

# VTR SERIES WATER TEMPERATURE CONTROL UNIT

- Water circulating
- Temperatures to 250°F
- Optional temperatures to 300°F
- 1/2 to 7.5 horsepower pumps
- 6 to 34 kW heaters

Veteran Water Temperature Control units deliver precise, reliable fluid temperature control across a wide range of applications. They preheat processes to the desired operating temperature by continuously recirculating water and activating an electric immersion heater. Once the target temperature is reached, the system seamlessly maintains it — either by adding heat or by activating a cooling valve, where it precisely mixes cooling water with the recirculated flow to ensure consistent, tight temperature control.



## **PUMP:**

- Custom designed pump casing up to 3 hp is molded into the single piece tank casting making it up to 20% more efficient than previous models
- 5 & 7.5 horsepower models use an end suction centrifugal pump
- Custom composite impeller creates high turbulent flow for greater heat transfer
- Seal life is extended by the horizontal orientation and internal flush
- Open drip proof motor
- Stainless steel pump motor shaft

## **HEATER:**

- 6-34 kW Capacity
- Flanged bolt-in mount
- Stainless sheath
- Rugged IEC mechanical contactor

## **MODULATING COOLING VALVE:**

(Standard on LXG & LXT models)

- 2,000 incremental rotation steps from open to close for precise metering of cooling water
- Full valve port provides greater capacity than a typical open/close solenoid valve
- Eliminates water hammer and temperature swings
- Microprocessor controlled
- Field serviceable

## **SOLENOID COOLING VALVE:**

(Standard on LS & 300°F models)

- Pulsed cooling

- Microprocessor controlled

- Best suited for smaller cooling loads or when temperature difference between the cooling water and set point is greater

## **TEMPERATURE PROBES**

- Solid state sensor probes are embedded in a bulbwell
- Probes terminated with quick-disconnect plugs to ease service & maintenance
- High temperature limit switch prevents unit operation when temperature exceeds maximum rating for control instruments up to 250°F
- 300°F (LXT & LXG Series) use Type J thermocouples and discreet high temperature limit switch

## **COMPACT ELECTRICAL PANEL:**

- Constructed using high quality components
- Hinged door for easy access
- DIN rail mounted UL approved finger safe electrical components
- Color coded & numbered wires are easy to identify for service purposes
- Control instruments are plug to plug for easy removal for service
- IEC motor starter with overload, phase loss & short circuit protection
- Fused transformer

## **LIMIT DEVICES:**

- Water supply pressure switch
- Motor overloads
- Pressure relief valve
- High temperature limit
- Fused control circuit

## **POWER CORD:**

- Standard on models with full load amp rating of 35 or below
- Optional at additional cost on models with full load amp rating between 35 and 55
- No power cord provided on models with full load amp rating over 55

