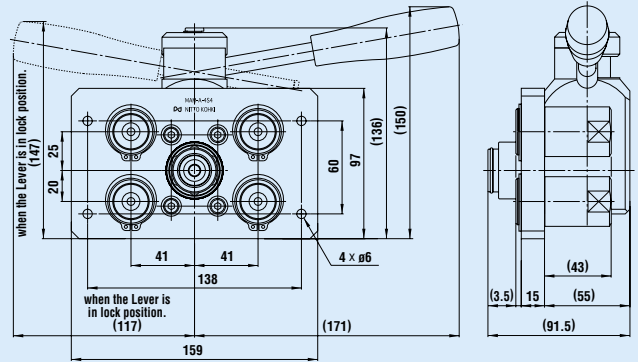
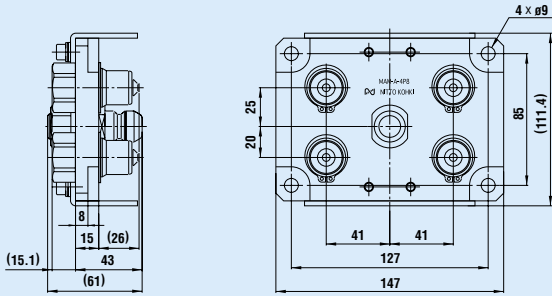
WAF : WAF stands for width across flats.

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

• Application: R1/2 Mass: 1400g (Plug), 2700g (Socket)

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

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



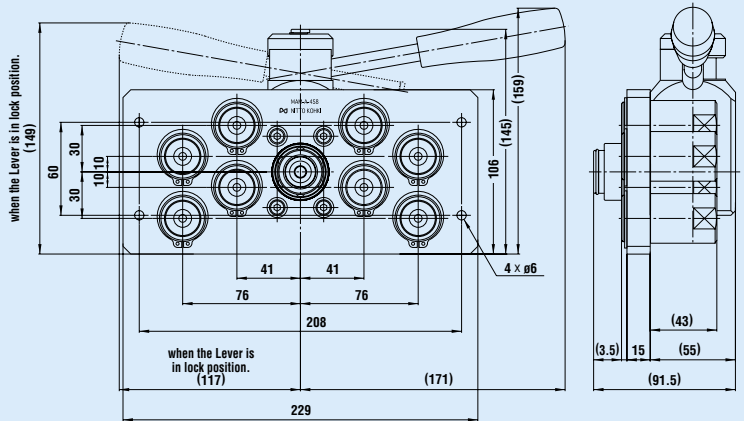
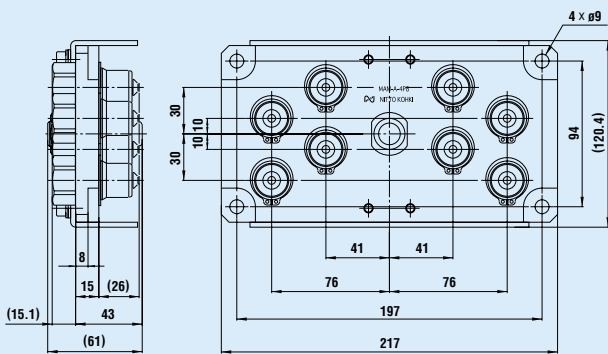
Dimensions (mm)

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

• Application: R1/2 Mass: 2300g (Plug), 4000g (Socket)

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

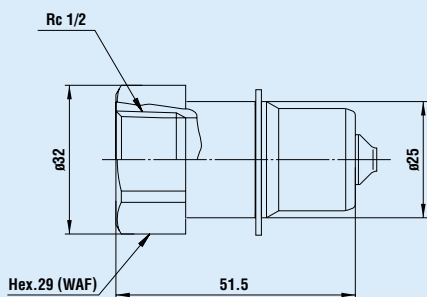
Socket: Model **MAM-A-4S8**



Dimensions (mm)

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

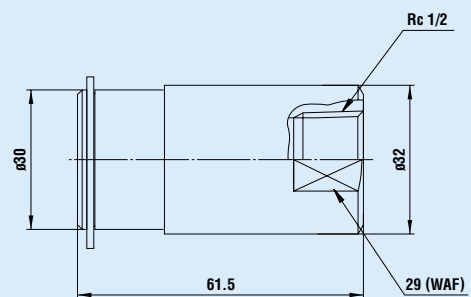
• Application: R1/2 Mass: 127g



Dimensions (mm)

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

• Application: R1/2 Mass: 256g






Dimensions (mm)

7.0MPa {71kgf/cm²} general purpose type

Multi Cupla

MAS Type / MAT Type

<p>Working pressure</p>  <p>7.0 MPa {71 kgf/cm²}</p>	<p>Valve structure</p>  <p>Two-way shut-off</p>	<p>Applicable fluids</p>  <p>Air Water Hydraulic oil</p>
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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 of socket and plug, or allow a plate hole position tolerance of $\pm 0.3\text{mm}$ because of the O-ring around the body.



