

MOUNTING INSTRUCTIONS FOR LINKAGES

EE..MK / EE..ESB / EE..RD

EE..MK

1. Push the valve spindle fully down.
2. Slide the linkage onto the valve spindle. Bolt the linkage onto the valve body and then tighten the spindle screws.
3. Manually rotate the motor anti-clockwise to the closed position.
4. Screw the motor onto the linkage using the 2 screws provided ensuring the valve stem remains fully down.
5. As the motor rotates clockwise the valve spindle should move upwards. Manually operate the motor and ensure that the spindle moves up and down freely.
For the spring return motor 2 spacers are provided which must be fitted to the linkage, underneath the motor.

EE -1ESB

If fitted, remove the manual handle from the valve shaft.

Rotate the valve shoe to close the required port (the shoe position is indicated by the flat section on the valve shaft.)

Mount the bracket onto the valve body using the valve bolts or those provided with the linkage.

Fit the coupling over the valve shaft, aligning the flats.

Manually close the motor and fit onto the valve coupling and mounting bracket.

The actuator and mounting bracket can be fitted in any position to rotate the valve shoe between the centre port and either one of the other two ports.

EE-2ESB

If fitted, remove the manual handle from the valve shaft.

Rotate the valve shoe to close the required port (the shoe position is indicated by the flat section on the valve shaft.)

Mount the bracket onto the valve body using the bolts on the valve or those provided with the linkage.

Remove the 'U' bracket assembly from the motor. Fit the motor coupling over the valve shaft, aligning the flats.

Manually close the motor and fit onto the valve coupling and mounting bracket.

Fit the handle onto the motor aligning the splines and bolt in position to valve stem. The actuator and mounting bracket can be fitted in any position to rotate the valve shoe between the centre port and either one of the other two ports.

EE-4RD / EE-6RD

Close the valve by rotating the spindle fully clockwise. The valve is closed when the line on valve stem points in line with the valve body.

Mount the bracket onto the valve body using the bolts provided.

Slide the sleeve onto the valve spindle. DO NOT clamp the motor onto the valve spindle without this sleeve.

Manually close the motor by turning it clockwise and screw it onto the bracket using the screws provided.

Open Closed

EE-4ESB

Fit the mounting bracket onto the valve body with the two M8x10 bolts.

Fit the valve coupling onto the valve spindle aligning the 'D' flat towards the required closed port.

Fit the motor over the valve coupling. The D flat on the valve spindle indicates the closed port.

To change the direction of rotation remove the 'U' bolt assembly/coupling from the motor by releasing the circlip on the underside and reverse the adaptor sleeve.

Sleeve splines up = clockwise
Sleeve splines down = anticlockwise

The actuator and mounting bracket can be fitted in any position to rotate the valve shoe between the centre port and either one of the other two ports.

VALVES / LINKAGES

BALL VALVES 2 WAY

EB..

These 2 way Ball Valves are suitable for use in heating and air conditioning applications to control the flow of chilled water, hot water and up to 30% glycol in closed circuit systems.
In open circuits ie mains water or cooling, mineral deposits will impair the operation.



EB..2A to 2H - Body = Brass
Ball : Brass Nickel Plated
Valve Stem Gasket : Rubber EPDM
Flanged valves to PN16
Full Bore Passage

EB..FL -Body = Bronze
Ball Gasket : PTFE
Rotary travel 90°
Tight Shut-off

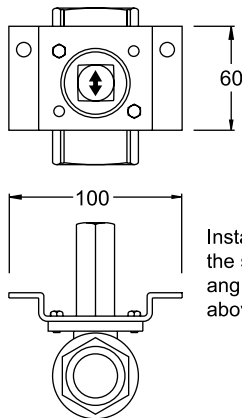
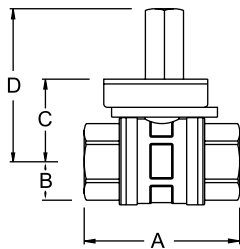
The motor Part Number must be clearly specified to match each valve ordered.
Supplied complete with mounting bracket for the motor.
Select motor type E08..E16..E24..E32.. from separate data sheet.

Type	Size	Kvs m³/h	Max Diff Pressure Bar	Max Pressure Bar	Media Temp °C	Select Motor
EB15-2A	15mm ½" BSP Female	16.2	6	16	2 - 110	E08.. ER08..
EB20-2B	20mm ¾" BSP Female	26.5	6	16	2 - 110	E08.. ER08..
EB25-2C	25mm 1" BSP Female	47	6	16	2 - 110	E08.. ER08..
EB32-2D	32mm 1¼" BSP Female	70	6	16	2 - 110	E16.. ER20..
EB40-2E	40mm 1½" BSP Female	145	6	16	2 - 110	E16.. ER20..
EB50-2F	50mm 2" BSP Female	191	6	16	2 - 110	E16.. ER20..
EB65-2G	65mm 2½" BSP Female	340	6	16	2 - 110	E24.. ER20..

