

FAILSAFE ELECTRIC ON/OFF STAINLESS BALL VALVE



General:

Utilising a full bore valve specifically designed for automation, this compact valve package provides excellent reliability in service.

The failsafe electric actuator uses industrial rechargeable batteries to provide an alternate power source should the mains power fail. The industrial rechargeable batteries offer long life and are oversized to cover degradation in the unlikely event that it should occur.

Actuator features include local and remote end of travel confirmation, manual override and all external electrical connection, eliminating the need to remove the cover to connect.

Specifications:

Valve body	CF8M (cast 316 SS)
Valve ball	AISI 316
Ball seats	RPTFE
Stem seals	RPTFE
Valve pressure range	Uti 2" 64 bar * rest 50 bar
Valve temp. limits	-30C to +200C **
Supply voltage to actuator	24DC, 24, 110 or 240V AC

Applications:

Water, oil, air & most non-corrosive media, subject to compatibility with wetted parts in contact with media.

* Actuators sized using max differential of 6 bar wet service – if this is to be exceeded, call to check actuator sizing.

** Actuator temperature limit = +70C. For applications above this temperature, see Type 2114

Installation:

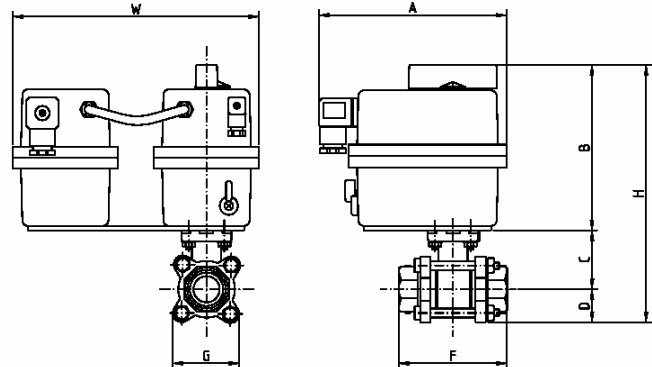
Can be mounted in any orientation although valve horizontal with actuator vertical is preferred.. Valve ends are screwed female x female BSP (UNI ISO 7/1), use thread sealant suitable for flowing media.

Features:

- > Valve designed for automation
- > Compact - no mounting kit
- > Full bore valve for maximum flow rate
- > Valve rated at 64 bar uti 2"
- > Failsafe electric actuator
- > Local & remote visual position indication
- > Quick and easy to install
- > Economically priced

TYPE 2104

Dimensions: on request



On/Off, Fails closed on power failure: Type 2104

Principle of operation:

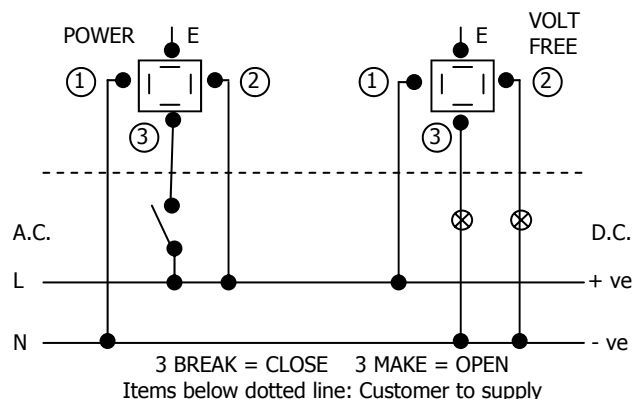
Under normal operation, the actuator works as a normal power open, power close actuator. Under these conditions, the incoming mains power trickle charges the industrial rechargeable batteries to maintain them at full power.

Should the mains power fail, an internal relay drops out and immediately draws battery power to the actuator to close it, if it is not in the closed position already.

On resumption of mains power, the BSR will re-set the actuator in accordance with the control signal being applied ie: if the control signal is to open, the actuator will open on resumption of mains power.

Standard function is normally closed (fails shut on power failure), should you need normally open, specify at order time.

