



**Westfalia Separator
Mineraloil Systems**



Company Portrait



Vincenzo Spitaleri
Managing Director

Stephan Seifert
Managing Director

Mechanical Separation Technology Enables You to Progress

With almost 120 years experience, Westfalia Separator Mineraloil Systems supports customers in processing and maintaining mineral oils and related derivatives. We aim to reduce costs and simultaneously boost performance. The uncompromising availability and operational reliability of our centrifugal separation technology in difficult day-to-day operations are particularly attractive. Centrifuges from Westfalia Separator have demonstrated their superiority in this respect.

Westfalia Separator Mineraloil Systems has been investing considerable sums in research and development for many decades: with excellent results. Centrifugal separation technology and processes for numerous applications appreciably strengthen the performance and competitiveness of our customers. In the shipping industry, power stations, oil fields and a wide range of other industries, Westfalia Separator helps increase your added value efficiently and profitably.

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Centrifuges of Westfalia
Separator Mineraloil Systems
are world leaders in the field
of processing mineral oils and
related derivatives.





Leading Technology for Mineral Oil Processing – Signed and Sealed

Cost pressure and increasingly stringent environmental requirements need leading technologies for processing fuel and lubricating oils, and for dealing with sludges containing oil and water. Centrifugal separation technology from Westfalia Separator Mineraloil Systems offers the optimum solution, even under extreme conditions.

As a subsidiary of Westfalia Separator AG, a company of the GEA Group, we have almost 120 years experience in mechanical separation technology. With our commitment, innovative ability and quality work, we have expanded the application possibilities of this key technology throughout this period. As the market and technology leader, we ensure that our customers make progress with powerful centrifuges, process lines and state-of-the-art processes.

As a system partner, we are aware of our responsibility for the absolute reliability of all our systems and of the need to supply them at minimum cost. The foundation for complying with these requirements is laid by comprehensive quality management based on DIN EN ISO 9001 and DIN EN ISO 14001 in our production facilities in Oelde, Niederahr and Château Thierry. Thousands of systems leave our works after having been thoroughly tested.

They are used in the following market segments:

- Marine
- Energy
- Oilfield
- Industry



Centrifuges from Westfalia Separator Mineraloil Systems stand for world-wide certified quality. TÜV certificates according to DIN EN ISO 9001 and DIN EN ISO 14001 confirm our targeted quality management.

It's Payback Time

Every investment has an objective: a maximum return on investment, as quickly as possible. Only if our centrifuges make a measurable contribution to adding value will they be successful on the market. Accordingly, we have focused all parameters of our machines on achieving optimum life cycle benefit.

Profitable right from the very beginning – rapid payback due to minimum costs of purchase and operating costs, excellent yield of raw materials and comprehensive maintenance and processing of liquids are the specific objectives in this respect. Mini-separators for processing small volumes of liquid or major installations: centrifuges for optimum processing of fuel and lube oils, emulsions, cooling liquids and hydraulic oils.

We also open up potential for minimising the cost of disposing of the solids which are discharged. The increased levels of dry matter permanently reduce costs. Ease of operation, simple maintenance, extended maintenance intervals and reduced maintenance costs round off the cost-reducing features of the separators and decanters.

It's payback time every time with customised centrifugal separation technology from Westfalia Separator Mineraloil Systems.



It's Payback Time!



System Solutions Optimise Performance and Reduce Interfaces

Centrifugal separators and decanters frequently form the core of complex installations for processing mineral oils and related derivatives. Accordingly, we also offer advanced system solutions from a single source to our customers. For example, a compact unit for processing fuel oil for diesel engines in the shipping industry.

Based on the skills and know-how of Westfalia Separator Engineering GmbH and the worldwide resources of the GEA Group, we design and implement customised process lines.

Our customers in the shipping industry, in power stations, oil fields and other industries accordingly benefit from comprehensive system competence and innovative separation technology.

System partnership related to all aspects of centrifugal separation technology is profitable:

- Harmonisation of performance parameters of all components to assure maximum throughput and optimum product quality
- Reduction of engineering and planning costs
- Reduction of interfaces and coordination costs
- Clear responsibility with regard to delivery performance, process safety and guarantees

Intelligent solutions ensure
maximum separating efficiency.







