

1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa02ATEX0017X/7**

4 Equipment or Protective System: **A Type EF112M Cage Induction Motor**

5 Manufacturer: **Fabryka Silnikow Elektrycznych "Tamel" SA
Invensys Brook Crompton**

6 Address: **ul. Elektryczna 6, 33-100, Tarnow, Poland**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa02ATEX0017X** to apply to equipment or a protective system designed and constructed in accordance with the specification set out in the Schedule of this certificate which incorporates and supersedes all previous issues of the said certificate.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, 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 and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **10(C)0580**

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

EN60079-0: 2009

EN60079-1: 2007

except in respect of those requirements listed at item 18 of the Schedule.

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

11 This Supplementary EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

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

⊕ II 2 G Ex d IIB T* Gb (T_{amb} -*°C to +*°C) and /or ⊕ IM2 Ex d I Mb see schedule

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **5233**

Project File No. **10/0580**

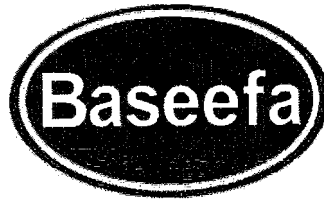
This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

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R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Re-issued 3 September 2012 to replace original



Schedule

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Certificate Number Baseefa02ATEX0017X/7

15 Description of Equipment or Protective System

A Type EF112M Cage Induction Motor comprises of a stator frame and endshields manufactured from cast iron, and a flameproof terminal box attached to the stator frame. The single or double ended motor are provided with an end shield adapter for flange mounting and/or cast-on feet, and have an external cooling fan with a sheet steel fan cowl. An additional drip-proof canopy is provided when the motors are supplied with an external cooling fan and are intended to be mounted vertically with the shaft downwards. The motors may be provided with internal anti-condensation heaters, thermal protectors, a cast iron fan cover, a fan from one of several different materials and a terminal box adaptor to allow the fitting of a larger terminal box or omission of the terminal box with extension of the winding tails for direct entry.

The 2 to 8 pole motors are rated for S1 duty and connection to a single or three phase supply up to 1100V, 60Hz, having form and symmetry not worse than that defined in Clause 6.2.11 of IEC 60034-1.

The Temperature Classification is T3, T4 or T5 ($T_{amb} = -55^{\circ}\text{C}$ to $+40^{\circ}\text{C}$) depending upon the specified output rating. For operational purposes the motors may be marked for a restricted ambient temperature range within these stated temperatures.

Cable entry holes are provided as specified on the certified drawings for the accommodation of flameproof cable entry devices, with or without the interposition of a flameproof thread adapter. Unused entries are to be fitted with suitable certified flameproof stopping plugs.

The cable entry devices, thread adapters and stopping plugs shall be suitable for the equipment, the cable and the conditions of use and shall be certified as Equipment (not a Component) under an EC-Type Examination Certificate to Directive 94/9/EC.

Drawings

Number	Issue	Date	Description
E12AC000**	1	06.03.10	Sectional Arrangement - Size EF112
E94AC000*	1	10.03.03	Terminal Box EEx d - EF90-112
E44AC001*	1	10.03.03	Terminal Box EEx d - EF90-160
E44AC002*	1	10.03.03	Terminal Box EEx d - EF90-160
E44AC003*	1	10.03.03	Terminal Box EEx d - EF90-160
E44AC004*	1	10.03.03	Terminal Box EEx d - EF90-160
E12AC004*	-	23.07.02	Adaptor Plate Arrangement - EF112
E94AC005*	-	30.05.02	Oversize Terminal Box Arrangement E90 to E112
E94AC006*	-	11.07.02	Uninsulated Terminal Lug Arrangement - EF90-112
E47AC001*	-	23.07.02	Uninsulated Terminal Lug Arrangement - EF90-180
E99AC001*	-	30.05.02	Raceway Sealing Arrangement - Low Temperature

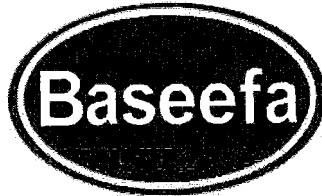
**These drawings have been submitted for this certificate.

