

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Temperature Sensor

with type designation(s)

T100-series, T10x-series, T453-series, W454-series, W064-series

Issued to

SIKA Dr. Siebert & Kühn GmbH & Co. KG
Kaufungen, Germany

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

DNV GL LOCATION CLASS¹⁾:

Type	Temperature	Humidity	Vibration	EMC	Enclosure ²⁾
T100-series	B	B	B	NA	
T10x-series	B	B	B	NA	
T453-series	B	B	B	NA	
W454-series	B	B	B	NA	
W064-series	B	B	B	NA	

1) Required protection according to DNV GL Rules shall be provided upon installation on board

2) See additonnal tests GL Category H* & H**

This Certificate is valid until **2019-07-28**.

Issued at **Hamburg** on **2017-07-12**

DNV GL local station: **Magdeburg**

for **DNV GL**

Approval Engineer: **Didier Girardin**

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Joannis Papanuskas
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.

Job Id:
Certificate No: **TAA0000020**

GL ENVIRONMENTAL CATEGORY: D, H*, H**

Environmental category "H*":

Vibrationtest: 30Hz = 7,5 g
100Hz ... 2500Hz with acceleration of 16 g

Environmental category "H**":

Cold test with -25°C / 16h
Vibrationtest acc. To curve 3: 40Hz
...2000Hz, 600°C, acceleration 10g

Product description

Series	DWG		Rev.	SIKA Art.--N°	MAN Art. Code
T453	430-1739	2x NiCr-Ni	ac	T4532TK085-1195M	11.99011-1195
				T4532TK155-1187M	11.99011-1187
				T4532TK185-0022M	11.99011-0022
				T4532TK130-1184M	11.99011-1184
				T4532TK150-0932M	11.99011-0932
				T4532TK140-0865M	11.99011-0865
				T4532TK120-0832M	11.99011-0832
				T4532TK140-0821M	11.99011-0821
				T4532TK155-1167M	11.99011-1167
				T4532TK155-1166M	11.99011-1166
				T4532TK130-1161M	11.99011-1161
				T4532TK120-0941M	11.99011-0941
				T4532TK185-0937M	11.99011-0937
				T4532TK125-0931M	11.99011-0931
				T4532TK115-0923M	11.99011-0923
				T4532TK155-0909M	11.99011-0909
				T4532TK155-0908M	11.99011-0908
				T4532TK185-0901M	11.99011-0901
				T4532TK125-0900M	11.99011-0900
				T4532TK155-0888M	11.99011-0888
				T4532TK112-0883M	11.99011-0883
				T4532TK125-0879M	11.99011-0879
				T4532TK155-0878M	11.99011-0878
				T4532TK155-0870M	11.99011-0870
				T4532TK185-0869M	11.99011-0869
				T4532TK125-0868M	11.99011-0868
T4532TK125-0854M	11.99011-0854				
T4532TK155-0838M	11.99011-0838				
T4532TK125-0837M	11.99011-0837				
T4532TK120-0836M	11.99011-0836				
430-1741	2x NiCr-Ni	a	T4532TK200-0833M	11.99011-0833	
430-1742	2x NiCr-Ni	b	T4532TK138-0736M	11.99011-0736	
430-1743	2x NiCr-Ni	f	T4532TK150-0932M	11.99011-0932	
			T4532TK140-0865M	11.99011-0865	
			T4532TK140-0821M	11.99011-0821	
			T4532TK120-0832M	11.99011-0832	
430-2834	2x NiCr-Ni	d			
430-2949	2x NiCr-Ni	d	T4532TK130-1015M	11.99011-1015	
			T4532TK140-1034M	11.99011-1034	

Series	DWG			SIKA Art.--N°	MAN Ar. Code
T100	430-2722	1x NiCr-Ni	b	T1001TK0652X5GGL T1001TK0952X5GGL	51.27421-0271 51.27421-0270
	430-3542	1x NiCr-Ni	-	T1001TK06520AXM3	
	430-3543	1x NiCr-Ni	-	T1001TK06520AXM1	
	430-3544	1x NiCr-Ni	-		
	430-2811	2x NiCr-Ni	c		
	430-2813	2x NiCr-Ni	c		
T10x	430-2621	2x NiCr-Ni	n	T10X2TK080-0929M	11.99011-0929
				T10X2TK080-1022M	11.99011-1022
				T10X2TK080-1023M	11.99011-1023
				T10X2TK080-1181M	11.99011-1181
	430-2658	2x NiCr-Ni	g	T10X2TK150-0935M	11.99011-0935
	430-2919	2x NiCr-Ni	e	T10X2TK150-0971M	11.99011-0971
				T10X2TK150-1025M	11.99011-1025
430-2665	2x NiCr-Ni	f	T10X2TK080-927M	11.99011-0927	
W454	430-3029	2x Pt1000	a		
	430-2925		b	W454P24123-0995M	11.99011-0995
	430-2924	2x Pt1000	d	W454P24140-0993M	11.99011-0993
				W454P24140-1162M	11.99011-1162
				W454P24095-1163M	11.99011-1163
				W454P24110-1164M	11.99011-1164
				W454P24140-1165M	11.99011-1165
				W454P24155-1176M	11.99011-1176
				W454P24140-1177M	11.99011-1177
				W454P24140-1178M	11.99011-1178
	W454P24110-1179M	11.99011-1179			
	W454P24095-1180M	11.99011-1180			
	430-2923	2x Pt1000	b	W454P24105-0997M	11.99011-0097
	430-2928	2x Pt1000	b	W454P24079-0969M	11.99011-0969
W454P24079-0978M				11.99011-0978	
W454P24079-0979M				11.99011-0979	
W454P24079-0980M				11.99011-0980	
W454P24129-0968M				11.99011-0968	
W454P24129-0977M				11.99011-0977	
W064	430-3666	1x Pt1000	c	W064P12082-0087M	11.99011-0087
	430-3665	1x Pt1000	c	W064P12082-0086M	11.99011-0086
	430-3717	1x Pt1000	e	W064P12077-0085M	11.99011-0085

Application/Limitation

The Type Approval covers hardware listed under type designations. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL Rules for Classification, Ships Pt.4 Ch.9 Control and monitoring systems. Thermowells to be applied as required by DNV GL Rules

The products to be marked with:
- manufacturer or vendor name

Job Id:
Certificate No: **TAA0000020**

- model name: SIKA Art.--N° and/or MAN Ar. Code
- serial number
- power supply rating

place of manufacture

SIKA Dr. Siebert & Kühn GmbH & Co. KG
Struthweg 7 - 9
34260 Kaufungen
Germany

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE