MBV Modular Ball Valve Interlock

Castell
Part of the Sentric Group

The Castell MBV modular ball valve interlock is designed to enable locking off, in either the open, closed or both open and closed conditions. The MBV is suitable for any quarter-turn valves including Ball, Plug and Butterfly Valves up to 3" bore size. Fitting the MBV enforces a logical, predetermined and safe sequence of operation where the control of flow paths is critical. The MBV is manufactured in stainless steel with stainless steel lock portions.

OPERATION

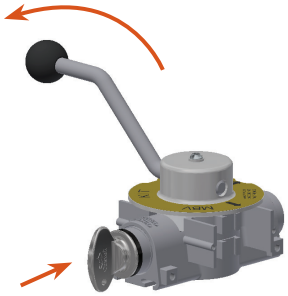
The Castell MBV modular ball valve interlocks are used to prevent unauthorised opening (or closing) ensuring that the valve is always locked in the crucial position.

MBV modular ball valve interlock, locked closed only condition

1 **Valve is normally locked closed, key is free**

The service line is normally closed and the MBV modular ball valve interlock locks the valve in the closed condition. The key is free.

2 **Insert and turn key to unlock the valve**



By inserting and turning the key in the MBV, you can release the valve from being locked closed to open the line.

3 **Valve is unlocked and opened, key is trapped**

The key stays trapped while the valve can be opened.

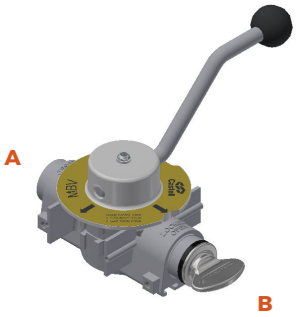
MBV Modular Ball Valve Interlock

OPERATION

The Castell MBV modular ball valve interlocks with locked open and locked closed condition are used to prevent unauthorised closing of one of lines (e. g. operational line) ensuring that one line is always open (e. g. service line).

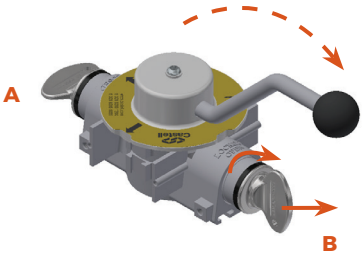
MBV modular ball valve interlock, locked open and closed condition

1 **Valve is locked open, key B is trapped, key A is released.**



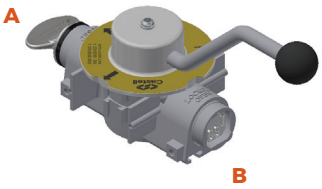
The service line is normally open and the MBV modular ball valve interlock locks the valve in the open position. Key A is free, while key B is trapped.

2 **Insert and turn key A to unlock the valve. Turn the valve to closed position. Turn and release key B to lock the valve in the new position.**



By inserting and turning key A in the MBV, the valve can be released from locked open condition and changed to closed. By turning and releasing the key B the valve is locked in the closed condition.

3 **Valve is closed, key A is trapped, key B is released.**



Key A stays trapped and key B is released while the valve locked closed.

MBV Modular Ball Valve Interlock

USAGE

The MBV Modular ball valve interlock should be used to prevent unauthorised closing or opening of of lines.

The MBV modular ball valve Interlock is not designed for large bore valves above 3 inches.

No hazardous substances were used in the manufacture of this product.

INSTALLATION

Fitting the MBV enforces a logical, predetermined and safe sequence of operation where the control of flow paths is critical.

The MBV interlocks are available in either the locked open, locked closed or both locked open and locked closed conditions.

IMPORTANT: Please supply the valves to Castell to enable the MBV to be fitted.

The MBV Modular Ball Valve Interlock must be installed by a competent and qualified person who has read and understood these instructions. Please retain this document in your technical file.

The manufacturer should be consulted when use in a corrosive environment is planned.

MAINTENANCE

Periodic visual checks should be carried out by the site manager/safety officer.

Do not lubricate lock barrel with oil or grease, use CK Dry Powder Graphite if necessary.

In case of defects being detected please contact your nearest Castell Support Department for further actions. Please see Contact section for contact details.

