

Motorised ball diverter valve with 3-contact control



6443 series

01132/18 GB

replaces 01132/10 GB



Function

The motorised diverter valves can be used to automatically divert the medium in air-conditioning and hydraulic/domestic water systems.

The exceptional hydraulic performance level of this particular series of valves combined with reduced dimensions and practical installation systems make the products especially suited to heating systems and domestic hot water production systems.

The motorised ball valves are used in the above-mentioned systems predominantly thanks to the following features:

- no seepage
- short operating times (valve opening - closing); available in versions with operating times of 10 seconds and 40 seconds
- operation at high differential pressures
- low head losses
- **compatibility with any type of 3-contact control** for complete control during the opening and closing phases, thanks to the electrical construction features.

European directive conformity

CE mark directives 2014/35/EU and 2014/30/EU.

Product range

6443 series Motorised three-way ball diverter valve with 3-contact control _____ sizes 1/2", 3/4" and 1"

Technical specifications

Materials

Valve body

Body: brass EN 12165 CW617N
 Ball: brass EN 12164 CW614N, chrome plated
 Ball seal: PTFE with EPDM O-Ring
 Control stem seal: two EPDM O-Rings
 Union seal: EPDM O-Ring

Actuator

Protective shell: self-extinguishing polycarbonate
 Colour: grey RAL 9002

Performance

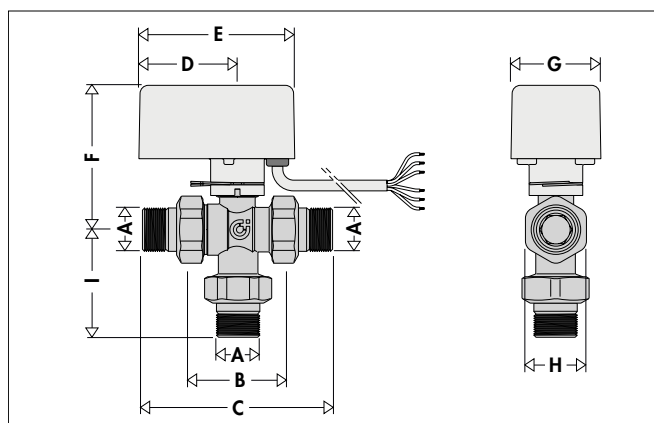
Valve body

Medium: water, glycol solutions
 Max. percentage of glycol: 50%
 Maximum working pressure: 10 bar
 Working temperature range: -5–110°C
 Maximum differential pressure: 10 bar
 Connections: 1/2"–1" M with union

Actuator

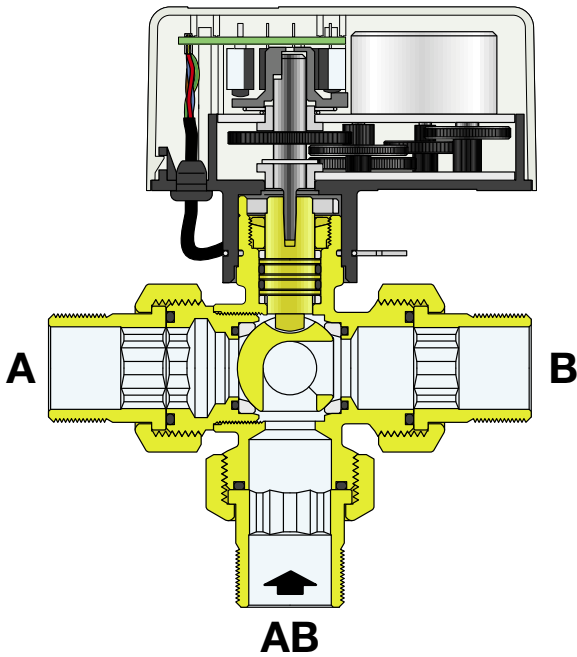
Synchronous motor
 Electric supply: 230 V (±10%) - 50/60 Hz
 24 V (±10%) - 50/60 Hz
 Power consumption: 4 VA
 (644346/56/57/66/48/58/59/68) 8 VA
 Auxiliary microswitch contact rating: 0,8 A (230 V)
 Protection class: IP 44 (vertical control stem)
 IP 40 (horizontal control stem)
 Operating time (angle of rotation 90°): 40 s
 (644346/56/57/66/48/58/59/68) 10 s
 Ambient temperature range: 0–55°C
 Dynamic torque: 8 N·m
 Length of supply cable: 100 cm

