



## ***Handbook for use and maintenance and directive ATEX***

*In compliance with the regulation standards harmonized by the Directive  
ATEX 2014/34/EU*



### **ELVEM S.R.L.**

Via delle Industrie, 42  
36050 Cartigliano (VI)  
Tel: +39 0424 513972  
+39 0424 35410  
Fax: +39 0424 35405

[www.elvem.it](http://www.elvem.it)      [elvem@elvem.it](mailto:elvem@elvem.it)

Certified company EN ISO 9001:2008

## **LIST OF CONTENTS**

<b>1 OVERALL INFORMATIONS ABOUT SAFETY</b>	<b>3</b>
<b>1.1 Goal of this handbook</b>	<b>3</b>
<b>1.2 Builder liability</b>	<b>3</b>
<b>1.3 Labelling</b>	<b>5</b>
<b>1.4 Hazardous areas and zones</b>	<b>6</b>
1.4.1 Classification of the hazardous areas into zones	6
1.4.2 Equipment categories	7
1.4.3 Classes of temperature (for atmospheres with gas)	7
<b>2 TECHNICAL INFORMATIONS</b>	<b>7</b>
<b>3 FEATURES OF THE MOTORS</b>	<b>8</b>
<b>4 TRASPORT AND STORING</b>	<b>8</b>
<b>5 INSTALLATION</b>	<b>9</b>
<b>5.1 Guidelines for the electric connection</b>	<b>10</b>
<b>6 START</b>	<b>11</b>
<b>7 USE</b>	<b>11</b>
<b>8 MAINTENANCE</b>	<b>12</b>
<b>9 CLEANING</b>	<b>12</b>
<b>10 COMPLAINTS</b>	<b>12</b>
<b>11 ANOMALIES: CAUSES AND SOLUTIONS</b>	<b>13</b>

# 1 OVERALL INFORMATIONS ABOUT SAFETY

## 1.1 Goal of this handbook

This handbook has been written by the builder and it is to be considered a fundamental part of the set of ELVEM motors. Therefore it must be always kept together with the motor till its dismantling in order to be within reach for its users and/or those in charge for the maintenance. Before any operation with or on the motor it is compulsory for the personnel to read this handbook carefully. In case this handbook gets lost, ruined or anyway difficult to read, a copy of it must be requested either to the authorized retailer or directly to ELVEM. This handbook has been designed by the builder of the electric motors to provide all the information necessary for those who are authorized to run operations – such as installation, use and repair – in safety.

These guidelines are valid for electric motor **three-phase** series: 6SM, 6XM, 6SH, 6XH, 6PM, 6PH, T2A, T2H, TSM, 6AP, 6AV, 6AT, 6ATK, 6ATC, 6ATH, 6ATKH, 6ATCH, TAT, TATC, TATK, 6AKTH, 1ATC, 1ATK, 1ATCH, 1ATKH, 7SM, 7XM, 7SH, 7XH, 7PM, 7PH, 7AP, 7AV, 7AT, 7ATK, 7ATC, 7ATKH, 7ATCH, 7AKTH and for electric motors **single-phase** series: 6MY, 6MYT, 6MYTH, 6ML, 6AM, 6AMH, 6AMK.

ELVEM keeps the right to modify, expand or improve this document, however without lessening the worth of this handbook either on the side of adequacy or on the side of safety.



- The indications provided near the sign above, are displayed exclusively in the equipment meeting the Directive ATEX 2014/34/EU.
- This handbook deals with the main topics related to explosion-proofing and it is to be considered part of the handbook with operating and maintenance instructions for three-phase, totally enclosed, squirrel cage motors with enclosure rating IP 65.

## 1.2 Builder liability

The builder disclaims all responsibility in case of:

- Use of the motors against national safety laws
- Missing or wrong observance of the instructions provided in this handbook and in the handbook for the use and maintenance of asynchronous three-phase motors, totally enclosed, squirrel cage motors with enclosure rating IP 65
- Problems with the power supply
- Modifications or tampering
- Operations run by non-trained personnel

The safety in the motors is also due to the observance of the indications provided in this handbook. Read carefully the instructions for the use and maintenance and keep to all the recommended precautions, too. In particular it is necessary to:

- Work always within the operational limits
- Have maintenance done by qualified personnel
- Use only original spare parts

**Warning!** The instructions contained in this handbook do not substitute but summarize the duties derived from the regulations in force about safety.



For a use in compliance with the Directive ATEX 2014/34/EU, keep to the technical data on the rating plate and the documentation that must be always together with the equipment.




