

CERTIFICATE

VTT No. Ex-16.016X

3. This Certificate is issued for the following electrical apparatus, intended for use in potentially explosive atmospheres:

4. Equipment: **Range of cage induction motors**

Certified types: **AXR 315...
AXR 355...
AXR 400...
AXR 450...
AXR 500...**

5. Applicant: **ABB Oy Motors and Generators
Strömbergintie 1
FI-00380 HELSINKI
FINLAND**

6. Manufactured by **ABB Oy Motors and Generators
Hiomotie 13
FI-00380 HELSINKI
FINLAND
or
ABB Electrical Machines Ltd
No. 380, Tian Xing Road
Minhang District, Shanghai
People's Republic of China
or
ABB India Limited
Maneja Village
390013, Vadodara, Gujarat
India**

7. These electrical apparatus and any acceptable variations thereto are specified in the Annex and possible supplement(s) to this Certificate and in the descriptive documents therein referred to.

8. VTT Expert Services Ltd, Certification Body No. S017, accredited by the Finnish Accreditation Service (FINAS),

- certifies that these electrical apparatus has been found to comply with the following IEC-standards:

IEC 60079-0 (2011)

IEC 60079-7 (2015)

IEC 60079-31 (2013)

and have successfully met the type verification and test requirements of these standards.

- confirms that confidential Research Reports VTT-S-05327-16 and VTT-S-05328-16 (FI/VTT/ExTR16.0015/00 and ExTR16.0016/00) have been completed on these verifications and tests.

9. The code for the electrical apparatus is:

Ex ec IIA/IIIB/IIIC T1-T4 Gc

Ex tb IIIA/IIIB/IIIC T125°C Db

Ex tc IIIA/IIIB/IIIC T125°C Dc

10. By marking the supplied electrical apparatus, the manufacturer attests on his own responsibility that this electrical apparatus complies with the descriptive documents referred to in the Annex to this Certificate or in the Research Report.

11. If there appears sign X after the certification number, there are special conditions for safe use, which are specified in the Annex of this Certificate.

Espoo, 20.12.2016

VTT Expert Services Ltd



Martti Siirola
Senior Expert



Jenni Hirvelä
Expert

12. **ANNEX A TO CERTIFICATE NO. VTT No. Ex-16.016X**

13. Description of Equipment

The AXR motors are three phase squirrel cage induction motors intended for direct-on-line (DOL) and variable speed drive (VSD) supply. The mounting can be horizontal or vertical. The motors have a cast iron frame and equipped with Ex certified main and auxiliary terminal boxes. Auxiliary device options, including the terminal boxes, are listed in Annex B of this Certificate.

Technical data

The induction motors have the technical values within the limits in the following table:

Supply	DOL	VSD
Duty	Ex ec: S1 or S2 or S6 or S9 Ex tc/tb: S1 – S9	
Shaft heights	315, 355, 400, 450, 500	
Voltage (V)	up to 11.5 kV	
Frequency or speed	50 Hz / 60 Hz	0...4000 rpm
Power (kW)	up to 2000 kW	
Poles	up to 20	
Cooling	IC 411, IC 416	
Protection	IP 55 / IP56 / IP65 / IP66 Ex tc IIIC and tb : IP65 / IP66	
Altitude	≤ 4000 m	
Insulation class	F / B	

14. Special conditions for safe use

The allowed ambient temperature range of a motor depends on the design and auxiliary devices. The allowed ambient temperature range of each motor is marked on the rating plate. The marked ambient temperature is always within the range of -50 °C...+60 °C.

Temperature class of Ex ec motors may vary between T1 - T4 depending of the design. The temperature class of each motor is marked on the rating plate.

Depending of the equipment groups of the auxiliary devices, the equipment group of the Ex ec motors may be IIA, IIB or IIC or for Ex tc / Ex tb motors IIIA, IIIB or IIIC. The equipment group of each motor is marked on the rating plate.

The special conditions in the Certificates of the separately certified auxiliary devices shall be conformed to.

The equipment may present a potential electrostatic charging hazard due to paint; the manufacturer's instructions shall be followed in order to minimize the risk of electrostatic discharge.

If the motor is intended for VSD supply, the motor will be marked accordingly and the following conditions apply:

The allowed VSD is marked on the rating plate and it is part of the following series manufactured by ABB Group Ltd: ACS 600, ACS 800, ACS 880, ACS 1000, ACS 2000 or ACS 5000.

The 2-level low voltage (≤ 1 kV) voltage source converter types shall fulfil the following converter requirements determined at motor terminals:

- Switching frequency min. average 3 kHz (2.65 kHz for DTC[®]-control)
- Common mode (CM) voltage max. 500 V
- When installed, common mode voltage rise time du_{CM}/dt max. 70 V/ μ s.

Also other 2-level low voltage (≤ 1 kV) voltage source converter types not manufactured by ABB Group Ltd may be used if the above mentioned converter requirements are fulfilled.

The allowed speed and torque ranges of each motor are marked on the rating plate and all manufacturer's instructions shall be followed.

Thermal protection of the motor at VSD supply is based on the torque limiting function of the VSD and the resistance thermometers in the stator windings of the motor.