DIMENSIONS

EB..2A..2H

	A	B	C	D
EB15-2A	73	17	31	80
EB20-2B	84	21.5	35.5	84.5
EB25-2C	95	26	40	167
EB32-2D	107	30.5	46.5	107
EB40-2E	119	38.5	58	178
EB50-2F	138	47.5	97.5	142.5
EB65-2G	164	60	93	133
EB80-2H	176	67	100	140

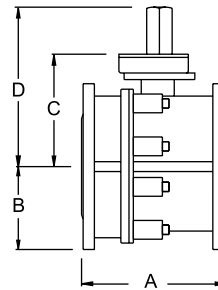
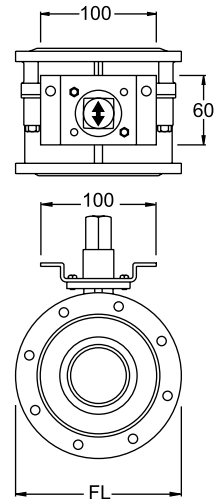


Install the valve with the spindle at any angle vertical to 30° above horizontal.

EB.. FL

	A	B	C	D	FL
EB50-2FFL	150	82.5	112.5	152.5	165
EB65-2GFL	170	90.25	120.5	160.5	185
EB80-2HFL	180	100	130	170	200
EB100-2LFL	190	110	140	180	220

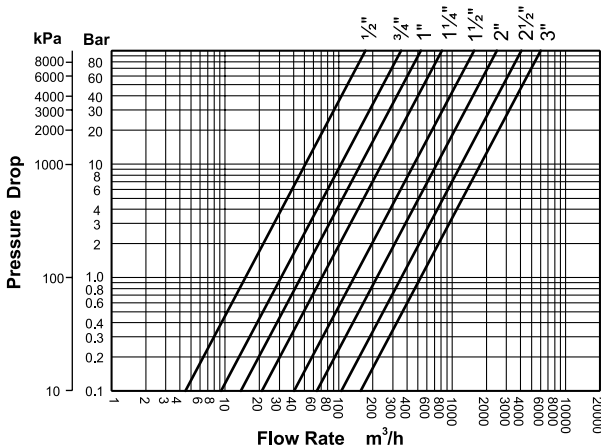
Arrow in line with ports = Valve Open



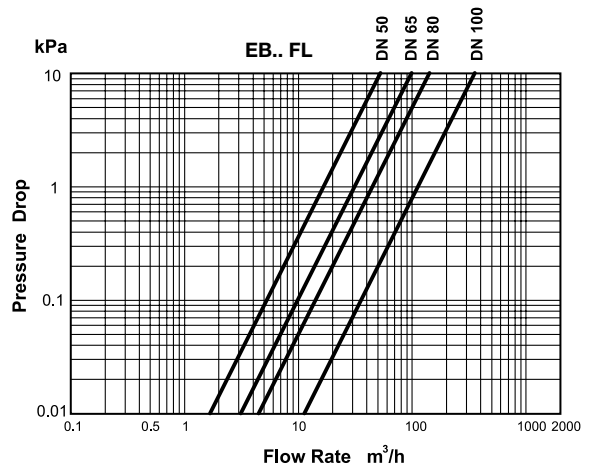
ACCESSORIES:
EE-7EB Linkage Kit with ER-08.. spring return actuator 15 - 32mm
EE-8EB Linkage Kit with ER-20.. spring return actuator 40 - 100mm

FLOW CHARTS:

EB..2A..2H



EB.. FL



BALL VALVES 3 WAY

EB..

These 3 way Ball Valves are suitable for use in heating and air conditioning applications to control the flow of chilled water, hot water and up to 30% glycol in closed circuit systems. In open circuits ie mains water or cooling towers, mineral deposits will impair the operation. For diverting applications install in the return pipe only. For mixing applications install in the flow pipe. There must be 2 inlets and 1 outlet stream at all times. Reversal of this will cause vibration and water hammer.



