

# Technical Specification DecaPress DP574 with SEE-Drive

## ■ 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 main bearings and the scroll bearing is by grease lubrication.

**Subject to technical modifications without prior notice!**

## Technical Specification DP574 with SEE-Drive

## ■ Machine data

|                                  |                      |
|----------------------------------|----------------------|
| Inside bowl diameter             | 570 mm               |
| Bowl length                      | 2545 mm              |
| Max. bowl speed                  | 3250 rpm             |
| Acceleration                     | 3345 x g             |
| Ratio of bowl length to diameter | 4,4                  |
| Equivalent clarification area    | 11482 m <sup>2</sup> |
| G-volume (cyl.)                  | 1062 m <sup>3</sup>  |

|                                                   |         |
|---------------------------------------------------|---------|
| Length                                            | 4478 mm |
| Width                                             | 1510 mm |
| Height                                            | 1065 mm |
| Weight of the machine without quartz sand filling | 55,5 kN |

## ■ Standard Materials

|                                                                                                                                                     |                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Parts in contact with process-product                                                                                                               | Stainless steel version        |
| Bowl material                                                                                                                                       | Duplex steel                   |
| Scroll material                                                                                                                                     | 1.4404 / 1.4408 / Duplex steel |
| Housing material                                                                                                                                    | 1.4404                         |
| 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); special materials in consultation. |                                |

## ■ Wear protection

| Part   |                        | Standard                                     |
|--------|------------------------|----------------------------------------------|
| Scroll | Feed chamber           | Replaceable chill casting acceleration plate |
|        | Flight face            | TC flame-sprayed                             |
|        | Feed ports             | Replaceable chill casting bushings           |
| Bowl   | Solids discharge ports | Replaceable chill casting bushings           |

## ■ Seals

|                |                               |
|----------------|-------------------------------|
| Scroll bearing | Radial shaft seal             |
| Main bearings  | Labyrinth- and lamellar rings |
| Housing        | Vapour-proof                  |

## ■ 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 7015  | 60-80 µm               |

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### ■ Bowl drive

The centrifuge bowl is driven by an electric motor with a system-installed frequency converter (variable bowl speed).

| Electric motor data |                  |
|---------------------|------------------|
| Output              | 45 kW            |
| Rotation speed      | 1500 rpm         |
| Voltage             | 400/690 V (50Hz) |
| Type                | 225 S            |
| Design              | B5               |
| Type of protection  | IP55             |

### ■ Scroll drive

The differential speed between bowl and scroll is generated by the HILLER SEE-Drive. The SEE-HILLER Drive bases on bowl speed independent generation of the differential speed. It consists of two electric motors and a gearbox.

| Gearbox data       |             |
|--------------------|-------------|
| Type               | VVE2 1500/4 |
| Gear ratio         | 179         |
| Differential speed | 1-15 rpm    |
| Torque             | 15.000 Nm   |

| Electric motor data |                   |
|---------------------|-------------------|
| Output              | 15 kW             |
| Rotation speed      | 1500 rpm          |
| Voltage             | 400/690 V (50 Hz) |
| Type                | 160 MLA           |
| Design              | B5                |
| Type of protection  | IP55              |

### HILLER SEE-Control system

- Switchable local operating mode for operation on the device and remote operation mode  
Operation via the terminal strip (master PLC)
- Simple operation with plain text display: multiple languages selectable
- Complete process visualization of the centrifuge (bowl speed, drive load, differential speed)
- Ability to enter the bowl speed, differential speed, control parameters, etc.
- Torque dependent regulation of the differential speed
- Generation of a clearing speed below a preselectable bowl speed
- Manual operation mode with manually preselectable differential speed
- Generation of 4 parameter sets for different products
- Trend analysis of the drum speed, differential speed, bearing temperature, vibration, drive power
- Online fault diagnosis with plain-text error log
- Password protection of the operating data
- Digital and analog in- and outputs for the comprehensive operation of the device by a master PLC via the terminal strip

