

6443 solar

motorised 3-port
diverter valve



altecnic

6443 solar motorised 3-port diverter valve



Introduction

The Altecnic 3-port motorised diverter valves can be used to automatically divert the flow for use in air conditioning, commercial heating and domestic heating systems.

The valves and electric actuators conform to European Directives 2006/95/CE covering low voltages and 2004/108/CE covering electromagnetic compatibility.

Applications

Their control characteristic, combined with reduced dimensions and manual override, make them especially suitable for zone heating and domestic hot water systems.

The motorised valves have the following features:

- no seepage
- short operating times (valve opening - closing)
- operational capacity with high differential pressures
- low head losses
- compatibility with any type of 3-contact controller for complete control during the opening and closing phases.

Patent application No. MI2005A001282

Construction Details

Component	Material	Grade
Body	Brass	BS EN 12165 CW617N
Ball	Brass - chrome plated	BS EN 12164 CW614N
Ball seat	PTFE	
Seat 'O' ring	EPDM	
Stem 'O' ring	EPDM	
Union 'O' ring	EPDM	
Actuator Casing	Self extinguishing polycarbonate	
Casing colour	grey RAL 9002	

Technical Specification

Performance - valve body

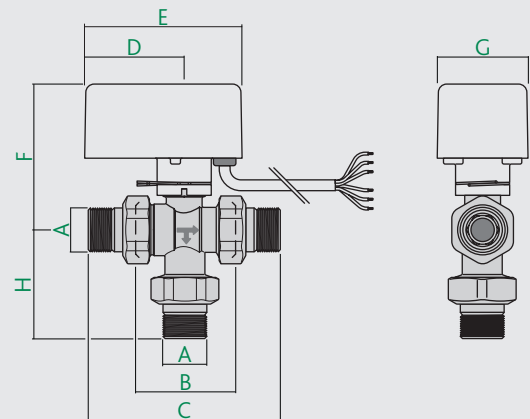
Medium:	water, glycol solution
Max. percentage of glycol:	50%
Max. working pressure:	10 bar
Working temperature range:	-5 to 110°C
Max. differential pressure:	10 bar
Connections:	½" to 1" M with union

Actuator

Synchronous motor:	10 bar
Electricity supply:	230 V (±10%), 50 to 60 Hz
Power consumption:	8 V
Auxiliary microswitch contact rating:	0.8 A
Protection class:	IP 44 (vertical stem) IP 40 (horizontal stem)

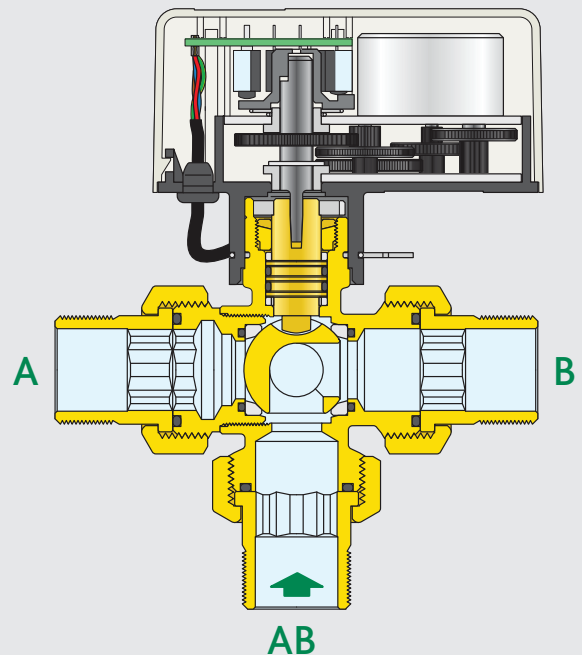
Operating time 90° rotation:	10 s
Ambient temperature range:	0 to 55°C
Dynamic torque:	8 Nm
Supply cable length:	1 m

Dimensions



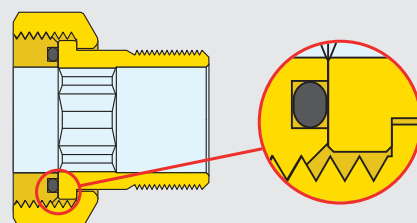
Code	A	B	C	D	E	F	G	H	kg
644346	½"	60	117	60	95	88	55	59	1.1
644356	¾"	60	117	60	95	88	55	59	1.1
644357	¾"	78	149	60	95	91	55	73	1.4
644366	1"	78	159	60	95	91	55	78	1.7

Construction Details



Seals

The valves are equipped with unions with a flat seat with EPDM 'O'-ring.



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Construction Details

Actuator

ON/OFF mode

The valves may be used in ON/OFF mode with a single electrical signal for opening or closing provided by a three-contact thermostat/chrono-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 regulator.

