GEA crude oil Desalter

Technical data | Crude oil treatment

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Operating principles and constructional features

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

The centrifuges are characterized by high motor performance and optimum dynamics with low energy consumption. Other advantages include high reliability, ease of use and low maintenance costs.

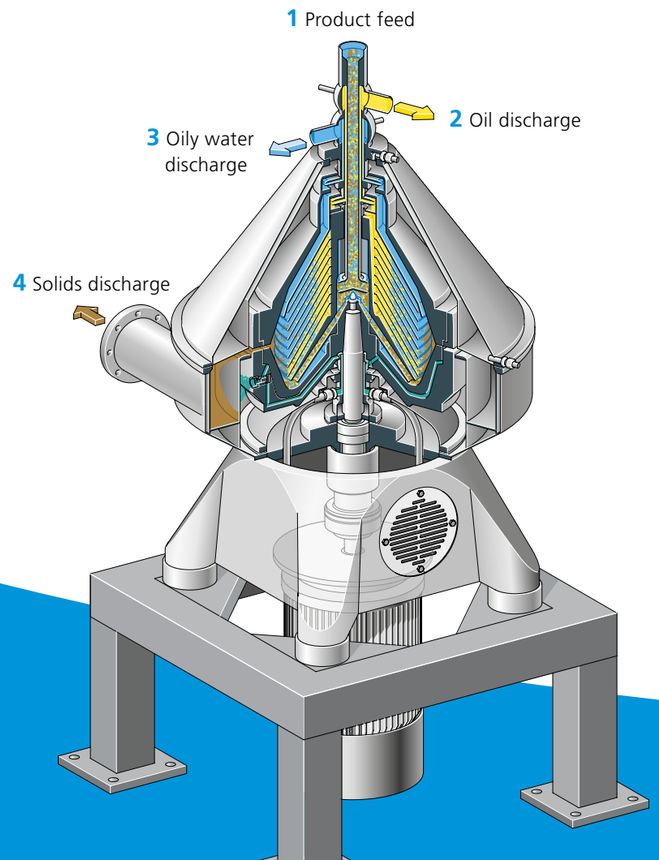
The high-speed disk stack centrifuges are equipped with self-ejecting bowls for the clarification of liquids, or for the purification of liquid mixtures with simultaneous removal of solids. The GEA crude oil Desalter 200 is available with direct drive, both the versions 80 and 120 are available as belt-driven machines.

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. The water phase flows to the outer periphery of the bowl and is discharged by a second centripetal pump. The separated solids are periodically discharged by the hydraulic system of the bowl through discharge ports.

The main application of the centrifuges is the downstream crude oil desalting, but depending on the solids load in the feed, the centrifuges can also be used in upstream processes for crude oil dehydration. 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
- Closed feed and discharge for the product phases
- 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

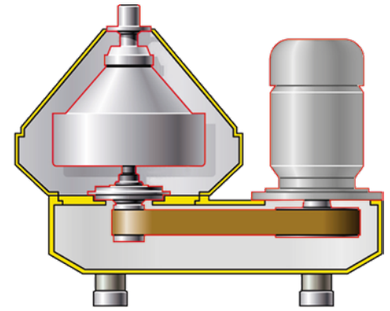


Drive concepts

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

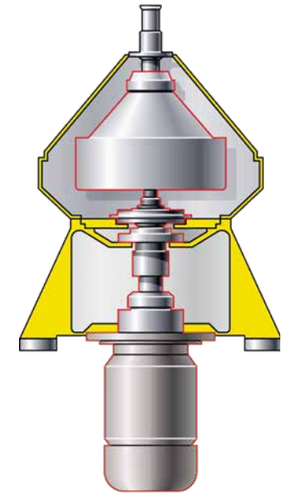
Flat belt drive

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.



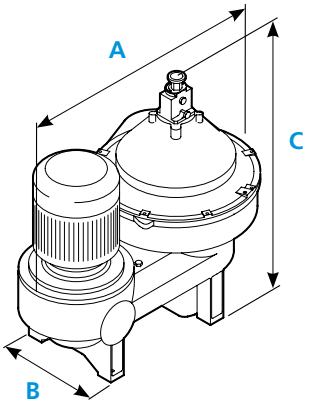
Direct drive

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.



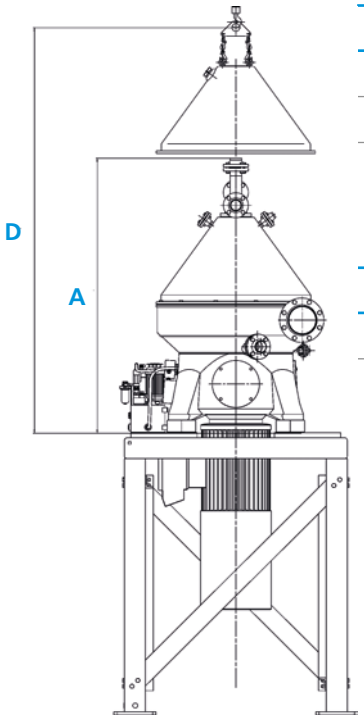
Technical data

GEA crude oil Desalter	80	120	200
Max. capacity	45 m³/h | 6,795 BPD	70 m³/h | 10,570 BPD	100 m³/h | 15,100 BPD
Rated bowl speed [rpm]	5,900	5,200	4,500
Bowl volume	23 l | 6 gallon	33 l | 9 gallon	63 l | 17 gallon
Max solids load [% v/v]	≤ 0.1	≤ 0.1	≤ 0.1
Water export capacity	≤ 40 % of feed	≤ 40 % of feed	≤ 40 % of feed
Oil export capacity	≤ 100 % of feed	≤ 100 % of feed	≤ 100 % of feed
Operating temperature	5 - 98 °C | 41 - 208 °F	5 - 98 °C | 41 - 208 °F	5 - 110 °C | 41 - 230 °F
Flange rating	ASME B 16.5 | 150 lbs	ASME B 16.5 | 150 lbs	ASME B 16.5 > 150 lbs
Auxiliary requirements			
Motor rating [kW]	55	75	90
Nitrogen feed pressure	Min 3 bar(g) | 43.5 PSI	Min 3 bar(g) | 43.5 PSI	Min 3 bar(g) | 43.5 PSI
Weights			
Centrifuge, complete	1,620 kg | 3,570 lb	3,000 kg | 6.610 lb	3,750 kg | 8,270 lb
Centrifuge bowl	440 kg | 970 lb	660 kg | 1,460 lb	1,200 kg | 2,650 lb

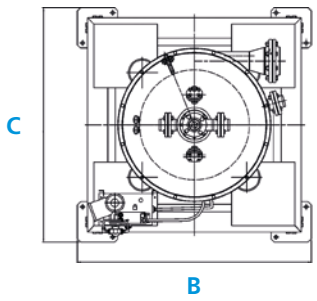


Dimensions in mm | inch

Type	A	B	C
80	1,611 | 63	867 | 34	1,503 | 59
120	1,778 | 70	1,190 | 47	1,942 | 76



Type	A	B	C	D
200	2,100 | 83	1,860 | 73	1,860 | 73	3,100 | 122



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