The interlock must be inspected every 6 months. Safety checks should include ensuring the keys can only be removed in the correct safety operating conditions (see page 1).

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TECHNICAL DATA

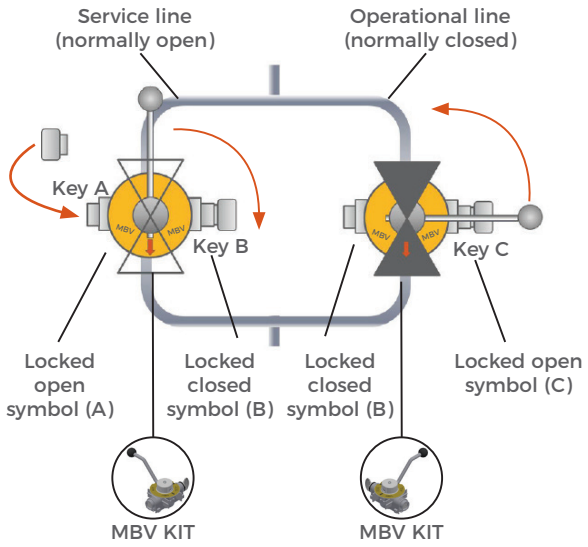
Temperature rating	Minimum: -40˚C [-40˚F] ice free for Q & FS lock type
	Maximum: 107˚C [224.6˚F] for Q lock type/140˚C [284˚F] for FS lock type or 288˚C [550˚F] upon request
Type of mounting	The MBV modular ball valve interlocks must be fitted to the valves by a competent engineer
Weight	4.0 kg
Material	Stainless steel body with stainless steel lock portions
B10d	2,000,000
Shock & vibration	In accordance with BS EN 60068-2-6 & BS EN 60068-2-27
PL rating	PLe

APPLICATION

The MBV safety interlock is designed to operate as part of an integrated safety system controlling the operation of quarter turn ball valves in safety critical applications. The typical application of the MBV modular ball valve interlock is preventing unauthorised closing of one of the lines ensuring that one line is always open.

Interlock valves in both open and closed positions have an inter-changeable key between the valves ensuring that the first valve is open before the second is closed. While the operational line is locked open, the service line is locked closed. Prior to opening the service line it needs to be ensured the operational line is locked closed. By inserting key A (from control room) in the MBV, which controls the operational line, you can unlock the valve and bring it from open to closed. By turning and releasing key B, you can lock the valve in the closed condition.

Key B can be taken to the next valve, which controls the service line. This valve can now be unlocked by inserting and turning key B in the MBV. The valve position can then be changed from closed to open and locked in the open position by releasing key C. This key can then be taken to the control room.

