

## Cooling water blow-down equipment

Prevent concentration and replace cooling water by blow-down.

Calculate the blow-down volume as follows;

N : Concentration factor (N=3 is normal condition)

M : Volume of make up water

E : Evaporation loss =  $860 \times 1.74$  (exhaust heat factor) divided by  
576 (latent heat of water at 40C(104F) = 2.60 l/h/kW

W : Splash loss (0.2% of circulation water volume)

B : Blow-down volume

$$M = E + W + B \quad N = \frac{E + W + B}{W + B} \quad B = \frac{1}{N - 1} \times E - W \quad M = \frac{N}{N - 1} \times E$$

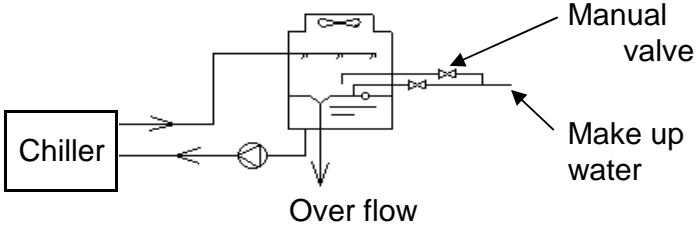
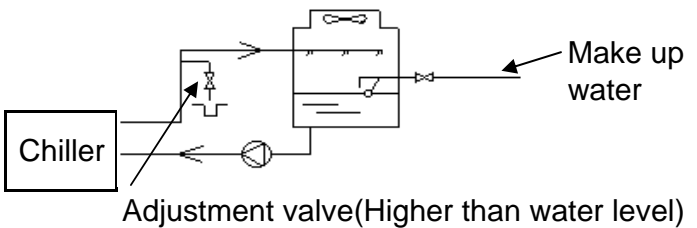
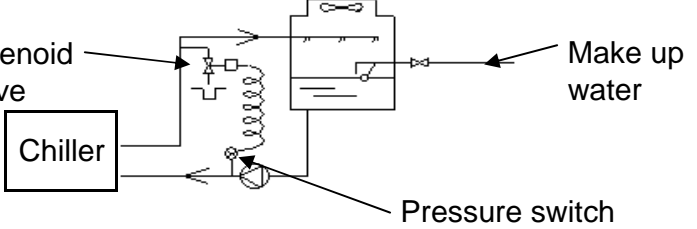
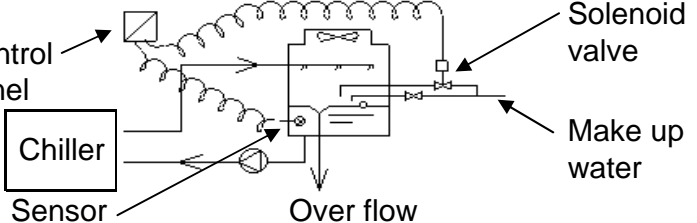
<Example>

E = 2.60 l/h/kW

N = 3

W = 0.52 l/h/kW

$$B = 1 / (3 - 1) \times 2.6 - 0.52 = 0.78 \text{ l/h/kW} \\ (\text{0.72 gal/h/USRT})$$

1	<b>Overflow</b> overflow at cooling tower by manual valve	 <p>Manual valve Make up water Over flow</p>
2	<b>Constant blow-down</b> Blow-down by solenoid valves, constantly.	 <p>Make up water Adjustment valve(Higher than water level)</p>
3	<b>Pressure switch &amp; Solenoid valve</b> Blow-down by solenoid valve at pressure switch	 <p>Solenoid valve Make up water Pressure switch</p>
4	<b>Conductivity meter and/or pH meter</b> Blow-down by conductivity or pH	 <p>Control panel Solenoid valve Make up water Sensor Over flow</p>

**Carrier**  
**SANYO**

**Blow-down  
of Cooling water**

Model

**16DJ model**

Drawing code

**CM-014-017-01-0**