NITTO KOHKI

Ck057

Quick Connect Couplings for the molding industry

CUPLA FOR DIE CASTING

For piping, core driving cylinders & water cooling

ISO 9001
JQA-2025
Couplings Division
ISO 14001
JQA-EM4057
NITTO KOHKI CO., LTD.

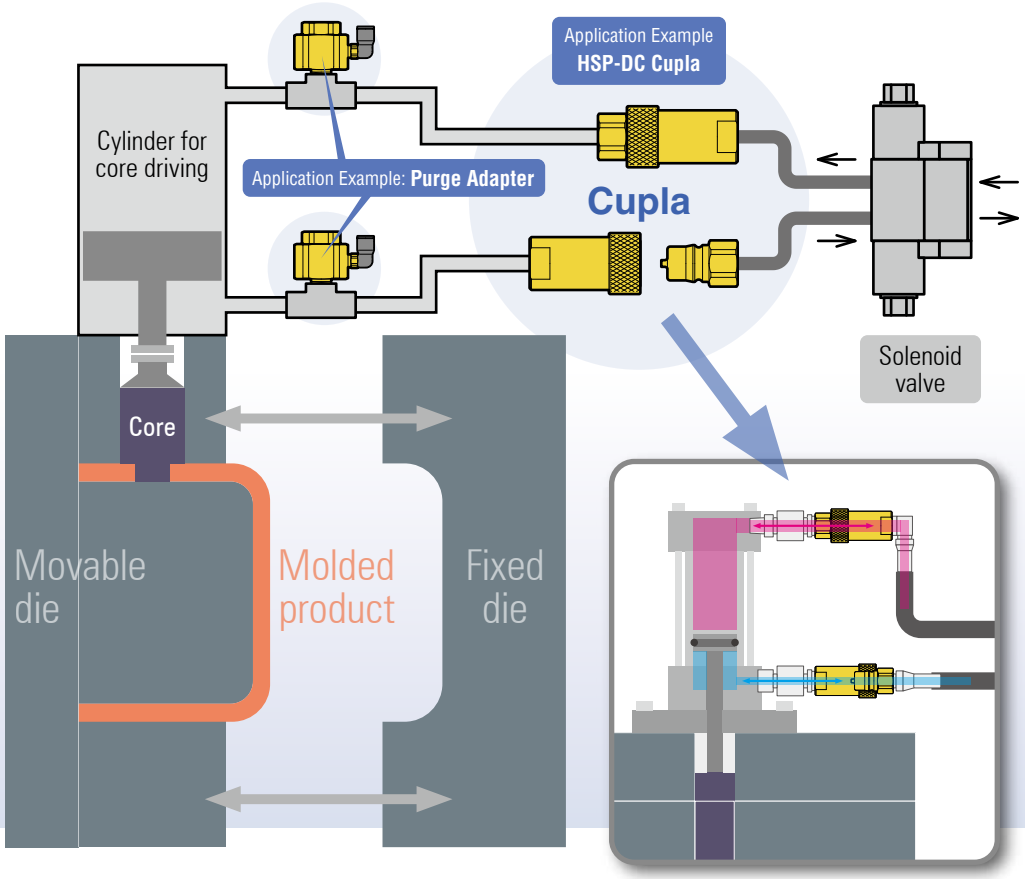
Green Procurement
Products Comply with RoHS Directive

CUPLA

For core driving

For core driving cylinders when clamping and opening of molds.

Example of piping



CUPLA used mainly for core driving systems

HSP-DC Cupla

Semi-standard

20.6 MPa

Strengthened type of HSP Cupla.

Purge Adapter PAD-2

Cupla accessories

Semi-standard

35 MPa

Residual pressure removal for hydraulic circuits.

350 Cupla

34.5 MPa

"Airless valve shut-off design" reduces both air admixture and liquid spillage.

Flat Face Cupla F35

35 MPa

For high pressure. Flat contact face design minimizes air admixture and liquid spillage.

