Lemitec Laboratory Decanter

The unique centrifuge for your liquid-solid separation tasks.

New development

The separation of the feed material into two phases of different density in the separation space of the MDZ 004 laboratory decanter can be determined by measuring the electrical power required by the motors to drive the rotor and the scroll and recorded.

Application

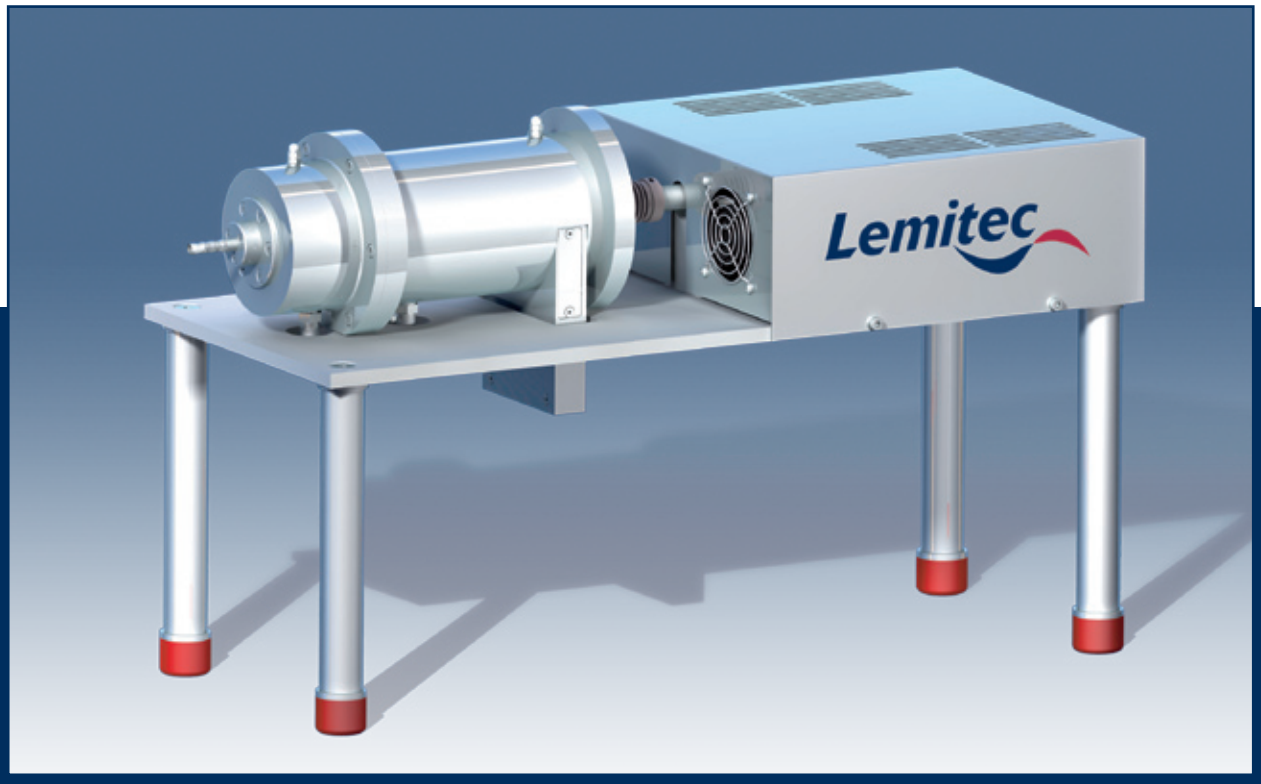
The MDZ 004 is able to concentrate any suspensions and dispersions that are suitable for processing in decanters. It can also remove solids from such suspensions and dispersions and grade them according to their particle size and specific weight. The MDZ 004 is designed for the continuous separation of very small material flows such as those which frequently occur in laboratories and pilot plants, not only in the chemical and pharmaceutical industries but also in the food and fermentation industries. The advantages of the MDZ 004 include its application as a measuring instrument for obtaining basic data on the flow characteristics of material phases of variable viscosity.

Operating principle

The operating principle of the laboratory decanter consists in the continuous separation of suspensions or dispersions into phases of different density and the differentiation of the conveyability of these phases in the separation space caused by the change in their density. The separation space is the space in a cylindrical-conical rotor, limited by an adjustable weir, into which a suitably shaped scroll is inserted. The height of the weir is lower than the depth of the flight of the scroll at the end of the conical section of the separation space, thus enabling both phases to be removed continuously from the space. Separation of the phases results in the viscosity of the heavy phase being greater than that of the material being fed into the decanter. The increase in viscosity is governed by the centrifugal force and can thus be influenced by the fully adjustable process parameters. The way and extent to which the influence is exercised correlates with the power consumption of the drive motors so that the separation of the feed material into phases with different flow characteristics can be recorded.

Drive

The rotor and scroll of the MDZ 004 are driven by two separately controlled servomotors. The speed and differential speed are therefore fully adjustable, enabling them to be set exactly as required and kept constant. The speed and differential speed can also be adjusted while the machine is in operation.



MDZ 004 laboratory decanter

Advantages

Measuring and recording

The flow behaviour of the material in the separation space can be established by measuring the power of the drive motors during the separation process. For this purpose, the differential power of the two drive motors is shown on the control panel of the MDZ 004. The data can be recorded on a memory chip or displayed directly on a PC via an interface. This information can be used to model the applications of decanter centrifuges. Thus, the MDZ 004 is in itself an ideal model for teaching and researching liquid-solid separations by applying centrifugal forces.

Bowl and scroll

The geometry of the bowl and scroll can be modified to suit customers´ requirements.

Suitable for very low throughputs

The MDZ 004 can be operated at throughputs as low as 1 L/h.

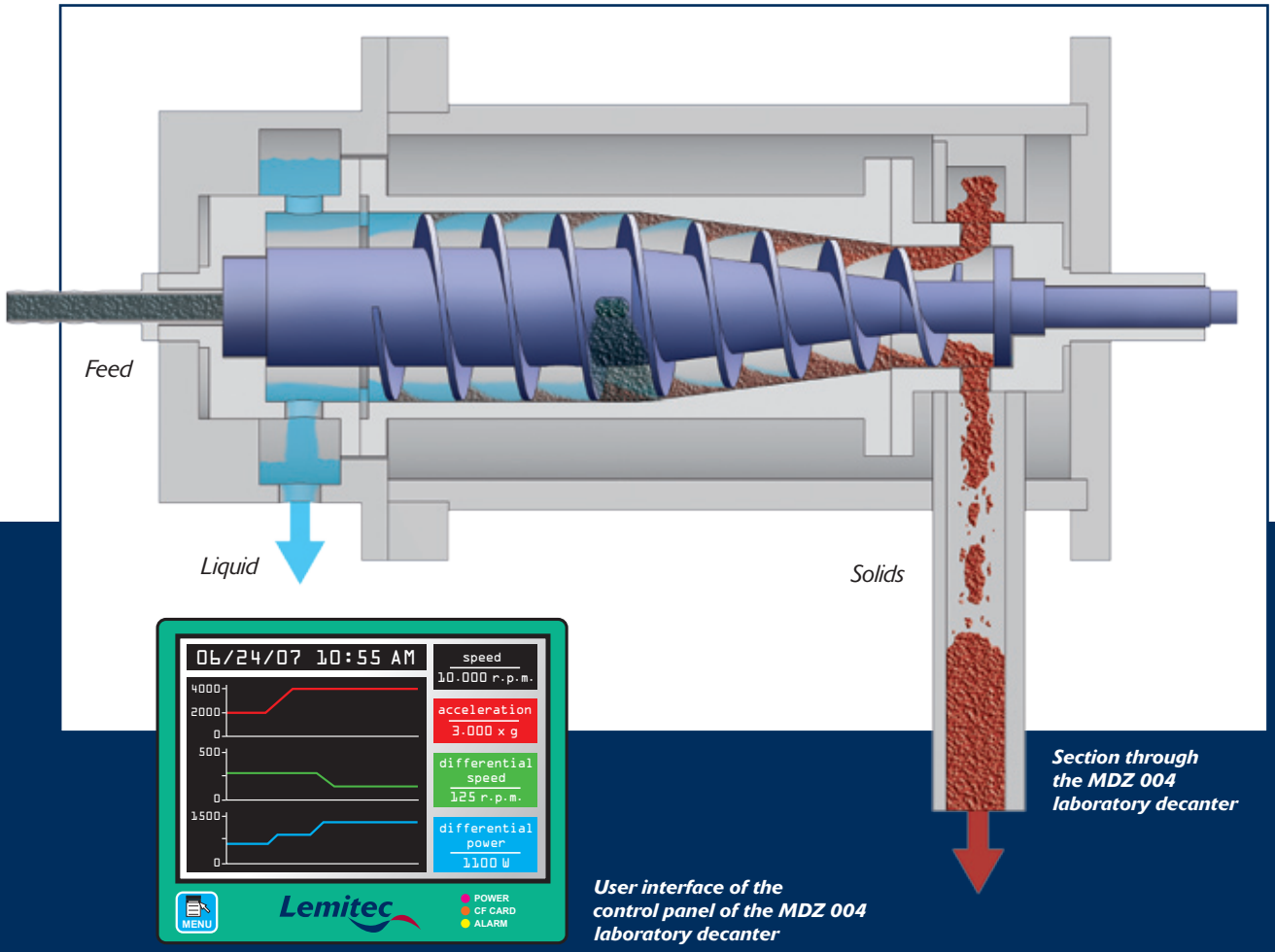
Time is money

Feed materials can be changed within 30 minutes. The MDZ 004 can be taken apart for cleaning and reassembled in less than half an hour.

Ease of transport

The MDZ 004 is easy to transport thanks to its compact design and the fact that it weighs only 70 kg. It can therefore be used at several different locations within company or research facilities. Operation only requires a 220 V power supply.

Technical details MDZ 004	
Material of components in contact with the feed material/material phases	*DIN 1.4571*
Bowl (standard model)	
- internal diameter	*56 mm*
- slenderness ratio (L/D)	*3.2*
- maximum acceleration	*3.600 x g*
Motor	
- Voltage/frequency/amperage	*220 V, 50 Hz/6A*
Dimensions (L x W x H)	*700 x 300 x 550 mm*
Weight	*ca. 70 kg*



Section through the MDZ 004 laboratory decanter

User interface of the control panel of the MDZ 004 laboratory decanter

Lemitec, Gesellschaft für Lebensmitteltechnologie mbH
Am Priesterberg 12a · 13465 Berlin, Telefon +49-30-33 09 15 40, Telefax +49-30-33 09 15 41, info@lemitec-online.com, www.lemitec-online.com