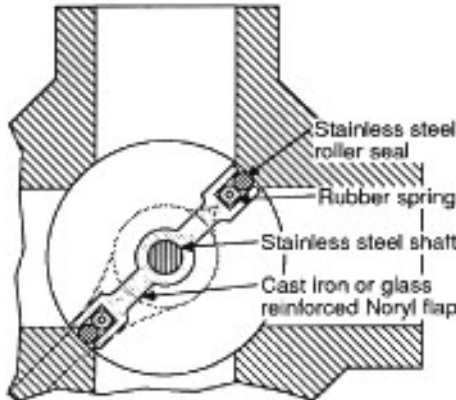
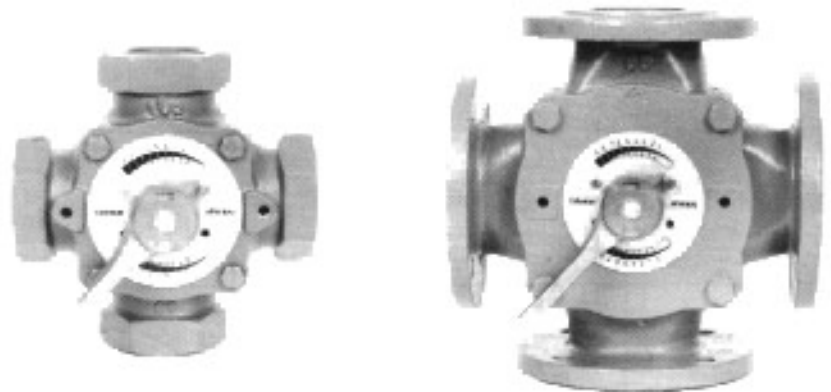


These quality mixing valves are designed to be operated by a tekmar Actuating Motor (type 216) and Mixing Valve Control. Since the valves have cast iron bodies, they should only be used in 'closed' heating systems. To reduce the risk of localized corrosion in the mixing valve we strongly recommend that iron pipes be installed between the boiler and the mixing valve and that an anti-corrosion agent be added to the heating system water.

The valve shaft has double O-ring seals which enable it to withstand up to 90 psi (600 kPa) operating pressure. The operating temperature range for pure water is 32°F (0°C) to 230°F (110°C). For glycol solutions and other liquids the operating temperature range can be obtained by contacting tekmar Control Systems. For types 121-123 the valve mechanism must be removed from the valve body when welding the flanges because excessive heat will damage the internal rubber seals.

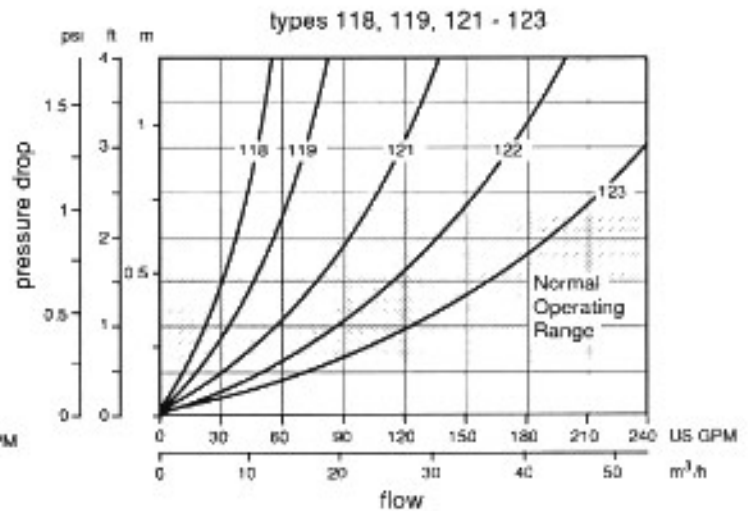
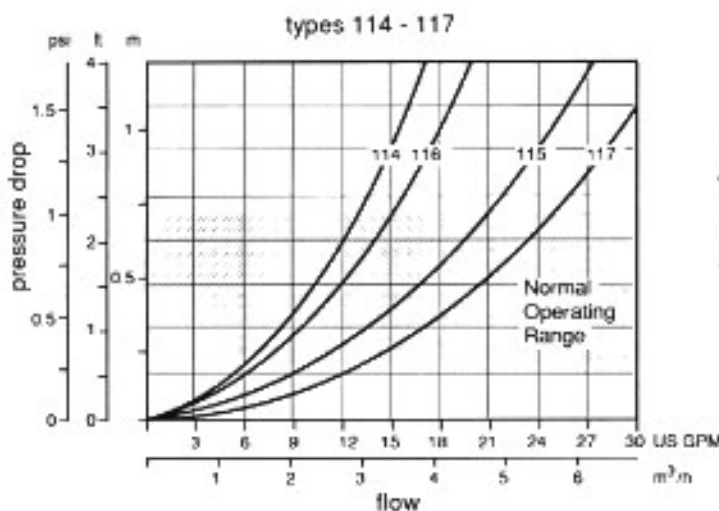


Section showing the advanced stainless steel roller seal for low leakage and easy rotation.



