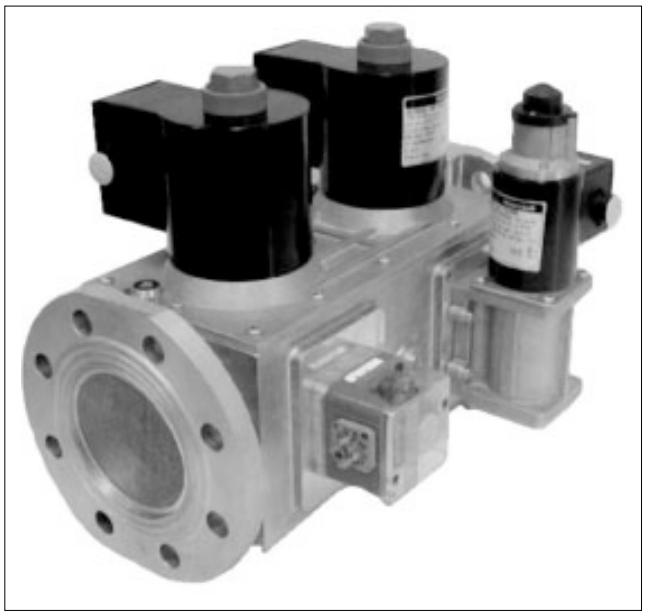
VQ465/80 Series

CLASS „A“ COMBINATION VALVE VQ465/80

INSTRUCTION SHEET



APPLICATION

These class „A“ series gas valves are used for control and regulation of gaseous fluids in gas power burners, atmospheric gas boilers, melting furnaces, incinerators and other gas consuming appliances. These combination valves are available in two versions:
- model VQ465 and VQ480 (pipe size 2 1/2“ and 3“).
The features and specification of both models are identical (unless specified otherwise)

SPECIFICATION

The specifications described in this chapter are related to main gas valve, by-pass valve and external pilot valve.

Models
VQ465/480 (DN65 and DN80)

Dimensions
See dimensional drawings on page 4 and 5.

Pipe sizes
Main body: Inlet and outlet straight flange connection: UNI PN16, DN65 and DN80.
Pilot and vent valve: outlet Rp 3/4" thread.

Capacity
Vent valve and external pilot as VE4020
By-pass valve : see capacity curves (Fig. 1).
Main body: see capacity curves (Fig 2).

Maximum operating pressure
200 mbar.

Opening time
First valve (V1): < 1 sec.
Fast second valve (V2), by-pass valve, vent valve and pilot valve: < 1 sec.
Slow second valve: consult actuator model number
Slow by-pass valve and pilot valve: field adjustable

Closing time
First valve (V1), second valve (V2), by-pass valve, pilot valve and vent valve: < 1 sec.

Connections
- Pressure taps at inlet flanges.
- Optional mounting of Closed Position Indication switch (CPI) at bottom of safety valve V1.

At the main body (4) flange connections are provided to mount either an:
- internal by-pass valve to achieve high-low flame control
- external pilot valve
- vent valve
- pressure switches (min. or max.)
- Valve Proving System (VPS) and pressure switch.

Supply voltages
Line voltage: 230 Vac, 50/60 Hz
110 Vac, 50/60 Hz
Other voltages available on request
Power consumption: 275W in rush, 72W steady state.

Electrical connections
Plug connection according to PG11.
Optional: main valve and additional valves with DIN-PLUG according ISO4400.

Ambient temperature range
-15 ... 60 °C

Enclosure
IP 54, IP65 (optional)

Strainer
fine mesh screen

Standards and approvals
Class „A“ valve in accordance with EN161 standards.
The VQ400 Series combination valves conform to the following EC directives:
- Gas Appliance Directive (90/396/EEC)
  PIN: CE-063AR1520
- Low Voltage Directive (73/23/EEC)
- Electro Magnetic Compatibility Directive (89/336/EEC)

Accessories
DIN plug connectors

Model	Note
CO020014	female DIN plug - 3 connections & earth - gray, to be used for C6097pressure switches
CO020012	female DIN plug - 3 connections & earth - black, to be used for main valves, pilot, by-pass and vent valves

CAPACITY CURVES

Capacity curve for bypass and / or internal pilot

Table 3. Capacity in m^3/h air at Δp = 2,5mbar (SG = 1 at 1013mbar, 15°C)

