

VT4000 SERIES MOTORIZED THROTTLE GAS VALVES

INSTRUCTION SHEET



APPLICATION

These gas valves allow flow modulation with the possibility to set both minimum flow, by regulating the initial angle of the motor, and maximum flow by adjusting the regulator screw at the bottom of the valve. These valves are suitable for gaseous fluids in gas power burners, atmospheric gas boilers, melting furnaces, incinerators and other gas consuming appliances. These throttle valves are available in two versions: model VT4025 (with 3/4" and 1" flanges) and model VT4050 (with 1 1/4", 1 1/2" and 2" flanges).

SPECIFICATIONS

Models
 VT4025 (DN20 and DN25)
 VT4050 (DN32, DN40 and DN50)

Suffix:
 A: ON/OFF floating
 B: Relay contact for one external input

Opening and closing time
 Depending on MT4000 or MF4000 actuator type: normally 24 s to 30 s

Dimensions
 See Fig. 1. Installation drawing VT4000 on page 2.

Pipe size
 Inlet and outlet straight flange connection 3/4", 1", 1 1/4", 1 1/2" and 2".
 (internal pipe thread according to ISO 7-1).

Capacity
 See capacity curves on page 3.

Maximum operating pressure
 360 mbar

Torsion and bending stress
 Pipe connections meet group 2 according to EN161 requirements.

Supply voltages (depending on MT4000 or MF4000 actuator type)
 Line voltage: 220 ... 240 Vac, 50/60 Hz
 110 Vac, 50/60 Hz

Ambient temperature range
 -15 60°C

Electrical connection
 Two PG9 wiring conduits are provided in the housing.
 NOTE: Use cord anchors (e.g. tie ribs) to relieve the conduits from strain according to EN60730-1 and EN60335

Valve body
 Aluminium alloy die-cast.

Enclosure
 IP40 or IP65 depending on servomotor type.

Seals and gaskets
 Hydrocarbon resistant NBR rubber type

Connections
 2 auxiliary pressure taps with 1/4" threaded connections, one on inlet side and one on outlet side.

Flange kits
 The following flange kits are available:
 The kits consists of: 1 flange with sealing plug or pressure tap, 1 O-ring or gasket, 4 screws, 4 washers and 4 nuts.

| OS Number | Size (Rp) | Remarks |
|-----------|-----------|----------------------|
| KTVT20 | 3/4" | with plug and gasket |
| KTVT25 | 1" | with plug and gasket |
| KTVT32 | 1 1/4" | with tap and O-ring |
| KTVT40 | 1 1/2" | with tap and O-ring |
| KTVT50 | 2" | with tap and O ring |

Standards and Approvals
 The motorized throttle gas valves conform with the following EC directives

- Gas Appliance Directive (90/396/EEC)
 PIN: CE-0063AR1521
- Low Voltage Directive (73/23/EEC)
- Electro Magnetic Compatibility Directive (89/366/EEC)

-INSTALLATION

IMPORTANT

1. Read these instructions carefully. Failure to follow the instructions could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.

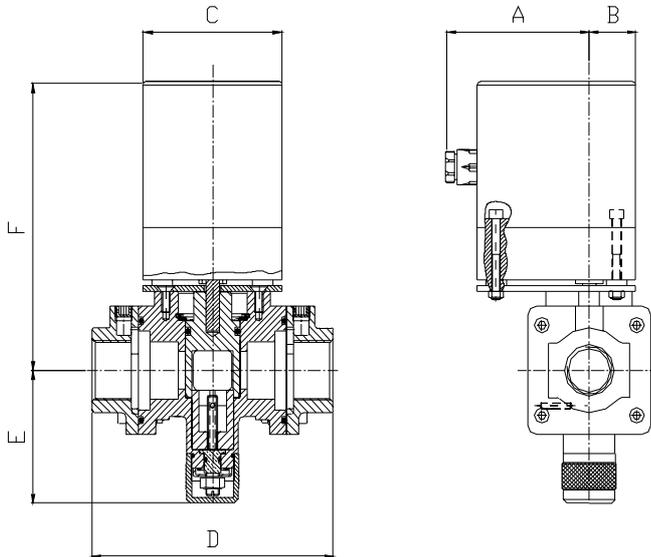


Fig. 1. Installation drawing VT4000

Mounting and orientation

The gas valve can be mounted plus or minus 90 degrees from the vertical.

Mounting location

The distance between the gas valve and wall/ground must be at least 30 cm.



WARNING

- Turn off gas supply before installation.
- Disconnect power supply to the valve actuator before beginning the installation to prevent electrical shock and damage to the equipment.

Main gas connection

1. Take care that dirt does not enter the gas valve during handling
2. Remove the flanges from the valve.
3. Use a sound taper fitting with thread according to ISO 7-1 (BS 21, DIN2999) or new, properly reamed pipe free from swarf.
4. Apply a moderate amount of good quality thread compound to the pipe for fitting only, leaving the two end threads bare, PTFE tape may be used as an alternative.
5. Screw the flange onto the pipes.
6. Ensure that the inlet and outlet flanges are in line and separate from each other enough to allow the valve to be mounted between the flanges without damaging the O ring.

