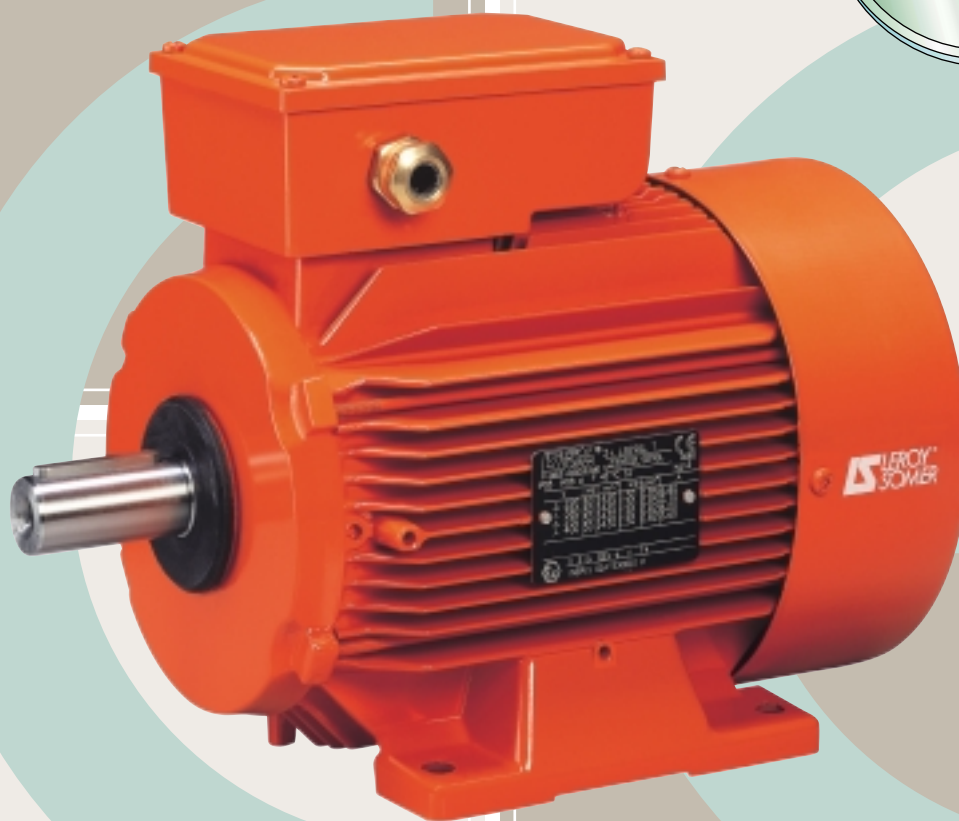


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**LSE - FLSE**  
**3-phase TEFV induction motors**  
**for increased safety**  
**Technical catalogue**

# LSE - FLSE 3-phase TEFV induction motors for increased safety



## Contents

|   | PAGE      |   | PAGE |
|---|-----------|---|------|
| <b>A - GENERAL INFORMATION</b>                                      |           | <b>C - ELECTRICAL CHARACTERISTICS</b>       |      |
| Quality assurance .....   | 4         | Selection data: LSE aluminium motors .....  | 11   |
| General standardization.....  | 5         | Selection data: FLSE cast iron motors ..... | 21   |
| <b>Product approval and marking</b> .....                           | <b>6</b>  |   |      |
| Approval .....  | 6         |   |      |
| Marking.....  | 6         |   |      |
| <b>Definition of atmospheres and zones</b> .....                    | <b>7</b>  | <b>D - DIMENSIONS</b>                       |      |
| Atmospheres at risk of explosion.....                               | 7         | Dimensions: LSE aluminium motors .....      | 31   |
| Definition of zones at risk of explosion .....                      | 7         | Dimensions: FLSE cast iron motors .....     | 39   |
| Temperature classes .....   | 7         |   |      |
| Definition of temperature classes according to IEC 60079-0 .....    | 7         |   |      |
| Definition of the marked temperature according to IEC 60079-7 ..... | 7         |   |      |
| <b>Definition of "Index of Protection" (IP/IK)</b> .....            | <b>8</b>  | <b>E - MAINTENANCE / INSTALLATION</b>       |      |
|   |           | Identification.....                         | 47   |
|   |           | Documentation - Manuals .....               | 48   |
| <b>B - CONSTRUCTION</b>   |           |   |      |
| <b>Components</b> .....   | <b>9</b>  |   |      |
| Description of LSE - FLSE 3-phase motors .....                      | 9         |   |      |
| External finish.....  | 9         |   |      |
| <b>Mains connection</b> .....                                       | <b>10</b> |   |      |
| Terminal box and cable gland positions.....                         | 10        |   |      |
| Cable gland for rated supply voltage of 400V.....                   | 10        |   |      |

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# LSE - FLSE 3-phase TEFV induction motors for increased safety



## Index

| PAGE                                   | PAGE |                            |    |
|--|------|----------------------------|----|
| Accreditation .....                    | 6    | Mains connection .....     | 10 |
| Ambient operating temperature .....    | 7    | Marked temperature.....    | 7  |
| Approval .....                         | 6    | Marking .....              | 6  |
| ATEX .....                             | 6    | Motor batch number.....    | 47 |
| Atmospheres .....                      | 7    | Mounting positions .....   | 5  |
| <br>                                   |      | <br>                       |    |
| Balancing .....                        | 5    | Notified body .....        | 4  |
| Bearings .....                         | 9    | <br>                       |    |
| <br>                                   |      | Optional features.....     | 38 |
| Cable gland .....                      | 10   | <br>                       |    |
| Components .....                       | 9    | Polarities .....           | 11 |
| <br>                                   |      | Power .....                | 12 |
| Danger.....                            | 7    | <br>                       |    |
| Dimensions.....                        | 31   | Quality.....               | 4  |
| Directions of rotation .....           | 9    | <br>                       |    |
| Directive .....                        | 6    | Rated supply voltage ..... | 10 |
| Documentation .....                    | 48   | Risk of explosion.....     | 7  |
| Drip cover .....                       | 38   | Rotor .....                | 9  |
| <br>                                   |      | <br>                       |    |
| Earth terminal .....                   | 9    | Safety.....                | 6  |
| EC type-examination certificates ..... | 6    | Selection data .....       | 11 |
| Efficiency .....                       | 12   | Special manual .....       | 48 |
| EN .....                               | 5    | Speed.....                 | 11 |
| End shields.....                       | 9    | Standards.....             | 5  |
| Environment .....                      | 5    | Stator .....               | 9  |
| External finish.....                   | 9    | <br>                       |    |
| <br>                                   |      | Temperature classes .....  | 7  |
| Fan .....                              | 9    | Terminal box .....         | 10 |
| Fan cover .....                        | 9    | Torque.....                | 12 |
| Finned housing.....                    | 9    | <br>                       |    |
| Flanges.....                           | 38   | VIK .....                  | 11 |
| <br>                                   |      | <br>                       |    |
| Heating .....                          | 6    | Zones.....                 | 7  |
| <br>                                   |      |                            |    |
| Identification .....                   | 47   |                            |    |
| Identification plates.....             | 47   |                            |    |
| IEC .....                              | 5    |                            |    |
| Index of protection.....               | 8    |                            |    |
| INERIS .....                           | 4    |                            |    |
| Instruction manual.....                | 48   |                            |    |
| ISO 9001 .....                         | 4    |                            |    |
| <br>                                   |      |                            |    |
| Keyway.....                            | 9    |                            |    |
| <br>                                   |      |                            |    |
| Locked rotor time .....                | 7    |                            |    |

# LSE - FLSE 3-phase TEFV induction motors for increased safety

## General information



### A1 - Quality assurance

A

Industrial concerns are having to cope with an ever more competitive environment. Productivity depends to a considerable degree on the right investment at the right time. LEROY-SOMER has the answer, building motors to precise standards of quality.

When carrying out quality checks on a machine's performance, the first step is to **measure the level of customer satisfaction**.

Careful study of this information tells us which points need looking at, improving and monitoring.

From the moment you place your order with our administrative staff until the motor is up and running (after design studies, launch and production activities) we keep you informed and involved.

Our own processes are constantly under review. All our staff are involved in both operational process analysis and continuous training programmes. These initiatives help them serve you better, and increased skills bring increased motivation.

At LEROY-SOMER, we think it vital for our customers to know the importance we attach to quality.

LEROY-SOMER has entrusted the certification of its expertise to various international organisations. Certification is granted by independent professional auditors, and recognises the high standards of the **company's quality assurance procedures**.

All activities resulting in the final version of the machine have therefore received official **ISO 9000** accreditation, **Edition 2000**. Products are also approved by official bodies who inspect their technical performance with regard to the various standards. This is a fundamental requirement for a company of international standing.

Our order tracking and manufacturing processes have been assessed for conformity by the notified body INERIS.



# LSE - FLSE 3-phase TEFV induction motors for increased safety

## General information



### A2 - General standardization

*LSE-FLSE(VIK) motors comply with all standards quoted in this catalogue*

#### List of standards quoted in this document

| Reference                 |              | Date | International standards  |
|---------------------------|--------------|------|--|
| IEC 60034-1               | EN 60034-1   | 1999 | Electrical rotating machines: ratings and operating characteristics.   |
| IEC 60034-5               | EN 60034-5   | 2000 | Electrical rotating machines: classification of degrees of protection provided by casings of rotating machines.  |
| IEC 60034-6               | EN 60034-6   | 1993 | Electrical rotating machines (except traction): cooling methods.   |
| IEC 60034-7               | EN 60034-7   | 2000 | Electrical rotating machines (except traction): symbols for mounting positions and assembly layouts.   |
| IEC 60034-8               |              | 2001 | Electrical rotating machines: terminal markings and direction of rotation.   |
| IEC 60034-9               | EN 60034-9   | 1997 | Electrical rotating machines: noise limits.  |
| IEC 60034-12              | EN 60034-12  | 1999 | Starting characteristics for single-speed 3-phase cage induction motors for supply voltages less than or equal to 660V.  |
| IEC 60034-14              | EN 60034-14  | 1996 | Electrical rotating machines: mechanical vibrations of certain machines with a frame size above or equal to 56 mm. Measurement, evaluation and limits of vibrational intensity.              |
| IEC 60038                 |              | 1999 | IEC standard voltages.   |
| IEC 60072-1               |              | 1991 | Dimensions and power series for electrical rotating machines: designation of casings between 56 and 400 and flanges between 55 and 1080.   |
| IEC 60085                 |              | 1984 | Evaluation and thermal classification of electrical insulation.  |
| IEC 60721-2-1             |              | 1987 | Classification of natural environment conditions. Temperature and humidity.  |
| IEC 60892                 |              | 1987 | Effects of an imbalance in the voltage system on the characteristics of three-phase squirrel-cage induction motors.  |
| IEC 61000-2-10/11 and 2-2 |              | 1999 | Electromagnetic compatibility (EMC): environment.  |
| IEC guide 106             |              | 1989 | Guidelines on the specification of environmental conditions for the determination of operating characteristics of equipment.   |
| ISO 281                   |              | 2000 | Bearings - Basic dynamic loadings and nominal bearing life.  |
| ISO 1680                  | EN 21680     | 1999 | Acoustics - Test code for measuring airborne noise emitted by electrical rotating machines: a method for establishing an expert opinion for free field conditions over a reflective surface. |
| ISO 8821                  |              | 1999 | Mechanical vibration - Balancing. Conventions on shaft keys and related parts.   |
|                           | EN 50102     | 1998 | Degree of protection provided by the electrical housing against extreme mechanical impacts.  |
| IEC 60079-0               | EN 50014     |      | Electrical equipment for explosive atmospheres: General regulations.   |
| IEC 60079-7               | EN 50019     |      | Electrical equipment for explosive atmospheres: increased safety "e".  |
|                           | EN 50281-1-1 |      | Electrical apparatus for use in the presence of combustible dust.  |



# LSE - FLSE 3-phase TEFV induction motors for increased safety

## General information



### A3 - Product approval and marking

#### A3.1 - APPROVAL

The LSE-FLSE increased safety motors presented in this catalogue conform to the national and/or international standards which govern the construction of this type of equipment.

EC type-examination certificates are drawn up by notified bodies, **in accordance with the European Community Council Directive 94/9/EC known as ATEX.**

Approval is obtained when descriptive documents have been examined and validated, and tests performed. These include tests involving heating and explosion of the equipment.

EC-type examination certificates granted by the bodies listed opposite are recognized by all EC countries.

Approved equipment is authorized to carry the **CE** mark or the distinctive community mark **Ex**.

#### List of official accreditation laboratories

- Germany: ..... **PTB - DMT/BVS**
- Belgium: ..... **ISSEp**
- Denmark: ..... **DEMKO**
- Spain: ..... **LOM**
- France: ..... **INERIS - L.C.I.E.**
- Great Britain: ..... **EECS - SCS**
- Italy: ..... **CESI**
- Netherlands: ..... **KEMA**



#### A3.2 - MARKING

**Mot. 3 ~ LSE 132 SM**  
N° 034729 JA 002

0080

**IP 55 IK 08 cl.F 40°C S1 kg 39**

| V     | Hz | min <sup>-1</sup> | kW  | cos φ | A     |
|-------|----|-------------------|-----|-------|-------|
| Δ 230 | 50 | 1464              | 5.5 | 0.87  | 17.80 |
| Y 400 | -  | 1464              | -   | 0.87  | 10.30 |

**Ex II 2G EEx e II T3**

INERIS 01ATEX 0010X

**Increased safety "e" (EN50019)**

**LSE-FLSE nameplate : Marking complying with ATEX directive 94/9/CE**  
(in addition to IEC 60034-1)

(2) Identification no. of the notified body responsible for inspecting the production : 0080 = INERIS

VIK (in case of VIK accreditation)

(1) No. of CE type examination certificate body drawn up by a notified body

T°C temperature range if other than (-20 +40)

Ia/In-T<sub>E</sub> EN 50019 §6.2.1

**Ex II 2 G EEx e II T3 (T125°C)**

For GD (Dust) Max. surface temperature acc. to EN 50281

Temperature class (T3 or T4)

None

Equipment group (II)

Protection type e

Product which conforms to EN 50014 and at least protection type : e

Gas or gas and dust (Gas, GasDust)

Equipment category (2)

Equipment group (II)

Special symbol for protection against risk of explosion

Marking specific to methods of protection

ATEX markings specific to explosive atmospheres

**Details for (1) Certificate no. and (2) Notified body no.**

|         |                     |      |
|---------|---------------------|------|
|         | LSE-FLSE 80 to 250  |      |
|         | II 2G               |      |
|         | (1)                 | (2)  |
| LS Logo | INERIS 01ATEX0010 X | 0080 |

# LSE - FLSE 3-phase TEFV induction motors for increased safety

## General information



### A4 - Definition of atmospheres and zones

#### A4.1 - ATMOSPHERES AT RISK OF EXPLOSION

This includes all explosive and explosible conditions, the explosion character being permanent or potential.

##### Explosive atmospheres:

An explosive atmosphere is an atmosphere where a mixture of air and inflammable substances is to be found (in gas form, vapours, fog or mist) in such proportions that excessive temperature, arcs or sparks cause it to explode. **The danger is permanent.**

##### Explosible atmospheres:

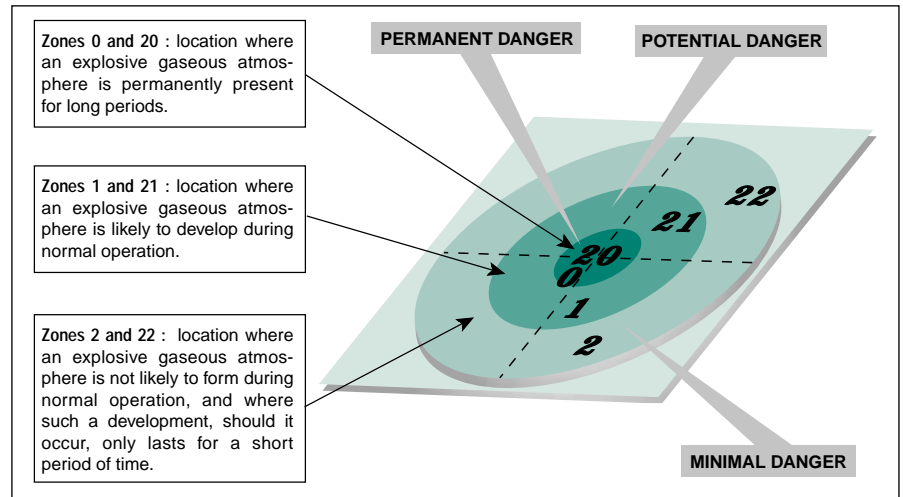
An explosible atmosphere is an atmosphere which may become explosive due to the particular local conditions. **The danger is potential.**

#### A4.2 - DEFINITION OF ZONES AT RISK OF EXPLOSION

The international standard EN 60079-10 defines the danger zones according to the risk of encountering an explosive atmosphere as shown in the diagram opposite:

LSE-FLSE motors can be used in zone 1 or 21

Note: Each country has similar and complementary publications giving instructions on the classification of dangerous locations.



Note: The zone is classified under the responsibility of the manager of the company where the equipment is installed.

#### A4.3 - TEMPERATURE CLASSES

##### A4.3.1 - Definition of temperature classes according to IEC 60079-0

The temperature class is based on the maximum temperature rise in the equipment and on the ambient operating temperature.

The maximum surface temperature of an electric device must always be lower than the ignition temperature of the mix of gases or vapour in which it will be used.

In order to be able to select various devices according to their surface temperature (internal and external), **six temperature classes** have been created.

| Temperature class                                   | T1       | T2       | T3       | T4       | T5       | T6      |
|---|----------|----------|----------|----------|----------|---------|
| Ignition temperature                                | > 450 °C | > 300 °C | > 200 °C | > 135 °C | > 100 °C | > 85 °C |
| Max. surface temperature permitted on the equipment | 450 °C   | 300 °C   | 200 °C   | 135 °C   | 100 °C   | 85 °C   |

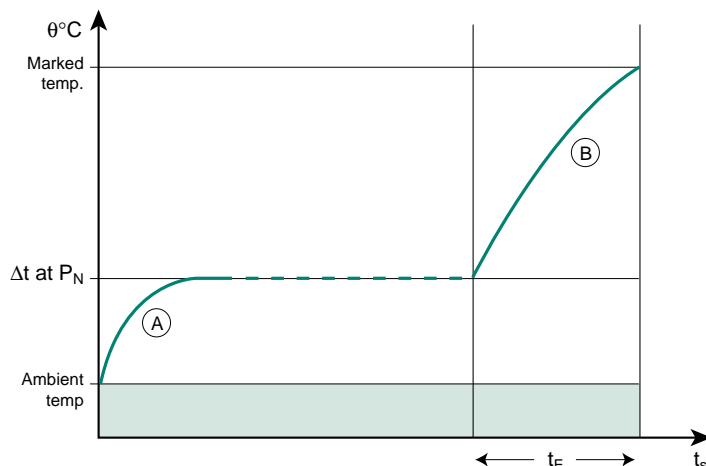
Note: For "GD",  $T_x^*$  and  $T_y^*$  applications, the lowest of the marked temperature tolerances is taken into account.

\*  $T_x$  = temperature class in gas-filled atmospheres  
 $T_y$  = temperature class in dust-filled atmospheres

##### A4.3.2 - Definition of the marked temperature according to IEC 60079-7

- $\theta$ °C = temperature
- $\Delta t$  at  $P_N$  = temperature at rated power
- $t_s$  = time
- $t_E$  = locked rotor time
- (A) = temperature rise in normal duty
- (B) = temperature rise during locked rotor test

In the event of rotor failure and locking, an actuator should be able to disconnect the motor from the supply in a period  $t < t_E$ .



