PRODUCT CATALOG

Field Control Device Catalogue 2015

Johnson Controls

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T2000 Series
Line Voltage Fan Coil Unit Thermostat

Figure1:
T2000AAC-0C0 Shown

Figure 2:
T2000HHC-0C0 Shown

General Description

The T2000 thermostats provide heating, cooling and ventilating control for year-round air-conditioning units in commercial, industrial or residential installations.

There are models for cooling only, heating only and heating-cooling fan coil systems that can be integrated with the manual or remote heat-cool changeover control.

Integrated heavy duty slide switches provide HIGH-MED-LOW fan speed selection and ON-OFF or HEAT-OFF-COOL system control.

The T2000 series thermostat is suitable for 2-pipe or 4-pipe fan coil applications, which can be fitted with the VG4000 zone valve and VA7010 actuator.

These thermostats are used for low/line voltage applications, and typical uses include fan coils, electrical heaters and air handling units.

Features

- Rust-proof plastic base and cover
- System "OFF" position breaks all circuits
- No leveling and vibration problems

Features and Benefits

Close, 0.5 to 0.8 °C (1 to 1-1/2 °F) Typical Differential	Provides steady, consistent control without large temperature swings
No Anticipator	Saves time, reducing commissioning costs
High-impact Plastic Enclosure	Provides durability in commercial environments
One-piece Construction	Allows easy installation
System Off Position	Breaks all circuits with one switch
Locking Cover	Prevents tampering
Gas-filled Sensing Element	Ensures repeatability
Adjustable Temperature Set Point Knob	Allows unit to be field calibrated; sets adjustment limits to range extremes
Mercury Free Sensor	Avoids leveling and vibration problems

Ordering Information

T2000 Series Thermostat

Model	System Switch	Fan Control	Temperature Scale	Power Supply	Standard
T2000AAC-0C0	Heat-Off-Cool	High-Med-Low	10 - 30°C	110 & 230V	None
T2000EAC-0C0	On-Off	High-Med-Low	10 - 30°C	110 & 230V	None
T2000HHC-0C0	None	None	10 - 30°C	110 & 230V	None
T2000AAT-0C0	Heat-Off-Cool	High-Med-Low	10 - 30°C / 50 - 86°F	24V	None
T2000EAT-0C0	On-Off	High-Med-Low	10 - 30°C / 50 - 86°F	24V	None

Y620 Fan Control Switch

Model	Y621-0	Y622-0
System Switch	On-Off	Heat-Off-Cool
Fan Switch	High-Med-Low	High-Med-Low

Specifications

T2000 Series Thermostat

Product Code	T2000AAx-0C0	T2000EAx-0C0	T2000HHx-0C0
System Switch	Heat-Off-Cool	On-Off	None
Fan Switch	High-Med-Low	High-Med-Low	None
Differential	1°K at 20°C (68°F)		
Range	10 - 30°C (50 - 86°F)		
Sensing Element	Unipole gas filled bellows		
Material & Finish	Base & Cover – ABS Plastic in white colour		
Electrical Ratings	13 A, 120V 50/60 Hz 6.5 A, 220/240V 50/60 Hz		
Wiring Connections	Screw-in terminals, capable of accepting wires up to 1.5mm²		
Pollution Acceptance	Normal Situation		
Ambient temp. Limits	10 - 50°C		
Enclosure (prot. Class)	IP20		
Shipping Weight	0.22kg		
Standard	None	None	None

Y620 Fan Control Switch

Product Code	Y621-0	Y622-0
System Switch	On-Off	Heat-Off-Cool
Fan Switch	High-Med-Low	High-Med-Low
Material & Finish	Moulded ABS Plastic with UL94-V0 in white colour	
Electrical Ratings	10(1) A, 120V 50/60 Hz	
Wiring Connections	Screw-in terminals, capable of accepting wires up to 1.5mm²	

T125 Electric Fan Coil Thermostat

New Generation T125 Electric Fan Coil Thermostats are designed to control heating, cooling, or air-conditioning units in Commercial, Industrial and Residential Installations. Typical Applications include the control of fan coil units, packaged terminal air conditioners and combination heating and cooling equipment. This is part of a system that consists of a two-way or three-way valve and a multi-speed line voltage fan.

T125 Electric Fan Coil Thermostat

The aesthetic design thermostat features with easy operation, compact in size. The perfect design makes it compatible with any decoration style. The simple design of the thermostat is compact in size and is easy to use.

The T125 Thermostat series can be field mounted with Johnson Controls zone valve VG4000-C Series and electric actuator VA7010-C Series.

Features and Benefits

Operation	• Easy operation for mode selection and setpoint adjustment • Molded Industrial Standard Graphical Symbol
Appearance	• Attractively-Styled Twin-Ring Streamline ABS Plastic Cover and Base • All-in-One Enclosure Design without Protrusion of Power Circuit • Molded Logo & Symbol to ensure Original Pattern
Installation, Service and Maintenance	• Universal Mounting with Standard Wall Box • Un-pluggable Wire Termination, Allows Quick Connect for Final Hand-over to End-user • Quick Replacement to Reduce the Downtime of Service Maintenance

T2000 Series Thermostat

Product	New Generation T125 Electric Fan Coil Unit Thermostat	
	T125AAC-JS0	Cooling only thermostat
	T125BAC-JS0	2-pipe heating or cooling thermostat
	T125FAC-JS0	4-pipe heating and cooling thermostat
Power Requirements	AC200±10%, 50/60Hz	
Accuracy	±1℃	
Setpoint Range	10~30℃	
Terminal	Un-pluggable "Wafer" Connector with 12 cm Color-coded 20AWG PVC cable	
Valve Control	T125AAC-JS0 (Cooling only)	1 x SPDT Relay output max. 5A
	T125BAC-JS0 (Heating or Cooling)	1 x SPDT Relay output max. 5A
	T125FAC-JS0 (Heating and Cooling)	2 x SPST Relay output max. 5A
Ambient Operating Conditions	0~45℃ 90%RH Non-condensing	
Ambient Storage Conditions	-10~60℃ 90%RH Non-condensing	
Housing	White, PC+ABS UL 94-V0 flammability rating	
Protection Class	IP20	
Dimensions	86 x 86 x 27mm	
Shipping Weight	0.16 kg	

T5000 LCD Digital Fan Coil Thermostat

T5000 LCD Digital Fan Coil Thermostats are designed to control heating, cooling, or year round air-conditioning units in Commercial, Industrial and Residential Installations. Typical Applications include the control of fan coil units, packaged terminal air conditioners and combination heating and cooling equipment. This is part of the system that consists of a two-way or three-way valve and a multi-speed line voltage fan.

The aesthetic design of the thermostat features a backlit Liquid Crystal Display (LCD) and its attractive white color and compact size complements any decor. The thermostat does not require any battery backup as setpoint and other parameters are stored in non-volatile memory. The intuitive operation makes the thermostat very user-friendly.

T5000 LCD Digital Fan Coil Thermostat

Features and Benefits

Backlit Liquid Crystal Display (LCD)	· Industrial Standard Graphical Symbol to Eliminate Native Language Interface · Offers Easy-to-Read Real-time Control Status of the Environment, Graphical Messages with Constant Backlight that Brightens during User Interaction
5 Function Key	· Easy-to-Use Interface Keys Allow for Easy Commissioning and Adjustment · All-in-One Location Function Keys, Simplified User to Change the Setpoint and Parameter · Molded Industrial Standard Graphical Symbol
Appearance	· Attractively-Styled Twin-Ring Streamline ABS Plastic Cover and Base · All-in-One Enclosure Design without Protrusion of Power Circuit
Energy Saving	· Boasts of an Unoccupied Function · Requires No Batteries; EEPROM Retains the Last Events and Parameter Settings After a Loss of Power
Installation, Service and Maintenance	· Universal Mounting with Standard Wall Box · Quick Replacement to Reduce Downtime Due to Service Maintenance

Function

Item	Description	T5200-TC-9JS0	T5200-TB-9JS0	T5200-TB-9JR0	T5200-TF-9JS0	T5200-TF-9JR0
User-interface	Backlight (Blue)	√	√	√	√	√
	EN/Icon	√	√	√	√	√
	°C & °F Changeable	√	√	√	√	√
Energy Saving	Ventilation Mode	√	√	√	√	√
	Setpoint Limit	√	√	√	√	√
	Occupied Contact with NO/NC Options		√			
	Unoccupied Setpoints		√			
	Low Fan in Unoccupancy		√			
	Auto Changeover				√	√
Other Functions	Timer on/off	√	√	√	√	√
	Display Setpoint Only	√	√	√	√	√
	Anti-freezing	√	√	√	√	√
	Key Lock	√	√	√	√	√
	Display Temperature Calibration	√	√	√	√	√
	Remote Temperature Sensor		√	√		√
	Restart Function After Power Failure	√	√	√	√	√

Model Available

Model	Applications	Occupancy Mode	Remote Sensor
T5200-TC-9JS0	Cooling only	None	None
T5200-TB-9JS0	2-pipe Heating or Cooling	Yes	None
T5200-TB-9JR0	2-pipe Heating or Cooling	None	Yes
T5200-TF-9JS0	4-pipe Heating or Cooling	None	None
T5200-TF-9JR0	4-pipe Heating or Cooling	None	Yes

Specifications

Product	T5000 LCD Digital Fan Coil Unit Thermostat	
	T5200-TC-9JS0	Backlit LCD Cooling Only FCU Thermostat
	T5200-TB-9JS0	Backlit LCD 2-pipe Cooling / Heating FCU Thermostat with Occupancy Contact
	T5200-TB-9JR0	Backlit LCD 2-pipe Cooling / Heating FCU Thermostat with Remote Temperature Sensor
	T5200-TF-9JS0	Backlit LCD 4-Pipe Cooling and Heating FCU Thermostat
	T5200-TF-9JR0	Backlit LCD 4-pipe Cooling and Heating FCU Thermostat with Remote Temperature Sensor
Power Requirements	AC85-260V, 50/60 Hz	
Accuracy	±1°C	
Display Range	0 to 55°C	
Setpoint Range	5~35°C	
Unoccupied Mode	T5200-TB-9JS0 External Voltage-Free Contact Input Signal	
Restart after Power Failure	Three Options Available: On, Off and Keep Last Status	
Remote sensor	T5200-TB-9JR0/T5200-TF-9JR0 with remote temperature sensor, NTC 10K, 1.5m, Max.20m (0.75~1.0mm²)	
Termination	Screw terminals	
Valve Control	T5200-TC-9JS0 (Cooling only) 2 x Single-Pole, Single Throw (SPST), 5A at 250 VAC (Maximum); Relay Output	
	T5200-TB-9JS0 (2-pipe Cooling or Heating) 1 x Single-Pole, Single Throw (SPST), 5A at 250 VAC (Maximum); Relay Output	
	T5200-TB-9JR0 (2-pipe Cooling or Heating) 1 x Single-Pole, Single Throw (SPST), 5A at 250 VAC (Maximum); Relay Output	
	T5200-TF-9JS0 (4-pipe Cooling and Heating) 2 x Single-Pole, Single Throw (SPST), 5A at 250 VAC (Maximum); Relay Output	
	T5200-TF-9JR0 (4-pipe Cooling and Heating) 2 x Single-Pole, Single Throw (SPST), 5A at 250 VAC (Maximum); Relay Output	
Fan Control	3 x Single-Pole, Single Throw (SPST), 5A(Res.) at 250 VAC (Maximum); Relay Output for High-Med-Low Fan	
Ambient Operating Conditions	0 to 45°C 90% Non-condensing RH	
Ambient Storage Conditions	T5200-TB-9JR0/T5200-TF-9JR0 with remote temperature sensor, NTC 10K, 1.5m, Max.20m (0.75~1.0mm²)	
Housing Material	PC: UL 94-V0	
Protection Class	IP20	
Certification	CE	
Dimensions	88 x 88 x 42mm	
Shipping Weight	Appr. 206g	

T6000 LCD Digital Fan Coil Thermostat

T6000 LCD Digital Fan Coil Thermostats are designed to control heating, cooling, or year round air-conditioning units in Commercial, Industrial and Residential Installations. Typical applications include the control of fan coil units, packaged terminal air conditioners and combination of heating and cooling equipment. This is part of the system that consists of a two-way or three-way valve and a multi-speed line voltage fan.

The aesthetic design of the thermostat features a backlit Liquid Crystal Display (LCD) and its attractive white color and compact size complements any decor. The thermostat does not require any battery backup as setpoint and other parameters are stored in non-volatile memory. The intuitive operation makes the thermostat very user-friendly.

T6000 LCD Digital Fan Coil Thermostat

Features and Benefits

Backlit Liquid Crystal Display (LCD)	· Industrial Standard Graphical Symbol to Eliminate Native Language Interface · Offer Easy-to-Read Real-time Control Status of the Environment, Graphical Messages with Constant Backlight that Brightens during User Interaction
5 Function Key	· Easy-to-Use Interface Keys Allow for Easy Commissioning and Adjustment · All-in-One Location Function Keys, Simplified User Interface to Change the Setpoint and Parameters · Molded Industrial Standard Graphical Symbol
Appearance	· Attractively-Styled Twin-Ring Streamline ABS Plastic Cover and Base · All-in-One Enclosure Design without Protrusion of Power Circuit · Molded Logo and Symbol to Ensure Original Pattern
Energy Saving	· Boasts of an Unoccupied Function · Dual-Setpoint, Enable User to Define Comfort Setting · Low Speed Fan Startup, Eliminating High Inrush Current · Requires No Batteries; EEPROM Retains the Last Events and Parameter Settings After a Loss of Power
Installation, Service and Maintenance	· Universal Mounting with Standard Wall Box · Un-pluggable Wire Termination, Allows Quick Connect for Final Hand-over to End-user · Quick Replacement to Reduce Downtime Due To Service Maintenance · Power Failure Restart, Allows User to Auto-restart Equipment after Power Resumes

Model Available

Model	Applications	Control	Backlit LCD	Occupancy Mode	With Remote Sensor	Power Supply
T6634-TA10-9JSO	Cooling Only	On/Off	Yes	No	No	AV95V-AC240V
T6634-TE20-9JSO	2-pip Heating or Cooling	On/Off	Yes	Yes	No	AV95V-AC240V
T6634-TF20-9JSO	4-pip Heating or Cooling	On/Off	Yes	Yes	No	AV95V-AC240V
T6634-TE21-9JSO	2-pip Heating or Cooling	DC 0-10V Modulating	Yes	Yes	No	AC24V
T6634-TE21-9JRO	2-pip Heating or Cooling	DC 0-10V Modulating	Yes	No	Yes	AC24V
T6634-TE22-9JSO	2-pip Heating or Cooling	Floating	Yes	Yes	No	AV95V-AC240V

Specifications

Product	T6000 LCD Digital Fan Coil Unit Thermostat	
	T6634-TA10-9JS0	Backlit LCD Cooling only, On/Off control for 2-wire/3-wire value (actuator)
	T6634-TE20-9JS0	Backlit LCD Cooling or Heating, On/Off control for 2-wire/3-wire value (actuator), w/occupancy contact
	T6634-TF20-9JS0	Backlit LCD Cooling or Heating, On/Off control for 2-wire/3-wire value (actuator), w/occupancy contact
	T6634-TE21-9JS0	Backlit LCD Cooling / Heating, Modulating control, w/occupancy contact
	T6634-TE21-9JR0	Backlit LCD Cooling / Heating, Modulating control, with remote sensor
	T6634-TE22-9JS0	Backlit LCD Cooling / Heating, Floating control, w/occupancy contact
Power Requirements	T6634-TA10/TE20/TE22/TE20-9JS0: AC95V-AV240V ±10%, 50/60 Hz	
	T6634-TE21-9JS0/9JR0: AV24V ±10%, 50/60 Hz	
Accuracy	±1°C	
Display Range	0 to 55°C (32 to 99°F) maximum	
Setpoint Range	5 to 30°C (41 to 86°F) maximum	
Unoccupied Mode	External Voltage-Free Contact Input Signal (Not available for T6634-TA10-9JS0 and T6634-TE21-9JR0)	
Remote Sensor	T6634-TE21-9JR0 with remote sensor, NTC 10K, 1.5m, max.20m (0.75-1.00mm^2)	
Termination	Un-pluggable "Wafer" Connector with 12cm Color-coded 20AWG PVC cable	
Valve Control	T6634-TA10-9JS0 (Cooling Only)	On/Off control, 2X SPST relay output, AC230V, Maximum 5A(Res.)
	T6634-TE20-9JS0 (Cooling or Heating)	On/Off control, 2X SPST relay output, AC230V, Maximum 5A(Res.)
	T6634-TF20-9JS0 (Cooling and Heating)	On/Off control, 2X SPST relay output, AC230V, Maximum 5A(Res.)
	T6634-TF21-9JS0	DC 0-10V Modulating
	T6634-TF21-9JR0	DC 0-10V Modulating
	T6634-TF22-9JS0	Floating control, AC24V/AC230V, Maximum 0.6A
Fan Control	3 x Single-Pole, Single Throw (SPST), Relay Output for High-Med-Low Fan, 5A (Res.) at 230 VAC (Maximum)	
Ambient Operating Conditions	0 to 50°C (32 to 122°F) 90% Non-condensing RH	
Ambient Storage Conditions	-10 to 60°C (14 to 140°F) 90% Non-condensing RH	
Housing Material	PC: UL94-V0	
Protection Class	IP20	
Dimensions	86 x 86 x 30mm	
Weight	T6634-TA10/TE20/TE22/TF20-9JS0: Appr. 205g; T6634-TE21-9JS0: Appr. 187g; T6634-TE21-9JR0: Appr. 198g	

T8000 Touch Screen Thermostat

Application

T8200...JS0/R0 Touch Screen Thermostats are designed to control heating, cooling, or year round air-conditioning units in Commercial, Industrial and Residential Installations.