<p><b>type 114</b> 1"  <b>type 115</b> 1-1/4"</p>	<p><b>type 116</b> 1"  <b>type 117</b> 1-1/4"</p>	<p><b>type 118</b> 1-1/2"  <b>type 119</b> 2"</p>	<p><b>type 121</b> 2-1/2"  <b>type 122</b> 3"  <b>type 123</b> 4"</p>
<p>includes: Mixing valve (has internal NPT threads)</p>	<p>includes: Mixing valve (has internal NPT threads)</p>	<p>includes: Mixing valve (has internal NPT threads)</p>	<p>includes: Mixing valve, Butt-welded flanges, Gaskets, nuts, bolts</p>

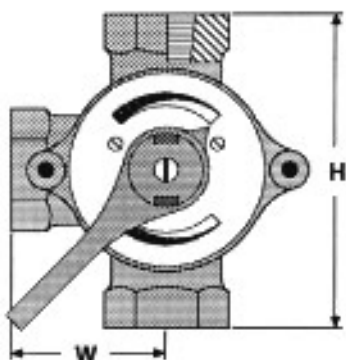
**Performance Curves:**



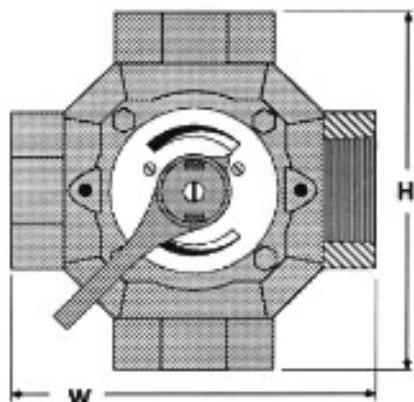
**CV value:** CV is defined as the flow of water in US GPM at 60°F through a valve in the full open position with 1 psi (2.307 feet) pressure differential across the valve.

type number	CV Value	type number	CV Value	type number	CV Value	type number	CV Value	type number	CV Value
114	13	116	15	118	40	121	100	123	210
115	21	117	25	119	60	122	150		

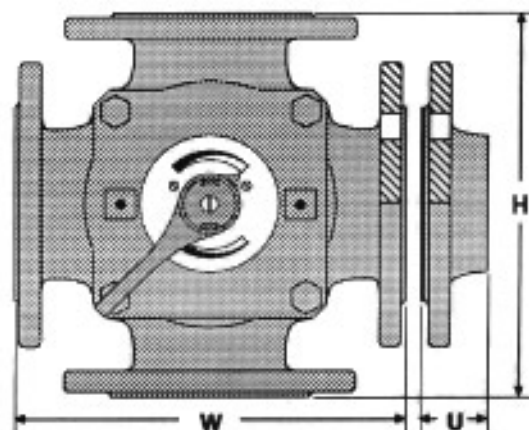
**Dimensional drawings:**



**type 114-115**



**type 116-119**



**type 121-123**

type number	Configuration	Pipe size	Dimension H	Dimension W	Dimension U	Net Weight
114	3 - way	1"	5-7/8" (148 mm)	2-15/16" (74 mm)	-	7.0 lbs (3.2 kg)
115	3 - way	1-1/4"	6-1/4" (158 mm)	3-1/8" (79 mm)	-	9.2 lbs (4.2 kg)
116	4 - way	1"	5-7/8" (148 mm)	5-7/8" (148 mm)	-	7.5 lbs (3.4 kg)
117	4 - way	1-1/4"	6-1/4" (158 mm)	6-1/4" (158 mm)	-	10 lbs (4.5 kg)
118	4 - way	1-1/2"	7-1/4" (182 mm)	7-1/4" (182 mm)	-	12.7 lbs (5.8 kg)
119	4 - way	2"	7-7/8" (198 mm)	7-7/8" (198 mm)	-	16 lbs (7.3 kg)
121	4 - way	2-1/2"	9-1/2" (234 mm)	9-1/2" (234 mm)	1-5/8" (41 mm)	54 lbs (24.5 kg)
122	4 - way	3"	10" (254 mm)	10" (254 mm)	1-3/4" (45 mm)	85 lbs (38.5 kg)
123	4 - way	4"	11-1/2" (295 mm)	11-1/2" (295 mm)	1-7/8" (48 mm)	112 lbs (51 kg)

**Installation Configuration**

**4-way valve configurations:**

Configuration	Changes required from delivered configuration	Wiring diagram
	<p>No changes required</p> <p>Note: The 4-way mixing valve can be converted to a 3-way mixing valve by capping the "to boiler" port.</p>	
	<p>Turn the valve over until the size in mm, eg. "50" is up. Move stops to the upper two holes. Remove the handle, rotate it 180°, re-install it.</p> <p>Note: The 4-way mixing valve can be converted to a 3-way mixing valve by capping the "to boiler" port.</p>	

