Diamant PRO

BRASS BALL VALVES

USE

- **systems using alternative energy**
- **automation systems**
- **glycol cooling systems**
- **heating/cooling systems**
- **open and closed hydraulic systems**
- **industrial systems in general using hot and cold fluids**
- **water treatment systems**
- **compressed air systems**

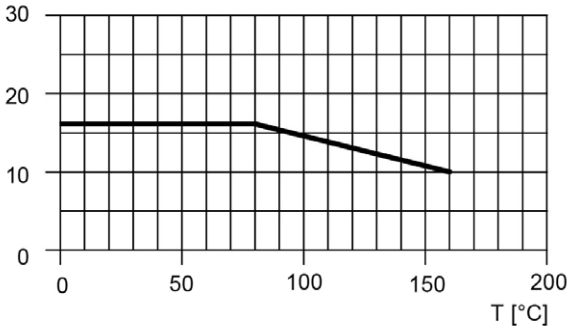
PRO

BRASS

TECHNICAL FEATURES • The ball valves comply with Ministerial Decree 174

BRASS BALL VALVES COMPARATO connection FULL BORE

PN [bar] DIAGRAM PN = f(T)



When the value of the flow is known, the general expression for the calculation of pressure losses is the following:

$$\Delta p\ [bar] = \left[\frac{Q\ [m^3/h]}{k_{vs}}\right]^2$$

The expression provided applies to water or technically similar fluids.

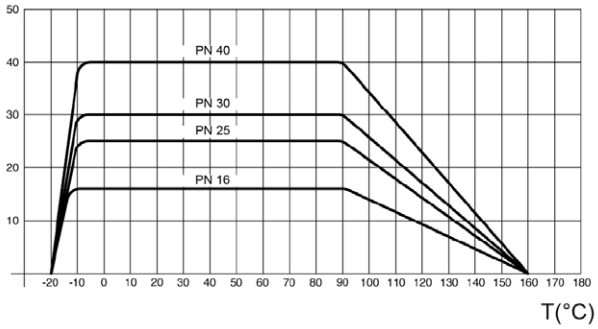
FLUIDS Water and EPDM & PTFE-compatible fluids • Other fluids on request

TEMPERATURES

	Valve	Valve with spacer
• Minimum	-10°C	-20°C
• Maximum	+110 °C	+110°C

BRASS BALL VALVES ISO 5211 connection FULL BORE

PN [bar] DIAGRAM PN = f(T)



When the value of the flow is known, the general expression for the calculation of pressure losses is the following:

$$\Delta p\ [bar] = \left[\frac{Q\ [m^3/h]}{k_{vs}}\right]^2$$

The expression provided applies to water or technically similar fluids.

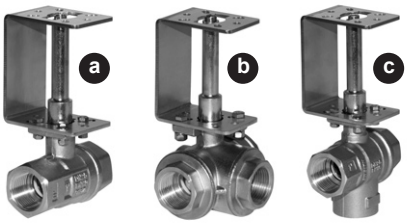
FLUIDS Water and EPDM & PTFE-compatible fluids • Other fluids on request

TEMPERATURES

	Valve	Valve with spacer
• Minimum	-10°C	-20°C
• Maximum	+110 °C	look down

- 2 way ball valve with ISO 5211 connection and spacer: Peak T * = 160°C **a**
- 3 way ball valve with ISO 5211 connection and spacer: Peak T * = 160°C **b**
- diverter/mixer ball valve with ISO 5211 connection and spacer: Peak T * = 120°C **c**

* Maximum temperature that can be reached for a short period of time



Diamant PRO

BRASS BALL VALVES

HYDRAULIC VERSIONS AND FEATURES • For all valves the max differential pressure value coincides with PN

2-WAY ball valve	DN	Connections	PN	Kv_s [m³/h]	Code
	15	1/2" M	16	16,3	DC2A2A
	20	3/4" M	16	29,5	DC2B2A
	25	1" M	16	43	DC2C2A

2-WAY ball valve	DN	Connections	PN	Kv_s [m³/h]	Code
SPACER					
	15	1/2" M	16	16,3	DC2A2AD1
	20	3/4" M	16	29,5	DC2B2AD1
	25	1" M	16	43	DC2C2AD1

2-WAY ball valve	DN	Connections	PN	Kv_s [m³/h]	Code
SPACER and OVERRIDE					
	15	1/2" M	16	16,3	DC2A2AD2
	20	3/4" M	16	29,5	DC2B2AD2
	25	1" M	16	43	DC2C2AD2

3-WAY ball valves	DN	Connections	PN	Kv_s [m³/h]	Code
MIXER / DIVERTER 90° 3 HOLES					
	20	3/4" M	16	11,5	DC3B3A
	25	1" M	16	18,3	DC3C3A
DIVERTER 180° 2 HOLES					
	20	3/4" M	16	11,5	DC3B2A
	25	1" M	16	18,3	DC3C2A

3-WAY ball valves	DN	Connections	PN	Kv_s [m³/h]	Code
SPACER					
MIXER / DIVERTER 90° 3 HOLES					
	20	3/4" M	16	11,5	DC3B3AD1
	25	1" M	16	18,3	DC3C3AD1
DEVIATORE 180° 2 FORI					
	20	3/4" M	16	11,5	DC3B2AD1
	25	1" M	16	18,3	DC3C2AD1

3-WAY ball valves	DN	Connections	PN	Kv_s [m³/h]	Code
SPACER and OVERRIDE					
MIXER / DIVERTER 90° 3 HOLES					
	20	3/4" M	16	11,5	DC3B3AD2
	25	1" M	16	18,3	DC3C3AD2
DIVERTER 180° 2 HOLES					
	20	3/4" M	16	11,5	DC3B2AD2
	25	1" M	16	18,3	DC3C2AD2

2-WAY FF 3-WAY FFF ball valves	DN	Connections	PN	Kv_s [m³/h]	Code
SPACER					
	-	Rp 1/4"	40	5,4	DC2S2P5D1
	10	Rp 3/8"	40	6	DC2R2P5D1
	15	Rp 1/2"	40	16,3	DC2A2P5D1
	20	Rp 3/4"	40	29,5	DC2B2P5D1
	25	Rp 1"	40	43	DC2C2P5D1
	32	Rp 1"1/4 *	40	89	DC2D2P5D1
SPACER and OVERRIDE					
	-	Rp 1/4"	40	5,4	DC2S2P5D2
	10	Rp 3/8"	40	6	DC2R2P5D2
	15	Rp 1/2"	40	16,3	DC2A2P5D2
	20	Rp 3/4"	40	29,5	DC2B2P5D2
	25	Rp 1"	40	43	DC2C2P5D2
	32	Rp 1"1/4 *	40	89	DC2D2P5D2

* maximum differential pressure 25 bar (ΔP max)

SPACER					
MIXER / DIVERTER 90° 3 HOLES					
	15	Rp 1/2"	16	6	DC3A3E5D1
	20	Rp 3/4"	16	11,5	DC3B3E5D1
	25	Rp 1" *	16	18,3	DC3C3E5D1
DEVIATORE 180° 2 FORI					
	15	Rp 1/2"	16	6	DC3A2E5D1
	20	Rp 3/4"	16	11,5	DC3B2E5D1
	25	Rp 1" *	16	18,3	DC3C2E5D1
SPACER and OVERRIDE					
MIXER / DIVERTER 90° 3 HOLES					
	15	Rp 1/2"	16	6	DC3A3E5D2
	20	Rp 3/4"	16	11,5	DC3B3E5D2
	25	Rp 1" *	16	18,3	DC3C3E5D2
DIVERTER 180° 2 FORI					
	15	Rp 1/2"	16	6	DC3A2E5D2
	20	Rp 3/4"	16	11,5	DC3B2E5D2
	25	Rp 1" *	16	18,3	DC3C2E5D2

