Pamphlet M3200-2

TLV®

# AIR & DRAIN TRAPS

## JA·JAHR Series / G8
## TATSU2
## SS1VG / JAHRG Series

# TLV® Free Float Technology

## AIR TRAPS
### For Air

*In today's world of automation, compressed air is used in many different industries including high-precision machinery and instrumentation. After air is compressed it is cooled by an after-cooler or in a receiver tank, where condensate is formed from the air as water droplets. This condensate also occurs in compressed air distribution piping, leading to rust and fluctuation in high-precision machinery, as well as causing a reduction in product quality. Air traps protect your equipment and products by discharging condensate automatically.*

## Long Service Life

The hinge-less lever-less free float has one moving part allowing for simple operation. With infinite sealing surfaces, the free float does not suffer from concentrated wear, maintaining initial performance quality over a long time period.

**JA·JAHR Series/G8**

## Continuous Condensate Discharge

The float adjusts quickly to changes in condensate flow adjusting the valve seat opening, ensuring continuous rapid discharge without condensate backup.

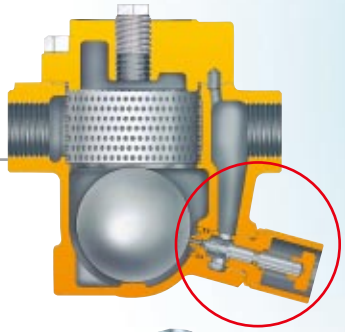
**JA·JAHR Series/G8**

## Rubber Valve Seat for Tight Sealing

The standardized rubber* valve seat allows for tight sealing with the precision ground float.

**JA Series*/G8**

* JA7.2, JA7.5, JA8 and JAHR Series equip fluorine resin valve seat.



## Valve Seat Cleaning Mechanism

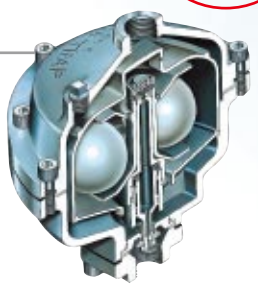
Equipped with an external plunger unit, blockage caused by oils and/or scale can be easily eliminated.

**JA Series (JA3D/JA3/JA5/JA7)**

## Discharge High-Viscosity Condensate

With a large (16 mm) orifice, unique intermittent discharge and self-cleaning function, high-viscosity condensate as well as condensate containing dirt/scale can be discharged. Discharges large amounts of condensate (up to approx. 7.4 tons/hour).

**TATSU2**

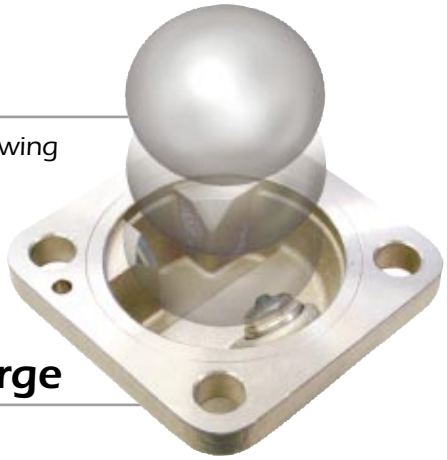


# for the Highest Reliability

## DRAIN TRAPS
### For Air and Inert Gases*

Like compressed air, after air or other inert gases are compressed they are cooled, and condensate is formed from air or the gas as water droplets. Condensate is the cause of many challenges resulting in rust and freezing in the pipes as well as a reduction in product quality. Drain traps for discharging condensate from both compressed air and inert gases protect your equipment and products by discharging condensate automatically as it forms while maintaining a tight seal. These traps are made with durable steel construction for a long service life.

* Do not use with toxic, flammable or otherwise hazardous gases.



## Long Service Life

The hinge-less lever-less free float has one moving part allowing for simple operation. With infinite sealing surfaces, the free float does not suffer from concentrated wear, maintaining initial performance quality over a long time period.