DN32 (1 1/4")
24 m^3/h

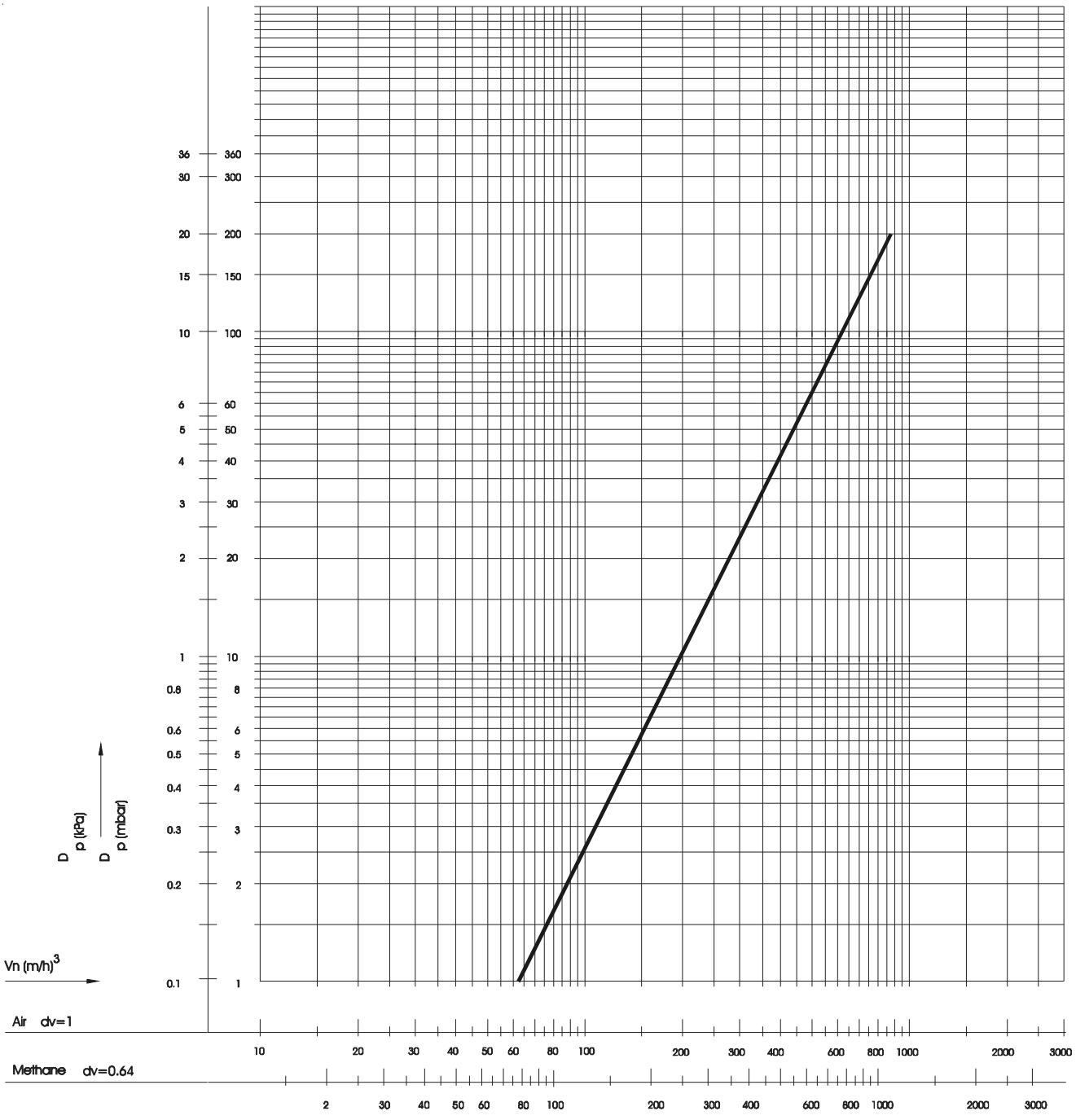


Fig. 1 Capacity curve for bypass and / or internal pilot DN32

Capacity curves for combination valves

Table 4. Capacity in m^3/h air at Δp = 5mbar (SG = 1 at 1013mbar, 15°C)

