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Fuel Treatment System
KFWA MAIN

Flow capacity: 670 l/h to 8000 l/h

1. Brief description

Safe, fully automatic filtration and water separation

- Application mainly in shipping
- Filtration and water separation in one system
- Straightforward operation
- Mature technology and sturdy design
- High operational safety
- Application mainly in shipping
- Residual water content less than 70 ppm free water content and thus significantly more efficient than conventional treatment systems
- Low operating costs
- Low maintenance requirement
- Service-friendly and easy to use
- Global sales and service

2. Function

The KFWA is used for fuel filtration and separation. The system is delivered in two parts (pump module/treatment module) for easier adaptation to the on-site conditions. The geared pump pumps the medium to the treatment stage, where the fuel is filtered and separated. Separated water is detected by a probe and discharged automatically. The soiling of the treatment stage is monitored using the differential pressure. If the differential pressure reaches 2.0bar, the main alarm appears (preliminary alarm: 1.8 bar) and the interior treatment element must be replaced. If it is not possible to replace the element despite the alarm message, the pressure continues to rise until the relief valve fitted to the pump opens the bypass. The fuel then flows unfiltered past the treatment stage, and the engine filters are then responsible for filtration. In this case, the fuel is no longer dewatered due to the bypass. The KFWA BY system has been designed for use between storage tank and main engine.

3. Approvals / acceptances

Classification:	Germanischer Lloyd Type Approval Lloyds Register Type Approval
Acceptances:	On request

4. Purpose

Medium:	Diesel Fuel EN590, ASTM D975 1D&2D, BS2869 Fuel oil / heating oil acc. to. DIN 51603 - 1 Diesel Fuel with particular low sulfur (15 ppm Marine Diesel Fuel (MDF) or Marine Gas Oil (MGO): DMX, DMA, DMZ, DMC acc. to ISO 8217 Bundeswehr Nato Fuel F75 acc. to TL-9140-0003, 8 Bundeswehr Nato Fuel F76 acc. to DEFSTAN 91-4, 7
Viscosity:	2 …13 [cST at 40 °C]
Water content inlet:	max. 1000 ppm
Water content outlet:	approx. 70 ppm free water content

5. Operating parameters

KFWA type	**KFWA 1**	**KFWA 2**	**KFWA 3**	**KFWA 4**
Flow capacity [l/h] max.	800	2000	4400	8000
Ambient temperature [°C]	min. 2 - max. 55			
Operating temperature [°C]	min. 2 - max. 45			
Operating pressure [bar]	min. 0.7 - max. 6			
Pressure loss [bar]	max. 2.7			
Medial water separation grade per Element (Drop size / Water concentration intake) 60 µm/1500 ppm: 300 µm/1500 ppm: 60 µm/20000 ppm:	Element FC-001-030-19 ≥ 95 % ≥ 97 % ≥ 85 %	Element FC-001-040-PS 10 ≥ 98 % ≥ 98 % ≥ 97 %	Element FC-001-040-19 ≥ 99 % ≥ 99 % ≥ 96 %	
Medial particle separation grade per Element 4 µm: 6 µm: 10 µm: 15 µm:	 ≥ 75 % ≥ 85 % ≥ 98 % ≥ 99 %	 ≥ 77 % ≥ 94 % ≥ 99 % ≥ 99 %	 ≥ 77 % ≥ 76 % ≥ 90 % ≥ 99,7 %	

6. Technical data

6.1 Electrical data/control				
KFWA type	**KFWA 1**	**KFWA 2**	**KFWA 3**	**KFWA 4**
Power consumption [kW]	< 2	< 3	< 4	< 5
Control voltage	24V AC			
Protection class	min. IP54			
Operating mode	Start-Stop			
Potential-free contacts	- Monitoring main switch - Monitoring motor protection switch - Water alarm - Differential pressure preliminary alarm - Differential pressure main alarm - Monitoring pump operation			
Colour of switch cabinet	RAL 7035			
Available voltage range	400 V 50 Hz; 460 60 Hz; 230 V 50 Hz; 265 V 60 Hz (others on request)			

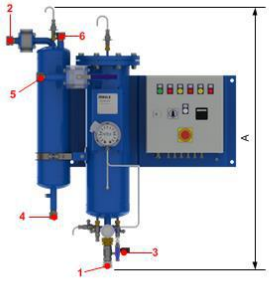
6.2 Tank	
Design pressure [bar]:	6
Design temperature [°C]:	100
Testing pressure [bar]:	9
Design Code:	GL
Material:	Steel
Corrosion allowance [mm]:	1

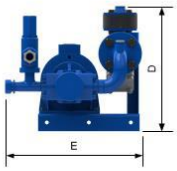
6.3 Steel structure finishing	
Frame:	Sand-blasted SA 2½, coated
Pipes:	Sand-blasted SA 2½, coated outside
Outside of tank:	Sand-blasted SA 2½, coated
Inside of tank:	Sand-blasted SA 2½
Colour:	RAL 5019
(double coating comprising primer coat and top coat – dry layer thickness: 120 µm)	

