

DDI 4043

Decanter Centrifuge for Industrial Applications



THE PRODUCT

DDI 4043 is a decanter centrifuge: horizontal rotating bowl, 2 and 3-phase configuration, continuous discharging of sludge through scrolling conveyor, dual-drive type, variable differential speed.

APPLICATION

DDI 4043 has been designed by **HAUS** for the general industry demand – chemical, pharma, fats and oil extraction, protein extraction - and for heavy duty application like mining and oil&gas.

DDI 4043's main duty is the separation of a liquid mixture from its solid content, to obtain one or two cleaned liquid and/or a sludge as dryer as possible.

DDI 4043 is useful in the production of valuable substances, in the byproduct and produced water treatment, and in the recycling process.

SPECIAL FEATURES

DDI 4043 is able to separate and clean liquid mixture of different composition and solid content, less or more abrasive, in first extraction or following other treatment, during cold or hot process. This is possible thanks to design solutions, like:

- Flexible configuration: available both 2 and 3 phase separation, and multiple choice of material of construction, wear protection, motor power, gearbox torque
- High G-force, High-Capacity Bowl: a cylinder bowl of longer length rotating at high speed.
- Liquid Level and Pond Depth Regulation: to optimize the oil recovery according to different product mixture, and to work with positive, neutral, or negative hydraulic pressure.
- Variable Solid Conveying Speed: to handle different solid quantities with desired dryness.
- Dual Drive: a main motor moving the bowl, and a secondary motor moving the conveyor, both driven by Frequency Converter (VFD) and linked by a high torque gearbox without friction clutch.
- PLC with Human-Machine Interface (HMI): to set different automatic modes, to adjust the sludge dryness and other operational parameters, to monitor alarms.
- Quality Materials: the rotating parts are made in high grade stainless steel, while the conveyor tips, the feed zone, the solid outlets, and the bowl internal surface, are protected with harder material, which can be selected between various options according to the product abrasiveness.
- Functional Covers: main casing made by double layer of stainless steel, with friction assisted with hinges for easy opening and bowl inspection and cleaning; two separate smaller casings protecting the driving parts, allowing dedicated access for maintenance and inspection.
- High Stability Basement, a robust steel structure painted epoxy, with dumpers and anchor plates for easy ground installation.

- *animal fats and oil*
- *vegetable oil extraction*
- *protein extraction*
- *oil and gas.*
- *oil recycling*
- *chemical industry*
- *pharma*
- *starch*
- *yeast*
- *technical products*
- *process water treatment.*

- *2 or 3 phases process*
- *hydraulic capacity*
- *separation efficiency*
- *solid handling*
- *high torque*
- *abrasive products*
- *solid capture*
- *oil recovery*
- *auto-regulation*
- *alarm monitoring*
- *waste reduction*
- *energy saving*
- *easy service*

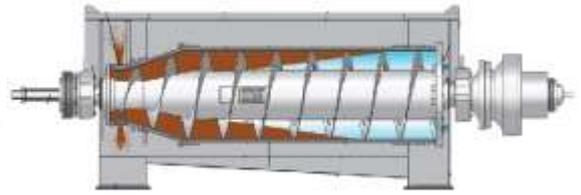
OPERATING PRINCIPLE

The product mixture is introduced from the center into the bowl, where it is put on rotation. The centrifugal force let the solid and liquids being separated according to the density differences. The heaviest solid accumulates to the bowl periphery, and it is driven by the conveyor towards the conical end. The conveyor pushes the solid to exit at a smaller radius, obtaining a draining effect. The liquid fills the bowl below the solid, and exits at the cylindrical end, where outlet ports of proper radius (liquid level) are mounted. The relative speed of the conveyor defines the solid scrolling capacity and the solid dryness, while the radius of the liquid outlets defines the liquid purification degree.

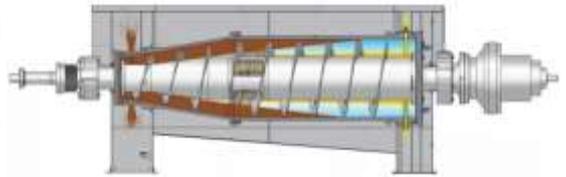
In the 3-phase configuration, 2 liquids can be further separated, by differentiating the outlets in the cylindrical end.