Specifications

Body material	Stainless steel (with Autocatalytic Phosphorus coating)		
Size	1/4" • 3/8" • 1/2" • 3/4" • 1", M20 • M24 • M30 • M39 • M45		
Working pressure MPa (kgf/cm ²)	7.0 {71}		
Pressure resistance MPa (kgf/cm ²)	10.0 {102}		
Sealing material Working temperature range	Sealing material	Mark	Working temperature range
	Fluoro rubber	FKM (X-100)	-20°C~+180°C

Max. Tightening Torque

N·m {kgf·cm}

Size	1/4"	3/8"	1/2"	3/4"	1"
Torque (MAS type)	14 {143}	22 {224}	60 {612}	90 {918}	120 {1224}
Size	M20	M24	M30	M39	M45
Torque (MAT type)	50 {510}	50 {510}	50 {510}	70 {714}	80 {816}

Interchangeability

- MAS & MAT or MAS & MAS types of the same size are to be connected.
- Connection between the same MAT types is virtually not possible because there is no allowance for eccentricity.

Min. Cross-Sectional Area

(mm²)

Model	2SP	3SP	4SP	6SP	8SP
Min. Cross-Sectional Area	23	41	76	145	224

Suitability for Vacuum

$1.3 \times 10^{-3}\text{Pa}$ { $1 \times 10^{-3}\text{mmHg}$ }

Socket only	Plug only	When connected
—	—	Operational

Admixture of Air on Connection

(mℓ)

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

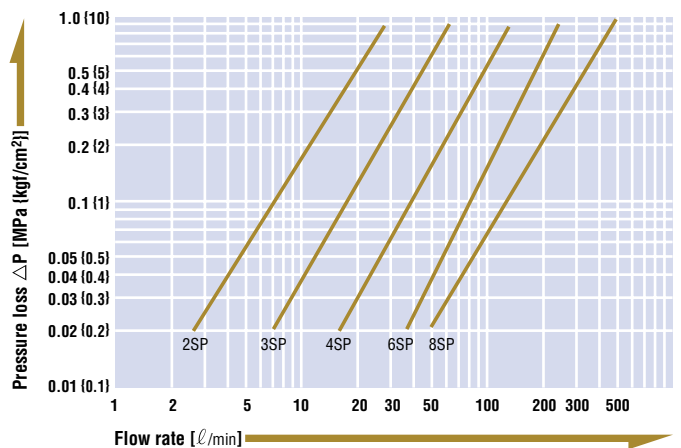
Load required to maintain connection when line is pressurized

Model	2SP	3SP	4SP	6SP	8SP
Maximum acceptable Load N (kgf)	3200 {327}	5200 {531}	9000 {919}	13900 {1419}	20200 {2062}
Minimum load required to maintain connection N (kgf) *	Px185+45 {p×1.85+4.5}	Px310+70 {p×3.1+7}	Px545+75 {p×5.45+7.5}	Px850+95 {p×8.5+9.5}	Px1225+120 {p×12.25+12}

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

Flow Rate - Pressure Loss Characteristics

[Test conditions] • Fluid : Hydraulic oil • Temperature : 30°C ± 5°C
• Fluid viscosity : $32 \times 10^{-6}\text{m}^2/\text{s}$ • Density : $0.87 \times 10^3\text{kg}/\text{m}^3$



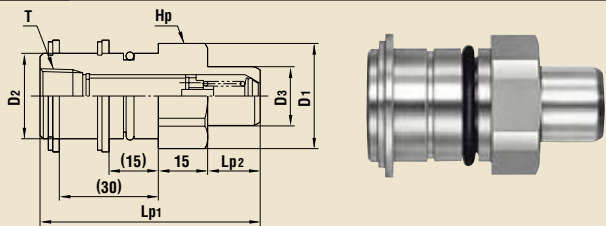
- Cupla Connection with fluid under dynamic pressure cannot be made.
- Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

MAT type must be used in combination with MAS type.

Models and Dimensions

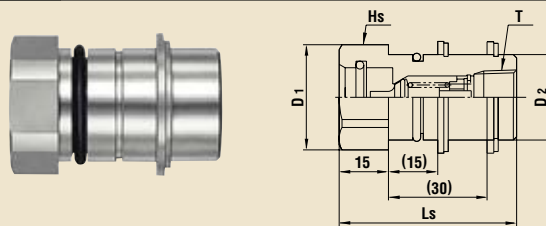
WAF : WAF stands for width across flat.

Plug MAS type (Snap-ring mount)



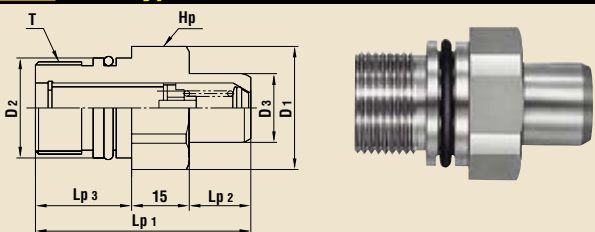
Model	Application	Mass (g)	Dimensions (mm)						
			Lp1	Lp2	øD1	øD2	øD3	Hp(WAF)	T
MAS-2P	R 1/4	150	65	14	28	21.9	14	Hex.26	Rc 1/4
MAS-3P	R 3/8	203	67	16	35	25.9	18	Hex.32	Rc 3/8
MAS-4P	R 1/2	412	73	20	44	35.9	24	Hex.41	Rc 1/2
MAS-6P	R 3/4	579	76.5	23.5	50	41.9	30	Hex.46	Rc 3/4
MAS-8P	R 1	720	78	24	58	47.9	36	Hex.54	Rc 1