Espoo, 20.12.2016

VTT Expert Services Ltd



Martti Siirola
Senior Expert



Jenni Hirvelä
Expert

ANNEX A TO CERTIFICATE VTT No. Ex-16.016X
LIST OF AUXILIARY DEVICES

Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
3300 XL 8 mm Proximity transducer system for sleeve bearing for measuring vibration, Amplifier, Proximitor sensor	Bently Nevada	II 1 G EEx ia IIC T4/T5 Class I Zone 0, Class I Div 1 Groups ABCD	PXM XYKPA5	BAS 99 ATEX 1101 IECEx BAS 04.0055X		x		
3300 XL 8 mm Proximity transducer system for sleeve bearing for measuring vibration, Amplifier, Proximitor sensor	Bently Nevada	II 3G Ex nA IIC T4/T5 Class I Zone 2, Class I Div 2 Groups ABCD	PXM XYKPA5	Baseefa 07 ATEX 0189X IECEx BAS 04.0057X		x		
Accelerometer for vibration monitoring, type 330400-02-05	Bently Nevada	II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T130°C Dc II 1 G Ex ia IIC T4 Ga	PYM 330400EX	II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T130°C Dc IECEx LCI 06.0002X, LCIE 04 ATEX 6041X Ex ia IIC T4 Ga IECEx LCI 06.0003X, LCIE 04 ATEX 6042X		x	x	
Anticondensation heater, type CP... therm D... T...	Intertec	II 2 G Ex db IIC T3/T4 II 2 D Ex tb IIIC IP65 T200°C/T135°C	None	IECEx PTB 07.0052X PTB 02 ATEX 1041 X		x	x	x
Anticondensation heater, type SL... therm D... T...	Intertec	II 2 G Ex db IIC T3/T4 II 2 D Ex tb IIIC IP65 T200°C/T135°C	REX 50, REX 80 and REX 200	IECEx PTB 07.0055X PTB 02 ATEX 1116 X		x	x	x
Auxiliary terminal box, equipped, types ZWA EX_ (types Fibox ALNX... and Rose 25...)	ABB Oy	II 2 G Ex e IIC T4 Gb II 2 D Ex tb IIIC T105°C Db IP66		IECEx VTT 12.0003X VTT 12 ATEX 013X		x	x	x
Auxiliary terminal box, equipped, types ZWA EX_ (types Fibox ALNX... and Rose 25...)	ABB Oy	II 2 G Ex e ia IIC T4 Gb II 2 D Ex tb IIIC T105°C Db IP66		IECEx VTT 12.0004X VTT 12 ATEX 014X		x	x	x
Auxiliary terminal box, equipped, types ZWA EX_ (types Fibox ALNX... and Rose 25...)	ABB Oy	II 2 G Ex ia IIC T4 Gb II 2 D Ex tb IIIC T105°C Db IP66		IECEx VTT 12.0005X VTT 12 ATEX 015X		x	x	x
Auxiliary terminal box, equipped, types ZWA EX_ (types Fibox ALNX... and Rose 25...)	ABB Oy	II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T105°C Dc IP66		IECEx VTT 12.0006X VTT 12 ATEX 016X		x	x	
Auxiliary terminal box, equipped, Type DAAM_AUX_	ABB Oy	II 2 G Ex e IIC T4 Gb	DAAM_AUX200BS DAAM_AUX200SS DAAM_AUX325BS DAAM_AUX325SS DAAM_AUX325BSW DAAM_AUX325SSW DAAM_AUX500BS DAAM_AUX500SS	VTT 06 ATEX 011X		x		
Auxiliary terminal box, equipped, Type DAAM_AUX_	ABB Oy	II 2 G Ex e ia IIC T4 Gb	DAAM_AUX200BS DAAM_AUX200SS DAAM_AUX325BS DAAM_AUX325SS DAAM_AUX325BSW DAAM_AUX325SSW DAAM_AUX500BS DAAM_AUX500SS	VTT 06 ATEX 012X		x		

Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Auxiliary terminal box, equipped, Type DAAM_AUX_	ABB Oy	II 2 G Ex ia IIC T4 Gb	DAAM_AUX200BS DAAM_AUX200SS DAAM_AUX325BS DAAM_AUX325SS DAAM_AUX325BSW DAAM_AUX325SSW DAAM_AUX500BS DAAM_AUX500SS	VTT 06 ATEX 013X		x		
Auxiliary terminal box, equipped, Type DAAM_AUX_	ABB Oy	II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIB T100°C Dc, IP56	DAAM_AUX200BS DAAM_AUX200SS DAAM_AUX325BS DAAM_AUX325SS DAAM_AUX325BSW DAAM_AUX325SSW DAAM_AUX500BS DAAM_AUX500SS	VTT 06 ATEX 014X		x	x	
Auxiliary terminal box, equipped, types ZWT1_ (Rose types 34.... or Ensto Cubo X...)	ABB Oy	II 2 G Ex e IIC T4 Gb II 2 D Ex tb IIIC T100°C Db, IP66	ZWT1 AMI202012-1BS ZWT1 AMI202012-1SS ZWT1 AMI323220-1BS ZWT1 AMI323220-1SS ZWT1 AMI323223-1BW ZWT1 AMI323223-1SW ZWT1 AMI505020-2BS ZWT1 AMI505020-2SS	IECEx VTT 14.0018X VTT 06 ATEX 011X		x	x	x
Auxiliary terminal box, equipped, types ZWT1_ (Rose types 34.... or Ensto Cubo X...)	ABB Oy	II 2 G Ex e IIC T4 Gb II 2 D Ex tb IIIC T100°C Db, IP66	ZWT1 AMI202012-1BS ZWT1 AMI202012-1SS ZWT1 AMI323220-1BS ZWT1 AMI323220-1SS ZWT1 AMI323223-1BW ZWT1 AMI323223-1SW ZWT1 AMI505020-2BS ZWT1 AMI505020-2SS	IECEx VTT 14.0019X VTT 06 ATEX 012X		x	x	x
Auxiliary terminal box, equipped, types ZWT1_ (Rose types 34.... or Ensto Cubo X...)	ABB Oy	II 2 G Ex ia IIC T4 Gb II 2 D Ex tb IIIC T100°C Db, IP66	ZWT1 AMI202012-1BS ZWT1 AMI202012-1SS ZWT1 AMI323220-1BS ZWT1 AMI323220-1SS ZWT1 AMI323223-1BW ZWT1 AMI323223-1SW ZWT1 AMI505020-2BS ZWT1 AMI505020-2SS	IECEx VTT 14.0020X VTT 06 ATEX 013X		x	x	x
Auxiliary terminal box, equipped, types ZWT1_ (Rose types 34.... or Ensto Cubo X...)	ABB Oy	II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T100°C Dc, IP66	ZWT1 AMI202012-1BS ZWT1 AMI202012-1SS ZWT1 AMI323220-1BS ZWT1 AMI323220-1SS ZWT1 AMI323223-1BW ZWT1 AMI323223-1SW ZWT1 AMI505020-2BS ZWT1 AMI505020-2SS	IECEx VTT 14.0021X VTT 06 ATEX 014X		x	x	
Auxiliary terminal box, stainless steel / steel, type 35... or 36...	ROSE Systemtechnik GmbH	Ex d e ia [ia] mb IIC T6, T5, T4 Gb Ex tb IIIC T 85 °C, T 100 °C, T135 °C Db	ZWT AISI200x200 ZWT AISI300x300 ZWT TEFX10581511 ZWT TEFX10582511 ZWT TEFX10583011 ZWT TEFX10591010	IECEx PTB 07.0060 PTB 00 ATEX 1052		x	x	x
Auxiliary terminal box, stainless steel equipped, types ZWT TEFX..., (Rose types 34... and Tranberg types 1058 and 1059)	ABB Oy	II 2 G Ex e IIC T4 Gb II 2 D Ex tb IIIC T100°C Db IP66	ZWT TEFX341515080 ZWT TEFX343015080 ZWT TEFX343030160 ZWT TEFX10581511 ZWT TEFX10582511 ZWT TEFX10591010	VTT 11 ATEX 020X		x	x	x

