

Swagelok®

Swagelok Malaysia

STANDARD SWAGELOK FLUID SYSTEM ASSEMBLIES



Pre-Engineered Solutions Built Locally



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Save Time with Standardized Pre-Engineered Assemblies Built Locally

Swagelok products deliver the reliability, ease of installation, and lasting performance needed to keep processes and equipment operating safely, efficiently, and cost effectively. Our products are designed to perform in demanding operating environments across a wide range of industries. They are rigorously tested and backed by the **Swagelok Limited Lifetime Warranty**.

With standard Swagelok fluid system assemblies, Swagelok Malaysia helps reduce lead times, ensuring you receive fully assembled solutions in time to meet tight project schedules.

Our locally built Standard Fluid System Assemblies are designed to simplify execution and enhance operational readiness, delivering practical benefits:

- Faster fulfillment and improved availability
- Consistent, reliable system performance
- Simplified design and specification
- Quicker readiness for seamless project execution



Swagelok Standard Fluid System Assemblies



Swagelok® Grab Sampling Module

Our grab sampling module allow for safe, efficient sample capture and are available in a variety of configurations and advanced features.



Swagelok® Changeover

Our Swagelok® Changeover (SCO) is a specialized primary gas control system designed for applications where an uninterrupted gas supply is critical.



Swagelok® Sample Cylinders

We offer a wide selection of metal sample cylinders that are compliant with various transportation industry standards related to chemical transfer.



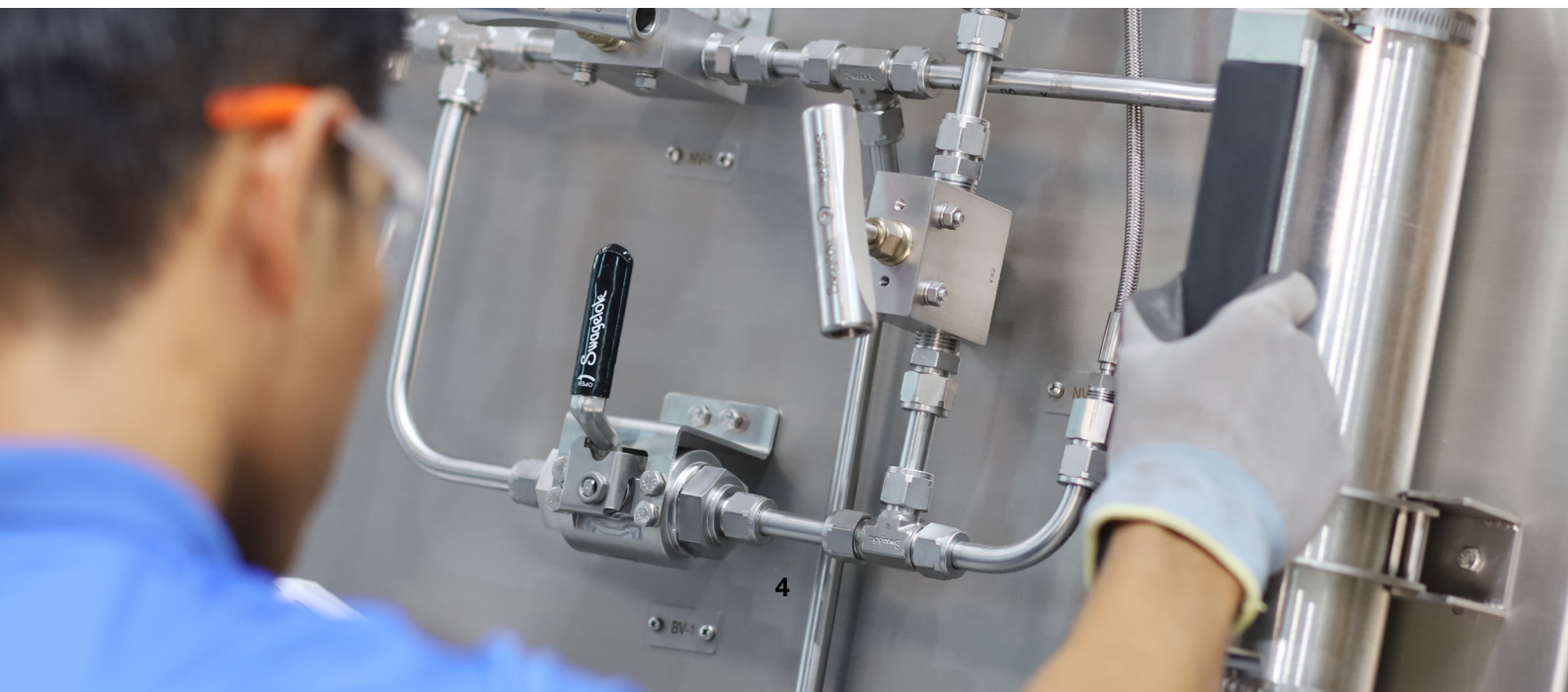
Swagelok® Fluid Distribution Headers

Used as distribution or collection manifolds, our fluid distribution headers (FDH) provide enhanced reliability for gas and liquid applications.



