

For Medium Pressure

# TSP Cupla

For medium pressure general applications

Working pressure



1.5 to 7.5 MPa  
(15 to 76 kgf/cm<sup>2</sup>)

Valve structure



Straight through

Applicable fluids for braided hose connection type depend upon the specifications of braided hoses to be used.

Applicable fluids



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

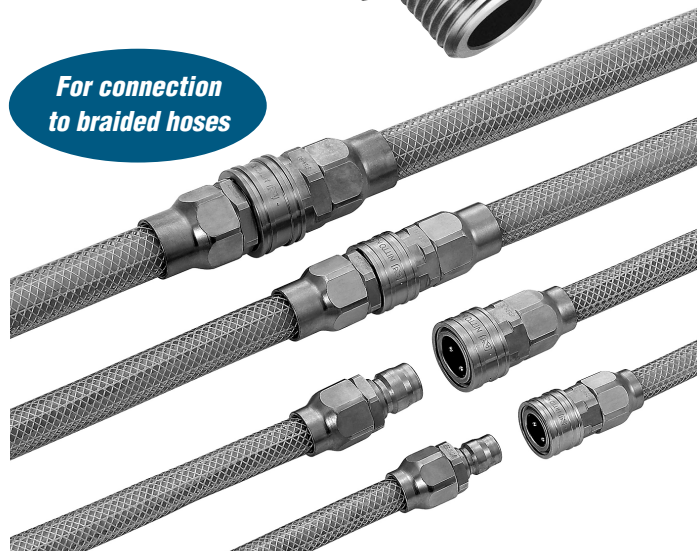
**Valveless structure suits high viscosity fluids! Various body materials, sizes and end configurations. Braided hose connection types are newly added.**

- Valveless construction drastically saves pressure loss and achieves high flow rate.
- Suitable for high viscosity fluids (such as grease).
- 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.

Note: See the pages of Seal Material Selection Table at the end of this catalog for the suitability of seal materials to fluids.



For connection to braided hoses



## 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"		
Working pressure		MPa	5.0	3.0	2.0	1.5	7.5	4.5	3.0	2.0	
		kgf/cm <sup>2</sup>	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	
Seal material		Nitrile rubber		FKM (X-100)		Ethylene-propylene rubber		EPDM (EPT)		Working temperature range	Remarks
Working temperature range		-20°C to +80°C		-20°C to +180°C		-40°C to +150°C		Standard material			

- SUS316 is available as option.
- Max working 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.

## Max. Tightening Torque

Nm {kgf·cm}

Size (Thread)		1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Torque	Steel	9 {92}	14 {143}	22 {224}	60 {612}	90 {918}	120 {1224}	260 {2652}	280 {2856}	500 {5100}
	Brass	5 {51}	9 {92}	12 {122}	30 {306}	50 {510}	65 {663}	150 {1530}	160 {1632}	260 {2652}
	Stainless steel	9 {92}	14 {143}	22 {224}	60 {612}	90 {918}	120 {1224}	260 {2652}	280 {2856}	500 {5100}

- Tighten the nut for braided hoses until it is flush against the hose barb base.

## Flow Direction

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



## Interchangeability

If the first digit of model number of socket is the same as that of plug, they can be connected regardless of the end configurations.

## Min. Cross-Sectional Area

(mm<sup>2</sup>)

Model	1TSP	2TSP	3TSP	4TSP	6TSP	8TSP	10TSP	12TSP	16TSP
End configurations									
H type (Hose barb)	7.0 (ø3)	19.6 (ø5)	38.4 (ø7)	78.5 (ø10)	176 (ø15)	283 (ø19)	530 (ø26)	804 (ø32)	1256 (ø40)
M type / F type (Male thread / Female thread)	15.9 (ø4.5)	33.1 (ø6.5)	78.5 (ø10)	132 (ø13)	226 (ø17)	452 (ø24)	804 (ø32)	1134 (ø38)	1885 (ø49)
Model	2TSN-60	3TSN-90	4TSN-120	4TSN-150	6TSN-190	8TSN-250			
End configurations	2TPN-60	3TPN-90	4TPN-120	4TPN-150	6TPN-190	8TPN-250			
N type (For braided hose connection)	23.7 (ø5.5)	56.7 (ø8.5)	95.0 (ø11)	132 (ø13)	226 (ø17)	415 (ø23)			

## Suitability for Vacuum

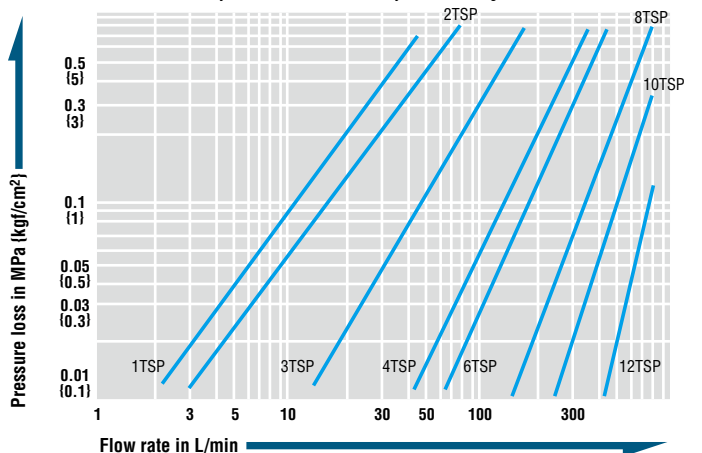
1.3 x 10<sup>-1</sup> Pa {1 x 10<sup>-3</sup> mmHg}

Socket only	Plug only	When connected
—	—	Operational

## Flow Rate – Pressure Loss Characteristics

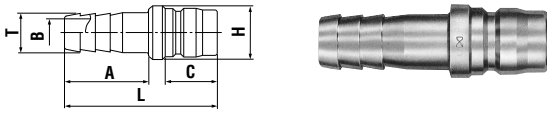
[Test conditions] • Fluid : Hydraulic oil • Temperature : 30°C ± 10°C

• Fluid viscosity : 32 x 10<sup>-6</sup> m<sup>2</sup>/s • Density : 0.87 x 10<sup>3</sup> kg/m<sup>3</sup>



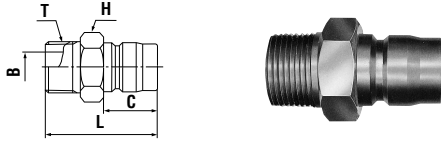
Models and Dimensions

**Plug TPH type (Hose barb)**



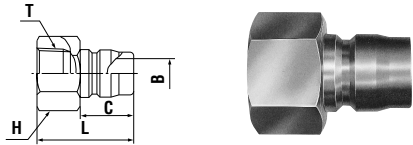
Model	Application (Hose)	Mass (g)			Dimensions (mm)					
		Steel	Brass	Stainless steel	L	øH	A	C	øT	øB
1TPH	1/8"	12 ±1	13	12	41	12	20	15.5	6.5	3
2TPH	1/4"	21	23	21	53	14	29	18	8	5
3TPH	3/8"	38	41	38	60	18	32	21	11	7
4TPH	1/2"	71	77	71	70	22	39	24	15	10
6TPH	3/4"	134	146	135	84	28	48	28	21	15
8TPH	1"	327	356	329	105	40	57	36	27	19
10TPH	1 1/4"	495	530	500	121	48	70	39	34.5	26
12TPH	1 1/2"	665	715	660	132	55	75	45	41	32
16TPH	2"	1,330	1,430	1,345	142	70	80	51	54	40

