

Technical Bulletin

Installation: Bosch CS2000AWF update to minimum water content for defrost purposes including cascades and buffer tank (if used)

The Bosch CS2000AWF 'minimum water content' requirements have been updated.

The water volume required for the mid-range Bosch CS2000AWF, has been reduced from **70 litres to 40 litres**

Currently in the installation manual we state the following in 'table 22'

7.6 Water volume, system pressure and expansion tank control

- Check that the system has the minimum water content.

The total volume of water, excluding that contained in the unit, must exceed the values in the table:

Size	MIN water volume [l]
CS2000AWF 4 R-S to CS2000AWF 6 R-S	30
CS2000AWF 8 R-S to CS2000AWF 16 R-S/ CS2000AWF 16 R-T	70
CS2000AWF 18 R-T to CS2000AWF 18 -30 R-T	100

Table 22 Total volume of water

In most applications, this volume of water will be sufficient; however, in process applications or in environments with high thermal load, additional water may be required.



When the system has zones with remotely controlled valves, the minimum volume of water must be guaranteed even when all valves are closed.

But the new 'minimum water content' will be:-

Overview (NEW minimum open system water content requirement) – (IM will be updated as below)

- Bosch CS2000AWF (4-6kW output) 30 litres
- Bosch CS2000AWF (8-16kW output) **40 litres**
- Bosch CS2000AWF (18-30kW output) 100 litres

Size	MIN water volume [l]
CS2000AWF 4 R-S to CS2000AWF 6 R-S	30
CS2000AWF 8 R-S to CS2000AWF 16 R-S/ CS2000AWF 16 R-T	40
CS2000AWF 18 R-T to CS2000AWF 18 -30 R-T	100

Table 22 Total volume of water

Buffer tanks

The easiest way to meet these volume requirements is with a buffer tank, but we are seeing more requests for open loop systems (with no TRV's on the radiators). If an open loop system is being used it is the installers responsibility to ensure the minimum open system water content is available at all times.

Third Party Pre-plumbed cylinders

For the Bosch CS2000AWF heat pumps 4-16kW fitted onto a third party pre-plumbed cylinder (with an integral buffer tank of 50 litres) these no longer require a volumiser if they are not being used for cooling.

Cooling

A larger volume of water is required for 'start up' during a cooling demand, rather than a heating demand, to prevent any alarm codes due to low temperatures from the system back to the heat pump. If a CS2000AWF is to be used for a cooling system, an extra volume of water could be required, and this could be met with the installation of a volumiser.

Cascade systems

There has been an update to the cascade volumes also.

The formula for this is:-

$$V_{(cas)} = Vol_{(min)} \text{ of 1 unit} + (\text{units in cascade} \times Vol_{(min)}/2)$$

Example 1. CS2000AWF (6kW) in a 4 unit cascade:-

$$V_{(cas)} = 30L + ((4 \times 30)/2) \dots \text{so } V_{(cas)} = 90 \text{ litres}$$

Example 2. CS2000AWF (12kW) in a 3 unit cascade:-

$$V_{(cas)} = 40L + ((3 \times 40)/2) \dots \text{so } V_{(cas)} = 100 \text{ litres}$$

Example 3. CS2000AWF (18kW) in a 2 unit cascade:-

$$V_{(cas)} = 100L + ((2 \times 100)/2) \dots \text{so } V_{(cas)} = 200 \text{ litres}$$

(see next page for complete overview)

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Cascades Overview – minimum available water content

CS2000AWF 4-6kW

Single unit = 30 litres

(x2) unit cascade = 60 litres

(x3) unit cascade = 75 litres

(x4) unit cascade = 90 litres

(x5) unit cascade = 105 litres

(x6) unit cascade = 120 litres

CS2000AWF 8-16kW

Single unit = 40 litres

(x2) unit cascade = 80 litres

(x3) unit cascade = 100 litres

(x4) unit cascade = 120 litres

(x5) unit cascade = 140 litres

(x6) unit cascade = 160 litres

CS2000AWF 18-30W

Single unit = 100 litres

(x2) unit cascade = 200 litres

(x3) unit cascade = 250 litres

(x4) unit cascade = 300 litres

(x5) unit cascade = 350 litres

(x6) unit cascade = 400 litres

**This information is in addition to the information published
in the installation manual, which will be updated in due
course.**

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