

# 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 hoses and couplings**The approval is granted on condition that  
**DNV GL class programme DNVGL-CP-0184 – Type approval – Flexible hoses with permanently  
fitted couplings  
DNV GL rules for classification – Ships**

are complied with in all respect

<b>Hose Type Size Standard</b>	<b>Metallic hose B-SE, B-SZ DN8 up to DN 250 ISO 10380</b>
--	--

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

Issued at **Hamburg** on **2019-11-12**This Certificate is valid until **2024-11-11**.  
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: 2019-11-14**Olaf Drews  
Head of Section**

## Approval basis

HKS, Rostock is approved as hose assembling company of stainless-steel hose assemblies (single wall) with end fittings ready for installation.

Range of application and limitation according type approval certificate TAP000001K.

## Hose types

Hose type	Size range	Maximum allowable working pressure, M.A.W.P.	Hose types <sup>1</sup>
SE – Single braid	DN8 to DN250	80bar to 5bar	MW22
	DN12 to DN250	90bar to 6bar	DW72(DW32)
SZ – Double braided	DN8 to DN10	85bar to 80bar	MW22
	DN12 to DN250	105bar to 16bar	DW72
Temperature range	- 196°C up to +550°C		

### Note

<sup>1</sup> Reference DNV GL TAP00001K

## Hose end fittings

According to HKS catalogue "Kompensatoren und Schläuche"

Design	Type designation
Welding end	R
Threaded connection, fixed	AGA <sup>1,2</sup>
Threaded connection, swivelling	DILO <sup>3,5</sup> , DIGA <sup>1,2</sup> , DAGA <sup>1,2</sup>
Compression couplings	Type approved bite and flare type pipe couplings <sup>3,4</sup>
Flanges	B, V, S, F

### Note

<sup>1</sup> Not approved for piping systems conveying toxic or flammable fluids, liquefied gas cargo piping and application in gas fuelled ship installations.

<sup>2</sup> Limited to pipe class III up to pipe with O.D. of 60.3mm.

<sup>3</sup> For application in liquefied gas cargo piping and gas fuelled ship installations limited to accessory lines up to O.D. of 25mm

<sup>4</sup> Refer to DNVGL Rules Pt.4, Ch.6, Sec.9 – Table 8

<sup>5</sup> Not approved for use in piping systems with impulse pressure other than water hammer.

Depending on Rules applicable additional limitation on hose end fitting pipe connection may have to be observed.

## Maximum allowable working pressure (M.A.W.P) of the hose assemblies

In some cases, the design pressure of the hose end fitting pipe connection may be lower than the M.A.W.P. of the hose.

This is to be overserved in production testing and marking of the hose assembly (indication of reduced M.A.W.P. on the end fitting).

## Production testing

Material certificates for the hose, hose end fitting or flange material to be provided according to applicable DNV GL Rules.

Every hose assembly is subject to hydrostatic pressure test with 1.5 times the maximum working pressure.

Depending on the Rules applicable a works certificate (W) issued by the manufacturer or product certificate (PC) issued by the Society is to be provided.

## Marking

Job Id: **263.11-010094-1**  
Certificate No: **AMT00000DB**

<b>Scope</b>	<b>Example</b>
Manufacturer name / short sign	HKS
Type designation / Size / M.A.W.P./End fitting / Length	SE0100/016/B/B-600
Order no.	3910012-1-1

## Approval documents

- Assembly drawings, issued 2019-10-16

SE6-80-DAGA-AGA-600-196	SZ6-250-B-V-600-196
SE6-250-B-V-600-196	SZ6-250-F-F-600-196
SE6-250-F-F-600-196	SZ6-250-R-R-600-196
SE6-250-R-R-600-196	
SZ6-80-DAGA-AGA-600-196	

- DNVGL Checklist for Renewal/Extension of Approved Manufacturers of production place HKS Rostock, 2019-09-10
- Helium Lecktest, 2019-10-19
- Test plan / Test results "Baumusterprüfung DIN EN ISO 10380:2013-02 für DNVGL "
- Pressure test record SE0100/016/B/B-600, SZ0250/025/B/B-1000 dated 2019-10-22
- Welding procedure specification WPS302\_303
- Work instruction AA\_8311 "Bauteile mit dem Anwendungsbereich LNG/LPG/BOG", Rev. 1.0

## 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-0184.

## End of certificate