Flat Face Cupla FF

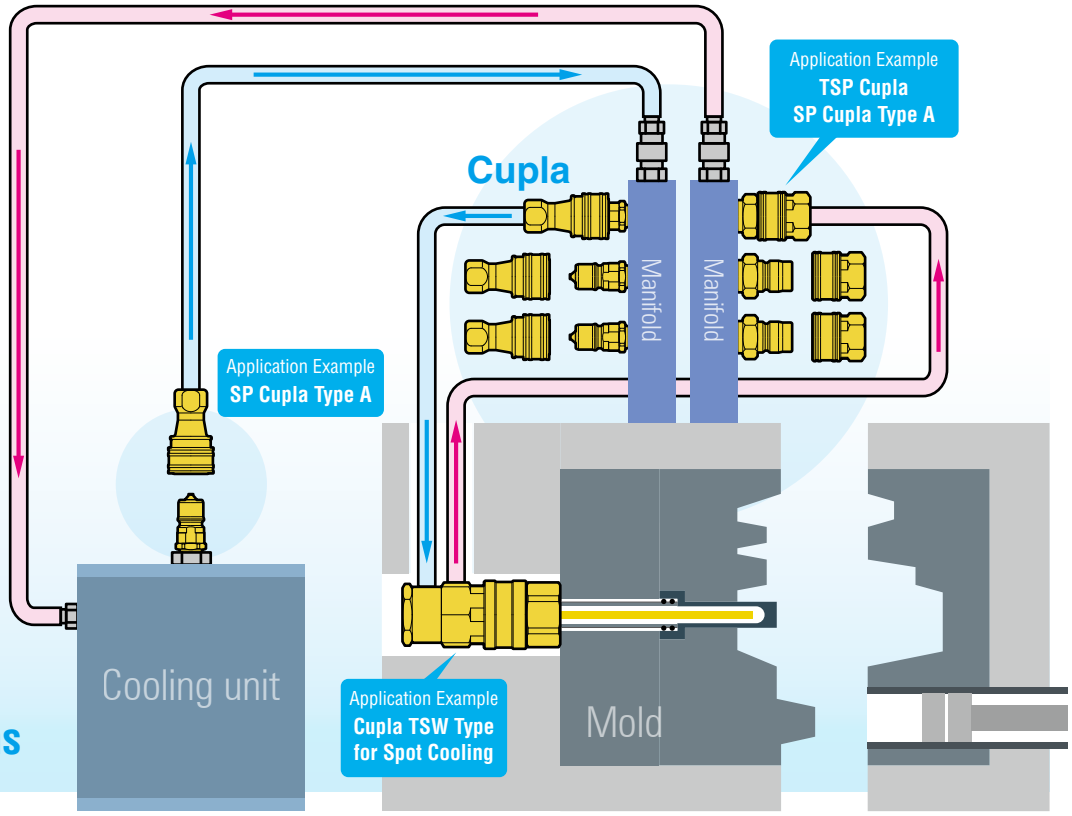
35 MPa

1.5 to 2 times flow rate of Flat Face Cupla F35 type.

For Cooling

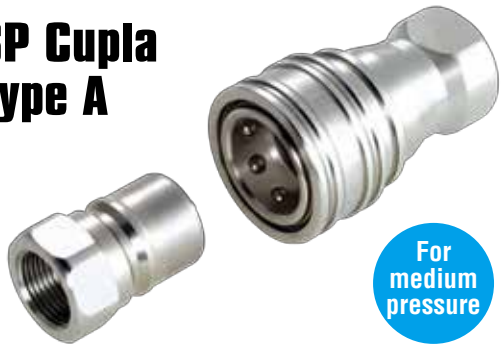
To achieve high-cycle cooling and efficient exchange of die.

Example of piping



CUPLA used mainly for cooling systems

SP Cupla Type A



For medium pressure

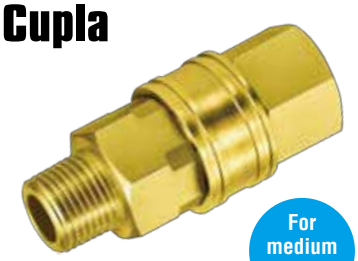
Valves in both socket and plug prevent fluid spill out on disconnection.

