

NEW



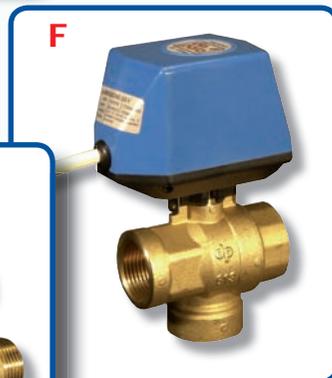
de pala

Italian OEM Technology

MODULATING REGULATION VALVES

"EQUISFERA"

2-ways and 3-ways mixing



- **DIAMETERS:**

1/2" - 3/4" - 1" - 1" 1/4

Kvs (m³/h):

0,63 - 1,0 - 1,6 - 2,5 - 4,0 - 6,3 - 10,0 - 16,0

- **BALL SHUTTER**

- **ATTACHMENTS:**

FEMALE or
with PIPE-UNIONS

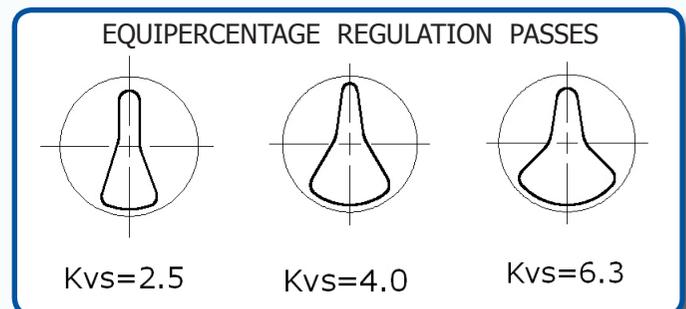
- **BIDIRECTIONAL SERVOMOTORS:**

230VAC or 24VAC supply voltages

3-POINTS control

opening/closing time = **120"** for  **90°**

NO STARTING HIGH FLOW RATE PEAKS
HIGH REGULATING STABILITY
Kvs PROPORTIONALLY RELATED TO HEAD
LOSSES OF THE PLANT



A total flow ball valve has been originally designed to have a high flow rate coefficient. To obtain a stable and precise regulation that KV coefficient has to be reduced. It is possible then to get a linear modulation of irradiate heat as a function of shutter position.

Flow rate increasing needs to be slow specially at the beginning of opening operation.

By means of its latest development, a disc with a special profile placed inside body ball valve, De Pala EQUISFERA valve decreases flow rate to obtain a typical equipercantage regulation flow curve on 2-ways valves.

Same system is used on direct way of 3-ways mixing valve in which, combined with a linear flow rate curve on the 2nd by-pass fluid, De Pala EQUISFERA performs a modulating control of outlet temperature.

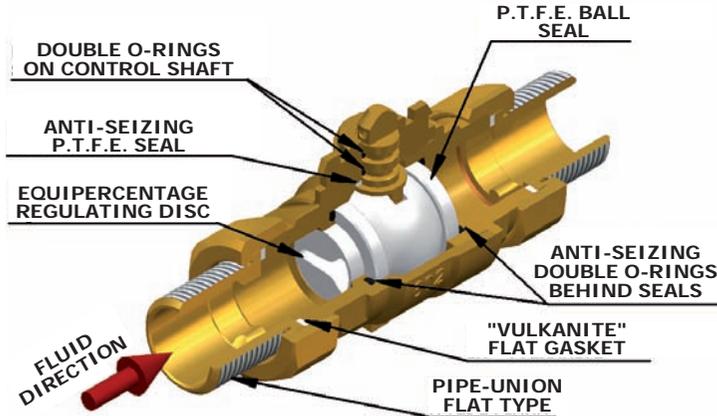
This new valve type is suitable for:

PRIVATE AND INDUSTRIAL HEATING PLANTS IN WHICH A PRECISE FLOW RATE CONTROL IS NEEDED AND TO ACHIEVE AN ACCURATE MIXING OF COLD AND HOT INLET FLUIDS WITH AN OUTLET FLUID TEMPERATURE CONTROL.

2-WAYS BALL VALVE FOR FLOW RATE REGULATION

TECHNICAL FEATURES

- Valve body: **BRASS** CW617N (UNI 12165)
- Ball: **BRASS** CW614N (UNI 12164) (nichel-chromium plated)
- Seals on ball: **P.T.F.E.** seals and EPDM O-RINGS
- Regulation disc: **P.T.F.E.**
- Shaft: **BRASS** CW614N (UNI 12164)
- Seals on shaft: **P.T.F.E.** seal and double EPDM O-RINGS
- Nominal operating pressure: **10 bar**
- Maximum differential operating pressure: **Δp 4 bar**
- Usable fluids: **WATER** or **WATER with GLYCOL**
- Fluid temperature range: **from -10 °C to 100 °C**



FUNCTIONING:

Brass body valve is provided with a **total flow rate ball shutter** seated between **two P.T.F.E. discs**: one of these has total flow rate, the other one, with a regulation pass, decreases flow rate to obtain an **EQUIPERCENTAGE regulation flow curve**.

