



Alfsen og Gunderson

**EXPERTS IN PUMPS, DEHUMIDIFICATION,
WATER TREATMENT AND PROCESS
EQUIPMENT FOR OFFSHORE**



Alfsen og Gunderson AS | www.ag.no



For more than 50 years, Alfson og Gunderson (AG) has supplied equipment and engineered solutions to the offshore industry. We work closely with operators, system integrators, EPC contractors, and shipyards to deliver reliable systems for some of the most demanding operating environments in the world.

Our portfolio includes pumping systems, dehumidification solutions, water treatment equipment, heat exchangers, pressure vessels, separation systems, valve technology, and other process equipment designed to meet stringent requirements for safety, performance and lifetime reliability. With in-house expertise in engineering, automation, documentation, commissioning, and service, we support projects throughout the entire lifecycle, from concept development to operation and maintenance.

Combining proven technology from leading manufacturers with our own engineering capabilities, AG delivers tailored solutions that help ensure safe, efficient, and dependable offshore operations worldwide.

AG – Engineering reliable solutions for offshore operations since the 1970s.

URGENT OR PREVENTIVE SERVICE

AG has its own service team with the necessary specialist expertise in air, water and pump technology. We follow up our deliveries, and assist with commissioning, troubleshooting or ongoing service agreements, both offshore and onshore. We also provide bespoke courses and training on equipment when needed.

Please contact us – the service we provide ensures stable operation and extends the service life of the equipment!



Brynsveien 5
0667 Oslo
Norway

+47 22 70 77 00
post@ag.no
service@ag.no

PUMPS

AG is a leading supplier of fluid handling equipment for the offshore industry. Our range covers centrifugal, high-pressure, screw and diaphragm pumps, as well as dosing and injection units – supplied either as individual pumps or as complete skid-mounted packages with integrated control and monitoring systems, engineered in accordance with API, NORSOK and EX standards.

With in-house engineering capacity, we handle every stage ourselves: drawings and detailed design, manufacturing, automation and commissioning. That gives our customers single point of responsibility from enquiry to operation.

DOSING PUMPS – OBL

- Chemical injection
- API 675
- 0–4,000 l/h, max. 350 bar
- Hydraulically actuated double diaphragms
- Integrated diaphragm monitoring
- Integrated safety valve
- Manual and electric/pneumatic stroke adjustment
- NORSOK/TR specifications



OBL multi-head dosing pump supplied to Vincent FPSO



YAMADA air-actuated diaphragm pump with clack valves for media containing particulates

AIR-DRIVEN DIAPHRAGM PUMPS – YAMADA

- ATEX-approved
- Materials Stainless Steel, Duplex, PVDF, Aluminium
- 0–840 l/min
- Can be painted in accordance with NORSOK-M501
- Custom frames

HIGH-PRESSURE PUMPS – RAM AND CAT

- 0–100 m³/h and 700 bar pressure
- Methanol and chemical injection
- TEG circulation packages
- NORSOK/TR specifications



RAM injection pump, supplied to Troll A and Ettrick FPSO

PUMPS



Sydex vertical eccentric screw pump supplied to Johan Sverdrup FPSO

ECCENTRIC SCREW PUMPS – TORQUEFLOW SYDEX

- API 676
- Horizontal or vertical design
- 20 l/h – 399 m³/h, max. 48 bar
- Self-priming
- Minimal pulsation and vibration
- NORSOK/TR specifications

CENTRIFUGAL PUMPS – DICKOW AND SUNDYNE MARELLI

- API 610 according to the latest edition
- Horizontal, vertical, single- and multi-stage design
- NORSOK/TR specifications
- Crude oil, condensate, produced water, flare transfer
- Heating medium, TEG transfer



Dickow API 610 VS4 with noise hoods, supplied to Johan Sverdrup



3P Prinz vertical API 676 screw pump

SCREW PUMPS – 3P PRINZ

- Gear and screw pumps according to API 676, latest edition
- Pulsation-free liquid transport
- Up to: 8,5 m suction lift
- Viscosity up to 50,000 cSt
- 0–3,500 m³/h, max. 60 bar pressure
- 150 bar design pressure
- Low noise and minimal vibration
- Internal/external oil-lubricated gears
- Gas/liquid admixture up to 50%
- For crude oil, chemicals, produced water

PROJECT REFERENCES – PUMPS

NEW PUMP SOLUTION FROM AG

We have developed a new concept that combines a vacuum ejector and tank with a pneumatically driven pump.