DN65	DN80
120 m^3/h	140 m^3/h

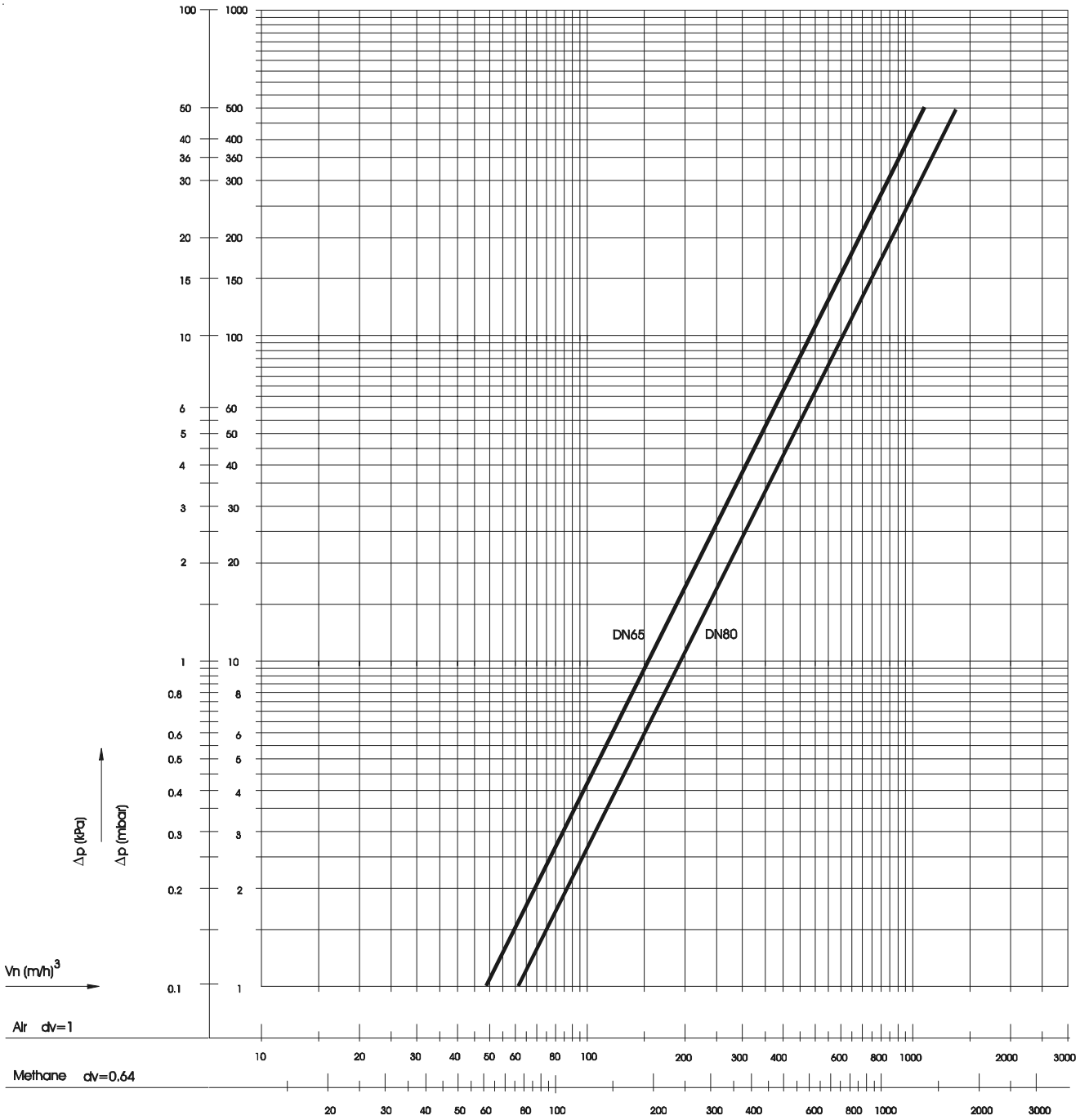
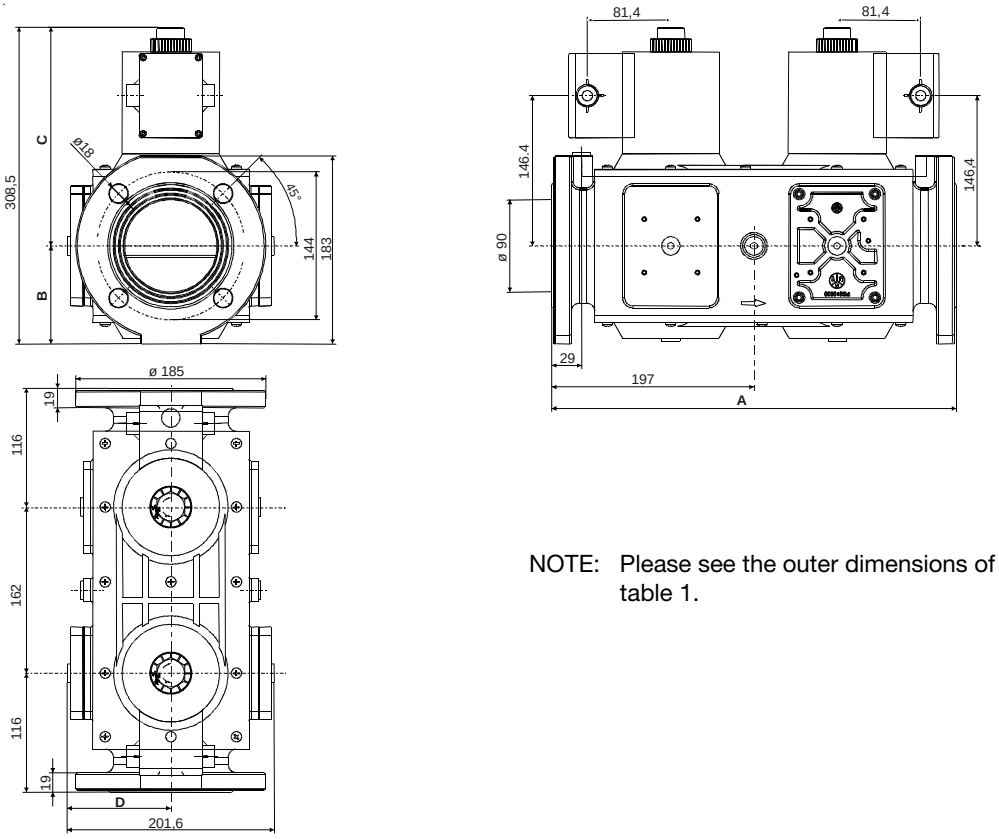


