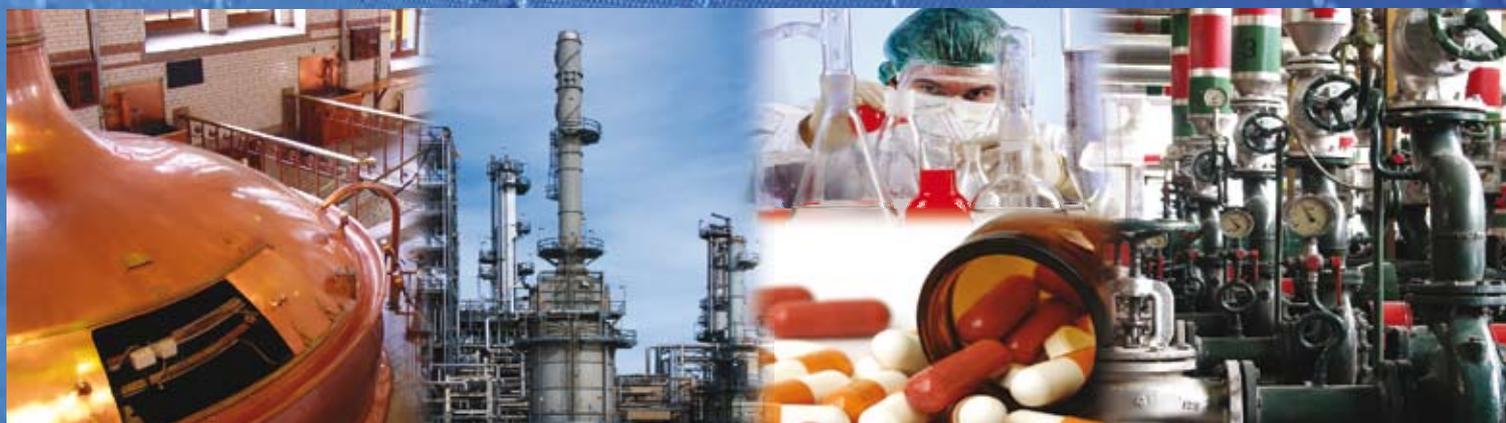




flow & process solutions





GURU DL 2.1

LOCOMOTIVE FREEZE PROTECTION

DESIGN FEATURES

- ◆ Actuator sensing surface is only wetted part
- ◆ Long service life: All moving parts are stainless steel
- ◆ Design excludes cooling water chemicals and other debris from moving parts
- ◆ Easy maintenance
- ◆ Several body styles available for various applications: 1-1/4 NPT tee, flanged tee and compressor flange.
- ◆ Paint mask minimizes accidental paint-ins
- ◆ Knob on cartridge for easy installation and removal even in awkward locations
- ◆ Choice of release temperatures: 35°F, 40° or 47°F



ADVANTAGES

- ◆ Will not trip or dump while locomotive is running
- ◆ Easy installation
- ◆ Completely mechanical - No electrical or air connections
- ◆ Not affected by air flow or air temperature surrounding valve - releases only when cooling water reaches setpoint
- ◆ Rapid draining
- ◆ Easy system refill
- ◆ Models available to convert existing freeze protection
- ◆ Easily tested in field
- ◆ Slotted actuator feature prevents accidental dumps when refilling cooling system with cold water.
- ◆ Unit automatically rearms after filling and reheating

APPLICATIONS

- ◆ Locomotive engine and compressor set cooling systems
- ◆ Water cooled compressor heads
- ◆ Stand-by diesel heating circulators
- ◆ Back-up protection in event of shut-down
- ◆ Hot water cab heater lines
- ◆ On-board tanks and piping

