

HS-808

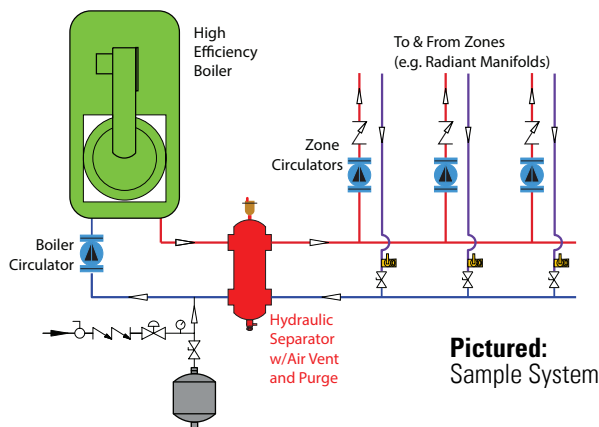
HYDRAULIC SEPARATOR

Installation Guide

Introduction

The HS-808 Hydraulic Separator is a multi-function device that provides hydraulic separation, air elimination and dirt removal in a single, compact device that requires little maintenance. The HS-808 functions as a "Bridge and a Disconnect" between a heating/cooling systems power generating unit(s) and the distribution system. The flow pattern through the HS-808 depends on the flow rates of the primary and secondary sides of the system. (See flow diagrams in the Size Section) The various mixing patterns internal to a hydraulic separator create a blending of the primary and secondary flows and temperatures, thus creating a "Bridge" between the two sides. Modern hydronic systems, especially those that contain low mass, water tube boilers, like a Mod-Con, generally have a relatively high flow / high head pumping requirement to operate at peak efficiency on the Primary side. In contrast, the Secondary, distribution side of the system, often has a relatively low, even variable flow, with very little pumping head. The HS-808 Hydraulic Separator provides a "Disconnect" between these very distinct requirements on the primary and secondary sides of the system, so that they do not interfere with each other. Hence, the "Bridge and Disconnect" benefit of a hydraulic separator.

Additional features of the HS-808 Hydraulic Separator include: Air & Debris Removal - The flows of both the primary and secondary sides of the system go into the HS-808 where the fluid velocities slow down allowing air to rise and be vented out through a serviceable automatic air vent, and dirt particles to fall out and collect at the bottom, ready to be purged out through the Purge Valve with standard $\frac{3}{4}$ " garden hose connection.



Pictured:
Sample System



Pictured:
HS-808 with LegendConnect™
Adaptors

Advantages of the HS-808

- Provides hydraulic separation between the primary & secondary sides of the system.
- Allows for variable system flow and fixed or variable boiler flow, without pump interference between the two sides.
- Includes a high capacity automatic air vent with service check for the removal of air from the system.
- Includes a drain valve with $\frac{3}{4}$ " garden hose threads for the purging of collected dirt from the system.
- Available in up to 6 different connection types, in multiple sizes.
- Upper plugged port where you could mount a thermometer and/or pressure gauge.
- Lower plugged port for a optional magnetic insert, to increase ferrous debris removal.
- Includes an aluminum embossed insulation shell and aluminum tape.

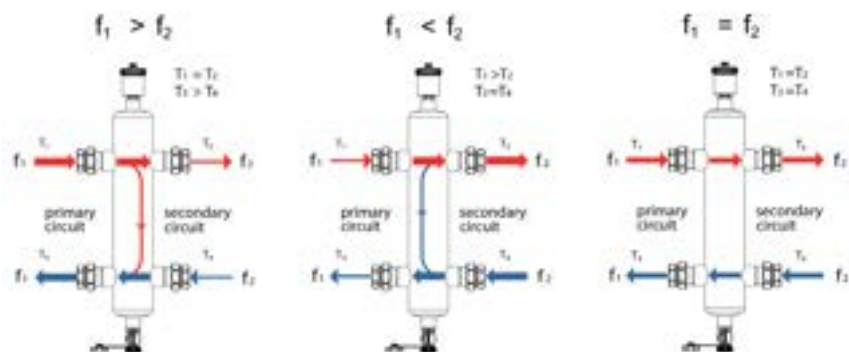
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HS-808 Size Selection

To select the proper size HS-808 for the project, determine the maximum flow rate for both the primary (f1) and secondary (f2) circuits, considering each of the possible flow conditions for the system as shown in the diagrams below. Select the HS-808 connection size from the Sizing Chart below that can handle the highest of (f1) and (f2).



