



# KSF®

Strainer basket filter

PN	6–25
DN	15–600
ANSI	1 ½–24"
JIS	15–600
GOST	15–600



Lloyd's  
Register

Type Approval  
Certificate no. 16/20086



ISO9001:2015

Filter gemäß  
**ÖNORM**  
ÖNORM H 5195-1

## Applications

The KSF® filter is a versatile strainer basket filter for liquid media made from GGG-50 (nodular graphite) in accordance with EN-GJS-500-7/ASTM 80-55-06 or Rg 10, (special version). It is characterized by high performance, low weight and space-saving design, as well as an extremely easy, fast cleaning.

- **Flexible combination of housing sizes, filter surfaces and connecting flanges.**

Twelve housing sizes can be supplied with different connecting flanges, which ensures adaptation to the operating requirements and quantities of impurities.

- **Variable filter surface selection.**

## 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

**CE** conformity evaluation according 2014/68/EU and marking according the directive.



Germanischer Lloyd



TR TF  
**EAC**



Lloyd's  
Register



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SOLUTIONS IN FILTRATION

## Brief description

The filter consists of a cast housing with opposing connecting flanges of equal height. The filter cover is alternatively fastened with stud bolts and nuts. The venting device in the cover and drain unit in the housing are included in the scope of supply.

- **Quick-acting clamp for quick cleaning the strainers (to DN 200).**

## Filter media

Alternatively the filter can be equipped with a basket strainer, ring or other inserts. For example the filter insert consists of perforated plate, which is optionally spanned with mesh of different widths. The medium to be filtered flows through the strainer insert from the inside to the outside. The particles remain in the strainer and can be removed with the strainer.

## Safety instructions

Do not use the filter with clamp catch for filtering of hazardous media (e.g. toxic, flammable, or corrosive media) gases or vapors! In these cases select bolts and nuts for the cover catch. Prior to using the filter verify the intended use. If there are changes in operating conditions or the medium then a conformity evaluation in accordance with PED EN 2014/68/EU must be carried out (for this please contact us as the manufacturer or execute a hazard analysis with conformity evaluation). The allowable differential pressure/clogging rate for the insert (page 4., and specific contract documentation) shall not be exceeded and can lead to equipment damage.

## Installation

Installation in pipes is carried out using flanges. Ensure that the standard version of the filter is installed and in a mechanically tension-free manner without additional loads. The medium must flow in the direction specified on the housing. Incorrect installation can cause filter malfunctions and damage the inserts. The allowable differential pressure/clogging rate for the insert (page 3., and specific contract documentation) shall not be exceeded and can lead to equipment damage.

## Commissioning/operating instructions

1. Open the venting device until liquid escapes.
2. Close venting device.
3. Filter is ready for operation.

**Attention:** Since this is a pressure vessel make absolutely sure that the filter is depressurized before starting maintenance tasks. Follow the safety and accident prevention guidelines required for the medium.

## Cleaning

1. Relieve the pressure on the filter by means of the venting device and drain unit.
2. Loosen the filter catch and lift off the cover.
3. Drain the filter via the drain unit to a level that is at least below the strainer support.
4. Pull the strainer insert upward and out of the filter housing. The strainer can now be cleaned by careful blowing it out or blasting it with compressed air, steam, or water. If necessary the strainer must be soaked and cleaned in a suitable cleaning agent. In some circumstances optimum cleaning is achieved by means of ultrasound. For all cleaning types ensure that the filter mesh is not damaged.
5. When assembling the filter in the reverse sequence, check the sealing elements for wear and replace them if necessary.

