



GEA Self-Cleaning Centrifuges

for Oilfield Applications



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GEA SEPARATOR

Triple module with WSD 200 separators
for mono ethylene glycol clarification.

Continuous Separation of Oily Water, Crude Oil and Slop Oil

In recent years, the overall demand for treatment systems for the oilfield industry has grown, as have the requirements to be met. User friendliness, weight and size, but also economy, have become decisive factors. GEA supplies ready-to-connect treatment systems as economical, space and weight saving solutions which also satisfy the stringent pollution control regulations. In order to produce these centrifuges, tried and tested methods have been combined with the most recent developments in the field of centrifuge design.

The centrifuge is equipped with a self-cleaning disc-type bowl and is used for the separation of two liquid phases with simultaneous removal of solids. The centrifuges are equipped with a “soft-stream inlet system” for gentle product treatment.

This results in optimum separating efficiency and higher specific capacities. The patented GEA hydrostop system enables controlled bowl ejections to be carried out at full operating speed.

The basic features of these centrifuges are:

- Continuous separation
- Pressure discharge of the heavy and light liquid phases by centripetal pump
- Regulating ring for the heavy liquid phases for optimum adjustment of the separating zone
- Materials highly resistant to corrosion and erosion
- Explosion-proof design
- Minimum maintenance
- High reliability
- High resistance to hazardous environmental conditions
- Suitable for unsupervised fully automatic and self-monitoring operation

GEA Self-cleaning centrifuges find application for example in the following industrial areas:

- Onshore and offshore drilling and production platforms
- Floating production vessels
- Refineries
- Tank terminals



*Double module with
WSD 60 separators
for oily water*

GEA High End Centrifuges for Offshore Applications

Ejection

Bowl ejections have to be effected as a function of the solids content, the throughput capacity and the solids consistency. The kind of ejection depends on the product and can be either a partial or total ejection or a combination of both.

In order to avoid the loss of valuable liquid during ejection, e.g. oil, prior displacement of the product can be carried out. The ejection procedure is automatically controlled by a corresponding control unit.

Frame and drive

The frame is made of high-tensile cast iron. In order to reduce the level of noise in these centrifuges, special noise-insulated materials have been used as standard for the hood and the collector. The level of noise is less than 80 dB if an enclosed solids discharge system is used. The peaks attained during the ejection process exceed this figure for short periods. The centrifuge is driven by an explosion-proof 3-phase AC motor in flame proof enclosure (EEx de II CT 4).

Either direct drive (separator WSD 200) or flatbelts transfer the power directly to the bowl spindle, depending on the type of centrifuges. For the separator WSD 200 with direct drive intensive braking is made possible with the frequency converter. Here, the current in the motor is never above the rated current. For the other types, pneumatic brakes are used. An independent lubricating system greases the braking arrangement and gears when the centrifuge is starting up and during normal operation.

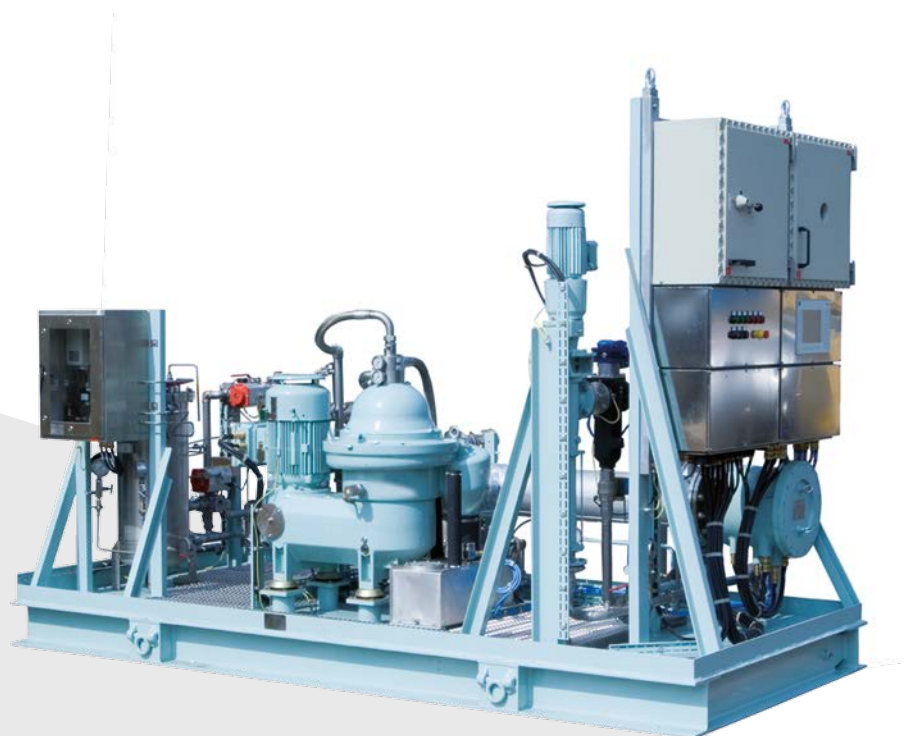
Centrifuge systems

Centrifuges can be arranged in series or parallel in ready to plug-in systems for simplicity of operation and minimum site erection. Materials of construction as described in technical data.

Assembly and dismantling

The complete bowl can be detached from the spindle after removing the feed and discharge connections and the hood. Special tools are supplied with the machine. A hoist is necessary for removing the bowl and motor.

*Single module with
WSD 35 for drain water*



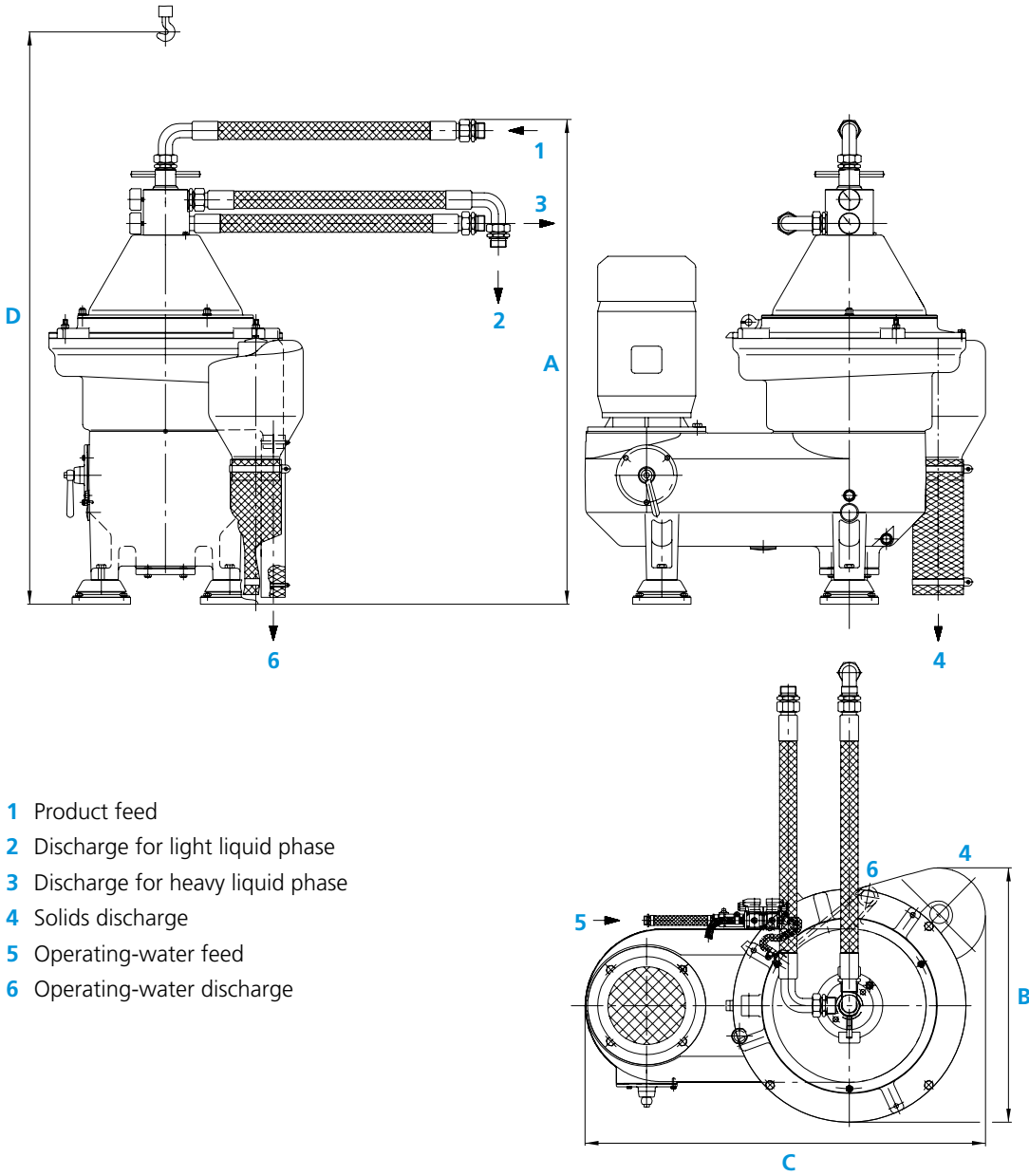
| Technical data | WSD 6 | WSD 18 | WSD 35 | WSD 60 | WSD 200 |
|---|---|--|---|---|---|
| Product feed | 2 bar / 29 psi | 2 bar / 29 psi | 3 bar / 43.51 psi | 3 bar / 43.51 psi | 3 bar / 43.51 psi |
| Light phase discharge | 1 – 2 bar / 14.5 – 29 psi | 1 – 2 bar / 14.5 – 29 psi | 2 bar / 29 psi | 2 bar / 29 psi | 4 – 5 bar / 58.02 – 72.52 psi |
| Heavy phase discharge | 1 – 2 bar / 14.5 – 29 psi | 1 – 2 bar / 14.5 – 29 psi | 2 bar / 29 psi | 2 bar / 29 psi | 4 – 5 bar / 58.02 – 72.52 psi |
| Operating water | 2 – 3 bar / 29 – 43.51 psi | 2 – 3 bar / 29 – 43.51 psi | 2 – 3 bar / 29 – 43.51 psi | 2 – 3 bar / 29 – 43.51 psi | 2 – 2.5 bar / 29 – 36.26 psi |
| Instrument air | 3 bar / 43.51 psi | 3 bar / 43.51 psi | 3 bar / 43.51 psi | 3 bar / 43.51 psi | 4 – 5 bar / 58.02 – 72.52 psi |
| Centrifuge drive | | | | | |
| Electric motor 3 pH 4-poles, EEx design | 4 kW / 5.4 HP | 7.5 kW / 10 HP | 15 kW / 20.4 HP | 22 kW / 29.5 HP | 55 / 75 kW |
| Motor speed at 50 Hz | 3000 rpm | 3600 rpm | 3000 rpm | 1500 rpm | Motor speed at 80 Hz: 4800 rpm |