Dimensions



Code	A	B	C	D	E	F	G	H	I	El. supply	Op. time (s)	Mass (kg)
644342	1/2"	60	117	60	95	88	55	Ex.37	58,5	230 V	40	1,1
644344	1/2"	60	117	60	95	88	55	Ex.37	58,5	24 V	40	1,1
644346	1/2"	60	117	60	95	88	55	Ex.37	58,5	230 V	10	1,1
644348	1/2"	60	117	60	95	88	55	Ex.37	58,5	24 V	10	1,1
644352	3/4"	60	117	60	95	88	55	Ex.37	58,5	230 V	40	1,1
644354	3/4"	60	117	60	95	88	55	Ex.37	58,5	24 V	40	1,1
644356	3/4"	60	117	60	95	88	55	Ex.37	58,5	230 V	10	1,1
644358	3/4"	60	117	60	95	88	55	Ex.37	58,5	24 V	10	1,1
644353	3/4"	78	149	60	95	91	55	Ex.37	73	230 V	40	1,4
644355	3/4"	78	149	60	95	91	55	Ex.37	73	24 V	40	1,4
644357	3/4"	78	149	60	95	91	55	Ex.37	73	230 V	10	1,4
644359	3/4"	78	149	60	95	91	55	Ex.37	73	24 V	10	1,4
644362	1"	78	159	60	95	91	55	Ex.47	78	230 V	40	1,7
644364	1"	78	159	60	95	91	55	Ex.47	78	24 V	40	1,7
644366	1"	78	159	60	95	91	55	Ex.47	78	230 V	10	1,7
644368	1"	78	159	60	95	91	55	Ex.47	78	24 V	10	1,7

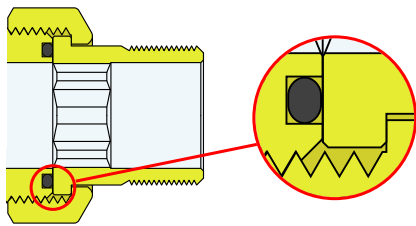
6443 series, 3-way diverter version



Construction details

Seals

The valves are equipped with unions which have a flat seat with an O-Ring seal made of EPDM.



Actuator

ON/OFF mode

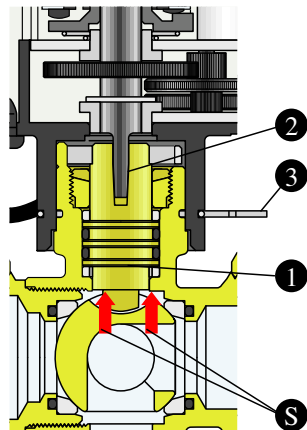
The valves may be used in ON/OFF mode, with a single electrical enabling signal for opening or closing provided by the three-contact thermostat/timer-thermostat or an ordinary switch.

Modulating mode

The electrical construction features of the actuator allow it to be combined with any type of three-point temperature controller.

Drive transmission

The taper coupling between the valve control stem (1) and the gearmotor shaft (2) allows constant connection between the two components. This provides automatic compensation for mechanical slack via the thrust (S) exerted on the control stem by the pressure of the medium.

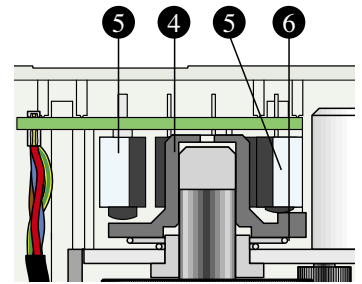


Valve actuator coupling

By means of a steel clip (3), the valve and actuator are connected quickly and easily, simply by pushing the two parts together until they click into place.

Cam and limit microswitches

The cam (4) that controls the limit microswitches (5) can move vertically and is supported by a tapered spring (6). In this way, the contact with the microswitches is kept constant, compensating for wear of the parts over time.