* maximum differential pressure 25 bar (ΔP max)

SPACER					
"T" BALL					
	20	Rp 3/4"	30	11,5	DC3A6E5D1
	25	Rp 1" *	30	18,3	DC3B6E5D1
"L" BALL					
	20	Rp 3/4"	30	11,5	DC3A5E5D1
	25	Rp 1" *	30	18,3	DC3B5E5D1
SPACER and OVERRIDE					
"T" BALL					
	20	Rp 3/4"	30	11,5	DC3A6E5D2
	25	Rp 1" *	30	18,3	DC3B6E5D2
"L" BALL					
	20	Rp 3/4"	30	11,5	DC3A5E5D2
	25	Rp 1" *	30	18,3	DC3B5E5D2

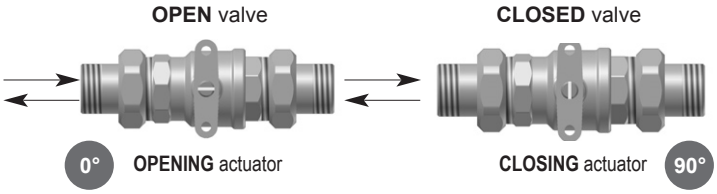
* maximum differential pressure 25 bar (ΔP max)

Diamant PRO

BRASS BALL VALVES

2-WAY BALL VALVE

The ball valve can be mounted in both flow directions, without distinction.

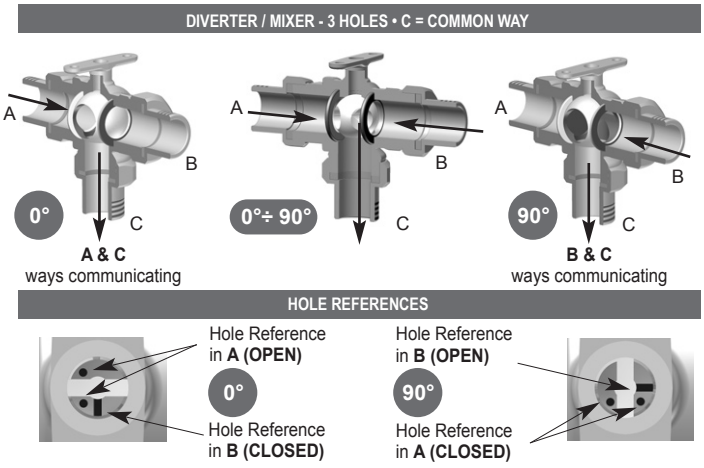


3 WAY DIVERTER/MIXER BALL VALVE

The 3-way version of **Diamant PRO** is available with two different balls. In both cases, one of the holes is positioned on the common way, which is therefore always open.

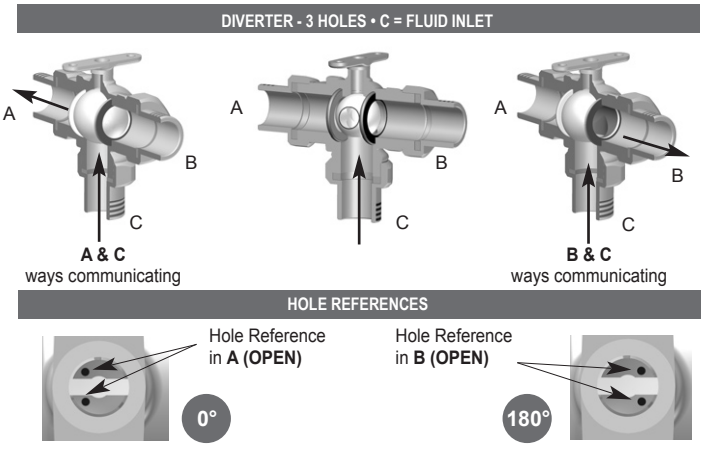
MIXER/DIVERTER BALL VALVE (3-HOLE BALL)

