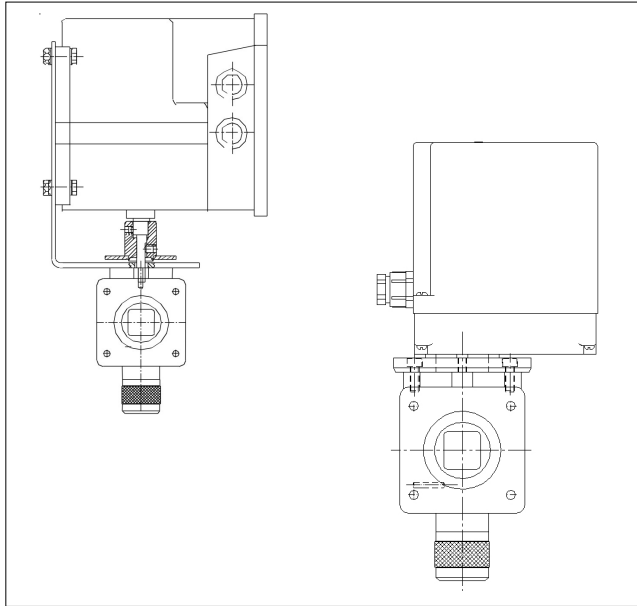


VT5000M1/M2 Series

THROTTLE VALVES WITH MOD MOTOR, MT4000, MF4000
OR LKS160 ADAPTER PLATE

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 VT5025 (with 1/2", 3/4" and 1" flanges) and model VT5050 (with 1 1/4", 1 1/2" and 2" flanges).

SPECIFICATION

Models

- VT5025M1 (DN15, DN20 and DN25 with Mod IV, MT4000 adaptor plate or MF4000 adaptor plate)
- VT5050M1 (DN32, DN40 and DN50 with Mod IV motor, MT4000 or MF4000 adaptor plate)
- VT5025M2* (DN15, DN20 and DN25 with LKS160 adaptor plate).
- VT5050M2* (DN32, DN40 and DN50 with LKS160 adaptor plate).



* Only the 78-LKS160-81 type actuator with Nr. 5 shaft (8 mm round) must be used. See LKS160 technical specification (form Nr. EN2C-0112).

Opening and closing time

Depending on MODUTROL IV, MT4000, MF4000 or LKS160 actuator type

Dimensions

See Installation drawing VT5000M1/M2 on page 2.

Pipe sizes

Inlet and outlet straight flange connection 1/2", 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 4.

Maximum operating pressure

360 mbar

Torsion and bending stress

Pipe connections meet group 2 according to EN161 requirements.

Supply voltages (depending on actuator type)

Line voltage: 220 ... 240 Vac, 50/60 Hz
110; 120 Vac, 50/60 Hz
24 Vac, 50/60 Hz

Ambient temperature range

-15 ... 60°C

Valve body

Aluminium alloy die-cast.

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 gasket, 4 screws, 4 washers and 4 nuts.

OS Number	Size (Rp)	Remarks
KTVT15	1/2"	with plug and gasket
KTVT20	3/4"	with plug and gasket
KTVT25	1"	with plug and gasket
KTVT32	1 1/4"	with tap and gasket
KTVT40	1 1/2"	with tap and gasket
KTVT50	2"	with tap and gasket