* These drawings have been previously certified under Baseefa02ATEX0017X and its previous supplementary certificates. Some of these drawings are common to other certificates as indicated on drawing E00CH002/0.

All are held on file 5233/01.

Special Condition for Safe Use

1. The electrical supply to the anti-condensation heaters, when fitted, must be interlocked with the main motor power supply so that they are only energised when the motor is de-energised, and the heaters must be de-energised before opening any part of the motor enclosure.



2. For replacement purposes, fixing screws must be of minimum grade 8.8, except socket head cap screws which must be minimum grade 12.9.

Variation 7.1

Deletion of the integral fan and cover and addition of a thermal protector in each phase, or 2 thermal protectors for a single phase motor, for self ventilated applications (IC410 to EN 60034-6).

In this form the temperature classification is T3 or T4 depending upon the specified thermal protector value.

Addition Special Condition for Safe Use

The thermal protectors must be connected to a suitable control circuit such that the motor is disconnected from the supply in the event of excessive temperatures.

Variation 7.2

Deletion of the integral fan and cover and addition of a thermal protector in each phase, or 2 thermal protectors for a single phase motor, for forced air stream applications (IC418 to EN 60034-6).

In this form the temperature classification is T3, T4 or T5 depending upon the specified thermal protection value.

Addition Special Condition for Safe Use

The thermal protectors must be connected to a suitable control circuit such that the motor is disconnected from the supply in the event of excessive temperatures.

Variation 7.3

To permit increased specified outputs and duty cycles of S2 to S8, (IC410 & IC411 to EN 60034-6), and addition of a thermal protector in each phase, or 2 thermal protectors for a single phase motor.

In this form the temperature classification is T3 or T4 depending upon the specified output rating.

Addition Special Condition for Safe Use

The thermal protectors must be connected to a suitable control circuit such that the motor is disconnected from the supply in the event of excessive temperatures.

Variation 7.4

Deletion of the integral fan and cover, addition of a thermal protector in each phase or 2 thermal protectors for a single phase motor, and specified increased ratings, for forced air stream applications. (IC418 to EN 60034-6).

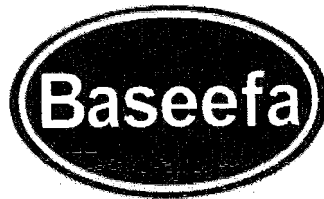
In this form the temperature classification is T3 or T4 depending upon the specified thermal protection value.

Addition Special Condition for Safe Use

The thermal protectors must be connected to a suitable control circuit such that the motor is disconnected from the supply in the event of excessive temperatures.

Variation 7.5

To permit the motors to be used with a variable frequency supply for frequencies of 2 Hz to 100 Hz and addition of a thermal protector in each phase, or 2 thermal protectors for a single phase motor.



In this form the temperature classification is T3.

Addition Special Condition for Safe Use

The thermal protectors must be connected to a suitable control circuit such that the motor is disconnected from the supply in the event of excessive temperatures.

Variation 7.6

To permit the motors to be used with a fixed frequency supply for frequencies of 61 Hz to 100 Hz having form and symmetry not worse than that defined in IEC 60034-1 Clause 6.2.11 and addition of a thermal protector in each phase, or 2 thermal protectors for a single phase motor.

In this form the temperature classification is T3, T4 or T5 depending upon the specified thermal protector value.

Addition Special Condition for Safe Use

The thermal protectors must be connected to a suitable control circuit such that the motor is disconnected from the supply in the event of excessive temperatures.

Variation 7.7

To permit motors with temperature classification T3 or T4 to be used within an ambient temperature up to 60°C when de-rated accordingly.

Drawing

Number	Issue	Date	Description
E99CH001*	-	16.09.02	De-rating Factors For Increased Ambients

This drawing is common to other certificates as indicated on drawing E00CH002/0 and is held on file 0165/1.

Variation 7.8

Alternative windings to provide two speed motors. The 2 to 8 pole single or two winding motors have a thermal protector in each phase, or 2 thermal protectors for a single phase motor, for each winding.