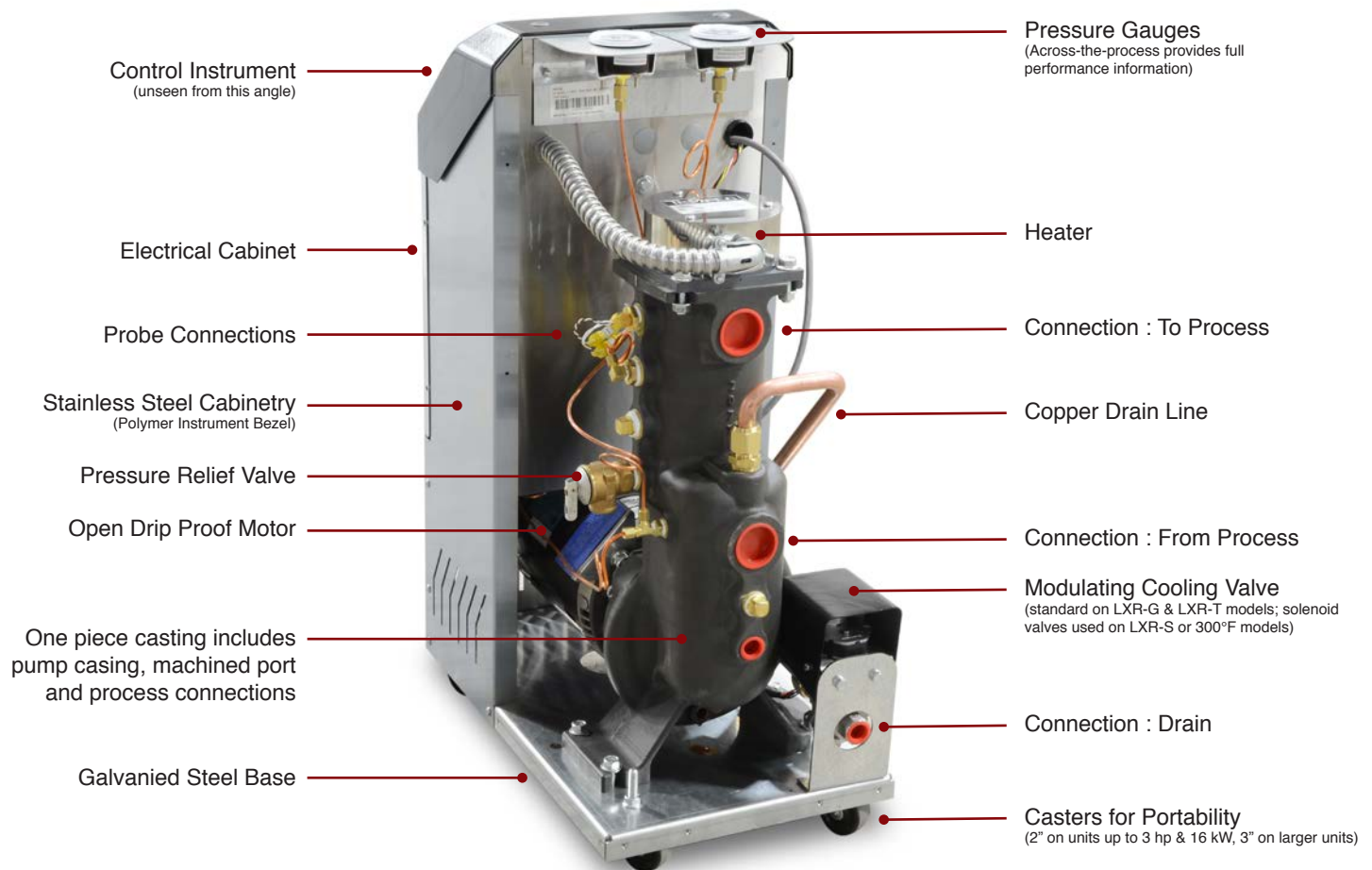
## **WARRANTIES:**

- 2 Years : Controller
- 2 Years : Cooling Valve
- 2 Years : Heater
- 2 Years : Mechanical
- 2 Years : Pump Seal

**PCS**  
COMPANY

Turn To The Industry Experts

## Mechanical System



## Cabinetry

- Stainless steel electrical cabinet & enclosure panels
- Polymer instrument bezel
- Galvanized steel base
- Casters for portability (2" on units up to 3 hp & 16 kW, 3" on larger units)



Cabinet style for units with

- 16 kW & smaller heaters •
- 3 hp & smaller pumps •

Approximate dimensions  
29½" x 12½" x 19" (HxWxD)



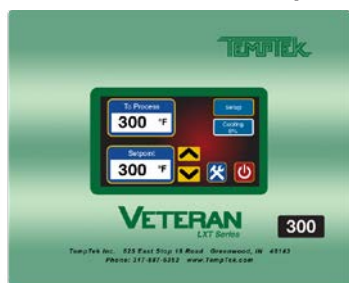
Cabinet style for units with

- 5 & 7½ hp pumps •
- 24 & 34 kW heaters •

Approximate dimensions  
43" x 16" x 29" (HxWxD)