The two discs stand on **anti-seizing EPDM rubber O-rings**, which guarantee a valve long last and a light manoeuvring torque. De Pala valve is powered by a **BIDIRECTIONAL servomotor** with **90° reversible movement** coupled to the body valve by means of a quick-release **bayonet coupling system**.

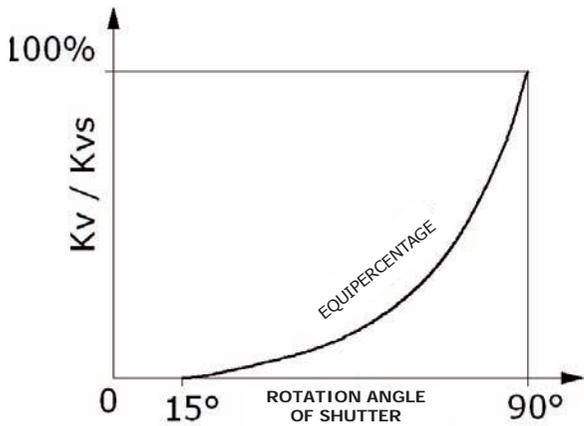
EQUIPERCENTAGE De Pala motorized valves can be controlled by a **3-points modulating control** with a precise ball shutter positioning proportionally related to the control signal.

It can be also controlled by an **electronic control with chrono-proportional outputs** or by means of a climatic electronic control with external and inlet pipe probes.

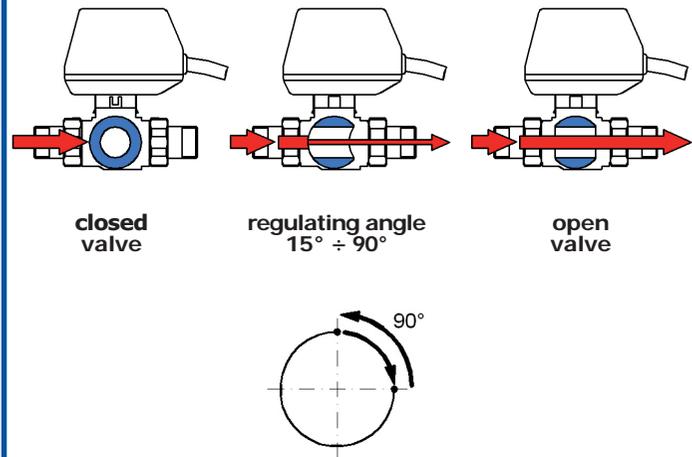
Servomotors can be **230VAC** or **24VAC** supply voltage, with **120 sec. opening/closing time** on **90° manoeuvre**.

REGULATION FLOW CURVE - EQUIPERCENTAGE TYPE

In between 15° and 90° of the shutter rotation angle, the Kv/ Kvs regulation curve ratio of the valve varies in exponential equipercentage mode from 0% to 100%
 In between 0° and 15° of its rotation angle, the 2-ways valve performs a complete closure.
 Kvs = flow rate with Δp 1 bar.
 Kv = instant flow rate.



Reduced regulating pass EQUIPERCENTAGE regulation flow curve



Shutter rotation = Bidirectional 90°

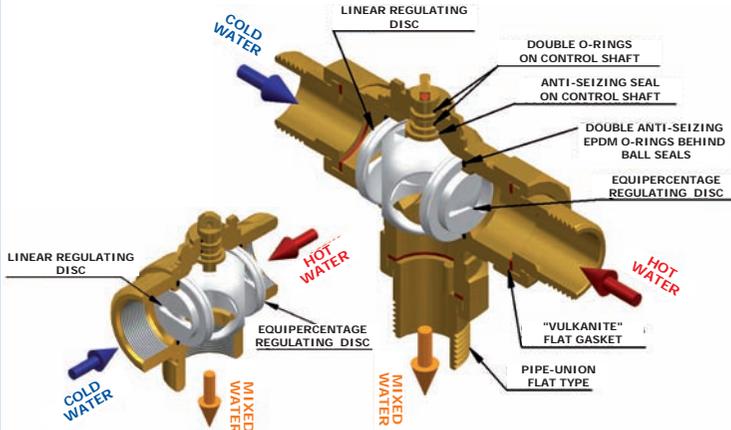
2-WAYS VALVE

 female	DN	15	15	15	15	15	20	20	20	25	25	32	32
	Ø	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	1"	1"	1"1/4	1"1/4
	Kvs=m ³ /h	0,63	1,0	1,6	2,5	4,0	2,5	4,0	6,3	6,3	10	10	16
	Code	R22F0	R22F1	R22F2	R22F3	R22F4	R32F3	R32F4	R32F6	R42F6	R42F5	R52F5	R52F8
 pipe-unions	DN	15	15	15	15	15	20	20	20	25	25	32	32
	Ø	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	1"	1"	1"1/4	1"1/4
	Kvs=m ³ /h	0,63	1,0	1,6	2,5	4,0	2,5	4,0	6,3	6,3	10	10	16
	Code	R22B0	R22B1	R22B2	R22B3	R22B4	R32B3	R32B4	R32B6	R42B6	R42B5	R52B5	R52B8