Addition Special Condition for Safe Use

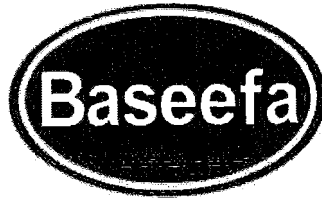
The thermal protectors must be connected to a suitable control circuit such that the motor is disconnected from the supply in the event of excessive temperatures.

Variation 7.9

To permit the substitution of the terminal box with a gland plate and compound filled cable glands together with integral cable tails.

Drawing

Number	Issue	Date	Description
E94AC003*	-	30.05.02	Direct Entry Arrangement - EF90-112



This drawing is common to other certificates as indicated on drawing E00CH002/0 and is held on file 0165/1.

Addition Special Condition for Safe Use

The permanently attached cables shall be suitably protected against mechanical damage and terminated within a terminal or junction facility suitable for the conditions of use.

Variation 7.10

To permit the motors to be used with a variable frequency supply for frequencies of 2 Hz to 100 Hz with addition of a 140°C thermal protector in each phase, or two 140°C thermal protectors for a single phase motor.

In this form the temperature classification is T4.

Drawings

Number	Issue	Date	Description
A12LR018*	-	23.07.02	EF112 Rotor Lamination Details
A12LR019*	-	28.03.03	EF112 Rotor Lamination Details

Addition Special Condition for Safe Use

The thermal protectors must be connected to suitable control circuit such that the motor is disconnected from the supply on the occurrence of excessive temperatures.

Variation 7.11

To permit alternative NDE inner bearing cap dimensions when used with a rotor shaft extension.

Drawing

Number	Issue	Date	Description
E99AC004*	-	27.01.03	Bearing Cap Details – Double Shaft Extension

Variation 7.12

To permit the use of an alternative filling material in the cable tunnel.

Drawing

Number	Issue	Date	Description
E99AC001*	1	20.10.03	Cable Tunnel Sealing Arrangements

Variation 7.13

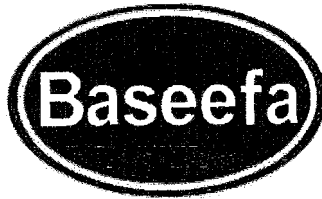
Addition of

I M2 Ex d I Mb

to the marking of existing T4 or T5 temperature class motors.

When motors are used in Group I applications, aluminium cooling fans are not to be fitted.

Cable entry holes are provided as specified on the certified drawings for the accommodation of suitable cable entry devices, with or without the interposition of a suitable thread adapter, or suitable stopping plugs. The cable entry devices, thread adapters and stopping plugs must be certified as flameproof Group I Equipment (not a Component) under an EC Type Examination certificate to Directive 94/9/EC.



Component certified cable entry devices, thread adapters and stopping plugs may only be used if specifically included in the certificate schedule.

The cable entry device and cabling methods used in service must be suitable for their intended duty and the special types of cable used in mining.

Drawings

Number	Sheet	Issue	Date	Description
K20AC001/0*	-	-	19-4-07	Group I Versions of Motors

Addition Special Conditions for Safe Use

- 1 For motors used in Group I applications, thermal overload protectors are to be connected into a control circuit such that the machine is disconnected from the main supply to prevent the winding temperature exceeding 140°C.
2. Flamepath gaps are less than those required for Group I, consult the manufacturer before repair.

Variation 7.14

To note alternative frame designations as indicated below.

POLES	MAIN FRAME TYPE	ALTERNATIVE TYPE	MAX OUTPUT POWER T4 AT 50Hz [kW]
2	EF112M	dSg112M-2	4
4	EF112M	dSg112M-4	4
6	EF112M	dSg112M-6	2.2
8	EF112M	dSg112M-8	1.5

Variation 7.15

To permit an alternative terminal box position at the top of the motor frame.

Drawing

Number	Sheet	Issue	Date	Description
3K28T0592*	1	-	01.10	Machining of WEF112 Frame – Terminal Box at Top

This drawing is common to Baseefa02ATEX0018X and is held on general file 5233/01.

16 Report Number

Baseefa Certification Report 10(C)0580

17 Specific Conditions of Use

See above.

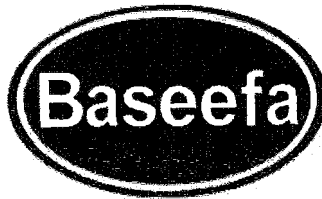
18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

See above.