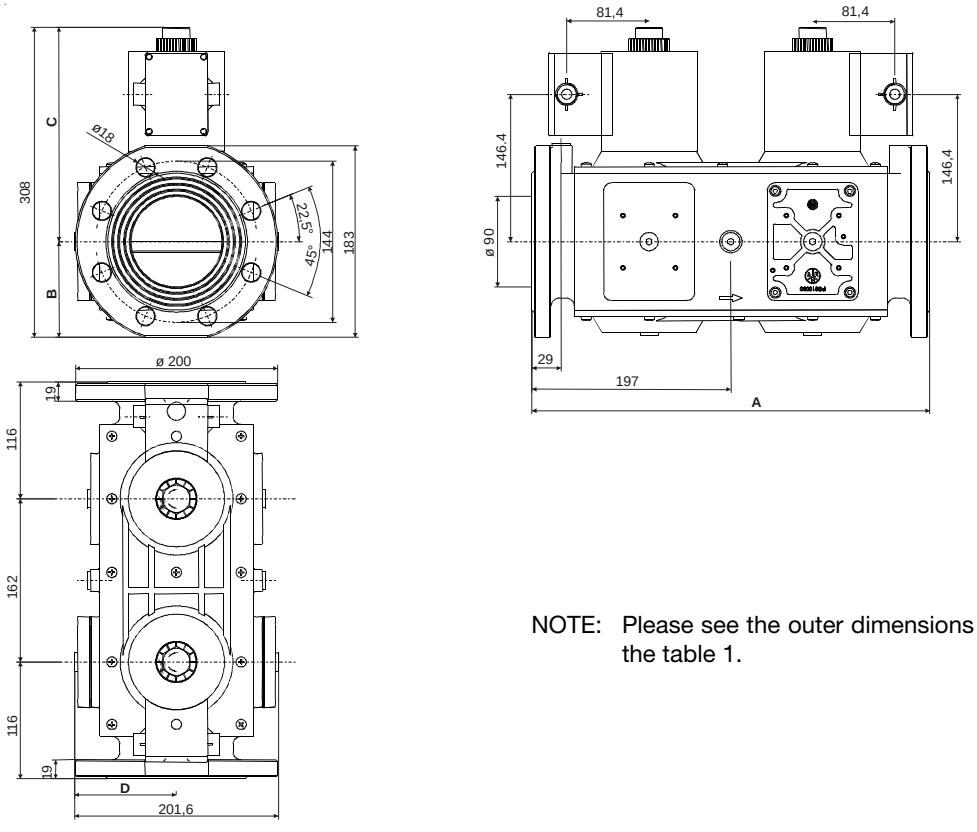
Fig. 2 Capacity curves for combination valve VQ465/80

