

Hot Water System Thermal Mixing Valve Overview Document

Older LK550 and Newer Alde 'Branded'

*For owner education and entertainment
Not reviewed or approved by LK Armatur, Alde, nüCamp*

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Basic Theory of Operation

[LK Armatur Literature]

LK 550 AquaMix™ is a mixing valve for water heating with a thermostatic element that regulates the supply of cold water in order to achieve the desired temperature.

The valve knob is used to set the desired warm water temperature within the range of 38 °C to 65 °C. The maximum temperature can be calibrated as follows:

Increasing the maximum temperature:

Turn the knob anticlockwise to (+). Loosen the screw and move the knob out to the side.

Then turn the knob clockwise to (-) without it being engaged.

Adjustments are carried out in small steps. A ¼ turn corresponds to approximately 7 °C.

Reinstall the knob and check that it engages with the teeth.

Tighten the screw and then turn the knob to max (+).

Max. calibration for increasing the temperature is a ½ turn.

Reducing the maximum temperature:

Do the procedure in reverse. Turn the knob clockwise to (-) and the disengaged knob anticlockwise to (+).

[end literature]

The thermostatic element uses a Wax Based Compound that rises/lowers a piston as the wax changes thermodynamic phases; solid, soft, or liquid due to changes in surrounding water. See Figure 1.

