

MINICAL – VALCAL Automatic air vent valves

series 5020 - 5021 - 5022



cert. n° 0003
ISO 9001

01054/05 GB

Replaces 01054/99 GB



Function

Automatic air vent valves are designed to remove the air that accumulates in heating and air conditioning systems without the need for manual intervention. This prevents harmful phenomena that may compromise the life and the performance of the heating system and which include:

- corrosion due to the oxygen;
- pockets of air trapped in the heating emitters;
- cavitation in the circulation pumps.



Product range

| | |
|--|-------------------------|
| Series 5020 MINICAL Automatic air vent valve | Sizes 3/8" and 1/2" M |
| Series 5020 MINICAL Automatic air vent valve, chrome plated | Sizes 3/8" and 1/2" M |
| Series 5020 MINICAL Automatic air vent valve, with safety hygroscopic cap | Sizes 3/4" and 1" M |
| Series 5020 MINICAL Automatic air vent valve, with safety hygroscopic cap, chrome plated | Sizes 3/4" and 1" M |
| Series 5021 MINICAL Automatic air vent valve, complete with automatic shut-off cock | Sizes 3/8" and 1/2" M |
| Series 5021 MINICAL Automatic air vent valve, complete with automatic shut-off cock, chrome plated | Sizes 3/8" and 1/2" M |
| Series 5022 VALCAL Automatic air vent valve, chrome plated | Sizes 1/4", 3/8, 1/2" M |

Technical specification

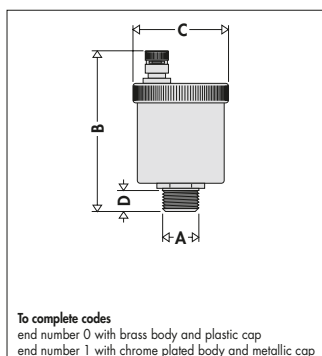
Materials:

| | |
|---------------------|-----------------------|
| Body and cover: | brass EN 12165 CW617N |
| Float: | PP |
| Obturator stem: | brass EN 12164 CW614N |
| Spring: | stainless steel |
| Seals: | EPDM |
| Shut-off cock seal: | PTFE |

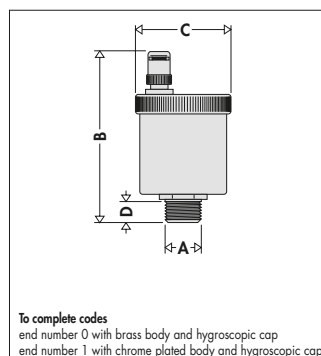
Performance:

| | |
|----------------------------|-------------------------------------|
| Medium: | water and glycol solution |
| Max. percentage of glycol: | 30% |
| Max. working pressure: | 10 bar |
| Max. discharge pressure: | 5020, 5021: 2,5 bar 5022: 4 bar. |
| Max. working temperature: | 5020, 5022: 120°C 5021: 110°C |

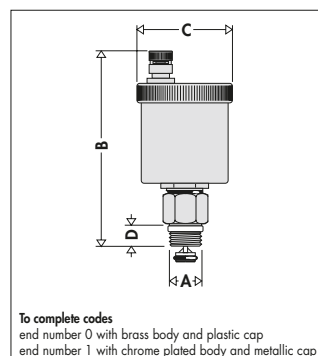
Dimensions



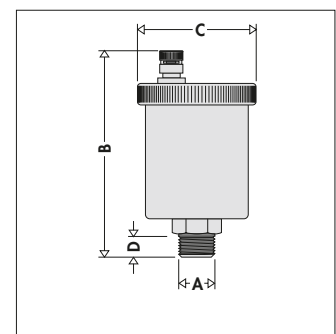
| Code | A | B | C | D | Weight (kg) |
|--------|------|----|------|----|-------------|
| 50203. | 3/8" | 79 | Ø 48 | 11 | 0,18 |
| 50204. | 1/2" | 79 | Ø 48 | 11 | 0,18 |



| Code | A | B | C | D | Weight (kg) |
|--------|------|----|------|----|-------------|
| 50205. | 3/4" | 86 | Ø 48 | 11 | 0,18 |
| 50206. | 1" | 86 | Ø 48 | 11 | 0,18 |



| Code | A | B | C | D | Weight (kg) |
|--------|------|----|------|----|-------------|
| 50213. | 3/8" | 96 | Ø 48 | 11 | 0,21 |
| 50214. | 1/2" | 96 | Ø 48 | 11 | 0,23 |



| Code | A | B | C | D | Weight (kg) |
|--------|------|----|------|----|-------------|
| 502221 | 1/4" | 94 | Ø 55 | 9 | 0,29 |
| 502231 | 3/8" | 97 | Ø 55 | 11 | 0,29 |
| 502241 | 1/2" | 97 | Ø 55 | 11 | 0,29 |

Operation

The accumulation of air bubbles in the valve body causes the float to drop so that the air vent valve opens. This phenomenon occurs, and consequently the valve functions correctly, as long as the water pressure remains below the maximum discharge pressure.

