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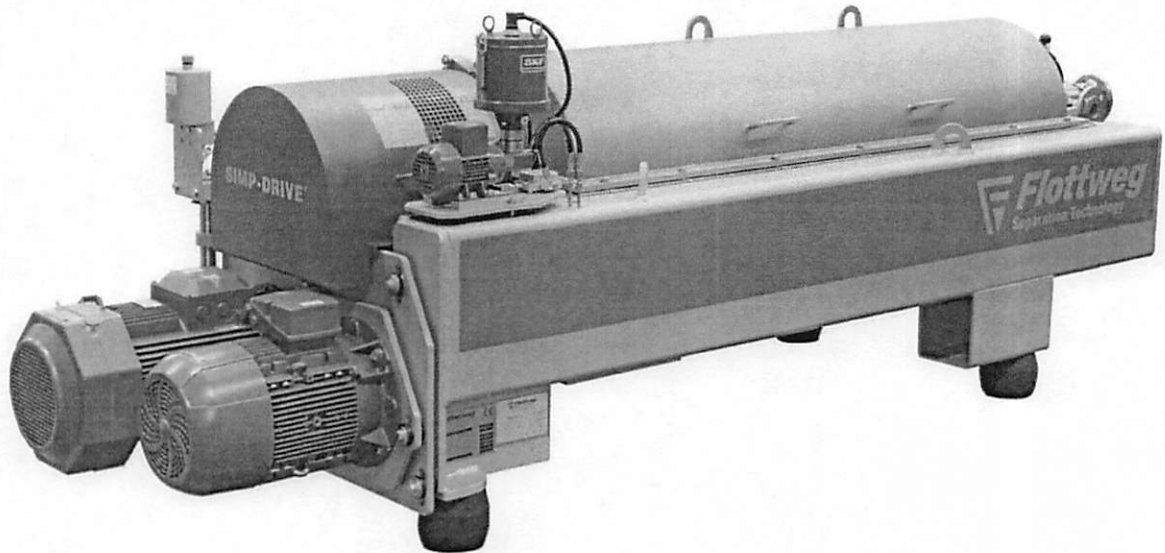
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Offer No. 118993

Project: Production Waste Solutions – Waste Oil

FLOTTWEG TRICANTER Z5E-4/441 with SIMP-DRIVE® SP 4.12



(Sample photo - can differ from the offer)

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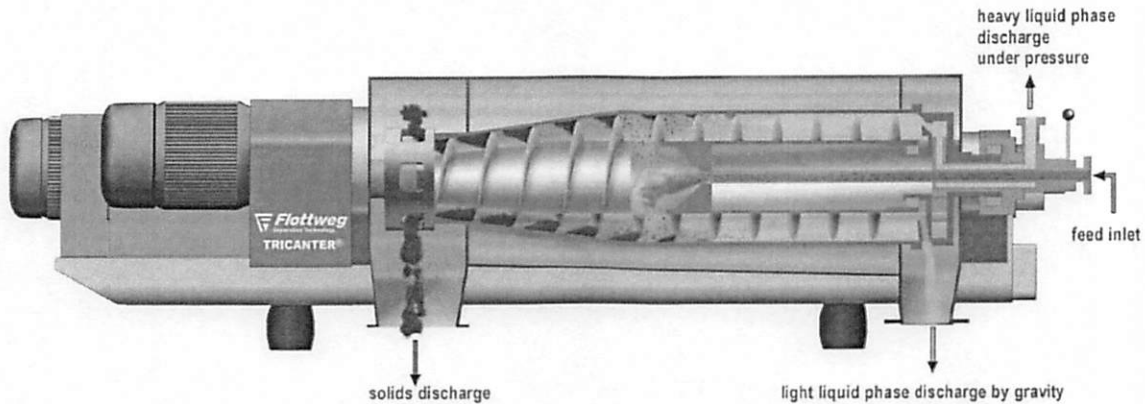
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118993 Production Waste Solutions Waste Oil Z5E-4-441

Technical description



Flottweg Tricanter® Z5E-4/441 with SIMP-Drive® SP 4.12

Horizontal, cylindrical/conical solid bowl centrifuge for the continuous separation of a three-phase mixture of two liquids with different densities, and one solid having a higher density than both liquids. The heavy liquid phase is discharged under pressure at the cylindrical end of the bowl using an adjustable impeller. The lighter liquid phase is discharged over a ring dam via gravity at the cylindrical end. The adjustable impeller allows the end-user to adjust accurately and precisely the liquid-liquid separation interface inside the machine during operation. The dewatered solids are conveyed to the conical end of the bowl where they are discharged through ports via centrifugal force.

Technical Data:

Bowl ID	530 mm
Diameter/Length ratio	1 : 4
Cone angle	8°
Volume	219 litres
Length/width/height	approx. 4500 x 1600 x 1150 mm
Weight	approx. 6200 kg
Bowl speed	3500 rpm (variable)
Max. acceleration factor	3600 x g
Differential speed	1 - 20 rpm (variable)
Max. scroll torque	13000 Nm

118993 Production Waste Solutions Waste Oil Z5E-4-441**Design for operation in hazardous area class 1; division 2
electrical equipment with certification according to either CSA, UL or FM**

The proposed centrifuge is only suitable for processing products which, during all process conditions, do not create any gases, vapours, mists, or dusts in concentrations that in combination with air could generate an explosive atmosphere.

For that reason, it must be ensured that the flash points of the feed stream and all discharged product streams are at least 15 K higher than the processing temperature and that these same flash points are a minimum of 75 C!

The required safety margin of 15 K is based on the national technical guideline of industrial safety TRBS2152.

Materials:

Product touched & supporting bowl parts:	Duplex stainless steel 1.4463 with improved grade (equal to 2205)
Scroll:	Stainless steel 1.4408 and 1.4571 / 1.4404 (Equal to CF-8M and 316 Ti / 316 L)
Other product touched component parts:	Stainless steel 1.4571 / 1.4404 or similar (equal to 316 Ti / 316 L)
Belt guard:	Stainless steel 1.4301 (equal to 304)
Other, not product touched component parts:	Carbon steel, painted

Drive system**Bowl drive****Flottweg SIMP-Drive®**

Electric motor with V-belt drive.
Initial and operating speed settings via frequency inverter (inverter not included herein).

Scroll drive

Co-rotating, multi-stage planetary gear with electric motor and V-belt drive. A special coupling step within the gear enables entirely independent operation of the scroll drive from the bowl drive. The gear is easily accessible, and is mounted away from the bearing blocks and the process area. Differential speed and overload cut-out are electronically controlled by scroll torque feedback via an analogue signal from the frequency inverter (inverter and control are not included herein).

118993 Production Waste Solutions Waste Oil Z5E-4-441**Wear protection**

Scroll flight:	The leading edges of the scroll are protected with heat applied tungsten carbide spray.
Feed ports:	Protected with hard cast wear bushings
Bowl inside:	Stainless steel strips in longitudinal direction
Bowl outside:	Screwed-on wear resistant hard metal segments
Solids discharge:	Ports are protected with hard cast wear bushings
Solids housing:	Protected with tungsten carbide coated liner

All wear bushings, hard metal wear segments, and wear liners in the solids housing is field replaceable.

Lubrication

Rotor bearings are lubricated using a manually operated central lubrication system. Grease is distributed proportionally to all main lubrication points through a manifold and stainless-steel tubing by using a manually actuated special piston distributor.

Grease supply: 1 kg

The scroll bearings are manually grease lubricated while the centrifuge is not in operation.

Housing:

- Horizontally segmented housing
- Housing lid hinged, with lifting assisting cylinders
- Cover sealed with a shaped, flexible gasket

Sealing System

Both shaft ends of the rotor are sealed with a labyrinth or shaft seal rings. Scroll bearings are provided with slide ring seals.

Static seals: FKM

Scroll bearing seals: FKM

Tools and lubrication material:

Standard tool in tool bag for regular service and operation works.

Lubrication material for min. 3 months of operation for all lubrication points.

Sound Insulation:

The centrifuge is equipped with sound insulation.

The rotor base is filled with sand, the underside is closed. The belt guard is lined with sound absorbing material.

118993 Production Waste Solutions Waste Oil Z5E-4-441**Painting**

in accordance with Flottweg specification "Surface protection for Flottweg Decanters"

Color RAL 5007 – brilliant blue

Color RAL 7011 – iron grey

Color RAL 9006 – white aluminum

Covers:

Drive belt guard is designed in accordance with EN guidelines.

Rotor Base:

Welded carbon steel design with rubber isolators mounted underneath the rotor base to dampen vibration induced movement.

(1) Electrical drive motor for bowl (supplied by FW USA)

Rated output: 60 hp

Voltage/frequency: 460 V / 60 Hz

Speed: 1800 rpm

Enclosure: IP 55

Starting: VFD in Master Control Panel

(1) Electrical drive motor for scroll (supplied by FW USA)

Rated output: 30 hp

Voltage/frequency: 460 V / 60 Hz

Speed: 1800 rpm

Enclosure: TEFC

Starting: VFD in Master Control Panel

(1) Master Control Panel (to be in a non-hazardous non-rated area)

NEMA 12 painted steel cabinet that will include the master power disconnect and distribution circuit, house Variable Frequency Drives, a system control PLC, speed measuring device, common fault horn, power on light, emergency stop push button and miscellaneous electronic devices to control the centrifuge. Intrinsically safe barriers will be in the panels. The panel will be wired and PLC will be programmed with operational and cleaning sequences to facilitate safe operation and optimal processing results. Wiring between the master control panel, the local operator station, motor junction boxes and the decanter signal junction box is not included and is part of the installation scope of work. The master control panel offer herein needs to be located in a safe area within a temperature controlled environment; other options are available.

60 HP Main Bowl, VFD (included in Master Control Panel above)

30 HP Conveyance Scroll, VFD (included in Master Control Panel above)

118993 Production Waste Solutions Waste Oil Z5E-4-441**Local Operator Panel (Flottweg Standard Controls offered)**

NEMA 4X stainless steel cabinet, for installation in C1D2 area adjacent to the machine, that will provide a local E-Stop and house a color touchscreen to control all functions of the centrifuge. The display will communicate with the PLC that is located in the Control panel, located in a controlled environment. Wiring between the local operator panel and control panel is not included. Instructions for inter-connection and wiring diagram will be provided.

In addition to the centrifuge system controls, the following items shall be integrated into a single control cabinet.

- Ewon Cosy wireless card with antenna
- Feed pump VFD 10 hp
- Oil pump VFD 7.5 hp
- Centrate pump VFD 7.5 hp

(1) Differential Speed and Bowl Speed Sensors**(1) Vibration Monitoring****(1) Main Bearing Temperature Sensors****(1) Solids Compensator**

(Flexible boot to contain dry materials as the free fall into the collection hopper)

(1) set Flexible Connectors for:

For feed and liquid phase effluent, DIN to ANSI- Flanges

- Feed connection
- Discharge heavy phase
- Discharge light phase
- Polymer feed connection
- Condensate drain
- Flush connections

(1) Dosing Device**(1) Scroll Lifting Device**

With the lifting device different centrifuge components can be mounted safely by using a crane.

(1) Mounting device for scroll

For demounting and mounting of the scroll.

(1) 3 Days of Onsite Training and Commissioning Services