

For High Pressure

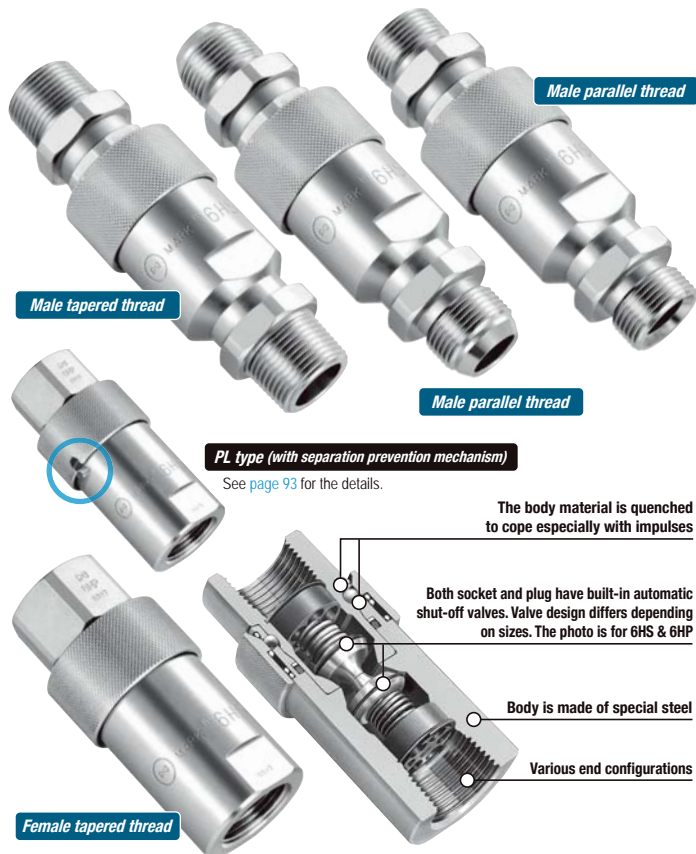
# HSP CUPLA

For hydraulic pressure from 14.0 to 20.6 MPa {142 to 210 kgf/cm<sup>2</sup>}

<b>Working pressure</b> 	<b>Valve structure</b> 	<b>Applicable fluid</b> 
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**Special steel body is tough against vibration and impact! Male and female thread end configurations are available. Low pressure loss characteristic suits hydraulic equipment applications.**

- Quenched special steel body!  
Powerful impact resistance, especially against impulses.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection.
- In addition to conventional female thread type, male thread types (male tapered thread, male parallel thread with 30° flare, and male parallel thread with 30° cone-seat) are available. Male thread types are designed especially for direct connection to hydraulic power units effectively.
- Male parallel thread type complies with both metal seal and O-ring seal. (In case of O-ring seal, O-rings available in the market can be used.)
- Optional HSP-DC CUPLA series are available for die-casting machine applications with severe pressure variation. (See page 158 of HSP-DC CUPLA for details.)
- The overall length of male thread type is shorter than that of female thread type plus conversion nipple available in the market.
- PL type (with separation prevention mechanism) for 2HS to 8HS (except 66HS) with female thread is also available as standard.



Specifications				
Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"	1 1/4", 1 1/2"	2"	
Working pressure	MPa	20.6	18.0	14.0
	kgf/cm <sup>2</sup>	210	183	142
	bar	206	180	140
	PSI	2990	2610	2030
Seal material	Seal material	Mark	Working temperature range	Remarks
Working temperature range *1	Nitrile rubber	NBR	-20°C to +80°C	Standard material
	Fluoro rubber	FKM	-20°C to +180°C	Available on request

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

Maximum Tightening Torque		Nm {kgf·cm}							
Size (Thread)		1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Torque	Female thread	28 {286}	45 {459}	90 {918}	100 {1020}	180 {1836}	290 {2958}	350 {3570}	500 {5100}
	Male tapered thread	28 {286}	45 {459}	90 {918}	100 {1020}	-	-	-	-
	Parallel male thread	25 {255}	35 {357}	60 {612}	120 {1224}	-	-	-	-

