

HydroCal™ Hydraulic, Air, and Dirt Separator

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549 Series

Installation, commissioning and servicing instructions



Function

The Caleffi HydroCal™ combination hydraulic, air, and dirt 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

- 549 series** HydroCal™ hydraulic, air, and dirt separator in steel with flanged connections, drain and insulation connections 2" – 4" ANSI
- NA549 series** HydroCal™ hydraulic, air, and dirt separator in steel with flanged connections, drain and insulation, ASME and CRN connections 2" – 4" ANSI
- NA549 series** HydroCal™ hydraulic, air, and dirt separator in steel with flanged connections and drain, ASME and CRN connections 6" – 12" ANSI



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 over-stressed. 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

Materials

Separator body:	epoxy resin painted steel body
Air vent body & shut-off and drain valve body:	brass
Internal element:	stainless steel
Air vent seal:	VITON
Air vent float:	stainless steel

Performance

Suitable fluids:	water and non-hazardous glycol solutions up to 50%
Max. operating pressure:	150 psi (10 bar)
Temperature range:	- with insulation 32–220°F (0 – 105°C)
	- without insulation 32–250°F (0 – 120°C)
Particle separation capacity:	to 5 µm

Connections

Flanged:	2"–12" ANSI B16.5 150 CLASS RF
Drain valve:	- connections 2"– 6": 1–1/4" NPT female
	- connection 8"– 12": 2" NPT female

Agency Approval

Series NA549 is designed and built in accordance with Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code and tagged and registered with the National Board of Boiler and Pressure Vessel Inspector, and CRN registered.

Technical specifications of insulation

Inner part

Material:	rigid closed cell expanded polyurethane foam
Thickness:	2 3/8" (60 mm)
Density:	3 lb/ft ³ (45 kg/m ³)
Conductivity (ISO 2581):	0.16 BTU·in/hr·ft ² ·°F (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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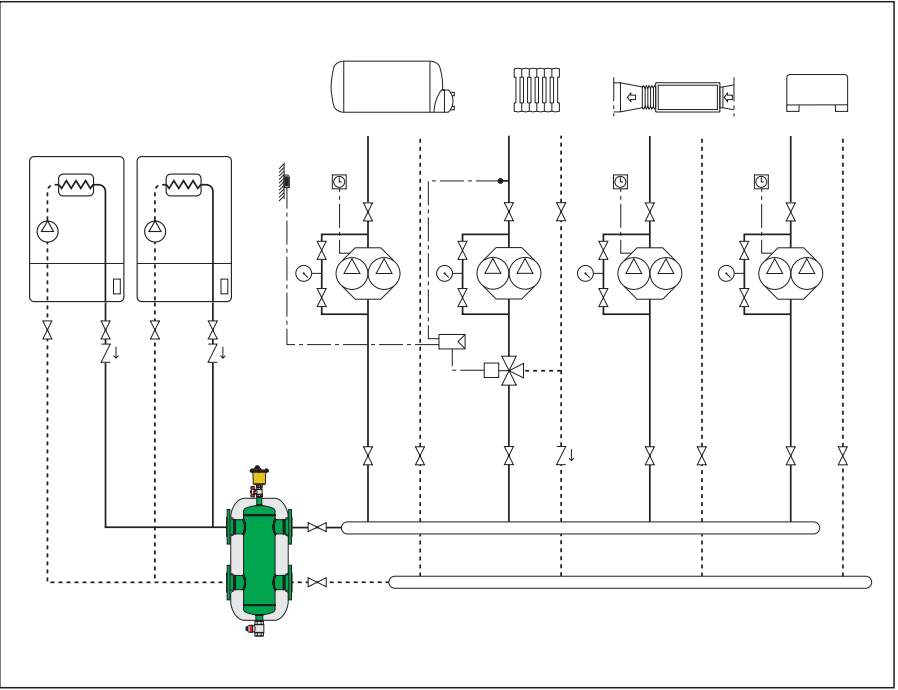
Hydraulic characteristics

The HydroCal™ should be sized according to the maximum flow rate value foreseen at the inlet. The selected value is the primary circuit flow rate, or secondary circuit flow rate, whichever is largest.

Size	2"	1/2"	3"	4"	6"	8"	10"	12"
gallons	4	4	8	8	23.2	95	175	255
gpm	37	62	94	148	376	625	1030	1650
m³/h	8.5	18	14	22	86	142	234	422
l/s	2.3	4.0	6.0	9.3	23.7	40	65	104

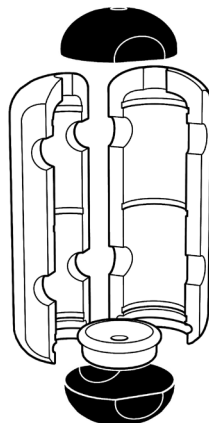
Installation

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. For cooling applications, consider using a silicon caulk or sealant by spreading a thin layer of sealant over surfaces A and B.
Wait for the solvent to evaporate (approx. 10 minutes).
Note that once the sealant dries it may be difficult to remove the insulation shell in the future without destroying portions of the insulation.
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™ Hydraulic, Air, and Dirt Separator.



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