The **MIXER/DIVERTER** ball valve has a 3-hole sphere with one hole pointed towards the common way C (always open) and two more holes which are orthogonal to the first one and to each other. When one of these two holes is pointed towards one of the two inlets, for example A, the second inlet B is closed. When the operation is completed, with a rotation of the ball of 90°, the second hole is oriented on the second way (B), closing the first one (A). The 3-hole ball valve has a particular feature: it can close one way and simultaneously start the opening of the other way. For a short while, during the operating phase, all the three ways are communicating. Moreover, the above mentioned condition allows this valve to be used for mixing. On the control rod there are some symbols, which indicate sphere hole references.



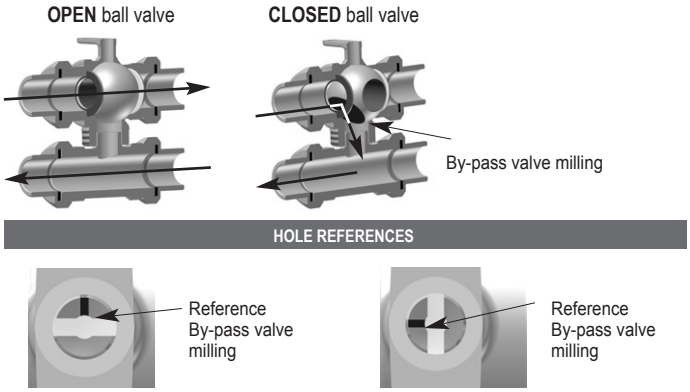
DIVERTER BALL VALVE (2-HOLE BALL)

The **DIVERTER** ball valve has a 2-hole sphere: the first hole is always oriented toward the common way (C), the second hole can be oriented toward either the A or B way, with a rotation of 180°. The ball valve closes one of the two inlets before the other one opens, therefore the two ways never communicate. On the control rod there is a symbol, which indicates which way is communicating with the common one (C).



BY-PASS BALL VALVE

The feature that distinguishes the by-pass ball from the 2-way ball is a milling which allows the recirculation of part of the outlet flow towards the return line when the valve is closed. Therefore, in by-pass valves it is important to recognize the flow direction. On the control rod there is a symbol which indicates the position of the milling on the ball; when the valve is closed, it must always be oriented towards the direction of the incoming flow.



Diamant PRO

BRASS BALL VALVES

3-WAY DIVERTER BALL VALVES

In **Diamant PRO** valves, the HORIZONTAL 3-way version is available with a T-ball or L-ball; in both cases, they are used to allow a DEVIATION. Both ball valves close one way and, at the same time, start opening of the other one:f or a short period of time, during the operating phase, all three ways are in communication with each other. Despite the condition described above, however, it is not possible to carry out a mixing adjustment by means of this type of valve because of the limited dimensions of the sections created.

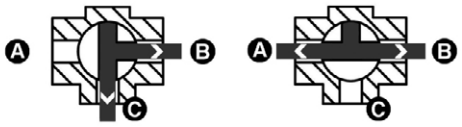
DIVERTER BALL VALVE • "T" BALL

The T-BALL DIVERTER ball valve features a ball that can be used in different ways depending on the initial orientation. As can be seen in the picture, with a 90° rotation it is possible to create different configurations. The position of the holes is indicated by a T engraved on the ball valve pin.