**Flow Direction**

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

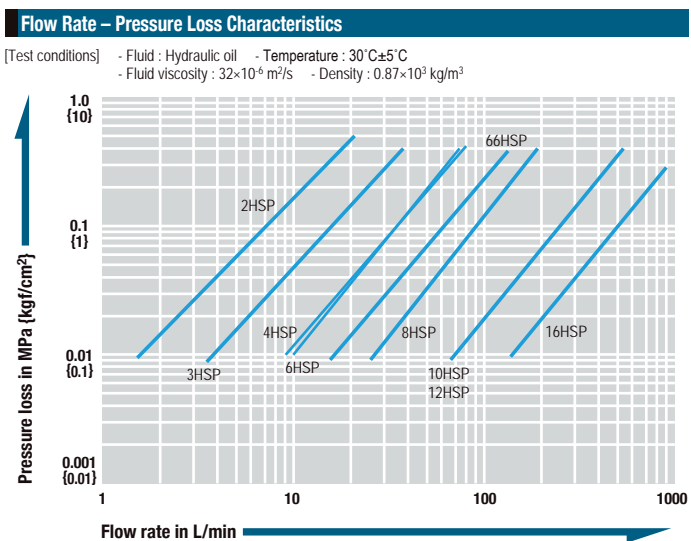
**Interchangeability**

4HSP with 6HSP or 10HSP with 12HSP can be connected with each other. Other combinations of different sizes are not connectable.

Minimum Cross-Sectional Area	(mm <sup>2</sup> )								
Model	2HSP	3HSP	4HSP	6HSP	66HSP	8HSP	10HSP	12HSP	16HSP
Minimum cross-sectional area	21	37	77	77	145	203	595	595	1084

Suitability for Vacuum	1.3×10 <sup>-1</sup> Pa {1×10 <sup>-3</sup> mmHg}		
Socket only	Plug only	When connected	
-	-	Operational	

Admixture of Air on Connection	May vary depending upon the usage conditions. (mL)								
Model	2HSP	3HSP	4HSP	6HSP	66HSP	8HSP	10HSP	12HSP	16HSP
Volume of air	0.7	1.9	3.5	3.5	8.2	12.4	44	44	156



The flow volume of male thread type is increased by 5 to 10% compared with that of female thread type with conversion nipple.

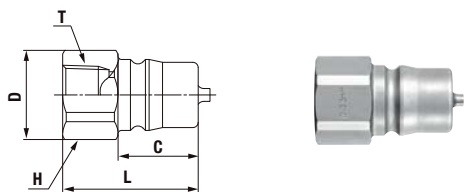
**⚠ Precautions for use**

There is no interchangeability between HSP CUPLA and 210 CUPLA, 280 CUPLA or 450B CUPLA. Do not connect to each other even if sizes are similar.

Models and Dimensions

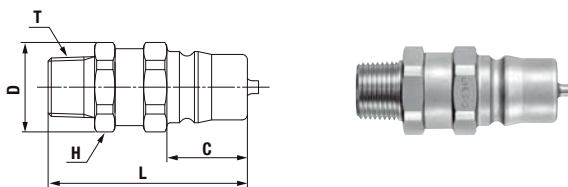
Product appearance may vary by size. / WAF : WAF stands for width across flats.

