

Hydro Separator

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548, NA548 Series

Installation, commissioning and servicing instructions



Function

The hydraulic separator is a device which makes the primary and secondary circuits connected to it independent, and can be used on hot and chilled water systems. The separator is supplied with an air vent and check valve assembly to provide automatic discharge of the air in the circuits, and a drain valve for removing impurities that collect at the bottom of the unit.

These items are designed for use in closed hydronic systems. Do not use in plumbing applications. These items do not meet the low-lead plumbing standards of U.S. and Canada.

Product range

- 548 series Hydraulic separator in steel with union connections, vent and drain.....
connections 1", 1/4", 1/2", 2" NPT female union
connections 1", 1/4", 1/2", 2" sweat union
connections 1", 1/4", 1/2", 2" press union
no tailpieces, separately source, field install 1" to 2"
- 548 series Hydraulic separator in steel with flanged connections, vent, drain and insulation.....
connections 2", 2 1/2", 3", 4" ANSI
- NA548 series Hydraulic separator in steel with flanged connections, vent, drain and insulation,
ASME and CRN.....connections 2", 2 1/2", 3", 4" ANSI
- NA548 series Hydraulic separator in steel with flanged connections, vent, drain and floor supports,
ASME and CRN.....connections 5" to 14" ANSI
(consult Caleffi for CRN status on size 14")

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.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



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 hydraulic separator 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 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 hydraulic separator, take the necessary precautions to ensure that such temperatures do not endanger people.

Leave this manual for the user

Technical specifications

Union connections

Materials	- body:	epoxy resin coated steel
	- air vent body:	brass
	- air vent hydraulic seal:	peroxide-cured EPDM
	- air vent float:	PP
	- internal baffle:	300 series stainless steel
	- shut off and drain valve body:	brass
	- union nuts:	cast iron
	- support bracket:	polyester painted carbon steel

Performance

Suitable fluids:	water and non-hazardous glycol solution up to 50%
Max. operating pressure:	150 psi (10 bar)
Working temperature range:	without insulation 32–230°F (0–110°C)
	with insulation 32–210°F (0–100°C)

(insulation shells are purchased separately for field installation)

Connections

Main connections:	1", 1¼", 1½", 2" NPT female with unions
	1", 1¼", 1½", 2" sweat with unions
	1", 1¼", 1½", 2" press with unions
1", 1¼", 1½", 2" body with	no tailpieces for field installation of tailpieces purchased separately
Thermowell tap connection:	½" F straight thread
Lay length (press connection):	size 1 inch: 9"; size 1¼ inch: 9¾"; size 1½ inch: 11¼"; size 2 inch: 12¾"
Drain valve:	¾" garden hose thread

Technical specifications

Flanged connections

Materials	- body:	epoxy resin coated steel
	- air vent body:	brass
	- air vent hydraulic seal:	Viton
	- air vent float:	Stainless steel
	- internal baffle:	304 series stainless steel
	- shut off and drain valve body:	brass

Performance

Suitable fluids:	water and non-hazardous glycol solution up to 50%
Max. operating pressure:	150 psi (10 bar)
Working temperature range:	with insulation 32–220°F (0–105°C)
	without insulation (vessel) 32–270°F (0–132°C)

Connections

Main connections:	2"-14"ANSI B16.5 150 CLASS RF
Thermowell tap connection (8-14" only):	
- front center:	¾" NPT female
- inlet/outlet flanges:	½" NPT female
Drain valve:	2 - 6": 1¼" NPT female
	8 - 14": 2" NPT female

**Technical specifications of insulation on union models
(purchase separately, field install)**

Material: closed-cell expanded PE-X
Thickness: 13/16" (20 mm)
Density: - inner part: 1.9 lb/ft³ (30 kg/m³)
- outer part: 3.1 lb/ft³ (50 kg/m³)
Conductivity (ISO 2581): at 32°F (0°C): 9 BTU.in/hr.ft².°F (0.038 W/(m.K)
at -40°F (-40°C); 11 BTU.in/hr.ft².°F (0.045 W/(m.K)
Coefficient of resistance to the diffusion of vapor: > 1,300
Temperature range: 32–210°F (0–100°C)
Fire resistance (DIN 4102): class B2

Technical specifications of insulation, flanged versions to 4"

Internal part

Material: rigid closed cell expanded polyurethane foam
Thickness: 2 3/8" (60 mm)
Density: 2.8 lb/ft³ (45 kg/m³)
Thermal conductivity: 6 BTU.in/hr.ft².°F (0.023 W/(m.K)
Temperature range: 32–220°F (0–105°C)

Outer part

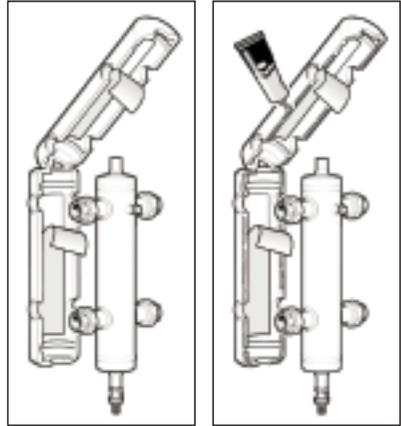
Materials: embossed aluminum
Thickness: 7.0-mil (0.7 mm)
Reaction to fire (DIN 4102): class 1