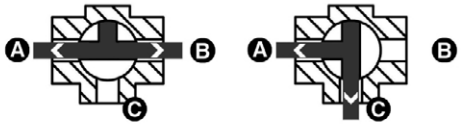
T1 - T4 position

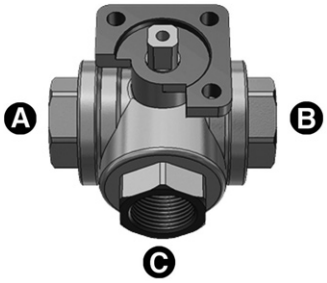
T4 - T3 position

T3 - T2 position



T2 - T1 position



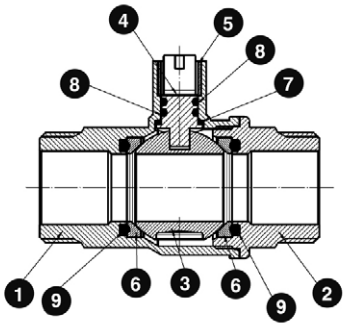


DIVERTER BALL VALVE • "L" BALL

The DIVERTER ball valve with L-SHAPED BALL has a common central way C and two ways which are put into communication with it when they make a 90° rotation. The position of the holes is indicated by an L engraved on the ball valve pin.

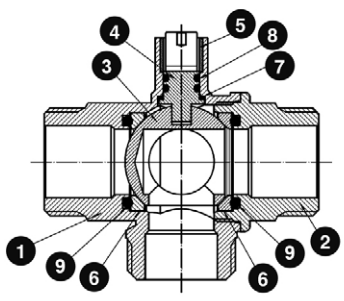
L2 - L1 position

MATERIALS USED



2-WAY COMPARATO CONNECTION BRASS BALL VALVE

1	BODY	BRASS \ CW 617N - UNI EN 12165 NICKEL PLATING
2	COUPLING	BRASS \ CW 617N - UNI EN 12165
3	BALL	BRASS \ CW 617N - UNI EN 12165 CHROMED NICKEL
4	ROD	BRASS \ CW 614N - UNI EN 12164 NICKEL PLATING
5	SLEEVE	P.T.F.E.
6	BALL SEAL	P.T.F.E.
7	ATIFRICTION SEAL	P.T.F.E.
8	O-RING	EPDM
9	O-RING	NBR



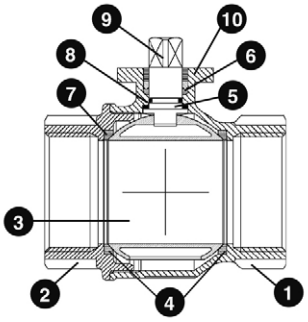
3-WAY COMPARATO CONNECTION BRASS BALL VALVE

1	BODY	BRASS \ CW 617N - UNI EN 12165 NICKEL PLATING
2	COUPLING	BRASS \ CW 617N - UNI EN 12165
3	BALL	BRASS \ CW 617N - UNI EN 12165 CHROMED NICKEL
4	ROD	BRASS \ CW 614N - UNI EN 12164 NICKEL PLATING
5	SLEEVE	P.T.F.E.
6	BALL SEAL	P.T.F.E.
7	ATIFRICTION SEAL	P.T.F.E.
8	O-RING	EPDM
9	O-RING	NBR

Diamant PRO

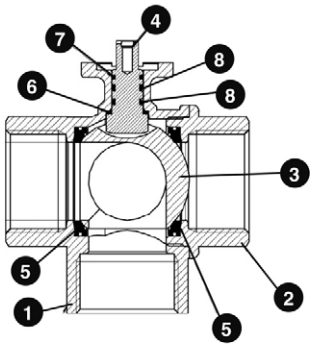
BRASS BALL VALVES

MATERIALS USED



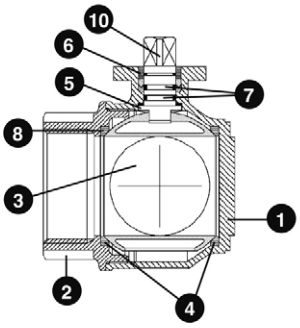
2-WAY FF ISO 5211 BRASS BALL VALVE

1	BODY	BRASS CW617N UNI EN 12165
2	COUPLING	BRASS CW617N UNI EN 12165
3	BALL	BRASS CW617N UNI EN 12165
4	BALL SEAL	P.T.F.E
5	ATIFRICTION SEAL	P.T.F.E.
6	ROD WASHER	P.T.F.E.
7	O-RING	FKM
8	O-RING	FKM
9	CONTROL ROD	BRASS CW617N UNI EN 12165
10	FLANGE ISO 5211	BRASS CW617N UNI EN 12165



