

Air-driven Mechanism for Plug Disconnection (High Pressure Version)

Auto Cupla ACV-HP Type

Suits for refrigerants that require high pressure. High pressure version of the ACV type. Automatic Plug Disconnection Type. Contributes to energy and labor saving on the production line.

- Simply push the plug into the Auto Cupla for connection.
- Air-driven mechanism is employed in the Auto Cupla to disconnect the plug. For an emergency, manual disconnection is possible.
- An automatic shut-off valve in the Auto Cupla prevents fluid from spilling on disconnection.
- The ACV-HP type can be connected to the standard 2P-V and 3P-V Plugs. The ACV-HP-GN type is also available for the 2P-V-GN and 3P-V-GN Plugs on request.



A general rule for identification

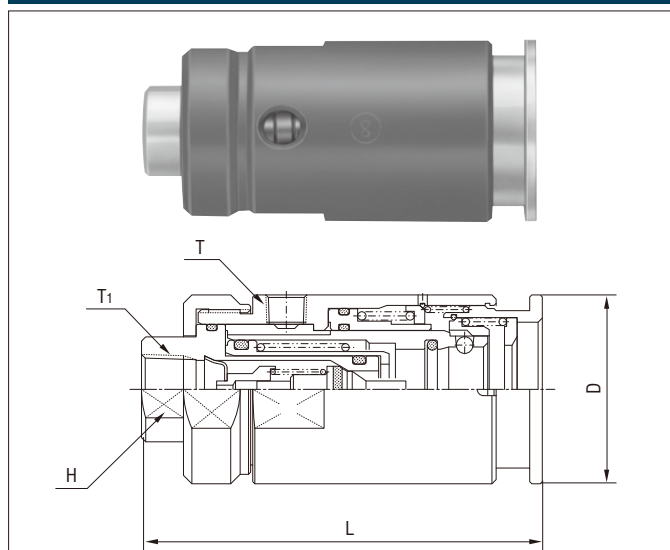
- An Auto Cupla with CR seal: The body is coated with blue colored anodic oxidized alumina.
- An Auto Cupla with HNBR seal: The body is coated with red colored anodic oxidized alumina.
- Please contact us should you require any other color.

Specifications

| | | | |
|--|---|---|---------------------------|
| Body material | Stainless Steel (Partly Aluminum and Brass) | | |
| Size (Thread) | 1/4", 3/8" | | |
| Working pressure | 4.5 MPa, 46 kgf/cm ² , 45 bar, 653 PSI | | |
| Seal material Working temperature range | Seal material | Mark | Working temperature range |
| | Chloroprene rubber | CR (C308) | -20°C to +80°C |
| | Hydrogenated nitrile rubber | HNBR (H708) | -20°C to +120°C |
| Maximum Cupla Inner Pressure for Air Operation | When Disconnecting Plug | 1.0 MPa, 10 kgf/cm ² , 10 bar, 142 PSI | |

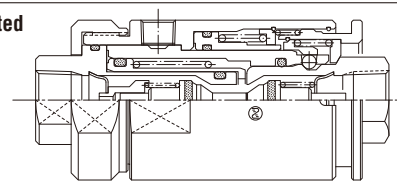
Models and Dimensions (WAF : WAF stands for width across flats.)

Socket



| Model | Connecting Plug | Dimensions (mm) | | | | |
|-----------|-----------------|-----------------|----|---------|--------|----------------|
| | | L | øD | H (WAF) | T | T ₁ |
| ACV-2S-HP | 2P-V | 100 | 42 | 19 | Rc 1/8 | Rc 1/4 |
| ACV-3S-HP | 3P-V | 96 | 45 | 21 | Rc 1/8 | Rc 3/8 |

Auto Cupla is connected to Plug



How to Use

Connection to Plug

Simply push the plug into the Auto Cupla for connection.

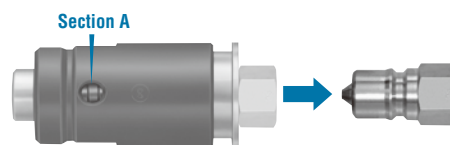


Upon connection, the valve in the Auto Cupla and plug open instantly to allow the fluid flow.



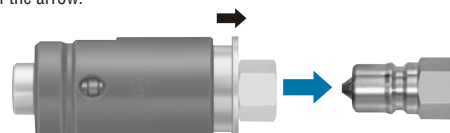
Disconnection of Plug

Prior to disconnecting the plug, reduce the fluid pressure below 1.0 MPa (10 kgf/cm²). The plug can be automatically disconnected by applying air pressure of 0.5 to 0.6 MPa (5 to 6 kgf/cm²) to section A.



Disconnection of Plug for an emergency

The plug can be easily disconnected by pulling the front side sleeve in the direction of the arrow.



Note: No lubricant is applied to HNBR O-ring in the socket. Please apply refrigerant oil to O-ring before use.

