

CERTIFICATE

(1) EU-Type Examination

(2) **Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **KEMA 09ATEX0091 X** Issue Number: **6**

(4) Product: **Temperature Assemblies Omnigrad S, Type Tx61, Tx62, Tx63, Tx65 and Tx66**

(5) Manufacturer: **Endress+Hauser Wetzer GmbH+Co. KG**

(6) Address: **Obere Wank 1, 87484 Nesselwang, Germany**

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

(8) DEKRA Certification B.V., Notified Body number 0344 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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 number NL/KEM/ExTR09.0011/05.

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

EN IEC 60079-0 : 2018
EN 60079-26 : 2015

EN 60079-1 : 2014
EN 60079-31 : 2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

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



II 2 G Ex db IIC T6...T1 Gb
II 2 D Ex tb IIIC T85 °C...T450 °C Db
II 1/2 G Ex db IIC T6...T1 Ga/Gb
II 1/2 D Ex ta/tb IIIC T85 °C...T450 °C Da/Db

Refer to NL/KEM/ExTR09.0011/05 Annex 1 for details.

Date of certification: 27 January 2023

DEKRA Certification B.V.

L.G. van Schie
Certification Manager



(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 09ATEX0091 X**

Issue No. 6

(15) **Description**

Temperature Assemblies Omnigrad S, Types Tx61, Tx62, Tx63, Tx65 and Tx66 consist of a connection head and a sensing part.

The connection head, type TA30H certified per KEMA 08ATEX0145 U is provided with either a blind or windowed cover and may be provided with terminals or a transmitter.

The sensing part consists of a sensor insert and is optionally provided with process fitting parts such as a stainless steel Cortem RBFF1NS connection fitting certified per CESI 99 ATEX 034 U and a thermowell.

The sensor insert is a thermocouple or RTD enclosed by a mineral (MgO) insulated metal sheathed cable, in various diameters and length, provided with flying leads.

At Temperature Assemblies Omnigrad S, Types Tx61-N, Tx61-M, Tx63-N, Tx63-M, Tx66-N and Tx66-M the thermowell provides the separation between the areas requiring EPL Gb and Db (ambient) and EPL Ga and Da (process).

For details about type designation, thermal data, electrical data and marking refer to NL/KEM/ExTR09.0011/05 Annex 1 for details.

Installation instructions

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

(16) **Report Number**

No. NL/KEM/ExTR09.0011/05.

(17) **Specific conditions of use**

- The flameproof joints are not intended to be repaired.
- The temperature sensors with diameters smaller than 6 mm shall be protected by a thermowell.
- It shall be verified, taking into account the worst case process and ambient temperatures,
 - o that the temperature of the enclosure at the process connection point does not exceed the ambient temperature range of the assembly.
 - o that the temperature of optionally used RBFF1NS union does not exceed the service temperature range as listed in NL/KEM/ExTR09.0011/05 Annex 1.

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

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/KEM/ExTR09.0011/05.

(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 09ATEX0091 X**

Issue No. **6**

(20) **Certificate history**

- Issue 1 - 212174100 initial certificate
- Issue 2 - 213991700 Assessment per EN 60079-0 : 2009 and EN 60079-31 : 2009.
The mechanical and electrical construction are changed.
Extension with T3/T200 °C...T1/T450 °C.
Extension with insert Type TS101
- Issue 3 - 217072600 Changed condition of certification to the conditions of the initial release.
Added flying leads to the Head Transmitter, option "F".
Added a sealable enclosure, option "O".
- Issue 4 - 221791700 Assessed per standards as listed above.
Addition of TA30H stainless steel enclosure. Addition of Type Tx65's
option of Skin fitting type (suffix code "d" with Code "Y").
Change of ambient temperature range and process temperature range.
- Issue 5 - 224794800 Assessed per EN IEC 60079-0 : 2018
Change of mechanical construction.
- Issue 6 - 227002600 Adding of new transmitter type TMT86 and TMT31
Change of mechanical construction of the sensor.

Type designation

Type		Suffix Code													
T	x 6 1 -	a	b	c	d	e	f	g	h	i	j	k	l		
(1)		(2)	(3)	(4)	(5)	(6)	(12)	(13)	(14)	(15)	(16)	(17)	(18)		
T	x 6 2 -	a	b	c	d	e	f	g	h	i	j				
(1)		(2)	(3)	(4)	(7)	(10)	(11)	(15)	(16)	(17)	(18)				
T	x 6 3 -	a	b	c	d	e	f	g	h	i	j	k	l		
(1)		(2)	(3)	(4)	(7)	(8)	(9)	(14)	(12)	(15)	(16)	(17)	(18)		
T	x 6 5 -	a	b	c	d	e	f	g	h	i	j	k			
(1)		(2)	(3)	(4)	(12)	(11)	(10)	(13)	(15)	(16)	(17)	(18)			
T	x 6 6 -	a	b	c	d	e	f	g	h	i	j	k	l		
(1)		(2)	(3)	(4)	(7)	(8)	(9)	(14)	(12)	(15)	(16)	(17)	(18)		