Figure 1

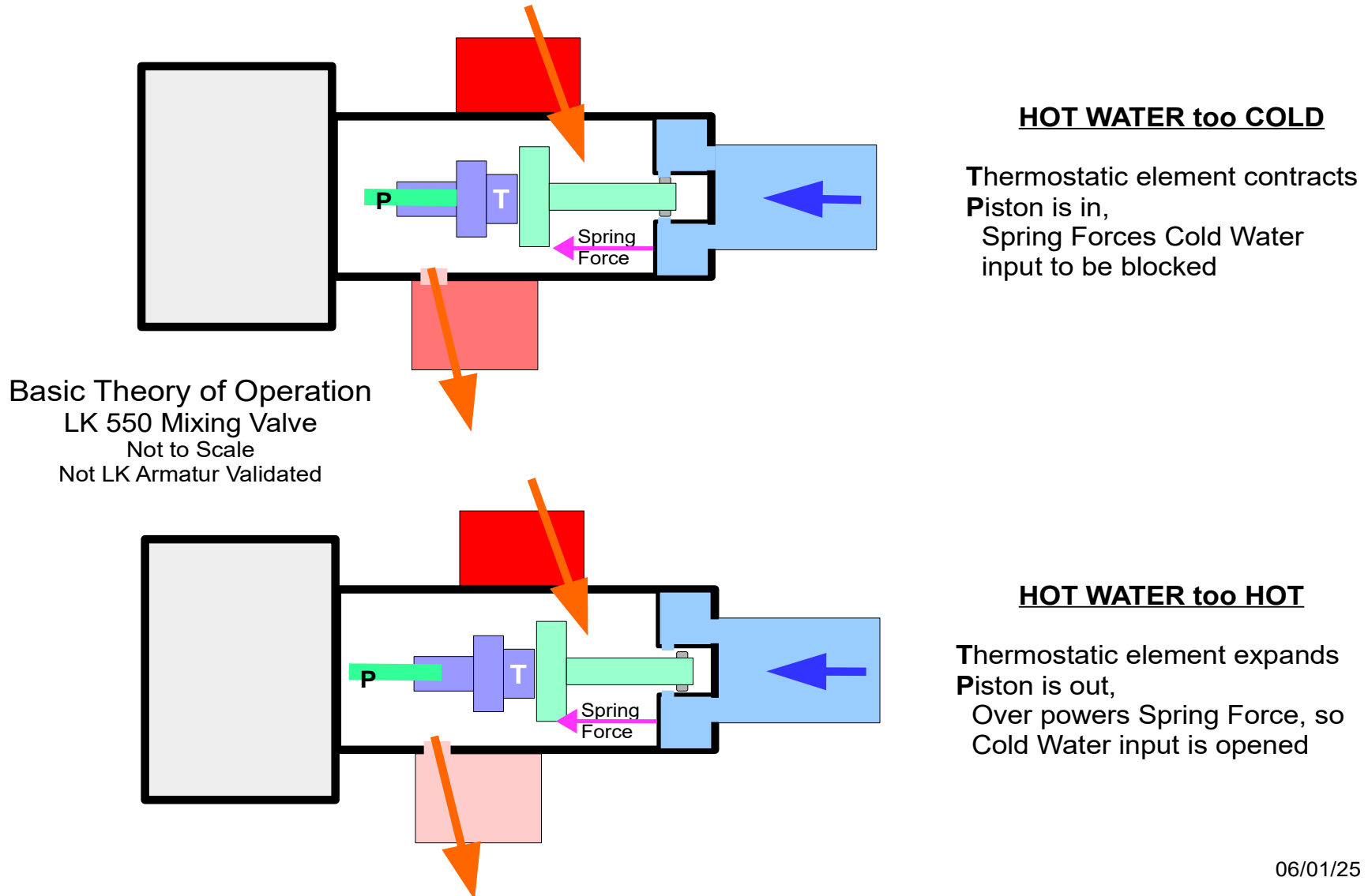
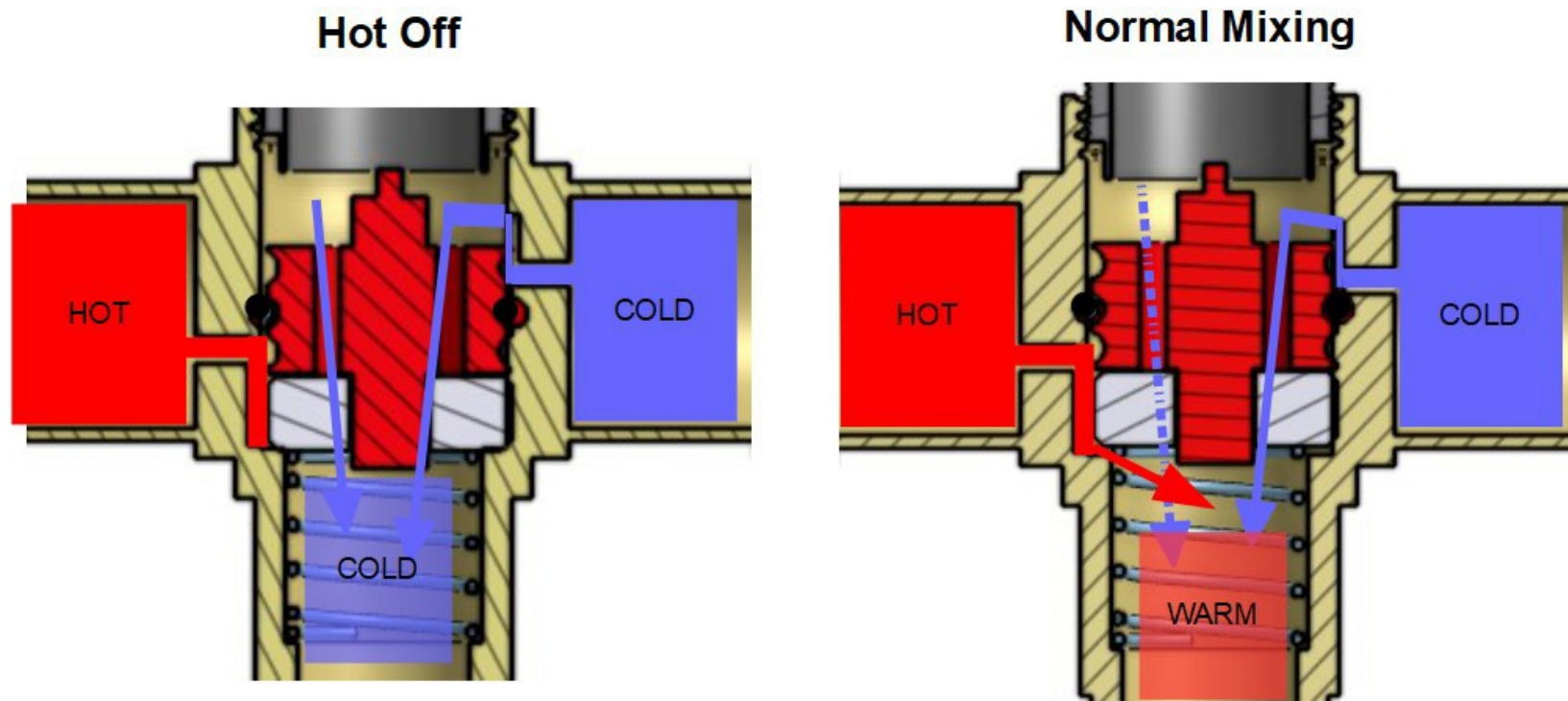