3-WAYS BALL MIXING VALVE FOR TEMPERATURE REGULATION

TECHNICAL FEATURES

- Valve body: **BRASS CW617N (UNI 12165)**
- Ball: **BRASS CW614N (UNI 12164)** (nichel-chromium plated)
- Seals on ball: **P.T.F.E.** seals and EPDM O-RINGS
- Regulation disc: **P.T.F.E.**
- Shaft: **BRASS CW614N (UNI 12164)**
- Seals on shaft: **P.T.F.E.** seal and double EPDM O-RINGS
- Nominal operating pressure: **10 bar**
- Maximum differential operating pressure: **Δp 4 bar**
- Usable fluids: **WATER** or **WATER with GLYCOL**
- Fluid temperature range: **from -10 °C to 100 °C**



FUNCTIONING:

Brass body valve is provided with a **MIXING BALL SHUTTER** with a 3-bores Cartesian "T" scheme seated between **two P.T.F.E. discs**: one of the these has a **LINEAR TYPE flow rate (by-pass way)** with reduced pass, the other one, with a regulation pass, decreases flow rate to obtain an **EQUIPERCENTAGE regulation flow curve (direct way)**.

The two discs stand on **anti-seizing EPDM rubber O-rings**, which guarantee a valve long last and a light manoeuvring torque. De Pala valve is powered by a **BIDIRECTIONAL servomotor** with **90° reversible movement** coupled to the body valve by means of a quick-release **bayonet coupling system**.

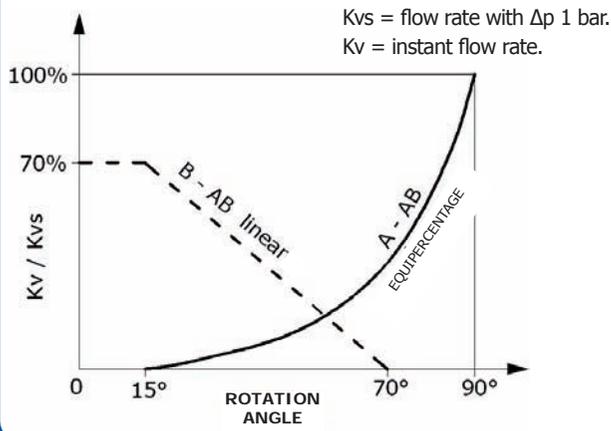
De Pala motorized MIXING valves regulates outlet fluid temperature, it can be controlled by a **3-points modulating control** with a precise ball shutter positioning proportionally related to the control signal.

It can be also controlled by an **electronic control with chrono-proportional outputs** or by means of a climatic electronic control with external and inlet pipe probes.

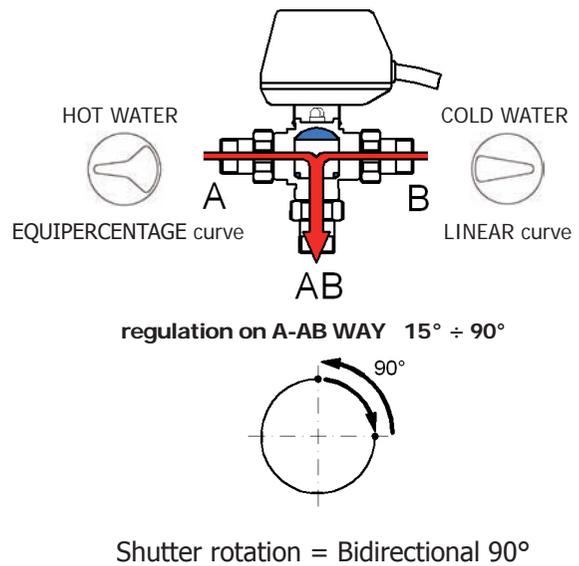
Servomotors can be **230VAC** or **24VAC** supply voltage, with **120 sec. opening/closing time** on **90° manoeuvre**.