Auxiliary microswitch

The actuator is equipped with an auxiliary microswitch to be used, for instance, to stop the pump on closing the valve and vice versa. It shuts off for an average valve opening value of 80%.

Operating times

The actuator is available in two versions, with an operating time of 10 seconds or 40 seconds (with angle of rotation 90°).

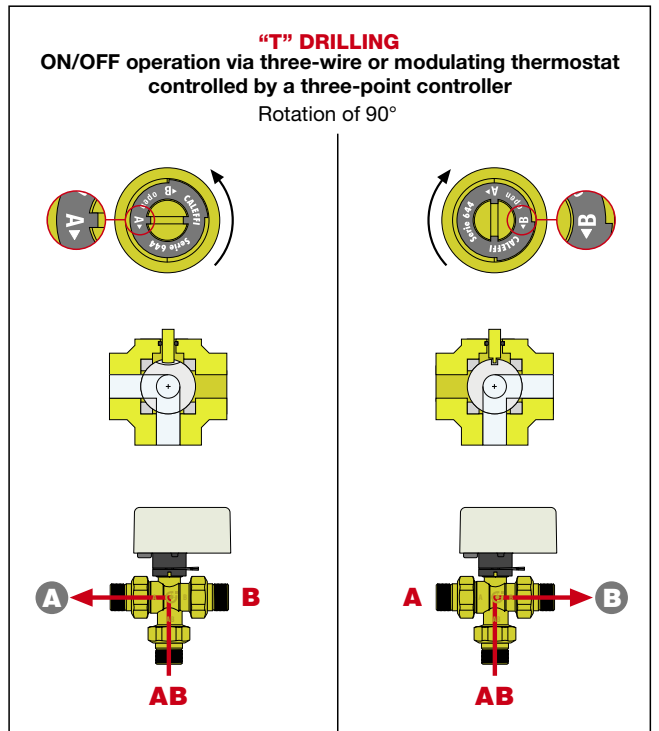
Directions of flow and position indicator

Removing the actuator reveals a slot in the top of the control stem on which the actuator pin acts:
 - this slot allows the valve to be opened and closed manually with a screwdriver;
 - its position indicates the position of the ball and therefore the direction of flow. This is extremely useful in system testing and checking procedures.

The following diagram illustrates the direction of flow, in accordance with the position of the slot.

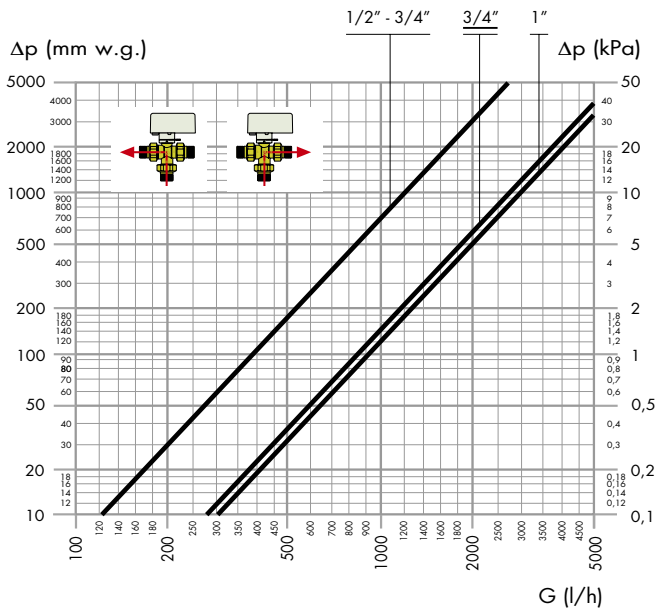
6443 series three-way diverter valve

Flow diversion can be choked thanks to the electrical features of the three-contact actuator.



All the valves are supplied with the slot/indicator in the horizontal position.

