

For Low Pressure

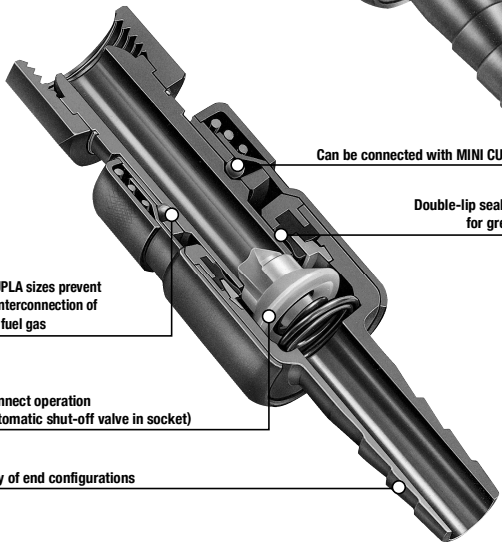
MINI CUPLA

Standard type for use on equipment for welding and gas cutting, etc.

| | | |
|--|--|--|
| Working pressure 0.7 MPa (7 kgf/cm ²) | Valve structure One-way shut-off | Applicable fluids Oxygen, Fuel Gas |
|--|--|--|

Exclusively for oxyacetylene equipment. Many variations with higher flow rates!

- From cylinders to torches, all piping connections associated with welding and cutting equipment are push-to-connect operations.
- Double-lip seal prevents minor leak during connection. Oxygen and fuel gas CUPLA have different sizes to prevent accidental interconnection.
- Pressure loss is minimized to achieve higher flow rate.
- Various types of end configurations have been standardized to comply with a wide range of welding and cutting equipment applications. Sockets themselves or plugs themselves are interchangeable with MINI CUPLA SUPER's counterparts.
- LINE CUPLA MINI is also available for multiple piping.



Can be connected with MINI CUPLA SUPER

Double-lip seal is adopted for greater safety

Different CUPLA sizes prevent accidental interconnection of oxygen and fuel gas

Push-to-connect operation
(Built-in automatic shut-off valve in socket)

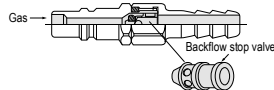
Wide variety of end configurations

Structure and Principle of Backflow Prevention

Plug with backflow stop valve

Plugs with backflow stop valve in MINI CUPLA are designed exclusively for gas welding/cutting to prevent occurrence of gas mixing. Possible backflow of gas during operation can be stopped by cutting the back flow into the cylinder or line. Such valve is adopted in both fuel gas and oxygen plug.

Cross-section sketch showing the structure



To operate at approx. 0.1 MPa (1 kgf/cm²)

Specifications

| | | | | |
|----------------------------------|----------------------|----------------------------------|----------------------------------|-------------------|
| Body material | | Brass | | |
| Size | Thread | 1/8", 1/4", 3/8" / M16, W12.5-20 | | |
| | Hose barb | 1/4", 5/16", 3/8" | | |
| Pressure unit | MPa | kgf/cm² | bar | PSI |
| Working pressure | 0.7 | 7 | 7 | 102 |
| Seal material | Seal material | Mark | Working temperature range | Remarks |
| Working temperature range | Nitrile rubber | NBR (SG) | -20°C to +80°C | Standard material |

Maximum Tightening Torque

Nm {kgf·cm}

| | | | |
|---------------|--|--------|----------|
| Model | 22PF, 22PFB, 22SF, 25PF, 33PF, 33PFB, 33SF | 22SM | 33SM |
| Torque | 12 {122} | 9 {92} | 11 {112} |

Flow Direction

Fluid must run from socket to plug.



Interchangeability

To prevent accidental connection, CUPLA for oxygen are not interchangeable with CUPLA for fuel gas. However, plugs and sockets for oxygen are interchangeable regardless of end configurations and plugs and sockets for fuel gas are interchangeable regardless of end configurations.

*Interchangeable with MINI CUPLA SUPER.