Zerospill Cupla

For medium pressure

Unique seal design reduces both liquid spillage and air ingress.

TSP Cupla



For medium pressure

Both plug and socket with valveless structure drastically saves pressure loss.

TSP Cupla Socket with Ball Valve

For low pressure

One-piece design of TSP Cupla socket and ball valve.

Cupla TSW Type for Spot Cooling

Made-to-order item

For low pressure

Ideal for improving the efficiency of setup change and repair work of die-casting molds.

HSP-DC Cupla

Semi-standard

Working pressure: 20.6 MPa

Valve structure: Two-way shut-off

Applicable fluid: Hydraulic oil

Strengthened type of HSP Cupla.

- Valve material with excellent impact resistance is adopted. Ideal for die-casting machines with large pressure fluctuations.
- "Electroless nickel phosphorus plating" which is not soluble to flame-retardant "water glycol type hydraulic fluid" is entirely adopted.
- HSP Cupla and HSP-DC Cupla are interchangeable with the same size. However, please use HSP-DC Cupla for applications involving pressure fluctuation.
- For the DC type, please confirm the "DC" marking on the hexagonal part of the plug and the flat part of the socket.

Specifications

Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm²	bar	PSI
Max. working pressure	20.6	210	206	2990
Proof pressure	31.0	316	310	4500
Seal material / Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR (SG)	−20°C to +80°C	Standard material

Purge Adapter PAD-2

Semi-standard

Cupla accessories

Working pressure: 35.0 MPa

Applicable fluid: Hydraulic oil

Purge Adapter for hydraulic lines.

- Can be attached to hydraulic lines to purge residual pressure effectively.
- One push of the "Residual pressure purge button" drains oil from "Drain removal port", and the residual pressure is removed.

Specifications

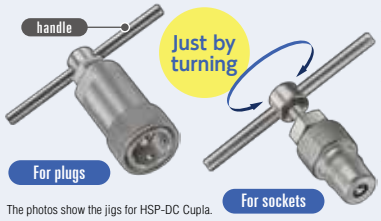
Body material	Steel (Nickel plated)			
Size (Thread)	R 1/4			
Pressure unit	MPa	kgf/cm²	bar	PSI
Max. working pressure	35.0	357	350	5080
Proof pressure	52.5	536	525	7610
Seal material / Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR (SG)	−5°C to +80°C	Standard material

Residual Pressure Release Jig ZN series

Semi-standard

Cupla accessories

For HSP-DC Cupla, SP Cupla Type A



The photos show the jigs for HSP-DC Cupla.

- Residual pressure within socket or plug can be released easily by just turning the handle
- Residual pressure release jigs are available in two types; socket type for use with plugs and plug type for use with sockets.
- Connection to sockets or plugs is the same as connection of normal Cuplas.

Max. working pressure: The normal allowable fluid pressure under continuous use. Continuously exceeding the working pressure may cause leakage or damage.
Proof Pressure: The maximum pressure, up to which the performance of the cupla will not be affected - even if the max working pressure is temporarily exceeded.

For core driving cylinders when clamping and opening of molds.

350 Cupla

34.5 MPa

Working pressure: 34.5 MPa
Valve structure: Two-way shut-off (Non-Spill)
Applicable fluid: Hydraulic oil

"Airless valve shut-off design" reduces both air admixture and liquid spillage.

- The unique "Airless valve shut-off design" reduces both air admixture on connection and liquid spillage on disconnection.
- Ideal for hydraulic lines with large pressure fluctuations.
- Sleeve stopper mechanism can be engaged by rotating sleeve after connection.
- Both socket and plug have built-in automatic shut-off valves to prevent fluid spill out when disconnected. Easy to handle.

Specifications

Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2"			
Pressure unit	MPa	kgf/cm²	bar	PSI
Max. working pressure	34.5	352	345	5000
Proof pressure	51.5	525	515	7470
Seal material / Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM (X-100)	−20°C to +180°C	Standard material

Flat Face Cupla F35

35 MPa

Unique flat contact face design.