Tube Cutting

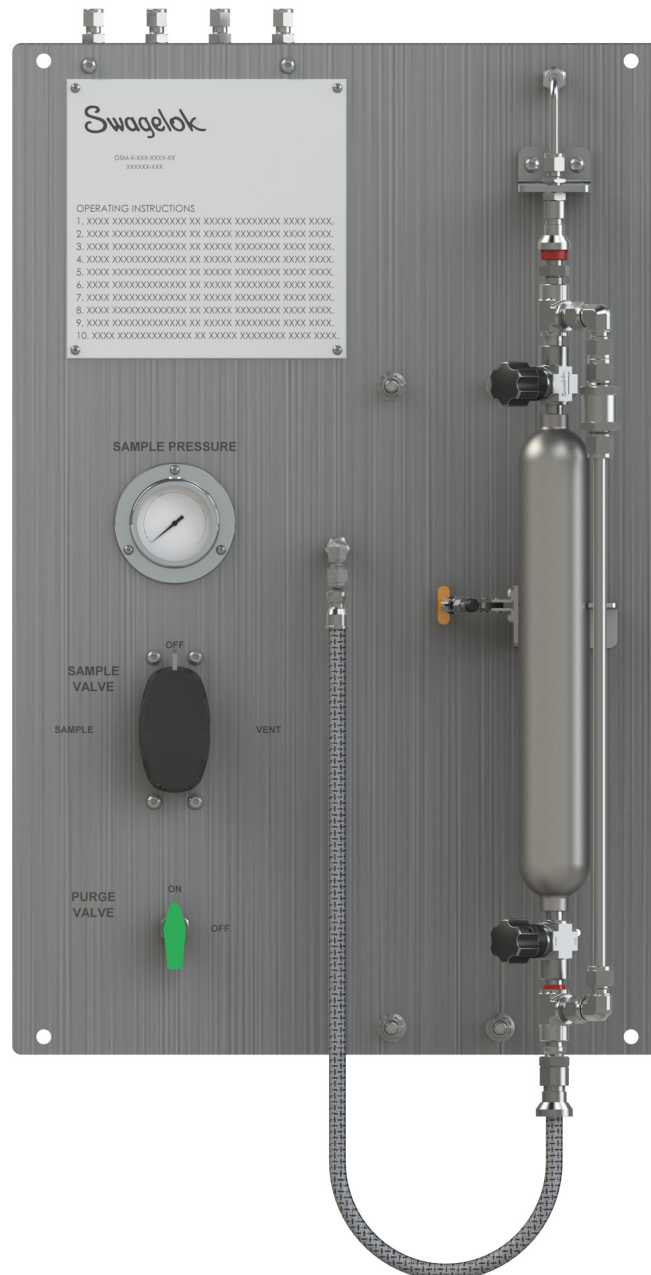
We offer professional, authorized, and precise tube cutting, ensuring accurate lengths. In addition to cutting, services include de-burring and tube facing to ensure proper, leak-tight connections.





Swagelok® Grab Sample Module (GSM)

Grab Sample Module (GSM) is a sampling panel using cylinders for capturing either liquid or gas into a sealed, pressure-containing vessel. Closed loop sampling provides a sample that is fresh and extracted and held under the same process conditions that existed at the time of sample, with the exception of temperature. The sample vessel is docked in place and the process fluid is continuously circulated through the sample vessel. This means when the sample vessel is ready to be removed, the flow is isolated and the vessel is immediately ready to be removed – no waiting for lines to flush or bottles to fill.



Grab Sample Module



How Can Our GSM Help?

Swagelok has developed standard grab sampling system designs to meet the needs of customers seeking safe, reliable, and representative sampling in a wide variety of applications. Our standard grab sampling panel designs can be easily customized with additional instrumentation, enclosures, or stands. They can also be automated or assembled from exotic alloys as needed.

Our team will help to ensure the customer achieves 6 goals of sampling excellence.

Analytical Goals

Compatible	Obtain a compatible sample that will not harm the analyzer or prevent it from producing a reliable analytical result.
Timely	Secure a timely sample with an acceptable delay so the measurement is received while there is still time to act upon it.
Representative	Deliver a sample that accurately represents the product in the process line. A representative sample ensures a meaningful analytical result that is useful for its intended purpose.

Operational Goals

Reliable	Produce a timely and representative analysis every time so accurate measurements are always available when needed.
Cost-Effective	Reliably produce all the desired benefits at the lowest overall cost.
Safe	Pose no threat to personnel, the environment, or process operations.

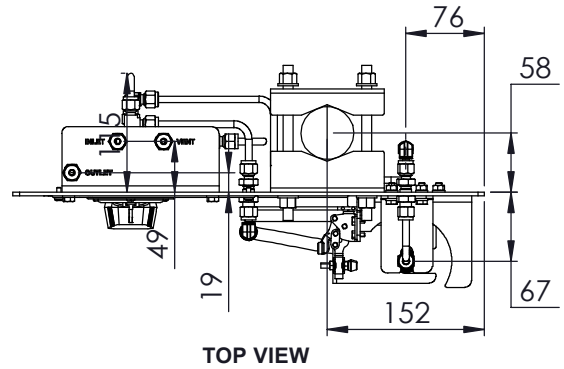
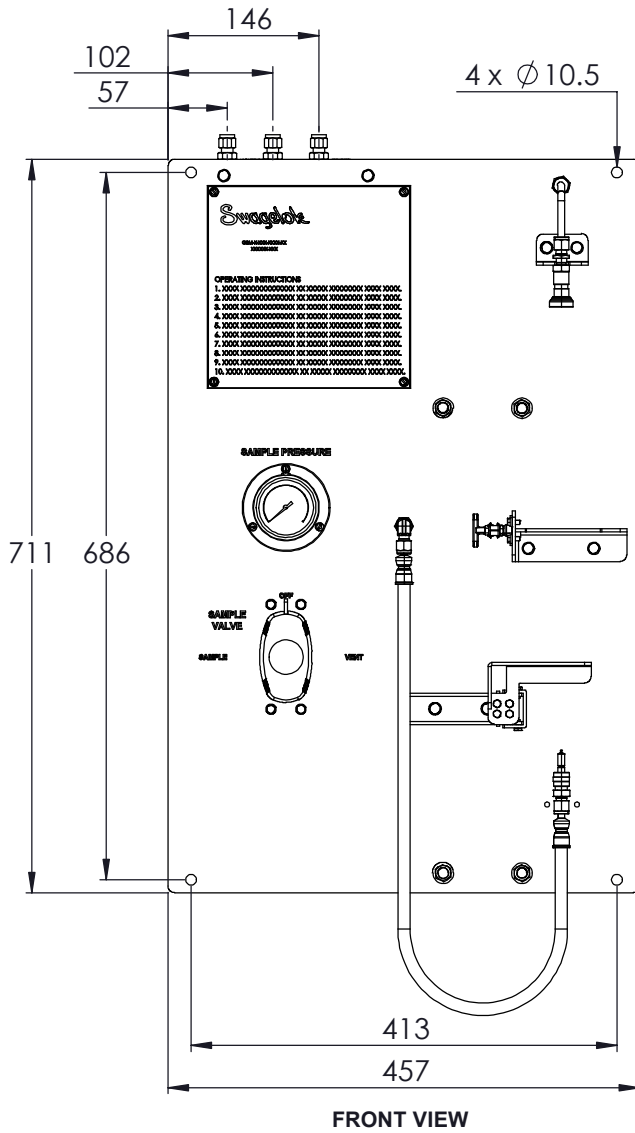




GSM Dimensions

The following drawings provide basic panel dimensions. All GSM systems are configured on the same panel and will have the same basic dimensions. Exact system selected will determine final dimensions.

