HAUS DDE 4042

Decanter centrifuge for sludge dewatering

HAUS DDE 4042 decanter centrifuge, supplied and supported in North America by Archer Separation Inc.



400 mm
Bowl diameter

4,000 rpm
Maximum bowl speed

3,555 g
G-force

30 + 11 kW
Main + back-drive motor, standard

2,700 kg
Total weight

OVERVIEW

The DDE 4042 is a two-phase decanter centrifuge with a horizontal solid bowl and a scroll conveyor that discharges the separated solids continuously. HAUS designed it for small municipal and industrial wastewater treatment plants and small potable water plants.

It removes most of the suspended solids from the feed and produces a drier cake. Two motors, each on its own variable frequency drive, turn the bowl and the scroll, so the bowl speed and the differential speed can both be changed while the machine runs.

HOW IT WORKS

The feed enters along the axis and is brought up to speed inside the bowl. Centrifugal force settles the solids against the bowl wall. The scroll, turning slightly faster or slower than the bowl, carries them to the conical end and out through the cake ports at a smaller radius, where they drain further.

The clarified liquid, the centrate, leaves over weir plates at the cylindrical end. The differential speed sets the solids conveying capacity and the cake dryness; the weir diameter sets the pond depth and the clarity of the centrate. The back-drive motor sets the scroll speed and can be adjusted during operation.

STANDARD SUPPLY FROM HAUS

- Decanter, stand-alone, two-phase, dual drive
- Control panel with PLC and variable frequency drives for the main and back-drive motors
- Set of tools
- Operator manuals

APPLICATIONS

- Municipal wastewater sludge
- Industrial wastewater sludge
- Sludge thickening
- Sludge dewatering
- Potable water plant residuals
- Aquaculture
- DAF float

KEY FEATURES

- High G-force from a slender bowl turning at high speed.
- Adjustable pond depth for positive, neutral or negative operation.
- Variable scroll differential speed, to handle changing solids loads at the cake dryness wanted.
- Dual drive: a main motor on the bowl and a back-drive motor on the scroll, each on a variable frequency drive, joined by a gearbox without a friction clutch.
- PLC with operator panel (HMI) for automatic operating modes, cake dryness and process settings, and alarms.
- Rigid steel base frame, epoxy painted, with vibration dampers and anchor plates for floor mounting.
- Stainless steel rotating parts; scroll flight tips and feed zone protected by sprayed hard-facing against wear.
- Double-wall stainless steel casing with a hinged cover for bowl inspection and cleaning, and separate guards over the drives for maintenance access.

TECHNICAL DATA

Configuration	Two-phase, dual drive, variable differential speed
Bowl diameter	400 mm
L/D ratio	3.99
Cone angle	15°
Maximum bowl speed	4,000 rpm
G-force	3,555 g
Hydraulic capacity, biological sludge	25 to 33 m^3/h [1]
Solids capacity	350 to 750 kg DS/h nominal; 850 kg DS/h maximum [1]
Main drive motor	30 kW
Back-drive motor	11 kW standard; 15 kW optional
Gearbox	Cycloidal or planetary, 3.15 kN·m nominal torque; 5 kN·m optional
Electrical supply	480 V or 600 V, 3-phase, 60 Hz, to suit the site
Noise level	LAeq ≤ 85 dB(A)
Total weight	2,700 kg; rotating assembly 750 kg
Dimensions L × W × H	3,848 × 1,000 × 1,114 mm (standard motors)
Clearance to lift the bowl	2,200 mm minimum
Feed inlet	Ø51 mm tube (DIN 11850) or DN 40 union (DIN 11851)
Polymer inlet; wash water	G 3/4 (ISO 228); 3/4 coupling (ISO 228)

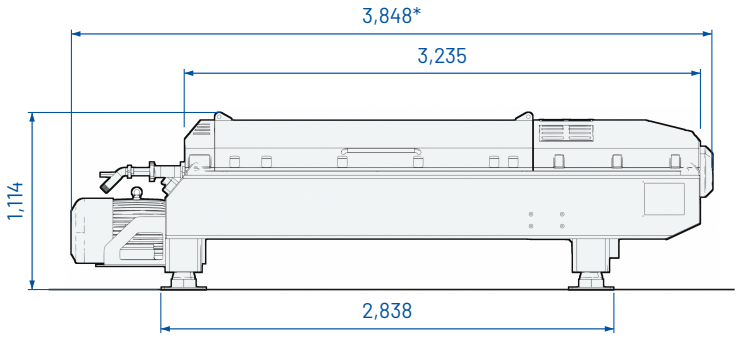
MATERIALS OF CONSTRUCTION

Bowl	Duplex stainless steel; super duplex optional; lean duplex for specific processes
Bowl wear liners	AISI 316Ti strips; super duplex optional
Scroll body and flights	AISI 304; AISI 316L, duplex or super duplex optional
Flight and feed zone protection	Hard-facing selected to suit the process
Solids discharge ports	Replaceable hardened cast iron bushings; sintered tungsten carbide optional
Casing	Double-wall stainless steel
Frame	Carbon steel, epoxy painted

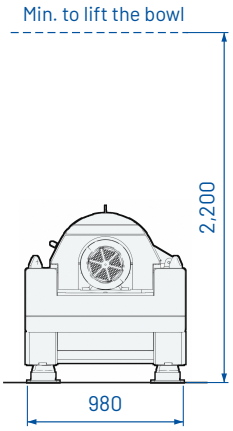
NORTH AMERICAN PACKAGE

- Main and back-drive motors supplied for the site voltage, 480 V or 600 V, 3-phase, 60 Hz.
- Control panel offered with a CSA or cUL label.
- Panel and field enclosures rated to NEMA / EEMAC types to suit the installation.
- Installation supervision, start-up, operator training, parts and service from Archer, Port Coquitlam, BC.

MAIN DIMENSIONS (MM)



SIDE VIEW



END VIEW

* Varies with the motor option.
2,838 × 980: outer edges of the mounting plates for floor anchorage.
2,200: minimum clear height above the floor to lift out the bowl.
Main dimensions from the HAUS dimension drawing; use that drawing for installation. All connections to the machine must be flexible.

OPTIONS SUPPLIED BY ARCHER

- Control panel with PLC, operator panel (HMI) and variable frequency drives for both motors.
- Cake discharge chute and diverter gate.
- Centrate chute and flexible connections.
- Polymer make-up and dosing system.
- Sludge feed pump, polymer pumps, valves, flowmeters and instruments.
- Automatic bearing lubrication.
- Remote monitoring of the machine and its process data.

[1] HAUS rating under the best conditions. Capacity depends on the sludge and the polymer; Archer confirms it for each project from tests on the sludge.