Socket MAS type (Snap-ring mount)



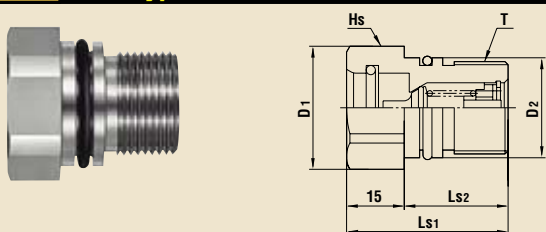
Model	Application	Mass (g)	Dimensions (mm)				
			Ls	øD1	øD2	Hs(WAF)	T
MAS-2S	R 1/4	126	51.5	28	21.9	Hex.26	Rc 1/4
MAS-3S	R 3/8	171	55	35	25.9	Hex.32	Rc 3/8
MAS-4S	R 1/2	406	65	44	35.9	Hex.41	Rc 1/2
MAS-6S	R 3/4	604	76	50	41.9	Hex.46	Rc 3/4
MAS-8S	R 1	825	87	58	47.9	Hex.54	Rc 1

Plug MAT type (Thread screw mount)



Model	Application	Mass (g)	Dimensions (mm)							
			Lp1	Lp2	Lp3	øD1	øD2	øD3	Hp(WAF)	T
MAT-2P	See the diagram below.	121	53	14	(24)	28	21.9	14	Hex.26	M20x1.5
MAT-3P		164	56	16	(25)	32	25.9	18	Hex.29	M24x1.5
MAT-4P		332	67	20	(32)	44	35.9	24	Hex.41	M30x2
MAT-6P		453	73	23.5	(34.5)	50	41.9	30	Hex.46	M39x2
MAT-8P		571	76	24	(37)	54	47.9	36	Hex.50	M45x2

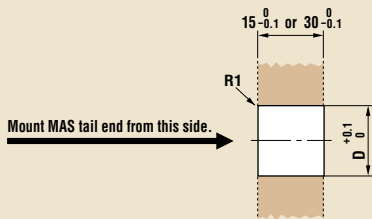
Socket MAT type (Thread screw mount)



Model	Application	Mass (g)	Dimensions (mm)					
			Ls1	Ls2	øD1	øD2	Hs(WAF)	T
MAT-2S	See the diagram below.	95	39	(24)	28	21.9	Hex.26	M20 x 1.5
MAT-3S		124	42	(27)	32	25.9	Hex.29	M24 x 1.5
MAT-4S		246	48	(33)	44	35.9	Hex.41	M30 x 2
MAT-6S		382	58	(43)	50	41.9	Hex.46	M39 x 2
MAT-8S		506	66	(51)	54	47.9	Hex.50	M45 x 2

Tail End Configuration

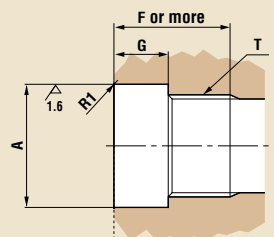
MAS Type



Mount MAS tail end from this side.

Size	Diameter (mm)	
	øD	
1/4"	23	
3/8"	27	
1/2"	37	
3/4"	43	
1"	49	

MAT Type



Size	Dimensions (mm)				
	øA	G	F		T
1/4"	+0.06	13	Pulg 25	Socket 25	M20 x 1.5
3/8"	0	13	26	28	M24 x 1.5
1/2"		16	34	35	M30 x 2
3/4"	+0.08	17	36.5	45	M39 x 2
1"	0	17	39	50	M45 x 2

14.0MPa [142kgf/cm²] Airless Type

Multi Cupla MALS Type / MALT Type

Working pressure
14.0MPa [142kgf/cm²]

Valve structure
Two-way shut-off

Applicable fluids
Air, Hydraulic oil



Minimal air admixture during Cupla connection

- Special valve structure allows minimal air admixture in fluid lines during Cupla connection.
- Liquid bleeding on Cuplas disconnection is very little, which makes it best for frequent connection/disconnection applications.
- Snap-ring and thread screw mount types to mount on the base plate are standard.
- MALS type can accept axial eccentricity of socket and plug, or allow a plate hole position tolerance of ±0.3mm because of the O-ring around the body.

Specifications

Body material	Steel (with Autocatalytic Nickel-Phosphorus coating)		
Size	1/4" • 3/8" • 1/2" • 3/4"		
Working pressure MPa (kgf/cm ²)	14.0 [142]		
Pressure resistance MPa (kgf/cm ²)	20.6 [210]		
Sealing material	Sealing material	Mark	Working temperature range
Working temperature range	Fluoro rubber	FKM (X-100)	-20°C~+180°C

Please check with us for details on these products.