T8000 Touch Screen Thermostat

Typical applications include the control of fan coil units, packaged terminal air-conditioners and combination heating and cooling equipment. As part of the system, T8000 system controls a two-way or three-way valve and a multi-speed line voltage fan.

T8200...JF0 Touch Screen Thermostat is used in the system of a two-in-one central air-conditioner and floor heater. In the summer, a comfortable temperature is reached by controlling the fan coil of the air-conditioning system. In the winter, both the air-conditioner and the floor heater quickly warm the air with its air-heating technology.

T8000 features microcomputer control and a large LCD screen display. It displays the status of the work mode (cooling/floor heating/heating/floor heating and heating/air venting), fan speed, indoor temperature and set temperature etc. The capacitance touch screen enhances the operation of the thermostat. Keypad includes: Power on/off (⏻), Mode Selection (M), Fan Speed Selection (), Clock/Timer () and two Adjustment buttons (∧ & ∨).

Features and Benefits

Touch screen	· Capacitance touch screen enhances the operation of the thermostat
Backlit Liquid Crystal Display (LCD)	· Offers Easy-to-Read, Real-time Control Status of the Environment, Graphical Messages with Constant Backlight that Brightens during User Interaction
6 Function Keys	· All-in-One Location Function Keys, Simplified User Interface Enables User to Change the Setpoint and Parameters · Molded Industrial Standard Graphical Symbol
Appearance	· Attractive Twin-Ring Streamline ABS Plastic Cover and Base · All-in-One Enclosure Design without Protrusion of Power Circuit
Energy Saving	· Boasts of an Unoccupied Function · Requires No Batteries; EEPROM Retains the Last Events and Parameter Settings After a Loss of Power
Installation, Service and Maintenance	· Universal Mounting with Standard Wall Box · Quick Replacement Reduces Downtime due to Service Maintenance

Function And Selection

Item	Description	T8200 -TB20 -9JR0	T8200 -TB20 -9JS0	T8200 -TF20 -9JR0	T8200 -TF20 -9JS0	T8200 -TB21 -9JR0	T8200 -TB21 -9JS0	T8200 -TB20 -9JF0
Application	2-pipe heating or cooling	√	√					
	4-pipe heating or cooling			√	√			
	2-pipe modulating					√	√	
	2-pipe heating or cooling, Floor heating							√
User-Interface	Touch Screen	√	√	√	√	√	√	√
	Backlight (White)	√	√	√	√	√	√	√
	EN/Icon	√	√	√	√	√	√	√
	°C/F Changeable	√	√	√	√	√	√	√
Energy Saving	Ventilation Mode	√	√	√	√	√	√	√
	Setpoint Limit	√	√	√	√	√	√	√
	Occupied Contact with NO/NC Options		√		√		√	
	Unoccupied Setpoints		√		√		√	
	Low Fan in Unoccupancy		√		√		√	
	Auto Changeover			√	√			
Other Functions	Timer on/off	√	√	√	√	√	√	√
	Display Setpoint Only	√	√	√	√	√	√	√
	Anti-freezing	√	√	√	√	√	√	√
	Key Lock	√	√	√	√	√	√	√
	Display Temperature Calibration	√	√	√	√	√	√	√
	Remote Temperature Sensor	√		√		√		
	Restart after Power Failure	√	√	√	√	√	√	√
	Timer Function	√	√	√	√	√	√	√
Certificate	CE	√	√	√	√	√	√	√

Specifications

Product	T8000 Touch screen thermostat	
	T8200-TB20-9JR0	Backlit LCD 2-pipe Cooling / Heating FCU Thermostat with Remote Sensor
	T8200-TB20-9JS0	Backlit LCD 2-pipe Cooling / Heating FCU Thermostat and Occupancy Contact
	T8200-TF20-9JR0	Backlit LCD 4-pipe Cooling and Heating FCU Thermostat with Remote Sensor
	T8200-TF20-9JS0	Backlit LCD 4-pipe Cooling and Heating FCU Thermostat and Occupancy Contact
	T8200-TB21-9JR0	Backlit LCD 2-pipe Cooling / Heating FCU Thermostat (modulating) with Remote Sensor
	T8200-TB21-9JS0	Backlit LCD 2-pipe Cooling / Heating FCU Thermostat (modulating) and Occupancy Contact
	T8200-TB20-9JF0	Backlit LCD 2-pipe Cooling / Heating FCU and Flooring Heating Thermostat
Power Requirements	AC58-260V 50/60HZ (T8200-TB20/TF20)	
	AC24V±10%, 50/60HZ (T8200-TB21...)	
Accuracy	±1°C	
Display Range	0~55°C	
Setpoint Range	5~35°C	
Unoccupied Mode	T8200...9JS0 External Voltage-Free Contact Input Signal	
Remote Sensor	T8200...9JR0 with remote temperature sensor NTC 10K, 1.5 m, Max.20m (0.7~1.0mm²)	
Termination	Screw terminals	
Valve Control	T8200-TB20-9JR0 (2-pipe Cooling / Heating)	1 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output
	T8200-TB20-9JS0 (2-pipe Cooling / Heating)	1 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output
	T8200-TF20-9JR0 (4-pipe Cooling and Heating)	2 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output
	T8200-TF20-9JS0 (4-pipe Cooling and Heating)	2 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output
	T8200-TB21-9JS0 (2-pipe Cooling / Heating)	0-10V
	T8200-TB21-9JR0 (2-pipe Cooling / Heating)	0-10V
	T8200-TB20-9JF0 (2-pipe Cooling / Heating with floor heating)	2 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output
Fan Control	3 x Single-Pole, Single Throw (SPST) , 5A(Res.) at 250 VAC (Maximum); Relay Output for High-Med-Low Fan	
Ambient Operating Conditions	0 to 45°C 90% Non-condensing RH	
Ambient Storage Conditions	-10 to 60 °C 90% Non-condensing RH	
Housing Material	PC: UL 9 4-V0	
Protection Class	IP20	
Certification	CE	
Dimensions	88 x 88mm	
Shipping Weight	Appr.214g	

* When connected, the On/Off switch does not disconnect power to the unit; it only turns off or on the LCD and functions.

Y620 Fan Control Switch

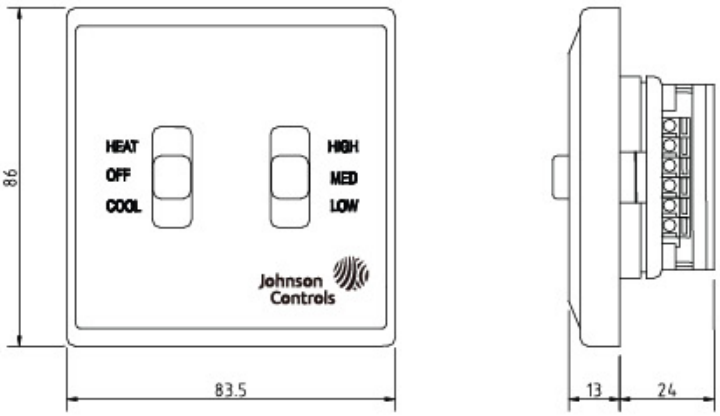
General Description

The Y620 switch provides manual fan and system switching at the thermostat location when used with T2000H room thermostat.

The Y620 has two sliding switches for selecting desired fan speed and system mode. The switch base is made of moulded plastic.

Operation

At the HIGH, MED, LOW switch positions, the fan will run at the speed selected and thermostat, if used, will control the valve to produce the desired coil output. The OFF position will stop the fan and de-energise thethermostat.



Dimensions in mm

Specifications

Product Code	Y622 System HEAT-OFF-COOL; Fan HIGH-MED-LOW Y621 System ON-OFF; Fan HIGH-MED-LOW
Material and Finish	Moulded ABS plastic with UL94-V0 grade in White color,
Electrical Ratings	10(1) A, 220 ~ 240V, 50 / 60Hz
Wiring Connections	Screw-in terminals, capable of accepting wires up to 1.5mm²

Y620 Fan Control Switch

Product Code	Y621-0	Y622-0
System Switch	On-Off	Heat-Off-Cool
Fan Switch	High-Med-Low	High-Med-Low
Material & Finish	Moulded ABS Plastic with UL94-V0 in white colour	
Electrical Ratings	10(1) A, 120V 50/60 Hz	
Wiring Connections	Screw-in terminals, capable of accepting wires up to 1.5mm²	

Valve And Actuator

Ball Valve and actuator
VG1000 ball valve and M9000 actuator

Zone valve and actuator
VG4000 zone valve and VA7010 actuator

Globe valve and actuator
VG7000, VG8000H and VG8000N valve

Butterfly Valve and actuator
VF6000 valve with VA300 actuator

Balancing Valve and actuator
VPA Pressure Independent Balancing and Control Valve and VAP Actuator
VPS Static Balancing Valve
VPF Motorized Balancing Valve for FCU
VPD Dynamic Balancing Valve

Manual Valve
VHSV Stop Valve DN65-200
VHBF Butterfly Valve DN50-300
VHST Y-strainer DN65-300
VHGV Gate Valve DN50-600
VHCV Check Valve DN65-300

VG1000 DN25-50 Ball Valve

VG1000-C Series Ball Valves
Shown with M9000 Series Electric Actuators

VG1000-C Series Ball Valves are designed to regulate the flow of hot or chilled water and low-pressure steam in response to the demand of a controller in Heating, Ventilation and Air-Conditioning (HVAC) systems. Now, available models of VG1000-C are in size DN25 to DN50. This family of forged brass valves can be field mounted to Johnson Controls VA9104, M9106, M9108 and M9109 Series Non-spring return and VA9203, VA9208 Series spring return electric actuators for on/off, floating or proportional control.

Valves are available with British Standard Pipe Parallel (BSPP) end connections for field assembly.

Features and Benefits

Forged Brass Body	Provides PN40 body rating, which can be used in both low-rise and high-rise buildings
Rotary Movement of Valve Plug is Independent of Flow Direction	Provides high close-off pressure of 1380kPa independent of the choice of actuator
Inherent Equal Percentage Flow Characteristic in the In-line Port of All Valves	Provides flow characteristics for best temperature control and is available in a wide variety of Kvs to cover a broad range of applications
High Rangeability	> 500:1 rangeability ensures accurate control under all load conditions
Valve Bodies Tested at Lowest Fluid Temperatures	Allows highest reliability in chilled water applications down to -30°C
Ethylene Propylene Diene Monomer (EPDM) Double O-ring Stem Seal	Provides leak-free seal, the packing has been tested and is leak free after 200k cycles in iron-oxide contaminated water
Graphite-reinforced Polytetrafluoroethylene (PTFE) Seats	Includes 15% graphite-reinforced ball seals, providing better wear resistance when compared with virgin Teflon ball seats for longer leak free life (seal) in iron-oxide contaminated water
Seats Backed with EPDM O-rings	Aids in sealing and provides a constant seating force that compensates for expansion, contraction, and seat wear without increasing operating torque
Maintenance-free Design	Performs without failure in excess of 200k full stroke cycles in iron-oxide contaminated water, with no packing to adjust and no periodic rebuilding necessary
M9000-520-4 Linkage Kit Available for Field Mounting to M9106 and M9109 Series Electric Actuators	Reduces installation time, thus reducing overall installation cost; provides superior thermal isolation between the valve and actuator, and meets Underwriter's Laboratories®, Inc. (UL) 94 5 V Flame Class Rating.

Combination Of Valves With Proportional Actuators

Spring Return Function		No					Yes			
Supply Voltage		24VAC					24VAC			
Torque Nm		4	6	6	9	9	3	3	8	8
Running Time(s)		72	72	72	72	72	90	90	150	150
Spring Return Time on Power Off(s)		-	-	-	-	-	12-17	12-17	17-25	17-25
Control Signal	VDC	0-10/2-10								
	mA	0-20/4-20							-	-
Switches		-	-	2×SPDT	-	2×SPDT	-	1×SPDT	-	2×SPDT
Feedback		-	0-10/2-10						0-10	0-10
Close-off Pressure		1380kPa								
Actuator Code		VA9104-GGA-3S	M9106-GGA-4	M9106-GGC-4	M9109-GGA-4	M9109-GGC-4	VA9203-GGA-1Z	VA9203-GGB-1Z	VA9208-GGA-1	VA9208-GGC-1
Linkage Code		No Need	M9000-520-4				No Need			
Thermal Barrier		M9000-561	-	-	-	-	M9000-561			

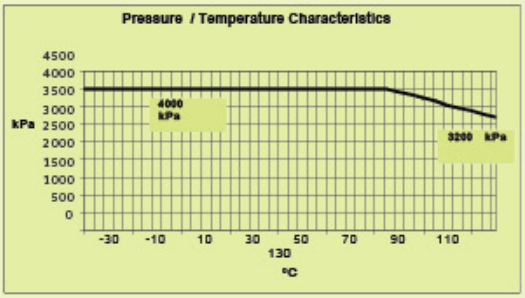
DN	Kvs	Disc	Valve Code	Valid combinations of valves, linkage and actuators								
25	6.3	Yes	VG1205CL	ok	ok	ok	-	-	ok	ok	-	-
	10		VG1205CN	ok	ok	ok	-	-	ok	ok	-	-
	16	No	VG1205CP-C	ok	ok	ok	-	-	ok	ok	-	-
32	10	Yes	VG1205DN	-	ok	ok	-	-	-	-	ok	ok
	16		VG1205DP	-	ok	ok	-	-	-	-	ok	ok
	25	No	VG1205DR-C	-	ok	ok	-	-	-	-	ok	ok
40	16	Yes	VG1205EP-C	-	ok	ok	-	-	-	-	ok	ok
	25		VG1205ER-C	-	ok	ok	-	-	-	-	ok	ok
	40	No	VG1205ES-C	-	ok	ok	-	-	-	-	ok	ok
50	25	Yes	VG1205FR-C	-	-	-	ok	ok	-	-	ok	ok
	40		VG1205FS-C	-	-	-	ok	ok	-	-	ok	ok
	63	No	VG1205FT-C	-	-	-	ok	ok	-	-	ok	ok

Combination Of Valves With Floating Actuators

Spring Return Function	No							Yes			
Supply Voltage	24VAC					230VAC		24VAC			
Torque Nm	4	6	6	9	9	8	8	3	3	8	8
Running Time(s)	72	72	72	72	72	30-45	30-45	90	90	150	150
Spring Return Time on Power Off(s)	-	-	-	-	-	-	-	12-17	12-17	17-25	17-25
Control Signal	Floating										
Switches	-	-	2×SPDT	-	2×SPDT	-	2×SPDT	-	1×SPDT	-	2×SPDT
Feedback	-	-	-	-	-	-	-	-	-	-	-
Close-off Pressure	1380kPa										
Actuator Code	VA9104-AGA-3S	M9106-AGA-4	M9106-AGC-4	M9109-AGA-4	M9109-AGC-4	M9108-ADA-5	M9108-ADC-5	VA9203-AGA-1Z	VA9203-AGB-1Z	VA9208-AGA-1	VA9208-AGC-1
Linkage Code	No Need	M9000-520-4				M9000-525-5		No Need			
Thermal Barrier	M9000-561	-	-	-	-	-	-	M9000-561			

DN	Kvs	Disc	Valve Code	Valid combinations of valves, linkage and actuators										
25	6.3	Yes	VG1205CL	ok	ok	ok	-	-	ok	ok	ok	ok	-	-
	10		VG1205CN	ok	ok	ok	-	-	ok	ok	ok	ok	-	-
	16	No	VG1205CP-C	ok	ok	ok	-	-	ok	ok	ok	ok	-	-
32	10	Yes	VG1205DN	-	ok	ok	-	-	ok	ok	-	-	ok	ok
	16		VG1205DP	-	ok	ok	-	-	ok	ok	-	-	ok	ok
	25	No	VG1205DR-C	-	ok	ok	-	-	ok	ok	-	-	ok	ok
40	16	Yes	VG1205EP-C	-	ok	ok	-	-	ok	ok	-	-	ok	ok
	25		VG1205ER-C	-	ok	ok	-	-	ok	ok	-	-	ok	ok
	40	No	VG1205ES-C	-	ok	ok	-	-	ok	ok	-	-	ok	ok
50	25	Yes	VG1205FR-C	-	-	-	ok	ok	ok	ok	-	-	ok	ok
	40		VG1205FS-C	-	-	-	ok	ok	ok	ok	-	-	ok	ok
	63	No	VG1205FT-C	-	-	-	ok	ok	ok	ok	-	-	ok	ok

Technical Specifications

Product	VG1000-C Series Forged Brass Ball Valves with Stainless Steel Trim		
Service*	Hot water, chilled water, 50% Glycol Solutions for HVAC Systems.		
Fluid Temperature Limits	Water -30 to +110°C		
	(M9000-561 Thermal Barrier is needed when fluid temperature is higher than 100°C)		
Valve Body Pressure/ Temperature Rating	PN40 according EN 1333; EN 13547; DIN EN 764; EN 331; UL 429, CEI EN 60534-1, UNI 8858, DIN 2410: 		
Maximum Closeoff Pressure	1380 kPa		
Maximum Recommended Operating Pressure Drop Flow Characteristics	340 kPa (240 kPa for Quiet Service Ball Valves), 600 kPa for 2-way Valves without Flow Characterization Disk Equal Percentage (according EN60534-2-4)		
Rangeability**	> 500:1 (according EN60534-2-4)		
Ambient Operating Conditions of Valve & Actuator Assemblies***	With linkage:	For Fluid Temperature	Ambient Operating Conditions
	M9000-525-5	-30 ... -20 °C -20 ... +100 °C +100...+110 °C	Not recommended -20...40 °C, non condensing -20...30 °C, non condensing
	M9000-520-4	-30 ... -20 °C -20 ... +100 °C +100 ...+110 °C	-20...50 °C, non condensing -20...50 °C, non condensing -20...40 °C, non condensing
Leakage	0.01% of Maximum Flow per EN60534-4, Class 4 (2-way and 3-way control port) 1% of Maximum Flow per EN60534-4 for 3-way bypass port		
End Connections	British Standard Pipe Parallel (BSPP) – (Rp, ISO 7/1)		
Materials	Body	Forged Brass	
	Ball	Stainless Steel	
	Blowout-Proof Stem	Stainless Steel	
	Seats	Graphite-Reinforced PTFE with EPDM O-Ring Backing	
	Stem Seals	EPDM Double O-Rings	
	Characterizing Disk	AMODEL® AS-1145HS Polyphthalamide Resin	

* Proper water treatment is recommended; refer to VDI 2035 Standard.
** Rangeability is defined as the ratio of maximum controllable flow to minimum controllable flow.
*** In hot water applications, install the valve with the stem horizontal to the piping, and wrap the valve and piping with insulation material and ensure that the temperature at the actuator does not exceed 50°C.

