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INDUSTRIEL ET DES RISQUES

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(2) **Equipment and protection systems intended for use in potentially explosive atmospheres Directive 94/9/EC**

(1) EC-TYPE EXAMINATION CERTIFICATE

(3) Number of the EC type examination certificate: **INERIS 01ATEX0010 X**

(4) Protection system or equipment:

3-PHASE ASYNCHRONOUS MOTOR TYPE FLSE... or LSE...

(the type may be supplemented by an option symbol and the type by the shaft height an indication of the symbol for the distance between the centre lines of the motor mounting holes and/or for the number of poles)

(5) Manufacturer: **LEROY SOMER**

(6) Address: F- 16015 ANGOULEME

(7) This protection system or equipment and any other acceptable alternative of this one are described in the appendix of this certificate and the descriptive documents quoted in this appendix.

(8) The INERIS, notified body and identified under number 0080, in accordance with article 9 of Council Directive 94/9/CE 23 th March 1994, certifies that this protection system or equipment fulfills the Essential of Health and Safety Requirements relating to the design and construction of equipments and protection systems intended for use in potentially explosive atmospheres, described in appendix II of the Directive.

The examinations and the tests are consigned in official report n° 16021/01.

(9) The respect of the Essential Health and Safety Requirements is ensured by:

- conformity with:

EN 50 014	of June	1997	+ A1 and A2
EN 50 019	of November	2000	
EN 50 281-1-1	of September	1998	

- specific solutions adopted by the manufacturer to meet the Essential Health and Safety Requirements described in the descriptive documents.

(10) Sign X, when it is placed following the Number of the EC type examination certificate, indicates that this equipment and protection system is subjected to the special conditions for safe use, mentioned in the annex of this certificate.

(11) This EC type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. 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 the protection system will have to contain:

⟨Ex⟩ II 2 G or ⟨Ex⟩ II 2 GD EEx e II T3 or EEx e II T4 IP65 T200°C to T125°C

Verneuil-en-Halatte, 2001 12 29

X. LEFEBVRE

Engineer at the Laboratory for Certification of ATEX equipment

Director of the Certifying Body,
By delegation
B. PIQUETTE
Deputy Manager of Certification

ATMOSPHERES EXPLOSIVES
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EXPLOSIVE ATMOSPHERES

(13) # ANNEX

(14) EC TYPE EXAMINATION CERTIFICATE N° INERIS 01ATEX0010 X

(15) **DESCRIPTION OF THE EQUIPMENT OR THE PROTECTION SYSTEM**

Three-phase asynchronous electric motor with frame out of cast aluminium for type LSE... and frame out of cast iron for type FLSE... and cast iron flanges.
The basic shaft heights are in mm: 80, 90, 100, 112, 132 and 160.

A primary junction box in cast iron or steel is mounted on the housing. An auxiliary box can be fitted on the primary box. As a variation, between one and four auxiliary junction boxes,can be welded on the primary junction box in steel, or the connection can be made of a unterminated cable.

The motor may be designed with one or two speeds.

Temperature sensors may be incorporated in the stator windings and in the bearings.

The motor may be supplied through a frequency converter an/or can operate at variable speed. In this case, it is fitted with temperature sensors located in the stator windings and in the front bearing. These sensors should be connected to a device that shuts off power to the motor so that the maximum indicated surface temperature is never reached.

Heating resistances may be located in the winding.

The motor and the junction boxes can be realised by the manufacturer for use in an ambient temperature range from -25°C to 40°C, or from -25°C to 60°C or from -40°C to 60°C.

The degrees of protection of enclosures (motor and junction box(es)) are IP55 in the standard version, IP66 according in the variant to EN 60 034 part 5 EN 60 529.

The degrees of mechanical protection of enclosures are IK08 in the standard version.

Electrical cables are inserted into the apparatus through screw-in cable penetrations of a type certified EEx d and/or EEx e, according to the CENELEC standards or through conduit entrie(s).

The motor can be fitted with the following Ex components:
- Terminal KS 7A certificate PTB 90C3163U,
- Terminal KS 8A certificate PTB 90C3164U,
- Terminal KS 10A certificate PTB 90 C3165U.