**SS1VG Series/JAHRG Series**

## Continuous Condensate Discharge

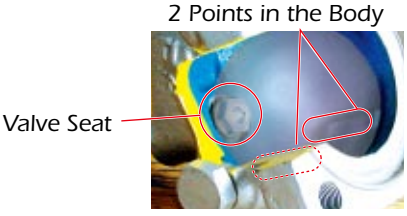
The float adjusts quickly to changes in condensate flow adjusting the valve seat opening, ensuring continuous rapid discharge without condensate backup.

**SS1VG Series/JAHRG Series**

## Three Point Seating for Tight Sealing

The high-precision ground float fits securely on the three-point seating creating a high-quality seal even for metal valve seats comparable to that of rubber.

**SS1VG Series/JAHRG Series**




## Materials for High-Temperature/Pressure

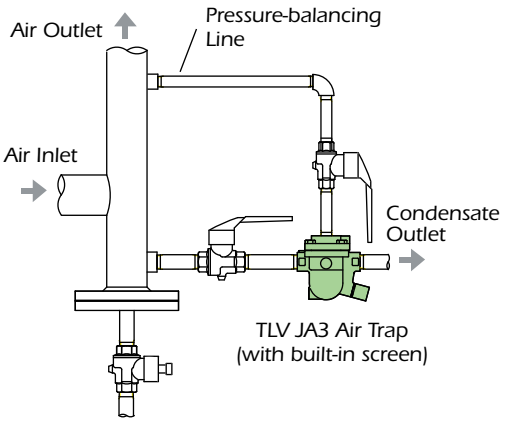
For higher temperature and pressure applications, TLV Drain Traps offer choices in body and valve seat material to meet specific needs. The SS1VG has all-stainless steel construction with a metal valve seat available for high-temperature applications. The JAHRG Series features cast steel bodies for high-pressure applications with tight-sealing provided by a rubber valve seat, or higher temperatures with a metal valve seat.

**SS1VG Series/JAHRG Series**

# JA·JAHR Series/G8



## ■ Sample Application: Air Main Drip




## ■ Features:

- Free float type for continuous condensate discharge.
- Only one moving part, the free float, simplifies operation and provides reliable service.
- Usable for installation in both horizontal and vertical piping (JA3D).
- External valve seat cleaning mechanism easily eliminates blockage (JA3D/JA Series).
- Large orifice to reduce valve seat blockage (JA7/G8).
- Large capacity (Max. 2.5 t/h) and/or high pressure (PMO 4.0 MPaG).

JA3D

Valve-seat Cleaning

JA5

Valve-seat Cleaning

## ■ Applications:

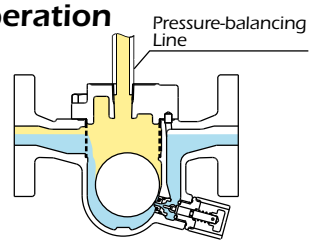
- Discharge of condensate in air lines (end of piping after receiver tanks, after coolers, etc.).
- Small compressed air lines (JA3D/JA3).
- Lubricated air compressor systems where small amounts of oil get into the condensate (JA7/G8).

JAH8R

G8

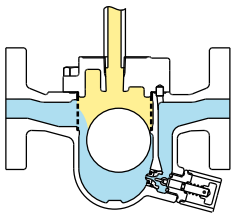
## ■ Operation

**1**



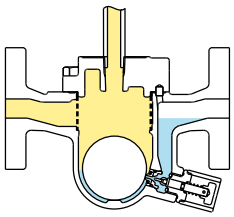

As condensate enters the trap, the float rises controlling the size of the valve seat opening. With the valve open, the condensate is continuously discharged.

**2**

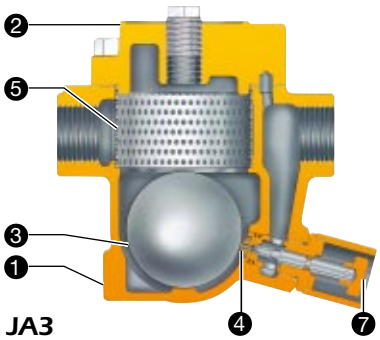


If a large condensate load enters the trap at once, the float rises to open the valve seat fully, increasing the condensate discharge capacity.