3-WAY FFF ISO 5211 BRASS BALL VALVE
DIVERTING / MIXING FFF

1	BODY	BRASS CW617N UNI EN 12165
2	COUPLING	BRASS CW617N UNI EN 12165
3	BALL	BRASS CW617N UNI EN 12165
4	CONTROL ROD	P.T.F.E
5	BALL SEAL	P.T.F.E.
6	ATIFRICTION SEAL	P.T.F.E.
7	O-RING	FKM
8	O-RING	FKM



3-WAY FFF ISO 5211 BRASS BALL VALVE

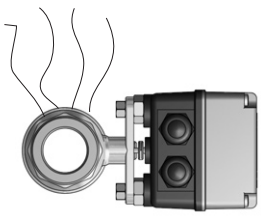
1	BODY	BRASS CW617N UNI EN 12165
2	COUPLING	BRASS CW617N UNI EN 12165
3	BALL	BRASS CW617N UNI EN 12165
4	BALL SEAL	P.T.F.E
5	ATIFRICTION SEAL	P.T.F.E.
6	ROD WASHER	P.T.F.E.
7	O-RING	FKM
8	O-RING	FKM
10	CONTROL ROD	BRASS CW617N UNI EN 12165

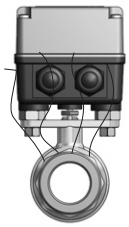
INSTALLATION

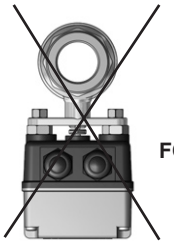
The valve should be installed in such a way that the actuator connection is not facing downwards.

ALLOWED POSITION

RECOMMENDED POSITION







FORBIDDEN POSITION

CAUTION! Do not use high-pressure water directly on the actuator (e.g. a pressure washer)

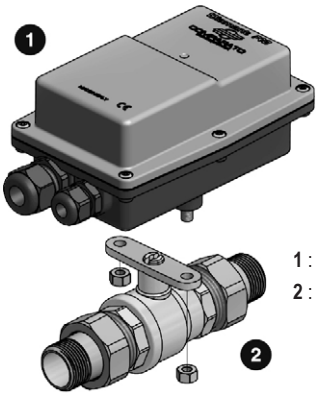
Diamant PRO

BRASS BALL VALVES

CONNECTION TO THE BALL VALVE

DIRECT CONNECTION TO THE BALL VALVE

The direct connection of the **Diamant PRO** with **COMPARATO** connection can only be made on the ball valve with **COMPARATO** connection. For the direct coupling to **ISO 5211** connection ball valve see the **PRO Range** data sheet.