Minimum Cross-Sectional Area

(mm²)

For Oxygen

| Socket \ Plug | 22PH | 25PH | 22PF | 22PFF | 25PF | 22PHB | 25PHB | 22PFB | 21PMT | 22PMT |
|---------------|------|------|------|-------|------|-------|-------|-------|-------|-------|
| 22SH | 19.6 | 19.6 | 19.6 | 19.6 | 19.6 | 15.9 | 15.9 | 15.9 | 19.6 | 19.6 |
| 25SH | 19.6 | 19.6 | 19.6 | 19.6 | 19.6 | 15.9 | 15.9 | 15.9 | 19.6 | 19.6 |
| 22SF | 19.6 | 19.6 | 19.6 | 19.6 | 19.6 | 15.9 | 15.9 | 15.9 | 19.6 | 19.6 |
| 22SM | 19.6 | 19.6 | 19.6 | 19.6 | 19.6 | 15.9 | 15.9 | 15.9 | 19.6 | 19.6 |

For Fuel Gas

| Socket \ Plug | 33PH | 35PH | 33PF | 33PHB | 35PHB | 33PFB |
|---------------|------|------|------|-------|-------|-------|
| 33SH | 44.1 | 28.2 | 44.1 | 15.9 | 15.9 | 15.9 |
| 35SH | 28.2 | 28.2 | 28.2 | 15.9 | 15.9 | 15.9 |
| 33SF | 19.6 | 19.6 | 19.6 | 15.9 | 15.9 | 15.9 |
| 33SM | 44.1 | 28.2 | 44.1 | 15.9 | 15.9 | 15.9 |

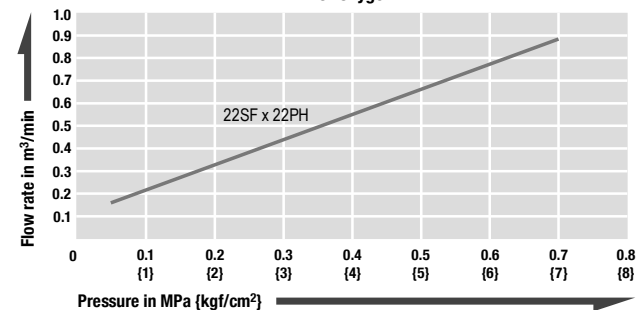
Suitability for Vacuum

Not suitable for vacuum application in either connected or disconnected condition.

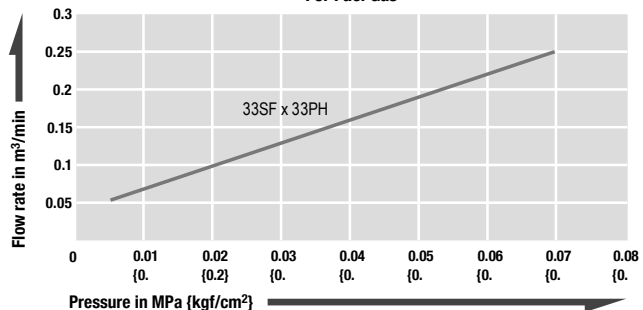
Pressure - Flow Characteristics

[Test conditions] • Fluid : Air • Temperature : Room temperature

For Oxygen

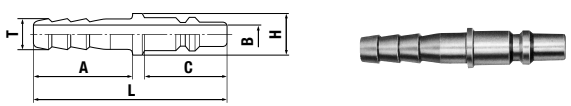


For Fuel Gas



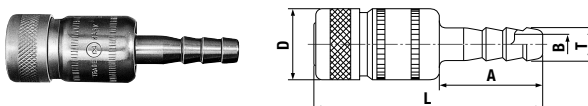
Models and Dimensions

Plug PH type (Hose barb)



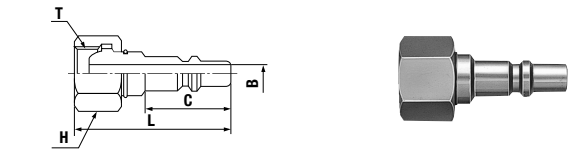
| Usage | Model | Application (Hose) | Mass (g) | Dimensions (mm) | | | | | |
|--------------|-------|--------------------|----------|-----------------|------|----|----|------|-----|
| | | | | L | C | A | øH | øT | øB |
| For Oxygen | 22PH | 1/4" | 16 | 55 | 23.5 | 28 | 11 | 7.8 | 5 |
| | 25PH | 5/16" | 19 | | | | | 9 | |
| For Fuel Gas | 33PH | 3/8" | 22 | 57 | 25.5 | 28 | 14 | 10.5 | 7.5 |
| | 35PH | 5/16" | 20 | | | | | 9 | 6 |

