

SEMICON CUPLA

General Catalog

CUPLA

Quick Connect Couplings

*For chemical piping in semiconductor manufacturing
and chemical plants*



In the constantly evolving semiconductor industry, improving quality remains a top priority.

Chemical resistance for a wide range of chemicals

Leak-resistant performance for improved safety

Cost-effective durability for long-term repeated use

With rising purity requirements for chemicals in semiconductor IC manufacturing, CUPLA used in piping is expected to provide even higher levels of quality and performance.



Nitto Kohki supports the needs of the electronics industry with innovative solutions.

Our products flexibly handle a wide range of high-purity chemicals used in semiconductor manufacturing.

With extensive expertise developed over many years, Nitto Kohki supports high-purity chemical piping in the semiconductor industry.

Applications

- Piping for semiconductor manufacturing equipment
- Piping for chemical tank connections
- Piping for biotechnology equipment
- Piping for pure water systems
- Piping for laboratory, medical, and food processing equipment

Main applicable fluids

- Pure water
- Chemicals
- Gas
- Air

Examples of use

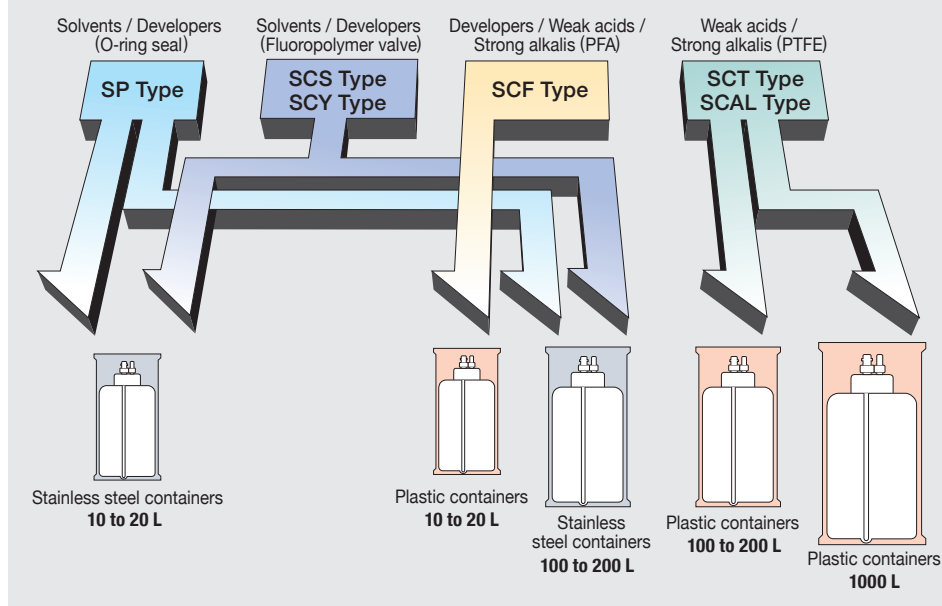
Plastic containers



Stainless steel containers



Examples of use



CONTENTS

P1	Overview of SEMICON CUPLA
P2	Contents / Examples of Use
P3	Overview of CUPLA Products
P4	Glossary / The Meaning of Each Letter in the Model Name
P17-18	Seal Material Selection Table for Reference
P19	Body Material Selection Table
P20	Safety Guide
P22	Global Network

Examples of plug installation on chemical containers and socket installation on piping

		Stainless steel containers (10 to 20 L)	Plastic containers (10 to 20 L)	Stainless steel containers (100 to 200 L)	Plastic containers (100 to 200 L)	Plastic containers (1000 L)
Container side (Plug)	Nitrogen-gas side	SP Type SCS Type	SCF Type	SP Type	SCT Type SCAL Type	SCT Type SCAL Type
	Liquid side	SP Type SCS Type	SCF Type	SP Type	SCT Type SCAL Type	SCT Type SCAL Type
Piping side (Socket)	Nitrogen-gas side	SP Type SCS Type SCY Type	SCF Type	SP Type SCY Type	SCT Type SCAL Type	SCT Type SCAL Type
	Liquid side	SP Type SCS Type SCY Type	SCF Type	SP Type SCY Type	SCT Type SCAL Type	SCT Type SCAL Type

**Standard****SP Type**

Stainless steel (SUS304) is used for the body and valve spring, with electropolished components to enhance corrosion resistance. Various sizes and seal materials are available.

**Standard****SCS Type**

Stainless steel (SUS304) is used for the body and valve spring, and fluoropolymer resin is used for the valve seal materials.

**Standard****SCY Type**

As part of the SCS Series, the connection load is reduced.

**Standard****SCAL Type**

Push-to-connect design. Polytetrafluoroethylene (PTFE) is used for the body. Minimizes liquid spillage during disconnection.

**Standard****SCT Type**

Polytetrafluoroethylene (PTFE) is used for the body. Available in sizes from 1/4" to 1".

**Standard****SCF Type**

Fluoropolymer resin is used for all components. Injection molding minimizes particle generation.

**Semi-Standard****SP-GN Type**

SP Series product. To prevent misconnection, this product is not interchangeable with SP Type CUPLA.

**Semi-Standard****SML Type**

SP Series product. This is an L-shaped male-thread socket interchangeable with SP Type plugs.

Nitto Kohki continues to pursue new technology based on decades of experience and know-how.

R&D capabilities that meet diverse market needs

Numerous patented technologies reflecting our engineering innovation

Unique engineering developed through creativity

High quality, supported by numerous patented technologies and recognized worldwide

ISO14001 / ISO9001 Certified

"CUPLA" quick-connect couplings are produced using advanced know-how in fluid and materials engineering, combined with top-level precision machining technology. After evaluating Nitto Kohki's comprehensive quality assurance and control system—from design and development through material procurement, manufacturing, assembly, and shipping—the Japan Quality Assurance Organization awarded us ISO 9001, the international standard for quality management systems, and ISO 14001, the international standard for environmental management systems aimed at environmental preservation and pollution prevention. High reliability based on proven quality and strong production capability, ensuring stable supply. CUPLA is widely trusted and supported by users around the world as a leading brand for fluid transmission and control.



ISO 14001
JQA-EM4057
H.Q./R&D Lab



ISO 9001
JQA-2025
H.Q./R&D Lab



Nitto Kohki's environmentally-friendly Manufacturing

Green Procurement



Nitto Kohki is promoting company-wide environmental initiatives, including obtaining ISO 14001 certification for environmentally conscious business operations. As part of these initiatives, our products comply with the RoHS Directive (RoHS II) and other regulations by reducing and/or eliminating designated chemical substances, and are being transitioned to environmentally friendly products that meet our Green Procurement requirements. Please note that some products may not yet be compliant. For the latest compliance status, please visit our corporate website.

Please visit our website for applicable products.

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



[Environment and Quality Management System]

ISO14001 / ISO9001 Certified

NITTO KOHKI CO., LTD. (Head Office / Research Center, Midland Sales Div., Western Sales Div., Western Japan Distribution Center)

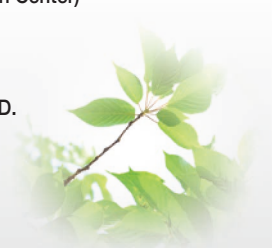
TOCHIGI NITTO KOHKI CO., LTD

TOHOKU NITTO KOHKI CO., LTD.

NITTO KOHKI INDUSTRY (THAILAND) CO., LTD.

[Environmental Initiatives]

- 1) Promotion of green procurement
- 2) Design and development of environmentally friendly products
- 3) Reduction of electricity consumption
- 4) Reduction in the use of office paper
- 5) Waste reduction



Glossary

The following terms are used in detailed information pages of each CUPLA. Refer to these terms when checking CUPLA specifications.

International System of Units (SI Units)

Units stated in this catalog are based on SI units. For some units, non-SI units are also provided for reference only.

Body Material

This indicates the material that is used for the plug body or socket body that forms the flow path of fluid through CUPLA. Some products have internal components of a different material. Please check with us for details.

Size

This indicates the nominal size of the pipe thread connection or of the hose to be used.

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.

Maximum Tightening Torque, Tightening Torque Range

Indicates suitable torque value or range considering of the balance between leakage by loose fit and damage by structural stress when installing CUPLA.

Flow Direction

The design of some couplings may restrict the fluid flow direction to one way only. Check the suggested direction before installing.

Interchangeability

Indicates whether the plug or socket of different series, types or models can be connected with each other.

Suitability for Vacuum

Indicates if it has necessary performance required for vacuum applications. (Note that the performance in connected state differs from that of disconnected state.)

Minimum Cross-Sectional Area

This shows the minimum cross-sectional area of the fluid path when CUPLA is connected. The position is different in some products.

Seal Material

This shows the material used to seal CUPLA, usually an O-ring.

Properties of rubbers used for O-rings

Seal material		Working Temperature Range ^{*1}	Features ^{*2}
Common name	Nitto Kohki symbol		
Fluoro rubber	FKM	-20°C to +180°C	Excellent for heat, weather, and oil resistance. Applicable to wide range of applications.
Ethylene-propylene rubber	EPDM	-40°C to +150°C	Excellent resistance to steam and hot water, also excellent resistance to weather and ozone.
Perfluoroelastomer	P	0°C to +200°C	Excellent resistance to chemical and solvents.
KALREZ ^{*3}	KL	0°C to +280°C	Excellent resistance to chemical and solvents.

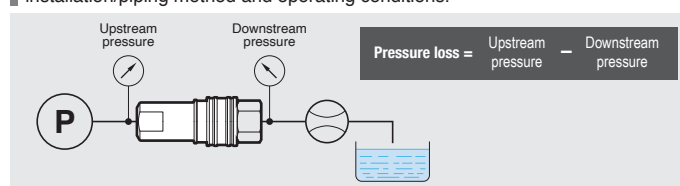
^{*1}: Even among rubber materials of the same category, the working temperature range differs depending upon the design of CUPLA. For details, see the specifications of each CUPLA series. As for the Nitto Kohki symbol for rubber material, fluoro rubber is designated as "FKM" for example.

^{*2}: The above are general features, but the seal resistance depends on fluid temperature, fluid concentration, and additives contained in the fluid.

^{*3}: "KALREZ" is a trademark or registered trademark of affiliates of DuPont de Nemours, Inc.