# LSE - FLSE 3-phase TEFV induction motors for increased safety


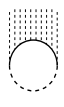
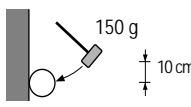

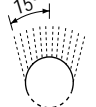
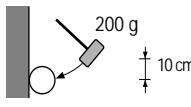

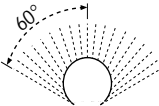
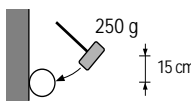


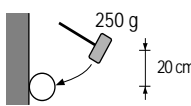

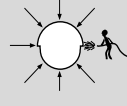
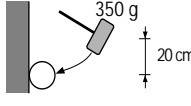

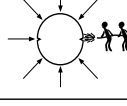
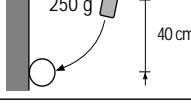
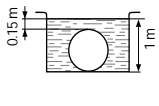
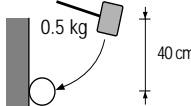
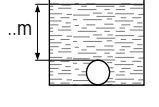
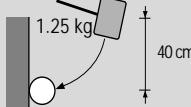
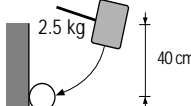
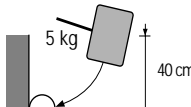
## General information



### A5 - Definition of "Index of Protection" (IP/IK)

LSE-FLSE are IP 55 and IK 08 as standard

#### Indices of protection of electrical equipment enclosures

| First number : Protection against solid objects |   |   | Second number: Protection against liquids |   |  | Mechanical protection |   |                       |
|---|---|---|---|---|--|-----------------------|---|-----------------------|
| IP  | Tests   | Definition  | IP  | Tests   | Definition   | IK                    | Tests   | Definition            |
| 0   |   | No protection   | 0   |   | No protection  | 00                    |   | No protection         |
| 1   |    | Protected against solid objects of over 50mm (eg : accidental hand contact) | 1   |    | Protected against vertically dripping water (condensation)                   | 01                    |    | Impact energy: 0.15 J |
| 2   |    | Protected against solid objects of over 12 mm (eg : finger)                 | 2   |    | Protected against water dripping up to 15° from the vertical                 | 02                    |    | Impact energy: 0.20 J |
| 3   |   | Protected against solid objects of over 2.5 mm (eg : tools, wire)           | 3   |   | Protected against rain falling at up to 60° from the vertical                | 03                    |   | Impact energy: 0.37 J |
| 4   |  | Protected against solid objects of over 1 mm (eg : small tools, thin wire)  | 4   |  | Protected against water splashes from all directions                         | 04                    |  | Impact energy: 0.50 J |
| 5   |  | Protected against dust (no deposits of harmful material)                    | 5   |  | Protected against jets of water from all directions                          | 05                    |  | Impact energy: 0.70 J |
| 6   |  | Totally protected against any dust penetration                              | 6   |  | Protected against jets of water comparable to heavy seas                     | 06                    |  | Impact energy: 1 J    |
|   |   |   | 7   |  | Protected against the effects of immersion of depths of between 0.15 and 1 m | 07                    |  | Impact energy: 2 J    |
|   |   |   | 8   |  | Protected against the effects of prolonged immersion at depth                | 08                    |  | Impact energy: 5 J    |
|   |   |   |   |   |  | 09                    |  | Impact energy: 10 J   |
|   |   |   |   |   |  | 10                    |  | Impact energy: 20 J   |

#### Example:

**IP 55 machine**

IP : Index of protection

5 : Machine protected against dust and accidental contact.

Test result: **no dust enters** in harmful quantities, no risk of direct contact with rotating parts. The test will last for 2 hours.

.5 : Machine protected against jets of water from all directions from hoses at 3 m distance with a flow rate of 12.5 l/min at 0.3 bar.

The test will last for 3 minutes. Test result: **no damage from water** projected onto the machine.



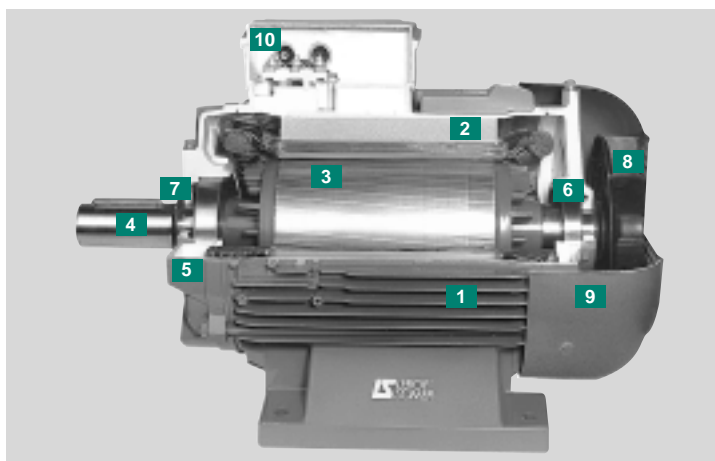
# LSE - FLSE 3-phase TEFV induction motors for increased safety Construction



## B1 - Components

### B1.1 - DESCRIPTION OF LSE - FLSE 3-PHASE MOTORS

| Component                    | Materials   | Remarks   |
|------------------------------|---|---|
| 1 Finned housing             | Aluminium alloy or cast iron  | - with integral or screw-on feet, or without feet <ul style="list-style-type: none"> <li>• 4 or 6 fixing holes for housings with feet</li> <li>• lifting rings</li> </ul> - earth terminal  |
| 2 Stator                     | Insulated low-carbon magnetic steel laminations<br>Insulated electroplated copper | - low carbon content guarantees long-term lamination pack stability<br>- welded packs<br>- semi-enclosed slots<br>- class F insulation  |
| 3 Rotor                      | Insulated low-carbon magnetic steel laminations<br>Aluminium                      | - inclined cage bars<br>- rotor cage pressure die-cast in aluminium (or alloy for special applications)<br>- shrink-fitted or keyed to shaft<br>- rotor balanced dynamically, class N - 1/2 key   |
| 4 Shaft                      | Steel   | - for frame size < 132 : <ul style="list-style-type: none"> <li>• shaft end fitted with screw and washer</li> <li>• closed keyway</li> </ul> - for frame size ≥ 132: <ul style="list-style-type: none"> <li>• tapped hole</li> <li>• open keyway</li> </ul>                         |
| 5 End shields                | Aluminium alloy<br>Cast iron  | - LSE series drive end and non drive end frame sizes 63 - 71<br>- LSE series non drive end frame sizes 80 - 90<br>- LSE series frame sizes 80 - 90 drive end (optional for 80 and 90 at non drive end)<br>- LSE series frame size ≥ 100<br>• all FLSE series frame sizes            |
| 6 Bearings                   |   | - ball bearings<br>- bearings preloaded at non drive end  |
| 7 Labyrinth seal<br>Lipseals | Plastic or steel<br>Synthetic rubber  | - sealed with gaskets<br>- labyrinth seals or deflector at drive end or non drive end   |
| 8 Fan                        | Composite material or aluminium alloy   | - 2 directions of rotation: straight blades   |
| 9 Fan cover                  | Pressed steel   | - fitted, on request, with a drip cover for operation in vertical position, shaft end facing down   |
| 10 Terminal box              | Aluminium alloy or cast iron  | - IP 55 or IP 65 for "GD" applications<br>- can be turned, opposite the feet<br>- fitted with a terminal block with 6 terminals certified EEx e safety<br>- terminal box supplied fitted with certified EEx e safety cable anchor glands<br>- 1 earth terminal in each terminal box |



### B1.2 - EXTERNAL FINISH

The standard paint colour for the LSE-FLSE range is:

**RAL 2004**

# LSE - FLSE 3-phase TEFV induction motors for increased safety Construction



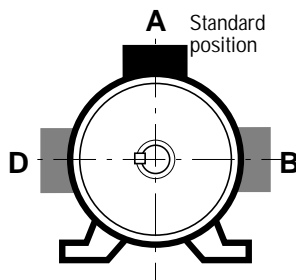
## B2 - Mains connection

### B2.1 - TERMINAL BOX AND CABLE GLAND POSITIONS

Placed as standard on the top of the motor, the terminal box has IP 55 (G) or IP 65 (GD) protection and is fitted with a cable gland (see table in B2.2).

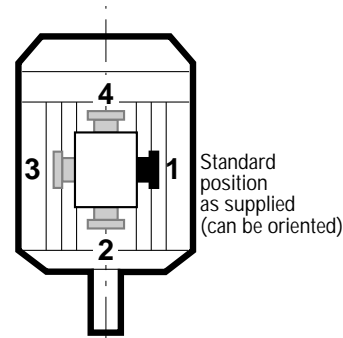
The standard position of the cable gland is on the right, seen from the drive end (position A1) but, owing to the symmetrical construction of the box, it can usually be placed in any of the 4 directions.

▼ Positions of the terminal box in relation to the drive end (motor in IM 1001 position)



**Note:** for FLSE motors, only position A is possible.

▼ Positions of the cable gland in relation to the drive end



**Note:** position 2 is not recommended for FF or FT flange mounted motors.

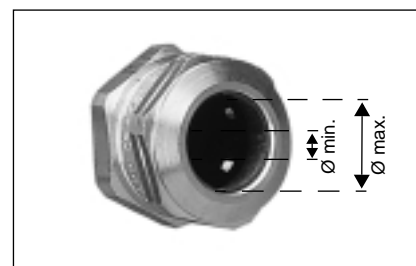
### B2.2 - CABLE GLAND FOR RATED SUPPLY VOLTAGE OF 400V

| Frame size   | Single speed motor      |                  | Cable gland for accessories: PTO / PTF / etc |
|--------------|-------------------------|------------------|--|
|              | D.O.L. starting         | YΔ starting      |  |
| 80           | CMDEL ISO M20 x 1.5     | -                | CMDEL ISO M16 x 1.5                          |
| 90           | CMDEL ISO M20 x 1.5     | -                | CMDEL ISO M16 x 1.5                          |
| 100          | CMDEL ISO M20 x 1.5     | 2 x CMDEL ISO 20 | CMDEL ISO M16 x 1.5                          |
| 112 - 132 S  | CMDEL ISO M20 x 1.5     | 2 x CMDEL ISO 20 | CMDEL ISO M16 x 1.5                          |
| 132 M        | CMDEL ISO M25 x 1.5     | 2 x CMDEL ISO 25 | CMDEL ISO M16 x 1.5                          |
| 160 / 180 MR | 2 x CMDEL ISO M25 x 1.5 | 2 x CMDEL ISO 25 | CMDEL ISO M16 x 1.5                          |
| 180          | 2 x CMDEL ISO M32 x 1.5 | 2 x CMDEL ISO 25 | CMDEL ISO M16 x 1.5                          |
| 200          | 2 x CMDEL ISO M32 x 1.5 | 2 x CMDEL ISO 25 | CMDEL ISO M16 x 1.5                          |
| 225          | 2 x CMDEL ISO M40 x 1.5 | 2 x CMDEL ISO 32 | CMDEL ISO M16 x 1.5                          |

CMDEL : cable anchor glands approved EEx e.  
: cable gland made of brass.

### Cable size and diameter of drill holes on brass cable gland mounting plates

| Type of cable gland | Cable size        |                   |
|---------------------|-------------------|-------------------|
|                     | min. cable Ø (mm) | max. cable Ø (mm) |
| CMDEL ISO M16 x 1.5 | 6                 | 11                |
| CMDEL ISO M20 x 1.5 | 7.5               | 13                |
| CMDEL ISO M25 x 1.5 | 12.5              | 18                |
| CMDEL ISO M32 x 1.5 | 17.5              | 25                |
| CMDEL ISO M40 x 1.5 | 24.5              | 33.5              |



For frame sizes 63, 71, 250 and 280: please consult Leroy-Somer.

# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

|   | PAGES |
|---|-------|
| 2 poles - 3000 min <sup>-1</sup> - EEx e II T3 .....      | 12    |
| 2 poles - 3000 min <sup>-1</sup> - EEx e II T3 VIK* ..... | 13    |
| 4 poles - 1500 min <sup>-1</sup> - EEx e II T3 .....      | 14    |
| 4 poles - 1500 min <sup>-1</sup> - EEx e II T3 VIK* ..... | 15    |
| 6 poles - 1000 min <sup>-1</sup> - EEx e II T3 .....      | 16    |
| 6 poles - 1000 min <sup>-1</sup> - EEx e II T3 VIK* ..... | 17    |
| 2 poles - 3000 min <sup>-1</sup> - EEx e II T4 .....      | 18    |
| 4 poles - 1500 min <sup>-1</sup> - EEx e II T4 .....      | 19    |
| 6 poles - 1000 min <sup>-1</sup> - EEx e II T4 .....      | 20    |

\* VIK: extension of EN 50019 requirements to particular specifications intended for German manufacturing companies:

- ranges with special power ratings according to frame size (DIN 42673)
- increased duration  $t_E$  ( $\geq 7$  sec)
- 2<sup>nd</sup> nameplate in the terminal box
- ISO M25 cable gland from frame size 80 mm upwards
- oil-resistant seals
- terminal blocks not split from frame size 160 mm upwards

Other polarities (1 or 2-speed): please consult Leroy-Somer.

# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**2**  
poles  
3000 min<sup>-1</sup>

**EEx e IIT3**

**MAINS SUPPLY 380 / 400 / 415 V**

**50 Hz**

| Type       | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|            | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 63     | 380           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 71     | 380           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 71     | 380           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 80 L   | 380           | 0.75                 | 2860                       | 2.5          | 1.7           | 0.86           | 79.2        | 6.8                              | 2.7                            | 2.8                           | 8.3               | 0.0009                   | 9.7         |
|            | 400           | 0.75                 | 2872                       | 2.5          | 1.6           | 0.84           | 79.4        | 7.1                              | 2.9                            | 3                             | 7.6               | 0.0009                   | 9.7         |
|            | 415           | 0.75                 | 2890                       | 2.5          | 1.6           | 0.81           | 79.5        | 7.4                              | 3.1                            | 3.2                           | 7                 | 0.0009                   | 9.7         |
| LSE 80 L   | 380           | 1.1                  | 2860                       | 3.75         | 2.4           | 0.89           | 78          | 7.1                              | 2.9                            | 2.8                           | 12.6              | 0.0011                   | 11.3        |
|            | 400           | 1.1                  | 2870                       | 3.75         | 2.3           | 0.86           | 78.5        | 7.5                              | 3.2                            | 3.1                           | 11.1              | 0.0011                   | 11.3        |
|            | 415           | 1.1                  | 2885                       | 3.75         | 2.3           | 0.84           | 78.7        | 7.9                              | 3.4                            | 3.3                           | 10                | 0.0011                   | 11.3        |
| LSE 90 S   | 380           | 1.5                  | 2845                       | 5            | 3.1           | 0.90           | 82.3        | 7                                | 2.8                            | 2.8                           | 11.6              | 0.0017                   | 14          |
|            | 400           | 1.5                  | 2860                       | 5            | 2.9           | 0.88           | 83.6        | 7.5                              | 3.1                            | 3.1                           | 10.2              | 0.0017                   | 14          |
|            | 415           | 1.5                  | 2880                       | 5            | 2.9           | 0.87           | 83.5        | 8.2                              | 3.5                            | 3.5                           | 8.5               | 0.0017                   | 14          |
| LSE 90 L   | 380           | 2.2                  | 2869                       | 7.5          | 4.4           | 0.89           | 85.5        | 6.2                              | 2.1                            | 2.7                           | 11                | 0.0022                   | 17.8        |
|            | 400           | 2.2                  | 2884                       | 7.5          | 4.2           | 0.87           | 85.7        | 6.7                              | 2.4                            | 3.1                           | 9.4               | 0.0022                   | 17.8        |
|            | 415           | 2.2                  | 2895                       | 7.5          | 4.1           | 0.87           | 85.8        | 7.5                              | 2.6                            | 3.3                           | 7.5               | 0.0022                   | 17.8        |
| LSE 100 L  | 380           | 3                    | 2871                       | 10.1         | 5.9           | 0.90           | 85.8        | 5                                | 2.1                            | 2.1                           | 9.7               | 0.0029                   | 24          |
|            | 400           | 3                    | 2887                       | 10.1         | 5.6           | 0.89           | 86.2        | 5.5                              | 2.3                            | 2.3                           | 8                 | 0.0029                   | 24          |
|            | 415           | 3                    | 2903                       | 10.1         | 5.6           | 0.87           | 86.3        | 5.9                              | 2.5                            | 2.5                           | 7                 | 0.0029                   | 24          |
| LSE 112 MU | 380           | 4                    | 2920                       | 13.5         | 7.4           | 0.92           | 88.5        | 6.9                              | 1.8                            | 2.7                           | 9.9               | 0.0088                   | 39          |
|            | 400           | 4                    | 2928                       | 13.5         | 7.1           | 0.92           | 88.6        | 7.5                              | 2                              | 3                             | 8.4               | 0.0088                   | 39          |
|            | 415           | 4                    | 2935                       | 13.5         | 6.9           | 0.91           | 88.6        | 8.2                              | 2.2                            | 3.2                           | 7                 | 0.0088                   | 39          |
| LSE 132 SM | 380           | 5.5                  | 2916                       | 18.6         | 10.2          | 0.92           | 89.4        | 5.9                              | 1.5                            | 2.4                           | 10.4              | 0.016                    | 49          |
|            | 400           | 5.5                  | 2926                       | 18.6         | 9.7           | 0.91           | 89.8        | 6.5                              | 1.7                            | 2.6                           | 8.6               | 0.016                    | 49          |
|            | 415           | 5.5                  | 2933                       | 18.6         | 9.4           | 0.90           | 89.9        | 7.2                              | 1.8                            | 2.8                           | 7                 | 0.016                    | 49          |
| LSE 132 SM | 380           | 7.5                  | 2921                       | 25.4         | 13.6          | 0.92           | 90.2        | 6.25                             | 1.6                            | 2.4                           | 10.3              | 0.018                    | 54          |
|            | 400           | 7.5                  | 2929                       | 25.4         | 13.1          | 0.92           | 90.4        | 6.9                              | 1.7                            | 2.6                           | 8.5               | 0.018                    | 54          |
|            | 415           | 7.5                  | 2936                       | 25.4         | 12.6          | 0.91           | 90.6        | 7.6                              | 1.9                            | 2.9                           | 7                 | 0.018                    | 54          |
| LSE 160 MP | 380           | 11                   | 2927                       | 36           | 19.8          | 0.93           | 90.2        | 6.4                              | 1.5                            | 2.4                           | 10.1              | 0.023                    | 72          |
|            | 400           | 11                   | 2935                       | 36           | 19.1          | 0.92           | 90.5        | 7.1                              | 1.7                            | 2.6                           | 8.2               | 0.023                    | 72          |
|            | 415           | 11                   | 2941                       | 36           | 18.5          | 0.91           | 90.6        | 7.7                              | 1.8                            | 2.8                           | 7                 | 0.023                    | 72          |
| LSE 160 L  | 380           | 15                   | 2925                       | 49           | 28            | 0.90           | 90.6        | 7.1                              | 2.3                            | 2.8                           | 8.2               | 0.044                    | 88          |
|            | 400           | 15                   | 2933                       | 48.8         | 26.7          | 0.89           | 91          | 7.8                              | 2.6                            | 3.1                           | 6.8               | 0.044                    | 88          |
|            | 415           | 15                   | 2941                       | 48.7         | 26            | 0.88           | 91.2        | 8.3                              | 2.8                            | 3.4                           | 6                 | 0.044                    | 88          |
| LSE 180 MT | 380           | 18.5                 | 2921                       | 60.5         | 34            | 0.91           | 90.8        | 7.1                              | 2.3                            | 2.6                           | 6.8               | 0.052                    | 99          |
|            | 400           | 18.5                 | 2930                       | 60.3         | 32.5          | 0.90           | 91.3        | 7.8                              | 2.6                            | 2.9                           | 5.7               | 0.052                    | 99          |
|            | 415           | 18.5                 | 2939                       | 60.1         | 31.6          | 0.89           | 91.6        | 8.3                              | 2.8                            | 3.2                           | 5                 | 0.052                    | 99          |
| LSE 200 LT | 380           | 22                   | 2939                       | 71.5         | 38.6          | 0.93           | 93.5        | 7.7                              | 2.3                            | 3                             | 13.7              | 0.089                    | 154         |
|            | 400           | 22                   | 2946                       | 71.3         | 36.8          | 0.92           | 93.7        | 8.5                              | 2.6                            | 3.3                           | 11.2              | 0.089                    | 154         |
|            | 415           | 22                   | 2952                       | 71.2         | 36            | 0.91           | 93.8        | 9                                | 2.8                            | 3.5                           | 10                | 0.089                    | 154         |
| LSE 200 L  | 380           | 30                   | 2951                       | 97.1         | 53.1          | 0.92           | 93.3        | 7.1                              | 2.4                            | 2.8                           | 12.3              | 0.12                     | 180         |
|            | 400           | 30                   | 2956                       | 96.9         | 50.9          | 0.91           | 93.5        | 7.8                              | 2.7                            | 3.1                           | 10.2              | 0.12                     | 180         |
|            | 415           | 30                   | 2961                       | 96.8         | 49.5          | 0.90           | 93.7        | 8.3                              | 2.9                            | 3.4                           | 9                 | 0.12                     | 180         |
| LSE 225 MT | 380           | 37                   | 2942                       | 120          | 65.6          | 0.92           | 93.2        | 7.1                              | 2.4                            | 2.8                           | 6.8               | 0.14                     | 200         |
|            | 400           | 37                   | 2951                       | 120          | 62.7          | 0.91           | 93.6        | 7.8                              | 2.7                            | 3.1                           | 5.7               | 0.14                     | 200         |
|            | 415           | 37                   | 2957                       | 120          | 60.9          | 0.90           | 93.9        | 8.3                              | 3                              | 3.4                           | 5                 | 0.14                     | 200         |
| LSE 250 MZ | 380           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC | 380           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