Dimensions, in millimeters, are for reference only and are subject to change.





GSM Ordering Information

Build an ordering number by combining the designators in the sequence shown below.

1 **2** **3** **4** **5** **6** **7** **8**
PJAYA - GSM - G - 1 - M 4 A - 1000 N - S4

1 Fluid Type

G = Gas
L = Liquid

2 Flow Pattern

1 = Standard
2 = Continuous Flow

3 Dial Range

M = 0 to 25 Bar
P = 0 to 100 Bar
Q = 0 to 160 Bar

4 Quick Connect

4 = QC4

5 Relief Valve

A = Proportional
X = None

6 Cylinder Bracket

1000 = 1000cm³

7 Purge

N = No Purge
P = Purge

8 End Connection

S4 = 1/4 in. Swagelok Tube Fitting



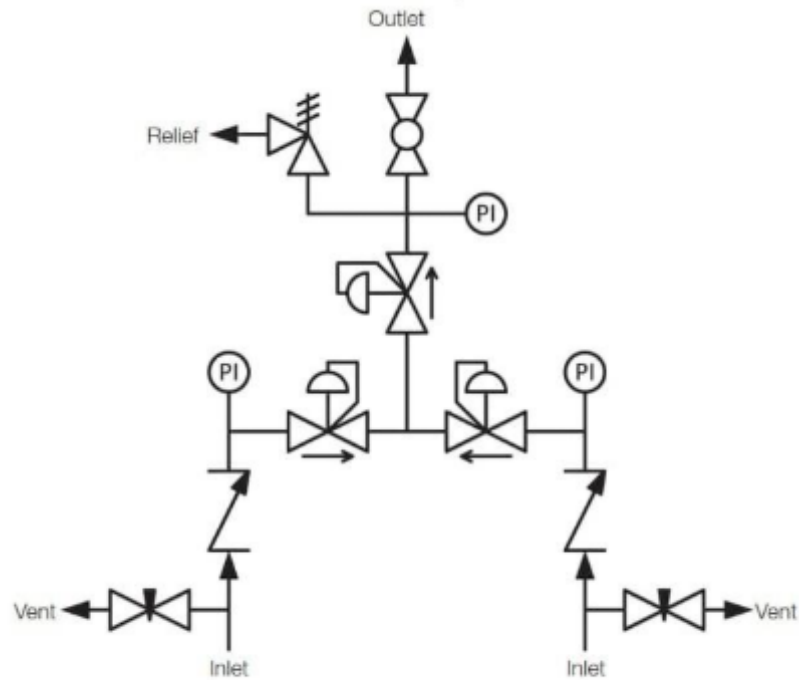


Swagelok® Changeover (SCO)



SCO with Outlet Pressure Regulator

A Swagelok® changeover (SCO) is a special type of primary gas control system, pre-engineered for applications where the continuous supply of gas is critical. When one source is depleted below a selected changeover pressure, the continuous gas delivery system automatically switches to a back-up supply. The depleted source can then be changed, in-line, without downtime.



Common Customer Challenges

Many customers using bottled gases (H_2 , N_2 , specialty gases, calibration gases, toxic or corrosive gases) face the following challenges:

- Unplanned gas supply interruption when a cylinder empty
- Manual cylinder changeover, requiring operator intervention
- Safety risks during cylinder replacement (exposure, leaks, pressure shock)
- Process instability due to pressure fluctuation during switchover



The Solution: Swagelok® Changeover Panel

A Swagelok® Changeover Panel provides continuous, uninterrupted gas supply by automatically or manually switching from a primary to a reserve cylinder bank.

Key Functional Features:

- Dual supply sources (Primary & Reserve)
- Automatic or manual changeover
- Pressure regulation and monitoring
- Optional alarms, gauges, or transmitters
- Designed, assembled, and tested to Swagelok standards



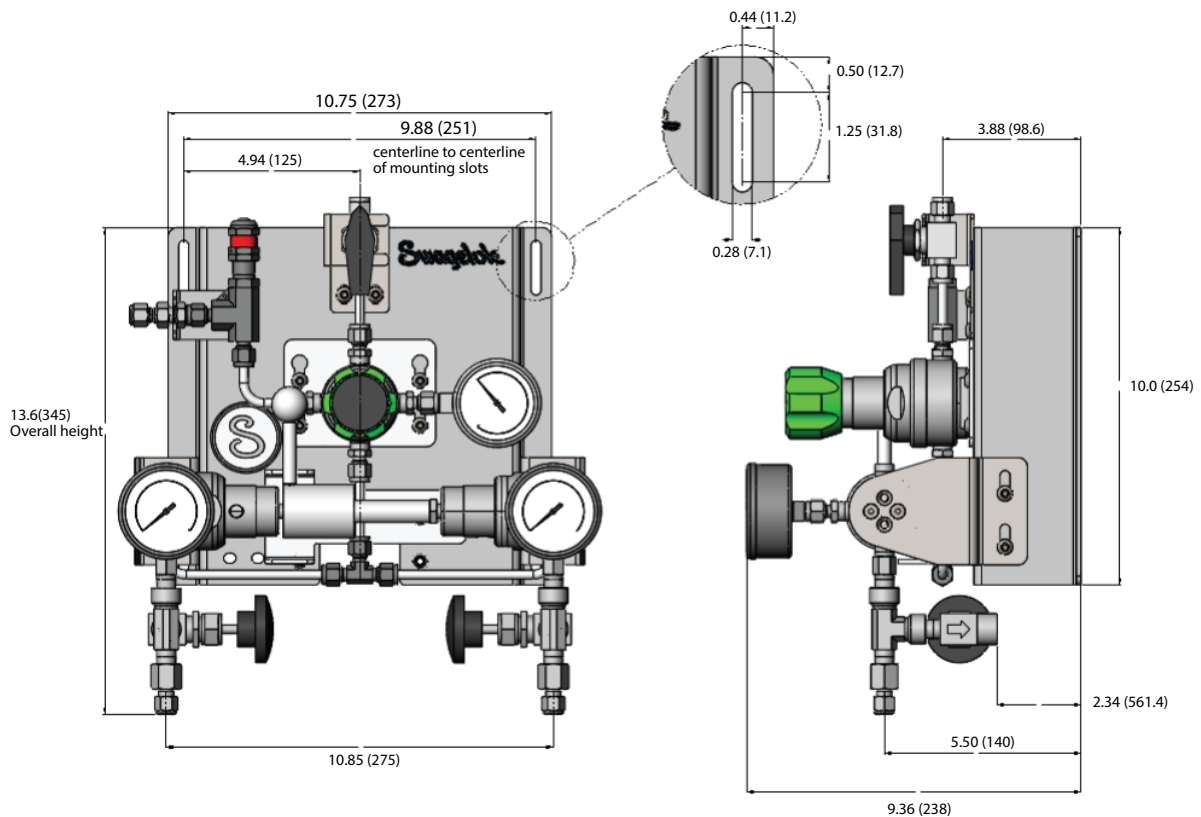
How Can Our SCO Help?