DIMENSIONAL DRAWINGS VQ465/VQ480



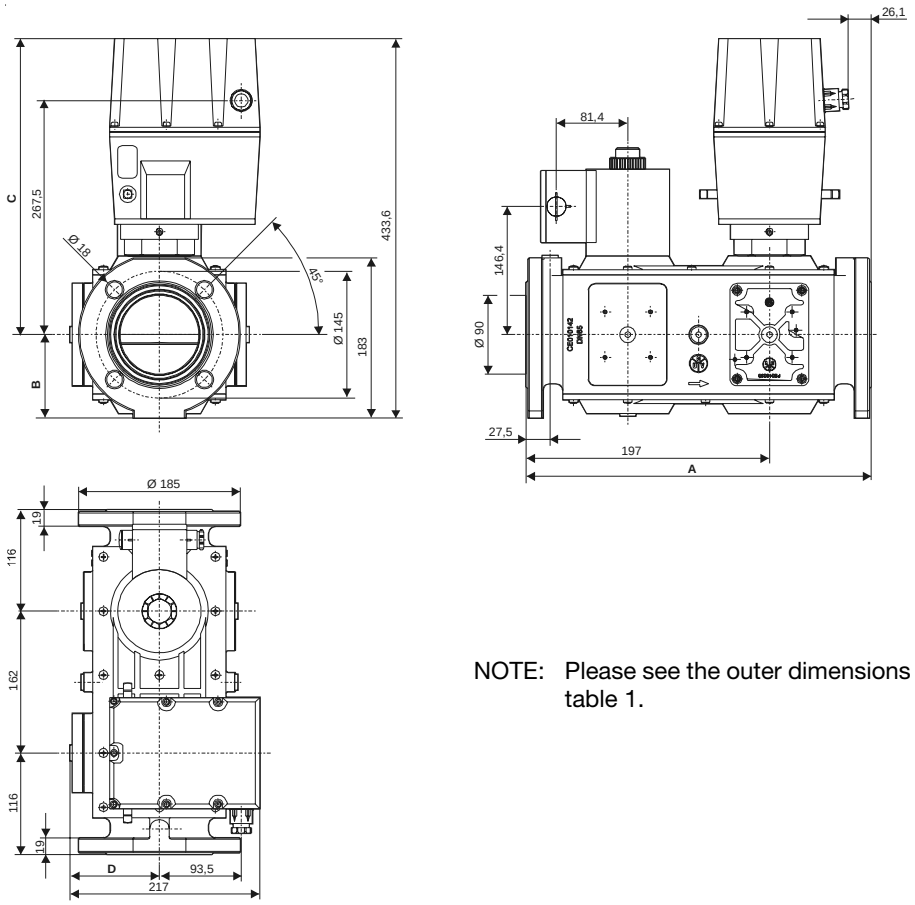
NOTE: Please see the outer dimensions of valve in the table 1.

Fig. 3. Overall dimensions VQ465 Series (shown 2nd valve fast)



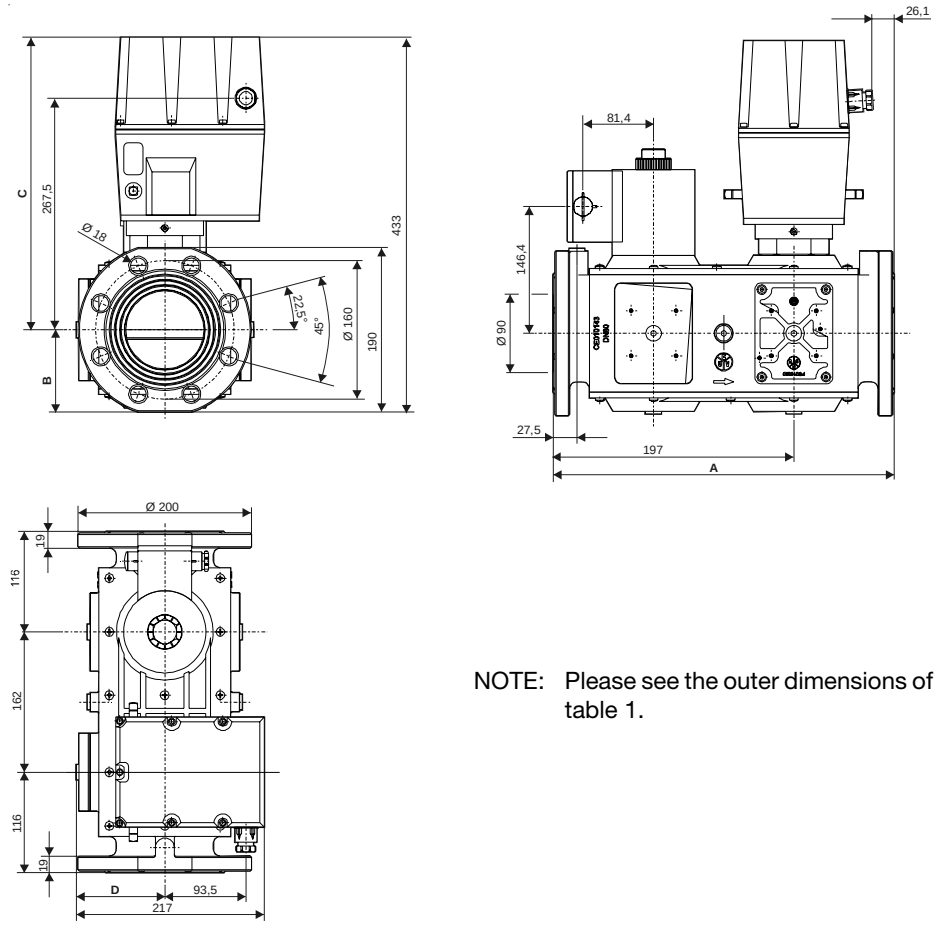
NOTE: Please see the outer dimensions of valve in the table 1.