Certificate Number
Baseefa02ATEX0017X/7



Issued 25 October 2010
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- 1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**
- 2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres**
Directive 94/9/EC
- 3 Supplementary EC - Type Examination Certificate See Schedule
Number:
- 4 Equipment or protective system: See Schedule
- 5 Manufacturer: ATB Tamel Spolka Akcyjna
- 6 Address: Ul. Elektryczna 6, 33-100 Tarnow, Poland
- 7 This supplementary certificate extends the EC - Type Examination Certificates listed in the Schedule to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedules of the said Certificates but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

A copy of this Supplementary Certificate shall be attached to each of the original Certificates.

Baseefa Customer Reference No. 5233

Project File No. 14/0243

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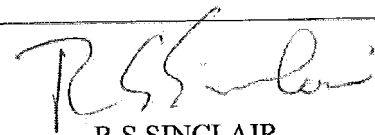
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R S SINCLAIR
GENERAL MANAGER

On behalf of SGS Baseefa Limited

Schedule

Description of the variation to the Equipment or Protective System

Increase in the maximum rated voltage of the motors and terminals to 1140V. The motor ratings are otherwise unchanged.

Certificate No.	Supplement No.	Equipment Type
Baseefa02ATEX0013X	7	Type EF90S Cage Induction Motor
Baseefa02ATEX0015X	7	Type EF100L Cage Induction Motor
Baseefa02ATEX0017X	8	Type EF112M Cage Induction Motor
Baseefa02ATEX0019X	9	Type EF132S Cage Induction Motor
Baseefa02ATEX0021X	8	Type EF160M Cage Induction Motor
Baseefa02ATEX0023X	10	Type EF180M Cage Induction Motor
BAS02ATEX2111X	12	Type EF200LN and EF225SN Cage Induction Motor
BAS02ATEX2114X	13	Type EF225MN and EF250SN Cage Induction Motor
BAS02ATEX2117X	12	Type EF250MN and EF280SN Cage Induction Motor
BAS02ATEX2120X	12	Type EF280MN and EF315SN Cage Induction Motor
BAS02ATEX2123X	11	Type EF315MN and EF315LN Cage Induction Motor

Report No.

None

Specific Conditions of Use

None additional to those listed previously

Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

Drawings and Documents

Number	Issue	Date	Description
1E20T0121*	-	04-2014	Range Of Motors With 1140V (max) Terminals

*The above drawing is held with certificate Baseefa02ATEX0013X/7

1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa02ATEX0017X/9**

4 Equipment or Protective System: **A Type EF112M Cage Induction Motor**

5 Manufacturer: **ATB Tamel Spolka Akcyjna**

6 Address: **ul. Elektryczna 6, 33-100, Tarnow, Poland**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa02ATEX0017X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 Item 9 of the original Certificate is replaced by “Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013 EN 60079-1:2014

except in respect of those requirements listed at item 18 of the Schedule.”

9 The marking of the equipment has changed from the original Certificate and shall include the following:

⊕ II 2G Ex db IIB T* Gb (T_{amb} - *°C to +*°C) and/or ⊕ IM2 Ex db IMb *See schedule

*See re-issued certificate at supplement 7 for schedule.

This certificate shall be held with the original certificate.

Baseefa Customer Reference No. **5233**

Project File No. **15/0299**

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R S SINCLAIR 
GENERAL MANAGER

On behalf of SGS Baseefa Limited

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Schedule

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Certificate Number Baseefa02ATEX0017X/9

15 Description of the variation to the Equipment or Protective System

Variation 9.1

To confirm that the type EF112M cage induction motor covered by this certificate have been reviewed and confirmed as being in compliance with the latest standard; EN 60079-0:2012+A11:2013 and EN 60079-1:2014.

16 Report Number

SGS Baseefa Certification Report Number 15(C)0299

17 Specific Conditions of Use

None additional to those listed previously

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
E12AC000/2	1	2	17/06/2015	Sectional Arrangement of EF112M Ex db (eb) IIA and IIB

This drawing is common to this certificate and is held with technical file 5233.