

# SPECIFICATION

DT-P01R-Basic Solution-2038



## DT LABORATORY PLANT

CABINET BASIC MODEL  
FOR PREPERATION OF BITUMEN EMULSION AND  
POLYMER MODIFIED BITUMEN  
Sample size 1 – 5 LPH.

*Manufacturer:*

*DENIMOTECH A/S  
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## PROCESS DESCRIPTION

The DENIMOTECH laboratory colloid mill – cabinet basic model is especially designed for production of regular road grade bitumen emulsions that do not require production above boiling point for water. Polymer modified bitumen can be prepared with this heated and insulated version of the unit.

The unit is one integrated unit consisting of the following parts:

- Colloid mill with specially designed high-speed AC motor.
- Thermostatically controlled electrical heating of colloid mill and bucket.
- Pipe system with funnel to receive the bitumen and other ingredients, re-circulation pipe system and sample valve.
- Electrical box with: Main power switch - Mill start/stop, speed control and frequency inverter – Heating start/stop and thermostat.
- Cabinet with brushed stainless steel 316.
- 4 litres funnel with heating and insulation.

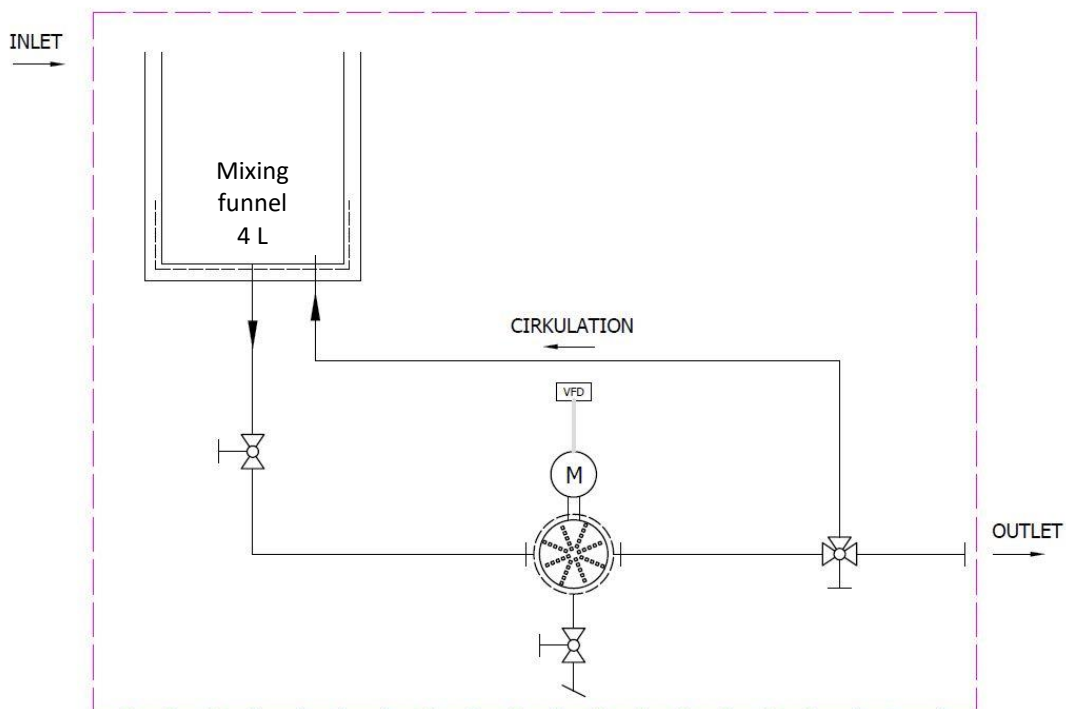


Figure 1: Ex. on a laboratory (basic cabinet model) plant flow-diagram / flow-process.

## GENERAL FEATURES

### Easy operation

The compact design of the complete unit including mill and motor, frequency controller and pipe system allows placement inside a small cabinet with wheels which is easy to move around in the laboratory.

The electrical controls are collected in one area inside the cabinet. From this side you can open the cabinet for easy access to both the electrical parts and the rest of the small laboratory plant.

One person is enough to operate this small laboratory plant.

### Operational reliability

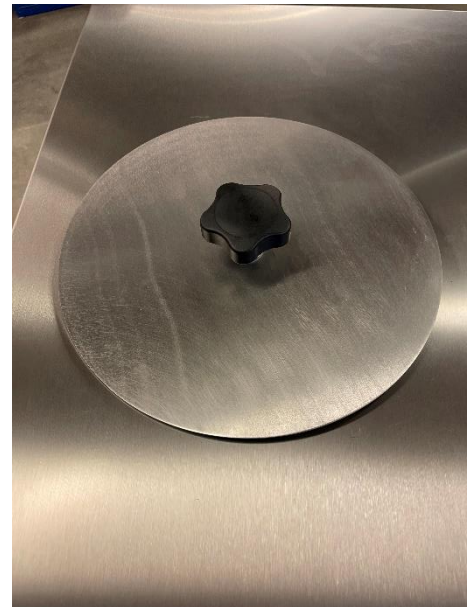
The plant is designed and built in full compliance with the latest European Standards of process machinery including mechanical and electrical design as well as documentation.

