GEA Westfalia Separator **ViscoBooster**Units

If you like to keep it well treated

Cool Calculations. Hot Facts.

Efficient solutions at the best conditions

Efficient operation of ship and power station diesel engines necessitates optimum fuel supply. This key condition is accomplished by the Visco-Booster Units developed for fuel treatment.

This unit consists of a treatment system that meets the fuel requirements, in terms of the required injection viscosity and temperature, between the clean oil tank and injection system for the main and auxiliary engines. The purpose-built booster pumps provide for the necessary system pressure. The modules are designed to the different engine consumption levels depending on their power ratings, as well as the injection viscosity (approx. 4 – 50 cSt) and corresponding injection temperatures (approx. 100 – 180 °C).

Fulfills all requirements

Depending on the engine manufacturer, different variants are required for the integration of **Visco-Booster** Units.

GEA Westfalia Separator Group has responded by offering a variety of system solutions. Whether with or without stand-by function for feeder pumps, booster pumps and heavy fuel oil preheaters, whether for one or more engines – you will always find a solution that meets your needs and expectations. Naturally, all systems are compact, lightweight, reliable, easy to install and simple to maintain with all main components operating at optimum performance.

Approved by all major classification societies

Germanischer Lloyd
OPERATING 24/7

ClassNK

DNV

BUREAU VERITAS
1828

CHINA CLASSIFICATION SOCIETY

Lloyd's Register

РОССИЙСКИЙ МОРСКОЙ РЕГИСТР СУДОХОДСТВА
1913

Full Speed Ahead!

Marine units

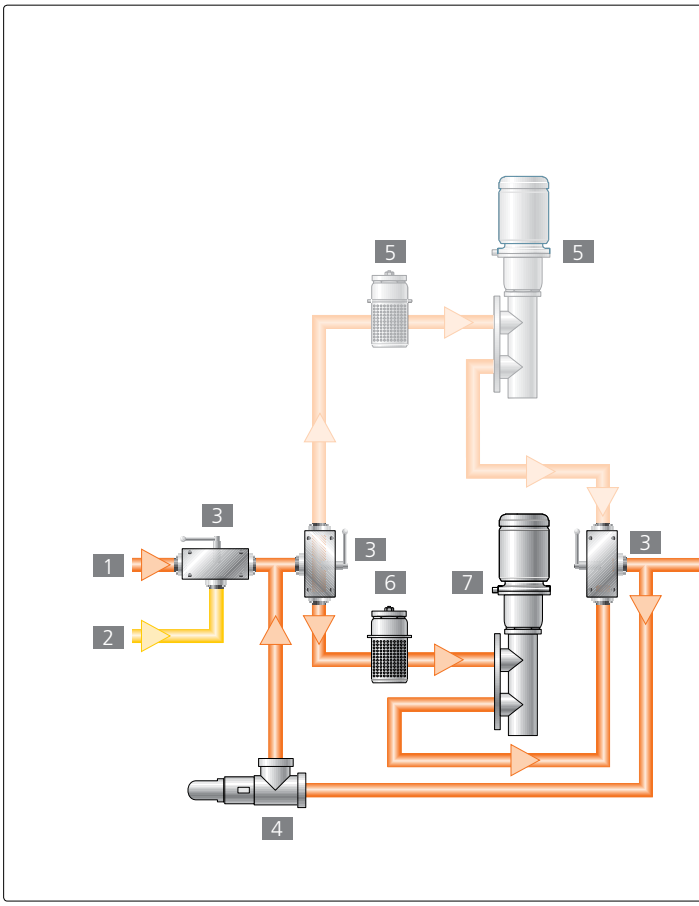
Standardized units

Dimensions & Weight	Type	VBU 3.5/25	VBU 5.0/25	VBU 7.0/40	VBU 9.5/50	VBU 12.5/50	VBU 16.5/50	VBU 21.0/65
	Engine output	3500 kW	5000 kW	7000 kW	9500 kW	12,500 kW	16,500 kW	21,000 kW
	Length	2500 mm	2500 mm	2600 mm	2800 mm	3000 mm	3250 mm	3350 mm
	Width	1300 mm	1300 mm	1300 mm	1500 mm	1500 mm	1650 mm	1650 mm
	Height	2200 mm	2200 mm	2200 mm	2200 mm	2200 mm	2200 mm	2200 mm
	Weight	1800 kg	1800 kg	1900 kg	2200 kg	2400 kg	2700 kg	3100 kg

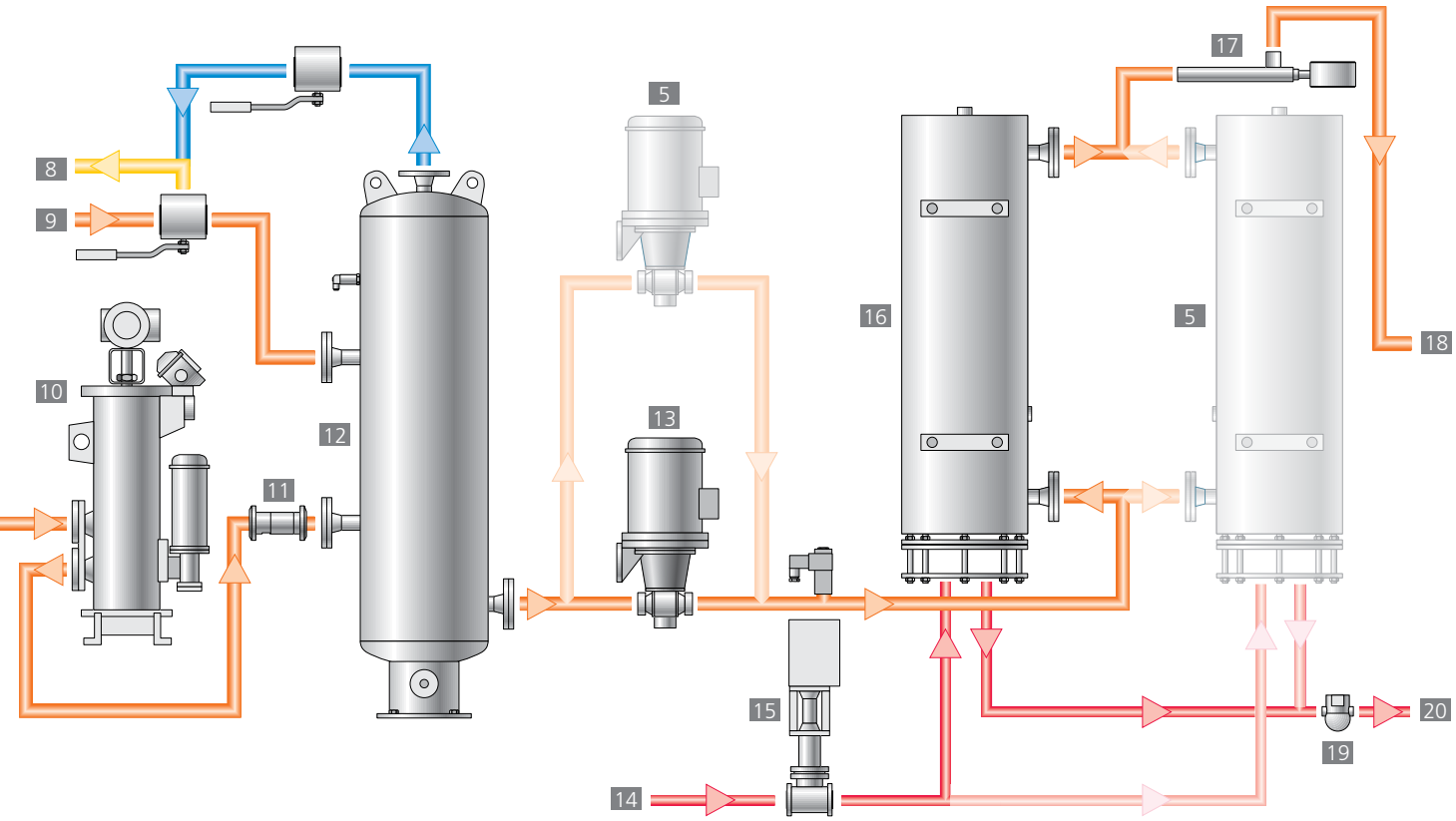
Efficient and reliable compact modules are required for supplying HFO to the main and auxiliary engines onboard ships. GEA Westfalia Separator Group marine units satisfy these requirements in full. They comprise all important main components (pumps, preheaters) as stand-by units as well as further elementary functions like automatic product filtration by compressed air-assisted cleaning, fuel consumption and viscosity measurement. An optimum arrangement on a base frame enables a compact construction while at the same time ensuring good operability. Split add-on modules (feeder/ booster component) for adaptation to the respective installation conditions are available if required.

