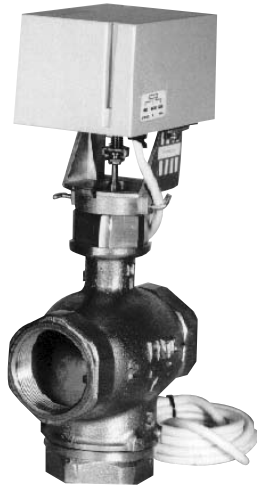


MZX



These seat valves are of 'globe' construction with a linear moving spindle and a modified parabolic characterised plug operating against the upper seat which controls flow quantity to suit the load. The lower part of the plug has a linear characteristic operating against the lower seat controlling the bypass quantity. This arrangement gives the optimum performance for both mixing and diverting applications. For the latter the valve must be fitted in the return.

The valves are suitable for the control of hot or chilled water and brine or glycol solutions within the limits given in the table below. They are suitable for operation by the AVUM, AVUX and AVUE actuators only. For details of the actuators, refer to Data Sheets DS 3.001 and DS3.005.

The 'MZX' range of valves fitted with appropriate Satchwell actuators will fully comply with all relevant European directives.

SPECIFICATIONS AND GUIDE TO SELECTION

Valve					Suitable Actuators - see DS 3.001 and DS 3.005 AVUX3202, AVUM3601, AVUE3304, AVUE3354	Control Medium Brine, 15% max. NaCl or CaCl ₂ (freeze protection) Glycol Solution, 25% max. (freeze protection)				
Group	Size	Type	^a Cv _s	Stroke	Maximum differential pressure (Dp)	Water	Temperature limits		Maximum internal pressure kPa	International Pressure Rating
					kPa		Min	Max		
MZX Screwed Bronze	½"	MZX4402	2.5	12.7mm (½")	1180	•	2°C	120°C	1600	PN 16 (ND 16)
	¾"	MZX4452	4		720					
	1"	MZX4501	8		340					
	1¼"	MZX4551	12		200					
	1½"	MZX4601	20		120					
	2"	MZX4651	32		60					

a Cv_s = Flow in UK gal/min to produce 1lbf/in² pressure drop when the valve is fully open Kv_s = Cv_s x 1.03
 Kv_s = Flow in m³/hr to produce 1 bar pressure drop when the valve is fully open
 100 Kpa 1 Bar = 1.02 kgf/cm² = 14.5 lbf/in²

TECHNICAL SPECIFICATION

				MZX 1/2" & 3/4"	MZX 1" to 2"
Pipe Connections	Screwed BSP to BS 21 female - taper Screwed BSP to BS 21 female - parallel			• -	- •
Characteristic	Port 2 Modified Parabolic Port 3 Linear			• •	• •
Rangeability	50:1			•	•
Let-by	Based on:- % Cv at 1 lbf/in ² pressure drop % Kv at 1 bar pressure drop	Ports 2-1 Ports 3-1	0.0.5% max 0.1% max 0.5%	• - •	- • •
Test Pressure	2400kPa			•	•
Body Material	Bronze: leaded gunmetal BS 1400 LG2			•	•
Seats	Top: Integral with body Bottom: Copper alloy BS 2874 CZ 132 or BS 2871 CZ 110 Bottom: Leaded gunmetal BS 1400 LG2			• • -	• - •
Plug	Copper alloy BS 2874 CZ 132 or BS 2871 CZ 110			•	•
Spindle	Stainless Steel: BS 970 Grade 303 S42			•	•
Guide	Leaded gunmetal BS 1400 LG2			-	•
Bonnet	Integral with body			•	•
Gland (non-adjustable spring-loaded)	Packing chevrons: PTFE BS 4271 Grade B Scraper rings: PTFE BS 4271 Grade B Headers: Copper alloy BS 2874 CZ 132 or BS 2871 CZ 110 Spring: Austenitic Stainless steel BS 2056 302S26 Gland Nut: Copper alloy BS 2874 CZ 132 or BS 2871 CZ 110			• • • • •	• • • • •
Gland 'O' Ring	Ethylene Propylene			•	•
Replacement Gland Kit	626-9-204			•	•

GOOD DESIGN PRACTICE

Control Medium

The table on Page 2 lists suitable fluids and which valves are appropriate.