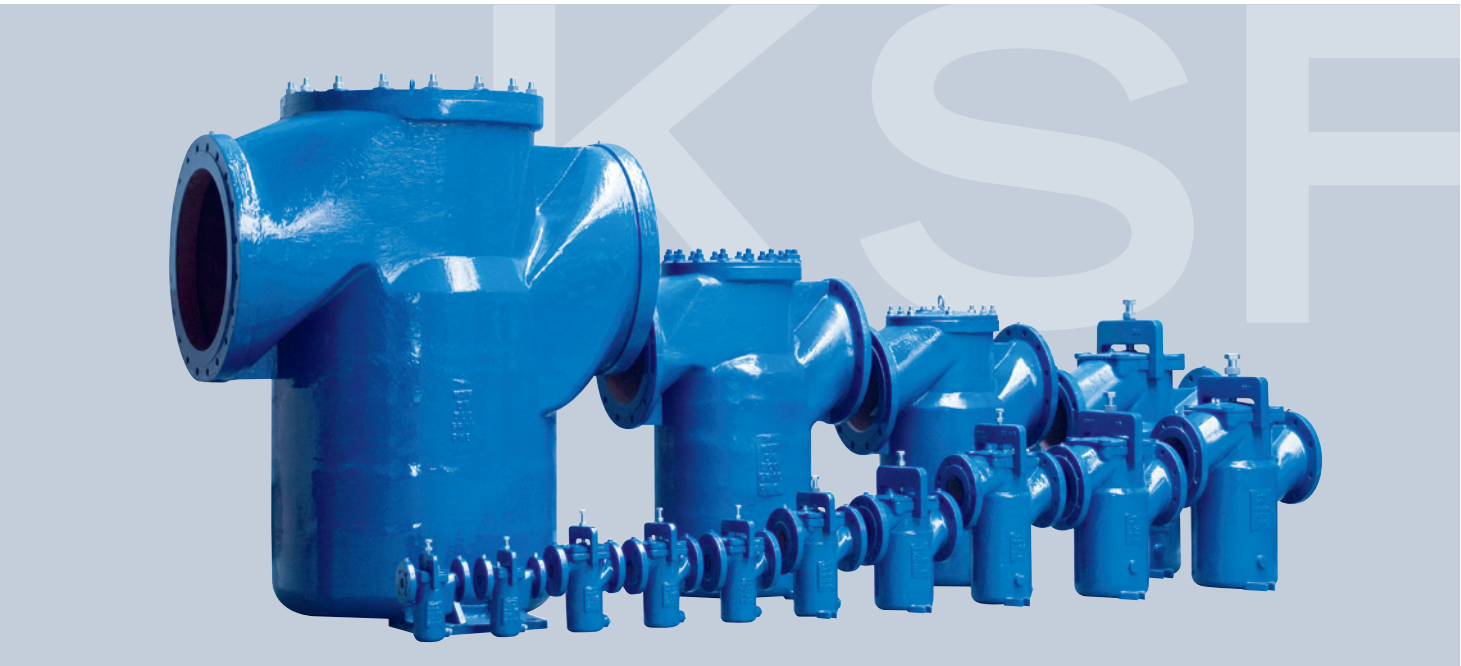
## Download for planners \*

- PDF** Specific data sheet according to GR  
**WORD** Specific data sheet according to GR  
**STEP** Schematics 3D according to DN/GR




[http://www.krone-filter.com/download-step\\_en.php](http://www.krone-filter.com/download-step_en.php)

\* Krone Filter Solutions offers this special service to all clients.



The KSF® "family" from size 1 to size 11

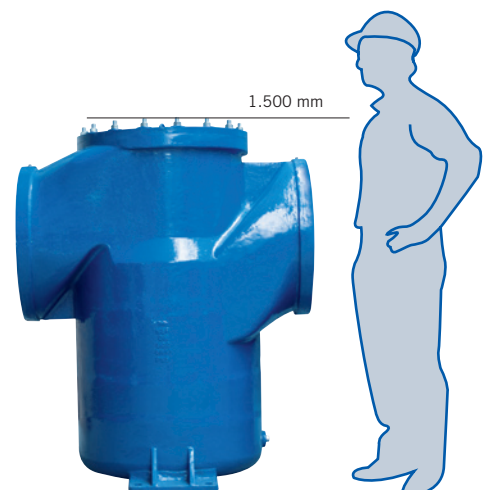
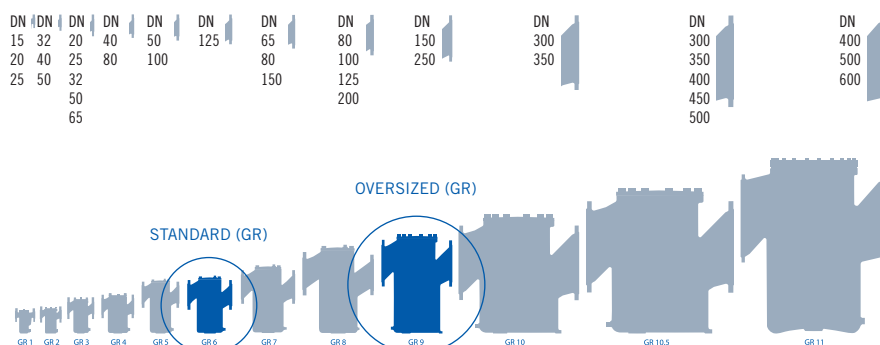
11 body sizes (GR = grade) can be combined with flange sizes DN. This feature allows to comply with filtration requirement of higher filter capacity due to high debris amount or long cleaning intervals if requested.

