Function

Air separators are used to continuously remove the air contained in the hydronic circuits of heating and cooling systems. The air discharge capacity of these devices is very high. They are capable of removing automatically all the air present in the system down to micro-bubble level.

The circulation of fully de-aerated water enables the equipment to operate under optimum conditions, free from any noise, corrosion, localized overheating or mechanical damage. Micro-bubbles, fusing with each other, increase in volume (get larger) until they become large enough to rise to the top where they are automatically released.

Product range

551 series  DISCAL® air separator for horizontal pipes, in brass compact with drain
Sizes ¾” sweat; ¾” NPT female (A without service check valve, AC with service check)

551 series  DISCAL® air separator for horizontal pipes, in brass with drain
Sizes ¾” - 1” - 1 ¼” - 1 ½” - 2” NPT female; 1” - 1 ¼” - 1 ½” - 2” sweat
(A without service check valve, AC with service check)

551 series  DISCAL® air separator for horizontal pipes, in brass with drain
Sizes 1” - 1 ¼” press (A without service check valve, AC with service check)

551 series  DISCAL® air separator for horizontal pipes, in steel with flanged connections with drain
Sizes 2” – 6” ANSI

NA551 series  DISCAL® air separator for horizontal pipes, in steel with flanged connections with drain
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
Sizes 2” – 12” ANSI

NA5519 series  DISCAL® air separator for vertical pipes, in brass compact with drain
Sizes ¾” and 1” sweat
### Technical specifications

#### Brass air separator

**Materials**
- **body:** brass
- **internal element**
  - (compact & vertical versions): 304 stainless steel
  - glass reinforced nylon PA66GF30
- **seal:** EPDM
- **air vent float linkages:** stainless steel
- **air vent float guide pin:** stainless steel

**Performance**
- **Suitable fluids:** water, glycol solution
- **Max. percentage of glycol:** 50%
- **Max. working pressure:** 150 psi (10 bar)
- **Temperature range:** 32–250°F (0–120°C)
- **Air separation efficiency:** 100% to micro-bubble level

**Connections**
- **main:**
  - **compact series:** 3/4" sweat; 3/4" NPT female
  - **horizontal:** 3/4", 1", 1-1/4", 1-1/2" and 2" NPT female
  - **size 1 inch:** 4 3/4"
  - **size 1 ½ inch:** 5 1/8"
  - **lay length (press connection):** 3/4" and 1" sweat
  - **vertical:** 1/2" NPT female

#### Steel air separator

**Materials**
- **body:** epoxy resin painted steel
- **internal element:** 304 stainless steel
- **seal:** EPDM
- **air vent float linkages:** stainless steel
- **air vent float guide pin:** stainless steel

**Performance**
- **Suitable fluids:** water, glycol solution
- **Max. percentage of glycol:** 50%
- **Max. working pressure:** 150 psi (10 bar)
- **Temperature range:** 32–250°F (0–120°C)
- **Air separation efficiency:** 100% to micro-bubble level

**Connections**
- **flanged:** 2"–12" ANSI B16.5 150 CLASS RF
  - sizes 2 - 6 inch: 1" NPT male
  - sizes 8 - 12 inch: 2" NPT male

**Agency Approval**
NA551 series 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.
CAUTION: If the DISCAL® valve 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: 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: Make sure that all the connecting pipework is water tight.

CAUTION: When making the water connections, make sure that the pipework connecting the DISCAL® 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 DiSCAL® valve, take the necessary precautions to ensure that such temperatures do not endanger people.

Leave this manual for the user
### Flow capacity — brass

<table>
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<th>Fluid Velocity</th>
<th>Size</th>
<th>⅜&quot;</th>
<th>⅝&quot;</th>
<th>¾&quot;-1&quot;</th>
<th>1&quot;</th>
<th>1¼&quot;</th>
<th>1½&quot;</th>
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<td>GPM</td>
<td>6</td>
<td>8</td>
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<td>9</td>
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<td>1.0</td>
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<td>19</td>
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<td></td>
<td>Cv</td>
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<td>19</td>
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### Flow capacity — steel

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<th>2½&quot;</th>
<th>3&quot;</th>
<th>4&quot;</th>
<th>5&quot;</th>
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Installation

DISCAL® units may be used in heating or cooling systems to ensure the progressive removal of air which is continuously formed. The units should preferably be installed after the boiler and on the pump suction side, as these are the points where the formation of micro-bubbles is greatest. DISCAL® air separators for horizontal pipes must be installed vertically. Flow direction of the DISCAL® air separator is bidirectional: flow in either direction is permitted. In installation conditions where inspection is not possible, it is recommended that the venting valve cap is replaced by a Caleffi Code R59681 hygroscopic safety vent. The standard replacement cap code is 59119.
**Construction details**

DISCAL® air separators are designed to allow maintenance and cleaning without having to remove the valve body from the pipework. All DISCAL® air separators (except vertical versions) come standard with a bottom connection for installing a drain valve. All internal air release control components are fully accessible in all the models.

The automatic air vent, located at the top of the units, has a long chamber for the movement of the float. This feature prevents any debris present in the water from reaching the sealing seat. A stainless steel float guide pin (3) prevents the float from sticking due to accumulating residue in the flowing fluids, even when the DISCAL® air separator is not installed perfectly vertical.

A replacement air vent assembly for the DISCAL® brass 551 series (except vertical and compact) is code 59829; for the DISCAL® steel 551 and NA551 series is code 59756. The moving parts that control air venting are accessed simply by removing the upper cover (4). Replacement cap and float assembly for all versions of the brass DISCAL® 551 and NA551 series is code F39807.

When cleaning, simply unscrew the portion of the body containing the automatic air vent (5). For the vertical and compact models without a drain, the element can be removed by removing the upper cover (4). There is no need to remove the air vent body for these models.
## Accessories

<table>
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<td></td>
<td>R59681</td>
<td>Hydrosopic safety vent cap.</td>
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<tr>
<td></td>
<td>562100</td>
<td>Small anti-vacuum vent cap.</td>
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<tr>
<td></td>
<td>59119</td>
<td>Replacement DISCAL® air vent cap.</td>
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