The procedures for the setting up and maintenance must be performed in no potentially explosive atmosphere by trained personnel and the power supply must be sectioned. The equipment belonging to group II (not for use in underground parts of mines as well as those parts of surface installations of mines endangered by firedamp and/or combustible dust) and category 3GD can be used in zones 2 and 22, it is not likely to have an explosive atmosphere, by means of flammable gases or dusts, while normal working; use the motor together with other devices only if these can

operate at least in the same zone. The features of the explosive mixture must keep to the data of the maximum temperature written on the rating plate.



In case of use of the motor in explosive atmosphere because of air/dust mixture, the minimum firing temperature of the dust cloud must be higher than the value on the rating plate, multiplied for the coefficient 1.5 to which 75°K must be added if you can presume a deposition of dust layers lower than 5 mm.

### 1.3 Labelling

Each motor is equipped with a rating plate which contains the principal technical information related to its functional and constructive features. All the data on the label must be reported on the possible orders for spare parts.

		www.elvem.it IEC 60034-1			
Type			~	N°	20
cosφ	I.Cl.	IP	S	Kg	
⊕	50Hz	IE	% ( 100% )		⊕
Tmin -20°C Tmax +40°C			ATEX 94/9/CE art.8 c All.VIII		
Hz	V	Kw	A	rpm	
 II 3G Ex nA IIC T4 Gc / II 3D Ex tc IIIC T135°C Dc IP65					

#### Legend ATEX plate

	ATEX marking
II	Group of the plant
3G 3D	Category to which it belongs
Ex	Use in explosive atmosphere in presence of air/gas/vapour or mist/dust mixtures
nA tc	Protection by means of constructive device
IIC	Group for GAS
IIIC	Group for DUST
IP65	IP protection level
T4 T135°C	Class of temperature
Gc Dc	EPL - Equipment Protection Level
ATEX 94/9/CE art.8 c All. VIII	Standard
	CE marking

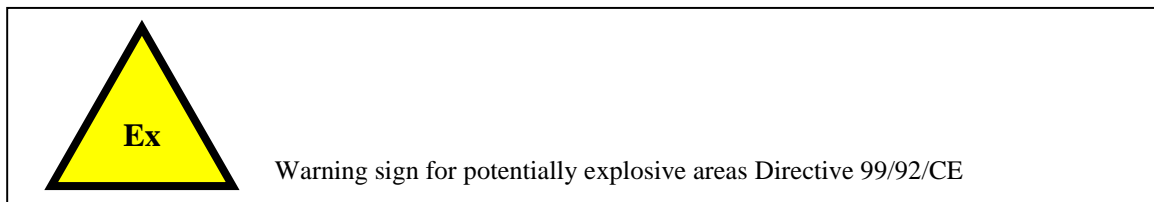
#### 1.4 Hazardous areas and zones

The hazardous areas are those in which explosive atmosphere may be generated under given conditions.

Users, under their own responsibility, must classify hazardous areas as indicated in the European Directive 1999/92/EC.

The EN 60079-10-1 provides the criteria for the classification of the hazardous areas according to the chemical composition, the physical features and the quality of the substances used, together with the frequency and the period of time in which it is likely for an explosive mixture to be generated.

The criteria for the areas that are potentially explosive because of combustible dusts are described in EN 60079-10-2.



##### 1.4.1 Classification of the hazardous areas into zones

The European Directive 1999/92/EC, classifies the potentially explosive areas according to the indications provided in the table below.

Working area with GAS	Working area with DUST	Risk level in working area
Zone 0	Zone 20	Explosive atmosphere <b>ALWAYS HIGH</b>
Zone 1	Zone 21	Explosive atmosphere <b>PROBABLE</b>
Zone 2	Zone 22	Explosive atmosphere <b>NOT PROBABLE</b>

## 1.4.2 Equipment categories

LEVEL OF PROTECTION granted by the equipment	MINE	SURFACE	
	Category	Category for GAS	Category for DUST
Very high	M1	1G (zone 0)	1D (zone 20)
High	M2	2G (zone 1)	2D (zone 21)
Normal	NOT FORESEEN	3G (zone 2)	3D (zone 22)

## 1.4.3 Temperature class (for atmosphere with gas)

Fire point of the explosive mixture (°C)	Temperature class	Maximum surface temperature of the electric equipment with ambient temperature of 40°C	
		°C	F
higher than 450	T1	450	842
from 300 to 450	T2	300	572
from 200 to 300	T3	200	392
from 135 to 200	T4	135	275
from 100 to 135	T5	100	212
from 85 to 100	T6	85	185

## 2 TECHNICAL INFORMATIONS

The motor has been developed and manufactured for use in industrial areas in zones classified as 2-22 (for categories 3G and 3D).