**3**

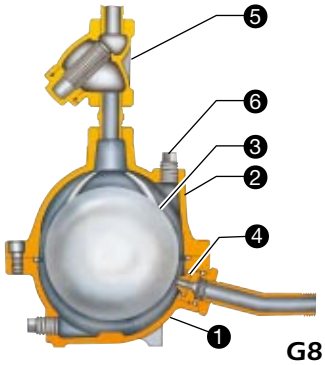


If no condensate enters the trap, the float is fully lowered to close the valve seat. The water level remains above the valve seat, promoting tight sealing.




JA3

| No. | Part Name |
|---|---|
| ① | Body |
| ② | Cover |
| ③ | Float |
| ④ | Valve Seat |
| ⑤ | Screen |
| ⑥ | Balancing Plug |
| ⑦ | Plunger |




G8

| No. | Part Name |
|---|---|
| ① | Body |
| ② | Cover |
| ③ | Float |
| ④ | Valve Seat |
| ⑤ | Strainer |
| ⑥ | Balancing Plug |

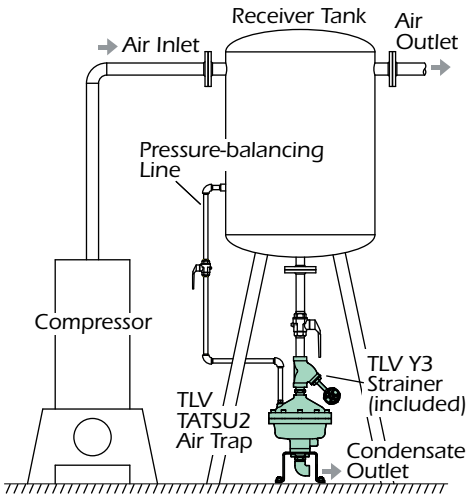
| Model | JA3D | JA3 | JAF3 | JA5 | JAF5 | JA7 | JA7.2 | JA7.5 | JA8 | G8 | JAH7.2R | JAH7.5R | JAH8R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Body Material [1] | ZA | DCI | CI | DCI | DCI | CI | CI | CI | CI | CI | CS | CS | CS |
| Valve Seat Material [2] | NBR | NBR | NBR | NBR | NBR | NBR | PTFE | PTFE | PTFE | NBR | PTFE | PTFE | PTFE |
| Connection [3] | S | S | F | S | F | F | F | F | F | S | SW, F | SW, F | SW, F |
| Max. Operating Press. (MPaG) | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.0 | 4.0 | 4.0 | 4.0 |
| Max. Operating Temp. (°C) | 100 | 100 | 100 | 100 | 100 | 100 | 150 | 150 | 150 | 100 | 150 | 150 | 150 |
| Min. Condensate Load for Tight Sealing (kg/h) | — | — | — | — | — | — | 10 | 10 | 20[4], 15 | — | 10 | 10 | 20[4], 15 |

[1] ZA: Zinc Alloy, DCI: Ductile Cast Iron, CI: Cast Iron, CS: Cast Steel [2] NBR: Nitrile Rubber, PTFE: Fluorine Resin
[3] S = Screwed, F = Flanged, SW = Socket Welded [4] Orifice No. 2 & 5

# TATSU2



## Sample Application: Receiver Tank




## Features:

- Large (16 mm diameter) valve seat for easy discharge of oil, rust and scale.
- Large condensate discharge capacity (approx. 7.4 tons/hour).
- Automatic self-cleaning function during operation keeps the valve seat free of any blockage.

**TATSU2**

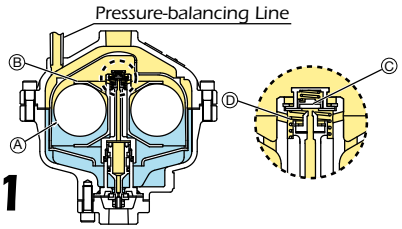
Large Capacity

For High-viscosities

## Applications:

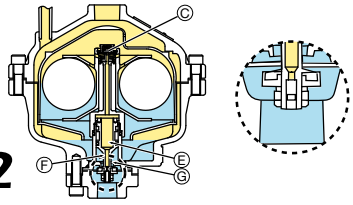
- Air piping containing oil, rust or scale.
- Air-using receiver tanks or other equipment with higher viscosity condensate.