Marine: SeaProtect Solutions – The New Symbiosis of Economics and Ecology

The ocean, worldwide competition, and increasingly stringent environmental protection requirements pose complex and varied demands. D-Type separators for processing heavy fuel oil and diesel oil bring all these aspects into harmony. They ensure reliably high performance of diesel engines and extend the service lives of the machines, even under extreme conditions.

Our centrifuges satisfy all of the statutory regulations of the International Marine Organisation (IMO) and of the USCG as a result of design product quality. Their compact design satisfies the requirements of modern shipbuilding in the form of low weight and minimum space requirement. At the same time, they meet the needs of shipping companies to protect humans and the environment.

“SeaProtect Solutions” offer a new generation of separators which inexpensively process bilgewater and sludges containing oil and which also offer shipping companies safety and security when they enter sensitive marine reserves. In the standard version, these separators attain effluent qualities of <15 ppm. With the support of add-on units, effluent qualities of <5 ppm are attained. This means that pure water can be discharged into the oceans.

Efficient separation is accompanied by further benefits which contribute towards reducing costs permanently.

Costs reduced by optimised maintenance intervals

Operation of these machines does not need to be monitored, thereby permitting a reduction in labour input. Maintenance work is generally incurred after 8000 and 16,000 operating hours. The oil sludge which is obtained can be processed directly on board, considerably reducing the costs of disposal.

D-Type separators are used for:

- Processing fuel oil
- Processing lube oil

SeaProtect Solutions are used for:

- Processing sludges which contain oil and water
- Processing bilgewater



Marine: Plug and Play, Chief

In the engine room, an overall view is essential. Westfalia Separator Mineraloil Systems go far beyond merely providing D-Type separators for processing mineral oils and related derivatives. As a system partner for Marine, we offer environmentally compatible systems for processing fuel oil and lube oil, supplying fresh water, and cooling the machines.

Westfalia Separator Visco booster units for processing heavy fuel oil for the engines. They adjust the viscosity, temperature and pressure to the optimum requirements of the engine manufacturers.

Westfalia Separator fresh water generators produce drinking water from salt water. There is no need for bulky tanks for fresh water supplies.

Westfalia Separator plate heat exchangers are responsible for regulating the operating temperature of the engine cooling water. The systems are adjusted to suit the needs of permanent operation in close cooperation with the engine manufacturers.

Plug and Play, Chief

All systems are available as individual components. However, we recommend that complete system solutions be used in order to reduce planning costs and interfaces.

They are extensively tested and certified when supplied for installation. This achieves considerable savings in terms of weight and space requirement.

Modular compact units provide versions for reducing costs in conjunction with high performance. They consist of a basic module, which is completely pre-assembled with the necessary units. Compact units can easily be installed in the shipyards. The plug-and-play capability encourages flexible applications.

A further alternative is the concept known as Westfalia Separator CENTRIPACK: all required D-Type separators are grouped together to form a single entity, all piping is installed and all control modules are pre-assembled before the Westfalia Separator CENTRIPACK is delivered to the shipyard, and simply installed.



SeaProtect Solutions stand for:

- Optimum performance with minimum costs
- Compliance with all statutory regulations of IMO and USCG
- High operating reliability
- Reduction of interfaces
- Optimising planning certainty
- Harmonisation of maintenance intervals
- Minimum space requirement
- Reduced weight



Energy: Prevention Ensures Trouble-Free Operation

The operation of gas and diesel turbines in power stations poses extremely stringent quality demands on the fuel oil and lube oils used. Everything has to flow freely and powerfully without any problem: This is because unexpected shut-downs or damage to the drive units can have consequences which go far beyond financial compensation alone.

For these reasons, it is imperative that contaminated fuel and lube oils for gas turbines are processed carefully. This is necessary because they contain toxic trace elements which cause corrosion damage to the turbine at high gas temperatures or form deposits on the turbine blades. Separation installations from Westfalia Separator Mineraloil Systems have been setting standards in this respect for many decades. They desalinate fuel oils reliably, separate solids and so ensure trouble-free operation.

Trouble-free operations guaranteed

Water, dust and filings in the lube oil sump can have a considerable impact on the performance, e.g. of the turbines. Indeed, there is a risk of failure in serious cases. The extremely economical and con-

tinuously operating self-cleaning centrifugal separators with a disk-type bowl also ensure trouble-free operation. We offer plug-and-play installations with a high degree of automation in every performance range.

Separators for the energy industry handle the following:

- Processing of fuel for diesel and gas turbines
- Processing of lube oil
- Processing of oil, water and solids mixtures
- Processing of effluent containing oil

Reliably avoid unplanned shut-downs,
with minimum costs. That is the job of
centrifuges from Westfalia Separator
Mineraloil Systems.



Minimum space requirement and low weight are obligatory for centrifuges on offshore rigs.





Oilfield: Perfection Counts on Oil Fields

Demand and requirements applicable for processing rigs for the oil industry are increasing. Operating reliability, weight and space requirements are major parameters. Westfalia Separator Mineraloil Systems supplies plug-and-play processing systems which comply with even the most stringent environmental requirements and feature the latest weight and space saving designs.

They handle continuous liquid-liquid-solids separation in a wide range of applications and a wide range of capacities. Specifically designed to cope with the needs and circumstances on site, they permanently reduce costs.

They are used in the following applications:

- Processing drilling mud
- De-oiling of produced and drain water
- Dewatering of crude oil
- Cleaning and processing of fuel oil, lube oil and hydraulic oil
- Separating cat fines from oil residues
- Slop oil: cleaning and disposal
- MEG clarification

Processing systems for consumables
reduce costs by up to 50 percent
per annum.



Industry: Separation Instead of Disposal 4- to 5-fold Increase in Operating Life

The use of consumables such as cooling lubricants, cleaning liquids, lubricating and hydraulic oil can either boost, or reduce costs. In partnership with Westfalia Separator Mineraloil Systems, costs are reduced efficiently.

Active care of consumables lowers costs

Separators are used for efficiently processing all types of liquid in the production process. For example, they handle processing of washing lyes which contain oil and also oil recycling. Cooling lubrication emulsions and cooling lubrication oil are also processed as inexpensively as hydraulic oil from which dirt particles and water have to be removed as quickly as possible. High separating efficiencies result in much longer service lives of the tools and liquids being used. The separated solids can be disposed of inexpensively due to their high level of dry matter.

Separators treat consumables efficiently and are beneficial for the environment.

All advantages at a glance:

- Significantly longer operating life of the liquids used
- Constant quality of use
- Removal of unpleasant odours
- Reduced wear of consumables and tools
- Reduction of downtime of the production systems

Spent oil is a valuable raw material

Our decanters for processing spent oil open up a profitable source of oil. They separate all recyclable constituents of spent oils from various areas of application inexpensively and inefficiently. Depending on the specific requirements, the two-phase and three-phase technology ensures high separating efficiencies for solids and water. The recovered oil becomes a valuable fuel, with a variety of applications, such as generating electricity.

The following are examples of areas of application for centrifugal separation technology:

- Treatment of cooling lubricants
- Treatment of cleaning liquids
- Treatment and dewatering of lubrication and hydraulic oil
- Processing of spent emulsions and spent oil
- Treatment of developer liquid
- Processing of emulsions in the paper industry



Retrofit – Boosting Performance Cost-Effectively

Even the latest state-of-the-art centrifuges grow old. Retrofit efficiently boosts performance. In addition, centrifugal separation technology is an environmentally compatible alternative to other separating processes, and the benefit can be counted in Euros and Cents.

Increasingly stringent demands on separation performance, increasingly demanding environmental requirements and the need to reduce costs by automating processes are countered by Westfalia Separator Mineraloil Systems, with customised retrofit solutions.

Retrofit units are easy to install and make a specific contribution towards boosting performance. Whether the solution involves inexpensive conversion in the shipping industry, in a power station or oil stations

or in the metal-working industry. Solutions which breathe new life into existing installations and processes with minimum costs are developed and implemented together with customers.