Socket SH type (Hose barb)



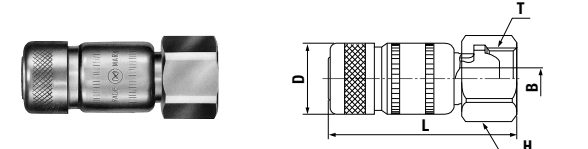
| Usage | Model | Application (Hose) | Mass (g) | Dimensions (mm) | | | | |
|--------------|-------|--------------------|----------|-----------------|--------|----|------|-----|
| | | | | L | øD | A | øT | øB |
| For Oxygen | 22SH | 1/4" | 52 | (64) | (19.8) | 29 | 7.8 | 5 |
| | 25SH | 5/16" | 55 | | | | 9 | |
| For Fuel Gas | 33SH | 3/8" | 69 | (65) | (22.6) | 29 | 10.5 | 7.5 |
| | 35SH | 5/16" | 67 | | | | 9 | 6 |

Plug PF type (Female thread for torch connection)



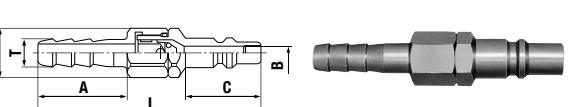
| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|--------------|-------|-------------------------|----------|-----------------|------|--------|----------------------------|-----|
| | | | | L | C | H(WAF) | T | øB |
| For Oxygen | 22PF | For oxygen torch side | 31 | (43) | 23.5 | Hex.19 | M16 x 1.5 | 5 |
| | 22PFF | | 29 | (43.5) | | Hex.17 | G 1/4 | |
| | 25PF | | 26 | W12.5-20 | | | | |
| For Fuel Gas | 33PF | For fuel gas torch side | 36 | (44.5) | 25.5 | Hex.19 | M16 x 1.5 left-hand thread | 7.5 |

Socket SF type (Female thread for cylinder connection)



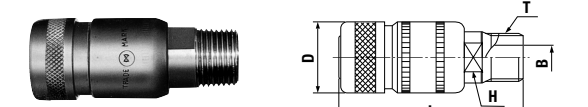
| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|--------------|-------|-------------------------|----------|-----------------|--------|----------------------------|----|--------|
| | | | | L | øD | T | øB | H(WAF) |
| For Oxygen | 22SF | For oxygen gauge side | 80 | (52) | (19.8) | M16 x 1.5 | 5 | Hex.19 |
| For Fuel Gas | 33SF | For fuel gas gauge side | 96 | (54) | (22.6) | M16 x 1.5 left-hand thread | 5 | Hex.19 |

Plug PHB type (Hose barb with backflow stop valve)



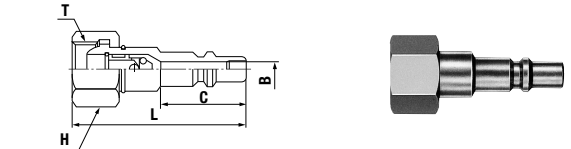
| Usage | Model | Application (Hose) | Mass (g) | Dimensions (mm) | | | | | |
|--------------|-------|--------------------|----------|-----------------|------|----|------|------|-----|
| | | | | L | C | A | øH | øT | øB |
| For Oxygen | 22PHB | 1/4" | 31 | (69.6) | 23.5 | 28 | 15.5 | 7.8 | 4.5 |
| | 25PHB | 5/16" | 34 | | | | | 9 | |
| For Fuel Gas | 33PHB | 3/8" | 41 | (70.6) | 25.5 | 28 | 15.5 | 10.5 | 4.5 |
| | 35PHB | 5/16" | 39 | | | | | 9 | |

Socket SM type (Male thread)



| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|--------------|-------|----------------------|----------|-----------------|--------|--------|-------|-----|
| | | | | L | øD | H(WAF) | T | øB |
| For Oxygen | 22SM | Rc 1/4 | 51 | (52) | (19.8) | 12 | R 1/4 | 7.5 |
| For Fuel Gas | 33SM | Rc 3/8 | 77 | (55) | (22.6) | 14 | R 3/8 | 10 |