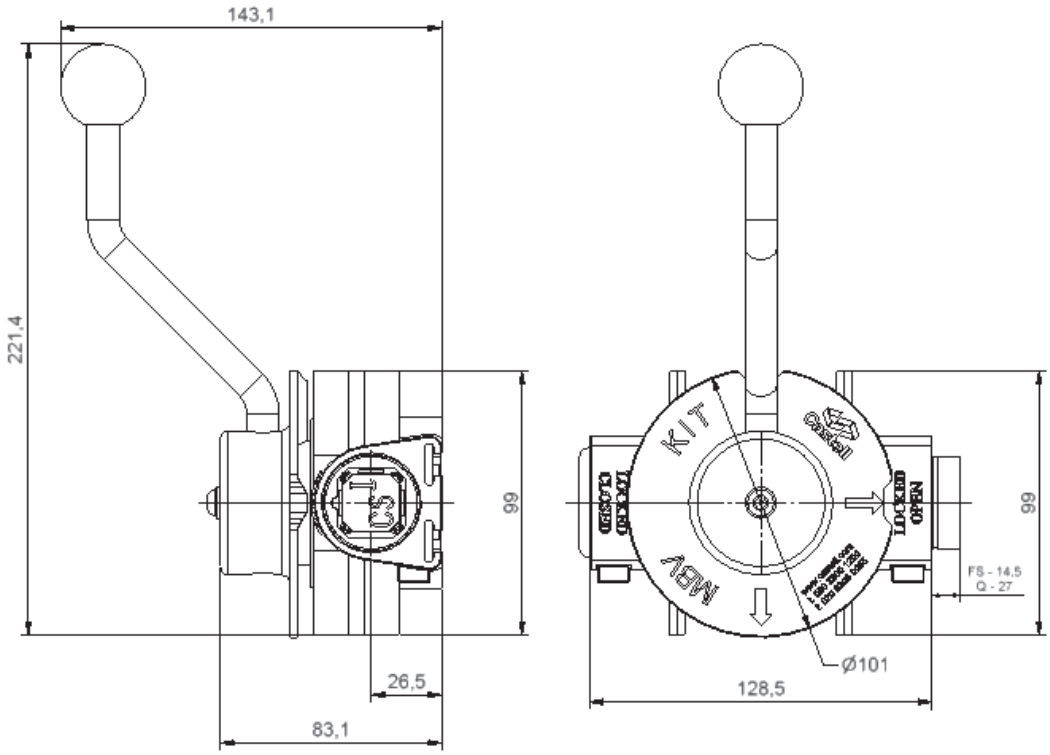


DRAWING

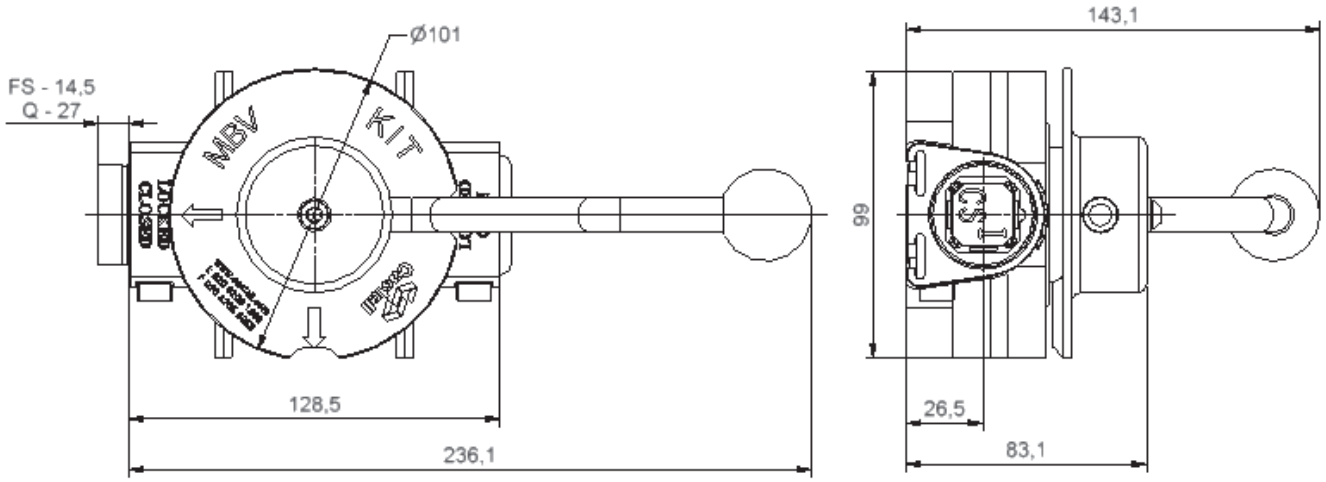
Dimensions: in mm

Note: For safe mounting, use security screws

MBV, open position



MBV, closed position



MBV Modular Ball Valve Interlock

ORDER INFORMATION

	Component type	1	2	3	4*
Part number	MBV -			-	-
Example	MBV -	FS	S	LOC -	

5: A — L/O Symbol; OR; B — L/C Symbol

1	**Lock portion type**	FS [1] / Q [1]
2	**Material**	S = Stainless steel (standard)
3	**Valve locked state**	LO = locked open LC = locked closed LOC = locked open and closed
4*	**Optional: additional features available**	SWITCH = complete with LIMIT SWITCH EEXDSW = complete with ATEX LIMIT SWITCH
5	**Lock portion symbols**	LO Symbol = locked open symbol (please advise) LC Symbol = locked closed symbol (please advise) FS [1] up to 3 characters / Q [1] up to 6 characters

