

KDF-K



DUPLEX FILTER
PN 10–25
DN 15–125
ANSI 1/2"–5"
JIS 15–125
GOST 15–125

Application areas

The KDF duplex filter can be used in pressure and suction modes and is versatile for coarse and fine filtration. It is characterized by continuous filter operation during the cleaning possibility. The filter is compatible with the KSF series. The filter combines the so-called housing sizes (GR) with the various nominal widths (DN) of the flange connection.

KDF-K has a bolts and nuts lock and can also be delivered with screws and nuts as well as with a quick acting lever lock (medium-dependent - risk analysis required). Subsequent on-site retrofitting is also possible.

Brief description and function

The duplex filter, cast as a component, comprises two identical single filters, connected via a cock-switching device to a filter side or can be operated in parallel. Medium to be filtered enters the filter basket from the top and flows through the insert inside out.

Dirt thus remains in the filter element.

As a special version, the filter is also available with star filters (changed inflow).

Safety instructions

Filters with lever locks are not suitable for the filtration of hazardous media (e.g. poisonous, inflammable or corrosive). In such cases, screws and nuts must be selected as lid closures. Generally, use of filter with switching valve must be checked for hazardous media (leakage rate permitted by the design). KDF-K filters are not suitable for the filtration of gases.

Check the filter for intended operation prior to usage. Conformity assessment as per PED EN 2014/68/EU EC must be done for changes in operating conditions or the media (kindly contact us for the same or run a risk analysis with conformity assessment).

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Type Approval
Certificate No. 16/20086

Krone Filter®
SOLUTIONS IN FILTRATION

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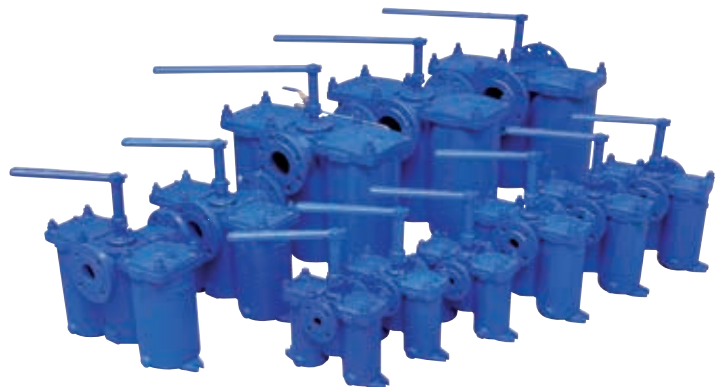
ISO 9001:2008



DN 20 – DN 125 PN 10/16
(plug switchover)
E.g. Ductile iron



DN 20 – DN 125 PN 10/16
(plug switchover)
E.g. Bronze



Commissioning

- Check whether all screws and locks have been tightened properly.
- Check the position of the switching lever (there is a covered  on the switching valve, which defines the direction of flow and/or shows "in operation" on the filter pot. The handle must be fitted accordingly).
- Venting: Venting device fitted in the housing of every single filter is open till the fluid discharges. The filter is ready-to-operate after venting the single filter.

Approvals

3.1. Certificate, DGRL / TÜV, GL, LS, DNV, ABS,
TR TF / TR CU Certificates (EAC),
Lloyd's Register Type Approval Certificate No. 16/20086



Cleaning/Operation

Note: Since it is a pressure vessel, it is important to ensure that the container is without pressure prior to beginning of maintenance.

1. As soon as the filter half is dirty (increasing differential pressure on the indicator or decreasing operating pressure in the system), the clean filter half is put into operation by gradual switching of the plug valve.
2. Proceed with cleaning (removal of filter element) only after opening the venting device slowly and
3. if the filter is build with a pressure equalization line (see picture on page 4), then open line for easier switching.
4. After opening the drain plug and draining the remaining fluid from the container (filter side to be cleaned):

Caution: note maximum differential pressure of the filter (standard $D_p = 1 \text{ bar}$)

Cleaning

The filter side to be cleaned must be depressurized (open vent carefully after switching over to the other filter side)

1. Then lift by loosening the filter cap or the screws and nuts of the cover of the filter half to be cleaned.
2. Note cover gasket integrity during assembly, replace if necessary.