Body : EB..TA..LG = Brass
 Body : EB.. FL Flange: Cast Iron
 Ball : Brass Nickel Plated
 Ball Gasket : PTFE
 Valve Stem Gasket : Rubber EPDM
 Rotary travel : 90°
 Flange valves to PN16
 Full Bore Passage
 Tight Shut-off

Type	Size	Kvs m³/h	Max Diff Pressure Bar	Max Pressure Bar	Port Position Table	Media Temp °C	Select Motor
EB15-3TA	15mm ½" BSP Female	13.4	6	16	1	2 - 110	E08.. ER08..
EB20-3TB	20mm ¾" BSP Female	16.5	6	16	1	2 - 110	E08.. ER08..
EB25-3TC	25mm 1" BSP Female	18	6	16	1	2 - 110	E08.. ER08..
EB32-3TD	32mm 1¼" BSP Female	26	6	16	1	2 - 110	ER20..
EB40-3LE	40mm 1½" BSP Female	48.5	6	16	2	2 - 110	ER20..
EB50-3LF	50mm 2" BSP Female	64.5	6	16	2	2 - 110	ER20..

Supplied complete with mounting bracket for the motor.
 The motor Part Number must be clearly specified to match each valve ordered.
 Select motor type E08..E16..E24..E32.. from separate data sheet.

DIMENSIONS

VERTICAL T
Align the motor shaft as shown and fit onto valve spindle.

The arrows on the shaft and spindle just indicate the open ports.

Open Motor Clockwise

Closed Motor Anti-Clockwise

Install the valve with the spindle at any angle from vertical to 30° above horizontal.

HORIZONTAL T
Align the motor shaft as shown and fit onto valve spindle.

The arrows on the shaft and spindle just indicate the open ports.

Open Motor Clockwise

Closed Motor Anti-Clockwise

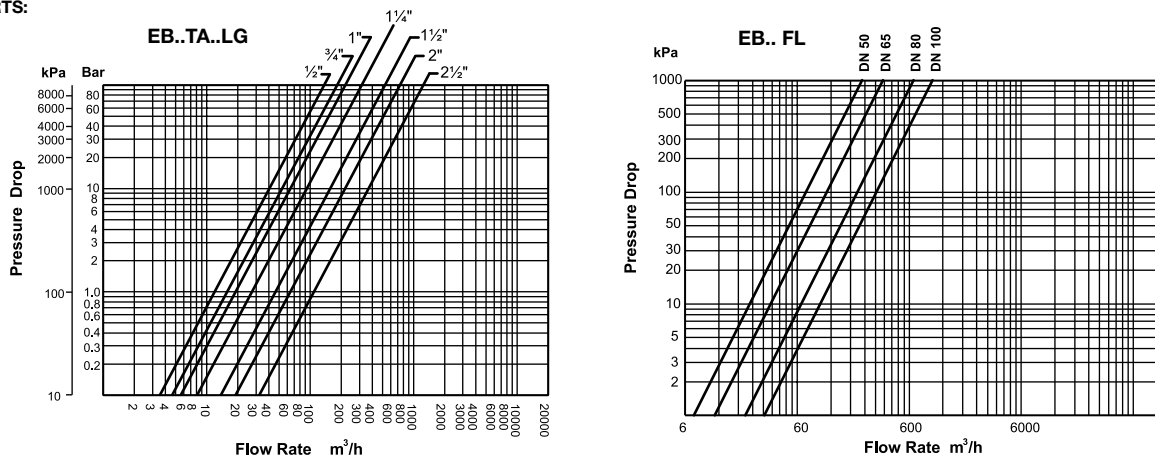
TABLE 1	A	B	C	D
EB15-3TA	73	73	31	80
EB20-3TB	84	87	35.5	84.5
EB25-3TC	95	104	40	167
EB32-3TD	107	115	46.5	178

TABLE 2	A	B	C	D	E
EB40-3LE	119	60	39	58	107
EB50-3LF	138	71.5	47.5	148	197
EB65-3LG	164	89	60	94	210

TABLE 3	A	B	C	D	FL
EB50-3FFL	320	160	112.5	152.5	165
EB65-3GFL	350	175	120.5	160.5	185
EB80-3HFL	390	195	130	170	200
EB100-3LFL	430	215	140	180	220

ACCESSORIES: **EE-7EB** Linkage Kit with ER-08.. spring return actuator 15 - 32mm
EE-8EB Linkage Kit with ER-20.. spring return actuator 40 - 65mm

FLOW CHARTS:



VALVES / LINKAGES

LIFT & LAY / SEAT VALVES 2 & 3 WAY

MK.. MKDN..

These mixing valves are suitable for diverting or mixing applications in closed hot water, chilled water & up to 30% glycol systems. In open circuits, ie mains water or cooling towers, mineral deposits will impair the operation. For diverting applications the valve must be installed in the return pipe only. For mixing or diverting there must be 2 inlets and 1 outlet stream. Reversal of these will cause vibration & water hammer.