Airless Type for Medium Pressure Use

Multi Cupla

MALC-SP Type for Medium Pressure Use

Working pressure **5.0** MPa (51 kgf/cm²)

Valve structure: Two-way shut-off

Applicable fluids: Water, Hydraulic oil, Air

A single operation makes simultaneous connections for multiple lines that have a variety of different fluids and sizes. A special design minimizes air admixture in fluid lines upon connection.

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



Specifications

Body material	Socket body: Stainless steel (with Autocatalytic Phosphorus coating)		
Working pressure MPa (kgf/cm ²)	5.0 (51) (Either socket or plug only: 2.0 (20))		
Pressure resistance MPa (kgf/cm ²)	7.5 (76.5) (Either socket or plug only: 3.0 (31))		
Sealing material	Sealing material	Mark	Working temperature range
	Fluoro rubber	FKM (X-100)	-20°C~+180°C

Max. Tightening Torque

Model	N·m (kgf·cm)			
	2SP	3SP	4SP	6SP
Torque (Thread screw mount)	30 (306)	35 (357)	45 (460)	60 (612)
Torque (Flange)	7 (71.5)			

Interchangeability

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

Min. Cross-Sectional Area

Model	(mm ²)			
	2SP	3SP	4SP	6SP
Min. Cross-Sectional Area	49.5	87	153	227

Suitability for Vacuum

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

Admixture of Air on Connection

Model	(mℓ)			
	2SP	3SP	4SP	6SP
Volume of air	0.13	0.13	0.17	0.17

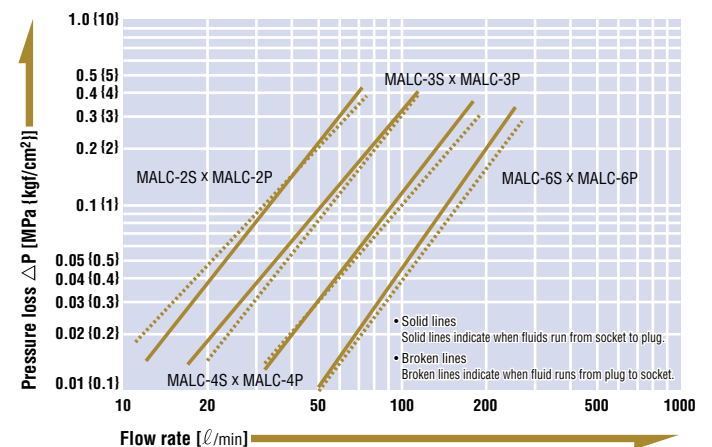
Load required to maintain connection when line is pressurized

Model	N (kgf)			
	2SP	3SP	4SP	6SP
Maximum acceptable Load	4500 (459)	5600 (571)	10000 (1019)	14000 (1427)
Minimum load required to maintain connection N (kgf) *	PX345+180 (px3.45+18)	PX460+190 (px4.6+19)	PX855+260 (px8.55+26)	PX1160+260 (px11.6+26)

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

Flow Rate - Pressure Loss Characteristics

[Test conditions] •Fluid : Hydraulic oil •Temperature : 30°C ± 5°C
•Fluid viscosity : 32 × 10⁻⁶m²/s •Density : 0.8659 × 10³kg/m³

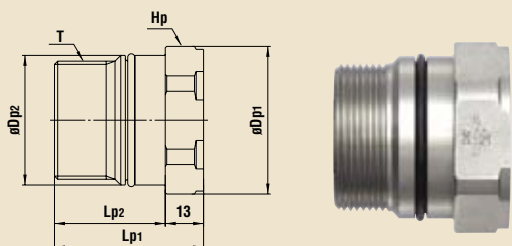


● Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

Models and Dimensions

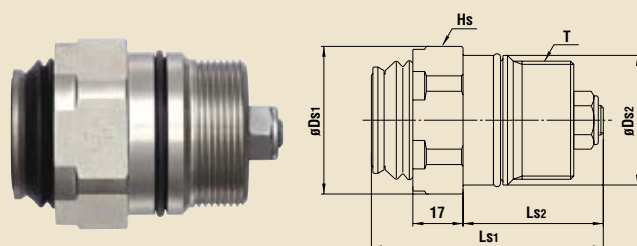
WAF : WAF stands for width across flat.

Plug MALC-SP type (Thread screw mount)



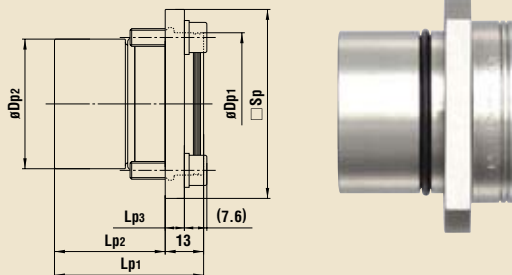
Model	Application	Mass (g)	Dimensions (mm)					
			L_{p1}	L_{p2}	ϕD_{p1}	ϕD_{p2}	Hp(WAF)	T
MALC-2P	See the diagram below.	75	33	(20)	28	22.9	Hex.26	M20 x 1.5
MALC-3P		95	33	(20)	32	26.5	Hex.29	M24 x 1.5
MALC-4P		248	41	(28)	45	38.4	Hex.41	M35 x 1.5
MALC-6P		369	50.5	(37.5)	50	43.9	Hex.46	M40 x 2