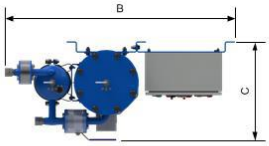
7. Pump

KFWA type	**KFWA 1**	**KFWA 2**	**KFWA 3**	**KFWA 4**
Flow capacity [l/h] max.	800	2000	4400	8000
Suction head [m]	max. 2			
Pressure head [m]	min. 3			
Opening pressure relief valve [bar]	3			

8. Dimensions and main connections





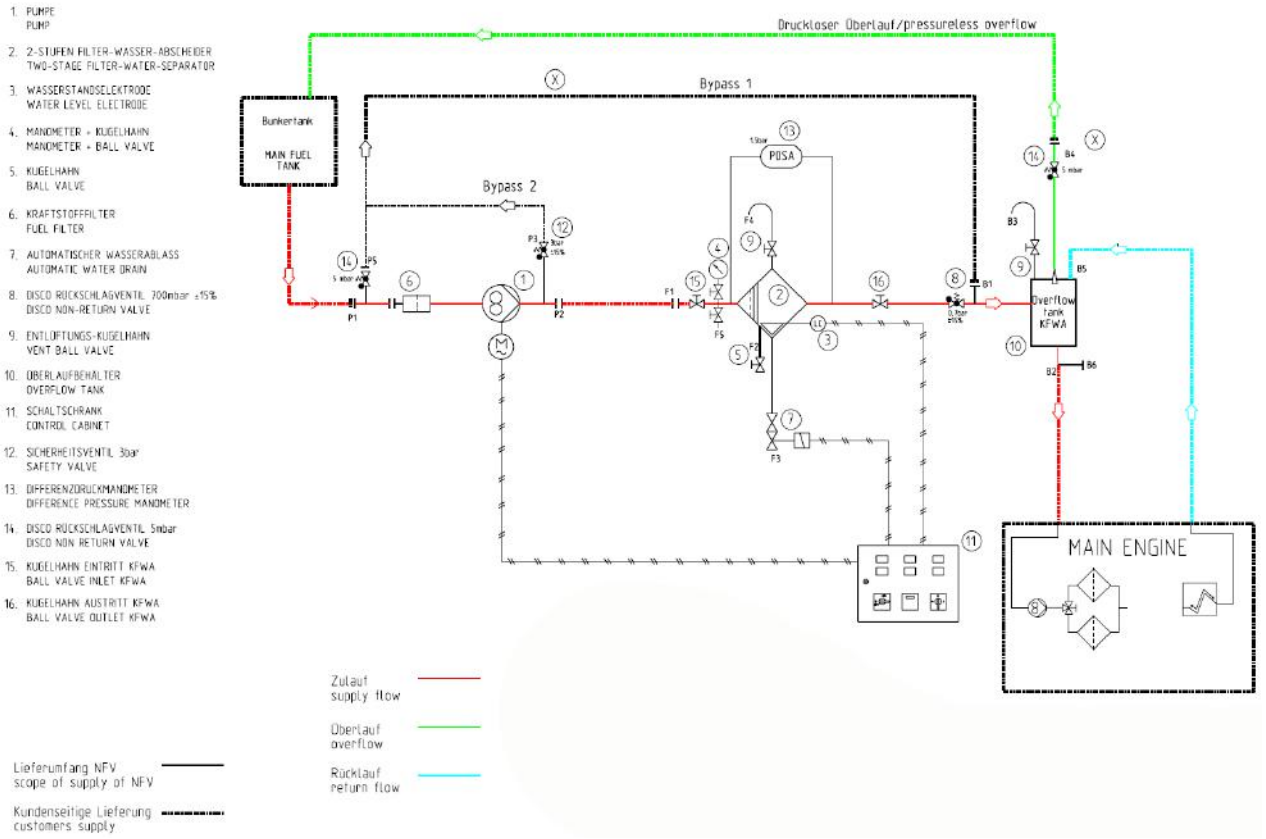


1 Inlet
2 Overflow
3 Water drain
4 To Engine
5 Bypass
6 From Engine
7 Inlet
8 Outlet
9 Bypass 1
10 Bypass 2

KFWA-type	KFWA 1	KFWA 2	KFWA 3	KFWA 4
A	960	1255	1510	1900
B	1095	1132	1210	1700
C	435	487	582	700
D	425	526	527	580
E	425	465	600	645
F	510	645	725	910
1	28x2	28x2	DN40	DN50
2	28x2	28x2	DN32	DN40
3	8x1	8x1	8x1	8x1
4	28x2	28x2	DN40	DN50
5	28x2	28x2	DN40	DN50
6	28x2	28x2	DN32	DN40
7	DN25	DN40	DN50	DN65
8	28x2	28x2	DN40	DN50
9	28x2	28x2	DN35	DN50
10	DN25	DN25	DN40	DN50

Dimensions in mm.

9. Flow chart



10. Additional options

Deviating design (wall system), coating, voltage supply, volume flows and many other options available on request.

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