



GEA crude oil Dehydrator

Technical data | Crude oil treatment



Operating principles and constructional features

The new generation of GEA crude oil Dehydrators has been designed specifically for crude oil applications and covers the entire range of possible capacities.

The centrifuges are built for high performance by incorporating the know-how of more than 50 years of successful operation in the Canadian oil sands industry into this dehydration centrifuge design. Robustness, high efficiency, ease of use and predictable maintenance costs are some of the main advantages.

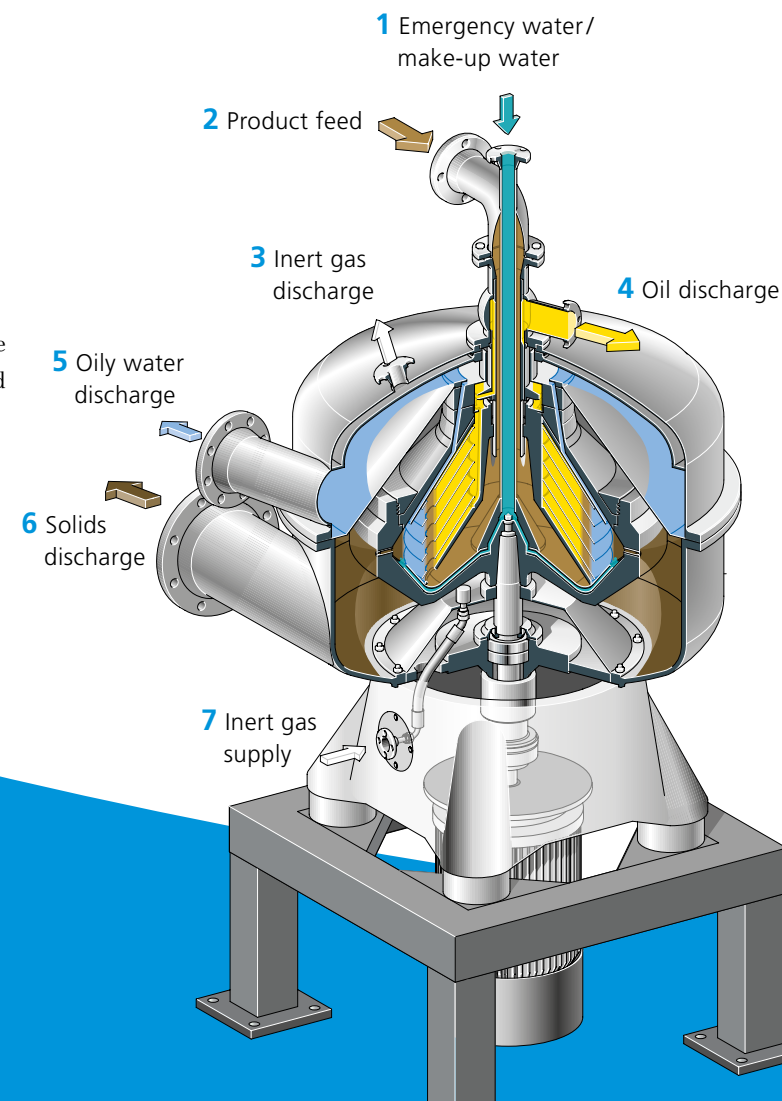
The high-speed disk stack centrifuges are equipped with continuously discharging nozzle bowls for the purification of liquid mixtures with simultaneous removal of solids. GEA crude oil Dehydrators are available with a direct driven or with a belt driven bowl. The drive motor is a 3-phase low voltage AC Motor.

The product is fed into the machine through a closed-line system. Within the rotating bowl, the untreated crude oil is separated from water and fine particles and then discharged under pressure by a centripetal pump into the treated oil tank. The water phase flows to the outer periphery of the bowl and is discharged by a second centripetal pump (version 130) or through the centrifuge hood (version 260).

The main application of the centrifuges are the upstream crude oil dehydration. In downstream applications, the centrifuges are well placed for the processing and dehydration of rag layers and slop oils. Crude oils with a specific gravity of 0.98 (API 12) can be processed efficiently.

Features

- Direct or flat belt drive for optimum energy efficiency and low service costs
- Flexible adjustment of the separating zone for maximum separation efficiency of the liquid phases
- Special wear protection including replaceable wear liners
- All product containing parts are made from high-grade stainless steel material
- Space-saving design
- ATEX compliant for the operation in ATEX Zone 1 and Zone 2 environments
- Possibility to connect to condition-based monitoring systems

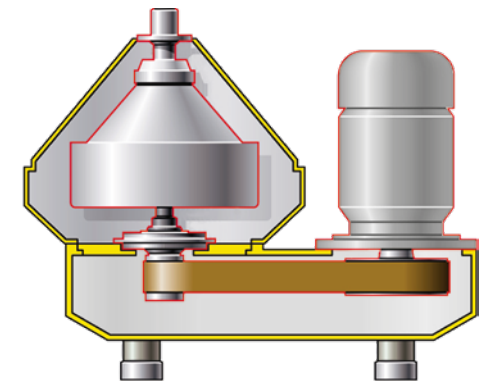


Drive concepts

GEA offers two different drive concepts for separators: flat belt drive and direct drive.

