

VQ400 Series

CLASS "A" COMBINATION VALVE VQ420/25



FEATURES

- Class "A" safety combination valve for control of gaseous fluids in gas consuming appliances in accordance with international standards.
- Main body with two gas valves with single seat.
- Internal by-pass valve to achieve high-low flame control.
- Internal or external pilot valve.
- Vent valve.
- Minimum and maximum pressure switches.
- Valve Proving System (VPS).
- Closing time: < 1 second.
- Coils field replaceable.
- Coils suitable for permanent energization.
- Fine mesh screen between inlet flange and main body.
- Various pressure tap points at main body available, when no additional valves or pressure switches are used.
- Options for mounting flanged minimum and maximum pressure switches.
- Second main valve, either with adjustable flow regulator, or characterized opening mechanism with adjustable maximum flow rate and step pressure.
- Rectifier boards field replaceable.
- Optional mounting of Closed Position Indication switch (CPI) at bottom of safety valve V1.

APPLICATION

These series class "A" 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.

SPECIFICATION

Models

The VQ400 Series combination valves are standard equipped with two main valves.

Additionally an internal by-pass valve (Vb), a vent valve (Vv) and/or a pilot valve (Vp) can be added.

Main gas volume is adjustable at regulating valve.

The start flow is adjustable at slow open regulating valve.

Dimensions

See dimensional drawings on page 71.

Pipe sizes

Main body: Inlet and outlet straight flange connection 3/4" and 1".

Pilot and vent valve: outlet 3/4" thread

(all internal pipe thread according to ISO 7-1)

Capacity

Main body: See capacity curves VQ400 Series combination valves on page 57.

Pilot and vent valve on VQ400 DN20 and 25 as VE4020

By-pass on VQ400 DN20 and 25 as VE4020

See also capacity curves VE4000 Series on page 52.

Maximum operating pressure

360 mbar.

Opening time

First valve (V1): < 1 sec.

Second valve (V2), by-pass valve and pilot valve:

fast: < 1 sec

slow: adjustable from 1 ... 30 sec.

Vent valve: < 1 sec.

Closing time

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

Connections

- Pressure taps at inlet and outlet 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
- internal or external pilot valve
- vent valve
- pressure switches (Min. or Max.)
- Valve Proving System (VPS) + pressure switch.

Mounting and orientation

The gas valve can be mounted plus or minus 90 degrees from the vertical. The distance between the gas valve and the wall/ground, must be at least 30 cm.

Torsion and bending stress

Pipe connections meet group 2 according to EN161 requirements.

Supply voltages

Line voltage: 220 ... 240 Vac, 50/60 Hz
200 Vac, 50/60 Hz
100/110 Vac, 50/60 Hz
24 ... 28 Vdc

Other voltages on request.

Electrical equipment

DC current coils with separated rectifier inside the cover.

Electrical connections

Plug connection according to PG11 at main gas valve and additional valves.

Optional: DIN plug connector according ISO4400 .

Ambient temperature range

-15 ... 60 °C

Coil insulation solenoid valves

Insulation material according class F

Enclosure

IP 54

IP65 optional

Body material

Aluminium alloy die-cast

Flange kits

There are two different series of kits available:

The first series of kits consist of: 1 flange with sealing plug , 1 O-rings and 4 screws.

Kit	Size (Rp)	Remarks
KTCOMB20	3/4"	with plug
KTCOMB25	1"	with plug

The second series of kits consist of: 1 flange with sealing plug, 1 strainer, 1 O-rings and 4 screws.

Kit	Size (Rp)	Remarks
KTCOMS20	3/4"	with plug
KTCOMS25	1"	with plug

Accessories

DIN plug connectors

Model	Note
CO020010	female DIN plug – 2 connections & earth – black, to be used for pilot, by-pass and vent valves
CO020012	female DIN plug – 3 connections & earth – black, to be used for main valves
CO020014	female DIN plug – 3 connections & earth – gray, to be used for C6058 pressure switches

Standards and approvals

Class "A" valve in accordance with EN161 standards.

The VQ400 Series combination valves conform with the following EC directives:

- Gas Appliance Directive (90/396/EEC)
PIN: CE-0063AR1520
- Low Voltage Directive (73/23/EEC)
- Electro Magnetic Compatibility Directive (89/336/EEC)

Table 20. VQ420/25 Series, Class "A" combination gas valve, with options to mount by-pass/vent/pilot/HI-LO valves, minimum and maximum pressure switches as well Valve Proving System (see section How to select your valve on page 42)).