## Operation



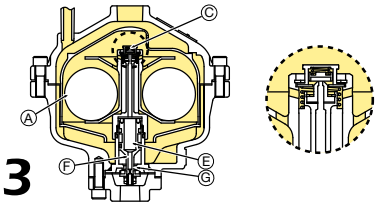

**1**

Condensate and oil flow into the trap and accumulate. When the level in the trap body rises to a point where the floats (A) rise and lift the float holder (B), the pilot valve (C) opens with the help of the coil spring (D).



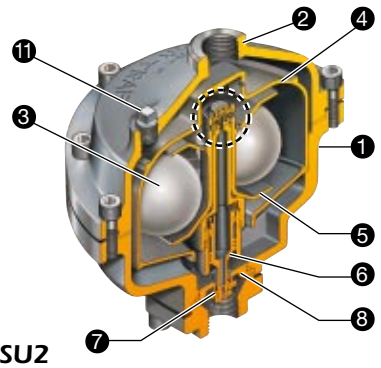

**2**

When pilot valve (C) opens, secondary pressure air enters the pressure chamber (E) lowering the piston (F) and opening the main valve (G) to discharge condensate.

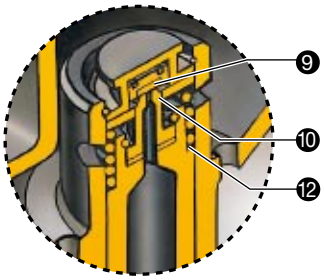



**3**

While the condensate inside the float cover discharges, the floats (A) fall and cause the pilot valve (C) to close. The pressure in the pressure chamber (E) is released to the outlet and the piston (F) rises to close the main valve (G) after a slight delay to allow the main valve to self-clean during discharge.




**TATSU2**




| No. | Part Name |
|---|---|
| ① | Body |
| ② | Cover |
| ③ | Float |
| ④ | Float Cover |
| ⑤ | Float Holder |
| ⑥ | Piston |
| ⑦ | Main Valve |
| ⑧ | Main Valve Seat |
| ⑨ | Pilot Valve |
| ⑩ | Pilot Valve Seat |
| ⑪ | Balancing Plug |
| ⑫ | Opening Spring |

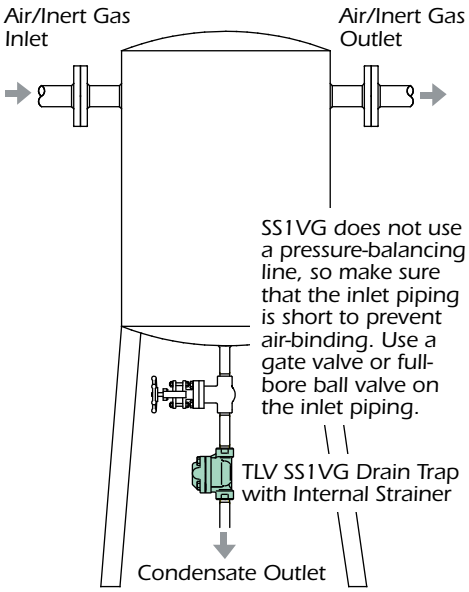
Note: Y Strainer with Blowdown Valve Included

| Model | TATSU2 |
|---|---|
| Body Material | Cast Iron |
| Connection | Screwed |
| Max. Operating Pressure (MPaG) | 1.0 |
| Min. Operating Pressure (MPaG) | 0.2 |
| Max. Operating Temperature (°C) | 80 |

# SS1VG



## Sample Application: Receiver Tank




## Features:

- High-precision ground free float with three-point seating technology for tight sealing even during low-load conditions.
- Only one moving part, the free float, simplifies operation and provides reliable service.
- All-stainless steel body with long life for vertical installation.
- Small models allow installation even with limited space.