Working pressure: 35.0 MPa
Valve structure: Two-way shut-off (Non-Spill)
Applicable fluid: Hydraulic oil

For high pressure. Flat contact face design minimizes air admixture and liquid spillage.

- The unique "Airless valve shut-off design" reduces both air admixture on connection and liquid spillage on disconnection.
- Minimizes air admixture during connection to keep the possible malfunction of
- equipment at minimum level.
- Easy to clean dust and foreign matters adhered on the surface of coupling.
- Push-to-connect operation.
- Sleeve stopper design preventing accidental disconnection under vibration or impacts enhances workability and safety.
- The special design reduces pressure loss considerably, and especially suited to hydraulic applications in which big flow is needed. Both socket and plug have built-in automatic shut-off valves that prevent fluid spill out on disconnection.

Specifications

Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm²	bar	PSI
Max. working pressure	35.0	357	350	5080
Proof pressure	52.5	536	525	7610
Seal material / Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM (X-100)	−20°C to +180°C	Standard material
	Nitrile rubber	NBR (SG)	−20°C to +80°C	Made-to-order item

Flat Face Cupla FF

35 MPa

Unique flat contact face design.

Working pressure: 35.0 MPa
Valve structure: Two-way shut-off (Non-Spill)
Applicable fluid: Hydraulic oil

1.5 to 2 times flow rate of Flat Face Cupla F35 type.

* Compared with Nitto Kohki's 35 MPa Cuplas.

- Compared with Nitto Kohki's conventional 35 MPa Cuplas, the flow volume is increased 1.5 to 2 times. Increase ratio of each flow volume depends on the Cupla size.
- "Airless valve shut-off design" minimizes spillage volume on disconnection and
- admixture volume of air on connection.
- Best suited for hydraulic lines with drastic high pressure pulsation such as in die-casting machines.
- Push-to-connect operation.
- Sleeve stopper design preventing accidental disconnection under vibration or impacts enhances workability and safety.
- Sizes are Rc 3/8, Rc 1/2, Rc 3/4, and Rc 1. Only the same size of socket and plug can be connected.

Specifications

Body material	Special steel (Nickel plated)			
Size (Thread)	3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm²	bar	PSI
Max. working pressure	35.0	357	350	5080
Proof pressure	52.5	536	525	7610
Seal material / Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR	−20°C to +80°C	Standard material

Max. working pressure: The normal allowable fluid pressure under continuous use. Continuously exceeding the working pressure may cause leakage or damage.
Proof Pressure: The maximum pressure, up to which the performance of the cupla will not be affected - even if the max working pressure is temporarily exceeded.

SP Cupla Type A

For medium pressure

Valves in both socket and plug prevent fluid spill out on disconnection.

- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection. Easy to handle.
- Available in various standard body materials, sizes and end configurations to cope with diversified applications and operating situations.
- Steel couplings are nickel plated. Measures to reduce the load on the environment are taken.
- Plugs with male thread end are also available.

Self-aligned valve design provides better seal

The design of the valve head makes smooth self-aligned return to its original position when socket and plug are disconnected. This mechanism enhances safety sealing of individual socket or plug when disconnected (1 to 8 SP-A Type).

Working pressure: 1.5 to 7.5 MPa
Valve structure: Two-way shut-off

Applicable fluids: Water, Hydraulic oil, Chemicals, Air, Gas, Steam

Note: Depending on the temperature of steam/ hot water, the heat may damage seal materials.