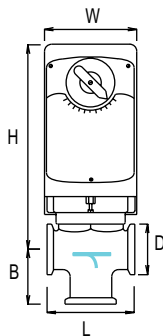
- Stainless steel spindle
- Flanged valves to PN16
- Rangeability 30:1
- Media temp. 2°C to 110°C
- Tight Shut off
- Max. pressure 16 Bar
- Equal percentage flow characteristic
- Leakage 0.1% Kvs

Type	Size	Max Diff Pressure Bar	Kvs m³/h	Lift Height mm	Valve Body Material	Select Motor Spring Rtn
MK15	15mm ½" BSP	10	3	15	Brass	E08.. ER08..
MK20	20mm ¾" BSP	10	6	15	Brass	E08.. ER08..
MK25	25mm 1" BSP	10	9	15	Brass	E08.. ER08..
MK32	32mm 1¼" BSP	6.5	14	15	Brass	E08.. ER08..
MK40	40mm 1½" BSP	3.5	19	15	Brass	E08.. ER08..
MK50	50mm 2" BSP	2.5	25	15	Brass	E08.. ER08..
MKDN50	50mm 2" Flanged	3.5	40	16	Cast Iron	E16.. ER20..
MKDN65	65mm 2½" Flanged	2	63	30	Cast Iron	E16.. ER20..
MKDN80	80mm 3" Flanged	1	100	30	Cast Iron	E16.. ER20..
MKDN100	100mm 4" Flanged	0.8	160	30	Cast Iron	E16.. ER20..

ORDER VALVE + LINKAGE + MOTOR

SEE SEPARATE DATA SHEET TO SELECT MOTOR.

DIMENSIONS



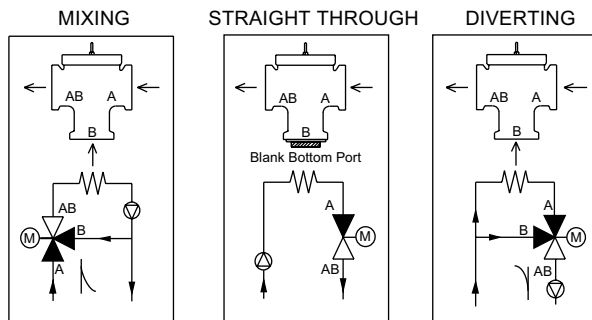
VALUE	SIZE	W	L	B	H	D
MK15	½"	102	80	55	289	
MK20	¾"	102	80	55	289	
MK25	1"	102	90	60	289	
MK32	1¼"	102	110	65	289	
MK40	1½"	102	110	65	289	
MK50	2"	102	150	85	294	
MKDN50	50mm	102	230	100	309	165
MKDN65	65mm	102	291	120	344	185
MKDN80	80mm	102	312	130	354	200
MKDN100	100mm	102	350	150	400	220

ACCESSORIES:

EE-2MK	Linkage Kit for MK15 to MK50 screwed valves	Suitable for use with E08.. E16.. motors ONLY
EE-3MK	Linkage Kit for MKDN50 flanged valve	Suitable for use with E16.. motors ONLY
EE-4MK	Linkage Kit for MKDN65, MKDN80, MKDN100 flanged valves	Suitable for use with E16.. motors ONLY
EE-10MK	Linkage Kit for MK15 to MK50 screwed valves	For Spring Return ER08 motors ONLY
EE-11MK	Linkage Kit for MKDN50 flanged valves	For Spring Return ER20 motors ONLY
EE-12MK	Linkage Kit for MKDN65, MKDN80 flanged valves	For Spring Return ER20 motors ONLY

EXAMPLES:

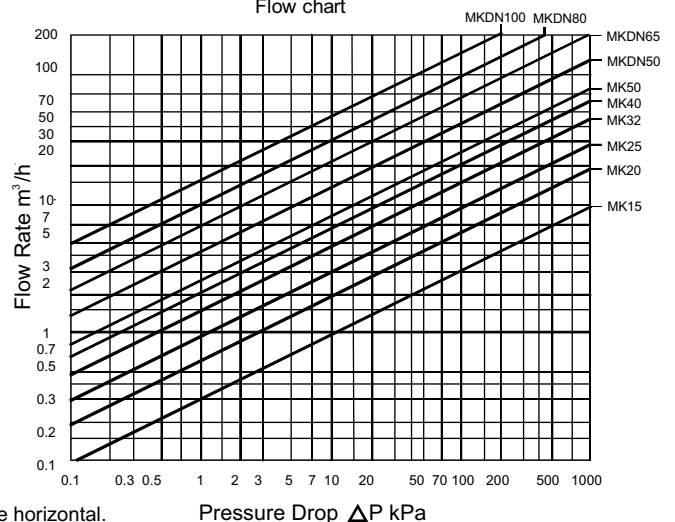
TYPICAL APPLICATIONS



VALVE
 Valve stem UP B to AB open
 Valve stem DOWN A to AB open

For 2 port valves the bottom port must be blanked - Reduce ΔP
 Install the valve with the spindle at any angle vertical to 30° above horizontal.