SAFETY PARAMETERS

Motor:
- Supply voltage max : 1100 V above the shaft height 132
- Supply voltage max : 726 V until the shaft height 132
- Frequency : 50 or 60 Hz or
  other fixed values between,
  - up to 200 Hz until the shaft height ≤ 132
  - up to 100 Hz up to the shaft height 132

  Frequency variation : same range defined below
- Rating : - standard version, S1 service
  from 0.37 kW to 11 kW under 50 Hz
  - for special versions the different parameters can be adapted.

Heating resistances : Umax = 240V (50/60Hz)
- P max = 100W

Operating maximal thresholds of the temperature sensors:
- Maximum surface temperature = 125°C
  . winding sensor = 120°C ± 5°C
  . bearing sensor = 120°C ± 5°C

- Maximum surface temperature = 130°C (class T4)
  . winding sensor = 120°C ± 5°C
  . bearing sensor = 120°C ± 5°C

- Maximum surface temperature = 195°C (class T3)
  . winding sensor = 150°C ± 6°C
  . bearing sensor = 190°C ± 5°C

MARKING

Marking must be readable and indelible; it must comprise the following indications:

- **LEROY SOMER**
  F- 16015 ANGOULEME
- FLSE... or LSE... (1)
- INERIS 01ATEX0010 X
- (serial number)
- (Year of construction)
- **⟨Ex⟩ II 2 G or ⟨Ex⟩ II 2 GD**
- **EEx e II T3 or EEx e II T4 IA/IN tE (*)**
- IP65 T200°C or T 135°C or T125°C **(**)**
- T amb: -25°C to 40°C

or

- **LEROY SOMER**
  F- 16015 ANGOULEME

- FLSE... or LSE... (1)
- INERIS 01ATEX0010 X
- (serial number)
- (Year of construction)
- **⟨Ex⟩ II 2 G or ⟨Ex⟩ II 2 GD**
- **EEx e II T3 IA/IN tE (*)**
- IP65 T200°C or T 145°C or T135°C **(**)**
- T amb: -25°C to 50°C or T amb: -25°C to 60°C
- T cable : 100°C

(1) FLSE or LSE may be supplemented by an option symbol and the type by the shaft height an indication of the symbol for the distance between the motor mounting holes and/or of the number for poles
(*) see classification temperature table
(**)for explosive dusty atmospheres
Rated current and voltage
on the junction box, the marking :
DO NOT OPEN WHEN ENERGIZED

and, in each of the above cases, on each junction box lid, the following:

DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT

The covered type by this EC type examinatiob certificate are mentioned in the temperture class table.

The whole of marking can be carried out in the language of the country of use.

The protection apparatus or system must also carry the marking normally envisaged by the standards of construction which relate to it.

ROUTINE EXAMINATIONS AND TESTS

Each example of the equipment protected defined above must have successfully passed before delivery a dielectric strength test carried out as specified in 7.1 in accordance with 6 of the EN 50 019 standard on the connection elements.

(16) DESCRIPTIVE DOCUMENTS

The report is composed of the documents quoted hereafter, constituting the descriptive file of the apparatus, object of this certificate.

- Descriptive notice ref..LS :BEGP« LSE»12-01 : (7 pages) signed on 10.12.2001
- Addition to instruction notice and maintenance signed on 10.12.2001
- Temperature class table 23.10.2001
- Association table motors with frequency inverter on 2001.12.10
- Plans E6919 rev A (3 folios) signed on 20.06.2001
- Plans E6921 rev A (3 folios) signed on 20.06.2001

- Plans E6923 rev A (3 folios) signed on 20.06.2001
- Plans E6986 rev A (3 folios) dated on 25.09.2001 signed on 02.10.2001
- Plans E6988 rev A (3 folios) dated on 25.09.2001 signed on 12.10.2001
- Plans E6988 rev A (3 folios) dated on 25.09.2001 signed on 12.10.2001
- Plans E6989 rev A (3 folios) dated on 10.10.2001 signed on 10.10.2001
- Plans E7004 rev A (3 folios) dated on 10.10.2001 signed on 12.10.2001
- Plans E7012 rev A (3 folios) dated on 16.10.2001 signed on 16.10.2001
- Plans E7014 rev A (3 folios) dated on 16.10.2001 signed on 16.10.2001

(17) SPECIAL CONDITIONS FOR SAFE USE

When the motor is supplied through a frequency converter and /or used in an air flow, it must be fitted with thermal sensors in the windings, on the front bearing and eventually on the rear bearing.