Hydraulic characteristics

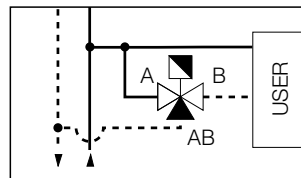
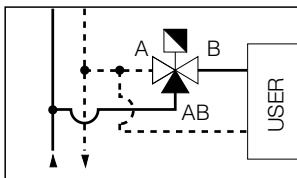


Code	Connection	Kv (m ³ /h)
644342/44/46/48	1/2"	3,9
644352/54/56/58	3/4"	3,9
644353/55/57/59	3/4"	8,6
644362/64/66/68	1"	9,0

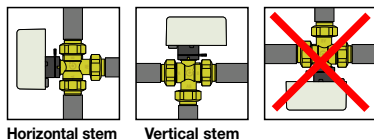
1. The three-way **diverter** valves may be used as zone valves as indicated:

a. on the flow in the diverter position (common inlet AB and outlets A or B) and ON/OFF mode

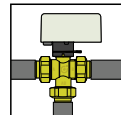
b. on the return in the mixing valve position (i.e. inlets A and B and common outlet AB) and ON/OFF mode



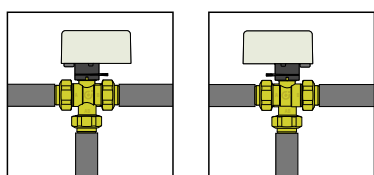
2. The valve must be installed with the control stem in a horizontal or vertical position, **never turned upside down**.



2b. In installations with chilled water, at risk of condensation, the actuator must be installed with the control stem in a vertical position.



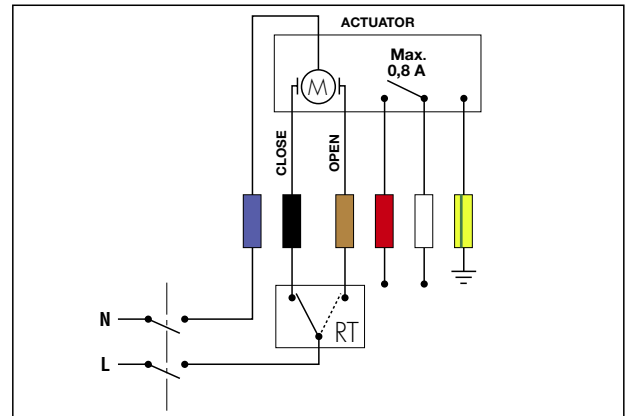
3. The actuator can be fitted onto the valve body in the two positions indicated. It is secured using a flexible stainless steel clip.



Wiring diagrams

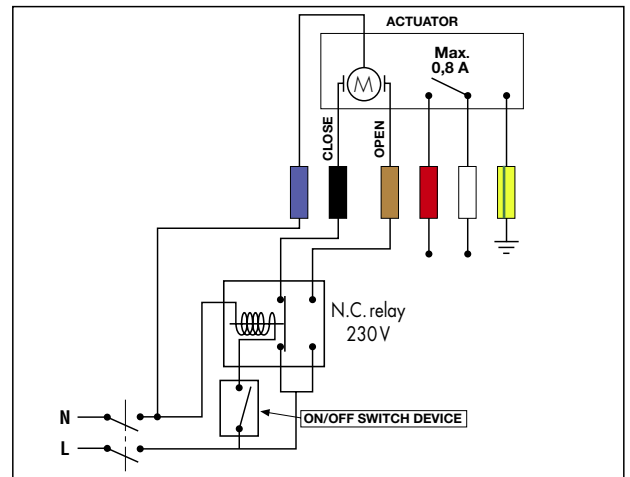
1. Connection diagram for room thermostat (RT) and electric supply.

The illustrated connection makes it possible to open and close the valve according to the signal provided by the 3-contact room thermostat.



2. Connection diagram with ON/OFF switch device

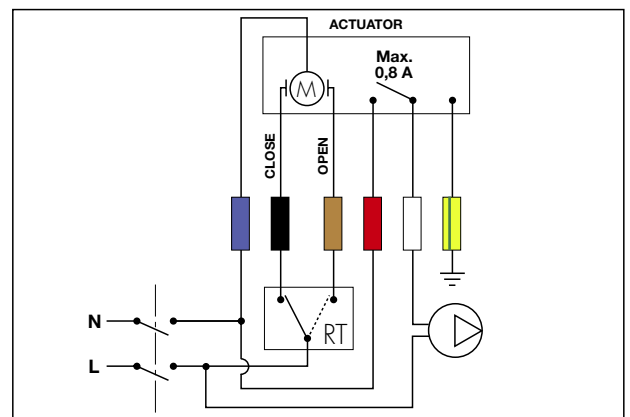
The illustrated connection makes it possible to open and close the valve when the switch allows, using an intermediate relay device.