This arrangement is suitable for demanding applications where the pump alone has insufficient power to initiate lifting (dry suction).

The objective of the application is to utilise the vacuum ejector's lifting capacity to prime the pump's suction line, so that the pump can take over operation once the line is primed. The equipment shown has recently been delivered to the Johan Sverdrup field, where it will be used as a diesel-sampling and drain pump unit.

- Increases lifting capacity at start-up of pump (dry suction) from 5 m to 8 m
- Compact
- Mobile
- Dependent only on air

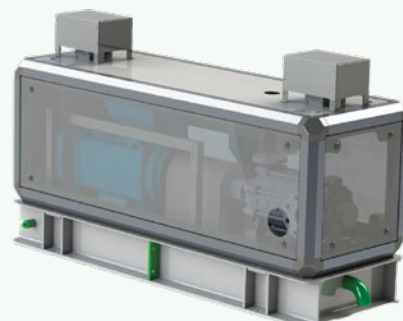


API 610 PUMPS FOR JOHAN SVERDRUP'S LANDING TERMINAL

AG has recently delivered two complete API 610 VS4 pump units to Aker Solutions, to be installed at the new landing terminal in Mongstad for the Johan Sverdrup field. The pumps have been supplied in 316 material and are to be used as drainage pumps for oily water. They have been manufactured in accordance with current NORSOK, TR and API requirements.

NEW PUMPS FOR THE JOHAN CASTBERG PLATFORM

The pumps, which have ABB motors and noise hoods, will be installed on the Johan Castberg platform, where they will be used to purify produced water. The pumps have been supplied in accordance with ISO 5199, with various additional requirements from the customer.



DEHUMIDIFIERS & DRYING SYSTEMS

AG is a leading supplier of dehumidifiers and drying systems for offshore and maritime use. Dry air is the best preservation method in most cases. It is reliable, efficient and easy to monitor. AG supplies dehumidifiers and drying systems that effectively eliminate condensation and corrosion, and controls the humidity to prevent deterioration of materials and components.

Dry air will protect for example steel, electric equipment, electronics, rotating equipment (fans/pumps), moving parts etc., against corrosion, mould, reduced insulation resistance etc. The result is longer lifetime and reduced maintenance need and cost.

Dry air is completely harmless for people and for the environment, we just remove some of the moisture from the air and magic happens!

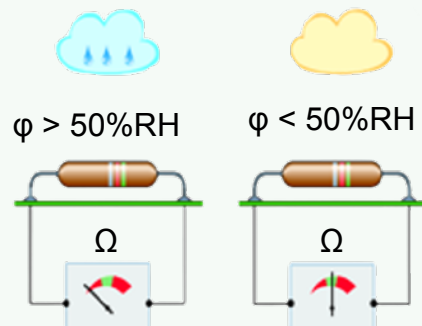
APPLICATIONS FOR AG DEHUMIDIFIERS

- Permanent corrosion protection in voids, platform legs, thruster and pump rooms, storage rooms, lifeboats and other closed compartments
- Preventing condensation on cold surfaces
- Climate control / ventilation during the construction period of modules / rigs
- Lay-up of rigs and ships with dry air preservation
- Supplying dry air into “habitats” / tents to keep surfaces dry and without condensation during surface treatment jobs (painting), insulation repair work on cold gas pipes or other operations that require low dew point temperature in surrounding air
- Tank drying after cleaning: AG design and deliver cargo tank dryers for chemical tankers, delivered to more than 100 chemical tankers (Odfjell, Jo Tankers, Stolt-Nielsen, Bahri, NCC, Utkilen, KOTC, Ardmore and others)



$x < ^\circ\text{C dp}$

$x > ^\circ\text{C dp}$



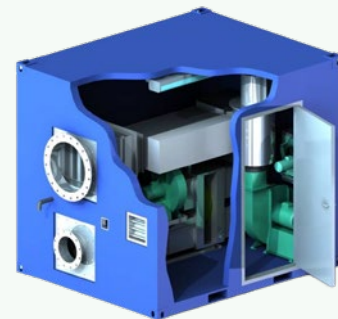
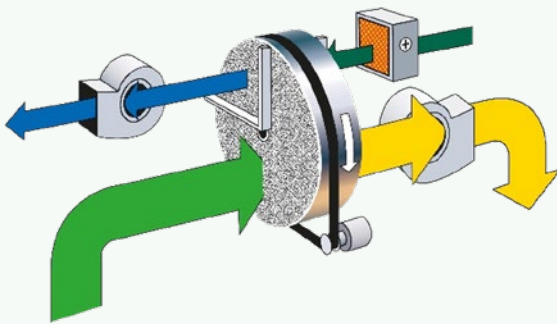
$\phi > 50\%RH$