OPERATION

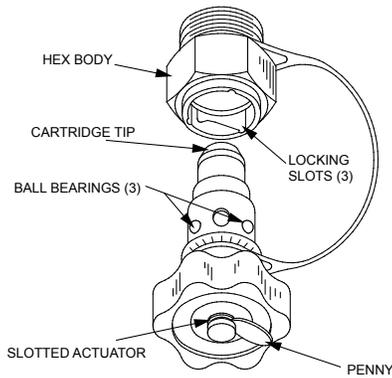
The **GURU DL 2.1** Plug may be thought of as an automatic freeze-out plug with one important difference: The stainless steel GURU Cartridge releases itself from its body at a pre-set water temperature (35°F 47°F or 40°F), rather than being forced out by the tremendous pressure of expanding ice. This provides almost a full one inch bore to rapidly drain the typical locomotive before damage can occur. Resetting and rearming the GURU Plug when refilling the system is easily accomplished by simply reheating the cartridge and utilizing the slotted actuator feature.

GURU DL 2.1

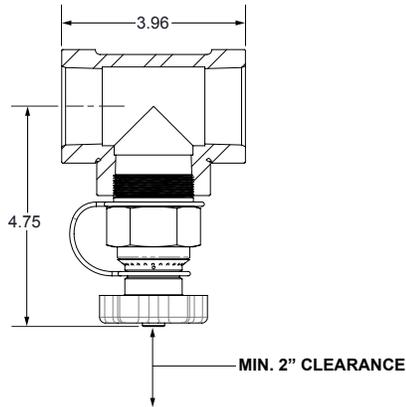
LOCOMOTIVE FREEZE PROTECTION



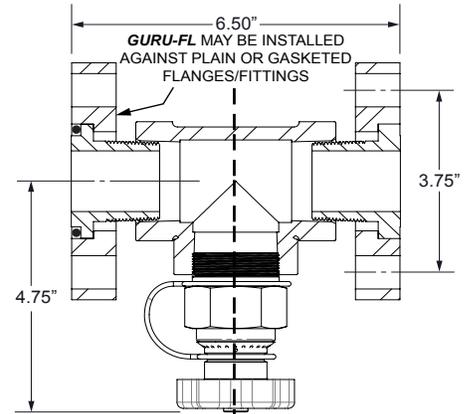
The **GURU DL 2.1 Series Plug** is available in the models shown below for new installations or to retrofit existing freeze protection (Ogontz, Prime, Salem, Graham-White, Microphor, etc.). Models available to release at 35°F, 40°F or 47°F.



TYPE S

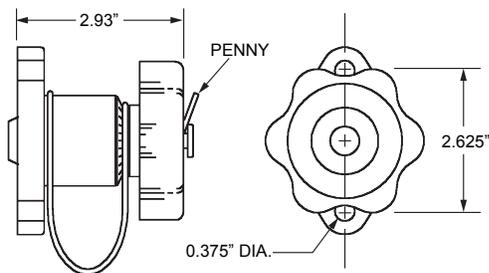


TYPE T

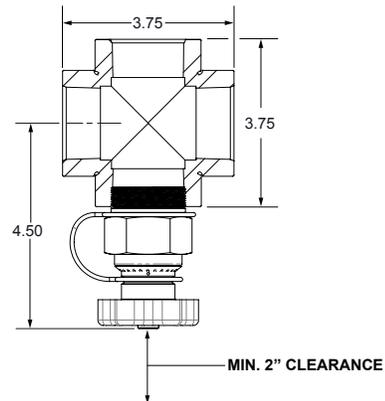


TYPE FL
(Grooved flanges with sealing O-ring.)

TYPE FL-GX
(Flat-faced flanges)



TYPE CH



TYPE CR

TO ORDER SPECIFY:

DL2.1 - VALVE TYPE - RELEASE TEMPERATURE

For example to order TYPE T to release at 35°: **DL2.1 - TYPE T - 35;**

to release at 40° specify: **DL2.1 - TYPE T - 40;** to release at 47°: **DL2.1 - TYPE T - 47.**

- The suitability of the valve for the intended application is the responsibility of the end user.

Therm-Omega-Tech, Inc. reserves the right to change the design and specifications without notice



THERM-OMEGA-TECH, INC.





HAT/FP

FREEZE PROTECTION VALVE

DESIGN FEATURES

- ◆ Stainless steel body, fittings, spring and plug
- ◆ Corrosion resistant - Long service life
- ◆ Narrow temperature band
- ◆ Compact, low mass - Fast response
- ◆ Ram-type plug for reliable tight shutoff
- ◆ Downstream actuator for greater sensitivity
- ◆ Sensitive to temperature only
- ◆ Unaffected by pressure variations
- ◆ Easy installation with pipe wrench
- ◆ Discharges the minimum amount of water required to prevent freeze damage



ADVANTAGES

Typically freeze protection is effected by cracking open manual bleed valves. This method is at best risky. Human error or plugging of partially cracked valves annually accounts for large amounts of freeze damage to expensive equipment. **HAT/FP** valves eliminate this type of problem by automating freeze protection, reducing water consumption, and eliminating damage and down time. The unique ram-type plug and seat provide reliable, tight shutoff longer than any other design available. All **HAT/FP** valves are factory-tested and covered by a 36 month prorated warranty.

APPLICATIONS

HAT/FP (Freeze Protection) valves are ideal for protection of piping, valves, fittings, pumps, condensate systems, safety showers, fire lines, spray nozzles, freeze sensitive equipment, or as backup protection on traced systems/equipment.

OPERATION

A thermostatic element inside the valve senses temperature and if this falls below 35°F (1.7°C) the valve modulates open allowing water to flow. The valve will remain open as long as the water flowing by the sensor is less than 40°F (4.4°C). However, when the water flowing by the sensor becomes greater than 40°F (4.4°C) the valve will close.

HAT/FP

FREEZE PROTECTION VALVE



PARTS AND MATERIALS

	ITEM	DESCRIPTION	MATERIAL
	1	BODY - INLET HALF	300 SERIES STAINLESS
	2	SEAT SEAL	PTFE
	3	OPERATING SPRING	300 SERIES STAINLESS
	4	RAM-TYPE PLUG	300 SERIES STAINLESS
	5	BODY SEAL	EPDM / VITON
	6	THERMAL ACTUATOR	BRASS or SS
	7	ACTUATOR CARRIER	BRASS or SS
	8	BODY - OUTLET HALF	300 SERIES STAINLESS
	9	SEAT INSERT	300 SERIES STAINLESS

SPECIFICATIONS

SIZE (NPTF)	D		L		Weight		Port Size	C _v	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg				
1/2"	1.25	32	4.5	114	0.9	0.41	C	1.3	200 PSIG (13.8 BAR)	300°F (149°C)
3/4"	1.5	38	5.5	140	1.4	0.64	D	2		

TO ORDER SPECIFY:

Part Number		Description
EPDM	VITON	
114 - 302100 - 035	114 - 302200 - 035	1/2" HAT/FP-35 C-Port
114 - 312110 - 035	114 - 312210 - 035	1/2" HAT/FP-35 C-Port SS - all Stainless Steel (note #1)
115 - 502100 - 035	115 - 502200 - 035	3/4" HAT/FP-35 D-Port
115 - 512100 - 035	115 - 512200 - 035	3/4" HAT/FP-35 D-Port SS - all Stainless Steel (note #1)

NOTES:

- Valve is rated for 300 PSIG (20.7 BAR)
- Open / Close temperatures: 35°F / 40°F
- Seal material compatibility:
 - EPDM - air (to 300°F), water, steam, ketones, and synthetic hydraulic oils.
 - Viton - air (to 450°F), fuel, oil, gas, petroleum-based hydraulic oils.
- A #20 mesh strainer is recommended for use with all port sizes.

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THERM-OMEGA-TECH, INC.