O.S. Number	Rated Voltage (Vac)	Con- nec- tion (inch)	Maximum Operating Pressure Range (mbar)	Features *					Dimensions (mm)					Power con- sump- tion (W)	Encl.	Weight (kg)
				V1	V2	Vb	Vv	Vp	A	B	C	D	E			
VQ420AA1005	220 ... 240	3/4	360	fast	fast	-	-	-	204	42.5	112	60	60	28	IP54	3.5
VQ420AB1004	220 ... 240	3/4	360	fast	slow	-	-	-	204	42.5	157	60	60	28	IP54	3.5
VQ420BA1003	220 ... 240	3/4	360	fast	fast	fast	-	-	204	42.5	112	132	60	42	IP54	4.8
VQ420BB1002	220 ... 240	3/4	360	fast	slow	fast	-	-	204	42.5	157	132	60	42	IP54	4.8
VQ420BC1001	220 ... 240	3/4	360	fast	fast	slow	-	-	204	42.5	112	132	60	42	IP54	4.8
VQ420BD1000	220 ... 240	3/4	360	fast	slow	slow	-	-	204	42.5	157	132	60	42	IP54	4.8
VQ420EA1006	220 ... 240	3/4	360	fast	fast	-	-	✓	204	42.5	112	132	60	42	IP54	4.8
VQ425AA1000	220 ... 240	1	360	fast	fast	-	-	-	204	42.5	136	60	64.5	40	IP54	5.0
VQ425AB1009	220 ... 240	1	360	fast	slow	-	-	-	204	42.5	181	60	64.5	40	IP54	5.0
VQ425BA1008	220 ... 240	1	360	fast	fast	fast	-	-	204	42.5	136	132	64.5	54	IP54	6.3
VQ425BB1007	220 ... 240	1	360	fast	slow	fast	-	-	204	42.5	181	132	64.5	54	IP54	6.3
VQ425BC1006	220 ... 240	1	360	fast	fast	slow	-	-	204	42.5	136	132	64.5	54	IP54	6.3
VQ425BD1005	220 ... 240	1	360	fast	slow	slow	-	-	204	42.5	181	132	64.5	54	IP54	6.3
VQ425CA1006	220 ... 240	1	360	fast	fast	-	✓	-	204	42.5	136	132	64.5	54	IP54	6.3
VQ425EA1001	220 ... 240	1	360	fast	fast	-	-	✓	204	42.5	136	132	64.5	54	IP54	6.3

VQ400 Series

CLASS "A" COMBINATION VALVE VQ440/50



FEATURES

- Class "A" safety combination valve for control of gaseous fluids in gas consuming appliances in accordance with international standards.
- Main body with two gas valves with single seat.
- Internal by-pass valve to achieve high-low flame control.
- Internal or external pilot valve.
- Vent valve.
- Minimum and maximum pressure switches.
- Valve Proving System (VPS).
- Closing time: < 1 second.
- Coils field replaceable.
- Coils suitable for permanent energization.
- Fine mesh screen between inlet flange and main body.
- Various pressure tap points at main body available, when no additional valves or pressure switches are used.
- Options for mounting flanged minimum and maximum pressure switches.
- Second main valve, either with adjustable flow regulator, or characterized opening mechanism with adjustable maximum flow rate and step pressure.
- Rectifier board with LEDs to indicate energization of coil.
- Rectifier boards field replaceable.
- Plug connector according to ISO4400.
- Optional mounting of Closed Position Indication switch (CPI) at bottom of safety valve V1.

APPLICATION

These series class "A" 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.

SPECIFICATION

Models

The VQ400 Series combination valves are standard equipped with two main valves.

Additionally an internal by-pass valve (Vb), a vent valve (Vv) and/or an external pilot valve (Vp) can be added.

Main gas volume is adjustable at regulating valve.

The start flow is adjustable at slow open regulating valve.

Dimensions

See dimensional drawings on page ..

Pipe sizes

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

Pilot and vent valve: outlet 3/4" thread.

(all internal pipe thread according to ISO 7-1)

Capacity

Main body: See capacity curves on page 71.

Pilot and vent valve on VQ400 DN32 ... 50 as VE4020

By-pass on VQ400 DN32 ... 40: as VE4020

By-pass on VQ400 DN50: as VE4025

See also capacity curves VE4000 Series on page 66.

Maximum operating pressure

200 or 360 mbar, depending on model.

Opening time

First valve (V1) < 1 sec.

Second valve (V2), by-pass valve and pilot valve:

fast: < 1 sec

slow: adjustable from 1 ... 30 sec.

Vent valve: < 1 sec.

Closing time

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

Connections

- Pressure taps at inlet and outlet 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
 - internal or external pilot valve
 - vent valve
 - pressure switches (Min. or Max.)
 - Valve Proving System (VPS) + pressure switch.

Mounting and orientation

The gas valve can be mounted plus or minus 90 degrees from the vertical. The distance between the gas valve and the wall/ground, must be at least 30 cm.

Torsion and bending stress

Pipe connections meet group 2 according to EN161 requirements.

Supply voltages

Line voltage: 220 ... 240 Vac, 50/60 Hz

200 Vac, 50/60 Hz

100/110 Vac, 50/60 Hz

24 ... 28 Vdc

Other voltages on request.

Electrical equipment

DC current coils with separated rectifier inside the cover.

Electrical connections

DIN plug according ISO4400 standard at VQ440/450 main gas valves.

Optional: at additional valves

Ambient temperature range

-15 ... 60 °C

Coil insulation solenoid valves

Insulation material according class F

Enclosure

IP 54

Body material

Aluminium alloy die-cast

Flange kits

There are two different series of kits available:

The first series of kits consist of: 1 flange with sealing plug, 1 O-rings and 4 screws.

Kit	Size (Rp)	Remarks
KTCOMB32	1 1/4"	intended for 440 body, with tap
KTCOMB40	1 1/2"	with tap
KTCOMB50	2"	with tap

The second series of kits consist of: 1 flange with sealing plug or cast pressure tap, 1 strainer, 1 O-rings and 4 screws.

Kit	Size (Rp)	Remarks
KTCOMS32	1 1/4"	intended for 440 body, with tap
KTCOMS40	1 1/2"	with tap
KTCOMS50	2"	with tap

Accessories

DIN plug connectors

Model	Note
CO020010	female DIN plug – 2 connections & earth – black, to be used for pilot, by-pass and vent valves
CO020012	female DIN plug – 3 connections & earth – black, to be used for main valves
CO020014	female DIN plug – 3 connections & earth – gray, to be used for C6058 pressure switches

Standards and approvals

Class "A" valve in accordance with EN161 standards.

The VQ400 Series combination valves conform with the following EC directives:

- Gas Appliance Directive (90/396/EEC)
PIN: CE-0063AR1520
- Low Voltage Directive (73/23/EEC)
- Electro Magnetic Compatibility Directive (89/336/EEC)

Table 21. VQ440/50 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 42).

