

For High Pressure

# HSP CUPLA

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

Working pressure



14.0 to 20.6 MPa  
(142 to 210 kgf/cm<sup>2</sup>)

Valve structure



Two-way shut-off

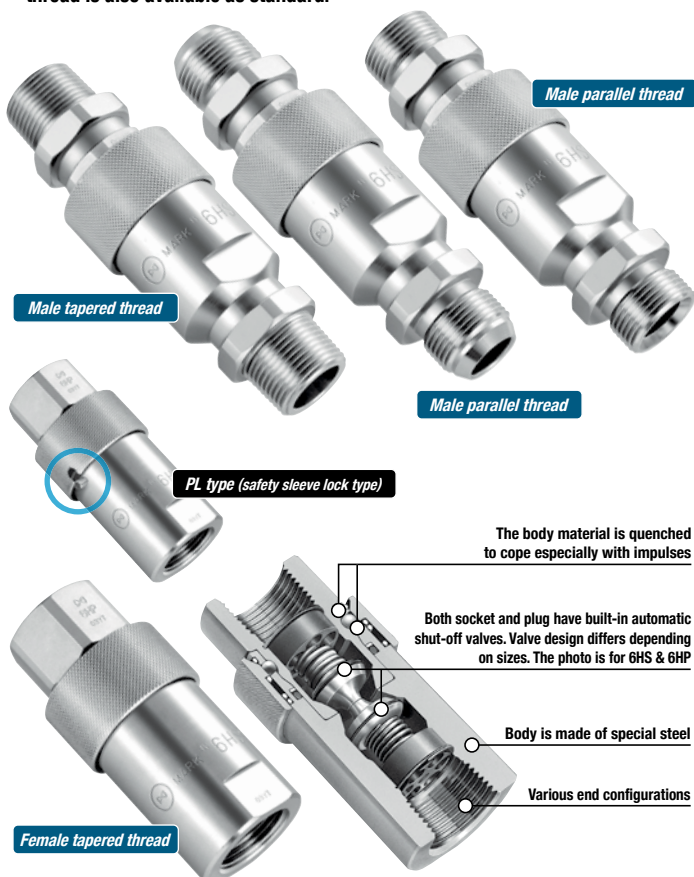
Applicable fluid



Hydraulic oil

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.
- The overall length of male thread type is shorter than that of female thread type plus conversion nipple available in the market.
- PL type (Safety sleeve lock type) 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 |
| Working temperature range |                     | Nitrile rubber                | NBR (SG)       | -20°C to +80°C            |
|                           |                     | Fluoro rubber                 | FKM (X-100)    | -20°C to +180°C           |
|                           |                     |                               |                | Remarks                   |
|                           |                     |                               |                | Standard material         |
|                           |                     |                               |                | Available on request      |

## 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<br>{286} | 45<br>{459} | 90<br>{918} | 100<br>{1020} | 180<br>{1836} | 290<br>{2958} | 350<br>{3570} |
|               | Male taper thread    | 28<br>{286} | 45<br>{459} | 90<br>{918} | 100<br>{1020} | —             | —             | —             |
|               | Parallel male thread | 25<br>{255} | 35<br>{357} | 60<br>{612} | 120<br>{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 x 10<sup>-1</sup> Pa {1 x 10<sup>-3</sup> mmHg}

| Socket only | Plug only | When connected |
|-------------|-----------|----------------|
| —           | —         | Operational    |

## Admixture of Air on Connection

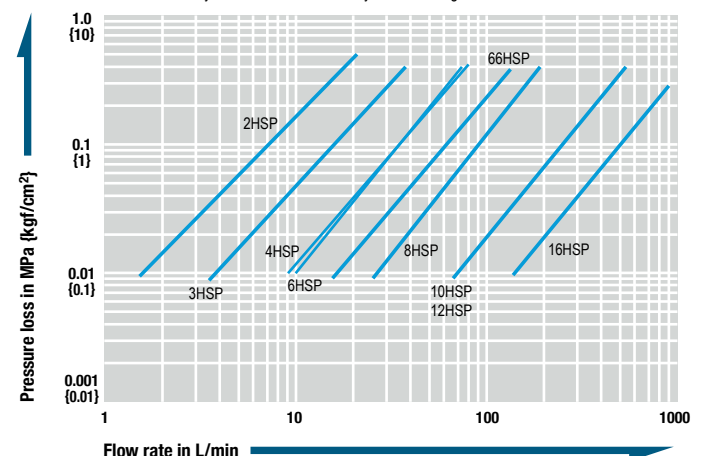
May vary depending upon the usage conditions.