Part	Code	Remarks																																	
(1)	R or C	<u>Temperature sensor</u> R: Thermo resistance C: Thermocouple																																	
(2)	F, E, M, N, R or S	<u>Approval</u> F: ATEX II 2 G Ex db IIC E: ATEX II 2 G Ex db IIC, II 2 D Ex tb IIIC M: ATEX II 1/2 G Ex db IIC, II 1/2 D Ex ta/tb IIIC N: IECEX Ex db IIC Ga/Gb, Ex ta/tb IIIC Da/Db R: IECEX Ex db IIC Gb S: IECEX Ex db IIC Gb, Ex tb IIIC Db																																	
(3)	B, C, D, E, F, G, H, I, J or Y	<u>Connection head type</u> <table border="0"> <thead> <tr> <th>Material of TA30H, IP grade</th> <th>Display</th> <th>Attachment hinge material</th> </tr> </thead> <tbody> <tr> <td>B: Aluminum, IP66/68,</td> <td></td> <td>plastic</td> </tr> <tr> <td>C: Aluminum, IP66/68,</td> <td>with display,</td> <td>plastic</td> </tr> <tr> <td>D: Aluminum, IP66/68,</td> <td></td> <td>304</td> </tr> <tr> <td>E: Aluminum, IP66/68,</td> <td>with display,</td> <td>304</td> </tr> <tr> <td>F: Stainless steel, 316L, IP66/68,</td> <td></td> <td>plastic</td> </tr> <tr> <td>G: Stainless steel, 316L, IP66/68,</td> <td>with display,</td> <td>plastic</td> </tr> <tr> <td>H: Stainless steel, 316L, IP66/68,</td> <td></td> <td>304</td> </tr> <tr> <td>I: Stainless steel, 316L, IP66/68,</td> <td>with display,</td> <td>304</td> </tr> <tr> <td>J: Stainless steel, 316L, IP66/68,</td> <td></td> <td>lead sealable</td> </tr> <tr> <td>Y: Special varnishing (non-conductive) in combination with code B to J</td> <td></td> <td></td> </tr> </tbody> </table>	Material of TA30H, IP grade	Display	Attachment hinge material	B: Aluminum, IP66/68,		plastic	C: Aluminum, IP66/68,	with display,	plastic	D: Aluminum, IP66/68,		304	E: Aluminum, IP66/68,	with display,	304	F: Stainless steel, 316L, IP66/68,		plastic	G: Stainless steel, 316L, IP66/68,	with display,	plastic	H: Stainless steel, 316L, IP66/68,		304	I: Stainless steel, 316L, IP66/68,	with display,	304	J: Stainless steel, 316L, IP66/68,		lead sealable	Y: Special varnishing (non-conductive) in combination with code B to J		
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(4)	A, B, C, D, E or F	<u>Cable entry</u> A: NPT 1/2" B: 2-NPT 1/2" C: NPT 3/4" D: 2-NPT 3/4" E: M20x1.5 F: 2-M20 x 1.5																																	
(5)	A, B, D, E, F, G, H, J or K	<u>Pipe diameter* and material for Type Tx61</u> A, B: 316L D, E, F: 316Ti G, H: AlloyC276 J, K: Alloy600																																	
(6)	Any character	<u>Neck length E (mm)*</u>																																	

Part	Code	Remarks
(7)	B, C, D, E, F, G, H, J, K, L, M or N	<u>Neck length N (mm)*, fitting type* and material</u> B, C, D, E, K, L, M, N: 316 F, G, H, J: A105
(8)	Any character	<u>Thermowell type* and material* of Type Tx63-S and E Type Tx66-S and E</u>
(8)	B, C, D, E, F or G	<u>Thermowell type* and material of Type Tx63-N and M Type Tx66-N and M</u> B, C, D, F: 316 D: 316L B: 316Ti E, G: 446
(9)	Any character	<u>Extension length (mm)* of D1, Df, E, R, T, Q1 and Q2 and type of tip*</u>
(10)	1, 3 or 9	<u>Insert diameter and material</u> 1: 3 mm, 316L, standard size 3: 6 mm, 316L, standard size 9_2: 4.5 mm, 316L, special size 9_4: 8 mm, 316L, special size
(11)	Any character	<u>Insert length (mm)*</u>
(12)	AA, AB, AD, BG, BH, BJ, BK, BL, BM, CA, CB, CC, CD, CE, CF, CG, CH, CJ, CK, CL, CM, CQ, CS, CT, CV, EA, EB, EC, FA, FB, FC, HA, HC, HD, HH, JA, JB, JC, JD, JE, JF, JG, JH, LA, LC, LD, LH, 10, 11, 12, 13, 14, 22, 33, 41, 42, 44, 55, 66, 77 or 99 ¹⁾	<u>Process connection type* and material</u> AA: None CB, CD, CF, CK, CM, CT, CV, JA, JB, JC, JD, JE, JF, 11, 12, 22, 33, 41, 42, 44: 316 AB, AD, BK, CA, CB, CC, CD, CE, EA, EB, EC, JA, JB, JC, 13, 14, 55, 66, 77: 316L BG, BH, BJ, FA, FB, FC, JG, JH: 316Ti BL, LD, LH: Alloy600 BM, HD, HH: AlloyC276 CA, CC, CE, CG, CJ, CL, CQ, CS: A105 CH: B16.5 HA, HC: C276>316L LA, LC: Alloy600>316L 99 ¹⁾ : Process connection type, skin fitting Note ¹⁾ : Code "99" is relevant for the explosion safety properties.
(13)	Any character	<u>Tip shape*</u>
(14)	Any character	<u>Immersion length (mm)* of L and U</u>
(15)	A, B, C, D, E, F, G, H, J, K, O, L, M, N, 2, 3, 4, 5, U, 0, X or Z	<u>Transmitter type</u> A: TMT71 B: TMT84 PROFIBUS PA C: Terminal block applied D: TMT85 FOUNDATION Fieldbus E: TMT72 F: Flying leads applied G: TMT181 H, J, K, O: TMT182 L, M, N, K: TMT82 2, 3, 4, 5: TMT180 U, 0: TMT31 X, Z: TMT86
(16)	A, B, C, E, F, G, S, T, U, V, 2, 3, 6 or 7	<u>Thermocouple and RTD sensor type</u> A, B, E, F: Thermocouple A, B, C, F, G, S, T, U, V, 2, 3, 6, 7: Pt100
(17)	Any character	<u>Additional option for TR6x* and applied specification* for Thermocouple*</u>
(18)	Any character	<u>Additional option for TC6x*</u>

