BIANCHI F.lli S.p.a.
Plumbing | Gas | Heating Equipment

ZONE VALVES

SERIES 662V-663V-664V

Technical Data Sheet

GENERAL

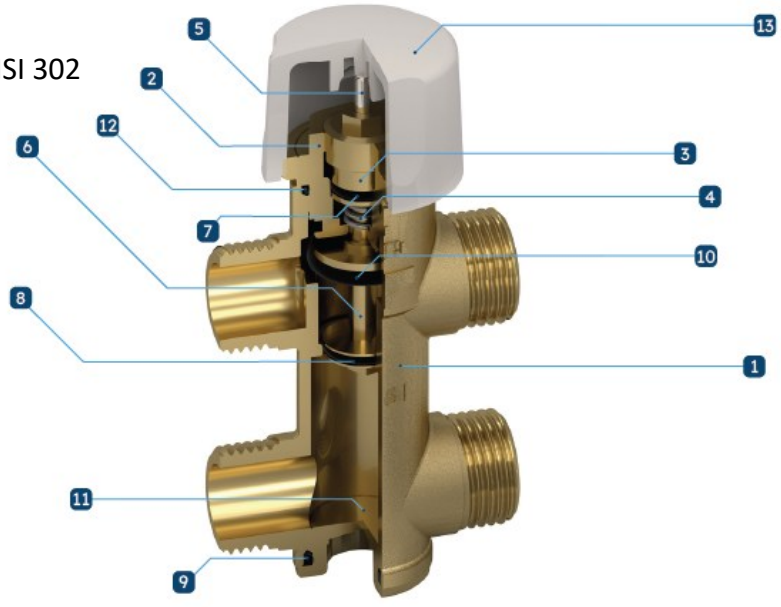
These small linear valves are used in combination with electric linear valve actuators and thermoelectric actuators for the control of hot and/or chilled water for fan coil units and reheaters/ recoolers in electric/electronic temperature control systems.

TECHNICAL DATA

Models:	Two-way - Art. 662V Three-way - Art. 663V Four-way - Art. 664V
Max working pressure:	PN16
Working temperature:	2°C ÷ 120°C
Max differential pressure:	0,8 bar
Stroke:	3 mm
Thread:	Male threads ISO 228-1
Actuator connection:	M30x1,5
Leakage rate:	< 0,02% of Kvs - according to EN 60534-4
Flow characteristics:	Linear - equal percentage according to VDI/VDE 2173

MATERIALS

Body valve [1]:	forged brass CW617N
Control stem [5]:	brass CW614N - nickel plated
Small parts [2,3,6,11]:	brass CW614N
Spring [4]:	stainless steel AISI 302
Seals: [7,8,9,10,12]:	EPDM
Cap [13]:	ABS



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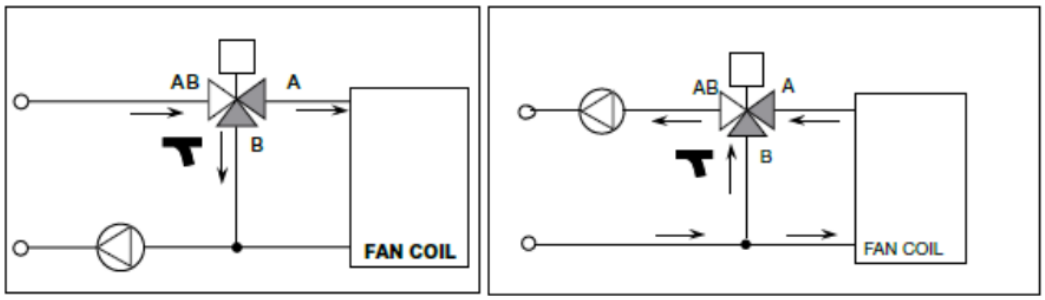
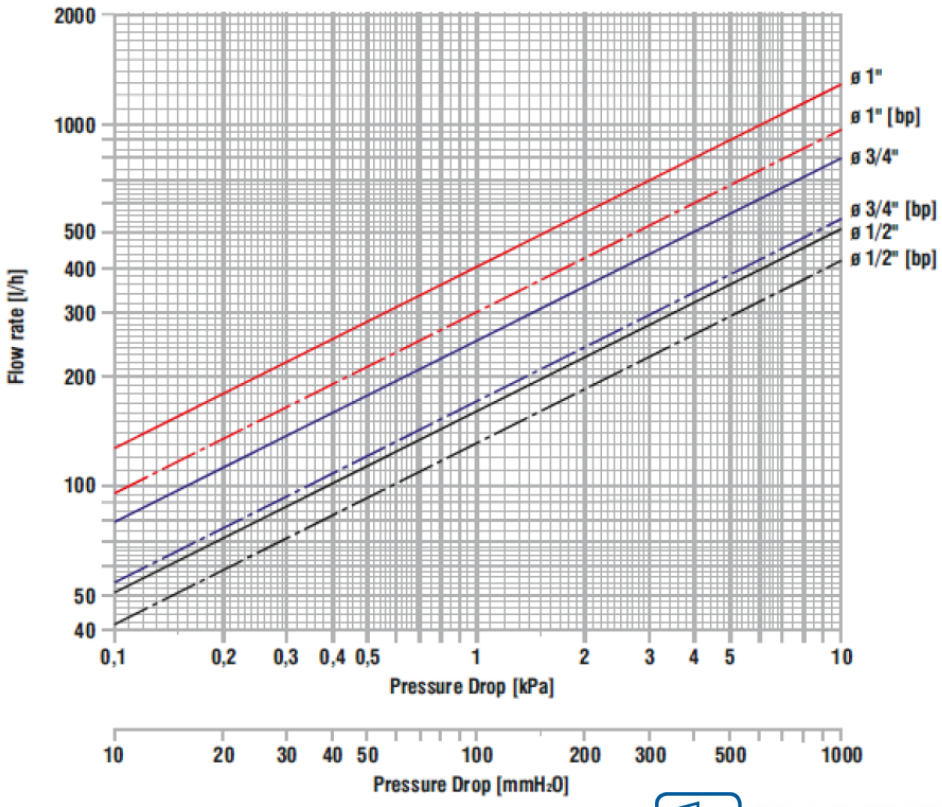
APPLICATION

Zone valves are used to intercept (2 ways series 662A) or divert/mix the heat transfer fluid (3 and 4 ways series 663A and 664A) of a heating or cooling system, according to the requirements of the room thermostat. 3-way (serie 663A) or 4-way (serie 664A) valves can be used both as diverting and as mixing valves, thanks to the particular configuration of the shutter that controls the by-pass flow: this allows an optimization of the different hydraulic needs of installation.

DIVERTING **MIXING**



The dimensions of a valve for water applications can be determined using the diagram below:



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ITEMS

Bianchi F.lli zone valves are available in three versions:
- Two-way valve with shut-off function;
- Three-way valve with mixing or diverting function;
- Four-way valve with mixing or diverting function.

The size and Kvs values available are listed below:

662V

2 ways zone/fan coil valve

Code	Size	Kvs (m^3/h)	Kvs Bypass (m^3/h)	ΔPmax (bar)
662V000404	1/2”	0,4	–	0,8
662V000406	1/2”	0,63	–	0,8
662V000401	1/2”	1,0	–	0,8
662V000400	1/2”	1,6	–	0,8
662V000500	3/4”	2,5	–	0,7
662V000503	3/4”	3,5	–	0,7
662V000600	1”	4,5	–	0,6

663V

3 ways zone/fan coil valve

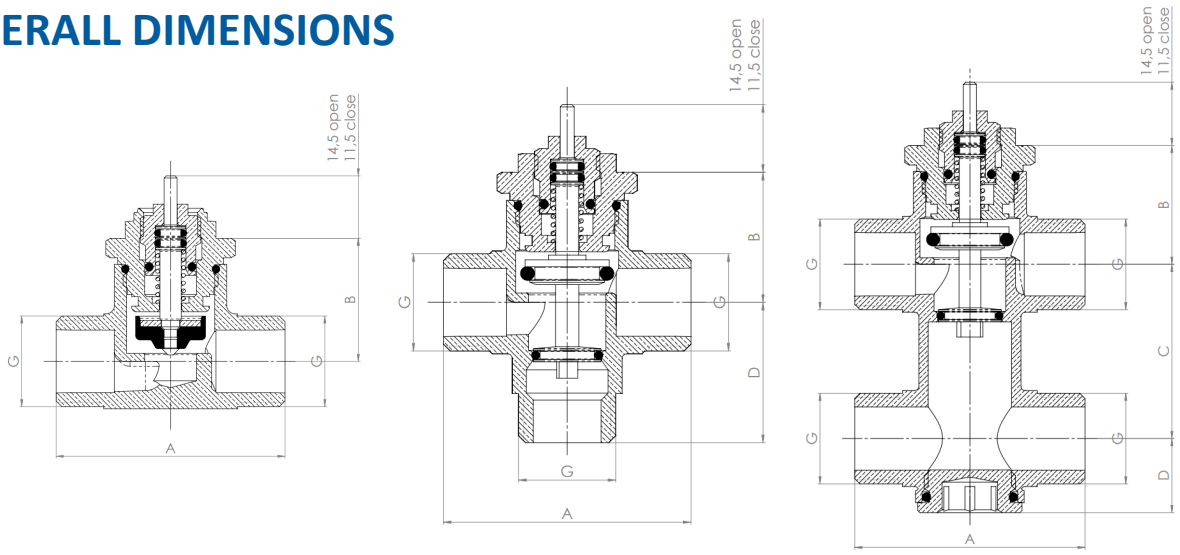
Code	Size	Kvs (m^3/h)	Kvs Bypass (m^3/h)	ΔPmax (bar)
663V000404	1/2”	0,4	0,4	0,8
663V000406	1/2”	0,63	0,45	0,8
663V000401	1/2”	1,0	0,8	0,8
663V000400	1/2”	1,6	1,3	0,8
663V000500	3/4”	2,5	1,7	0,7
663V000600	1”	4,5	3,2	0,6

664V

4 ways zone/fan coil valve

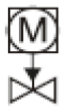
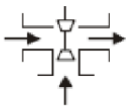
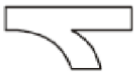
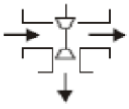
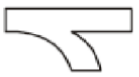
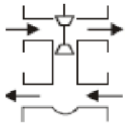
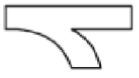
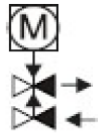
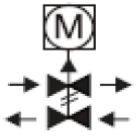
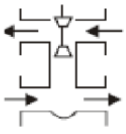
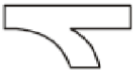
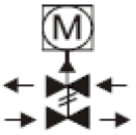
Code	Size	Kvs (m^3/h)	Kvs Bypass (m^3/h)	ΔPmax (bar)
664AV00404	1/2”	0,4	0,4	0,8
664AV00406	1/2”	0,63	0,45	0,8
664AV00401	1/2”	1,0	0,8	0,8
664AV00400	1/2”	1,6	1,3	0,8
664AV00500	3/4”	2,5	1,7	0,7
664AV00503	3/4”	3,5	2,5	0,7
664AV00600	1”	4,5	3,2	0,6

OVERALL DIMENSIONS



ITEMS	G	A (mm)	B (mm)	C (mm)	D (mm)
662V	1/2	53	28,5	–	–
662V	3/4	56	28,5	–	–
662V	1	65	29,5	–	–
663V	1/2	53	28	–	30
663V	3/4	56	28,5	–	28,5
663V	1	65	29,5	–	35
664V	1/2	53	28	40	17
664V	3/4	56	27,5	40	17
664V	1	65	29,5	50	22