Socket MALC-SP type (Thread screw mount)



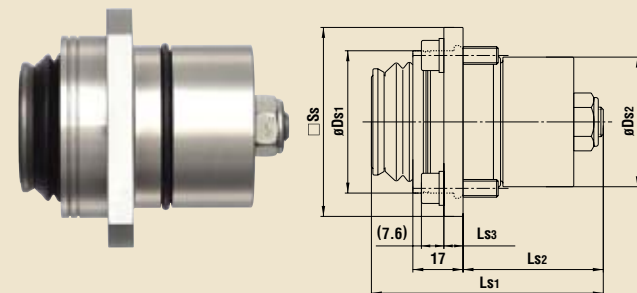
Model	Application	Mass (g)	Dimensions (mm)					
			L_{s1}	L_{s2}	ϕD_{s1}	ϕD_{s2}	Hs(WAF)	T
MALC-2S	See the diagram below.	95	(49)	(26)	28	22.9	Hex.26	M20 x 1.5
MALC-3S		120	(51)	(26)	32	26.5	Hex.29	M24 x 1.5
MALC-4S		306	(64)	(36.5)	45	38.4	Hex.41	M35 x 1.5
MALC-6S		471	(78.5)	(47.5)	50	43.9	Hex.46	M40 x 2

Plug MALC-SP type (with Flange)



Model	Application	Mass (g)	Dimensions (mm)					
			L_{p1}	L_{p2}	L_{p3}	ϕD_{p1}	ϕD_{p2}	$\square Sp$
MALC-2P-FL	See the diagram below.	146	30	(17)	6	27.2	22.9	40
MALC-3P-FL		180	33	(20)	6	30.7	26.5	45
MALC-4P-FL		390	41	(28)	6.5	43.2	38.4	58
MALC-6P-FL		553	50.5	(37.5)	6.5	48.2	43.9	64

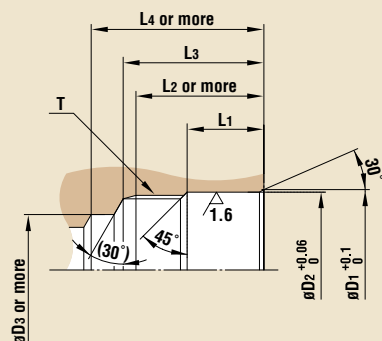
Socket MALC-SP type (with Flange)



Model	Application	Mass (g)	Dimensions (mm)					
			L_{s1}	L_{s2}	L_{s3}	ϕD_{s1}	ϕD_{s2}	$\square Ss$
MALC-2S-FL	See the diagram below.	173	(49)	(26)	6	27.2	22.9	40
MALC-3S-FL		208	(51)	(26)	6	30.7	26.5	45
MALC-4S-FL		449	(64)	(36.5)	6.5	43.2	38.4	58
MALC-6S-FL		663	(78.5)	(47.5)	6.5	48.2	43.9	64

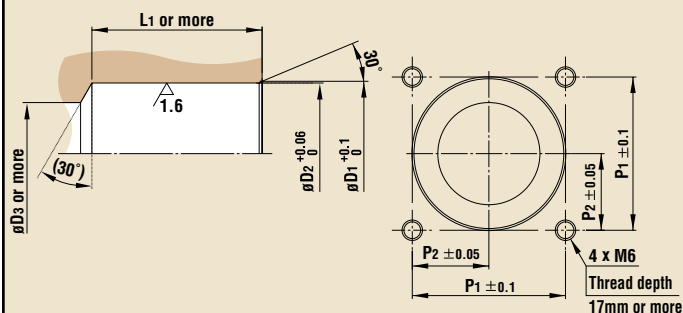
Dimensions of End Configurations

MALC-SP type (Thread screw mount)



Model	Dimensions (mm)							
	ϕD_1	ϕD_2	ϕD_3	L_1	L_2	L_3	L_4	T
MALC-2S	24	23	16	11.5	22	25	28	M20 x 1.5
MALC-2P				11.5	22	25	28	
MALC-3S	27.6	26.6	18	11	22	25	29	M24 x 1.5
MALC-3P				11	22	25	29	
MALC-4S	39.5	38.5	26	15.5	30	33	40.5	M35 x 1.5
MALC-4P				15.5	30	33	40.5	
MALC-6S	45	44	30	20	40	44	51.5	M40 x 2
MALC-6P				20	40	44	51.5	

MALC-SP type (with Flange)






Model	Dimensions (mm)					
	ϕD_1	ϕD_2	ϕD_3	L_1	P_1	P_2
MALC-2S-FL	24	23	16	28	28	14
MALC-2P-FL				19		
MALC-3S-FL	27.6	26.6	18	28	31	15.5
MALC-3P-FL				22		
MALC-4S-FL	39.5	38.5	26	39	40	20
MALC-4P-FL				30.5		
MALC-6S-FL	45	44	30	50	45	22.5
MALC-6P-FL				40		

Airless Type for High Pressure Use

Multi Cupla

MALC-HSP Type For high pressure use

<p>Working pressure</p>  <p>21.0 MPa (214 kgf/cm²)</p>	<p>Valve structure</p>  <p>Two-way shut-off</p>	<p>Applicable fluids</p>  <p>Hydraulic oil</p>
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A single operation makes simultaneous connections for multiple lines that have a variety of different fluids and sizes. A special design minimizes air admixture in fluid lines upon connection.

