

Termovar Loading Unit



TERMOVAR LOADING UNIT is a pre-fabricated, automatic, thermally operated valve unit for solid-fuel boiler/storage tank installations, where heating and domestic hot water are taken from the storage tank. TERMOVAR LOADING UNIT ensures a minimum return-water temperature into the solid-fuel boiler, which increases the boiler efficiency, prevents tarring and considerably prolongs the lifetime of the solid-fuel boiler. TERMOVAR eliminates the risk of destructive thermal shock caused by surges of cold water return water. TERMOVAR renders a more effective burning and is therefore a necessary part of a solid fuel installation with a storage tank.

Termovar Includes:

1. Thermally operated loading valve
2. Backflow preventer
3. Circulator pump
4. Three thermometers
5. Three ball valves

Technical Data

| | |
|----------------------------|-----------------------------------|
| Voltage | 15V 60Hertz |
| Power Consumption | .55-.75 amps |
| Max. Boiler Capacity | 273,000Btuh (80KW) |
| Max. Operating Temperature | 230°F (110°C) |
| Opening Temperature | 142°F (61°C), 162°F (72°C), fixed |
| Circulator Pump | Grundfos UPS 15-58U 130 |
| Connection Size | 1¼" |
| Body | Cast Iron |
| Dimensions | 8.27"X8.27"X4.33" (210X210X110mm) |
| Weight | 11 lbs (5.0 kg) |

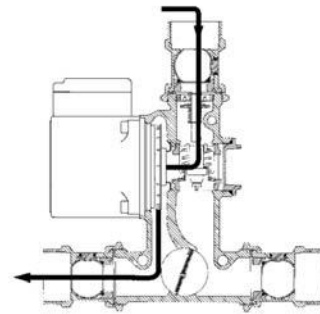
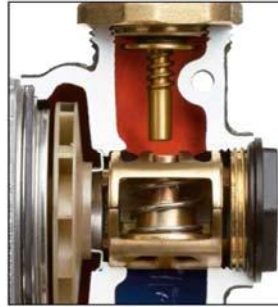
Termovar Loading Unit has several advantages:

- The pre-fabricated unit saves time and provides a quick and trouble-free installation
- The loading unit provides a constant loading temperature to the storage tank
- It can be installed on the right-hand or left-hand side of the boiler
- The loading unit is installed on the return pipe which means that the supply pipe is free for expansion and the unit is never affected by steam in case of an overheated boiler
- Service friendly. All parts can be changed without draining the system

TERMOVAR LOADING UNIT

1. The heat up phase

The loading pump should be controlled by a thermostat that measures flue-gas temperature. The pump will start when the boiler is fired up and stop when it has ceased to fire. The boiler water is circulating to the loading unit and back while the temperature of the boiler is rising.



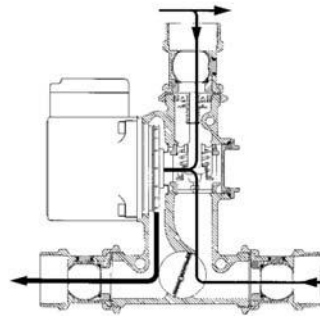
2. The loading phase

The thermostat element in the loading unit is affected by the temperature of the water circulating from the boiler to the loading unit. (See table below.) The thermostat element starts opening at 61/72/80°C * and is fully open at 73/84/92°C *. When the temperature in the boiler reaches 61/72/80°C * the thermostat element opens and allows return water from the storage tank to be mixed with supply water before it returns back to the boiler. The temperature of the supply water determines the working position of the thermostat element.

A balancing valve in the loading unit regulates the internal flow of the supply water. The working position of the thermostat element determines the closing position of the balancing valve. (See table below.) When the temperature is 67/78/86°C * the thermostat element starts to close the balancing valve. This causes a higher flow of return water into the boiler. When the temperature reaches 73/84/92°C * the thermostat element is 100 % open and the balancing valve is 100 % closed.

* depending on selected opening temperature

| Thermostat Temp. °C | Thermostat Opening position % | Balancing valve Closing position % |
|---------------------|-------------------------------|------------------------------------|
| 61/72/80 | 0 | 0 |
| 63/74/82 | 16 | 0 |
| 65/76/84 | 33 | 0 |
| 67/78/86 | 50 | 0 |
| 69/80/88 | 67 | 35 |
| 71/82/90 | 83 | 70 |
| 73/84/92 | 100 | 100 |



3. The end phase

The thermostat element is fully open. The balancing valve is closed. This results a maximum cooling of the boiler and the storage tank is filled with supply water.