Pressure Loss

This shows the loss of pressure when fluid runs through the coupling set. They are measured values at our testing facilities. May differ according to the installation/piping method and operating conditions.



Valve Structure

Two-way shut-off		Automatic shut-off valves are mounted in both plug and socket. The valves prevent spill out of fluid from the lines on disconnection.
Two-way shut-off (Spill Reduction)		"Two-way shut-off" with spill reduction design allows extremely little admixture of air on connection and minimizes fluid spill out on disconnection.

The Meaning of Each Letter in the Model Name

Example : 1P-304-KL / SCS-1S-NPT

SP		1		P		304		-		KL	
SCS		1		S		-		NPT			
Series		Size		Socket or Plug		Body Material		Thread Type		Seal Material	
Type	Symbol	Size	Symbol	Type	Symbol	Material	Symbol	Thread	Symbol	Material	Symbol
SP Type	—	1/8	1	Socket	S	SUS304	304	Rc	—	Fluoro rubber	F
SCS Type	SCS	1/4	2	Plug	P	SUS316	316	NPT	NPT	Ethylene-propylene rubber	E
SCY Type	SCY	3/8	3			Body material symbols (304 / 316) apply to SP Type only.		UNS (19/32-18UNS)	UNS	Perfluoroelastomer	P
SCF Type	SCF	1/2	4					SCF Type uses a different mounting configuration (not threaded); symbols differ.		KALREZ [*]	KL
SCAL Type	SCAL	3/4	6								
SCT Type	SCT	1	8								
										Seal material symbols (F / E / P / KL) apply to SP Type and SCAL Type only.	
										[*] "KALREZ" is a trademark or registered trademark of affiliates of DuPont de Nemours, Inc.	

Standard Series

SEMICON CUPLA

SP Type



General-purpose type with stainless steel body and rubber seal.
Electro-polished body for enhanced corrosion resistance.

- Body and valve springs are stainless steel (SUS304). Body is electro-polished for enhanced corrosion resistance.
- Seal materials can be selected to suit your fluid and application, to flexibly comply with your semiconductor production process requirements.
- All components are cleaned, assembled, inspected, and then packed in a clean room.
- Grease-free design. No grease is applied to the seal material.
- Each plug comes with a dust cap.
- Stainless steel SUS316 body and valve springs are available as made-to-order products.



Specifications

Body material	Electropolished stainless steel (SUS304)			
Size (Thread)	1/8", 1/4", 3/8", 1/2", 3/4", 1" 1/8-27NPT, 1/4-18NPT, 19/32-18UNS *2			
Pressure unit	MPa	kgf/cm ²	bar	PSI
Working pressure	0.2	2	2	29
Seal material Working temperature range *1	Seal material	Mark	Working temperature range	Remarks
	Fluoro rubber	FKM	0°C to +50°C	Standard material
	Ethylene-propylene rubber	EPDM	0°C to +50°C	Standard material
	Perfluoroelastomer	P	0°C to +50°C	Standard material
	KALREZ *3	KL	0°C to +50°C	Standard material

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

*2: For the 19/32-18 UNS plug mounting thread, refer to the reference diagram on page 6.

*3: "KALREZ" is a trademark or registered trademark of affiliates of DuPont de Nemours, Inc.

Maximum Tightening Torque

Nm {kgf·cm}

Size	1/8-27NPT Rc 1/8	1/4-18NPT Rc 1/4	19/32-18UNS	Rc 3/8	Rc 1/2	Rc 3/4	Rc 1
Torque	9 {92}	14 {143}	20 {204}	22 {224}	60 {612}	90 {918}	120 {1224}

Flow Direction

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



Interchangeability

Sockets and plugs can be connected regardless of end configurations if the first number in the model name is the same.

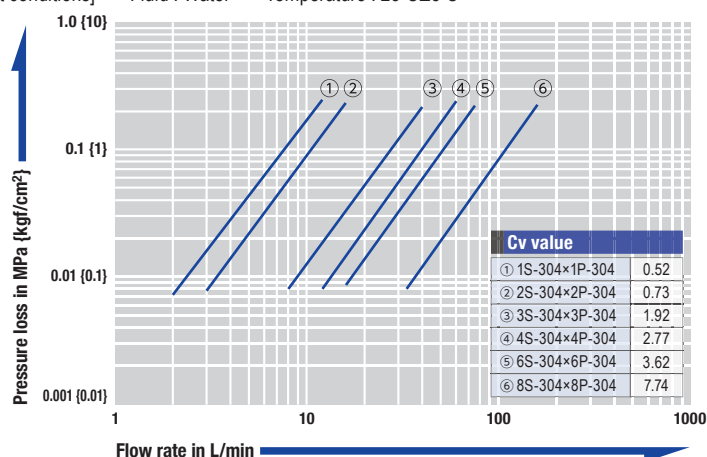
Minimum Cross-Sectional Area

(mm²)

Model	1SP	2SP	3SP	4SP	6SP	8SP
Min. cross-sectional area	13	17	48	64	83	192

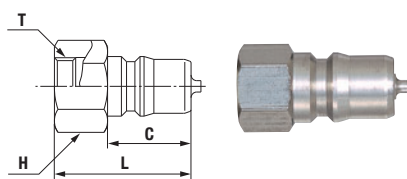
Flow Rate – Pressure Loss Characteristics

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



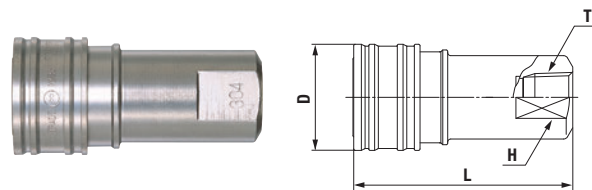
Models and Dimensions (These are the dimensions of SUS304. The appearances of SUS304 and 316 bodies are different.) **WAF** : WAF stands for width across flats.

Plug Female thread



Model	Container Capacity	Mass (g)	Dimensions (mm)			
			L	C	H(WAF)	T
1P-304	For 10 to 20 L	19	29	19	Hex.14	Rc 1/8
1P-304-NPT	For 10 to 20 L					1/8-27NPT
1P-304-UNS	For 10 to 20 L	34	33	19	Hex.21	19/32-18UNS
2P-304	For 10 to 20 L	35	36	22	Hex.17	Rc 1/4
2P-304-NPT	For 10 to 20 L					1/4-18NPT
2P-304-UNS	For 10 to 20 L	41	36	22	Hex.21	19/32-18UNS
3P-304	For 100 to 200 L	60	40	25	Hex.21	Rc 3/8
4P-304	For 100 to 200 L	115	44	28	Hex.29	Rc 1/2
6P-304	For 100 to 200 L	216	52	36	Hex.35	Rc 3/4
8P-304	For 100 to 200 L	352	62	40	Hex.41	Rc 1

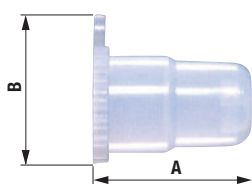
Socket Female thread



Model	Container Capacity	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
1S-304	For 10 to 20 L	82	48	24	14	Rc 1/8
1S-304-NPT	For 10 to 20 L	84				1/8-27NPT
2S-304	For 10 to 20 L	138	58	28	19	Rc 1/4
2S-304-NPT	For 10 to 20 L					1/4-18NPT
3S-304	For 100 to 200 L	204	65	35	21	Rc 3/8
4S-304	For 100 to 200 L	424	72	45	29	Rc 1/2
6S-304	For 100 to 200 L	708	88	55	35	Rc 3/4
8S-304	For 100 to 200 L	1081	102	65	41	Rc 1

Accessories

Cap for Plug



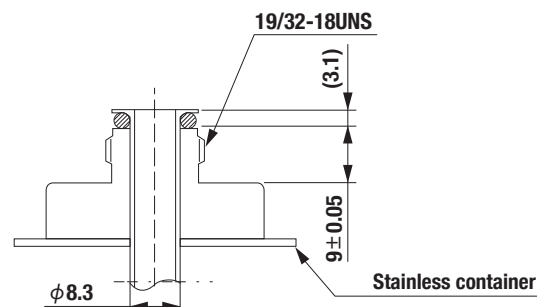
Material: Polyethylene

Model	Dimensions (mm)	
	A	B
Cap for 1P	24.5	23
Cap for 2P	27.3	26.8
Cap for 3P	31	30.8
Cap for 4P	34.5	37.5
Cap for 6P	44.7	46.5
Cap for 8P	52	53.4

Container-Side Thread for Plug Mounting (19/32-18 UNS)

Reference Diagram

* Please contact us for detailed dimensions.



Standard Series

SEMICON CUPLA

SCS_{Type}

Adopted stainless steel body and fluorine contained resin valves.

- The body and spring material of stainless steel (SUS304), and valve of fluorine contained resin ensure excellent performance with various chemicals.
- Body (SUS304) is electropolished for enhanced corrosion resistance.
- All components are cleaned, assembled, inspected, and then packed in a clean room.
- Grease-free design. No grease is applied to the seal material.
- Plug comes with a dust cap.

Flow Direction

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



Specifications

Body material	Electropolished stainless steel (SUS304)			
Size (Thread)	1/8", 1/4", 3/8", 1/2", 3/4", 1" 1/8-27NPT, 1/4-18NPT, 19/32-18UNS ^{*2}			
Pressure unit	MPa	kgf/cm ²	bar	PSI
Working pressure	0.2	2	2	29
Seal material	Socket	Seal material	Mark	Working temperature range
Working temperature range ^{*1}	O-ring	Perfluoroelastomer ^{*3}	P	0°C to +50°C
	Valve	Fluoropolymer resin (Socket: PFA, Plug: PTFE except 1P and 2P of PFA)		
		Remarks		
		Standard material		

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

^{*2}: For the 19/32-18 UNS plug mounting thread, refer to the reference diagram on page 8.

^{*3}: If you need a seal material other than perfluoroelastomer, please consult with us.

Maximum Tightening Torque

Nm {kgf·cm}

Size	1/8-27NPT Rc 1/8	1/4-18NPT Rc 1/4	19/32-18UNS	Rc 3/8	Rc 1/2	Rc 3/4	Rc 1
Torque	9 {92}	14 {143}	20 {204}	22 {224}	60 {612}	90 {918}	120 {1224}

Interchangeability

Sockets and plugs can be connected regardless of end configurations if the number □ in the model name {SCS-□S (P)} is the same. The plugs can be connected with sockets of SCY Type of the same size. See below table for details.