Please consult Leroy-Somer

Please consult Leroy-Somer

# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**2**  
poles  
3000 min<sup>-1</sup>

**EEx e IIT3 VIK**

**MAINS SUPPLY 380 / 400 / 420 V**

**50 Hz**

| Type       | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|            | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 90 S   | 380           | 1.5                  | 2845                       | 5            | 3.1           | 0.90           | 82.3        | 7                                | 2.8                            | 2.8                           | 11.7              | 0.0017                   | 14          |
|            | 400           | 1.5                  | 2865                       | 5            | 3             | 0.87           | 82.8        | 7.5                              | 3.1                            | 3.1                           | 10.4              | 0.0017                   | 14          |
|            | 420           | 1.5                  | 2886                       | 5            | 2.9           | 0.85           | 83.4        | 8.3                              | 3.6                            | 3.6                           | 8.5               | 0.0017                   | 14          |
| LSE 90 L   | 380           | 1.85                 | 2881                       | 6.3          | 3.7           | 0.88           | 86.1        | 6.4                              | 2.2                            | 2.6                           | 9.3               | 0.0022                   | 17.8        |
|            | 400           | 1.85                 | 2890                       | 6.3          | 3.6           | 0.86           | 86.2        | 6.5                              | 2.4                            | 3                             | 9                 | 0.0022                   | 17.8        |
|            | 420           | 1.85                 | 2903                       | 6.3          | 3.5           | 0.85           | 86.2        | 6.7                              | 2.7                            | 3.5                           | 8.5               | 0.0022                   | 17.8        |
| LSE 100 L  | 380           | 2.5                  | 2859                       | 8.5          | 4.9           | 0.91           | 84.5        | 5.4                              | 2.5                            | 2.5                           | 11.2              | 0.0026                   | 22          |
|            | 400           | 2.5                  | 2865                       | 8.5          | 4.8           | 0.89           | 84.7        | 5.8                              | 2.7                            | 2.7                           | 9.7               | 0.0026                   | 22          |
|            | 420           | 2.5                  | 2890                       | 8.5          | 4.7           | 0.87           | 84.9        | 6.2                              | 3.1                            | 3.1                           | 8.5               | 0.0026                   | 22          |
| LSE 112 MG | 380           | 3.3                  | 2915                       | 11.2         | 6.5           | 0.95           | 82.1        | 8.9                              | 2.9                            | 3.8                           | 11.4              | 0.0076                   | 35          |
|            | 400           | 3.3                  | 2925                       | 11.2         | 6.3           | 0.93           | 82.4        | 9.2                              | 3.2                            | 4.1                           | 10.6              | 0.0076                   | 35          |
|            | 420           | 3.3                  | 2935                       | 11.2         | 6.0           | 0.91           | 82.7        | 10                               | 3.5                            | 4.6                           | 9                 | 0.0076                   | 35          |
| LSE 132 SM | 380           | 4.6                  | 2925                       | 15.6         | 8.5           | 0.91           | 89.8        | 6.2                              | 1.6                            | 2.4                           | 11.7              | 0.016                    | 49          |
|            | 400           | 4.6                  | 2932                       | 15.6         | 8.2           | 0.90           | 90          | 6.8                              | 1.7                            | 2.6                           | 9.7               | 0.016                    | 49          |
|            | 420           | 4.6                  | 2939                       | 15.6         | 7.9           | 0.90           | 90.2        | 7.5                              | 1.9                            | 2.9                           | 8                 | 0.016                    | 49          |
| LSE 132 SM | 380           | 5.5                  | 2929                       | 18.6         | 10.1          | 0.91           | 90.2        | 6.35                             | 1.5                            | 2.4                           | 11.5              | 0.018                    | 54          |
|            | 400           | 5.5                  | 2940                       | 18.6         | 9.9           | 0.89           | 90          | 7.2                              | 1.9                            | 3                             | 9                 | 0.018                    | 54          |
|            | 420           | 5.5                  | 2957                       | 18.6         | 9.7           | 0.87           | 89.8        | 7.6                              | 2.4                            | 3.7                           | 8                 | 0.018                    | 54          |
| LSE 160 MP | 380           | 7.5                  | 2933                       | 25.4         | 13.6          | 0.92           | 90.8        | 6.6                              | 1.6                            | 2.4                           | 13.4              | 0.023                    | 72          |
|            | 400           | 7.5                  | 2940                       | 25.4         | 13            | 0.91           | 91          | 7.3                              | 1.8                            | 2.7                           | 11                | 0.023                    | 72          |
|            | 420           | 7.5                  | 2947                       | 25.4         | 12.5          | 0.91           | 91.2        | 8.1                              | 1.9                            | 3                             | 9                 | 0.023                    | 72          |
| LSE 160 MP | 380           | 10                   | 2930                       | 34           | 18.2          | 0.92           | 90.9        | 6.9                              | 1.6                            | 2.5                           | 10.1              | 0.023                    | 72          |
|            | 400           | 10                   | 2937                       | 34           | 17.5          | 0.92           | 91          | 7.5                              | 1.8                            | 2.7                           | 8.6               | 0.023                    | 72          |
|            | 420           | 10                   | 2945                       | 34           | 16.7          | 0.91           | 91.1        | 8.3                              | 2                              | 3.1                           | 7                 | 0.023                    | 72          |
| LSE 160 L  | 380           | 12.5                 | 2944                       | 40.5         | 23.3          | 0.89           | 91.4        | 8.5                              | 2.7                            | 3.4                           | 13.8              | 0.044                    | 88          |
|            | 400           | 12.5                 | 2950                       | 40.5         | 22.4          | 0.88           | 91.6        | 9.3                              | 3.1                            | 3.8                           | 11.6              | 0.044                    | 88          |
|            | 420           | 12.5                 | 2957                       | 40.4         | 21.8          | 0.86           | 91.7        | 10                               | 3.4                            | 4.2                           | 10                | 0.044                    | 88          |
| LSE 180 MT | 380           | 15                   | 2943                       | 48.7         | 27.6          | 0.90           | 91.7        | 8.4                              | 2.9                            | 3.3                           | 13.9              | 0.052                    | 99          |
|            | 400           | 15                   | 2950                       | 48.6         | 26.5          | 0.89           | 91.9        | 9.3                              | 3.2                            | 3.6                           | 11.6              | 0.052                    | 99          |
|            | 420           | 15                   | 2956                       | 48.5         | 25.8          | 0.87           | 92          | 10                               | 3.6                            | 4                             | 10                | 0.052                    | 99          |
| LSE 200 LT | 380           | 20                   | 2949                       | 64.8         | 34.9          | 0.93           | 93.6        | 8.3                              | 2.5                            | 3.3                           | 14.5              | 0.089                    | 154         |
|            | 400           | 20                   | 2954                       | 64.7         | 33.5          | 0.92           | 93.7        | 9.2                              | 2.8                            | 3.6                           | 11.8              | 0.089                    | 154         |
|            | 420           | 20                   | 2959                       | 64.5         | 32.2          | 0.91           | 93.7        | 10                               | 3.2                            | 4                             | 10                | 0.089                    | 154         |
| LSE 200 L  | 380           | 24                   | 2965                       | 77.3         | 42.8          | 0.91           | 93.7        | 8.4                              | 3                              | 3.5                           | 13.9              | 0.120                    | 180         |
|            | 400           | 24                   | 2968                       | 77.2         | 41            | 0.90           | 93.8        | 9.3                              | 3.4                            | 3.9                           | 11.6              | 0.120                    | 180         |
|            | 420           | 24                   | 2971                       | 77.1         | 40            | 0.88           | 93.8        | 10                               | 3.8                            | 4.3                           | 10                | 0.120                    | 180         |
| LSE 225 MT | 380           | 28                   | 2959                       | 90.4         | 49.5          | 0.92           | 93.5        | 8.4                              | 2.9                            | 3.4                           | 13.9              | 0.140                    | 200         |
|            | 400           | 28                   | 2964                       | 90.2         | 47.4          | 0.91           | 93.7        | 9.3                              | 3.3                            | 3.8                           | 11.6              | 0.140                    | 200         |
|            | 420           | 28                   | 2969                       | 90.1         | 45.6          | 0.90           | 93.8        | 10                               | 3.6                            | 4.1                           | 10                | 0.140                    | 200         |
| LSE 250 MZ | 380           | 36                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 36                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 420           | 36                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC | 380           | 47                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 47                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 420           | 47                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

Please consult Leroy-Somer

# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**4 poles**  
1500 min<sup>-1</sup>

**EEx e IIT3**

**MAINS SUPPLY 380 / 400 / 415 V**

**50 Hz**

| Type       | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|            | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 63     | 380           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 71     | 380           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 71     | 380           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 80 L   | 380           | 0.75                 | 1415                       | 5            | 2             | 0.76           | 74          | 5.32                             | 2                              | 2.1                           | 11.9              | 0.0024                   | 10.9        |
|            | 400           | 0.75                 | 1430                       | 5            | 2             | 0.72           | 74          | 5.6                              | 2.2                            | 2.3                           | 10.7              | 0.0024                   | 10.9        |
|            | 415           | 0.75                 | 1430                       | 5            | 2             | 0.70           | 74          | 5.8                              | 2.4                            | 2.6                           | 10                | 0.0024                   | 10.9        |
| LSE 90 S   | 380           | 1.1                  | 1435                       | 7.5          | 2.5           | 0.84           | 80.7        | 4.7                              | 1.5                            | 1.8                           | 9.9               | 0.0032                   | 13.5        |
|            | 400           | 1.1                  | 1443                       | 7.5          | 2.4           | 0.83           | 81.5        | 5.2                              | 1.6                            | 2                             | 8.1               | 0.0032                   | 13.5        |
|            | 415           | 1.1                  | 1449                       | 7.5          | 2.3           | 0.81           | 81.7        | 5.6                              | 1.8                            | 2.2                           | 7                 | 0.0032                   | 13.5        |
| LSE 90 L   | 380           | 1.5                  | 1445                       | 10           | 3.7           | 0.79           | 78          | 6.1                              | 1.7                            | 1.9                           | 8                 | 0.0037                   | 15.2        |
|            | 400           | 1.5                  | 1450                       | 10           | 3.7           | 0.75           | 78          | 6.4                              | 1.7                            | 2                             | 7.2               | 0.0037                   | 15.2        |
|            | 415           | 1.5                  | 1455                       | 10           | 3.8           | 0.72           | 77          | 6.5                              | 1.9                            | 2.2                           | 7                 | 0.0037                   | 15.2        |
| LSE 100 L  | 380           | 2.2                  | 1427                       | 15           | 4.6           | 0.88           | 83.3        | 5.1                              | 1.9                            | 2                             | 13.7              | 0.0055                   | 22.5        |
|            | 400           | 2.2                  | 1444                       | 15           | 4.5           | 0.85           | 83.5        | 5.8                              | 2.1                            | 2.2                           | 10.6              | 0.0055                   | 22.5        |
|            | 415           | 2.2                  | 1458                       | 15           | 4.6           | 0.78           | 84.4        | 6.3                              | 2.3                            | 2.4                           | 9                 | 0.0055                   | 22.5        |
| LSE 100 LR | 380           | 3                    | 1412                       | 20           | 6.4           | 0.86           | 81.9        | 5.1                              | 2                              | 2                             | 9.4               | 0.0073                   | 27.5        |
|            | 400           | 3                    | 1423                       | 20           | 6.2           | 0.85           | 83          | 5.2                              | 2                              | 2.1                           | 9                 | 0.0073                   | 27.5        |
|            | 415           | 3                    | 1433                       | 20           | 5.9           | 0.84           | 83.8        | 5.9                              | 2.2                            | 2.3                           | 7                 | 0.0073                   | 27.5        |
| LSE 112 MU | 380           | 4                    | 1453                       | 27.2         | 7.9           | 0.88           | 86.9        | 6                                | 1.8                            | 2                             | 11.8              | 0.014                    | 36.5        |
|            | 400           | 4                    | 1458                       | 27.2         | 7.7           | 0.86           | 86.9        | 6.7                              | 2                              | 2.1                           | 9.5               | 0.014                    | 36.5        |
|            | 415           | 4                    | 1466                       | 27.2         | 7.7           | 0.82           | 87.4        | 7.3                              | 2.2                            | 2.4                           | 8                 | 0.014                    | 36.5        |
| LSE 132 SM | 380           | 5.5                  | 1451                       | 37.4         | 10.5          | 0.91           | 87.9        | 6                                | 1.6                            | 2.2                           | 12.2              | 0.019                    | 54.7        |
|            | 400           | 5.5                  | 1464                       | 37.4         | 10.3          | 0.87           | 88.4        | 6.5                              | 1.8                            | 2.5                           | 10.4              | 0.019                    | 54.7        |
|            | 415           | 5.5                  | 1471                       | 37.4         | 10.7          | 0.81           | 87.7        | 7                                | 1.9                            | 2.7                           | 9                 | 0.019                    | 54.7        |
| LSE 132 M  | 380           | 7.5                  | 1455                       | 50           | 15            | 0.88           | 86          | 7.9                              | 1.7                            | 2.4                           | 7.6               | 0.023                    | 59.9        |
|            | 400           | 7.5                  | 1457                       | 50           | 14.8          | 0.85           | 86          | 8.4                              | 1.9                            | 2.6                           | 6.8               | 0.023                    | 59.9        |
|            | 415           | 7.5                  | 1460                       | 50           | 14.6          | 0.83           | 86          | 8.9                              | 2.1                            | 2.8                           | 6                 | 0.023                    | 59.9        |
| LSE 160 MR | 380           | 11                   | 1465                       | 74.7         | 22.1          | 0.84           | 89.2        | 7.6                              | 2.2                            | 2.9                           | 8                 | 0.035                    | 78          |
|            | 400           | 11                   | 1468                       | 74.7         | 22            | 0.82           | 89          | 8.1                              | 2.4                            | 3.1                           | 7.1               | 0.035                    | 78          |
|            | 415           | 11                   | 1472                       | 74.7         | 21.7          | 0.80           | 88.8        | 8.8                              | 2.6                            | 3.4                           | 6                 | 0.035                    | 78          |
| LSE 160 L  | 380           | 15                   | 1449                       | 98.9         | 29.4          | 0.87           | 89.2        | 6.5                              | 2.3                            | 2.7                           | 11.5              | 0.085                    | 100         |
|            | 400           | 15                   | 1455                       | 98.5         | 28            | 0.86           | 89.8        | 7.3                              | 2.6                            | 3.2                           | 9.1               | 0.085                    | 100         |
|            | 415           | 15                   | 1460                       | 98.1         | 27.2          | 0.85           | 90.1        | 7.8                              | 2.9                            | 3.5                           | 8                 | 0.085                    | 100         |
| LSE 180 MR | 380           | 18.5                 | 1453                       | 122          | 35.2          | 0.88           | 90.7        | 7.2                              | 2.7                            | 3                             | 7.5               | 0.096                    | 112         |
|            | 400           | 18.5                 | 1458                       | 121          | 34            | 0.86           | 91.2        | 7.9                              | 3                              | 3.4                           | 6.2               | 0.096                    | 112         |
|            | 415           | 18.5                 | 1463                       | 121          | 33.2          | 0.85           | 91.3        | 8.8                              | 3.2                            | 3.7                           | 5                 | 0.096                    | 112         |
| LSE 180 LU | 380           | 22                   | 1460                       | 144          | 41.5          | 0.88           | 91.6        | 6.5                              | 2.7                            | 2.7                           | 10.6              | 0.151                    | 165         |
|            | 400           | 22                   | 1464                       | 144          | 39.7          | 0.87           | 91.9        | 7.1                              | 3                              | 3                             | 9                 | 0.151                    | 165         |
|            | 415           | 22                   | 1468                       | 143          | 39.1          | 0.85           | 92.1        | 7.5                              | 3.3                            | 3.2                           | 8                 | 0.151                    | 165         |
| LSE 200 L  | 380           | 30                   | 1468                       | 195          | 57.2          | 0.86           | 92.7        | 6                                | 2.5                            | 2.4                           | 13.6              | 0.240                    | 205         |
|            | 400           | 30                   | 1472                       | 195          | 54.8          | 0.85           | 93          | 6.6                              | 2.7                            | 2.6                           | 11.2              | 0.240                    | 205         |
|            | 415           | 30                   | 1475                       | 194          | 53.3          | 0.84           | 93.2        | 7                                | 3                              | 2.9                           | 10                | 0.240                    | 205         |
| LSE 225 SR | 380           | 37                   | 1467                       | 241          | 70.4          | 0.86           | 92.9        | 6                                | 2.7                            | 2.6                           | 13.6              | 0.290                    | 235         |
|            | 400           | 37                   | 1471                       | 240          | 68.2          | 0.84           | 93.2        | 6.6                              | 3                              | 2.9                           | 11.2              | 0.290                    | 235         |
|            | 415           | 37                   | 1474                       | 240          | 66.5          | 0.83           | 93.3        | 7                                | 3.2                            | 3.1                           | 10                | 0.290                    | 235         |
| LSE 250 ME | 380           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC | 380           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

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# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**4 poles**  
1500 min<sup>-1</sup>

**EEx e IIT3 VIK**

**MAINS SUPPLY 380 / 400 / 420 V**

**50 Hz**

| Type       | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|            | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 90 S   | 380           | 1                    | 1444                       | 6.8          | 2.3           | 0.83           | 81.6        | 5.2                              | 1.7                            | 2                             | 11.7              | 0.0032                   | 13.5        |
|            | 400           | 1                    | 1450                       | 6.8          | 2.3           | 0.81           | 81.7        | 5.8                              | 1.9                            | 2.3                           | 9.4               | 0.0032                   | 13.5        |
|            | 420           | 1                    | 1456                       | 6.8          | 2.2           | 0.78           | 81.9        | 6.3                              | 2.1                            | 2.5                           | 8                 | 0.0032                   | 13.5        |
| LSE 90 L   | 380           | 1.35                 | 1444                       | 9.2          | 3             | 0.83           | 83.5        | 6.3                              | 1.9                            | 2.2                           | 10.5              | 0.0037                   | 15.2        |
|            | 400           | 1.35                 | 1450                       | 9.2          | 2.9           | 0.81           | 83.5        | 6.6                              | 2.1                            | 2.4                           | 9.6               | 0.0037                   | 15.2        |
|            | 420           | 1.35                 | 1456                       | 9.2          | 2.9           | 0.78           | 83.5        | 6.8                              | 2.4                            | 2.7                           | 9                 | 0.0037                   | 15.2        |
| LSE 100 L  | 380           | 1.85                 | 1445                       | 12.6         | 4.1           | 0.81           | 83.9        | 6.3                              | 2.3                            | 2.4                           | 14.2              | 0.0055                   | 22.5        |
|            | 400           | 1.85                 | 1451                       | 12.6         | 4             | 0.78           | 84          | 7                                | 2.6                            | 2.7                           | 11.5              | 0.0055                   | 22.5        |
|            | 420           | 1.85                 | 1457                       | 12.6         | 4             | 0.76           | 84          | 7.5                              | 2.9                            | 3                             | 10                | 0.0055                   | 22.5        |
| LSE 100 L  | 380           | 2.5                  | 1428                       | 16.9         | 5.8           | 0.82           | 80.5        | 5.4                              | 2.5                            | 2.5                           | 13.2              | 0.0067                   | 24.9        |
|            | 400           | 2.5                  | 1436                       | 16.9         | 5.6           | 0.79           | 81.2        | 5.8                              | 2.7                            | 2.7                           | 11.4              | 0.0067                   | 24.9        |
|            | 420           | 2.5                  | 1444                       | 16.9         | 5.5           | 0.77           | 81.7        | 6.2                              | 3                              | 3.1                           | 10                | 0.0067                   | 24.9        |
| LSE 112 MU | 380           | 3.6                  | 1450                       | 24.4         | 7.3           | 0.87           | 86.3        | 6.6                              | 1.9                            | 2.7                           | 13.6              | 0.014                    | 36.5        |
|            | 400           | 3.6                  | 1455                       | 24.4         | 7.1           | 0.84           | 86.4        | 7.1                              | 2                              | 2.9                           | 11.8              | 0.014                    | 36.5        |
|            | 420           | 3.6                  | 1460                       | 24.4         | 7             | 0.82           | 86.5        | 7.7                              | 2.1                            | 3                             | 10                | 0.014                    | 36.5        |
| LSE 132 SM | 380           | 5                    | 1450                       | 33.9         | 10            | 0.89           | 85.4        | 8                                | 2.3                            | 2.8                           | 13.2              | 0.019                    | 54.7        |
|            | 400           | 5                    | 1456                       | 33.9         | 9.7           | 0.87           | 85.5        | 8.5                              | 2.6                            | 3.1                           | 11.7              | 0.019                    | 54.7        |
|            | 420           | 5                    | 1462                       | 33.9         | 9.4           | 0.85           | 85.6        | 9.2                              | 2.8                            | 3.4                           | 10                | 0.019                    | 54.7        |
| LSE 132 M  | 380           | 6.8                  | 1445                       | 46.2         | 13.5          | 0.90           | 84.8        | 7.3                              | 2.8                            | 2.6                           | 12.2              | 0.023                    | 59.9        |
|            | 400           | 6.8                  | 1457                       | 46.2         | 13            | 0.88           | 84.9        | 7.9                              | 3.1                            | 2.8                           | 10.4              | 0.023                    | 59.9        |
|            | 420           | 6.8                  | 1460                       | 46.2         | 12.6          | 0.87           | 85          | 8.5                              | 3.4                            | 3                             | 9                 | 0.023                    | 59.9        |
| LSE 160 MR | 380           | 10                   | 1465                       | 67.9         | 20.4          | 0.84           | 88.6        | 9.3                              | 2.9                            | 3.7                           | 9.2               | 0.035                    | 78          |
|            | 400           | 10                   | 1469                       | 67.9         | 20.5          | 0.81           | 88          | 9.5                              | 3.2                            | 4                             | 8.9               | 0.035                    | 78          |
|            | 420           | 10                   | 1473                       | 67.9         | 20.7          | 0.76           | 87.2        | 10                               | 3.6                            | 4.5                           | 8                 | 0.035                    | 78          |
| LSE 160 L  | 380           | 13.5                 | 1457                       | 88.5         | 26.2          | 0.87           | 90          | 7.2                              | 2.5                            | 3                             | 13.9              | 0.085                    | 100         |
|            | 400           | 13.5                 | 1461                       | 88.2         | 25.4          | 0.85           | 90.4        | 7.8                              | 2.8                            | 3.3                           | 11.9              | 0.085                    | 100         |
|            | 420           | 13.5                 | 1465                       | 88           | 24.7          | 0.83           | 90.5        | 8.5                              | 3.1                            | 3.6                           | 10                | 0.085                    | 100         |
| LSE 180 MR | 380           | 15                   | 1466                       | 97.7         | 29.2          | 0.85           | 91.7        | 8.7                              | 3.3                            | 3.8                           | 9.3               | 0.096                    | 112         |
|            | 400           | 15                   | 1469                       | 97.5         | 28.4          | 0.83           | 91.8        | 9.4                              | 3.7                            | 4.2                           | 7.9               | 0.096                    | 112         |
|            | 420           | 15                   | 1472                       | 97.3         | 28.1          | 0.80           | 91.7        | 10                               | 4                              | 4.6                           | 7                 | 0.096                    | 112         |
| LSE 180 LU | 380           | 17.5                 | 1472                       | 114          | 33.9          | 0.85           | 92.3        | 7.9                              | 3.4                            | 3.4                           | 13.8              | 0.151                    | 165         |
|            | 400           | 17.5                 | 1475                       | 113          | 32.5          | 0.84           | 92.4        | 8.6                              | 3.8                            | 3.8                           | 11.7              | 0.151                    | 165         |
|            | 420           | 17.5                 | 1478                       | 113          | 32.1          | 0.81           | 92.4        | 9.3                              | 4.2                            | 4.2                           | 10                | 0.151                    | 165         |
| LSE 200 L  | 380           | 24                   | 1478                       | 155          | 46.4          | 0.84           | 93.5        | 7.4                              | 3                              | 3                             | 13.5              | 0.240                    | 205         |
|            | 400           | 24                   | 1481                       | 155          | 44.6          | 0.83           | 93.6        | 8                                | 3.4                            | 3.3                           | 11.5              | 0.240                    | 205         |
|            | 420           | 24                   | 1483                       | 155          | 44            | 0.81           | 93.6        | 8.6                              | 3.8                            | 3.7                           | 10                | 0.240                    | 205         |
| LSE 225 SR | 380           | 30                   | 1477                       | 194          | 58.7          | 0.83           | 93.6        | 7.3                              | 3.3                            | 3.2                           | 13.2              | 0.290                    | 235         |
|            | 400           | 30                   | 1479                       | 194          | 57.1          | 0.81           | 93.6        | 7.9                              | 3.7                            | 3.6                           | 11.3              | 0.290                    | 235         |
|            | 420           | 30                   | 1481                       | 194          | 55.8          | 0.79           | 93.6        | 8.4                              | 4.1                            | 4                             | 10                | 0.290                    | 235         |
| LSE 225 MR | 380           | 36                   | 1468                       | 234          | 69.2          | 0.85           | 93          | 6.2                              | 2.7                            | 2.7                           | 13.9              | 0.290                    | 235         |
|            | 400           | 36                   | 1471                       | 234          | 66.3          | 0.84           | 93.3        | 6.8                              | 3                              | 3                             | 11.5              | 0.290                    | 235         |
|            | 420           | 36                   | 1474                       | 233          | 64.6          | 0.82           | 93.4        | 7.3                              | 3.3                            | 3.3                           | 10                | 0.290                    | 235         |
| LSE 250 ME | 380           | 44                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 44                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 420           | 44                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC | 380           | 58                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 58                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 420           | 58                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

Please consult Leroy-Somer

# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**6**  
poles  
1000 min<sup>-1</sup>

**EEx e IIT3**

MAINS SUPPLY 380 / 400 / 415 V

50 Hz

| Type       | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|            | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 71     | 380           | 0.18                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.18                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.18                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 71     | 380           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 80 L   | 380           | 0.37                 | 941                        | 3.7          | 1.2           | 0.70           | 65.2        | 3.3                              | 1.4                            | 1.7                           | 14                | 0.0032                   | 9.7         |
|            | 400           | 0.37                 | 948                        | 3.7          | 1.2           | 0.68           | 65.3        | 3.7                              | 1.6                            | 2                             | 11.2              | 0.0032                   | 9.7         |
|            | 415           | 0.37                 | 955                        | 3.7          | 1.2           | 0.65           | 65.1        | 3.9                              | 1.8                            | 2.2                           | 10                | 0.0032                   | 9.7         |
| LSE 80 L   | 380           | 0.55                 | 950                        | 5.5          | 1.8           | 0.68           | 69.9        | 4.1                              | 1.9                            | 2.2                           | 10                | 0.0042                   | 11          |
|            | 400           | 0.55                 | 955                        | 5.5          | 1.8           | 0.64           | 68.6        | 4.5                              | 2.1                            | 2.4                           | 8.4               | 0.0042                   | 11          |
|            | 415           | 0.55                 | 959                        | 5.5          | 1.9           | 0.60           | 66.3        | 4.6                              | 2.4                            | 2.7                           | 8                 | 0.0042                   | 11          |
| LSE 90 S   | 380           | 0.75                 | 928                        | 7.5          | 2.1           | 0.71           | 75.4        | 4.3                              | 2.4                            | 2.4                           | 12                | 0.0039                   | 13.5        |
|            | 400           | 0.75                 | 935                        | 7.5          | 2.2           | 0.67           | 75          | 4.6                              | 2.6                            | 2.6                           | 10.5              | 0.0039                   | 13.5        |
|            | 415           | 0.75                 | 942                        | 7.5          | 2.2           | 0.63           | 74.3        | 4.7                              | 2.9                            | 2.9                           | 10                | 0.0039                   | 13.5        |
| LSE 90 L   | 380           | 1.1                  | 907                        | 11           | 3             | 0.76           | 74.7        | 3.9                              | 2.1                            | 2.1                           | 11.5              | 0.0048                   | 15.2        |
|            | 400           | 1.1                  | 918                        | 11           | 3             | 0.72           | 75.2        | 4.1                              | 2.2                            | 2.2                           | 10.4              | 0.0048                   | 15.2        |
|            | 415           | 1.1                  | 926                        | 11           | 3             | 0.68           | 74.8        | 4.4                              | 2.5                            | 2.5                           | 9                 | 0.0048                   | 15.2        |
| LSE 100 L  | 380           | 1.5                  | 919                        | 15           | 4.1           | 0.71           | 78          | 4.3                              | 2.4                            | 2.4                           | 7.5               | 0.0069                   | 19.7        |
|            | 400           | 1.5                  | 928                        | 15           | 4.2           | 0.67           | 76.8        | 4.6                              | 2.7                            | 2.7                           | 6.5               | 0.0069                   | 19.7        |
|            | 415           | 1.5                  | 934                        | 15           | 4.4           | 0.63           | 76.1        | 4.8                              | 3                              | 3                             | 6                 | 0.0069                   | 19.7        |
| LSE 112 MG | 380           | 2.2                  | 928                        | 22           | 5.6           | 0.75           | 78.8        | 4.2                              | 1.9                            | 1.8                           | 7.8               | 0.0152                   | 33          |
|            | 400           | 2.2                  | 938                        | 22           | 5.4           | 0.74           | 80.1        | 4.35                             | 2                              | 2                             | 7.3               | 0.0152                   | 33          |
|            | 415           | 2.2                  | 945                        | 22           | 5.3           | 0.72           | 80.6        | 4.8                              | 2.2                            | 2.2                           | 6                 | 0.0152                   | 33          |
| LSE 132 SM | 380           | 3                    | 958                        | 30           | 7.2           | 0.75           | 84.2        | 3.8                              | 1.1                            | 1.5                           | 8.8               | 0.026                    | 43.4        |
|            | 400           | 3                    | 963                        | 30           | 7             | 0.74           | 84.6        | 4.3                              | 1.2                            | 1.6                           | 6.9               | 0.026                    | 43.4        |
|            | 415           | 3                    | 967                        | 30           | 6.9           | 0.72           | 84.7        | 4.6                              | 1.3                            | 1.7                           | 6                 | 0.026                    | 43.4        |
| LSE 132 M  | 380           | 4                    | 962                        | 40           | 9.5           | 0.75           | 85.5        | 4.2                              | 1.2                            | 1.5                           | 8.5               | 0.034                    | 59.4        |
|            | 400           | 4                    | 966                        | 40           | 9.1           | 0.74           | 85.9        | 4.6                              | 1.3                            | 1.6                           | 7.1               | 0.034                    | 59.4        |
|            | 415           | 4                    | 970                        | 40           | 9             | 0.72           | 85.8        | 5                                | 1.5                            | 1.8                           | 6                 | 0.034                    | 59.4        |
| LSE 132 MU | 380           | 5.5                  | 958                        | 55           | 12.8          | 0.76           | 86          | 4.2                              | 1.3                            | 1.5                           | 8.8               | 0.043                    | 66.5        |
|            | 400           | 5.5                  | 963                        | 55           | 12.3          | 0.75           | 86.4        | 4.7                              | 1.4                            | 1.6                           | 7.1               | 0.043                    | 66.5        |
|            | 415           | 5.5                  | 968                        | 55           | 12            | 0.73           | 86.5        | 5.1                              | 1.6                            | 1.8                           | 6                 | 0.043                    | 66.5        |
| LSE 160 M  | 380           | 7.5                  | 960                        | 74.6         | 16.4          | 0.81           | 85.6        | 4.6                              | 1.5                            | 2.1                           | 13.3              | 0.084                    | 81          |
|            | 400           | 7.5                  | 965                        | 74.2         | 15.9          | 0.79           | 86          | 5                                | 1.7                            | 2.4                           | 11.2              | 0.084                    | 81          |
|            | 415           | 7.5                  | 968                        | 74           | 15.9          | 0.76           | 86.2        | 5.3                              | 1.8                            | 2.6                           | 10                | 0.084                    | 81          |
| LSE 160 L  | 380           | 11                   | 957                        | 110          | 24.1          | 0.81           | 85.7        | 4.8                              | 1.6                            | 2.2                           | 8.5               | 0.126                    | 105         |
|            | 400           | 11                   | 963                        | 109          | 23.6          | 0.78           | 86.2        | 5.1                              | 1.8                            | 2.5                           | 7.5               | 0.126                    | 105         |
|            | 415           | 11                   | 966                        | 109          | 23.3          | 0.76           | 86.4        | 5.4                              | 1.9                            | 2.7                           | 6.7               | 0.126                    | 105         |
| LSE 180 L  | 380           | 15                   | 959                        | 149          | 31.6          | 0.83           | 86.9        | 5.1                              | 1.9                            | 2.1                           | 8.5               | 0.191                    | 135         |
|            | 400           | 15                   | 965                        | 148          | 30.1          | 0.82           | 87.8        | 5.6                              | 2.1                            | 2.4                           | 7.2               | 0.191                    | 135         |
|            | 415           | 15                   | 969                        | 148          | 29.2          | 0.81           | 88.3        | 6.1                              | 2.3                            | 2.6                           | 6                 | 0.191                    | 135         |
| LSE 200 LT | 380           | 18.5                 | 965                        | 183          | 39.2          | 0.81           | 88.5        | 5.7                              | 2.3                            | 2.5                           | 10.4              | 0.237                    | 160         |
|            | 400           | 18.5                 | 969                        | 182          | 38            | 0.79           | 89          | 6.2                              | 2.5                            | 2.8                           | 8.8               | 0.237                    | 160         |
|            | 415           | 18.5                 | 972                        | 182          | 37.5          | 0.77           | 89.2        | 6.5                              | 2.7                            | 3                             | 8                 | 0.237                    | 160         |
| LSE 200 L  | 380           | 22                   | 970                        | 217          | 45.4          | 0.82           | 89.8        | 5.7                              | 1.8                            | 2.5                           | 8                 | 0.287                    | 190         |
|            | 400           | 22                   | 974                        | 216          | 44.1          | 0.80           | 90.1        | 6.2                              | 2                              | 2.7                           | 6.8               | 0.287                    | 190         |
|            | 415           | 22                   | 976                        | 215          | 43.5          | 0.78           | 90.2        | 6.6                              | 2.2                            | 3                             | 6                 | 0.287                    | 190         |
| LSE 225 MR | 380           | 30                   | 973                        | 295          | 63.6          | 0.79           | 90.7        | 6.2                              | 2.4                            | 2.7                           | 6.4               | 0.380                    | 235         |
|            | 400           | 30                   | 976                        | 294          | 61.9          | 0.77           | 90.8        | 6.7                              | 2.7                            | 3                             | 5.5               | 0.380                    | 235         |
|            | 415           | 30                   | 978                        | 293          | 62.2          | 0.74           | 90.8        | 7                                | 3                              | 3.3                           | 5                 | 0.380                    | 235         |
| LSE 250 ME | 380           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC | 380           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 MC | 380           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

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# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**6**  
poles  
1000 min<sup>-1</sup>