Plug PFB type (Female thread with backflow stop valve for torch connection)

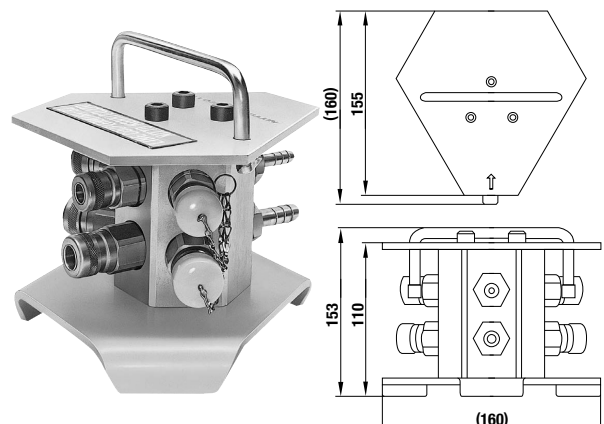


| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|--------------|-------|-------------------------|----------|-----------------|------|--------|----------------------------|-----|
| | | | | L | C | H(WAF) | T | øB |
| For Oxygen | 22PFB | For oxygen torch side | 36 | (48.5) | 23.5 | Hex.19 | M16 x 1.5 | 4.5 |
| For Fuel Gas | 33PFB | For fuel gas torch side | 41 | (49) | 25.5 | Hex.19 | M16 x 1.5 left-hand thread | 4.5 |

Socket LINE CUPLA MINI LM-32 (For three port branch piping)

Mass : 4,300 g

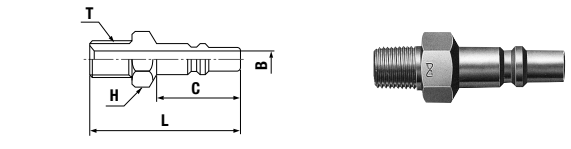
- Dust caps come with the product as standard.



| LINE CUPLA MINI contains: | | For Oxygen | For Fuel Gas | Qty |
|---|--|------------|--------------|------------|
| Supply port | | 1/4" | 3/8" | Each 1 pc. |
| Gas outlets | | 22SM | 33SM | Each 3 pc. |
| Accessories (Plug with backflow stop valve) | | 22PHB | 33PHB | Each 3 pc. |

Dimensions (mm)

Plug PMT type (Male thread)



| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|------------|-------|----------------------|----------|-----------------|----|--------|-------|----|
| | | | | L | C | H(WAF) | T | øB |
| For Oxygen | 21PMT | Rc 1/8 | 22 | 43.5 | 24 | Hex.14 | R 1/8 | 5 |
| | 22PMT | Rc 1/4 | 27 | 45 | 24 | Hex.14 | R 1/4 | 5 |