**Plug HP type (Female tapered thread)**



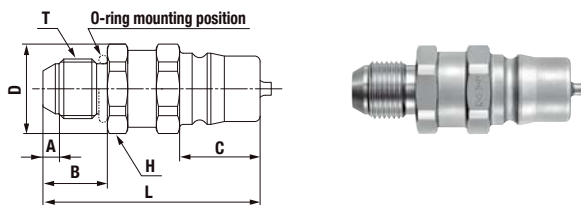
Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	øD	C	H(WAF)	T
2HP	R 1/4	40	32	20.5	17.5	Hex.19	Rc 1/4
3HP	R 3/8	68	38	25	22.5	Hex.23	Rc 3/8
4HP	R 1/2	124	44	32	27.5	Hex.29	Rc 1/2
6HP	R 3/4	148	50	35	27.5	Hex.32	Rc 3/4
66HP	R 3/4	232	51	40	28	35	Rc 3/4
8HP	R 1	361	61	47	36	41	Rc 1
10HP	R 1 1/4	886	80	64	58	58	Rc 1 1/4
12HP	R 1 1/2	810	80	64	58	58	Rc 1 1/2
16HP	R 2	3307	115	100	83	90	Rc 2

**Plug HP-R type (Male tapered thread)**



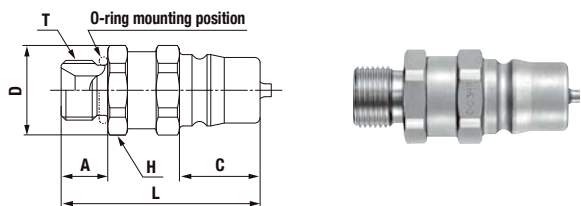
Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	øD	C	H(WAF)	T
2HP-R	Rc 1/4	60	(49)	21	17.5	Hex.19	R 1/4
3HP-R	Rc 3/8	102	(55.5)	25	22.5	Hex.23	R 3/8
4HP-R	Rc 1/2	171	(63)	31	27.5	Hex.29	R 1/2
6HP-R	Rc 3/4	197	(66)	35	27.5	Hex.32	R 3/4

**Plug HP-GP type (Male parallel thread with 30° flare)**



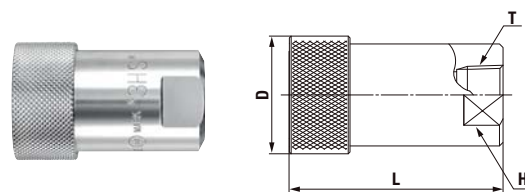
Model	Application* (Thread)	Mass (g)	O-ring size	Dimensions (mm)						
				L	øD	A	B	C	H(WAF)	T
2HP-GP	G 1/4	62	P-11	(52.5)	21	(4.5)	16	17.5	Hex.19	G 1/4B
3HP-GP	G 3/8	103	P-14	(60.5)	25	(4.5)	18	22.5	Hex.23	G 3/8B
4HP-GP	G 1/2	173	P-18	(66)	31	(5.5)	20	27.5	Hex.29	G 1/2B
6HP-GP	G 3/4	203	P-24	(69)	35	(5.5)	22	27.5	Hex.32	G 3/4B

**Plug HP-GS type (Male parallel thread with 30° cone-seat)**



Model	Application* (Thread)	Mass (g)	O-ring size	Dimensions (mm)					
				L	øD	A	C	H(WAF)	T
2HP-GS	G 1/4	59	P-11	(48)	21	11.5	17.5	Hex.19	G 1/4B
3HP-GS	G 3/8	99	P-14	(55.5)	25	13	22.5	Hex.23	G 3/8B
4HP-GS	G 1/2	167	P-18	(60.5)	31	14.5	27.5	Hex.29	G 1/2B
6HP-GS	G 3/4	191	P-24	(63.5)	35	16.5	27.5	Hex.32	G 3/4B

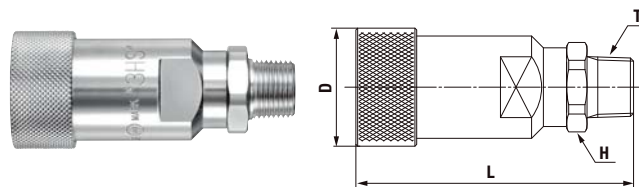
**Socket HS type (Female tapered thread)**



\*Models with separation prevention mechanism is also available. (Example of model name: 2HS with separation prevention mechanism → 2HS-PL)

