

## 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.

<b>Manufacturer</b>	<b>Danfoss A/S</b>
<b>Address</b>	Nordborgvej 81, Nordborg, 6430, Denmark
<b>Place of Production</b>	Danfoss Poland Sp. z o.o. ul. Chrzanowska 5, Grodzisk Mazowiecki, 05-825, Poland
<b>Type</b>	Switches - Pressure
<b>Description</b>	The KP / KPS pressure switches are single-pole double-throw (SPDT) switches Types: KP 1, KP 1A, KP 2, KP 5, KP 5A, KP 7W, KP 7B, KP 7S, KP 7BS, KP 15, KP 15A, KP 17W, KP17B KPS 31, KPS 33, KPS 35, KPS 37, KPS 39, KPS 43, KPS 45, KPS 47
<b>Trade Name</b>	KP-series, KPS-series
<b>Application</b>	Marine, Offshore and Industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4, as defined in Lloyd's Register Type Approval System, Test Specification Number 1 – March 2015.
<b>Specified Standard</b>	EN 60947-1: 2007+A2: 2014 EN 60947-4-1: 2019 EN 60947-5-1: 2017 IACS E10 Rev. 8 / 2021



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<b>Ratings</b>	For detailed ratings, pls. refer to appendix.
<b>Additional Tests</b>	Enclosure test IP33 for KP-series Enclosure test IP67 for KPS-series Low temperature -40 °C / 24 h for KP-series and KPS 3x-series Low temperature -25 °C / 16 h for KPS 4x-series
<b>Other Conditions</b>	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.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document HTS/ETS 41708-21/MK and its supplementary Type Approval Terms and Conditions form part of this Certificate.

## Appendix

### DESCRIPTION

Pressure switches, KP-series and KPS-series

Types:

KP 1, KP 1A, KP 2, KP 5, KP 5A, KP 7W, KP 7B, KP 7S, KP 7BS, KP 15, KP 15A, KP 17W, KP17B  
 KPS 31, KPS 33, KPS 35, KPS 37, KPS 39, KPS 43, KPS 45, KPS 47

### RATINGS

	KP-series	KPS-series
Ambient temperature range:		
	-40 to 65 °C	-40 to 70 °C (KPS 3x) -25 to 70 °C (KPS 4x)
Operating pressure range:		
	KP 1/A: -0.9 to 7.5 bar	KPS 31: 0 to 2.5 bar
	KP 2: -0.2 to 5 bar	KPS 33: 0 to 3.5 bar
	KP 5/A: 8 to 32 bar	KPS 35: 0 to 8 bar
	KP 7W: 8 to 32 bar	KPS 37: 6 to 18 bar
	KP 7B: 8 to 32 bar	KPS 39: 10 to 35 bar
	KP 7S: 8 to 32 bar	KPS 43: 1 to 10 bar
	KP 7BS: 8 to 32 bar	KPS 45: 4 to 40 bar
	KP15/A: -0.9 to 7.5 bar	KPS 47: 6 to 60 bar
	KP17W: -0.2 to 7.5 bar	
	KP17B: -0.2 to 7.5 bar	
Contact load AC:		
AC-1	16 A, 400 VAC	10 A, 440 VAC
AC-3	16 A, 400 VAC	6 A, 440 VAC
AC-15	10 A, 400 VAC	4 A, 440 VAC
Contact load DC:		
DC-13	12 W, 220 VDC	12 W, 230 VDC

## LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT

Issued by: HAMBURG TECHNICAL SUPPORT OFFICE (HPC1662070)

Issued to: DANFOSS A/S

For: PRESSURE SWITCH KP-SERIES AND KPS-SERIES

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 04 (September 2020) and this Design Appraisal Document forms part of the Certificate.

### APPROVAL DOCUMENTATION

ETS 57356	Type Approval Application Checklist	23.04.2021
ETS 58234	Request for Marine Services – Type Approval	21.09.2021
ETS 36992-18	Design Appraisal Document of previous certificate no. 17-20047 (E1)	06.06.2018
KAT2000462	Production quality assessment report of Danfoss Poland	05.10.2020
DK009970-1	Certificate ISO 9001:2015 for Danfoss Poland	11.09.2018
060-9650 Rev. AE	EU Declaration of Conformity (Low Voltage) Pressure switch, KP-series	20.07.2021
060-9653 Rev. AE	EU Declaration of Conformity (Low Voltage) Pressure switch, KP-series	20.07.2021
060-9680 Rev AB	EU Declaration of Conformity (Low Voltage) Pressure switch, KPS-series	20.07.2021
AI213186439478en-001201	Product data sheet Pressure switch, Type KP	04.2021
IC.PD.P10.I6.02	Product data sheet Pressure switch, Type KPS	03.2017



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### Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.