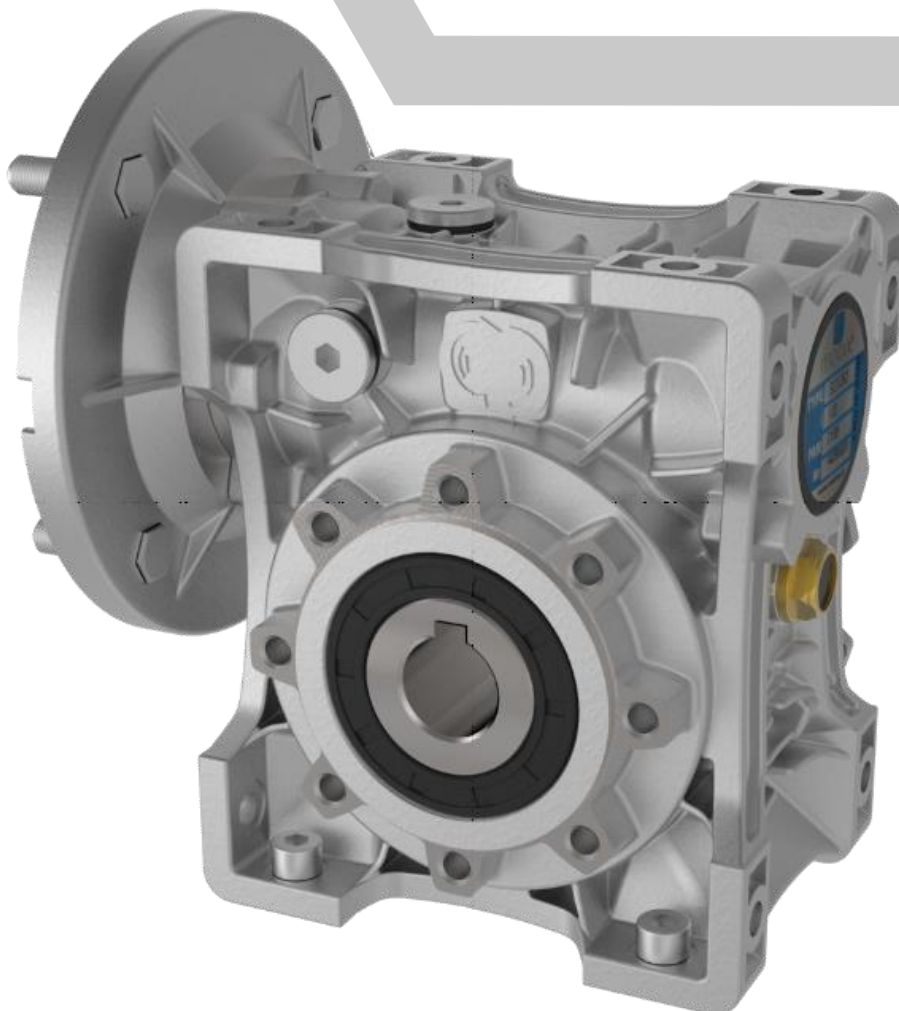


motive

manual addendum

BOX Ex





II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T135°C Db
Tamb = -20 +40 °C

Reference list:

Norm (last issue)	Title
Dir. 2014/34/EU	Equipment and Protective systems intended for use in Potentially Explosive Atmospheres. Safety requirements
EN ISO/IEC 80079-36:2016	Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements
EN ISO/IEC 80079-37:2016	Explosive atmospheres – Part 37: Non-electrical equipment for explosive atmospheres – Non-electrical type of protection constructional safety “c”, control of ignition sources “b”, liquid immersion “k”
EN 1127-1:2019	Explosive atmospheres – Explosion prevention and protection – Part 1:Basic concepts and methodology

Field of application

The person authorized to do the work is responsible for the Atex zones.

He must follow the standard EN60079-14 and EN 60079-19 (whenever their application is possible) when choosing the suitable gearbox.

Conformity declaration

The conformity declaration reported in this addendum, is the document that testifies the product conformity to the Directive 2014/34/EU.

The validity of such certificate is related to the respect of the instructions specified in the use and maintenance manual. Of particular importance are the prescriptions concerning the working conditions and the selection of the gearbox.

ATEX admitted working conditions

Ambient temperature between –20°C and +40°C.

Input worm shaft rotation mustn't be higher than 1500rpm.

The instructions in the manual attached to the gearbox must be followed relative to the installation, use and periodic maintenance.

Eventual dust deposit mustn't have a thickness more than 5mm.

Gearbox selection

The selection must take into consideration the service factor (see the latest catalogue revision, uploaded on www.motive.it)

It must be verified that $M_{r2} \times f_s \times f_{tp} \leq M_{n2}$ where:

- M_{r2} = torque that is requested by the application on the output shaft of gearbox
- M_{n2} = rated output torque of the gearbox
- f_s = service factor
- f_{tp} = corrective factor that permits to take into consideration the ambient temperature effect, shown in the following chart:

Load type	Ambient temperature		
	20°C	30°C	40°C
a. smooth operation	1,00	1,00	1,06
b. moderate loads	1,00	1,02	1,12
c. heavy loads	1,00	1,04	1,17

The maximum operating time limit of the bearings in an ATEX gearbox, at the maximum radial and axial loads established in the manual and after the correct dimensioning, is 10.000 hours. Beyond this deadline the gearbox will have to be replaced in order to avoid fatigue failure events.

Every 3.000 working hours, and at least every 6 months:

- check oil level;
- clean external surfaces and the ventilation air passages;
- clean the breather plug air passage;
- check visually the absence of leakage from seals visually;
- for gear units with a torque arm, check the rubber buffer and change it, if necessary.

Every 10.000 working hours, and at least every 3 years:

- change synthetic oil (with mineral oil, always follow standard instructions);
- replace anti-friction bearing grease of open bearings not touched by oil (for instance, taper roller bearings with nilos).

The maximum operating time limit of bearings in an ATEX gearbox is 20.000 hours.

In the gearing and bearing dimensioning calculations, the maximum axial and radial loads in input and output to the gearbox must be considered. These values (according to appropriate safety factors) must be checked by the user in order to avoid improper use of the devices (for example excessive overhang loads).

For gearboxes equipped with level inspection plug (it's defined in the instruction manual the only permitted installation positions, that don't compromise the gearbox safety during any condition of use) the guarantee of a different installation from the horizontal (standard) is admissible, only if:

- from the level plug, during operation, there is always a correct oil level inside the gearbox;
- the viscosity characteristics of the oil are in accordance with the instruction manual.

Installation, maintenance, testing before entry into service, removal and all operations requiring an exposed operator must be carried out in a non-explosive environment.

The belt/chain mating must be such as to prevent slippage and localized overheating.

The belts chosen must guarantee the load drainability property (surface resistance $< 1G\Omega$).

The chains must be chosen with materials compatible with the pinions on which they will mesh, in order not to generate sparks of mechanical origin.

The gearbox can't be re-painted; if this happens, it's mandatory the use of conductive paints to avoid electrostatic charges on the surface.

The lubricant must be the one indicated by Motive (see paragraph "Lubrication" in the gearbox technical manual).

The viscosity and chemical composition of the lubricant must:

- prevent the potentially explosive atmosphere from coming into direct contact with potential ignition trigger sources;
- not directly produce an explosive atmosphere on any potential sources of ignition. This includes voids, bubbles or mists caused by the action of shaking moving parts in service and / or a chemical reaction between the lubricant and the materials used in the construction of the equipment;
- not be itself a source of ignition (for example the production of residues prone to self-employed heating).

WARNING: Clean the gearbox with wet or antistatic cloth only.

Installation precautions

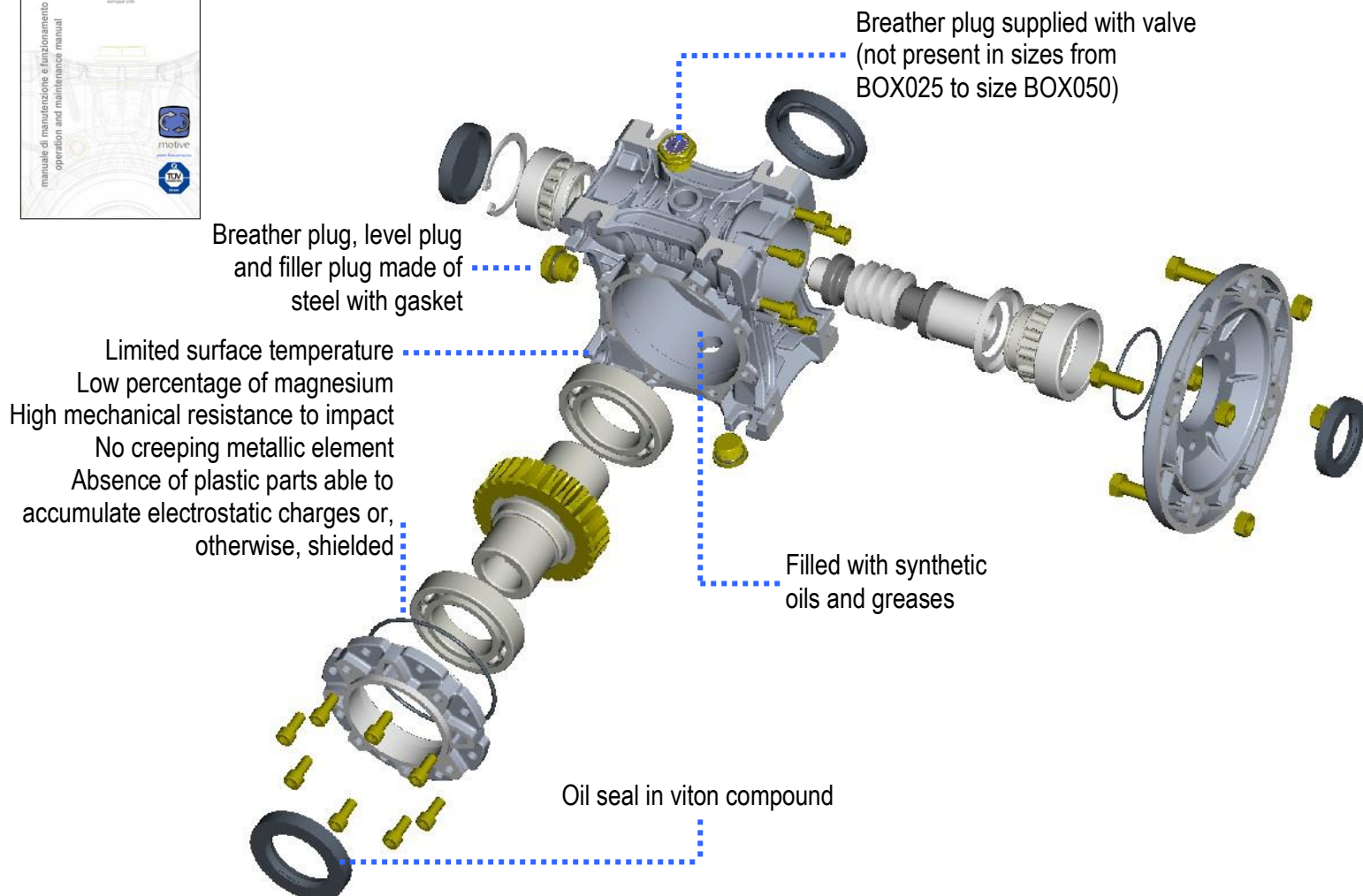
For the installation of the gearbox please consider the following:

- Make sure that the BOX unit is correctly secured to avoid vibrations;
- If shocks or overloads are expected, install hydraulic couplings, clutches, electronic torque limiters, control units, etc;
- For a satisfactory gearbox performance, it is essential to align correctly the motor and the driven machine;
- Whenever possible, we suggest to interpose flexible couplings;
- Align with precision the eventual outboard bearing, because any misalignment would cause high overloads, with a subsequent rupture of a bearing or the shaft;
- Before starting up the machine, make sure that the oil level is conform to the mounting position specified for the BOX unit by checking the level plug;
- For outdoors installation provide adequate guards in order to protect the drive from rainfalls as well as direct sun radiation;
- It is recommended to clean and lubricate the connection shafts with grease having a copper base in order to avoid fretting corrosion and seizure.
Copper, in fact, being very malleable, is like a barrier against the direct contact between two similar metals. Otherwise, you can use a grease having high viscosity base oil which remains particularly adhesive;
- Whenever there are outer loads, it is recommended to use pins and positive stops;
- Self-locking adhesives should be used on the bolts and joining surfaces of the machine frame to prevent gearbox and driven machine to get loose;
- It is recommended to avoid to fit cantilever pinions. If this is not possible, minimize the distance between pinion and output shaft to avoid excessive radial loads;
- Set pre-loading of belts and chains to the minimum;
- Never use the hammer for mounting/dismantling of the keyed parts, but use the tapped holes provided on the head of the shafts;
- For a smooth and silent working, it is recommended the use of Motive motors.


PECULIAR FEATURES OF BOX Ex GEARBOX



User manual + addendum



PLATE

Producer's mark		UK CA 0188	CE 0948	II	Group II (surface industry)
Type denomination	II 2G Ex h IIC T4 Gb II 2D Ex h IIIC T135°C Db Tamb= -20 +40 °C TÜV IT 21 ATEX 026 AR			2	Category 2 (high protection)
Production year and month	RATIO			G	Protected against Gas
Serial number	PAM			D	Protected against Dust
	Nr			Ex h	Constructional safety
	www.motive.it			IIC	Gas group (Hydrogen)
				IIIC	Dust group (Conductive dust)
				T4	Gas temperature class (135°C)
				T135°C	Dust temperature class
				Gb	EPL in hazardous zones with explosive gas mixtures
				Db	EPL in flammable dust atmospheres



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Declaration of EU conformity

Motive srl based in Castenedolo (BS) - Italy

declares as manufacturer, under its own exclusive responsibility, that its range of gearboxes series:

BOX, ENDURO, ROBUS, STADIO, STON

complies with the following directives and standards:

- EC Directive **2014/34/EU**: concerning “*equipment and Protective systems intended for use in Potentially Explosive Atmospheres*”

Marking:



II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T135°C Db
Tamb=-20 +40 °C

Voluntary type examination certificate number
(edit by TÜV Italia, Notified Body Number 0948): TÜV IT 21 ATEX 026 AR Rev.1


as in accordance to the European Standards:

- **EN ISO/IEC 80079-36:2016** Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements
- **EN ISO/IEC 80079-37:2016** Explosive atmospheres – Part 37: Non-electrical equipment for explosive atmospheres – Non-electrical type of protection constructional safety “c”, control of ignition sources “b”, liquid immersion “k”
- **EN 1127-1:2019** Explosive atmospheres – Explosion prevention and protection – Part 1: Basic concepts and methodology

The machines are supplied without electrical connections to the control panels or any pneumatic and hydraulic supply connections.

It is therefore forbidden to use them until the plant into which they are incorporated has been declared as compliant with the provisions of the Machinery Directive **2006/42/EC** and Directive **2014/34/EU** and plant's analysis was not done as compliant with Directive **99/92/EC**.


Castenedolo, 20th May 2021
The legal Representative



DICHIARAZIONE DECLARATION



Italia

- [1] **AVVISO DI RICEVIMENTO**
ACKNOWLEDGEMENT OF RECEIPT
- [2] **Apparecchiature o Sistemi di Protezione destinati ad essere utilizzati in atmosfere potenzialmente esplosive Direttiva 2014/34/UE**
Equipment or Protective System or Component intended for use in potentially explosive atmospheres Directive 2014/34/EU
- [3] Numero dell'avviso di ricevimento: **TÜV IT 21 ATEX 026 AR Rev.1**
Acknowledgement of receipt number:
- [4] Apparecchiatura o sistema di protezione:
Equipment or protective system:
- RIDUTTORE A VITE SENZA FINE Serie BOX WORM GEARBOX Series BOX**
RIDUTTORE ORTOGONALE Serie ENDURO BEVEL HELICAL GEARBOX Series ENDURO
RIDUTTORE COASSIALE Serie ROBUS IN-LINE HELICAL GEARBOX Series ROBUS
PRE-COPPIA Serie STADIO PRE-STAGE Series STADIO
RIDUTTORE PENDOLARE Serie STON PARALLEL SHAFT GEARBOX Series STON
-  **II 2G Ex h IIC T4 Gb**
II 2D Ex h IIC T135°C Db
Tamb=-20 +40 °C
- [5] Identificazione del fascicolo tecnico data dal richiedente:
Technical file reference given by applicant:
- FASCICOLO TECNICO RIDUTTORI ATEX 2GD FT_RIDEX2GD (Rev.01 – 11/05/2021)**
ATEX 2GD GEARBOXES TECHNICAL FILE FT_RIDEX2GD (Rev.01 – 11/05/2021)
- [6] Richiedente / Applicant: **MOTIVE S.r.l.**
Via Le Ghiselle 20
IT - 25014 CASTENEDOLO (BS)
- [7] Costruttore / Manufacturer: **MOTIVE S.r.l.**
Via Le Ghiselle 20
IT - 25014 CASTENEDOLO (BS)
- [8] Il TÜV Italia, organismo notificato n° 0948 in conformità Direttiva 2014/34/UE del Consiglio dell'Unione Europea del 26 Febbraio 2014, avvisa il richiedente di aver ricevuto il fascicolo tecnico relativo all'apparecchiatura o sistema di protezione sopra citato in accordo alla procedura definita all'articolo 13 paragrafo 1-b-ii della Direttiva 2014/34/UE.
TÜV Italia, notified body n° 0948 in accordance with the Council Directive 2014/34/EU of 26 February 2014, notifies to the applicant to have received the technical file relates to the equipment or protective system above mentioned according to procedure defined to Article 13 paragraph 1-b-ii of the Directive 2014/34/EU.

Data prima emissione / First issue date: **17/03/2021**

Data emissione / Issue date: **20/05/2021**

Data scadenza / Expiry date: **16/03/2031**

TÜV ITALIA Srl
Organismo Notificato No. 0948
Notified Body, No. 0948



PRD N° 081B

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual
Recognition Agreements




Questa dichiarazione può essere riprodotta solo integralmente e senza alcuna variazione.
This declaration may only be reproduced in its entirety and without any change.

PEX-01-M043_r06_del 29/03/2018



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Declaration of UK conformity

Motive srl based in Castenedolo (BS) - Italy

declares as manufacturer, under its own exclusive responsibility, that its range of gearboxes series:

BOX, ENDURO, ROBUS, STADIO, STON

complies with the following directives and standards:

- Directive **UKSI 2016:1107** as amended by **2019:696**: concerning "equipment and Protective systems intended for use in Potentially Explosive Atmospheres"

Marking:



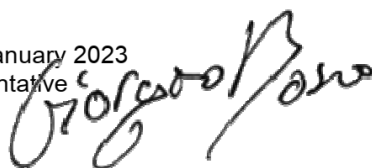
II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T135°C Db
Tamb=-20 +40 °C

Voluntary type examination certificate number TÜV BAPT 23 UKEX000023 i01
(edit by TÜV SÜD BAPT, UK Approved Body Number 0168):

as in accordance to the European Standards:

- **BS EN ISO 80079-36:2016** Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements
- **BS EN ISO 80079-37:2016** Explosive atmospheres – Part 37: Non-electrical equipment for explosive atmospheres – Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"
- **BS EN 1127-1:2019** Explosive atmospheres – Explosion prevention and protection – Part 1: Basic concepts and methodology

Castenedolo, 1st January 2023
The legal Representative





TUV SUD B A B T Unlimited, Octagon House, Concorde Way, Segensworth North, Fareham, Hants, PO15 5RL, UK

Your ref:	Our ref:	Phone-ext/E-Mail	Date	Page
722305812-Gearboxes / activity TUV	UKEX000023 i01	+39 0444 218218	09/01/2023	1 of 1

MOTIVE S.r.l.
Via Le Ghiselle, 20 – 25014 Castenedolo (BS) - ITALY

Dear MOTIVE S.r.l.,

Receipt and Storage of Technical Documentation

UKEX000023 i01

Equipment	Product Description	Documentation Reference
Gearboxes: WORM GEARBOX BEVEL HELICAL GEARBOX IN-LINE HELICAL GEARBOX PRE-STAGE PARALLEL SHAFT GEARBOX	BOX Series ENDURO Series ROBUS Series STADIO Series STON Series Ex marking: II 2G Ex h IIC T4 Gb II 2D Ex h IIC T135°C Db	TECHNICAL FILE name: <i>Fascicolo Tecnico Riduttori (incl. UKCA)_TUV IT 21 ATEX 026 AR Rev00.zip</i>
File Receipt Date	Period of Manufacture	Storage expiry date
09/01/2023	10 years	08/01/2033

This is to confirm receipt and storage of Technical Documentation for the product listed above, in accordance with the Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended by UKSI 2019:696).

MOTIVE S.r.l. have made available technical documentation as per the requirements of Module A, Internal Production Control as stated in Regulation 39 (1)(b)(ii)(bb). TUV SUD B A B T do not take any responsibility for the validity of the information provided within the technical file by the manufacturer on which parts of the assessment must be based upon. TUV SUD B A B T have not verified whether all documentation provided is correct and complete.

Any modification to the product affecting the safety integrity and product as indicated within the product description referenced, must be included within the technical file and updated.

The file will be held for 10 years after the expiry date, but no further products can be placed on the market after the expiry date.

MOTIVE S.r.l. have agreed to comply with the TUV SUD Testing and Certification Regulations as a contract condition (a copy which can be obtained from TUV SUD B A B T Unlimited).

Yours sincerely

TUV SUD B A B T Unlimited

Nicola Friso (Technical Certifier)

Nicola Friso
2023-03-08



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Декларация соответствия UA

Motive srl с главным офисом в Castenedolo (BS) – Italy (Италия)

заявляет как производитель под свою исключительную ответственность, что его продукция
редукторов:

BOX, ENDURO, ROBUS, STADIO, STON

соответствует следующим директивам и стандартам:

- Директива ЕС **2014/34/UE**: относительно «оборудования и защитных систем, предназначенных для использования в потенциально взрывоопасных средах»

Маркировка:



II 2G Ex h IIC T4 Gb
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Tamb=-20 +40 °C

Номер сертификата добровольной проверки типа
(отредактировал СЕПТИС-ЦЕНТР, номер нотифицированного органа UA.TR.115): СЦ 21.A.0014-1

как по украинским стандартам:

- **ДСТУ EN ISO 80079-36:2017** Среда взрывоопасна. Часть 36. неэлектрических оборудования для взрывоопасных атмосфер. Основной метод и требования
- **ДСТУ EN ISO 80079-37:2017** Среда взрывоопасна. Часть 37. неэлектрических оборудования для взрывоопасных атмосфер. Неэлектрических степень защиты с помощью конструкционной безопасности «с», управление источником возгорания «b», погружение в жидкость «к»
- **ДСТУ EN 1127-1:2018** Взрывоопасная среда. Предотвращение взрывов и защита от взрывов. Часть 1. Основные концепции и методология

Машины поставляются без электрических подключений к панелям управления или без каких-либо пневматических и гидравлических подключений.

Поэтому запрещено использовать их до тех пор, пока завод, в который они включены, не будет объявлен соответствующим положениям Директивы по машинному оборудованию **2006/42/ЕС** и Директивы **2014/34/UE**, а анализ предприятия не был проведен как соответствующий Директиве **99/92/ЕС**.

Castenedolo, 11 мая 2021 г.
Юридический представитель

