CERTIFICATE

(1) Type Examination

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC**

(3) Type Examination Certificate Number: **DEKRA 13ATEX0051 X** Issue Number: **2**

(4) Equipment: **Guided Radar Level Transmitter OPTIFLEX 2200 C/F Type *F20*..... and Radar Level Transmitter OPTIWAVE 5200 C/F Type *F50*.....**

(5) Manufacturer: **Krohne S.A.S.**

(6) Address: **2 Allée des Ors, 26100 Romans-sur-Isère, France**

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) DEKRA Certification B.V., certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.

The examination and test results are recorded in confidential test report no. NL/DEK/ExTR11.0063/03.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0 : 2009 **EN 60079-11 : 2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This Type Examination Certificate relates only to the design, examination and tests of the specified equipment and not to the manufacturing process and supply of this equipment.

(12) The marking of the equipment shall include the following:

For marking see section 15.

This certificate is issued on 13 October 2014 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

DEKRA Certification B.V.

R. Schuller
Certification Manager

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(13) # SCHEDULE

(14) **to Type Examination Certificate DEKRA 13ATEX0051 X** Issue No. **2**

(15) **Description**

The Guided Radar Level Transmitter OPTIFLEX 2200 C/F Type *F20*..... and Radar Level Transmitter OPTIWAVE 5200 C/F Type *F50*..... are used for continuous level measurement of flammable or non-flammable liquids or solid particles, granulates or powders within storage or process tanks or in a stilling well.

The distance between transmitter OPTIFLEX 2200 C/F and the surface of the process medium is measured using a probe system (e.g. cable or rod) that guides electromagnetic pulses that are reflected by the surface of the process medium.

The distance between the antenna of transmitter OPTIWAVE 5200 C/F and the surface of the process medium is measured using frequency modulated continuous wave radar.

The 2-wire transmitter is loop powered. The output is either a 4 - 20 mA current signal with an overlaid digital communication protocol (HART) or a fixed current with a carrier signal for the fieldbus protocol (PROFIBUS PA or FOUNDATION fieldbus FF).

Optionally, the transmitter may be provided with display and adjustment capabilities (HMI option).

Transmitters OPTIFLEX 2200 F and OPTIWAVE 5200 F are constructed as remote versions. The length of the cable conduit between transmitter housing and sensor is maximum 100 m.

Optionally, the OPTIFLEX 2200 C/F may be equipped with an adaptor for connection to an existing certified OPTIFLEX 1300 C / 4300 C, BM100A or BM102 probe system.

Optionally, the OPTIWAVE 5200 C/F may be equipped with an adaptor for connection to an existing certified BM70, BM700, BM702 or BM702A antenna system.

The enclosure provides a degree of protection of at least IP6X as per EN 60529.

Marking codes

Compact version

II 3 G	Ex ic IIC T6…T2 Gc
II 3 D	Ex ic IIIC T90ºC Dc

Remote version transmitter

II 3 G	Ex ic [ic] IIC T6...T4 Gc
II 3 D	Ex ic [ic] IIIC T90ºC Dc

Remote version sensor

II 3 G	Ex ic IIC T6…T2 Gc
II 3 D	Ex ic IIIC T90ºC Dc

The temperature class depending on the ambient temperature, the flange temperature and the type of probe / antenna used, is listed in the following tables:

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(14) **to Type Examination Certificate DEKRA 13ATEX0051 X** Issue No. **2**

Model OPTIFLEX 2200 C

Equipment category	Max. ambient temperature			Max. flange temp.	Temp. class
	2 mm probe without HT extension	2 mm probe with HT extension	All other probes		
II 3 G	52 °C	54 °C	53 °C	60 °C	T6
	42 °C	51 °C	45 °C	85 °C	
	67 °C	69 °C	68 °C	75 °C	T5
	57 °C	66 °C	60 °C	100 °C	
	77 °C	79 °C	78 °C	85 °C	T4
	67 °C	76 °C	70 °C	110 °C	
	57 °C	73 °C	62 °C	135 °C	
	51 °C	71 °C	57 °C[1)]	150 °C	T3
	Not allowed	68 °C	Not allowed	180 °C[2)]	
	Not allowed	65 °C	Not allowed	200 °C[2)]	
	Not allowed	60 °C	Not allowed	250 °C[2)]	T2
	Not allowed	54 °C	Not allowed	300 °C[2)]	