(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   |

## Flow Rate – Pressure Loss Characteristics

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



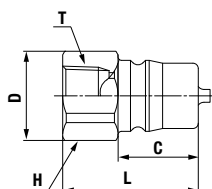
The flow volume of male thread type is increased by 5 to 10% compared with that of female thread type with conversion nipple.

## ⚠ Precautions for use

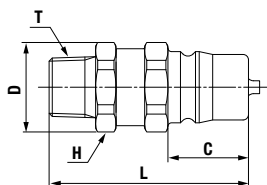
There is no interchangeability between HSP CUPLA and 210 CUPLA or 280 CUPLA. Do not connect to each other even if sizes are similar.

## Models and Dimensions

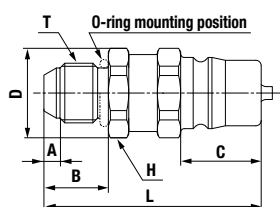
Product appearance may vary by size. / WAF : WAF stands for width across flats.

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

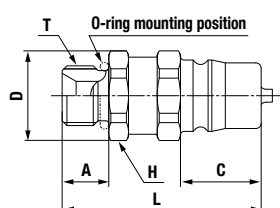
| Model | Application (Thread) | Mass (g) | Dimensions (mm) |      |      |        |          |
|-------|----------------------|----------|-----------------|------|------|--------|----------|
|       |                      |          | L               | øD   | C    | H(WAF) | T        |
| 2HP   | R 1/4                | 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                  | 3,307    | 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)

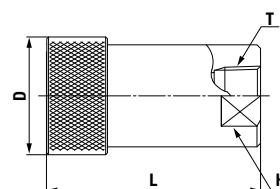
| Model  | Application* (Thread) | Mass (g) | O-ring size | Dimensions (mm) |    |       |    |      |        |        |
|--------|-----------------------|----------|-------------|-----------------|----|-------|----|------|--------|--------|
|        |                       |          |             | 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)

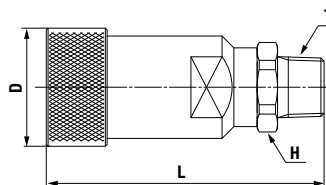
| Model  | Application* (Thread) | Mass (g) | O-ring size | Dimensions (mm) |    |      |      |        |        |
|--------|-----------------------|----------|-------------|-----------------|----|------|------|--------|--------|
|        |                       |          |             | L               | 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 |

\*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.

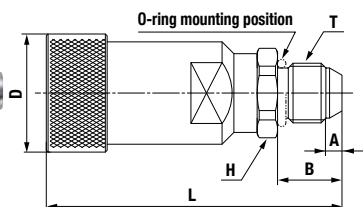
• Sleeve stopper design is available for models 2HS to 8HS (except 66HS).

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

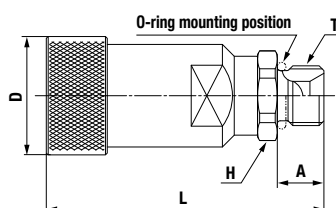
| Model | Application (Thread) | Mass (g) | Dimensions (mm) |        |        |          |
|-------|----------------------|----------|-----------------|--------|--------|----------|
|       |                      |          | L               | øD     | H(WAF) | T        |
| 2HS   | R 1/4                | 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                  | 1,042    | 93              | (58)   | 46     | Rc 1     |
| 10HS  | R 1 1/4              | 2,586    | 138             | 87     | 58     | Rc 1 1/4 |
| 12HS  | R 1 1/2              | 2,510    | 138             | 87     | 58     | Rc 1 1/2 |
| 16HS  | R 2                  | 7,286    | 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 |  |

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