Important: Duplex filter with switching valves have a permissible leakage rate, leakage rate of the KDF filter at delivery condition at max. design pressure (P_{design}) is approx. 20% of the contents of the vessel in approx. 30 minutes.

INFORMATION: Hence, do not leave the opened filter unattended and if required, keep an already cleaned reserve filter element ready for replacement.

Important information for switchover

For media having corrosion effect on the material of the filter, switching must be actuated regularly (2-3 times) per week.

Alternative to the standard switching valves in EN GJS-500-7, switching valves in bronze or standard coated with Magna Coat® are also available.

Vessel

DIN EN GJS-500-7 / (GGG-50 / ASTM 80-55-06)
alternatively annealed GJS-400-18 / (GGG 40.3)

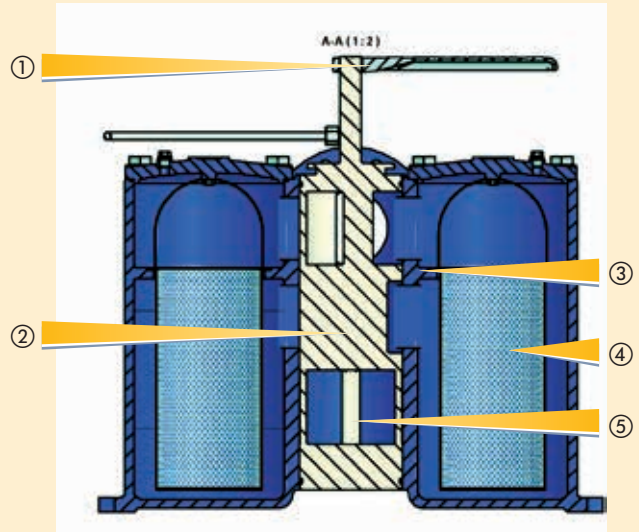
Alternative vessel material

RG 5/10 G-CuSn5(10)ZnPb

Heating

Filters may be additionally fitted with heaters for smooth start and continuous reduction in the viscosity of the medium to be filtered.