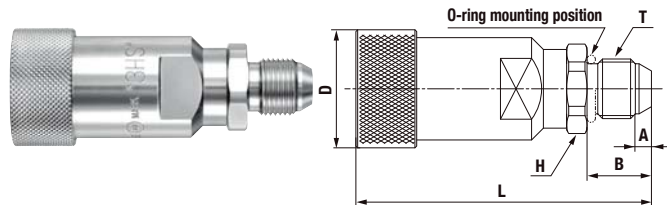
Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
2HS*	R 1/4	134	49	(27.5)	19	Rc 1/4
3HS*	R 3/8	226	60	(33)	23	Rc 3/8
4HS*	R 1/2	485	(72)	(43)	35	Rc 1/2
6HS*	R 3/4	460	(72)	(43)	35	Rc 3/4
66HS	R 3/4	569	78.5	(47)	35	Rc 3/4
8HS*	R 1	1042	93	(58)	46	Rc 1
10HS	R 1 1/4	2586	138	87	58	Rc 1 1/4
12HS	R 1 1/2	2510	138	87	58	Rc 1 1/2
16HS	R 2	7286	198	123	80	Rc 2

**Socket HS-R type (Male tapered thread)**



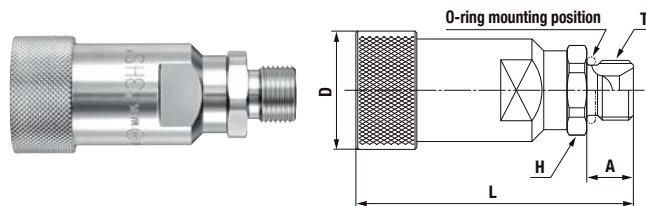
Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
2HS-R	Rc 1/4	148	(66)	(27.5)	Hex.19	R 1/4
3HS-R	Rc 3/8	245	(77.5)	(33)	Hex.23	R 3/8
4HS-R	Rc 1/2	466	(90)	(43)	Hex.29	R 1/2
6HS-R	Rc 3/4	493	(93)	(43)	Hex.32	R 3/4

**Socket HS-GP type (Male parallel thread with 30° flare)**



Model	Application* (Thread)	Mass (g)	O-ring size	Dimensions (mm)						
				L	øD	A	B	H(WAF)	T	
2HS-GP	G 1/4	149	P-11	(69.5)	(27.5)	(4.5)	16	Hex.19	G 1/4B	
3HS-GP	G 3/8	246	P-14	(82.5)	(33)	(4.5)	18	Hex.23	G 3/8B	
4HS-GP	G 1/2	476	P-18	(93)	(43)	(5.5)	20	Hex.29	G 1/2B	
6HS-GP	G 3/4	498	P-24	(96)	(43)	(5.5)	22	Hex.32	G 3/4B	

**Socket HS-GS type (Male parallel thread with 30° cone-seat)**



Model	Application* (Thread)	Mass (g)	O-ring size	Dimensions (mm)				
				L	øD	A	H(WAF)	T
2HS-GS	G 1/4	146	P-11	(65)	(27.5)	11.5	Hex.19	G 1/4B
3HS-GS	G 3/8	242	P-14	(77.5)	(33)	13	Hex.23	G 3/8B
4HS-GS	G 1/2	469	P-18	(87.5)	(43)	14.5	Hex.29	G 1/2B
6HS-GS	G 3/4	485	P-24	(90)	(43)	16.5	Hex.32	G 3/4B

\*The counterpart of GP type must be the female parallel thread specified in JIS B 8363 with 30° cone-seat or the coupling with O-ring seal. The counterpart of GS type must be the female parallel thread JIS B 8363 with 30° flare or the coupling with O-ring seal. - Sleeve stopper design is available for models 2HS to 8HS (except 66HS).

# HSP CUPLA **PL Type**

Easy to operate separation prevention mechanism enhances operator safety.