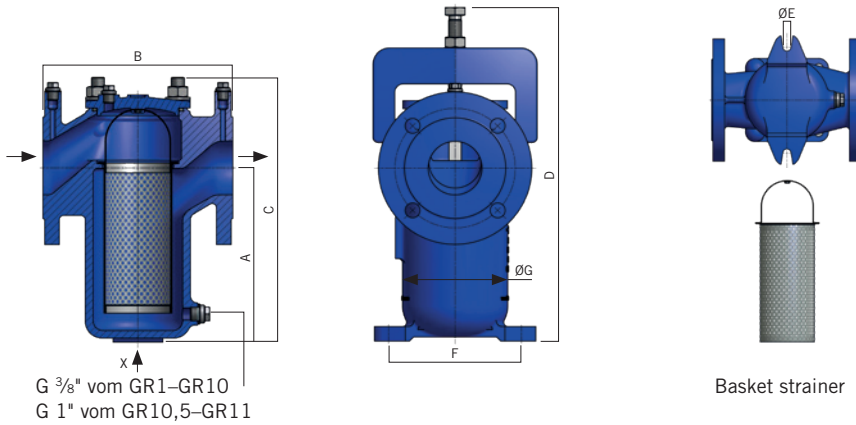
The STANDARD SIZE (GR) (marked with  in the table page 4) is sufficient for all standard filtration requirements. The OVERSIZED (GR) (marked with  in the table page 4) is for applications with very high debris rate and higher intervals of cleaning the insert.

The standard size is always the smallest GR for a available DN, example

- DN 100 GR 5 = STANDARD SIZE (GR)
- DN 100 GR 8 = OVERSIZED (GR)

The dimensioning philosophy applied is that the filter surface is that the INLET pipe diameter to filter surface ratio is 1:4 thus offering 400% more filter surface than inlet pipe surface. Thus offering enough open area that the mesh does not cause additional pressure loss.





Standard connections for differential pressure indicator/switch G 1/4"

KSF® combination version (clamp version pre-drilled), can be converted by using stud bolts.

Basket strainer

Housing	Nom. diameter Flange connection	Vessel design pressure	G	A	B	D	C	E	F	Flow rate	Content	Filter surface area	Weight
Size	DN	Clamp	Bolts**							at 2,5 m/s		Basket	
mm	mm	bar	bar	mm	mm	mm	mm	mm	mm	m³/h	l	cm²	approx. in kg
1	15	16	16 (25)*	81	156	171	264	220	Ohne Füße	3	1	150	6
	20									3			
	25									4,5			
2	32	10	16 (25)*	102	164	189	340	250	Ohne Füße	7	1,2	270	15
	40									12			
	50									18			
3	20	10	16 (25)*	127	214	230	400	315	12	161	3,5	440	25
	25									7			
	32									12			
	40									18			
	50									30			
4	40	10	16 (25)*	168	235	279	450	350	12	201	6,5	740	28
	80									45			
	50									18			
5	80	10	16 (25)*	176	324	317	560	465	12	216	9	950	42
	100									70			
	125									110			
6	65	6	10 (16)*	222	324	379	610	510	14	261	15	1.350	55
	80									30			
	150									45			
7	80	6	10 (16)*	262	389	461	720	580	14	311	27	1.980	75
	150									45			
	80									70			
	100									110			
	125									280			
8	150	6	10 (16)*	322	489	605	890	745	23	360	53	2.950	140
	250									160			
	300									440			
	350									635			
	400									900			
9	150	-	10 (16)*	402	605	604	-	880	23	460	85	3.590	195
	250									700***			
	300									900***			
	350									2.000			
	400									2.500			
10,5	400	-	10 (16)*	680	920	1.166	-	1.425	33	280	485	13.000	1.300
	450									2.000			
	500									2.500			
	400									2.000			
	500									2.500			
11	500	-	10 (16)*	790	1.000	1.246	-	1.500	33	966	600	16.000	1.400
	600									3.000			
	600									3.000			