Figure 1b



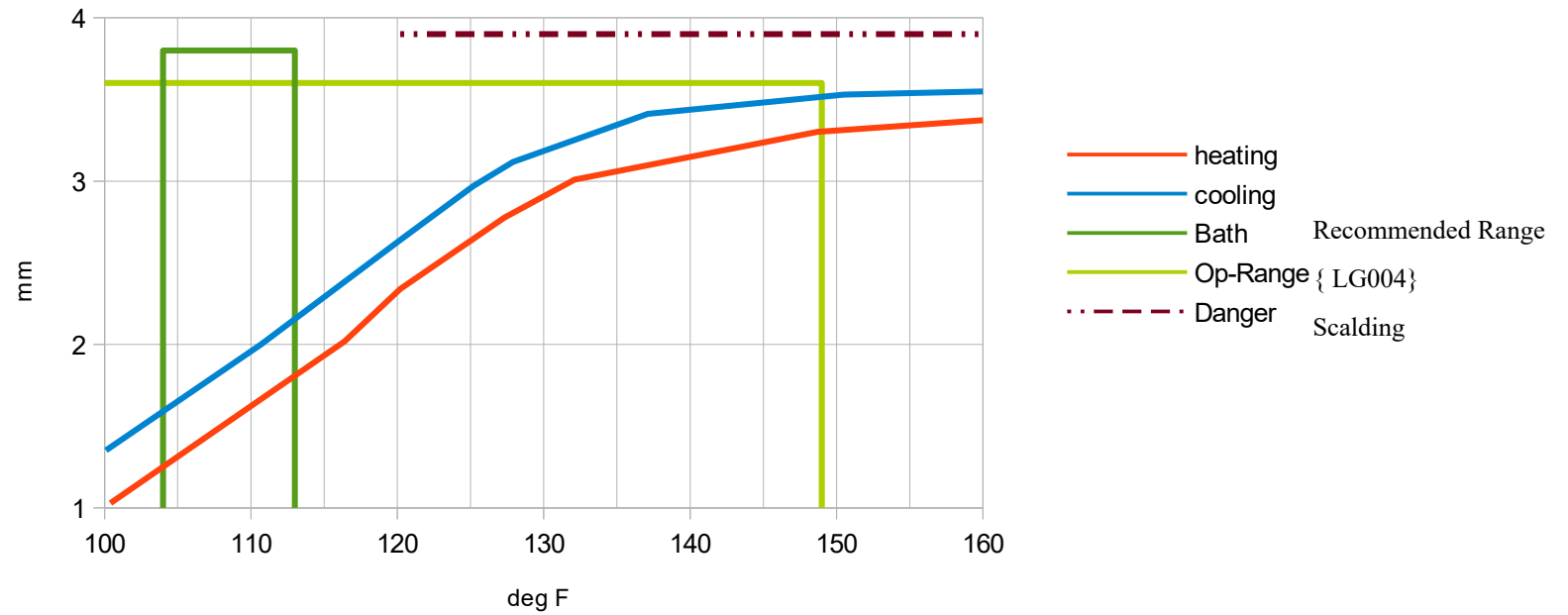
Alde 'Branded' [HG-110]
Internal Operation
based on owner forum information

07092026

Typical Thermostatic Element Operation

LG004 Piston Movement Over Temperature

zoom section of LG004 specification chart



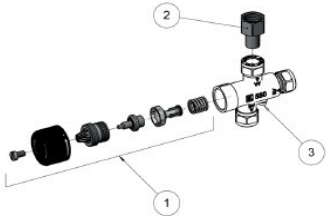
Parts, LK550

LK Armatur lists a full repair kit, LK683, that would replace all the internal parts. At this time no North America source has been located. Additionally, no international source that will do retail shipment to North America has been located.