Flow chart



ROTARY VALVES 2 & 3 WAY

AB.. AC.. F..

A range of rotary valves 15mm to 150mm suitable for diverting or mixing water in closed circuit heating applications.

Media temperature 5°C to 110°C

In open circuits ie mains water, cooling towers etc. mineral deposits will impair the operation.

The position of the shoe is always opposite the flat on the spindle.



F.. valves flanged to PN6

Material :

- 3AB.. Brass
- 3AC.. & F.. Cast Iron body, Brass shoe, Stainless Steel spindle.

The valve can be installed with the spindle at any angle vertical to 30° above the horizontal plane.

All leakage rates are measured at a differential pressure of 0.5 Bar.

Type	Size	Kvs m³/h	Leakage % Mixing	Kvs Diverting	Max Static Pressure	4Nm	Select Motor	Spring Return
3AB15-25	15mm ½" BSP	2.5	<0.2%	<0.2%	10 Bar	EK4..	E08..	ER08..
3AB20-4	20mm ¾" BSP	4	<0.2%	<0.2%	10 Bar	EK4..	E08..	ER08..
3AB20-63	20mm ¾" BSP	6.3	<0.2%	<0.2%	10 Bar		E08..	ER08..
3AB25-8	25mm 1" BSP	8	<0.2%	<0.2%	10 Bar		E08..	ER08..
3AB25-12	25mm 1" BSP	12	<0.2%	<0.2%	10 Bar		E08..	ER08..
3AB32-15	32mm 1¼" BSP	15	<0.2%	<0.2%	10 Bar		E08..	ER08..
3AC20	20mm ¾" BSP	8	<1%	<0.5%	10 Bar		E08..	ER08..
3AC25	25mm 1" BSP	12	<1%	<0.5%	10 Bar		E08..	ER08..
3AC32	32mm 1¼" BSP	18	<1%	<0.5%	10 Bar		E08..	ER08..
3AC40	40mm 1½" BSP	24	<1%	<0.5%	10 Bar		E16..	ER20..
3AC50	50mm 2" BSP	40	<1%	<0.5%	10 Bar		E16..	ER20..
3F50	50mm 2" Flanged	60	<1%	<0.5%	6 Bar	EK4..	E16..	ER20..
3F65	65mm 2½" Flanged	90	<1%	<0.5%	6 Bar		E16..	ER20..
3F80	80mm 3" Flanged	150	<1%	<0.5%	6 Bar		E16..	ER20..
3F100	100mm 4" Flanged	225	<1%	<0.5%	6 Bar		E16..	ER20..
3F125	125mm 5" Flanged	280	<1%	<0.5%	6 Bar		E16..	ER20..
3F150	150mm 6" Flanged	400	<1%	<0.5%	6 Bar		E16..	ER20..

ORDER VALVE + LINKAGE + MOTOR - SEE DATA SHEET ON MOTORS.

On 3AB.. and 3AC.. for 360° rotation remove the red disc under the knob

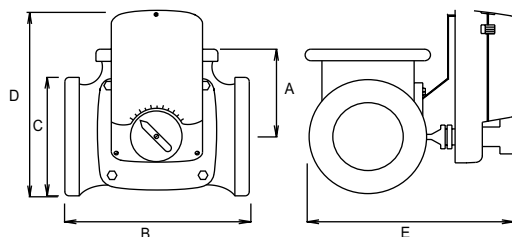
For 2 ports – blank the middle port - reduce ΔP

DIMENSIONS

VALVE	A	B	D	E
3AB15-25	40	80	170	140
3AB20-4	40	80	170	140
3AB20-63	40	80	170	140
3AB25-8	41	82	172	143
3AB25-12	41	82	172	143
3AB32-18	42	84	175	144

VALVE	A	B	D	E
3AC20	56	112	186	183
3AC25	56	112	187	183
3AC32	63.5	127	187	183
3AC40	63.5	127	187	183
3AC50	63.5	127	187	211