The motor is adapt to work where the following environmental requirements are met:

Temperature between – 20 °C and + 40 °C, Relative humidity: ≤80%.

The motor has been designed, built and tested to work under safety conditions with gas/vapours with minimum auto-ignition temperature higher than 135°C.

Users must make sure that the electric plant powering the motor has been properly made safe against explosion and that the document on protection against explosions has been written, as recommended in the Directive 1999/92/EC.

The electric part of the motor has been built in accordance with the Directive 2006/95/EC (limited voltage) and to the Directive 2004/108/EC (EMC).

### 3 FEATURES OF THE MOTORS

All the typical informations about motors as:

- mechanic and electric features,
- technical data,
- dimensions and proportions,

are thoroughly described in the product catalogue.

### 4 TRANSPORT AND STORING

Give immediate notice about any possible damages occurred during the transportation. In these cases do not start the motor. Close the eyebolts for the transport: they are designed only for the weight of the motor, therefore the transportation of heavier loads is not allowed. If necessary use means and devices for transport specifically recommended for heavier loads (i.e. cables). Before starting take all the transport devices away. Those devices must be kept for further possible transportations. If the motors are to be stored, please follow these indications:

- do not store in the open air,
- choose a dry place,
- choose a sufficiently clean, dust-free environment which has no vibrations ( $\leq 0,2$  mm/s) in order to avoid any damage to the bearings,
- do not store for too long because this brings to a lower endurance of the grease,
- before starting gauge the insulation resistance. With values lower than  $1 \text{ k}\Omega$  for each volt of rated voltage dry the winding.



Motors must not be stored in potentially explosive areas.

Before using the motor, clean the earth-connections and the housing by removing any possible dust and/or oxidized parts.



## 5 INSTALLATION

For the installation of the motor please consider the following:

- make sure that no damages have occurred during transportation;
- carefully remove the components of the plant from the wrapping material and any other protective devices;
- make sure that the value of the voltage on the rating plate is the same as the voltage of mains;
- the surfaces in contact with the electric bonding and the rating plate must not be varnished;
- the accessories for cable inlet and for closing all unused holes must be in compliance with EN 60079-15 for electric motors Ex nA, gas group IIC; in accordance to EN 60079-31 for electric motors Ex tc, they also must grant a minimum protection level IP65 in accordance to EN 60529;
- set the motor on a flat surface;
- make sure that the bearings or the flange are well fixed and that in case of direct joint the motor is perfectly aligned;
- avoid resonances equal to the frequency of the motor revolutions or twice the network frequency;
- make the rotor rotate manually in order to verify the absence of any dragging;
- verify the rotation sense removing the joint;
- key (extract) the output components (i.e. joint, belt pulley, etc.) only using apt devices (shrinking-on). Avoid not allowed tension on the pulley (ref. catalogue par. technical sheet);
- the type of balancing is indicated on either the front of the shaft or on the plate (H = half keyway, F = full keyway). When assembling the output components, please take care over the balancing. In case of half keyway balancing, remove the protruding visible parts of the keyway;
- in the models in which the shaft is with the end downwards, use the protective cover. If the end of the shaft is upwards, use a cover preventing any penetration of external parts into the fan;
- make sure there is sufficient ventilation;
- do not hinder ventilation. The discharged air, together with the air coming from other groups, must not be immediately re-aspirated;
- with ambient temperatures not between  $-20^{\circ}\text{C}$  and  $+40^{\circ}\text{C}$ , please contact ELVEM;




- The installation must take place in a non explosive atmosphere.
- The atmosphere of use must meet the indications for minimum surface temperature written on the rating plate in compliance with ATEX regulations.
- Set protective devices in order to prevent dangerous dust/liquid residues near the protruding shafts and seals.
- As one-way-screw safety device feed some liquid dope to the die of all the screws used to fix the motor to the housing.
- Make sure that the imposed load is not bigger than the values for which the motor has been designed.