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Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Auxiliary terminal box, stainless steel equipped, types ZWT TEFX..., (Rose types 34... and Tranberg types 1058 and 1059)	ABB Oy	II 2 G Ex e ia IIC T4 Gb II 2 D Ex tb IIIC T100°C Db IP66	ZWT TEFX343015080 ZWT TEFX343030160 ZWT TEFX343838160 ZWT TEFX10582511 ZWT TEFX10583011 ZWT TEFX10591010	VTT 11 ATEX 021X		x	x	x
Auxiliary terminal box, stainless steel equipped, types ZWT TEFX..., (Rose types 34... and Tranberg types 1058 and 1059)	ABB Oy	II 2 G Ex ia IIC T4 Gb II 2 D Ex tb IIIC T100°C Db IP66	ZWT TEFX343015080 ZWT TEFX343030160 ZWT TEFX343838160 ZWT TEFX10582511 ZWT TEFX10591010	VTT 11 ATEX 022X		x	x	x
Auxiliary terminal box, stainless steel equipped, types ZWT TEFX..., (Rose types 34... and Tranberg types 1058 and 1059)	ABB Oy	II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T100°C Dc IP66	ZWT TEFX343015080 ZWT TEFX343030160 ZWT TEFX343838160 ZWT TEFX10582511 ZWT TEFX10583011 ZWT TEFX10591010	VTT 11 ATEX 023X		x	x	
Auxiliary terminal box, type NXT	Cooper Crouse Hinds	II 2G EEx e II T6/T5 or II 1G EEx ia IIC T6/T5 or II 2 (1) G EEx e (ia) IIC T6/T5 II 2D T100°C	None	IECEx BKI 08.0010 KEMA 99 ATEX 3172X		x	x	x
Auxiliary terminal box, type TNCN	Technor ASA	Ex eb IIC T4/T5/T6 Gb Ex tD A21 IP66-68 T80°C-110°C	None	DNV 2001 OSL ATEX 0176 IECEx DNV 09.0004		x	x	x
Auxiliary terminal box, types 8125/1 or 8125/2	Stahl	Ex d e ia ib [ia Ga] mb IIA, IIB, IIC T6, T5, T4 Gb or Ex db eb ia ib [ia] mb IIA, IIB, IIC T6, T5, T4 Ex tb IIIC T80 °C, T95 °C, T130 °C Db or Ex tb IIIC T80 °C, T95 °C, T130 °C	None	PTB 00 ATEX 3116 IECEx PTB 06.0060		x	x	x
Auxiliary terminal box, types GHG 74...	Cooper Crouse-Hinds GmbH	II 2 G /D EEx d e ia/ib m [ia/ib] IIC T4-T6 IP66 T 80°C Ex e* IIC T4 / T5 / T6 Gb Ex tb IIIC T80°C / T95°C Db * Optional the marking can be amplified with the types of protection of the separately certified components, for example "d", "e", "mb" and/or "ia/ib".	None	IECEx BVS 12.0071X PTB 99 ATEX 1044		x	x	x
Auxiliary terminal box, types GHG 72...	Cooper Crouse-Hinds GmbH	Ex e * IIC T4 / T5 / T6 Gb Ex tb IIIC T80°C / T95°C Db *) Optional the marking can be amplified with the types of protection of the separately certified components, for example "d" and/or "ib".	None	IECEx BVS 13.0031X PTB 99 ATEX 1044		x	x	x
Auxiliary terminal box type 06.***** and 16.*****, types Polyester-KE 06..., Polyester-KE 16..., ROSE 06.12 22 09 and ROSE 06.14 12 00	ROSE Systemtechnik GmbH	Ex d e ia [ia] mb IIC T6, T5, T4 Gb Ex tb IIIC T85 °C, T100 °C, T135 °C Db	ZWM PE 120x220 ZWM PE 270x270	IECEx PTB 08.0004 PTB 00 ATEX 1002		x	x	x

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Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Blind plug for cable gland, type HSK-V-Ex	Hummel AG	Ex e IIC Gb Ex ta IIIC Da	MRR HSK-EX...	IECEx BVS 07.0022X BVS 03 ATEX E 298		x	x	x
Cable gland, Anamet, Type R... or B...	RCN s.r.l.	Ex d I , Ex e I, Ex d IIC Gb, Ex e IIC Gb and Ex tb IIIC Db IP66 or IP66/68	MRR ST-EX-	IECEx INE 10.0010X INERIS 06 ATEX 0014X		x	x	x
Cable gland, type 501/414...	Hawke	II 2 G Ex e IIC Gb, Ex d IIC Gb II 2 D Ex tb IIIC Db IP66	MRR MMTH3-...	IECEx BAS 06.0013X Baseefa 06 ATEX 0056X		x	x	x
Cable gland, type 501/421	Hawke	II 2 G Ex e IIC Gb, Ex d IIC Gb II 2 D Ex tb IIIC Db IP66	MRR HAW2-...-...	IECEx BAS 06.0013X Baseefa 06 ATEX 0056X		x	x	x
Cable gland, type 501/453/Universal	Hawke	II 2 G Ex e IIC Gb, Ex d IIC Gb II 2 D Ex tb IIIC Db IP66	MRR HAW1-...-...	(Size Os to F) IECEx BAS 06.0014X Baseefa 06ATEX0057X (Size G to J): IECEx BAS 06.0013X Baseefa 06 ATEX 0056X		x	x	x
Cable gland, type HSK-K-Ex	Hummel AG	II 2GD EEx e II IP68 Ex tD A20 IP68	MRR PMT-EX-...	IECEx BVS 07.0020X DMT 02 ATEX E 047 X		x	x	x
Cable gland, type HSK-M-EMV-Ex 1.616.****.**	Hummel AG	II 2G Ex e II II 1D Ex tD A20 IP68	None	IECEx BVS 07.0019X DMT 03 ATEX E 051 X		x	x	x
Cable gland, type HSK-M-EMV-Ex 1.646.****.**	Hummel AG	II 2 G Ex e IIC Gb II 1 D Ex ta IIIC Da	MRR MMT-EX-...-.../...	IECEx KEM 07.0014X KEMA 99 ATEX 6971 X		x	x	x
Dial type analog thermometer for bearing and cooling air, type 822E 6BS	United Electric Controls	II 2 G EEx d IIC T6 II 2 D T+85°C IP 66 Class I, Division 1 and 2, Groups B, C & D Class II, Division 1 and 2, Groups E, F & G Class III Class I, Zone 1, Group IIB + H2 T6	UCW LK822EX	DEMKO 03 ATEX 0305048 IECEx UL 03.0001		x	x	x
Drain plug for auxiliary terminal boxes, series 8162...	Stahl	II 2 G Ex e II II 2 D Ex tD A21 IP66 or IP64	MRR DPP1	PTB 01 ATEX 1018 IECEx PTB 06.0028		x	x	x
Drain plug, type 730	Tranberg	II 2 G EEx e II	None	IECEx NEM 11.0006 NEMKO 02 ATEX 167		x		
Drain plug, type CV	Raxton	Ex e IIC Gb, Ex tb IIIC Db	None	IECEx SIR 09.0096U SIRA 00 ATEX 3074U		x	x	x
Drain plug, types ACDPEB and ACDPES	Peppers (manufacturer Redapt)	II 2 DG EEx e II	MRR DPP2 MRR DPP3 MRR DPP-EX...	SIRA99ATEX3050U IECEx SIR 08.0024U		x		
Eddy current probe for series 3300, 7200 and 190 for sleeve bearing for measuring vibration, 3300 XL 8 mm Proximity transducer system	Bently Nevada	Ex ia IIC T1...T5 Ga Ex nA IIC T1...T5 Gc	PXM XYKPP5	IECEx BAS 04.0056 IECEx BAS 04.0058X BAS 99 ATEX 1099 BAS 99 ATEX 3098X		x		
Fan motors, types M3JP/KP 80-450	ABB	Ex d or Ex de IIC T3 to T6 Gb Ex t IIIC T125°C Db	None	IECEx LCI 04.0029X IECEx LCI 04.0030X IECEx LCI 04.0031X IECEx LCI 04.0009X IECEx LCI 09.0008X IECEx LCI 09.0009X IECEx LCI 04.0011X IECEx LCI 04.0005X IECEx LCI 04.0012X IECEx LCI 04.0006X IECEx LCI 04.0007X IECEx LCI 04.0008X IECEx LCI 04.0032X IECEx LCI 11.0023X		x	x	x

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Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Fan motors, types M3GP 71-450	ABB	Ex nA IIC T3 Gc Ex tc IIIB T125°C Dc	None	IECEx VTT 12.0010X IECEx LCI 07.0001X IECEx LCI 09.0012X IECEx LCI 07.0001X		x	x	
Incremental encoder, type 841	Leine & Linde	Ex db IIC T6...T4, Ex tb IIIC T85C...T135C	PXB L&L-EX-...	IECEx SP 06.0001X SP 07 ATEX 3635X		x	x	x
Incremental encoder, type EEx OG 9...	Baumer Hübner GmbH	II 2 G Ex de IIC T6	PXB HÜBNER OG9-1024 PXB HÜBNER OG9-2048	IECEx TUN 11.0021X TÜV 02 ATEX 1922 X		x		
Measuring transducer, type TTR200	ABB Automation Products GmbH	II 1 G Ex ia IIC T6 Ga II 2(1) G Ex [ia] ib IIC T6 Gb (Ga) II 2 G (1D) Ex [iaD] ib IIC T6 Gb (Da)	None.	IECEx PTB 09.0014X PTB 05 ATEX 2017X	1, 2	x	(x)	(x)
PD Trac monitoring system	Iris Power	Ex nA II T3, Ex nC IIC T3	None	IECEx UL 10.0050X IECEx UL 12.0010X DEMKO 09 ATEX 143404X	1, 2	x	(x)	(x)
Phase segregated main terminal box, type PSE	Quartzelec limited	II 2 G Ex e IIC Gb Ex tc IIIC IP66 Dc	None	IECEx SIR 10.0147U SIRA 03 ATEX 3222 U		x	x	
Phase segregated main terminal box, type PSN	Quartzelec limited	II 3 G Ex nA IIC Gc Ex tc IIIC IP66 Dc	None	IECEx SIR 10.0146U SIRA 03 ATEX 4223 U		x	x	
Pressure transmitter, Model 3051C	Rosemount	II 1 G Ex ia IIC T4 Ga (-60°C ≤Ta ≤+70°C) II 1 D Ex ta IIIC T50°C T50060°C Da IP66	None	BAS 97 ATEX 1089X Ex nA: IECEx BAS 09.0077X IECEx BAS 09.0076X		x	x	x
Proximity transducer PROXPAC for sleeve bearing for measuring vibration, vibration phase angle and rotation speed	Bently Nevada	II 1 G EEx ia IIC T5/T6 Class I Groups A, B, C, D; Class II Groups E, F, G; Class III; ClassI Div 2 non-incendive	PXM BN2	IECEx BAS04.0055X LCIE 98 ATEX 6011 X		x		
Proximity transducer system for sleeve bearings, probe and extension cable	Bently Nevada	II 1 G EEx ia IIC T5	PXM XYKPC4 PXM XYKPP9	IECEx BAS 04.0056 BAS 99 ATEX 1099		x		
Proximity transducer system for sleeve bearings, probe and extension cable	Bently Nevada	II 3 G EEx nA II T5	PXM XYKPC4 PXM XYKPP9	IECEx BAS 04.0058X BAS 99 ATEX 3098X		x		
Proximity transducer system for sleeve bearings, amplifier	Bently Nevada	II 1 G EEx ia IIC T4/T5	PXM XYKPA9	IECEx BAS04.0055X BAS 99 ATEX 1101		x		
Proximity transducer system for sleeve bearings, amplifier	Bently Nevada	II 3G Ex nA IIC T4/T5	PXM XYKPA9	IECEx BAS 04.0057X Baseefa 07 ATEX 0189X		x		
Pt-100 for antifriction bearing, type WTH 280-400	H. Heinz Messwiderstände GmbH	II 2 G Ex mb IIC Gb	3GZF364130-3	IECEx IBE 15.0026U IBExU16ATEX1026 U		x		
Pt-100 for antifriction bearing, types PR-SPA-EX-***	Ephy-Mess GmbH	II 2G Ex e IIC Gb or 2G Ex eb IIC II 2D Ex ta IIIC Da II 2G Ex ia IIC Gb II 2D Ex ia IIIC Db -55°C≤Ta≤175°C	PYR 2PT100...EX PYR PT100...EX	IBExU 14 ATEX 1281 U IECEx IBE 14.0058 U		x	x	x
Pt-100 for antifriction bearing, types SKS 1059616 WT-BAJONETTI-6/XXX-YYY/TDT-4J-KLA-EX	SKS Group Oy	II 2 G Ex e IIC T6...T3 II 2 D Ex tb IIIC T60°C...T200°C Db	PYR PT100BB5/4ZEX	VTT 14 ATEX 005X IECEx VTT 14.0003X		x	x	x
Pt-100 for antifriction bearing, types SKS 1059620 2XWT-BAJONETTI-8/XXX-YYY/TDT-4J-KLA-EX	SKS Group Oy	II 2 G Ex e IIC T6...T3 II 2 D Ex tb IIIC T60°C...T200°C Db	PYR 2PT100BB5/4ZEX	VTT 14 ATEX 005X IECEx VTT 14.0003X		x	x	x

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Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Pt-100 for sleeve bearing and cooling air, types PR-SPA-EX-***	Ephy-Mess GmbH	II 2G Ex e IIC Gb or 2G Ex eb IIC II 2D Ex ta IIIC Da II 2G Ex ia IIC Gb II 2D Ex ia IIIC Db -55°C≤Ta≤175°C	PYR 2PT100...EX PYR PT100PG5/4ZEX PYR 2PT100PF5/4ZEX PYR PT100PF5/4ZEX	IBExU 14 ATEX 1281 U IECEx IBE 14.0058 U		x	x	x
Pt-100 for sleeve bearing and cooling air, types SKS 1061957 WT-KAAPELI-6/XXX-YYY/TDT-4J-KLA-EX	SKS Group Oy	II 2 G Ex e IIC T6...T3 Gb, II 2 D Ex tb IIIC T60°C...T200°C Db	PYR PT100PF5/4ZEX PYR PT100PG5/4ZEX	VTT 14 ATEX 004X IECEx VTT 14.0002X		x	x	x
Pt-100 for sleeve bearing and cooling air, types SKS 1061961 2XWT-KAAPELI-6/XXX-YYY/TDT-4J-KLA-EX	SKS Group Oy	II 2 G Ex e IIC T6...T3 Gb, II 2 D Ex tb IIIC T60°C...T200°C Db	PYR 2PT100PF5/4ZEX PYR 2PT100PG6/4ZEX	VTT 14 ATEX 004X IECEx VTT 14.0002X		x	x	x
Pt-100 for winding fitted in winding end, type PYRA 8G	H. Heinz Messwiderstände GmbH	II 2 G Ex eb IIC Gb	None	IECEx IBE 15.0026U IBExU16ATEX1026 U		x	x	x
Pt-100 for winding fitted in winding end, type PYRA 8K	H. Heinz Messwiderstände GmbH	II 2 G Ex eb IIC Gb	PYR PT100HA4/4EX PYR PT1000HA4/4EX PYR PT1000HA4/4ZEX	IECEx IBE 15.0026U IBExU16ATEX1026 U		x	x	x
Pt-100 for winding, type NWT 200G	H. Heinz Messwiderstände	II 2 G Ex eb IIC Gb	PYR PT100...EX PYR PT100...EX_A	IECEx IBE 15.0026U IBExU16ATEX1026 U		x	x	x
Pt-100 for winding, type NWT 50C	H. Heinz Messwiderstände	II 2 G Ex eb IIC Gb	PYR PT100LC3/4ZEX	IECEx IBE 15.0026U IBExU16ATEX1026 U		x	x	x
Pt-100 for winding, types PR-SPA-EX-***	Ephy-Mess GmbH	II 2G Ex e IIC Gb or 2G Ex eb IIC II 2D Ex ta IIIC Da II 2G Ex ia IIC Gb II 2D Ex ia IIIC Db -55°C≤Ta≤175°C	PYR PT100...EX...	IBExU 14 ATEX 1281 U IECEx IBE 14.0058 U		x	x	x
Pt-100 for winding, types S102040...	Minco	II 2 G Ex e IIC Gb II 1 G Ex ia IIC Ga	PYR PT100...EX	IECEx DEK 12.0057 U KEMA 03 ATEX 2240 U		x	x	x
Purge controller for Ex p machines, types 2XLC... and 5XLC...	Expo Technologies	Ex [px] II T6 Ex [py] II T6 Ex [pz] II T6 Ex [p] dem IIC T3 Ex [pxb] ia IIC T6 Gb Ex [pxb] ia IIC T95°C Db (Ta -60°C to +60°C)	ZPEXP__PP450_ ZPEXP__PP_	SIRA 01 ATEX 1295X IECEx SIR 07.0027X		x	x	x
Reducer / Adaptor type 476	Hawke	II 2 G Ex e IIC Gb II 2 D Ex tb IIC Db IP66	MRP HAW-...	IECEx BAS 11.0037X Baseefa 11 ATEX 0067X		x	x	x
Roxtec, Cable entry, Cabletransit devices type S... and S...S0...	Roxtec International AB	II 2G Ex e IIC Gb II 2D Ex tb IIIC Db	NLR RM...	IECEx NEM 12.0015U Nemko 12 ATEX 1279U		x	x	x
Self-limiting parallel heating cable HSB 07-5803-..., Anticondensation heater	BARTEC Barlian Technic	Ex e IIC 200 °C (T2), T3, T4 Gb Ex tb IIIC T 200 °C, T 195°C, T 130 °C Db	None	KEMA 02 ATEX 2327 U IECEx KEM 07.0048U		x	x	x
Anticondensation heater cable, installation, termination plug Plexo H-1S 27-59SK-VH70 001S	BARTEC Barlian Technic	Ex e IIC 200 °C (T2), T3, T4 Gb Ex tb IIIC T 200 °C, T 195°C, T 130 °C Db	None	IECEx KEM 09.0083 KEMA 08 ATEX0110		x	x	x
Anticondensation heater cable, installation, Connection plug Plexo H-CN 27-59SH-VH7P 00CN	BARTEC Barlian Technic	Ex e IIC 200 °C (T2), T3, T4 Gb Ex tb IIIC T 200 °C, T 195°C, T 130 °C Db	None	IECEx KEM 09.0083 KEMA 08 ATEX0110		x	x	x

Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Sleeve bearing oil sump heater, Heater type DH..A0... and DH..BO..., type DH_00... is excluded	Elmess	Ex d e IIB/IIC Gb or Ex db eb IIB/IIC Ex d IIB/IIC Gb or Ex db IIB/IIC Ex d e ib IIB/IIC Gb or Ex db eb ib IIB/IIC Ex d ib IIB/IIC Gb or Ex db ib IIB/IIC Ex tb IIIC Db or Ex tb IIIC Ex tb ib IIIC Db or Ex tb ib IIIC	RER G1/2E220PT1 RER G1/2E220PT2	IECEx IBE 14.0078U IBExU 13 ATEX 1155U		x	x	x
Stopping plug, Components in relation with cables entries Type A, AD, B, R, E, U, M, BM, OB	CAPRI-CODEC SA	II 2GD EEx e II EEx d IIC	None	IECEx LCI 08.0035X LCIE 98 ATEX 0001U		x	x	x
Stopping plug, type 387	Hawke	II 2 GD Ex e IIC Gb, Ex tb IIIC Db IP66	None	IECEx BAS 06.0029U Baseefa 06 ATEX 0118U		x	x	x
Stopping plug, type progress...Ex	AGRO	II 2 G Ex e II II 2 D Ex tD A21 IP 68	None	PTB 02 ATEX 1125 IECEx SEV 12.0001 PTB 02 ATEX 1126 X IECEx SEV 12.0002X		x	x	x
Stopping plug, types V-Ex 1.297.***. ** or V-MS-VMQ-Ex 1.199.***. **	Hummel AG	Ex e IIC Gb Ex ta IIIC Da	MRP PET-EX..., MRP MET-EX...	IECEx BVS 07.0021 DMT 03 ATEX E 049		x	x	x
Surge voltage arrester for RTD's, type plugtrab	Phoenix Contact	II 1 G Ex ia IIC T4...T6 Ga II 1 D Ex ia IIIC T85°C...135°C Da	NYA PT4-EX	IECEx KEM 10.0063X KEMA 00ATEX1099 X		x	x	x
Temperature transmitter, type 5335D...	PR-Electronics	Ex ia IIC T4-T6 Ga Ex ia IIIC T135°C-T80°C Da	PYL TM1EX HART	IECEx KEM 10.0083 KEMA 03ATEX1537X		x	x	x
Temperature transmitter, type 644 H or 644 R	Rosemount	II 1 G Ex ia IIC T4 Ga	None	IECEx BAS 07.0053X Baseefa12ATEX0101X	1, 2	x	(x)	(x)
Temperature transmitter, type Model 248	Rosemount	II 1 G Ex ia IIC T5/T6 Ga	None	IECEx BAS 07.0086X Baseefa 03 ATEX 0030X	1, 2	x	(x)	(x)
Temperature transmitter, type Model 248	Rosemount	II 3 G Ex nA IIC T5/T6 Gc	None	IECEx BAS 07.0087U IECEx BAS 07.0055 IECEx BAS 13.0029X Baseefa 03 ATEX 0032U BAS 00 ATEX 3145 BAS 13 ATEX 0045X	1, 2	x	(x)	(x)
Temperature transmitter, type Model 248, 644	Rosemount	Ex d IIC T6...T1 Gb; T6...T1: Ta = -50°C to +40°C; T5...T1: Ta = -50°C to +60°C Ex tb IIIC T130C Db Ta = -40°C to +70°C; IP66	None	IECEx FMG 12.0022X FM 12 ATEX 0065X		x	x	x
Temperature transmitter, type YTA Series	Yokogawa	II 1 GD EEx ia IIC T4//T6 Ga Ex ia IIC T4 ... T5 Ex ic IIC T4 ... T5	None	DEMKO 01 ATEX 130867 IECEx KEM 09.0032X	1, 2	x	(x)	(x)
Termistor for winding, type B59155-M...	Farell	-	PYRE 150H PYRE 170H PYRE 110H PYRE 90H PYRE 120H PYRE 130H PYRE 145H PYRE 155H	Has to be connected to Ex i circuit or alternatively Ex ec machines can be installed without Ex i circuit if tested acc. to IEC 60079-7:2015 § 6.1		x	(x)	(x)