Equipment category	Min. ambient temperature			Min. flange temp.	Temp. class
	2 mm probe without HT extension	2 mm probe with HT extension	All other probes		
II 3 G	-40 °C	-40 °C	-40 °C	-40 °C[2)]	T6-T2
	-36 °C	-39 °C	-37 °C	-50 °C[2)]	

[1)] Not allowed for the BM102 probes without extension.
[2)] Permitted gasket temperature ranges must be observed (see instructions)

(13) **SCHEDULE**

(14) **to Type Examination Certificate DEKRA 13ATEX0051 X** Issue No. **2**

Model OPTIFLEX 2200 F

Equipment category	Max. ambient temperature			Max. flange temp.	Temp. class
	2 mm probe without HT extension	2 mm probe with HT extension	All other probes		
II 3 G	49 °C	51 °C	49 °C	60 °C	T6
	39 °C	48 °C	43 °C	85 °C	
	64 °C	66 °C	64 °C	75 °C	T5
	54 °C	65 °C	58 °C	100 °C	
	77 °C	79 °C	78 °C	85 °C	T4
	64 °C	75 °C	68 °C	110 °C	
	51 °C	71 °C	59 °C	135 °C	
	43 °C	69 °C	54 °C[1)]	150 °C	T3
	Not allowed	65 °C	Not allowed	180 °C[2)]	
	Not allowed	62 °C	Not allowed	200 °C[2)]	
	Not allowed	54 °C	Not allowed	250 °C[2)]	T2
	Not allowed	47 °C	Not allowed	300 °C[2)]	

Equipment category	Min. ambient temperature			Min. flange temp.	Temp. class
	2 mm probe without HT extension	2 mm probe with HT extension	All other probes		
II 3 G	-40 °C	-40 °C	-40 °C	-40 °C[2)]	T6-T2
	-35 °C	-39 °C	-36 °C	-50 °C[2)]	

[1)] Not allowed for the BM102 probes without extension.
[2)] Permitted gasket temperature ranges must be observed (see instructions)

(13) **SCHEDULE**

(14) **to Type Examination Certificate DEKRA 13ATEX0051 X** Issue No. **2**

Model OPTIWAVE 5200 C

Equipment category	Max. ambient temperature				Max. flange temp.	Temp. class
	Wave horn PP antenna	Wave horn PTFE and Wave Stick antennas	Metallic horn and Wave-Guide antennas without HT extension	Metallic horn and Wave-Guide antennas with HT extension		
II 3 G	46 °C	46 °C	46 °C	46 °C	45 °C	T6
	41 °C	42 °C	41 °C	44 °C	55 °C	
	38 °C	40 °C	39 °C	43 °C	60 °C	
	53 °C	55 °C	54 °C	58 °C	75 °C	T5
	40 °C	44 °C	43 °C	54 °C	100 °C	
	77 °C	77 °C	77 °C	79 °C	85 °C	T4
	69 °C	71 °C	70 °C	76 °C	100 °C	
	Not allowed	57 °C	54 °C	71 °C	135 °C[1)]	
	Not allowed	50 °C	48 °C	68 °C	150 °C[1)]	T3
	Not allowed	Not allowed	Not allowed	64 °C	180 °C[1)]	
	Not allowed	Not allowed	Not allowed	61 °C	200 °C[1)]	
	Not allowed	Not allowed	Not allowed	53 °C	250 °C[1)]	T2

Equipment category	Min. ambient temperature				Min. flange temp.	Temp. class
	Wave horn PP and Wave Stick antennas	Wave horn PTFE antennas	Metallic horn and Wave-Guide antennas without HT extension	Metallic horn and Wave-Guide antennas with HT extension		
II 3 G	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C[1)]	T6-T2
	Not allowed	-36 °C	-35 °C	-38 °C	-50 °C[1)]	
	Not allowed	Not allowed	Not allowed	-37 °C	-60 °C[1)]	

