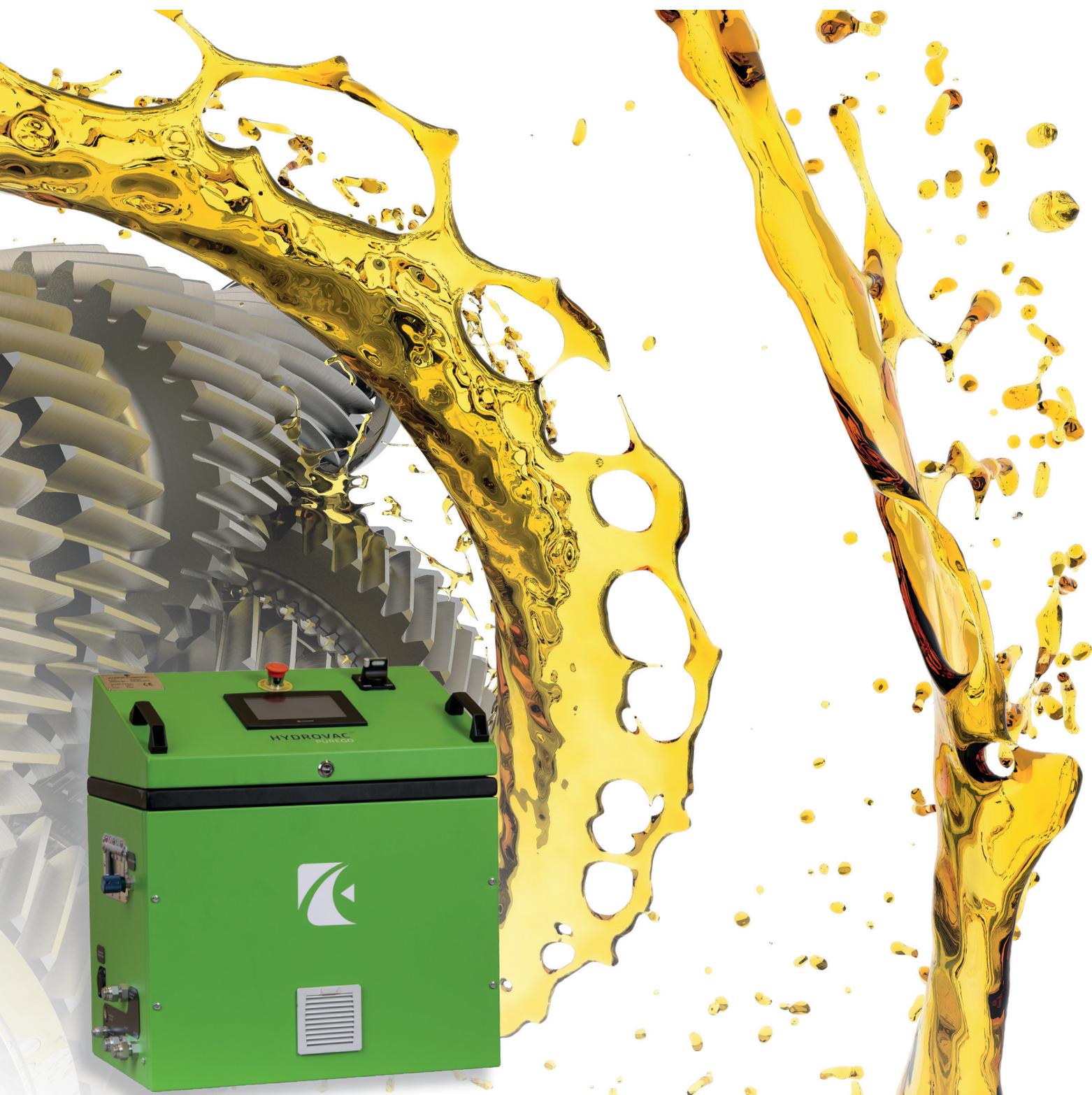


HYDROVAC™

OIL PURIFIER

MAKES YOUR OIL GREENER
AND YOUR OPERATIONS SAFER



HIGHLY EFFICIENT OIL PURIFIER FOR MINERAL, SYNTHETIC AND BIODEGRADABLE OILS

In hydraulic systems, more than 80 % of unplanned down time and failures are a direct result of contamination. Production loss caused by unplanned down time can be costly and time consuming.

PREDICTIVE HYDRAULIC FLUID MANAGEMENT PREVENTS UNPLANNED DOWNTIME

By our proven and patented technology, we remove 100 % of free water and entrained gases and more than 90 % of dissolved water and gases. The Hydrovac™ oil purifier uses two technologies to remove water from oil; vacuum and air stripping.

