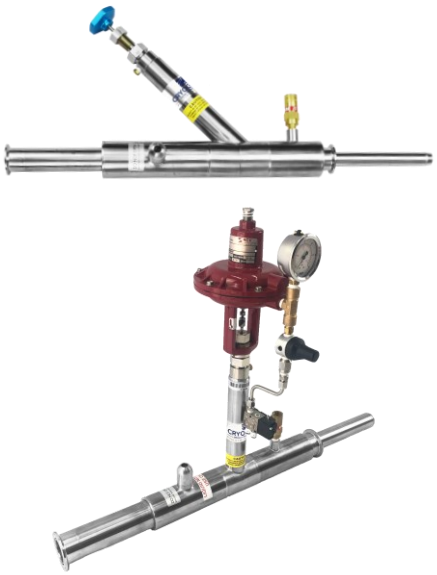


# Modular Valves

Pre-engineered modular valve has added advantage over the traditional rigid VJP, especially when use with Semi-Flex system. This option provide simplicity and cost saving as it reduces the necessity for precise system layout measurements. It also allows the valve to be easily reused if use-point locations and plant layout are changed.

Modular valve facilitate users to design and construct their own LN2 delivery system with minimum piping engineering experience or knowledge.

All Modular Valves come with CSM renowned customer service, from conceptual design to implementation, and are backed by a one year warranty

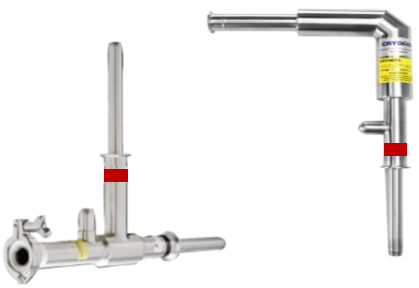
## Vacuum Insulated Modular Valves

CSM vacuum insulated valves are recommended when system efficiency and elimination of frost, ice and moisture are essential. The initial cost is greater for the vacuum insulated option, but the savings outweigh the investment in less than a year.

By using a vacuum insulated valve, one can expect a maintenance free operation that does not require frequent replacement of PU foam insulation. Vacuum insulated Modular Valve guarantees extremely low heat leak for minimum liquid boil-off compared to foam-insulated valve by at least 20 times. Thus liquid vaporization loss is reduced and liquid quality is maintained up to the point of use.

Modular valves are commonly used in both Stati-Rigid and Semi-Flex piping systems with Dynamic or Static vacuum technology.

## Related Products:



Modular Fittings

## Benefits and Features

- Available in T or Y pattern for horizontal or vertical installation
- Pneumatic actuators can be ordered on valves for remote control
- Low operation torque for bubble tight shut-off
- Cryogenic stem packing with live loaded design to compensate thermal contraction & expansion to prevent premature leakage
- Integral bonnet purge thermal relief port to eliminate extra fittings requirement and corresponding leak point
- Plug to stem stabilizer to ensure longer life cycle for the valve seat
- Replaceable KEL-F seat seal for lower maintenance & repair cost on the valve
- Contoured flow plugs available for flow regulation
- 5 years vacuum warranty for static vacuum

# Modular Valves Specifications

| Model | Valve Size | MAWP | Flow Coefficient CV | | Cooldown Mass lbs (kg) | | Valve Heat Leak@20 K BTU / Hr (W) | Bayonet Heat Leak BTU / Hr (W) | Valve Construction |
|---|---|---|---|---|---|---|---|---|---|
| | | | Y-Valve | T-Valve | Y-Valve | T-Valve | | | |
| C504 | C2 | 150 psig | N/A | 1.1 | N/A | 0.1 (0.05) | 2.4 (0.7) | 6.1 (1.8) | S/S300 |
| C204 | C5 | 300 psig | 5.7 | 2.6 | 0.5 (0.2) | 0.7 (0.3) | 4.5 (1.4) | 4.0 (1.2) | S/S300 |
| C208 | C10 | 300 psig | 25 | 16.3 | 1.8 (0.8) | 3.3 (1.5) | 10.4 (3.1) | 8.1 (2.4) | S/S300 |
| C212 | C15 | 300 psig | 42 | 31 | 6.2 (2.8) | 9.1 (4.2) | 21.8 (6.4) | 7.8 (2.3) | S/S300 |
| C216 | B20 | 300 psig | 59.4 | 42.3 | 10.5 (4.8) | 13.5 (6.2) | 27.3 (8.0) | 11.3 (3.3) | S/S300 |

Valve Sizing Flow Calculations: *Basic Liquid Flow Formula* $C_v = Q_L\sqrt{\frac{SG}{\Delta P}}$

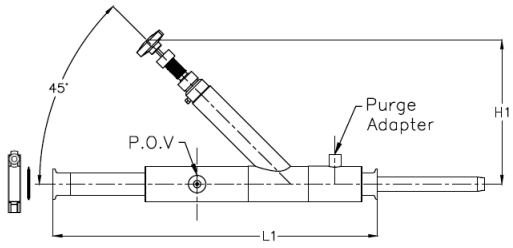
$C_v$ = Flow Coefficient
$Q_L$ = Flow (GPM)
SG = Specific Gravity
ΔP = Pressure Drop (PSIA)

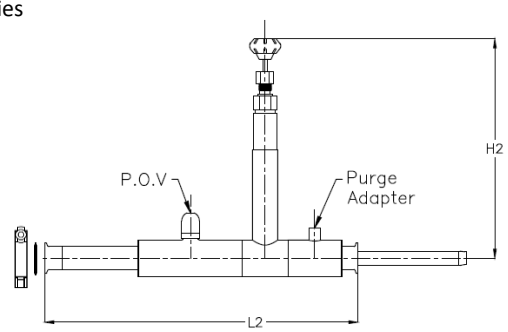
# Modular Valves Dimension

| Model | Valve Size | Y-Valve | | T-Valve | |
|---|---|---|---|---|---|
| | | H1 valve open | L1 | H2 valve open | L2 |
| C504 | C2 | - | - | 8.4" (213mm) | 13.8" (350mm) |
| C204 | C5 | 10.2" (259mm) | 21.7" (550mm) | 14.4" (365mm) | 21.7" (550mm) |
| C208 | C10 | 13.4" (340mm) | 28.1" (713mm) | 17.4" (441mm) | 29.5" (750mm) |
| C212 | C15 | 17.2" (437mm) | - | 22.5" (572mm) | - |
| C216 | B20 | 17.2" (437mm) | - | 22.5" (572mm) | - |

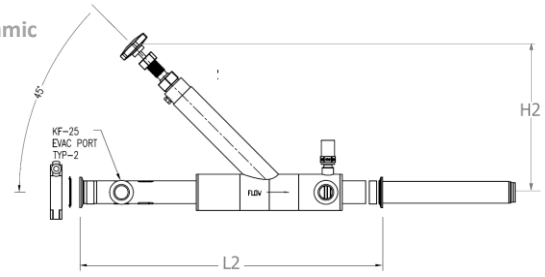
*Other configurations are available please contact us for more inquiries

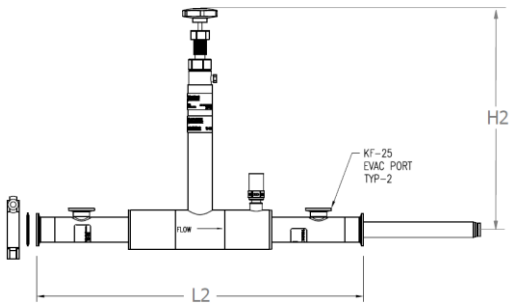
Static




Dynamic

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