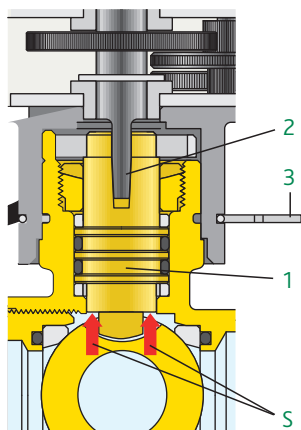
Drive transmission

Thanks to the tapered coupling between the valve stem (1) and the gear motor shaft (2), there is a constant connection between the two components.

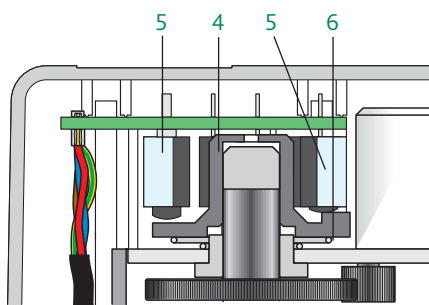
This provides automatic compensation for the mechanical slack thanks to the thrust (S) on the stem applied by the pressure of the medium.

Valve actuator coupling

An elastic steel clip (3) allows the valve to be coupled to the actuator quickly and easily, simply by pushing the two parts together until they click into place and are automatically locked together.



Cam and limit microswitches



The cam (4), acting the limit microswitches (5), can move vertically and is supported by a tapered spring (6).

This keeps the cam in constant contact with the microswitches and compensates for wear over time.

Auxiliary microswitch

The actuator is equipped with an auxiliary microswitch to be used, for instance, to stop the pump on valve closing and vice-versa.

It gets closed for an average valve opening value of 80%.

Operating time

The actuator has an operating time of 10 seconds for 90° rotation.

Directions of flow and position indicator

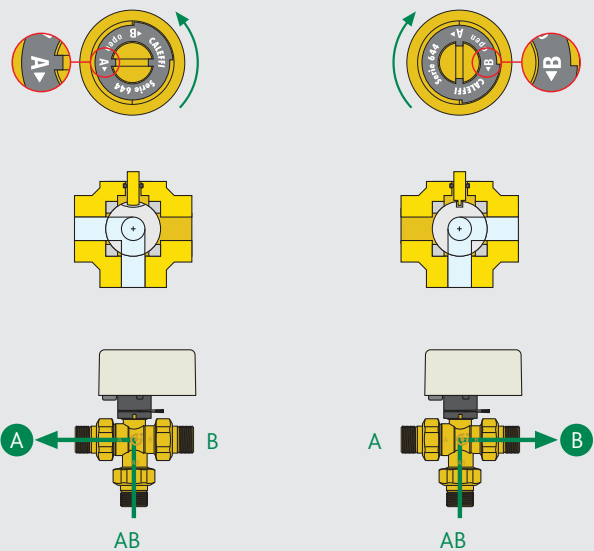
Removing the actuator reveals a slot on the top of the control stem on which the actuator pin acts:

- it allows opening/closing the valve manually with a screwdriver;
- its position shows the direction of flow according to the position of the ball, which is especially helpful when testing or checking the system.

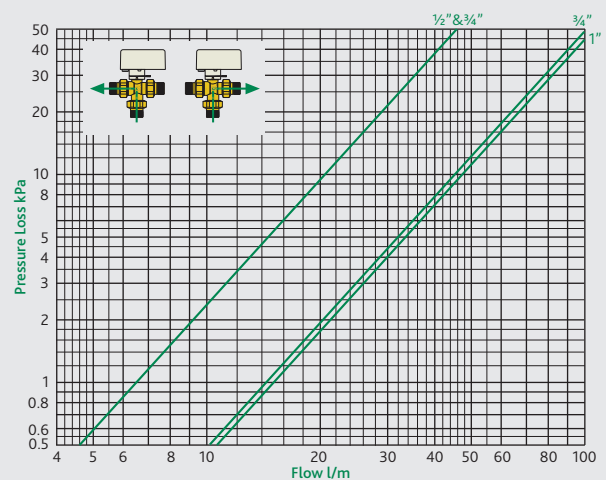
The following diagram illustrates the direction of flow corresponding to the position of the slot.

The flow direction can be checked using the electrical features of the 3 contact actuator.

ON/OFF operation via three-wire or modulating thermostat controlled by a three-point controller Rotation of 90°



Kv Value and Flowrate










Product Code	Connection	Kv (m ³ /h)
644346	1/2"	3.9
644356	3/4"	3.9
644357	3/4"	8.6
644366	1"	9.0