Retrofit units are used

- To replace existing processes with more efficient centrifugal separation technology
- To expand performance limits
- To increase capacities
- To automate processes
- To reduce service and maintenance costs

Centrifuges from Westfalia Separator Mineraloil Systems are used throughout the world. We use this experience as the basis for identifying retrofit potential.



Risk management minimises downtime
and unplanned stops.



Prevention: Availability Optimised by Prevention Agreements

Apart from the high technical quality of our separators and decanters, our understanding of system partnership also comprises our absolute commitment to prevention strategy and training. This ensures that our centrifuges contribute towards adding value for our customers with the minimum of inconvenience. With appropriate prevention agreements, customers can specifically boost the reliability of their machines and installations. All lights are green, even in demanding day-to-day operations.

Westfalia Separator Mineraloil Systems supports its customers with a wide range of services and measures to guarantee the maximum benefit throughout the entire life cycle of the machines.

And prevention means even more for us: together with our customers, we analyse the entire process line in order to locate weak points and develop emergency plans. Unexpected shut-downs can occur despite all precautions and care. A machine could fail unexpectedly, or an entire production process might come to a standstill. The aim is to minimise downtime by way of first aid. Special prevention agreements ensure that a particularly important part can be replaced at short notice (e.g. bowl, scroll) if necessary.

Customised prevention modules:

- Easy-to-understand operating manuals
- Competent instructions for staff
- Proper training for operating personnel
- Customised maintenance agreements and service packages
- Prevention agreements for key components
- Westfalia Separator WEWATCH® for telemetric monitoring and prevention



Genuine Spare Parts: Stop Misfits

The working day of our decanters and separators is hard and long. Frequently 24 hours. Only absolute quality work in design and production can cope with these requirements in the long term. We consistently implement this quality requirement in our design and production facilities.

We do not make any compromises even in terms of spare parts. Only Westfalia Separator genuine spare parts can protect our customers with certainty against future failures, as they correspond precisely to the original design specifications for trouble-free operation.

It is frequently the case that spare parts are offered on the market, which superficially correspond to the originals. We call them misfits. As there were no technical specifications for material, quality, geometry, surface quality, etc. available from Westfalia Separator Mineraloil Systems when these misfits were manufactured they have simply been copied without knowledge of the technical specification required.

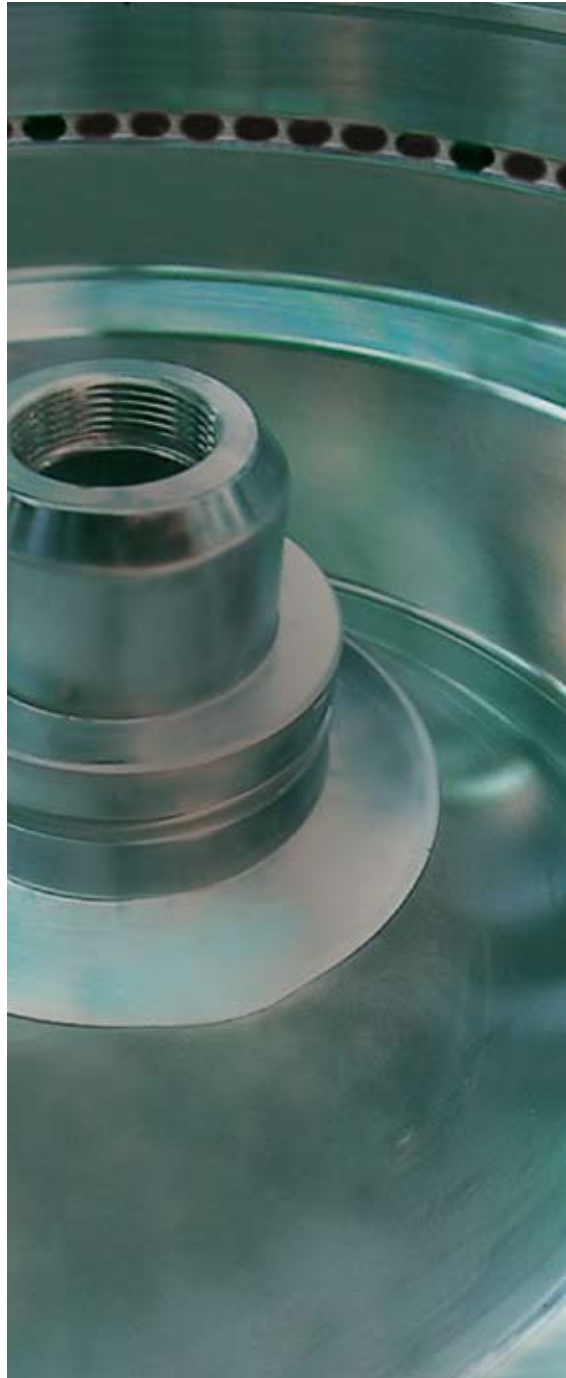
Customers who install misfits due to apparent cost advantages should be aware that they are taking a considerable risk. Operating reliability and availability of the installations are at stake and the warranty claim against Westfalia Separator is also invalidated.

