

# T-88

## AIR & DEBRIS ELIMINATOR

### Description

The dirt separator allows the separation and removal of impurities present in the hydraulic circuits of modern heating and cooling systems. The impurities are separated by means of a set of reticular metallic surfaces radially arranged, that by generating frenetic motions and collisions allow their separation and precipitation in the lower part of the T-88. With the addition of the optional magnetic insert, ferrous materials will be captured more readily. All the captured impurities can be discharged by means of the drain valve.

### Features

Union connections: utilizing LegendConnect™ adaptors

Automatic, serviceable air vent with check valve

1/4 turn drain valve with GHT and tethered cap

Serviceable stainless steel screen.

Two orientations available to maximize your most important function: air or debris removal.

Optional magnetic insert to increase debris removal capability.

### Specifications:

Max. Working Pressure, Non-Shock: 125 p.s.i  
 Max. Working Temperature: 230° F

#### SIZING CHART

Connection Size	Maximum Flow Rate	Cv
3/4"	6 gpm	*
1"	11 gpm	*
1¼"	18 gpm	*
1½"	25 gpm	*

\* The pressure drop thru the T-88 is so low, the Cv is not measurable.

### Application

The T-88 High Performance Air & Debris Eliminator is designed to remove air and debris particles that can become trapped and lodged within the piping of hydronic heating and cooling systems. The large volume design combines with the internal stainless steel screen to separate entrained air, micro-bubbles and solid impurities from the hydronic system fluid as it flows through the T-88.

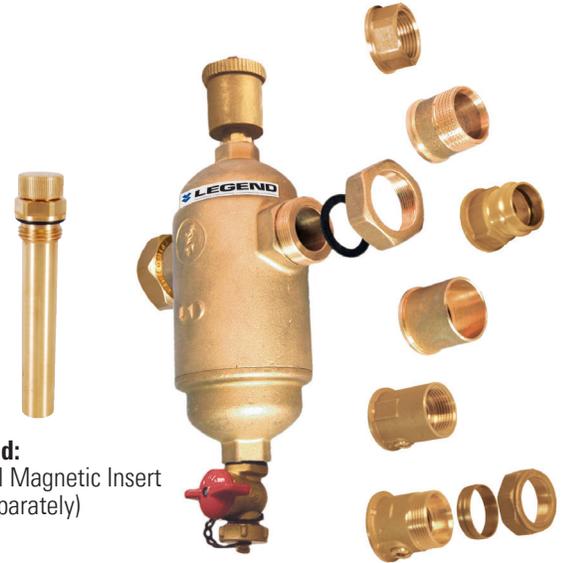
### Assembly

The T-88 can be oriented in one of two different configurations. If installed properly, the T-88 is very efficient in removing both air and debris from hydronic systems, in both orientations. However, either the air or debris removal function can be maximized by orienting the T-88 appropriately and in combination with its position within the system piping arrangement. Refer to the "Installation" section for advantages and maximized functions with regard to installation position within the Hydronics system.

Prior to assembly, the installer should determine which function should be maximized to meet the needs of the system in which it is to be installed: Maximize Air Removal – orient the body of the T-88 with the larger half of the bowl on top **(1)**. Maximize Debris Removal – orient the body of the T-88 with the larger half of the bowl on the bottom **(2)**.

Once the proper body orientation is determined, the air vent, check valve and drain valve can be installed onto the body as follows: The air vent should always be installed onto the body with the 1/4" x 1/2" check valve in a vertical position. Thread the male end of the check valve into the body until tight<sup>1</sup>. Thread the 1/4" male threads of the air vent into the check valve hand tight only **(3)**.

## Installation Guide



**Pictured:**  
Optional Magnetic Insert  
(sold separately)

**Pictured**  
T-88 w/ LegendConnect™ Adapters



**Pictured**  
(1) Air Removal Priority



**Pictured**  
(2) Dirt Removal Priority



**Pictured**  
(3) Component Assembly

<sup>1</sup>Note: For connections with EPDM gaskets, one quarter (1/4) turn beyond "hand-tight" is normally sufficient to seal properly. If turning beyond 1/4 turn is required for alignment, then do so up to one (1) full turn beyond "hand-tight".

