



TG...Series

3-port Stainless Steel Valves Victaulic Coupling Connection,PN16

- Valve body material: stainless steel
- Caliber range: DN40...DN65
- Flow rate range: 20...50m³/h
- Connection type: victaulic coupling connection
- Can be matched with TC series electric actuators

Application

It is suitable for HVAC and air conditioning system.

Medium

| | |
|------------------------------------|-----------------------------------|
| Chilled water | -25℃~130℃ Chilled/hot water valve |
| Cooling water | |
| Antifreeze water | |
| Refrigerant(R12, R22, R134a, R202) | |
| Glycol | |
| Hydrazine | |
| Phosphate | |
| Low temperature hot water | |
| High temperature hot water | |
| Saturated steam (≤130℃ or ≤0.1MPa) | |

Note: When medium temperature in valve is below 0℃ (R12, R22, R134a, R202, glycol), the stem of the valve should be protected by stem heater (Type: THOT-1/ THOT-2) to avoid frosting and icing.

Type Summary

| Type | Caliber (in.) | DN (mm) | Kvs (m ³ /h) | Stroke (mm) | Actuator Recommended | Δp _{max} (Mpa) |
|----------------|---------------|---------|-------------------------|-------------|----------------------|-------------------------|
| TG40-3VBC-S.12 | 1-1/2" | 40 | 20 | 20 | 500N | ≤0.30 |
| TG50-3VBC-S.12 | 2" | 50 | 32 | 20 | 1000N | ≤0.30 |
| TG65-3VBC-S.12 | 2-1/2" | 65 | 50 | 20 | 1000N | ≤0.25 |

Notes:

DN= Nominal diameter

Kvs= Nominal flow coefficient, which refers to the flow goes through full open control valve (Density=1g/cm³ Δp_{max} is 0.1Mpa.)

DN40~DN65 3-port valve are all mixing.If you need diverting ones,please exchange A and AB according to rating plate on the valve.

Type introduction:

1. G: Victaulic coupling connection valve
2. **:Caliber
3. V: Medium Water : -25°C~130°C
4. B: Valve body material Stainless steel
5. C: Pressure PN16
6. .12: Tiger's Standard interface

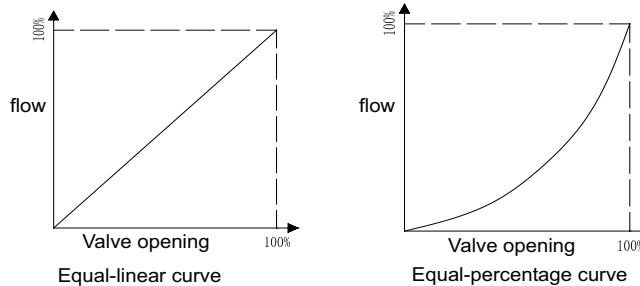
Actuator Overview

| Type | Rating Force | Actual Force | Operating Voltage | Control Signal | Feedback Signal | Manual | Running speed |
|-------------------|--------------|--------------|-------------------|--------------------|--------------------|--------|-----------------|
| TC500-X24-S.12 | 500N | 500N~700N | 24VAC | 0(2)~10V,0(4)~20mA | 0(2)~10V,0(4)~20mA | Yes | 3.85s/mm (50Hz) |
| TC500-D24-S.12 | 500N | 500N~700N | 24VAC | 3-position | No | Yes | 3.85s/mm (50Hz) |
| TC500-D24-SF2.12 | 500N | 500N~700N | 24VAC | 3-position | SPDT feedback | Yes | 3.85s/mm (50Hz) |
| TC1000-X24-S.12 | 1000N | 1000N~1200N | 24VAC | 0(2)~10V,0(4)~20mA | 0(2)~10V,0(4)~20mA | Yes | 3.85s/mm (50Hz) |
| TC1000-D24-S.12 | 1000N | 1000N~1200N | 24VAC | 3-position | No | Yes | 3.85s/mm (50Hz) |
| TC1000-D24-SF2.12 | 1000N | 1000N~1200N | 24VAC | 3-position | SPDT feedback | Yes | 3.85s/mm (50Hz) |

Notes:

1. Operating voltage is available for 220V/24VAC, which must be noted when ordering, the type should be changed from "24" to "220". For example, change "TC500-X24-S.12" to "TC500-X220-S.12".
2. S means manual function.
3. The actual running time depends on the actual valve stroke.

Valve Flow Characteristic



Relationship between Differential Pressure and Rating Flow

$$Kvs = \frac{V}{\sqrt{\frac{\Delta P}{100}}}$$

ΔP: Differential pressure when control valve is full open (unit: kPa)

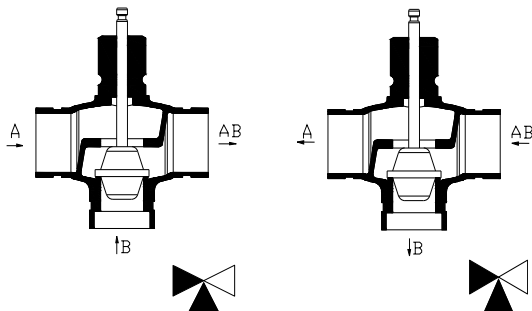
V: Rating flow at the ΔP (unit: m³/h)

Kvs = Nominal flow coefficient, which refers to the flow goes through full open control valve (Density=1g/cm³

Δp_{max} is 0.1Mpa.)