Head covers

Heat formed materials: PS

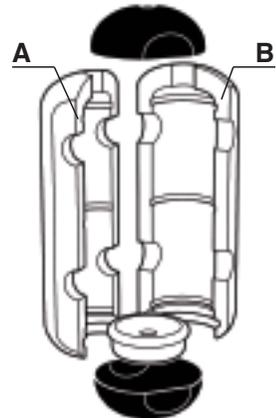
Procedure for field installation of insulation on union models

1. Remove the protective strip from the adhesive surface. Re-close the insulation shells.
2. If the hydraulic separator is used with chilled water spread a thin layer of sealant on the edge of the insulation and wait until the solvent evaporates (approximately 10 minutes) and close it again. Note that once the sealant dries it may be difficult to remove the insulation shell in the future without destroying portions of the insulation.
3. Reassemble the two side sections.



Procedure for installation of insulation for 2" to 4" flanged models

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 (approximately 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. Install the automatic air vent and the drain valve.



Hydraulic characteristics

The hydraulic separator should be sized according to the maximum flow rate value at the inlet. The selected design value must be the greatest required flow rate of either the primary circuit or the secondary circuit.

	Union				Flanged									
Size	1"	1¼"	1½"	2"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"
gpm	11	18	26	37	60	80	124	247	300	484	792	1330	1850	2500
l/s	0.7	1.1	1.6	2.3	3.8	5.0	7.8	16	19	30	50	84	117	158
gallons	0.5	0.7	1.3	3.5	4.0	4.0	8.0	8.0	22.5	23	95	175	255	450
liters	1.9	2.6	4.9	13.2	15.1	15.1	30.3	30.3	85.2	87.0	360	662	965	1703

Accessories



Replacement support bracket for field installation with 548 series union connection Hydro separators.



Insulation jacket for field installation on 548 series union connection Hydro separators.

- NA10778** ...fits 1" and 1¼" union 548 series
- NA10796**fits 1½" union 548 series
- NA10797**fits 2" union 548 series

- NA10805**fits 1" union 548 series
- NA10806**fits 1¼" union 548 series
- NA10807**fits 1½" union 548 series
- NA10808**fits 2" union 548 series



Replacement drain valve for 548 series union connection Hydro separators.

Max. working pressure: 150 psi
 Max. working temperature: 250°F
 Connection: ¾" garden hose thread

- 538402 FD**½" NPT x ¾" GHT



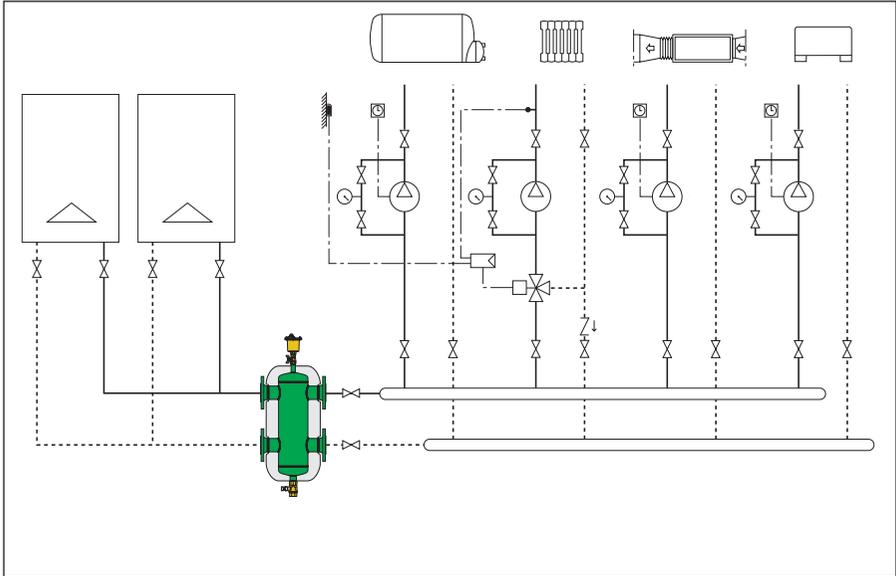
Temperature pocket well fits 548 series union connection Hydro separators.

1 ¾" pocket length.
 Inside thread: 20 x 1.0 mm.

- 694045**½" straight thread
- R20011**sealing washer
- NA10426**sensor holding grommet
- NA10425**kit containing above 3 items

Installation

The hydraulic separator should be installed only by qualified personnel in accordance with current local codes and legislation. The hydraulic separator is installed between the primary and secondary circuits, always in a vertical position.



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 548 and NA548 series hydraulic separator.

Leave this manual at the service of users for their use

Scan to view



548, 549 & 5495

Installation Tip

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