Customer Challenges	How Swagelok Changeover Panel Helps
Gas supply interruption	Automatic switchover ensures continuous flow
Manual monitoring	System switches without operator intervention
Safety risks	Reduced handling, fewer cylinder changes
Pressure fluctuation	Stable regulated outlet pressure
Gas wastage	Full utilization of cylinders
Compliance concerns	Designed to meet industry & safety standards



SCO Dimensions

Dimensions, in inches (millimetres), are for reference only and are subject to change.





SCO Ordering Information

Build an ordering number by combining the designators in the sequence shown below.

1 2 3 4 5 6 7 8 9 10 11 12
PJAYA SCO N F R 2 5 P S4 S4 5 4 1 1

1 Gas Type

N = Inert

2 Pressure Control Range

0 = None

F = 0 to 100 psi

G = 0 to 250 psi

J = 0 to 500 psi

3 Maximum Inlet Pressure

R = 3600 psig

4 & 5 Changeover Pressure

ex 25 (bar)

Note : Select the desired changeover pressure by entering two digits in fields 4 and 5. Select the pressure units in field 6. For example, 25B will specify a 25 bar changeover pressure.

6 Unit of Changeover

P = psi

B = Bar

Note : When selecting a changeover pressure in units of psig, the number in fields 4 and 5 will represent 10x the desired pressure. For example, to select a 50 psig changeover pressure, enter Q5P in fields 4, 5 and 6

7 Inlet Connections

S4 = 1/4 in. Swagelok tube fitting

8 Outlet Connection

S4 = 1/4 in. Swagelok tube fitting

9 C_v (Flow Coefficient)

2 = 0.06

5 = 0.2

10 Isolation Valve

0 = No valve

4 = 1/4-Turn ball valve

D = Multi-turn needle valve

11 Inlet Vent

1 = Non-capture

2 = Captured Vent

12 Pressure Relief Valve

0 = None

1 = R3A Series

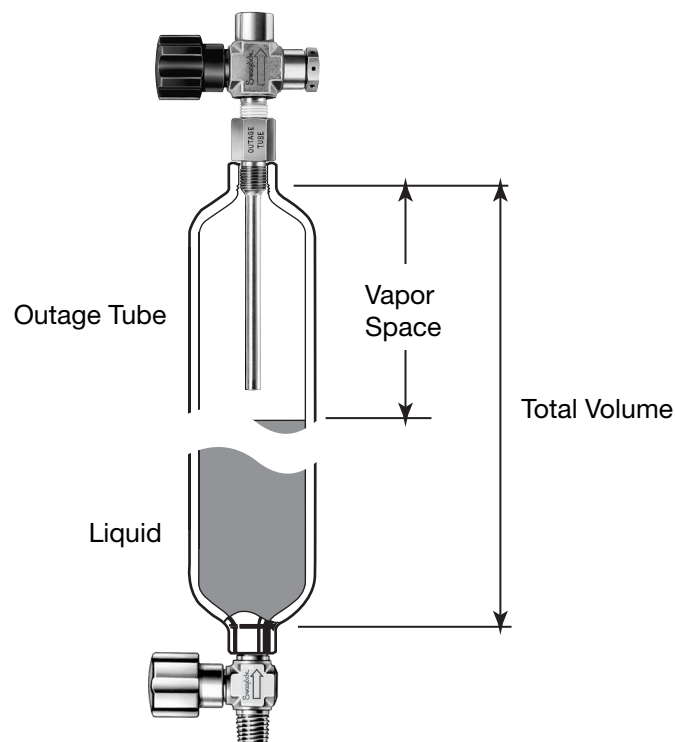


Swagelok® Sample Cylinders (GSC)

Grab Sample Cylinders (GSC) capture and maintain fluid samples under pressure, preventing leaks, protecting operators, and preserving sample integrity – especially important for toxic, volatile liquids and gases.

They work with Grab Sample Modules (GSM) to store samples for long periods without losing accuracy, making them reliable for process monitoring.

Construction materials must match the fluid type – 316 stainless steel is ideal for wetted parts to resist corrosion, while 304 stainless steels for nonwetted parts ensures durability; higher-grade alloys may be needed for aggressive chemicals.



An outage tube is a small internal pipe that ensures the cylinder is never filled with liquid. It leaves a vapor space at the top, which is crucial for:

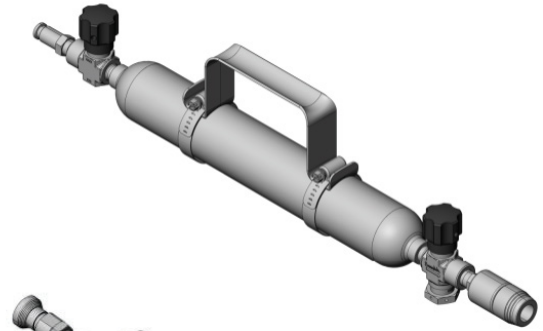
1. **Safety:** Prevents pressure buildup from liquid expansion due to temperature changes.
2. **Accuracy:** Maintains consistent sampling volume.
3. **Compliance:** Meets safety standards for volatile or toxic liquids



Swagelok Offers 2 Types of Assemblies:

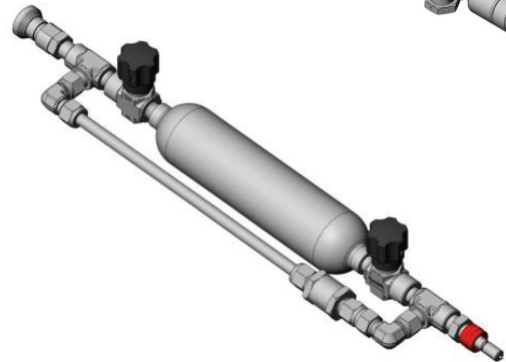
Standard

A cylinder assembly for general use or for use with GSM systems without a purge option.