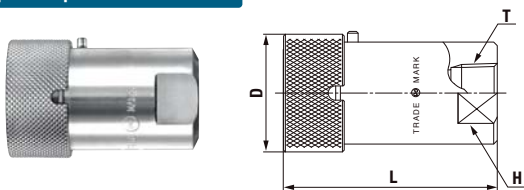
**Locked**

Separation prevention mechanism is easily locked by turning the sleeve after connection.

## Models and Dimensions Product appearance may vary by size. / WAF: WAF stands for width across flats.

### Socket HS-PL type (Female tapered thread)

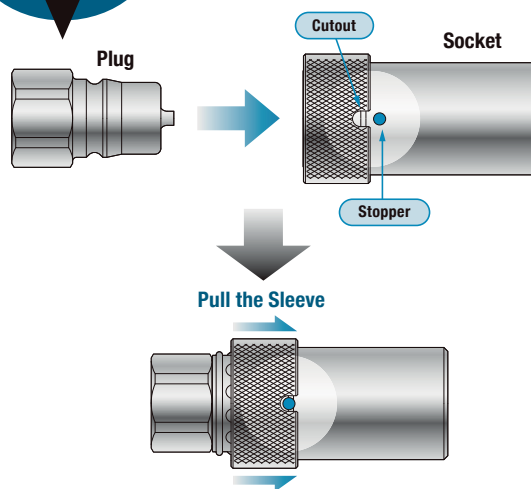
With separation prevention mechanism



Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H (WAF)	T
2HS-PL	R 1/4	134	49	(27.5)	19	Rc 1/4
3HS-PL	R 3/8	226	60	(33)	23	Rc 3/8
4HS-PL	R 1/2	485	(72)	(43)	35	Rc 1/2
6HS-PL	R 3/4	460	(72)	(43)	35	Rc 3/4
8HS-PL	R 1	1042	93	(58)	46	Rc 1

### At connection

Align the cutout in the sleeve with the stopper, and pull the sleeve to connect the plug.