3. The installation has to be carried out by qualified personnel only.
4. Carry out a thorough checkout when installation is completed.

| Model | Overall dimensions (mm) | | | | | |
|---------|-------------------------|----|-----|-----|----|-----|
| | A | B | C | D | E | F |
| VT4025 | 63 | 27 | 80 | 140 | 74 | 160 |
| VT4025* | 105 | 45 | 130 | 140 | 74 | 188 |
| VT4050 | 63 | 27 | 80 | 182 | 88 | 184 |
| VT4050* | 105 | 45 | 130 | 182 | 88 | 212 |

* WITH MF4000 SERVOMOTOR

7. Place the O-ring. If necessary grease it slightly to keep it in place.
8. Mount the gas valve between the flanges using the bolts for each flange.
9. Complete the electrical connections as instructed in the Instruction Sheet packed with the valve actuator.



WARNING

Tightness test after installation

- Spray all pipe connections and O-rings with a leak detector spray.
- Start the application and check for bubbles. If a leak is detected in a pipe connection, remake the joint.

ADJUSTMENT AND CHECKOUT

Maximum flow rate adjustment

1. Remove the metal cap screw part. a. Fig.1., placed under the body of the valve.
2. Loosen the hexagonal nut part. b Fig.1. with a wrench.
3. Turn the screw clockwise to decrease the maximum flow in the valve.
4. Once the desired maximum flow is obtained, fasten the hexagonal nut and screw the cap back on.

An initial setting value is indicated in the pressure-flow diagram shown below. E.g. to set the throughput capacity of the valve at $\frac{3}{4}$ of the maximum flow do as follow:

1. Count the total numbers of turns from minimum to maximum.

2. Turn the screw clockwise $\frac{1}{4}$ of this quantity.
3. Proceed with step 4 of the above section.

WARNING

Do not turn the flow regulator tightly in fully closed position, to avoid interference with the motor function.

Minimum flow rate adjustment

This regulation is achieved by setting the initial angle of the motor. The greater the angle, the greater the minimum flow. For MT4000 or MF4000 adjustment, please refer to the enclosed Instruction Sheet.

WARNING

- Do not put the system into service until a valve leak test and all other applicable tests in the Adjustment and Checkout section of the installation instructions for the safeguard control have been satisfactory completed - plus any test required by the burner manufacturer.
- Adjustments and tests must be performed by qualified persons only.

Table 1. Capacity in m^3/h air at $\Delta p = 2,5 \text{ mbar}$ (SG=1 at 1013mbar, 15°)

| 3/4" DN20 | 1" DN25 | 1 1/4" DN32 | 1 1/2" DN40 | 2" DN50 |
|-----------|---------|-------------|-------------|---------|
| 30 | 40 | 74 | 98 | 101 |

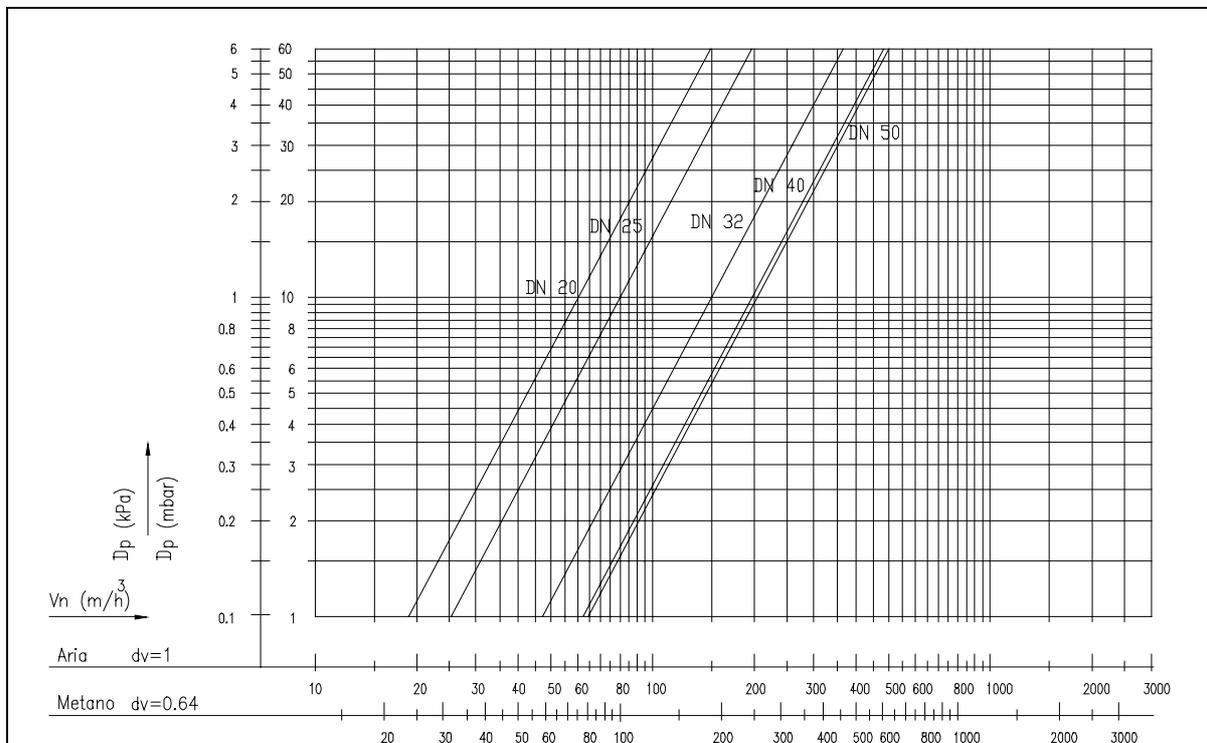


Fig. 2. Capacity VT4000 in m^3/h air at $\Delta p = 2,5 \text{ mbar}$ (SG=1 at 1013 mbar, 15)