SS1VG

Three-Point Seating

All Stainless Steel

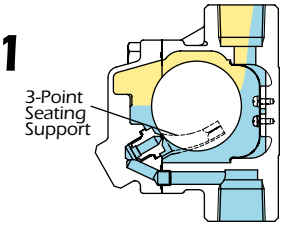
## Applications*:

- Discharge of condensate from compressed air or inert gas-using equipment (compressors, etc.)
- Discharge of condensate in compressed air or inert gas lines (end of piping after receiver tanks, aftercoolers, etc.).
- Small capacity compressed air or inert gas lines.

* Do not use for toxic, flammable or otherwise hazardous gases.

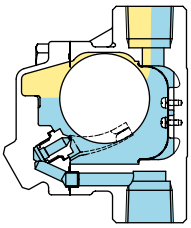
## Operation

**1**



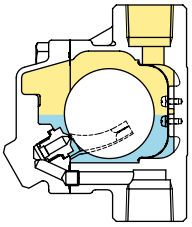

As condensate enters the trap, the float rises controlling the size of the valve seat opening. With the valve open, the condensate is continuously discharged.

**2**

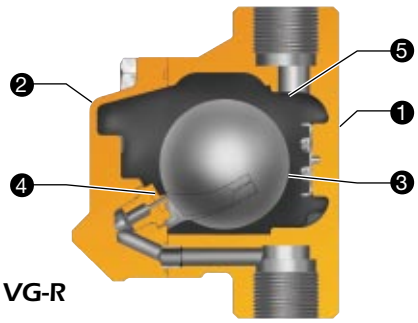


If a large condensate load enters the trap at once, the float rises to open the valve seat fully, increasing the condensate discharge capacity.

**3**



If no condensate enters the trap, the float is fully lowered to close the valve seat. The water level remains above the valve seat, promoting tight sealing.




SS1VG-R

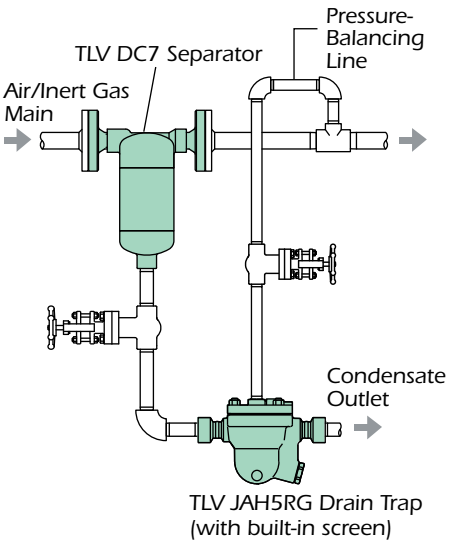
| | Part Name |
|---|---|
| ① | Body |
| ② | Cover |
| ③ | Float |
| ④ | Orifice (Valve Seat) |
| ⑤ | Screen |

| Model | SS1VG-R | SS1VG-M |
|---|---|---|
| Body Material | Stainless Steel | Stainless Steel |
| Valve Seat Material | Fluorine Rubber | Metal |
| Connection | Screwed | Screwed |
| Max. Operating Pressure (MPaG) | 1.0 | 2.1 |
| Max. Operating Temperature (°C) | 150 | 220 |
| Min. Condensate Load for Tight Sealing (kg/h) | 0 | 0.5 |

# JAH RG Series

DRAIN TRAPS

## Sample Application: Main Line with Separator




TLV JAH5RG Drain Trap (with built-in screen)

## Features:

- High-precision ground free float with three-point seating technology for tight sealing even during low-load conditions.
- Only one moving part, the free float, simplifies operation and provides reliable service.
- Durable pressure-resistant design.
- Small model allows installation even with limited space (JAH5RG).

## Applications*:

- Discharge of condensate from compressed air or inert gas-using equipment (compressors, etc.)
- Discharge of condensate in compressed air or inert gas lines (end of piping after receiver tanks, aftercoolers, etc.).
- Large capacity compressed air or inert gas lines.

* Do not use for toxic, flammable or otherwise hazardous gases.