OPERATION

VALVE TYPE		▶ = flow ▷ = no flow	
		CLOSE VALVE	OPEN VALVE
			
	MIXING 		
	DIVERTING 		
	MIXING 		
	DIVERTING 		

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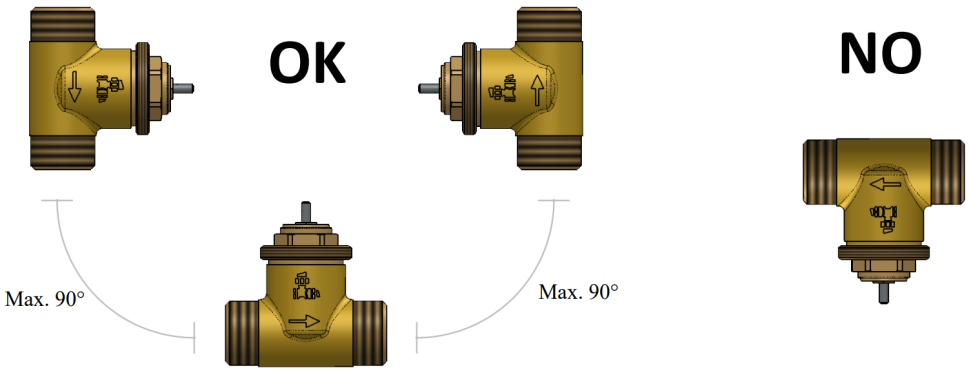
INSTALLATION

General guidelines :

- make sure the valve body and piping have no impurities;
- pay attention to the position of the valve in relation to the flow direction;
- check the flow direction symbol stamped on the valve body;
- make sure that the threaded fitting between valve and hose is tight enough;
- be sure to install without tension and torsion;
- do not use the valve as a support/anchor or as a step;
- protect the valve from dust and dirt during installation;
- provide a filter screen or filter for the flow entering the valve;
- compensate for thermal expansion of the pipeline;
- make sure the stem thread is free of paint or residue.

The control valve should preferably be installed in a vertical or horizontal position.



The piping shall be insulated to protect the actuators from high temperatures. However, the insulation must leave enough space to allow inspection of the stem. To ensure correct operation of the valve, the pipe immediately preceding it must be straight for a length equal to at least twice the DN and the immediately following pipe must be straight for a length equal to at least 6 times the DN.

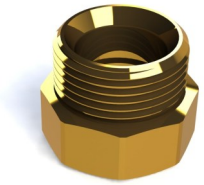
Before commissioning, check the information regarding materials, pressure, temperature and flow direction in relation to the installation plan of the hydraulic system.

CONNECTIONS

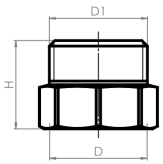
Bianchi F.lli zone valves have ISO 228-1 male thread connections with flat surface. To connect any type of Eurocone adapter (PEX, ALPEX, Copper pipe) to the zone valve, it must be used the 661E reduction fitting.

