Braukmann V5006T

Kombi-QM

Pressure Independent Balancing and Control Valve

Application

The V5006T Kombi-QM is a Pressure Independent Control Valve (PICV). It combines a flow controller and a full stroke, full authority temperature controller in one valve.

Equipped with an actuator Kombi-QM provides a full stroke modulating temperature control.

It is suitable for use in variable and constant flow systems.

They may be used as constant flow limiter in constant flow systems (without an actuator) or as a Pressure Independent Control Valve in variable flow systems.

V5006T Kombi-QM is typically used for balancing and temperature control of fan coil units, air handling units, chilled ceilings and one-pipe heating systems.

Special Features

- Automatic balancing of differential pressure
  - Precise pressure independent flow performance
  - Highest energy saving potential due to efficient energy transfer and minimised pump speed
  - Integrated measuring possibility to find the optimal setpoint for the pump
  - Reduced movements of actuators as pressure fluctuation do not influence the required temperature
  - No complex calculation needed for selection
  - No balancing method needed for commissioning
- Wide range of application
  - Sizes DN50 up to DN150
  - Various versions to support standard flow rates as well as low flow and high flow needs
  - Covers two functions in one valve which reduces mounting costs
- Easy commissioning
- Maintenance friendly
  - Measuring possibility for problematic applications

Valve Efficiency

	low				high
Energy efficiency	●	●	●	●	●
Commissioning effort	●	●	○	○	○
Calculation effort	●	●	●	○	○

Technical Data

Media	
Medium:	Water with max. 50 % glycol according to VDI 2035
pH-value:	8 - 9.5
Pressure values	
Max. operating pressure:	DN50-250: max. 16 bar (232 psi)
Operating temperatures	
Max. operating temperature medium:	-10 - 120 °C
Connections/Sizes	
Nominal size:	DN50 - DN150
Specifications	
Leakage:	According to Class IV IEC 60534-4

ООО Промэлектроника / sales@prom-elec.com

Construction

V5006TF, DN50 - DN150

Overview		Components	Materials
	1	Actuator included in the delivery • Presetting of the valve can be done at the actuator	
	2	Valve housing with flanges to EN 1092-2	Ductile iron
		Not depicted components:	
		Sealings	EPDM
		Installation and setup instructions	Paper
		Inner parts	Brass, stainless steel, high resistant polymer and EPDM

Method of Operation

The V5006T Kombi-QM combines the functionality of a dynamic balancing valve and a control valve in one product.

The dynamic balancing function maintains a constant differential pressure over the control valve.

The control valve regulates the flow by means of a variable orifice which is controlled by the actuator.

The constant differential pressure across the control valve ensures accurate control and full valve authority, independent of the pressure conditions in the system.

Valve Identification

Each valve is marked as follows:

- Item Number
- DN size
- PN rating
- Flow arrows
- Serial number/date code

Transportation and Storage

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Parameter	Value
Environment:	clean, dry and dust free