3. Pump disconnection diagram when no zone is in operation.

This diagram, using the auxiliary microswitch, allows the pump to be deactivated when the diverter valve used as a zone valve is closed.

If the pump has a power consumption level over 0,8 A (170 VA), an intermediate contactor must be used.

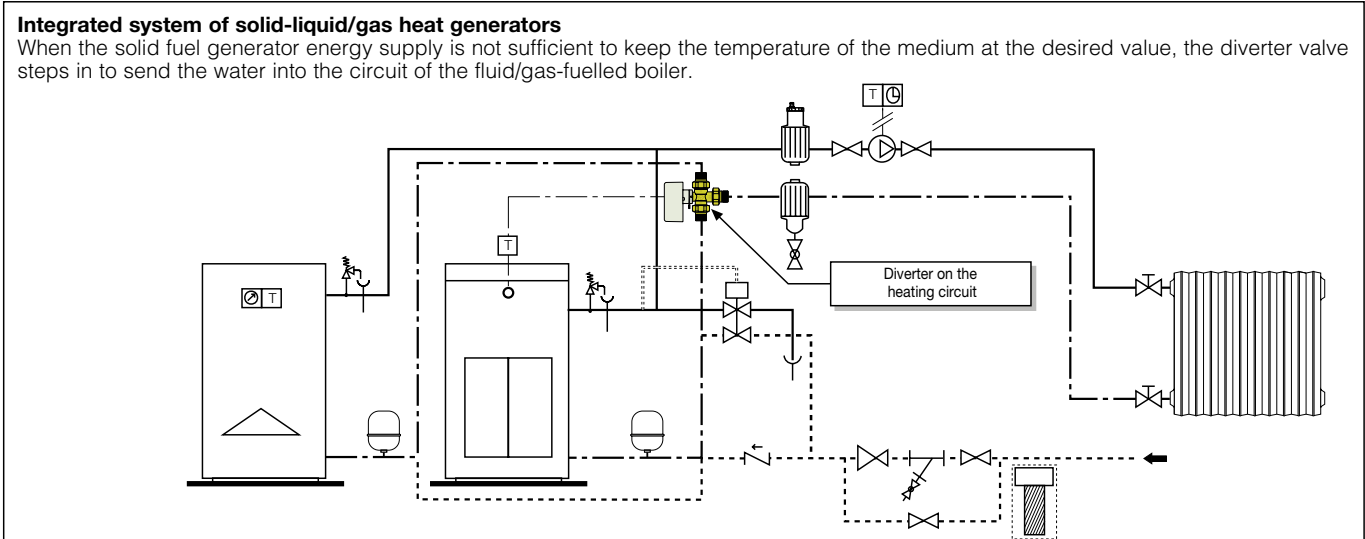
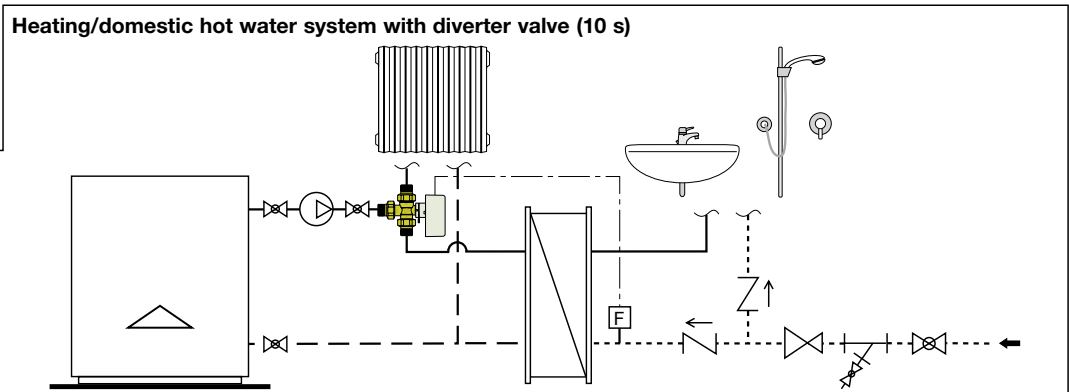
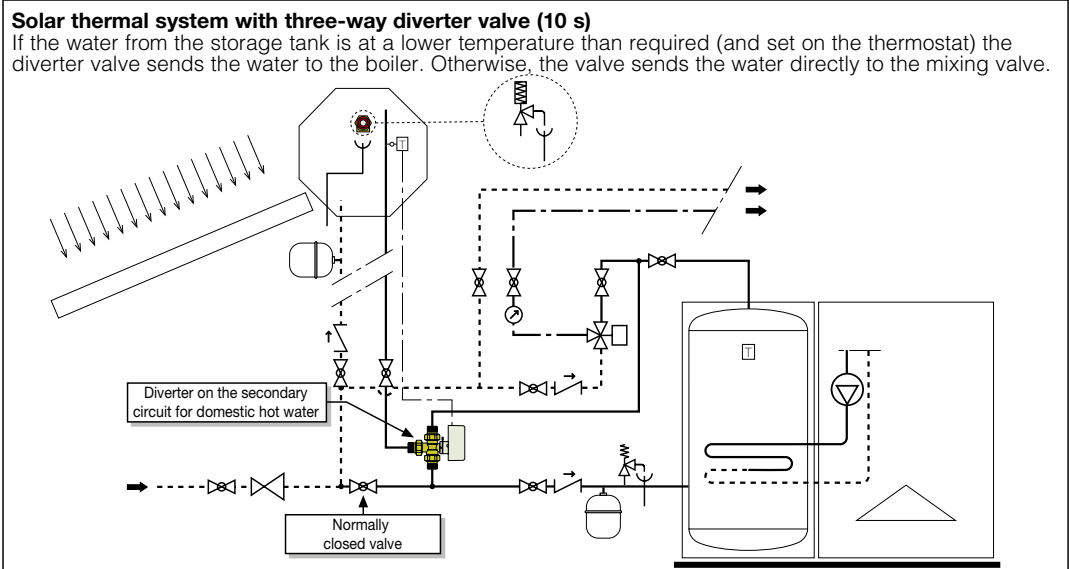
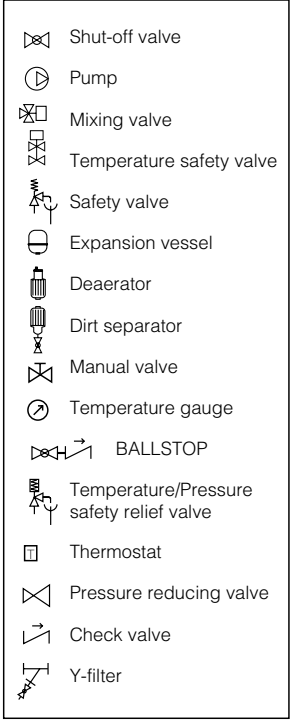