## 5.1 Guidelines for the electric connection

The operations for the connection to the electric network (valid for auxiliary circuits, too) must be performed in compliance with the following indications:

- any operation on the plant must be run by trained personnel;
- the motor must be disabled and isolated;
- make sure that a casual start can not occur;
- make sure that there is no voltage;
- going beyond the tolerance limits indicated in EN 60034, part 1 (voltage  $\pm 5\%$ , frequency  $\pm 2\%$ , shape and symmetry of the sinusoidal curve) brings to an increase in heat and influences the electromagnetic tolerance.
- consider the information on the plate and the circuit scheme in the box for the connection;
- with the three-phase 380V network, the motor with the plate delta/star 230/400V is star-connected according to the picture on the cover of the terminal board;
- the delta/star 230/400V motor can be connected to the three-phase 220V network but it must be delta-connected. The squirrel-cage motors are connected to the network by means of three pole switch, three pole safety switch, motor or contactor;
- if the network does not sustain the direct input voltage, the motor can be started by means of a star/delta commutator, which is possible only in motors where the connection of the winding for rated voltage is delta;
- with such a start you can not forget that the starting current falls to one third of its value but also the starting moment falls to a third of its value, therefore this start is to be recommended only in the machines without load;
- the electric connection must be made in order be long-lasting and safe (do not leave any protruding end in the wires). Make safe connections;
- attain to the driving torques for the connection of the terminal boards:

	<b>Thread</b>	<b>M4</b>	<b>M5</b>	<b>M6</b>	<b>M8</b>	<b>M10</b>
	<b>Driving torque (Nm)</b>	<b>0,6...0,12</b>	<b>1,8...2,5</b>	<b>2,7...4</b>	<b>5,5...8</b>	<b>9...13</b>

- make sure that in the box for the connection there is neither foreign body, nor dirty/humid parts. Close the unused pipe unions and the box itself to prove the presence of dust and water;
- when testing without output components secure the keyway;
- in the motors with brake, please verify the working before the starting process;
- you can change to contrarotation interchanging the two phases. If the change to countrarotation occurs often, you must use the reversible switch;
- the working motors must be protected against short circuit, overload and recovery voltage; use the fuses, contactors with induction relays and circuit breakers.

## 6 START

Before starting make an overall check of the motor to make sure that all the indications about installation presented above have been applied.

In particular, please:

- make sure that the voltage of the motor is equivalent to the one expected and that the position of the motor after assembling is right;
- check the union of the connecting link, close all its dies and secure the cover of the terminal board without damaging the gasket;
- verify the rotation of the motor manually;
- once the fuse is inserted, check if there is voltage in all the phases and eventually measure their value.

Stop using the motor if anomalies occur and contact ELVEM.



Before starting please check:

- The ATEX conformity of every attachment connected to the machine;
- The compatibility between the ambient atmosphere of the place where the motor is meant to work and the indications in the rating plate;
- The maximum surface temperature of the motor must not exceed the value marked on the plate;
- When the installation is completed clean the motor removing dust layers in order to prevent dust thicker than 5 mm.

## 7 USE

When using the motor please very carefully keep to the following indications:

- vibration intensity  $\leq 3,5$  mm/s (PN  $\leq 15$  kW) or  $\leq 4,5$  mm/s (PN  $> 15$  kW) when working without the joint is negligible;
- if anomalies – like increase in temperature, noise, vibration – occur, disconnect the motor. verify the cause of the anomalies and possibly contact ELVEM;
- do not remove in any case the protective devices even when testing or maintaining;
- the use of motors with forced ventilation is allowed only when the external fan is on.

## 8 MAINTENANCE

- Before any maintenance intervention make sure that the power supply of the motor is off disabling it and then activate all the safety devices;
- Use only original spare parts following the indications provided in the catalogue for the motors;
- Substitute the bearings considering what follows:
  - A. 20.000 machine-hours in bipolar motors;
  - B. 40.000 machine-hours for non bipolar motors
- Re-grease three years after the first use at the latest;
- With oilless bearings grease the motor while the motor is working.



Before starting any maintenance, make sure that:

- The power supply of the motor is disconnected;
- There is no potentially explosive atmosphere;
- The external part of the motor has no dust layer to prevent dust thicker than 5 mm;
- The indications for installation, start and maintenance have been observed.

The user must periodically:

- check the bearing layer (manual movement). When finding imperfections, substitute the bearing;
- clean and grease the connections of the motor earthed system;
- remove the dust from the electric parts.

Contact ELVEM for any extraordinary maintenance intervention in which you have to substitute components and/or spare parts. The spare parts must be compatible with the application in the zone 2-22 (II 3GD T4 minimum). The tools used when maintaining must be in compliance with the indications for zone 2-22 (II 3GD T4 minimum).

## 9 CLEANING

Before starting the cleaning make the motor safe. When cleaning the user must make sure that the tools (flashlights, aspirators, etc.) are in compliance with the regulations for the environment (category II 3 GD).