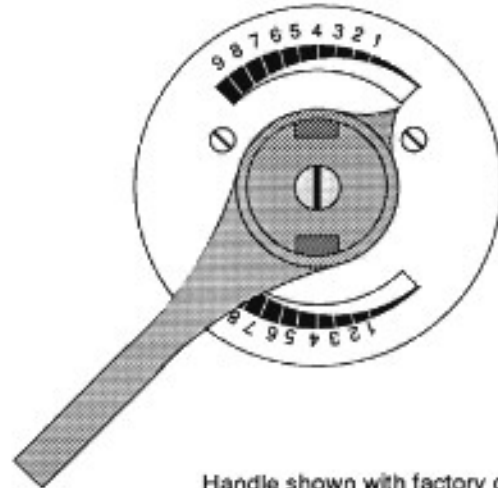
**3-way valve configurations:** Changes required from factory delivered condition to suit different piping arrangements.

	<p><b>Legend:</b></p>	<p>Mixing valve control</p> <p>Actuating motor</p>
	<p>Remove scale plate, and screws. Rotate valve head 1/4 turn clockwise. Reinstall the screws. Fit scale plate and handle as per sketch.</p>	<p>Mixing valve control</p> <p>Actuating motor</p>
	<p>Remove scale plate. Rotate the valve 1/2 turn. Rotate the valve shaft 1/4 turn clockwise. Punch pin up, away from the marks on the shaft, so that it pokes out one side only. Fit scale plate and handle as per sketch.</p>	<p>Mixing valve control</p> <p>Actuating motor</p>
	<p>Rotate the scale plate 1/2 turn so that the scale is as shown.</p>	<p>Mixing valve control</p> <p>Actuating motor</p>
	<p>Remove scale plate, and screws. Rotate the valve shaft 1/4 turn counterclockwise &amp; the valve head 1/4 turn clockwise. Reinstall the screws. Punch the pin up, away from the marks on the top of the valve shaft until it pokes out one side only. Fit scale plate and handle as per sketch.</p>	<p>Mixing valve control</p> <p>Actuating motor</p>
	<p>Remove scale plate. Rotate the valve 1/2 turn. Rotate the valve shaft 1/4 turn clockwise. Punch pin up, away from the marks on the shaft, so that it pokes out one side only. Fit scale plate and handle as per sketch.</p>	<p>Mixing valve control</p> <p>Actuating motor</p>

## Manual Operation of Mixing Valves

The tekmar mixing valve can be manually operated to regulate the amount of heat being delivered into a building. The scale on the mixing valve is a relative indication of the amount of heat delivered. For example, during warmer weather, move the handle to 1 or 2, and during colder weather, to 7 or 8. The larger the number, the warmer the building will become. Due to the physical properties of hydronic radiant floor heating, there could be up to 2 hours delay from a change in the setting of the mixing valve to a change in the resulting room temperature.

**9 = Hot**      **1 = Cold**



Handle shown with factory delivered valve in the closed position

## Limited Warranty

tekmar Control Systems (tekmar®) warrants to the original purchaser each tekmar product against defects in workmanship and materials when the product is installed by a qualified person and used in compliance with tekmar's instructions. This warranty covers the cost of parts and labor provided by tekmar to correct defects in materials and/or workmanship, but does not cover parts or labor to remove, transport or reinstall the defective product. tekmar will not be liable for any damage other than repair or replacement of the defective part or parts and such repair or replacement shall be deemed to be the sole remedy from tekmar. This warranty shall not apply to any defects caused or repairs required as a result of unreasonable or negligent use, neglect, accident, improper installation, or unauthorized repair or alterations.

In case of defect, malfunction or failure to conform to warranty, tekmar Control Systems will, for 24 months from the date of invoice or for 12 months from the date of installation of the product, whichever occurs first, repair or exchange, at tekmar's option, the defective product. The warranty is not in effect until the warranty card has been filled out and returned to tekmar Control Systems. Any express or implied

warranty which the purchaser may have, including merchantability and fitness for a particular purpose, shall not extend beyond 24 months from the date of invoice or 12 months from the date of installation, whichever occurs first.

### Warranty Procedure

The installer or other qualified service person must, at the owner's expense, determine which component has failed. If an actuating motor, electronic control, mixing valve, sensor, or other tekmar component requires repair, only that component, together with the proof of purchase of the tekmar equipment must be returned to the original purchaser who in turn returns the component to tekmar after receiving a Return Goods Authorization (RGA) number from tekmar. In order to process any warranty claim, the type number and fabrication number of the product, description of the problem, and return name and address must be included with the defective component or product.

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<b>In Europe:</b>	tekmar Angewandte Elektronik GmbH Dückerstraße 4 D-4300 Essen 16, WEST GERMANY Tel.: (0201) 49841 Fax.: (0201) 492258