Only high-quality components and materials are used to ensure best possible operational reliability in tropical and tempered climates as well as industrial environment.

All parts are completely numbered and identifiable in manuals and part lists. Extensive manuals go with the plants and include process and electrical diagrams, maintenance and service instructions and technical data for the various components and systems. Repair readiness is achieved with a relatively small stock of spare parts.

### Fast and easy installation

The DENIMOTECH laboratory plant (basic cabinet model) are fully assembled with all the equipment. Calibration and testing are done at the factory prior to shipment. This brings down the installation and commissioning time.



## EQUIPMENT SPECIFICATION

### DENIMOTECH colloid laboratory mill

The colloid mill is the same as in the DENIMOTECH Research plant and is of the same design as the DENIMOTECH full-scale production mills. The rotor and stator system are designed to enable achieving a fine and narrow particle distribution and the variable speed drive with a maximum of 11.500 rpm makes it possible to:

1. Vary and optimise the particle distribution and thereby the emulsion characteristics to adapt to prevailing requirements and to achieve close correlation with different full-scale production mills.
2. Using many different bitumen that normally form too coarse particle distributions resulting in poor emulsion quality.



All wetted parts of the colloid mill are made out of AISI 316L and the pipe system and other components in AISI 316 stainless steel for corrosion resistance against low pH emulsions. The small volume of the pipe system minimises the raw material need and enables production of very small samples of 1 – 5 litres only for normally bitumen.

### Production control panel

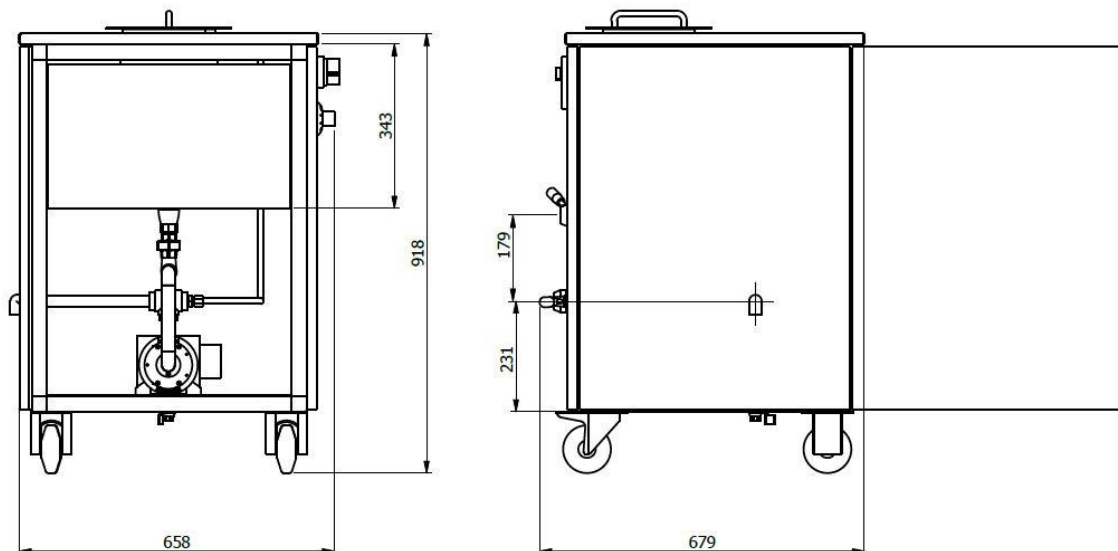
All operating buttons and valves are placed on the same side of the cabinet. The small signs indicate which way to turn the valves. There is an off/on button for the heating.

The red emergency stop button are placed above the outlet for easy access.



## TECHNICAL DATA

Plant model	DT-P01R (polymer modified bitumen)
Sample size	1 – 5 L
Funnel capacity	4 L
Temperature, maximum	200°C
Viscosity	100 – 500 cSt
Motor power	3.7 kW
Motor speed, continuously variable	6.000 – 11.500 rpm
Rotor / stator gap, variable in steps	0.6 mm / 1.4 mm / 2.2 mm
Voltage	3 x 400 V, 50/60 Hz
<b>Electrical data</b>	
Total rated power	4,6 kW
L x W x H - approx.	650 x 650 x 950 mm
Weight - approx.	91 kg



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