

Technical Specification DecaPress DP84-362 with HILLER-Hydraulic

■ Description

The Decanting Centrifuge with scroll comprises of the rotating bowl, consisting of a feed pipe, a cylindrical section where the separation of the suspension takes place and a conical section where the scroll removes the dewatered sludge, the housing enclosing the rotor, the base frame bearing rotor and housing, and the bowl and scroll drive systems.

■ Application

High dewatering of sludge. The continuous separation of a solid-liquid suspension in which the specific gravity of the liquid is less than the specific gravity of the solid is accomplished using high bowl speeds and low scroll differential speeds at high scroll torques.

■ Operating principle

The feed suspension enters the rotating feed compartment through the feed pipe. There it is accelerated in the direction of rotation and enters the rotating bowl via the feed ports in the scroll hub. The solid particles move towards the bowl wall of the cylindrical section under the effect of the centrifugal forces.

The settled solids are moved by the scroll to and through the conical section, at the end of which they are discharged through the discharge ports of the bowl as dewatered solids („cake“). The liquid effluent is discharged from the bowl over adjustable weir plates at the feed end.

The difference between bowl speed and scroll speed is defined as differential speed.

■ Bearing

The rotating bowl is supported by the main bearings, mounted in pillow blocks. Both pillow blocks are bolted and pinned to the base frame. The base frame is flexibly mounted on hollow rubber buffers.

■ Lubrication

Lubrication of the scroll bearing by grease lubrication, the main bearings are lubricated with an oil circulation system.

Hydraulic pump unit of the oil circulation system			
Type	K00409	Pump unit electric motor	
Conveyor pump	Constant flow pump	Output	0,37 kW
Conveyor current	9 litres/minunte	Rotation speed	1500 rpm
Hydraulic pressure	25 bar	Voltage	230/400 V (50 Hz)
Max. permanent pressure	10 bar	Type	71M
Tank volume	100 litres	Design	B5
Weight (without oil)	125 kg	Type of protection	IP55
Cooling water	max 5l /min (up to 20° ambient temperature)		
dimensions (h x l x w)	820x1020x420 mm		

Subject to technical modifications without prior notice!

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Machine data

Inside bowl diameter	835 mm	Length	5040 mm
Bowl length	3056 mm	Width	2320 mm
Max. bowl speed	2600 rpm	Height	1800 mm
Acceleration	3154 x g	Weight of the machine	160.9 kN
Ratio of bowl length to diameter	3.6	Weight of the machine without quartz sand filling	142.0 kN

Standard Materials

Parts in contact with process-product		Carbon steel version
Bowl material		1.8915
Screw conveyor material		1.0552 / 1.0570
Housing material		1.0038
Parts not in contact with process-product	Carbon steel, cast steel	
Bolts in contact with process-product (if mechanically possible from the static) are in stainless steel (A4-80).		

Wear protection

Part		Standard	Options (examples only)
Scroll	Feed chamber	Replaceable PU pot	TC flamesprayed
	Flight face	TC flamesprayed	Replaceable HM tiles
	Feed ports	Replaceable PU bushings.	Replaceable HM bushings.
Bowl	Discharge ports	Replaceable HM bushings.	-

PU=polyurethane / HM= hard metal / TC= tungsten carbide

Seals

Scroll bearing	Slide ring seal
Main bearings	Labyrinth seal
Housing	Labyrinth seal

Paint finish

Application	Type	Tint	Min.dry-coat thickness
Priming	Two-component metal-prime on the basis of epoxy resin with active protection against corrosion	dull grey	40 µm
Top coat	two-component polyurethan-structure varnish half-shiny, structure medium	RAL 5002 ultramarine-blue	60-80 µm
Bowl/Scroll (Carbon steel version only)	Coating with Inertol Poxitar SW	black	50 µm

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■ Bowl drive

The bowl is driven by means of an electric motor via V-belts, in combination with a frequency converter (by others) for start-up and bowl speed adjustment.

Bowl drive motor	
Output	160 kW
Rotation speed	1500 rpm
Voltage	400/690 V (50 Hz)
Type	315M
Design	B3
Type of protection	IP55

■ Scroll drive

The hydraulic drive creates a differential speed between the bowl and the scroll. The hydraulic motor is mounted inside the bowl and the drive shaft of the hydraulic motor is connected to the scroll. The hydraulic motor is powered by a hydraulic pump unit. The hydraulic pump unit is typically located close to the centrifuge.

Continuous control of the hydraulic pump pressure enables instantaneous, step-less torque adjustments to maintain the differential speed, independent of the bowl speed. The variations in the feed properties can be compensated and optimal centrifuge performance is maintained.

Hydraulic pump unit			
Type	PAR 450110	Pump unit electric motor	
Control system	HMR 5000	Output	45 kW
Feed Pump	Variable axial piston pump	Rotation speed	1485 rpm
Flow rate	110 ltr/min	Voltage	400 V (50 Hz)
Hydraulic pressure	300 bar	Type	225 M
Max. permanent pressure	250 bar	Design	B5
Tank volume	250 ltr	Type of Protection	IP55
Cooling water throughput	max 42 ltr/min (up to 20° ambient temperature)		
Weight (without oil)	670 kg		
Dimensions (H x L x W)	1400 x 1150 x 700 mm		

■ Control system HMR 5000

- Real control system with set point-actual value comparison.
- Individually programmable pressure-dependent control characteristic in two parameter sets.
- Permanent display in a graphics-touch panel of all important process values such as bowl speed, differential speed, hydraulic pressure, oil temperature.
- 2 programmable limit values for hydraulic pressure.
- Trend analyses over differential speed, hydraulic pressure and oil temperature are retrievable.