**EEx e IIT3 VIK**

**MAINS SUPPLY 380 / 400 / 420 V**

**50 Hz**

| Type       | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|            | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 90 S   | 380           | 0.65                 | 931                        | 6.5          | 1.8           | 0.72           | 75.6        | 4.6                              | 2.3                            | 2.4                           | 10.2              | 0.0039                   | 13.5        |
|            | 400           | 0.65                 | 937                        | 6.5          | 1.8           | 0.68           | 75          | 4.7                              | 2.6                            | 2.7                           | 9.8               | 0.0039                   | 13.5        |
|            | 420           | 0.65                 | 945                        | 6.5          | 1.9           | 0.63           | 74.6        | 4.9                              | 2.9                            | 3                             | 9                 | 0.0039                   | 13.5        |
| LSE 90 L   | 380           | 0.95                 | 909                        | 9.5          | 2.5           | 0.77           | 75.1        | 4                                | 2.2                            | 2.2                           | 10.9              | 0.0048                   | 15.2        |
|            | 400           | 0.95                 | 920                        | 9.5          | 2.5           | 0.73           | 75.4        | 4.2                              | 2.4                            | 2.4                           | 9.9               | 0.0048                   | 15.2        |
|            | 420           | 0.95                 | 931                        | 9.5          | 2.5           | 0.69           | 75.8        | 4.4                              | 2.5                            | 2.5                           | 9                 | 0.0048                   | 15.2        |
| LSE 100 L  | 380           | 1.3                  | 920                        | 13           | 3.5           | 0.73           | 77.1        | 4.2                              | 2.3                            | 2.3                           | 7.7               | 0.0069                   | 19.7        |
|            | 400           | 1.3                  | 930                        | 13           | 3.5           | 0.68           | 76.9        | 4.3                              | 2.6                            | 2.6                           | 7.3               | 0.0069                   | 19.7        |
|            | 420           | 1.3                  | 938                        | 13           | 3.6           | 0.64           | 76.7        | 4.4                              | 2.9                            | 2.9                           | 7                 | 0.0069                   | 19.7        |
| LSE 112 MG | 380           | 1.9                  | 929                        | 19           | 4.9           | 0.75           | 78.7        | 3.5                              | 1.6                            | 1.6                           | 13.7              | 0.0152                   | 33          |
|            | 400           | 1.9                  | 937                        | 19           | 4.7           | 0.73           | 79.7        | 4.2                              | 1.9                            | 1.9                           | 9.5               | 0.0152                   | 33          |
|            | 420           | 1.9                  | 948                        | 19           | 4.5           | 0.71           | 80.7        | 4.9                              | 2.2                            | 2.2                           | 7                 | 0.0152                   | 33          |
| LSE 132 SM | 380           | 2.6                  | 959                        | 26           | 6.2           | 0.75           | 84.5        | 3.7                              | 1.1                            | 1.4                           | 11.3              | 0.026                    | 43.4        |
|            | 400           | 2.6                  | 964                        | 26           | 6             | 0.73           | 84.7        | 4                                | 1.2                            | 1.6                           | 9.6               | 0.026                    | 43.4        |
|            | 420           | 2.6                  | 969                        | 26           | 5.8           | 0.72           | 85.1        | 4.7                              | 1.3                            | 1.7                           | 7                 | 0.026                    | 43.4        |
| LSE 132 M  | 380           | 3.5                  | 962                        | 35           | 8.3           | 0.75           | 85.3        | 4.1                              | 1.2                            | 1.5                           | 10.4              | 0.034                    | 59.4        |
|            | 400           | 3.5                  | 967                        | 35           | 8             | 0.74           | 85.6        | 4.5                              | 1.3                            | 1.7                           | 8.6               | 0.034                    | 59.4        |
|            | 420           | 3.5                  | 971                        | 35           | 7.8           | 0.72           | 85.8        | 5                                | 1.4                            | 1.8                           | 7                 | 0.034                    | 59.4        |
| LSE 132 MU | 380           | 4.8                  | 963                        | 48           | 11.2          | 0.75           | 86.6        | 4.5                              | 1.4                            | 1.6                           | 12                | 0.043                    | 66.5        |
|            | 400           | 4.8                  | 967                        | 48           | 10.8          | 0.74           | 86.8        | 5                                | 1.5                            | 1.7                           | 9.7               | 0.043                    | 66.5        |
|            | 420           | 4.8                  | 971                        | 48           | 10.6          | 0.72           | 86.8        | 5.5                              | 1.7                            | 2                             | 8                 | 0.043                    | 66.5        |
| LSE 160 M  | 380           | 6.6                  | 968                        | 65.1         | 14.7          | 0.79           | 86.5        | 5.2                              | 1.7                            | 2.4                           | 12.3              | 0.084                    | 81          |
|            | 400           | 6.6                  | 972                        | 64.8         | 14.5          | 0.76           | 86.6        | 5.5                              | 1.9                            | 2.7                           | 11                | 0.084                    | 81          |
|            | 420           | 6.6                  | 974                        | 64.7         | 14.4          | 0.73           | 86.6        | 5.7                              | 2.1                            | 2.9                           | 10.3              | 0.084                    | 81          |
| LSE 160 L  | 380           | 9.7                  | 966                        | 95.9         | 21.8          | 0.78           | 86.7        | 5.3                              | 1.8                            | 2.5                           | 12.4              | 0.126                    | 105         |
|            | 400           | 9.7                  | 970                        | 95.5         | 21.5          | 0.75           | 86.9        | 5.7                              | 2                              | 2.8                           | 10.7              | 0.126                    | 105         |
|            | 420           | 9.7                  | 973                        | 95.2         | 21            | 0.73           | 86.9        | 5.9                              | 2.2                            | 3                             | 10                | 0.126                    | 105         |
| LSE 180 L  | 380           | 13.2                 | 969                        | 130          | 27.7          | 0.82           | 88.3        | 5.8                              | 2.1                            | 2.4                           | 13.7              | 0.191                    | 135         |
|            | 400           | 13.2                 | 972                        | 130          | 26.8          | 0.80           | 88.9        | 6.3                              | 2.4                            | 2.7                           | 11.6              | 0.191                    | 135         |
|            | 420           | 13.2                 | 975                        | 129          | 26.1          | 0.78           | 89.2        | 6.8                              | 2.6                            | 2.9                           | 10                | 0.191                    | 135         |
| LSE 200 LT | 380           | 16.5                 | 971                        | 162          | 35.6          | 0.79           | 89.2        | 6.3                              | 2.6                            | 2.9                           | 10.2              | 0.237                    | 160         |
|            | 400           | 16.5                 | 974                        | 162          | 34.6          | 0.77           | 89.5        | 6.8                              | 2.9                            | 3.2                           | 8.8               | 0.237                    | 160         |
|            | 420           | 16.5                 | 977                        | 161          | 33.8          | 0.75           | 89.6        | 7.1                              | 3.1                            | 3.4                           | 8                 | 0.237                    | 160         |
| LSE 200 L  | 380           | 20                   | 976                        | 196          | 41.5          | 0.81           | 90.5        | 6.3                              | 2                              | 2.7                           | 12.7              | 0.287                    | 190         |
|            | 400           | 20                   | 977                        | 196          | 40.4          | 0.79           | 90.5        | 6.8                              | 2.2                            | 3                             | 10.9              | 0.287                    | 190         |
|            | 420           | 20                   | 980                        | 195          | 40            | 0.76           | 90.5        | 7.1                              | 2.4                            | 3.2                           | 10                | 0.287                    | 190         |
| LSE 225 MR | 380           | 27                   | 977                        | 264          | 57.7          | 0.78           | 91          | 6.8                              | 2.7                            | 3                             | 8.5               | 0.380                    | 235         |
|            | 400           | 27                   | 979                        | 263          | 57            | 0.75           | 91          | 7.2                              | 3                              | 3.3                           | 7.6               | 0.380                    | 235         |
|            | 420           | 27                   | 982                        | 263          | 57.5          | 0.71           | 91          | 7.5                              | 3.4                            | 3.7                           | 7                 | 0.380                    | 235         |
| LSE 250 ME | 380           | 33                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 33                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 420           | 33                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC | 380           | 40                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 40                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 420           | 40                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 MC | 380           | 46                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 46                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 420           | 46                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

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# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**2**  
poles  
3000 min<sup>-1</sup>

**EEx e IIT4**

**MAINS SUPPLY 380 / 400 / 415 V**

**50 Hz**

| Type       | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|            | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 63     | 380           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 71     | 380           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 71     | 380           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 0.55                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 80 L   | 380           | 0.75                 | 2868                       | 2.5          | 1.6           | 0.86           | 83.2        | 5.9                              | 2.2                            | 2.5                           | 8.5               | 0.0011                   | 11.3        |
|            | 400           | 0.75                 | 2879                       | 2.5          | 1.5           | 0.84           | 83.2        | 6.4                              | 2.5                            | 3                             | 7.2               | 0.0011                   | 11.3        |
|            | 415           | 0.75                 | 2894                       | 2.5          | 1.5           | 0.83           | 82.9        | 7                                | 2.7                            | 3.3                           | 6                 | 0.0011                   | 11.3        |
| LSE 90 L   | 380           | 1.1                  | 2845                       | 3.7          | 2.2           | 0.91           | 83.1        | 5.2                              | 1.9                            | 2.4                           | 10.8              | 0.0021                   | 16          |
|            | 400           | 1.1                  | 2865                       | 3.7          | 2.1           | 0.91           | 83.9        | 5.8                              | 2.1                            | 2.7                           | 8.5               | 0.0021                   | 16          |
|            | 415           | 1.1                  | 2880                       | 3.7          | 2             | 0.90           | 84.2        | 6.4                              | 2.3                            | 2.9                           | 7                 | 0.0021                   | 16          |
| LSE 100 L  | 380           | 1.5                  | 2850                       | 5            | 3.1           | 0.89           | 83.8        | 5.3                              | 1.9                            | 2.4                           | 10.5              | 0.0024                   | 19          |
|            | 400           | 1.5                  | 2867                       | 5            | 2.9           | 0.88           | 84.4        | 5.9                              | 2.2                            | 2.7                           | 8.5               | 0.0024                   | 19          |
|            | 415           | 1.5                  | 2882                       | 5            | 2.8           | 0.88           | 84.9        | 6.5                              | 2.4                            | 3                             | 7                 | 0.0024                   | 19          |
| LSE 100 L  | 380           | 1.8                  | 2848                       | 6.3          | 3.5           | 0.92           | 86.1        | 5.1                              | 1.9                            | 2.3                           | 9.2               | 0.0029                   | 24          |
|            | 400           | 1.8                  | 2871                       | 6.3          | 3.3           | 0.91           | 86.1        | 5.7                              | 2.1                            | 2.6                           | 7.3               | 0.0029                   | 24          |
|            | 415           | 1.8                  | 2882                       | 6.3          | 3.2           | 0.91           | 86.3        | 6.3                              | 2.4                            | 2.9                           | 6                 | 0.0029                   | 24          |
| LSE 100 LG | 380           | 2.2                  | 2909                       | 7.5          | 4.2           | 0.92           | 86.9        | 7.1                              | 2.3                            | 2.9                           | 10                | 0.0076                   | 35          |
|            | 400           | 2.2                  | 2919                       | 7.5          | 4             | 0.91           | 87.2        | 7.8                              | 2.5                            | 3.2                           | 8.3               | 0.0076                   | 35          |
|            | 415           | 2.2                  | 2926                       | 7.5          | 3.9           | 0.90           | 87.4        | 8.5                              | 2.8                            | 3.5                           | 7                 | 0.0076                   | 35          |
| LSE 112 MU | 380           | 3                    | 2914                       | 10.1         | 5.5           | 0.95           | 86.5        | 7.7                              | 2.5                            | 3.1                           | 9.8               | 0.0088                   | 39          |
|            | 400           | 3                    | 2924                       | 10.1         | 5.3           | 0.94           | 86.7        | 8.5                              | 2.7                            | 3.4                           | 8                 | 0.0088                   | 39          |
|            | 415           | 3                    | 2930                       | 10.1         | 5.2           | 0.93           | 86.9        | 9.1                              | 3                              | 3.7                           | 7                 | 0.0088                   | 39          |
| LSE 132 SM | 380           | 4                    | 2938                       | 13.5         | 7.8           | 0.88           | 88.4        | 7.4                              | 1.9                            | 2.9                           | 8.3               | 0.016                    | 49          |
|            | 400           | 4                    | 2944                       | 13.5         | 7.5           | 0.87           | 88.4        | 8.1                              | 2.1                            | 3.2                           | 7                 | 0.016                    | 49          |
|            | 415           | 4                    | 2949                       | 13.5         | 7.3           | 0.86           | 88.3        | 8.7                              | 2.3                            | 3.5                           | 6                 | 0.016                    | 49          |
| LSE 132 SM | 380           | 5.5                  | 2947                       | 18.6         | 10            | 0.93           | 89.4        | 6.4                              | 1.6                            | 2.5                           | 8.7               | 0.018                    | 54          |
|            | 400           | 5.5                  | 2953                       | 18.6         | 9.7           | 0.92           | 89.5        | 7                                | 1.7                            | 2.7                           | 7.3               | 0.018                    | 54          |
|            | 415           | 5.5                  | 2958                       | 18.6         | 9.4           | 0.91           | 89.7        | 7.7                              | 1.9                            | 2.9                           | 6                 | 0.018                    | 54          |
| LSE 160 MP | 380           | 7.5                  | 2924                       | 25.4         | 13.6          | 0.94           | 89.4        | 5.3                              | 1.3                            | 2                             | 9                 | 0.023                    | 68          |
|            | 400           | 7.5                  | 2933                       | 25.4         | 12.9          | 0.94           | 89.9        | 5.9                              | 1.4                            | 2.2                           | 7.3               | 0.023                    | 68          |
|            | 415           | 7.5                  | 2943                       | 25.4         | 12.4          | 0.93           | 90.4        | 6.5                              | 1.6                            | 2.4                           | 6                 | 0.023                    | 68          |
| LSE 160 L  | 380           | 11                   | 2938                       | 35.8         | 20.2          | 0.91           | 90.9        | 7.7                              | 2.4                            | 3                             | 7                 | 0.044                    | 88          |
|            | 400           | 11                   | 2945                       | 35.7         | 19.3          | 0.90           | 91.3        | 8.5                              | 2.8                            | 3.4                           | 5.8               | 0.044                    | 88          |
|            | 415           | 11                   | 2952                       | 35.6         | 18.8          | 0.89           | 91.5        | 9.1                              | 3                              | 3.7                           | 5                 | 0.044                    | 88          |
| LSE 180 MT | 380           | 15                   | 2936                       | 48.8         | 27.4          | 0.91           | 91.5        | 7.8                              | 2.6                            | 2.9                           | 7                 | 0.052                    | 99          |
|            | 400           | 15                   | 2943                       | 48.7         | 26.2          | 0.90           | 91.8        | 8.6                              | 2.9                            | 3.2                           | 5.8               | 0.052                    | 99          |
|            | 415           | 15                   | 2950                       | 48.6         | 25.5          | 0.89           | 91.9        | 9.2                              | 3.1                            | 3.5                           | 5                 | 0.052                    | 99          |
| LSE 200 LT | 380           | 18.5                 | 2954                       | 59.8         | 32.6          | 0.92           | 93.6        | 8.6                              | 2.7                            | 3.5                           | 6.8               | 0.089                    | 154         |
|            | 400           | 18.5                 | 2959                       | 59.7         | 31.4          | 0.91           | 93.6        | 9.4                              | 3.1                            | 3.9                           | 5.7               | 0.089                    | 154         |
|            | 415           | 18.5                 | 2963                       | 59.6         | 30.6          | 0.90           | 93.6        | 10                               | 3.3                            | 4.2                           | 5                 | 0.089                    | 154         |
| LSE 200 L  | 380           | 22                   | 2960                       | 71           | 38.9          | 0.92           | 93.5        | 8.1                              | 2.8                            | 3.2                           | 6.9               | 0.12                     | 180         |
|            | 400           | 22                   | 2965                       | 70.9         | 37.2          | 0.91           | 93.7        | 8.9                              | 3.1                            | 3.6                           | 5.7               | 0.12                     | 180         |
|            | 415           | 22                   | 2969                       | 70.8         | 36.3          | 0.90           | 93.7        | 9.5                              | 3.4                            | 3.8                           | 5                 | 0.12                     | 180         |
| LSE 225 MT | 380           | 30                   | 2961                       | 96.8         | 52.8          | 0.92           | 93.9        | 8.7                              | 3                              | 3.5                           | 6.6               | 0.14                     | 200         |
|            | 400           | 30                   | 2965                       | 96.6         | 50.6          | 0.91           | 94          | 9.6                              | 3.4                            | 3.9                           | 5.4               | 0.14                     | 200         |
|            | 415           | 30                   | 2969                       | 96.5         | 49.3          | 0.90           | 94.1        | 10                               | 3.7                            | 4.2                           | 5                 | 0.14                     | 200         |
| LSE 250 MZ | 380           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC | 380           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 MC | 380           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 400           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|            | 415           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

Please consult Leroy-Somer

Please consult Leroy-Somer

# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**4 poles**  
1500 min<sup>-1</sup>