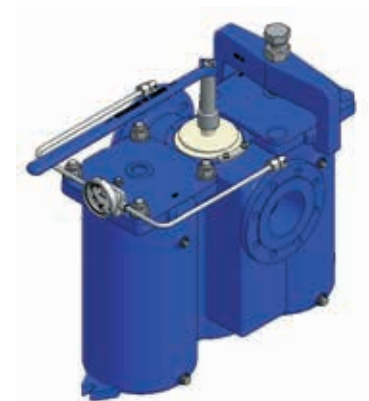
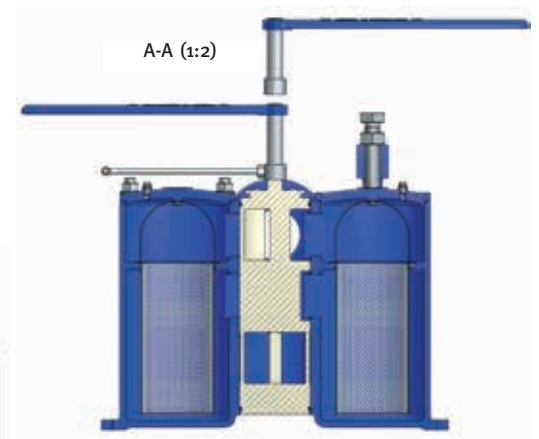
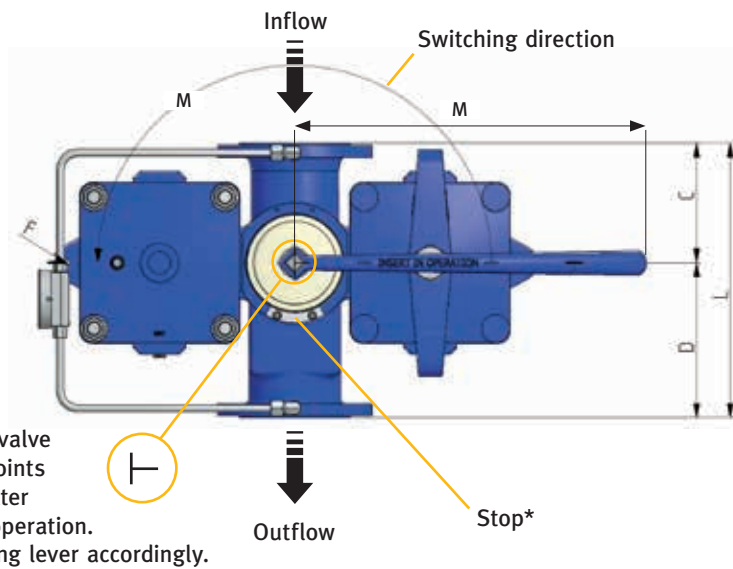
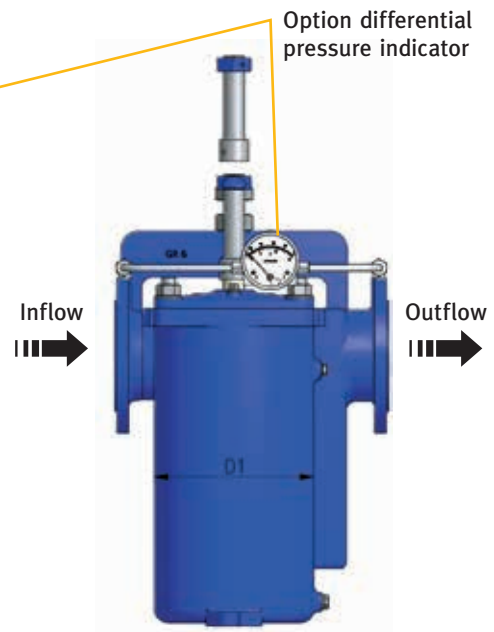
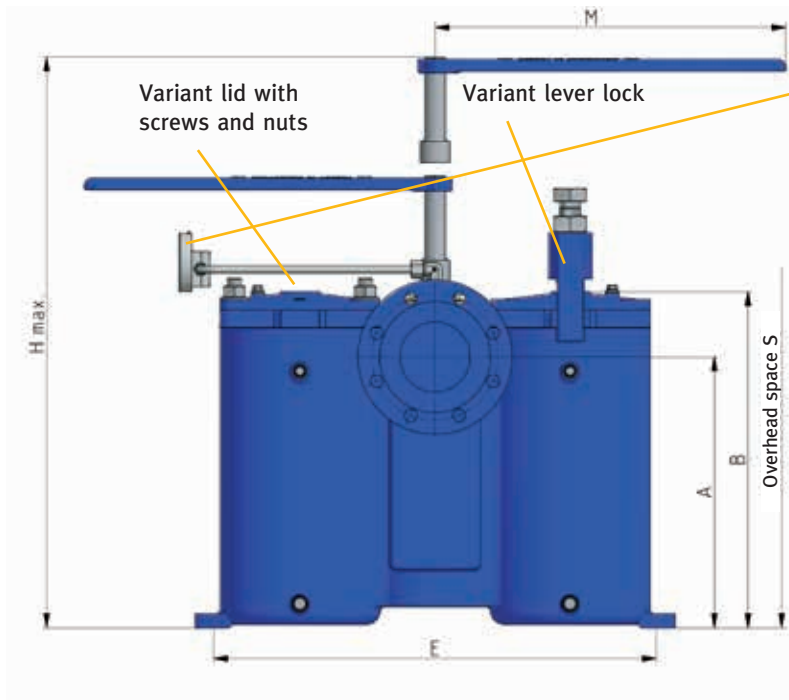
Advantages of KDF-K



- ① Large ergonomic switching lever
- ② Smooth switching due to smoothened surface
- ③ Combination of connection flanges to housing sizes/ filter areas
- ④ Dirt remains in the basket strainer
- ⑤ Medium-resistant switching in
 - nodular cast iron
 - bronze
 - polymer coated

Technical data and dimensions 1

Flange opposite duplex filter with switching valves



*Switching direction of the switching lever can be changed by changing the stop.