Fig. 4 Overall dimensions VQ480 Series (shown 2nd valve fast)



NOTE: Please see the outer dimensions of valve in the table 1.

Fig. 5 Overall dimensions VQ465 Series (shown 2nd valve slow)



NOTE: Please see the outer dimensions of valve in the table 1.

Fig. 6 Overall dimensions VQ480 Series (shown 2nd valve slow)

O.S. Number	Rated Voltage (Vac)	Size. (inch)	Maximum Operating Pressure (mbar)	Features		Please consult ordering information table			Overall Dimensions(mm)				Pow Cons. (W)	Encl.	Weight (kg)
				V1	V2	Vb	Vv	Vp	A	B	C	D			
VQ465AA2207	230	2 1/2	200	fast	fast	-	-	-	394	95.5	213	100.8	72	IP54	20
VQ465AB2206	230	2 1/2	200	fast	slow *	-	-	-	394	95.5	213	100.8	72	IP54	20
VQ465BA2xxx	230	2 1/2	200	fast	fast	fast	-	-	394	95.5	213	100.8	72	IP54	20
VQ465BB2xxx	230	2 1/2	200	fast	slow *	fast	-	-	394	95.5	213	100.8	72	IP54	20
VQ465BC2xxx	230	2 1/2	200	fast	fast	slow	-	-	394	95.5	213	100.8	72	IP54	20
VQ465BD2xxx	230	2 1/2	200	fast	slow *	slow	-	-	394	95.5	213	100.8	72	IP54	20
VQ465Ex2xxx	230	2 1/2	200	fast	-	-	-	x	394	95.5	213	100.8	72	IP54	20
VQ465Cx2xxx	230	2 1/2	200	fast	-	-	x	-	394	95.5	213	100.8	72	IP54	20
VQ480AA2208	230	3	200	fast	fast	-	-	-	394	95	213	100.8	72	IP54	21
VQ480AB2207	230	3	200	fast	slow *	-	-	-	394	95	213	100.8	72	IP54	21
VQ480BA2xxx	230	3	200	fast	fast	fast	-	-	394	95	213	100.8	72	IP54	21
VQ480BB2xxx	230	3	200	fast	slow *	fast	-	-	394	95	213	100.8	72	IP54	21
VQ480BC2xxx	230	3	200	fast	fast	slow	-	-	394	95	213	100.8	72	IP54	21
VQ480BD2xxx	230	3	200	fast	slow *	slow	-	-	394	95	213	100.8	72	IP54	21
VQ480Ex2xxx	230	3	200	fast	-	-	-	x	394	95	213	100.8	72	IP54	21
VQ480Cx2xxx	230	3	200	fast	-	-	x	-	394	95	213	100.8	72	IP54	21
VQ465AA2108	110	2 1/2	200	fast	fast	-	-	-	394	95.5	213	100.8	72	IP54	20
VQ465AB2107	110	2 1/2	200	fast	slow *	-	-	-	394	95.5	213	100.8	72	IP54	20
VQ480AA2109	110	3	200	fast	fast	-	-	-	394	95	213	100.8	72	IP54	21
VQ480AB2108	110	3	200	fast	slow *	-	-	-	394	95	213	100.8	72	IP54	21

Table 1. VQ465/80 Series, Class „A“ combination gas valve, with options to mount by-pass/vent/pilot/HI-LO valves, minimum and maximum pressure switches, as well a Valve Proving System (see section How to select your valve, on page 13).

***** Slow opening mechanism has to be ordered separately

INSTALLATION

See dimensional drawings on page 4 and 5.

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.

⚠ 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.
- Do not remove the seal over valve inlet and outlet until ready to connect piping.
- The valve must be installed so that the arrow on the valve points in the direction of the gas flow (gas pressure helps to close the valve).

Mounting position

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

Mounting location

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

Main gas connection flanged valves

1. Take care that dirt does not enter the gas valve during handling
2. Ensure the gas flows in the same direction as the arrow on the housing of the gas valve.
3. Ensure that inlet and outlet flanges are in line and separated from each other enough to allow the valve to be mounted between them without damaging the gasket.
4. Place gasket. If necessary grease it slightly to keep it in place.
5. Mount gas valve between flanges using the bolts for each flange.
6. Complete the electrical connections as instructed in the Electrical Connection section.

⚠ WARNING !

Tightness test after installation

- Spray all pipe connections and gaskets with a good quality gas leak detection spray.
- Start the appliance and check for bubbles. If a leak is found in a pipe connection, remake the joint. A gasket leak can usually be stopped by tightening the mounting screws, otherwise, replace the gas valve.

Electrical connection

⚠ WARNING !

- Switch off power supply before making electrical connections.
- All wiring must comply with local codes, ordinances and regulations.

Use cable which can withstand 105 °C ambient.
The electric ON/OFF operator is provided with a terminal block for electrical connections.

