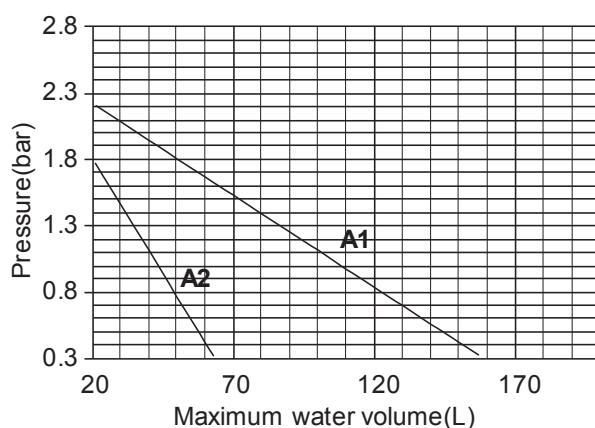


To determine the maximum allowed water volume in the entire circuit, proceed as follows:

- Determine the calculated pre-pressure (P_g) for the corresponding maximum water volume using the Figure 3-3.1.

Figure 3-3.1: Maximum water volume



A1: System without glycol for 1-phase 10~16kW and 3-phase 12~16kW unit

A2: System without glycol for the 4/6/8kW unit

- Check that the total water volume in the entire water circuit is lower than this value. If this is not the case, the expansion vessel inside the unit is too small for the installation.

Example

The unit(16kW) is installed at the highest point in the water circuit. The total water volume in the water circuit is 150L.

Since 150L is more than 72L, the pre-pressure must be decreased, refer to Table 3-3:1.

- The required pre-pressure is: $P_g(\text{bar}) = (H(\text{m})/10+0.3) \text{ bar} = (0/10+0.3) \text{ bar} = 0.3 \text{ bar}$
- The corresponding maximum water volume can be read from the Figure 3-1.7 is approximately 160L
- Since the total water volume (150L) is below the maximum water volume (160L), the expansion vessel suffices for the installation.

When it is required to change the default pre-pressure of the expansion vessel (1.5 bars), following guidelines:

- Use only dry nitrogen to set the expansion vessel pre-pressure.
- Inappropriate setting of the expansion vessel pre-pressure will lead to malfunctioning of the system. Pre-pressure should only be adjusted by a licensed installer.

If the expansion vessel of unit is too small for the installation, an additional expansion vessel is needed.

- Calculate the pre-pressure of the expansion vessel: $P_g(\text{bar}) = (H(\text{m})/10+0.3) \text{ bar}$
The expansion vessel equipped in the unit should adjust the pre-pressure also.
- Calculate the volume needed of the additional expansion vessel: $V1=0.0693 \cdot V_{\text{water}}/(2.5-P_g)-V0$
 V_{water} : the volume of water in the system
 $V0$: the volume of expansion vessel which the unit is equipped (For 5~9kW, $V0=2\text{L}$; For 10~16kW, $V0=5\text{L}$)

3.3 Water Circuit Connection

Water connections must be made correctly in accordance with the labels on the outdoor unit, with respect to the water inlet and water outlet. If air, moisture or dust gets in the water circuit, problems may occur. Therefore, always take into account the following when connecting the water circuit:

- Use clean pipes only.
- Hold the pipe end downwards when removing burrs
- Cover the pipe end when inserting it through a wall to prevent dust and dirt entering.
- Use a good thread sealant for sealing the connections. The sealing must be able to withstand the pressures and temperatures of the system.