Modern Duplex Filters for Large Engines
Modern Duplex Filters for Diesel, HFO and Lube Oil

Filtration plays a key role in developing and optimising heavy engine technology. The quality of the fuel has a direct effect on engine emissions. Particles in the fluid damage the enhanced fuel systems required to comply with the emissions standard. The trend in engine technology development towards optimising consumption, exhaust gas and costs while increasing performance is continuing unabated. The increasingly complex injection systems of the heavy engines require the fuel to be virtually free of contamination particles.

To offer the most efficient filtration for every large engine HYDAC provides different filter and filter element designs for different applications depending on the fluid type that is employed.

| Selection of the modern duplex filter type depending on the fluid: |

**Lube Oil**

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**Diesel Fuel**

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**HFO Fuel (and Diesel Fuel)**

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**Preference filter**

On inquiry
**FMND Duplex Filter**

**Technical Data:**
- Sizes: 60 up to 400
- $p_{\text{max}}$ = up to 250 bar
- $Q_{\text{max}}$ = up to 400 l/min
- Fluids: Hydraulic and lube oil
- Temperature range: -10°C up to +100°C

**Benefits:**
- Enables 24 hour operation even during element change
- High efficient filter element technology
- Type approval

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**RFLD Duplex Filter**

**RFLD 111**

**Technical Data:**
- Sizes: 111 up to 2701
- $p_{\text{max}}$ = up to 16 bar (RFLD 2701)
  - up to 25 bar (RFLD 331-1321)
  - up to 40 bar (RFLD 111-261)
- Filtration area: up to 38,500 cm²
- Connections: DN25 up to DN150
- Material: EN-GJS-400-15 (sizes 111 – 1301)
- Material: EN-GJS-400-18TL (size 2701)
- Type approval
- Fluids: Lube oil, diesel and HFO (up to 180°C)
- L-ball valve

**Optional Devices:**
- Cover safety device
- Hetaing device
- Indicators

**Benefits:**
- Enables 24 hour operation even during element change
- Maintenance without machine downtime possible
  - Increased machine availability
- Improved service, due to upward element change
- Compact designs thanks to function integration
  (different additional devices as options available)
- High-efficient particle-separation

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**RFLD 331**
Modern Diesel Fuel Filtration for Large Engines

HDPD for Diesel Fuel Pre-Filtration

The HYDAC Diesel PreCare (HDPD) is a modern Diesel filtration system, to protect OEMs and operators from operation malfunctions, failures as well as expensive service operations. It offers best performance data through a two-stage water separation as well as excellent filtration behaviour through the use of synthetic media.

Technical Data:

- Size: 1800
- Q_{\text{max}} = 1,800 \text{ l/h (duplex operation)}
- Filtration area: appr. 13,000 cm²
- Connection: M33x2
- Type approval
- Hanging bowls

Benefits:

- Maintenance without machine downtime possible
- Increased machine availability
- High-efficient water separation > 95 % (real)
- High-efficient particle separation

HDMD for Diesel Fuel Main Filtration

Main fuel filters are installed on engine and system level as indicator or working filters such as the HYDAC Diesel MainCare Duplex (HDMD). Depending on the application different filter elements are installed in the filter such as wire mesh (nominal filtration) or ultrafine, multi-layer glass fibre or plastic mesh.

Technical Data:

- Size: 2200
- Q_{\text{max}} = 4,000 \text{ l/h (duplex operation)}
- Filtration area: appr. 13,000 cm²
- Connection: M33x2
- Type approval
- Hanging bowls

Benefits:

- Maintenance without machine downtime possible
- High-efficient particle separation
- Compact design
High Efficient Filter Element Technology for Duplex Filters

Optimicron® FuelFine (ON/FF)

OEMs usually request cleanliness classes down to ISO 11/8/7 due to modern and high-efficient injection systems. The new Optimicron® FuelFine filter elements were developed for these high demands. Ultrafine glass fibre media contribute to an highly efficient filtration of the fluid, matching the required cleanliness classes.

**Technical Data:**
- Finest filter material (glass fibre)
- Micron rating: 1 μm
- Max. collapse pressure: 20 bar
- Temperature range: -10°C up to 100°C
- Flow direction: outside to inside
- Sealing material: FKM
- Standard: without Bypass
- Option: 2-stage element with additional upstream glass fibre filter stage
- Fluid: Diesel

**Benefits:**
- Multi-layer filter concept with ultrafine filtration
- High dirt holding capacity
- Special element structure
- Extreme cleanliness demands are matched: ISO classes below 11/8/7 possible
- Smooth operation and long service life of the engine

Wire Square Mesh / Dutch Weave

Wire square mesh and dutch weave filter elements sufficiently match the requirements of Diesel and HFO fluid care.

**Technical Data:**
- Nominal filter materials
- Micron ratings: 10, 25, 34 μm
- Micron rating: ≥ 10 μm
- Max. collapse pressure: 10 bar
- Temperature range: -10°C up to +150°C
- Flow direction: outside to inside
- Sealing material: FKM
- Standard: without bypass
- Fluid: Diesel and HFO
- Typically used as indicator filter

**Benefits:**
- Resists extremely high temperatures
- Overall media compatibility
- Very low Δp

Dieselmicron®

Innovative element technology for Diesel pre- and main filtration.

**Technical Data:**
- Finest filter material (glass fibre)
- Micron ratings (pre-filtration): 7, 10, 30 μm
- Micron ratings (main filtration): 1 μm
- Temperature range: -10°C up to 100°C
- 2-stage element design for pre-filtration
  - Particle removal and droplet coalescence (1st Stage)
  - Water removal (2nd Stage)
- Fluid: Diesel

**Benefits of Dieselmicron® for pre-filtration:**
- Dual function: Diesel particle filtration and water separation through the two-stage design
- High performance stability, due to an efficient water separation on clean side over the entire service life
- Element change = complete overhaul, since the water separation stage integrated in the element is also replaced
- Environmentally friendly thanks to fully incinerable element design

**Benefits of Dieselmicron® for main filtration:**
- Environmentally friendly thanks to fully incinerable element design
- Multi-layer filter concept with ultrafine filtration
- High dirt holding capacity
- Special element structure
- Extreme cleanliness demands are matched: ISO classes below 11/8/7 possible
- Smooth operation and long service life of the engine
Marine Duplex Filters
Applications

Container vessels
LNG tankers & FSRU's
Navy vessels
Cruisers
Ferries
Heavy lift cargo vessels
Floating power plants
(Vehicles) Carrier vessels

The information in this brochure relates to the operating conditions and applications described. For applications or operating conditions not described, please contact the relevant technical department. Subject to technical modifications.
Questionnaire
Fluid Filters for Large Engines

Company: ___________________________ Phone: ___________________________
Name: ___________________________ Fax: ___________________________
Address: ___________________________ Mobile: ___________________________
E-mail: ___________________________

**Machinery and system data:**

| Project | Power Plant: ☐ | Vessel: ☐ |
|------------------|------------------|
| Engine manufacturer: ___________________________ | Type: ___________________________ | Quantity: ___________________________ |

**Filter 1:**

<table>
<thead>
<tr>
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<th>Single filter: ☐</th>
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<td>Micron rating: ___________________________</td>
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<td>Fluid temperature: ___________________________ °C</td>
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<td>Indicator response pressure: _____ bar</td>
<td>Visual signal: ☐</td>
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