

## Standardized Procedure Diessel tank

Document nr.: 2019\_2  
Version: 2  
pvm: 5.11.2020

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### 1 Purpose of use

Diessel tank is a mixing tank with steam/water jacket. It is a pressure vessel and sterilization of medium can be carried out up to 150 C temperature.

### 2 Person in charge

The equipment manager of the Diessel tank is Tero Eerikäinen.



Figure 1. Usage in which air-pressure is used drive sugar medium liquor to the bioreactor from mixing tank Diessel

### 3 Operation instructions

#### WARNING!

- Before starting the mixing, always make sure that pressurized water is fed into the mixing pass seals. Otherwise, the agitator gasket may be damaged!
- Heating is done with steam, used a face mask!

#### 3.1 Stirrer motor shaft seal with water lubrication

Check that water connection is working to mixer lubrication tank. Put 2 bar pressure into stirrer motor shaft seal with the help of valves B and C in figure 2. There is also a cooling water which should be flowing free through the lubrication tank.



Figure 2. Outflow valve (B) and pressure meter and input valve (C) into stirrer motor shaft seal.

#### 3.2. Heating or sterilization in the tank

Close tank. Put the sterile air filter and to the vessel cover and close the line to it. Set the steam generator like Steam-Elmo on. Connect the Diessel-Tank Pt100 temperature probe and steam line Spirox Sarco plate valve to the controller unit (Hydrolyysiastian lämpötilasäädin). Close Diessel-Tank bottom valves (leave steam trap line open) and the bypass valve 10 (used in cooling) below steam input connection. Put all the output tubes to the cooling tank. Set the wanted temperature to the controller. Now you can open steam lines towards Diessel-Tank (use mask) and wait as the heating proceeds.

Cooling: set off steam and controller unit. Open slowly air valve to release extra pressure (beware of hot steam). Close (if not closed) steam trap valve. Connect cooling water to the cooling line. Open the cooling valve 10 below steam input line to become the cooling water output. Open cooling water and then air output valve fully.

### **3.3. Sterilizing the tank output tube towards Marubishi**

You need to use Marubishi steam lines now. Connect the Diessel-Tank bottom valve hose to the inoculation valve 38 and open the bottom sterilization by-pass line in Diessel-Tank. Sterilize the substrate feed line towards the Diessel-Tank by first closing valve 37 and then opening valves 36, 39, 38B and slightly valve 40 (steam drying). After a while, open valve 38. Steam the desired time. Close the open valves.

### **3.4. Liquid transferring with air pressure**

Connect pressure air line to the air-filter. Turn the bottom valve towards the bioreactor hose. Open the needed valves in the bioreactor. Open the bottom valve of Diessel-Tank. Increase the air pressure slightly e.g. to 0.5 bar. Check that liquid runs into the reactor and no leaks exist. Increase pressure when it drops.

## **4 Appendices**