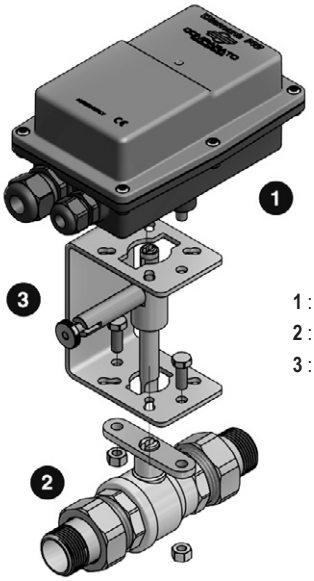


Diamant PRO
COMPARATO connection

1 : Diamant PRO with COMPARATO connection
2 : Ball valve

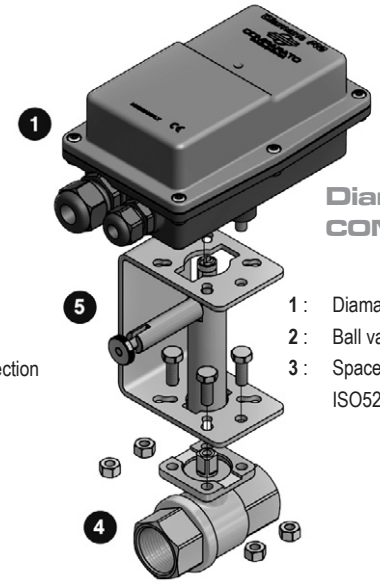
CONNECTION TO THE BALL VALVE WITH A SPACER

The ball valves fitted with a spacer (both with direct rod and manual opening) must be motorized with a **Diamant PRO COMPARATO** connection, even if the ball valve has an **ISO 5211** port.



Diamant PRO
COMPARATO connection

1 : Diamant PRO with COMPARATO connection
2 : Ball valve with COMPARATO connection
3 : Spacer with COMPARATO/COMPARATO connection

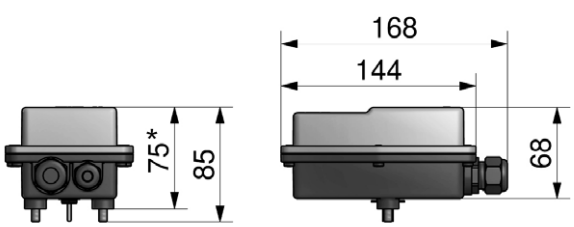


Diamant PRO
COMPARATO connection

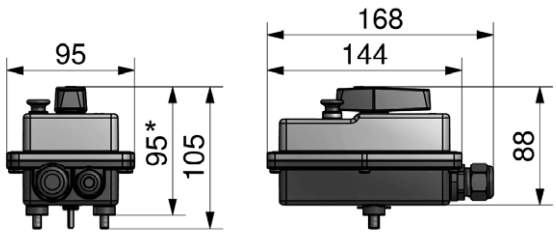
1 : Diamant PRO with COMPARATO connection
2 : Ball valve with ISO5211 connection
3 : Spacer with COMPARATO connection
ISO5211 connection

OVERALL SIZE

Diamant PRO
with COMPARATO connection



Diamant PRO with COMPARATO connection
Version with MANUAL OVERRIDE FROM THE TOP



* the size is to be taken into account when coupling the actuator to the ball valve

Diamant PRO

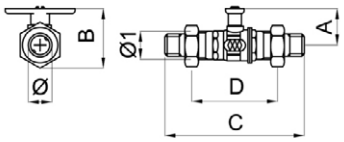
BRASS BALL VALVES

OVERALL SIZE

BALL VALVES

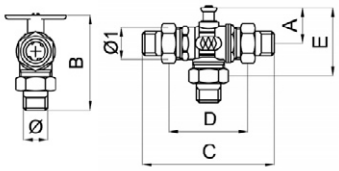
BRASS

2-way COMPARATO connection



DN	Ø UNIONS	Ø 1 BALL VALVES	A	B	C	D
15	1/2"	3/4"	34	48	133	78
20	3/4"	1"	38	58	145	84
25	1"	1"1/4	42	66	164	94

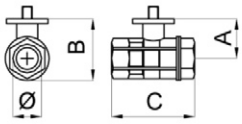
3-ways Diverter Mixer COMPARATO connection



D - **E** : dimensions referred to the ball valve without unions

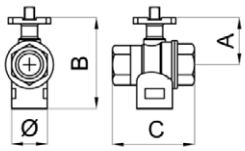
DN	Ø UNIONS	Ø 1 BALL VALVES	A	B	C	D	E
20	3/4"	1"	38	58	145	84	74
25	1"	1"1/4	42	66	164	94	82

