

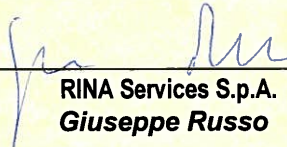


**TYPE APPROVAL CERTIFICATE**  
No. **MAC035117XG/005**

**This is to certify** that the product identified below is in compliance with the regulations herewith specified.

<i>Description</i>	<b>Non metallic expansion joints</b>
<i>Type</i>	<b>ERV.GS ERV.RS</b>
<i>Applicant</i>	<b>HKS GMBH SCHONENFAHRERSTR 1 18057 Rostock GERMANY</b>
<i>Manufacturer</i>	<b>HKS GMBH</b>
<i>Place of manufacture</i>	<b>SCHONENFAHRERSTR 1 18057 Rostock GERMANY</b>
<i>Reference standards</i>	<b>Part C, Chapter 1, Section 10 of RINA Rules for the Classification of Naval Ships</b>

*Issued in* **HAMBURG** on **March 7, 2017**. *This Certificate is valid until* **March 6, 2022**

  
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**RINA Services S.p.A.**  
**Giuseppe Russo**

This certificate consists of this page and 1 enclosure



**TYPE APPROVAL CERTIFICATE**

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**Enclosure - Page 1 of 1**

**ERV.GS**

**ERV.RS**

***Reference documents***

Drawing Approved HMMC-8629 with letter HMMC/2017/00186/CRLVA

Type Test Report

HKS Pressure Test Record 2016-1 , 2016-2 , 2016-3

Dr. -Ing T.Bäumer Flame Resistance Test Report IBB1246 and 1530

IHA Fire Resistance Test N° 020-14

***Components/Materials***

As per above mentioned approved drawings

***Design Conditions***

Medium	Design Pressure [bar]	Design Temperature [°C]
Fresh Water / Sea Water	6	90
Lubricating Oil	10	80
Air	10	130

***Fields of application***

As per above mentioned approved drawings

***Acceptance conditions***

- The installation on board is to be made in accordance with the Manufacturer's instructions and provisions stated in Part C Chapter 1 Section 10 par. 2.6 of RINA Rules.
- The flanges shall be suitable for the actual design pressure and temperature of on board system
- Expansion Joints are to be marked with type designation manufacturer's name and maximum working pressure.
- For applications with flammable lubricating oil on board of vessels with European flag, a MED Certificate is required.

**HAMBURG March 7, 2017**