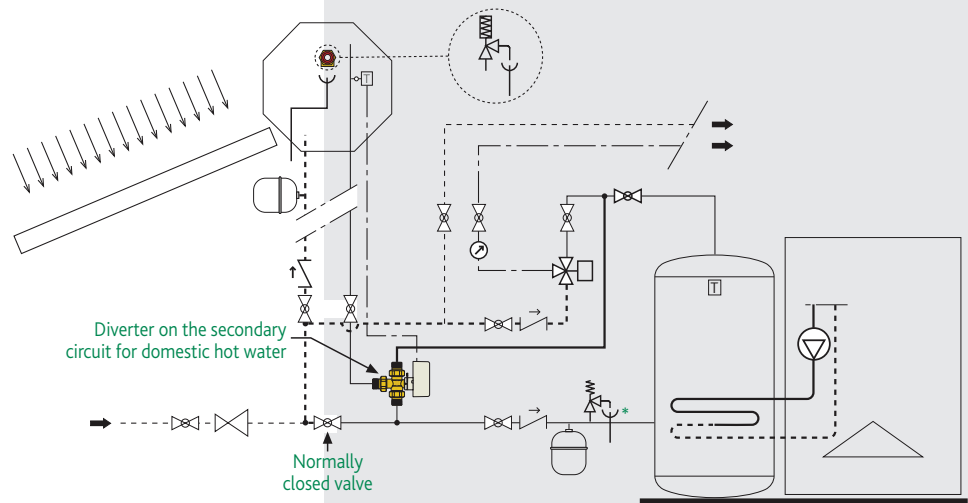
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Typical Applications

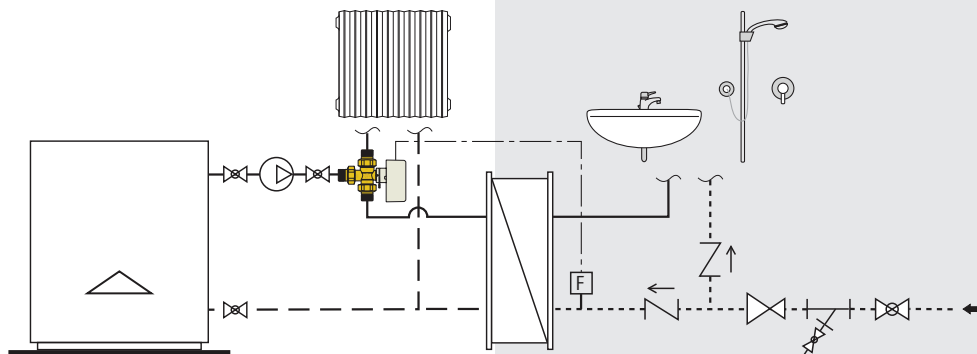
Solar thermal system with three-way diverter valve

If the water from the storage tank is at a lower temperature than required (set on the thermostat) the diverter valve directs the water to the boiler.
 If the water temperature is above the set temperature the water is directed to the mixing valve.

-  Shut-off valve
-  Pump
-  Mixing valve
-  Temperature safety valve
-  Safety valve
-  Expansion vessel
-  De-aerator
-  Dirt separator
-  Manual valve
-  Temperature gauge
-  BALLSTOP
-  Temperature/Pressure safety relief valve
-  Thermostat
-  Pressure reducing valve
-  Check valve
-  Y-filter



Heating/domestic hot system with diverter valve

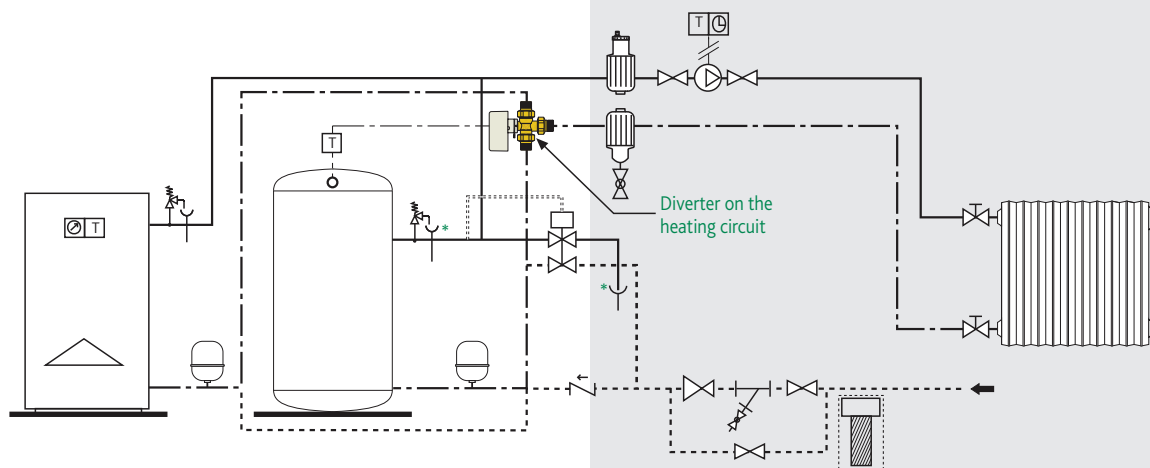


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Typical Applications

Integrated system of solid fuel or gas boiler

If the water from the storage tank is at a lower temperature than required (set on the thermostat) the diverter valve directs the water to the boiler.
If the water temperature is above the set temperature the water is directed to the heating circuit.



* The discharge from a temperature relief valve should be through a tundish to a suitable drain.

Rules governing the installation of a tundish are specified in the Water Supply (Water Fittings) Regulations and the Water Byelaws in recommendation R19.3.

E & O.E

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