VG1000 DN65-100 Ball Valve

Features

- Stainless steel ball and stem assembly
- Amodel® flow characterizing disk
- Ethylene Proplene Diene Monomer (EPDM) double O-ring stem seal
- Graphite-Reinforced Polytetrafluoroethylene (PTFE) Seat

Assemblies of Valves with Proportional Actuators

Spring Return Function		-		√	
Supply Voltage		24 VAC/DC			
Torque Nm		24 Nm		20 Nm	
Running Time(s)		125 s		150 s	
Spring Return Time on Power Off(s)		-		26 s	
Control Signal	VDC mA	0-10 / 2-10 0-20 / 4-20			
Switches		-	2 x SPDT	-	24 VAC/DC
Feedback	VDC	0-10 / 2-10			
Actuator code		M9124-GGA-2	M9124-GGC-2	M9220-HGA-3	M9220-HGC-3
Linkage code		M9000-518-C		M9000-519-C	

Ordering Codes

Valve Code	Body Size	Kvs	Valid combinations of valves, linkage and actuators			
VG12E5GS-C	DN65	40	√	√	√	√
VG12E5GT-C		63	√	√	√	√
VG12E5GU-C		100	√	√	√	√
VG12E5HT-C	DN80	63	√	√	√	√
VG12E5HU-C		100	√	√	√	√
VG12E5HV-C		150	√	√	√	√
VG12E5HW-C		180	√	√	√	√
VG12E5JU-C	DN100	100	√	√	√	√
VG12E5JV-C		150	√	√	√	√

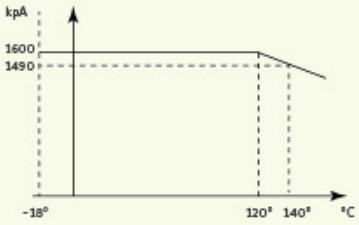
Assemblies of Valves with Floating and ON/OFF Actuators

Spring Return Function	-				√					
Supply Voltage	24 VAC / DC		230 VAC		24 VAC / DC		230 VAC			
Torque	24 Nm				20 Nm					
Running Time(s)	125 s				150 s				24 - 57 s	
Spring Return Time on Power Off(s)	-				20 s				11 - 50 s	
Control Signal	Floating and ON/OFF						ON/OFF			
Switches	-	2 x SPDT	-	2 x SPDT	-	2 x SPDT	-	2 x SPDT	-	2 x SPDT
Feedback	-									
Actuator Code	M9124-AGA-2	M9124-AGC-2	M9124-ADA-1N	M9124-ADC-1N	M9220-AGA-3	M9220-AGC-3	M9220-BGA-3	M9220-BGC-3	M9220-BDA-3	M9220-BDC-3
Linkage Code	M9000-518-C				M9000-519-C					

Ordering Codes

Valve Code	Body Size	Kvs	Valid combinations of Valves, Linkage and Actuators									
VG12E5GS-C	DN65	40	√	√	√	√	√	√	√	√	√	√
VG12E5GT-C		63	√	√	√	√	√	√	√	√	√	√
VG12E5GU-C		100	√	√	√	√	√	√	√	√	√	√
VG12E5HT-C	DN80	63	√	√	√	√	√	√	√	√	√	√
VG12E5HU-C		100	√	√	√	√	√	√	√	√	√	√
VG12E5HV-C		150	√	√	√	√	√	√	√	√	√	√
VG12E5HW-C		180	√	√	√	√	√	√	√	√	√	√
VG12E5JU-C	DN100	100	√	√	√	√	√	√	√	√	√	√
VG12E5JV-C		150	√	√	√	√	√	√	√	√	√	√

Specifications

Product	VG12E5xx-C Non Spring Return Flanged Control Ball Valve
Valve Type	2-way
Body Rating	PN16
Service**	Hot water, chilled water, 50/50 glycol solutions, and 172kPa Saturated Steam for HVAC Systems
Valve Fluid Temperature Limits	-18 to 110°C
Valve Body Pressure / Temperature Rating -Water -Steam	 max 172 kPa
Maximum Closeoff Pressure	689 kPa
Maximum Recommended Operating Pressure Drop	207 kPa for quiet service
Flow Characteristics	Equal Percentage (according EN60534-2-4)
Rangeability**	Greater than 500:1
Leakage	0.01% of Maximum Flow, ANSI/FCI 70-2, Class 4
Storage and Transport Temperature	-20°C to +65°C, dry and free of dirt
End Connections	Flanged, DIN EN 1092, Type 16, Form B sealing strip
Minimum Ambient Operating Temperature -20°C -40°C	 M9124 Series Non-Spring Return Actuator M9124 Series Spring Return Actuator
Maximum Ambient Operating Temperature*** 50°C 55°C	 M9124 Series Non-Spring Return Actuator M9124 Series Spring Return Actuator
Materials -Body -Ball and Blowout-Proof Stem -Flanges & adapters -Seat, stem seals -Stem bush -Characterizing -Ball seat	 Forged brass EN 12165 Stainless Steel x5CrNi1819 EN 10088-3 EN-JL 1040 (cast iron) EPDM O-Ring PTF A model AS-1145HS PTFE graphite filled
Weight	VG12E5Gx DN65 Kg.15.4 VG12E5Hx DN80 Kg.16.3 VG12E5Jx DN100 Kg.20

* Proper water treatment is recommended; refer to VDI 2035 Standard.
** Rangeability is defined as the ratio of maximum controllable flow to minimum controllable flow.

Zone Valve & Actuator

Figure 1: VG4000 Series High-Capacity/ High-Closeoff Electric Zone Valves

VG4000 Electric Zone Valves

VG4000 Series High-Capacity/High-Closeoff Electric Zone Valves are designed to regulate the flow of water in response to the demand of a controller in zone and Variable Air Volume (VAV) reheats coil applications. The high-capacity/high-closeoff capability of the VG4400xx-C and VG4800xx-C also makes this family of valves an ideal choice for fan coil and baseboard radiation applications. Normally Closed (N.C.) VG4000 series valve is designed for use with VA-7010 Series on/off control actuators and VA-7480 Series floating or proportional control actuators. These electric actuators can be ordered separately for field installation.

Refer to the VA-7010 Series Electric On/Off Actuator Product/ Technical Bulletin or the VA-7480 Electronic Valve Actuator Product/Technical Bulletin for specific information regarding either actuator series.

Features and Benefits

Forged Brass Body and Stainless Steel Stem and Spring	Ensures long life
Ideal for Zone, VAV Reheat Coil, Fan Coil, and Baseboard Radiation Applications	Offers a broad range of applications
EPT Rubber Ring for Bubble-Tight Shutoff	Maximizes energy savings
Easy, Field-Replaceable Packing	Shortens repairing time
Actuator can be Field Installed After Piping	Simplifies installation in confined locations
Built-In Return Spring for VA-7010 Series Electric Actuators	Allows the valve to return to normal position when the actuator is de-energized

Table 1: Ordering Code for VG4000 Series Zone Valve with Threaded (Internal BSP) End Connections

Valve Code Number	Size (in.)	Kv	Close-off Pressure* (PSIG)	On/Off	On/Off	On/Off	Floating	0 ~ 10VDC Proportional
				24VAC 50/60Hz	120VAC 50/60Hz	230VAC 50/60Hz	24VAC 50/60Hz	24VAC 50/60Hz
				VA-7010-8001**	VA-7010-8502-C	VA-7010-8503-C	VA-7450-1001**	VA-7452-1001**
Two-Way N.C. (Push-Down-to-Open, PDTO)								
VG4400FC-C	1/2	2.1 ~ 2.2	50 (345kPa)	Yes	Yes	Yes	Yes	Yes
VG4400GC-C	3/4	2.5 ~ 2.6	50 (345kPa)	Yes	Yes	Yes	Yes	Yes
VG4400HC-C	1	3.0 ~ 3.1	50 (345kPa)	Yes	Yes	Yes	Yes	Yes
Three-Way N.C. (Push-Down-to-Open, PDTO)								
VG4800FC-C	1/2	2.1 ~ 2.2	50 (345kPa)	Yes	Yes	Yes	Yes	Yes
VG4800GC-C	3/4	2.5 ~ 2.6	50 (345kPa)	Yes	Yes	Yes	Yes	Yes

* The close-off pressure for three-way mixing valves is 50 psig(345kPa) on the normally closed port and 25 psig (172kPa) on the normally open port.
** Imported types

VA-7010 Series (On/Off Control)

When power is applied to the actuator, the motor drives the gear assembly, pushing the valve stem down against the force of the return spring. When power is removed, the actuator retracts, allowing the return spring to move the valve stem up in the direction of its normal position. Figure 2 illustrates the effect that valve stem movement has on flow.

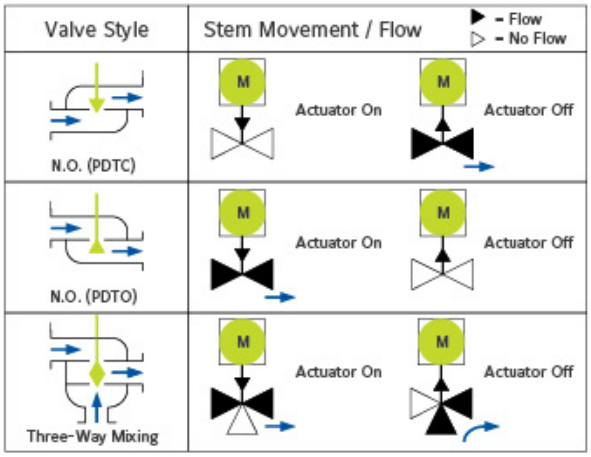


Figure 2: Effect of Valve Stem Movement on Flow

Specifications

Product	VG4000 Series High-Capacity/High-Closeoff Electric Zone Valves				
Models	VG4400FC-C	VG4400GC-C	VG4400HC-C	VG4800FC-C	VG4800GC-C
Body Rating	PN20				
Service**	Hot and Cold Water for HVAC Systems				
Valve Sizes	1/2 in. (DN15)	3/4 in. (DN20)	1 in. (DN25)	1/2 in. (DN15)	3/4 in. (DN20)
Maximum Closeoff Pressure	50 PSIG				
Leakage	0.01% of Maximum Flow; 100% Protection Tested				
End Connections	Threaded (Internal BSP)				
Stroke	3mm				
Body Type	Two-Way PDTO(NC) Two-Way PDTO(NC) Two-Way PDTO(NC) Three-Way Mixing Three-Way Mixing				
Material					
Valve Body	Forged Brass				
Packing Nut and Cage	Brass				
Stem	ANSI 300 Stainless Steel				
Spring	Stainless Steel				
Plug	EPT Rubber				
Packing	Two EPT Rubber O-Rings				
Fluid Temperature Limits	2 ~ 95°C (35-203)				
Ambient Temperature Limits	2 ~ 50°C (35-122)				
Flow Characteristics	On/Off with VA-7010 Series Actuator; Two-way Valves with VA-7480 Series Actuator Approximately Equal Percentage; Three-way Valves with VA-7480 Series Actuator Approximately Linear for Service Port				
Valve Body Shipping Weight, lb (kg):	1/2 in. (DN15 Two-Way) 1.03 (0.47)	3/4 in. (DN20 Two-Way) 0.86 (0.39)	1 in. (DN25 Two-Way) 1.52 (0.69)	1/2 in. (DN15 Three-Way) 1.14 (0.52)	3/4 in. (DN20 Three-Way) 0.95 (0.43)
Actuator Shipping Weight, lb (kg)	VA-7010 Series: 1.10 (0.50) VA-7450 Series: 0.33 (0.15)				

VA-7010 Series Electric Valve Actuator

VA-7010 Electric Valve Actuator with VG4400 Series Valve

Description

The VA-7010 Series Electric Valve Actuators provide a two-position (open/closed) control and can easily be field mounted with a threaded coupling onto VG4400 2-way, VG4800 3-way and VG4500 3-way 4-port zone valves. A lever at the side of the actuator housing can be used to open the mounted valve manually for servicing.

Features

- 120VAC/230VAC line voltage models provide application flexibility
- AC stall type motor ensures quiet operation
- Manual lever allows manual position mode for servicing
- Flat profile design with small side clearance provides mounting close to flat surfaces and saves space
- Actuator can be mounted after the valve body is installed, simplifying installation in confined spaces while allowing application flexibility
- Actuator can be rotated after mounting, providing easier wiring by locating the wiring conduit entry in any direction

Repair Information

If the actuator fails to operate within its specifications, replace the unit. For a replacement actuator, please contact the nearest Johnson Controls® representative.

To Order

Specify the code number
- VA-7010-8502-C – 120VAC On/Off Actuator
- VA-7010-8503-C – 230VAC On/Off Actuator

Specifications

Product	VA-7010 Series Electric Valve Actuator
Power Requirements	VA-7010-8502-C 120 VAC±10%, at 50/60 Hz
	VA-7010-8503-C 230 VAC±10%, at 50/60 Hz
Action Type	On/Off
Type of Motor	Synchronous Stall
Power Consumption	7VA
Minimum Force	20.2 lb (90 N)
Nominal Stroke	0.12 in. (3 mm), Maximum 0.2 in. (5 mm)
Full Stroke Time On	Nominal 10 Seconds
Full Stroke Time Off	Nominal 5 Seconds
Protection	IP20
Ambient Operating Conditions	2 to 50°C (35 to 122) 85% Non-condensing RH
Ambient Storage Conditions	-20 to 65°C (-4 to 149°F) 85% Non-condensing RH
Electrical Connections	18 AWG, 6.7 in. (170mm) Long Wire Leads
Shipping Weight	0.5 kg (1.1 lb)

Globe Valve

VG7000 Globe Valve and VA7

DN15...50, PN16

VG7000 Series Bronze Control Valves are designed primarily to regulate the flow of water and steam in response to the demand of a controller in Heating, Ventilating and Air Conditioning (HVAC) systems.

These valves are available in Push-Down-To-Close (PDTC), Push-Down-To-Open (PDTO), and three-way mixing configurations. Both electric and pneumatic actuators are available for factory or field mounting.