**EEx e IIT4**

**MAINS SUPPLY 380 / 400 / 415 V**

**50 Hz**

| Type                              | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-----------------------------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|                                   | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 63                            | 380           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 0.25                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 71                            | 380           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 0.37                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| <b>Please consult Leroy-Somer</b> |               |                      |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 80 L                          | 380           | 0.55                 | 1410                       | 3.75         | 1.4           | 0.78           | 74          | 4.9                              | 1.7                            | 1.7                           | 7.3               | 0.0024                   | 10.9        |
|                                   | 400           | 0.55                 | 1425                       | 3.75         | 1.4           | 0.76           | 75          | 5.1                              | 1.9                            | 2                             | 6.7               | 0.0024                   | 10.9        |
|                                   | 415           | 0.55                 | 1430                       | 3.75         | 1.4           | 0.73           | 75          | 5.4                              | 2.1                            | 2.3                           | 6                 | 0.0024                   | 10.9        |
| LSE 90 S                          | 380           | 0.75                 | 1445                       | 5            | 1.8           | 0.79           | 81          | 5.2                              | 1.7                            | 2.1                           | 8                 | 0.0032                   | 13.5        |
|                                   | 400           | 0.75                 | 1451                       | 5            | 1.7           | 0.77           | 81.4        | 5.6                              | 1.9                            | 2.4                           | 6.9               | 0.0032                   | 13.5        |
|                                   | 415           | 0.75                 | 1455                       | 5            | 1.7           | 0.74           | 81.4        | 6                                | 2.1                            | 2.6                           | 6                 | 0.0032                   | 13.5        |
| LSE 90 L                          | 380           | 1.1                  | 1440                       | 7.5          | 2.6           | 0.80           | 81.7        | 5                                | 1.7                            | 2.1                           | 8.3               | 0.0037                   | 15.2        |
|                                   | 400           | 1.1                  | 1447                       | 7.5          | 2.5           | 0.78           | 82.1        | 5.5                              | 1.8                            | 2.3                           | 6.9               | 0.0037                   | 15.2        |
|                                   | 415           | 1.1                  | 1452                       | 7.5          | 2.5           | 0.76           | 82.2        | 5.9                              | 2                              | 2.5                           | 6                 | 0.0037                   | 15.2        |
| LSE 100 L                         | 380           | 1.5                  | 1434                       | 10           | 3.4           | 0.82           | 82.2        | 4.9                              | 1.7                            | 2                             | 8.4               | 0.0064                   | 25.5        |
|                                   | 400           | 1.5                  | 1442                       | 10           | 3.3           | 0.80           | 82.8        | 5.4                              | 1.8                            | 2.2                           | 6.9               | 0.0064                   | 25.5        |
|                                   | 415           | 1.5                  | 1448                       | 10           | 3.2           | 0.78           | 83.1        | 5.8                              | 2                              | 2.4                           | 6                 | 0.0064                   | 25.5        |
| LSE 100 L                         | 380           | 1.8                  | 1429                       | 12           | 4             | 0.83           | 82.3        | 4.6                              | 1.6                            | 1.9                           | 8.9               | 0.0073                   | 27.5        |
|                                   | 400           | 1.8                  | 1437                       | 12           | 3.9           | 0.81           | 83          | 5.1                              | 1.7                            | 2.1                           | 7.2               | 0.0073                   | 27.5        |
|                                   | 415           | 1.8                  | 1444                       | 12           | 3.8           | 0.79           | 83.4        | 5.6                              | 1.9                            | 2.3                           | 6                 | 0.0073                   | 27.5        |
| LSE 100 LG                        | 380           | 2.2                  | 1461                       | 15           | 4.5           | 0.85           | 86.9        | 6                                | 1.7                            | 2                             | 8.6               | 0.0109                   | 30.5        |
|                                   | 400           | 2.2                  | 1466                       | 15           | 4.4           | 0.84           | 87.3        | 6.6                              | 1.8                            | 2.2                           | 7.1               | 0.0109                   | 30.5        |
|                                   | 415           | 2.2                  | 1469                       | 15           | 4.3           | 0.82           | 87.4        | 7.2                              | 2                              | 2.4                           | 6                 | 0.0109                   | 30.5        |
| LSE 112 MU                        | 380           | 3                    | 1459                       | 20           | 6.1           | 0.86           | 87.4        | 6.1                              | 1.8                            | 2                             | 8.6               | 0.014                    | 36.5        |
|                                   | 400           | 3                    | 1464                       | 20           | 5.9           | 0.85           | 87.8        | 6.7                              | 2                              | 2.2                           | 7.1               | 0.014                    | 36.5        |
|                                   | 415           | 3                    | 1467                       | 20           | 5.7           | 0.83           | 87.9        | 7.3                              | 2.1                            | 2.4                           | 6                 | 0.014                    | 36.5        |
| LSE 132 SM                        | 380           | 4                    | 1460                       | 27.5         | 7.6           | 0.91           | 88          | 8                                | 1.7                            | 2.3                           | 9.5               | 0.019                    | 54.7        |
|                                   | 400           | 4                    | 1465                       | 27.5         | 7.4           | 0.89           | 88          | 8.6                              | 1.8                            | 2.6                           | 8.2               | 0.019                    | 54.7        |
|                                   | 415           | 4                    | 1470                       | 27.5         | 7.2           | 0.88           | 88          | 9.3                              | 2                              | 2.8                           | 7                 | 0.019                    | 54.7        |
| LSE 132 SM                        | 380           | 5.5                  | 1462                       | 37.5         | 10.7          | 0.88           | 89          | 6.7                              | 1.8                            | 2.4                           | 8.2               | 0.023                    | 59.9        |
|                                   | 400           | 5.5                  | 1466                       | 37.5         | 10.4          | 0.87           | 89.1        | 7.3                              | 2                              | 2.7                           | 6.9               | 0.023                    | 59.9        |
|                                   | 415           | 5.5                  | 1469                       | 37.5         | 10.2          | 0.85           | 89          | 7.8                              | 2.2                            | 2.9                           | 6                 | 0.023                    | 59.9        |
| LSE 132 MU                        | 380           | 7.5                  | 1456                       | 50           | 14.4          | 0.89           | 88.8        | 5.7                              | 1.5                            | 2.1                           | 8.8               | 0.0306                   | 65.5        |
|                                   | 400           | 7.5                  | 1461                       | 50           | 13.8          | 0.88           | 89.2        | 6.3                              | 1.6                            | 2.3                           | 7.2               | 0.0306                   | 65.5        |
|                                   | 415           | 7.5                  | 1465                       | 50           | 13.4          | 0.87           | 89.3        | 6.9                              | 1.8                            | 2.5                           | 6                 | 0.0306                   | 65.5        |
| LSE 160 L                         | 380           | 11                   | 1462                       | 71.9         | 21.3          | 0.87           | 90.1        | 6.9                              | 2.4                            | 2.9                           | 9.9               | 0.085                    | 100         |
|                                   | 400           | 11                   | 1467                       | 71.6         | 20.4          | 0.86           | 90.5        | 7.6                              | 2.7                            | 3.2                           | 8.2               | 0.085                    | 100         |
|                                   | 415           | 11                   | 1470                       | 71.5         | 19.9          | 0.85           | 90.7        | 8.2                              | 3                              | 3.7                           | 7                 | 0.085                    | 100         |
| LSE 180 LU                        | 380           | 15                   | 1477                       | 97.0         | 29.7          | 0.83           | 92.3        | 8.8                              | 4                              | 4                             | 12.9              | 0.151                    | 165         |
|                                   | 400           | 15                   | 1480                       | 96.8         | 29            | 0.81           | 92.3        | 9.5                              | 4.4                            | 4.4                           | 11                | 0.151                    | 165         |
|                                   | 415           | 15                   | 1482                       | 96.7         | 29            | 0.78           | 92.3        | 10                               | 4.8                            | 4.8                           | 10                | 0.151                    | 165         |
| LSE 180 LU                        | 380           | 18.5                 | 1470                       | 120          | 35.4          | 0.86           | 92.2        | 7.6                              | 3.2                            | 3.2                           | 6.4               | 0.151                    | 165         |
|                                   | 400           | 18.5                 | 1473                       | 120          | 34.4          | 0.84           | 92.3        | 8.2                              | 3.6                            | 3.6                           | 5.5               | 0.151                    | 165         |
|                                   | 415           | 18.5                 | 1475                       | 120          | 34            | 0.82           | 92.4        | 8.6                              | 3.9                            | 3.8                           | 5                 | 0.151                    | 165         |
| LSE 200 L                         | 380           | 22                   | 1480                       | 142          | 43            | 0.83           | 93.5        | 8                                | 3.4                            | 3.3                           | 11.4              | 0.240                    | 205         |
|                                   | 400           | 22                   | 1482                       | 142          | 41.9          | 0.81           | 93.6        | 8.7                              | 3.7                            | 3.6                           | 9.6               | 0.240                    | 205         |
|                                   | 415           | 22                   | 1484                       | 142          | 41.4          | 0.79           | 93.5        | 9                                | 4.1                            | 3.9                           | 9                 | 0.240                    | 205         |
| LSE 225 SR                        | 380           | 30                   | 1477                       | 194          | 58.7          | 0.83           | 93.6        | 7.3                              | 3.3                            | 3.2                           | 9.3               | 0.290                    | 235         |
|                                   | 400           | 30                   | 1479                       | 194          | 57.1          | 0.81           | 93.6        | 7.9                              | 3.7                            | 3.6                           | 7.9               | 0.290                    | 235         |
|                                   | 415           | 30                   | 1481                       | 194          | 56.4          | 0.79           | 93.6        | 8.4                              | 4.1                            | 3.9                           | 7                 | 0.290                    | 235         |
| LSE 250 ME                        | 380           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC                        | 380           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 MC                        | 380           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 55                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

**Please consult Leroy-Somer**

# LSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C1 - Selection data: LSE aluminium motors

**6**  
poles  
1000 min<sup>-1</sup>

**EEx e IIT4**

**MAINS SUPPLY 380 / 400 / 415 V**

**50 Hz**

| Type                              | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-----------------------------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|                                   | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| LSE 71                            | 380           | 0.18                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 0.18                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 0.18                 |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| <b>Please consult Leroy-Somer</b> |               |                      |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 80 L                          | 380           | 0.25                 | 947                        | 2.5          | 0.9           | 0.67           | 66.2        | 3.5                              | 1.5                            | 1.8                           | 11.8              | 0.0032                   | 9.7         |
|                                   | 400           | 0.25                 | 953                        | 2.5          | 0.9           | 0.64           | 66.3        | 3.8                              | 1.7                            | 2.1                           | 10                | 0.0032                   | 9.7         |
|                                   | 415           | 0.25                 | 958                        | 2.5          | 0.9           | 0.62           | 65.9        | 4                                | 1.9                            | 2.3                           | 9                 | 0.0032                   | 9.7         |
| LSE 80 L                          | 380           | 0.37                 | 954                        | 3.7          | 1.3           | 0.64           | 68.8        | 4.1                              | 1.9                            | 2.2                           | 10                | 0.0042                   | 11          |
|                                   | 400           | 0.37                 | 960                        | 3.7          | 1.3           | 0.61           | 68.3        | 4.3                              | 2.1                            | 2.5                           | 9.1               | 0.0042                   | 11          |
|                                   | 415           | 0.37                 | 963                        | 3.7          | 1.3           | 0.59           | 67.6        | 4.6                              | 2.3                            | 2.7                           | 8                 | 0.0042                   | 11          |
| LSE 90 S                          | 380           | 0.55                 | 940                        | 5.5          | 1.6           | 0.68           | 76.5        | 4.8                              | 2.7                            | 2.7                           | 10.6              | 0.0039                   | 13.5        |
|                                   | 400           | 0.55                 | 947                        | 5.5          | 1.6           | 0.65           | 76.2        | 5                                | 3                              | 3                             | 9.7               | 0.0039                   | 13.5        |
|                                   | 415           | 0.55                 | 952                        | 5.5          | 1.7           | 0.61           | 75.5        | 5.2                              | 3.3                            | 3.3                           | 9                 | 0.0039                   | 13.5        |
| LSE 90 L                          | 380           | 0.75                 | 918                        | 7.5          | 2             | 0.76           | 76.2        | 3.8                              | 2                              | 2                             | 11.7              | 0.0048                   | 15.2        |
|                                   | 400           | 0.75                 | 927                        | 7.5          | 1.9           | 0.73           | 76.7        | 4.3                              | 2.3                            | 2.3                           | 9.1               | 0.0048                   | 15.2        |
|                                   | 415           | 0.75                 | 935                        | 7.5          | 1.9           | 0.70           | 76.9        | 4.6                              | 2.5                            | 2.6                           | 8                 | 0.0048                   | 15.2        |
| LSE 100 L                         | 380           | 1.1                  | 900                        | 11           | 2.8           | 0.78           | 76.3        | 3.7                              | 2                              | 2                             | 8.1               | 0.0069                   | 19.7        |
|                                   | 400           | 1.1                  | 913                        | 11           | 2.7           | 0.76           | 77.6        | 3.9                              | 2.1                            | 2.1                           | 7.3               | 0.0069                   | 19.7        |
|                                   | 415           | 1.1                  | 923                        | 11           | 2.7           | 0.73           | 78.3        | 4.3                              | 2.4                            | 2.4                           | 6                 | 0.0069                   | 19.7        |
| LSE 112 MG                        | 380           | 1.5                  | 934                        | 15           | 3.9           | 0.74           | 79.3        | 3.8                              | 1.7                            | 1.7                           | 9.6               | 0.0152                   | 33          |
|                                   | 400           | 1.5                  | 943                        | 15           | 3.8           | 0.72           | 80.2        | 4.4                              | 1.9                            | 1.9                           | 7.1               | 0.0152                   | 33          |
|                                   | 415           | 1.5                  | 949                        | 15           | 3.7           | 0.70           | 80.7        | 4.8                              | 2.2                            | 2.2                           | 6                 | 0.0152                   | 33          |
| LSE 132 SM                        | 380           | 2.2                  | 963                        | 22           | 5.4           | 0.73           | 84.7        | 4                                | 1.1                            | 1.5                           | 9                 | 0.026                    | 43.4        |
|                                   | 400           | 2.2                  | 968                        | 22           | 5.2           | 0.72           | 85.1        | 4.4                              | 1.3                            | 1.6                           | 7.5               | 0.026                    | 43.4        |
|                                   | 415           | 2.2                  | 971                        | 22           | 5.1           | 0.71           | 85.1        | 4.9                              | 1.4                            | 1.8                           | 6                 | 0.026                    | 43.4        |
| LSE 132 M                         | 380           | 3                    | 964                        | 30           | 7.2           | 0.74           | 85.9        | 4.2                              | 1.2                            | 1.5                           | 8.9               | 0.034                    | 59.4        |
|                                   | 400           | 3                    | 968                        | 30           | 7             | 0.72           | 86.1        | 4.7                              | 1.4                            | 1.7                           | 7.1               | 0.034                    | 59.4        |
|                                   | 415           | 3                    | 972                        | 30           | 6.8           | 0.71           | 86.2        | 5.1                              | 1.5                            | 1.8                           | 6                 | 0.034                    | 59.4        |
| LSE 132 MU                        | 380           | 4                    | 964                        | 40           | 9.4           | 0.75           | 86.4        | 4.4                              | 1.3                            | 1.5                           | 8.7               | 0.043                    | 66.5        |
|                                   | 400           | 4                    | 968                        | 40           | 9.2           | 0.73           | 86.6        | 4.9                              | 1.5                            | 1.7                           | 7                 | 0.043                    | 66.5        |
|                                   | 415           | 4                    | 971                        | 40           | 8.9           | 0.72           | 86.7        | 5.3                              | 1.6                            | 1.9                           | 6                 | 0.043                    | 66.5        |
| LSE 160 M                         | 380           | 5.5                  | 969                        | 54.2         | 12            | 0.80           | 86.7        | 5.2                              | 1.7                            | 2.4                           | 12.9              | 0.084                    | 81          |
|                                   | 400           | 5.5                  | 973                        | 54           | 11.9          | 0.77           | 86.9        | 5.6                              | 1.9                            | 2.7                           | 11.1              | 0.084                    | 81          |
|                                   | 415           | 5.5                  | 975                        | 53.9         | 11.7          | 0.75           | 86.9        | 5.9                              | 2.1                            | 2.9                           | 10                | 0.084                    | 81          |
| LSE 160 L                         | 380           | 7.5                  | 968                        | 74           | 16.5          | 0.79           | 87.2        | 5.4                              | 1.8                            | 2.5                           | 12.8              | 0.126                    | 105         |
|                                   | 400           | 7.5                  | 972                        | 73.7         | 16.1          | 0.77           | 87.4        | 5.8                              | 2                              | 2.8                           | 10                | 0.126                    | 105         |
|                                   | 415           | 7.5                  | 974                        | 73.5         | 15.9          | 0.75           | 87.5        | 6.1                              | 2.2                            | 3                             | 9                 | 0.126                    | 105         |
| LSE 180 L                         | 380           | 11                   | 966                        | 109          | 22.9          | 0.83           | 87.9        | 5.4                              | 2                              | 2.2                           | 8.7               | 0.191                    | 135         |
|                                   | 400           | 11                   | 970                        | 108          | 21.9          | 0.82           | 88.6        | 5.9                              | 2.2                            | 2.4                           | 7.3               | 0.191                    | 135         |
|                                   | 415           | 11                   | 974                        | 108          | 21.2          | 0.81           | 89          | 6.5                              | 2.4                            | 2.6                           | 5                 | 0.191                    | 135         |
| LSE 200 L                         | 380           | 15                   | 974                        | 147          | 30.4          | 0.83           | 90.4        | 6.1                              | 1.9                            | 2.9                           | 9.8               | 0.287                    | 190         |
|                                   | 400           | 15                   | 977                        | 147          | 29.5          | 0.81           | 90.7        | 6.6                              | 2.1                            | 2.9                           | 8.3               | 0.287                    | 190         |
|                                   | 415           | 15                   | 980                        | 146          | 28.7          | 0.8            | 90.8        | 7.2                              | 2.3                            | 3.2                           | 7                 | 0.287                    | 190         |
| LSE 225 MR                        | 380           | 18.5                 | 981                        | 180          | 39.3          | 0.78           | 91.7        | 7.4                              | 3                              | 3.3                           | 13.2              | 0.380                    | 235         |
|                                   | 400           | 18.5                 | 983                        | 180          | 38.3          | 0.76           | 91.7        | 8                                | 3.3                            | 3.6                           | 11.3              | 0.380                    | 235         |
|                                   | 415           | 18.5                 | 985                        | 179          | 38.5          | 0.73           | 91.6        | 8.5                              | 3.7                            | 4                             | 10                | 0.380                    | 235         |
| LSE 225 MR                        | 380           | 22                   | 976                        | 215          | 45.2          | 0.81           | 91.2        | 6.4                              | 2.5                            | 2.7                           | 13.7              | 0.380                    | 235         |
|                                   | 400           | 22                   | 979                        | 215          | 43.9          | 0.79           | 91.5        | 7                                | 2.8                            | 3                             | 11.5              | 0.380                    | 235         |
|                                   | 415           | 22                   | 981                        | 214          | 43.4          | 0.77           | 91.5        | 7.5                              | 3.1                            | 3.3                           | 10                | 0.380                    | 235         |
| LSE 250 ME                        | 380           | 30                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 30                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 30                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 SC                        | 380           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 37                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
| LSE 280 MC                        | 380           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 400           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |
|                                   | 415           | 45                   |                            |              |               |                |             |                                  |                                |                               |                   |                          |             |

**Please consult Leroy-Somer**

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

|   | PAGES |
|---|-------|
| 2 poles - 3000 min <sup>-1</sup> - EEx e II T3 .....      | 22    |
| 2 poles - 3000 min <sup>-1</sup> - EEx e II T3 VIK* ..... | 23    |
| 4 poles - 1500 min <sup>-1</sup> - EEx e II T3 .....      | 24    |
| 4 poles - 1500 min <sup>-1</sup> - EEx e II T3 VIK* ..... | 25    |
| 6 poles - 1000 min <sup>-1</sup> - EEx e II T3 .....      | 26    |
| 6 poles - 1000 min <sup>-1</sup> - EEx e II T3 VIK* ..... | 27    |
| 2 poles - 3000 min <sup>-1</sup> - EEx e II T4 .....      | 28    |
| 4 poles - 1500 min <sup>-1</sup> - EEx e II T4 .....      | 29    |
| 6 poles - 1000 min <sup>-1</sup> - EEx e II T4 .....      | 30    |

\* VIK: extension of EN 50019 requirements to particular specifications intended for German manufacturing companies:

- ranges with special power ratings according to frame size (DIN 42673)
- increased duration  $t_E$  ( $\geq 7$  sec)
- 2<sup>nd</sup> nameplate in the terminal box
- ISO M25 cable gland from frame size 80 mm upwards
- oil-resistant seals
- terminal blocks not split from frame size 160 mm upwards

Other polarities (1 or 2-speed): please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**2**  
poles  
3000 min<sup>-1</sup>

**EEx e IIT3**

**MAINS SUPPLY 380 / 400 / 415 V**

**50 Hz**

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 80 L   | 380           | 0.75                 | 2860                       | 2.5          | 1.7           | 0.86           | 79.2        | 6.8                              | 2.7                            | 2.8                           | 8.3               | 0.0007                   | 15          |
|             | 400           | 0.75                 | 2872                       | 2.5          | 1.6           | 0.84           | 79.4        | 7.1                              | 2.9                            | 3                             | 7.6               | 0.0007                   | 15          |
|             | 415           | 0.75                 | 2890                       | 2.5          | 1.6           | 0.81           | 79.5        | 7.4                              | 3.1                            | 3.2                           | 7                 | 0.0007                   | 15          |
| FLSE 80 L   | 380           | 1.1                  | 2860                       | 3.75         | 2.4           | 0.89           | 78          | 7.1                              | 2.9                            | 2.8                           | 12.6              | 0.0009                   | 18          |
|             | 400           | 1.1                  | 2870                       | 3.75         | 2.3           | 0.86           | 78.5        | 7.5                              | 3.2                            | 3.1                           | 11.1              | 0.0009                   | 18          |
|             | 415           | 1.1                  | 2885                       | 3.75         | 2.3           | 0.84           | 78.7        | 7.9                              | 3.4                            | 3.3                           | 10                | 0.0009                   | 18          |
| FLSE 90 S   | 380           | 1.5                  | 2845                       | 5            | 3.1           | 0.90           | 82.3        | 7                                | 2.8                            | 2.8                           | 11.6              | 0.00175                  | 23.5        |
|             | 400           | 1.5                  | 2860                       | 5            | 2.9           | 0.88           | 83.6        | 7.5                              | 3.1                            | 3.1                           | 10.2              | 0.00175                  | 23.5        |
|             | 415           | 1.5                  | 2880                       | 5            | 2.9           | 0.87           | 83.5        | 8.2                              | 3.5                            | 3.5                           | 8.5               | 0.00175                  | 23.5        |
| FLSE 90 L   | 380           | 2.2                  | 2869                       | 7.5          | 4.4           | 0.89           | 85.5        | 6.2                              | 2.1                            | 2.7                           | 11                | 0.0023                   | 27.7        |
|             | 400           | 2.2                  | 2884                       | 7.5          | 4.2           | 0.87           | 85.7        | 6.7                              | 2.4                            | 3.1                           | 9.4               | 0.0023                   | 27.7        |
|             | 415           | 2.2                  | 2895                       | 7.5          | 4.1           | 0.87           | 85.8        | 7.5                              | 2.6                            | 3.3                           | 7.5               | 0.0023                   | 27.7        |
| FLSE 100 LK | 380           | 3                    | 2887                       | 10.1         | 5.8           | 0.92           | 85.7        | 5.5                              | 1.6                            | 2.3                           | 13.3              | 0.0069                   | 42          |
|             | 400           | 3                    | 2900                       | 10.1         | 5.5           | 0.91           | 86.2        | 6.1                              | 1.8                            | 2.5                           | 10.8              | 0.0069                   | 42          |
|             | 415           | 3                    | 2910                       | 10.1         | 5.3           | 0.91           | 86.4        | 6.7                              | 2                              | 2.8                           | 9                 | 0.0069                   | 42          |
| FLSE 112 MU | 380           | 4                    | 2920                       | 13.5         | 7.4           | 0.92           | 88.5        | 6.9                              | 1.8                            | 2.7                           | 9.9               | 0.0099                   | 54          |
|             | 400           | 4                    | 2928                       | 13.5         | 7.1           | 0.92           | 88.6        | 7.5                              | 2                              | 3                             | 8.4               | 0.0099                   | 54          |
|             | 415           | 4                    | 2935                       | 13.5         | 6.9           | 0.91           | 88.6        | 8.2                              | 2.2                            | 3.2                           | 7                 | 0.0099                   | 54          |
| FLSE 132 SM | 380           | 5.5                  | 2916                       | 18.6         | 10.2          | 0.92           | 89.4        | 5.9                              | 1.5                            | 2.4                           | 10.4              | 0.0263                   | 71          |
|             | 400           | 5.5                  | 2926                       | 18.6         | 9.7           | 0.91           | 89.8        | 6.5                              | 1.7                            | 2.6                           | 8.6               | 0.0263                   | 71          |
|             | 415           | 5.5                  | 2933                       | 18.6         | 9.4           | 0.90           | 89.9        | 7.2                              | 1.8                            | 2.8                           | 7                 | 0.0263                   | 71          |
| FLSE 132 SM | 380           | 7.5                  | 2921                       | 25.4         | 13.6          | 0.92           | 90.2        | 6.3                              | 1.6                            | 2.4                           | 10.2              | 0.031                    | 75          |
|             | 400           | 7.5                  | 2929                       | 25.4         | 13.1          | 0.92           | 90.4        | 6.9                              | 1.7                            | 2.6                           | 8.5               | 0.031                    | 75          |
|             | 415           | 7.5                  | 2936                       | 25.4         | 12.6          | 0.91           | 90.6        | 7.6                              | 1.9                            | 2.9                           | 7                 | 0.031                    | 75          |

