

For Hydraulics

HSP Cupla

For hydraulic pressure from 14.0 to 20.6MPa {142~210kgf/cm²}

Working pressure

| | | |
|--------------------------------------|--------------------------------------|--------------------------------------|
| 20.6 | 18.0 | 14.0 |
| 20.6MPa (210kgf/cm ²) | 18.0MPa (183kgf/cm ²) | 14.0MPa (142kgf/cm ²) |

Valve structure



Two-way shut-off

Applicable fluids



Hydraulic oil

NEW

Parallel male thread

Parallel male thread

Male taper thread

The body material is quenched to cope especially with impulses

Both socket and plug have built-in automatic shut-off valves. Valve design differs with size. The photo is for 6HS & 6HP

Body is made of special corrosion resistant steel

Various end configurations

Female taper thread

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.
- Valve is designed to suppress pressure loss, particularly suitable for hydraulic applications which need big fluid flow rates.
- Automatic shut-off valves in both socket and plug prevent fluid spill out on disconnection. Easy to handle.
- In addition to conventional female thread type, male thread types (male taper thread, parallel male thread with 30° flare, and parallel male thread with 30° cone-seat) are newly added. Male thread types are designed especially for direct connection to hydraulic power units effectively.
- Parallel male 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.)
- HSP-DC Cuplas are available for diecasting 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.

Specifications

| | | | |
|--|--------------------------------|-----------------|---------------------------|
| Body material | Special steel (Nickel-plated) | | |
| Size | 1/4" • 3/8" • 1/2" • 3/4" • 1" | 1 1/4" • 1 1/2" | 2" |
| Working pressure MPa (kgf/cm ²) | 20.6 (210) | 18.0 (183) | 14.0 (142) |
| Pressure resistance MPa (kgf/cm ²) | 31.0 (316) | 26.5 (270) | 20.6 (210) |
| Seal material Working temperature range | Seal material | Mark | Working temperature range |
| | Nitrile rubber | NBR (SG) | -20°C~+80°C |
| | Fluoro rubber | FKM (X-100) | -20°C~+180°C |
| | | | Remarks |
| | | | Standard material |
| | | | Available on request |

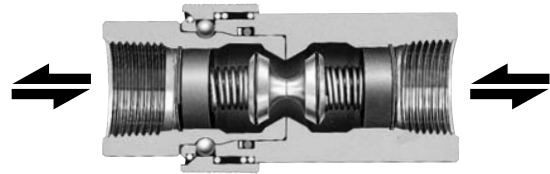
Max. Tightening Torque

N·m (kgf·cm)

| Size | 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) | 500 (5100) |
| | Male taper thread | 28 (286) | 45 (459) | 90 (918) | 100 (1020) | — | — | — |
| | Parallel male thread | 25 (255) | 35 (357) | 60 (612) | 120 (1224) | — | — | — |

Flow Direction

Fluid may flow in either direction from plug or from socket side when coupled.



Interchangeability

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

Min. Cross-Sectional Area

(mm²)

| Model | 2HSP | 3HSP | 4HSP | 6HSP | 66HSP | 8HSP | 10HSP | 12HSP | 16HSP |
|---------------------------|------|------|------|------|-------|------|-------|-------|-------|
| Min. Cross-Sectional Area | 21 | 37 | 77 | 77 | 145 | 203 | 595 | 595 | 1084 |

Suitability for Vacuum

1.3 x 10⁻¹Pa (1 x 10⁻³mmHg)

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

Admixture of Air on Connection

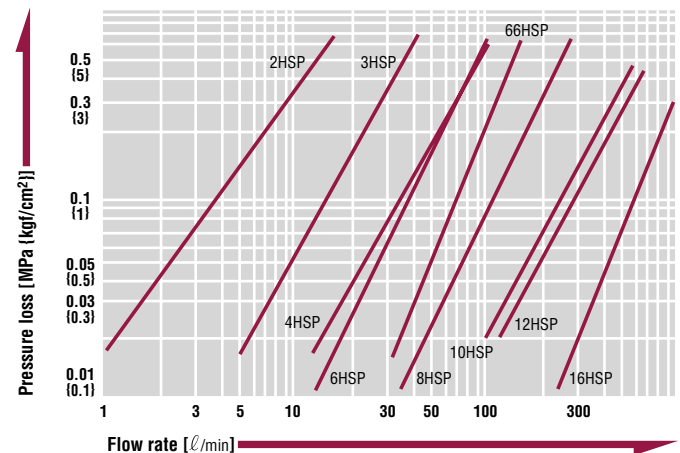
(ml)

| 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

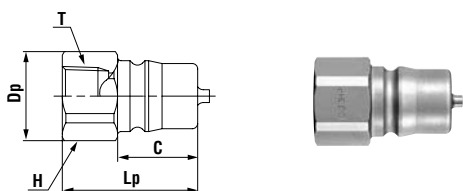
[Test conditions]

