



TEMPERATURE CONTROL STEAM TRAP

MODEL LEX3N-TZ

FIXED TEMPERATURE DISCHARGE THERMOSTATIC TRAP TO CONTROL TEMPERATURE

Benefits

Steel-bodied bimetal thermostatic steam trap for accurate control of condensate discharge temperature. For use with steam tracing lines, storage tanks, instrument enclosures, steam trap air venting, and freeze protection of condensate lines.*

1. Maintains temperature control at preset levels between 120 and 390 °F by setting the valve closing temperature.
2. Provides maximum energy utilization of the sensible heat in condensate that is wasted.
3. Includes a built-in device for removing scale and build-up from the valve seat.
4. Lowers cost of heating instrument enclosures and eliminates need for heat lamps.
5. Built-in, easy-to-clean screen protects internals to extend trouble-free service life.
6. Inline repairable to lower maintenance costs.
7. Can be used as an automatic non-freeze valve.
8. Overexpansion mechanism prevents damage to the bimetal element and ensures long service life.

* See 'Applications' on page 2.



Specifications

| Model | LEX3N-TZ | | |
|--|------------------------------|------------------|-------------|
| Connection | Screwed | Socket Weld | Flanged |
| Size (in.) | 3/8, 1/2, 3/4, 1 | 3/8, 1/2, 3/4, 1 | 1/2, 3/4, 1 |
| Condensate Temperature Setting Range (°F)* | 120 - 390* (see table right) | | |
| Maximum Operating Pressure (psig) PMO | 650 | | |
| Minimum Operating Pressure (psig) | 15 | | |
| Maximum Operating Temperature (°F) TMO | 662 | | |
| Maximum Allowable Pressure (psig) PMA | 900 | | |
| Maximum Allowable Temperature (°F) TMA | 800 | | |

* Set temperature should be more than 27 °F below the steam saturation temperature.

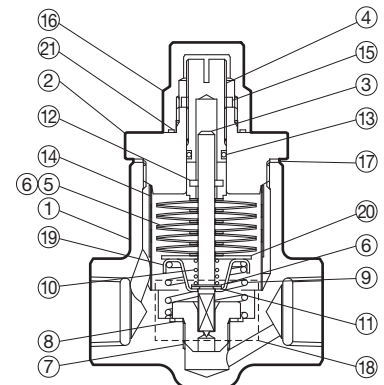
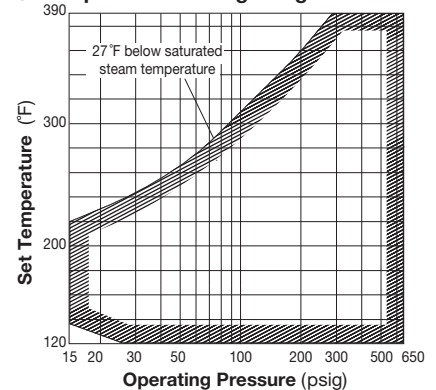
Connections and sizes in bold are standard

The trap may be installed either horizontally or vertically. However, when installing horizontally, make sure that the trap is installed with the temperature adjusting screw positioned higher than the piping in which the trap is installed. (Upside-down installation is not permissible.)

CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

| No. | Description | Material | ASTM/AISI* | JIS |
|-----------------|-------------------------|----------------------|--------------|------------|
| ① | Body | Cast Stainless Steel | A351 Gr. CF8 | — |
| ② | Cover | Stainless Steel | AISI303 | SUS303 |
| ③ ^R | Valve Stem | Stainless Steel | AISI420 | SUS420J2 |
| ④ | Adjusting Screw | Stainless Steel | AISI303 | SUS303 |
| ⑤ ^R | Bimetal Element | Bimetal | — | — |
| ⑥ ^R | Washer | Stainless Steel | AISI304 | SUS304 |
| ⑦ ^R | Valve Seat | Stainless Steel | AISI303 | SUS303 |
| ⑧ ^{MR} | Valve Seat Gasket | Stainless Steel | AISI316L | SUS316L |
| ⑨ ^R | Overexpansion Spring | Stainless Steel | AISI304 | SUS304 |
| ⑩ ^R | Return Spring | Stainless Steel | AISI304 | SUS304 |
| ⑪ ^R | Snap Ring | Stainless Steel | AISI304 | SUS304 |
| ⑫ ^R | Spring Pin | Stainless Steel | AISI304 | SUS304 |
| ⑬ ^{MR} | Seal Ring | Fluorine Rubber | D2000HK | FPM |
| ⑭ ^R | Screen inside/outside | Stainless Steel | AISI430/304 | SUS430/304 |
| ⑮ | Lock Nut | Stainless Steel | AISI303 | SUS303 |
| ⑯ | Cap Nut | Cast Stainless Steel | A351 Gr. CF8 | — |
| ⑰ ^{MR} | Cover Gasket | Stainless Steel | AISI316L | SUS316L |
| ⑱ | Nameplate | Stainless Steel | AISI304 | SUS304 |
| ⑲ ^R | Spring Guide | Stainless Steel | AISI304 | SUS304 |
| ⑳ ^R | Thrust Plate | Stainless Steel | AISI304 | SUS304 |
| ㉑ ^{MR} | Cap Nut Gasket | Graphite | — | — |
| ㉒ | Flange (shown overleaf) | Cast Stainless Steel | A351 Gr. CF8 | — |

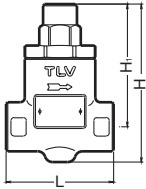
● Temperature Setting Range



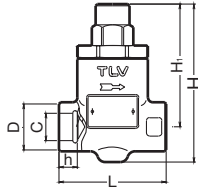
* Equivalent Replacement kits available: (M) maintenance parts, (R) repair parts

Dimensions

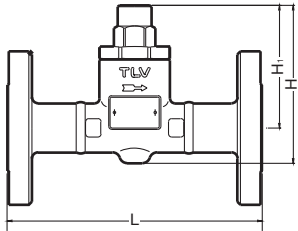
● LEX3N-TZ Screwed



● LEX3N-TZ Socket Weld



● LEX3N-TZ Flanged



LEX3N-TZ Screwed* / Socket Weld** (in)

| Size | L | H | H ₁ | φD | φC | h | Weight (lb) |
|------|-------|--------|----------------|---------|-------|-------|-------------|
| 3/8 | 2 3/4 | 4 1/16 | 3 1/8 | 1 1/4 | 0.690 | 15/32 | 1.8 |
| | | | | | 0.855 | | |
| 3/4 | 3 1/8 | 4 7/16 | 3 17/32 | 1 13/16 | 1.065 | 35/64 | 2.9 |
| 1 | | | | | 1.330 | | 2.6 |

* NPT, other standards available

** ASME B16.11-2005, other standards available

LEX3N-TZ Flanged (in)

| Size | L | | H | H ₁ | Weight* (lb) |
|------|------------------------|---------|--------|----------------|--------------|
| | Connects to ASME Class | | | | |
| | 150RF | 300RF | | | |
| 1/2 | 5 3/4 | 5 3/4 | 4 1/16 | 3 1/8 | 5.1 |
| 3/4 | 6 17/32 | 6 17/32 | 4 7/16 | 3 17/32 | 7.3 |
| 1 | 6 5/16 | 7 5/16 | | | 8.8 |

Other standards available, but length and weight may vary

* Weight is for Class 300 RF

Sizing Charts

Estimation of Discharge Capacity.

Example: The flow rate of condensate discharging from 100 psig to atmosphere at 200 °F from a trap set to 230 °F is determined as follows:

Step 1: Use the discharge capacity graph.

From the 200 °F condensate temperature on the horizontal axis, follow a vertical line until it intersects the 230 °F set temperature curve (point A).

From A, follow a horizontal line across to the vertical axis (point B), and read the discharge capacity, 440 lb/h.

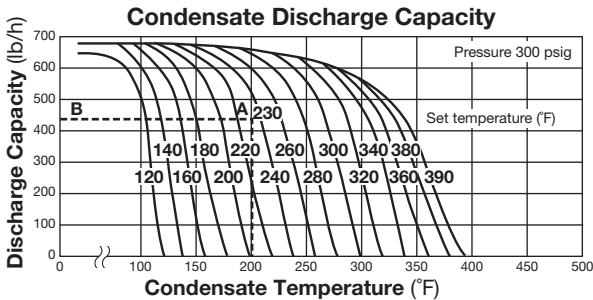
Step 2: Use the correction graph.

Because the discharge capacity graph is based on a steam pressure of 300 psig, a correction factor must be used to adjust the discharge capacity value to the actual differential pressure at the trap.

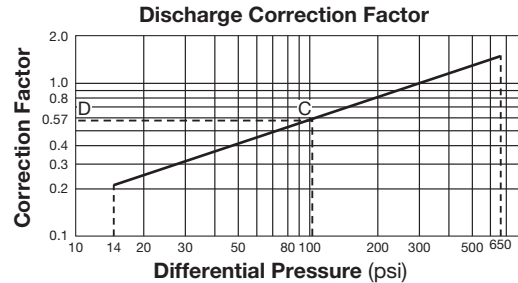
Read up from 100 psi on the horizontal axis to the diagonal line (point C), then across to the correction factor (point D), 0.57.

Multiply the discharge capacity obtained in step 1 by the correction factor to get the actual discharge capacity:

$$440 \text{ °F} \times 0.57 = 250 \text{ lb/h.}$$



Recommended safety factor: at least 2.



Differential pressure is the difference between the inlet and outlet pressure of the trap.

Applications

DO NOT USE on any application except steam tracing lines, storage tank coils, instrument enclosures, steam trap venting, and freeze protection of condensate lines.

SUITABLE for steam tracing lines or storage tank coils **ONLY IF** the required product viscosity will be maintained when the condensate is subcooled at least 27 °F, even to the point of the condensate having a lower temperature than the product temperature.

SUITABLE for use on instrument enclosures **ONLY IF** the steam or condensate temperature in the enclosures will **NOT** damage the instrument.

SUITABLE for use as an external air vent for TLV steam traps, or as a non-freeze valve for freeze protection of condensate lines.



DO NOT REMOVE CAP NUT OR COVER WHILE TRAP IS UNDER PRESSURE.
Allow trap body temperature to cool to room temperature before removing cap nut or cover.
Failure to do so may result in burns or other injury. READ INSTRUCTION MANUAL CAREFULLY.

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For Technical Service 1-800 "TLV TRAP"



Manufacturer
TLV CO., LTD.
Kagawa, Japan
is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001
ISO 14001

