



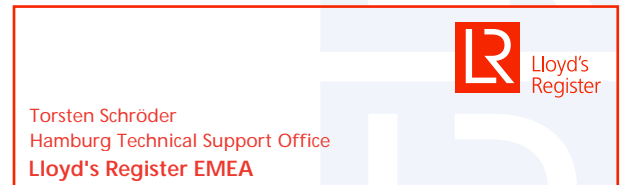
## Type Approval Certificate

*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:

<b>PRODUCER</b>	Krone Filter Solutions GmbH Industriestrasse 19 28876 Oyten Germany			
<b>DESCRIPTION</b>	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.			
<b>TYPES</b>	KSF, KMF, KDF-K, KDF-V, KAF, KRF			
<b>APPLICATION</b>	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.			
<b>RATINGS</b>	<b>Filter type:</b>	<b>Nominal pressures:</b> [bar]	<b>Size range:</b>	<b>Material:</b>
	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,

<b>Certificate No.</b>	<b>16 / 20086</b>
<b>Issue Date</b>	09 September 2016
<b>Expiry Date</b>	08 September 2021
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**RATINGS, cont.**

<b>Material:</b>	<b>Temperature range:</b>	<b>For fluids**:</b>
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

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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.*

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