O.S. Number	Rated Voltage (Vac)	Connct. (Inch)	Maximum Operating Pressure (mbar)	Features					Overall Dimensions (mm)					Pow. Cons. (W)	Encl.	Weight (kg)
				V1	V2	Vb	Vv	Vp	A	B	C	D	E			
VQ440AA1027	220 ... 240	1 1/2	360	fast	fast	-	-	-	297	62	174	63.5	63.5	80	IP54	10.7
VQ440AA1001	220 ... 240	1 1/2	200	fast	fast	-	-	-	297	62	174	63.5	63.5	80	IP54	10.7
VQ440AB1000	220 ... 240	1 1/2	200	fast	slow	-	-	-	297	62	228	63.5	63.5	80	IP54	10.7
VQ440BA1009	220 ... 240	1 1/2	200	fast	fast	fast	-	-	297	62	174	150	63.5	94	IP54	11.9
VQ440BB1008	220 ... 240	1 1/2	200	fast	slow	fast	-	-	297	62	228	150	63.5	94	IP54	11.9
VQ440BB1016	220 ... 240	1 1/2	360	fast	slow	fast	-	-	297	62	228	150	63.5	94	IP54	11.9
VQ440BC1007	220 ... 240	1 1/2	200	fast	fast	slow	-	-	297	62	174	150	63.5	94	IP54	11.9
VQ440BD1006	220 ... 240	1 1/2	200	fast	slow	slow	-	-	297	62	228	150	63.5	94	IP54	11.9
VQ440EA1002	220 ... 240	1 1/2	200	fast	fast	-	-	✓	297	62	228	150	63.5	94	IP54	11.9
VQ440EA1010	220 ... 240	1 1/2	360	fast	fast	-	-	✓	297	62	228	150	63.5	94	IP54	11.9
VQ440FB1009	220 ... 240	1 1/2	200	fast	slow	fast	-	✓	297	62	228	150	63.5	94	IP54	11.9
VQ450AA1008	220 ... 240	2	200	fast	fast	-	-	-	297	62	174	63.5	63.5	82	IP54	12.1
VQ450AA1016	220 ... 240	2	360	fast	fast	-	-	-	297	62	186	63.5	63.5	82	IP54	12.1
VQ450AB1007	220 ... 240	2	200	fast	slow	-	-	-	297	62	228	63.5	63.5	82	IP54	12.1
VQ450AB1015	220 ... 240	2	360	fast	slow	-	-	-	297	62	240	63.5	63.5	82	IP54	12.1
VQ450BA1006	220 ... 240	2	200	fast	fast	fast	-	-	297	62	174	150	63.5	102	IP54	14.1
VQ450BB1005	220 ... 240	2	200	fast	slow	fast	-	-	297	62	228	150	63.5	102	IP54	14.1
VQ450BB1013	220 ... 240	2	200	fast	slow	fast	-	-	297	62	228	150	63.5	102	IP54	14.1
VQ450BC1004	220 ... 240	2	200	fast	fast	slow	-	-	297	62	174	150	63.5	102	IP54	14.1
VQ450BD1003	220 ... 240	2	200	fast	slow	slow	-	-	297	62	228	150	63.5	102	IP54	14.1
VQ450CA1004	220 ... 240	2	200	fast	fast	-	✓	-	297	62	174	150	63.5	102	IP54	14.1
VQ450CA1012	220 ... 240	2	200	fast	fast	-	✓	-	297	62	174	150	63.5	102	IP54	14.1
VQ450CB1003	220 ... 240	2	200	fast	slow	-	✓	-	297	62	174	150	63.5	102	IP54	14.1
VQ450CB1011	110	2	200	fast	slow	-	✓	-	297	62	174	150	63.5	110	IP54	14.1

HOW TO SELECT YOUR VALVE

Standard the VQ400 Series combination valves are equipped with two main valves V1 and V2. Safety valve V1 is always fast opening/closing. The second valve (V2) can be either fast (= with flow regulation) or slow (= with flow regulation and adjustable opening).

At the main body (4) flange connections are provided to mount either pressure switches (Min. or Max.), a by-pass valve, a pilot valve, a vent valve or a VPS + pressure switch. These additional functionalities can be mounted on various positions of the main body of the VQ400. The positions are specified by a letter code behind the O.S. number. With the table below you are able to compose your own customized combination valve to match your requirements exactly.

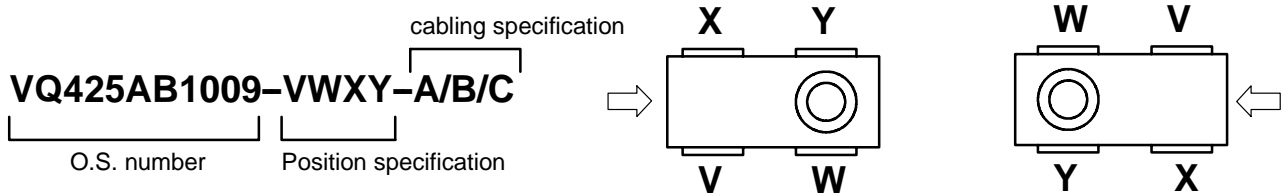
Ordering example

After you have decided the size and additional functionalities and their characteristics, continue with specifying the positions of the additional functionalities (see table 22.)

For example you want to order a VQ400 Series combination valve with the following specifications: 1" connection, second valve slow, a 2.5 ... 5.0 mbar pressure switch at position V a by-pass valve (fast) at position Y and DIN plug connections on all valves.