Purge

A cylinder assembly for use with GSM systems with a purge option specified.



How Can Our GSC Help?

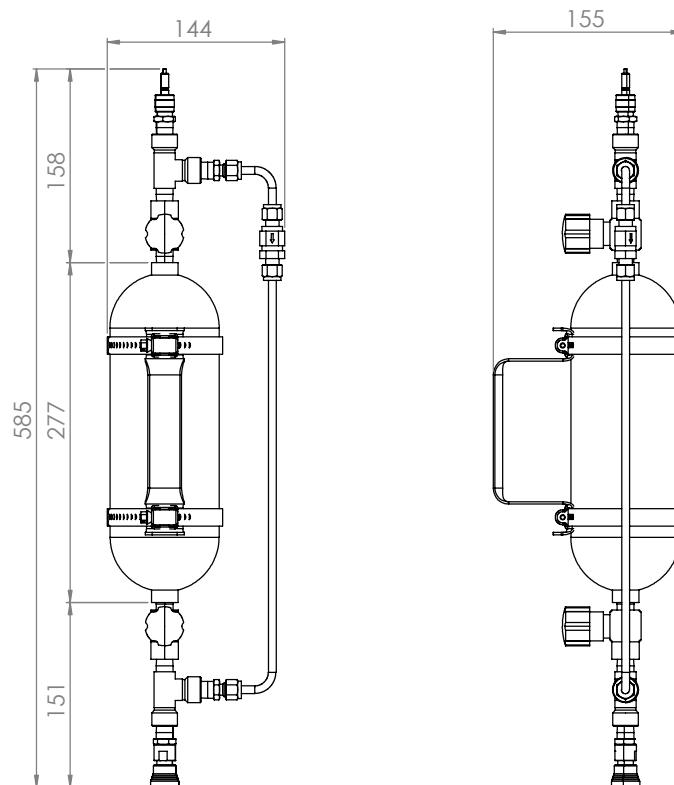
Swagelok emphasizes that GSC's are the safest and most reliable way to capture pressurized samples. They protect both the operator and the integrity of the sample, making them indispensable in industries like oil & gas, petrochemicals, and refining.

The advantages of cylinders:

Customer Needs	How Swagelok GSC Helps
Safety	Securing the sample while ensuring the integrity of sample
Accuracy	Collect a true sample
Compliance	Comply to standard API/ASTM/ISO which are widely used in the industry
Proof	Legal with quality documentation of standard compliance
Confidence	Operate safely in a toxic sample

GSC Dimensions

Dimensions, in millimeters, are for reference only and are subject to change.



GSC Ordering Information

Build an ordering number by combining the designators in the sequence shown below.

1 2 3 4 5
PJAYA - GSC - 3 3 0500 N - 4 1 A 10 H

1 Cylinder Size
 0500 = 500cm³
 1000 = 1000cm³

3 Rupture Disc
 A = 1900 Psi
 X = None

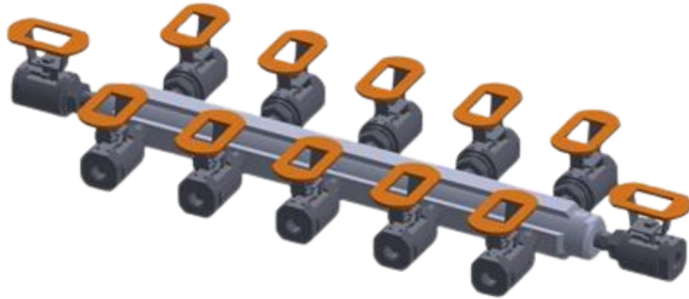
5 Cylinder Handle (SS304)
 H = Handle
 X = No Handle

2 Purge
 N = No Purge
 P = Purge

4 Outage Tube
 XX = None
 10 = 10%
 20 = 20%
 30 = 30%
 40 = 40%
 50 = 50%



Swagelok® Fluid Distribution Header (FDH)



Fluid Distribution Header

Fluid distribution headers (FDH) are common components used in a variety of gas and liquid applications. An FDH provides a flow path while allowing multiple outlets, acting much like a large branch fitting.

A fluid distribution header is characterized by an inlet on one end, a drain on the other end, with multiple outlets on the sides. Typical fluid distribution headers are manufactured from a piece of pipe or bar and feature welded or threaded end connections.



Common Customer Challenges

Traditional “T-Junction” distribution creates operational risks:

1. **High Leak Frequency:** Every joint is a potential HSE and environmental hazard.
2. **Costly Downtime:** You must shut down the entire system for minor repairs.
3. **Pressure Instability:** Uneven flow causes instruments failure and sluggish response.
4. **Wasted Space:** Bulky piping clutters expensive offshore skids and platforms

The Solution: Engineering Operational Superiority

Leak-Proof Engineering: Engineered with high-integrity materials to eliminate fugitive emissions and ensure a leak-free lifecycle.

Uninterrupted Productivity: Perform critical maintenance on individual lines while staying fully operational. No shutdown, no revenue loss.