## 10 COMPLAINTS

If the motor gets damaged before the deadline for the warranty period and if that damage can be considered a defect of workmanship, before giving the motor back you must inform ELVEM and provide the following:

- Exactly the same information written on the rating plate;
- The kind of connection of the motor in use;
- The network voltage and the current of the full-load motor;
- The ambient temperature and the temperature of the motor frame;
- The working parameters;
- The effects and duration of the anomaly;

The right to get the motor repaired for free is determined:

- considering the deadline of the warranty;
- considering if the damage has been caused by wrong handling or installation;
- considering if the motor has been dismantled before sending it to be repaired.

## 11 ANOMALIES: CAUSES AND SOLUTIONS

Anomaly	Possible causes	Remedies
The motors does not get started	Stop in the voltage	Check the fuses, the circuit breaker or the contactor
	Stop in the stator circuit (i.e. in the delta/star switch)	Separate the lines, check the switch and the phases on the connecting link
	Damaged bearings	Substitute the bearings - contact ELVEM
	Wrong connections in double speed motors	Modify the connection
The motor gets started with some difficulty, the speed of rotation rapidly decreases when under load	The motor designed for delta connection has been star connected	Change the connection
	Too low voltage	Disconnect the motor till the voltage reaches normal levels
While connecting, the fuse gets burnt or the circuit breaker gets disconnected	The switch lines of the stator have some contact	Separate the lines
	The two phases of the stator have some contact or touch the air gap	Separate the lines, try the phases or phases to earth; adjust if necessary
The temperature of the motor raises too much, the circuit breaker or the contactor gets disconnected	Overload	Measure the current. If it is too high, eliminate the cause for the overload in the working motor or use a bigger motor
	Damaged/badly greased/faulty bearings	Check how greased and how worn the bearings are (specially sealed bearings)
	Too high ambient temperature	Increase cooling or adjust ambient temperature
	Obstructed aspirator opening in the fan cover	Clean the fan cover
Anomalous noises	Damaged/badly greased/faulty bearings	Check how greased and how worn the bearings are (specially sealed bearings)
High vibrations	Unsuitable housing structure	Change the natural frequency of the housing by adding weights



1

# ATTESTATO DI ESAME DEL TIPO TYPE EXAMINATION CERTIFICATE

2 Apparecchiature o sistemi di protezione destinati ad essere utilizzati in atmosfera potenzialmente esplosiva **Direttiva 94/9/CE**

Equipment or protective system intended for use in potentially explosive atmospheres **Directive 94/9/EC**

3 Numero di attestato di esame del tipo:

Type examination certificate number:

**BVI 13 ATEX 0011**

**BVI 13 ATEX 0011**

4 Apparecchiatura o sistema di protezione:

Equipment or protective system:

**Motori elettrici asincroni trifase**

Serie: 6SM, 6SH, 6XM, 6XH, T2A, T2H, 6ATC, 6ATCH, 6ATK, 6ATKH, 6AT, 6ATH, 1ATC, 1ATK, 7SM, 7SH, 7XH, 7XM, 7AT, 7ATC, 7ATK, 6AP, 6AV, 7AP, 7AV.

**Asynchronous three-phase electric motors**

Series: 6SM, 6SH, 6XM, 6XH, T2A, T2H, 6ATC, 6ATCH, 6ATK, 6ATKH, 6AT, 6ATH, 1ATC, 1ATK, 7SM, 7SH, 7XH, 7XM, 7AT, 7ATC, 7ATK, 6AP, 6AV, 7AP, 7AV.

**Motori elettrici asincroni monofase**

Serie: 6MY, 6MYT, 6MYTH, 6ML, 6AM, 6AMK.

**Asynchronous single-phase electric motors**

Series: 6MY, 6MYT, 6MYTH, 6ML, 6AM, 6AMK.

5 Fabbricante **ELVEM S.r.l.**

Manufacturer **ELVEM S.r.l.**

6 Indirizzo **Via Monte Pertica, 15  
36061 Bassano del Grappa (VI) – Italia**

Address **Via Monte Pertica, 15  
36061 Bassano del Grappa (VI) - Italia**

7 Questa apparecchiatura o sistema di protezione e le sue eventuali varianti accettate sono descritte nell'allegato al presente certificato e nei documenti descrittivi pure riportati in esso.

This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and therein referred to.

8 BUREAU VERITAS ITALIA S.p.A., (di seguito BVI) attesta che questa apparecchiatura o sistema di protezione è in conformità ai Requisiti Essenziali di Salute e Sicurezza per il progetto e la costruzione di apparecchiature o sistemi di protezione destinati ad essere utilizzati in atmosfere potenzialmente esplosive, definite nell'Allegato II della Direttiva.