Interchangeability Table (SCS Type, SCY Type)

● indicates compatible connections (excluding made-to-order products).								
Socket								
Plug	Model	SCS Type		SCY Type				
		-1S	-2S	-1S	-2S	-3S	-4S	-6S
	SCS Type	-1P	-2P	-3P	-4P	-6P	-8P	
	-1P	●		●				
	-2P		●		●			
	-3P					●		
	-4P						●	
	-6P							●
	-8P							●

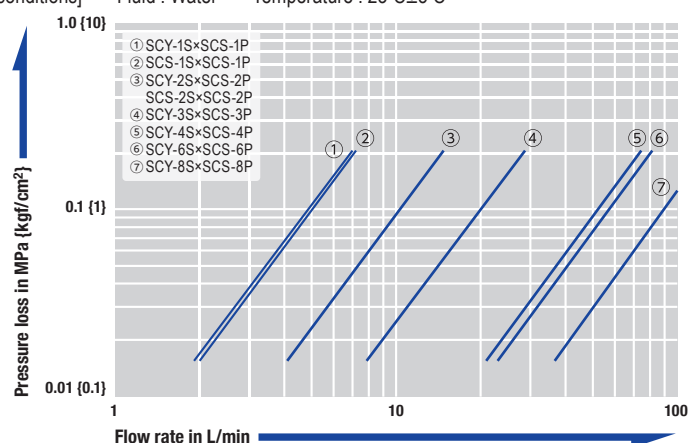
Minimum Cross-Sectional Area

(mm²)

Model	SCS-1SP	SCS-2SP	SCS-3P	SCS-4P	SCS-6P	SCS-8P
Min. cross-sectional area	15	23	28	71	110	162

Flow Rate – Pressure Loss Characteristics

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



Cv value

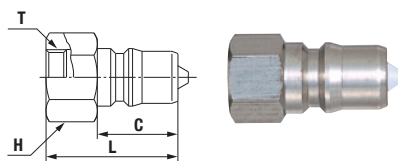
① SCY-1S×SCS-1P	0.34	② SCS-1S×SCS-1P	0.35	③ SCY-2S×SCS-2P	0.71
④ SCY-3S×SCS-3P	1.38	⑤ SCY-4S×SCS-4P	3.62	⑥ SCY-6S×SCS-6P	3.98
⑦ SCY-8S×SCS-8P	6.33				

Models and Dimensions

WAF : WAF stands for width across flats.

Plug

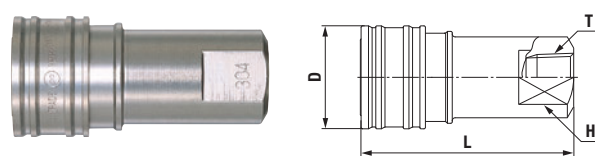
Female thread



Model	Container Capacity	Mass (g)	Dimensions (mm)			
			L	C	H(WAF)	T
SCS-1P	For 10 to 20 L	17	29	19	Hex.14	Rc 1/8
SCS-1P-NPT	For 10 to 20 L					1/8-27NPT
SCS-1P-UNS	For 10 to 20 L	34	33	19	Hex.21	19/32-18UNS
SCS-2P	For 10 to 20 L	32	34	22	Hex.17	Rc 1/4
SCS-2P-NPT	For 10 to 20 L	29				1/4-18NPT
SCS-2P-UNS	For 10 to 20 L	41	36	22	Hex.21	19/32-18UNS
SCS-3P	For 100 to 200 L	61	40	25	Hex.21	Rc 3/8
SCS-4P	For 100 to 200 L	114	44	28	Hex.29	Rc 1/2
SCS-6P	For 100 to 200 L	198	52	36	Hex.35	Rc 3/4
SCS-8P	For 100 to 200 L	338	62	40	Hex.41	Rc 1

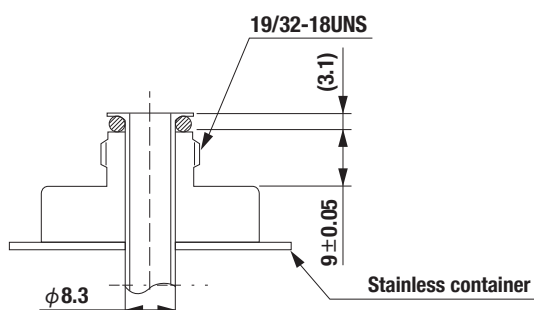
Socket

Female thread



Model	Container Capacity	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
SCS-1S-NPT	For 10 to 20 L	84	48	24	14	1/8-27NPT
SCS-2S-NPT	For 10 to 20 L	138	58	28	19	1/4-18NPT

Container-Side Thread for Plug Mounting (19/32-18 UNS)



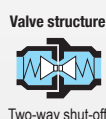
Important Notice for Orders

Lead times may vary depending on the product. Please contact us for details.

Standard Series

SEMICON CUPLA

SCY Type



Fluorine contained resin packing seal and perfluoroelastomer packing seal are used to reduce required connection load and to achieve tight sealing.

- The material of body and spring are of stainless steel (SUS304), while that of valve is of fluorine contained resin. The combination shows excellent performance with various types of chemicals.
- Body (SUS304) is electropolished for enhanced corrosion resistance.
- All components are cleaned, assembled, inspected, and then packed in a clean room.
- Grease-free design. No grease is applied to the seal material.
- Flanged body makes it easy to operate even with gloves.

Flow Direction

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



Specifications

Body material	Electropolished stainless steel (SUS304)			
Size (Thread)	1/8", 1/4", 3/8", 1/2", 3/4", 1" 1/8-27NPT, 1/4-18NPT			
Pressure unit	MPa	kgf/cm ²	bar	PSI
Working pressure	0.2	2	2	29
Seal material Working temperature range*1	Socket packing seal	Seal material Perfluoroelastomer*2 Fluoropolymer resin	Mark P*2 PTFE (TF)	Working temperature range 0°C to +50°C
	Valve	Fluoropolymer resin (PTFE [except 1S and 2S of PFA])		
		Remarks Standard material		

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

*2: If you need a seal material other than perfluoroelastomer, please consult with us.

Maximum Tightening Torque

Nm {kgf·cm}

Size	1/8-27NPT Rc 1/8	1/4-18NPT Rc 1/4	Rc 3/8	Rc 1/2	Rc 3/4	Rc 1
Torque	9 {92}	14 {143}	22 {224}	60 {612}	90 {918}	120 {1224}

Interchangeability

Can be connected with plugs of SCS Type of the same size.

See the interchangeability table on page 7.

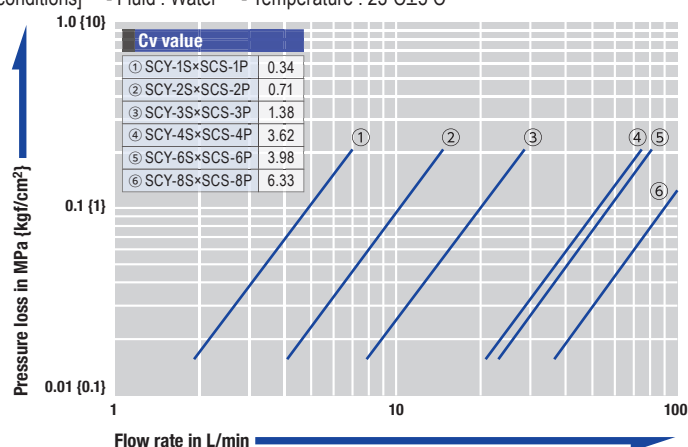
Minimum Cross-Sectional Area

(mm²)

Model	SCY-1S	SCY-2S	SCY-3S	SCY-4S	SCY-6S	SCY-8S
Min. cross-sectional area	15	23	28	71	110	162

Flow Rate – Pressure Loss Characteristics

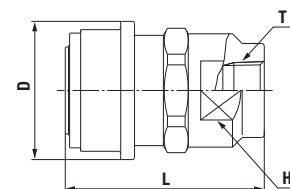
[Test conditions] - Fluid : Water - Temperature : 23°C±5°C



Models and Dimensions

WAF : WAF stands for width across flats.

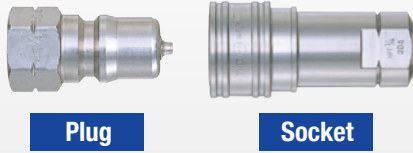
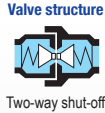
Socket Female thread



Model	Container Capacity	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
SCY-1S	For 10 to 20 L	116	(48)	29	18	Rc 1/8
SCY-1S-NPT	For 10 to 20 L					1/8-27NPT
SCY-2S	For 10 to 20 L	180	(58)	33	22	Rc 1/4
SCY-2S-NPT	For 10 to 20 L					1/4-18NPT
SCY-3S	For 100 to 200 L	292	(65)	39	27	Rc 3/8
SCY-4S	For 100 to 200 L	519	(72)	50	35	Rc 1/2
SCY-6S	For 100 to 200 L	862	(88)	59	41	Rc 3/4
SCY-8S	For 100 to 200 L	1360	(102)	68	50	Rc 1

Semi-Standard Series

SEMICON CUPLA SP-GN Type

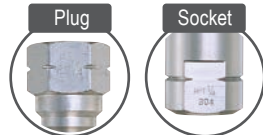


SP Series product, not interchangeable with SP Type.

- The non-interchangeable structure prevents misconnection with SP Type. Even if inserted into an SP Type, the internal valve will not open, ensuring safe operation.
- The body and spring are made of stainless steel (SUS304) and are electropolished to enhance corrosion resistance.
- Various sizes and seal materials are available to suit different fluids and applications, providing flexibility for semiconductor manufacturing processes.
- Grease-free design. No grease is applied to the seal material.

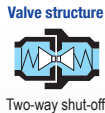
Identification from SP Type

Please identify by the single groove on the hex portion of the plug and on the wrench flats of the socket.



Semi-Standard Series

SEMICON CUPLA SML Type



SP Series product. An L-shaped, male-thread socket compatible with SP Type plugs.

- The L-shaped configuration improves operability while minimizing piping space requirements.
- The body and spring are made of stainless steel (SUS304) and are electropolished to enhance corrosion resistance.
- Various seal materials are available to suit different fluids and applications, providing flexibility for semiconductor manufacturing processes.
- Grease-free design. No grease is applied to the seal material.
- A single groove is formed on the socket sleeve flange on the nitrogen-gas side to distinguish between the nitrogen-gas and liquid sides.