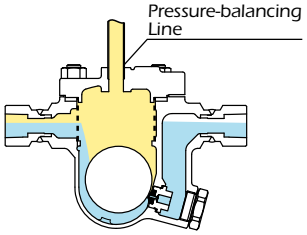
JAH5RG

Three-Point Seating

For High-pressures

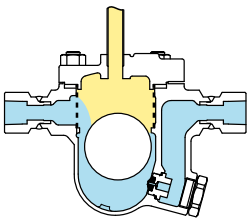
## Operation

**1**



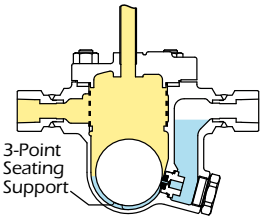

As condensate enters the trap, the float rises controlling the size of the valve seat opening. With the valve open, the condensate is continuously discharged.

**2**

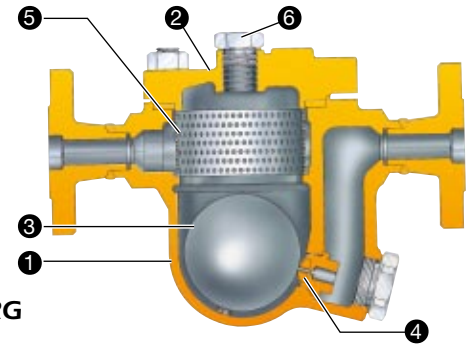


If a large condensate load enters the trap at once, the float rises to open the valve seat fully, increasing the condensate discharge capacity.

**3**




If no condensate enters the trap, the float is fully lowered to close the valve seat. The water level remains above the valve seat, promoting tight sealing.




JAH5RG

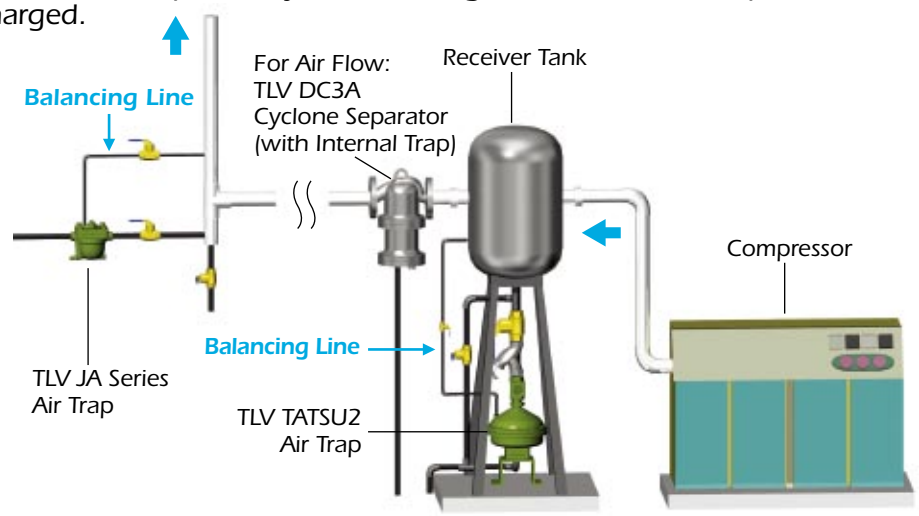
| No. | Part Name |
|---|---|
| ① | Body |
| ② | Cover |
| ③ | Float |
| ④ | Orifice (Valve Seat) |
| ⑤ | Screen |
| ⑥ | Balancing Plug |

| Model | JAH5RG-R | JAH5RG-M | JAH7RG-R | JAH7RG-M |
|---|---|---|---|---|
| Body Material | Cast Steel | Cast Steel | Cast Steel | Cast Steel |
| Valve Seat Material | Fluorine Rubber | Metal | Fluorine Rubber | Metal |
| Connection* | S, SW, F | S, SW, F | SW, F | SW, F |
| Max. Operating Pressure (MPaG) | 2.2 | 4.6 | 4.0 | 4.6 |
| Max. Operating Temperature (°C) | 150 | 425 | 150 | 425 |
| Min. Condensate Load for Tight Sealing (kg/h) | 0 | 1 | 0 | 5 |

* S = Screwed, SW = Socket Welded, F = Flanged

# Pressure-balancing Line

Without a pressure-balancing line connected between the trap cover and a dry portion of the piping/receiver tank, air or gas binding can occur. Air or gas binding occurs when vapor in the trap cavity cannot be displaced by the incoming condensate, which prevents condensate from being discharged.