Spare parts & Accessories

Article no.	Article	Position
4920723	LK 683 Repair kit Mixing valve	1
1898055	LK 373 Adaptor 22 x G ¾"	2
1898022	Adapter LK 373 15 x M½"	2
052002	LK 373 Adaptor 15 x G½"	2
055008	Check valve NN ½"	0
055009	Check valve NN ¾"	0
092105	Cartridge Check valve 15 mm	0
092103	Cartridge Check valve 22 mm	0
187224	Aircscrew	3

[LK Armatur Literature]



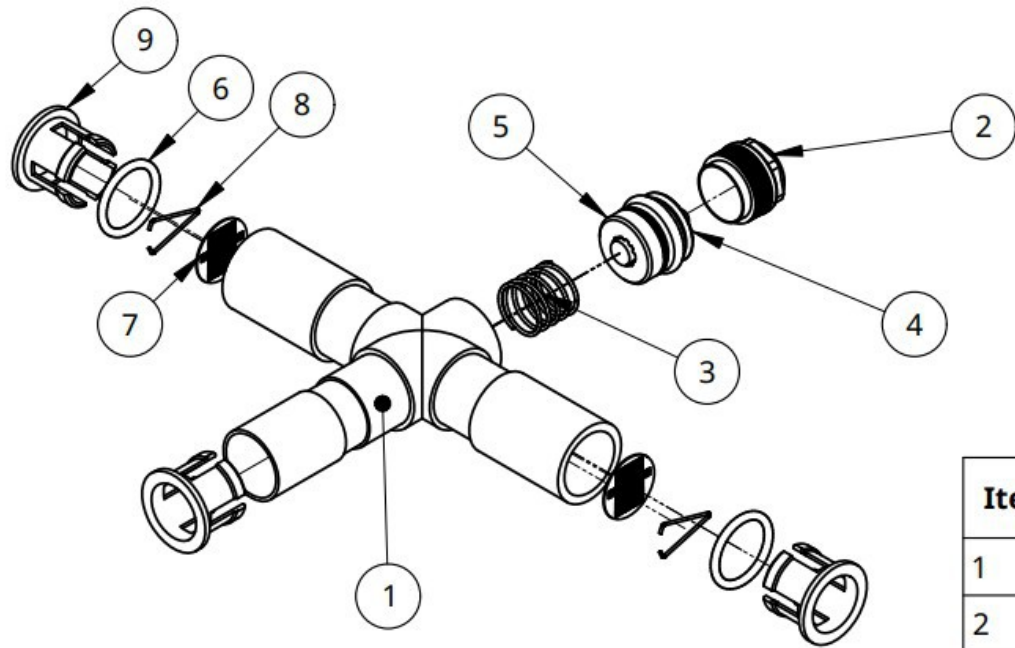
A cross-section diagram of a valve assembly. Callout 1 points to the left green body. Callout 2 points to the central blue piston. Callout 3 points to the right green body. Callout 4 points to a small grey O-ring on the left. Callout 5 points to a small grey O-ring on the right.

Item	Qty	Description	Grainger Part	Grainger Description
1	1	Coarse Adjust Cap	n/a	n/a
2	1	Thermostatic Element with Piston	n/a	{ Legom Part LG004 }
3	1	Cold Water Control	n/a	n/a
-	1	Compression Spring (not shown)	n/a	n/a
4	2	Large O-Ring	712C56	O-Ring, Round 2.5mm C.S., 18.5mm I.D.
5	1	Small O-Ring	714A25	O-Ring, Round 1.6mm C.S., 9.1mm I.D.