Interchangeability

SP Type plugs with the same initial model number can be connected, regardless of the mounting configuration. (See page 6.)

Specifications

Body material	Electropolished stainless steel (SUS304)			
Size (Thread)	1/8", 1/4", 3/8", 1/2", 3/4", 19/32-18UNS ^{*2}			
Pressure unit	MPa	kgf/cm ²	bar	PSI
Working pressure	0.2	2	2	29
Seal material Working temperature range ^{*1}	Seal material	Mark	Working temperature range	
	Fluoro rubber	FKM	0°C to +50°C	
	Ethylene-propylene rubber	EPDM	0°C to +50°C	
	Perfluoroelastomer	P	0°C to +50°C	
	KALREZ ^{*3}	KL	0°C to +50°C	

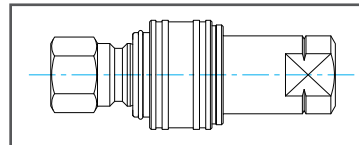
*1: The operable temperature range depends on the operating conditions.

*2: For the 19/32-18 UNS plug mounting thread, refer to the reference diagram on page 6.

*3: "KALREZ" is a trademark or registered trademark of affiliates of DuPont de Nemours, Inc.

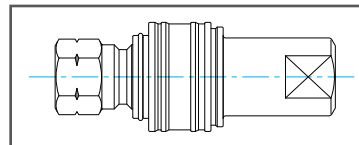
Interchangeability

When an SP Type plug is inserted into an SP-GN Type socket



The inner diameter at the entrance of the SP-GN Type socket is smaller than the outer diameter of the SP Type plug. As a result, the plug cannot be fully inserted and connection cannot be established, and the internal valves of both the socket and plug will remain closed.

When an SP-GN Type plug is inserted into an SP Type socket



The inner diameter at the entrance of the SP Type socket is smaller than the outer diameter of the SP-GN Type plug. As a result, the plug cannot be fully inserted and connection cannot be established, and the internal valves of both the socket and plug will remain closed.

Specifications

Body material	Electropolished stainless steel (SUS304)			
Size (Thread)	7/16-20UNF, 1/8-27NPT, 1/4-18NPT			
Pressure unit	MPa	kgf/cm ²	bar	PSI
Working pressure	0.2	2	2	29
Seal material Working temperature range ^{*1}	Seal material	Mark	Working temperature range	
	Fluoro rubber	FKM	0°C to +50°C	
	Ethylene-propylene rubber	EPDM	0°C to +50°C	
	Perfluoroelastomer	P	0°C to +50°C	
	KALREZ ^{*2}	KL	0°C to +50°C	

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

*2: "KALREZ" is a trademark or registered trademark of affiliates of DuPont de Nemours, Inc.

Models and Dimensions

	Model	Container Capacity	Mass (g)	Dimensions (mm)	
				L	øD
Socket Male thread					
Nitrogen-gas side	1SML	For 10 to 20 L	119	52	29
Liquid side	2SML	For 10 to 20 L	158	59.5	32

Important Notice for Orders

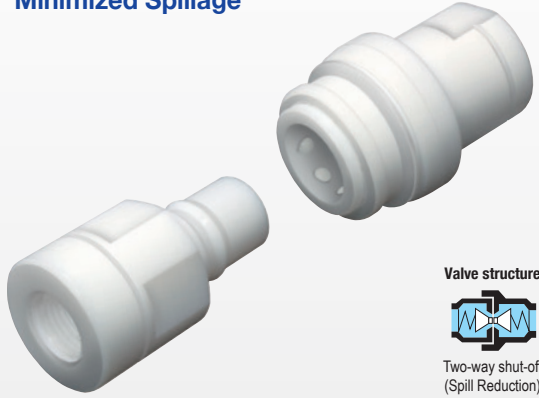
Lead times may vary depending on the product. Please contact us for details.

Standard Series

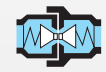
SEMICON CUPLA

SCAL^{Type}

Minimized Spillage



Valve structure

Two-way shut-off
(Spill Reduction)

Body is polytetrafluoroethylene (PTFE).

- Polytetrafluoroethylene (PTFE) body gives excellent resistance to chemicals.
- Unique seal design ensures minimized spillage.
- Both socket and plug have built-in automatic shut-off valves that prevent fluid from outflowing when disconnected.
- No dissolution of metal ions from part in contact with liquid ensures excellent reliability.
- Push-to-connect design.
- Flanged socket body makes it easy to operate the sleeve even when wearing gloves.
- All components are cleaned, assembled, and then inspected and packaged in a clean room.
- The concave design at the plug tip prevents liquid from dripping onto containers during disconnection and makes wiping easier. It also protects the seal surface from damage in case of accidental drops or impacts.
- To prevent incorrect connection, a keyed-type sleeve is available on a made-to-order basis.
- Ten key angle positions are available. The appearance of the keyed-type body slightly differs from that of the standard type.
- Plug comes with a cap made of high density polyethylene (HDPE).



Specifications

Body material	Polytetrafluoroethylene (PTFE)			
Size (Thread)	1/4", 3/8", 1/2", 3/4"			
Pressure unit	MPa	kgf/cm ²	bar	PSI
Working pressure	0.2	2	2	29
Seal material	Socket	Seal material	Mark	Working temperature range
Working temperature range *1	O-ring	Perfluoroelastomer	P	+5°C to +50°C
	Valve	Fluoropolymer resin (PFA)		
		Standard material		

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

Maximum Tightening amount (approximate)

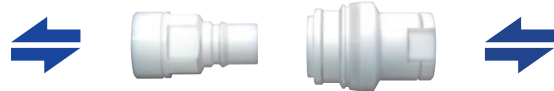
With seal tape wrapped on the male thread, screw it firmly by hand, and then add more tightening with a wrench as shown below.

1 $\frac{3}{4}$ to 2 turns	1/4" · 3/8" · 1/2" · 3/4" Size
----------------------------	--------------------------------

Whichever method, overtightening may damage the thread and cause leakage, so take extra care.

Flow Direction

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



Interchangeability

Sockets and plugs can be connected regardless of end configurations if the number ☐ in the model name {SCAL-☐S(P)} is the same.

Minimum Cross-Sectional Area

(mm²)

Model (SCAL- ☐)	SCAL-2S × SCAL-2P	SCAL-3S × SCAL-3P	SCAL-4S × SCAL-4P	SCAL-6S × SCAL-6P
Min. cross-sectional area	24	41	59	108

Volume of Spillage per Disconnection *2

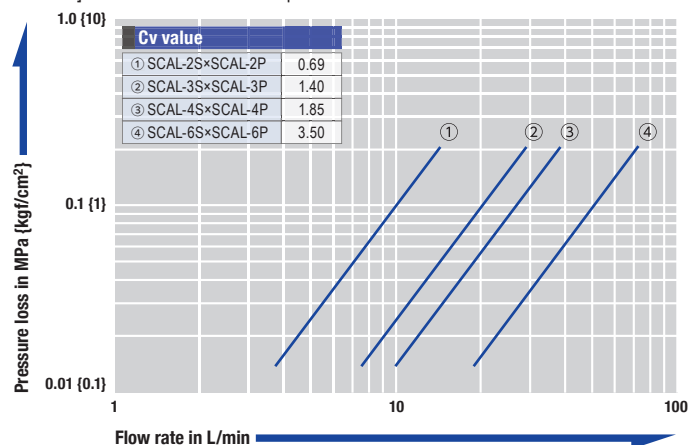
(mL)

Model (SCAL- ☐)	SCAL-2S × SCAL-2P	SCAL-3S × SCAL-3P	SCAL-4S × SCAL-4P	SCAL-6S × SCAL-6P
Volume of spillage	0.07	0.09	0.13	0.20

*2: Volume of spillage may vary depending upon the usage conditions.

Flow Rate – Pressure Loss Characteristics

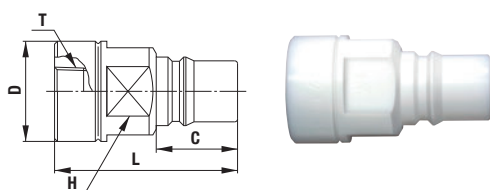
[Test conditions] - Fluid : Water - Temperature : 23°C±5°C



Models and Dimensions

WAF : WAF stands for width across flats.

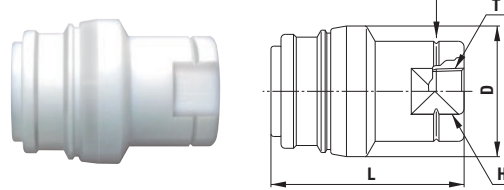
Plug Female thread



Model	Mass (g)	Dimensions (mm)				
		L	øD	C	H(WAF)	T
SCAL-2P	37	50	27.5	24	24	Rc 1/4
SCAL-3P	73	63	34.5	28	30	Rc 3/8
SCAL-4P	107	72	39.5	30.5	36	Rc 1/2
SCAL-6P	153	77	48	36.5	41	Rc 3/4

Socket Female thread

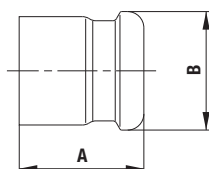
Rc thread identification groove



Model	Mass (g)	Dimensions (mm)				
		L	øD	H(WAF)	T	
SCAL-2S	97	(60.5)	40.5	27	Rc 1/4	
SCAL-3S	135	(69.5)	47	32	Rc 3/8	
SCAL-4S	177	(76)	52	36	Rc 1/2	
SCAL-6S	339	(90)	65	46	Rc 3/4	

Accessories

Cap for Plug



Material: Polyethylene

Model	Mass (g)	Dimensions (mm)	
		A	øB
Cap for SCAL-2P	3.1	26.5	24.5
Cap for SCAL-3P	4.6	30.5	29
Cap for SCAL-4P	5.0	33	30
Cap for SCAL-6P	8.7	38.5	38

Made-to-order product

Socket Flange Type

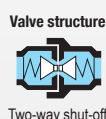
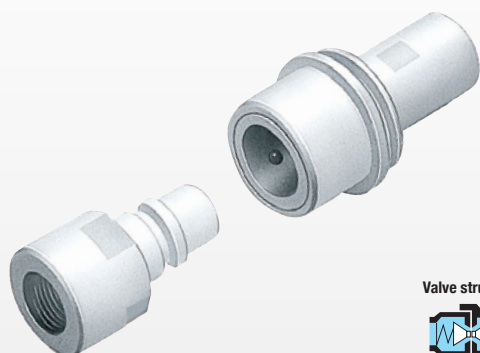


- Please contact us about end configurations other than female thread such as flange and male thread.
- Excessive tightening will damage the threaded part and result in leakage.
- Note: A very small amount of gas can permeate polytetrafluoroethylene (PTFE) bellows in the socket.