## Control Instruments : Operating Temperatures to 250°F

### LXT Instrument with Touch Screen Simplicity



#### LXT Instrument

- 4.3" full color touch screen interface
- More than 25 screens with custom set-up & system monitoring information.
- Home screen includes continuous set point and to process temperature.
- Process temperature on informational screen.
- % Heating or Cooling indication on home screen.
- Standard shut down pump seal cooling feature.
- User configurable automatic start-up venting.
- Out-of-spec alarm including standard audible signal.
- Pump rotation monitor.
- Selectable English or Spanish language display.
- Selectable °F or °C temperature display.
- Selectable SPI or Modbus RTU communication.
- Configurable second set point feature
- Operates exclusive AVT modulating cooling valve.
- For process fluid temperature up to 250°F
- Optional: Digital flow rate display using highly accurate commercial flow meter.
- Optional: Modbus TCP communication.
- Optional: OPC UA Euromap 82.1 communication.
- Optional: High temperature fluid capability to 300°F
- Optional: Cables for second set point, SPI communication & remote set point feature

### LXG Instrument with LCD Display



#### LXG Instrument

- Simple menu driven controller
- Home screen includes continuous set point and to process temperature.
- % Heating or Cooling indication on home screen.
- Operates exclusive AVT modulating cooling valve.
- Standard shut down pump seal cooling feature.
- User configurable automatic start-up venting.
- Out-of-spec alarm including standard audible signal.
- Selectable °F or °C temperature display.
- Selectable SPI or Modbus RTU communication.
- For process fluid temperature up to 250°F
- Optional: Digital flow rate display using highly accurate commercial flow meter.
- Optional: Modbus TCP communication.
- Optional: High temperature fluid capability to 300°F

### LS Instrument with Large LED Display



#### LS Instrument

- Continuous display of To Process temperature.
- Status indicating lights for Power, Pump, Heat and Cool.
- On - Off rocker switch.
- Pulsed solenoid cooling valve is used with this instrument.
- For process fluid temperature up to 250°F.

## Control Instruments : Operating Temperatures to 300°F

### LXG-300

- The same features and benefits of the LXG.
- Operating temperature to 300°F.
- Pulsing solenoid valve.

### LXT-300

- The same features and benefits of the LXT.
- Operating temperature to 300°F.
- Pulsing solenoid valve.

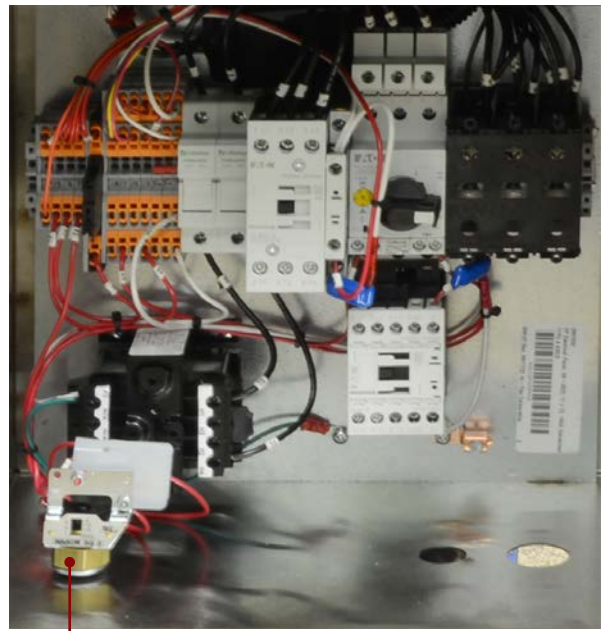


## Electrical Panel

DIN rail mounted electrical components are selected for reliability and are UL approved. Color coded and numbered wires are easy to identify for service purposes. A 10' power cord is included on standard models up to 3HP and 16kW. The transformer supplies power to the control circuit. The pump motor starter is a high grade contactor type and includes over current, phase loss and short circuit protection. A long life mechanical contactor is standard for the heater. NEMA 1 electrical construction is standard and suitable for the majority of applications. NEMA 12 electrical construction is available.