For Low Pressure

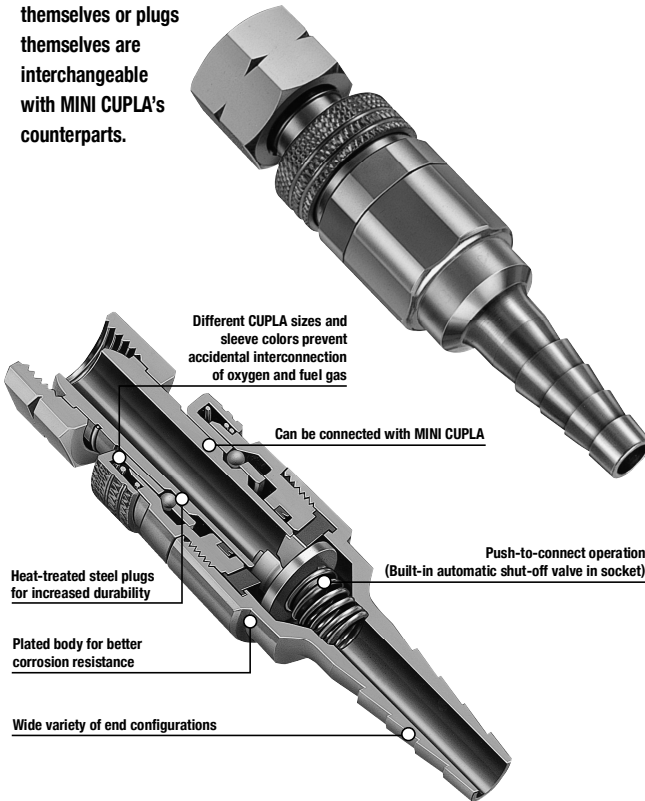
MINI CUPLA SUPER

Heavy-duty push-to-connect type for oxyacetylene piping

| | | |
|---|---|---|
| Working pressure 0.7 0.7 MPa (7 kgf/cm ²) | Valve structure One-way shut-off | Applicable fluids Oxygen, Fuel Gas |
|---|---|---|

Exclusively for welding and cutting equipment.

- From cylinders to torches, all piping connections associated with welding and cutting equipment are push-to-connect operations.
- Plated body for better corrosion resistance.
- Heat-treated plugs for better durability.
- Oxygen and fuel gas CUPLA have different configuration sizes with sleeves in different appearances, silver colored plating for oxygen and copper colored plating for fuel gas, to prevent accidental interconnection.
- Smaller diameter design enables wider range of applications.
- Various types of end configurations have been standardized to comply with a wide range of welding and cutting equipment applications. Sockets themselves or plugs themselves are interchangeable with MINI CUPLA's counterparts.

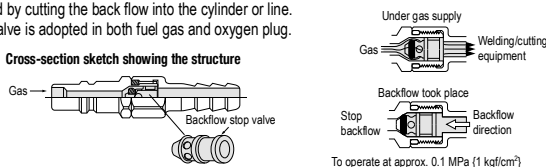


Structure and Principle of Backflow Prevention

Plug with backflow stop valve

Plugs with backflow stop valve in MINI CUPLA SUPER are designed exclusively for gas welding/cutting to prevent occurrence of gas mixing. Possible backflow of gas during operation can be stopped by cutting the back flow into the cylinder or line. Such valve is adopted in both fuel gas and oxygen plug.

Cross-section sketch showing the structure



Specifications

| | | | | |
|---------------------------|---|-----------------------------|---------------------------|-------------------|
| Body material | Socket : Brass (Chrome plated) Plug : Steel (Chrome plated) | | | |
| Size | Thread | 1/4", 3/8", M16 | | |
| | Hose barb | 1/4", 5/16", 3/8" / 5 mm ID | | |
| Pressure unit | MPa | kgf/cm ² | bar | PSI |
| Working pressure | 0.7 | 7 | 7 | 102 |
| Seal material | Seal material | Mark | Working temperature range | Remarks |
| Working temperature range | Nitrile rubber | NBR (SG) | -20°C to +80°C | Standard material |

Maximum Tightening Torque

Nm {k · cm}

| | | | |
|--------|----------------------------|--------|----------|
| Model | S22PF, S22SF, S33PF, S33SF | S22SM | S33SM |
| Torque | 12 {122} | 9 {92} | 11 {112} |

Flow Direction

Fluid must run from socket to plug.



Interchangeability

To prevent accidental connection, CUPLA for oxygen are not interchangeable with CUPLA for fuel gas. However, plugs and sockets for oxygen are interchangeable regardless of end configurations and plugs and sockets for fuel gas are interchangeable regardless of end configurations. Can be connected with MINI CUPLA series.

Minimum Cross-Sectional Area

(mm²)

For Oxygen

| Socket \ Plug | S22PH | S225PH | S22PF | S22PN |
|---------------|-------|--------|-------|-------|
| S22SH | 15.9 | 7.5 | 15.9 | 15.9 |
| S225SH | 7.5 | 7.5 | 7.5 | 7.5 |
| S22SF | 15.9 | 7.5 | 15.9 | 15.9 |
| S22SM | 15.9 | 7.5 | 15.9 | 15.9 |
| S22SN | 15.9 | 7.5 | 15.9 | 15.9 |