Machanical Design

Flow Direction of Medium



DN40~DN65 3-port mixing valve DN40~DN65 3-port diverting valve

Note:
DN40~DN65 3-port valve are all mixing.If you need diverting ones,please exchange A and AB according to rating plate on the valve.

Relationship between Flow and Medium

| | 3-port mixing DN40~DN65 | 3-port diverting DN40~DN65 |
|----------------------|----------------------------------|----------------------------------|
| Flow direction | A,B to AB | AB to A,B |
| valve stem retracts: | flow of A increases, B decreases | flow of A increases, B decreases |
| valve stem extends: | flow of A decreases, B increases | flow of A decreases, B increases |

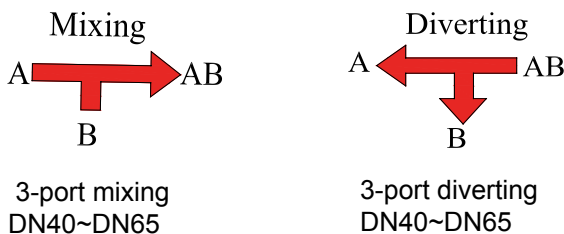
Mounting with actuator

The valve and actuator can be easily assembled without special tool and adjustment. See specification for installation details.

Mounting with pipe

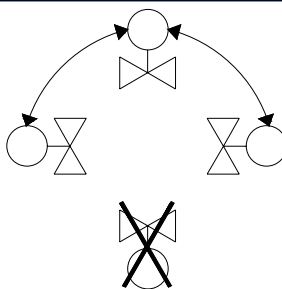
1.Valve should be installed according to marked direction.

Plate on the Valve



2.Valve can be installed in the water supply pipe or return water pipe (priority selection.When installed in the return water pipe,it makes water control more smooth,the temperature of hot return water is low and extend valve life). Besides, filter and check valve are recommended to be installed. When the medium is steam, install draw off valve in the pipe can remove the condensed water, or it will affect the life of valve.

Mounting Orientation



Chilled/hot water valve body

Downward installation is forbidden

Commissioning

Commission the valve only if the actuator has been mounted correctly.

Maintenance

When doing service work on the valve / actuator:

1. Close the pump and turn off the power supply.
2. Close the shut-off valve, exhaust water in the pipe to reduce the pressure inside pipes. Make water pipe(hot water) cool down naturally.
3. Dismantle electric wires from wiring terminals.



Notice: When we do the pipe pressure testing and flushing, the valve body should be in a state of full open. This operation can not only protect the internal parts of valve body, but also prevent pipe from blocking.

Technical data

Permissible pressure PN16

Operating Data

Leakage rate 0.02% Kvs

Permissible media

Water valve Chilled water, Cooling water, Antifreeze water, Refrigerant(R12, R22, R134a, R202), Glycol, Hydrazine, Phosphate, Low temperature hot water
(-25°C~130°C) High temperature hot water

Permissible pressure 1.6Mpa

Stroke 20mm

Material

Valve body Stainless steel

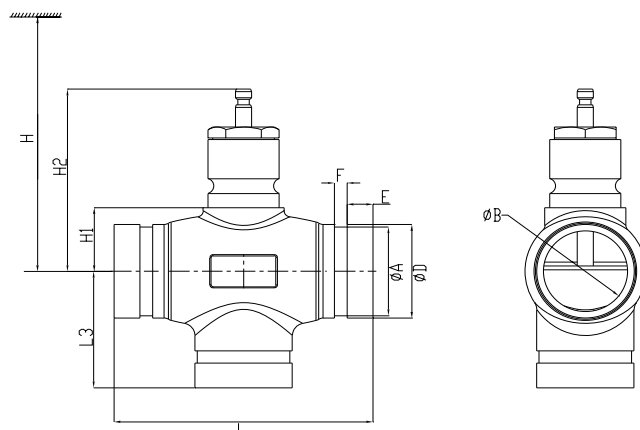
Valve core Stainless steel

Valve stem Stainless steel

Seal ring Teflon

Sealing structure V-ring sealing gland + stainless steel spring auto-compensation

Dimension Figure



| Type | DN | ΦA mm | ΦB mm | ΦD mm | E mm | F mm | L mm | L3 mm | H1 mm | H2 mm | H mm (500N, 1000N) | Net Weight (Kg) |
|----------------|----|----------|----------|----------|---------|---------|---------|----------|----------|----------|----------------------------|--------------------|
| TG40-3VBC-S.12 | 40 | 45.09 | 41 | 48.3 | 15.88 | 7.95 | 145 | 70 | 36 | 113 | 266 | 1.9 |
| TG50-3VBC-S.12 | 50 | 57.15 | 52 | 60.3 | 15.88 | 7.95 | 160 | 75 | 41 | 118 | 271 | 2.4 |
| TG65-3VBC-S.12 | 65 | 72.92 | 68.9 | 76.1 | 15.88 | 7.95 | 180 | 84 | 52 | 129 | 282 | 3.4 |