Standard Series

SEMICON CUPLA

SCT Type



Two-way shut-off

Polytetrafluoroethylene (PTFE) is utilised for the body.

- Polytetrafluoroethylene (PTFE) body gives excellent resistance to chemicals.
- Both socket and plug have built-in automatic shut-off valves that prevent fluid from outflowing when disconnected.
- No dissolution of metal ions from part in contact with liquid ensures excellent reliability.
- All components are cleaned, assembled, inspected and then packed in a clean room.
- Appropriate model can be selected from a wide variety of sizes to suit your application/fluid.
- Optional keyway lock to prevent incorrect connection. 10 keyway patterns are available.
- The plug is equipped with a cap as standard, except for SCT-2P, SCT-2P-NPT, SCT-8P and SCT-8P-NPT.



Specifications

Body material	Polytetrafluoroethylene (PTFE)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1" 1/4-18NPT, 3/8-18NPT, 1/2-14NPT, 3/4-14NPT, 1-11.5NPT			
Pressure unit	MPa	kgf/cm ²	bar	PSI
Working pressure	0.2	2	2	29
Seal material	Socket	Seal material	Mark	Working temperature range
Working temperature range*1	O-ring	FEP-covered fluoro rubber	—	+5°C to +50°C
	Valve	Fluoropolymer resin (PFA)		
		Standard material		

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

Maximum Tightening amount (approximate)

With seal tape wrapped on the male thread, screw it firmly by hand, and then add more tightening with a wrench as shown below.

1 3/4 to 2 turns	1/4" · 3/8" · 1/2" · 3/4" · 1" Size
------------------	-------------------------------------

Whichever method, overtightening may damage the thread and cause leakage, so take extra care.

Flow Direction

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



Interchangeability

Sockets and plugs can be connected regardless of end configurations if the number □ in the model name {SCT-□S (P)} is the same.

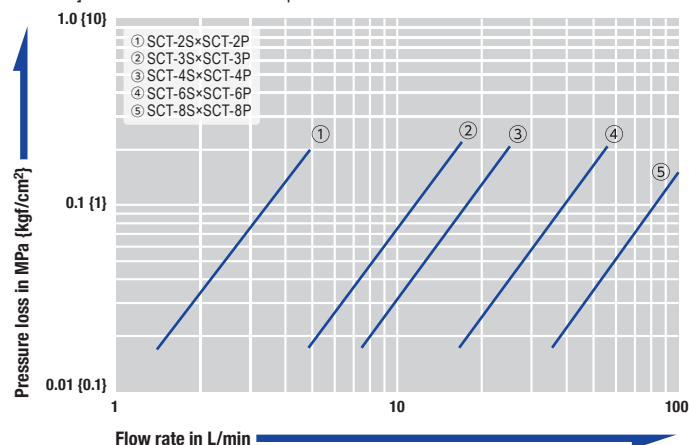
Minimum Cross-Sectional Area

(mm²)

Model	SCT-2SP	SCT-3SP	SCT-4SP	SCT-6SP	SCT-8SP
Minimum cross-sectional area	12	34	54	103	225

Flow Rate – Pressure Loss Characteristics

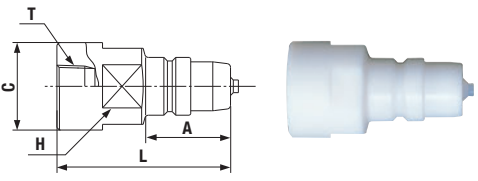
[Test conditions] - Fluid : Water - Temperature : 23°C±5°C

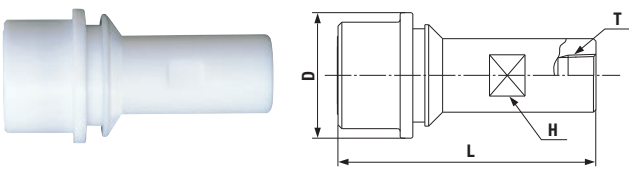


Cv value			
① SCT-2S×SCT-2P	0.24	② SCT-3S×SCT-3P	0.80
③ SCT-4S×SCT-4P	1.22	④ SCT-6S×SCT-6P	2.72
⑤ SCT-8S×SCT-8P	5.76		

Models and Dimensions

WAF : WAF stands for width across flats.

Plug Female thread						
						
Model	Mass (g)	Dimensions (mm)				
		L	A	øC	H(WAF)	T
SCT-2P	43	59	30.5	27.5	24	Rc 1/4
SCT-2P-NPT						1/4-18NPT
SCT-3P	77	68.5	33.5	34.5	30	Rc 3/8
SCT-3P-NPT						3/8-18NPT
SCT-4P	91	69.5	37.5	39.5	36	Rc 1/2
SCT-4P-NPT						1/2-14NPT
SCT-6P	160	78.5	45	48	41	Rc 3/4
SCT-6P-NPT						3/4-14NPT
SCT-8P	300	112	60.5	59	50	Rc 1
SCT-8P-NPT						1-11.5NPT

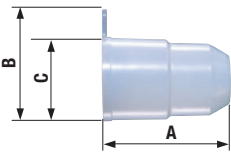
Socket Female thread					
					
Model	Mass (g)	Dimensions (mm)			
		L	øD	H(WAF)	T
SCT-2S	101	89.5	41	19	Rc 1/4
SCT-2S-NPT					1/4-18NPT
SCT-3S	156	102	49.5	24	Rc 3/8
SCT-3S-NPT					3/8-18NPT
SCT-4S	192	107	54.5	30	Rc 1/2
SCT-4S-NPT					1/2-14NPT
SCT-6S	340	123	68	36	Rc 3/4
SCT-6S-NPT					3/4-14NPT
SCT-8S	770	172.5	82	46	Rc 1
SCT-8S-NPT					1-11.5NPT

* Available end configurations are female ISO Rc thread and female NPT thread.

* Plug or socket with female ISO Rc end configuration has V-groove on the body as identification. (In case of female NPT thread, no V-groove on either plug or socket body).

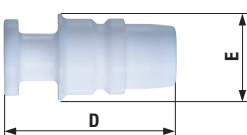
* Please inquire for other end configurations other than female thread (e.g. flanged or male thread).

Accessories

Cap for Plug			
			
Material: Polyethylene			
Model	Dimensions (mm)		
	A	B	øC
Cap for SCT-2P	37	—	24
Cap for SCT-3P	39	34.5	26
Cap for SCT-4P	43.5	38.5	29
Cap for SCT-6P	55	48.6	37.2
Cap for SCT-8P	71.5	—	53

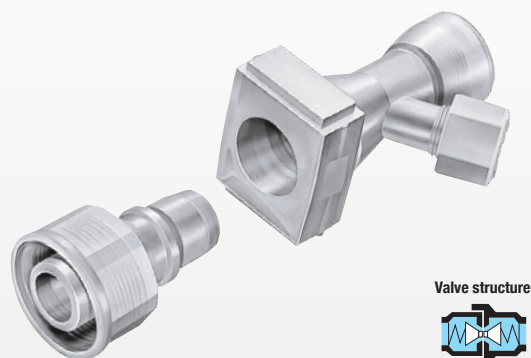
*Caps for SCT-2P and SCT-8P differ in shape.

*Caps for SCT-3P, SCT-4P, and SCT-6P are supplied as standard with the plug.

Cap for Socket		
		
Material: PTFE (Polyethylene for SCT-8S cap only)		
Model	Dimensions (mm)	
	D	øE
Cap for SCT-2S	50	19.5
Cap for SCT-3S	53	24.5
Cap for SCT-4S	58	29.5
Cap for SCT-6S	67	39.5
Cap for SCT-8S	72.5	48

Standard Series

SEMICON CUPLA

SCF_{Type}

All plastic model. Fluoropolymer resin (PFA) body.

- All parts made of fluoropolymer resin. O-rings in particular are FEP-covered fluororubber with excellent chemical resistance and no rubber elution.
- To connect with a plug, just push the socket on to it. Disconnection is done in simple and one-handed button operation.
- Unique “double lock mechanism” prevents accidental disconnection of socket and plug.
- Branched tube port improves operability and reduces required piping space.
- Plugs come with a dust cap.
- All components are cleaned, assembled, inspected, and then packed in a clean room.

Specifications

Body material		Fluoropolymer resin (PFA)			
Size	Thread	3/8", 1/2" / M26, M32			
	Tube barb	ø6 mm×ø8 mm, ø8 mm×ø10 mm			
Pressure unit		MPa	kgf/cm ²	bar	PSI
Working pressure		0.2	2	2	29
Seal material	Socket O-ring	Seal material	Mark	Working temperature range	Remarks
Working temperature range *1		FEP-covered fluoro rubber	—	+5°C to +50°C	Standard material
		Valve	Fluoropolymer resin (PFA)		

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

Flow Direction

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



Interchangeability

Sockets and plugs can be connected regardless of end configurations if the number ☐ in the model name {SCF-☐S (P)} is the same.

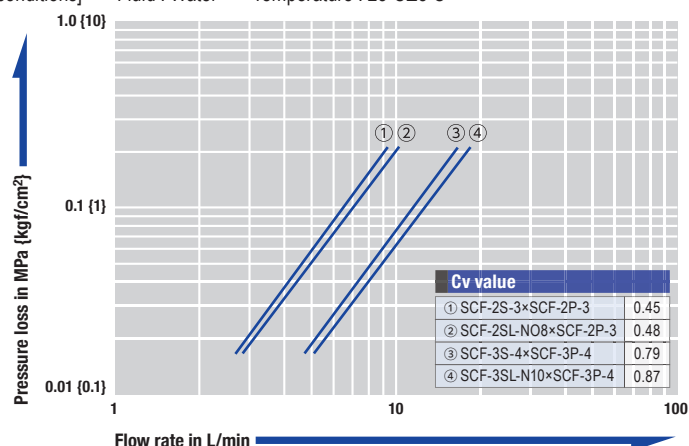
Minimum Cross-Sectional Area

(mm²)

Model	SCF-2SP	SCF-3SP
Minimum cross-sectional ar	23.8	44.2

Flow Rate – Pressure Loss Characteristics

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

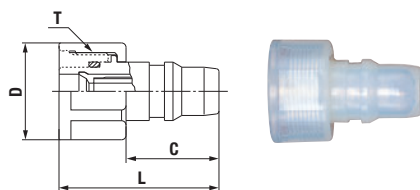


Models and Dimensions

WAF : WAF stands for width across flats.