Auto Cupla AC Type

Auto Cupla automatically opens and closes the valve, and disconnects the plug. Contributes to energy and labor saving on the production line.

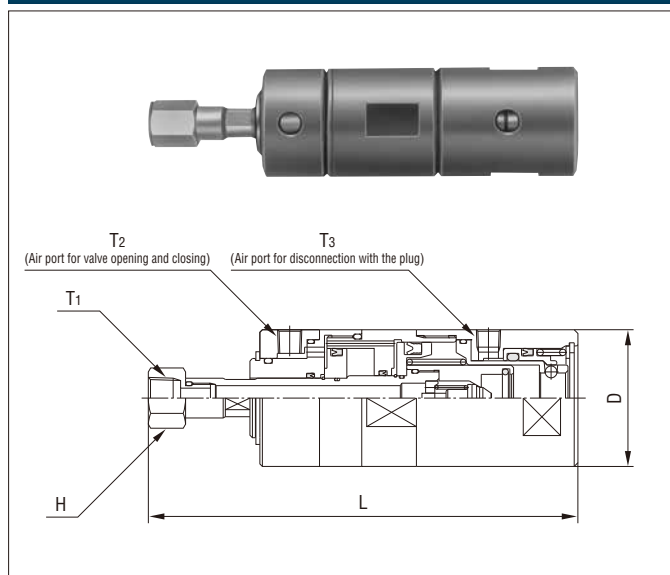
- Air-driven mechanism is employed in the Auto Cupla to connect and disconnect the plug and to open and close the valve.
- An automatic shut-off valve in the Auto Cupla prevents fluid from spilling on disconnection.
- The unique air-driven mechanism reduces the load when the plug is connected to the Auto Cupla.
- The Auto Cupla and Plug can be connected or disconnected even when the residual pressure remains.
- The safety design prevents the valve from opening even if the valve is operated to open with air-driven mechanism without connecting to the plug.
- The AC type can be connected to the standard 2P-V and 3P-V Plugs. The AC-GN type is also available for the 2P-V-GN and 3P-V-GN Plugs on request.
- Hydrogenated nitrile rubber (HNBR) is colored in blue for easy recognition.

Specifications

| | | | |
|--|---|---|---------------------------|
| Body material | Stainless Steel (Partly Aluminum and Brass) | | |
| Size (Thread) | 1/4", 3/8" | | |
| Working pressure | 3.0 MPa, 31 kgf/cm ² , 30 bar, 435 PSI | | |
| Seal material Working temperature range | Seal material | Mark | Working temperature range |
| | Chloroprene rubber | CR (C308) | -20°C to +80°C |
| | Hydrogenated nitrile rubber | HNBR (H708) | -20°C to +120°C |
| | Nitrile rubber | NBR (SG) | -20°C to +80°C |
| Maximum Cupla Inner Pressure for Air Operation | When opening and closing the valve | 1.0 MPa, 10 kgf/cm ² , 10 bar, 145 PSI | |
| | When disconnecting the plug | 1.0 MPa, 10 kgf/cm ² , 10 bar, 145 PSI | |

Models and Dimensions (WAF : WAF stands for width across flats.)

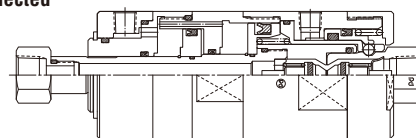
Socket



| Model | Connecting Plug | Dimensions (mm) | | | | | |
|-------|-----------------|-----------------|----|---------|--------|--------|--------|
| | | L | øD | H (WAF) | T1 | T2 | T3 |
| AC-2S | 2P-V | 155 | 44 | Hex. 17 | Rc 1/4 | Rc 1/8 | Rc 1/8 |
| AC-3S | 3P-V | 173 | 55 | Hex. 21 | Rc 3/8 | Rc 1/8 | Rc 1/8 |



Auto Cupla is connected to Plug



How to Use

Connection to Plug

The balls in the Auto Cupla become loose by applying air pressure of 0.5 to 0.6 MPa (5 to 6 kgf/cm²) to section A. The plug can then be easily inserted. Completely inserting the plug into the Auto Cupla and reducing the pressure on section A to 0 MPa will lock the Auto Cupla and plug and complete the connection. (* The valve is not open in this state.)

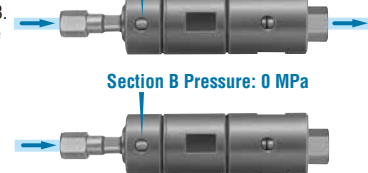
Section A: Compressed Air



Opening and Closing the Valve

Prior to operating the valve, reduce the fluid pressure below 1.0 MPa (10 kgf/cm²). The valves in the Auto Cupla and plug open by applying air pressure of 0.5 to 0.6 MPa (5 to 6 kgf/cm²) to section B. By reducing the air pressure on section B to 0 MPa, the valves in the Auto Cupla and plug close thereby stopping the fluid flow.