Advantages

- Adjustment to all available motor sizes
- Standard modules available
- Shell and tube preheater as standard
- Central monitoring system



Optimally harmonized modules guarantee reliable functionality



1 HFO
2 MDO
3 Change over valve
Optional: automatic operated
4 Pressure control valve
5 Stand-by
6 Strainer
7 Feeder pump
8 Fuel to day tank
9 Fuel from engine
10 Automatic backflushing filter
11 Flow meter
Optional: Coriolis mass flow meter
12 Mixing / degassing tank
13 Booster pump
14 Steam or thermal oil
15 Regulating valve
16 Preheater
17 Viscosity sensor
18 Fuel to engine
19 Steam trap
20 Condensate or thermal oil

Power to the People

Diesel engine power plant units

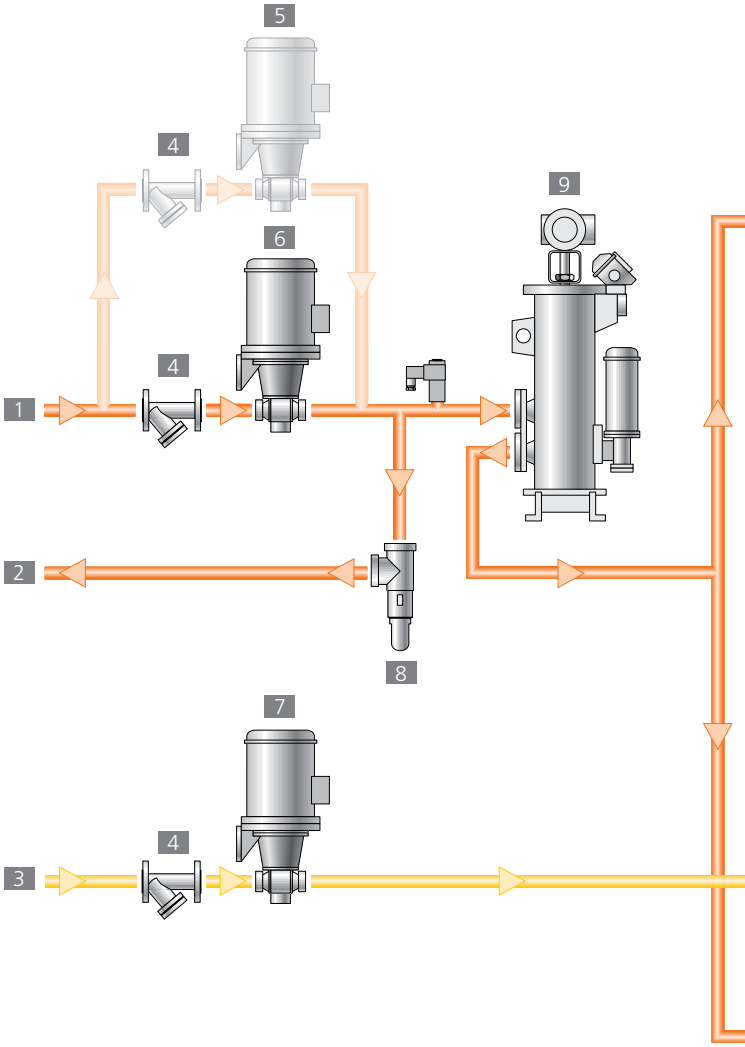
To be able to ensure a high plant availability and to achieve the high plant capacities, several diesel generators are frequently installed in power stations.

We recommend splitting the classical "Marine Unit" into a "Feeder Unit" and, depending on the number of engines, into several "Booster Units".

Advantages

- Simple adjustment to the engines in operation
- Higher availability of the complete installation
- Simple switch-over to HFO/DO for each engine
- Easy adjustment if the system is later upgraded

GEA Westfalia Separator Group has developed the right systems for this task. The flow chart shown represents one possible solution. The available sizes are set out in the adjacent tables.