From Table 21, you find e.g. O.S. number VQ425BB1007. Continue with specifying the code behind the O.S. number, starting with position V and end with Y, using the table 22. For the positions you don't use, place a 0 (plug). In our example the code behind the O.S. number is 1003B

Table 22. VQ400 Series positions additional functionalities chart



Type	Code	Positions			
		V	W	X	Y
Plug	0	•	•	•	•
C6058A136 (2.5 ... 50 mbar)	1	•	•	•	•
C6058A140 (30 ... 150 mbar)	2	•	•	•	•
By-pass valve	3		•		•
External Pilot	4		•		•
Internal Pilot	5		•		•
Vent Valve	6		•		•
A4021A + C6058A	7	• ¹⁾	•	• ¹⁾	•
C6058A144 (100 ... 500 mbar)	8	•	•	•	•

¹⁾ only when by-pass valve and pilot or vent valve are used

NOTE: For customer specials, such as cabling, a code will be released by the factory

Cabling specification

A: standard plug connection according PG11

B: three pin plug connector ("DIN" plug)

C: complete cabling with Valve Proving System (VPS)

ORDERING INFORMATION

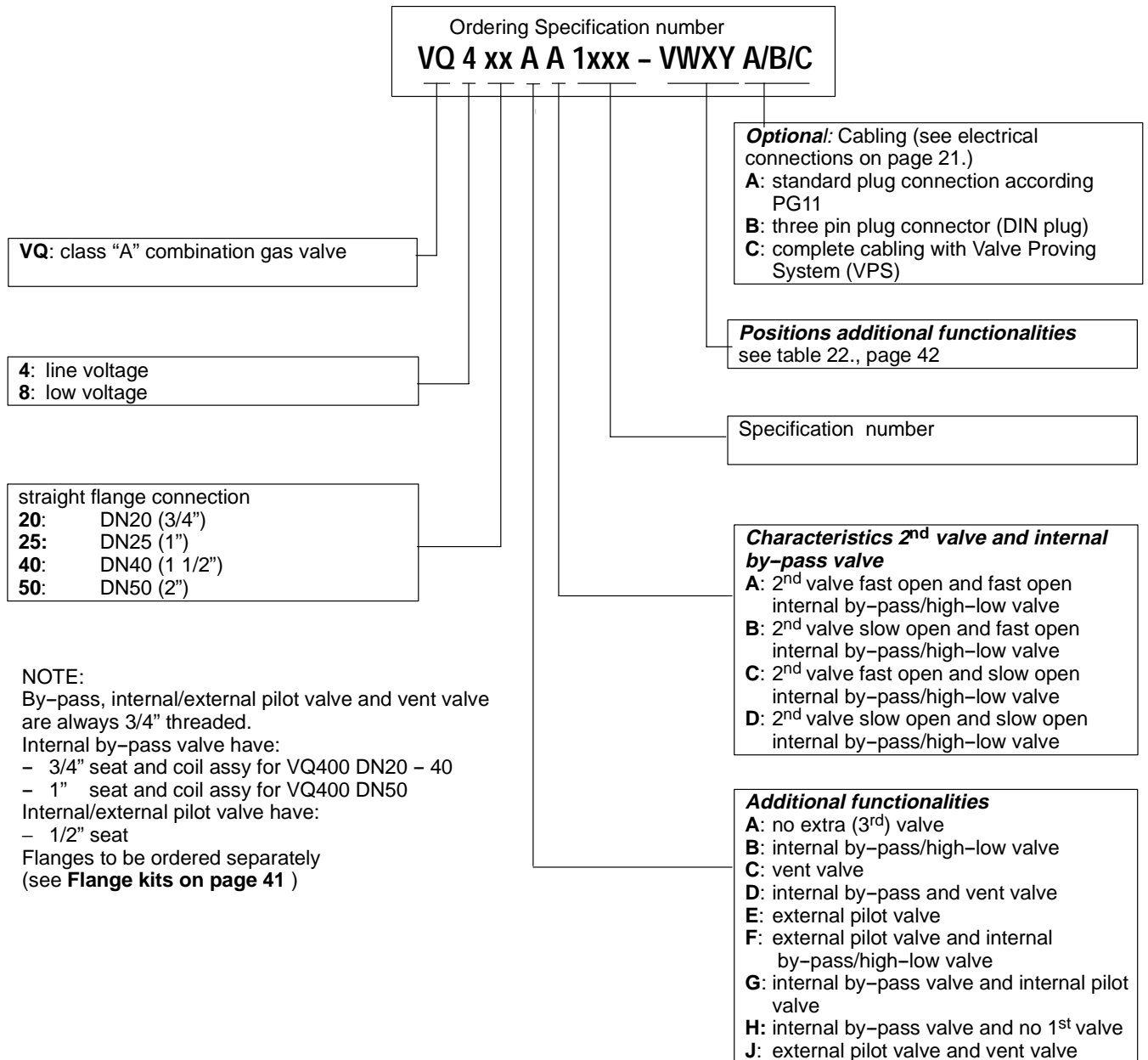