3/4" IC/FP

INTERCHANGEABLE CARTRIDGE/FREEZE PROTECTION

DESIGN FEATURES

- ◆ Brass body and thermal element
- ◆ Easily maintained
- ◆ Corrosion resistant - Long service life
- ◆ Most narrow temperature band available
- ◆ Ram-type plug for reliable tight shutoff
- ◆ Sensitive to fluid temperature only
- ◆ Unaffected by pressure variations
- ◆ Easy installation with pipe wrench
- ◆ Discharges the minimum amount of water required to prevent freeze damage



ADVANTAGES

Typically, freeze protection is effected by cracking open manual bleed valves. This method is at best risky. Human error or plugging of partially cracked valves annually accounts for millions of dollars in freeze damage. **3/4" IC/FP** valves eliminate this type of problem by automating protection, reducing water consumption, and eliminating damage and down time. The unique ram-type plug and seat provide reliable, tight shutoff longer than any other design available. The easily replaceable precalibrated cartridges minimize downtime during maintenance. All **3/4" IC/FP** valves are covered by an 18 month prorated warranty.

APPLICATIONS

The **3/4" IC/FP** (Freeze Protection) valves are ideal for the protection of piping, safety showers, solar collectors & piping, condensate systems, fire lines, spray nozzles, or as backup protection on traced systems, where an unrestricted flow is required under normal operating conditions. Its sensitivity to water temperature makes this valve ideal for applications where water conservation or wastewater disposal are a prime concern.

OPERATION

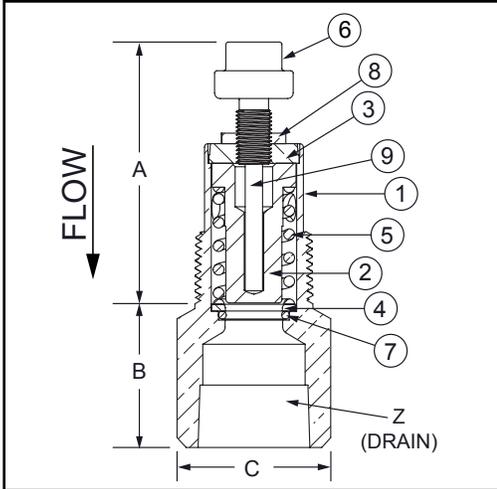
The **3/4" IC/FP** will screw into any 3/4" NPT threaded opening with adequate internal clearance (see drawing at "Parts and Materials"). When the fluid temperature approaches freezing, and freeze damage is imminent, the thermal actuator modulates the valve open. When the makeup water temperature returns to the safe range, the valve then modulates closed, minimizing water loss. Due to the actuator's placement in the fluid stream, this valve is unaffected by ambient air temperature, and opens only when the water is in danger of freezing, being open at 35°F (1.7°C), and closed at 40°F (4.4°C)

3/4" IC/FP

INTERCHANGEABLE CARTRIDGE/FREEZE PROTECTION



PARTS AND MATERIALS



ITEM	DESCRIPTION	MATERIAL
1	CARTRIDGE BODY	BRASS
2	RAM TYPE PLUG	300 SERIES STAINLESS
3	ACTUATOR BUSHING	BRASS
4	BODY SEAL RETAINER	BRASS
5	OPERATING SPRING	300 SERIES STAINLESS
6	ACTUATOR	BRASS
7	SEAT SEAL	PTFE
8	CALIBRATION LOCKNUT	300 SERIES STAINLESS
9	PISTON	300 SERIES STAINLESS

SPECIFICATIONS

Connection	A		B		C		Z (Drain)	C _v	Weight		Maximum Pressure	Maximum Temperature
	in	mm	in	mm	in	mm			Lb	Kg		
3/4" NPT	2.15	54.6	1.33	33.8	1.38	35.1	3/4 NPTF	1.3	0.5	0.23	100 PSIG (6.9 BAR)	300°F (149°C)

TO ORDER SPECIFY:

Part Number	Description
185-000000-035	3/4" IC/FP-35 Cartridge

NOTES:

1. Open / Close temperatures: 35°F / 40°F.
2. A #20 mesh strainer is recommended.

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THERM-OMEGA-TECH, INC.