Best Guess
for O-Ring Size & Part Number
Not Purchased or Validated

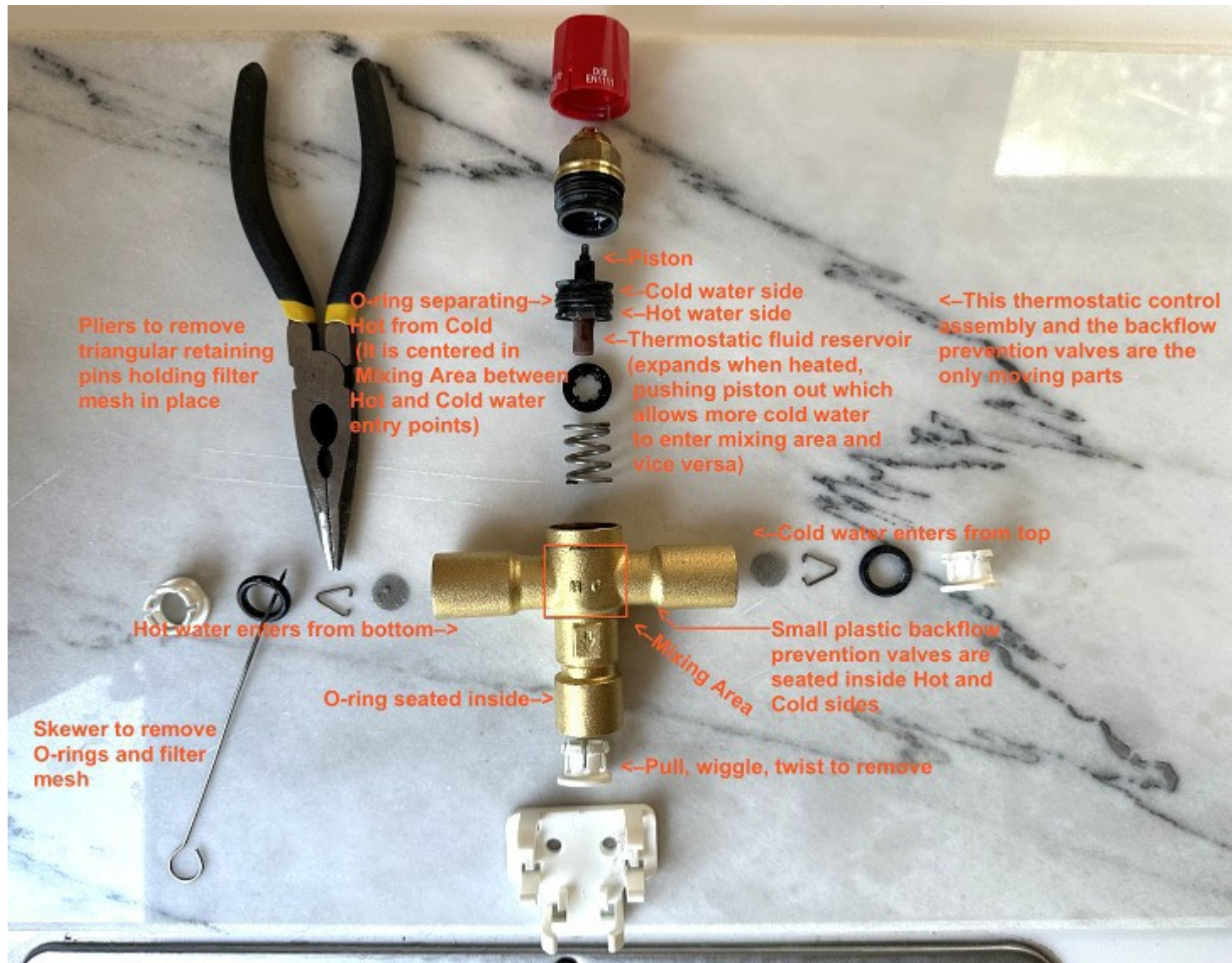
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Parts, Alde TMV, reference one



Item	Quantity	Description	Part number
1	1	Main Body	
2	1	Coarse Adjust Cap	
3	1	Spring	
4	1	Thremo Element	
5	1	Flow Guide	
6	3	O-Ring	
7	2	Screen Filter	
8	2	Screen Clip	
9	3	'Guest' Collent	

Parts, Alde TMV, reference two



Source: forum member RockyRichard July 8, 2026

Maintenance, LK550 Detail

While not documented by Alde or nüCamp, thermostatic mixing valve servicing and maintenance is recommended to ensure safe and efficient water delivery, as well as to prevent scalding and/or reduced delivery of hot water.

Based on Owners Forum posts a frequent LK550 failure is no Hot Water (not a scalding situation). In most cases that can be resolved by servicing the Mixing Valve, thereby preventing or delaying the need to fully replace the pricey assembly.

When there is no hot water, typically the mixing valve internal Cold Water Valve is jammed in the add cold water position.

With the trailer water system drained, remove the Mixing Valve 'top' fine adjusting cap, then unscrew the Coarse Adjust Cap. If the Cold Water Valve is not jammed - - - Spring pressure can cause the cap to pop-up when the final screw thread releases.