By minimizing water and gas contamination, a series of problems in hydraulic systems can be reduced or completely eliminated

- Fluid oxidation
- Corrosion
- Bacterial growth
- Maintaining lubricity properties
- Cavitation
- Forming ice crystals if system below 0°C (32°F)
- Foaming
- Uneven motion of actuator/pistons or other components

These are all known problems where the origin can be traced back to water and gas in the hydraulic system.

EASY INSTALLATION – PLUG AND PLAY

HYDROVAC™ OIL PURIFIER, PATENTED PRODUCT COMBINING AIR STRIPPING AND VACUUM TECHNOLOGY

Contaminated oil is drawn into the purifier by the use of vacuum. Before entering the reactor chamber the oil will be heated up to approximately 50°C (122°F). Extensive testing has shown this to be an ideal temperature for most hydraulic fluids, and allows maximum water extraction without damaging the physical properties of the fluid.

The temperature is adjustable to accommodate a wide variety of fluid properties. In addition, air is mixed into the hot oil, attracting the moisture entrapped in the oil when entering the reactor chamber.

By exposing the water-contaminated oil to vacuum, the water and gas converts into saturated vapor, leaving the reactor column in the top area.

The purified oil is then collected in the bottom and pumped back to the reservoir, see illustration page 3.

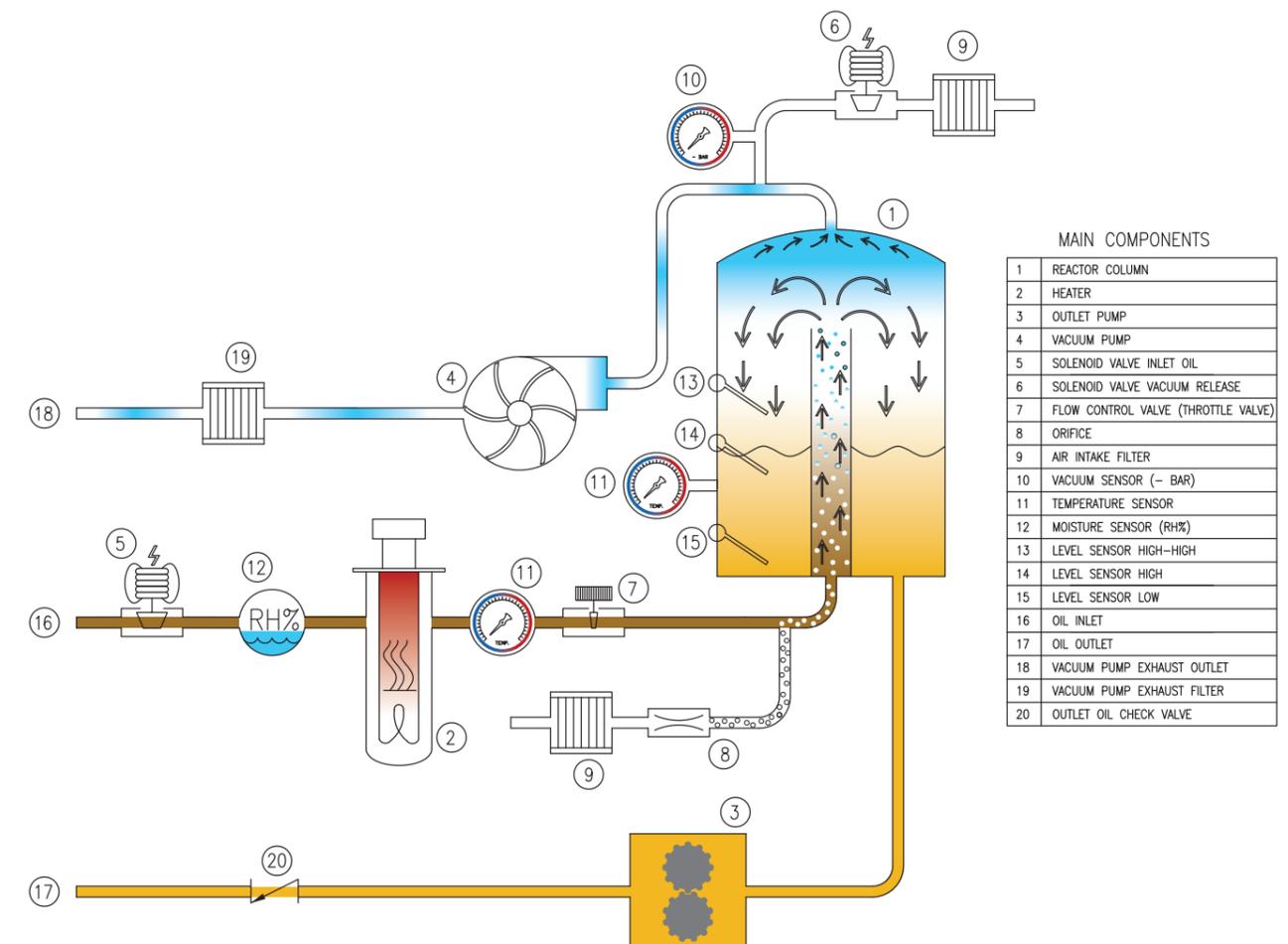


HYDROVAC™ BENEFITS

Hydrovac™ Purifier Systems prolong the lifetime of the hydraulic- and lubrication oil, and have a significant positive impact on the environment. Destruction of oil is expensive both for the economy and for the environment.