Standards and Approvals

The motorized throttle gas valves conform with the following EC directives

- Gas Appliance Directive (90/366/EEC)
PIN: CE-0063AR1521

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

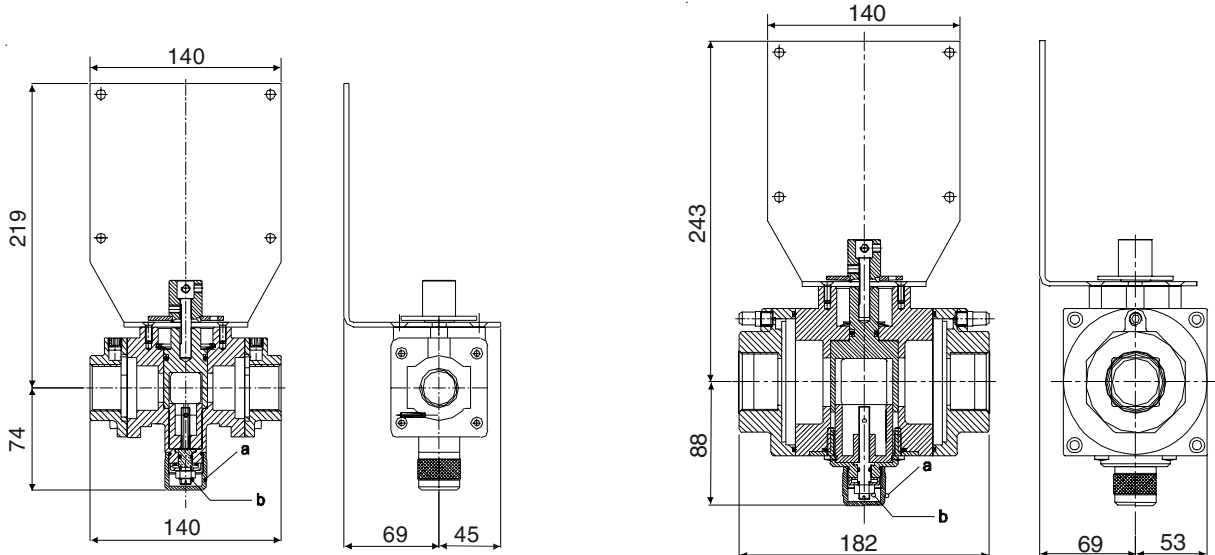


Fig. 2. Installation drawing VT5000M1 with adapter plate for Mod IV motor

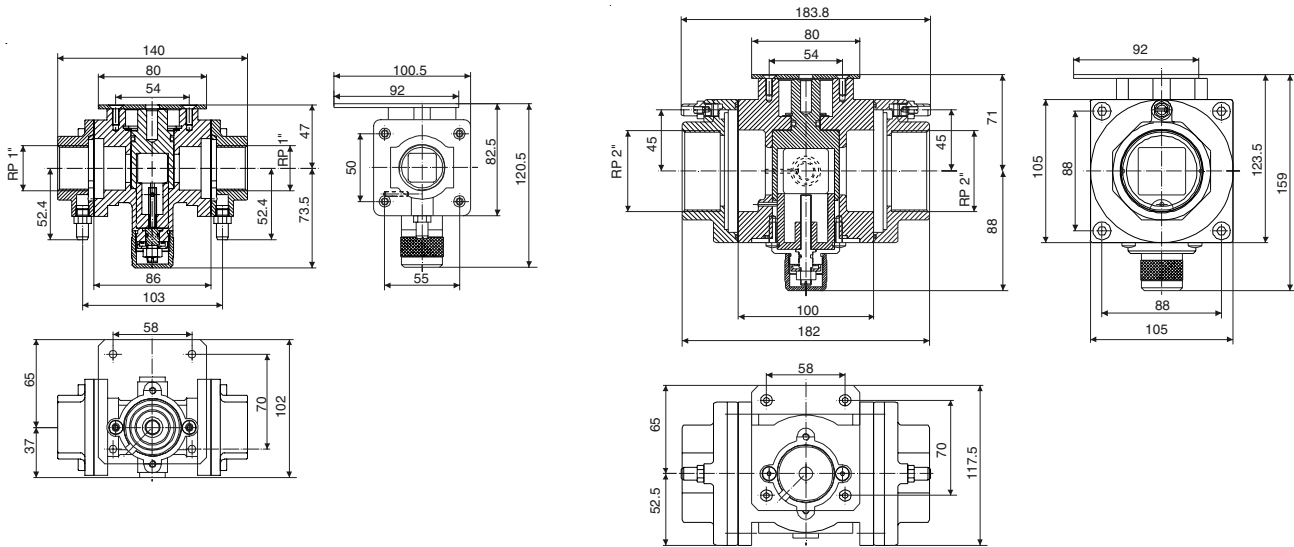


Fig. 2. Installation drawing VT5000M1 with adapter plate for MT4000 motor

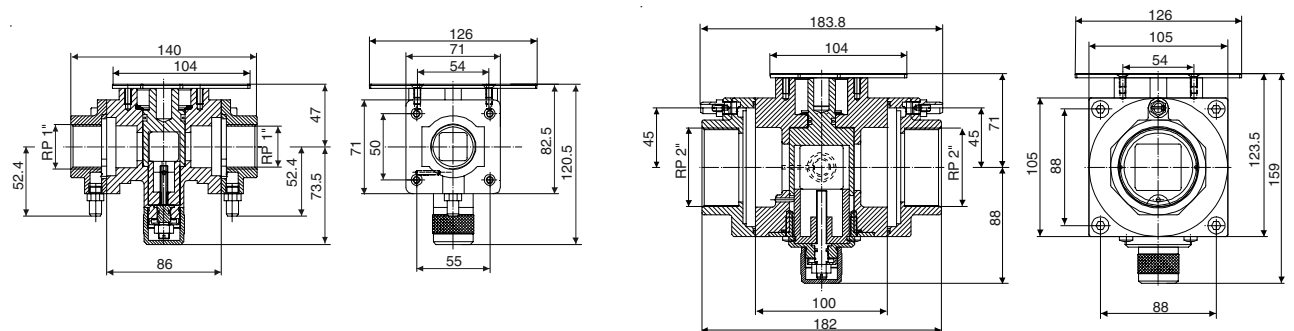


Fig. 3. Installation drawing VT5000M1 with adapter plate for MF4000 motor

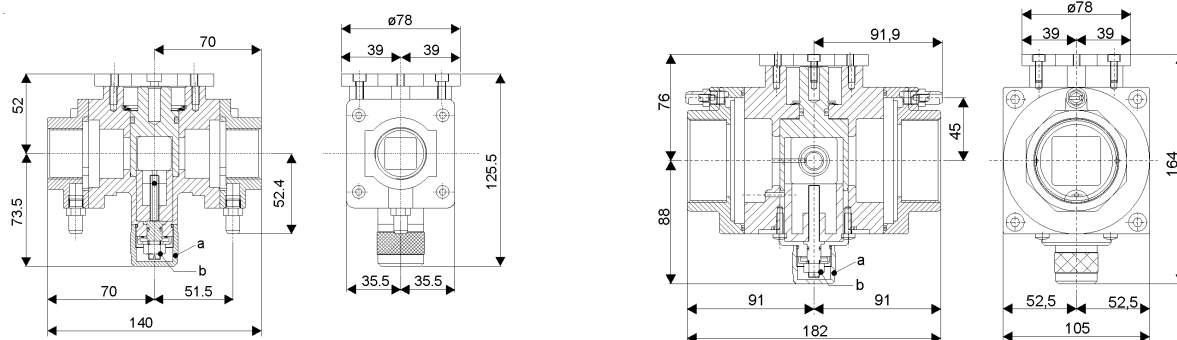


Fig. 4. Installation drawing VT5000M2 with adapter plate for LKS160 motor

Mounting and orientation

The gas valve can be mounted plus or minus 90 degrees from the vertical. For restrictions on MODUTROL IV, MT4000, MF4000 and LKS160 actuator mounting please refer to the appropriate actuator instruction sheet.

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 gasket.
7. Place the gasket. 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. Mount the actuator on the valve adaptor bracket using the provided screws.
10. Complete the electrical connections as instructed in the Instruction Sheet packed with the MODUTROL IV, MT4000, MF4000 or the LKS160 actuator.

⚠ WARNING

- Tightness test after installation
- Spray all pipe and flange connections 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, see installation drawing, placed under the body of the valve.
2. Loosen the hexagonal nut part. b, see installation drawing, 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 ¾ of the maximum flow do as follow:

1. Count the total numbers of turns from minimum to maximum.
2. Turn the screw clockwise ¼ of this quantity.
3. Proceed with step 4 of the above section.

⚠ WARNING

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

Minimum flow rate adjustment

This regulation is achieved by setting the initial angle of the actuator. The greater the angle, the greater the minimum flow. For MODUTROL IV, MT4000, MF4000 and LKS160 adjustments, please refer to the appropriate actuator 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.