STANDARD SIZE (GR) OVERSIZED (GR)

\* Special version \*\* For screws dependent on DN and medium to PN 25 \*\*\* Flowrate limited by inlet flange

## Technical data/Safety instructions

Technical data		
	Standard version	Special version or supplemental equipment
Filter insert design	Strainer insert	Cartridges, sleeve strainer
Filter mesh	20–1,000 µm (microns) Stainless steel mesh 1.5–10 mm perforated plate, round pitch	5 µm, square perforation, braid, cartridges, pleated mesh
Filter insert dp pressure	Allowable differential pressure filter insert 1.5 bar	Higher allowable differential pressure for insert possible (design modification)
Filter cover	DN 15–200 combination cover with clamp catch or cover with bolts and nuts. Housing with clamp already predrilled for stud bolts – upgrade by customer possible. From DN 250 bolts and nuts.	
		Clamp, david
Venting device	Bolt, G ¼"	Ball valve/Flange/SW*
Entleerungsvorrichtung	Bolt, G ¾"	Ball valve/Flange/SW*
Connection	Flange in accordance with EN 1092-1 11B	As specified by the customer/ANSI/JIS
<b>Materials</b>		
Housing and cover	GGG-50, DN 1693 DIN EN 1563 or EN GJS-500-07/ASTM 80-55-06	Rg 10, GGG-40.3 (EN GJS-400-18)
Cover seal	NBR	FPM, EPDM, MPQ, PTFE
Perforated plate/mesh	SS316, SS304, SS304/SS316/SS316Ti	SS316Ti/SS316, Ms/Bz, Hastelloy C 4, various plastics
<b>Extras</b>		
Additional filter	-	Magnetic filter insert
Heater	-	Steam, hot water or electrical heater
Zinc protection	-	For sea water filters
Differential pressure indicator	Connection possibility, G ¼"	Optical, with contacts
<b>Body/Cover Surface treatment</b>		
Internal	Anti-corrosion primer	Untreated, anti-corrosion oil, epoxy resin, Chemonit 31 (rubberlined), E-CTFE, Belzona 2011
External	Epoxy paint RAL 5010 blue	Epoxy resin, E-CTFE, Levasynt, customer RAL
<b>Design/Certification</b>		
	Declaration of Conformity, 3.1 Material Certificates – Lloyds Register certified foundry acc. to DGRL 2014/68/EU	3.1. Certificate, DGRL/TÜV, GL, LS, DNV, ABS, LR TA type approval, TR TF/TR CU Certificates (EAC) or on request

\* Depends on size of body

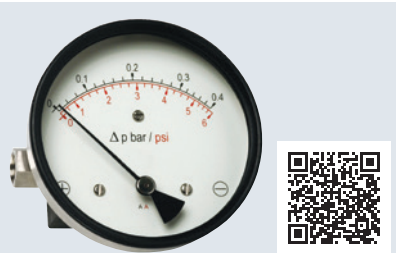
## Heat flanges and differential pressure indicator

On request the filter can be fitted with heat flanges in the floor area as shown in the sketch.

The use of heaters requires the use of ring strainers.



