

## 3. Description

### 3.1 Technical description

#### 3.1.1 Technical data, centrifuge:

The new sludge dewatering / thickening “DecaSmart” is designed for the following parameters:

Decanter flow rate:	up to max. 23m <sup>3</sup> /h
Max. solids load:	1000kg/h DR
Temperature:	40°C
Max. chloride portion:	800ppm
pH-value:	7.0

Caution: at other temperatures, the pH and chloride limit values also change

#### Flocculant station:

Throughput capacity, FHM pump:	min. 300 – max. 3100 l/h
Preparation concentration:	0.1 – 0.5 %
Flocculant product:	liquid
Tank size:	1000l

#### Dimensions and weight:

Outer dimensions (L x W x H):	5550 x 2150 x 2100 mm
Transport weight:	6000kg (with optional swivelling conveyor 6500kg)

#### Connections:

- sludge (suction connection) flange DN80 PN10 (DIN EN 1092-1)
- centrate (suction connection) flange DN200 PN10 (DIN EN 1092-1)
- water connection flange DN40 PN10 (DIN EN 1092-1)
- residual water outlet flange (pressureless) DN150 PN10 (DIN EN 1092-1)
- solids discharge via trough conveyor
- electrical connection
  - 400V 50Hz
  - 80A
  - approx. 50kW

### 3.1.2 Technical data, pumps:

#### 3.1.2.1 Feed pump:

Manufacturer:	NETZSCH*
Type:	NM053BY
Flow rate Q [m <sup>3</sup> /h]:	3.00 – 23.00
Speed [rpm]:	47.00 – 341.00
Installed power [kW]:	4.0
Expected operating pressure [bar]:	2.0

#### 3.1.2.2 Polymer solution pump:

Manufacturer:	NETZSCH*
Type:	NM031BY01L06B
Flow rate Q [l/h]:	300 - 3100
Speed [rpm]:	37.00 - 393.00
Installed power [kW]:	0.75
Expected operating pressure [bar]:	2.0

#### 3.1.2.3 Polymer concentrate pump:

Manufacturer:	NETZSCH*
Type:	NM011
Flow rate Q [l/h]:	15.00-100.00
Speed [rpm]:	108.00-631.00
Installed power [kW]:	0.37
Expected operating pressure [bar]:	2.0

\* (or comparable)

<b>Machine type</b>	<b>DP45N-422</b>	
Machine data	Max. operating speed [min <sup>-1</sup> ]	3500
	Permissible density of the feed suspension [kg/m <sup>3</sup> ]	1.3
	Bowl inside diameter [mm]	450
	Bowl wall thickness [mm]	11
	Bowl material	1.4392
	Min./max. product temperature [°C]	0/50
	Max. machine torque [Nm]	6500
	Max. operating pressure [mbar]	100
Dimensions	Length x width x height [mm]	3550X1250X1050
Total weight	Without fillings [kg]	2800
Heaviest individual part	Rotor with differential speed drive [kg]	900
<b>Minimum force for lifting gear for repair and maintenance work (assembly/disassembly of the rotor) [kg]</b>		<b>900+300</b>
<b>Bowl drive</b>	<b>Electric motor (main drive)</b>	
	Frame size	225M
	Output [kW]	45
	Efficiency class	IE3
	Speed [min <sup>-1</sup> ]	3000 Upm
	Voltage [V]	400 V
	Frequency [Hz]	50 Hz
	Degree of Protection	IP55
	Ø Motor pulley [mm]	224
	Ø Rotor pulley [mm]	218
	Ratio i =	0,97
	Number of cams	2
<b>Scroll drive</b>	<b>Electric motor</b>	
	Frame size	160
	Output [kW]	15
	Efficiency class	IE3
	Speed [min <sup>-1</sup> ]	3000
	Voltage [V]	400 V
	Frequency [Hz]	50 Hz
	Degree of Protection	IP55
	Ø Motor pulley [mm]	200
	Ø Rotor pulley [mm]	200
	Ratio i =	1,0
	Number of cams	2

	<b>Gearbox</b>	<b>DD 065/163</b>
	Ratio i =	163,48
	Filling capacity [cm <sup>3</sup> ]	See list of lubrication points
<b>Differential speed control</b>	<b>Electronic control system (SEE-Control)</b>	
	Min. Differenzdrehzahl [min <sup>-1</sup> ]	0,5
	Max. Differenzdrehzahl [min <sup>-1</sup> ]	15
<b>Lubrication</b>	Main bearings	Grease nipples(see list of lubrication points)
	Scroll bearings	Lubrication nipple (see list of lubrication points)
	Electric motors	See manufacturers data
	Gearbox	See manufacturers data and list of lubrication points
<b>Safety devices</b>	<b>Vibration monitoring</b>	ESW-Mini C-014
	Pre alarm [mm/s]	17
	Software shut down [mm/s]	19
	Hardware switch off [mm/s]	21
	<b>Over speed monitoring</b>	Speed monitor ÜDS1 Inductive speed sensors for capturing the bowl and scroll speed
	<b>Main bearings temperature monitoring</b>	Resistance thermometer PT100
	Pre alarm [°C]	105
	Software shut down [°C]	115
<b>Scope of supply</b>	Frequency converter	Yes
	Remote modem	No
<b>Summary of machine specification</b>		
	Scroll design	Counterflow
	Third phase discharge	not available
	Bowl wear protection	Hard-metal bushings
	Reamer	No
	Scroll wear protection	Guronit bushings
	Cone angle [°]	10
	Suitable for food application	No

Environmental influence factors evaluated according to DIN EN 60721-3-3	
Climatic ambient conditions	Class 3K3
Temperature	+5 °C ... +40 °C
Atmospheric moisture (relative)	5% ... 85%
Weather protection for outdoor operation	Protection against rain, snow, sunlight and temperatures below +5°C
Chemically active substances	Class 3C1

