

# 1-CUBE s. r. o.

Hamry 3567, 580 01 Havl. Brod, Czech Rep.  
tel + 420 569 433620, fax + 420 569 422144  
1-cube@1-cube.com www.1-cube.com

## MASH BATH - R4, R8, R12

Mashing Equipment is designed for laboratory use in breweries and malthouses. It aids in the determination of malt extract. The equipment allows one to utilize the CONGRESS, HARTONG 20, HARTONG 45, HARTONG 65, HARTONG 80, ASBC, PROFILE or THERMOSTAT methodology of testing. The "Thermostat" method maintains a constant temperature for a specific time. The "Profile" method allows the user to program the variables to suite their needs.

### **Congress-Method:**

- Mashing, by passing through a temperature programm
- Use of malt-fine grind and –coarse grind
- Detection of the absolute number of the extract content, by use of the Plato-Table. In addition to the identification of the saccharification time (Iodine- normality), protein content, viscosity, pH-value a.o.. Difference between fine- and coarse grind extract, permits a conclusion to the cytolytical solution of the malt.

### **Hartong-Method:**

- Mashing at constant temperature (20°, 45°, 65° or 80° C)
- Use of malt-fine grind
- Detection of a ratio (VZ) = percentage share of the highest possible extract yield at the chosen temperature. Conclusions about the enzyme activity, protein modification of the malt and malting work by itself, are possible.

### **Two versions are available:**

**Standard version:** all the above mentioned methods run fully automatically as an alarm lets the operator know the necessity for example to sample for saccharification, to refill the distilled water (which is preheated in test tubes directly in the Mash Bath) into the beakers with the mash at predetermined intervals.

**Automatic version** with automatic distilled water refilling: all the above mentined methods run fully automatically including automatic preheated distilled water refilling.

The mashing equipment is equipped with a microcomputer, a thermometer Pt 100, an electromagnetic valve for the automatic cooling-down of mash bath, an LCD double line display, a membrane keyboard and controlling software. The mashing unit can be equipped with a serial boundary at the customers request. This serial boundary makes communication possible with a PC. The Mash Bath equipped with a serial boundary is indicated as **monitoring**. This is an advantage for customers that are on an ISO 9001 compliant system.

### **Models:**

**Standard R4-** four beakers

**Standard R4 monitoring-** four beakers, equipped with a interface RS232

**Standard R8** - eight beakers

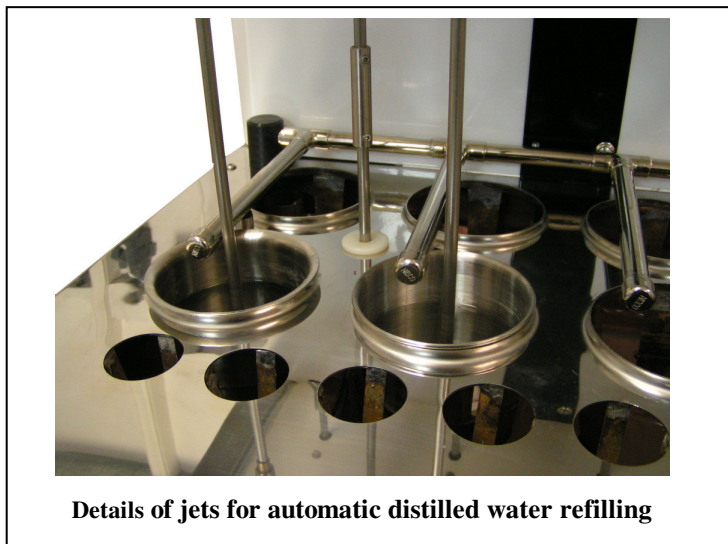
**Standard R8 monitoring** - eight beakers, equipped with interface RS232

**Automatic R8 monitoring** - eight beakers, with automatic distilled water refilling, equipped with interface RS232

**Standard R12-** twelve beakers

**Standard R12 monitoring** - twelve beakers, equipped with a interface RS232

**Automatic R12 monitoring-** twelve beakers, with automatic distilled water refilling, equipped with interface RS232



Details of jets for automatic distilled water refilling

### **Technical data:**

#### ***Data represented on LCD display:***

- type of method: Hartong 20, Hartong 45, Hartong 65, Hartong 80, Congress, ASBC, Thermostat, Profile
- instantaneous temperature of bath
- time since the beginning of test

#### ***Adjustable data:***

- choice of methods: Hartong 20, Hartong 45, Hartong 65, Hartong 80, Congress, ASBC, Thermostat, Profile
- temperature range: from 20<sup>0</sup>C to 95<sup>0</sup>C
- mixer speed: 0, 100, 200 R.P.M.
- time
- accuracy of temperature adjustment: +0,01<sup>0</sup>C
- accuracy of regulation: to 0,2<sup>0</sup>C
- accuracy of time adjustment: 1 sec
- Temperature range: up to 95° C

#### ***Signalization:***

- acoustic and optical alarm

#### ***PowerCut:***

After a voltage breakdown, the device activates itself again and continues the step in place, it was interrupted before, resp. breaks off the test.

#### ***Electric data:***

- voltage 230V/50 Hz
- Note: by request 110V/60Hz
- Max. heat output: 3 kW

The mash bath is designed ergonomically and completely made of stainless steel, copper and aluminum.

**Stainless steel beakers- 550 ml**

**Glass cuvette- 50/100 ml**

#### ***Weight :***

Type R4- 21 kg, Type R8- 36 kg,  
Type R12- 45 kg

#### ***Interfaces and connections:***

- Water inlet: ¾" (DN20)
- Water outlet: ¾" (DN20)
- Computer interface: Serial port RS 232