Plug

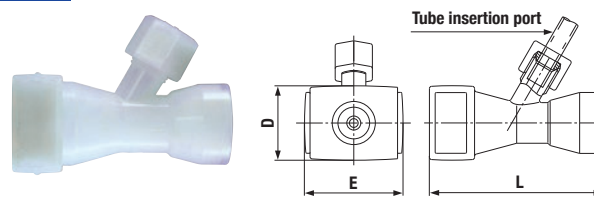
For container connection



Model	Container Capacity	Mass (g)	Dimensions (mm)			
			L	D(WAF)	C	T
SCF-2P-M26	For 10 to 20 L	33	(53.7)	Hex.30×ø32.5	(31.2)	M26×1.5
SCF-3P-M32	For 10 to 20 L	50	(57.7)	Hex.36×ø39	(35.2)	M32×1.5

Socket

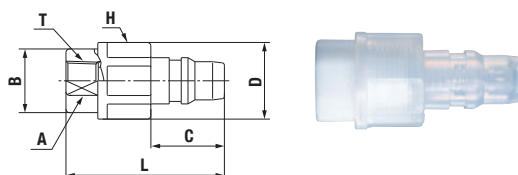
For tube connection



Model	Container Capacity	Mass (g)	Dimensions (mm)			
			L	D	E	Applicable tube
SCF-2SL-N08	For 10 to 20 L	76	77	33	(45)	ø6×ø8
SCF-3SL-N10	For 10 to 20 L	116	85	39	(51)	ø8×ø10

Plug

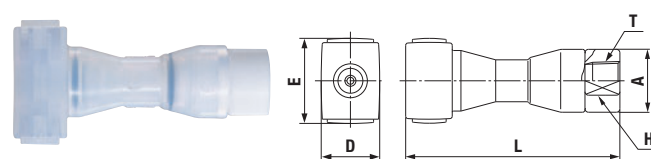
Female thread



Model	Mass (g)	Dimensions (mm)						
		L	C	øD	H(WAF)	A(WAF)	øB	T
SCF-2P-3	53	(67.2)	(31.2)	32.5	Hex.30	24	27	Rc 3/8
SCF-3P-4	79	(71.2)	(35.2)	39	Hex.36	30	33	Rc 1/2

Socket

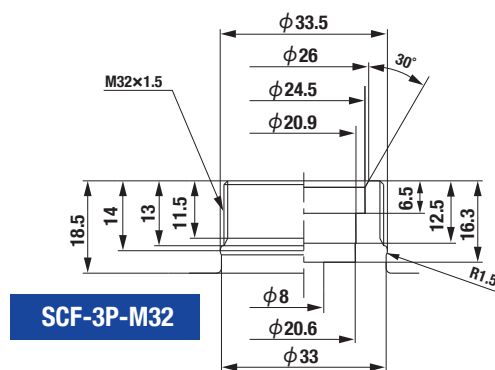
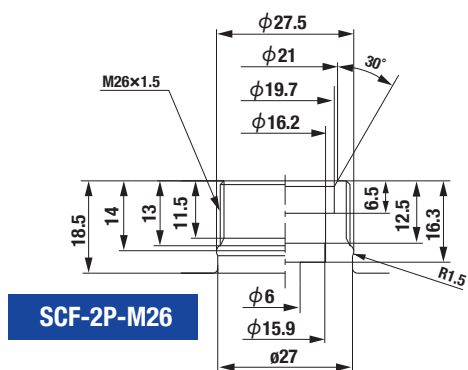
Female thread (Straight type)



Model	Mass (g)	Dimensions (mm)					
		L	øA	H(WAF)	D	E	T
SCF-2S-3	83	(92)	27	24	33	(45)	Rc 3/8
SCF-3S-4	124	(102.5)	33	30	39	(51)	Rc 1/2

Reference diagram The thread dimensions of container side for the plug.

For tolerance and other specific dimensions, consult us.



Seal Material Selection Table for Reference

For seal parts in CUPLA (the important arts that prevent leaking to the outside), it is important to select the most appropriate seal material to suit the property and temperature of the fluid. It is so important that wrong selection may not only impair the function of CUPLA but also cause an unexpected accident.

When the fluid in question is not listed in "Seal Material Selection Table (For reference)," the seal material that you select should be tested under actual environment. Even if the fluid is stated in the following list, the test could be required in some cases.

	Fluids	Seal Material		
		Ethylene-propylene rubber	Fluoro rubber	Perfluoro-elastomer
2	2,2-Dimethyl-butane	×	◎	◎
	2,3-Dimethyl-butane	×	◎	◎
	2,4-Dimethyl-pentane	×	◎	◎
	2-Methyl-pentane	×	◎	◎
3	3-Methyl-pentane	×	◎	◎
A	Acetaldehyde	○	×	△
	Acetic acid	○	△	◎
	Acetic anhydride	○	×	◎
	Acetone	◎	×	◎
	Acetonitrile	×	△	◎
	Acetophenone	◎	×	◎
	Acetyl chloride	×	◎	◎
	Acetylacetone	◎	×	◎
	Acetylene	◎	◎	◎
	Air (50°C)	◎	◎	◎
	Aluminium bromide	◎	◎	◎
	Aluminium chloride	◎	◎	◎
	Aluminium nitrate	◎	◎	◎
	Aluminium sulfate	◎	◎	◎
	Amine mixture	○	×	×
	Ammonia (anhydrous)	◎	×	○
	Ammonia (Liquid) (65°C)		×	◎
	Ammonia (Liquid) (Cool)	◎	×	◎
	Ammonia gas (Low temperature)	◎	×	◎
	Ammonium carbonate	◎	◎	◎
	Ammonium chloride	◎	◎	◎
	Ammonium hydroxide	◎	×	×
	Ammonium magnesium sulfate	×	×	
	Ammonium nitrate (65°C)	◎		
	Ammonium phosphate (65°C)	◎	×	◎
	Ammonium sulfate	◎	×	◎
	Ammonium sulfite	◎	△	◎
	Ammonium thiosulfate	◎	△	◎
	Amyl acetate	△	×	◎
	Amyl alcohol	◎	○	◎
	Aniline	○	△	◎
	Animal oil (Lard)	○	◎	◎
	Arsenic trichloride	×	×	◎
	Asphalt	×	◎	◎
B	Barium chloride	◎	◎	◎
	Barium hydroxide	◎	◎	◎
	Barium nitrate	◎	△	◎
	Barium sulfate (65°C)	◎	◎	◎
	Barium sulfide	◎	◎	◎
	Beer	◎	◎	◎
	Benzaldehyde	◎	×	◎
	Benzene	×	◎	◎
	Benzyl alcohol	○	◎	◎
	Benzyl chloride	×	◎	◎
	Brake oil	◎	×	◎

	Fluids	Seal Material		
		Ethylene-propylene rubber	Fluoro rubber	Perfluoro-elastomer
B	Bromine	×	◎	◎
	Bromine water	×	◎	◎
	Butadiene	×	◎	◎
	Butane	×	◎	◎
	Butane (liquid)	×	◎	
	Butanol (Butyl alcohol)	○	◎	◎
	Butter and butter oil	◎	◎	◎
	Butyl acetate	○	×	◎
	Butyl stearate	×	◎	◎
	Butylaldehyde	○	×	○
	Butylene	×	◎	◎
C	Cadmium cyanide	◎	△	◎
	Calcium acetate	◎	×	◎
	Calcium acetate (65°C)	◎	×	◎
	Calcium carbide			◎
	Calcium carbonate	◎	◎	◎
	Calcium hydroxide	◎	◎	◎
	Calcium nitrate (65°C)	◎	◎	◎
	Calcium perchlorate	×	×	
	Calcium sulfate	◎	△	◎
	Calcium sulfate (65°C)	◎	△	◎
	Calcium sulfite	◎	◎	◎
	Carbitol	○	○	◎
	Carbon dioxide gas (65°C)	○	○	
	Carbon disulfide	×	◎	◎
	Carbon monoxide (65°C)	◎	◎	◎
	Carbon tetrachloride	×	◎	◎
	Castor oil	○	◎	◎
	Chlorine (liquid)	×	×	○
	Chlorine gas	×	◎	◎
	Chlorine water	○	◎	◎
	Chloroacetone	◎	×	◎
	Chlorobenzene	×	◎	◎
	Chloroform	×	◎	◎
	Chlorophenol	×	◎	◎
	Chromium hydroxide			◎
	Coconut oil	△	◎	◎
	Cod liver oil	◎	◎	◎
	Coffee	×	×	
	Copper chloride	◎	◎	◎
	Copper cyanide	◎	◎	◎
	Copper sulfate	◎	◎	◎
	Corn oil	△	◎	◎
	Cotton seed oil	△	◎	◎
	Cresol (50°C)	×	○	◎
	Crude oil	×	◎	◎
	Cyclohexane	×	◎	◎
	Cyclohexanol	×	◎	◎
D	Developer	○	◎	◎
	Diacetone alcohol	◎	×	◎