Other fluids e.g. seawater, oils etc: Satchwell cannot accept responsibility for use of these valves with fluids other than those listed in table on Page 2. Detailed specifications of all materials in contact with the fluid are given in table on Page 2 and it is the responsibility of the specifier to check their suitability.

Note that all brass components used in valve construction, which are in contact with the fluid, are manufactured from dezincification resistant materials.

The valves are intended to be used in closed circuits; if the circuit is open e.g. mains water or from exposed cooling tower ponds, it is possible that a build-up of mineral deposits may impair the operation of the valve and frequent maintenance will be necessary. Appropriate precautions should be taken.

MIXING AND DIVERTING APPLICATIONS

These valves must always be installed with two inlet streams and one outlet stream i.e. as mixers. Reversal of this direction will cause vibration and water hammer which will damage both valve and actuator.

For diverting applications the valve must therefore be fitted in the return pipe. The water will be diverted with respect to the load, but will mix in the valve. (See Fig.1 Schematic only.)

VALVE SIZING

The valve should have an authority of not less than approximately 0.5. That is, the pressure drop through the valve should be as near as practicable equal to the pressure drop through either of the parallel paths in which the flow quantity is varied. Sizing charts are given in DS 4.950.

INSTALLATION

Warning - Steam or hot water hazard. Before removing actuator from valve or opening valve, ensure that the valve control medium is isolated and relieve the pressure, work should only be carried out by a competent engineer.

Instructions for fitting actuator to valve are packed with the actuator.

It is recommended that valve insulation covers should be fitted to conserve energy.

Step-by-step installation instructions are packed with each valve and the cautions must be observed.