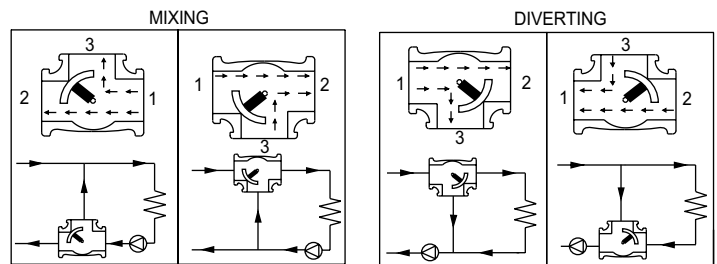
VALVE	A	B	C	D	E
3F50	97.5	195	140	215	236
3F65	100	200	160	225	246
3F80	120	240	190	235	273
3F100	132.5	265	210	245	295
3F125	150	300	240	275	316
3F150	175	350	265	305	337



Dimensions D & E are for E08.. E16.. motors only

D & E will be less for EK4.. & more for ER16..

On 3AB.. and 3AC.. for 360° rotation remove the red disc under the knob



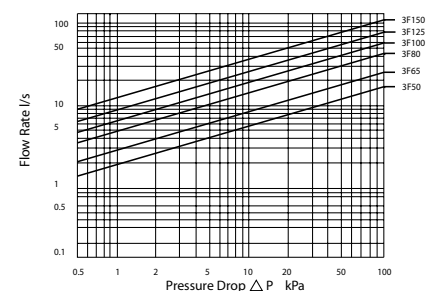
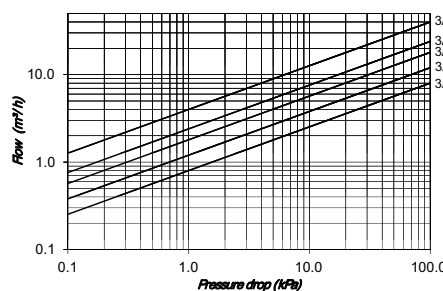
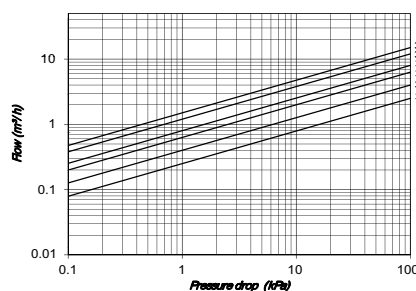
The motor can operate between ports 3-2 or 3-1

ACCESSORIES:

- EE-2MB Linkage for Satchwell MB valve - use E08.. & E16.. motors ONLY
- EE-2MBF Linkage for Satchwell MBF valve - use E16.. motors ONLY

- EE-1ESB Linkage Kit - use EK4.. motors ONLY
- EE-2ESB Linkage Kit - use E08.. & E16.. motors ONLY
- EE-5ESB Linkage Kit - use ER08.. motors ONLY
- EE-6ESB Linkage Kit - use ER20.. motors ONLY

FLOW CHARTS:



VALVES / LINKAGES

BUTTERFLY VALVES

RD..

These ring butterfly valves are used to control liquid flow in closed circuit heating systems. RD.. valves have a small leakage rate and are suitable for normal hot water boiler applications. RDP.. valves have tight shut-off characteristics (see below) and are suitable for hot water, chilled water and up to 30% glycol systems. In open circuits ie mains water, cooling towers, mineral deposits will impair the operation.



Materials: Cast Iron Body, Brass disc, Stainless Steel spindle, Graphite asbestos packing gland.

Media temp. 2°C - 110°C

The RDP.. valves have a PTFE lining providing tight shut-off and allowing standard actuators to be used.

LARGER SIZES AVAILABLE ON REQUEST

Type	Size mm	Max Diff Press Bar	Kvs m ³ /h	Leakage %Kvs	Max Static Press Bar	8Nm	Select Motor 16Nm	Spring Return
RD25	25	8	12	0.5	16	E08..		ER08..
RD32	32	8	20	0.5	16	E08..		ER08..
RD40	40	8	47	0.5	16	E08..		ER08..
RD50	50	5	85	0.5	16		E16..	ER20..
RD65	65	3	165	0.5	16		E16..	ER20..
RD80	80	2	250	0.5	16		E16..	ER20..
RD100	100	1.5	435	0.5	16		E16..	ER20..
RD125	125	1.2	745	0.5	16		E16..	ER20..
RD150	150	1	1350	0.5	16		E16..	ER20..
RDP-25	25	8	12	0.05	16	E08..		ER08..
RDP-32	32	8	20	0.05	16	E08..		ER08..
RDP-40	40	8	62	0.05	16	E08..		ER08..
RDP-50	50	5	115	0.05	16		E16..	ER20..
RDP-65	65	3	185	0.05	16		E16..	ER20..
RDP-80	80	2	290	0.05	16		E16..	ER20..
RDP-100	100	1.2	480	0.05	16		E16..	ER20..
RDP-125	125	1	785	0.05	16		E16..	ER20..
RDP-150	150	0.8	1400	0.05	16		E16..	ER20..
RDP-200	200	0.3	2400	0.05	16		E16..	ER20..