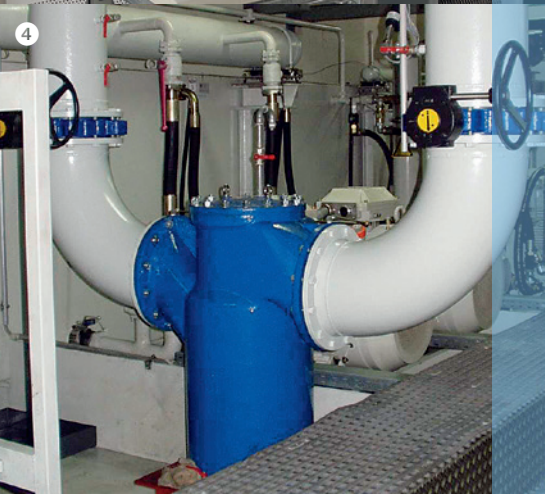
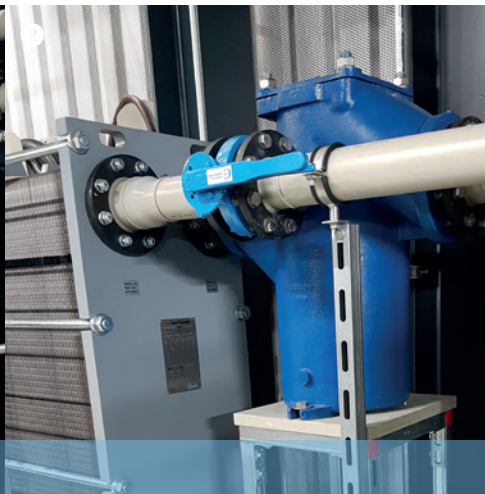
KSF® filter with differential pressure indicator



Differential pressure indicator

<http://www.krone-filter.com/product.php?id=13>





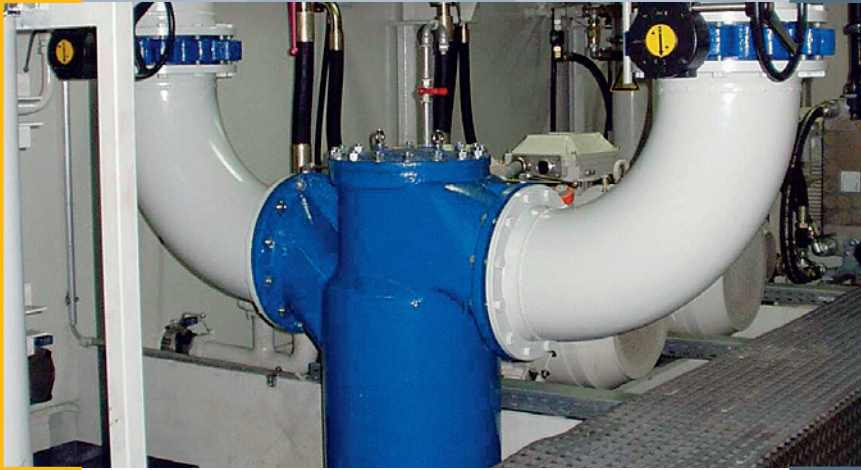
## Application examples

# KSF

- ❶ KSF GR 8, Plate heat exchanger protection
- ❷ KSF GR 8, Plate heat exchanger protection
- ❸ KSF DN 300, Rubberlined
- ❹ KSF DN 300, Strainer



- 5 KSF
- 6 KSF GR 11, Condensate filter, power plant
- 7 KSF GR 11
- 8 KSF GR 11



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## 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**

1 of 3

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Hamburg Technical Support Office  
Lloyd's Register EMEA

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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  
**Issue Date** 09 September 2016  
**Expiry Date** 08 September 2021  
**Sheet** 2 of 3

*Handwritten signature*

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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.*

<b>Certificate No.</b>	<b>16 / 20086</b>
<b>Issue Date</b>	09 September 2016
<b>Expiry Date</b>	08 September 2021
<b>Sheet</b>	3 of 3

*Handwritten signature: Schröder*

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## Design Appraisal Document

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Date  
**09 September 2016**

Please quote this reference number on all future communications  
**HPC1461050/34963-16/TS**

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2014  
ISSUED TO: KRONE FILTER SOLUTIONS GMBH  
FOR: SINGLE, DUPLEX AND AUTOMATIC FILTER  
TYPES: KSF, KMF, KDF-K, KDF-V, KAF, KRF  
TYPE APPROVAL CERTIFICATE NO. 16/20086**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System Procedure TA14 and this Design Appraisal Document forms part of the Certificate.