MAGNUM GURU

LOCOMOTIVE FREEZE PROTECTION

ADVANTAGES

- ◆ Drains twice as fast as the standard GURU Plug
- ◆ Will not trip or dump while locomotive is running
- ◆ Straight SAE threads and O-ring seals provide for easy field maintenance and testing
- ◆ Easy installation
- ◆ Completely mechanical - No electrical or air connections
- ◆ Not affected by air flow or air temperature surrounding valve - releases only when cooling water reaches setpoint
- ◆ Easy system refill
- ◆ Models available to convert existing freeze protection
- ◆ Slotted actuator feature prevents accidental dumps when refilling cooling system with cold water.
- ◆ Unit automatically rearms after filling and reheating



DESIGN FEATURES

- ◆ Actuator sensing surface is the only wetted part
- ◆ Design excludes cooling water chemicals and other debris from moving parts
- ◆ Long service life: All moving parts are stainless steel
- ◆ Plug has SAE threads and O-ring seals for easy field maintenance and testing
- ◆ Available in 1-1/4" NPT tee and flanged tee body styles
- ◆ Paint mask minimizes accidental paint-ins
- ◆ Knob on cartridge for easy installation and removal even in awkward locations

OPERATION

The Magnum GURU Plug is a higher discharge capacity version of the standard GURU Plug. The Magnum GURU Plug is a self-operating thermostatic drain valve that responds to engine coolant temperature and will pop open and drain when coolant reaches the setpoint (40°F). This provides almost a full 1.2 inch bore to rapidly drain a locomotive before freeze damage can occur.

Resetting and rearming the Magnum GURU Plug is easily accomplished by simply reheating the cartridge and utilizing the slotted actuator feature (AKA "penny pincher"). This feature prevents the GURU Plug from triggering open again while refilling the cooling system with cold water.

APPLICATIONS

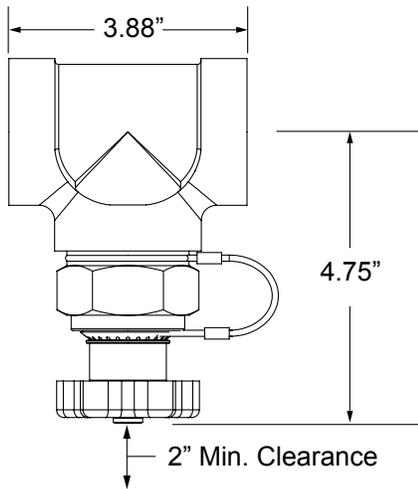
- ◆ Locomotive engine cooling systems
- ◆ Stand-by diesel heating circulators
- ◆ Back up protection in event of shutdown
- ◆ On-board tanks and piping