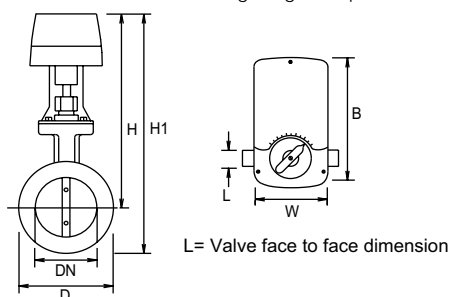
E24.. 24Nm motor only.

SELECT VALVE + LINKAGE + MOTOR

SEE SEPARATE DATA SHEET TO SELECT MOTOR.

DIMENSIONS

Fit valve between mating flanges for pressure ratings required between PN6 to PN16



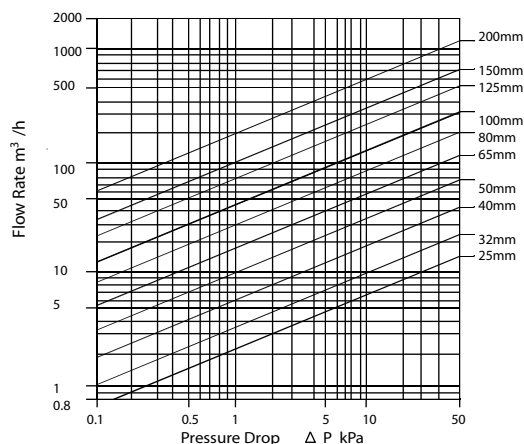
VALVE SIZE	DN	D	H	H1	W	L	B1	B2
25mm	31	64	176	215	102	30	180	250
32mm	37	76	187	232	102	30	180	250
40mm	40	86	192	242	102	30	180	250
50mm	50	97	202	256	102	35	180	250
65mm	65	118	208	272	102	35	180	250
80mm	80	132	218	288	102	40	180	250
100mm	100	150	228	310	102	40	180	250
125mm	125	182	242	339	102	45	180	250
150mm	150	206	262	372	102	45	180	250
200mm	200	260	324	458	102	50	180	250

B1 when using E08.. E16.. E24.. B2 When using ER16..

ACCESSORIES:

EE-4RD	Linkage Kit for RD valves 25--150mm	Suitable for use with E08.. and E16.. motors ONLY
EE-7RD	Linkage Kit for RD 200mm valves.	Suitable for use with E24.. motors ONLY
EE-8RD	Linkage Kit for RD valves 25-40mm	Suitable for use with ER08.. spring return motors ONLY
EE-9RD	Linkage Kit for RD valves 50-150mm	Suitable for use with ER20.. spring return motors ONLY

EXAMPLES:



Typical Application

For use in low pressure hot water (LPHW) heating systems to prevent water flow through unfired boilers in a multi-boiler installation. RD.. valves can also be used as zone valves where slight leakage in the closed position is acceptable. RDP.. valves can be used on applications which require shut off ie. hot water, chilled water and up to 30% glycol systems.

Operation

When installed in a boiler return pipeline and the system requires the boiler to operate, a control signal/changeover contact can be used to motor open the valve and allow water to flow through the boiler. The burner can then operate under the control of the boiler thermostat. A motor with auxiliary switches can be used to ensure that the valve is open before the burner operates.

Installation: Install the valve with the spindle at any angle from vertical to 30 degrees above the horizontal plane.

MOTORISED SPRING RETURN VALVES 2 & 3 PORT

EZV..

2 & 3 port spring return valves for zoning & diverting in closed circuit hot water, chilled water & up to 30% glycol systems. Supplied complete with motors.



ORDER AUXILIARY SWITCH SEPARATELY

Media temp. 4°C to 110°C

Max. pressure 10 Bar

Consumption 5W

Max ambient 60°C

Materials: brass body, rubber ball/plug for 100% shut off.