Technical Characteristics

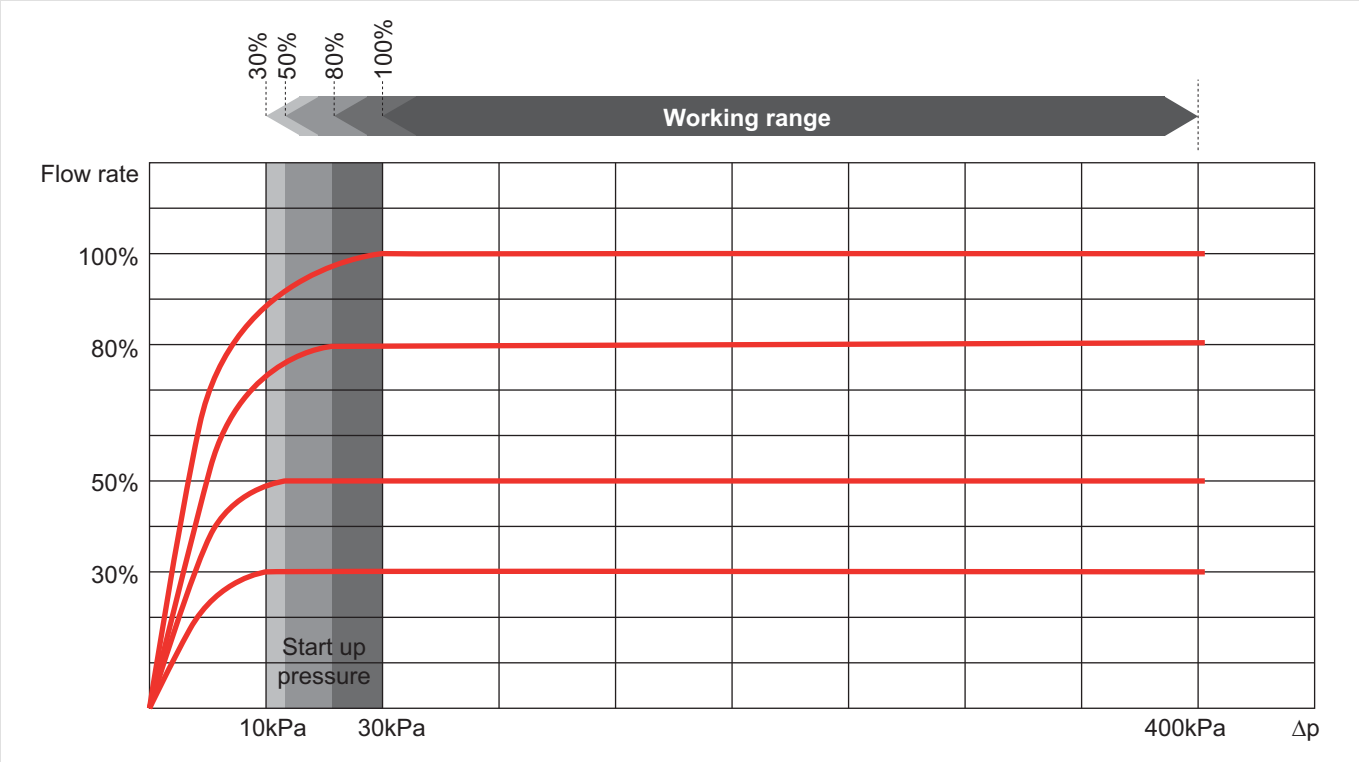
Pressure values

Limits of flows and differential pressures

Item No.	Flow [l/h]	Valve stroke [mm]	Startup Pressure				Δ max. [kPa]
			Δ [kPa] at 30% flow	Δ[kPa] at 50% flow	Δ[kPa] at 80% flow	Δ[kPa] at 100% flow	
V5006TF1050	2000 - 20000	n.a.	21	25	31	40	600
V5006TF1065	3000 - 30000	n.a.	26	29	30	30	600
V5006TF1080	3000 - 30000	n.a.	23	25	30	30	600
V5006TF1100	5500 - 55000	n.a.	16	20	24	30	600
V5006TF1125	9000 - 90000	n.a.	21	25	31	35	600
V5006TF1150	15000 - 150000	n.a.	31	35	41	50	600
V5006TF1200LF	20000 - 200000	n.a.	31	35	36	40	400
V5006TF1200HF	30000 - 300000	n.a.	32	37	38	40	400
V5006TF1250LF	30000 - 300000	n.a.	30	30	33	40	400
V5006TF1250HF	50000 - 500000	n.a.	38	49	58	65	400

Flow Data

Example of valve's behaviour for different adjustment (30 %, 50 %, 80 %, 100 %)