CAPACITY CURVES

Table 1. Capacity in m³/h air at $\Delta p = 2,5\text{mbar}$ (SG = 1 at 1013mbar, 15°C)

1/2" (DN15)	3/4" (DN20)	1" (DN25)	1 1/4" (DN32)	1 1/2" (DN40)	2" (DN25)
15 m ³ /h	30 m ³ /h	40 m ³ /h	74 m ³ /h	98 m ³ /h	101 m ³ /h

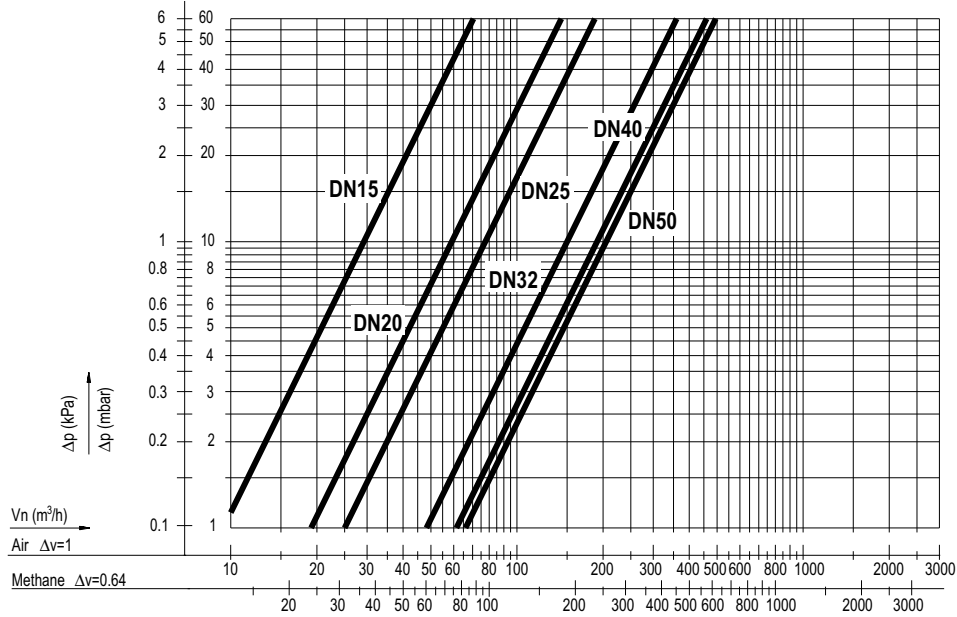


Fig. 5. Capacity VT5000 in m³/h air at $\Delta p = 2,5\text{mbar}$ (SG = 1 at 1013mbar, 15°C)

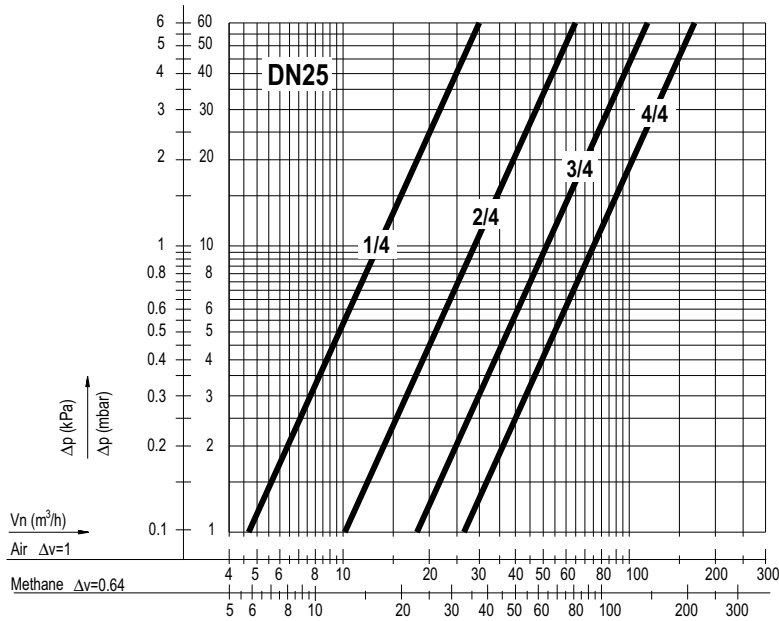


Fig. 6. Capacity VT5025 in m³/h air at $\Delta p = 2,5\text{mbar}$ (SG = 1 at 1013mbar, 15°C), in different opening angles