Specifications

Body material		Brass				Stainless steel (SUS304), Steel (Nickel plated)			
Size (Thread)		1/8", 1/4" 3/8"	1/2", 3/4" 1"	1 1/4" 1 1/2"	2"	1/8", 1/4" 3/8"	1/2", 3/4" 1"	1 1/4" 1 1/2"	2"
Max. working pressure	MPa	5.0	3.0	2.0	1.5	7.5	4.5	3.0	2.0
	kgf/cm²	51	31	20	15	76	46	31	20
	bar	50	30	20	15	75	45	30	20
	PSI	725	435	290	218	1090	653	435	290
Proof pressure	MPa	7.5	4.5	3.0	2.3	10.0	6.5	4.5	3.0
	kgf/cm²	76	46	31	24	102	66	46	31
	bar	75	45	30	23	100	65	45	30
	PSI	1090	653	435	334	1450	943	653	435

Seal material * Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR (SG)	-20°C to +80°C	Standard material
	Fluoro rubber	FKM (X-100)	-20°C to +180°C	
	Ethylene-propylene rubber	EPDM (EPT)	-40°C to +150°C	

* Plugs with male thread end mounting nitrile rubber or ethylene-propylene rubber are made-to-order items.
* Seal material available for steel body is nitrile and fluoro rubber.

Zerospill Cupla

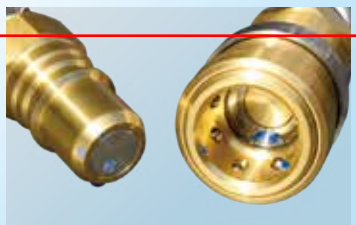
For medium pressure

Unique seal design reduces both liquid spillage and air ingress.

- New valve design offers smooth zero-friction movement.
- Push to connect design.
- The variety of body materials, sizes and end configurations has been standardized to comply with wide range of applications.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.

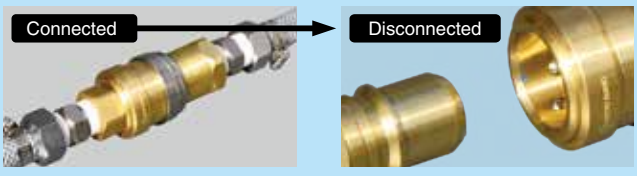
液だれ低減バルブ構造

New valve design offers smooth zero-friction movement.



*blue colored water is used to show volume of spillage clearly.

Unique seal design reduces both liquid spillage and air ingress



Working pressure: 35 MPa
Valve structure: Two-way shut-off (Non-Spill)

Applicable fluids: Water, Hydraulic oil, Chemicals, Air, Gas

Specifications

Body material	Brass		Stainless steel (SUS304)	
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm²	bar	PSI
Max. working pressure	3.5	35	35	508
Proof pressure	5.3	54	53	769

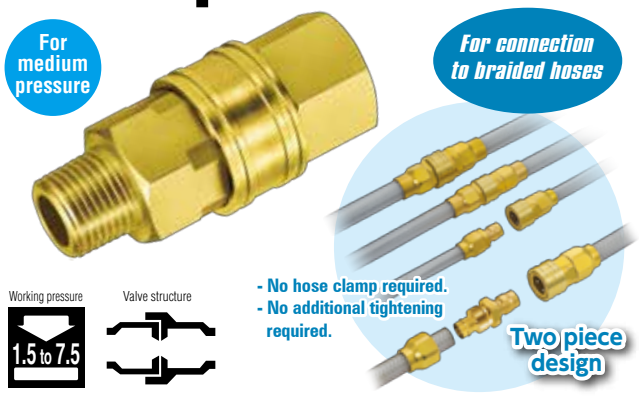
Seal material Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR (SG)	-20°C to +80°C	Standard material
	Fluoro rubber	FKM (X-100)	-20°C to +180°C	
	Ethylene-propylene rubber	EPDM (EPT)	-40°C to +150°C	

Note: Applicable fluids depend on the body material and seal material.
Acceptable working temperature range depends on operating conditions.

Max. working pressure: The normal allowable fluid pressure under continuous use. Continuously exceeding the working pressure may cause leakage or damage.
Proof Pressure: The maximum pressure, up to which the performance of the cupla will not be affected - even if the max working pressure is temporarily exceeded.

To achieve high-cycle cooling and efficient exchange of die.

TSP Cupla



Working pressure: 1.5 to 7.5 MPa
Valve structure: Straight through

• Please use braided hoses available in the market.
• Applicable fluids for braided hose connection type depend upon the specifications of braided hoses to be used.