Wiring

Follow the instructions supplied by the appliance manufacturer. Follow Fig 7 and Fig. 8.

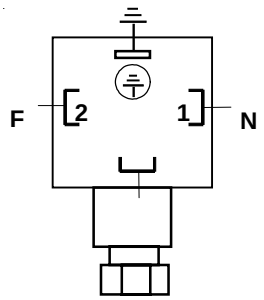


Fig. 7. Three pin electrical plug connector (according to ISO 4400)

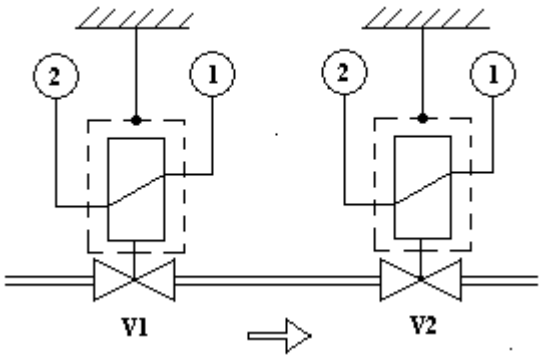


Fig. 8. Connection diagram VQ400

ADJUSTMENTS

The procedures described in this chapter are related to the adjustments on the main gas valve, pilot valve and by—pass valve. For adjustments on the other additional functionalities (e.g. pressure switch), refer to the instruction sheet of the product in question.

⚠ CAUTION

- Adjustments must be made by qualified personnel only.
- To ensure a safe closing of the valves, it is essential that voltage over the terminals of operators is reduced to 0 Volts

2nd main valve flow rate adjustment
(see Fig. 9A and 9B.)

1. Remove the cap screw from bottom V2.
2. Place an Allen wrench N°6 into the adjustment nut.
3. Turn wrench counter-clockwise to increase or clockwise to decrease flow rate.
4. Replace cap screw.

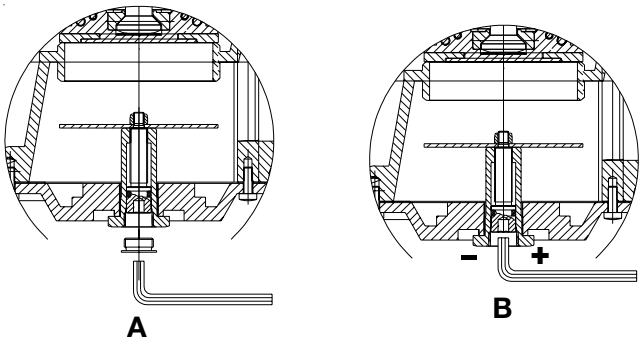


Fig. 9. Flow rate adjustement

Pilot valve and by-pass valve slow opening

The following characteristics can be adjusted:

- flow rate
- step pressure
- opening speed

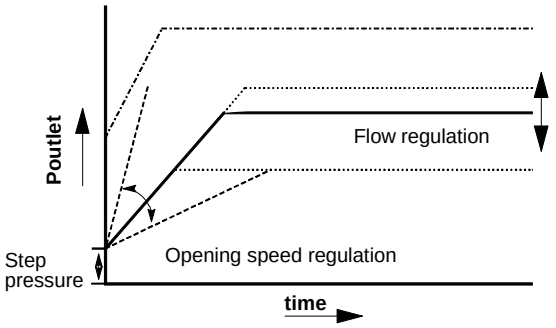


Fig. 10. Characterized opening.

IMPORTANT

To ensure a satisfactory setting of the valve, the pressure drop over the valve should be at least 10% of the supply pressure or 5 mbar which ever is the greatest.

Flow rate adjustment (see Fig. 11. and 12.)

1. Remove the cap from top of the coil by loosening both screws.
2. Place a wrench on the adjustment hexagon nut.
3. Turn wrench counter-clockwise to increase or clockwise to decrease the flow rate.
4. Replace cap on top of the coil.

Step pressure adjustment (see Fig. 13.)

1. Remove the cap from top of the coil by loosening both screws.
2. Place a screwdriver in the slot of the adjustment screw, which is situated in center of the valve.
3. Turn screwdriver counter-clockwise to increase or clockwise to decrease step pressure.
4. Replace cap on top of the coil.

Opening speed adjustment (see Fig. 14.)

1. Remove the cap from top of the coil by loosening both screws.
2. Place the screwdriver in the slot of the adjustment screw which is to the side of the Step and Capacity adjustment screws.
3. Turn screwdriver counter-clockwise to increase the opening speed and therefore the time till full opening will decrease.
4. Turn screwdriver clockwise to decrease the opening speed and therefore the time till full opening will increase.
5. Replace cap on top of the coil.

Final checkout of the installation

Set the appliance in operation after any adjustment and observe several complete cycles to ensure that all burner components function correctly.