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If dirt removal is the main criteria and the optional magnetic insert is being used, the air vent and check valve will be omitted from the installation. In this instance, thread the 1/2" magnetic insert into the top of the T-88 (4). If the screen inside of the T-88 interferes with the installation, you may need to insert the magnet at a slight angle at first to clear the screen. Once the screen is cleared, the magnet can be straightened up and threaded into the body until tight<sup>1</sup>.

Thread the male end of the drain valve into the bottom 1/2" port of the body until tight<sup>1</sup>. The opposite end of the drain valve has a 3/4" male garden hose thread (GHT) port that includes a brass cap with plastic tether. The plastic tether should slide over the end of the GHT port end of the drain valve. The brass cap, with EPDM gasket included, should be threaded on to the GHT port until ready to use.

### Installation

The position of the T-88 within the system can help maximize either the air or debris removal function. If the main function is to protect the boiler from impurities present in the system, the T-88 should be installed on the return line, before the boiler. If the main function is to remove air from the system, the T-88 should be installed on the supply line, near the outlet of the boiler. Once the desired position is determined, the assembled T-88 is installed into the piping system using the selected LegendConnect™ Adapter.

Un-thread the union nut and remove the gasket from the body of the T-88. Slide the adapter tail piece through the back of the union nut and make the connection to the piping system using standard industry practice for the specific type of connection style: either sweat, threaded, press or compression (5).

Replace the gasket, thread the union nut onto the MPT threads of the T-88 body to secure it in place (6). Be sure to orient the T-88 so that the air vent is in the vertical position pointing up. Repeat the last two steps for the opposite side of the T-88 to complete installation.

If additional information is needed about the use and installation of the LegendConnect™ adaptor system, please reference the Installation Manual for LegendConnect™.

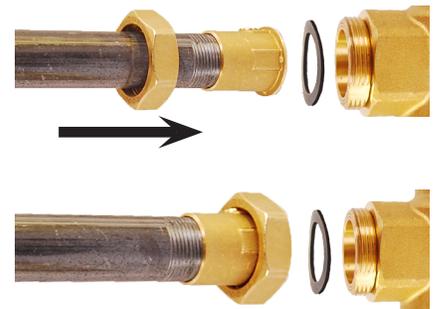
## Installation Guide



**Pictured:**  
 (4) T-88 w/ magnetic Insert



**Pictured:**  
 (5) Legend Connect Adaptors



**Pictured:**  
 (6) Connection of Adaptor to the Body

<sup>1</sup>Note: For connections with EPDM gaskets, one quarter (1/4) turn beyond "hand-tight" is normally sufficient to seal properly. If turning beyond 1/4 turn is required for alignment, then do so up to one (1) full turn beyond "hand-tight".

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### Maintenance

**A) Debris blow out** (as recommend by system designer, typically once within 1 week of system start-up, and then once per year minimum thereafter). If possible, close the isolation valves for the T-88 to isolate it from system pressure. If isolation valves have not been installed, the following instructions can still be followed; however special care should be used when opening the drain valve as excessive loss of system fluid may occur.

Remove the brass cap from the GHT of the drain valve. Attach a drain hose with GHT female connection to the end of the drain valve and locate the open end of the hose in a bucket or suitable drain location. If the optional magnetic insert has been installed, the magnet needs to be removed. Remove the magnet from the housing by **unscrewing it in a clockwise direction**. Wait a few minutes for the ferrous materials to fall off of the housing before proceeding **(7)**. Open the drain valve (no more than 2 seconds if the T-88 has not been isolated) to allow the debris collected at the bottom of the T-88 to blow out through the hose and into the bucket or suitable drain location **(8)**. Once you are finished blowing down the T-88, close the drain valve, remove the hose and replace the brass cap **(9)**. If applicable, then replace the magnet into the housing by turning it in counter-clockwise.