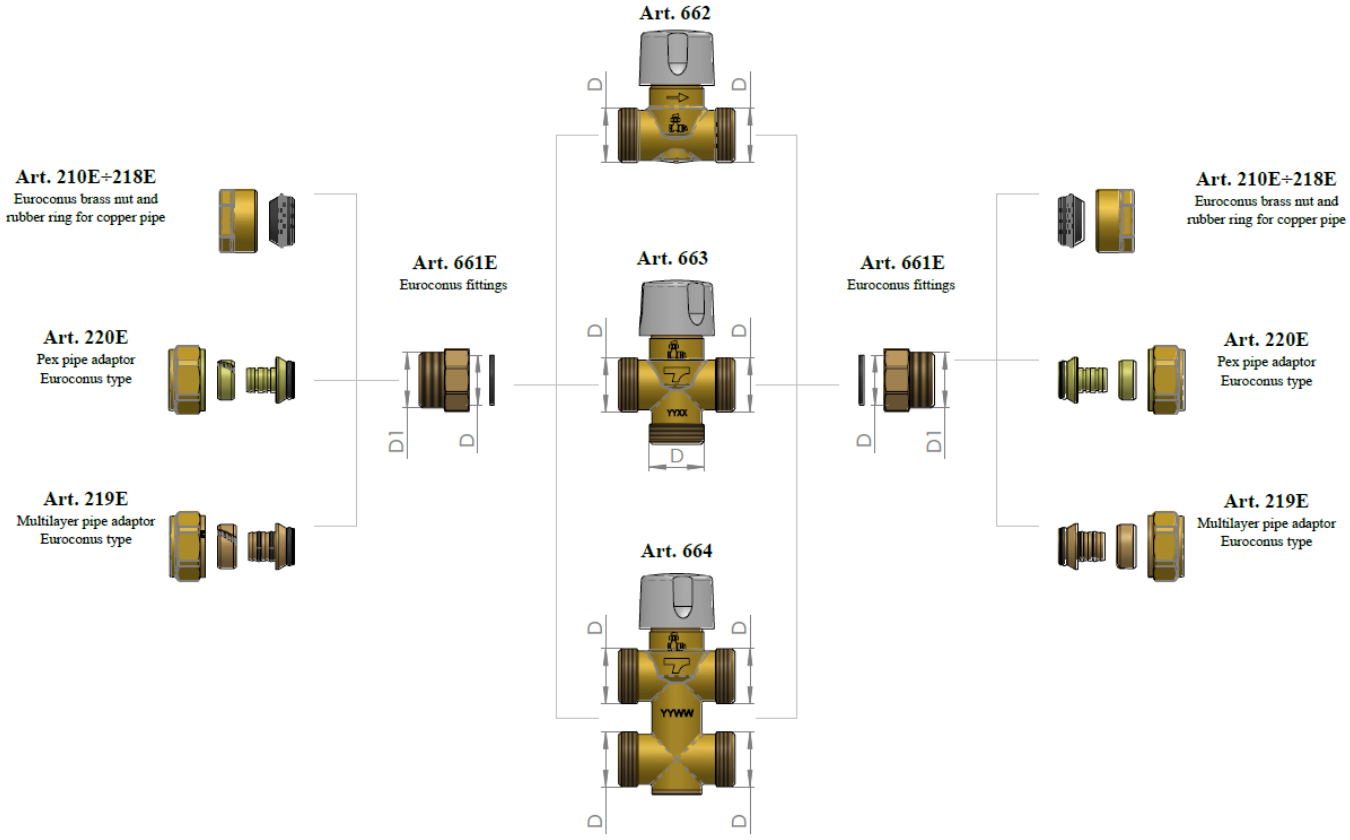
661E

Euroconus fitting for zone valves

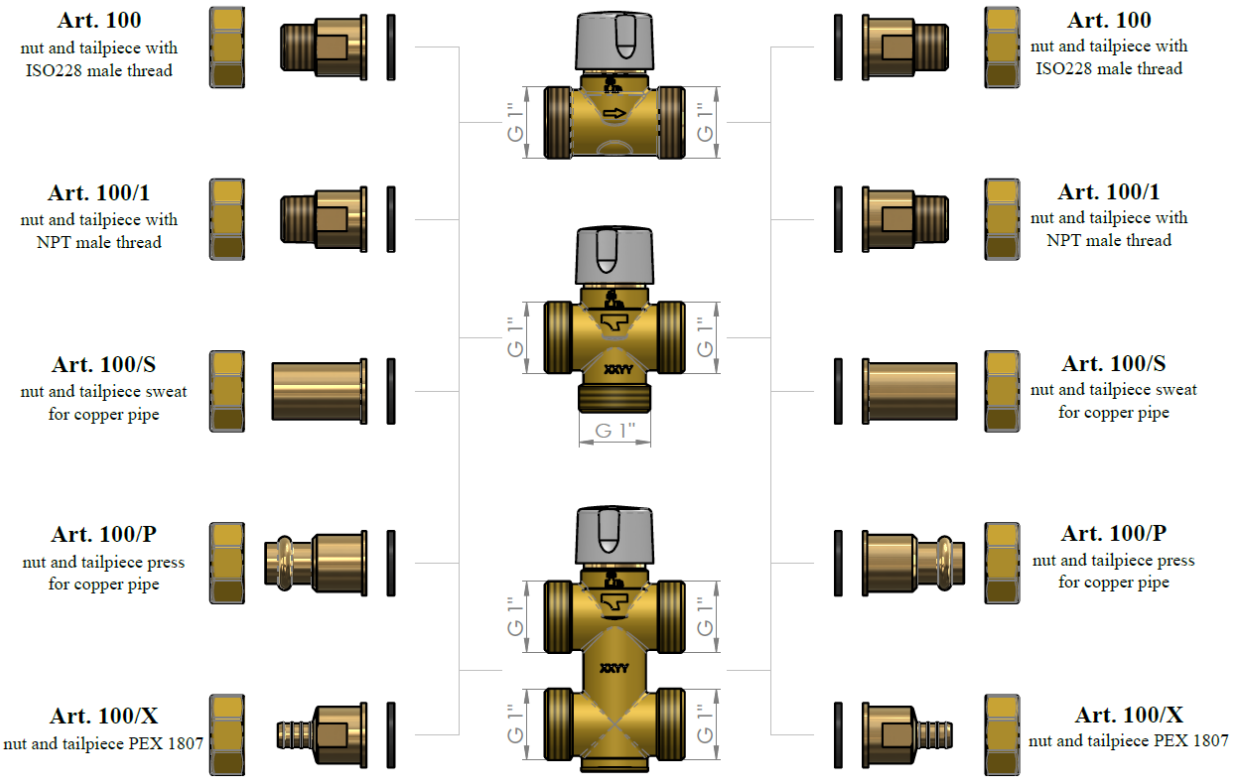


Code	D	D1	H (mm)
661E040500	1/2”	3/4” Euroconus	24
661E050500	3/4”	3/4” Euroconus	24
661E060500	1”	3/4” Euroconus	27





The G1" zone valves can also be mounted with the 100 nut series and tailpiece.



For all connections dimensions and informations check our catalogue or our website.

FLUID CHARACTERISTICS

In order to grant product warranty, the quality of the water contained in the system has to be in conformity with the rules in force in the country of relevance, or at least, to present features not less than those prescribed by italian norm UNI 8065:2019.

As general minimum indications, at least the following parameters have to be respected:

ASPECT:	limpid
PH:	> 7 & < 8,5
IRON (FE):	< 0,5 Mg/Kg
COPPER (CU):	< 0,1 Mg/Kg
ANTIFREEZE (*):	Passiveted propylene glycol
CONDITIONING (*):	In the respect of the concentrations indicated by the producer

(*) Anyway, in case of use of additives or conditioning substances, it is necessary to preventively verify the compatibility of the substances are intended to be used with respect to the construction materials stated in this technical document for all our products.

ACTUATORS

For the automatic control of the valves, Bianchi F.lli offers its thermoelectric actuators **350** and **351**.

350

Thermoeletric head 2 cables

Code	Version	D	H (mm)
3500000000	230V	M 30X1,5	56
35000V2400	24V	M 30X1,5	56

351

Thermoeletric head 4 cables

Code	Version	D	H (mm)
3510000000	230V	M 30X1,5	56
35100V2400	24V	M 30X1,5	56

TECHNICAL DATA

Working temperature:	0°C ÷ 100°C