(1)

FS - Lock type	**Q - Lock type**
Up to 3 characters	Up to 6 characters
	

Special construction available upon enquiry

ACCESSORIES

	Product	**Part number**
	Flip Cap	FLIP-S

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APPENDIX - PRICING APPLICATION FORM QUESTIONNAIRE

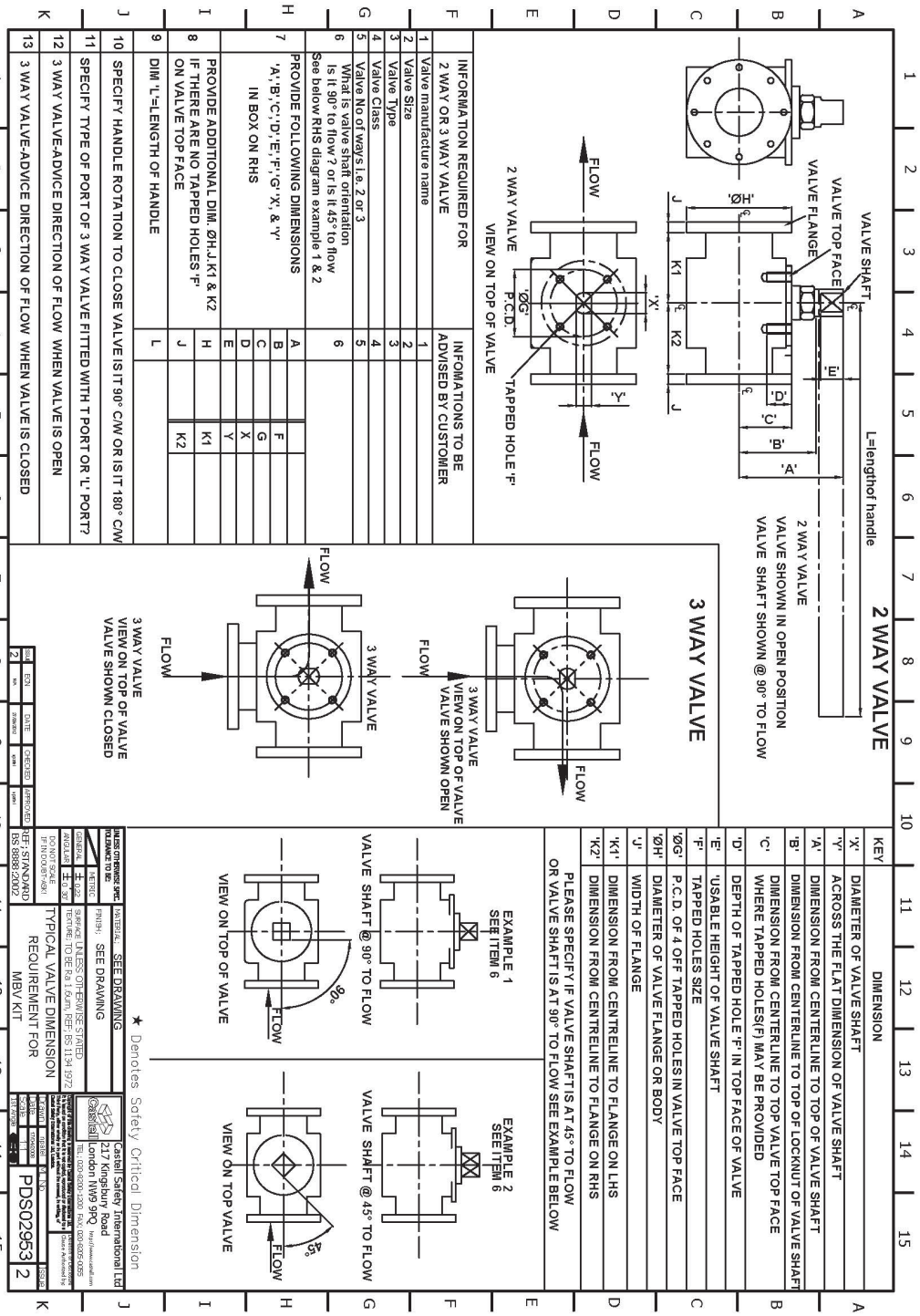
Customer organisation name	**Delivery address**
Customer organisation contact person	
Customer organisation contact number and email address	