For Fuel Gas

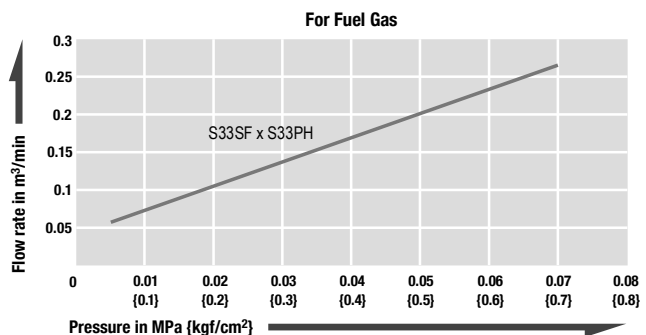
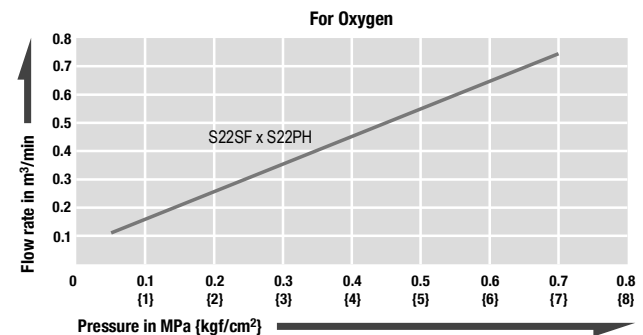
| Socket \ Plug | S33PH | S335PH | S33PF | S33PN |
|---------------|-------|--------|-------|-------|
| S33SH | 28.2 | 7.5 | 28.2 | 15.9 |
| S335SH | 7.5 | 7.5 | 7.5 | 7.5 |
| S33SF | 28.2 | 7.5 | 28.2 | 15.9 |
| S33SM | 28.2 | 7.5 | 28.2 | 15.9 |
| S33SN | 15.9 | 7.5 | 15.9 | 15.9 |

Suitability for Vacuum

Not suitable for vacuum application in either connected or disconnected condition.

Pressure - Flow Characteristics

[Test conditions] • Fluid : Air • Temperature : Room temperature



Models and Dimensions

Plug PH type (Hose barb)

| Usage | Model | Application (Hose) | Mass (g) | Dimensions (mm) | | | | | |
|--------------|---------|--------------------|----------|-----------------|------|----|----|-----|-----|
| | | | | L | C | A | øH | øJ | øB |
| For Oxygen | S22PH | 1/4", 5/16" | 17 | 58 | 23.5 | 30 | 11 | 9.5 | 4.5 |
| For Oxygen | S225PH | 5 mm ID | 12 | 49 | 23.5 | 21 | 11 | 6.2 | 3.1 |
| For Fuel Gas | S33PH | 5/16", 3/8" | 22 | 59.5 | 25.5 | 30 | 14 | 11 | 6 |
| For Fuel Gas | S335PH | 5 mm ID | 15 | 50.5 | 25.5 | 21 | 14 | 6.2 | 3.1 |
| For Fuel Gas | S32PH-1 | 1/4", 5/16" | 20 | 59.5 | 25.5 | 30 | 14 | 9 | 4.5 |

Socket SH type (Hose barb)

| Usage | Model | Application (Hose) | Mass (g) | Dimensions (mm) | | | | | |
|--------------|---------|--------------------|----------|-----------------|--------|----|----|-----|-----|
| | | | | L | ød | øD | A | øJ | øB |
| For Oxygen | S22SH | 1/4", 5/16" | 50 | (64.5) | (19.5) | 20 | 30 | 9.5 | 4.5 |
| For Oxygen | S225SH | 5 mm ID | 54 | (62.5) | (19.5) | 20 | 21 | 6.2 | 3.1 |
| For Fuel Gas | S33SH | 5/16", 3/8" | 73 | (68) | (22) | 22 | 30 | 11 | 6 |
| For Fuel Gas | S335SH | 5 mm ID | 65 | (63) | (22) | 22 | 21 | 6.2 | 3.1 |
| For Fuel Gas | S32SH-1 | 1/4", 5/16" | 74 | (72.5) | (22) | 22 | 30 | 9 | 4.5 |