BUREAU VERITAS ITALIA S.p.A., (as follows BVI), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment or protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and tests results are recorded in confidential technical evaluation report M48106/13/DM/gt.

Le verifiche ed i risultati di prova sono registrati nel rapporto di valutazione tecnica confidenziale M48106/13/DM/gt.

9 La conformità ai Requisiti Essenziali di salute e Sicurezza viene assicurata per mezzo della conformità alle norme:

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

- EN 60079-0 (2009), EN 60079-15 (2010), EN 60079-31(2009)

- EN 60079-0 (2009), EN 60079-15 (2010), EN 60079-31 (2009).

10 Il simbolo X posto dopo il numero del certificato indica che l'apparecchiatura o il sistema di protezione è soggetto a condizioni speciali per un utilizzo sicuro specificato nell'allegato di questo certificato.

If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to a special conditions for safe use specified in the schedule to this certificate.

11 Questo attestato è relativo soltanto al progetto, all'esame ed alle prove dell'apparecchiatura specificata in [4].

This certificate relates only to the design, examination and tests of the specified equipment or protective system in [4].

12 L'apparecchiatura o sistema di protezione deve includere i seguenti contrassegni:

The marking of the equipment or protective system shall include the following:

**II 3G Ex nA IIC T4 Gc**  
**II 3D Ex tc IIIC T135°C Dc IP65**



Milano, 29 Marzo 2013

Approvato da (Approved by):  
Davide Morandin



M48107/13/DM/gt IT File 13.IT.1415643

Il Presente documento non può essere riprodotto parzialmente se non con l'approvazione scritta di Bureau Veritas Italia.  
The present document shall not be reproduced, except in full, without Bureau Veritas Italia approval.

Page 1/3

Bureau Veritas Italia SpA – Via Miramare, 15 - 20126 Milano

www.bureauveritas.it  
AII. VIII PE





13 **ALLEGATO**

**SCHEDULE**

14 **CERTIFICATO DI ESAME DEL TIPO**

**TYPE EXAMINATION CERTIFICATE**

**BVI 13 ATEX 0011**

**BVI 13 ATEX 0011**

15 **DESCRIZIONE DELL'APPARECCHIATURA O SISTEMA DI PROTEZIONE:**

**DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM**

**Motori elettrici asincroni trifase**  
Serie: 6SM, 6SH, 6XM, 6XH, T2A, T2H, 6ATC, 6ATCH, 6ATK, 6ATKH, 6AT, 6ATH, 1ATC, 1ATK, 7SM, 7SH, 7XH, 7XM, 7AT, 7ATC, 7ATK, 6AP, 6AV, 7AP, 7AV.

**Asynchronous three-phase electric motors**  
Series: 6SM, 6SH, 6XM, 6XH, T2A, T2H, 6ATC, 6ATCH, 6ATK, 6ATKH, 6AT, 6ATH, 1ATC, 1ATK, 7SM, 7SH, 7XH, 7XM, 7AT, 7ATC, 7ATK, 6AP, 6AV, 7AP, 7AV.

**Motori elettrici asincroni monofase**  
Serie: 6MY, 6MYT, 6MYTH, 6ML, 6AM, 6AMK.

**Asynchronous single-phase electric motors**  
Series: 6MY, 6MYT, 6MYTH, 6ML, 6AM, 6AMK.

**Descrizione dell'apparecchiatura**

**Description of equipment**

La serie trifase comprende: 16 altezze d'asse (56...355) ad una velocità di rotazione (2, 4, 6 o 8 poli); 12 altezze (71...280) a due velocità (2/4, 4/8, 4/6, o 6/8 poli).

The three-phase series includes: 16 axle heights (56...355) at a rotation speed (2, 4, 6 or 8 poles); 12 heights (71...280) at two speeds (2/4, 4/8, 4/6 or 6/8 poles).

La serie monofase comprende: 7 altezze d'asse (56...112) ad una velocità di rotazione (2 o 4 poli).

The single-phase series includes: 7 axle heights (56...112) at one rotation speed (2 or 4 poles).

Una descrizione più dettagliata dei motori elettrici e le loro caratteristiche costruttive sono riportate nella documentazione elencata nei "Documenti di Riferimento".

A description more detailed of electric motors and their constructive characteristics is brought back in the documentation listed in "Reference Documents".