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Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Termistor for winding, type N-OK/AK ESH...	Ephy-Mess GmbH	-	PYRE 150LC4 PYRE 170LC4 PYRE 130LC4 PYRE 155LC4	Has to be connected to Ex i circuit or alternatively Ex ec machines can be installed without Ex i circuit if tested acc. to IEC 60079-7:2015 § 6.1		x	(x)	(x)
Termistor for winding, type TS100646T...	Minco	-	PYRE 150LC4 PYRE 170LC4	Has to be connected to Ex i circuit or alternatively Ex ec machines can be installed without Ex i circuit if tested acc. to IEC 60079-7:2015 § 6.1		x	(x)	(x)
Thermocouple for antifriction bearing	SKS Group Oy	-	PYR TCAB-K PYR TCAB-T PYR TCAB-J PYR TCAB-E	Has to be connected to Ex i circuit		x	(x)	(x)
Thermocouple for sleeve bearing and cooling air	SKS Group Oy	-	PYR TCSB-E PYR TCSB-K PYR TCSB-T PYR TCSB-J	Has to be connected to Ex i circuit		x	(x)	(x)
Velocity transducer for vibration monitoring, type 330500...	Bently Nevada	II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T130°C Dc II 1 G Ex ia IIC T4 Ga	PYM 330500EX	Ex nA IIC T4 Gc and Ex tc IIIC T130°C Dc: IECEx LCI 06.0002X, LCIE 04 ATEX 6041X Ex ia IIC T4 Ga: IECEx LCI 06.0003X, LCIE 04 ATEX 6042X	2	x	x	(x)
Pre-start Ventilation System for Ex nA and Ex e machines, type *PV*	Expo Technologies	II 2 G Ex e IIC T5 Gb /ET version, II 2 G Ex e ia IIC T5 Gb Low ambient, II 2 G Ex d e mb IIC T3 or T4 Gb Low ambient /ET version, II 2 G Ex d e ia mb IIC T3 or T4 Gb	ZPEXP__PSV__	IECEx SIR13.0030X Sira 13 ATEX 1083X		x		
Pt-100 for winding, TSRC-series	Techno Controls	II 2 G Ex e IIC Gb	PYR PT100...EX...	IECEx DNV 14.0014U DNV-2008-OSL-ATEX-40059U		x	x	x
Pt-100 for winding fitted in winding end, TSRC-series	Techno Controls	II 2 G Ex e IIC Gb	PYR PT100...HA...4EX	IECEx DNV 14.0014U DNV-2008-OSL-ATEX-40059U		x	x	x
Oil level monitor in self-lubricated sleeve bearings, Isolation switching amplifier type K*A*-SR*-Ex*.W.*	Pepperl + Fuchs	II (1) GD [Ex ia Ga] IIC, [Ex ia Da] IIIC [Ex ia Ma] I	None	IECEx PTB 11.0031 PTB 00 ATEX 2081		x	x	x
Surge voltage arrester for RTD's, SD**xxx series	Measurement Technology Limited	Ex ia IIC T4 Ga	None	IECEx BAS 12.0003X BASEEFA 02 ATEX 0211X	1, 2	x	(x)	(x)
Pt-100 with connection head for sleeve bearing and cooling air temperature, Flameproof temperature sensors, Series AS8_	Minco	II 2 G Ex db eb IIC TX Gb	PYR PT100...D...EX, PYR 2PT100...D...EX	IECEx TRC 14.0017X TRAC 14 ATEX 0045X		x		
Pressure and temperature switches types 120, 121, 122	United Electric Controls Company	II 2 G Ex d IIC T6 Gb II 2 D Ex tb IIIC T85°C Db IP66	None	IECEx UL 03.0001X DEMKO 09 ATEX 0815573X		x	x	x
Temperature transmitter, type: STT 3000..., Model: STT 25...	Honeywell	II 1 G Ex ia IIC T4..T6 Ga Ex td A21 IP6x T95°C Ex d IIC T5	None	IECEx LCI 08.0033X LCIE 02 ATEX 6134 X		x	x	x

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Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Main terminal boxes, types DA..._EX and DAXX...EX...	ABB Oy	II 2G Ex e IIC Gb II 3G Ex nA IIC Gc II 2D Ex tb IIIC Db	DA..._EX and DAXX...EX...	IECEx VTT 11.0003U VTT 11 ATEX 025U VTT 11 ATEX 026U		x	x	x
Main terminal boxes, types E1LISE and E1LISR	ABB S.p.A.	II 2G Ex e IIC Gb II 2D Ex tb IIIC Db	E1LISE and E1LISR	IECEx CES 13.0020U CESI 03 ATEX 155U		x	x	x
Main terminal boxes, types E1.SGR and E1.SPR	ABB S.p.A.	II 2G Ex e IIC Gb II 2D Ex tb IIIC Db	E1.SGR and E1.SPR	IECEx CES 14.0007U CESI 03 ATEX 154U		x	x	x
Termistor for winding, type N-OK/AK ESH...	Ephy-Mess GmbH	II 2G Ex e IIC Gb or 2G Ex eb IIC II 2D Ex ta IIIC Da II 2G Ex ia IIC Gb II 2D Ex ia IIIC Db -55°C ≤ Ta ≤ 175°C	PYRE 150LC4EX PYRE 170LC4EX PYRE 130LC4EX PYRE 155LC4EX	IBExU 14 ATEX 1281 U IECEx IBE 14.0058 U		x	x	x
Magnetic Float Switch, Level transmitter AF-ADF	Kubler France	Ex d IIC T6, Ex tD A21 IP65 T80 °C	None	TÜV 13 ATEX 7399 X IECEx TUR 09.0002X		x	x	x
Surge suppression device type HAW569-CB2C	Endress+Hauser Wetzer GmbH	Ex d IIC T5 or T6 Gb	None	IECEx DEK 11.0013X DEKRA 11ATEX0034X		x		
Surge Arrester Type HAW569-DA2B	Endress+Hauser Wetzer GmbH	Ex ia [ia Ga] IIC T4 ... T6 Gb	None	IECEx DEK 11.0027X DEKRA 11ATEX0079X		x		
Auxiliary terminal box, stainless steel, Type: TNBCD	Bartec Technor	Ex d IIB T4 Gb, Ex d [ia Ga] [ib Gb] [op is Ga] IIB T6-T4 Gb Ex t [ia Da] [ib Db] IIIB T85°C – T135°C Db	None	IECEx TUN 12.0014X DNV-2003-OSL-ATEX-0136		x	x	x
Drain plug, type 781D	CMP Products Limited	II 2G Ex d IIC Gb 1D Ex ta IIIC Da	None	IECEx SIR 10.0149U SIRA 10 ATEX 1307U		x		
Fan motors, types M3AA_	ABB	Ex nA IIB/IIC T3 Gc Ex tb IIIB/IIIC T125°C Db or Ex tc IIIB/IIIC T125°C Dc	None	IECEx VTT 13.0017X NEMKO 04 ATEX 3449		x	x	x
Pt-100 for sleeve bearing and cooling air, types 65, 68, 78, 85, 183, 185 and 1067	Rosemount	Ex d IIC T6...T1 Gb, T6(-50 °C ≤ Ta ≤ +40 °C), T5...T1 (-50 °C ≤ Ta ≤ +60 °C) Ex tb IIIC T130C Db Ta=-40C to +70C, IP66	None	IECEx FMG 12.0022X FM 12 ATEX 0065X		x	x	x
Pt-100 for sleeve bearing and cooling air, type TS...	ABB Automation Products GmbH	Ex ia IIC T6 Ga, Ex ib IIC T6, Ex ib IIC T6 Ga/Gb	None	IECEx PTB 11.0111X PTB 01 ATEX 2200 X		x		
Pt-100 for sleeve bearing and cooling air, type TS... Temperature sensors TSP..., Measuring inserts TSA..., Temperature transmitter TTF3	ABB Automation Products GmbH	Ex d IIIC T1 - T6 Ga/Gb	None	IECEx PTB 12.0039		x		
Auxiliary terminal box, 3300 XL Proximity Housing, type 330181 -...	Bently Nevada	II 3 G EEx nA II T4/T5 Class I Div. 2, Groups A,B,C,D	None	BAS 99 ATEX 3102		x		
Inductive proximity switch, Speed switch, Namur Proximity Switches Types 08317 32... and 08318 32...	Pulsotronic	II 1 GD EEx ia IIC T6 T 85°C	None	KEMA 03 ATEX 1495X	1, 2	x	(x)	(x)
Measuring transducer, type TH 02-Ex and TH 202-Ex	ABB Automation Products GmbH	II 2 G EEx [ia] ib IIC T6	None	PTB 99 ATEX 2139 X	1, 2	x	(x)	(x)
Motion Guard, greese batchbox, Type 05-0078-...	Bartec Componenten and Systeme GmbH	II 2 G EEx d IIC T6	None	IBExU 02 ATEX 1065 X		x		
Proximity transducer system for sleeve bearings, Amplifier, Driver: AD8/50 +DIN	Sensonics	II 1G EEx ia IIC T4	PXM XYKPA5-ABB	TRL 03 ATEX 21041X		x		