*: not relevant for the explosion safety properties.

Thermal data

The relation between the electrical connection, temperature class, maximum surface temperature, ambient temperature range and process temperature range is shown in the following table.

Electrical connection (*1)	Temperature class	Maximum surface temperature	Ambient temperature range	Process temperature range	
				Insert diameter (*2)	
				3 mm, 6 mm dual	6 mm
Terminal block (C)	T6	T85 °C	-50 °C to +70 °C	-50 °C to +55 °C	-50 °C to +68 °C
	T5	T100 °C	-50 °C to +80 °C	-50 °C to +70 °C	-50 °C to +83 °C
	T4	T135 °C	-50 °C to +120 °C	-50 °C to +105 °C	-50 °C to +118 °C
	T3	T200 °C	-50 °C to +120 °C	-50 °C to +170 °C	-50 °C to +183 °C
	T2	T300 °C	-50 °C to +120 °C	-50 °C to +265 °C	-50 °C to +278 °C
	T1	T450 °C	-50 °C to +120 °C	-50 °C to +415 °C	-50 °C to +428 °C
Flying leads (F) or Transmitter TMT71 (A) TMT72 (E) TMT82 (L, M, N, K) TMT84 (B) TMT85 (D) TMT180 (2, 3, 4, 5) TMT181 (G) TMT182 (H, J, K, O) TMT31 (U, 0) TMT86 (X, Z)	T6	T85 °C	-40 °C to +65 °C	-50 °C to +55 °C	-50 °C to +68 °C
	T5	T100 °C	-40 °C to +80 °C	50 °C to +70 °C	-50 °C to +83 °C
	T4	T135 °C	-40 °C to +85 °C	-50 °C to +105 °C	-50 °C to +118 °C
	T3	T200 °C	-40 °C to +85 °C	-50 °C to +170 °C	-50 °C to +183 °C
	T2	T300 °C	-40 °C to +85 °C	-50 °C to +265 °C	-50 °C to +278 °C
	T1	T450 °C	-40 °C to +85 °C	-50 °C to +415 °C	-50 °C to +428 °C

*1: Tx61 suffix code i, Tx62 suffix code g, Tx63 suffix code i, Tx65 suffix code h, Tx66 suffix code i.

*2: For 'Special size' 4.5 mm and 8 mm the values of respectively 3 mm and 6 mm apply.

Cortem RBFF1NS union:

material	Service temperature range
Stainless steel	-50 °C to +150 °C

Electrical data

Power supply transmitter: max. 42 Vdc, 30 mA

Sensor: max. 10 Vdc, 1 mA

Marking

The marking of temperature assemblies includes the following:

Type	Marking
Tx62-F:	II 2 G Ex db IIC T6...T1 Gb
Tx61-E, Tx63-E, Tx65-E and Tx66-E:	II 2 G Ex db IIC T6...T1 Gb II 2 D Ex tb IIIC T85 °C...T450 °C Db
Tx61-M, Tx63-M and Tx66-M:	II 1/2 G Ex db IIC T6...T1 Ga/Gb II 1/2 D Ex ta/tb IIIC T85 °C...T450 °C Da/Db
Tx62-R:	Ex db IIC T6...T1 Gb
Tx61-S, Tx63-S, Tx65-S and Tx66-S	Ex db IIC T6...T1 Gb Ex tb IIIC T85 °C...T450 °C Db
Tx61-N, Tx63-N and Tx66-N:	Ex db IIC T6...T1 Ga/Gb Ex ta/tb IIIC T85 °C...T450 °C Da/Db