Technical data and dimensions 2

Flange opposite duplex filter with switching valves

Housing-size	Nominal diameter Flange connection	Pressure stage		ØD1	A	B	C	D	E
	DN	Lock	Screws						Range of the base
	mm	bar	bar	mm	mm	mm	mm	mm	mm
2	15	16	16	102	185	242	80	95	290
2	20	16	16	102	185	242	80	95	290
2	25	16	16	102	185	242	80	95	290
3	32	16	16	127	235	298	100	130	364
3	40	16	16	127	235	298	100	130	364
3	50	16	16	127	235	298	100	130	364
4	50	10	16	168	267	328	125	190	504
4	65	10	16	168	267	328	125	190	504
4	80	10	16	168	267	328	125	190	504
6	65	10	16	228	385	478	175	220	655
6	80	10	16	228	385	478	175	220	655
6	100	10	16	228	385	478	175	220	655
6	125	10	16	228	385	478	175	220	655
7	150	10	16	262	505	648	230	310	800
7	200	10	16	262	505	648	230	310	800
7	250	10	16	262	505	648	230	310	800

Housing-size	F	S	H	L	M	Flow rate	Contents	Filter area	Pleated*	Weight
	Diameter	Filter over-head space	Height	Installation length	Lever length	at 2.5 m/s		Basket strainer		
	mm	mm	mm	mm	mm	m³/h	L	cm²	cm²	kg
2	14	450	420	175	300	3	1,2	270	on request	21
2	14	450	420	175	300	3	1,2	270		22
2	14	450	420	175	300	4,5	1,2	270		22
3	14	550	480	230	300	7	3,5	440		38
3	14	550	480	230	300	12	3,5	440		38
3	14	550	480	230	300	12	3,5	440		38
4	14	650	600	315	500	18	6,5	740		69
4	14	650	600	315	500	30	6,5	740		70
4	14	650	600	315	500	30	6,5	740		70
6	14	900	720	395	500	18	15	1.350		175
6	14	900	720	395	500	45	15	1.350		175
6	14	900	720	395	500	70	15	1.350		175
6	14	900	720	395	500	70	15	1.350		175
7	18	1.200	795	540	500	160	27	2.034		300
7	18	1.200	795	540	500	250	27	2.034		300
7	18	1.200	795	540	500	250	27	2.034		300

* all dimension subject to modification, as built in approved Krone Filter Solutions drawing.

Dimensions only for information – certified dimensions in approved Krone Filter Solutions installation drawing.



Foto shows optional
- pressure equalization pipe
for easy switching

Technical data

	Standard version	Special version and/or additional features
Filter element	Basket strainer insert	Dual strainer, star strainer, wedged wire
Filter unit	25 - 1000 µm: Fabric with support plate, 1 mm onwards: Perforated plate, 1 mm onwards: Perforated plate with round hole	Filter element 25–2,000 µm, 1-10 mm
Filter cap	Stud screws and nuts	Lock
Venting device	Screw	Ball valve
Draining device	Screw	Ball valve
Connection	Flange as per EN 1092-1 11B Flange position: as against the height	ANSI, JIS, as per customer specification GOST
Material:		
Housing and lid	DIN EN GJS-500-7 / (GGG-50 / ASTM 80-55-06)	RG 5/10/G-CuSn5(10)ZnPb GGG-40.3 / EN GJS 40-18 LT
Lid gasket O-ring	NBR	FPM, EPDM, PTFE
Perforated plate/fabric	St, St/1.4401, 1.4301, 1.4301/1.4401	1.4571/-, 1.4571/1.4401, MS/-, MS/BZ
Switching cock (up to DN 100)	EN GJS-500-7 / (GGG-50 / ASTM 80-55-06) oil version EN GJS-500-7 coated cock with Magna Coat® polymer/flourpolymer (water version)	RG5 G-CuSn5ZnPb
Venting	Stainless steel screw 1/4"	Brass, ball valve, as per specification
Extras		
Additional filter	-	Magnetic filter element
Heater	-	Vapour, oil, warm water or electric heating
Zinc protection	-	for sea water filter
Differential pressure indicator	-	optical, electrical, contacts
Body/Cover Surface treatment		
internal	Anti-corrosion primer or untreated	Anticorrosion oil, epoxy resin coating, rubber coating
external	Synthetic resin coating RAL 5010	RAL as per specification
Design/Certification	Declaration of Conformity, 3.1 Material Certificates – Lloyds Register certified foundry acc. to DGRL 201468/EU (CE)	on request

