

TECHNICAL SPECIFICATION DECAPRESS DP45-422 WITH HILLER-HYDRAULIC

DESCRIPTION

The Decanting Centrifuge with screw conveyor is made up of a rotating bowl, which consist of a feed pipe, a cylindrical section where the separation of the suspension takes place and a conical section where the screw conveyor removes the dewatered sludge.

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 and low screw conveyor speeds at high torque of the screw conveyor.

FUNCTION

The feed suspension enters the rotating feed compartment through a feed pipe. The suspension is accelerated in the feed compartment in the direction of rotation and enters the rotating bowl via the feed ports. The solid particles move towards the bowl wall of cylindrical section under the effect of centrifugal forces. The dewatered solids are moved by the screw conveyor via the conical section and discharged through the discharge ports of the bowl. The liquid effluent is discharged from the bowl over weir plates at the feed end. The difference between the bowl speed and the screw conveyor speed is defined as differential speed.

BEARING

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

LUBRICATION

Lubrication of the main bearing and the screw bearings by grease lubrication.

We reserve the right to technical modifications!

DATA OF THE CENTRIFUGE

Inside bowl diameter	450 mm
Bowl length	1964 mm
Max. bowl speed	3800 rpm
Acceleration	3610 x g
Ratio of bowl length and diameter	4.3
Weight of the machine	36.5 kN
Weight of the machine without quartz sand fill	32.0 kN
Length	3192 mm
Width	1470 mm
Height	1133 mm

MATERIAL

Parts in contact with process product	Stainless steel (with alternative)	Carbon steel (with alternative)
Bowl material	1.4462 / 1.4571	St52.0 / 1.0425
Screw conveyor material	1.4408 / 1.4301	St52 / St37
Housing material	1.4301	St37
Special material	1.4571 (AISI: 316Ti)	-
Parts not in contact with process product	carbon steel, cast steel	
Screws in contact with process are of stainless steel (A4-80) (if allowable by static analysis)		

WEAR PROTECTION

centrifuge parts	Standard wear protection	Special wear protection
Screw conveyor / feed chamber	hardsurfacing with flame sprayed tungsten-carbid powder	hard-surfacing with flame sprayed tungsten-carbid powder
screw conveyor / vane		replaceable plates of material from sintered tungsten-carbide
screw conveyor / inlet openings		replaceable bushings of material from sintered tungsten-carbide
bowl / openings discharge		

SEALS

Screw bearing	radial shaft seal
Main bearing	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 semigloss, structure medium	RAL 5002 navy-blue	60-80 µm
bowl and screw conveyor coat	Inertol-Poxitar sw - only carbon steel machine type	black	50 µm

BOWL DRIVE

The centrifuge is driven with V-belts by means of an electric motor, in combination with a frequency converter (sometimes by others) for variable bowl speed.

Data of the electric motor	
output	30 (37) kW
rotation speed	3000 rpm
voltage	400/690 V (50 Hz)
type	200L
design	B3
type of protection	IP55

SCREW DRIVE

The hydraulic drive creates a differential speed between the bowl and the screw conveyor. The hydraulic motor is mounted inside the bowl and the drive shaft of the motor is connected to the screw conveyor. The hydraulic motor that rotates with the bowl is powered by a hydraulic pump unit that creates the differential speed. The hydraulic pump unit is located close to the centrifuge. The sedimentation of solids in front of the flights of the screw conveyor causes changes in torque on the screw conveyor. Varying the hydraulic pump pressure enables smooth adjustment to maintain the differential speed, independent of the bowl speed, to adjust for the torque demands on the screw conveyor.

Data of the hydraulic motor	
type	D18JD/45
max. rotation speed	4200 rpm
max. permanent torque	7400 Nm (at 250 bars)
differential speed	1-12 rpm

Data of the hydraulic pump unit	
type	PAR 11023
control system	EMR 3000
feed pump	variable axial piston pump
flow rate	23 ltr/min
hydraulic pressure	300 bars
max. permanent pressure	250 bars
electric motor	11 kW
voltage	400/690 V (50 Hz)
type of protection	IP55
tank volume	70 ltr
cooling water throughput	100-500 ltr/h (at max. 20°C)
weight (without oil)	190 kg
dimensions (height x length x width)	1150x815x465 mm

CONTROL SYSTEM EMR 3000

- P Real control system with set point-actual value comparison.
- P Individually programmable pressure-dependent control characteristic.
- P Permanent display of all important process values such as bowl speed, differential speed, hydraulic pressure, oil temperature.
- P 2 programmable limit values for hydraulic pressure.
- P Trend analyses over variable rate units are retrievable.