Wiring Diagram (AC or DC): Normally Closed



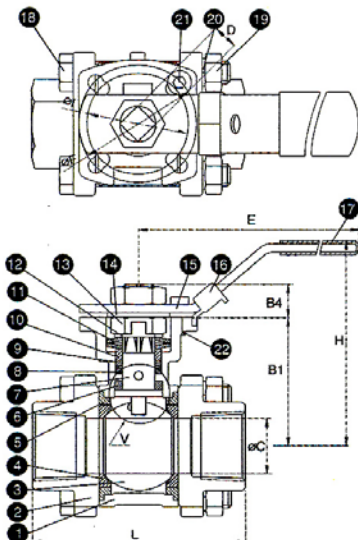
FULL BORE DIRECT MOUNT 3 PIECE BALL VALVE



- > **3 Piece construction**
- > **In-line maintainable**
- > **Direct mount ISO5211**
- > **Anti-static, anti-blow out stem**
- > **1000 psi rated up to 2"**
- > **Variety of seat material options**

TYPE BVM-77

GENERAL	VALVE TYPE	FULL BORE FLOATING BALL 1/4 TURN BALL VALVE	
	VALVE MODEL	BVM-77	
	OPERATOR	LOCKABLE LEVER	
	DESIGN STANDARDS	ANSI B16.34 Valves, flanged, threaded and weld ends	
	FACE TO FACE DIMS	ANSI B16.11 Valves, face to face	
	TESTING STANDARDS	BS 6755 Testing of valves	
	CERTIFICATION	3.1B On request	
	ACTUATOR MOUNTING	ISO 5211 Actuator direct mounts without mounting kit	
	SIZE RANGE	1/4" to 4"	
	PRESSURE RATING	1/4" ~ 2" 1000 psig, 2 1/2" ~ 4 " 800 psig	
TEMPERATURE LIMITS	-60F ~ +420F -50C ~ +210C		
MATERIALS	BODY	WCB	CF8M
	BALL	316SS	316SS
	STEM(BLOW-OUT PROOF)	316SS	316SS
	SEATS	RTFE (15% GF)	RTFE (15% GF)
	SEALS	RPTFE	RPTFE
	END CONNECTIONS	BSPPT, NPT, BUTT WELD, SOCKET WELD	
FEATURES	ANTI-STATIC DEVICE	STANDARD	STANDARD
	FIRE SAFE	DESIGN, NOT CERTIFIED	DESIGN, NOT CERTIFIED
	PRIMARY STEM SEAL	CONICAL STEM THRUST SEAL	CONICAL STEM THRUST SEAL
	SECONDARY STEM SEAL	CHEVRON V RING	CHEVRON V RING
	STEM SEAL ADJUSTMENT	BELVILLE WASHERS	BELVILLE WASHERS
	IN-LINE MAINTAINABLE	YES	YES
	OTHER	316L Ends for weld end versions	316L Ends for weld end versions



DIMENSIONS							
SIZE	C	E	D	H	L	B4	ISO
1/4"	11.6	139	9	78	63.5	8.65	F03/04
3/8"	12.7	139	9	78	63.5	8.65	F03/04
1/2"	15.0	139	9	78	65.5	8.65	F03/04
3/4"	20.0	139	9	83	76.2	8.45	F03/04
1"	25.0	165	11	96	86.0	11.4	F04/05
1 1/4"	32.0	165	11	100	102.8	11.4	F04/05
1 1/2"	38.0	215	14	127	119.0	13.9	F05/07
2"	50.0	215	14	135	131.4	13.9	F05/07
2 1/2"	65.0	262	17	176	164.0	16.8	F07/10
3"	80.0	262	17	176	182.5	17.8	F07/10
4"	100.0	312	17	191	235.6	16.8	F07/10

J+J FAILSAFE ELECTRIC ACTUATOR: BSR SYSTEM (Battery 'Spring-Return')

Extra instructions, to be read in conjunction with standard actuator instructions

FUNCTION:

To provide an alternative source of power to drive the actuator to the pre-determined failsafe position in the event of a mains power supply interruption. Please note that the BSR system contains NO SPRINGS, and is not a true 'spring return' electric actuator – the 'return' to a failsafe position is achieved with stored battery power driving a 24VDC motor.

METHOD:

The incoming mains supply voltage passes through a power sensing relay, a transformer and rectifier (if applicable) and an industrial strength trickle charger before being fed to the actuator's DC motor. Under normal operating conditions the actuator is opened and closed using mains power, and this mains power simultaneously trickle charges the industrial rechargeable batteries to maintain them at full charge.

After an initial minimum charge of 24 hours to fully charge the rechargeable battery pack, immediately the mains supply is interrupted (power fail mode) the power sensing relay switches to battery power and, if not already in the pre-set failsafe position, the stored battery power is drawn to move the actuator to the pre-set failsafe position – either closed if configured normally closed (NC), or open if configured normally open (NO). In the power fail mode, the batteries are not being charged, and any movement of the actuator will be drawn from the batteries.