- Compared with conventional Multi Cuplas, approximately double flow rates are realized. This could reduce the size of required plates. (Rate of flow increase depends on Cupla sizes.)
- The MALC type realizes a 2mm axial eccentricity allowance, while the conventional Multi Cupla is only 0.6mm.
- Special valve design enables connection of socket and plug under dynamic pressure of up to 8MPa.
- When connected, the distance between the socket plate and plug plate is designed to be 30mm for all sizes. This means any size of Cupla can be mounted and used on the same plate.
- Airless structure valves prevent outflow of fluid and admixture of air into the fluid line.
- Autocatalytic Nickel-Phosphorus coating is adopted for surface treatment over special steel body and internal parts. This coating is environment-friendly.



Specifications

Body material	Special Steel (with Autocatalytic Nickel-Phosphorus coating)		
Working pressure MPa (kgf/cm ²)	21.0 (214) (Either socket or plug only: 8.0 (81))		
Pressure resistance MPa (kgf/cm ²)	31.5 (321) (Either socket or plug only: 12.0 (122))		
Sealing material	Sealing material	Mark	Working temperature range
	Fluoro rubber	FKM (X-100)	-20°C~+180°C

Max. Tightening Torque

N·m (kgf·cm)

Model	2HSP	3HSP	4HSP	6HSP
Torque (Thread screw mount)	50 (510)	53 (540)	65 (664)	80 (817)
Torque (Flange)	9 (92)			

Interchangeability

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

Min. Cross-Sectional Area

(mm²)

Model	2HSP	3HSP	4HSP	6HSP
Min. Cross-Sectional Area	49.5	87	153	227

Suitability for Vacuum

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

Admixture of Air on Connection

(mℓ)

Model	2HSP	3HSP	4HSP	6HSP
Volume of air	0.13	0.13	0.17	0.17

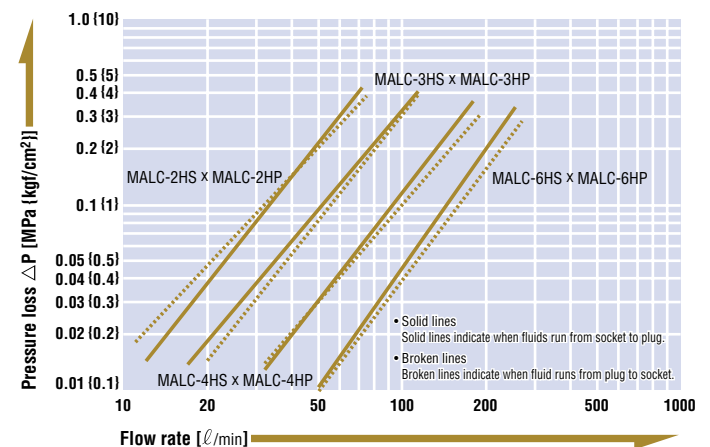
Load required to maintain connection when line is pressurized

Model	2HSP	3HSP	4HSP	6HSP
Maximum acceptable Load N (kgf)	16500 (1683)	22000 (2244)	40500 (4130)	55000 (5609)
Minimum load required to maintain connection N (kgf) *	Px345+180 (px3.45+18)	Px460+190 (px4.6+19)	Px855+260 (px8.55+26)	Px1160+260 (px11.6+26)

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

Flow Rate - Pressure Loss Characteristics

[Test conditions] •Fluid : Hydraulic oil •Temperature : 30°C ± 5°C
•Fluid viscosity : 32 × 10⁻⁶m²/s •Density : 0.8659 × 10³kg/m³

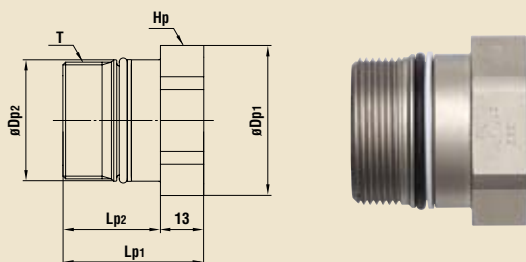


● Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

Models and Dimensions

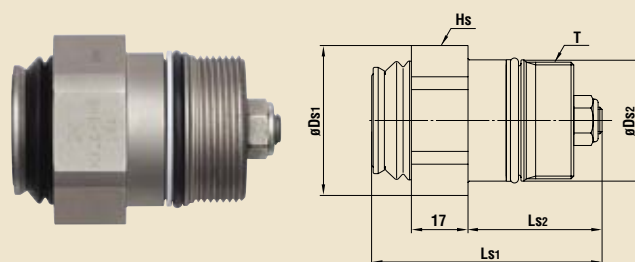
WAF : WAF stands for width across flat.