With the Coarse Adjust Cap removed, carefully remove the thermostatic element. Note: Do not drop or otherwise misplace the small silver metal piston (pin) at the top of the element, the piston is free floating (not attached to anything).

Now remove the Cold Water Valve and Compression Spring.

If the Cold Water Valve and compression spring are jammed in the down position: Use a flat tip screw driver placed in the Cold Water Valve top water pass slots to rotate the Valve until it moves freely, then while rotating use a hook placed in a slot to lift the Valve out.

Inspect the O-Rings. Upper two on Coarse Adjust Cap prevent water leaks at the top. Small O-Ring on Cold Water Valve regulates the cold water volume. Hopefully, a gentle cleaning is all that is needed as *replacement O-Ring sizes have not been validated* at this time.

Clean all parts. Thermostatic element can be tested. Observe white diaphragm depth in piston hole, or total length of unit with piston in place. Then heat unit, in hot water. Note: Boiling ^{**} water is above the element's maximum temperature specification so be careful.

Re-Assemble with generous application of **Plumbers Grease** to the O-Rings, Sides of Cold Water Valve top which contacts the mixing valve brass barrel, and the compression spring ends (contact points to brass barrel bottom and Cold Water Valve top).

Screw the Coarse Adjust Valve into the Brass Housing until the Cap threads/top is about even with the housing top.

^{**} Specification is 194°F, water boils at ~212°F at sea-level. I tested my unit in boiling water at 1850 foot elevation ~208°F and there was no apparent damage - - - however, the piston was at it's very greatest extension. Pressure (the spring) is required for the piston to retract after being extended.

Maintenance, Alde TMV notes:

Many owner with the Alde TMV have been replacing them due to no or very poor hot water.

To date no one has provided detailed information on what is failing within the TMV.

The Alde TMV flow guide and spring could be jamming as occurs with the LK550.

Cleaning the barrel and lubricating with **Plumbers Grease** for the flow guide, spring, and o-ring surfaces should be considered a required maintenance operation.

The filter screens could also require cleaning. Perhaps using the kitchen sink faucet aerator screen as a reference point for how fast fine particles are building up on that screen could provide an indication of when the TMV screens should be cleaned.

LK Armatur LK550 vs. Cast-Acme HG-110HX

	LK550	HG-110HX
Alde Branded Product	No	Yes, Speedfit TMV
Supplier	LK Armatur	Case-Acme
Top Cap Color	Black	Red
Temperature Controlled range	38°C - 65°C	29°C - 80°C
Thermostatic Element	LG004X	unknown
Thermostatic technology	Wax with Piston	<i>Wax with Piston</i>
Repair Kit	LK683	unknown
Repair Kit available	No	unknown
TAB Alde Years	original to ~ Dec 2020	~ Dec 2020 to present

Document History

Version	Date	Comments
0.0	5/31/25	original draft
1.0	6/1/2025	Initial Release
2.0	7/9/2026	Restructured to Include Additional Alde HG-110 TMV information

Appendix 1.0 LG-004



LG004X

The wax thermostatic element produced by the SMLG with its own patented formula is widely recognized, praised and applied in the industry for its sensitivity and accuracy. It has also passed the European experimental institutions product certification (ACS, WRAS)

Technical Parameter

Maximum Load	140N	Temperature(°C)	Stroke(mm)
Minimum Load	45N	15°C ~ 38°C	1.1 ± 0.15
Testing Load	55N	38°C ~ 55°C	1.25 ± 0.15
Spring Rate	5N/mm	55°C ~ 60°C	0.35 ± 0.08
Maximum Temperature	90°C	38°C ~ 90°C	2.6 ± 0.2
Material	Copper		
Stroke:L=16±0.25mm at 25 °C 55N			
Lifespan:100000 times			

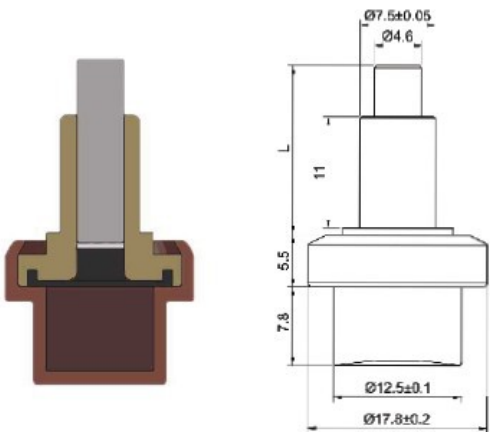
Application

- Automobile
- Plumbing
- Sanitary
- Shipping
- Air conditioning
- Military
- Other industries