- Fluid : Hydraulic oil
- Temperature : 30°C ± 5°C
- Fluid viscosity : 32 x 10⁻⁶m²/s
- Density : 0.87 x 10³kg/m³



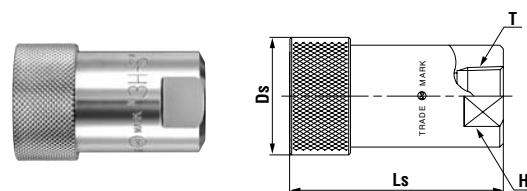
The flow volume of male thread type is increased by 5~10% compared with that of female thread type with conversion nipple.

Plug HP type (Female thread)



| Model | Application | Mass (g) | Dimensions (mm) | | | | |
|-------|-------------|----------|-----------------|------|------|--------------|---------|
| | | | Lp | øDp | 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 | Two flats 35 | Rc 3/4 |
| 8HP | R 1 | 361 | 61 | 47 | 36 | Two flats 41 | Rc 1 |
| 10HP | R1 1/4 | 886 | 80 | 64 | 58 | Two flats 58 | Rc1 1/4 |
| 12HP | R1 1/2 | 810 | 80 | 64 | 58 | Two flats 58 | Rc1 1/2 |
| 16HP | R 2 | 1513 | 115 | 100 | 83 | Two flats 90 | Rc 2 |

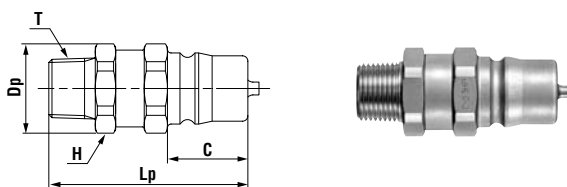
Socket HS type (Female thread)



| Model | Application | Mass (g) | Dimensions (mm) | | | |
|-------|-------------|----------|-----------------|------|--------------|---------|
| | | | Ls | øDs | H(WAF) | T |
| 2HS | R 1/4 | 134 | 49 | 27.5 | Two flats 19 | Rc 1/4 |
| 3HS | R 3/8 | 226 | 60 | 33 | Two flats 23 | Rc 3/8 |
| 4HS | R 1/2 | 485 | 72 | 43 | Two flats 35 | Rc 1/2 |
| 6HS | R 3/4 | 460 | 72 | 43 | Two flats 35 | Rc 3/4 |
| 66HS | R 3/4 | 569 | 78.5 | 47 | Two flats 35 | Rc 3/4 |
| 8HS | R 1 | 1042 | 93 | 58 | Two flats 46 | Rc 1 |
| 10HS | R1 1/4 | 2586 | 138 | 87 | Two flats 58 | Rc1 1/4 |
| 12HS | R1 1/2 | 2510 | 138 | 87 | Two flats 58 | Rc1 1/2 |
| 16HS | R 2 | 3699 | 198 | 123 | Two flats 80 | Rc 2 |

Plug HP-R type (Male thread)

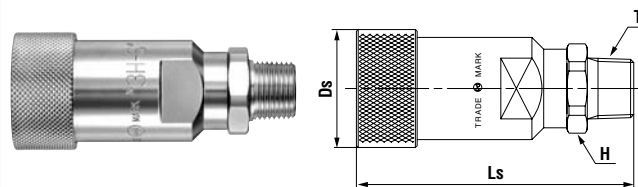
NEW



| Model | Application | Mass (g) | Dimensions (mm) | | | | |
|-------|-------------|----------|-----------------|-----|------|--------|-------|
| | | | Lp | øDp | 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 |

Socket HS-R type (Male thread)

