

### **LABOBLUE – full double jacket water cooling without wasting water, Version MSL**

- full double jacket cooling
- for open and completely closed vessels without loss of liquid
- no waste of cooling water due to integrated storage system and recirculation

The unit is equipped with a high efficient recooling system to dramatically reduce cooling down times when sterilizing liquids. The double jacket is floated with cold demineralised water, by circulating the water around the chamber the energy is transported out of the system. As a result the cooling down time can be reduced up to 80% (depending on loading volume and vessel size). The main advantage is the full double jacket. Different from a cooling coil around the chamber the double jacket guarantees the contact of cooling liquid onto the full surface of the chamber and a fast transport of heat energy.

The integrated counter pressure option, sterile filtered compressed air is fed into the chamber, ensures, that no loss of liquid appears and that pressure tight vessels will not burst. The chamber is kept at higher pressure than the pressure inside the vessels to be cooled down. The into the lid integrated fan, magnetically driven, avoids temperature layers inside the chamber due to limited natural convection of steam and air and enhances the cooling capacity. (An external connection to compressed air is required).

The cooling system is being fed from the storage tank of demineralised water. After circulation around the double jacket the water is being pumped back into the tank. Integrated into the tank is a heat exchanger, mainly using the water required for the exhaust steam condenser, to cool down the water inside the tank. Additionally more cold tap water can be used for heat exchange purposes, the values can be set in the relevant programmes. With the offered cooling up to 5 batches per shift are possible.

Up to now autoclaves with integrated water cooling usually consume approx. 50 l of demineralised water for cooling purposes. This water is pumped into the drain and wasted. The Laboklav system offers real cost savings and saves our limited natural resources.

### **LABOVAC – the complete vacuum system**

- single pre-vacuum
- fractionated pre-vacuum
- drying vacuum
- additional heating during vacuum drying is integrated into the option

When sterilizing hollow items and mixed waste fractions a complete deaeration of the chamber is usually difficult to achieve. But the principles of steam sterilisation require saturated steam conditions, meaning the part of not condensable gases (e.g. air) should not be more than 2%. A vacuum system is required.

Integrated into the compact housing of the unit is a high performance water-ring vacuum pump. The capacity of the pump is suitable to evacuate the chamber and the sterilisations goods fast and reliable. Depending on the sterilisation goods programmes with single pre-vacuum or fractionated pre-vacuum can be selected. The number of fractions, same as the vacuum values can be set in the relevant programmes.

A drying vacuum is useful when sterilizing pipette tips, glassware, filter and textiles since no drying in a drying oven is required after sterilisation. For drying purposes it is required to additionally heat the chamber during this process. During the drying vacuum the chamber is heated with steam pulsing through the double jacket. This function is always included into the vacuum option.

For the vacuum option it is required to connect the unit to a cold water supply.