Dimensions (mm)

Body Size	A	B		
		2-way PDTC	2-way PDTO	3-way
DN15	76	21	39	46
DN20	81	24	41	54
DN25	104	29	44	65
DN32	119	34	51	70
DN40	130	55	70	85
DN50	150	53	72	95

Features

DN15 through DN50 bronze valves, in two-way PDTC, PDTO and three-way mixing configurations
Wide range of electric actuators available for all valves
Every valve tested for tight shutoff
Uses Standard Johnson Controls U-cup Packing
Flexible features-and-options ordering template
Standard Bonnet and stem design
Leakage - Brass Trim: 0.01% of Maximum Flow per EN60534-4, Class IV - Stainless Steel Trim: 0.05% of Maximum Flow
Inherent Flow Characteristics Equal Percentage: 2-way Valves Linear: 3-way Valves in compliance with EN 600534
Rangeability 25:1 at 0.25...1 kvs and 100:1 at 1.6...40 kvs In accordance with EN 60534-2-4
Maximum Recommended Operating Pressure Drop 240 kPa for DN15 and DN32 - 200 kPa for DN40 to DN50
Fluid Temperature Operating Limits Valves with - With V-3801 and VA-731x Actuators: 2 °C to 120 °C water / 100 kPa Saturated Steam - With all other Actuators: 2 °C to 140 °C water / 260 kPa Saturated Steam - Valves with Stainless Steel Trim: 2 to 170 °C / 690 kPa Saturated Steam

VG7000 Globe Valve and VA7

DN15...50, PN16

Maximum Close-off Pressures (in kPa), for Valves with Brass Trim and Electric Actuators

Size	VA-731x	VA-715x	VA-77xx	VA-720x	VA-78xx
DN15	1600	1600		-	
DN15	700	1600		-	
DN15	400	1490		-	
DN20	250	950		-	
DN25	-	595		1235	
DN32	-	360		750	
DN40	-	235		480	
DN50	-	145		310	

Maximum Close-off Pressures (in kPa), for Valves with Stainless Steel Trim and Electric Actuators

Size	VA-731x	VA-715x	VA-77xx	VA-720x	VA-78xx
DN15	-	1600		1600	
DN15	-	1600		1600	
DN15	-	930		1600	
DN20	-	595		1220	
DN25	-	370		770	
DN32	-	230		470	
DN40	-	145		300	
DN50	-	90		190	

VG7000 Globe Valve and VA7

DN15...50, PN16

Maximum Close-off Pressures (in kPa), for Valves with Brass Trim and Pneumatic Actuators

Actuator	Valves	2-way PDTC or 3-way Valves with 138 kPa air supply		2-way PDTO or 3-way Valves with 0 kPa air supply	
	Size	Spring Range kPa *			
		21 to 42	63 to 91	21 to 42	63 to 91
V-3801	DN15	1600	1600	580	1600
	DN15	1180	530	165	715
	DN15	670	300	90	405
	DN20	430	190	55	255
V-3000	DN15	1600	1600	1430	1600
	DN15	1600	1100	405	1450
	DN15	1310	620	230	820
	DN20	835	390	145	525
	DN25	520	240	85	315
	DN32	320	145	50	195
	DN40	200	95	35	125
	DN50	130	60	20	85
V-400	DN25	1600	985	400	1275
	DN32	1220	600	240	780
	DN40	785	385	160	495
	DN50	500	250	95	315

Maximum Close-off Pressures (in kPa), for Valves with Stainless Steel Trim and Pneumatic Actuators

Actuator	Valves	2-way PDTC or 3-way Valves with 138 kPa air supply		2-way PDTO or 3-way Valves with 0 kPa air supply	
	Size	Spring Range kPa *			
		21 to 42	63 to 91	21 to 42	63 to 91
V-3000	DN15	1600	1600	1090	1600
	DN15	1600	825	300	1085
	DN15	980	470	170	615
	DN20	630	295	110	395
	DN25	385	180	60	240
	DN32	240	110	35	145
V-400	DN15	1600	1600	1600	1600
	DN15	1600	1600	1345	1600
	DN15	1600	1600	760	1600
	DN20	1600	1175	485	1520
	DN25	1510	740	295	960
	DN32	925	450	185	585
	DN40	595	290	115	370
	DN50	380	185	75	240

Note

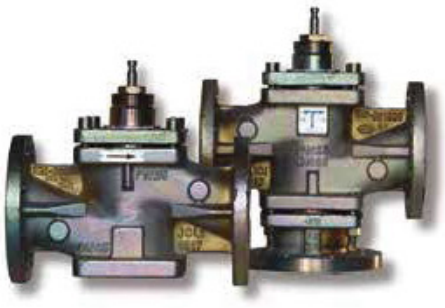
* The recommended spring ranges for use with a V-9502 Positioner are: 21 to 42 kPa for PDTC valves, 63 to 91 kPa for PDTO valves and 63 to 91 kPa for three way valves.

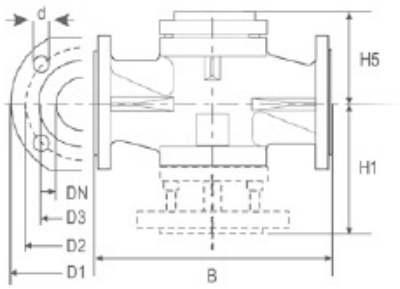
VG8000H

DN15...150, PN25

Description

These flanged valves are primarily designed to regulate the flow of water and steam in response to the demand of a controller, in heating, ventilating and air conditioning systems. A variety of electric and pneumatic actuators are available.





Features

- Nodular cast iron body
- Kvs 0.4...350
- 2-way PDTC (normally open), 3-way mixing and 3-way diverting configurations
- Fluid temperature 2...200 °C, with glycerin cup: -20...200 °C with cooling fins: up to 280 °C
- DIN Flanged

Dimensions in mm

Body Size	B	D1	D2	D3	d	H1	H5	Bolts	Holes
DN15	130	95	65	45	13.5	100	76	M12 x 45	4
DN20	150	105	75	58	13.5	106	76	M12 x 50	4
DN25	160	115	85	68	13.5	106	76	M12 x 50	4
DN32	180	140	100	78	17.5	123	81	M16 x 55	4
DN40	200	150	110	88	17.5	140	78	M16 x 55	4
DN50	230	165	125	102	17.5	145	101	M16 x 60	4
DN65	290	185	145	122	17.5	156	102	M16 x 60	8
DN80	310	200	160	138	17.5	180	108	M16 x 65	8
DN100	350	235	190	162	22	225	136	M20 x 70	8
DN125	400	270	220	188	26	255	155	M24 x 75	8
DN150	480	300	250	218	26	290	175	M24 x 80	8

2-way PDTC (Normally Open) Configuration

Ordering Codes*	Body Size	Kvs	Close-off Pressure kPa							
			FA-2000-741x 2200 N	FA-2000-751x 2400 N	FA-3300-741x 6000 N	RA-3000-732x 3000 N	RA-3100-8226 1700 N	VA1x20** 2000 N	VA1125** 500 N	VA78xx 1000 N
VG82A4S1H	DN15	1.0	–	–	–	–	–	2500	2500	2500
VG82A3S1H	DN15	1.6	–	–	–	–	–	2500	2500	2500
VG82A2S1H	DN15	2.5	–	–	–	–	–	2500	2500	2500
VG82A1S1H	DN15	4.0	–	–	–	–	–	2500	2500	2500
VG82B1S1H	DN20	6.3	–	–	–	–	–	2500	2500	2030
VG82C1S1H	DN25	10	–	–	–	–	–	2500	2500	1360
VG82D1S1H	DN32	16	–	–	–	–	–	2500	2500	660
VG82E1S1H	DN40	25	–	–	–	–	–	1550	2000	370
VG82F1S1H	DN50	40	–	920	–	1300	600	750	1020	–
VG82G1S1N	DN65	63	–	710	–	1010	450	580	750	–
VG82H1S1N	DN80	100	–	330	–	480	200	260	370	–
VG82J1S1N	DN100	160	180	–	740	290	100	140	210	–
VG82K1S1N	DN125	250	110	–	460	170	–	80	120	–
VG82L1S1N	DN150	350	50	–	280	100	–	40	70	–

* For factory mounted valve actuators just add "+M" to the type model number
For ordering a valve with Cooling fin, add suffix "10" to the ordering code: i.e. VG8xxxS1H10
For ordering a valve with Glycerine cup packing, add suffix "20" to the ordering code: i.e. VG8xxxS1H20.
Reduced kvs coefficients are available on request.

** For fluid temperature >140 °C the extension kit VA1000-EP must be mounted. Max-Fluid temperature must not exceed 200 °C.

VG8000H

3-way Mixing Configuration

Ordering Codes*	Body Size	Kvs	Close-off Pressure kPa							
			FA-2000-741x 2200 N	FA-2000-751x 2400 N	FA-3300-741x 6000 N	RA-3000-732x 3000 N	RA-3100-8226 1700 N	VA1x20** 2000 N	VA1125** 500 N	VA78xx 1000 N
VG88A4S1H	DN15	1.0	–	–	–	–	–	2500	2500	2500
VG88A3S1H	DN15	1.6	–	–	–	–	–	2500	2500	2500
VG88A2S1H	DN15	2.5	–	–	–	–	–	2500	2500	2500
VG88A1S1H	DN15	4.0	–	–	–	–	–	2500	2500	2500
VG88B1S1H	DN20	6.3	–	–	–	–	–	2500	2500	2030
VG88C1S1H	DN25	10	–	–	–	–	–	2500	2500	1360
VG88D1S1H	DN32	16	–	–	–	–	–	2500	2500	660
VG88E1S1H	DN40	25	–	–	–	–	–	1550	2000	370
VG88F1S1H	DN50	40	–	920	–	1300	600	750	1020	–
VG88G1S1N	DN65	63	–	710	–	1010	450	580	750	–
VG88H1S1N	DN80	100	–	330	–	480	200	260	370	–
VG88J1S1N	DN100	160	180	–	720	290	100	140	210	–
VG88K1S1N	DN125	250	100	–	450	170	–	80	120	–
VG88L1S1N	DN150	350	50	–	270	100	–	40	70	–

3-way Diverting Configuration

Ordering Codes*	Body Size	Kvs	Close-off Pressure kPa							
			FA-2000-741x 2200 N	FA-2000-751x 2400 N	FA-3300-741x 6000 N	RA-3000-732x 3000 N	RA-3100-8226 1700 N	VA1x20** 2000 N	VA1125** 500 N	VA78xx 1000 N
VG89A4S1H	DN15	1.0	–	–	–	–	–	2500	2500	2500
VG89A3S1H	DN15	1.6	–	–	–	–	–	2500	2500	2500
VG89A2S1H	DN15	2.5	–	–	–	–	–	2500	2500	2500
VG89A1S1H	DN15	4.0	–	–	–	–	–	2500	2500	2500
VG89B1S1H	DN20	6.3	–	–	–	–	–	2500	2500	2030
VG89C1S1H	DN25	10	–	–	–	–	–	2500	2500	1360
VG89D1S1H	DN32	16	–	–	–	–	–	2500	2500	660
VG89E1S1H	DN40	25	–	–	–	–	–	1550	2000	370
VG89F1S1H	DN50	40	–	920	–	1300	600	750	1020	–
VG89G1S1N	DN65	63	–	710	–	1010	450	580	750	–
VG89H1S1N	DN80	100	–	330	–	480	200	260	370	–
VG89J1S1N	DN100	160	180	–	720	290	100	140	210	–
VG89K1S1N	DN125	250	100	–	450	170	–	80	120	–
VG89L1S1N	DN150	350	50	–	270	100	–	40	70	–

* For factory mounted valve actuators just add "+M" to the type model number
For ordering a valve with Cooling fin, add suffix "10" to the ordering code: i.e. VG8xxxS1H10
For ordering a valve with Glycerine cup packing, add suffix "20" to the ordering code: i.e. VG8xxxS1H20.
Reduced kvs coefficients are available on request.

** For fluid temperature >140 °C the extension kit VA1000-EP must be mounted. Max-Fluid temperature must not exceed 200 °C.

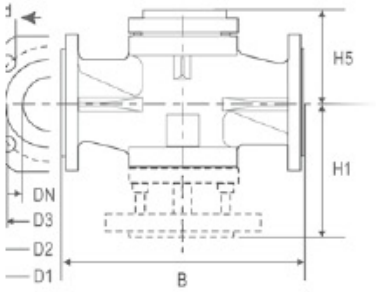
VG8000N

DN15...150, PN16

Description

These electrically and pneumatically operated flanged valves are primarily designed to regulate the flow of water and steam in response to the demand of a controller, in heating, ventilating and air conditioning systems.

A variety of electric and pneumatic actuators are available.



Features

- Nodular cast iron body
- Kvs 0.1...350
- 2-way PDTC (normally open),
  3-way mixing and
  3-way diverting configurations
- Fluid temperature 0...180 °C with Glycerine cup -10...180 °C
- DIN flanged

Dimensions in mm

Body Size	B	D1	D2	D3	d	H1	H5	Bolts	Holes
DN15	130	95	65	45	13.5	100	76	M12 x 45	4
DN20	150	105	75	58	13.5	106	76	M12 x 50	4
DN25	160	115	85	68	13.5	106	76	M12 x 50	4
DN32	180	140	100	78	17.5	123	81	M16 x 55	4
DN40	200	150	110	88	17.5	140	78	M16 x 55	4
DN50	230	165	125	102	17.5	145	101	M16 x 60	4
DN65	290	185	145	122	17.5	156	102	M16 x 60	4
DN80	310	200	160	138	17.5	180	108	M16 x 65	8
DN100	350	220	180	158	17.5	225	136	M16 x 70	8
DN125	400	250	210	188	17.5	255	155	M16 x 75	8
DN150	480	285	240	212	22	290	175	M20 x 75	8

2-way PDTC (Normally Open) Configuration

Ordering Codes*	Body Size	Kvs	Close-off Pressure kPa						
			FA-2000-741x 2400 N	FA-2000-751x 2200 N	FA-3300 6000 N	RA-3100-8226 2700 N	VA1x20** 2000 N	VA1125** 2500 N	VA78xx 1000 N
VG82A4S1N	DN15	1.0	–	–	–	–	1600	1600	1600
VG82A3S1N	DN15	1.6	–	–	–	–	1600	1600	1600
VG82A2S1N	DN15	2.5	–	–	–	–	1600	1600	1600
VG82A1S1N	DN15	4.0	–	–	–	–	1600	1600	1600
VG82B1S1N	DN20	6.3	–	–	–	–	1600	1600	1600
VG82C1S1N	DN25	10	–	–	–	–	1600	1600	1570
VG82D1S1N	DN32	16	–	–	–	–	1600	1600	770
VG82E1S1N	DN40	25	–	–	–	–	1600	1600	440
VG82F1S1N	DN50	40	–	1030	–	650	800	1080	–
VG82G1S1N	DN65	63	–	790	–	500	630	830	–
VG82H1S1N	DN80	100	–	370	–	220	380	390	–
VG82J1S1N	DN100	160	190	–	740	120	160	230	–
VG82K1S1N	DN125	250	110	–	460	–	90	140	–
VG82L1S1N	DN150	350	50	–	280	–	40	75	–

* For factory mounted valve actuators just add "+M" to the actuator ordering code
For ordering a valve with Glycerine cup packing, add suffix "20" to the ordering code: i.e. VG8xxxS1H20.
Teflon free model are available on request.

** For fluid temperature >140 °C the extension kit VA1000-EP must be mounted.

VG8000N

3-way Mixing Configuration

Ordering Codes*	Body Size	Kvs	Close-off Pressure kPa						
			FA-2000-741x 2400 N	FA-2000-751x 2200 N	FA-3300 6000 N	RA-3100-8226 2700 N	VA1x20** 2000 N	VA1125** 2500 N	VA78xx 1000 N
VG88A4S1N	DN15	1.0	–	–	–	–	1600	1600	1600
VG88A3S1N	DN15	1.6	–	–	–	–	1600	1600	1600
VG88A2S1N	DN15	2.5	–	–	–	–	1600	1600	1600
VG88A1S1N	DN15	4.0	–	–	–	–	1600	1600	1600
VG88B1S1N	DN20	6.3	–	–	–	–	1600	1600	1600
VG88C1S1N	DN25	10	–	–	–	–	1600	1600	1570
VG88D1S1N	DN32	16	–	–	–	–	1600	1600	770
VG88E1S1N	DN40	25	–	–	–	–	1600	1600	440
VG88F1S1N	DN50	40	–	1030	–	650	800	1080	–
VG88G1S1N	DN65	63	–	790	–	500	630	830	–
VG88H1S1N	DN80	100	–	370	–	220	380	390	–
VG88J1S1N	DN100	160	190	–	740	120	160	230	–
VG88K1S1N	DN125	250	110	–	460	–	90	140	–
VG88L1S1N	DN150	350	50	–	280	–	40	75	–

3-way Diverting Configuration

Ordering Codes*	Body Size	Kvs	Close-off Pressure kPa						
			FA-2000-741x 2400 N	FA-2000-751x 2200 N	FA-3300 6000 N	RA-3100-8226 2700 N	VA1x20** 2000 N	VA1125** 2500 N	VA78xx 1000 N
VG89A4S1N	DN15	1.0	–	–	–	–	1600	1600	1600
VG89A3S1N	DN15	1.6	–	–	–	–	1600	1600	1600
VG89A2S1N	DN15	2.5	–	–	–	–	1600	1600	1600
VG89A1S1N	DN15	4.0	–	–	–	–	1600	1600	1600
VG89B1S1N	DN20	6.3	–	–	–	–	1600	1600	1600
VG89C1S1N	DN25	10	–	–	–	–	1600	1600	1570
VG89D1S1N	DN32	16	–	–	–	–	1600	1600	770
VG89E1S1N	DN40	25	–	–	–	–	1600	1600	440
VG89F1S1N	DN50	40	–	1030	–	650	800	1080	–
VG89G1S1N	DN65	63	–	790	–	500	630	830	–
VG89H1S1N	DN80	100	–	370	–	220	380	390	–
VG89J1S1N	DN100	160	190	–	740	120	160	230	–
VG89K1S1N	DN125	250	110	–	460	–	90	140	–
VG89L1S1N	DN150	350	50	–	280	–	40	75	–

* For factory mounted valve actuators just add "+M" to the actuator ordering code
For ordering a valve with Glycerine cup packing, add suffix "20" to the ordering code: i.e. VG8xxxS1H20.
Teflon free model are available on request.