Upon mains power resumption, the relay senses the incoming mains power and switches the system back to mains, and re-sets the actuator to the position it saw immediately prior to the mains supply interruption.

INSTALLATION:

Any J+J electric actuator can be fitted in any orientation, although the standard position with the drive vertical is preferred. Electrical connection is per the wiring diagram affixed to the side of the actuator (or as per our separate wiring diagrams which are available on request). Should there be ANY queries regarding electrical connection, CHECK before applying power as irreparable damage caused by incorrect electrical connection will invalidate any warranty.

OPERATION:

(a) Standard Operation: Power open, power close, fails safe on power failure

The 'BSR' unit is automatic in that it senses the loss of mains power and triggers the drawing of battery power without any human intervention. To achieve full power the industrial rechargeable batteries MUST be charged for a MINIMUM of 24 hours, BEFORE they are to be put into service. Failure to comply with this minimum charging period can dramatically reduce the storage capacity and performance of the batteries. After the 24 hour charge, there is sufficient charge in the batteries to provide around 8 operations – this provides a significant factor of safety against degradation of the battery pack, as in an emergency only one operation is needed.

(b) 2 Wire Operation: Energise open, fail close (solenoid type operation)

Although not designed for this purpose, it is possible to use the BSR system as a solenoid, ie: energise open, fail close. There are two main differences between this configuration and the 'standard operation' above;

- 1) The wiring is generally a 2 wire system, and a link needs to be fitted between pins 2 and 3 in the power din plug live supply (+ve in DC systems), and
- 2) In models R0 and R1, the MINIMUM energise open time is 8 minutes, in model R2 the minimum energise open time is 30 minutes, and in model R2+ the minimum energise open time is 60 minutes.

These energise open times are the absolute MINIMUM needed by the BSR system to 'boost' charge the industrial rechargeable batteries to replace the battery energy lost on one 'fail close' cycle. The batteries are only being trickle charged during the energise open cycle.

MANUAL OVERRIDE:

The Manual Override is provided for EMERGENCY hand operation only.

The BSR system operates around the position of the internal closed limit switch. In the closed position this switch is made and (in N/C applications) the actuator is in its failsafe position. No power is needed or called for by the BSR system. As soon as the actuator moves and the closed switch is broken;

If the power sensing relay senses mains power, the mains power will drive the actuator open.

If the relay does not sense mains power, it automatically switches to battery power to close the actuator.

Use of the manual override whilst there is power in the batteries will therefore result in the BSR system calling for battery power as soon as the closed switch is broken. It can't however drive the actuator closed as the gear train is disengaged whilst in manual, but will drive the disengaged gears to try and 'make' the closed switch. The batteries will continue to drive the disengaged gear train until the closed switch is made – and the operator will hear the disengaged gears running whilst operating the manual override.

MAINTENANCE:

All J+J electric actuators are designed to be maintenance free. Gearboxes are factory lubricated for life at time of manufacture. Simple cleaning using soapy water to ensure the local visual position indication logos remain visible is recommended. NEVER wash the J+J electric actuators with any pressure washing equipment as it will cause irreparable damage and invalidate any warranty.

PERFORMANCE:

The operating time is the same for either mains or battery power. The motors in all the BSR's are 24V DC (other supply voltages are transformed and rectified to 24VDC) to be compatible with the industrial batteries.

The rechargeable batteries are of industrial strength and have been sized to provide around 8 operations (open/close) at full charge, when in an emergency only one operation is needed, providing a significant safety factor against possible failure due to battery degradation. Should the batteries be fully drained, a short 'boost' charge will allow a single operation in a few minutes.

MANUFACTURER'S PRODUCT SUPPORT:

J+J actuators are fully supported in the UK and Ireland and manufacturer's representatives can attend site to assist with 'problems', however a call out charge is made and expenses are recovered if the fault is proven to be 'user generated' due to non adherence to these IOM's. An order number MUST be issued to cover these charges BEFORE they will attend. Should the fault be due to manufacturing or material defects, no charge will be made.

Thank you for ordering the J+J failsafe electric actuator. Correctly applied, installed, connected and operated in accordance with these instructions, your J+J failsafe electric actuator should give you reliable and trouble free performance.

E&OE Rev 2 9.01