Plug MALC-HSP type (Thread screw mount)



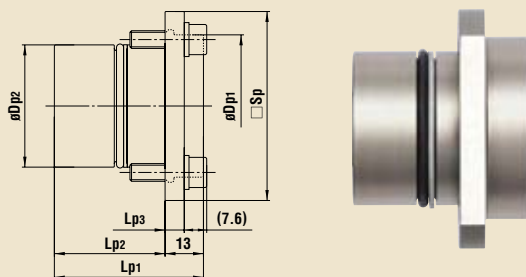
Model	Application	Mass (g)	Dimensions (mm)					
			Lp1	Lp2	øDp1	øDp2	Hp(WAF)	T
MALC-2HP	See the diagram below.	73	33	(20)	28	21.9	Hex.26	M20 x 1.5
MALC-3HP		96	33	(20)	32	25.9	Hex.29	M24 x 1.5
MALC-4HP		250	41	(28)	45	36.4	Hex.41	M35 x 1.5
MALC-6HP		357	50.5	(37.5)	50	41.4	Hex.46	M40 x 2

Socket MALC-HSP type (Thread screw mount)



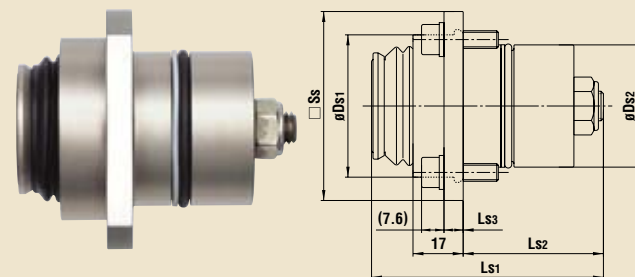
Model	Application	Mass (g)	Dimensions (mm)					
			Ls1	Ls2	øDs1	øDs2	Hs(WAF)	T
MALC-2HS	See the diagram below.	89	(49)	(26)	28	21.9	Hex.26	M20 x 1.5
MALC-3HS		117	(51)	(26)	32	25.9	Hex.29	M24 x 1.5
MALC-4HS		290	(64)	(36.5)	45	36.4	Hex.41	M35 x 1.5
MALC-6HS		447	(78.5)	(47.5)	50	41.4	Hex.46	M40 x 2

Plug MALC-HSP type (with flange)



Model	Application	Mass (g)	Dimensions (mm)					
			Lp1	Lp2	Lp3	øDp1	øDp2	Sp
MALC-2HP-FL	See the diagram below.	142	30	(17)	6	27.2	21.9	40
MALC-3HP-FL		179	33	(20)	6	30.7	25.9	45
MALC-4HP-FL		367	41	(28)	6.5	43.2	36.4	58
MALC-6HP-FL		514	50.5	(37.5)	6.5	48.2	41.4	64

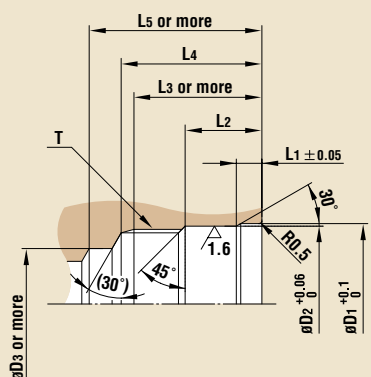
Socket MALC-HSP type (with flange)



Model	Application	Mass (g)	Dimensions (mm)					
			Ls1	Ls2	Ls3	øDs1	øDs2	Ss
MALC-2HS-FL	See the diagram below.	163	(49)	(26)	6	27.2	21.9	40
MALC-3HS-FL		200	(51)	(26)	6	30.7	25.9	45
MALC-4HS-FL		418	(64)	(36.5)	6.5	43.2	36.4	58
MALC-6HS-FL		611	(78.5)	(47.5)	6.5	48.2	41.4	64

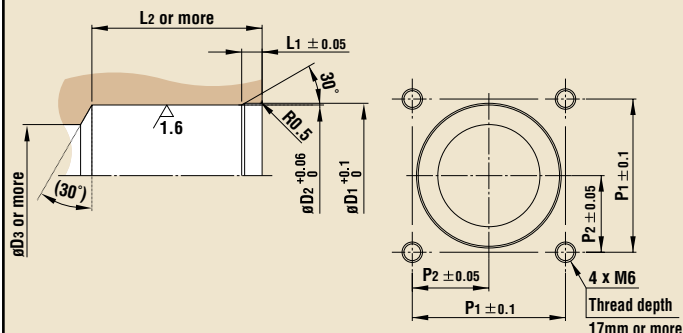
Dimensions of end configurations

MALC-HSP type (Thread screw mount)



Model	Dimensions (mm)								
	øD1	øD2	øD3	L1	L2	L3	L4	L5	T
MALC-2HS	23	22	16	2.8	11	22	25	28	M20 x 1.5
MALC-2HP									
MALC-3HS	27.1	26	18	2.8	11	22	25	29	M24 x 1.5
MALC-3HP									
MALC-4HS	37.7	36.5	26	6	18	30	33	40.5	M35 x 1.5
MALC-4HP									
MALC-6HS	42.5	41.5	30	6	23	40	44	51.5	M40 x 2
MALC-6HP									

MALC-HSP type (with Flange)



Model	Dimensions (mm)						
	øD1	øD2	øD3	L1	L2	P1	P2
MALC-2HS-FL	23	22	16	2.8	28	28	14
MALC-2HP-FL							
MALC-3HS-FL	27.1	26	18	2.8	28	31	15.5
MALC-3HP-FL							
MALC-4HS-FL	37.7	36.5	26	6	39	40	20
MALC-4HP-FL							
MALC-6HS-FL	42.5	41.5	30	6	50	45	22.5
MALC-6HP-FL							

CUPLA

Nitto Kohki's depth of unique technologies and dedicated research has been proven by numerous patents, which led to the development of 25,000 different Cupla variations.

- Applications diversify from general household to high-tech industries such as in oceanic and space development.
- Diameters range from a tiny 1mm to a huge 540mm.
- Wide varieties of body materials such as steel, brass, plastic, aluminum or stainless steel are available.

Safety Guide

When selecting a suitable model of Multi Cupla, be sure to read each of the following precautions relating to the use of Multi Cuplas.

Overall Multi Cuplas

⚠ Warning

- Do not use couplings continuously under any pressure exceeding the rated working pressure. This may cause damage to the Cupla.
- Do not use at temperatures outside the rated working temperature range. Otherwise you may damage the seal packing inside and cause leakage.
- Do not disassemble.

⚠ Caution

- Do not tighten up the screw on Cupla exceeding the rated maximum tightening torque. This may cause damage to the Cupla.
- Do not apply any artificial impact, bend, or tension other than necessary in connection and disconnection. This may cause leakage or damage.
- Do not use in a place where metal debris or sands may be around. This may cause malfunction or leakage.
- Do not use for the purposes other than quick connective coupling between fluid pipelines.
- Direct hookup to a vibration or impact device may result in reduced lifetime of the Cupla.
- Fluid must be cleaned through filters before reaching the Cuplas.
- Do not strike the revealed end of an automatic shut-off valve with tools, such as a hammer. It may cause leakage or malfunction.
- Design and keep the fluid flow speed through Cuplas below 8 m/s.
- A shut-off valve must be installed between pressure source and the Cupla.
- Do not connect with other brands' quick connective couplings.
- Inspect Cuplas periodically for wear. If any wear or defective area is apparent, discontinue use until repaired or replaced.

MAM Type

⚠ Warning

- Do not drop Multi Cuplas. This may cause deformation of the plate.

⚠ Caution

- Always connect socket and plug after confirming the lever is in the "open" position in accordance with the instruction booklet that comes with the products.
- The lever should not be turned by force. This may cause lever breakage.
- The number of hoses and the position of the hoses to be connected to the Cupla should be arranged symmetrically from the lock part so as to distribute and control the reaction evenly.
- Apply seal packing liquid/tape on male taper threads to ensure no leak.
- Packing seals in Cuplas must remain lubricated at all times.

MAM-B Type / MAM-A Type

⚠ Warning

- Do not connect or disconnect the Cuplas under a dynamic or residual pressure of 0.6MPa or more. This could lead to Cupla damage.
- Do not drop Multi Cuplas. This may cause deformation of the plate.

⚠ Caution

- Always connect socket and plug after confirming the lever is in the "open" position in accordance with the instruction booklet that comes with the products.
- The lever should not be turned by force. This may cause lever breakage.
- When replacing a Cupla from a plate, carefully remove the C-type retaining rings by using a C-ring remover tool. Use caution not to over expand the C-ring. It is recommended, however, that a new C-type retaining ring is used when a Cupla is replaced.
- The number of hoses and the position of the hoses to be connected to the Cupla should be arranged symmetrically from the lock part so as to distribute and control the reaction evenly.
- Packing seals in Cuplas must remain lubricated at all times.

MAS Type / MAT Type

⚠ Warning

- Do not connect /disconnect with fluid under dynamic pressure.
- The sides of hexagon shaped body parts on socket and plug should contact each other when the connection is complete.
- Never use socket & plug set that has an axial eccentricity of more than 0.6mm diameter range. This may cause leakage or breakage.

⚠ Caution

- Connection between the same MAT types is virtually not possible because there is no allowance for eccentricity.
- O-rings in Cuplas must remain lubricated at all times.

MALC-SP Type

⚠ Danger

- Do not pressurize the socket or plug with fluid of 2MPa or more. The valve may be blown out.

⚠ Warning

- Never use socket & plug set that has an axial eccentricity of more than 2mm diameter range. This may cause leakage or breakage.
- Obliquity (misalignment) of socket and plug must be within 0.5 degrees during connection or disconnection; otherwise this may cause leakage or breakage.

⚠ Caution

- O-rings in Cuplas must remain lubricated at all times.

MALC-HSP Type

⚠ Danger

- Do not pressurize the socket or plug with fluid of 8MPa or more. The valve may be blown out.

⚠ Warning

- Never use socket & plug set that has an axial eccentricity of more than 2mm diameter range. This may cause leakage or breakage.
- Obliquity (misalignment) of socket and plug must be within 0.5 degrees during connection or disconnection; otherwise this may cause leakage or breakage.

⚠ Caution

- O-rings in Cuplas must remain lubricated at all times.

★ Specifications and designs are subject to change at any time without notice.



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