	Fluids	Seal Material		
		Ethylene-propylene rubber	Fluoro rubber	Perfluoro-elastomer
D	Dibenzyl ether	○	×	◎
	Dichlorophenol	×	◎	◎
	Diesel oil	×	◎	◎
	Diethanolamine	◎	△	◎
	Diethylene glycol	◎	◎	◎
E	Ethanol (Ethyl alcohol)	◎	△	◎
	Ethyl acetate	○	×	
	Ethyl benzene	×	◎	◎
	Ethyl cellulose	○	×	◎
	Ethyl chloride	△	◎	◎
	Ethylene glycol	◎	◎	◎
	Ethylene trichloride	△	◎	◎
F	Ferric sulfate	◎	◎	◎
	Fish oil	×	◎	◎
	Fluorine (Gas)	×	×	○
	Formic aldehyde	○	×	◎
	Freon 11	×	○	○
	Freon 12	△	△	○
	Freon 22	△	×	◎
	Fuel oil	×	◎	◎
	Furfural	○	×	◎
G	Gasoline	×	◎	◎
	Gelatin	◎	◎	◎
	Glucose	◎	◎	◎
	Glycerine (65°C)	◎	◎	◎
	Grease (Petroleum-based)	×	◎	◎
H	Helium	◎	◎	◎
	Heptane (n-heptane)	×	◎	◎
	Hexane (n-hexane)	×	◎	◎
	Hexylene glycol	◎	△	◎
	Hydraulic oil (Petroleum-based)	×	◎	◎
	Hydraulic oil (Phosphate ester series)	○	◎	◎
	Hydraulic oil (Synthetically-prepared)	×	◎	◎
	Hydraulic oil (Water-glycol series)	◎	○	◎
	Hydraulic oil (Water-in-oil emulsion series)	×	◎	◎
	Hydrobromic acid	◎	◎	◎
	Hydrogen	◎	◎	◎
	Hydrogen peroxide (30%)		◎	
I	Iron chloride	◎	◎	
	Iron nitrate (65°C)	◎	◎	
	Iron sulfite (100%)	×	×	
	Isoamyl alcohol	×	×	
	Isooctane	×	◎	◎
	Isopropanol	◎	◎	◎
	Isopropyl acetate	○	×	◎
	Isopropyl alcohol	◎	◎	◎
	Isopropyl ether	×	×	◎
K	Kerosene	×	◎	◎
L	Lard and lard oil	○	◎	◎
	Latex	×	×	

How to read the selection tables

- ⊙ Practically no harm, and can be used (Excellent)
- Some harm may be inevitable but can be used under restrictions (Good)
- △ Should be avoided if at all possible (Not recommended)
- ✕ Should not be used (Unsuitable)

Note: When selecting the seal material, please consider the following suggestions carefully:

1. If there is no comment in the column of the fluid name, the condition of the fluid is under saturation at room temperature.
2. Please check with us for applications at a high fluid temperature or with different fluid concentrations.
3. For applications related to foods, please order separately specifying the detailed applications.

Note: Contact us when the space is blank.

Fluids		Seal Material			
		Ethylene-propylene rubber	Fluoro rubber	Perfluoro-elastomer	
L	Liquefied petroleum gas (LPG)	×	⊙	⊙	
	Liquors (beet)	⊙	⊙	⊙	
	Lubricating oil (SAE 10, 20, 30, 40, 50)	×	⊙	⊙	
M	Magnesium chloride	⊙	⊙	⊙	
	Magnesium hydroxide	⊙	⊙	⊙	
	Magnesium nitrate	×	×		
	Magnesium sulfate	⊙	⊙	⊙	
	Maleic anhydride	○	×	⊙	
	Mercury	⊙	⊙	⊙	
	Methanol	⊙	×	⊙	
	Methyl bromide	×	⊙	⊙	
	Methyl butyl ketone	⊙	×	⊙	
	Methyl chloride	△	⊙	⊙	
	Methyl ethyl ketone (MEK)	⊙	×	⊙	
	Methyl isobutyl ketone (MIBK)	△	×	⊙	
	Methyl propyl ketone	○	×		
	Methyl salicylate	○	×	⊙	
	Methylene bromide	×	⊙	⊙	
	Methylene chloride	×	○	⊙	
	Milk	⊙	⊙	⊙	
	Mineral oil	×	⊙	⊙	
	Monobromobenzene	×	⊙	⊙	
	Monochlorobenzene	×	⊙	⊙	
	Monoethanolamine (MEA)	○	×	⊙	
	N	n-amyl alcohol	×	×	
		Naphtha	×	⊙	⊙
		Naphthalene	×	⊙	⊙
		Naphthenic oil	×	⊙	
n-butyl alcohol		×	×		
Nickel acetate		⊙	×	⊙	
Nickel acetate (65°C)		⊙	×		
Nickel ammonium sulfate		⊙	△	⊙	
Nickel chloride		⊙	⊙	⊙	
Nickel nitrate		⊙	△	⊙	
Nickel sulfate		⊙	⊙	⊙	
Nitrobenzene		△	○	⊙	
Nitrogen (gas)		⊙	⊙	⊙	
O		Octyl alcohol	△	⊙	⊙
		Oleic acid	×	○	⊙
	Olive oil	○	⊙	⊙	
	Ortho-dichlorobenzene	×	⊙	⊙	
	Oxygen (gas)	⊙	⊙	⊙	
	Ozone	⊙	⊙	⊙	
	P	Palm oil	×	×	
Paradichlorobenzene		×	⊙	⊙	
Paraffin oil		×	⊙	⊙	
Peanut oil		△	⊙		
Pentane (n-pentane)		×	⊙	⊙	
Phenol		×	⊙	⊙	
Phosphorous oxychloride (dry)		⊙	⊙		

	Fluids	Seal Material		
		Ethylene-propylene rubber	Fluoro rubber	Perfluoro-elastomer
P	Phosphorous oxychloride (wet)	⊙	⊙	
	Phosphorus	×	×	⊙
	Pine oil	×	⊙	⊙
	Potassium acetate (65°C)	⊙	×	⊙
	Potassium aluminium sulfate	⊙	△	⊙
	Potassium bicarbonate	⊙	△	⊙
	Potassium bichromate	⊙	⊙	⊙
	Potassium carbonate	⊙	△	⊙
	Potassium cyanide	⊙	⊙	⊙
	Potassium hydroxide (50%)	⊙	×	⊙
	Potassium hyposulfite	⊙	⊙	
	Potassium nitrate	⊙	⊙	⊙
	Potassium nitrite	⊙	△	⊙
	Potassium phosphate	⊙	△	⊙
	Potassium silicate	⊙	⊙	⊙
	Potassium sulfate	⊙	⊙	⊙
	Potassium thiosulfate	⊙	△	⊙
	Propane	×	⊙	⊙
	Propionaldehyde	⊙	△	⊙
	Propionitrile	×	⊙	⊙
	Propyl acetate	○	×	⊙
	Propyl alcohol	⊙	⊙	⊙
	Propylene	×	⊙	⊙
	Pyridine	○	×	⊙
R	Rosin oil	×	×	
S	Secondary butyl alcohol	○	⊙	⊙
	Soapy water (65°C)	⊙	⊙	⊙
	Sodium acetate	⊙	×	⊙
	Sodium aluminate	⊙	△	⊙
	Sodium bicarbonate	⊙	⊙	⊙
	Sodium bichromate	⊙	△	⊙
	Sodium carbonate	⊙	⊙	⊙
	Sodium chloride	⊙	⊙	⊙
	Sodium chloride (salt water)	⊙	⊙	⊙
	Sodium cyanide	⊙	⊙	⊙
	Sodium hydroxide (Caustic Soda)	⊙	△	⊙
	Sodium hypochlorite (1%)	○	○	⊙
	Sodium hyposulfite	⊙	△	⊙
	Sodium iodide	⊙	△	⊙
	Sodium metaphosphate	⊙	⊙	⊙
	Sodium nitrate	⊙	△	⊙
	Sodium nitrite	⊙	×	⊙
	Sodium perborate	⊙	⊙	⊙
	Sodium peroxide	⊙	⊙	⊙
	Sodium phosphate	⊙	⊙	⊙
	Sodium plumbate	⊙	△	⊙
	Sodium pyrosulfate	⊙	⊙	⊙
	Sodium silicate (Water glass)	⊙	⊙	⊙
	Sodium sulfate	⊙	⊙	⊙
	Sodium sulfide	⊙	⊙	⊙

[illegible]

Body Material Selection Table

The selection of appropriate body material for CUPLA is closely related to its usage application, the type of fluid run through, its concentration (%), the pressure, its working environment, etc. So the material must be carefully considered in order to use CUPLA efficiently and obtain its full performance. Since there are some body materials that should not be used with certain fluids, please refer to this table when making your selection.

How to read
the selection tables

○: Suitable

△: Not suitable under certain conditions

×: Unsuitable

	Fluids	Fluoropolymer resin	Stainless Steel
A	Acetic acid	○	○
	Acetic anhydride	○	○
	Acetone	○	○
	Air	○	○
	Aluminum fluoride	○	×
	Aluminum chloride	○	×
	Aluminum sulfate	○	○
	Ammonia	○	○
	Ammonium nitrate	○	○
	Ammonium phosphate	○	○
	Ammonium sulfate	○	△
	Aniline	○	○
	Arsenic acid	○	○
B	Barium chloride	○	×
	Barium hydroxide	○	○
	Barium sulfide	○	○
	Beer	○	○
	Benzene	○	○
	Benzine	○	○
	Boric acid	○	○
	Butane	○	○
	Butyl acetate	○	○
C	Calcium chloride	○	△
	Calcium hydroxide	○	○
	Carbon dioxide	○	○
	Carbon disulfide	○	○
	Carbon tetrachloride	○	○
	Carbonic acid	○	○
	Chlorine	○	×
	Chromic acid	○	×
	Citric acid	○	○
	Cresol acid	○	○
D	Diesel fuel	○	○
	Dowtherm		○
	Drinking water	○	○
E	Ethanol	○	○
	Ether	○	○
	Ethyl acetate	○	○
	Ethylene chloride	○	
	Ethylene glycol	○	○
F	Fatty acid	○	○
	Ferric chloride	○	×
	Ferric sulfate	○	△
	Formaldehyde 40%	○	○
	Formic acid	○	○
	Freon	○	○

	Fluids	Fluoropolymer resin	Stainless Steel
G	Glycerine	○	○
H	Hexane	○	○
	Hydrobromic acid	○	×
	Hydrochloric acid	○	×
	Hydrofluoric acid	○	×
	Hydrogen	○	○
	Hydrogen peroxide	○	○
	Hydrogen sulfide	○	△
I	Industrial water	○	○
J	Jet fuel	○	○
L	Lactic acid	○	○
	Liquefied petroleum gas (LPG)	○	○
M	Magnesium chloride	○	×
	Mercury	○	○
	Methyl alcohol	○	○
N	Naphtha	○	○
	Naphthalene	○	○
	Natural gas	○	○
	Nickel chloride	○	×
	Nitric acid	○	△
	Nitrobenzene	○	○
O	Octane	○	
	Oxygen	○	○
P	Paraffin	○	○
	Phenol	○	○
	Phosphoric acid	○	○
	Potassium chloride	○	△
	Potassium hydroxide	○	○
	Pure water	○	○
R	Refined gasoline	○	○
	Refined petroleum	○	○
S	Salt water	○	△
	Sodium carbonate	○	○
	Sodium chloride	○	△
	Sodium hydroxide (Caustic soda)	○	△
	Sodium nitrate	○	○
	Sodium phosphate	○	△
	Sodium sulfate	○	○
	Sulfuric acid	○	×
	Sulfurous acid	○	△
T	Tannic acid		○
W	Wine	○	○
Z	Zinc chloride	○	△

Notes:1. Since fluid concentration (%) and conditions of use may affect the performance, detailed study is necessary when choosing materials.