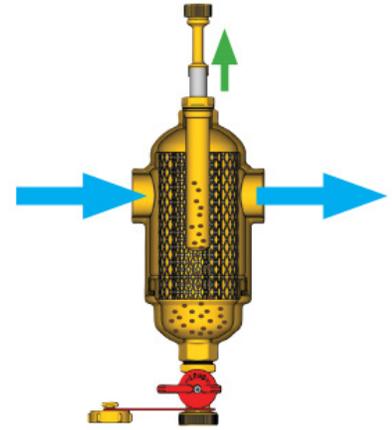
**B) Internal screen cleaning** (as recommended by system designer, typically once per year minimum) – isolate the T-88 from system pressure. **Note: To remove the screen, there must be isolation valves around the T-88.** Un-thread the bottom end adapter of the brass body from the main brass body **(10)**. Remove the stainless steel screen material from inside the brass body and rinse with clean water to wash off any debris. Before or during rinsing, the stainless steel screen may be pulled slightly in order to loosen the roll and allow the rinse water to reach more of the screen material. Do not unroll completely. Be sure the screen is rolled tightly and re-insert into the brass body. The bottom cap connection is sealed with the integral EPDM o-ring. Check the o-ring for damage before connecting. Do not use Teflon paste or sealant tape on this threaded connection. Thread the cap back onto the brass body by turning in a clock-wise direction.

**C) Air Vent cleaning** (as recommended by system designer, typically once per year minimum) – remove the air vent from the 1/4" x 1/2" check valve by un-threading counter-clockwise, as quickly as possible. While un-threading the air vent from the check valve, a small amount of system fluid may leak (drip) out, but should stop upon final removal from the check valve. This is normal as the check valve mechanism does not complete close off until the air vent is fully removed.

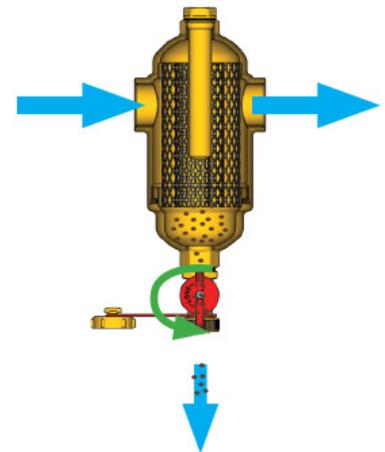
Un-thread the cap on the air vent, counter-clock wise and remove the internal plastic components. Rinse the plastic components with clean water to wash off any debris. Check and rinse, as needed, any debris from within the brass air vent body prior to reinserting the plastic components. Re-attached the air vent cap by tightly threading clock-wise onto the air vent body. Replace the air vent back into the 1/4" female threads of the check valve hand tight only.

**D) Check system pressure** into the T-88, slowly reapply system pressure and check for leaks. Once it's confirmed that there are no leaks, the system can be put back into operation. Especially if no isolation valves were used, you may need to repeat the fill/purge procedures recommended by the system designer to replace lost system fluid and repressurize the system.

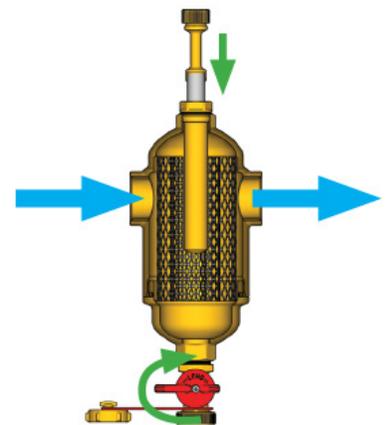
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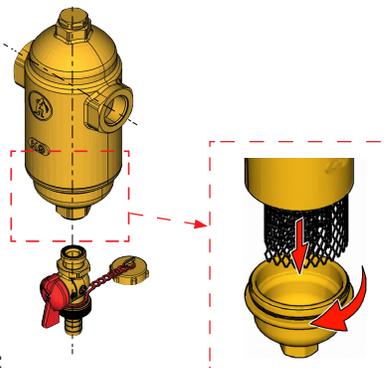
**Pictured:**  
 (7) Magnet Removal



**Pictured:**  
 (8) Blow Down Process



**Pictured:**  
 (9) Return to operational position



**Pictured:**  
 (10) Screen Removal