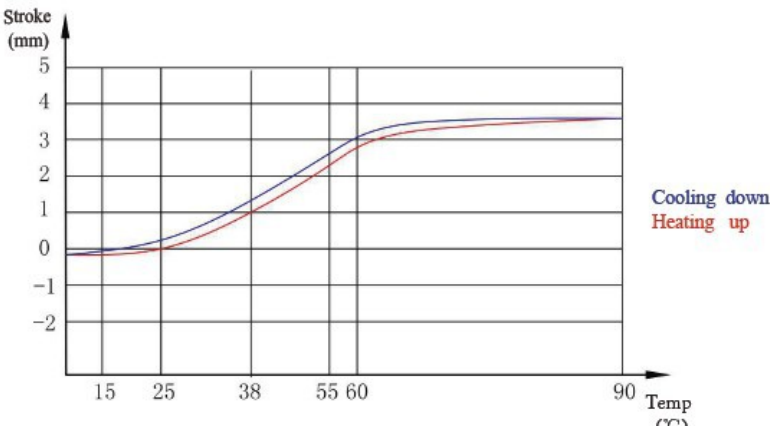
Customize Solution

If you are not sure about the parameters of thermostatic element, our team will assist you with your selection or customize according to your products' situation. Before any commitment, you need to send us written confirmation for the three performance parameters of the wax thermostatic element (temperature range, working stroke and maximum load).

Dimension



Temperature VS. Stroke



Appendix 2.0 LK 550 AquaMix

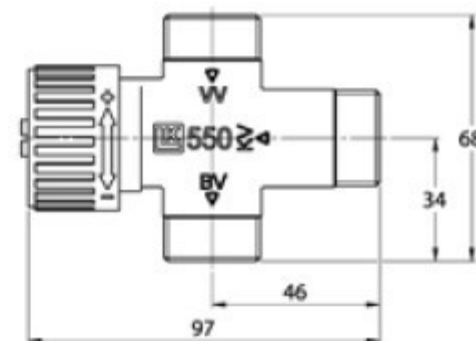
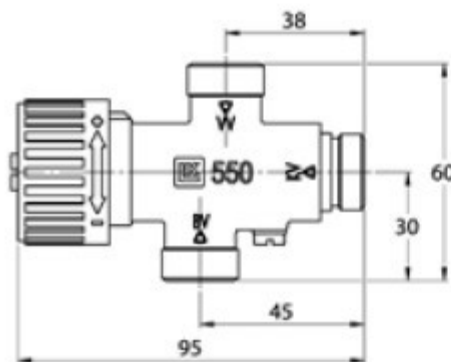
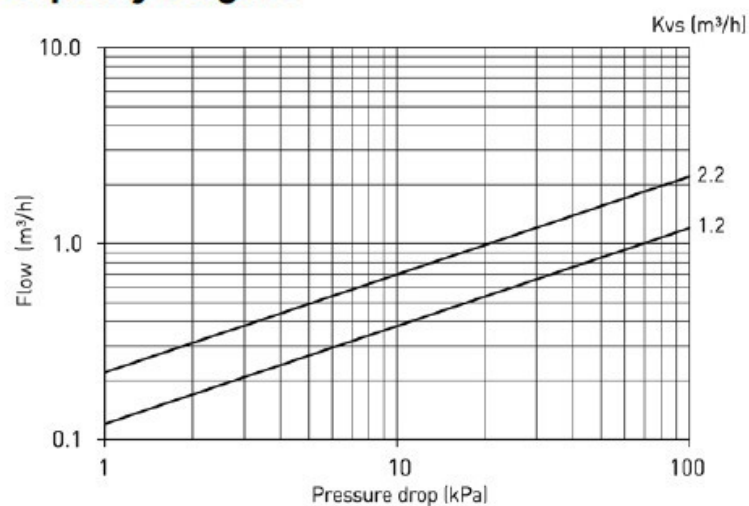
LK 550 AquaMix

Technical data

Working temperature:	Min. 5 °C/Max. 90 °C
Operating temperature:	Min. 38 °C/Max. 65 °C
Max. working pressure:	1.0 MPa (10 bar)
Thread standard:	G - male thread
Material, valve body:	DZR Brass EN 12165 CW625N
Material, sealing:	EPDM



Capacity Diagram



Appendix 3.0 Alde Speedfit TMV

Thermostatic Mixing Valve

Features and benefits

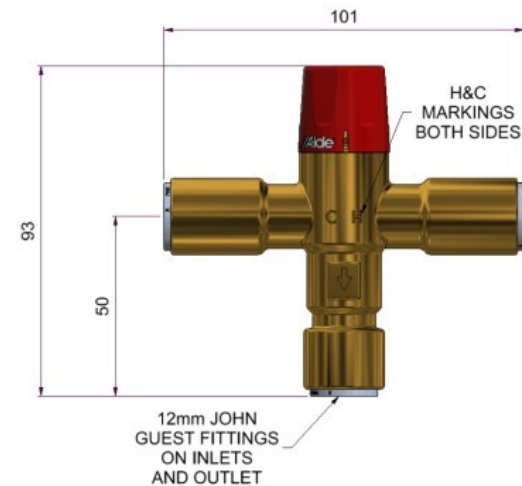
- Compliant with BSEN1111, ASSE 1070, TMV2, TMV3
- Speedfit connections mean fast and easy installation and easy demountability.
- The 15mm valves work with flows as low as 1 lpm making it ideal for water saving taps.
- Compact design means the valve is less obtrusive than others in the market when installed on pedestal or wall hung basins
- 2-in-1 options include check valves as well as strainers that protect both the check valves and the main valve
- WRAS approved
- NSF61 Compliant

	TMV3
Factory temperature setting	48°C
Working temperature range	38°C-48°C
Maximum adjustable temperature range	30°C-48°C
Temperature, hot supply	52°C-65°C (max 85°C)
Temperature, cold supply	5°C-25°C
Minimum hot to mix differential temperature	10°C
Temperature stability	+/- 2°C
Maximum static pressure	10.0 bar
Maximum working pressure	5.0 bar
Minimum working pressure	1 bar
Maximum pressure inlet differential	10:1
Minimum flow rate 15 mm	1 L/min

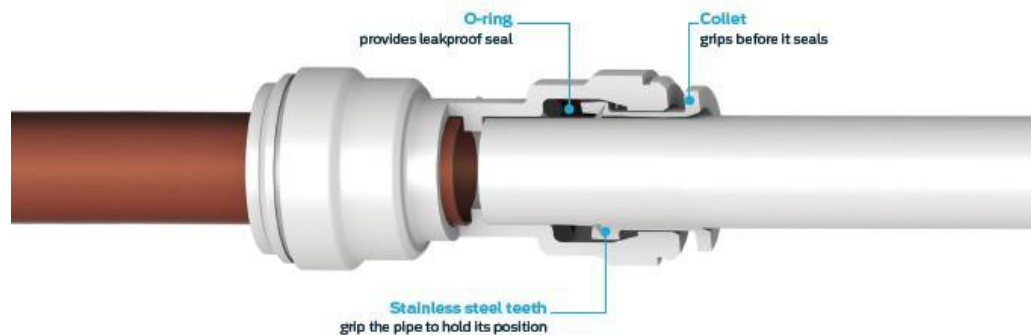
Materials

Body & fittings	Lead free DZR brass
Spring	Stainless steel
Strainers	Stainless steel
Handles	ABS plastic
Body O-Ring	Viton
Piston	High Performance Polymer

Dimensions – All measurements in mm unless otherwise stated



Appendix 4.0 Plastic PEX Push-Pull Fitting Operation



To connect

Keep product clean until ready to use. Always pressure test once installed.



Step 1

Cut the tube square and remove any burrs or score marks. We recommend using a tube insert for soft or thin-walled plastic tubing.



Step 2

Push the tube into the fitting and up to the tube stop.



Step 3

Pull on the tube to check that it is secure. Test the system before use.

To disconnect



Step 1

Make sure that the system is depressurized, then push the collet square against the fitting. With the collet held in this position, the tube can be removed.

source: johnquestusa.com