Applicable fluids: Water, Hydraulic oil, Chemicals, Air, Gas, Steam

Note: Depending on the temperature of steam/ hot water, the heat may damage seal materials.

Both plug and socket with valveless structure drastically saves pressure loss.

- Valveless construction drastically saves pressure loss and achieves high flow rate.
- High viscosity fluids such as grease can be applied.
- Available in various standard body materials, sizes and end configurations to cope with diversified applications and operating situations.
- No hose clamp required. Simple and secure connection to braided hose. (TPN/TSN Type)

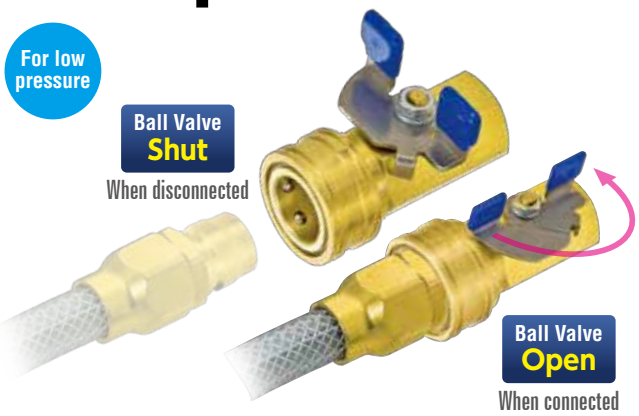
Specifications

Body material		Brass				Stainless steel (SUS304), Steel (Nickel plated)			
Size (Thread and hose)		1/8", 1/4" 3/8", 1/2"	3/4" 1"	1 1/4" 1 1/2"	2"	1/8", 1/4" 3/8", 1/2"	3/4" 1"	1 1/4" 1 1/2"	2"
Max. working pressure	MPa	5.0	3.0	2.0	1.5	7.5	4.5	3.0	2.0
	kgf/cm²	51	31	20	15	76	46	31	20
	bar	50	30	20	15	75	45	30	20
	PSI	725	435	290	218	1090	653	435	290
Proof pressure	MPa	7.5	4.5	3.0	2.3	10.0	6.5	4.5	3.0
	kgf/cm²	76	46	31	24	102	66	46	31
	bar	75	45	30	23	100	65	45	30
	PSI	1090	653	435	334	1450	943	653	435

Seal material Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Nitrile rubber	NBR (SG)	−20°C to +80°C	Standard material
	Fluoro rubber	FKM (X-100)	−20°C to +180°C	
	Ethylene-propylene rubber	EPDM (EPT)	−40°C to +150°C	

• SUS316 is available as option. • Working pressure, proof pressure and working temperature range of TSP Cupla for braided hoses depend upon the specifications of braided hoses to be used. • Seal material available for braided hoses is nitrile rubber only. • Seal material available for steel body is nitrile rubber only.

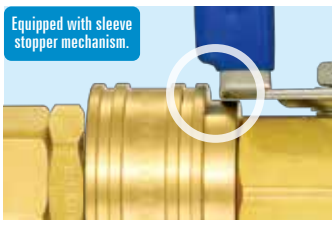
TSP Cupla Socket with Ball Valve



Working pressure: 1.0 MPa
Valve structure: One-way shut-off
Applicable fluids: Water, Hydraulic oil, Air, Gas

One-piece design of TSP Cupla socket and ball valve.

- Sleeve stopper mechanism prevent accidental disconnection during connection. (when the valve is open.)
- Socket valve can be opened and shut off while socket and plug are connected.
- Ball valve design provides for high flow rate.
- High viscosity fluids such as grease can be applied.