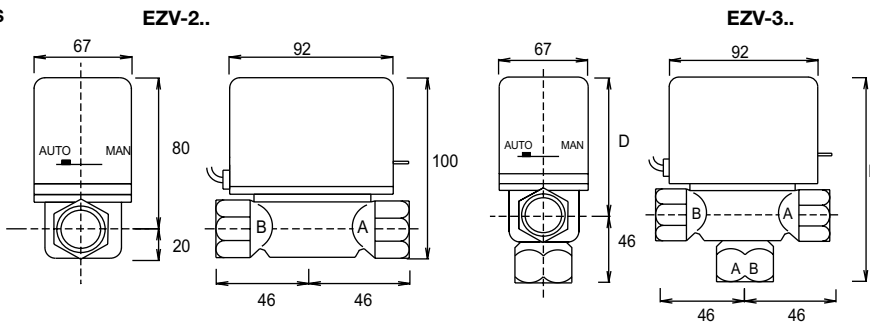
Wiring cable 0.5m

Auto/Manual lever

Replaceable motor

Type	Connection	Max Diff Press Bar	Kvs m ³ /h	Supply ±10%	Motor Open	Spring Close	Application	Enclosure
EZV-211	½" BSP	0.90	6.0	230VAC	10s	4s	Zone	IP20
EZV-212	15mm comp.	0.90	6.0	230VAC	10s	4s	Zone	IP20
EZV-213	¾" BSP	0.90	7.0	230VAC	10s	4s	Zone	IP20
EZV-214	22mm comp.	0.90	7.0	230VAC	10s	4s	Zone	IP20
EZV-215	1" BSP	0.90	9.0	230VAC	10s	4s	Zone	IP20
EZV-216	28mm comp.	0.90	9.0	230VAC	10s	4s	Zone	IP20
EZV-311	½" BSP	1.54	6.6	230VAC	20s	6s	Diverting	IP20
EZV-312	15mm comp.	1.54	6.6	230VAC	20s	6s	Diverting	IP20
EZV-313	¾" BSP	1.54	7.8	230VAC	20s	6s	Diverting	IP20
EZV-314	22mm comp.	1.54	7.8	230VAC	20s	6s	Diverting	IP20
EZV-315	1" BSP	0.62	12.6	230VAC	20s	6s	Diverting	IP20
EZV-316	28mm comp.	0.62	12.6	230VAC	20s	6s	Diverting	IP20
EZV-M1	Auxiliary switch for EZV..		230VAC 3(1)A SPST	The volt free contact closes when the valve is fully open				

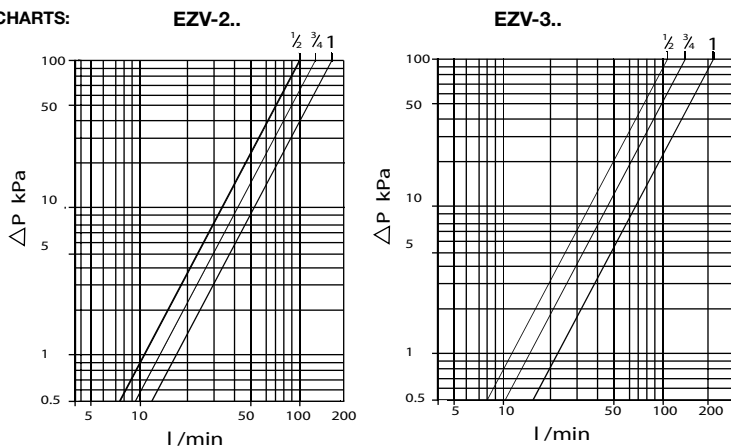
DIMENSIONS



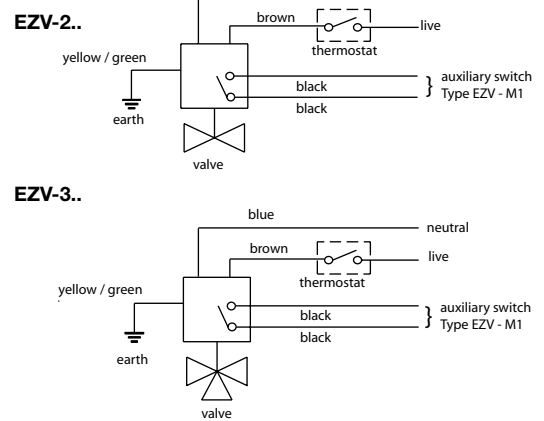
Install the valve with the motor at any angle vertical to 30° above the horizontal plane.

Type	D	E
EZV-311,312,313,314	79	125
EZV-315,316	84	130

FLOW CHARTS:



WIRING:



EXAMPLES:

