

## HYDROCAL™ Air, Dirt, and Hydro Separator

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**549 Series**

### Installation, commissioning and servicing instructions



#### Function

The Caleffi HYDROCAL™ combination air, dirt and hydro separator is a device that, incorporates high performance air and dirt removal functionality into the hydro separation function which makes the primary and secondary circuits connected to it hydraulically independent, and can be used on hot or chilled water systems. The HYDROCAL features a proven stainless steel internal element that combines to continuously and automatically eliminate air micro-bubbles with the simultaneous removal of dirt particles as tiny as 5 microns. The air discharge capacity is very high, with the capability of automatically removing all the air present in the system down to the micro-bubble level. The 3 in 1 high performance functionality of the HYDROCAL saves system installation and maintenance costs as there is no need to include separate air and dirt separators.

#### Product range

Series 549 HYDROCAL

2"–4" flanged ANSI 150 CLASS

Series NA549 HYDROCAL

2"–6" flanged (ANSI 150 CLASS ASME registered)



#### SAFETY INSTRUCTION

This safety alert symbol will be used in this manual to draw attention to safety related instructions. When used, the safety alert symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.**



**CAUTION:** All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of systems in accordance with all applicable codes and ordinances.



**CAUTION:** If the HYDROCAL is not installed, commissioned and maintained properly, according to the instructions contained in this manual, it may not operate correctly and may endanger the user.



**CAUTION:** Make sure that all the connecting pipework is water tight.



**CAUTION:** When making the water connections, make sure that the hydronic separator connecting pipework is not mechanically overstressed. Over time this could cause breakages, with consequent water losses which, in turn, could cause harm to property and/or people.



**CAUTION:** Water temperatures higher than 100°F (38°C) can be dangerous. During the installation, commissioning and maintenance of the hydronic separator, take the necessary precautions to ensure that such temperatures do not endanger people.

### **Leave this manual for the user.**

#### **Technical specifications**

Separator:	2"–4" ANSI 150 CLASS
	2"–6" ANSI 150 CLASS (ASME)
Connections: - Air vent relief:	3/8" Female
- Drain valve:	1 1/4" NPT Female
Materials: - Separator body:	Epoxy resin painted steel
- Air vent body:	Brass
- Shut-off and drain valve body:	Brass
- Int. element:	Stainless steel
- Air vent seal:	VITON
- Air vent float:	Stainless steel
Medium:	Water and non-hazardous glycol solutions up to 50%
Max operating pressure:	150 psi (10 bar)
Temperature range:	32–250°F (0–120°C)
Particle separation capacity:	to 5 µm

#### **Technical specifications of insulation**

##### **Inner part**

Material:	rigid closed cell expanded polyurethane foam
Thickness:	2 3/8" (60 mm)
Density:	3 lb/ft <sup>3</sup> (45 kg/m <sup>3</sup> )
Conductivity (ISO 2581):	0.16 BTU/in (0.023 W/(m·K))
Temperature range:	32–220°F (0–105°C)

##### **Outer part**

Material:	Embossed aluminium
Thickness:	7-mil (0.70 mm)
Fire resistance (DIN 4102):	Class 1

##### **Head covers**

Heat formed material:	PS
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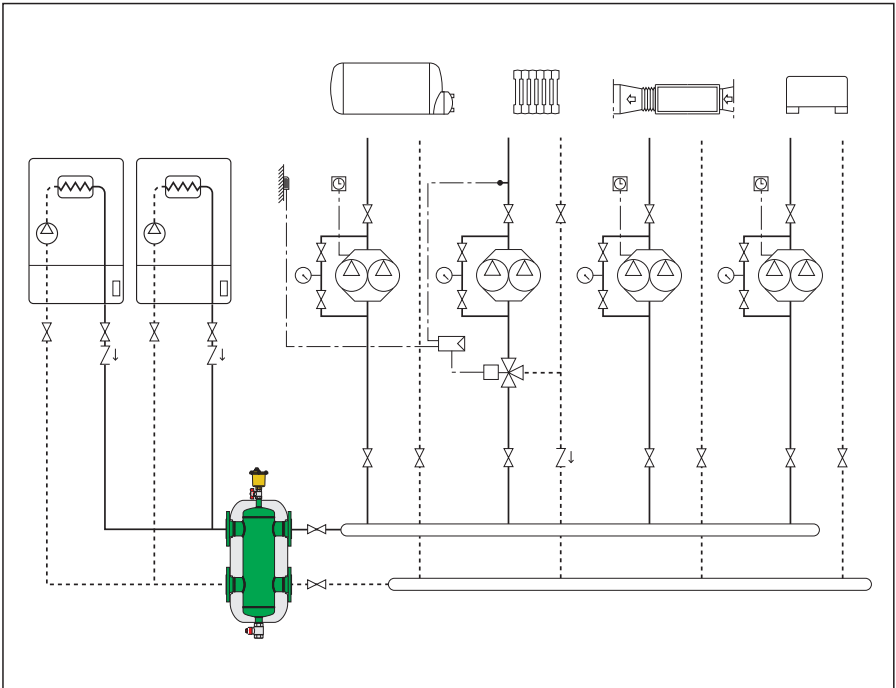
### Hydraulic characteristics

The HYDROCAL should be sized according to the maximum flow rate value foreseen at the inlet. The selected value must be either that of the primary circuit or of the secondary, whichever is the greatest.

Size	2"	2 1/2"	3"	4"	6"
gpm	37	62	94	148	376
m <sup>3</sup> /h	8.47	18	14.32	21.69	86.2

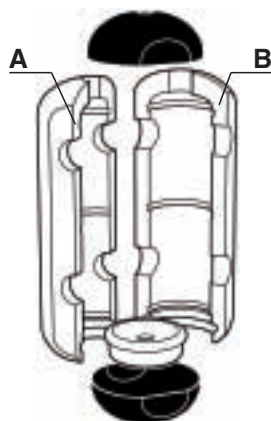
### Installation

The installation of HYDROCAL should only be carried out by qualified personnel in accordance with current legislation.  
The HYDROCAL is installed between the primary and secondary circuits, always in a vertical position.



### Procedure for installation and insulation assembly (only for 2" to 4" sizes)

1. Remove the two black head covers at the ends.
2. Open the two side sections and the lower cap.
3. Install the separator in the system.
4. Spread a thin layer of sealant over surfaces A and B.  
Wait for the solvent to evaporate (approx. 10 minutes).
5. Reassemble the two side sections, fitting the lower cap into one of the two sections and then connecting the other.
6. Finish the assembly with the adhesive tape provided in the box.
7. Complete with the two black head covers.
8. Fit the automatic air vent and the drain valve.



**CAUTION:** Corrosion or leakage can cause damage or injury. Periodically inspect for signs of corrosion or leakage. If corrosion or leakage is noted, the vent must be replaced. Failure to follow these instructions could result in property damage and/or personal injury.

### Service Instructions

There is no service required for the HYDROCAL Air, Dirt, and Hydro Separator.



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