An outlet pipe of adjustable length takes the liquid at the inner diameter, where is the lighter liquid, which therefore exits purified.

In the Dual Drive system, the speed of the conveyor is determined by the speed of the secondary motor, which supply also the additional power. When the secondary motor is driven by a frequency converter, setting such a speed and its variation is possible and easy even during running



Example of 2-phases bowl configuration



Example of 3-phases bowl configuration



Example of Dual Drive system

STANDARD CONFIGURATION

- Decanter Standalone, 2 phase, Dual Drive
- Main and Secondary Motors for Frequency Converter
- Set of Special Tools and Spare Kit for commissioning
- Operator Manuals

ON REQUEST

- Control Panel Standalone with PLC and HMI, and VFD for main and secondary motors.
- Flow Control Accessories (pumps, valves, probes)
- CIP system

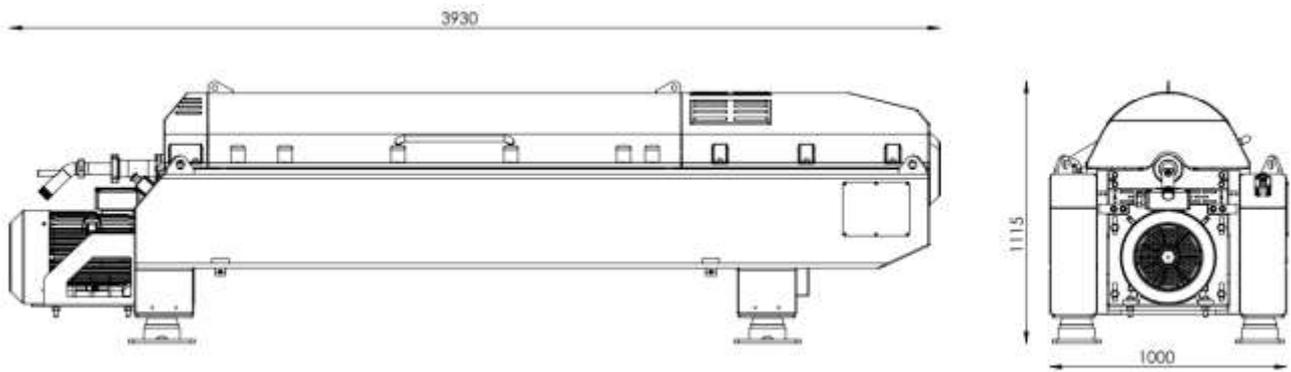
TECHNICAL DATA

Bowl Diameter - L/D ratio	400 – 4.22
Installed Power kW (main+sec.) <i>optional (sec)</i>	30 + 11 15
Gearbox Nominal Torque kNm <i>optional</i>	3.15 5.0
Weight Total (kg)	2700
Main Dimensions (mm)	3930 x 1000 x 1115

MAIN MATERIALS

Bowl Body <i>optional</i>	Duplex Stainless Steel <i>Super duplex stainless steel</i>
Bowl Internal Protection <i>optional</i>	AISI 316 Ti Liners <i>Super duplex stainless steel</i>
Frame	Steel structure, epoxy painted
Scroll Body <i>optional</i>	AISI 304 <i>AISI316L, Duplex stainless steel Super duplex stainless steel</i>
Scroll Flights <i>optional</i>	AISI 304 <i>AISI316, Duplex stainless steel Super duplex stainless steel</i>
Scroll Flight Protection <i>Optional 1 Optional 2</i>	Flame Sprayed TC* <i>Sintered TC Tiles Sintered TC Tiles Until Solid Outlet</i>
Scroll Feed Zone Protection <i>optional 1 optional 2 optional 3</i>	TC Coated Plate <i>Replaceable Sintered TC Complete Replaceable Polyurethane Sintered TC Tiles Coated Plate</i>
Bowl Solids Outlet Protection <i>optional 1</i>	Replaceable Bushing in Hardened Cast Iron <i>Sintered TC Bush</i>

* TC = Tungsten Carbide



SERVICE AND MAINTENANCE

DDI4043 is easy to conduct, regulate, maintain and service.

HAUS service organization is available to customers 24/7 for tune up as well as for emergencies. Competitive maintenance contracts are available, to receive on-time customer support.