** For fluid temperature >140 °C the extension kit VA1000-EP must be mounted.

Figure 1: VF6000 Series Butterfly Valve and Actuator

Butterfly Valve and Actuator

VF6000 Series Butterfly Valve and Actuator

VF6000 Series butterfly valve and VA300 actuator are designed to shutoff or regulate the flow of hot or chilled water in Heating, Ventilation and Air Conditioning (HVAC) systems. This series covers models from DN50 to DN600 with either on/off or modulating output via various actuators.

Actuators and valves are calibrated in the factory and are packed separately for ease of delivery and installation.

Features and Benefits

Groove-type Seat	Reliable sealing, less torque, long service life
Professionally Designed Sealing Surface	Broadside and arc design, suitable for various types of flanges
Mid-plummer-block Spliced Pole	Prevention of lower shaft disengaging from body due to frequent vibration
Manual Clutch	Automatic switching, more convenient and reliable
Safe and Protective Design	Over-torque protection, anti-condensation heater (VA300)
Precise Worm Gear Drive	High transmission torque, self-locking (VA300)
Clear Display of Valve Position	Display of valve position

Options of Valve and Actuator

Butterfly Valve		On/off Actuator		Modulating Actuator	
Size	Model	Option 1	Option 2	Option 1	Option 2
DN50	VF6461AA-C	M9124-AGA-2 & Linkage M9000-618-C	VA301BDC-C	M9124-GGA-2 & Linkage M9000-618-C	VA302CDC-C
DN65	VF6461BA-C	M9132-AGA-2 & Linkage M9000-618-C		M9132-GGA-2 & Linkage M9000-618-C	
DN80	VF6461CA-C	VA302BDCN-C	VA302BDC-C	VA302CDC-C	
DN100	VF6461DA-C				
DN125 to DN600	VF6461EA-C to VF6461PA-C	VA303BDC-C to VA310BDC-C		VA303CDC-C to VA310CDC-C	

Specification

Product		**VF6000 Series Butterfly Valve and Actuator**		
Application		Regulation of hot water and chilled water in HVAC system		
Valve				
Media and Temperature		Water	-10~100°C	For non-continuous flow, temperature can reach 120°C
Size		DN50~DN600		
Close off Pressure		DN≤ 300, 1.6MPa; DN≥ 350, 1.0MPa		
Nominal Pressure		PN16		
Materials	**Body**	Cast Iron, GG25 or GGG40		
	Seat	EPDM		
	Stem	Stainless Steel, 410		
	Disc	Ductile Iron, GGG40, Nylon 11 Coating		
Pipe Connection		Complying to ISO 7005-2		
VA300 Actuator (Please refer to M9000 catalog for M9124/M9132 information)				
Power Supply		220VAC±10% 50/60Hz		
Torque		See Table 3		
Running Time		See Table 3		
Motor Power		See Table 3		
Input Signal		on/off or 4~20mA/0~10V/2~10V		
Output Signal		End Switch or 4~20mA/0~10V/2~10V		
Protective Class		IP67		
Ambient Temperature		-5~65°C		
Worm Gear		Long lubrication and self-locking		
Heater		Anti-condensation		
Casing Materials		Aluminum		
Surface Coating		Epoxy resin		

VF6000 Valve and VA300 Actuator match table

Table 7: On/Off Type Summary

Size DN		Butterfly Valve Model	Actuator Model	Linkage Model	Actuator Torque	Weight Kg
mm	Inch					
50	2"	VF6461AA-C	M9124-AGA-2	M9000-618-C	24	5.3
			VA301BDC-C	–	35	4.9
65	2.5"	VF6461BA-C	M9132-AGA-2	M9000-618-C	32	6.1
			VA301BDC-C	–	35	5.7
80	3"	VF6461CA-C	VA302BDCN-C	–	80	7
			VA302BDC-C	–	80	14.3
100	4"	VF6461DA-C	VA302BDCN-C	–	80	8.3
			VA302BDC-C	–	80	15.6
125	5"	VF6461EA-C	VA303BDC-C	–	200	17.6
150	6"	VF6461FA-C				18.5
200	8"	VF6461GA-C	VA304BDC-C	–	400	34.4
250	10"	VF6461HA-C	VA305BDC-C	–	600	42.1
300	12"	VF6461JA-C	VA306BDC-C	–	800	53.4
350	14"	VF6461KA-C	VA307BDC-C	–	1000	69.7
400	16"	VF6461LA-C	VA308BDC-C	–	1500	95.1
450	18"	VF6461MA-C	VA309BDC-C	–	2000	115.1
500	20"	VF6461NA-C				160.1
600	24"	VF6461PA-C	VA310BDC-C	–	3000	275.1

Table 8: Modulating Type Summary

Size DN		Butterfly Valve Model	Actuator Model	Linkage Model	Actuator Torque	Weight Kg
mm	Inch					
50	2"	VF6461AA-C	M9124-GGA-2	M9000-618-C	24	4.9
			VA302CDC-C	–	80	13.3
65	2.5"	VF6461BA-C	M9132-GGA-2	M9000-618-C	32	5.7
			VA302CDC-C	–	80	14.1
80	3"	VF6461CA-C	VA302CDC-C	–	80	14.3
100	4"	VF6461DA-C				15.6
125	5"	VF6461EA-C	VA303CDC-C	–	200	17.6
150	6"	VF6461FA-C				18.5
200	8"	VF6461GA-C	VA304CDC-C	–	400	34.4
250	10"	VF6461HA-C	VA305CDC-C	–	600	42.1
300	12"	VF6461JA-C	VA306CDC-C	–	800	53.4
350	14"	VF6461KA-C	VA307CDC-C	–	1000	69.7
400	16"	VF6461LA-C	VA308CDC-C	–	1500	95.1
450	18"	VF6461MA-C	VA309CDC-C	–	2000	115.1
400	16"	VF6461LA-C				160.1
600	24"	VF6461PA-C	VA310CDC-C	–	3000	275.1

Balancing Valve and Actuator

Pressure Independent Balancing and Control Valve - VPA series
Dynamic Balancing Valve and VAP Actuator

Features

1. Pressure Independent Balancing and Control Valve includes two functional control elements: Dynamic Balancing Valve and Motorized Actuator. Dynamic Balancing Valve senses and controls the pressure/flow. Actuator controls the valve.
2. The maximum flow of the VPA valve can be set according to the level required. The flow can be set easily by the actuator potentiometer.
3. Compared to an external tube, the built-in balancing tube has a more compact structure that helps it avoid damage during shipping and installation.
4. The valve body is made of ductile iron material, with anticorrosion treatment on the surface.
5. High close-off pressure with very low leakage rate.
6. Linear actuator with high control accuracy provides the equal percentage flow curve.
7. Actuator has manual function that allows for manual positioning of the valve.


DN25-40


DN50-65


DN80-150

Technical Data

Rated Pressure	PN16
Connection	DN25-40: Internal thread ISO7/1(Rp), DN50-150: Flange ISO7005-2
Body Tappings	ISO7-1 R1/4
Leakage Rate	0.05% of Kvs
Media	Water, less than 50% glycol
Maximum Operating Pressure	1.6MPa
Stroke	20mm (DN25~DN65), 40mm (DN80~DN150)
Protection Class	IP54
Power Supply	24VAC±15%, 50/60Hz
Power Consumption	VAP500-24-C/VAP1000-24-C:7.5VA, VAP3000-24-C:15VA
Media Temperature	-10°C~+120°C

VPA Series Balancing Valve

DN (mm)	in.	Model.	PN	Flow Rate			Stroke (mm)	Actuator	ΔP Range (kPa)
				(m³/h)	l/s	GPM			
25	1"	VPA025-C	16	2	0.55	8.7	20	VPA500-24-C	50-400
32	1-1/4"	VPA032-C	16	3.5	0.96	15.2	20	VPA500-24-C	50-400
40	1-1/2"	VPA040-C	16	6	1.64	26.1	20	VPA500-24-C	50-400
50	2"	VPA050-C	16	13	3.64	57	20	VPA1000-24-C	35-400
65	2-1/2"	VPA065-C	16	21	5.8	92	20	VPA1000-24-C	35-400
80	3"	VPA080-C	16	28	7.8	123	40	VPA3000-24-C	35-400
100	4"	VPA100-C	16	50	13.9	219	40	VPA3000-24-C	35-400
125	5"	VPA125-C	16	90	25.0	396	40	VPA3000-24-C	35-400
150	6"	VPA150-C	16	145	40.3	638	40	VPA3000-24-C	35-400

Note: Valve closes when valve stem retracts.

VPA Series Actuator

Actuator Model	Force	Power Supply	Control Signal	Manual Function	Running Speed	Weight (KG)
VPA500-24-C	500N	24VAC	0(2)~10V,0(4)~20mA	Yes	3.85s/mm(50Hz)	1.7
VPA1000-24-C	1000N	24VAC	0(2)~10V,0(4)~20mA	Yes	3.85s/mm(50Hz)	1.7
VPA3000-24-C	3000N	24VAC	0(2)~10V,0(4)~20mA	Yes	3.2s/mm(50Hz)	5.2

Note: LED screen for the control and feedback signal display.

VPS Static Balancing Valve

The Static Balancing Valve is also called double regulating valve. Primarily used in injection or other circuits requiring a double regulating valve for systems balancing. The Static Balancing Valve offers an accuracy of ±5% for precise flow regulation. The valve is designed in accordance with BS 7350.

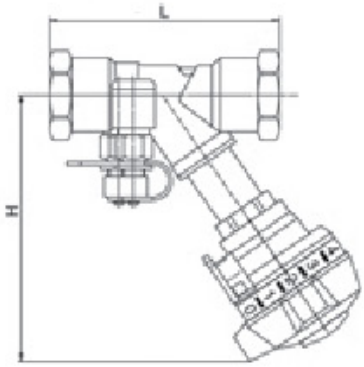
VPS Static Balancing Valve, DN15-50

Specification

Y-pattern valves having characterized throttling disks tend towards equal percentage performance, as they are fitted with an integral square edged entrance orifice plate and insertion test points. The double regulating feature allows the valve to be set with an Allen key. Operation of the valve is by means of the Microset hand wheel. All valves operate from close to fully open with 4 complete turns of the handwheel. The digit in the outer window indicates tenths of a turn.

End Connection

DN15-50: Apply to ISO7-1



Pressure/Temperature Ratings

Temperature (°C)	-10-100	110	120
Pressure (Bar)	25	23.4	21.8

Model/Dimensions

Model	DN Size	Dimensions (mm)		Flow Rate (Kv)
		L	H	
VPS015-C	DN15	87	113	1.72
VPS020-C	DN20	96	114	2.97
VPS025-C	DN25	100	135	4.75
VPS032-C	DN42	114	136	10.25
VPS040-C	DN40	125	151	16.83
VPS050-C	DN50	146	152	27.26

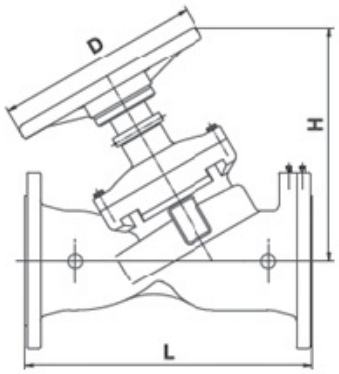
Materials

Body	Bronze
Disc	CW602N Brass
Stem	CW602N Brass
Bonnet (DN15-32)	CW602N Brass
Bonnet (DN40-50)	Bronze
O Ring	EPDM
Orifice Insert	CW602N Brass
Hand Wheel	ABS
Test Connectors	CW602N Brass+PTFE
Indicator	ABS

VPS Static Balancing Valve, DN65-300

Specification

Y-pattern valves having an integral orifice plate tend towards equal percentage performance. The 'Microset' handwheel indicates the final valve setting. The relationship between pressure drop and flow is not altered by the handwheel setting. DN65-150 valves operate from close to fully open with 8 complete turns of the handwheel, 12 turns for DN200/DN250 and 18 turns for DN300. The digit in the outer window indicates tenths of a turn.



Pressure/Temperature Ratings

Temperature (°C)	-10-120
Pressure (Bar)	16
Test Pressure (Bar)	Shell: 24
	Seat: 17.6

End Connection

Apply to ISO7005-2
Body tappings: BSPT 1/4

Pressure/Temperature Ratings

Body	Ductile Iron
Bonnet	Ductile Iron
Stem	Stainless Steel
Disc	EPDM coated Ductile Iron
Indicator	ABS
Hand Wheel	Ductile Iron
Test Connectors	CW602N Brass
Orifice Insert	CW617N Brass
Packing	EPDM+PTFE

Model/Dimensions

Model	DN Size	Dimensions (mm)			Flow Rate (Kv)
		L	H	D	
VPS065-C	DN65	290	265	200	104
VPS080-C	DN80	310	270	200	112
VPS100-C	DN100	350	310	240	162
VPS125-C	DN125	400	340	290	254
VPS150-C	DN150	480	340	290	334
VPS200-C	DN200	600	537	350	535
VPS250-C	DN250	730	570	420	1099
VPS300-C	DN300	850	690	420	1588

VPF Motorized Balancing Valve for FCU

VPF series dynamic balancing valves are mainly used in the FCU system to control the flow rate, and also to balance the water system. The motorized dynamic balancing valve includes the motorized actuator and dynamic balancing valve.

Function of actuator: Open or close the VPF valve according to the control signal from the thermostat.

Function of valve: Balance the pressure to keep the flow constant while the valve is in the working pressure range.

The flow can be set to the designed flow according to the terminal unit before delivery and the flow can be kept constant according to the designed flow.

VPF Dynamic Balancing Valve

VPF series Valve and VA-7078-23 Actuator

Application

Motorized dynamic balancing valves are used in the FCU system or as zone valve controls. VA-7078-23 actuator is used with VPF series balancing valve for On/Off control of the fan coil unit and the flow range is 0.43~1.76m³/h.

Features

- Dynamic balance and motorized function are combined.
- Uses existing Johnson Controls actuator VA-7078-23.
- Valve and Actuator are individually packed, making delivery and installation easy.

Technical Specification

Valve		
DN Size		DN15-25
Rated Pressure		25bar
Close-off Pressure		250kPA
Media Temperature		0-110°C
Material	Valve body	Brass
	Valve Core	Brass
	Sealing	EPDM
End Connection		ISO 7-1
Flow Rate		See Model table
Flow Accuracy		± 5%
Valve Stroke		2.7mm-3.2mm
Dimension		See Valve dimension drawing
Actuator (VA-7078-23)		
Power Supply		230 VAC ± 10%(50/60 Hz)
Control Mode		Open/Close
Action		NC (stem retracts when energized)
Power Consumption		-Continuous 2.5 W; -Start up 150 mA
Nominal Force		125 N
Running Time		3.5 min
Electrical Connection		2 m PVC, 2 x 0.75 mm²
Protection		IP54 (EN60529)
Connection to Valves		M30 x 1.5
Ambient Operating Condition		-5 to +50°C, non condensing
Ambient Storage Condition		-25 to +70°C, non condensing
Max Valve Operating Temperature		100°C
Weight		0.2kg (excl. packaging)
Agency Listings		CE, EMC 2004/108/EC, Low voltage 2006/95/EC

Model	DN Size	Flow Rate (m3/h)	Differential Pressure (kPa)
VPF015L02-C	DN15	0.48	20-150
VPF015L05-C		0.70	
VPF015L08-C		1.08	
VPF020L02-C	DN120	0.70	20-150
VPF020L03-C		0.80	
VPF020L04-C		0.94	
VPF020L05-C		1.08	
VPF020L06-C		1.16	30-200
VPF020L07-C		1.24	
VPF020L08-C		1.33	
VPF020L10-C		1.51	
VPF025L04-C	DN25	0.94	20-150
VPF025L05-C		1.08	
VPF025L06-C		1.16	30-200
VPF025H08-C		1.33	
VPF025H10-C		1.51	

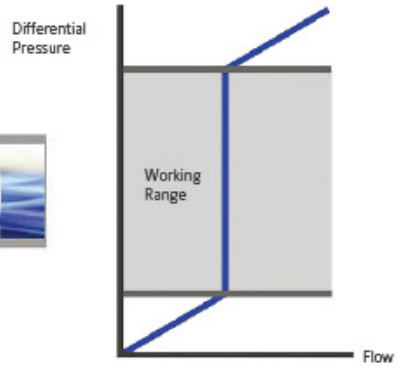
VPD Dynamic Balancing Valve

The VPD dynamic balancing valves are designed as a constant flow valve which provides easy and reliable balancing of the system, regardless of any fluctuations in the differential pressure of the system.

