



## Freeze Protection Valves For Locomotives and Passenger Rail Cars

ThermOmegaTech® offers a variety of self-operating, thermostatic drain valves to protect diesel locomotives and potable water-bearing systems on passenger cars from freeze damage.

ThermOmegaTech's QMS is certified  
to the AS9100 D Standards

[www.ThermOmegaTech.com](http://www.ThermOmegaTech.com)  
877-379-8258

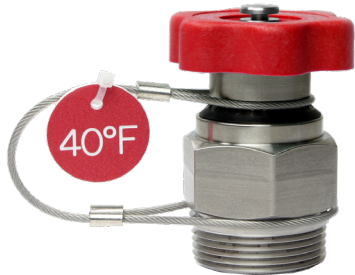
## Locomotive Freeze Protection

GURU® plugs are self-operating drain valves installed at the lowest point in a locomotive's engine coolant system to automatically and continuously sense the water temperature to prevent water lines from freezing.

### Guru® DL 2.1

The GURU® DL 2.1 thermostatic valves respond to engine coolant temperatures. When the locomotive is shut down and the cooling water temperature drops to the valve's set-point, (Standard offerings: 35°F or 40°F) the valve cartridges will release, draining the locomotive cooling system before any freeze damage occurs.

After a drain occurrence, the valve cartridges can be heated and reinserted back into the hex nut to refill the water tank and promptly return the locomotive to service.



### Magnum Guru®

The Magnum GURU® plugs operate the same way as the standard GURU® DL 2.1; however, they provide a higher discharge capacity to reduce down-time by up to 50%.

Magnum GURU's have straight SAE threads (GURU® DL 2.1 plugs have NPT) and O-ring seals to provide easy field maintenance and testing.

## Available Options

Both GURU® DL 2.1 and Magnum GURU® plugs are available in various configurations, including in a tee or cross body, with different flange styles such as grooved flanges and gasket seals, flat-faced flanges, or a combination of both.

All GURU® plugs are also available with anti-tamper domed caps to prevent tampering with the valve resetting stem.



Type-S - Standard Plug



Type-T - Tee Body



Type-FL or Type-FL-GX or  
Type-FL/FL-GX



Type CR - Cross Body



Anti-Tamper Cap

### Guru® DL 2.1 CH and CHS

The GURU® DL2.1 CH and CHS Plugs are drain valves that are easily retrofitted into water-cooled air compressor heads that release only when cooling water drops to the set-point temperature.

Both CH and CHS are available with an anti-tampering cap to eliminate tampering with the resetting stem.



*For product dimensions and specifications, visit [www.ThermOmegaTech.com](http://www.ThermOmegaTech.com)*

## Part Numbers

### GURU® DL 2.1

Part Number	35°	40°
Cartridge	481-04-82-CART	481-04-81V-CART
TYPE-S	487-04-88	487-04-87
TYPE-T	482-04-88	482-04-82
TYPE-FL	483-04-88	483-04-83
TYPE-FL-GX	483-04-88-GX	483-04-83-GX-V
TYPE-CH	484-04-88	484-04-84
TYPE-CHS	485-04-88	485-04-87

### MAGNUM GURU®

Part Number	35°	40°
Cartridge	470-010100-035	470-010000-040
TYPE-S	470-001100-035	470-001000-000
TYPE-T	470-002100-035	470-002000-000
TYPE-FL	470-003100-035	470-003000-000
TYPE-FL-GX	470-004100-035	470-004000-000
TYPE-FL/FL-GX	470-005100-035	470-005000-000
TYPE-CR/FL-GX/P	470-008100-035	470-008100-040

## Cold Water Refill Tools

Cold water refill tools allow refilling of the locomotive cooling system with cold water without tripping the GURU® plugs. The magnetic GURU® Flag with flashing strobe-light is attached on the outer wall of the locomotive as a “visual aid,” letting customers know that the GURU® plug is disarmed while performing a cold water refill of the locomotive.

### Guru® Flag and Clip

The clip at the end of the cable is inserted into the slot of the GURU® plug’s resetting stem after warming the nose of the cartridge to keep the plug from “popping” as cold water is being added into the locomotive’s cooling system.



### Guru® Flag and Key

This tool works in conjunction with the anti-tamper domed cap by allowing insertion of the key into the cartridge after warming its nose to keep it from “popping”. The plug’s resetting stem is not accessible, eliminating the ability to leave a penny or washer inserted.



*Flag and Clip and Flag and Key can be used with Magnum and DL 2.1 Plugs*

## Compressor Head Cleaning Tool (CHCT)

The Compressor Head Cleaning Tool is designed to quickly clean and flush out debris from the water-cooled compressor head on the locomotive. The CHCT allows insertion of the cleaning nozzle into the same flanged body as the GURU® Plug Type CH or CHS.



To use the CHCT, a pressurized water hose must be connected to the cleaning tool.

*For product dimensions and specifications, visit [www.ThermOmegaTech.com](http://www.ThermOmegaTech.com)*



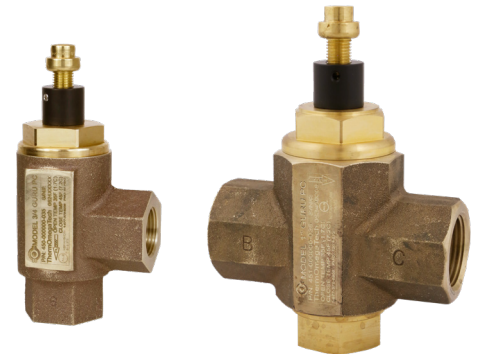
## Passenger Rail Car Freeze Protection

GURU PC® self-operating valves are installed at the lowest point in a passenger car's potable water bearing system, typically inside equipment cabinets or between the inner and outer car body, to prevent freezing when the car heat is turned off.

### Guru® PC 3/4" and 1"

Guru® PC thermostatic valves continuously monitor ambient temperatures and will automatically drain the system before freeze damage can occur. Once the car heat is restored, the valve will modulate closed, allowing for the tank to be refilled before returning to service.

The GURU PC® complies with fire safety requirements under Title 49, Chapter II, Part 238.103, and is NSF/ANSI/CAN 61&372 Certified.



### Heater Assembly

To avoid a delay in getting the car back into service after a valve activation, ThermOmegaTech® recommends using our electric heater assembly in conjunction with the valve.

The heater assembly attaches to the thermal actuator to quickly heat up and close the valve once power is restored. This allows for the water system to be refilled and the car returned to service promptly.



### GURU® PC Valves

Description	Part Number
Guru PC ¾"	450-000000-035
Guru PC 1"	451-000000-035

### Heater Assembly

Description	Part Number
120VAC/74VDC with plug and 5ft cord	455-000000-060
120VAC/74VDC with plain end and 5ft cord	455-010000-060
230VAC with plain end and 5ft cord	456-010000-060

## GURU® Rebuild Program

ThermOmegaTech® recommends replacing your GURU's every 18-24 months to prevent nuisance dumping. We offer a rebuild program for the self-actuating GURU® plugs that protect thousands of locomotives from freeze damage every year. Our rebuild program allows you to return your old GURU® plugs to be cleaned, refurbished, and retested so you get a "like-new" valve at a discounted price.

For the GURU PC® valves, we offer replacement cartridge assembly kits to allow for easy in-line maintenance.

To learn more about our Rebuild Program, visit [www.thermomegatech.com/guru-rebuild-program/](http://www.thermomegatech.com/guru-rebuild-program/)

*For product dimensions and specifications, visit [www.ThermOmegaTech.com](http://www.ThermOmegaTech.com)*