

UNIVERSAL REACTION UNIT FOR DISCONTINUOUS OPERATION

GENERAL

The discontinuously working reaction unit has been designed for various reactions in the liquid phase.

It is an universal unit, typical for laboratory technique, multifunctional and expandable standard unit.

The reaction vessel made of Borosilicate glass 3.3 can have different volumes reaching from 0.5 to 10 litres and more. The unit can be used for synthesis and separation as well as for bio-reactions.



Pict. 1
Universal reaction unit
for discontinuous operation

The universal reaction unit offers the following advantages:

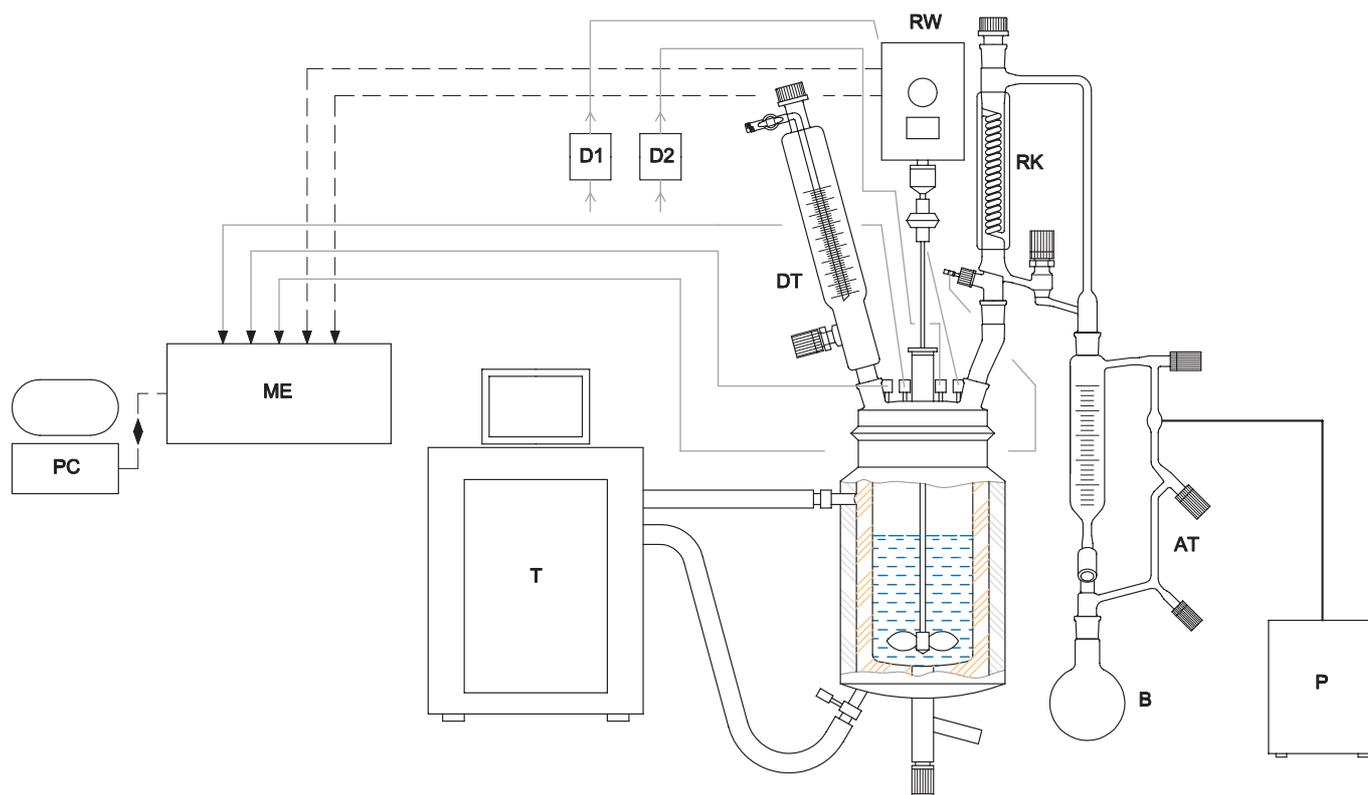
- The unit can be operated under vacuum, normal pressure or slight overpressure.
- It is possible to realise reactions in temperature ranges from -30 °C to +200 °C, provided the thermostat is suitable.
- All product-touching parts are made of Borosilicate glass 3.3 or PTFE, providing the facility for use of many different substances.
- Due to the use of Borosilicate glass 3.3, reactions can be watched.
- A controlled running of reactions is possible in a certain temperature range and a reproducible addition of several liquids is granted.
- The measurement and control technology is modularly constructed and can be operated with different sensors. Data can be captured and analysed in time intervals.

Construction of the universal reaction unit

The core of this unit is the flat flange reaction vessel DN 200 with a volume of approx. 10 litres with silver coated high vacuum and tempering jacket and adjustable PTFE bottom outlet valve DN 15. A flat flange lid DN 200 with centre neck socket NS 29/32 and side neck sockets NS 29/32, NS 14/23 and GL threads 18 and 25 allows the connecting of peripheral components for stirring, feeding and measuring. The robust triple clamp DN 200, made of stainless steel, closes the lid and the vessel and offers additionally the possibility to secure the unit in the frame. Lid and vessel are sealed with an O-ring, made of silicone and FEP-lined. A stainless steel anchor stirrer, shaft diameter 10 mm, is introduced over a suitable stirrer seal with double PTFE sealing and serves for a fine mixing of the substances. With a jacketed reflux condenser with off-distilling function can be distilled off via the Anschütz-Thiele receiver into the round bottom flask. The used agitator offers the rev range from 12 to 2000 revs/min. and has a digital display. Different liquids can be introduced into the reactor either via a temperable addition funnel of 1000 ml or via two diaphragm pumps with a range of 0.08 to

80 ml/min. An efficient circulating thermostat provides a large temperature range for operations. A chemical resistant diaphragm pump with a pumping speed of 1m³/h allows to carry out reactions under vacuum. Two Pt 100-thermometer and a pH-sensor take the data which are captured and analysed with a computer with belonging software. The unit is mounted in a robust and mobile frame of stainless steel tubes, diameter 26.9 mm, with trays and safety bath. Dimensions of the frame: L x D x H: 1600 x 600 x 2000 mm.

We will be pleased to submit you a detailed offer.



Legend:

AT	- Anschütz-Thiele receiver	P	- Vacuum pump
B	- Receiver	PC	- PC
D1	- Pump 1	RK	- Reflux condenser
D2	- Pump 2	RW	- Agitator
DT	- Addition funnel	T	- Thermostat
ME	- Data capture		

Pict. 2 schematic description