

# APPROVAL OF MANUFACTURER CERTIFICATE

**This is to certify:****That the Manufacturer****HKS GmbH industrieller Hersteller von Kompensatoren und  
Schläuchen  
Rostock, Germany**is approved for the  
**Assembling of type approved bellows with pipe connections**The approval is granted on condition that  
**DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses  
DNV GL rules for classification – Ships**

are complied with in all respect

<b>Bellow design</b>	<b>NBR - Steel cord - CR</b>
<b>Bellow type</b>	<b>Typ 1 Bauart GS</b>
<b>Size range</b>	<b>DN25 up to DN600</b>
<b>Temperature range</b>	<b>up to 100°C</b>

Manufacturer(s) approved by this certificate is/are accepted to deliver according to DNV GL, DNV and GL rules.

Issued at **Hamburg** on **2020-01-31**This Certificate is valid until **2025-01-30**.DNV GL local station: **Hamburg CMC**Approval Engineer: **Hagen Markus**for **DNV GL**Digitally Signed By: Drews, Olaf  
Location: DNV GL SE Hamburg, Germany  
Signing Date: 2020-02-03**Olaf Drews  
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in production facilities and methods may render this Certificate invalid.



## Approval basis

HKS GmbH Rostock is approved for assembling of type approved non-metallic expansion bellows with metallic flanges made by HKS. Product name "Type 1, Bauart GS".

Nominal pressure up to PN16, fire resistant types up to PN10.

Range of application and limitation of the expansion joints according type approval certificate TAP00001YN (follower of Type Approval Certificate 83 345-80 HH).

## Flange types

Design	Drawing
"Gummiflansch" - S235JR - DN32 up to DN600 - 150 lbs (PN10)	6036ASA
"ERV-Flanges" - S235JR - DN25 up to DN300 - PN6, PN10, PN16	GFL - 20 -300

Further flange types with the same design of the bellow - flange connection area according to HKS catalogue "Kompensatoren und Schläuche".

## Production testing

Material certificates for the flange material to be provided according to applicable DNV GL Rules.

Every expansion joint is subject to hydrostatic pressure test with 1.5 times the maximum working pressure.

Works certificate (W) issued by the manufacturer to be provided.

## Marking

Scope	Example
<b>Flange</b>	
Manufacturer name / short sign	HKS
Size / PN / Flange material /	DN200 PN10 S 235 JR
Order no.	3910012-1-1
<b>Expansion bellow</b>	
Colour	Black with two yellow rings
Nominal size and pressure	DN200, PN10
Production date	10/2019

Job Id: **263.11-010094-1**  
Certificate No: **AMT00000E6**

## Approval documents

### Drawings

Flanges

- DWG-No. 6036ASA – Gummiflansch, Rev. A 2007-10-20
- GFL-20-300 – ERV-Flanges, 2011-11-25

Test specimens for fire resistance test

- 3402000\_DN32.dwg, 3402000\_DN100.dwg, 3407000\_DN250.dwg

### Test reports

HKS Pressure test record

Certificate No.	Type	DN	PN	TP	Remarks
2016-1	G0032/130/016/HKS-GS	32	16	24/>64bar	Witnessed ABS
2016-2	G0100/130/016/HKS-GS	100			
2016-3	G0250/130/016/HKS-GS	250			
2020/8024	G0125/130/016/HKS-GS-VSD	125	16	15bar	Witnessed DNVGL

Fire resistance test reports acc. to ISO 15540/41 – Dr. Ing. T. Bäumer GmbH, Herford

Test report	Date	Type	DN	PN	Remarks
IBB1530	2016-01-28	HKS-GS, BL130	250	10	Drawings 3402000_DN32.dwg 3402000_DN100.dwg 3407000_DN250.dwg
IBB1246	2014-07-01	HKS-GS, BL130	32		

Fire resistance test reports acc. to ISO 15540/41 – IHA Dresden (DNVGL approved laboratory)

Test report	Date	Type	DN	PN	Remarks
020-14	2014-05-15	HKS-GS (ERV-GS), BL125	100	10	Flange drawing 3402000_DN32.dwg

### Miscellaneous documents

- DNVGL Checklist for Renewal/Extension of Approved Manufacturers of production place HKS Rostock, 2019-09-10

## Certificate Retention Survey

The certification remains valid for a period of 5 years. During this period the effectiveness of the quality system and the manufacturing processes shall be verified by a periodical assessment every second year. Refer to DNV GL CP-0183.

### End of certificate