$\phi < 50\%RH$

AG DEHUMIDIFIERS FOR OIL & GAS MARKET

AG ATEX DEHUMIDIFIERS

- For zone 1 and 2
- Air flows up to 15,000 m³/h
- Skid units or container units
- NORSOK Z-015 / DNV 2.7.1.
- Robust design for marine/offshore use
- Sorption dehumidification
- Regeneration heaters can be electric, steam or hot water

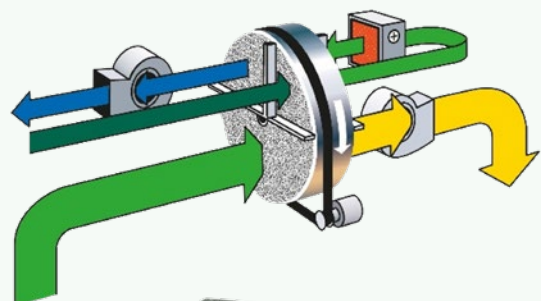


AG CONTAINER SOLUTIONS WITH DEHUMIDIFICATION / CLIMATE CONTROL

- Up to 28,000 m³/h systems delivered.
- Can be delivered with mist eliminator intake, filter, cooling, heating, sorption rotor etc.
- Modified ISO containers or DNV 2.7.1
- Design on demand

STANDARD DST SORPTION DEHUMIDIFIERS

- Air flows from 100 m³/h to 50,000 m³/h
- Built-in heat recovery
- Works even below 0°C
- Robust and reliable dehumidifiers



PROJECT REFERENCES – DEHUMIDIFIERS

AG DEHUMIDIFIERS AS PERMANENT CORROSION PROTECTION

ATEX dehumidifier AG-EX-61E, securing dry and corrosion-free conditions in old process tanks at Ekofisk/Eldfisk. The tanks are not in use, but still part of the strength on the platform, so it is important to avoid corrosion.

The dehumidifier system ensures low %RH inside the tanks, and also monitor if air leakages occur (for example open inspection hatches).

Dehumidifiers installed:

2016: Ekofisk 2/4 B

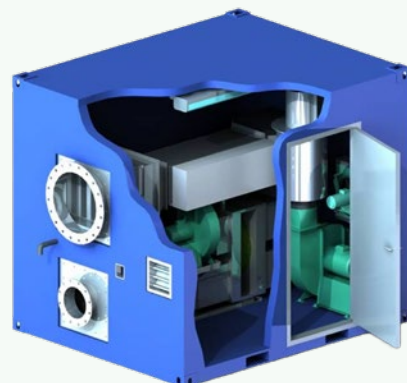
2019: Eldfisk A

AG installed the first dehumidifiers for permanent corrosion protection replacing paint systems in voids as early as 1997 in Visund platform (7 pcs. DST dehumidifiers in the box bottom, semisubmersible platform). And we delivered similar systems to Troll C, Njord, Snorre A etc. This was based on our experience with similar systems earlier installed in steel bridges.



AG DEHUMIDIFIERS INSTALLED IN THE ADRIATIC LNG TERMINAL

2 pcs. AG-EX-082E dehumidifiers (10ft DNV 2.7.1 dehumidifier container units) were installed in the Adriatic LNG terminal in 2009. The purpose was to avoid condensation, ice build-up and corrosion attacks in the pump room and voids between the cold LNG tanks.



PROJECT REFERENCES – DEHUMIDIFIERS

MOBILE ATEX DEHUMIDIFIERS FOR SURFACE TREATMENT JOBS

AG also supplies mobile ATEX dehumidifiers, for ventilating covered areas where surface treatment jobs are performed. The purpose is to keep surfaces dry during blast cleaning and until paint is applied. With dehumidifiers, such work can be planned and performed regardless of the weather conditions. This makes the surface treatment job more efficient, and provides a longer lifetime of the surface treatment.

- 10ft container unit with 4,500 m³/h dry air
- 20ft container unit with 12,000 m³/h dry air
- Skid unit with 2,500 m³/h (footprint approx. 2 × 1 m)
- DNV 2.7-1 / NORSOK Z-015, for zone 1 or 2



10ft AG-EXC-082E with 4,500 m³/h dry air, for zone 1



FAT and training with customer Bilfinger

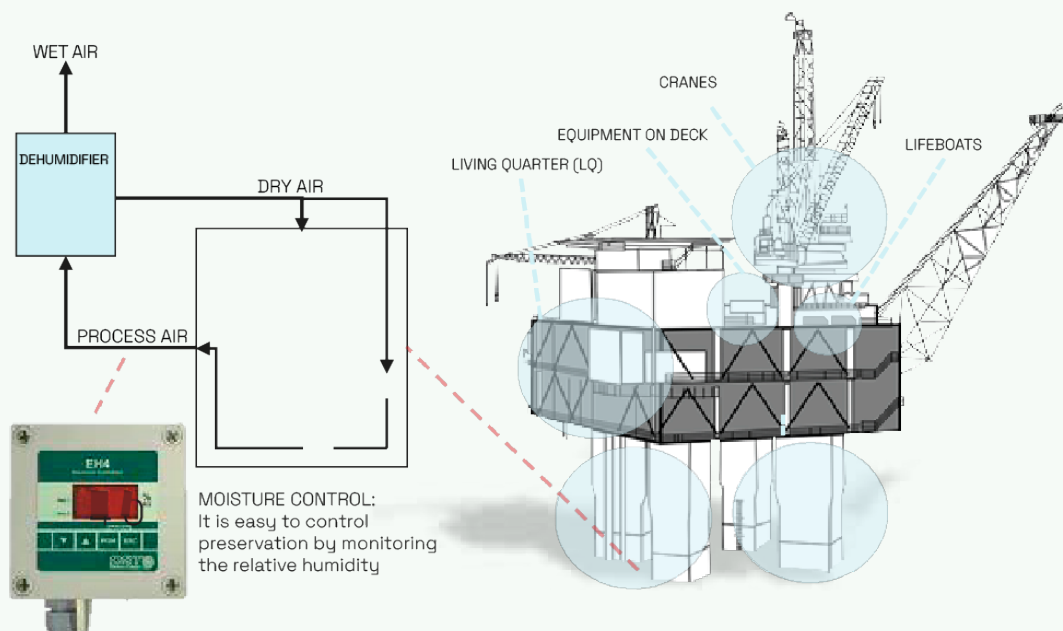
DRY AIR PRESERVATION OF PLATFORMS & VESSELS IN LAY-UP

Dry air is the safest, most environmentally friendly and most affordable preservation method.

Dry air can protect almost any room and all equipment. The system works regardless of temperature, and it is very easy to monitor the protection.

AG has dry air preserved the following rigs and drilling vessels:

Transocean Equinox, Arendal Spirit, Floatel Endurance, Scarabeo 5, Odfjell Metro II, Haven, Transocean Spitsbergen, Transocean Barents, AKOFS Seafarer, Belford Dolphin.



PROJECT REFERENCES – DRYING SYSTEMS

AHU CONTAINER UNITS DELIVERED TO HUGIN A PROJECT

AG supplied 2 pcs. AHU containers in 2025 to Hugin A project. The biggest one (20ft. container) with capacity of 28,000 m³/h and with CO2 heatpump with cooling capacity 375 kW. The purpose was to, in an energy efficient and environmentally friendly way, deliver dry and tempered fresh ventilation air into the modules during the whole construction phase at both Egersund and Stord.

The units were engineered, manufactured and delivered by AG, as a turnkey solution tailored to the customer's specific needs and requirements.



CUSTOMER STATEMENT

«We are very satisfied with the deliveries from AG and also their support after delivery. The equipment from AG has been essential to maintain a good working environment onboard the Hugin A platform during the construction phase, and also to maintain preservation requirement for all the sensitive equipment onboard.»

Håvard Vedvik, HVAC Discipline Lead, Aker Solutions



DRINKING-WATER TREATMENT

Safe and reliable water treatment is critical for offshore installations, where drinking water quality and process water performance must meet strict regulatory and operational standards. AG provides complete water treatment systems for filtration, disinfection and dosing, designed to ensure consistent water quality under all operating conditions.

Our solutions are based on proven technologies such as UV disinfection, filtration and chemical dosing, and are engineered to comply with Norwegian and international requirements. With a strong focus on compact design, energy efficiency and ease of maintenance, we deliver systems tailored to the constraints of offshore installations.

WATER TREATMENT OFFSHORE – ATEX-CERTIFIED

Water-supply systems on Statfjord B and C, Gullfaks C, Snorre A, Gjøa, Gudrun and Oseberg – among others – use water-treatment plants from AG. Filters, UV systems and chlorine-dosing systems are designed in accordance with Norwegian Institute of Public Health (NIPH) requirements for offshore installations.

- Designed and manufactured in Norway
- UV systems approved by NIPH and available in ATEX-certified designs
- Compact solutions with reduced power requirements
- Compliant with TR 1990 and NIPH Water Report 128

Skids can be equipped with thermal insulation panels or installed in containers if required.



UV skid at Oseberg C



Lamp connection, ATEX-certified and service-friendly construction

UV SYSTEMS: TYPE-APPROVED BY THE NORWEGIAN INSTITUTE OF PUBLIC HEALTH

Our UV systems are type-approved according to the latest standard with a biosimetrically tested UV dose of 40 mJ/cm². The systems use UV lamps with a very high efficiency and low power consumption.

- High-efficiency, low-pressure UV lamps with a certified operating time of 14,000 hours
- Delivered with full local control, or alternatively with starting equipment only and based on control from a central control room

FILTERS FOR DRINKING WATER AND PROCESS LIQUIDS

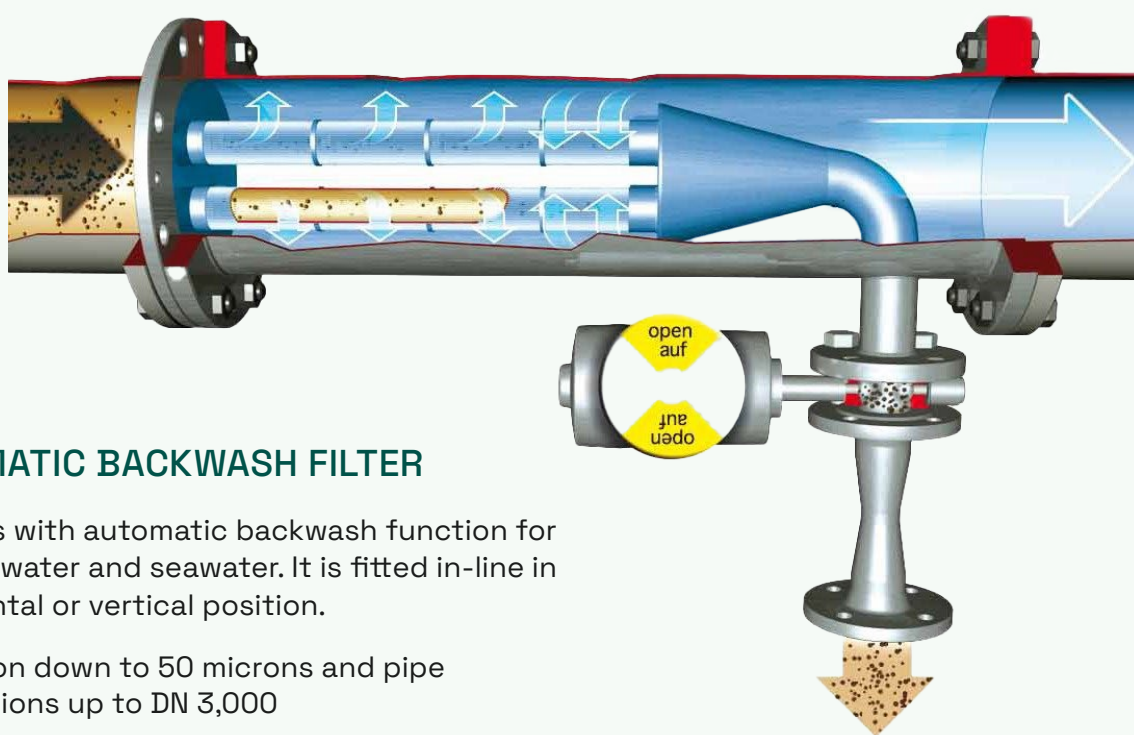
BASKET STRAINERS, BAG FILTERS AND CARTRIDGE FILTERS

We supply filters in simplex, duplex and multi-bag versions for water and process liquids.