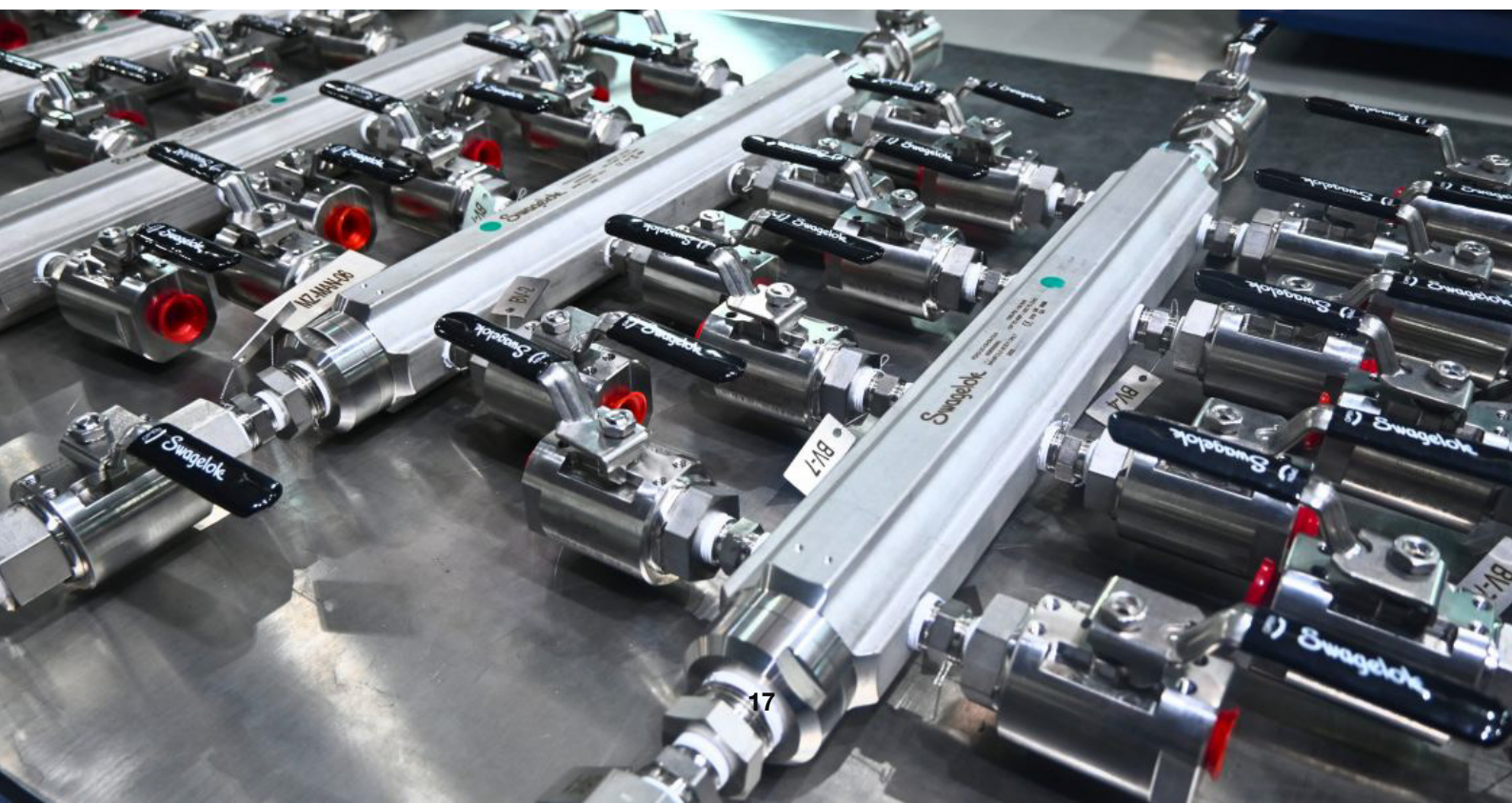
Uniform Delivery: Delivering stable pressure for all downstream equipment.

Space-saving and Easy Access: We have condensed a complex piping network into a single body profile. Turn a cluttered, high-risk area into an organized workspace where every outlet is clearly visible and easy to reach. It's not about saving space; it's about making that space work for you.

Application

As a distribution manifold or header, an FDH connects several users to the source of a utility fluid. Typical applications include:

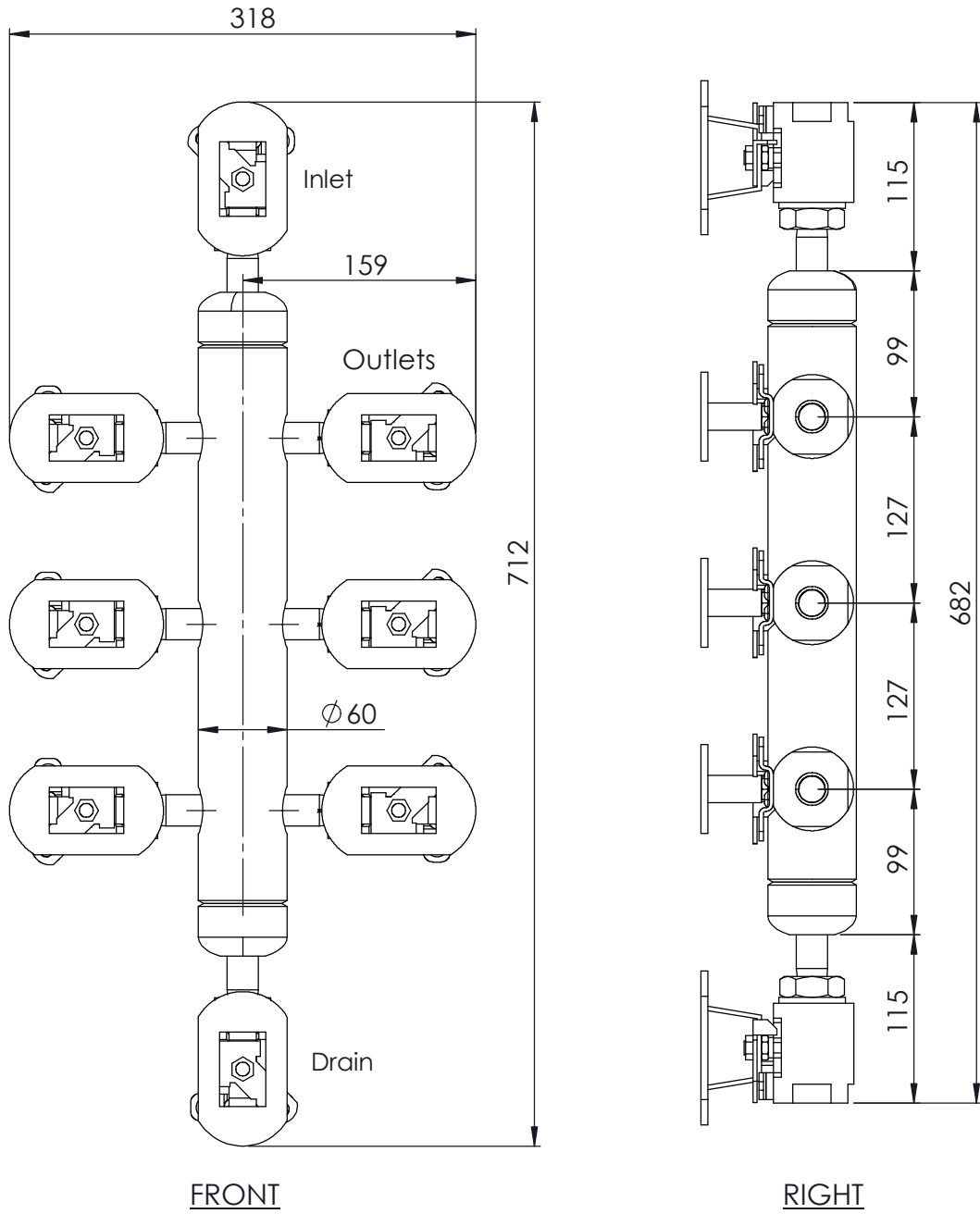
- Cooling water
- Steam
- Compressed air
- Plant nitrogen