**Caratteristiche elettriche motore elettrico trifase:**

**Electrical characteristics three-phase electric motor:**

Tensione massima: 600 V  
Potenza nominale: 0,06 ÷ 500 kW  
Frequenza nominale: 50 – 60 Hz  
Velocità di rotazione: 700 ÷ 3600 rpm  
Numero di poli: 2, 4, 6, 8  
Classe di isolamento: F

Maximum voltage: 600 V  
Rated power: 0,06 ÷ 500 kW  
Rated frequency: 50 – 60 Hz  
Rotation speed: 700 ÷ 3600 rpm  
Poles number: 2, 4, 6, 8  
Insulation class: F

**Caratteristiche elettriche motore elettrico monofase:**

**Electrical characteristics single-phase electric motor:**

Tensione massima: 230 V  
Potenza nominale: 0,06 ÷ 4 kW  
Frequenza nominale: 50 – 60 Hz  
Velocità di rotazione: 1500 ÷ 3600 rpm  
Numero di poli: 2, 4  
Classe di isolamento: F

Maximum voltage: 230 V  
Rated power: 0,06 ÷ 4 kW  
Rated frequency: 50 – 60 Hz  
Rotation speed: 1500 ÷ 3600 rpm  
Poles number: 2, 4  
Insulation class: F

**Classe di Temperatura e Temperatura Ambiente**

**Temperature Class and Ambient Temperature**

Classe Temperatura		T <sub>amb</sub>
Gas	Polvere	
T4	T135°C	-20°C - +40°C

Temperature Class		T <sub>amb</sub>
Gas	Dust	
T4	T135°C	-20°C - +40°C

L'apparecchiatura deve inoltre riportare la marcatura normalmente prevista dalle norme di costruzione del materiale elettrico.

The equipment must also carry the usual marking required by the manufacturing standards applying to such equipments.





## 13 ALLEGATO

## SCHEDULE

### 14 CERTIFICATO DI ESAME DEL TIPO

### TYPE EXAMINATION CERTIFICATE

#### BVI 13 ATEX 0011

#### BVI 13 ATEX 0011

##### Ingresso cavi

Gli accessori utilizzati per l'ingresso cavi e per la chiusura delle aperture inutilizzate devono essere certificati:

- secondo EN 60079-15 per motori in esecuzione Ex nA, ed essere idonei per il gruppo di gas IIC;
- secondo EN 60079-31 per motori in esecuzione Ex tc e garantire un grado di protezione minimo IP65 in accordo alla Norme EN 60529.

##### Cable entries

The accessories for cable entries and intended to close unused openings shall be certified:

- according to EN 60079-15 for Ex nA motors, suitable for IIC gas group;
- according to EN 60079-31 for Ex tc motors and shall guarantee a degree of protection as minimum IP65 according to standard reference EN 60529.

### 16 DOCUMENTI DI RIFERIMENTO:

### REFERENCE DOCUMENTS:

La documentazione tecnica di riferimento per il presente attestato è:

The technical reference document for this certificate is:

- Fascicolo Tecnico N° FT001 Rev. 1 06/03/2013.

- Technical File Nr. FT001 Rev. 1 dated 06/03/2013.

Una copia dei documenti sopracitati è conservata presso l'archivio di BVI.

Copies of the above mentioned documents are kept at BVI archive.

### 17 CONDIZIONI SPECIALI PER UN UTILIZZO SICURO [se applicabili, X nel certificato]

### SPECIAL CONDITIONS FOR SAFE USE [if applicable, number certificate with "X"]

Nessuna.

None.

### 18 REQUISITI ESSENZIALI DI SICUREZZA E SALUTE

### ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

Assicurati dalla conformità alle norme in [9]

Covered by standards in [9]

### 19 PROVE INDIVIDUALI

### ROUTINE TESTS

Il costruttore deve effettuare le verifiche e prove individuali previste al paragrafo 27 della norma EN 60079-0 ed al paragrafo 23.2 della norma EN 60079-15. La prova di tensione applicata deve essere effettuata alla tensione di  $2U + 1000$  V in valore efficace, come previsto al paragrafo 6.5.1 della norma EN 60079-15.

The manufacturer shall carry out the checks and the tests prescribed at paragraph 27 of EN 60079-0 standard and at paragraph 23.2 of EN 60079-15 standard. The dielectric strength test must be carried out at the voltage of  $2U + 1000$  Vrms, as provided at paragraph 6.5.1. of EN 60079-15 standard.