When the motor is fitted with a forced ventilation, a device has to oppose to running of the main motor in absence of ventilation.

In order to ensure that the maximum surface temperature is not exceeded, the thermal sensors fitted to the motor should be connected to a device that switches off power to the motor when the operating thresholds defined in **(15)** are reached. Also the heating resistances may be powered only when the motor is disconnected from the power supply and cold.

When the motor is equipped with one or many auxiliary connecting boxes, it can only support a low risk of mechanical danger and the user would have to ensure a complementary protection in case of high risk.

The cable entries must be compatible with the type of protection used for the connecting part. In the variant with unterminated cable(s), the connection to the motor must be made whether in a non-explosive atmosphere or protected by a standard type of protection.

These special conditions are defined in the instructions for the motor.

(18) ESSENTIAL REQUIREMENTS OF SAFETY AND HEALTH

The respect of the Essential Health and Safety Requirements is ensured by:

- conformity to the European standards EN 50 014, EN 50 019 and EN 50 281-1-1
- the whole of the provisions adopted by the manufacturer and described in the descriptive documents.

ADDITION

(3) **INERIS 01ATEX0010 X/01**

(4) **3-PHASE ASYNCHRONOUS MOTOR TYPE LSE...or FLSE...**

(5) **Made by LEROY SOMER**

(15) - **PURPOSE OF THE ADDITION**

Up date of the descriptive documents allowing:

- Extension of motor range according the following shaft height: 63, 71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280.
- Modification of the ambient temperature range :-20°C to 40°C as normal use.
- Mechanical modification.
- Table of temperature class according to the shaft heights.
- Add of the components Ex defined in the descriptive documents.
- Association motor frequency converter.
- Add of manufacturing areas.

PARAMETERS RELATING TO THE SAFETY

The parameters relating to safety indicated in the basic certificate are supplemented as follow:
Motor:
Rating:
- standard version, S1 service from 0.25 kW to 75 kW under 50 Hz
- for special versions the different parameters can be adapted.

MARKING

The code marking envisaged in the basic certificate is supplemented by the following code:

- LEROY SOMER
- F- 16015 ANGOULEME or F- 90500 BEAUCOURT or F- 69 SAINT SYMPHORIEN D'OZON or F- 16230 MANSLE
- LSE...or FLSE... (1)
- INERIS 01ATEX0010 X
- (Serial number)
- (Year of construction)

- ⟨Ex⟩ II 2 G or ⟨Ex⟩ II 2 GD
- **EEx e II T3 IA/IN tE (*)**

Or

- **EEx e II T4 IA/IN tE (*)**

IP66 T 125°C or T 135°C or T145°C**(**)**
Tamb : mandatory mention if it differs from -20°C to 40°C
(1) FLSE or LSE may be supplemented by an option symbol and the type by the shaft height an indication of the symbol for the distance between the motor mounting holes and/or of the number for poles
(*) see classification temperature table
(**)for explosive dusty atmospheres
Rated current and voltage
on the junction box, the marking :
DO NOT OPEN WHEN ENERGIZED

and, in each of the above cases, on each junction box lid, the following:

DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
The covered type by this EC type examination certificate are mentioned in the temperature class table.

ROUTINE EXAMINATIONS AND TESTS

The examinations and individual tests envisaged in the basic certificate are unchanged.

(16) - DESCRIPTIVE DOCUMENTS

The documents referred to below, constitute the file describing the modifications of the apparatus and forming the subject of the present addition.