### APPROVAL DOCUMENTATION

-	Application Form to LR Type Approval	26.11.2014
-	Product Catalogue / general Data sheets for types KSF, KMF, KDFK, KDFV, KDF and KRF	2014
KSF LR Data sheet, Rev. 4	<b>KSF</b>	2016
KSF080.04.16.00.01, Rev. 0	AW 613 PN16 DN80 incl. Parts list	22.04.2008
KSF80.04.16.01.01, Rev. 1	Body DN80 GR4	10.03.2006
KSF000.05.16.02.01, Rev. 0	Cover GR5	25.03.2009
KMF LR Data sheet, Rev. 4	<b>KMF</b>	2016
KMF000.03.05.16.00.01, Rev. 0	KMF GR3 incl. Parts list	22.11.2013
KMF000.03.05.16.01.01, Rev. 0	Body KMF GR3 / GR1 ½" – G2"	22.11.2013
KSF000.03.05.16.02.01, Rev. 1	KSF Cover GR3	24.11.2011
KDFK LR Data sheet, Rev. 4	<b>KDFK</b>	2016
KDFK080.06.05.10.00.01, Rev. 0	KDFK DN 80 PN10 incl. Parts list	24.02.2011
KDFK080.04.05.10.01.02, Rev. 2	KDFK Body GR4 DN80 PN10 JIS 10K	20.03.2014
KSF000.06.10.02.01, Rev. 0	Cover GR6	31.03.2009
KDFV LR Data sheet, Rev. 2	<b>KDFV</b>	2016
KDFV150.07.05.10.00.20, Rev. 1	KDFV GR7 DN150 incl. Parts list	12.07.2012
KDFV150.07.05.10.01.20, Rev. 1	KDFV Body GR7 DN150	27.04.2012
KDFV150.07.05.16.08.20, Rev. 4	KDFV Body Change Over GR7 DN150	12.07.2012
KSF000.07.05.10.02.01, Rev. 0	Cover GR7	24.02.2011

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Date  
**09 September 2016**

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**APPROVAL DOCUMENTATION, cont.**

KAF LR Data sheet, Rev. 0	<b>KAF</b>	2016
KAF150.01.16.05.00.01, Rev. 0	KAF DN150 PN5 JIS B 2220 K5 FF incl. Parts list	16.05.2014
KAF150.00.05.05.01.02, Rev. 0	Body KAF DN150 PN5	16.05.2014
KAF150.00.16.05.01.02, Rev. 0	Body KAF DN150 PN5 rubber lined incl. Parts list	16.05.2014
KAF150.00.05.10.02.01, Rev. 0	KAF Cover DN150 PN 19 / DNC-50	12.12.2013
KAF150.00.16.10.02.01, Rev. 0	KAF Cover DN150 PN 19 / DNC-50 incl. Parts list	12.12.2013
KRF LR Data sheet, Rev. 4	<b>KRF-BF</b>	2016

**TEST REPORTS**

HPC1461050/01	LR Works Inspection including hydrostatic burst pressure tests at 100 bar for type KSF: DN 50, size 2; KSF: DN 80, size 4 and KSF: DN 100, size 8	14.12.2015
HPC1461050/02	hydrostatic burst pressure tests at 100 bar for type KMF: 2 ½" size 4; type KDF-K : DN 80, size 6 and KDF-K: DN 20, size 2	17.12.2015
HPC1461050/03	witnessed by LR Surveyor at Krone in Oyten hydrostatic burst pressure tests at 40 bar for type KAF: DN 200, PN 10 and at 64 bar for type KDF-V: DN 150, size 7, PN 16	21.12.2015
HPC1461050/04	witnessed by LR Surveyor at Krone in Oyten Visit of an existing installation with function test of KAF self-cleaning automatic filter at 'Elbphilharmonie Hamburg'	11.01.2016

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**Supplementary Type Approval Terms and Conditions**

*Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.*

*Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.*

*Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.*

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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