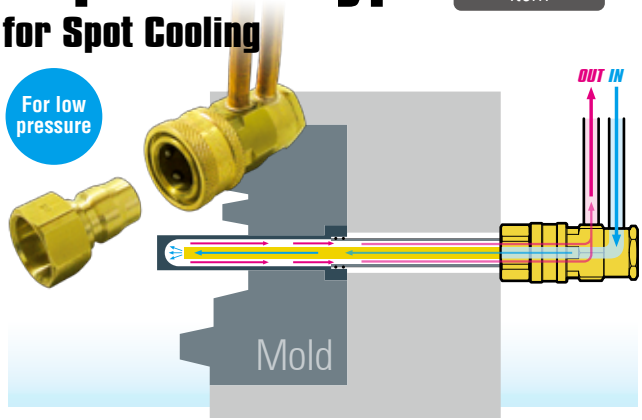
Specifications

Model	BV-2TSF	BV-3TSF	BV-4TSF	BV-6TSF	BV-8TSF
Size (Thread)	1/4"	3/8"	1/2"	3/4"	1"
Body material	Brass				
Pressure unit	MPa	kgf/cm²	bar	PSI	
Max. working pressure	1.0	10	10	145	
Proof pressure	1.5	15	15	218	

Seal material Working temperature range		Seal material	Mark	Working temperature range
	Cupla Part	Fluoro rubber	FKM	−5°C to +120°C
	Ball Valve Part	Fluoropolymer resin	–	

Cupla TSW Type for Spot Cooling

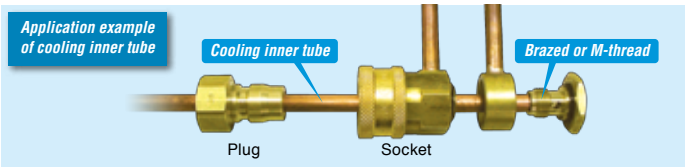
Made-to-order item



Working pressure: 0.5 MPa
Valve structure: Straight through
Applicable fluids: Water, Heated oil

Ideal for improving the efficiency of setup change and repair work of die-casting molds.

- Connecting / disconnecting of piping is "one-touch", contributing to reduction changeover and repair time.
- The cooling tube (plug side) and the hose attachment part (socket side) can be separated. Reuse of the hose side is possible.



Specifications

Model	Brass			
Applicable fluid	Water, Hot water			
Pressure unit	MPa	kgf/cm²	bar	PSI
Max. working pressure	0.5	5	5	72.5
Proof pressure	0.8	8	8	116

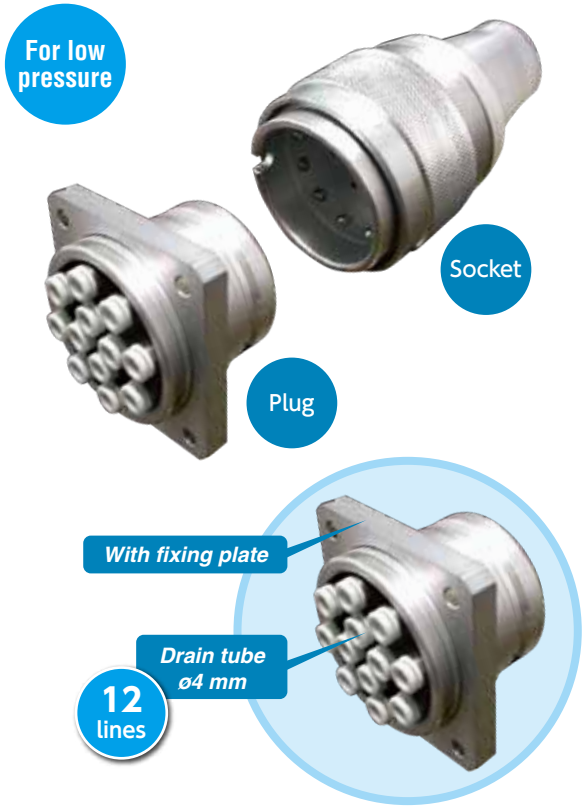
Seal material Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM (X-100)	0°C to +150°C	Standard material

Max. working pressure: The normal allowable fluid pressure under continuous use. Continuously exceeding the working pressure may cause leakage or damage.
Proof Pressure: The maximum pressure, up to which the performance of the cupla will not be affected - even if the max working pressure is temporarily exceeded.