REGULATION FLOW CURVE - EQUIPERCENTAGE TYPE

In order to have an optimal room temperature control, the regulation curve of mixed fluids must be **EQUIPERCENTAGE** type.
DIRECT WAY A-AB: In between 15° and 90° of shutter rotation angle, Kv/Kvs regulation curve ratio varies in exponential **EQUIPERCENTAGE** mode from 0% to 100%.
BY-PASS WAY B-AB: In between 15° and 70° of shutter rotation angle, regulation curve ratio varies with **LINEAR** and **INVERSED** mode, decreasing flow rate from 70% to 0%.



Mixed fluids flow EQUIPERCENTAGE regulation flow curve



3-WAYS MIXING VALVES

	DN	15	15	15	15	15	20	20	20	25	25	32	32
female	DN	15	15	15	15	15	20	20	20	25	25	32	32
	Ø	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	1"	1"	1"1/4"	1"1/4"
	KvS=m³/h	0,63	1,0	1,6	2,5	4,0	2,5	4,0	6,3	6,3	10	10	16
	Code	R23F0	R23F1	R23F2	R23F3	R23F4	R33F3	R33F4	R33F6	R43F6	R43F5	R53F5	R53F8
pipe-unions	DN	15	15	15	15	15	20	20	20	25	25	32	32
	Ø	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	1"	1"	1"1/4"	1"1/4"
	KvS=m³/h	0,63	1,0	1,6	2,5	4,0	2,5	4,0	6,3	6,3	10	10	16
	Code	R23B0	R23B1	R23B2	R23B3	R23B4	R33B3	R33B4	R33B6	R43B6	R43B5	R53B5	R53B8

SERVOMOTORS with 3-POINTS CONTROL for BALL VALVES : 2-WAYS REGULATING and 3-WAYS MIXING - "EQUISFERA" type



TECHNICAL FEATURES

- Supply voltages: 230VAC or 24VAC (50 Hz)
- Absorbed power: 4 W
- Torque on control shaft: 7 Nm (~ 70 Kg x cm)
- Working ambient temperature: 0° ÷ 65° C
- Closing/opening time: 120" x 90°
- 3-POINTS control
- With or without auxiliary micro-switch
- Electrical protection level: IP 54
- Auxiliary contact capability: 6 (2) A – 250V ca
- External indication of operating position
- Cable length: 1,0 m
- Quick release with bayonet coupling system

RANGE of 3-POINTS control SERVOMOTORS

Code	Time	Power supply	auxiliary switch
M7A3E	120"	230V	with NO auxiliary switch
M7S3E	120"	24V	with NO auxiliary switch
M7B3E	120"	230V	with SINGLE auxiliary switch
M7C3E	120"	24V	with SINGLE auxiliary switch

INSTALLING

Connection to servomotor is made through a quick release bayonet coupling system. Disconnecting can be easily carried out by widening the two reeds with a screwdriver.

In case of **DAMP APPLICATIONS** a protected IP65 servomotor has to be preferred to a standard servomotor. In any case it is always necessary to install actuator on top or at a side of body valve (but never below).

IMPORTANT: to avoid damages caused by overheating, if servomotor is installed inside closed boxes, a constant air exchange has to be ensured.

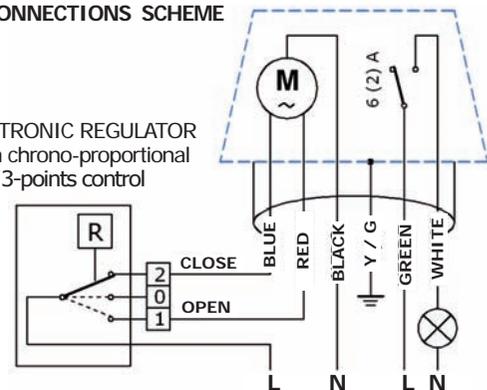
Maximum operation temperature is 65°C.



QUICK RELEASE BAYONET COUPLING SYSTEM

ELECTRICAL CONNECTIONS SCHEME

ELECTRONIC REGULATOR with chrono-proportional 3-points control



ELECTRICAL CONNECTIONS

Servomotor is made by an electric motor equipped with a strong gear-box and steel gears.

To connect it, use the supplied 1mt. multipolar electric cable (4 or 6 wires) and follow the above-stated technical instruction.

The auxiliary switch (GREEN and WHITE wires) gives a free voltage signal, therefore insulated from valve control. It can be used for signal exchange, giving valve position (open or closed) or pump start.

2-WAYS VALVES - OVERALL DIM.

Ø	H	A min.	F	P	B
1/2"	110	120	77	105	133
3/4"	110	120	77	108	139
1"	115	125	87	121	156
1" 1/4	120	130	94	133	166

3-WAYS MIXING VALVES - OVERALL DIM.

Ø	H	A min.	F	B	Q	P
1/2"	110	120	76	130	38	65
3/4"	110	120	76	136	38	68
1"	115	125	86	155	43	78
1" 1/4	120	130	94	172	47	86