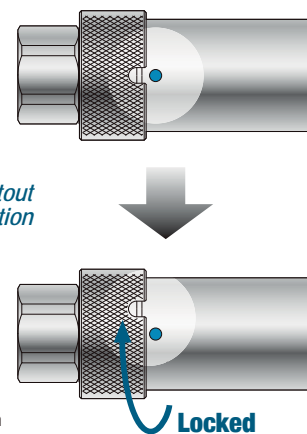


### Locking the sleeve

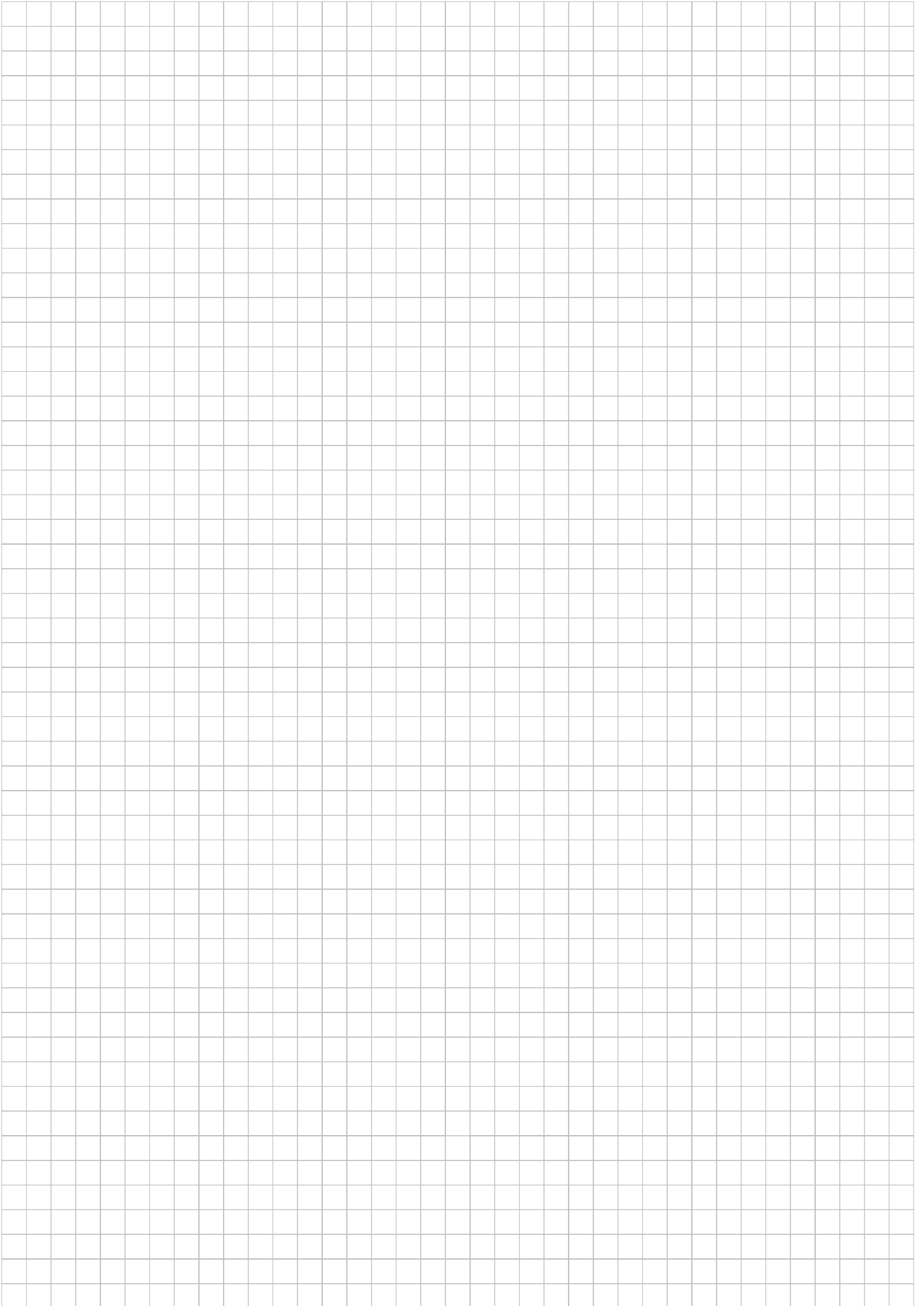
Without alignment of the cutout with the stopper, disconnection cannot be made.

**Accidental disconnection is prevented.**

Align the cutout in the sleeve with the stopper, and pull the sleeve to disconnect.



The stopper is marked with blue for visual understanding.



For High Pressure

# HYPER HSP CUPLA

Connects hydraulic piping even with residual pressure up to 20.6 MPa {210 kgf/cm<sup>2</sup>}

Working pressure



Valve structure

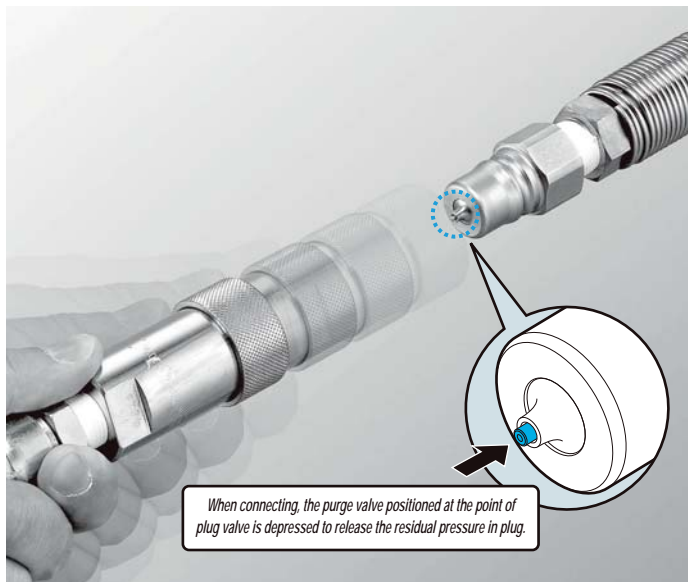


Applicable fluid



Purge function will set you free from the troublesome residual pressure elimination before connection and let you achieve efficient and frequent hydraulic pipe line coupling.