FDH Dimensions - ADM 6-Way

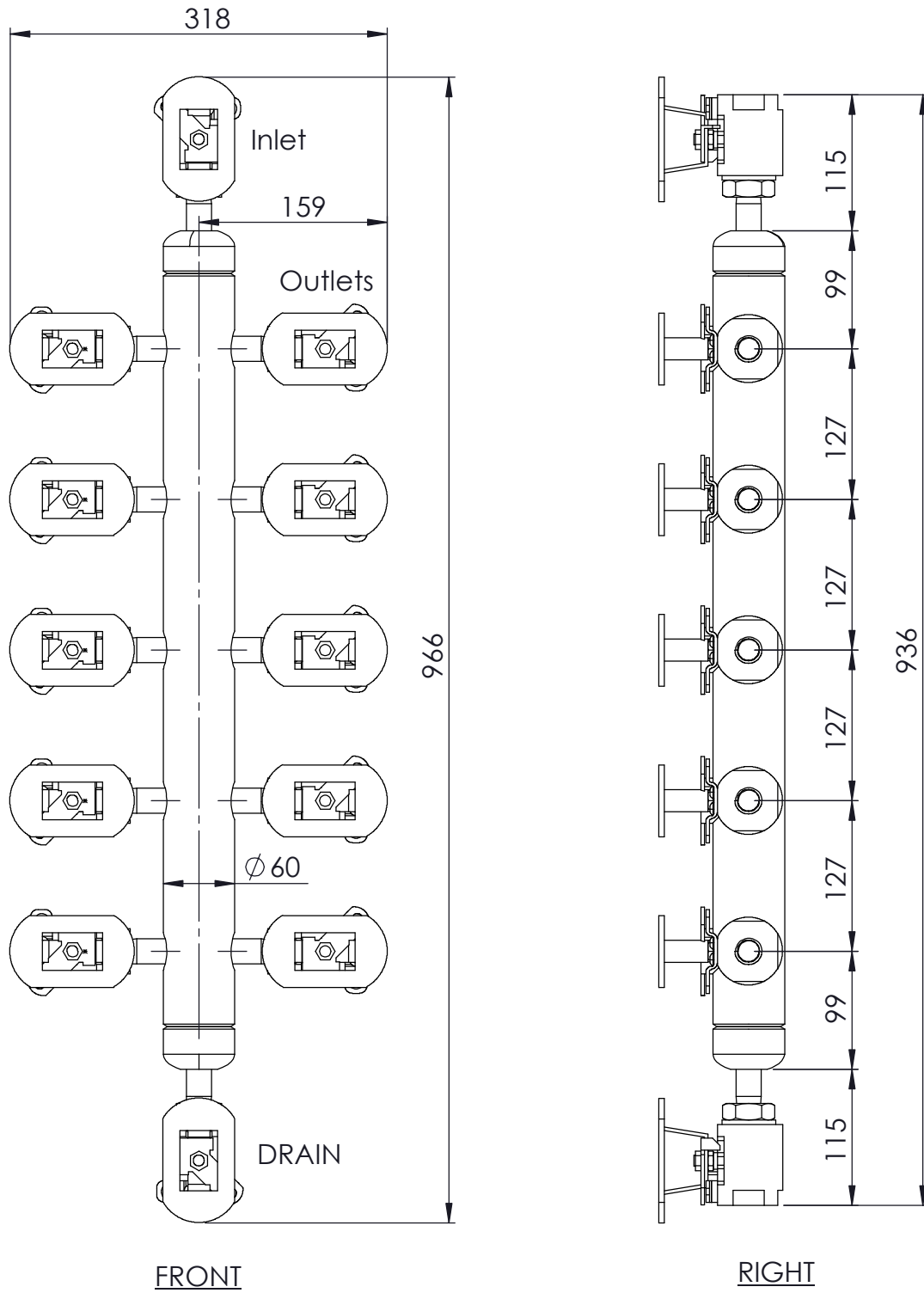
Dimensions, in millimeters, are for reference only and are subject to change.





FDH Dimensions - ADM 10-Way

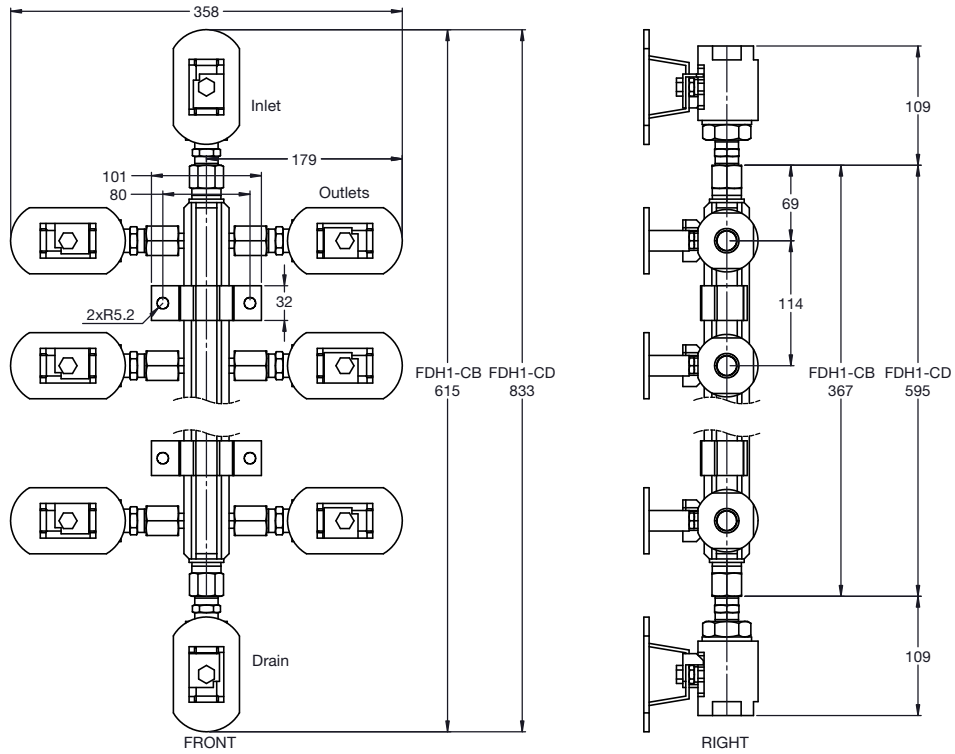
Dimensions, in millimeters, are for reference only and are subject to change.