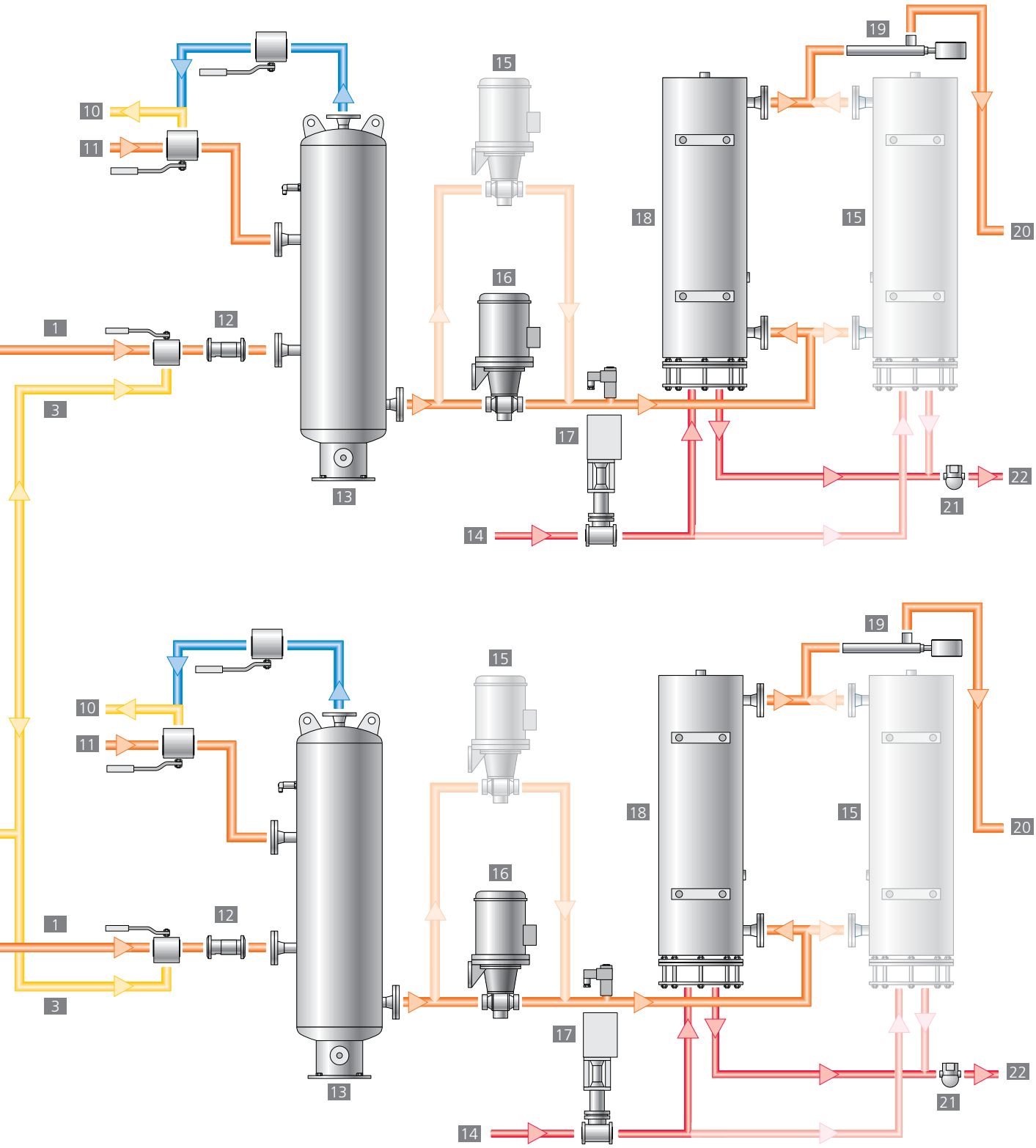
The split into feeder and booster unit guarantees high capacities in power stations

Feeder Unit

Sizes	Flow rate
10,000 kW	3.5 m³/h
20,000 kW	7.0 m³/h
40,000 kW	14.0 m³/h
60,000 kW	21.0 m³/h
80,000 kW	28.0 m³/h
100,000 kW	35.0 m³/h

Booster Unit(s)

Sizes	Flow rate
3500 – 5000 kW	2.2 to 3.2 m³/h
5000 – 7000 kW	3.2 to 4.7 m³/h
7000 – 9500 kW	4.7 to 5.6 m³/h
9500 – 12,500 kW	5.6 to 7.9 m³/h
12,500 – 16,500 kW	7.9 to 10.4 m³/h
16,500 – 21,000 kW	10.4 to 13.3 m³/h



1 HFO
2 Return to day tank
3 DO
4 Strainer
5 Stand-by
6 Feeder pump
7 DO pump
8 Pressure control valve
9 Automatic backflushing filter
10 Fuel to day tank
11 Fuel from engine
12 Flowmeter
13 Mixing / degassing tank
14 Steam or thermal oil
15 Stand-by/option
16 Booster pump
17 Regulating valve
18 Preheater
19 Viscosity sensor
20 Fuel to engine
21 Steam trap
22 Condensate or thermal oil

Everything under Control

System control

Control Panel with PLC

The control system as a compact, space-optimized control cabinet in 3-piece design for a redundant feeder system. Reliable hardware-based switch-over in case of loss of a feeder with constant operating reliability.