- Descriptive Notice of extension n°1 dated and signed on 2005.05.17
- Technical annex 25 items dated and signed on 2005.12.01
- Table of temperature class ST1036A dated and signed on 2005.03.15
- Table of temperature class T50Q020B dated and signed on 2005.03.14
- Table of temperature class ST70 0002_1 dated and signed on 2005.12.22
- Table of association motor/frequency converter ST1008_B dated and signed on 26.01.2006
- Plan GT104700 2005.02.08

(17) - SPECIAL CONDITIONS FOR SAFE USE

The special conditions are completed as follow:

The motor supplied through a frequency converter removed and located in non hazardous area or used in a sufficient air flow or eventually adapted in view to not be self ventilated must be fitted with thermal sensors in the windings (all shaft heights), on the front bearing (from the shaft height 160) and eventually on the rear bearing.

(18) - ESSENTIAL REQUIREMENTS OF SAFETY AND HEALTH

The respect of the Essential Health and Safety Requirements indicated in the basic certificate is unchanged.

Verneuil-en-Halatte, 2006 02 21

ATMOSPHERES EXPLOSIVES ORGANISME NOTIFIE INERIS NOTIFIED BODY EXPLOSIVE ATMOSPHERES

X. LEFEBVRE

Engineer at the Laboratory of Certification of ATEX Equipment

Director of the Certifying Body,
By delegation
B. PIQUETTE
Deputy manager of Certification

ADDITION

(3) **INERIS 01ATEX0010X/02**

(4) **3-PHASE ASYNCHRONOUS MOTOR TYPE LSE or FLSE...**

(5) **Made by LEROY SOMER**

(15) **PURPOSE OF THE ADDITION**

- Conformity of the standards: EN 60079-0: 2006, EN 60079-7: 2007, EN 61241-0: 2006 and EN 61241-1: 2004.
- Modification of plastic materials of the ventilators, for the motors GD.
- Limitation of the maximum supply voltage to 1000V.
- Addition of a new maximum ambient temperature: +75°C.
- Electrical and mechanical execution variations.
- For the plant of BEAUCOURT, LEROY-SOMER becomes LEROY-SOMER MOTORS, Constructions Electriques de Beaucourt (CEB), company of LEROY-SOMER group.
- Addition of synchronous motors.

PARAMETERS RELATING TO THE SAFETY

The parameters relating to the safety are modified as follow:

- Maximal supply voltage: 800V, up to shaft height 132,
- Maximal supply voltage: 1000V, beyond of shaft height 132,
- Maximum output per pole: 200kW.

MARKING

The marking is modified as follow:

LEROY SOMER
F-16015 ANGOULEME or F-69360 SAINT SYMPHORIEN D'OZON or F-16230 MANSLE
or
LEROY SOMER MOTORS - CEB
F-90500 BEAUCOURT
LSE or FLSE...(1)
INERIS 01ATEX0010X
(Serial number)
(Year of construction)

⟨Ex⟩ II 2 G	or	⟨Ex⟩ II 2 GD
Ex e II T3 ou T4		Ex e II T3 or T4
		Ex tD A21 IP65 or IP66 $T_{(2)}$

I_A/I_N
t_E
Tamb: (3)
Tcable: (4)
Rated voltage and current
WARNINGS (5): DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
DO NOT OPEN WHEN ENERGIZED

(1) may be supplemented by an option symbol and the type by the shaft height an indication of the symbol for the distance between the motor mounting holes and/or of the number for poles.

(2) T125°C, T135°C or T200°C in conformity with descriptive documents.

(3) ambient temperature range if different to -20°C, +40°C and in the limits of -25°C, +75°C ; as defined in the descriptive documents.

(4) in accordance with descriptive documents.

(5) on each junction box lid.

The whole of marking can be carried out in the language of the country of use.

The protection apparatus or system must also carry the marking normally envisaged by the standards of construction which relate to it.

ROUTINE EXAMINATIONS AND TESTS

The routine examinations and tests are modified as follow:

- In accordance with clause 7.1 of the EN 60079-7 standard, a test of dielectric strength on each of the different circuits of the connection units, performed according to the relevant standards. The test voltage has to be applied during one minute.