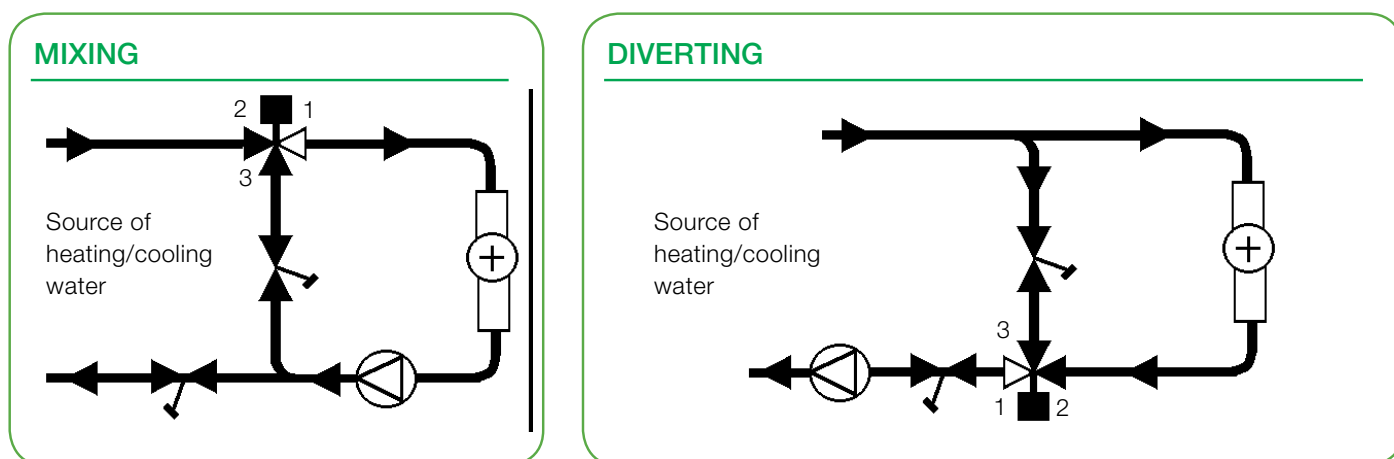


Fig. 1

Cautions

- Allow sufficient access for actuator and wiring.
- Avoid spindle pointing vertically downwards to avoid risk of condensation or leakage damaging actuator.
- Observe the upper ambient temperature limitation of actuators (50°C).
- Where fluid in valve exceeds 100°C actuator must not be above valve. Therefore valve should be mounted with spindle horizontal.
- Observe correct direction of flow through valve as indicated by arrow cast on body. Fit valve in return pipe for diverting applications.
- Regulating valves are recommended to be installed in the bypass pipe to each 3-way control valve, in addition to those for pump sets and branches etc.
- The system should be thoroughly flushed out to remove foreign matter before fitting the valve.
- When strainers are fitted the following recommendations should be observed:
 - It is suggested that strainers should be fitted to protect the valves. The fitting of strainers is NOT a substitute for flushing the system out fully. Failure to fully flush the system can result in frequent clogging of the strainers.
 - Strainer bodies for line sizes up to DN 50 (50mm) should be Bronze to BS 1400, PB1 or cast iron to BS 1452, class 180.
 - Strainer pressure ratings should be at least 150% of the maximum pressure expected in the application.
 - Strainer screens should be of a suitable stainless steel construction.
 - The strainer screen should have a free area at least 250% of the line cross sectional area.
 - The screen perforation diameter should be in the range of 0.7 to 0.9mm for sizes up to DN 50 (50mm)
 - Strainers should be installed in parallel to enable online maintenance to be carried out.
- Ensure system is efficiently vented, particularly for low flow rates.
- If fitting a ½" or ¾" VZX valve, ensure that not more than 13mm (½") of BSP thread is screwed into the valve, otherwise internal damage will occur, causing actuator malfunction and valve let-by.

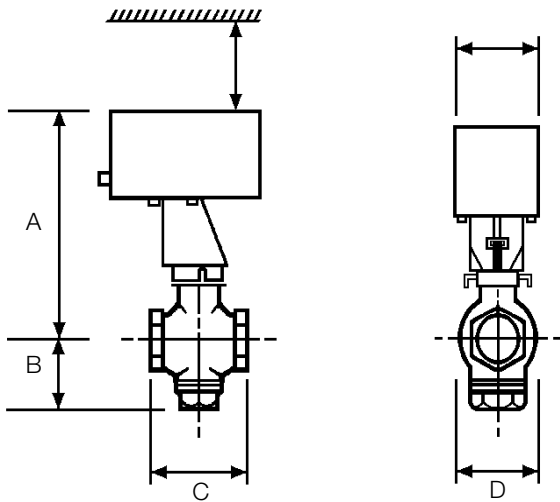
MAINTENANCE

Warnings - Steam or hot water hazard. Before removing actuator from valve or opening valve, ensure that the valve control medium is isolated and relieve the pressure. Work should only be carried out by a competent engineer.

The valve to actuator linkage nut located on the top of the valve spindle is preset and MUST NOT be adjusted.

A periodic check of the valve should be made for general condition and leakage. For replacement gland kit see table on Page 2.

DIMENSIONS mm (in)



MZX

Valve Size	A	B	C	D
1/2"	181	48	62	36
3/4"	182	42	74	43
1"	186	76	97	51
1 1/4"	191	76	108	72
1 1/2"	194	76	121	77
2"	202	89	145	93

Note: Allow 50mm between top of actuator and nearest obstruction to permit fitting and removal of actuator.

Warnings - Steam or hot water hazard. Before removing actuator from valve or opening valve, ensure that the valve control medium is isolated and relieve the pressure. Work should only be carried out by a competent engineer.

The valve to actuator linkage nut located on the top of the valve spindle is preset and MUST NOT be adjusted.

Cautions

- Do not apply any voltages until a qualified technician has checked the system and the commissioning procedures have been completed.
- If any equipment covers have to be removed during the installation of this equipment, ensure that they are refitted after installation to comply with UL and CE safety requirements.
- Observe recommendations under 'Good Design Practise' - see Page 3.
- Observe limits of water temperature, system pressure and maximum differential pressure - see Page 2.
- The system should be thoroughly flushed out to remove foreign matter before fitting the valve.
- Interference with those parts under sealed covers renders the guarantee void.

- When the valve plug/spindle assemblies are changed after factory test or replaced in service, the original specified percentage let-by can no longer be guaranteed.
- Information is given for guidance only and TAC Satchwell do not accept responsibility for the section or installation of its products unless information has been given by the Company in writing relating to a specific application.
- Design and performance of TAC Satchwell equipment is subject to improvement and therefore liable to alteration without notice.
- A periodic system and tuning check of the control system is recommended. Please contact your local sales office for details.

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