

# Flat Face Cupla (FF Series)

## Hydraulic Cupla for Water-Glycol Hydraulic Fluids



### Adopting Autocatalytic Nickel-Phosphorus coating

Insoluble "Autocatalytic Nickel-Phosphorus coating" is totally adopted in order to resist metal surface invasive "water-glycol hydraulic fluids".

### Working pressure 35MPa

Best suited for hydraulic lines with wide pressure range and rapid pressure pulsation such as in the application of diecasting machine.

### Push-to-connect function with sleeve slide lock

Push-to-connect operation. Sleeve stopper mechanism is designed in as the standard feature to prevent accidental disconnection.

### Large fluid flow and with airless valve

Airless valve design minimizes air admixture and stops fluid spill out on disconnection in the lowest level. Flow volume is increased by 25 to 60% compared with conventional hydraulic Cupla.

\*The flow increase ratio varies depending on the Cupla size.

### Available sizes are Rc 3/8, Rc 1/2, Rc 3/4, and Rc 1.

\*Only the same size of socket and plug can be connected. However, GN type socket can be connected with GN type plug only

### Unique flat face design

Offset concave flat face on socket guides plug for quick and smooth connection.

### Offset concave flat face enables quick and smooth connection



### Groove for color identification tape

\*Use any identification tape available on the market

### Hexagon nut design for easy mount

## Cupla for Water-Glycol Hydraulic Fluids

Water-glycol hydraulic fluid is fire resistant used in the hydraulic control lines of die casting machines, or steel mill facilities and equipment such as continuous casting machines, hot rolling lines, and furnace-related lines. These applications are exposed to danger of ignition because of extreme high temperature and intense heat. This water-glycol hydraulic fluid is an alkaline electrolytic solution of pH9 to pH11 to obtain corrosion resistance to iron-based metal. However, it also has the disadvantage that it melts zinc and zinc plating. Because most of conventional hydraulic couplings adopt zinc plating, this new water-glycol hydraulic fluid is one of the fluids that are hard to handle for them. For this reason, Nitto Kohki immediately started the development of hydraulic Cupla suitable for such water-glycol hydraulic fluid to meet users' requirements, and has developed new hydraulic Cupla "FF series" that on the whole parts adopt Autocatalytic Nickel-Phosphorus coating being insoluble to this operating oil.

## Flow Direction



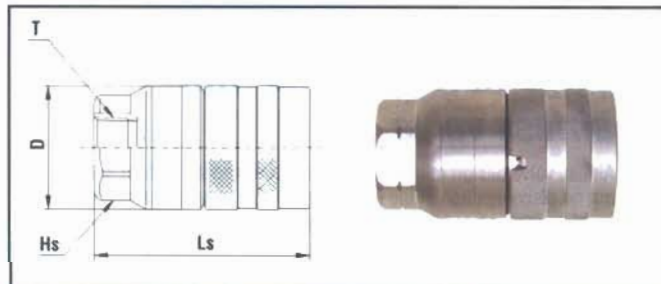
## Min. Cross-Sectional Area (mm<sup>2</sup>)

| Model                     | FF-3S x<br>FF-3P | FF-4S x<br>FF-4P | FF-6S x FF-6P<br>FF-6S-GN-8F x FF-6P-GN-8F | FF-8S x<br>FF-8P |
|---------------------------|------------------|------------------|--------------------------------------------|------------------|
| Min. Cross-Sectional Area | 51               | 106              | 215                                        | 332              |

## Models and Dimensions

### Socket

WAF : WAF stands for width across flats.



| Model       | Application | Mass (g) | Dimensions (mm) |      |         |        |
|-------------|-------------|----------|-----------------|------|---------|--------|
|             |             |          | Ls              | φD   | Hs(WAF) | T      |
| FF-3S       | R 3/8       | 359      | 71.5            | 35.5 | Hex.29  | Rc 3/8 |
| FF-4S       | R 1/2       | 621      | 83.5            | 44.0 | Hex.32  | Rc 1/2 |
| FF-6S       | R 3/4       | 1,057    | 95.0            | 54.0 | Hex.41  | Rc 3/4 |
| FF-6S-GN-8F | R 1         | 1,043    | 97.5            | 54.0 | Hex.41  | Rc 1   |
| FF-8S       | R 1         | 1,867    | 109.0           | 66.0 | Hex.54  | Rc 1   |