**Plug TPM type (Male thread)**



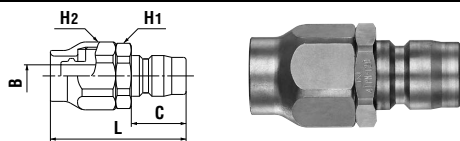
Model	Application	Mass (g)			Dimensions (mm)					
		Steel	Brass	Stainless steel	L	H(WAF)	C	T	øB	
1TPM	Rc 1/8	16 ±1	17	17	32	Hex.12	15.5	R 1/8	4.5	
2TPM	Rc 1/4	30	33	30	38	Hex.17	18	R 1/4	6.5	
3TPM	Rc 3/8	38	42	38	43	Hex.17	21	R 3/8	10	
4TPM	Rc 1/2	81	88	81	52	Hex.22	24	R 1/2	13	
6TPM	Rc 3/4	164	179	165	59	Hex.32	28	R 3/4	17	
8TPM	Rc 1	273	297	274	73	Hex.41	36	R 1	25	
10TPM	Rc 1 1/4	520	560	530	83	Hex.50	39	R 1 1/4	32	
12TPM	Rc 1 1/2	655	705	665	93	Hex.54 ±2	45	R 1 1/2	38	
16TPM	Rc 2	1,240	1,345	1,250	102	75 x ø80	51	R 2	50	

**Plug TPF type (Female thread)**



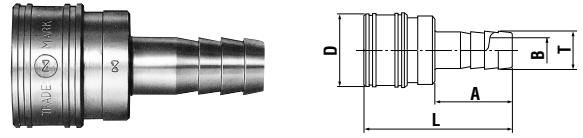
Model	Application	Mass (g)			Dimensions (mm)					
		Steel	Brass	Stainless steel	L	H(WAF)	C	T	øB	
1TPF	R 1/8	14 ±1	15	14	26	Hex.14	15.5	Rc 1/8	4.5	
2TPF	R 1/4	28	31	29	34	Hex.17	18	Rc 1/4	6.5	
3TPF	R 3/8	43	47	43	38	Hex.21	21	Rc 3/8	10	
4TPF	R 1/2	103	113	104	45	Hex.29	24	Rc 1/2	13	
6TPF	R 3/4	166	181	167	51	Hex.35	28	Rc 3/4	17	
8TPF	R 1	321	350	323	60	Hex.41	36	Rc 1	26	
10TPF	R 1 1/4	567	615	573	64	Hex.54 ±3	39	Rc 1 1/4	32	
12TPF	R 1 1/2	703	763	630	75	Hex.58 ±4	45	Rc 1 1/2	38	
16TPF	R 2	1,226	1,374	1,190	83	77 x ø82	51	Rc 2	50	

**Plug TPN type (For braided hose connection)**



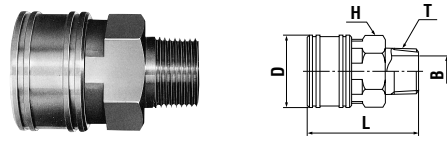
Model	Application (Hose) :s		Mass (g)		Dimensions (mm)					
	Size (mm)	Hose wall thickness (mm)	Brass	Stainless steel	L	H1(WAF)	H2(WAF)	C	øB	
2TPN-60	ø6 x ø11	2.5 ± 0.25	60	55	(47)	Hex.19	Hex.19	18	5.5	
3TPN-90	ø9 x ø15	3 ± 0.3	93	87	(52)	Hex.23	Hex.24	21	8.5	
4TPN-120	ø12 x ø18		140	130	(60)	Hex.27	Hex.27	24	11	
4TPN-150	ø15 x ø22	3.5 ± 0.35	182	170	(68)	Hex.30	Hex.30	24	13	
6TPN-190	ø19 x ø26		261	245	(76)	Hex.35	Hex.35	28	17	
8TPN-250	ø25 x ø33		4 ± 0.4	461	427	(96)	Hex.41	Hex.41	36	23

**Socket TSH type (Hose barb)**



Model	Application (Hose)	Mass (g)			Dimensions (mm)					
		Steel	Brass	Stainless steel	L	øD	A	øT	øB	
1TSH	1/8"	24 ±1	26	24	40	17.5	20	6.5	3	
2TSH	1/4"	63	69	64	55	24	29	8	5	
3TSH	3/8"	95	104	96	62	28	32	11	7	
4TSH	1/2"	176	192	177	74	35	39	15	10	
6TSH	3/4"	348	379	350	90	45	48	21	15	
8TSH	1"	570	605	570	102	58	57	27	19	
10TSH	1 1/4"	840	910	850	117	69	70	34.5	26	
12TSH	1 1/2"	1,060	1,140	1,070	128	75	75	41	32	
16TSH	2"	2,095	2,251	2,100	141	98	80	54	40	