Section B: Compressed Air



Disconnection of Plug

Prior to disconnecting the plug, reduce the fluid pressure below 1.0 MPa (10 kgf/cm²). The plug can be disconnected by applying air pressure of 0.5 to 0.6 MPa (5 to 6 kgf/cm²) to section A after reducing the air pressure on section B to 0 MPa.

Section B Pressure: 0 MPa Section A: Compressed Air



Auto Cupla ACS Type

The ACS type, which can be connected to the plug by simply pushing the plug into the Auto Cupla, is also available on request.



Air-driven Mechanism for Valve Opening / Closing and Plug Disconnection (High Pressure Version)

Auto Cupla AC-HP Type

Suits for refrigerants that require high pressure. High pressure version of the AC type. Auto Cupla automatically opens and closes the valve and disconnects the plug. Contributes to energy and labor saving on the production line.

- Air-driven mechanism is employed in the Auto Cupla to connect and disconnect the plug and to open and close the valve.
- An automatic shut-off valve in the Auto Cupla prevents fluid from spilling on disconnection.
- The unique air-driven mechanism reduces the load when the plug is connected to the Auto Cupla.
- The Auto Cupla and Plug can be connected or disconnected even when the residual pressure remains.
- The safety design prevents the valve from opening even if the valve is operated to open with air-driven mechanism without connecting to the plug.
- The AC-HP type can be connected to the standard 3P-V Plug. The AC-HP-GN type is also available for the 3P-V-GN Plug on request.



Specifications

| | | | |
|--|---|---|---------------------------|
| Body material | Stainless Steel (Partly Aluminum and Brass) | | |
| Size (Thread) | 3/8" | | |
| Working pressure | 4.5 MPa, 46 kgf/cm ² , 45 bar, 653 PSI | | |
| Seal material | Seal material | Mark | Working temperature range |
| Working temperature range | Hydrogenated nitrile rubber | HNBR (H708) | -20°C to +120°C |
| Maximum Cupla Inner Pressure for Air Operation | When opening and closing the valve | 1.0 MPa, 10 kgf/cm ² , 10 bar, 145 PSI | |
| | When disconnecting the plug | 1.0 MPa, 10 kgf/cm ² , 10 bar, 145 PSI | |

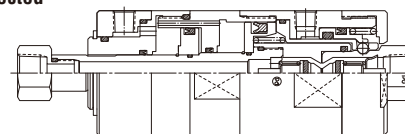
Models and Dimensions (WAF : WAF stands for width across flats.)

Socket

(Air port for valve opening and closing) (Air port for disconnection with the plug)

| Model | Connecting Plug | Dimensions (mm) | | | | | |
|----------|-----------------|-----------------|----|---------|----------------|----------------|----------------|
| | | L | øD | H (WAF) | T ₁ | T ₂ | T ₃ |
| AC-3S-HP | 3P-V | 176 | 65 | Hex. 21 | Rc 3/8 | Rc 1/8 | Rc 1/8 |

Auto Cupla is connected to Plug

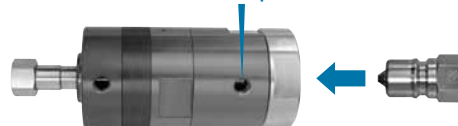


How to Use

Connection to Plug

The balls in the Auto Cupla become loose by applying air pressure of 0.5 to 0.6 MPa (5 to 6 kgf/cm²) to section A. The plug can then be easily inserted. Completely inserting the plug into the Auto Cupla and reducing the pressure on section A to 0 MPa will lock the Auto Cupla and plug and complete the connection. (* The valve is not open in this state.)

Section A: Compressed Air



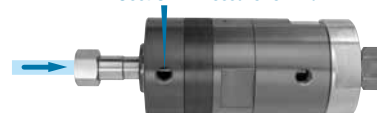
Opening and Closing the Valve

Prior to operating the valve, reduce the fluid pressure below 1.0 MPa (10 kgf/cm²). The valves in the Auto Cupla and plug open by applying air pressure of 0.5 to 0.6 MPa (5 to 6 kgf/cm²) to section B. By reducing the air pressure on section B to 0 MPa, the valves in the Auto Cupla and plug close thereby stopping the fluid flow.

Section B: Compressed Air



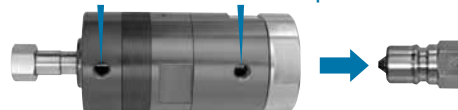
Section B Pressure: 0 MPa



Disconnection of Plug

Prior to disconnecting the plug, reduce the fluid pressure below 1.0 MPa (10 kgf/cm²). The plug can be disconnected by applying air pressure of 0.5 to 0.6 MPa (5 to 6 kgf/cm²) to section A after reducing the air pressure on section B to 0 MPa.

Section B Pressure: 0 MPa → Section A: Compressed Air



Note: No lubricant is applied to HNBR O-ring in the socket. Please apply refrigerant oil to O-ring before use.