Flow Rate

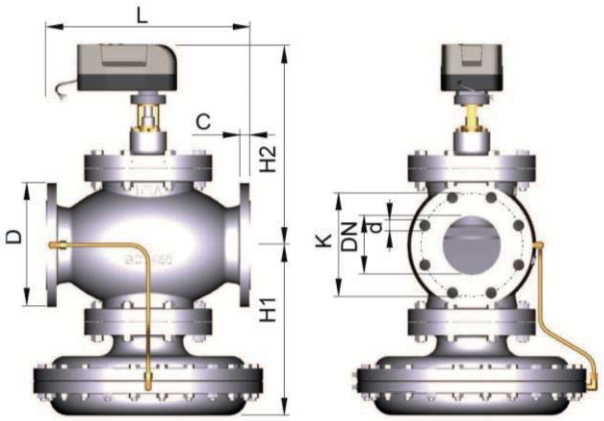
Limits of flows and differential pressures

Item No.	Presetting	100 %	90 %	80 %	70 %	60 %	50 %	40 %	30 %	20 %	10 %
	Flow rate										
V5006TF1050	[l/h]	20000	18000	16000	14000	12000	10000	8000	6000	4000	2000
V5006TF1065	[l/h]	30000	27000	24000	21000	18000	15000	12000	9000	6000	3000
V5006TF1080	[l/h]	30000	27000	24000	21000	18000	15000	12000	9000	6000	3000
V5006TF1100	[l/h]	55000	49500	44000	38500	33000	27500	22000	16500	11000	5500
V5006TF1125	[l/h]	90000	81000	72000	63000	54000	45000	36000	27000	18000	9000
V5006TF1150	[l/h]	150000	135000	120000	105000	90000	75000	60000	45000	30000	15000
V5006TF1200LF	[l/h]	200000	180000	160000	140000	120000	100000	80000	60000	40000	20000
V5006TF1200HF	[l/h]	300000	270000	240000	210000	180000	150000	120000	90000	60000	30000
V5006TF1250LF	[l/h]	300000	270000	240000	210000	180000	150000	120000	90000	60000	30000
V5006TF1250HF	[l/h]	500000	450000	400000	350000	300000	250000	200000	150000	100000	50000

Dimensions

V5006TF, DN50 - DN150

Overview



Parameter		Values							
Nominal size diameter:	DN	50	65	80	100	125	150	200	250
Dimensions:	H1	190	183	183	247	264	348	393	421
	H2	291	300	300	318	347	397	440	508
	L	254	272	272	352	400	451	543	730
	D	165	185	200	220	250	285	340	405
	K	125	145	160	180	210	240	295	355
	d	18	18	18	18	18	22	22	26
	C	16	18	18	18	20	22	22	24
Flange size:		2"	2 1/2"	3"	4"	5"	6"	8"	10"

Note: All dimensions in mm unless stated otherwise.

Ordering Information

The following tables contain all the information you need to make an order of an item of your choice.
When ordering, please always state the type, the ordering or the part number.

Options

Order text:	DN size:	Flow range:		Differential pressure range:		Weight:	Item No.:
		Min. flow (l/h)	Max. flow (l/h)	Δp (kPa)	Δp (kPa)	kg	
Flanged valves V5006TF... DN50 to DN150, come together with an actuator as one unit.	DN50	2000	20000	40	600*2	33.0	V5006TF1050
	DN65	3000	30000	30		40.0	V5006TF1065
	DN80	3000	30000	30		43.0	V5006TF1080
	DN100	5500	55000	30		74.0	V5006TF1100
	DN125	9000	90000	35		93.0	V5006TF1125
	DN150	15000	150000	50		140.0	V5006TF1150
	DN200	20000	200000	40	400	280	V5006TF1200LF
	DN200	30000	300000	40		280	V5006TF1200HF
	DN250	30000	300000	40		385	V5006TF1250LF
	DN250	50000	500000	65		385	V5006TF1250HF

Note: *1 Valve is fully open / without actuator
Flanged valves V5006TF... DN50 to DN150 come together with an actuator as one unit.
Check the actuator section below referring to Kombi-QM (DN50-DN150) actuator.