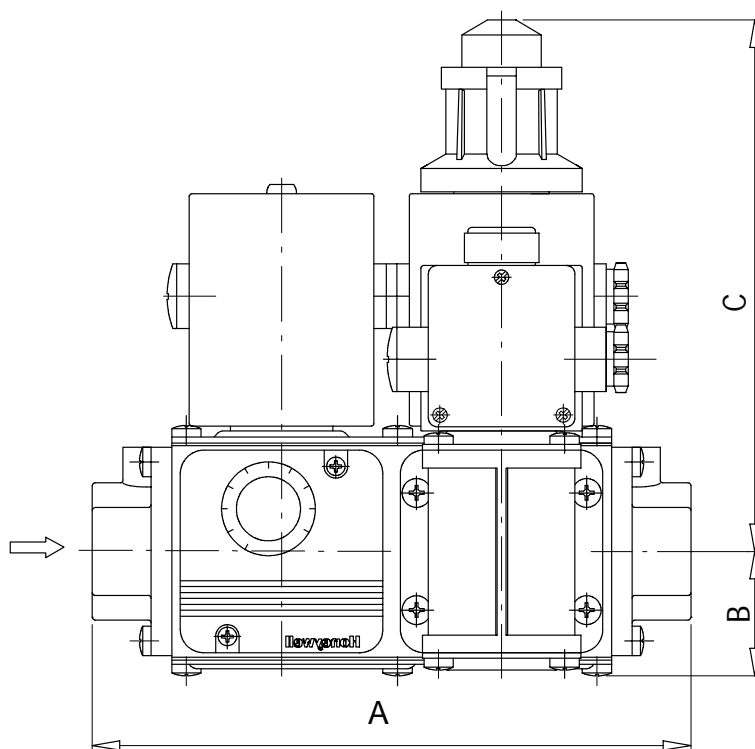
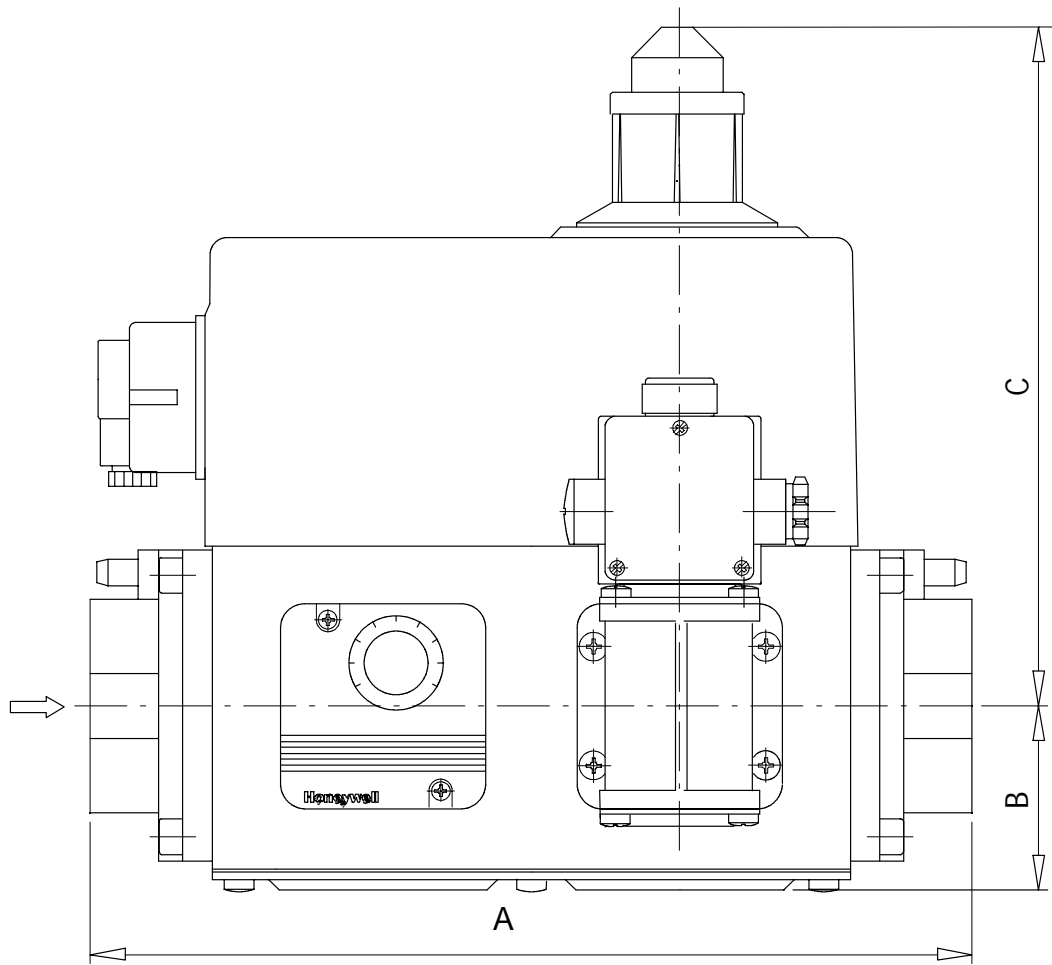
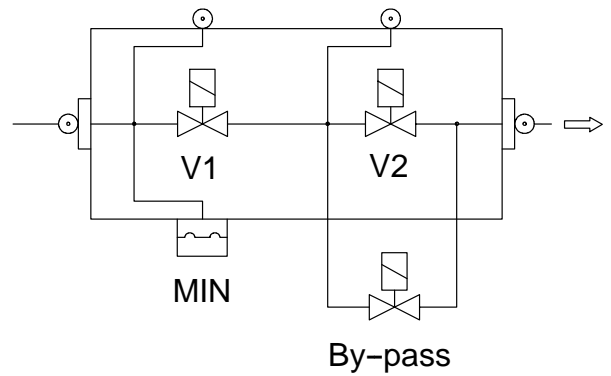
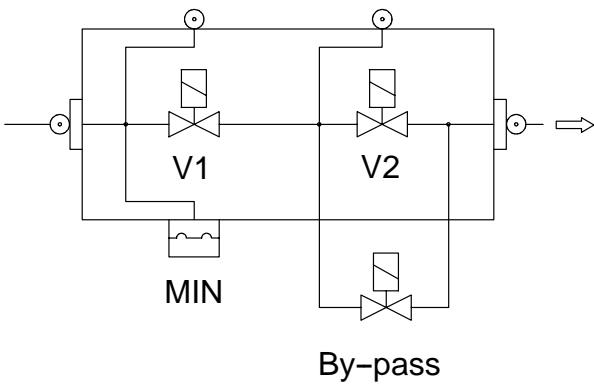
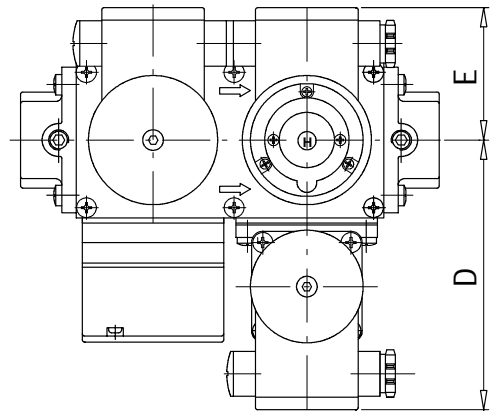
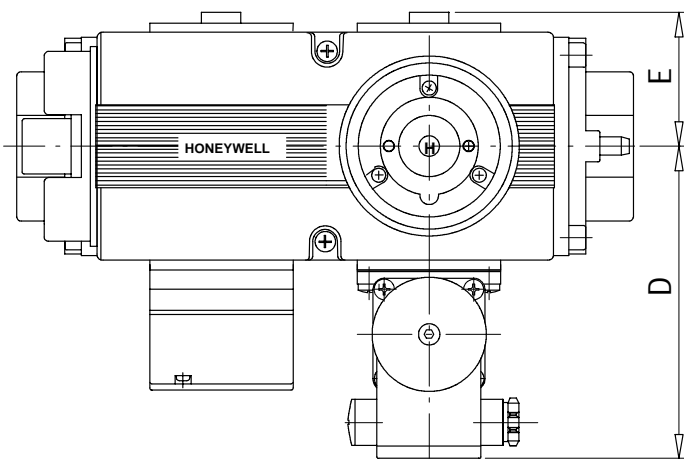


Fig. 18. Ordering information VQ400 Series combination valves





NOTE: The outer dimensions of the VQ432 series combination valves are identical to the VQ440/450 series.

Fig. 19. Overall dimensions VQ400 Series (shown 2nd valve slow)