| Motor speed at 60 Hz | 3600 rpm | 3000 rpm | 3600 rpm | 1800 rpm | |
| Type | IM V1 | IM V1 | IM V1 | IM V1 | IM V3 |
| Protection | IP 55 | IP 55 | IP 55 | IP 55 | IP 55 |
| Motor drive | Belt drive | Belt drive | Belt drive | Belt drive | Belt drive |
| Connections | | | | | |
| Product feed | R 1 | R 1 | R 1½ | R 1½ | 3 inch 150 psi |
| Heavy phase discharge | R 1 | R 1 | R 1½ | R 1½ | 3 inch 150 psi |
| Light phase discharge | R 1 | R 1 | R 1½ | R 1½ | 3 inch 150 psi |
| Solids discharge | DN 80 | DN 80 | DN 125 | DN 125 | 8 inch 150 psi |
| Operating water discharge / frame discharge | DN 40 | DN 40 | DN 50 | DN 50 | 3 inch 150 psi |
| Operating water (Operating water opening) | R ¾ | R ¾ | R ¾ | R ¾ | DN 25 |
| Weights and shipping data | | | | | |
| Weight (centrifuge with motor and bowl) | net 200 kg / 440.92 lbs | net 310 kg / 683.42 lbs | net 1050 kg / 2314.81 lbs | net 1600 kg / 3527.34 lbs | net 1750 kg / 3858 lbs |
| Case dimension (L x W x H) | 1280x700x1030 mm /50.39x27.55x40.55 in | 1300x870x1030 mm / 51.18x34.25x40.55 in | 1800x1000x1400 mm / 70.87x37.37x55.12 in | 1800x1050x1600 mm / 70.87x41.34x62.99 in | 1950x1450x1790 mm / 76.77x57.09x70.47 in |
| Shipping volume | 0.92 m³ / 32.84 ft³ | 1.17 m³ / 41.31 ft³ | 2.5 m³ / 88.27 ft³ | 3.0 m³ / 105.92 ft³ | 5.06m³ / 178.66 ft³ |