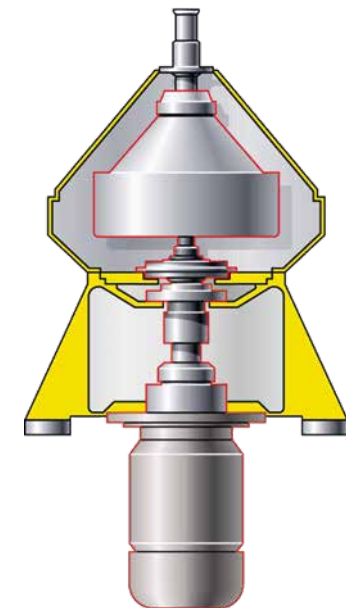
Flat belt drive

In this solution, the motor power is transmitted to the spindle by means of an antistatic flat belt. The oil circulation lubrication ensures that the bearings are constantly lubricated, which is why the separator does not have to be switched off for an oil change. Compared to gear drives that are still used in older models, motor power is transmitted with up to 10 % less power loss. The belt itself can be quickly and easily serviced, without having to dismantle the bowl or motor first.



Direct drive

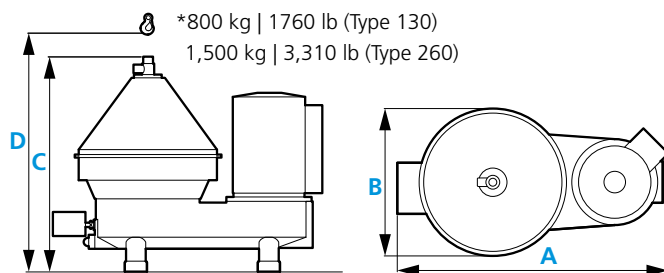
The direct drive is an example of intelligent simplification in separation technology. Wherever the upper limit for gear loads has been reached or belt drives are undesirable, GEA separators with direct drive enable almost lossless power transmission. This increase in performance simultaneously reduces the costs of energy, wear, maintenance and space. The required power is transmitted directly to the bowl spindle by a 3-phase AC motor via a torsionally elastic clutch. The spindle assembly is also supported by rubber-metal cushions, allowing for low-vibration running at high bowl speeds.



Technical data

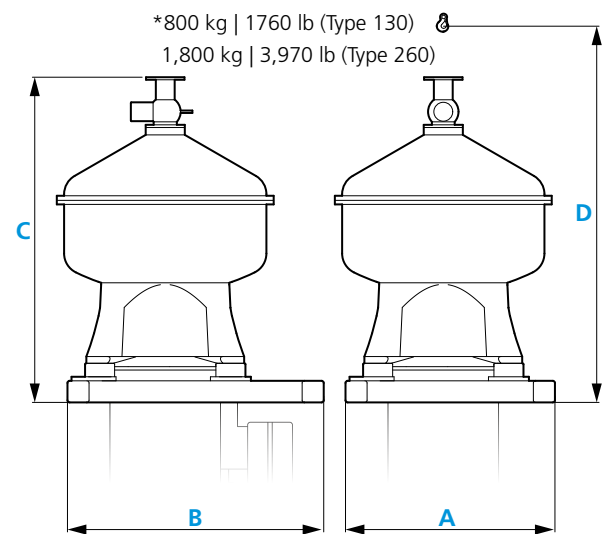
GEA crude oil Dehydrator	130	260
Max. capacity	150 m³/h 22,500 BPD	250 m³/h 37,700 BPD
Rated bowl speed [rpm]	4,500 rpm	3,300 rpm
Bowl volume	80 l 21 gallon	145 l 38 gallon
Max solids load [% v/v]	≤ 5	≤ 5
Water export capacity	≤ 40% of feed	≤ 40% of feed
Oil export capacity	≤ 100% of feed	≤ 100% of feed
Operating temperature	5 - 110 °C 41 - 230 °F	5 - 110 °C 41 - 230 °F
Flange rating	ASME B 16.5 150 lbs	ASME B 16.5 150 lbs
Auxiliary Requirements		
Motor rating [kW]	132 (belt drive), 200 (direct drive)	250
Nitrogen feed pressure	Min 3 bar(g) 43.5 PSI	Min 3 bar(g) 43.5 PSI
Weights		
Centrifuge, complete	4,500 kg 9,921 lb	6,500 kg 14,330 lb
Centrifuge bowl	750 kg 1,650 lb	1,700 kg 3,750 lb

Dimensions in mm | inch



Type	A	B	C	D
130BD	2,140 84	1,700 67	2,050 81	2,050 81
260BD	2,800 110	1,920 76	2,680 105	3,400 134

*Minimum lifting capacity for removing the bowl



Type	A	B	C	D
130DD	1,850 73	1,940 76	2,540 100 4,660 183**	3,350 132 4,940 194**
260DD	1,920 76	2,060 80	2,500 98 4,630 182**	3,400 134 4,830 190**

* Minimum lifting capacity for removing the bowl

** Installation on frame

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