2-way ISO 5211 connection



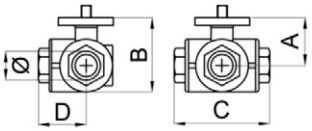
DN	Ø	A *	B	C
8	1/4"	33	50	67
10	3/8"	33	50	67
15	1/2"	33	50	67
20	3/4"	35	55	76
25	1"	46	71	90
32	1"1/4	49	78	102

3-ways Diverter Mixer ISO 5211 connection



DN	Ø	A *	B	C
15	1/2"	31	65	64
20	3/4"	42	82	74
25	1"	45	92	89

3-ways "T" Ball "L" Ball ISO 5211 connection



DN	Ø	A *	B	C	D
15	1/2"	33	52	77	39
20	3/4"	42	66	89	44
25	1"	47	77	105	53

* the size of the spacer must always be added to the **"A"** dimension

Diamant PRO

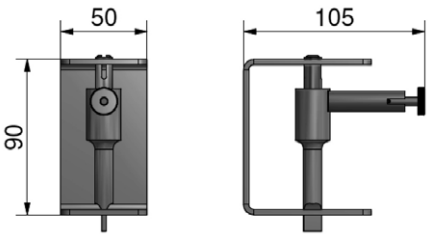
BRASS BALL VALVES

INSULATION SPACERS AND MANUAL OVERRIDE

SPACER with COMPARATO / COMPARATO connection

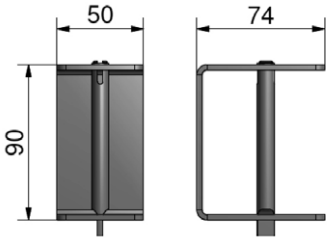
Spacer for insulation with manual opening COMPARATO - COMPARATO connection

Code **ADSTD2**



Spacer for insulation COMPARATO - COMPARATO connection

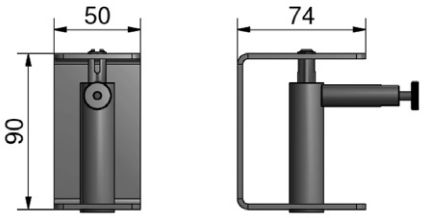
Code **ADSTD1**



SPACER with COMPARATO / ISO 5211 connection

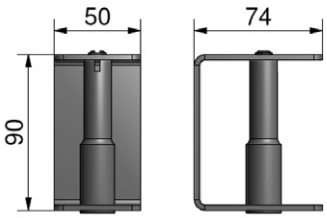
Spacer for insulation with manual opening COMPARATO - ISO 5211 connection

Code **DIDM02**



Spacer for insulation COMPARATO - ISO 5211 connection

Code **DIDM01**



EXAMPLE OF SPECIFICATIONS

DIAMANT 2000 BRASS BALL VALVE • CW617N UNI EN 12165, EPDM and PTFE seals, full port, PN16, with tangs and caps, UNI EN ISO 226 threads. Operating temperatures -20°C…+110°C. Fluid type: water with glycol max. 30%. Spacer for insulation in stainless steel with manual opening height 90 mm. Connection to the actuator with a Comparato Connection. Version: 2-WAY MM DN15 - 1/2" - Kvs 16,3

Brand: **COMPARATO**

Code: **DC2A2AD2**

BIM BUILDING INFORMATION MODELING

UPDATED DATA SHEETS AVAILABLE AT www.comparato.com

HYDROTHERMAL SYSTEMS
COMPARATO NELLO SRL
17014 CAIRO MONTENOTTE (SV) ITALIA VIALE DELLA LIBERTÀ • LOCALITÀ FERRANIA • Tel. +39 019 510.371 - FAX +39 019 517.102
www.comparato.com e-mail:info@comparato.com UNI EN ISO 9001:2015 CERTIFIED COMPANY