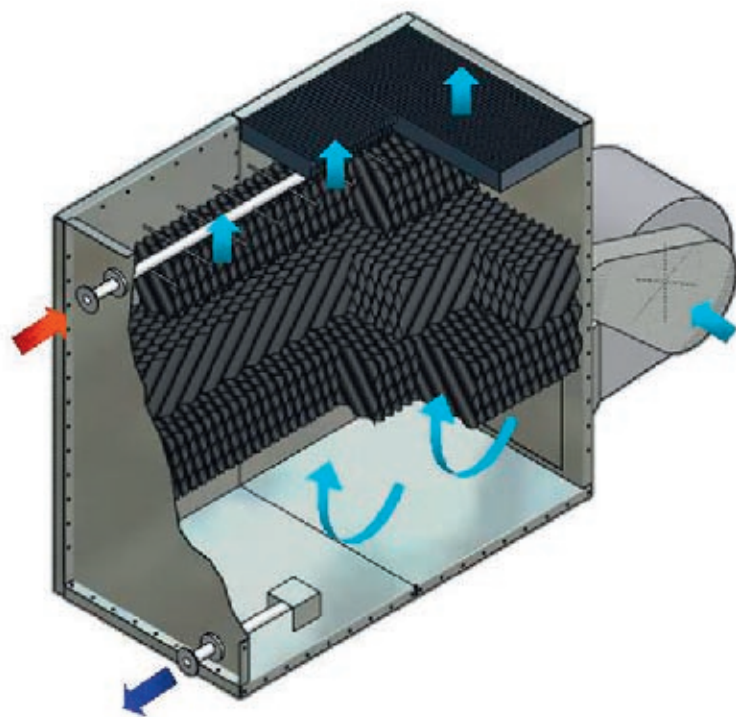


# Cooling Tower XL

With synthetic wet deck fill · Unit height 2050/2300 mm

This brochure is a completion to brochure dt 25e.

A DT-line cooling tower can be installed where the floor space is limited but the height is variable. In application and mode of operation the dt XL doesn't make a difference to its "little brother". Indeed its cooling capacity is 15 % higher than the cooling capacity of the standard tower. Using our XL can sometimes render a leap to the next size superfluous, how the selection example on page 4 shows.



## The advantages of the cooling tower XL are obvious:

He offers a higher cooling capacity while maintaining the floor space. Certainly he has a higher weight on the same basal area but not inescapable a higher total weight than the alternative. The decision for a XL-equipment implies cost saving because the size of the tower will be reduced (f.e. the number of cells). The standard accessories like inlet- and outlet silencers, fan enclosure, channels etc. fits the large tower, too. However you have to consider the higher noise level. We developed the cooling tower XL to round off our standard of performance and to be able to react more individual on problems like cramped conditions etc.

"Technical specification" and "Installation and Operating Instructions" from brochure dt 25e are essentially valid to the XL-line.



Permanently Good Cooling

## Calculation of the cooling capacity and temperature

For the selection of the XL towers you can use the quick selection tables, table 2 on pages 6 and 7/brochure dt 25e. The cooling capacity of the DT XL are equivalent to those of brochure dt 25e plus approx. 15% (the cooling capacities of the DT XL tower amounts to 115% of the standard tower DT).

For the choice of units with uncurrent temperatures you can enlist the kind of calculation like brochure dt 25e, page 13. The nominal capacity and nominal water rate from brochure dt XLe 1 are to be placed in the calculation like page 13 of brochure dt 25e.

The "Specification and the Installation and Operating Instructions" from brochure dt 25e essentially apply for the XL-production.

## Selection example

**Given:** Operating water flow rate  $m_w = 65000 \text{ kg/h}$   
 Water inlet temperature  $t_{WE} = + 37 \text{ °C}$   
 Water outlet temperature  $t_{WA} = + 25 \text{ °C}$   
 Wet-bulb temperature  $t_F = + 20 \text{ °C}$

With the given conditions a calculation like that in brochure dt 25 (our standard cooling tower) to get the required cooling tower would look like this:

### Result:

$$1 \quad Q_B = \frac{65000}{3600} \cdot 4,186 \cdot (37-25) = 907 \text{ kW}$$

$$2 \quad k_1 = 1,15 \text{ (selection curve for 12 K cooling range)}$$

$$3 \quad Q_N = \frac{907 \text{ kW}}{1,15} = 789 \text{ kW}$$

$$4 \quad \text{Unit selected: DT 82Z with } Q_{N \text{ act}} = 817 \text{ kW}$$

$$5 \quad \frac{\text{operating water flow rate}}{\text{nominal water flow rate of the unit}} = \frac{65000 \text{ kg/h}}{122195 \text{ kg/h}} = 0,532$$

$$6 \quad k_2 = 0,94 \text{ from selection curve 2}$$

$$7 \quad Q_{N \text{ req.}} = \frac{907 \text{ kW}}{1,15 \cdot 0,94} = 839 \text{ kW}$$

**8 The selected unit is too small! New choice and repeat with number 4.**

$$4^* \text{ New unit DT 2/45Z with } Q_{N \text{ req.}} = 954 \text{ kW}$$

$$5^* \quad \frac{\text{operating water flow rate}}{\text{nominal water flow rate of the unit}} = \frac{65000 \text{ kg/h}}{142685 \text{ kg/h}} = 0,455$$

$$6^* \quad k_2 = 0,9 \text{ from selection curve 2}$$

$$7^* \quad Q_{N \text{ req.}} = \frac{907 \text{ kW}}{1,15 \cdot 0,9} = 876 \text{ kW}$$

$$8^* \text{ Unit DT 2/45Z with } Q_{N \text{ act}} = 954 \text{ kW}$$

**9\*** and the permissible water flow rate between 34000 and 170000 kg/h is adequate.

With this brochure, an enlargement of our standard program, we can offer an alternative which may avoid – by considering the architectural conditions – the leap to the next unit size. This advantage becomes apparent especially when you are able to reduce the number of the cells how the following example shows:

Step 1 to 3 look left

$$4^* \text{ New unit DT 77Z XL with } Q_{N \text{ act}} = 860 \text{ kW}$$

$$5^* \quad \frac{\text{operating water flow rate}}{\text{nominal water flow rate of the unit}} = \frac{65000 \text{ kg/h}}{111875 \text{ kg/h}} = 0,581$$

$$6^* \quad k_2 = 0,96 \text{ from selection curve 2}$$

$$7^* \quad Q_{N \text{ req.}} = \frac{907 \text{ kW}}{1,15 \cdot 0,96} = 821 \text{ kW}$$

$$8^* \text{ Unit DT 77Z XL with } Q_{N \text{ act}} = 860 \text{ kW}$$

**9\*** and the permissible water flow rate between 23000 and 123000 kg/h is adequate, too and offers you a real alternative, if f.e. the surface area is restricted. **The next unit size mustn't be taken necessarily.**

The manufactures reserve the right to make technical modifications as a result of further development and technical advances.