Note: Since the SS1VG is installed vertically, a balancing line is not generally required. However, to prevent air binding, use as short as possible straight and vertical inlet piping with a minimum nominal diameter of 15 mm.

# Selection Guide

| | Applicable Fluids | Model | Connection | Body Material | Piping Direction | Valve Seat Material | Operating Press. Range (MPaG) | Max. Operating Temperature (°C) | Max. Discharge Capacity (kg/h) | Min. Specific Gravity* | Special Feature |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Air Traps | Air | **JA3D** | Screwed | Zinc Alloy | Horiz./Vert. | Nitrile Rubber | 0.01 - 1.6 | 100 | 230 | 1.0 | Plunger for manual valve seat cleaning |
| | | **JA3** | | Ductile Cast Iron | Horizontal | | | | 275 | | |
| | | **JAF3** | Flanged | Cast Iron | | | | | | | |
| | | **JA5** | Screwed | Ductile Cast Iron | | | | | 455 | | |
| | | **JAF5** | Flanged | | | | | | | | |
| | | **JA7** | | Cast Iron | | | | | 1620 | | |
| | | **G8** | Screwed | | Vertical | | 0.01 - 1.0 | | 1340 | | Simple direct passages |
| | | **JA7.2** | Flanged | | Horizontal | PTFE** | 0.01 - 1.6 | 150 | 9410 | | Increased capacity |
| | | **JA7.5** | | | | | | | 8710 | | |
| | | **JA8** | | | | | | | 25770 | | |
| | | **JAH7.2R** | | Cast Steel | | | 0.01 - 4.0 | | 9410 | | Increased capacity and high pressure service |
| | | **JAH7.5R** | | | | | | | 8710 | | |
| | | **JAH8R** | | | | | | | 25770 | | |
| | | **TATSU2** | Screwed | Cast Iron | Vertical | Nitrile Rubber | 0.2 - 1.0 | 80 | 7400 | | Discharges High-Viscosity Condensate |
| Drain Traps | Air and Inert Gases *** | **SS1VG-R** | Screwed, Socket Welded, Flanged | Cast Stainless Steel | Vertical | Fluorine Rubber | 0.01 - 1.0 | 150 | 130 | 0.50 | All parts are stainless steel |
| | | **SS1VG-M** | | | | Metal** | 0.01 - 2.1 | 220 | 385 | | |
| | | **JAH5RG-R** | | Cast Steel | Horizontal | Fluorine Rubber | 0.01 - 2.2 | 150 | 270 | | High pressure service |
| | | **JAH5RG-M** | | | | Metal** | 0.01 - 4.6 | 425 | 560 | | |
| | | **JAH7RG-R** | Socket Welded, Flanged | | | Fluorine Rubber | 0.01 - 4.0 | 150 | 1380 | | |
| | | **JAH7RG-M** | | | | Metal** | 0.01 - 4.6 | 425 | 2000 | | |

* Maximum operating pressure, maximum differential pressure and condensate discharge capacity are affected by the specific gravity of the condensate.
** Metal and PTFE valve seats require a minimum condensate load for tight sealing. See individual product pages for details.
*** Do not use for toxic, flammable or otherwise hazardous gases.
Full product details (sizes, connections, pressures, capacities and materials) are included in the individual specification data sheets (SDS).

**⚠ CAUTION** To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range.
Local regulations may restrict the use of this product to below the conditions quoted.


**TLV® INTERNATIONAL, INC.**
881 Nagasuna, Noguchi, Kakogawa, Hyogo 675-8511, JAPAN
Phone: [81]-(0)79-427-1818
Fax: [81]-(0)79-425-1167
E-mail: tlv-japan@tlv.co.jp

**Manufacturer**
TLV® CO.,LTD.
Kakogawa, Japan
is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001/ISO 14001