Poor quality oil results in up to 30% lower productivity. The result is huge costs in the form of unplanned downtime due to equipment failure.

- Two purifier technologies in one
 - higher water removal effectiveness
- Removes 100 % free water and entrapped gases
- Removes 90-99 % of dissolved emulsions
- Addresses the root cause of particle formation
- Less additives needed (anti corrosion, anti-foaming etc.)
- Low maintenance cost
- Easy installation – plug and play
- Light-weight design
- Portable and compact unit
 - Low space and footprint needed
- Extremely efficient in comparison to similar products
- Flexible – custom-made if desirable
- Short delivery time



SAFER OPERATION



MARITIME

Ship operators rely on effective separation systems to remove harmful contaminants and maximize operational availability, safety and reliability.

Water ingress through damaged and worn seals is a major problem. Common areas affected are propeller systems, thrusters and gear shafts. Minimizing water content in hydraulic oils prevents unplanned machinery breakdown and costly off-schedule docking and repair.

- Propeller systems
- Winches and cranes
- Thrusters and gear shafts
- Water jet – hydraulic
- Reduction gear
- Hatch Cover systems

OFFSHORE

When performance, reliability and Life Cycle Cost counts, the Hydrovac™ oil purifier is recognized as the technology leader. No other industry sets targets and documents the cleanness of oil for their applications better than the Offshore industry.

For subsea systems it is very important to maintain a low moisture content. Treatment with the Hydrovac Oil Purifiers will ensure this.

- Floating Production Storage & Offloading Ships (FPSO)
- Drilling Rigs
- Oil & Gas Platforms
- Unmanned Platforms
- Wind Turbines
- HVDC Converter Platforms
- Subsea Intervention Vessels
- Hydraulic Power Units (HPU's)
- Well Head Control Panels
- ROVs

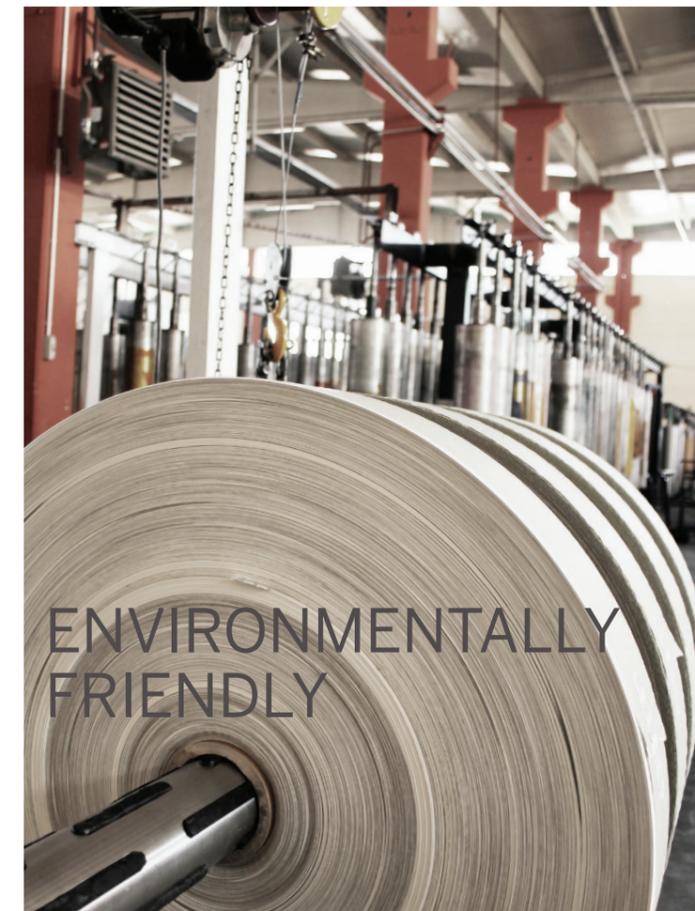
INDUSTRY

Land based industry has a strong focus on cost efficient operations and predictive maintenance. Reliable equipment performance depends on clean hydraulic oil. Preventing water build-up in the hydraulic oil will result in reduced unplanned maintenance cost.

- Pulp and Paper Mills
- Metal Processing Plants
- Mining
- Waste Energy Plants
- Power Generator Plants
- Original Equipment Manufacturers
- Transformer Stations
- Compressors
- Automotive Manufacturers
- Hydroelectric Power Plants



COST EFFICIENT
MAINTENANCE



ENVIRONMENTALLY
FRIENDLY

MODELS

HYDROVAC™ PUREGO

– PORTABLE LIGHT WEIGHTED UNIT

Hydrovac™ PureGo suites the need for a compact purifier capable of cleaning small and medium sized hydraulic systems. Ideal for use on reservoirs from 100 litres up to 3000 litres.

As the unit is small and light-weighted, it can easily be moved from one installation to another. The unit has the newest PLC, opening up possibilities for historic data logging and online feedback to control room.



HYDROVAC™ PURECLEAN

– STANDARD MARINE AND INDUSTRY MODEL

Hydrovac™ PureClean is designed for the use in oil systems where water ingress is a constant or regular problem. It is a compact standalone unit, and is capable of handling a wide range of oil viscosities.

Outfitted with casters, the unit can also be moved around to suite several applications if needed. The model comes with a wide range of options and suites most of the marked needs for water and gas removal from different oil types.



HYDROVAC™ PUREEX

– ATEX APPROVED PURIFIER FOR INSTALLATION IN HAZARDOUS AREAS

The Hydrovac™ PureEx has the same capacity as the Hydrovac™ PureClean. However, due to the nature of its typical installation, it holds a stronger safety standard. The unit is PLC controlled which allows for better supervision and predictive maintenance.

The material used is mainly 316 SS. All components are certified according to ATEX, for installation in zone 1 areas.



HYDROVAC™ PUREFLEX

– ATEX APPROVED PURIFIER FOR CUSTOM MADE HYDRAULIC SYSTEMS

The Hydrovac™ PureFlex is in principal and function equal to the Hydrovac™ PureEx, but is engineered and prepared to be integrated inside hydraulic systems.

It can be delivered with its own control system or to be fully integrated to the main HPU's control system.



TECHNICAL DATA

	PureGo	PureClean
Oil viscosity	10 - 150 cSt @ 40°C (105°F)	10 - 700 cSt @ 40°C (105°F)
Type of hydraulic oil	Mineral, synthetic and biodegradable oil	
Max. size of reservoir	3.000 litres	15.000 litres
Circulation capacity	50 - 250 litres / hour	100 - 600 litres per hour
Normal operating vacuum	- 0.9 barg	
Temperature range	15 - 80°C (60 - 175°F) Normal process temperature 50-60°C (120 - 140°F)	
Heater element	2 kW	6 kW
Water removal efficiency	100% free water and gases - 90% or better dissolved water and gases	
Voltage	230V - 1 phase	230V - 3 phase, 380/400V - 3-phase
Frequency	50/60 Hz	
Max. electrical power consumption	2.7 kW	7.4 kW
Weight (dry)	60 kg	150 kg
Dimensions (L x W x H)	600 x 400 x 670 mm	600 x 400 x 1040 mm
Inlet connection	1/2" BSP	3/4" BSP
Outlet connections	1/2" BSP	1" BSP
Hook up	External circuit (kidney) to oil reservoir	
Portable solution	Yes (option)	
Filters for particle removal	Yes (option)	

TECHNICAL DATA

	PureEx	PureFlex
Oil viscosity	10 - 700 cSt @ 40°C (105°F)	
Type of hydraulic oil	Mineral, synthetic and biodegradable oil	
Max. size of reservoir	15.000 litres	
Circulation capacity	100 - 600 litres per hour	
Normal operating vacuum	- 0.9 barg	
Temperature range	15 - 80°C (60 - 175°F) Normal process temperature 50-60°C (120 - 140°F)	
Heater element	6 kW	
Water removal efficiency	100% free water and gases - 90% or better dissolved water and gases	
Voltage	230/400/690V - 3-phase	
Frequency	50/60 Hz	
Max. electrical power consumption	9 kW	
Weight (dry)	450 kg	Custom made
Dimensions (L x W x H)	1200 x 800 x 1100 mm	Custom made
Inlet connection	3/4" BSP	Custom made
Outlet connections	1" BSP	Custom made
Hook up	External circuit (kidney) to oil reservoir	
Portable solution	Yes (option)	No
Filters for particle removal	Yes (option)	



ELLINGSEN GROUP

Ellingsen Group consists of the following companies; Haakon Ellingsen AS and Ellingsen Indutech AS.

Ellingsen Group supply products for valves, actuation, instrumentation and filtration to oil & gas, marine and land based industrial market. We combine quality products with decades of experience to design, engineer and provide the most beneficial solutions.

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OUR OVERALL VISION:
TO BE OUR CUSTOMERS
BEST CHOICE