Maintenance and assembly work on centrifuges also requires special knowledge and experience. The deployment of a technician "from" next door can quickly result in expensive surprises. Only special tools, installation guidelines, and agreed test procedures ensure that maintenance and repair work are carried out properly.

We recommend that customers always use the services of specialists from Westfalia Separator, or a workshop authorised by Westfalia Separator.



Westfalia Separator genuine spare parts guarantee the safety standards specified during original manufacture of the machine.



With imitation spare parts, product pirates endanger the efficiency and operating reliability of entire process lines. Westfalia Separator Mineraloil Systems always recommends the use of Westfalia Separator genuine spare parts.



Oelde, the headquarters of the international operations of Westfalia Separator



Château Thierry, France, specialises in the production of mineral oil separators



Niederahr, production facility for decanters

Competent Service – Round-the-Clock

For Westfalia Separator, system partnership related to mechanical separation technology means assuming responsibility in every phase of the life cycle of a machine. This starts with planning for a new installation or defining the performance parameters. Customers are advised competently in all matters so that the decision for a centrifuge or a process line precisely meets their requirements. Specific training from Westfalia Separator enables personnel to operate the machines properly.

But our service goes even further: under the motto, WESERVE[®], we have developed an efficient service programme which supports our customers effectively. With appropriate service and maintenance contracts, our customers have all they need to ensure trouble-free operation of their centrifuges. Based on Westfalia Separator sales and services companies and other sales partners, we have established a tightly knit network throughout the world to support our customers with maintenance and efficient service.

All of this is controlled by our MASS Center in Hamburg where experts for centrifugal separation technology can be reached at all times of the day and night. This is the nerve centre where everything is precisely coordinated to enable assistance to be provided even in an emergency. Starting with tele-diagnosis for trouble-shooting, which starts as soon as the emergency call is received. This also comprises coordination of service personnel and prompt provision of the necessary Westfalia Separator genuine spare parts. Downtime is accordingly reduced to a minimum.

We are available for you 24 hours a day, 365 days a year.



Service everywhere in the world
– round-the-clock.

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- Dairy Technology
- Oils and Fats Processing
- Chemicals, Pharmaceuticals and Biotechnology
- Oils and Fats Recovery
- Starch Technology and Industrial Biotechnology
- Environmental Technology
- Marine
- Energy
- Oilfield
- Industry
- Engineering
- Second Hand Machinery
- Service

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Binding information, in particular relating to capacity data and suitability for specific applications, can only be provided within the framework of concrete inquiries.

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**Westfalia Separator
Mineraloil Systems GmbH**
Werner-Habig-Straße 1
59302 Oelde (Germany)

Phone +49 2522 77-0
Fax +49 2522 77-1778
mineraloilsystems@gea-westfalia.de
www.westfalia-separator.com



**Westfalia Separator
Mineraloil Systems**

Take the Best – Separate the Rest

A company of GEA Group