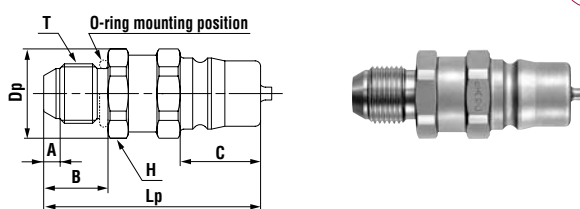
NEW



| Model | Application | Mass (g) | Dimensions (mm) | | | |
|-------|-------------|----------|-----------------|------|--------|-------|
| | | | Ls | øDs | 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 |

Plug HP-GP type (Parallel male thread with 30° flare)

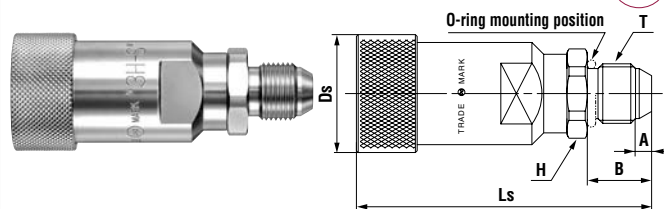
NEW



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

Socket HS-GP type (Parallel male thread with 30° flare)

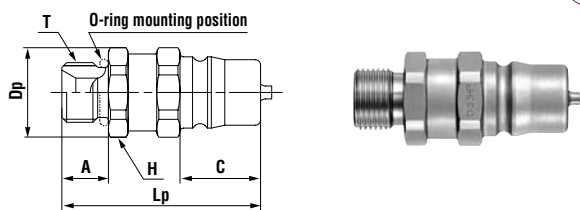
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| Model | Application* | Mass (g) | O-ring size | Dimensions (mm) | | | | | | |
|--------|--------------|----------|-------------|-----------------|------|-----|----|--------|--------|--------|
| | | | | Ls | øDs | A | B | H(WAF) | T | |
| 2HS-GP | G 1/4 | 149 | P-11 | 69.5 | 27.5 | 4.5 | 16 | 17.5 | Hex.19 | G 1/4B |
| 3HS-GP | G 3/8 | 246 | P-14 | 82.5 | 33 | 4.5 | 18 | 22.5 | Hex.23 | G 3/8B |
| 4HS-GP | G 1/2 | 476 | P-18 | 93 | 43 | 5.5 | 20 | 27.5 | Hex.29 | G 1/2B |
| 6HS-GP | G 3/4 | 498 | P-24 | 96 | 43 | 5.5 | 22 | 27.5 | Hex.32 | G 3/4B |

Plug HP-GS type (Parallel male thread with 30° cone-seat)

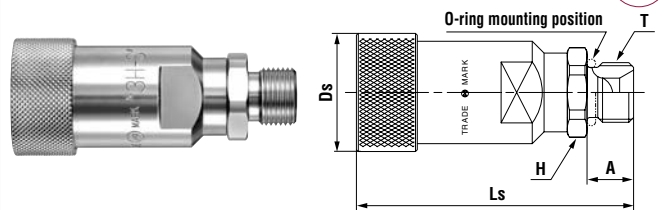
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| Model | Application* | Mass (g) | O-ring size | Dimensions (mm) | | | | | |
|--------|--------------|----------|-------------|-----------------|-----|------|------|--------|--------|
| | | | | Lp | øDp | A | C | H(WAF) | T |
| 2HP-GS | G 1/4 | 59 | 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-GS type (Parallel male thread with 30° cone-seat)

NEW



| Model | Application* | Mass (g) | O-ring size | Dimensions (mm) | | | | | |
|--------|--------------|----------|-------------|-----------------|------|------|--------|--------|--------|
| | | | | Ls | øDs | A | H(WAF) | T | |
| 2HS-GS | G 1/4 | 146 | P-11 | 65 | 27.5 | 11.5 | 17.5 | Hex.19 | G 1/4B |
| 3HS-GS | G 3/8 | 242 | P-14 | 77.5 | 33 | 13 | 22.5 | Hex.23 | G 3/8B |
| 4HS-GS | G 1/2 | 469 | P-18 | 87.5 | 43 | 14.5 | 27.5 | Hex.29 | G 1/2B |
| 6HS-GS | G 3/4 | 485 | P-24 | 90.5 | 43 | 16.5 | 27.5 | Hex.32 | G 3/4B |

*The counterpart of GP type must be the parallel female 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 parallel female thread JIS B 8363 with 30° flare or the coupling with O-ring seal.