Note: *2 400 for normal operation, 600 only to be used as max shut-off pressure

Spare Parts

Overview

	Description	Dimension	Item No.
1	**Actuator**		
	Actuator for V5006TF1050		M5006F1050
	Actuator for V5006TF1065		M5006F1065
	Actuator for V5006TF1080		M5006F1080
	Actuator for V5006TF1100		M5006F1100
	Actuator for V5006TF1125		M5006F1125
	Actuator for V5006TF1150		M5006F1150
	Actuator for V5006TF1200LF		M5006F1200LF
	Actuator for V5006TF1200HF		M5006TF1200HF
	Actuator for V5006TF1250LF		M5006F1250LF
	Actuator for V5006TF1250HF		M5006F1250HF

M5006

Application

Electromotive actuators M5006 - 24V are used with many kind of control systems used for HVAC applications, including ON/OFF, floating, proportional managed by thermostat or BMS handling analogue signals or PWM digital, of HVAC installations where V5006TF PICV balancing valves are used; in order to properly set the presetting, see the specific section devoted to actuator setting.

For further information about electrical connections, see the specific section.

Approvals

- CE

Technical Data

Operating temperatures	
Ambient temperature range:	-20°C...+60 °C*[1]
Storage temperature range:	-20°C...+80 °C*[1]
Specifications	
Weight:	0.975 kg
Power supply:	24 V AC/DC ±15% – 50/60 Hz
Connecting cable:	18 AWG
Connection to valve:	8 mm square. Easy fitting gear
Operating life:	50.000 cycles
Control signal:	0(2)-10 V 0(4)-20 mA ON/OFF3 points floating PWM
Power consumption:	5 W; 2.5 W stand-by
Nominal torque:	10 Nm Max, self-limited at 7 Nm
Current absorption:	80 mA, Load max 380 mA
Feedback:	0(4) - 20 mA and 0(2) – 10 V
Manual Override:	Through release button and 6 mm Allen key
Protection class / IP Rating:	II / IP54
Motor:	Brushless DC motor
Running speed:	Selectable: 1 RPM or 1.5 RPM
Fail safe:	Through additional battery

Note: *[1]no condensation

Method of Operation

24V electromotive actuator to drive Pressure Independent Control Valve V5006TF series.

Managed control signals: analogue (voltage and current), PWM, 3 point floating and ON/OFF.

It can be completely configurable through the on board display and controlling buttons.

Manual override, after actuator removal.

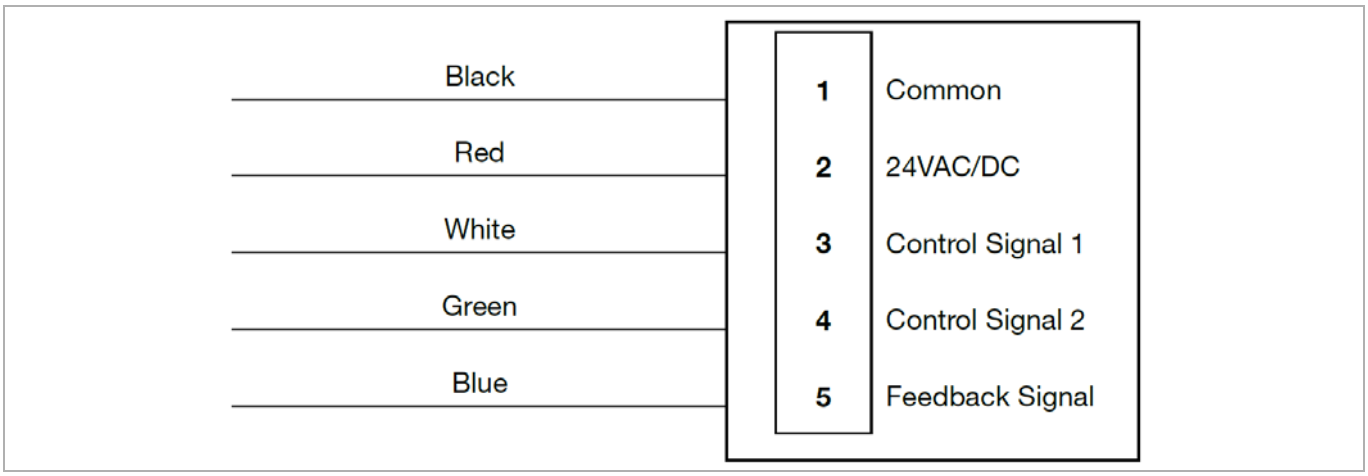
Actuator supplied with valve V5006TF as standard or available as spare part (in this case, please tell the valve reference that the actuator is going to be installed on to allow technicians its configuration).

