

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**with type designation(s)
S 032, S 050

Issued to

**HKS GmbH industrieller Hersteller von Kompensatoren und
Schläuchen
Rostock, Germany**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses****Application :****Products approved by this certificate is accepted for installation on all vessels classed by DNV
GL.**

Type:	Temperature range:	Max. working press.:	Sizes:
S 032	-40°C - +150°C	8 bar	DN32
S 050	-40°C - +150°C	8 bar	DN50

Issued at **Hamburg** on **2020-01-16**for **DNV GL**This Certificate is valid until **2025-01-15**.DNV GL local station: **Hamburg CMC**Approval Engineer: **Christian Kaemmer**

Olaf Drews
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

S 032; S 050-Series:

Flexible non-metallic hose consisting of PTFE inner tube, with wire braid reinforcement, equipped with fire sleeve. Fire sleeve for combination with fire tested hoses acc. to ISO 15540; heat protection in general demand.

Components:

Inner Tube:	PTFE liner, externally reinforced with PTFE impregnated fiberglass and a single steel wire braid. <ul style="list-style-type: none">• R 272 non-conductive PTFE• R276 conductive PTFE (by added carbon black) to bleed off static electricity
Reinforcement:	Stainless steel wire braid
Sleeve:	Woven high bulk fiber glass, coated with a covering of iron oxide silicone rubber, Type 624 acc. to Type Approval Certificate 84 559-93 HH.
Flange:	acc. to EN 1092-1

Size and pressure range:

Denomination	Maximum working pressure	
	mm / inch	[bar]
S 032	32 / 1 ¼"	8
S 050	50 / 2"	8

Application/Limitation

Hose assemblies are type approved for class II and class III piping systems for the following applications:

- Fuel oil-, lubricating oil, hydraulic oil, fresh water cooling, seawater cooling systems, auxiliary piping systems.

Flexible hoses are only to be used in short lengths up to 1.5 m where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

Installation

The hose assemblies must only be fitted in places where they are always accessible.

Flexible hoses of these types are not to be used on boiler fronts.

The hoses are to be mounted in accordance with the manufacturer's instructions.

It must be possible to shut off from the system all flexible hoses used in systems for compressed air, fresh water cooling applications, lube oil, fuel oil and petroleum base hydraulic oil.

Type Approval documentation

Assembly drawings no. 29066334-01, 2906334-02; 22906334-05.
Fire Sleeve acc. to Type Approval Certificate 84 559-93 HH.
Fire resistant test reports 60/08, 61/08 issued by WTD 71.
Impulse pressure test report dated 28-09-2009 issued by TÜV SÜD
Working instruction AA_8302 rev. 1.1; AA_8305 rev. 1.0.
ISO 9001-Certificate dated 2018-04-13.
Burst pressure test report 2020 / 8030 dated 2020-01-13.
Type Approval Assessment Report dated 2020-01-14.
Welding workshop approval certificate WWA0000150.
Legacy GL Type Approval Certificate 86 177-09 HH.

Tests carried out

Fire resistance test, impulse pressure test, burst pressure test.

Production testing

All hose assemblies shall be subject to a pressure test at 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to the type approval certificate.

Marking of product

For traceability to this type approval, each hose assembly is to be marked with:

Marking	Example
Manufacturer's name	HKS GmbH
Date of manufact	12/2019
Type, nominal Dia.	S050/16/B-DN65/B-DN65-800
Serial number	SN3912000-1-1
MAWP	8 bar
MAWT	150°C
Test pressure	24 bar

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the Type Approval are complied with. Refer to DNVGL-CP-0338, Sec.4.