Plug PF type (Female thread for torch connection)

| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|--------------|-------|-------------------------|----------|-----------------|------|--------|----------------------------|-----|
| | | | | L | C | H(WAF) | T | øB |
| For Oxygen | S22PF | For oxygen torch side | 35 | (43) | 23.5 | Hex.19 | M16 x 1.5 | 5 |
| For Fuel Gas | S33PF | For fuel gas torch side | 32 | (44.5) | 25.5 | Hex.19 | M16 x 1.5 left-hand thread | 7.5 |

Socket SF type (Female thread for cylinder connection)

| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | | |
|--------------|------------|-------------------------|----------|-----------------|--------|----------------------------|--------|-----|--|
| | | | | L | ød | T | H(WAF) | øB | |
| For Oxygen | S22SF | For oxygen torch side | 74 | (52.5) | (19.5) | M16 x 1.5 | Hex.19 | 4.5 | |
| For Fuel Gas | S33SF | For fuel gas torch side | 97 | (57.5) | (22) | M16 x 1.5 left-hand thread | Hex.19 | 6 | |
| For Oxygen | S23SF-BS-1 | For oxygen torch side | 82 | (55.5) | (19.5) | BS 3/8 | Hex.21 | 4.5 | |
| For Fuel Gas | S33SF-BS-1 | For fuel gas torch side | 88 | (59) | (22) | BS 3/8 left-hand thread | Hex.21 | 6 | |

Plug PFB type (Female thread with backflow stop valve for torch connection)

| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | |
|--------------|------------|-------------------------|----------|-----------------|------|--------|-------------------------|-----|
| | | | | L | C | H(WAF) | øT | øB |
| For Oxygen | S23PFB-2-1 | For oxygen torch side | 48 | (51) | 23.5 | Hex.21 | BS 3/8 | 4.5 |
| For Fuel Gas | S33PFB-2-1 | For fuel gas torch side | 52 | (51) | 25.5 | Hex.21 | BS 3/8 left-hand thread | 4.5 |

Socket SM type (Male thread)

| Usage | Model | Application (Thread) | Mass (g) | Dimensions (mm) | | | | | |
|--------------|-------|----------------------|----------|-----------------|--------|----|--------|-------|-----|
| | | | | L | ød | øD | H(WAF) | T | øB |
| For Oxygen | S22SM | Rc 1/4 | 58 | (48.5) | (19.5) | 20 | Hex.18 | R 1/4 | 4.5 |
| For Fuel Gas | S33SM | Rc 3/8 | 85 | (52) | (22) | 23 | Hex.21 | R 3/8 | 6 |

Plug PN type (Nut type for small diameter hose)

| Usage | Model | Application (Hose) | Mass (g) | Dimensions (mm) | | | | |
|--------------|-------|--------------------|----------|-----------------|------|---------|---------|-----|
| | | | | L | C | H1(WAF) | H2(WAF) | øB |
| For Oxygen | S22PN | 5 mm ID-2 | 54 | (53.5) | 23.5 | Hex.17 | Hex.19 | 4.5 |
| For Fuel Gas | S33PN | 5 mm ID-2 | 57 | (54.5) | 25.5 | Hex.17 | Hex.19 | 4.5 |

Socket SN type (Nut type for small diameter hose)

| Usage | Model | Application (Hose) | Mass (g) | Dimensions (mm) | | | | | |
|--------------|-------|--------------------|----------|-----------------|--------|------|---------|---------|-----|
| | | | | L | ød | øD | H1(WAF) | H2(WAF) | øB |
| For Oxygen | S22SN | 5 mm ID-2 | 74 | (52) | (19.5) | 20.5 | Hex.18 | Hex.19 | 4.5 |
| For Fuel Gas | S33SN | 5 mm ID-2 | 91 | (57) | (22) | 20.5 | Hex.21 | Hex.19 | 4.5 |

Application Example



*1 : Made-to-order item.
*2 : Available hose sizes are ø5 mm x ø11.2 mm, ø5 mm x ø11.5 mm and ø5 mm x ø11.8 mm.

Select the combination in accordance with your own application.

| | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| <p>Male thread</p> | <p>For regulator</p> | <p>For extension hose</p> | <p>For torch</p> |
| Suggested combination SM x PH | Suggested combination SF x PH | Suggested combination SH x PH | Suggested combination SH x PF |