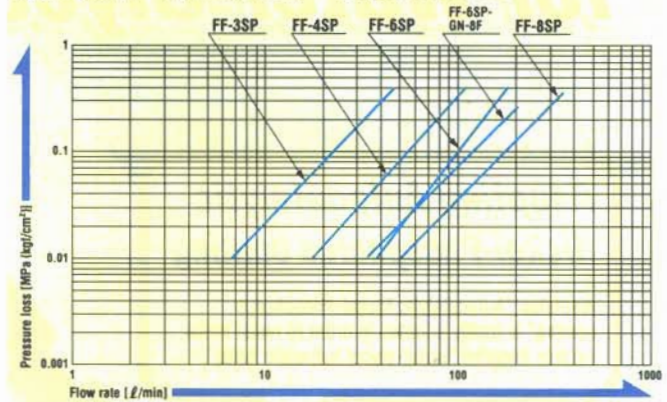
\*Only the same size of socket and plug can be connected. However, GN type socket can be connected with GN type plug only.

## Specifications

|                     |                                         |          |                           |
|---------------------|-----------------------------------------|----------|---------------------------|
| Body material       | Autocatalytic Nickel-Phosphorus coating |          |                           |
| Size                | 3/8" • 1/2" • 3/4" • 1"                 |          |                           |
| Working pressure    | 35.0 MPa (357 kgf/cm <sup>2</sup> )     |          |                           |
| Pressure resistance | 52.5 MPa (536 kgf/cm <sup>2</sup> )     |          |                           |
| Seal material       | Seal material                           | Mark     | Working temperature range |
|                     | Nitrile rubber                          | NBR (SG) | -5°C~+80°C                |

## Flow Rate-Pressure Loss Characteristics

[Test conditions] • Fluid: Hydraulic oil • Temperature: 30°C±5°C

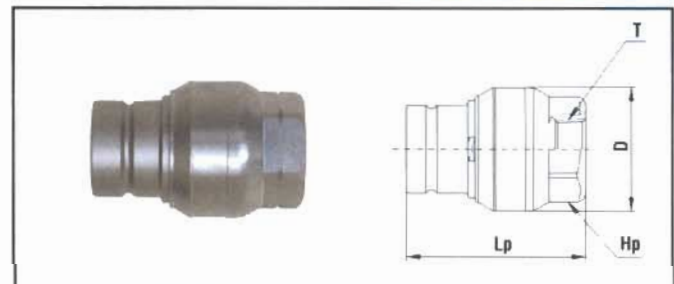


## Applications

Piping for die casting machines, casting machines, electric furnaces, molding presses, forging presses, powdery alloy presses, extrusion molding machines, machine tools, iron manufacturing blast furnaces, continuous casting machines, rolling mills, pipe forging machines, furnace opening/closing machines, glass molding machines, etc.

### Plug

WAF : WAF stands for width across flats.



| Model       | Application | Mass (g) | Dimensions (mm) |      |         |        |
|-------------|-------------|----------|-----------------|------|---------|--------|
|             |             |          | Lp              | φD   | Hp(WAF) | T      |
| FF-3P       | R 3/8       | 259      | 66.0            | 34.0 | Hex.29  | Rc 3/8 |
| FF-4P       | R 1/2       | 373      | 74.5            | 42.0 | Hex.32  | Rc 1/2 |
| FF-6P       | R 3/4       | 735      | 83.5            | 54.0 | Hex.41  | Rc 3/4 |
| FF-6P-GN-8F | R 1         | 656      | 85.0            | 54.0 | Hex.41  | Rc 1   |
| FF-8P       | R 1         | 1,361    | 98.0            | 66.0 | Hex.54  | Rc 1   |

★ Specifications and designs are subject to change at any time without notice.



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