Fail safe functionality available on demand (additional battery pack VA5006TF0001).

Installation Guidelines

Connection schemes

Wires indication

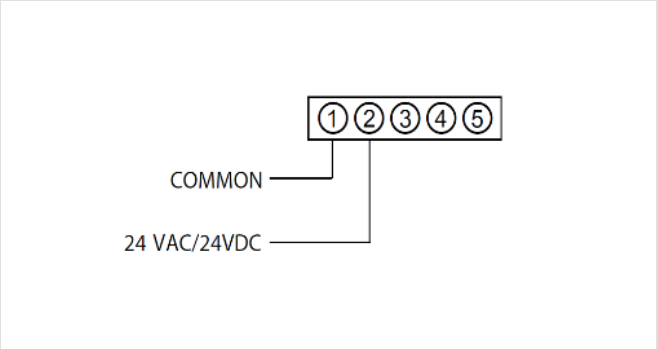


Wire guidelines

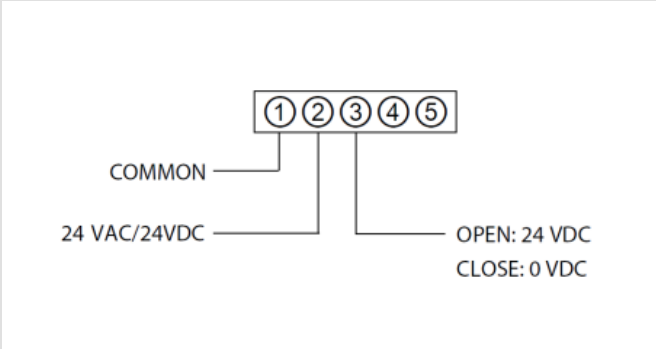
Input	Number	1	2	3	4	5	Remarks
	Colour	Black	Red	White	Green	Blue	
Internal control		Common	24 AC/DC			Feedback: 0(2) - 10 V 0(4) - 20 mA	Power: cable 1 - 2
Voltage signal		Common	24 AC/DC	0 - 10 V DC 2 - 10 V DC		Feedback: 0(2) - 10 V 0(4) - 20 mA	Power: cable 1 - 2 Voltage signal: cable 1 - 3
Current signal		Common	24 AC/DC	0 - 20 mA 4 - 20 mA		Feedback: 0(2) - 10 V 0(4) - 20 mA	Power: cable 1 - 2 Current signal: cable 1 - 3
ON/OFF signal		Common	24 AC/DC	24 V DC (open) 0 V (close)		Feedback: 0(2) - 10 V 0(4) - 20 mA	Power: cable 1 - 2 ON/OFF signal: cable 1 - 3
3 points floating		Common	24 AC/DC	Opening 24 V AC/DC	Closing 24 V AC/DC	Feedback: 0(2) - 10 V 0(4) - 20 mA	Power: cable 1 - 2 Floating 3 points: cable 3 - 4
PWM control		Common	24 AC/DC	PWM signal		Feedback: 0(2) - 10 V 0(4) - 20 mA	Power: cable 1 - 2 PWM control: cable 1 - 3

Connections

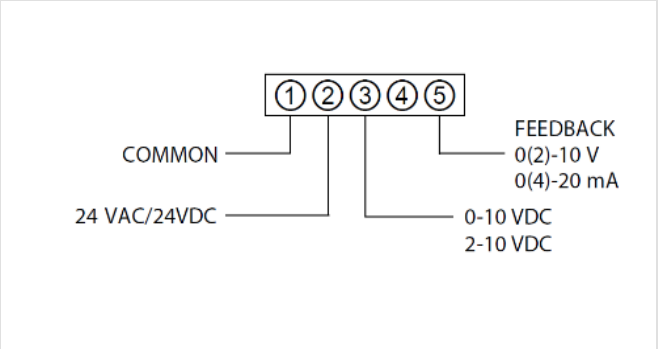
1) Internal control*



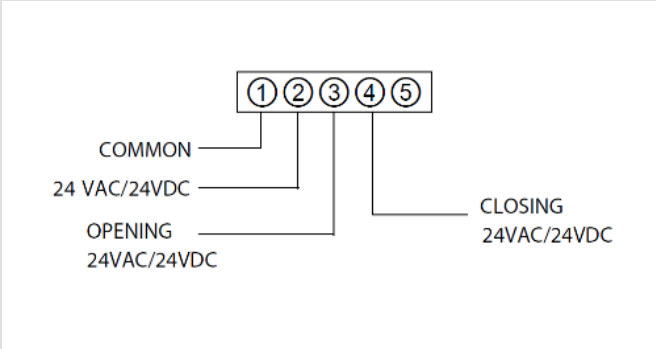
4) ON/OFF



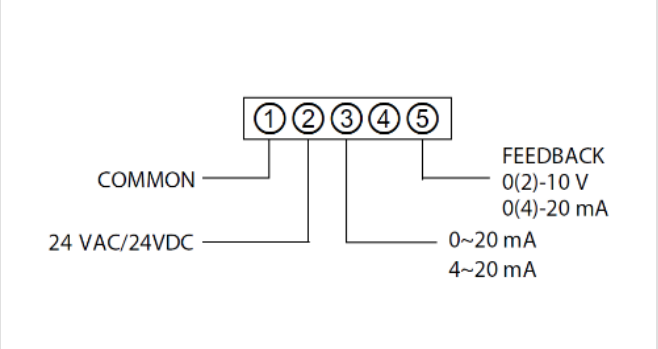
2) Voltage signal



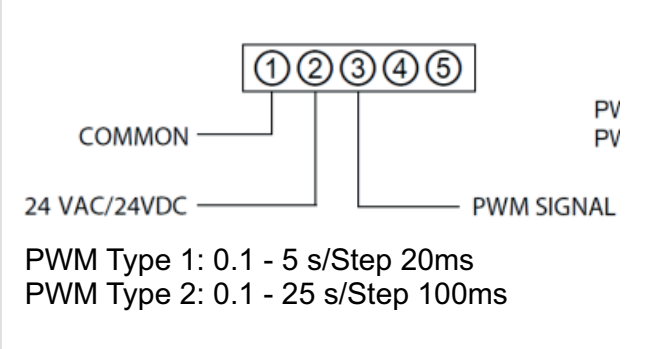
5) 3 points signal



3) Current signal



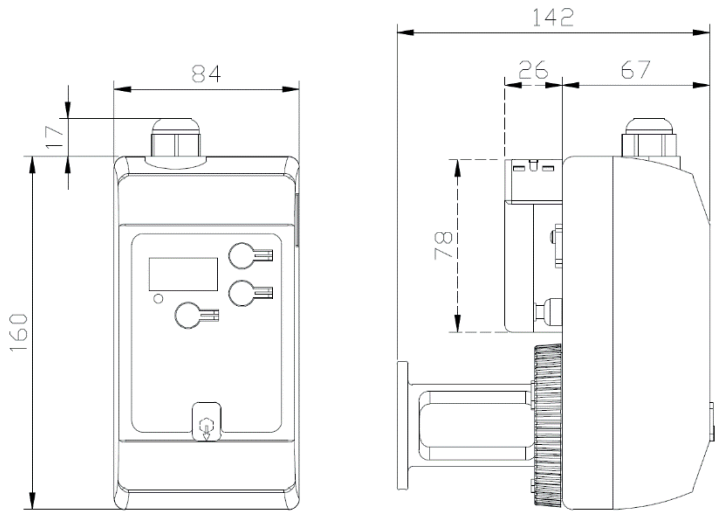
6) PWM signal



Note: * Flow rate can be set by buttons on the actuator and read on the 4 digits display.

Dimensions

Overview



Note: Dimensions in mm

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