- Both socket and plug have built-in automatic shut-off valves to prevent fluid spill out when disconnected.
- Interchangeable with standard HSP CUPLA plug or socket in the same size.



## Specifications

Body material	Special steel (Nickel plated)			
Size (Thread)	1/4", 3/8", 1/2", 3/4", 1"			
Pressure unit	MPa	kgf/cm <sup>2</sup>	bar	PSI
Working pressure	20.6	210	206	2990
Seal material	Seal material	Mark	Working temperature range	Remarks
Working temperature range <sup>1</sup>	Nitrile rubber	NBR	-20°C to +80°C	Standard material

<sup>1</sup>: The operable temperature range depends on the operating conditions.

## Maximum Tightening Torque

Nm {kgf·cm}

Size (Thread)	1/4"	3/8"	1/2"	3/4"	1"
Torque	28 {286}	45 {459}	90 {918}	100 {1020}	180 {1836}

## Flow Direction

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



## Interchangeability

Interchangeable with standard HSP CUPLA plug or socket in the same size. Avoid connecting HYPER HSP CUPLA socket with HYPER HSP CUPLA plug. The residual pressure will not release.

## Minimum Cross-Sectional Area

(mm<sup>2</sup>)

Model	2HP-PV/2HS-PV	3HP-PV/3HS-PV	4HP-PV/4HS-PV	6HP-PV/6HS-PV	8HP-PV/8HS-PV
Minimum cross-sectional area	21	37	77	77	203

## Suitability for Vacuum

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

Socket only	Plug only	When connected
-	-	Operational

## Admixture of Air on Connection

May vary depending upon the usage conditions.

(mL)

Model	2HP-PV/2HS-PV	3HP-PV/3HS-PV	4HP-PV/4HS-PV	6HP-PV/6HS-PV	8HP-PV/8HS-PV
Volume of air	0.7	1.9	3.5	3.5	12.4

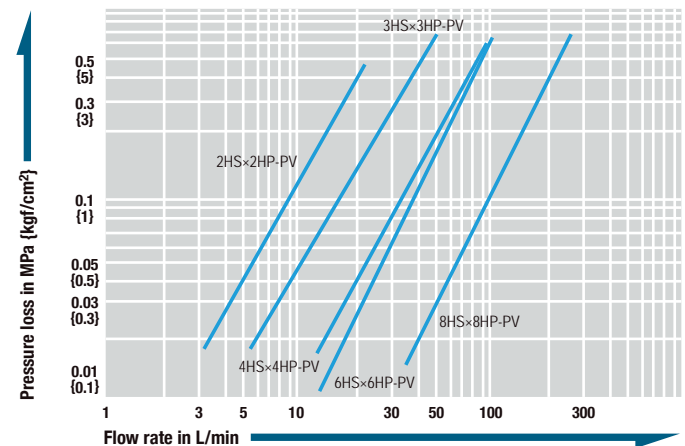
## Connection Load under Residual Pressure (For reference)

(N)

Residual pressure / Model	2HP-PV/2HS-PV	3HP-PV/3HS-PV	4HP-PV/4HS-PV	6HP-PV/6HS-PV	8HP-PV/8HS-PV
at 5.0 MPa	50	85	85	85	100
at 10.0 MPa	70	85	85	85	130
at 15.0 MPa	100	100	100	100	170

## Flow Rate – Pressure Loss Characteristics

[Test conditions] - Fluid : Hydraulic oil - Temperature : 30°C±5°C  
- Fluid viscosity : 32×10<sup>-6</sup> m<sup>2</sup>/s - Density : 0.87×10<sup>3</sup> kg/m<sup>3</sup>