## Water Supply Pressure Switch

- Monitors the cooling water supply pressure
- Prevents unit operation when water supply pressure is below 20 psi on units capable of operating up to 250°F
- Prevents unit operation when water supply is below 55 psi on units capable of operating up to 300°F



Water Supply Pressure Switch

Typical electrical panel shown.

## Options

### Mold or Process Purge

The purge system removes the recirculating fluid from the process piping and process or mold using compressed air from factory source.



### Dual Zone Dolly

A dual zone dolly that holds two standard single zone units is convenient for users that want to run different temperatures on each mold half or where the process requires two temperatures. The dolly offers a single cooling water supply & drain connection as well as an optional electrical junction box to connect both units to a single power supply.

### Stacking Stand

Similar to a Dual Zone Dolly, the Stacking Stand holds two standard single zone units and provides a single cooling water supply & drain connection and optional electrical junction box where both units can be connected to a single power supply.

### Beacon and/or High dB Audible Alarm

In addition to the standard audible alarm supplied on the LXT and LXG control instruments an optional high dB audible alarm and/or alarm beacon can be supplied (LXT and LXG only).



### Non-Ferrous Components

Pumps and tanks are constructed of stainless steel to help reduce rusting in the process/system. A single-piece pump and tank design available with models 1/2-3 hp pumps.



### Closed Circuit Systems

The standard unit uses direct injection mixing of cooling water into the recirculated fluid for cooling. Optional closed circuit units use a heat exchanger to isolate the process recirculated fluid from the cooling fluid. This option can be supplied with or without an easy to fill expansion tank integral to the unit's operation.

### Other Options

- 3/4" AVT™ modulating cooling valve (units with LXT and LXG instruments only)
- 1/2" - 1" solenoid cooling valve (LS instrument only)
- Power disconnect switch
- Solid state heater contactor (recommended when duty will be primarily heating)