For higher power ratings, please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**2**  
poles  
3000 min<sup>-1</sup>

**EEx e IIT3 VIK**

**MAINS SUPPLY 380 / 400 / 420 V**

**50 Hz**

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 80 L   | 380           | 1.1                  | 2860                       | 3.75         | 2.4           | 0.89           | 78          | 7.1                              | 2.9                            | 2.8                           | 12.6              | 0.0009                   | 19          |
|             | 400           | 1.1                  | 2875                       | 3.75         | 2.4           | 0.85           | 78.2        | 7.5                              | 3.2                            | 3.1                           | 11.4              | 0.0009                   | 19          |
|             | 420           | 1.1                  | 2890                       | 3.75         | 2.3           | 0.83           | 78.4        | 8                                | 3.7                            | 3.6                           | 10                | 0.0009                   | 19          |
| FLSE 90 S   | 380           | 1.5                  | 2845                       | 5            | 3.1           | 0.90           | 82.3        | 7                                | 2.8                            | 2.8                           | 12                | 0.00175                  | 23.5        |
|             | 400           | 1.5                  | 2865                       | 5            | 3             | 0.87           | 82.8        | 7.5                              | 3.1                            | 3.1                           | 10.4              | 0.00175                  | 23.5        |
|             | 420           | 1.5                  | 2886                       | 5            | 2.9           | 0.85           | 83.4        | 8.3                              | 3.6                            | 3.6                           | 8.5               | 0.00175                  | 23.5        |
| FLSE 90 L   | 380           | 1.85                 | 2881                       | 6.3          | 3.7           | 0.88           | 86.1        | 6.4                              | 2.2                            | 2.6                           | 9.3               | 0.0023                   | 27.7        |
|             | 400           | 1.85                 | 2890                       | 6.3          | 3.6           | 0.86           | 86.2        | 6.5                              | 2.4                            | 3                             | 9                 | 0.0023                   | 27.7        |
|             | 420           | 1.85                 | 2903                       | 6.3          | 3.5           | 0.85           | 86.2        | 6.7                              | 2.7                            | 3.5                           | 8.5               | 0.0023                   | 27.7        |
| FLSE 100 LK | 380           | 2.5                  | 2896                       | 8.5          | 4.8           | 0.91           | 86.1        | 5.8                              | 1.7                            | 2.4                           | 11.1              | 0.0069                   | 42          |
|             | 400           | 2.5                  | 2905                       | 8.5          | 4.6           | 0.90           | 86.5        | 6.2                              | 1.9                            | 2.7                           | 9.7               | 0.0069                   | 42          |
|             | 420           | 2.5                  | 2920                       | 8.5          | 4.4           | 0.90           | 86.7        | 7.3                              | 2.1                            | 3                             | 7                 | 0.0069                   | 42          |
| FLSE 112 M  | 380           | 3.3                  | 2915                       | 11.2         | 6.5           | 0.95           | 82.1        | 8.9                              | 2.9                            | 3.8                           | 11.4              | 0.0084                   | 48          |
|             | 400           | 3.3                  | 2925                       | 11.2         | 6.2           | 0.93           | 82.5        | 9.3                              | 3.2                            | 4.1                           | 10.4              | 0.0084                   | 48          |
|             | 420           | 3.3                  | 2935                       | 11.2         | 6             | 0.91           | 82.7        | 10                               | 3.5                            | 4.6                           | 9                 | 0.0084                   | 48          |
| FLSE 132 SM | 380           | 4.6                  | 2925                       | 15.6         | 8.5           | 0.91           | 89.8        | 6.2                              | 1.6                            | 2.4                           | 11.7              | 0.0263                   | 71          |
|             | 400           | 4.6                  | 2932                       | 15.6         | 8.2           | 0.90           | 90          | 6.8                              | 1.7                            | 2.6                           | 9.7               | 0.0263                   | 71          |
|             | 420           | 4.6                  | 2939                       | 15.6         | 7.9           | 0.90           | 90.2        | 7.5                              | 1.9                            | 2.9                           | 8                 | 0.0263                   | 71          |
| FLSE 132 SM | 380           | 5.5                  | 2929                       | 18.6         | 10.1          | 0.91           | 90.2        | 6.35                             | 1.5                            | 2.4                           | 13                | 0.031                    | 75          |
|             | 400           | 5.5                  | 2940                       | 18.6         | 9.9           | 0.89           | 90          | 7.2                              | 1.9                            | 3                             | 10.1              | 0.031                    | 75          |
|             | 420           | 5.5                  | 2957                       | 18.6         | 9.7           | 0.87           | 89.8        | 8.1                              | 2.4                            | 3.7                           | 8                 | 0.031                    | 75          |

For higher power ratings, please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**4 poles**  
1500 min<sup>-1</sup>

**EEx e IIT3**

MAINS SUPPLY 380 / 400 / 415 V

50 Hz

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 80 L   | 380           | 0.75                 | 1415                       | 5            | 2             | 0.76           | 74          | 5.32                             | 2                              | 2.1                           | 11.9              | 0.0024                   | 17          |
|             | 400           | 0.75                 | 1430                       | 5            | 2             | 0.72           | 74          | 5.6                              | 2.2                            | 2.3                           | 10.7              | 0.0024                   | 17          |
|             | 415           | 0.75                 | 1430                       | 5            | 2             | 0.70           | 74          | 5.8                              | 2.4                            | 2.6                           | 10                | 0.0024                   | 17          |
| FLSE 90 S   | 380           | 1.1                  | 1435                       | 7.5          | 2.5           | 0.84           | 80.7        | 4.7                              | 1.5                            | 1.8                           | 10                | 0.0032                   | 21          |
|             | 400           | 1.1                  | 1443                       | 7.5          | 2.4           | 0.83           | 81.5        | 5.2                              | 1.6                            | 2                             | 8.1               | 0.0032                   | 21          |
|             | 415           | 1.1                  | 1449                       | 7.5          | 2.3           | 0.81           | 81.7        | 5.6                              | 1.8                            | 2.2                           | 7                 | 0.0032                   | 21          |
| FLSE 90 L   | 380           | 1.5                  | 1445                       | 10           | 3.7           | 0.79           | 78          | 6.1                              | 1.7                            | 1.9                           | 8                 | 0.0037                   | 23          |
|             | 400           | 1.5                  | 1450                       | 10           | 3.7           | 0.75           | 78          | 6.4                              | 1.7                            | 2                             | 7.2               | 0.0037                   | 23          |
|             | 415           | 1.5                  | 1455                       | 10           | 3.8           | 0.72           | 77          | 6.5                              | 1.9                            | 2.2                           | 7                 | 0.0037                   | 23          |
| FLSE 100 LK | 380           | 2.2                  | 1455                       | 15           | 4.6           | 0.85           | 84.7        | 5.1                              | 1.4                            | 1.7                           | 11.8              | 0.0077                   | 41          |
|             | 400           | 2.2                  | 1460                       | 15           | 4.4           | 0.84           | 85.2        | 5.7                              | 1.5                            | 1.9                           | 9.5               | 0.0077                   | 41          |
|             | 415           | 2.2                  | 1464                       | 15           | 4.3           | 0.82           | 85.4        | 6.2                              | 1.7                            | 2.1                           | 8                 | 0.0077                   | 41          |
| FLSE 100 LK | 380           | 3                    | 1452                       | 20           | 6.2           | 0.86           | 85.4        | 5.1                              | 1.5                            | 1.7                           | 8.6               | 0.0107                   | 43.6        |
|             | 400           | 3                    | 1457                       | 20           | 5.9           | 0.85           | 86          | 5.7                              | 1.6                            | 1.9                           | 6.9               | 0.0107                   | 43.6        |
|             | 415           | 3                    | 1462                       | 20           | 5.7           | 0.84           | 86.5        | 6.1                              | 1.7                            | 2.1                           | 6                 | 0.0107                   | 43.6        |
| FLSE 112 MU | 380           | 4                    | 1453                       | 27.2         | 7.9           | 0.88           | 86.9        | 6                                | 1.8                            | 2                             | 11.8              | 0.0137                   | 51.5        |
|             | 400           | 4                    | 1458                       | 27.2         | 7.7           | 0.86           | 86.9        | 6.7                              | 2                              | 2.1                           | 9.5               | 0.0137                   | 51.5        |
|             | 415           | 4                    | 1466                       | 27.2         | 7.7           | 0.82           | 87.4        | 7.3                              | 2.2                            | 2.4                           | 8                 | 0.0137                   | 51.5        |
| FLSE 132 SM | 380           | 5.5                  | 1451                       | 37.4         | 10.5          | 0.91           | 87.9        | 6                                | 1.6                            | 2.2                           | 12.2              | 0.0154                   | 65          |
|             | 400           | 5.5                  | 1464                       | 37.4         | 10.3          | 0.87           | 88.4        | 6.5                              | 1.8                            | 2.5                           | 10.5              | 0.0154                   | 65          |
|             | 415           | 5.5                  | 1471                       | 37.4         | 10.7          | 0.81           | 87.7        | 7                                | 1.9                            | 2.7                           | 9                 | 0.0154                   | 65          |
| FLSE 132 M  | 380           | 7.5                  | 1455                       | 50           | 15            | 0.88           | 86          | 7.9                              | 1.7                            | 2.4                           | 7.6               | 0.0192                   | 70          |
|             | 400           | 7.5                  | 1457                       | 50           | 14.8          | 0.85           | 86          | 8.4                              | 1.9                            | 2.6                           | 6.7               | 0.0192                   | 70          |
|             | 415           | 7.5                  | 1460                       | 50           | 14.6          | 0.83           | 86          | 8.9                              | 2.1                            | 2.8                           | 6                 | 0.0192                   | 70          |

For higher power ratings, please consult Leroy-Somer.



# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**4 poles**  
1500 min<sup>-1</sup>

**EEx e IIT3 VIK**

**MAINS SUPPLY 380 / 400 / 420 V**

**50 Hz**

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 90 S   | 380           | 1                    | 1444                       | 6.8          | 2.3           | 0.83           | 81.6        | 5.2                              | 1.7                            | 2                             | 11.7              | 0.0032                   | 21          |
|             | 400           | 1                    | 1450                       | 6.8          | 2.2           | 0.81           | 81.8        | 5.9                              | 1.9                            | 2.3                           | 9.1               | 0.0032                   | 21          |
|             | 420           | 1                    | 1456                       | 6.8          | 2.2           | 0.78           | 81.9        | 6.3                              | 2.1                            | 2.5                           | 8                 | 0.0032                   | 21          |
| FLSE 90 L   | 380           | 1.35                 | 1444                       | 9.2          | 3             | 0.83           | 83.5        | 6.3                              | 1.9                            | 2.2                           | 10.5              | 0.0037                   | 23          |
|             | 400           | 1.35                 | 1450                       | 9.2          | 2.9           | 0.81           | 83.5        | 6.5                              | 2.2                            | 2.4                           | 9.9               | 0.0037                   | 23          |
|             | 420           | 1.35                 | 1456                       | 9.2          | 2.9           | 0.78           | 83.5        | 6.8                              | 2.4                            | 2.7                           | 9                 | 0.0037                   | 23          |
| FLSE 100 LK | 380           | 1.85                 | 1460                       | 12.6         | 3.9           | 0.84           | 85.3        | 5.6                              | 1.5                            | 1.9                           | 8.8               | 0.0077                   | 41          |
|             | 400           | 1.85                 | 1465                       | 12.6         | 3.8           | 0.83           | 85.5        | 6.1                              | 1.7                            | 2.1                           | 7.5               | 0.0077                   | 41          |
|             | 420           | 1.85                 | 1470                       | 12.6         | 3.7           | 0.81           | 85.8        | 6.8                              | 1.8                            | 2.3                           | 6                 | 0.0077                   | 41          |
| FLSE 100 LK | 380           | 2.5                  | 1464                       | 16.9         | 5.2           | 0.84           | 86.7        | 6.3                              | 1.7                            | 2.1                           | 11.9              | 0.0107                   | 43.6        |
|             | 400           | 2.5                  | 1467                       | 16.9         | 5.1           | 0.82           | 86.8        | 7                                | 1.9                            | 2.4                           | 9.7               | 0.0107                   | 43.6        |
|             | 420           | 2.5                  | 1471                       | 16.9         | 4.9           | 0.80           | 86.8        | 7.7                              | 2.2                            | 2.6                           | 8                 | 0.0107                   | 43.6        |
| FLSE 112 MU | 380           | 3.6                  | 1450                       | 24.4         | 7.3           | 0.87           | 86.3        | 6.6                              | 1.9                            | 2.7                           | 13.6              | 0.0137                   | 51.5        |
|             | 400           | 3.6                  | 1455                       | 24.4         | 7.1           | 0.85           | 86.4        | 7.1                              | 2                              | 2.8                           | 11.8              | 0.0137                   | 51.5        |
|             | 420           | 3.6                  | 1460                       | 24.4         | 7             | 0.82           | 86.5        | 7.7                              | 2.1                            | 3                             | 10                | 0.0137                   | 51.5        |
| FLSE 132 SM | 380           | 5                    | 1450                       | 33.9         | 10            | 0.89           | 85.4        | 8                                | 2.3                            | 2.8                           | 13.2              | 0.0154                   | 65          |
|             | 400           | 5                    | 1457                       | 33.9         | 9.7           | 0.87           | 85.5        | 8.6                              | 2.5                            | 3.1                           | 11.4              | 0.0154                   | 65          |
|             | 420           | 5                    | 1462                       | 33.9         | 9.4           | 0.85           | 85.6        | 9.2                              | 2.8                            | 3.4                           | 10                | 0.0154                   | 65          |
| FLSE 132 M  | 380           | 6.8                  | 1445                       | 46.2         | 13.5          | 0.90           | 84.8        | 7.3                              | 2.8                            | 2.6                           | 12.2              | 0.0192                   | 70          |
|             | 400           | 6.8                  | 1455                       | 46.2         | 13.1          | 0.88           | 84.9        | 7.8                              | 3.1                            | 2.8                           | 10.7              | 0.0192                   | 70          |
|             | 420           | 6.8                  | 1460                       | 46.2         | 12.6          | 0.87           | 85          | 8.5                              | 3.4                            | 3                             | 9                 | 0.0192                   | 70          |

For higher power ratings, please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**6**  
poles  
1000 min<sup>-1</sup>

**EEx e IIT3**

MAINS SUPPLY 380 / 400 / 415 V

50 Hz

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 80 L   | 380           | 0.37                 | 941                        | 3.7          | 1.2           | 0.70           | 65.2        | 3.3                              | 1.4                            | 1.7                           | 14                | 0.0032                   | 15          |
|             | 400           | 0.37                 | 948                        | 3.7          | 1.2           | 0.68           | 65.3        | 3.7                              | 1.6                            | 2                             | 11.1              | 0.0032                   | 15          |
|             | 415           | 0.37                 | 955                        | 3.7          | 1.2           | 0.65           | 65.1        | 3.9                              | 1.8                            | 2.2                           | 10                | 0.0032                   | 15          |
| FLSE 80 L   | 380           | 0.55                 | 950                        | 5.5          | 1.8           | 0.68           | 69.9        | 4.1                              | 1.9                            | 2.2                           | 10                | 0.0042                   | 16          |
|             | 400           | 0.55                 | 955                        | 5.5          | 1.8           | 0.64           | 68.6        | 4.5                              | 2.1                            | 2.4                           | 8.4               | 0.0042                   | 16          |
|             | 415           | 0.55                 | 959                        | 5.5          | 1.9           | 0.60           | 66.3        | 4.6                              | 2.4                            | 2.7                           | 8                 | 0.0042                   | 16          |
| FLSE 90 S   | 380           | 0.75                 | 928                        | 7.5          | 2.1           | 0.71           | 75.4        | 4.3                              | 2.4                            | 2.4                           | 11.9              | 0.0039                   | 19          |
|             | 400           | 0.75                 | 935                        | 7.5          | 2.2           | 0.67           | 75          | 4.6                              | 2.6                            | 2.6                           | 10.5              | 0.0039                   | 19          |
|             | 415           | 0.75                 | 942                        | 7.5          | 2.2           | 0.63           | 74.3        | 4.7                              | 2.9                            | 2.9                           | 10                | 0.0039                   | 19          |
| FLSE 90 L   | 380           | 1.1                  | 907                        | 11           | 3             | 0.76           | 74.7        | 3.9                              | 2.1                            | 2.1                           | 11.5              | 0.0048                   | 21          |
|             | 400           | 1.1                  | 918                        | 11           | 3             | 0.72           | 75.2        | 4.1                              | 2.2                            | 2.2                           | 10.4              | 0.0048                   | 21          |
|             | 415           | 1.1                  | 926                        | 11           | 3             | 0.68           | 74.8        | 4.4                              | 2.5                            | 2.5                           | 9                 | 0.0048                   | 21          |
| FLSE 100 LK | 380           | 1.5                  | 939                        | 15           | 3.9           | 0.73           | 79.7        | 4.3                              | 2                              | 2                             | 8.8               | 0.0136                   | 41          |
|             | 400           | 1.5                  | 947                        | 15           | 3.8           | 0.71           | 80.4        | 4.8                              | 2.2                            | 2.2                           | 7                 | 0.0136                   | 41          |
|             | 415           | 1.5                  | 953                        | 15           | 3.7           | 0.69           | 80.7        | 5.2                              | 2.4                            | 2.4                           | 6                 | 0.0136                   | 41          |
| FLSE 112 M  | 380           | 2.2                  | 928                        | 22           | 5.6           | 0.75           | 78.8        | 4.2                              | 1.9                            | 1.8                           | 8                 | 0.0152                   | 45          |
|             | 400           | 2.2                  | 938                        | 22           | 5.4           | 0.74           | 80.1        | 4.3                              | 2                              | 2                             | 7.5               | 0.0152                   | 45          |
|             | 415           | 2.2                  | 945                        | 22           | 5.3           | 0.72           | 80.6        | 4.8                              | 2.2                            | 2.2                           | 6                 | 0.0152                   | 45          |
| FLSE 132 SM | 380           | 3                    | 958                        | 30           | 7.2           | 0.75           | 84.2        | 3.8                              | 1.1                            | 1.5                           | 8.8               | 0.026                    | 72          |
|             | 400           | 3                    | 963                        | 30           | 7             | 0.74           | 84.6        | 4.3                              | 1.2                            | 1.6                           | 7                 | 0.026                    | 72          |
|             | 415           | 3                    | 967                        | 30           | 6.9           | 0.72           | 84.7        | 4.6                              | 1.3                            | 1.7                           | 6                 | 0.026                    | 72          |
| FLSE 132 M  | 380           | 4                    | 962                        | 40           | 9.5           | 0.75           | 85.5        | 4.2                              | 1.2                            | 1.5                           | 8.5               | 0.034                    | 76          |
|             | 400           | 4                    | 966                        | 40           | 9.1           | 0.74           | 85.9        | 4.6                              | 1.3                            | 1.6                           | 7.1               | 0.034                    | 76          |
|             | 415           | 4                    | 970                        | 40           | 9             | 0.72           | 85.8        | 5                                | 1.5                            | 1.8                           | 6                 | 0.034                    | 76          |
| FLSE 132 MU | 380           | 5.5                  | 958                        | 55           | 12.8          | 0.76           | 86          | 4.2                              | 1.3                            | 1.5                           | 8.9               | 0.043                    | 88          |
|             | 400           | 5.5                  | 963                        | 55           | 12.3          | 0.75           | 86.4        | 4.7                              | 1.4                            | 1.6                           | 7.1               | 0.043                    | 88          |
|             | 415           | 5.5                  | 968                        | 55           | 12            | 0.73           | 86.5        | 5.1                              | 1.6                            | 1.8                           | 6                 | 0.043                    | 88          |