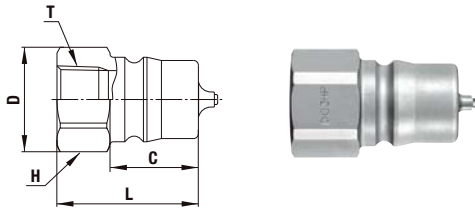
Note: Either socket or plug of HYPER HSP CUPLA must be used on the line where the residual pressure remains. The counterpart of HYPER HSP must be either plug or socket of standard HSP CUPLA.

## ⚠ Precautions for use

There is no interchangeability between HSP CUPLA and 210 CUPLA, 280 CUPLA or 450B CUPLA. Do not connect to each other even if sizes are similar.

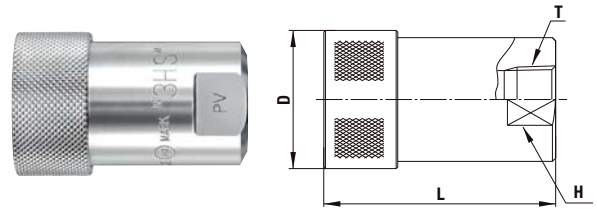
Models and Dimensions

**Plug** HP type (Female thread)



Model	Application (Thread)	Mass (g)	Dimensions (mm)				
			L	øD	C	H(WAF)	T
2HP-PV	R 1/4	44	32	20.5	17.5	Hex.19	Rc 1/4
3HP-PV	R 3/8	72	38	25	22.5	Hex.23	Rc 3/8
4HP-PV	R 1/2	138	44	32	27.5	Hex.29	Rc 1/2
6HP-PV	R 3/4	147	50	35	27.5	Hex.32	Rc 3/4
8HP-PV	R 1	360	61	47	36	41	Rc 1

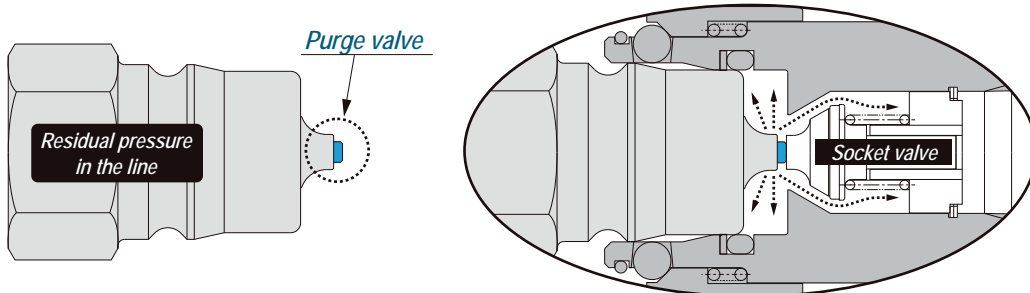
**Socket** HS type (Female thread)



Model	Application (Thread)	Mass (g)	Dimensions (mm)			
			L	øD	H(WAF)	T
2HS-PV	R 1/4	136	49	(27.5)	19	Rc 1/4
3HS-PV	R 3/8	225	60	(33)	23	Rc 3/8
4HS-PV	R 1/2	485	(72)	(43)	35	Rc 1/2
6HS-PV	R 3/4	460	(72)	(43)	35	Rc 3/4
8HS-PV	R 1	1050	93	(58)	46	Rc 1

**Residual Pressure Release (or purge) Mechanism**

While connecting, the purge valve indicated with a circle is being pushed and releasing the residual pressure



**Note:** Either socket or plug of HYPER HSP CUPLA must be used on the line where the residual pressure remains. The counterpart of HYPER HSP must be either plug or socket of standard HSP CUPLA. HYPER HSP CUPLA can be connected under the residual pressure in the line, but cannot during pressurizing. It may lead to incomplete connection, durability deterioration or possible valve fly out.