Common applications for dynamic balancing valves include terminal unit or branch balancing, air handling unit flow control in common HVAC system, multiple chillers or pump balancing system in high-rise buildings.

Principle

Fig.1



In working the differential pressure range, the cartridge will move and change the flow area to keep the flow constant when the system pressure fluctuates. (See Fig.1)

Note: The small size dynamic balancing valve has one cartridge while the large size valve has one or several cartridges, to set the different flowrate by different cartridges.

VPD Constant Flow Rate Dynamic Balancing Valve DN15-40

DN Size	DN15-DN40	Rated Pressure	PN25	Accuracy	± 5%
Fluid	Water	Fluid Temperature	0~110°C	Material	**Valve Body** : Brass **Spring** : Stainless Steel **Sealing** : EPDM

Sizing Table

Model	DN Size	Differential Pressure (KPa)	Flow (m^3/h)
VPD015L01-C	DN15	15-150	0.65
VPD015L03-C			0.85
VPD015L05-C			1.2
VPD015L06-C			1.35
VPD015M07-C		20-200	1.55
VPD020L04-C	DN20	15-150	0.95
VPD020L05-C			1.2
VPD020L06-C			1.35
VPD020M07-C		20-200	1.55
VPD020H09-C		30-300	1.85
VPD020H10-C			2.05
VPD020H11-C			2.3
VPD020H12-C	DN20	30-300	2.55
VPD020L13-C			2.75
VPD025L03-C	DN25	15-150	0.85
VPD025L05-C			1.2
VPD025L06-C			1.35
VPD025M07-C		20-200	1.55
VPD025M08-C			1.75
VPD025H10-C		30-300	2.05
VPD025H11-C			2.3
VPD025H12-C			2.55
VPD025H13-C			2.75
VPD032L10-C	DN32	15-150	2.1
VPD032L12-C	DN32	30-300	2.65
VPD032M14-C		20-200	2.95
VPD032M15-C			3.45
VPD032H17-C		30-300	3.82
VPD032H18-C			4.57
VPD040L14-C	DN40	15-150	3.13
VPD040M15-C		20-200	3.45
VPD040M16-C			3.67
VPD040H17-C		30-300	3.82
VPD040H18-C			4.57
VPD040H19-C			4.82

VPD Constant Flow Rate Dynamic Balancing Valve DN50-500

DN Size	DN50-DN500	Rated Pressure	PN25	Accuracy	± 5%
Fluid	Water	Fluid Temperature	0~110°C	Material	**Valve Body :** Ductile Iron QT450-10; Standard, GB/T1348-2009 **Cartridge :** Stainless Steel, 304; Standard, ASTM240/240M **Spring :** 06Cr19Ni9; Standard, GB/T 24588 **Sealing :** EPDM

Sizing Table

Model	DN Size	Differential Pressure (KPa)	Flow (m^3/h)
VPD050L01-C	DN50	15-150	5.5
VPD050L02-C			6.6
VPD050L03-C			7.7
VPD050L04-C			8.6
VPD050L05-C			9.5
VPD050L06-C			10.4
VPD050M07-C		20-210	11.3
VPD050M08-C			12.4
VPD050H09-C		33-330	14.1
VPD050H10-C			15.3
VPD050H11-C			16.0
VPD050H12-C			17.2
VPD050H13-C			18.5
VPD050H14-C			20.0
VPD065L02-C	DN65	15-150	6.6
VPD065L03-C			7.7
VPD065L04-C			8.6
VPD065L05-C			9.5
VPD065L06-C			10.4
VPD065M07-C		22-210	11.3
VPD065M08-C			12.4
VPD065H10-C		33-330	14.1
VPD065H11-C			15.3
VPD065H12-C			16.0
VPD065H13-C			17.2
VPD065H14-C			18.5
VPD065H15-C			20.0
VPD065H16-C			21.5
VPD080L03-C	DN80	15-150	7.7
VPD080L04-C			8.6
VPD080L05-C			9.5
VPD080L06-C			10.4
VPD080L07-C			11.3
VPD080L08-C			12.2
VPD080M08-C		22-210	13.5
VPD080M09-C			14.6
VPD080H10-C		33-330	15.3
VPD080H11-C			16.0
VPD080H12-C	DN80	33-330	17.2
VPD080H13-C			18.5
VPD080H14-C			20.0
VPD080H15-C			21.5
VPD080H16-C			23.0
VPD100L06-C	DN100	15-150	10.8
VPD100L07-C			12.0
VPD100L08-C			13.4
VPD100L09-C			15.0
VPD100L10-C			16.4
VPD100L11-C			18.0
VPD100L12-C			19.5
VPD100L13-C			21.0
VPD100L14-C			23.0
VPD100M16-C		22-210	26.0
VPD100M17-C			28.2
VPD100M18-C			30.6
VPD100H20-C		33-330	33.8
VPD100H21-C			36.0
VPD100H22-C			38.5
VPD100H23-C			41.0
VPD100H24-C			43.0
VPD100H25-C			46.0
VPD100J26-C		35-250	48.0
VPD100J27-C			51.0
VPD100J28-C			54.0
VPD125H13-C	DN125	15-150	24.0
VPD125H14-C			28.0
VPD125L15-C			32.0
VPD125L16-C			34.0
VPD125L17-C			36.0
VPD125L18-C			38.0
VPD125M19-C		22-210	40.0
VPD125M20-C			42.0
VPD125M21-C			44.0
VPD125M22-C			46.0
VPD125M23-C			48.0
VPD125M24-C			50.0
VPD125M25-C	DN125	22-210	52.0
VPD125M26-C			54.0
VPD125M27-C			56.0
VPD125M28-C			58.0
VPD125M29-C			60.0
VPD125H30-C		33-330	63.0
VPD125H31-C			66.0
VPD125J32-C		35-250	70.0
VPD125J33-C			75.0
VPD125J34-C			80.0
VPD125J35-C			85.0
VPD125J36-C			90.0
VPD150L17-C	DN150	15-150	35.0
VPD150L18-C			40.0
VPD150L19-C			44.0
VPD150L20-C			47.0
VPD150L21-C			50.0
VPD150L22-C			53.0
VPD150L23-C			56.0
VPD150M24-C		22-210	58.0
VPD150M25-C			62.0
VPD150M26-C			66.0
VPD150M27-C			70.0
VPD150M28-C			73.0
VPD150M29-C			76.0
VPD150M30-C			79.0
VPD150H31-C		33-330	83.0
VPD150H32-C			86.0
VPD150H33-C			90.0
VPD150H34-C			92.0
VPD150J36-C		35-250	100.0
VPD150J37-C			110.0
VPD150J38-C			120.0
VPD150J39-C			130.0

Sizing Table

Model	DN Size	Differential Pressure (KPa)	Flow (m^3/h)
VPD200L28-C	DN200	15-150	75.0
VPD200L29-C			80.0
VPD200L30-C			85.0
VPD200L31-C			90.0
VPD200L32-C			95.0
VPD200L33-C			100.0
VPD200M35-C		22-210	110.0
VPD200M36-C			117.0
VPD200J37-C			124.0
VPD200J38-C			130.0
VPD200M39-C			136.0
VPD200H41-C		33-330	150.0
VPD200H42-C			156.0
VPD200H44-C			161.0
VPD200J47-C		35-250	175.0
VPD200J48-C			185.0
VPD200J49-C			195.0
VPD200J50-C			205.0
VPD200J51-C			215.0
VPD200J52-C			225.0
VPD250L35-C	DN250	15-150	110.0
VPD250L36-C			120.0
VPD250L37-C			130.0
VPD250L38-C			140.0
VPD250L39-C			150.0
VPD250L40-C			160.0
VPD250L41-C			170.0
VPD250M42-C		22-210	175.0
VPD250M43-C			182.0
VPD250M44-C			189.0
VPD250M45-C			197.0
VPD250M46-C			205.0
VPD250M47-C			212.0
VPD250M48-C			222.0
VPD250H49-C		33-330	230.0
VPD250H50-C			238.0
VPD250H51-C			245.0

Model	DN Size	Differential Pressure (KPa)	Flow (m^3/h)
VPD250H52-C	DN250	33-330	253.0
VPD080H54-C		35-250	275.0
VPD080H55-C			290.0
VPD080H56-C			305.0
VPD080H57-C			330.0
VPD100L58-C			345.0
VPD100L49-C	DN300	22-210	250.0
VPD100L50-C			260.0
VPD100L51-C			270.0
VPD100L52-C			280.0
VPD100L53-C			290.0
VPD100L54-C			300.0
VPD100L55-C			310.0
VPD100L56-C		33-330	315.0
VPD100M57-C			325.0
VPD100M58-C			335.0
VPD100M59-C			345.0
VPD100H60-C		35-250	365.0
VPD100H61-C			385.0
VPD100H62-C			405.0
VPD100H63-C			425.0
VPD100H64-C			445.0
VPD100H65-C			465.0
VPD100J66-C			485.0
VPD100J53-C	DN350	22-210	340.0
VPD100J54-C			360.0
VPD125H55-C			380.0
VPD125H56-C			400.0
VPD125L58-C		33-330	430.0
VPD125L59-C			445.0
VPD125L60-C			460.0
VPD125L61-C		35-250	480.0
VPD125M62-C			510.0
VPD125M63-C			540.0
VPD125M64-C			570.0
VPD125M65-C			600.0

Model	DN Size	Differential Pressure (KPa)	Flow (m^3/h)
VPD400M54-C	DN400	22-210	360.0
VPD400M55-C			380.0
VPD400M57-C			410.0
VPD400M59-C			430.0
VPD400M60-C			445.0
VPD400M62-C			475.0
VPD400M64-C			505.0
VPD400H65-C		33-330	520.0
VPD400H66-C			540.0
VPD400H67-C			560.0
VPD400H68-C			575.0
VPD400J69-C		35-250	600.0
VPD400J70-C			650.0
VPD400J71-C			700.0
VPD400J72-C			750.0
VPD450M59-C	DN450	22-210	470.0
VPD450M60-C			500.0
VPD450M61-C			525.0
VPD450M62-C			550.0
VPD450H63-C		33-330	570.0
VPD450H64-C			600.0
VPD450H65-C			630.0
VPD450H66-C			660.0
VPD450H67-C			690.0
VPD450J69-C		35-250	750.0
VPD450J70-C			800.0
VPD450J71-C			850.0
VPD450J72-C			900.0
VPD450J73-C			950.0
VPD500H72-C	DN500	33-330	810.0
VPD500H73-C			830.0
VPD500J74-C		35-250	860.0
VPD500J75-C			930.0
VPD500J76-C			1000.0
VPD500J77-C			1080.0
VPD500J78-C			1160.0

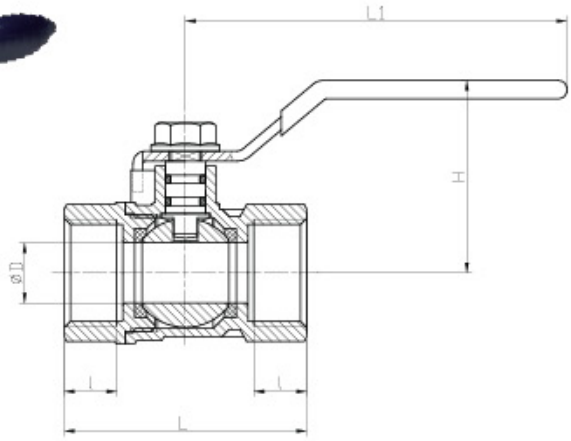
Manual Valve

Manual valve is the mechanical valve controlled by a hand lever or worm gear. The manual valve can provide flow direction control, diversion, throttle, overflow control and pressure release. The main application is hot/cold water control in the HVAC system, water supply and drainage system.

Manual valves include a number of basic types such as gate valve, ball valve, butterfly valve, Y strainer, check valve and stop valve etc.

Ball Valve

Ball valve is in accordance with:
Design standard: GB/T 8467-2008
Test standard: GB/T 13927-2008
Screw connection: ISO7/1
Structure standard: GB/T 12221-2005



Technical Specification and Material

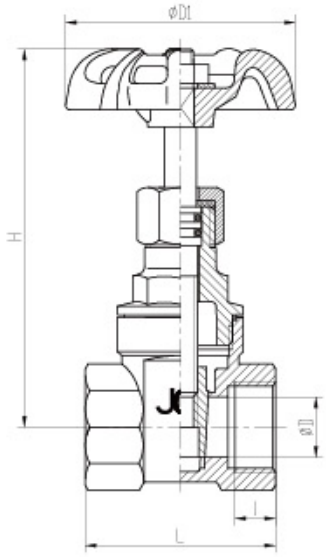
Model	Rated Pressure PN	Temperature /°C	Media	Material		
				Valve body,bonnet,stem	Seat	Sealing(o-ring)
VHBV	16	-20~120	Water	HPb59-1	PTFE	NBR

Dimensions (mm) and Weight

Model	DN	Thread	L	D	l	L1	H	Weight(g)
VHBV015LBB-C	15	Rp½	53	12.7	11.5	84	41.5	188
VHBV020LBB-C	20	Rp¾	60	15	13	94.5	49	280
VHBV025LBB-C	25	Rp1	71	20	15	94.5	51	397.5
VHBV032LBB-C	32	Rp1¼	80	25	16	120	58.5	586
VHBV040LBB-C	40	Rp1½	86	32	16.5	120	62.5	740.5
VHBV050LBB-C	50	Rp2	104	40	17	140	78.5	1375

Gate Valve

Gate valve is in accordance with:
Design standard: GB/T 8467-2008
Test standard: GB/T 13927-2008
Screw connection: ISO7/1
Structure standard: GB/T 12221-2005



Technical Specification and Material

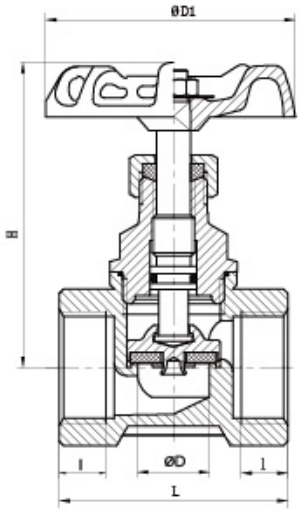
Model	Rated Pressure PN	Temperature /°C	Media	Material		
				Valve body, bonnet, stem	Sealing(O-shape), packing	Sealing(o-ring)
VHGV	16	-20~120	Water	HPb59-1	PTFE	NBR

Dimensions (mm)/Flow and Weight

Model	DN	Thread	L	D	I	D1	H	Weight(g)
VHGV015WBB-C	15	Rp½	42	13	8	53	69	233
VHGV020WBB-C	20	Rp¾	45	17	10.5	53	75	284
VHGV025WBB-C	25	Rp1	54.5	21	12.5	59	91	468
VHGV032WBB-C	32	Rp1¼	56.3	27	14.5	71	102	674
VHGV040WBB-C	40	Rp1½	62	34	15	77	115	919
VHGV050WBB-C	50	Rp2	68	45	16.5	77	132	1323

Stop Valve

Stop valve is in accordance with:
Design standard: GB/T 8467-2008
Test standard: GB/T 13927-2008
Screw connection: ISO7/1
Structure standard: GB/T 12221-2005



Technical Specification and Material

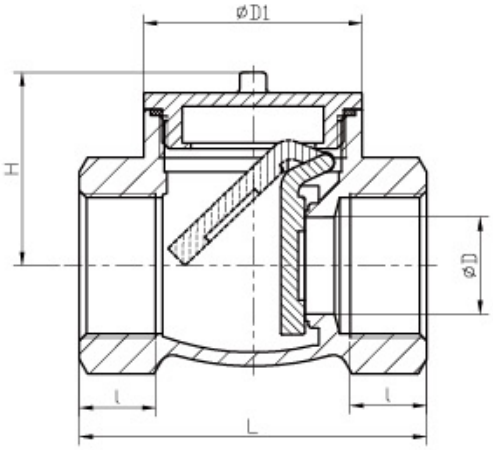
Model	Rated Pressure PN	Temperature /°C	Media	Material		
				Valve body, bonnet, stem, disc	Sealing(□-shape)	Sealing(o-ring)
VHSV	16	-20~120	Water	HPb59-1	PTFE	NBR

Dimensions (mm)/Flow and Weight

Model	DN	Thread	L	D	H	D1	Weight(g)
VHSV015WBB-C	15	Rp½	45	13	68	53	249
VHSV020WBB-C	20	Rp¾	54	17	72	59	348.5
VHSV025WBB-C	25	Rp1	66	22	83	71	509
VHSV032WBB-C	32	Rp1¼	76	27	98	78	750
VHSV040WBB-C	40	Rp1½	82	32	116	97	1112
VHSV050WBB-C	50	Rp2	104	43	123	108	1843

Check Valve

Check valve is in accordance with:
Design standard: GB/T 8467-2008
Test standard: GB/T 13927-2008
Screw connection: ISO7/1
Structure standard: GB/T 12221-2005



Technical Specification and Material

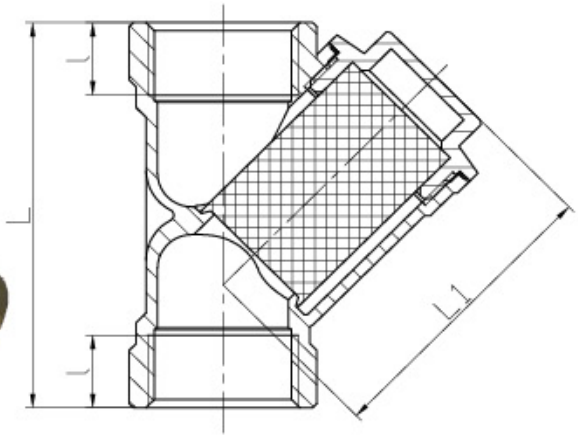
Model	Rated Pressure PN	Temperature /°C	Media	Material	
				Valve body,bonnet,disc	Sealing(□-shape)
VHCV	16	-20~120	Water	HPb59-1	PTFE

Dimensions (mm)/Flow and Weight

Model	DN	Thread	L	D	I	D1	H	Weight(g)
VHCV015NBB-C	15	Rp½	50	14	10	32.5	28	166
VHCV020NBB-C	20	Rp¾	60	19	12	39	32.5	247
VHCV025NBB-C	25	Rp1	74	25	14	46	44	452
VHCV032NBB-C	32	Rp1¼	84	30	16	55	55	750
VHCV040NBB-C	40	Rp1½	94	36	17	63	62	980
VHCV050NBB-C	50	Rp2	114	46	18	74	73	1500

Strainer

Strainer is in accordance with:
Design standard: GB/T 12245-2006
Test standard: GB/T 13927-2008
Screw connection: ISO7/1
Structure standard: GB/T 12221-2005



Technical Specification and Material

Model	Rated Pressure PN	Temperature /°C	Media	Material		
				Valve body,bonnet	Sealing	Screen
VHST	16	-20~120	Water	HPb59-1	PTFE	SS301

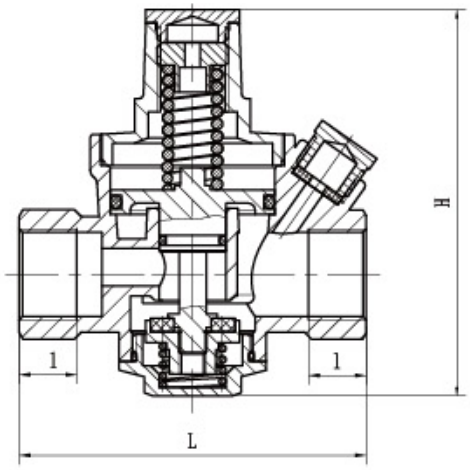
Dimensions (mm)/Flow and Weight

Model	DN	Thread	L	L1	l	MeshNumber	Mesh size, dia	Weight(g)
VHST015NBB-C	15	Rp½	55.5	48	11	30	-	160
VHST020NBB-C	20	Rp¾	69	53	13	30	-	203
VHST025NBB-C	25	Rp1	81	68	15	30	-	362
VHST032NBB-C	32	Rp1¼	92	82	17	-	1.25mm	566
VHST040NBB-C	40	Rp1½	102	88	18	-	1.25mm	840
VHST050NBB-C	50	Rp2	124	104	20	-	1.25mm	1519.5

Pressure Relieve Valve

Pressure relieve valve is in accordance with:

Design standard: GB/T 12245-2006
Test standard: GB/T 13927-2008
Screw connection: ISO7/1
Structure standard: GB/T 12221-2005



Technical Specification and Material

Model	Rated Pressure PN	Temperature /°C	Media	Max. inlet pressure	Outlet pressure range	Factory set pressure	Material		
							Valve body, bonnet, disc	Spring	Sealing (o-ring)
VHPR	16	-20~120	Water	16bar	1-6bar	3±0.5bar	HPb59-1	SS304	NBR

Dimensions (mm) and Weight

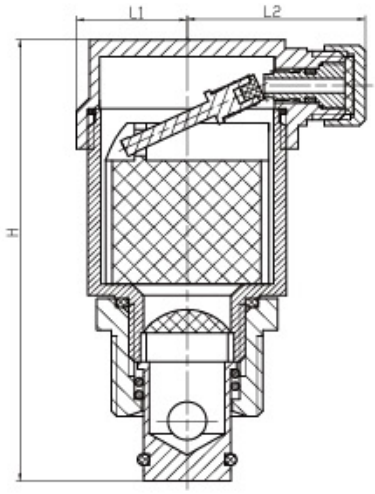
Model	DN	Thread	L	l	H	Weight(g)
VHPR015NBB-C	15	Rp½	78	13	93	493
VHPR020NBB-C	20	Rp¾	80	13	93	580
VHPR025NBB-C	25	Rp1	87	13.5	115	820
VHPR032NBB-C	32	Rp1¼	90.5	14	118	960
VHPR040NBB-C	40	Rp1½	103	15	151	2108
VHPR050NBB-C	50	Rp2	118	20	180	3235

Exhaust Valve

Exhaust valve is a valve typically used in HVAC system to eliminate air in system automatically

Exhaust valve can avoid:
Oxidation corrosion in system pump cavitation
Noise in pipe

Exhaust valve is in accordance with:
Test standard: GB/T 13927-2008
Screw connection: BS21
Structure standard: GB/T12221-2005
Leakage level: A of GB/T13927-2008



Technical Specification and Material

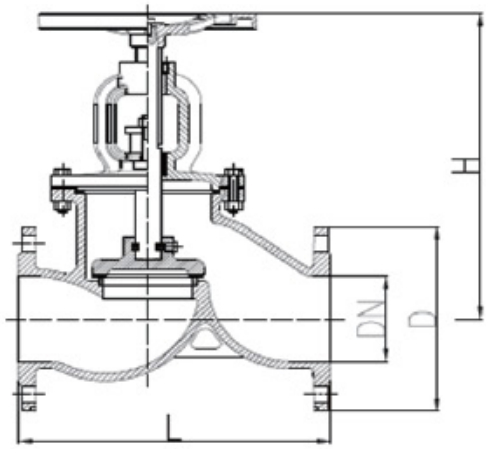
Model	Rated Pressure PN	Temperature /°C	Media	Material			Max.exhaust pressure
				Valve body,bonnet	Sealing	Screen,spring	
VHEV	16	-20~120	Water	HPb59-1	NBR	SS304	2.5bar

Dimensions (mm) and Weight

Model	DN	Thread	L1	L2	H	Weight(g)
VHEV015NBB-C	15	PT½	19	30	71.5	169.5
VHEV020NBB-C	20	PT¾	19	30	71.5	187.5
VHEV025NBB-C	25	PT1	19	30	71.5	254

Stop Valve

Stop valve is in accordance with:
Design standard: GB/T 12233
Flange connection: ISO7005-2
Structure standard: GB/T 12221-1
Test standard: GB/T 13927



Technical Specification

Model	Rated Pressure PN	Temperature /°C	Media	Material				
				Valve Body/Bonnet	Valve Stem	Seat Sealing	Disc Sealing	Packing
VHSV	16	-10~120°C	Water	Ductile iron	Stainless steel	Copper alloy	Deposited copper alloy	Graphite

Dimensions (mm) and Weight (kg)

Model	DN	L	H	D	Weight (kg)
VHSV065WFB-C	65	290	280	185	15.88
VHSV080WFB-C	80	310	330	200	22.16
VHSV100WFB-C	100	350	365	220	31.48
VHSV150WFB-C	150	480	435	285	51.6
VHSV200WFB-C	200	600	520	340	90

Butterfly Valve

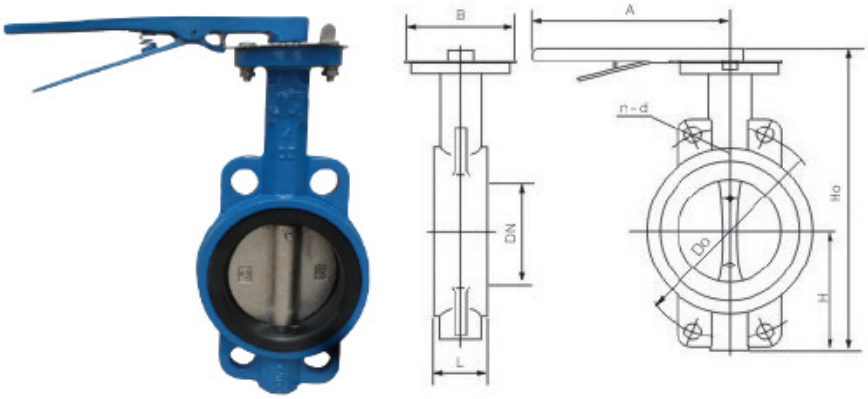
Technical Specification

Model	Rated Pressure PN	Temperature /°C	Media	Material			
				Valve Body/Valve Disc	Valve Stem	Sealing	Packing
VHBF	16	0~80°C	Water	Ductile iron	Stainless steel 2Cr13	EPDM	NBR

1. Handle Wafer Type Butterfly Valve

Butterfly valve is in accordance with:

Design standard: GB/T 12238
Flange connection: ISO7005-2
Structure standard: GB/T 12221
Test standard: GB/T 13927



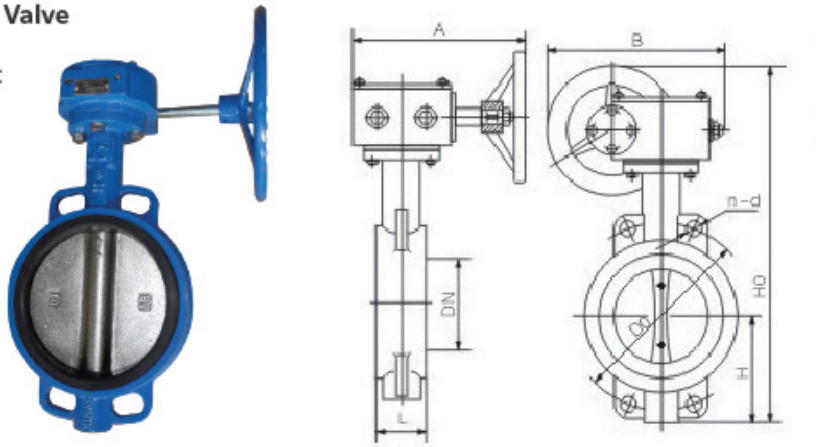
Dimensions (mm) and Weight (kg)

Model	DN	A	B	L	H	H_o	D_o	n-d	Weight (kg)
VHBF050LWB-C	50	220	77	42	81	274	120	4- Ø23	3.15
VHBF065LWB-C	65	220	77	44	89	296	136.2	4- Ø26.5	3.58
VHBF080LWB-C	80	220	77	45	97	313	160	8- Ø19	4.34
VHBF100LWB-C	100	260	92	52	113	348	185	4- Ø24.5	5.5
VHBF125LWB-C	125	260	92	54	123	372	215	4- Ø24	7.26
VHBF150LWB-C	150	260	92	55	149	415	238	4- Ø25	8.74
VHBF200LWB-C	200	335	115	60	179	488	295	4- Ø25	14.1
VHBF250LWB-C	250	335	115	65	205	545	357	4- Ø29	20.1
VHBF300LWB-C	300	500	140	76	247	628	407	4- Ø31	33.4

2. Worm Gear Wafer Type Butterfly Valve

Butterfly valve is in accordance with:

Design standard: GB/T 12238
Flange connection: ISO7005-2
Structure standard: GB/T 12221
Test standard: GB/T 13927

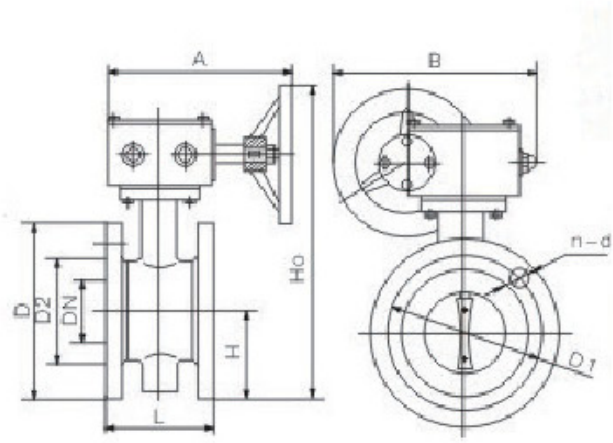


Dimensions (mm) and Weight (kg)

Model	DN	A	B	L	H	H_0	D_0	n-d	Weight (kg)
VHBF050WWB-C	50	226	172	42	81	353	120	4- Ø23	7.5
VHBF065WWB-C	65	226	172	44	89	375	136.2	4- Ø26.5	8.2
VHBF080WWB-C	80	226	172	45	97	392	160	8- Ø19	8.6
VHBF100WWB-C	100	226	172	52	113	427	185	4- Ø24.5	10
VHBF125WWB-C	125	226	172	54	123	451	215	4- Ø24	11.5
VHBF150WWB-C	150	226	172	55	149	494	238	4- Ø25	12.6
VHBF200WWB-C	200	313	289	60	179	639	295	4- Ø25	21.54
VHBF250WWB-C	250	313	289	65	205	696	357	4- Ø29	27.8
VHBF300WWB-C	300	307	310	76	247	779	407	4- Ø31	39.6

3. Flanged Butterfly Valve

Butterfly valve is in accordance with:
Design standard: GB/T 12238
Flange connection: ISO7005-2
Structure standard: GB/T 12221
Test standard: GB/T 13927

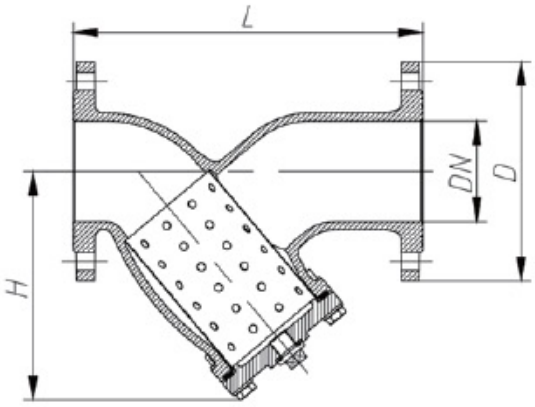


Dimensions (mm) and Weight (kg)

Model	DN	A	B	L	H	H	D	D_2	D_1	n-d	Weight (kg)
VHBF050WFB-C	50	226	172	108	83	359	165	102	125	4- Ø19	11
VHBF065WFB-C	65	226	172	112	93	375	185	122	145	4- Ø19	13
VHBF080WFB-C	80	226	172	114	100	396	200	133	160	8- Ø19	15
VHBF100WFB-C	100	226	172	127	114	419	220	158	180	8- Ø19	17
VHBF125WFB-C	125	221	216	140	125	475	250	184	210	8- Ø19	19
VHBF150WFB-C	150	221	216	140	143	515	285	212	240	8- Ø23	25
VHBF200WFB-C	200	252	269	152	170	636	340	268	295	12- Ø23	41
VHBF250WFB-C	250	252	269	165	198	703	405	320	355	12- Ø28	54
VHBF300WFB-C	300	283	346	178	223	820	460	370	410	12- Ø28	65
VHBF350WFB-C	350	283	346	190	270	908	520	430	470	16- Ø28	87
VHBF400WFB-C	400	357	434	216	300	950	580	482	525	16- Ø31	130
VHBF450WFB-C	450	357	434	222	340	1015	640	548	585	20- Ø31	165
VHBF500WFB-C	500	357	434	229	355	1073	715	609	650	20- Ø34	170
VHBF600WFB-C	600	432	531	267	410	1300	840	720	770	20- Ø37	256

Y-strainer

Y-strainer is in accordance with:
Design standard: HG/T 21637
Flange connection: ISO7005-2
Structure standard: HG/T 21637
Test standard: GB/T 13927



Technical specification

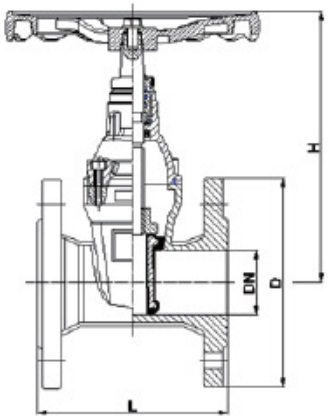
Model	Rated Pressure PN	Temperature /°C	Media	Material		
				Valve Body/Bonnet/Plug	Perforated Screen	Sealing
VHST	16	-10~120°C	Water	Ductile iron	Stainless steel 304	NBR

Dimensions (mm) and Weight (kg)

Model	DN	Hole Diameter	L	H	D	Weight (kg)
VHST065NFB-C	65	ø2	290	150	185	13.1
VHST080NFB-C	80	ø2	310	175	200	15.7
VHST100NFB-C	100	ø2	350	195	220	24.4
VHST150NFB-C	150	ø3	480	275	285	44
VHST200NFB-C	200	ø5	600	350	340	63
VHST250NFB-C	250	ø5	730	420	405	110
VHST300NFB-C	300	ø5	850	490	460	147

Non-rising-stem Gate Valve

Gate valve is in accordance with:
Design standard: CJ/T 216
Flange connection: ISO7005-2
Structure standard: GB/T 12221
Test standard: GB/T 13927



Technical specification

Model	Rated Pressure PN	Temperature /°C	Media	Material			
				Valve Body/Bonnet	Valve Stem	Sealing	Packing
VHGV	16	0~80°C	Water	Ductile iron	Stainless steel 2Cr13	EPDM	NBR

Dimensions (mm) and Weight (kg)

Model	DN	L	H	D	Weight (kg)
VHGV050WFB-C	50	178	215	165	8.46
VHGV065WFB-C	65	190	235	185	11.2
VHGV080WFB-C	80	203	265	200	15.3
VHGV100WFB-C	100	229	320	220	20.8
VHGV125WFB-C	125	254	350	250	25.2
VHGV150WFB-C	150	267	385	285	33.5
VHGV200WFB-C	200	292	485	340	52.5
VHGV250WFB-C	250	330	600	405	90.5
VHGV300WFB-C	300	356	680	460	122.5
VHGV350WFB-C	350	381	810	520	185.5
VHGV400WFB-C	400	406	890	580	246.5
VHGV450WFB-C	450	432	1050	640	361
VHGV500WFB-C	500	457	1230	715	461
VHGV600WFB-C	600	508	1260	840	711

Swing Check Valve

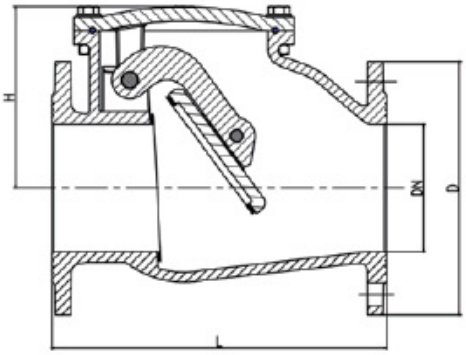
Check valve is in accordance with:

Design standard: GB/T 13932

Flange connection: ISO7005-2

Structure standard: GB/T 12221-1

Test standard: GB/T 13927



Technical specification

Model	Rated Pressure PN	Temperature /°C	Media	Material			
				Valve Body/Bonnet/ Disc/Lever	Disc Sealing	Valve Sealing	Stem
VHCV	16	-10~120°C	Water	Ductile iron	Deposited copper alloy	Copper alloy	2Cr13

Dimensions (mm) and Weight (kg)

Model	DN	L	H	D	Weight (kg)
VHCV065NFB-C	65	216	112	185	14.4
VHCV080NFB-C	80	241	127	200	16.73
VHCV100NFB-C	100	292	134	220	21.6
VHCV125NFB-C	125	330	178	250	34.36
VHCV150NFB-C	150	356	182	285	42
VHCV200NFB-C	200	495	230	340	74.6
VHCV250NFB-C	250	622	290	405	130.26
VHCV300NFB-C	300	698	325	460	162.47

Flow Switch

FS80-C Flow Switch

Application

1. FS80-C Flow Switch responds to fluid flow in lines carrying water, ethylene glycol, or other non-hazardous fluids.
2. FS80-C Flow Switch uses a variety of paddle sizes to respond to fluid flow rates in applications with pipe sizes greater than 1-inch trade size.
3. Single-Pole, Double-Throw (SPDT) flow switch that can be wired to energize one device and de-energize another device powered from the same source when liquid flow either exceeds or drops below the set flow rates.
4. FS80-C use with fluid pressures up to 1.5MPa.
5. Maximum Velocity: 3m/sec.
6. Fluid temperature range: -25°C to 110°C; Ambient temperature range: -20°C to 60°C
7. FS80-C Flow Switch with IP55 enclosure.

Electrical Ratings

Electrical Rating	Horse Power (HP)	Full Load Amperes (A)	Locked Rotor Amperes (A)	Non-inductive Amperes (A)	Pilot Duty
110VAC	1	16	96	16	125VA at 24~277VAC
220VAC	1	16	96	16	

Operation

The SPDT switch on the FS80-C has color-coded terminals. Red is the common terminal. The switch responds by closing the Red terminal to the Blue terminal upon flow increase, and to the Yellow terminal upon flow decrease. See Figure 1 and Table 1 for switch action and flow rate.

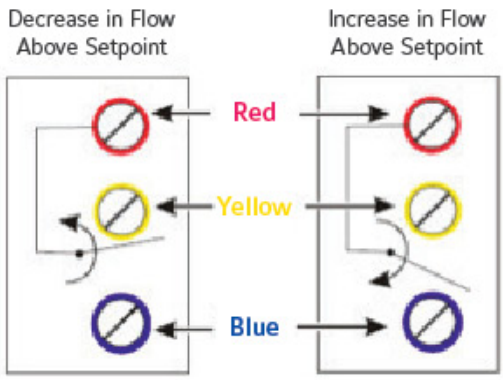
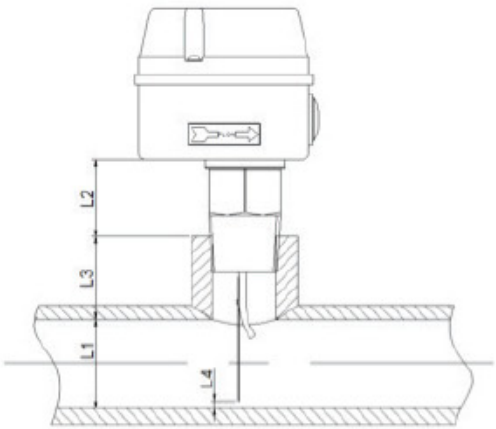


Figure 1

Flow Switch Installation Instruction:

L1 = Pipe diameter
L2 = 37-42mm (Pipe connector to the bottom of the product shell)
L3 = 50mm (Pipe connector to the inner surface of the pipe)
L4 = End side of the paddle to the bottom of the pipe

Remarks: If L3<50mm, cut the different size from the paddle to remain the size of L4 as shown on the chart.



Typical flow Rate-m³/h Required To Actuate the Switch

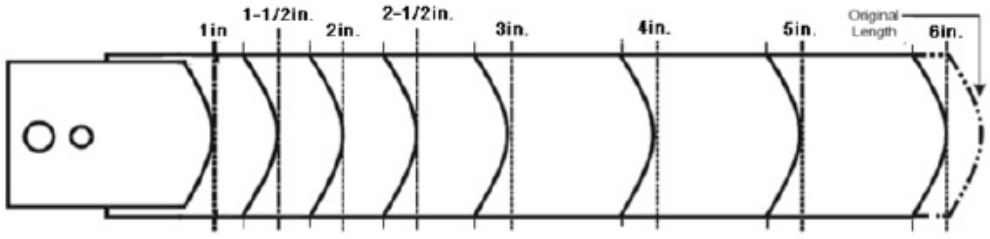
L1 Pipe Diameter (in)	Paddle mm (in)	L4 size (mm)	flow m^3/h			
			Min.Adj.		Min.Adj.	
			Flow Increase R to B Closes	Flow Decrease R to Y Closes	Flow Increase R to B Closes	Flow Decrease R to Y Closes
1	25 (1″)	3	0.95	0.57	2.0	1.93
1-1/4a	25 (1″)	2.5	1.32	0.84	3.02	2.84
1-1/2b	38 (1-1/2″)	11	1.70	1.14	4.36	4.09
2	51 (2″)	13.5	3.11	2.16	6.6	6.13
2-1/2b	63.5 (2-1/2″)	16.5	4.09	2.84	7.84	7.27
3	63.5 (2-1/2″)	39	6.24	4.23	12.0	11.4
4c	101 (4″)	13.5	8.4	6.1	18.4	17.3
	76 (3″)	39	(14.8)	(11.4)	(29.1)	(27.7)
5c	127 (5″)	4	12.9	9.3	26.8	25.2
	76 (3″)	53.5	(28.4)	(22.9)	(55.6)	(53.4)
6c	152 (6″)	6	16.8	12.3	32.7	30.7
	76 (3″)	85	(43.2)	(35.9)	(85.2)	(81.8)
8c	152 (6″)	96	46.6	38.6	94.3	90.8
	76 (3″)	152	(85.2)	(72.7)	(172.6)	(165.8)

Table 1

a. Values for 2 in. paddle trimmed to fit pipe.

b. Values for 3 in. paddle trimmed to fit pipe.

c. Flow rates for these sizes are calculated installed 1 in., 2 in., 3 in. paddle. Bracket valves are for a switch with a 6 in. paddle, for 4 in. and 5 in. line pipe, the 6 in. paddle is trimmed to a 4 in. and 5 in. length. For 8 in. line pipe, values are for installing 1 in., 2 in., 3 in. and 6 in. paddle.



Trimming Template for the Extra Paddle

Standalone Controllers

TC100/TC200 Standalone Controllers

TC100/TC200 Series Standalone Controller uses direct digital control technology to provide efficient control for heating, ventilation, air-conditioning and refrigeration in comfort control applications. Temperature, relative humidity, absolute humidity, pressure differential are key parameters to be controlled. The controller performs proportional plus integral (P+I) and on/off controls and ensures a flexible and accurate control of systems.

The standalone controller features a large LCD, easy operation and is compact in size. The protective cover over the terminal makes the product more reliable and attractive.

The controller can be mounted with various Johnson Controls field devices such as temperature sensor, pressure sensor, damper actuator, valve actuator etc. For a detailed list, see "Product Combination"

Features and Benefits

Control Performance	· Pre-configured application available · Active input scale can be selectable · Setpoint preserved in case of power failure
Operation	· Large LCD screen with backlight · User-level and expert-level setting available · Easy button operation
Installation, Service and Maintenance	· Standard DIN rail or wall mounted · Protective cover over terminals · Quick Replacement Reduces Downtime due to Service Maintenance

Model Selection Guide

					TC	2	3	2	–	SA
Loop	1	=	Single Loop			2				
	2		Dual Loop							
Analog Output	0	=	0 Analog Output							
	1	=	1 Analog Output							
	3	=	3 Analog Outputs				3			
Binary Output	2	=	2 Binary Outputs					2		
	4	=	4 Binary Outputs							
	6	=	6 Binary Outputs							
		=							–	
Communication	SA	=	Standalone							SA

TC100 (Single-loop Standalone Controller)

Model	Analog Input	Binary Input	Analog Output	Binary Output	Total
TC111-SA	2	2	1	1	6
TC102-SA	2	2	0	2	6
TC112-SA	2	2	1	2	7

TC200 (Dual-loop Standalone Controller)

Model	Analog Input	Binary Input	Analog Output	Binary Output	Total
TC204-SA	3	3	0	4	10
TC212-SA	3	3	1	2	9
TC216-SA	3	3	1	6	13
TC232-SA	3	3	3	2	11

Specifications

Power Requirements		AC24V ±10%(50/60Hz)	
Power Consumption		1.5W	
Digital Output	Type	Triac AC220V	
	Rating	3A	
On-board Sensor	Type	NTC10k	
	Accuracy	±1°C	
Display Resolution		Ni1000/Pt1000 sensor	1°C
		Active sensor	Depends on setting
Terminal		Screw cable terminals	
Ambient Operating Conditions		0～50°C, 95%RH Non-condensing	
Ambient Storage Conditions		-30～70°C, 95%RH Non-condensing	
Certificate		CE certified	
Protection Class		IP20	

Electromechanical Modulating

TC-8900 and PM-8900

Room Thermostat

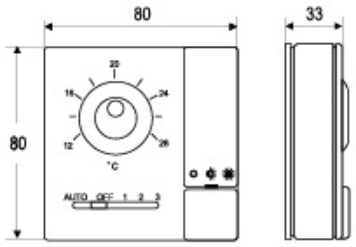
TC-8900 is a family of analogue controllers designed for control of fan coils with 2-pipe, 2-pipe with change-over, 2-pipe with electrical coil or 4-pipe configurations.

For applications without fan speed control the family includes stand alone units (TC-890x), local controllers (TC-893x) with remote setpoint module (ES-8930) and local controllers (TC-894x) with central setpoint module (ES-8940).

For applications with fan speed control the family includes the PM-8900 power modules in connection with TC-894x with or without central setpoint module (ES-8940).

Features

- 2-pipe, 2-pipe with change-over, 2-pipe with electrical coil or 4-pipe configurations with and withoput 3-speed fan override
- 80 x 80 mm room enclosures
- Temperature dial ranges 12...28 °C, +/-
- 24 VAC power supply for the TC-8900 controls, 230 VAC in connection the the PM-8900 power module



Dimensions in mm

Specifications

TC-890x Stand Alone Controllers

Ordering Codes*	Built-in NTC K10 Sensing Element	Setpoint Range	Input	Fan Output	Outputs			
			0...10 V		PAT	0...10 V	DAT	On/Off
TC-8903-1131-WK	√	12...28 °C	–	–	1	–	–	–
TC-8901-2131-WK	√	12...28 °C	–	–	–	2	–	–
TC-8904-2131-WK	√	12...28 °C	–	–	–	–	2	–
TC-8906-2131-WK	√	12...28 °C	–	–	–	–	–	2
TC-8903-1132-WK	–	12...28 °C	–	–	1	–	–	–
TC-8901-2132-WK	–	12...28 °C	–	–	–	2	–	–
TC-8904-2132-WK	–	12...28 °C	–	–	–	–	2	–
TC-8906-2132-WK	–	12...28 °C	–	–	–	–	–	2
TC-8903-1151-WK	√	0...40 °C	–	–	1	–	–	–
TC-8903-1152-WK	–	0...40 °C	–	–	1	–	–	–
TC-8903-1183-WK	–	0...100%	√	–	1	–	–	–
TC-8901-2183-WK	–	0...100%	√	–	–	2	–	–

Electromechanical Modulating

TC-8900 and PM-8900

Room Thermostat

TC-893x Local Controllers with ES-8930-3031-WK remote setpoint module

Ordering Codes*	Built-in NTC K10 Sensing Element	Setpoint Range	Fan Output	Outputs			
				PAT	0...10 V	DAT	On/Off
TC-8933-1112-W	–	–	–	1	–	–	–
TC-8931-2112-W	–	–	–	–	2	–	–
TC-8934-2112-W	–	–	–	–	–	2	–
TC-8936-2112-W	–	–	–	–	–	–	2
ES-8930-3031-WK	√	12...28 °C	–	–	–	–	–

TC-894x Local Controllers with ES-8940 central setpoint module

Ordering Codes*	Built-in NTC K10 Sensing Element	Setpoint Range	Fan Output	Outputs			
				PAT	0...10 V	DAT	On/Off
TC-8943-1141-WK	√	+/-	–	1	–	–	–
TC-8941-2141-WK	√	+/-	–	–	2	–	–
TC-8944-2141-WK	√	+/-	–	–	–	2	–
TC-8946-2141-WK	√	+/-	–	–	–	–	2
ES-8940-4130-WK	–	12...28 °C	–	–	–	–	–

TC-894x Local Controllers with ES-8940 central setpoint module

Ordering Codes*	Built-in NTC K10 Sensing Element	Setpoint Range	Fan Output	Outputs	Power module Ordering Codes	Configuration
TC-8902-1031-WK	√	12...28 °C	3 Speed	1 x 0...10 VDC 1 x DAT 230 V 1 x DAT 24 V	PM-8902-0500 PM-8905-0300 PM-8905-0500	2 pipe with change over
TC-8907-1031-WK				1 x Relay 3A 230 V/24 V	PM-8907-0300	
TC-8902-2031-WK				2 x 0...10 VDC 2 x DAT 230 V 2 x DAT 24 V	PM-8902-0500 PM-8905-0300 PM-8905-0500	4 pipe
TC-8907-2031-WK	–			2 x Relay 3A 230 V/24 V	PM-8907-0300	
TC-8902-1032-WK				1 x 0...10 VDC 1 x DAT 230 V 1 x DAT 24 V	PM-8902-0500 PM-8905-0300 PM-8905-0500	2 pipe with change over
TC-8907-1032-WK				1 x Relay 3A 230 V/24 V	PM-8907-0300	
TC-8902-2032-WK				2 x 0...10 VDC 2 x DAT 230 V 2 x DAT 24 V	PM-8902-0500 PM-8905-0300 PM-8905-0500	4 pipe
TC-8907-2032-WK				2 x Relay 3A 230 V/24 V	PM-8907-0300	
TC-8942-2041-WK (only in connection with ES-8940-4130-WK)	√	+/- on local controller TC-89, 12...28 °C on ES-8940 central setpoint module		2 x 0...10 VDC 2 x DAT 230 V 2 x DAT 24 V	PM-8902-0500 PM-8905-0300 PM-8905-0500	
TC-8947-2041-WK (only in connection with ES-8940-4130-WK)				2 x Relay 3A 230 V/24 V	PM-8907-0300	

Notes

Notes

Notes

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