[1)] Permitted gasket temperature ranges must be observed (see instructions)

(13) **SCHEDULE**

(14) **to Type Examination Certificate DEKRA 13ATEX0051 X** Issue No. **2**

Model OPTIWAVE 5200 F

Equipment category	Max. ambient temperature				Max. flange temp.	Temp. class
	Wave horn PP antenna	Wave horn PTFE and Wave Stick antennas	Metallic horn and Wave-Guide antennas without HT extension	Metallic horn and Wave-Guide antennas with HT extension		
II 3 G	46 °C	46 °C	46 °C	46 °C	45 °C	T6
	41 °C	41 °C	41 °C	44 °C	55 °C	
	39 °C	39 °C	39 °C	43 °C	60 °C	
	54 °C	54 °C	54 °C	59 °C	75 °C	T5
	43 °C	43 °C	41 °C	55 °C	100 °C	
	77 °C	77 °C	77 °C	79 °C	85 °C	T4
	70 °C	71 °C	70 °C	77 °C	100 °C	
	Not allowed	55 °C	53 °C	72 °C	135 °C[1)]	
	Not allowed	48 °C	45 °C	66 °C	150 °C[1)]	T3
	Not allowed	Not allowed	Not allowed	63 °C	180 °C[1)]	
	Not allowed	Not allowed	Not allowed	57 °C	200 °C[1)]	
	Not allowed	Not allowed	Not allowed	53 °C	250 °C[1)]	T2

Equipment category	Min. ambient temperature				Min. flange temp.	Temp. class
	Wave horn PP and Wave Stick antennas	Wave horn PTFE antennas	Metallic horn and Wave-Guide antennas without HT extension	Metallic horn and Wave-Guide antennas with HT extension		
II 3 G	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C[1)]	T6-T2
	Not allowed	-36 °C	-35 °C	-39 °C	-50 °C[1)]	
	Not allowed	Not allowed	Not allowed	-37 °C	-60 °C[1)]	

[1)] Permitted gasket temperature ranges must be observed (see instructions)

The maximum surface temperature “T” of the electronics enclosure is 90 °C. For detailed temperature data refer to the instruction manual.

(13) # SCHEDULE

(14) **to Type Examination Certificate DEKRA 13ATEX0051 X** Issue No. **2**

Electrical data

Apparatus in type of protection intrinsic safety “ic” with 4-20 mA-HART output

Supply and output circuit (terminals output 1, + and -):
in type of protection intrinsic safety Ex ic IIC and Ex ic IIIC, only for connection to an intrinsically safe circuit, with the following maximum values:
U_i = 30 V; I_i = 300 mA; P_i = 1 W; C_i = 16 nF; L_i = 27 µH.

Apparatus in type of protection intrinsic safety “ic” with PROFIBUS PA or FIELDBUS foundation FF interface

Fieldbus circuit (terminals output 1, + and -):
in type of protection intrinsic safety Ex ic IIC and Ex ic IIIC, only for connection to an intrinsically safe circuit, with the following maximum values:
U_i = 32 V; C_i = 1 nF; L_i = 2 µH.

Fieldbus circuit (terminals output 1, + and -):
in type of protection intrinsic safety Ex ic IIC and Ex ic IIIC, only for connection to an intrinsically safe circuit or a circuit in accordance with FISCO, with the following maximum values:
U_i = 17,5 V; C_i = 1 nF; L_i = 2 µH.

Installation instructions

The instructions provided with the equipment shall be followed in detail to assure safe operation.

(16) **Test Report**

No. NL/DEK/ExTR11.0063/03.

(17) **Special conditions for safe use**

- When used in an explosive dust atmosphere the apparatus must be installed so that electrostatic discharging is excluded.

- For ambient temperature range see (15).

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. NL/DEK/ExTR11.0063/03.