Accessory

We produce and deliver additional design and material variants on request.

We solicit your request.



Magnetic piston type pressure gauges for differential pressure



DN/NW 80 unit with Dp Indicator Dp-MAG



Example KDF-V NW 100 cast iron from product range NW 100-500 Example KDF-W NW 80 SS316 from product range NW 25-500



Lloyd's
Register

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER

Krone Filter Solutions GmbH
Industriestrasse 19
28876 Oyten
Germany

DESCRIPTION

Single, duplex and self-cleaning automatic filter with several housing sizes and combinations made from standard materials spheroidal iron castings EN-GJS-500-7 (GGG 50)* or EN-GJS-400-15 (GGG 40), carbon steel optional rubber lined or stainless steel.

TYPES

KSF, KMF, KDF-K, KDF-V, KAF, KRF

APPLICATION

Filter depending on type for diesel oil, oil or water piping systems in ship and offshore installations classed or intended for Classification with Lloyd's Register.

RATINGS

Filter type:	Nominal pressures: [bar]	Size range:	Material:
KSF	6, 10, 25	DN 15 – DN 600	Spheroidal iron casting
KMF	6, 10, 25	G ½" – 2 ½"	Spheroidal iron casting
KDF-K	6, 10, 25	DN 15 – DN 200	Spheroidal iron casting
KDF-V	6, 10, 25	DN 100 – DN 600	Spheroidal iron casting, carbon steel
KRF	6, 10	DN 32 – DN 400	Spheroidal iron casting, carbon steel
KAF	6, 10	DN 50 – DN 1000	Spheroidal iron casting, carbon or stainless steel,

Certificate No.

16 / 20086

Issue Date

09 September 2016

Expiry Date

08 September 2021

Sheet

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Torsten Schröder
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RATINGS, cont.

Material:	Temperature range:	For fluids**:
Spheroidal cast iron	-10 up to +300°C	MDO, oil, water, seawater
Austenitic stainless steel: 1.4571, 1.4401, 1.4404, 1.4408, 1.4539, 1.4301, 1.4541, SA240-304L, SA240-316Ti, SA240-321, SA240-316L, SA240-904L,	-196 up to +300°C	MDO, oil, nitrogen
Duplex stainless steel: 1.4462, 1.4463, UNS S31803	-40 up to +250°C	seawater
Super duplex: 1.4410, UNS 32750		
Carbon steel: St 50, P235GH, P245GH, P250GH, P265GH, SA516 Gr60, SA516 Gr70	-40 up to +100°C	MDO, oil, water, seawater

**) including fluids and mixture of similar evaluation class
Pressure reductions at elevated temperatures are to be considered.

Media depending on type: KAF, KRF: water, seawater
KSF, KMF, KDF-K and KDF-V: MDO, oil, nitrogen, water, seawater

OTHER CONDITIONS

The manufacturer's installation instructions are to be sought.
*) Not to be used for applications with expected significant chock or vibration loads.

STANDARD

Lloyd's Register Rules and Regulations for the Classification of Ships, July 2016

Certificate No. 16 / 20086
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The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

The Design Appraisal Document No. HTS/ENS 34963-16 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No.	16 / 20086
Issue Date	09 September 2016
Expiry Date	08 September 2021
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