



DDE 3532 Decanter

HAUS
CENTRIFUGE TECHNOLOGIES

Beyond Expectations

High performance DDE decanters are designed for municipal and industrial waste water treatment plants as well as potable water treatment plants. DDE design is developed to minimize polymer consumption and ensure maximum dryness even with high inlet flow rates. This outstanding result is ensured by optimum torque control at high centrifuge forces. The key advantages of DDE decanters are:

- Excellent separation
- Maximum dewatering
- Dual Drive
- High performance/price ratio
- Continuous and problem free operation
- Compact design
- Mobile solutions
- Continuous service and spare parts service
- Up to 10 m³/h capacity

DDE decanters are robust and durable thanks to its material features. The bowl, conveyor, casing, inlet tube, outlets and other parts in contact with the process media are all made of AISI 304, AISI 316 and duplex stainless steel.

Complete range of DDE decanters features a user friendly, compact design with all wet parts made of wear-resistant materials. DDE decanters provide continuous and trouble-free operation and flexible process control.



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Design

A centrifuge decanter is a separation machine which consists of a cylindrical bowl, a screw conveyor located inside the bowl, a drive group providing the rotation of both the bowl and the conveyor and finally a solid frame which is designed to carry all these components in a compact and robust arrangement.

As the feed enters the bowl through a feed pipe, it is accelerated due to the rotation of the bowl. Centrifugal forces then cause the sedimentation of the solids on the wall of the bowl. These sediments accumulated on the bowl's wall need to be moved towards the conical end of the bowl for further compaction and dewatering. The screw conveyor located at the center of the bowl provides this movement as it rotates in the same direction as the bowl but at a slightly different speed. Thanks to the differential speed, the screw conveyor scrapes off the accumulated solid towards the conical end. This results in formation of a sludge with a high dry solids content and is generally known as the "sludge cake". The water separated from the dry solids is collected via adjustable outlets located at the cylindrical end of the bowl.

Flexibility

Thanks to the Dual Drive design and user friendly PLC interface, DDE decanter allows its users to have a full control over the process and gives many options to adjust the decanter settings.

The DDE decanter centrifuge can be adjusted for maximum performance by:

Varying the bowl speed and providing the necessary G force

Varying the conveyor speed and

Varying the pond depth in the bowl for the best liquid clarity and best dry solid content in the cake

DDE 3532 Decanter *Standard Configuration*

Property	Description
Drive type	Dual drive, squirrel cage induction type motors, WAT, IE1 (Eff2), IP55, B class temp increase, F class insulation, 400V/50Hz/3ph, PTC type thermistor in each winding
Frequency inverters	Dual frequency inverters, ABB or equivalent
MCC and DCC Panels	Designed for indoor installations. All parts facing outside of the enclosure are made of electrostatic painted carbon steel. Protection class IP54.
PLC	SIEMENS SIMATIC ET-200S
Touchscreen	SIEMENS 6" KTP600 Color DP
Bowl material	Duplex stainless steel 1.4470
Scroll body material	Stainless steel AISI 316
Flights material	Stainless steel AISI 304
Top lid material	Stainless steel AISI 304
Paint system	Epoxy paint (primer 25-35 µm, 2 nd coat 40-60 µm, final coat 40-60 µm)
Frame material	Carbon steel St37
Gearbox	SUMITOMO - Cycloidal
Scroll type	Ribbon eye (polyvalent)
Pond depth adjustment	Sliding weir plates
Wear protection – flights	Flame sprayed Tungsten Carbide
Wear protection - scroll feed outlets	Flame sprayed Tungsten Carbide
Wear protection - bowl discharge outlets	Replaceable hardened cast iron nozzles
Bearing temperature sensor	2 sensors installed on main bearings, EMKO Bayonet type thermocouples
Vibration control	Vibration dampeners delivered as a standard 1 sensor installed on the bowl bearing, IFM Efector800 - VKV021 type
Lubrication - bearings	Manual grease lubrication
Lubrication - gearbox	Manual lubrication (grease)
Tools / spare parts delivered with the machine	1 scroll lifting beam 2 bearing roller extractors 1 scroll thrust bearing extractor 2 extractors for motor casing and rotor 1 greasing set, 5 kg 1 set of wrenches 1 grease pump 1 tool box 1 set of belts



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Basic Properties

Bowl Diameter (mm)	353
Nominal Bowl Speed (rpm)	4200
Maximum Bowl Speed (rpm)	4500
Max G	3971
L/D Ratio	3,29
Scroll Design	Counter Current
Max. Diff. Speed (rpm)	22
Wash water (m³/h @ 4 barg)	4,5
Wash Duration (min)	5-10
Max. Vibr. (mm/s r.m.s.)*	3
Max. Noise Level (dBA)**	80

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Capacities in Municipal and Industrial Sludge Treatment

Dewatering of Biological Sludge

Capacity (m³/h)****	3 – 10
Nominal DS Load (kg/h)	150 – 500
Maximum DS Load (kg/h)****	600

	Main Drive	Scroll Drive	Gearbox Nominal Torque (kNm)
Configuration 1	15 kW - 2 Pole	4 kW - 2 Pole	1,25
Configuration 2	15 kW - 2 Pole	5,5 kW - 2 Pole	2,05

* Measured at the main bearings, under dry factory test.

** The average measurements of 8 diversified points from 1 m distance under dry factory test.

*** DDE 3532 has a conical angle of 15°.

**** Under best possible conditions. Please consult to HAUS before referring to these values.

Optional Items

Property	Description
Scroll Body Material	Duplex stainless steel 1,4470
Flights Material	Duplex stainless steel 1,4470
Wear Protection - Flights	Welded tungsten carbide or ceramic tiles for the complete length of the scroll
Wear Protection - Scroll Feed Outlets	Replaceable hardened cast iron nozzles - Ceramic nozzles Sintered tungsten carbide nozzles
Wear Protection - Bowl Discharge Outlets	Ceramic nozzles Sintered tungsten carbide nozzles
Automatic Lubrication of Bearings	Available upon request
Quartz Filling in the Frame	Available upon request
ATEX Compliance – Decanter	Available upon request (3 rd party certification possible)
ATEX Compliance – MCC & DCC	Available upon request (3 rd party certification possible)
Hydraulic Drive	Available upon request
IE2 Electric Motors	Available upon request
Other Voltage and Frequency	Available upon request
Spray System for Cleaning	Available upon request
CIP Package	Available upon request
Hot Applications Design(>80°C)	Available upon request

Weights Weight of the Machine: 17,6 kN Heaviest Components: Base Frame (7,8 kN), Rotor and Gear (4,3 kN)