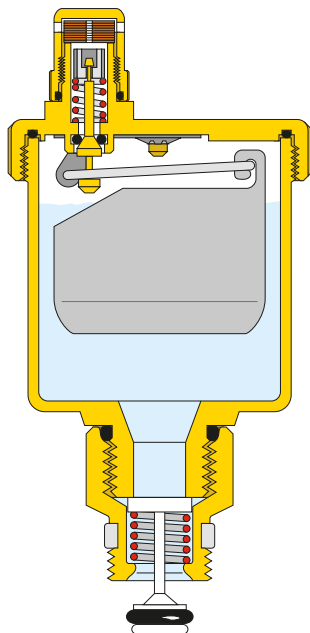
Construction details

Hygroscopic cap

All MINICAL and VALCAL models are equipped with a hygroscopic safety cap. Its functionality is based on the properties of the cellulose fibre discs that serve as the seal cartridge and whose volume increases by 50% as soon as they become wet and thus cause the valve to close. This way, possible damages are avoided in case of leakage.

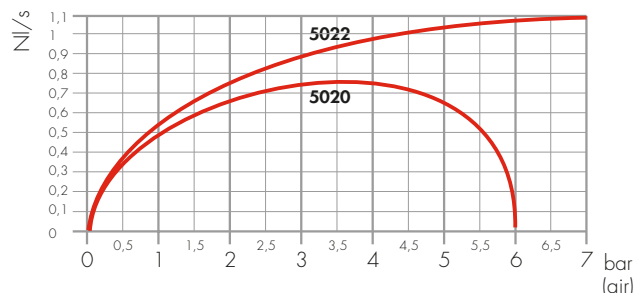
Models with shut-off

The automatic shut-off valve, which forms a seal with the valve body by means of an O-ring made of EPDM, facilitates maintenance operations by shutting off the water flow when the valve is removed and also allows for easy inspection of the air vent device.



Flow curves

Air flow (when the system is being filled)

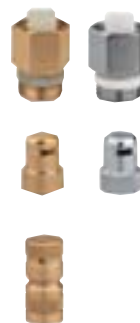


Installation

- The valve is installed in the vertical position, on the air separator, on manifolds, on riser pipes and generally in parts of the system where a concentration of air pockets is to be expected.
- During operation the upper cap in the standard version must be loosened whilst it must be completely hand tightened in the hygroscopic version.
- It is not advisable to fit the valve in places which could be subject to freeze. In such cases the Caleffi Maxcal Series 501 automatic deaerator can be used.
- It is advisable to **replace the valve cap with a Caleffi Series 5620 safety hygroscopic cap in all fitting locations which cannot be inspected.**

Accessories

- Check valve series 561 for air vent valves series 5020 and 5022 is available. 3/8" and 1/2" connections. Available in brass or chrome plated version. PTFE sealing on thread.
- Hygroscopic safety plug AQUASTOP series 5620 for MINICAL and VALCAL series is available in brass or chrome plated.
- Small anti-suction valve series 5621 for air vent valves for MINICAL and VALCAL series.



SPECIFICATION SUMMARIES

Series 5020

Automatic air vent valve. 3/8" M (or 1/2" M) threaded connection. Brass and chrome plated versions. Brass body and cover, PP float, brass obturator stem, EPDM O-Rings. Medium: water and glycol solutions. Maximum percentage of glycol 30%. Maximum working pressure 10 bar, maximum discharge pressure 2,5 bar. Maximum working temperature 120°C.

Series 5020

Automatic air vent valve. 1/2" M (or 3/4" M) threaded connection. Brass and chrome plated versions. Brass body and cover, PP float, brass obturator stem, EPDM O-Rings. Medium: water and glycol solutions. Maximum percentage of glycol 30%. Maximum working pressure 10 bar, maximum discharge pressure 2,5 bar. Maximum working temperature 120°C. Complete with hygroscopic safety cap.

Series 5021

Automatic air vent valve with automatic shut-off cock. 3/8" M (or 1/2" M) threaded connection. Brass and chrome plated versions. Brass body and cover, PP float, brass obturator stem, EPDM O-Rings. Medium: water and glycol solutions. Maximum percentage of glycol 30%. Maximum working pressure 10 bar, maximum discharge pressure 2,5 bar. Maximum working temperature 110°C.

Series 5022

Automatic air vent valve. 1/4" M (3/8", 1/2" M) threaded connection. Chrome plated with metallic cap. Brass body and cover, PP float, brass obturator stem, EPDM O-Rings. Medium: water and glycol solutions. Maximum percentage of glycol 30%. Maximum working pressure 10 bar, maximum discharge pressure 4 bar. Maximum working temperature 120°C.

We reserve the right to change our products and their relevant technical data, contained in this publication, at any time and without prior notice.