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Component	Manufacturer	Marking	ABB standard number or drawing	ATEX / IECEx certificate	Notes	Ex ec	Ex tc	Ex tb
Proximity transducer system for sleeve bearings, Extension cable: AEXC/4.0AO	Sonsonics	II 1G EEx ia IIC T4	PXM XYKPC4-ABB	TRL 03 ATEX 21041X		x		
Proximity transducer system for sleeve bearings, Extension cable: AEXC/4.0UO	Sonsonics	II 1G EEx ia IIC T4	PXM XYKPCU4-ABB	TRL 03 ATEX 21041X		x		
Proximity transducer system for sleeve bearings, Probe: AECPO4/1.0A210	Sonsonics	II 1G EEx ia IIC T4	PXM XYKPP1-ABB	TRL 03 ATEX 21041X		x		
Proximity transducer system for sleeve bearings, Probe: AECPO4/1.0U211 and probe holder	Sonsonics	II 1G EEx ia IIC T4	PXM XYKPH1-ABB	TRL 03 ATEX 21041X Probe holder box: BAS 98 ATEX 3089U		x		
Proximity transducer system for sleeve bearings, Probe: AECPO4/5.0A010	Sonsonics	II 1G EEx ia IIC T4	PXM XYKPP5-ABB	TRL 03 ATEX 21041X		x		
Velocity transducer for vibration monitoring, type 107770...	Bently Nevada	II 3 G EEx nL IIC T4 II 1 G EEx ia IIC T4	PYM 107770EX	LCIE 04 ATEX 6041X and LCIE 04 ATEX 6042X		x		
Vibration sensor, type MTN/1107/ICM8	Monitran	II 1 G EEx ia IIB T4	None	BAS 02 ATEX 1057		x		
Fan motors, types M3HP 80-400	ABB	II 2 G Ex e IIC T3 Gb Ex tb IIIC T85°C...T150°C Db	None	LCIE 06 ATEX 6047 LCIE 06 ATEX 6048 LCIE 06 ATEX 6049 LCIE 09 ATEX 3022 LCIE 09 ATEX 3023 LCIE 01 ATEX 6022 LCIE 01 ATEX 6023 LCIE 01 ATEX 6024 LCIE 02 ATEX 6071 LCIE 02 ATEX 6072 LCIE 03 ATEX 6022 LCIE 04 ATEX 6013		x	x	x
Pt-100 for sleeve bearing and cooling air, type TS... Temperature sensors TSP..., Measuring inserts TSA..., Temperature transmitter TTF3	ABB Automation Products GmbH	Ex tD A20/A21 IP66 T135C	None	BVS 06 ATEX E 029			x	x
Auxiliary terminal box, types GHG 74..., 73..., 72... and 44...	CEAG Sicherheitstechnik GmbH, Cooper Crouse Hinds	II 2 G Ex d e ia/ib m [ia/ib] IIC T4-T6 II 2 D Ex tD A21 IP66 T 80°C, T 95°C	None	PTB 99 ATEX 1044		x	x	x
Pt-100 for sleeve bearing and cooling air, types 65 and 185	Rosemount	Ex ia IIC T6	None	IBEx 03 ATEX 1066X		x		
Cylindrical inductive sensors types NC... and NJ...	Pepperl & Fuchs	II 1 G Ex ia IIC T6 Ga II 2 G Ex ia IIC T6 Gb	None	PTB 00 ATEX 2048X		x		
Cylindrical inductive sensors types NC... and NJ...	Pepperl & Fuchs	II 1 D Ex iaD 20 T108°C	None	ZELM 03 ATEX 0128X			x	x

Notes:

- 1 For Ex tc motors the auxiliary device shall be placed completely inside an Ex tc or Ex tb enclosure
- 2 For Ex tb motors the auxiliary device shall be placed completely inside an Ex tb enclosure