REPLACE CHART WITH NEW DATA

| Item Number  | Heater kW | Pump HP | GPM | PSI | Display      | Full Amp Load @ 230v | Height (IN) | Width (IN) | Depth (IN) | Process Connections | Supply & Demand Connections | Shipping Weight (lbs.) |
|--------------|-----------|---------|-----|-----|--------------|----------------------|-------------|------------|------------|---------------------|-----------------------------|------------------------|
| VTR-2100-LS  | 10        | 1       | 45  | 30  | LED          | 28.6                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-2150-LS  | 10        | 1.5     | 65  | 30  | LED          | 30.2                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-2200-LS  | 10        | 2       | 72  | 30  | LED          | 31.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 215                    |
| VTR-2300-LS  | 10        | 3       | 78  | 30  | LED          | 33.4                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 225                    |
| VTR-2500-LS  | 10        | 5       | 90  | 34  | LED          | 36.6                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 325                    |
| VTR-2100-LXG | 10        | 1       | 45  | 30  | LCD          | 28.6                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-2150-LXG | 10        | 1.5     | 65  | 30  | LCD          | 30.2                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-2200-LXG | 10        | 2       | 72  | 30  | LCD          | 31.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 215                    |
| VTR-2300-LXG | 10        | 3       | 78  | 30  | LCD          | 33.4                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 225                    |
| VTR-2500-LXG | 10        | 5       | 90  | 34  | LCD          | 36.6                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 325                    |
| VTR-2100-LXT | 10        | 1       | 45  | 30  | Touch Screen | 28.6                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-2150-LXT | 10        | 1.5     | 65  | 30  | Touch Screen | 30.2                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-2200-LXT | 10        | 2       | 72  | 30  | Touch Screen | 31.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 215                    |
| VTR-2300-LXT | 10        | 3       | 78  | 30  | Touch Screen | 33.4                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 225                    |
| VTR-2500-LXT | 10        | 5       | 90  | 34  | Touch Screen | 36.6                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 325                    |
| VTR-3100-LS  | 16        | 1       | 45  | 30  | LED          | 43                   | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-3150-LS  | 16        | 1.5     | 65  | 30  | LED          | 44.4                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-3200-LS  | 16        | 2       | 72  | 30  | LED          | 45.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 220                    |
| VTR-3300-LS  | 16        | 3       | 78  | 30  | LED          | 47.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 225                    |
| VTR-3500-LS  | 16        | 5       | 90  | 34  | LED          | 51.2                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 335                    |
| VTR-3100-LXG | 16        | 1       | 45  | 30  | LCD          | 43                   | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-3150-LXG | 16        | 1.5     | 65  | 30  | LCD          | 44.4                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-3200-LXG | 16        | 2       | 72  | 30  | LCD          | 45.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 220                    |
| VTR-3300-LXG | 16        | 3       | 78  | 30  | LCD          | 47.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 225                    |
| VTR-3500-LXG | 16        | 5       | 90  | 34  | LCD          | 51.2                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 335                    |
| VTR-3100-LXT | 16        | 1       | 45  | 30  | Touch Screen | 43                   | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-3150-LXT | 16        | 1.5     | 65  | 30  | Touch Screen | 44.4                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 210                    |
| VTR-3200-LXT | 16        | 2       | 72  | 30  | Touch Screen | 45.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 220                    |
| VTR-3300-LXT | 16        | 3       | 78  | 30  | Touch Screen | 47.8                 | 29.5        | 12.5       | 19         | 1 1/4" NPT          | 1/2" NPT                    | 225                    |
| VTR-3500-LXT | 16        | 5       | 90  | 34  | Touch Screen | 51.2                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 335                    |
| VTR-4100-LS  | 24        | 1       | 45  | 30  | LED          | 62.2                 | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 275                    |
| VTR-4150-LS  | 24        | 1.5     | 65  | 30  | LED          | 63.6                 | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 280                    |
| VTR-4200-LS  | 24        | 2       | 72  | 30  | LED          | 65                   | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 285                    |
| VTR-4300-LS  | 24        | 3       | 78  | 30  | LED          | 67                   | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 290                    |
| VTR-4500-LS  | 24        | 5       | 90  | 34  | LED          | 70.4                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 345                    |
| VTR-4100-LXG | 24        | 1       | 45  | 30  | LCD          | 62.2                 | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 275                    |
| VTR-4150-LXG | 24        | 1.5     | 65  | 30  | LCD          | 63.6                 | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 280                    |
| VTR-4200-LXG | 24        | 2       | 72  | 30  | LCD          | 65                   | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 285                    |
| VTR-4300-LXG | 24        | 3       | 78  | 30  | LCD          | 67                   | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 290                    |
| VTR-4500-LXG | 24        | 5       | 90  | 34  | LCD          | 70.4                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 345                    |
| VTR-4100-LXT | 24        | 1       | 45  | 30  | Touch Screen | 62.2                 | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 275                    |
| VTR-4150-LXT | 24        | 1.5     | 65  | 30  | Touch Screen | 63.6                 | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 280                    |
| VTR-4200-LXT | 24        | 2       | 72  | 30  | Touch Screen | 65                   | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 285                    |
| VTR-4300-LXT | 24        | 3       | 78  | 30  | Touch Screen | 67                   | 43          | 16         | 29         | 1 1/4" NPT          | 1/2" NPT                    | 290                    |
| VTR-4500-LXT | 24        | 5       | 90  | 34  | Touch Screen | 70.4                 | 43          | 16         | 29         | 2" NPT              | 1/2" NPT                    | 345                    |