Elaborato da (Prepared by)  
Gian Paolo Tondetta - Ispettore ATEX -







1

## ESTENSIONE ALL'ATTESTATO DI ESAME DEL TIPO EXTENSION TO TYPE EXAMINATION CERTIFICATE

2 Apparecchiature o sistemi di protezione destinati ad essere utilizzati in atmosfera potenzialmente esplosiva **Direttiva 94/9/CE**

Equipment or protective system intended for use in potentially explosive atmospheres **Directive 94/9/EC**

3 **Numero dell'estensione:**

**Extension number:**

**N° 01/14**

**N° 01/14**

**Attestato di esame del tipo di riferimento:**

**Type examination certificate reference:**

**BVI 13 ATEX 0011**

**BVI 13 ATEX 0011**

4 Apparecchiatura o sistema di protezione:

Equipment or protective system:

**Motori elettrici asincroni trifase**

Serie: 6SM, 6SH, 6XM, 6XH, T2A, T2H, 6ATC, 6ATCH, 6ATK, 6ATKH, 6AT, 6ATH, 1ATC, 1ATK, 7SM, 7SH, 7XH, 7XM, 7AT, 7ATC, 7ATK, 6AP, 6AV, 7AP, 7AV.

**Asynchronous three-phase electric motors**

Serie: 6SM, 6SH, 6XM, 6XH, T2A, T2H, 6ATC, 6ATCH, 6ATK, 6ATKH, 6AT, 6ATH, 1ATC, 1ATK, 7SM, 7SH, 7XH, 7XM, 7AT, 7ATC, 7ATK, 6AP, 6AV, 7AP, 7AV.

**Motori elettrici asincroni monofase**

Serie: 6MY, 6MYT, 6MYTH, 6ML, 6AM, 6AMK.

**Asynchronous single-phase electric motors**

Serie: 6MY, 6MYT, 6MYTH, 6ML, 6AM, 6AMK.

5 **Fabbricante: ELVEM S.r.l.**

**Manufacturer: ELVEM S.r.l.**

6 **Indirizzo: Via delle Industrie, 42  
36050 Cartigliano (VI) – Italia**

**Address: Via delle Industrie, 42  
36050 Cartigliano (VI) - Italy**

7 La presente estensione deve essere unita sempre all'Attestato di Esame del Tipo BVI 13 ATEX 0011

This extension and specified reference documents shall be annexed to the Type Examination Certificate BVI 13 ATEX 0011

8 Le verifiche ed i risultati di prova sono registrati nel rapporto di valutazione tecnica confidenziale G6197/14/GT/gt

The examination and tests results are recorded in confidential technical evaluation report G6197/14/GT/gt

9 **Varianti ammesse:**  
(Vedi paragrafo A3 del presente documento per descrizione dettagliata delle varianti ammesse)

**Admitted variation:**  
(See clause A3 of this document for admitted variations detailed description)

10 **Documenti di Riferimento:**  
(da unire a quelli citati nel certificato BVI 13 ATEX 0011):

**Reference documents:**  
(to be attached to those listed in the certificate BVI 13 ATEX 0011):

FT001 Rev. 2 del 16/10/2014

FT001 Rev. 2 dated 16/10/2014

Una copia dei documenti sopraccitati è conservata presso l'archivio di BVI

A copy of the above mentioned documents are kept at BVI archive

Milano, 27 Ottobre 2014

Emesso da (issued by):  
Gian Paolo Tondetta







(A1) **ALLEGATO**

(A2) **ESTENSIONE N° 01/14 all'Attestato di Esame del Tipo BVI 13 ATEX 0011**

(A3) DESCRIZIONE DELLE VARIANTI:

Aggiunta dei motori elettrici asincroni trifase, tipo: 6PM, 6PH, TSM, TAT, TATC, TATK, 6AKTH, 1ATCH, 1ATKH, 7PM, 7PH, 7ATCH, 7ATKH, 7AKTH.

Aggiunta dei modelli asincroni monofase, serie: 6AMH.

Temperatura ambiente: -20°C + +50°C.

Variazione indirizzo sede aziendale.

**SCHEDULE**

**EXTENSION N° 01/14 Type Examination Certificate BVI 13 ATEX 0011**

DESCRIPTION OF VARIATIONS:

Update of the asynchronous three-phase electric motors, type: 6PM, 6PH, TSM, TAT, TATC, TATK, 6AKTH, 1ATCH, 1ATKH, 7PM, 7PH, 7ATCH, 7ATKH, 7AKTH.

Update of the asynchronous single-phase electric motors, type: 6AMH.

Environmental temperature: -20°C + +50°C.

Company address change.