**Socket TSM type (Male thread)**



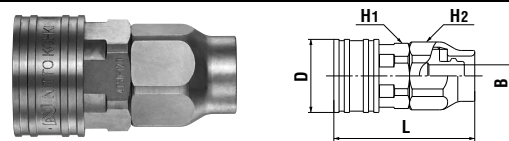
Model	Application	Mass (g)			Dimensions (mm)					
		Steel	Brass	Stainless steel	L	øD	H(WAF)	T	øB	
1TSM	Rc 1/8	25 ±1	27	26	30	17.5	Hex.14	R 1/8	4.5	
2TSM	Rc 1/4	66	72	67	42	24	Hex.19	R 1/4	6.5	
3TSM	Rc 3/8	99	108	100	46	28	Hex.23	R 3/8	10	
4TSM	Rc 1/2	178	194	179	56	35	Hex.29	R 1/2	13	
6TSM	Rc 3/4	343	374	346	65	45	Hex.38	R 3/4	18	
8TSM	Rc 1	629	665	633	76	58	Hex.50	R 1	24	
10TSM	Rc 1 1/4	950	1,010	955	86	69	54 x ø64	R 1 1/4	32	
12TSM	Rc 1 1/2	1,180	1,275	1,190	95	75	58 x ø70	R 1 1/2	38	
16TSM	Rc 2	2,040	2,190	2,060	108	98	77 x ø82	R 2	49	

**Socket TSF type (Female thread)**



Model	Application	Mass (g)			Dimensions (mm)			
		Steel	Brass	Stainless steel	L	øD	H(WAF)	T
1TSF	R 1/8	25 ±1	27	25	27	17.5	Hex.14	Rc 1/8
2TSF	R 1/4	57	62	57	32	24	Hex.19	Rc 1/4
3TSF	R 3/8	83	90	83	35	28	Hex.23	Rc 3/8
4TSF	R 1/2	153	167	154	42	35	Hex.29	Rc 1/2
6TSF	R 3/4	288	314	289	48	45	Hex.38	Rc 3/4
8TSF	R 1	575	607	575	59	58	Hex.50	Rc 1
10TSF	R 1 1/4	821	888	825	64	69	54 x ø64	Rc 1 1/4
12TSF	R 1 1/2	1,003	1,064	1,005	71	75	58 x ø70	Rc 1 1/2
16TSF	R 2	1,765	1,880	1,770	80	98	77 x ø82	Rc 2

**Socket TSN type (For braided hose connection)**



Model	Application (Hose) :s		Mass (g)		Dimensions (mm)					
	Size (mm)	Hose wall thickness (mm)	Brass	Stainless steel	L	øD	H1(WAF)	H2(WAF)	øB	
2TSN-60	ø6 x ø11	2.5 ± 0.25	91	84	(49)	24	Hex.19	Hex.19	5.5	
3TSN-90	ø9 x ø15	3 ± 0.3	139	129	(54)	28	Hex.23	Hex.24	8.5	
4TSN-120	ø12 x ø18		222	206	(62)	35	Hex.29	Hex.27	11	
4TSN-150	ø15 x ø22	3.5 ± 0.35	255	237	(70)	35	Hex.30	Hex.30	13	
6TSN-190	ø19 x ø26		435	408	(81)	45	Hex.38	Hex.35	17	
8TSN-250	ø25 x ø33		4 ± 0.4	677	633	(93)	58	Hex.50	Hex.41	23

\*1 : 1TSP steel is a made-to-order item. \*2 : Stainless steel: 54 x ø60 \*3 : Stainless steel: 54 x ø59 \*4 : Stainless steel: 58 x ø65 \*5 : Braided hoses for TPN type and TSN type should be made of soft PVC and woven by reinforcement thread. Before use, please be sure to read "Safety Guide" described at the end of this book and "Instruction Sheet" that comes with the products.

• Hydrocarbon type grease is applied to the threaded part of stainless steel nut for TPN type and TSN type to prevent galling.