Intermediate coupling for drain tube of local cooling system.

Multi Cupla

Made-to-order item



Working pressure: 1.0 MPa

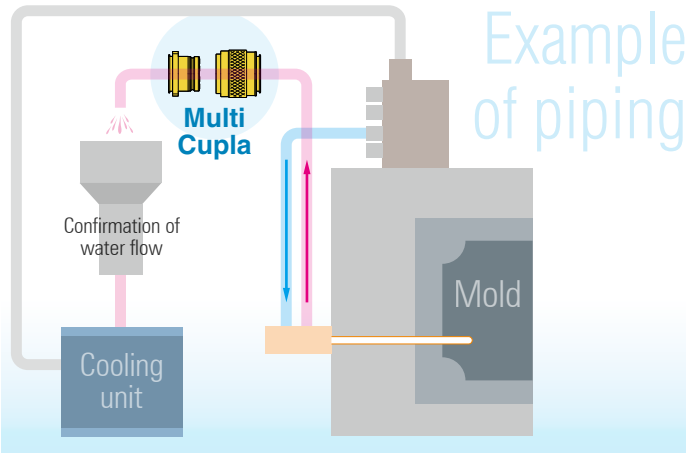
Valve structure: Straight through

Applicable fluids: Water, Heated oil

Ideal for shortening mold setup time.

- Can connect and disconnect 12 lines of drainage tubes for local cooling simultaneously. (ø4 mm tube)
- Significant reduction in setup time when exchanging mold.
- The plug side has a plate to fix to the equipment.
- Main body material is aluminum alloy (hard alumite). Socket is lightweight, 250 g.
- By adopting end-face seal, enhanced operability with low connection resistance when connected.

For consultation with other than the specifications below, please contact our sales staff.



Specifications

Model	Aluminum alloy (hard alumite)			
Size (Thread)	M5 (tube fitting optional)			
Pressure unit	MPa	kgf/cm²	bar	PSI
Max. working pressure	1.0	10	10	145
Proof pressure	1.5	15	15	218
Seal material / Working temperature range	Seal material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM (X-100)	+80˚C	Standard material

Max. working pressure: The normal allowable fluid pressure under continuous use. Continuously exceeding the working pressure may cause leakage or damage.
Proof Pressure: The maximum pressure, up to which the performance of the cupla will not be affected - even if the max working pressure is temporarily exceeded.

Quick connect couplings for use on equipment for temperature control

Mold Cupla General type / High flow type

Designed for quick replacement for die and mold.

-Long sleeve socket facilitates connection/disconnection with plug embedded in mold.
-Flow rate has doubled of general type to increase productivity.
-Various sizes and end configurations to suit a wide variety of mold applications.

Quick connect couplings for universal purpose for air lines

Hi Cupla

For air piping such as mold releasing agent sprays.

-Critical structural parts of steel models are heat-treated for increased strength giving greater durability and resistance to wear.
-Steel coupling is suitable for air. Brass or stainless steel is suitable for water. Note that fluid will come out from the plug when disconnected.

Precautions for use Prior to use, be sure to read the “Precautions Relating to the Use of All Cuplas” on the Cupla general catalog and the “Instruction Sheet” that comes with the product and use them correctly and safely.

NITTO KOHKI CO., LTD.

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

Head Office
9-4, Nakaikegami 2-chome, Ohta-ku, Tokyo 146-8555, Japan
Tel : +81-3-3755-1111 Fax : +81-3-3753-8791
E-mail : overseas@nitto-kohki.co.jp

DISTRIBUTED BY

This catalog is printed using environmentally friendly paper and vegetable oil inks.

MIX Paper from responsible sources FSC™ C000000

MIX Paper from responsible sources FSC™ C000000

VEGETABLE OIL INK

MCP Minus Carbon Printing Systems

CO2 emissions 805.50kg

Smart Energy Co.,Ltd. examined this numerical value and confirmed it.

NITTO KOHKI CO.,LTD. is printing using environmentally friendly paper and vegetable oil inks.

Printed in Japan 17XX00-①