MAGNUM GURU

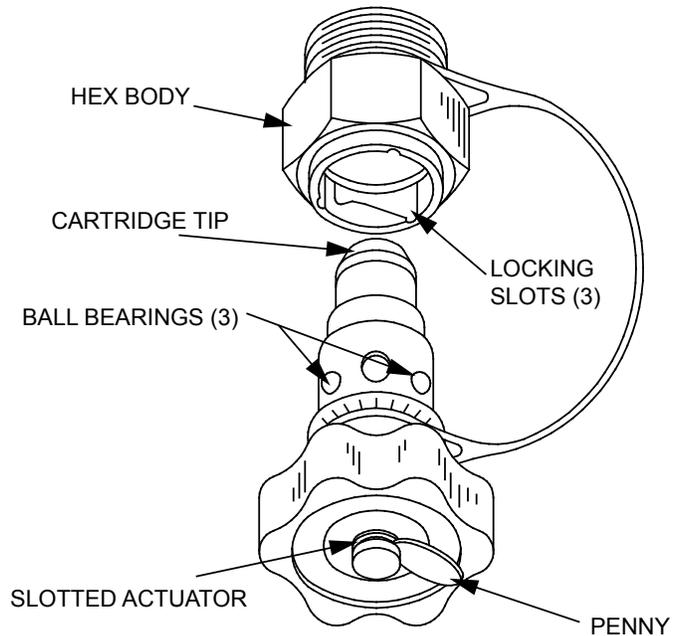
LOCOMOTIVE FREEZE PROTECTION



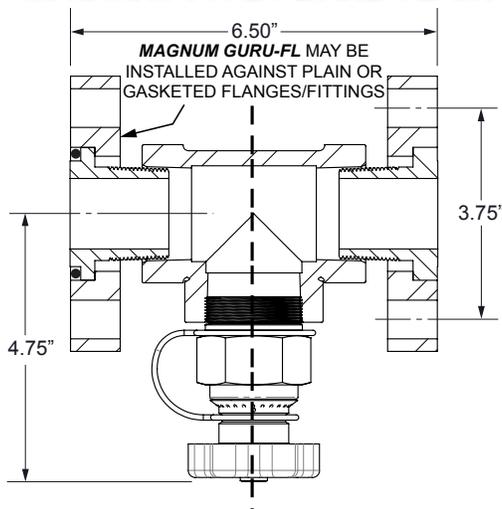
MAGNUM TYPE T



MAGNUM TYPE S



MAGNUM TYPE FL AND FL-GX



The **THERM-OMEGA-TECH Magnum GURU Plug** is available in the models shown for new installations or to retrofit existing freeze protection systems by Ogontz, Prime, Salem, Graham-White, Microphor and many others.

TO ORDER SPECIFY:

Type	Part Number	Description	Notes
Magnum S	470-001000-000	Magnum GURU Type-S 40°F	
Magnum T	470-002000-000	Magnum GURU Type-T 40°F	
Magnum FL	470-003000-000	Magnum GURU Type-FL 40°F	Grooved quad flange seal
Magnum FL-GX	470-004000-000	Magnum GURU Type-FL-GX 40°F	Flat faced flanges
Magnum CART	470-010000-000	Magnum GURU Cartridge 40°F	Replacement GURU cartridge

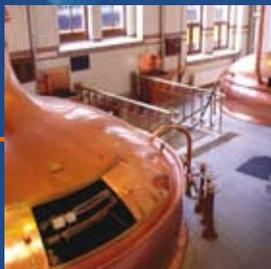
*The suitability of the valve for the intended application is the responsibility of the end user.

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THERM-OMEGA-TECH, INC.





Potravinářský průmysl
Farmaceutický průmysl
Biotechnologie
Petrochemie
Chemický průmysl
Energetika
Úprava vody
Papírenství a zpracování celulózy
Plynárenský průmysl
Keramický průmysl
Zpracovatelský průmysl



Firma s tradicí od r. 1990 se při svém vzniku zaměřila na dodávky základních komponent, přístrojové a měřicí techniky a dodávky technologií pro farmaceutický a potravinářský průmysl. Cílem bylo zajistit kompletní dodavatelsko - inženýrské služby, včetně servisu. V roce 1998, který byl pro firmu velmi významným mezníkem, proběhla transformace společnosti do nynější formy. V dalších letech činnosti společnosti dochází k rozšíření portfolia a je navazována spolupráce s partnery v oblasti armatur, komponent, ventilů, procesní měřicí techniky a čerpadel.

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REGOM INSTRUMENTS s.r.o.

Brabcova 1159 / 2

147 00 Praha 4

CZECH REPUBLIC

Tel: +420 241 402 206

Fax: +420 241 400 290

Mail: regom@regom.cz

Skype: regom-office

www.regom.cz