Notes:2. For the cells that have no symbol marks, please consult us for appropriate body material.

Safety Guide

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.

DANGER

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



WARNING

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

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

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

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.

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.

Markings



Safety Guide for SEMICON CUPLA

When using SEMICON CUPLA, please be sure to observe the following precautions. For repairs or further information, contact either your distributor or Nitto Kohki.

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

Warning

- Do not apply pressure to CUPLA socket or plug while they are disconnected. It will cause leakage or damage.
- 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. (The "Seal Material Selection Table" and "Body Material Selection Table" described in our product catalog are for reference only.)
- Do not use CUPLA continuously exceeding the rated working pressure. It will cause leakage or damage.
- Only use CUPLA that is within its 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.
- When using hazardous fluids, always wear protective clothing which is suitable for the fluid being used and will protect the whole body. Any spillage or leakage should be dealt with by an expert in that product.
- Do not connect/disconnect with fluid still under dynamic pressure or static residual pressure. It will cause damage to the valve.
- When using pressure tanks, connect/disconnect as follows:
 Connection: Connect CUPLA on the nitrogen gas side first, and then reduce the nitrogen gas pressure to ambient pressure. Only then, connect CUPLA on the liquid side.
 Disconnection: Reduce the nitrogen gas pressure to ambient pressure, and confirm that the internal pressure has become ambient pressure. Only then, disconnect CUPLA on the liquid side.
- Do not strike the tip of an automatic shut-off valve with a hammer or a similar tool. It will cause leakage or malfunction. However, if you need to relieve residual pressure, please consult us.

Caution

- The durability of CUPLA differs depending on the operating environment and conditions (pressure and temperature etc.). If necessary, conduct a 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. O-rings are consumable items. Replace them periodically.
- If necessary, conduct an elution test and confirm the suitability of the material.
- 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.
- Do not exceed the recommended maximum torque when screwing in to the male or female thread of CUPLA for installation. It will cause damage. (Applies to SP Type, SCS Type, SCY Type)
- Care must be taken when installing CUPLA not to overtighten or cross thread, this can cause damage and lead to leakage. (Applies to SP Type, SCS Type, SCY Type)
- When installing SCT Type or SCAL Type CUPLA, firstly apply a fluoropolymer resin sealant tape on the male tapered pipe thread and tighten firmly by hand. Then, additionally tighten with a wrench by turning it 1 3/4 to 2 turns. At this time, overtightening will damage the thread and cause leakage, so be careful.
- Do not use anything other than the applicable tube sizes. It will cause leakage.
- Contact us if detailed dimensions of the fixing part are required, such as 19/32-18UNS (for SP Type or SCS Type) or application shape for plugs of SCF Type CUPLA.
- Prior to use, always perform a leak test after installing CUPLA.
- For the purpose of reducing the insertion load on connection and to prevent O-ring from damage, apply pure water or a lubricant that is suitable for the operational environment to the Plug tip and sealing surface. (Applies to SP Type, SCS Type)
- After connection, try to pull the socket and plug apart to confirm secure connection. If the connection is incomplete, the socket and plug may disconnect when pressurized.
- For fluoropolymer resin CUPLA, continuous use under dynamic pressure will result in reduced performance. To extend lifetime, it is recommended to be kept unpressurized unless it is necessary.
- Since the bellows of the SCAL Type CUPLA Socket is made of polytetrafluoroethylene (PTFE), a small amount of gas will escape.
- When using for hazardous fluids, discharge all the fluid inside CUPLA with nitrogen gas, etc., before disconnecting. If disconnected without discharging the fluid, a small amount of fluid will spill out.
- Always mount a designated dust cap after disconnection. Any foreign matter adhering to the sealing surface will cause leakage.
- Always install a shut-off valve between the pressure source and CUPLA.
- The use of inline filters is strongly advised and recommended. To prevent damage, the fluid should be clean before reaching 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 use CUPLA in areas or environment where dust such as sand or metal powder can get into 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. Especially, CUPLA made of fluoropolymer resin are deformed easily, so be careful.
- Do not apply any artificial impact, bend or tension. It will cause leakage or damage.
- Do not drop CUPLA. It will cause leakage or malfunction.
- Connecting CUPLA directly to vibrating or impacting equipment will result in reduced lifetime.
- Use only as quick connect couplings for fluid pipelines. (It cannot be used as a swivel joint)
- Do not disassemble CUPLA. It will cause leakage or damage.
- Check CUPLA regularly. Stop using immediately if anything unusual is found on CUPLA.

Please contact us for precautions regarding the semi-standard SEMICON CUPLA.

Maintenance of CUPLA

O-ring Replacement Procedure

The internal O-ring is a consumable item. If the O-ring in the socket has failure such as wear and tear or deterioration, take the following steps to replace it with a new one. Always use genuine Nitto Kohki O-rings.

Accessories for O-ring maintenance

O-ring replacement Jig



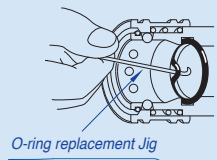
Caution for Storing CUPLA

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

CUPLA should be inspected periodically to ensure safe operation and to prevent them from a performance drop or malfunction. If there is a malfunction in CUPLA or wear and tear, please replace it with a new one. If you have any concerns, contact Nitto Kohki or the distributor from whom you purchased your CUPLA.

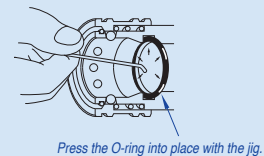
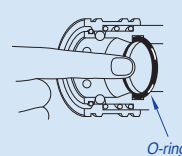
How to Remove the O-ring

- Use an optional O-ring replacement Jig to remove the O-ring. Be careful not to damage the groove of O-ring with the jig. Used O-rings with wear and tear or deterioration can be removed easily with the jig.
- After removing the O-ring, wipe the groove clean with a cloth.

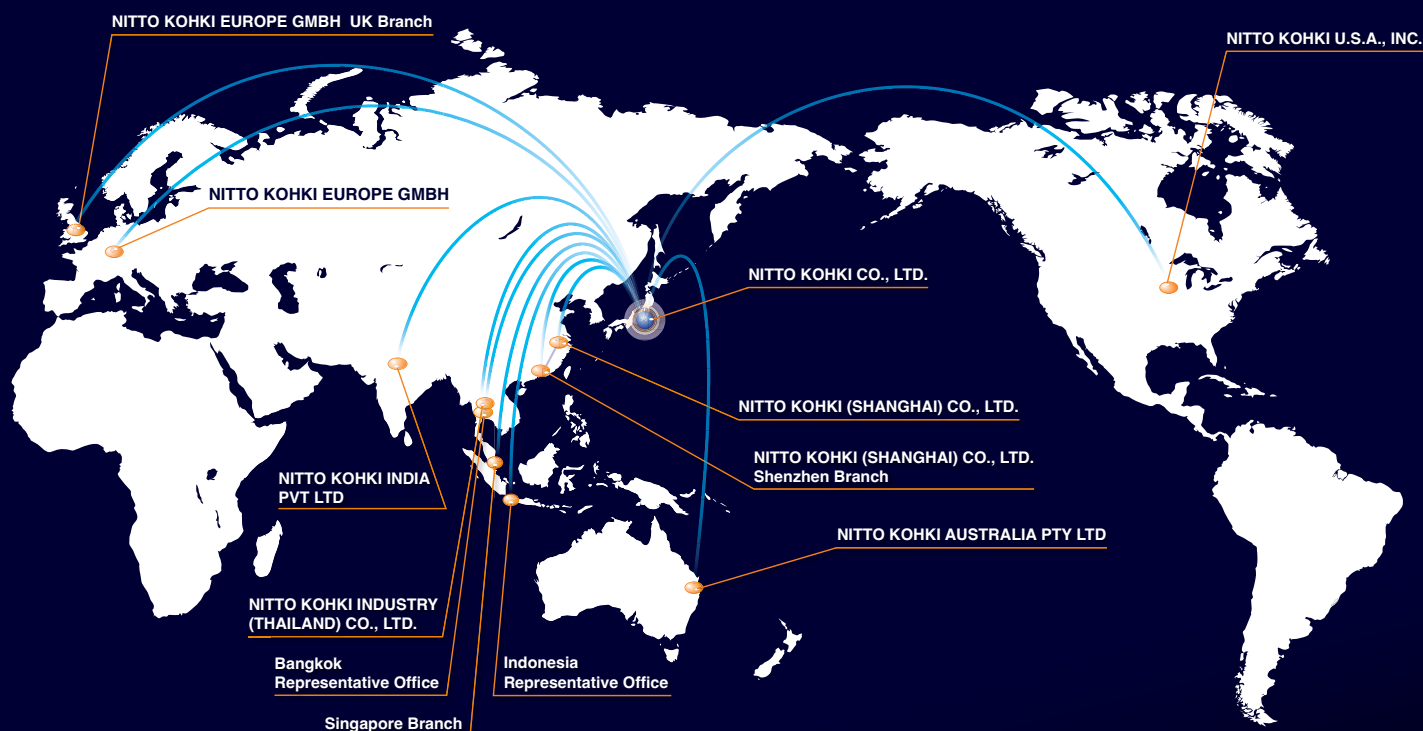


How to Install a New O-ring

After making sure that no dust or foreign matter exists in the groove of O-ring, push in part of the O-ring and the remaining part can be easily pressed in with the jig.



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



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Quick Connect Couplings

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