Valve details	
(1) Type of host valve/s (please circle one) Ball Valve ☐ Butterfly ☐	**(9) Pressure handling capacity (alternatively, please provide a data sheet of valve in selection)**
(2) Valve model, manufacturers and part number	**(10) Operating temperature**
(3) Is it 2 or 3 way valve? (please circle one) 2-way ☐ 3-way ☐	**(11) Weight of the valve**
(4) Degree of rotation (please circle one) 90 Degrees ☐ 180 Degrees ☐	**(12) Is the interlocked valve a sequence or one-off?** Sequence ☐ One-off ☐
(5) Size of valve in DN or inches	**(13) Operating cycle of the valve (please circle** Daily ☐ Monthly ☐ Yearly ☐ Other ☐
(6) Operating torque	**(14) Does the valve handle gases or fluids?**
(7) Class of valve	**(15) Is the valve exposed to hazardous operating environment? If so, please specify**
(8) Gland size	

Note: All completed pricing application forms must be accompanied by a top work drawing of the entity in question. An example of the type of top work drawing required is included on page 8 of this document.

APPENDIX - TOP WORK DRAWING EXAMPLE

Note: To be provided with the Pricing Application Form



	INFORMATION REQUIRED FOR 2 WAY OR 3 WAY VALVE	INFOMATIONS TO BE ADVISED BY CUSTOMER
1	Valve manufacture name	1
2	Valve Size	2
3	Valve Type	3
4	Valve Class	4
5	Valve No of ways i.e. 2 or 3	5
6	What is valve shaft orientation Is it 90° to flow ? or Is it 45° to flow See below RHS diagram example 1 & 2	6
7	PROVIDE FOLLOWING DIMENSIONS 'A','B','C','D','E','F','G' 'X', & 'Y' IN BOX ON RHS	A B C D E F G X Y
8	PROVIDE ADDITIONAL DIM. ØH,J,K1 & K2 IF THERE ARE NO TAPPED HOLES 'F' ON VALVE TOP FACE	H J K1 K2
9	DIM 'L'=LENGTH OF HANDLE	L
10	SPECIFY HANDLE ROTATION TO CLOSE VALVE IS IT 90° C/W OR IS IT 180° C/W	
11	SPECIFY TYPE OF PORT OF 3 WAY VALVE FITTED WITH T PORT OR 'L' PORT?	
12	3 WAY VALVE-ADVICE DIRECTION OF FLOW WHEN VALVE IS OPEN	
13	3 WAY VALVE-ADVICE DIRECTION OF FLOW WHEN VALVE IS CLOSED	

KEY	DIMENSION
'X'	DIAMETER OF VALVE SHAFT
'Y'	ACROSS THE FLAT DIMENSION OF VALVE SHAFT
'A'	DIMENSION FROM CENTERLINE TO TOP OF VALVE SHAFT
'B'	DIMENSION FROM CENTERLINE TO TOP OF LOCKNUT OF VALVE SHAFT
'C'	DIMENSION FROM CENTERLINE TO TOP VALVE TOP FACE WHERE TAPPED HOLES(F) MAY BE PROVIDED
'D'	DEPTH OF TAPPED HOLE 'F' IN TOP FACE OF VALVE
'E'	'USABLE HEIGHT OF VALVE SHAFT
'F'	TAPPED HOLES SIZE
'ØG'	P.C.D. OF 4 OFF TAPPED HOLES IN VALVE TOP FACE
'ØH'	DIAMETER OF VALVE FLANGE OR BODY
'J'	WIDTH OF FLANGE
'K1'	DIMENSION FROM CENTRELINE TO FLANGE ON LHS
'K2'	DIMENSION FROM CENTRELINE TO FLANGE ON RHS
	PLEASE SPECIFY IF VALVE SHAFT IS AT 45° TO FLOW OR VALVE SHAFT IS AT 90° TO FLOW SEE EXAMPLE BELOW

CONTACT INFORMATION

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