Microswitches

The motor is equipped with limit microswitches that cut off the electricity supply on reaching the valve open/closed positions.

The auxiliary microswitch shuts off at an average valve opening value of 80%.

Application diagrams



SPECIFICATION SUMMARY

6443 series

Motorised three-way ball diverter valve with three-contact control. Connections 1/2" M (from 1/2" to 1") with union. Brass body. Chrome plated brass ball. PTFE ball seal with EPDM O-Ring. Control stem seal with double EPDM O-Ring. Union seals with EPDM O-Ring. Medium water and glycol solutions; maximum percentage of glycol 50%. Maximum working pressure 10 bar. Temperature range -5–110°C. Maximum working differential pressure 10 bar. Self-extinguishing polycarbonate actuator. Grey RAL 9002. Three-contact synchronous motor with auxiliary microswitch. Electric supply 230 V (or 24 V ±10%) - 50/60 Hz. Power consumption 4 VA (8 VA for 10 s version). Dynamic torque 8 N·m. Auxiliary microswitch contact rating 0,8 A. Protection class IP 44 with control stem vertical, IP 40 with control stem horizontal. Operating time (angle of rotation 90°) 40 s (10 s). Ambient temperature range 0–55°C.

We reserve the right to make changes and improvements to the products and related data in this publication, at any time and without prior notice.