- Standard filter, or tailor-made solutions for skids with valves, pipework and instrumentation
- Wide range of materials, dimensions and degrees of filtration



Seawater filtration on the Tambar platform



AUTOMATIC BACKWASH FILTER

AG filters with automatic backwash function for drinking water and seawater. It is fitted in-line in a horizontal or vertical position.

- Filtration down to 50 microns and pipe dimensions up to DN 3,000
- Efficient and automatic flushing of filter elements
- No moving parts means minimal need for inspection and replacement of parts
- Supplied in painted carbon steel, seawater-resistant and M650-approved steel grades or synthetic material

AG Jet filter in backwash

PROJECT REFERENCES – WATER TECHNOLOGY

«Alfsen og Gunderson (AG) was challenged to replace the existing UV sterilisers and particle filters under demanding conditions. The new equipment had to be significantly larger to meet updated requirements, while still being installed in the same location, an area already constrained by limited space.

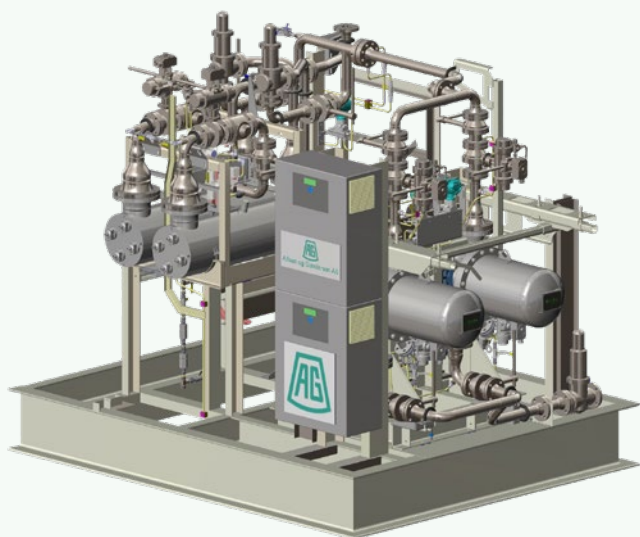
AG accepted the challenge and, in close cooperation with Equinor ASA, developed an impressive and well-thought-out design. The result was a safer and more ergonomic solution, incorporating automatic filters that significantly improve HSE performance while saving both time and cost.

The collaboration did not stop at design. AG also proposed an innovative installation and commissioning strategy to accelerate execution. The equipment was divided into three skids to enable the fastest possible installation, and everything fit perfectly, within millimetre margins.

The delivery impressed us so much that we named the UV sterilisers and particle filters «The Knut, by AG» in honour of the Senior Design Engineer and the entire AG team behind the solution.

This was a strong end-to-end delivery, from FEED to commissioning, executed by a highly competent team across project management, LCI, engineering, and suppliers. We look forward to repeating this successful collaboration.»

Amund Holm Holtan, Senior Engineer System operation and safe work, Equinor ASA



- Capacity: 28 m³/h
- Design pressure: 9 bar
- Filtration: 50 µm

UV STERILISERS & PARTICLE FILTERS FOR KRISTIN FIELD

The project was launched to replace the existing UV system and particle filters, with a clear goal of improving maintenance efficiency. Limited space made the design and installation particularly demanding, requiring close cooperation and creative problem-solving.

Collaboration with Equinor was strong throughout, ensuring that requirements were well understood and met. Moss Elektro and Slåttland also worked seamlessly together, and their teamwork was central to the project's success.

In the end, the project was both challenging and rewarding, marked by solid collaboration, technical ingenuity, and a shared commitment to delivering a high-quality solution within tight constraints.

AGITATORS & STATIC MIXERS

AG supplies mixing technology for offshore process systems – mechanical agitators from Chemineer for mud applications, chemical injection and viscous, abrasive or corrosive media, and in-line static mixers from Kenics for effective homogenisation of liquids and gases with no moving parts. Both ranges are based on original, well-proven technology and more than 50 years of mixing experience, and every solution is dimensioned to the customer's specific process using advanced design tools and our own engineering resources.