(16) DESCRIPTIVE DOCUMENTS

The descriptive documents quoted hereafter constitute the technical documentation describing the modification of the equipment, subject of this present addition.

- Document ST1353 revision A (4 pages)	dated and signed on the 2010.03.03.
- Document Q1T135 revision E (1 page)	dated and signed on the 2010.06.25.
- Document 3614fr revision C	dated on the June 2010
- Document 3606 revision C (4 pages)	dated and signed on the 2010.02.26.
- Document ST1008 revision C (3 pages)	dated and signed on the 2010.03.11
- Document SM A18 revision D	dated and signed on the 2009.04.03
- Document ST1453 revision A	dated and signed on the 2010.03.03
- Document ST1036 revision C	dated and signed on the 2010.06.10
- Document ST70 0002 revision 3	dated and signed on the 2010.06.23
- Document T10S105 revision D	dated and signed on the 2010.08.20
- Document FB « ATEX »13/03 indice B	dated and signed on the 2010/08/30
- Plan E9222_A	signed on the 2010.02.05
- Plan E9224_A	signed on the 2010.02.05
- Plan E9228_A	signed on the 2010.02.05
- Plan E9227_A	signed on the 2010.02.05
- Plan DM3051 revision A	signed on the 2010.02.10
- Plan DM3052 revision A	signed on the 2010.02.10
- Plan DM3053 revision A	signed on the 2010.02.10
- Plan DM3054 revision A	signed on the 2010.02.10
- Plan DM3055 revision A	signed on the 2010.02.10
- Plan DM3056 revision A	signed on the 2010.02.10
- Plan DM3057 revision A	signed on the 2010.02.10
- Plan DM3058 revision A	signed on the 2010.02.10
- Plan DM3059 revision A	signed on the 2010.02.10
- Plan DM3061 revision A	signed on the 2010.02.10
- Plan E7745 revision A	signed on the 2004.09.01
- Plan E8140 revision B	signed on the 2009.11.04
- Plan E8033 revision B	signed on the 2009.11.04
- Plan PB81 revision F	signed on the 2009.12.23
- Plan PB82 revision F	signed on the 2009.12.23
- Plan ST1325 revision 0	dated on the 2009.11.20

(17) SPECIAL CONDITIONS FOR SAFE USE

The special conditions for safe use are unchanged.

(18) ESSENTIAL SAFETY AND HEALTH REQUIREMENTS

The respect of the Essential Health and Safety Requirements is ensured by:

- Conformity to the standards quoted in clause (15).
- All provisions adopted by the manufacturer and defined in the descriptive documents.

Verneuil-en-Halatte, 2010 09 24

Director of the Certifying Body,
By delegation
T. HOUEIX
Certification Officer
Certification Division

ADDITION

(3) **INERIS 01ATEX0010X/02**

(4) **3-PHASE ASYNCHRONOUS MOTOR TYPE LSE or FLSE...**

(5) **Made by LEROY SOMER**

(15) **PURPOSE OF THE ADDITION**

- Conformity of the standards: EN 60079-0: 2006, EN 60079-7: 2007, EN 61241-0: 2006 and EN 61241-1: 2004.
- Modification of plastic materials of the ventilators, for the motors GD.
- Limitation of the maximum supply voltage to 1000V.
- Addition of a new maximum ambient temperature: +75°C.
- Electrical and mechanical execution variations.
- For the plant of BEAUCOURT, LEROY-SOMER becomes LEROY-SOMER MOTORS, Constructions Electriques de Beaucourt (CEB), company of LEROY-SOMER group.
- Addition of synchronous motors.

PARAMETERS RELATING TO THE SAFETY

The parameters relating to the safety are modified as follow:

- Maximal supply voltage: 800V, up to shaft height 132,
- Maximal supply voltage: 1000V, beyond of shaft height 132,
- Maximum output per pole: 200kW.