Closing and opening timing:	3 - 4 min.
Cable length:	1 m
Thermostatic valve connection:	M 30x1,5
Protection:	IP54
Operation:	Normally in close position
Closing force:	100N
Stroke:	4mm
CE conformity according to:	EN 60730

For all dimensions and informations check our catalogue or our website.

SPECIFICATION SUMMARY

662V series

Two-way zone valve with male connections from 1/2” to 1”. Forged brass body. Nickel plated brass control stem. Control stem seal with EPDM O-Ring seal. Working temperature range 2÷120°C. Maximum working pressure 16 bar. Stroke 3mm.

663V series

Three-way zone valve with male connections from 1/2” to 1”. Forged brass body. Nickel plated brass control stem. Control stem seal with EPDM O-Ring seal. Working temperature range 2÷120°C. Maximum working pressure 16 bar. Stroke 3mm.

664V series

Four-way zone valve with male connections from 1/2” to 1”. Forged brass body. Nickel plated brass control stem. Control stem seal with EPDM O-Ring seal. Working temperature range 2÷120°C. Maximum working pressure 16 bar. Stroke 3mm.

661E series

Euroconus reducer fittings for zone valves in brass.

350 - 351 series

Thermoelectric actuators for zone valve control. Available with 2 or 4 cables with 24V or 230V power supply. NC type operation. Coupling with valve thread M 30x1.5. Stroke 4mm. maximum closing force 100N.

The descriptions and photographs contained in this product specification sheet are supplied by way of information only and are not binding.
Bianchi F.lli reserves the right to carry out any technical and design improvements to its products without prior notice.

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