SIZING CHART

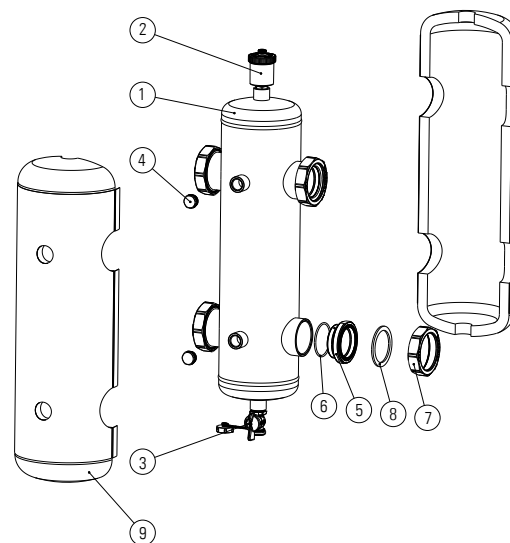
Connection Size	Maximum Flow Rate	Cv
1"	11 gpm	*
1-1/4"	18 gpm	*
1-1/2"	25 gpm	*
2"	38 gpm	*

***The 2" model does not feature the Legend connect.*

**The pressure drop through the HS-808 is so low, the Cv is not measurable.*

Installation/Assembly

1. To install the HS-808 Hydraulic Separator, remove the Union Nut **(7)** and EPDM Gasket **(8)** from all four connection ports and set them aside.
2. Install the system piping into the selected LegendConnect™ adapter using standard piping practices. (For more detailed instructions on installing the LegendConnect™ adapters, please review the LegendConnect™ Installation Manual.)
3. After the system piping is connected to the LegendConnect™ adapter, take the union nut **(7)** that was removed in step 1, and slide it over the system pipe.
4. Insert the EPDM gasket **(8)** that was removed in step 1 into the union nut, and hand tighten it to one of the HS-808 ports.
5. Repeat steps 3 thru 5 for the other three ports.
6. After all four of the LegendConnect™ adapters have been attached, position the HS-808 in the desired position in the system and use a wrench to tighten the union nuts. Typically no more than a ¼ turn past hand tight is needed to create a seal.



HS-808

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Installation/Assembly-continued

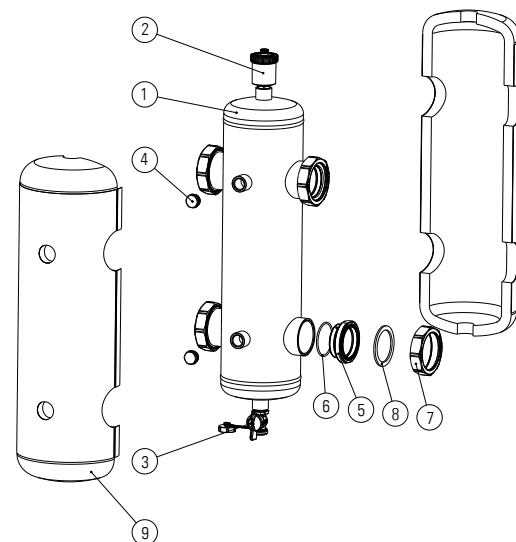
8. The Air Vent **(2)** should always be installed onto the 1/4" x 1/2" Service Check Adapter (included with the Automatic Air Vent). Thread the male end of the Service Check Adapter into the top 1/2" port on the HS-808. Thread the 1/4" male threads of the Air Vent into the Service Check Adapter hand tight¹ only.

9. Thread the male end of the Fill/Purge Valve **(3)** into a lower 1/2" port of the HS-808 until tight¹. Orient the Fill/Purge Valve so that the handle can be operated comfortably once the HS-808 is installed. The opposite end of the Fill/Purge Valve has a 3/4" male garden hose thread (GHT) port and includes a brass cap with plastic tether. The plastic tether should slide over the end of the GHT port end of the Fill / Purge Valve. The brass cap, with EPDM gasket included, should be threaded on to the GHT port of Fill / Purge Valve until ready to use.

10. If using the optional magnetic insert, remove the lower port plug **(4)** and thread the magnetic insert into the open port, hand tight.

11. Install the insulation shell, **(9)** on the back side first, then on the front side. Push the two halves together and then use the aluminum tape to seal the seams and keep the two halves of the insulation shell together.

¹Note: These parts seal together and to the manifold with an EPDM gasket (o-ring). One quarter (1/4) turn beyond "hand-tight" is normally sufficient to seal properly. If turning beyond 1/4 turn is required to align gauges and handles then do so, up to one (1) full turn beyond "hand-tight".



Maintenance

A. Air Vent cleaning (as recommended by system designer, typically once per year minimum) – Remove the air vent from the 1/4" x 1/2" service check adapter by un-threading counter-clock wise, 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.

B. Debris blow out (as recommend by system designer, typically within 1 week of system start-up and a minimum of once per year thereafter) – If possible, close the isolation valves for the HS-808 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 on the drain valve. 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 the housing before proceeding. 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. Open the drain valve (no more than 2 seconds at a time if the HS-808 has not been isolated) to allow the debris collected at the bottom of the HS-808 to blow out through the hose and into the bucket or suitable drain location. Once completed, remove the hose from the drain valve and re-install the cap. If applicable, then replace the magnet into the housing by turning it in counter-clockwise.

C. Check system pressure into the HS-808, 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 fluid and repressurize the system.

PART	
1	Body
2	Automatic Air Vent w/ Check
3	Drain Valve w/ GHT
4	Pressure/Magnetic Port Plug
5	MNPT Body Adapter
6	O-ring
7	Union Nut
8	Adapter Gasket
9	Insulation Shell