Technical advantages of the direct drive of the WSD 200-01-573

- Less parts
- Less maintenance
- Space-saving design
- Less weight

GEA Separators WSD 6, WSD 18, WSD 35, WSD 60

Operating principles and constructional features



- 1 Product feed
- 2 Discharge for light liquid phase
- 3 Discharge for heavy liquid phase
- 4 Solids discharge
- 5 Operating-water feed
- 6 Operating-water discharge

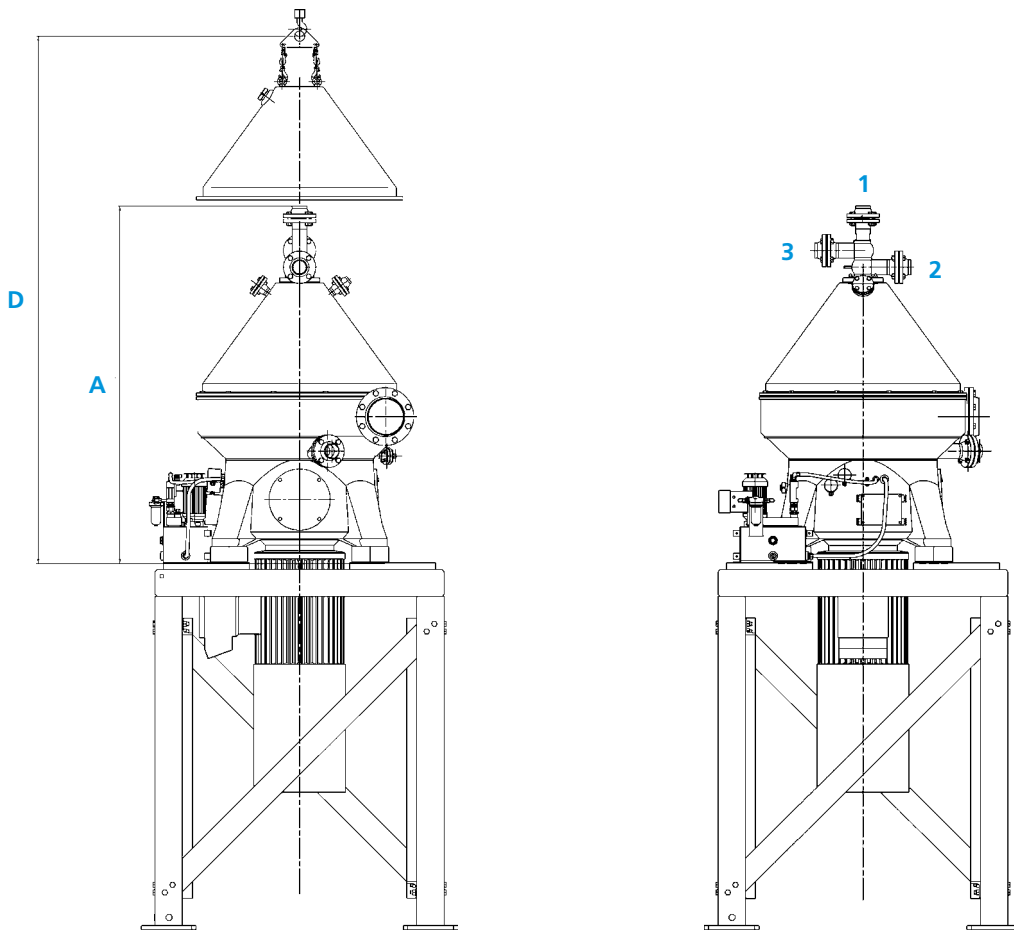
| Dimensions | WSD 6 | WSD 18 | WSD 35 | WSD 60 |
|------------|--------------------|--------------------|--------------------|--------------------|
| A | 753 mm / 29.65 in | 908 mm / 35.75 in | 1185 mm / 46.65 in | 1515 mm / 59.65 in |
| B | 540 mm / 21.26 in* | 583 mm / 22.95 in* | 752 mm / 29.61 in* | 865 mm / 34.06 in* |
| C | 990 mm / 38.98 in | 1097 mm / 43.19 in | 1382 mm / 54.41 in | 1606 mm / 63.23 in |
| D | 1187 mm / 46.73 in | 1500 mm / 59.05 in | 2100 mm / 82.68 in | 2250 mm / 88.58 in |

*without pneumatic brake

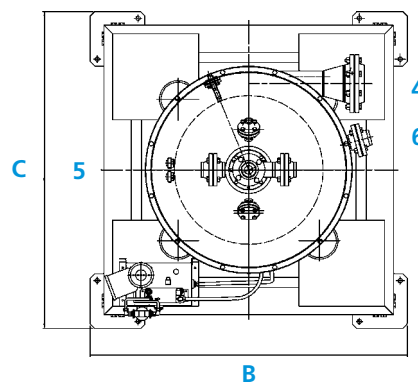
| Weight of bowl | WSD 6 | WSD 18 | WSD 35 | WSD 60 |
|----------------|------------------------|-------------------------|-------------------------|--------------------------|
| | 48 kg / net 105.82 lbs | 163 kg / net 359.35 lbs | 380 kg / net 837.74 lbs | 755 kg / net 1664.46 lbs |

GEA Separator WSD 200-01-573

Operating principles and constructional features



- 1 Product feed
- 2 Discharge for light liquid phase
- 3 Discharge for heavy liquid phase
- 4 Solids discharge
- 5 Operating-water feed
- 6 Operating-water discharge



| Dimensions | WSD 200-01-573 |
|---------------------------|-----------------------|
| A | 2100 mm / 82.68 in |
| B | 1860 mm / 73.23 in |
| C | 1860 mm / 73.23 in |
| D | 3100 mm / 122.04 in |
| Lifting capacity of hoist | 1500 kg / 3306.87 lbs |



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GEA is a global technology company with multi-billion euro sales operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA is listed in the STOXX® Europe 600 Index. In addition, the company is included in selected MSCI Global Sustainability Indexes.

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