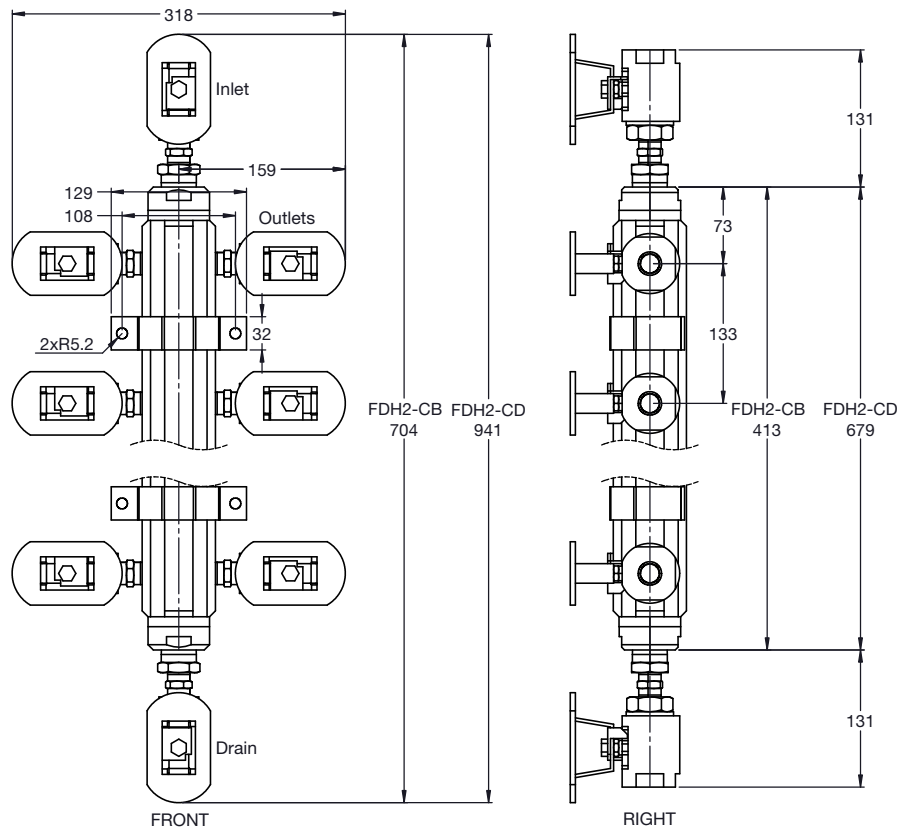
FDH Dimensions - FDH1

Dimensions, in millimeters, are for reference only and are subject to change.



FDH Dimensions - FDH2

Dimensions, in millimeters, are for reference only and are subject to change.





FDH Ordering Information

Build an ordering number by combining the designators in the sequence shown below.

1 **2** **3** **4** **5**
PJAYA - FDH2 - C B - C 1 - C 1 - C 1

1 Type of Body

ADM = Air Distribution Manifold (15 bar)
FDH1 = Fluid Distribution Header 1" (206 bar)
FDH2 = Fluid Distribution Header 2" (68.9 bar)

5 Drain Valve

B = GB Ball Valve
0 = No Valve

2 Number of Outlets

B = 6
D = 10

3 Inlet Valve

3 = GB Ball Valve
0 = No Valve

4 Outlet Valve

B = GB Ball Valve
0 = No Valve

Notes;

1. All end connections are 1/2"NPT Female
2. All Type of body come with mounting supports
3. The material of body, valves, fittings are 316 stainless steel
4. Any customization required, please inform Swagelok Malaysia

Tube Cutting



Stainless Steel Tubing

Instrumentation-grade seamless stainless-steel tubing is available in fractional, metric, and imperial sizes. It is chemically cleaned and passivated to ASTM G93 Level A and CGA 4.1 standards and thermocouple-cleaned per ASTM A632-S3. Additionally, welded stainless steel tubing in fractional sizes can be used with Swagelok components.

Tubing Selection

Proper selection, handling, and installation of tubing, when combined with proper selection of Swagelok® tube fittings, are essential to reliable tubing systems.

The following variables should be considered when ordering tubing for use with Swagelok tube fittings:

● **Surface Finish**

ASTM A450, a general tubing specification, reads:

11. Straightness and Finish

11.1 Finished tubes shall be reasonably straight and have smooth ends free of burrs. They shall have a workmanlike finish. Surface imperfections (Note) may be removed by grinding, provided that a smooth curved surface is maintained, and the wall thickness is not decreased to less than that permitted by this or the product specification. The outside diameter at the point of grinding may be reduced by the amount so removed.

● **Tubing Material**

316 Stainless steel tubing.

● **Tubing Hardness**

The key to selecting proper tubing for use with metal Swagelok tube fittings is that the tubing must be softer than the fitting material.

● **Tubing Wall Thickness**

Refer to Swagelok Tubing Data Sheet (MS-01-107).



TC Ordering Information

Build an ordering number by combining the designators in the sequence shown below.

1 **2** **3** **4** **5**
PJAYA - TC - 316 - T 4 - 035 - X MM

1 Material
316 = SS316

2 Outside Diameter
2 = 1/8 in.
4 = 1/4 in.
6 = 3/8 in.
8 = 1/2 in.
6M = 6 mm
8M = 8 mm
10M = 10 mm

3 Wall Thickness
028 = 0.028 in.
035 = 0.035 in.
049 = 0.049 in.
1.0 M = 1 mm
1.5M = 1.5 mm

4 Length
X = Length Desired


5 Unit of Measurement
MM = millimeters
IN = inches
FT = feet

Note:

- 1 Maximum length is 6000mm or 240 inches or 20ft
- 2 Maximum length is 300mm or 12 inches or 1ft

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