MARKING

The marking is modified as follow:

LEROY SOMER
F-16015 ANGOULEME or F-69360 SAINT SYMPHORIEN D'OZON or F-16230 MANSLE
or
LEROY SOMER MOTORS - CEB
F-90500 BEAUCOURT
LSE or FLSE...(1)
INERIS 01ATEX0010X
(Serial number)
(Year of construction)

⟨Ex⟩ II 2 G	or	⟨Ex⟩ II 2 GD
Ex e II T3 ou T4		Ex e II T3 or T4
		Ex tD A21 IP65 or IP66 $T_{(2)}$

I_A/I_N
t_E
Tamb: (3)
Tcable: (4)
Rated voltage and current
WARNINGS (5): DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
DO NOT OPEN WHEN ENERGIZED

(1) may be supplemented by an option symbol and the type by the shaft height an indication of the symbol for the distance between the motor mounting holes and/or of the number for poles.

(2) T125°C, T135°C or T200°C in conformity with descriptive documents.

(3) ambient temperature range if different to -20°C, +40°C and in the limits of -25°C, +75°C ; as defined in the descriptive documents.

(4) in accordance with descriptive documents.

(5) on each junction box lid.

The whole of marking can be carried out in the language of the country of use.

The protection apparatus or system must also carry the marking normally envisaged by the standards of construction which relate to it.

ROUTINE EXAMINATIONS AND TESTS

The routine examinations and tests are modified as follow:

- In accordance with clause 7.1 of the EN 60079-7 standard, a test of dielectric strength on each of the different circuits of the connection units, performed according to the relevant standards. The test voltage has to be applied during one minute.

(16) DESCRIPTIVE DOCUMENTS

The descriptive documents quoted hereafter constitute the technical documentation describing the modification of the equipment, subject of this present addition.

- Document ST1353 revision A (4 pages)	dated and signed on the 2010.03.03.
- Document Q1T135 revision E (1 page)	dated and signed on the 2010.06.25.
- Document 3614fr revision C	dated on the June 2010
- Document 3606 revision C (4 pages)	dated and signed on the 2010.02.26.
- Document ST1008 revision C (3 pages)	dated and signed on the 2010.03.11
- Document SM A18 revision D	dated and signed on the 2009.04.03
- Document ST1453 revision A	dated and signed on the 2010.03.03
- Document ST1036 revision C	dated and signed on the 2010.06.10
- Document ST70 0002 revision 3	dated and signed on the 2010.06.23
- Document T10S105 revision D	dated and signed on the 2010.08.20
- Document FB « ATEX »13/03 indice B	dated and signed on the 2010/08/30
- Plan E9222_A	signed on the 2010.02.05
- Plan E9224_A	signed on the 2010.02.05
- Plan E9228_A	signed on the 2010.02.05
- Plan E9227_A	signed on the 2010.02.05
- Plan DM3051 revision A	signed on the 2010.02.10
- Plan DM3052 revision A	signed on the 2010.02.10
- Plan DM3053 revision A	signed on the 2010.02.10
- Plan DM3054 revision A	signed on the 2010.02.10
- Plan DM3055 revision A	signed on the 2010.02.10
- Plan DM3056 revision A	signed on the 2010.02.10
- Plan DM3057 revision A	signed on the 2010.02.10
- Plan DM3058 revision A	signed on the 2010.02.10
- Plan DM3059 revision A	signed on the 2010.02.10
- Plan DM3061 revision A	signed on the 2010.02.10
- Plan E7745 revision A	signed on the 2004.09.01
- Plan E8140 revision B	signed on the 2009.11.04
- Plan E8033 revision B	signed on the 2009.11.04
- Plan PB81 revision F	signed on the 2009.12.23
- Plan PB82 revision F	signed on the 2009.12.23
- Plan ST1325 revision 0	dated on the 2009.11.20

(17) SPECIAL CONDITIONS FOR SAFE USE

The special conditions for safe use are unchanged.

(18) ESSENTIAL SAFETY AND HEALTH REQUIREMENTS

The respect of the Essential Health and Safety Requirements is ensured by:

- Conformity to the standards quoted in clause (15).
- All provisions adopted by the manufacturer and defined in the descriptive documents.

Verneuil-en-Halatte, 2010 09 24

Director of the Certifying Body,
By delegation
T. HOUEIX
Certification Officer
Certification Division