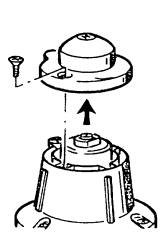


Fig. 11. Removing the plastic cap

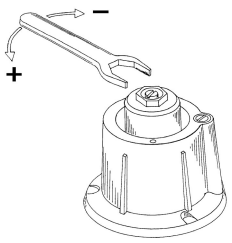


Fig. 12. Flow rate adjustment nut

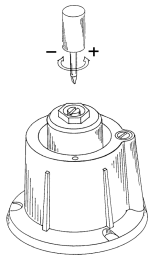


Fig. 13. Step pressure adjustment

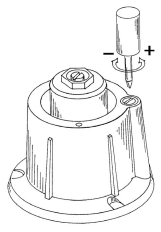


Fig. 14. Opening speed adjustment

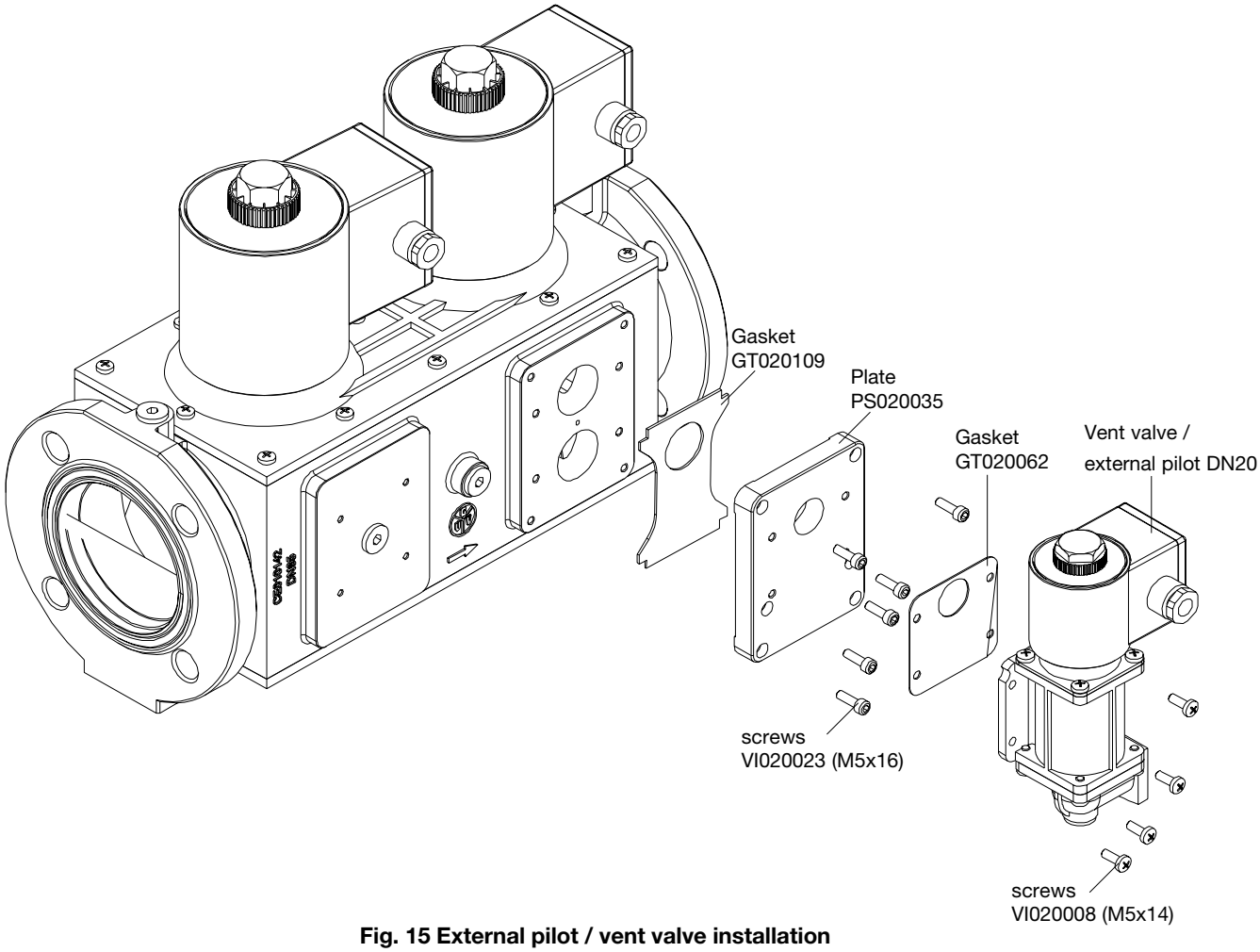


Fig. 15 External pilot / vent valve installation

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