CHEMINEER AGITATORS

Our agitators are specially designed according to the customer's process descriptions and needs. With our many years of experience with agitators for the process industry and the use of advanced design tools, we will always find a solution for the most demanding applications. Used for mud applications, mixing chemicals for injection and mixing viscous, abrasive and corrosive media.

- Wide range of impeller types and material qualities
- Extremely robust gears that are specially adapted for use in agitators



Chemineer agitators



KENICS static mixer with sampling point



UltraTab – very compact static mixer

KENICS IN-LINE STATIC MIXERS

We have the original product and can boast more than 50 years' experience in mixing technology. Static mixers are used for efficiently mixing a range of chemicals and gases, and also when there is a need for accurate sampling results.

- Static mixers have no moving parts and thus a minimal need for inspection and maintenance
- Effective homogenisation of both liquid and gas mixtures
- Accurate determination of water content in crude oil and hydrocarbon streams in «custody transfer» applications

PROCESS SYSTEMS & EQUIPMENT

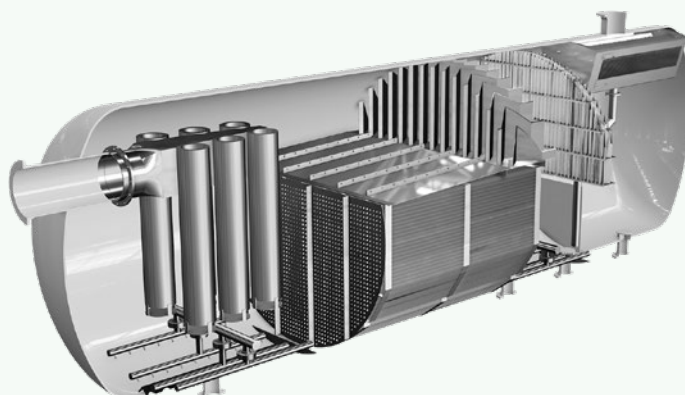
Building on our long-standing expertise in pumps, dehumidification and water treatment, AG has expanded its portfolio to include heat exchangers, pressure vessels, separation equipment, gas treatment systems and industrial valves for offshore and onshore process applications. Projects are supported with engineering, technical documentation, and commissioning services.



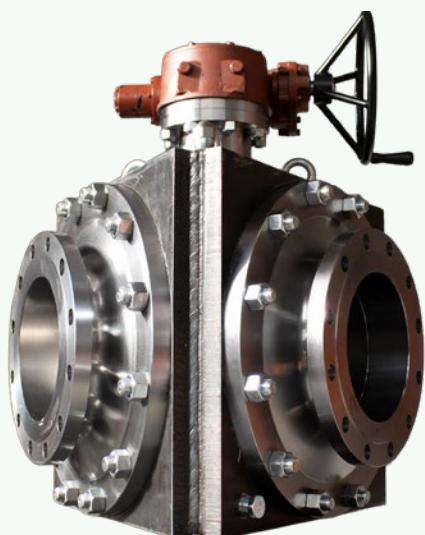
Customized shell and tube heat exchangers from Villa Scambiatori

SEPARATION & PROCESS OPTIMIZATION

Separator performance has a direct impact on plant capacity, efficiency, and equipment protection. Solutions range from gas-liquid separation and knock-out drums to upgrades of existing systems. Where required, CFD analysis and revamp studies can be used to identify opportunities for increased throughput and improved separation efficiency.



Horizontal gas-liquid-gas separator from Costacurta



Multi-port valve from Italbest valve

INDUSTRIAL VALVE SOLUTIONS

Reliable flow control is essential for safe and efficient process operation. Valve solutions are available for isolation, control, and severe-service applications across offshore and onshore facilities. Particular emphasis is placed on matching valve technology to operating conditions, maintenance requirements, and long-term performance expectations.



OUR CONTACTS FOR THE OFFSHORE MARKET



Elisabeth Lode
Senior Project Manager
Filter and Water Treatment Systems
+47 915 36 613



Gard Christensen
Product Manager
Pump and Process Systems
+47 907 81 416



Sveinung Bekken
Product Manager
Dehumidifiers and Drying Systems
+47 957 39 241



Stefan Arfvedahl
Senior Engineer
Technical and Sales
+47 950 39 018



Vebjørn Gerhardsen
Manager
Service Department
+47 922 72 441

AG.NO