The complete operation and visualizaton is via a user-friendly touch panel. All parameters and functions can be controlled from this panel and can be adapted to suit the application and needs of the operator. Switch-over from viscosity regulation to temperature regulation is possible at any time. All necessary information can be read off at a glance on the operator side. Operation of the plant in the event of failure of the PLC is assured by a manual level.

A Focus on the Essentials

Key features (standard)

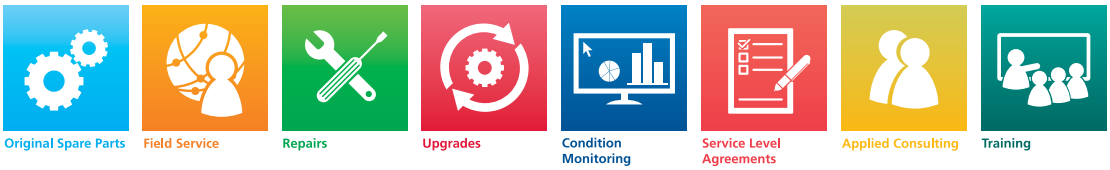
- Viscosity and temperature regulation
- Constant pre-pressure to the motor
- Display and graphical visualization of fuel consumption for HFO, MDO, MGO
- Double standby safety ensuring optimum performance and reliability on board
- Degassing
- Fine particle filtration
- Pre-selection of fuel density
- Suitable for low-sulphur fuels

Optional features

- Connection to different bus systems (Profibus, EtherNet, Modbus, etc.)
- Additional control section (graphic display) for installation in ECR
- Fully automated changeover from HFO to MDO (MGO) to best match engine requirements/ specifications
- LT cooler

Graphic display

- Display and graphic visualization of fuel consumption for HFO, MDO, MGO
- Graphical reporting of temperature and viscosity parameters development
- Complete operation via one control panel



Your Partner for Reliability, Budget Control and Efficiency

serv&**care** is the GEA Westfalia Separator Group service philosophy reflecting your needs and covering all common activities from the Business Area Service International and all service organizations in the subsidiaries of GEA Westfalia Separator Group.

This service philosophy should be understood as the overall common service understanding, supporting the values, vision, mission and strategy of the GEA and the Business Unit GEA Mechanical Separation.

The name serv&care combines two aspects of the modern service world

"serv" stands for service, meaning concrete actions to help in any way to maintain your equipment. Whether it is for Spare Parts supply, assistance using our excellent Field Service Engineers or our factory authorized comprehensive repairs, all are covering your requirements. The main values of these services are speed and quality. Our worldwide service network serves as a basis to allow us to fulfill your requirement. GEA Westfalia Separator Group offers on-time delivery of spare parts through our logistic hubs, local stock levels and a global network of highly trained and experienced Field Service Engineers and also having the specialized machinery in our Authorized Workshops for comprehensive and safe repairs that only we can provide. "**care**" stands for the driving force of our service organization to be an innovative and reliable partner. Together with you we strive to find optimum solutions that fulfill and exceed your expectations. We are not only servicing the equipment, we offer solutions that satisfy the central task to increase the reliability of your equipment, operates efficient processes and ensure that you meet your own corporate mandates for total quality.

Our motivation is to supply complete and timely support that is "one step ahead" of your support requirements. "**care**-thinking" is the basis of our self-understanding as the market leader and being recognized as your first choice service provider.

Customer benefit orientated service product solutions from GEA Westfalia Separator Group

Your maintenance needs and requirements can be drawn together from our comprehensive service portfolio. Every individual service plays a vital role in securing the reliability, cost control and efficiency of your centrifugal equipment.

The serv&care service products

- Spare Parts – for protecting your investments
- Field Service – always nearby waiting to assist you, 24 hours a day, 365 days a year
- Repairs – care, precision and responsibility from the manufacturer
- Rental Bowls / Exchange Parts – keep downtimes to a minimum
- Upgrades / Modernization – latest design parts and components engineered specifically for your machine
- Condition Monitoring – reliable information for optimizing the installation availability and avoiding unscheduled downtime
- Service Level Agreements – service packages for higher availability together with full budget certainty
- Customer Training – modern training approaches with the aim of dealing with your own practical situations
- Factory Rebuilt Machines – used separators and decanters in First-Class quality
- Applied Consulting – optimizing and adjusting operations with the latest technical knowledge

More information:
www.westfalia-separator.com/service/original-manufacturer-service.html

We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA Group is a global engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 Index.

GEA Mechanical Equipment

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B_MA-14-08-0011 EN