For higher power ratings, please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**6**  
poles  
1000 min<sup>-1</sup>

**EEx e IIT3 VIK**

**MAINS SUPPLY 380 / 400 / 420 V**

**50 Hz**

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 90 S   | 380           | 0.65                 | 931                        | 6.5          | 1.8           | 0.72           | 75.6        | 4.6                              | 2.3                            | 2.4                           | 10.2              | 0.0039                   | 19          |
|             | 400           | 0.65                 | 938                        | 6.5          | 1.8           | 0.68           | 75.1        | 4.8                              | 2.6                            | 2.7                           | 9.4               | 0.0039                   | 19          |
|             | 420           | 0.65                 | 945                        | 6.5          | 1.9           | 0.63           | 74.6        | 4.9                              | 2.9                            | 3                             | 9                 | 0.0039                   | 19          |
| FLSE 90 L   | 380           | 0.95                 | 909                        | 9.5          | 2.5           | 0.77           | 75.1        | 4                                | 2.2                            | 2.2                           | 10.9              | 0.0048                   | 21          |
|             | 400           | 0.95                 | 917                        | 9.5          | 2.5           | 0.73           | 75.4        | 4.2                              | 2.3                            | 2.3                           | 9.9               | 0.0048                   | 21          |
|             | 420           | 0.95                 | 931                        | 9.5          | 2.5           | 0.69           | 75.8        | 4.4                              | 2.5                            | 2.5                           | 9                 | 0.0048                   | 21          |
| FLSE 100 LK | 380           | 1.3                  | 941                        | 13           | 3.4           | 0.72           | 79.3        | 4.3                              | 1.9                            | 1.9                           | 10.2              | 0.0136                   | 41          |
|             | 400           | 1.3                  | 948                        | 13           | 3.3           | 0.71           | 79.8        | 4.7                              | 2.2                            | 2.2                           | 8.6               | 0.0136                   | 41          |
|             | 420           | 1.3                  | 956                        | 13           | 3.3           | 0.68           | 80.4        | 5.2                              | 2.5                            | 2.5                           | 7                 | 0.0136                   | 41          |
| FLSE 112 M  | 380           | 1.9                  | 929                        | 19           | 4.9           | 0.75           | 78.7        | 3.8                              | 1.6                            | 1.6                           | 11.6              | 0.0152                   | 45          |
|             | 400           | 1.9                  | 940                        | 19           | 4.7           | 0.73           | 79.7        | 4.2                              | 1.9                            | 1.9                           | 9.5               | 0.0152                   | 45          |
|             | 420           | 1.9                  | 948                        | 19           | 4.5           | 0.71           | 80.7        | 4.9                              | 2.2                            | 2.2                           | 7                 | 0.0152                   | 45          |
| FLSE 132 SM | 380           | 2.6                  | 959                        | 26           | 6.2           | 0.75           | 84.5        | 3.7                              | 1.1                            | 1.4                           | 11.3              | 0.026                    | 72          |
|             | 400           | 2.6                  | 964                        | 26           | 6             | 0.74           | 84.7        | 4.2                              | 1.2                            | 1.6                           | 8.8               | 0.026                    | 72          |
|             | 420           | 2.6                  | 969                        | 26           | 5.8           | 0.72           | 85.1        | 4.7                              | 1.3                            | 1.7                           | 7                 | 0.026                    | 72          |
| FLSE 132 M  | 380           | 3.5                  | 962                        | 35           | 8.3           | 0.75           | 85.3        | 4.1                              | 1.2                            | 1.5                           | 10.4              | 0.034                    | 76          |
|             | 400           | 3.5                  | 967                        | 35           | 8             | 0.74           | 85.5        | 4.5                              | 1.3                            | 1.7                           | 8.6               | 0.034                    | 76          |
|             | 420           | 3.5                  | 971                        | 35           | 7.8           | 0.72           | 85.8        | 5                                | 1.4                            | 1.8                           | 7                 | 0.034                    | 76          |
| FLSE 132 MU | 380           | 4.8                  | 963                        | 48           | 11.2          | 0.75           | 86.6        | 4.5                              | 1.4                            | 1.6                           | 12                | 0.043                    | 88          |
|             | 400           | 4.8                  | 967                        | 48           | 10.8          | 0.74           | 86.8        | 5                                | 1.5                            | 1.7                           | 9.7               | 0.043                    | 88          |
|             | 420           | 4.8                  | 971                        | 48           | 10.6          | 0.72           | 86.8        | 5.5                              | 1.7                            | 2                             | 8                 | 0.043                    | 88          |

For higher power ratings, please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**2**  
poles  
3000 min<sup>-1</sup>

**EEx e IIT4**

**MAINS SUPPLY 380 / 400 / 415 V**

**50 Hz**

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 80 L   | 380           | 0.75                 | 2868                       | 2.5          | 1.6           | 0.86           | 83.2        | 5.9                              | 2.2                            | 2.5                           | 8.5               | 0.0009                   | 18          |
|             | 400           | 0.75                 | 2879                       | 2.5          | 1.5           | 0.84           | 83.2        | 6.4                              | 2.5                            | 3                             | 7.2               | 0.0009                   | 18          |
|             | 415           | 0.75                 | 2894                       | 2.5          | 1.5           | 0.83           | 82.9        | 7                                | 2.7                            | 3.3                           | 6                 | 0.0009                   | 18          |
| FLSE 90 L   | 380           | 1.1                  | 2845                       | 3.7          | 2.2           | 0.91           | 83.1        | 5.2                              | 1.9                            | 2.4                           | 9.1               | 0.0021                   | 25.5        |
|             | 400           | 1.1                  | 2865                       | 3.7          | 2.1           | 0.91           | 83.9        | 5.8                              | 2.1                            | 2.7                           | 7.3               | 0.0021                   | 25.5        |
|             | 415           | 1.1                  | 2880                       | 3.7          | 2             | 0.90           | 84.2        | 6.4                              | 2.3                            | 2.9                           | 6                 | 0.0021                   | 25.5        |
| FLSE 90 LU  | 380           | 1.5                  | 2850                       | 5            | 3.1           | 0.89           | 83.8        | 5.3                              | 1.9                            | 2.4                           | 9                 | 0.0024                   | 28.3        |
|             | 400           | 1.5                  | 2867                       | 5            | 2.9           | 0.88           | 84.4        | 5.9                              | 2.2                            | 2.7                           | 7.3               | 0.0024                   | 28.3        |
|             | 415           | 1.5                  | 2882                       | 5            | 2.8           | 0.88           | 84.9        | 6.5                              | 2.4                            | 3                             | 6                 | 0.0024                   | 28.3        |
| FLSE 100 LK | 380           | 2.2                  | 2909                       | 7.5          | 4.2           | 0.92           | 86.9        | 7.1                              | 2.3                            | 2.9                           | 8.6               | 0.0069                   | 42          |
|             | 400           | 2.2                  | 2919                       | 7.5          | 4             | 0.91           | 87.2        | 7.8                              | 2.5                            | 3.2                           | 7.1               | 0.0069                   | 42          |
|             | 415           | 2.2                  | 2926                       | 7.5          | 3.9           | 0.90           | 87.4        | 8.5                              | 2.8                            | 3.5                           | 6                 | 0.0069                   | 42          |
| FLSE 112 MU | 380           | 3                    | 2914                       | 10.1         | 5.5           | 0.95           | 86.5        | 7.7                              | 2.5                            | 3.1                           | 8.4               | 0.0099                   | 54          |
|             | 400           | 3                    | 2924                       | 10.1         | 5.3           | 0.94           | 86.7        | 8.5                              | 2.7                            | 3.4                           | 6.9               | 0.0099                   | 54          |
|             | 415           | 3                    | 2930                       | 10.1         | 5.2           | 0.93           | 86.9        | 9.1                              | 3                              | 3.7                           | 6                 | 0.0099                   | 54          |
| FLSE 132 SM | 380           | 4                    | 2938                       | 13.5         | 7.8           | 0.88           | 88.4        | 7.4                              | 1.9                            | 2.9                           | 8.3               | 0.0263                   | 71          |
|             | 400           | 4                    | 2944                       | 13.5         | 7.5           | 0.87           | 88.4        | 8.1                              | 2.1                            | 3.2                           | 7                 | 0.0263                   | 71          |
|             | 415           | 4                    | 2949                       | 13.5         | 7.3           | 0.86           | 88.3        | 8.7                              | 2.3                            | 3.5                           | 6                 | 0.0263                   | 71          |
| FLSE 132 SM | 380           | 5.5                  | 2947                       | 18.6         | 10            | 0.93           | 89.4        | 6.4                              | 1.6                            | 2.5                           | 8.7               | 0.031                    | 75          |
|             | 400           | 5.5                  | 2953                       | 18.6         | 9.7           | 0.92           | 89.5        | 7                                | 1.7                            | 2.7                           | 7.3               | 0.031                    | 75          |
|             | 415           | 5.5                  | 2958                       | 18.6         | 9.4           | 0.91           | 89.7        | 7.7                              | 1.9                            | 2.9                           | 6                 | 0.031                    | 75          |
| FLSE 132 MU | 380           | 7.5                  | 2924                       | 25.4         | 13.6          | 0.94           | 89.4        | 5.3                              | 1.3                            | 2                             | 9                 | 0.038                    | 81          |
|             | 400           | 7.5                  | 2933                       | 25.4         | 12.9          | 0.94           | 89.9        | 5.9                              | 1.4                            | 2.2                           | 7.3               | 0.038                    | 81          |
|             | 415           | 7.5                  | 2943                       | 25.4         | 12.4          | 0.93           | 90.4        | 6.5                              | 1.6                            | 2.4                           | 6                 | 0.038                    | 81          |

For higher power ratings, please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**4 poles**  
1500 min<sup>-1</sup>

**EEx e IIT4**

**MAINS SUPPLY 380 / 400 / 415 V**

**50 Hz**

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 80 L   | 380           | 0.55                 | 1410                       | 3.75         | 1.4           | 0.78           | 74          | 4.9                              | 1.7                            | 1.7                           | 7.3               | 0.0024                   | 17          |
|             | 400           | 0.55                 | 1425                       | 3.75         | 1.4           | 0.76           | 75          | 5.1                              | 1.9                            | 2                             | 6.7               | 0.0024                   | 17          |
|             | 415           | 0.55                 | 1430                       | 3.75         | 1.4           | 0.73           | 75          | 5.4                              | 2.1                            | 2.3                           | 6                 | 0.0024                   | 17          |
| FLSE 90 S   | 380           | 0.75                 | 1445                       | 5            | 1.8           | 0.79           | 81          | 5.2                              | 1.7                            | 2.1                           | 8                 | 0.0032                   | 21          |
|             | 400           | 0.75                 | 1451                       | 5            | 1.7           | 0.77           | 81.4        | 5.6                              | 1.9                            | 2.4                           | 6.9               | 0.0032                   | 21          |
|             | 415           | 0.75                 | 1455                       | 5            | 1.7           | 0.74           | 81.4        | 6                                | 2.1                            | 2.6                           | 6                 | 0.0032                   | 21          |
| FLSE 90 L   | 380           | 1.1                  | 1440                       | 7.5          | 2.6           | 0.80           | 81.7        | 5                                | 1.7                            | 2.1                           | 8.3               | 0.0037                   | 23          |
|             | 400           | 1.1                  | 1447                       | 7.5          | 2.5           | 0.78           | 82.1        | 5.5                              | 1.8                            | 2.3                           | 6.9               | 0.0037                   | 23          |
|             | 415           | 1.1                  | 1452                       | 7.5          | 2.5           | 0.76           | 82.2        | 5.9                              | 2                              | 2.5                           | 6                 | 0.0037                   | 23          |
| FLSE 100 LK | 380           | 1.5                  | 1462                       | 10           | 3.2           | 0.84           | 85.3        | 5.6                              | 1.5                            | 1.9                           | 8.6               | 0.0077                   | 41          |
|             | 400           | 1.5                  | 1466                       | 10           | 3.1           | 0.82           | 85.5        | 6.1                              | 1.6                            | 2.1                           | 7.2               | 0.0077                   | 41          |
|             | 415           | 1.5                  | 1470                       | 10           | 3             | 0.81           | 85.8        | 6.7                              | 1.8                            | 2.3                           | 6                 | 0.0077                   | 41          |
| FLSE 100 LK | 380           | 2.2                  | 1461                       | 15           | 4.5           | 0.85           | 86.9        | 6                                | 1.7                            | 2                             | 8.6               | 0.0107                   | 43.6        |
|             | 400           | 2.2                  | 1466                       | 15           | 4.4           | 0.84           | 87.3        | 6.6                              | 1.8                            | 2.2                           | 7.1               | 0.0107                   | 43.6        |
|             | 415           | 2.2                  | 1469                       | 15           | 4.3           | 0.82           | 87.4        | 7.2                              | 2                              | 2.4                           | 6                 | 0.0107                   | 43.6        |
| FLSE 112 MU | 380           | 3                    | 1459                       | 20           | 6.1           | 0.86           | 87.4        | 6.1                              | 1.8                            | 2                             | 8.6               | 0.0137                   | 51.5        |
|             | 400           | 3                    | 1464                       | 20           | 5.9           | 0.85           | 87.8        | 6.7                              | 2                              | 2.2                           | 7.1               | 0.0137                   | 51.5        |
|             | 415           | 3                    | 1467                       | 20           | 5.7           | 0.83           | 87.9        | 7.3                              | 2.1                            | 2.4                           | 6                 | 0.0137                   | 51.5        |
| FLSE 132 SM | 380           | 4                    | 1460                       | 27.5         | 7.6           | 0.91           | 88          | 8                                | 1.7                            | 2.3                           | 9.5               | 0.0154                   | 65          |
|             | 400           | 4                    | 1465                       | 27.5         | 7.4           | 0.89           | 88          | 8.6                              | 1.8                            | 2.6                           | 8.2               | 0.0154                   | 65          |
|             | 415           | 4                    | 1470                       | 27.5         | 7.2           | 0.88           | 88          | 9.3                              | 2                              | 2.8                           | 7                 | 0.0154                   | 65          |
| FLSE 132 SM | 380           | 5.5                  | 1462                       | 37.5         | 10.7          | 0.88           | 89          | 6.7                              | 1.8                            | 2.4                           | 8.1               | 0.0192                   | 70          |
|             | 400           | 5.5                  | 1466                       | 37.5         | 10.4          | 0.87           | 89.1        | 7.3                              | 2                              | 2.7                           | 6.9               | 0.0192                   | 70          |
|             | 415           | 5.5                  | 1469                       | 37.5         | 10.2          | 0.85           | 89          | 7.8                              | 2.2                            | 2.9                           | 6                 | 0.0192                   | 70          |
| FLSE 132 MU | 380           | 7.5                  | 1456                       | 50           | 14.4          | 0.89           | 88.8        | 5.7                              | 1.5                            | 2.1                           | 8.8               | 0.0256                   | 82          |
|             | 400           | 7.5                  | 1461                       | 50           | 13.8          | 0.88           | 89.2        | 6.3                              | 1.6                            | 2.3                           | 7.2               | 0.0256                   | 82          |
|             | 415           | 7.5                  | 1465                       | 50           | 13.4          | 0.87           | 89.3        | 6.9                              | 1.8                            | 2.5                           | 6                 | 0.0256                   | 82          |

For higher power ratings, please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety

## Electrical characteristics



### C2 - Selection data: FLSE cast iron motors

**6**  
poles  
1000 min<sup>-1</sup>

**EEx e IIT4**

MAINS SUPPLY 380 / 400 / 415 V

50 Hz

| Type        | Rated voltage | Rated power at 50 Hz | Rated speed                | Rated torque | Rated current | Power factor   | Efficiency  | Starting current / Rated current | Starting torque / Rated torque | Maximum torque / Rated torque | Locked rotor time | Moment of inertia        | Weight      |
|-------------|---------------|----------------------|----------------------------|--------------|---------------|----------------|-------------|----------------------------------|--------------------------------|-------------------------------|-------------------|--------------------------|-------------|
|             | $U_N$<br>V    | $P_N$<br>kW          | $N_N$<br>min <sup>-1</sup> | $M_N$<br>N.m | $I_N$<br>A    | $\cos \varphi$ | $\eta$<br>% | $I_D/I_N$                        | $M_D/M_N$                      | $M_M/M_N$                     | $t_E$<br>s        | $J$<br>kg.m <sup>2</sup> | IM B3<br>kg |
| FLSE 80 L   | 380           | 0.25                 | 947                        | 2.5          | 0.9           | 0.67           | 66.2        | 3.5                              | 1.5                            | 1.8                           | 11.7              | 0.0032                   | 15          |
|             | 400           | 0.25                 | 953                        | 2.5          | 0.9           | 0.64           | 66.3        | 3.8                              | 1.7                            | 2.1                           | 10                | 0.0032                   | 15          |
|             | 415           | 0.25                 | 958                        | 2.5          | 0.9           | 0.62           | 65.9        | 4                                | 1.9                            | 2.3                           | 9                 | 0.0032                   | 15          |
| FLSE 80 L   | 380           | 0.37                 | 954                        | 3.7          | 1.3           | 0.64           | 68.8        | 4.1                              | 1.9                            | 2.2                           | 10                | 0.0042                   | 16          |
|             | 400           | 0.37                 | 960                        | 3.7          | 1.3           | 0.61           | 68.3        | 4.3                              | 2.1                            | 2.5                           | 9                 | 0.0042                   | 16          |
|             | 415           | 0.37                 | 963                        | 3.7          | 1.3           | 0.59           | 67.6        | 4.6                              | 2.3                            | 2.7                           | 8                 | 0.0042                   | 16          |
| FLSE 90 S   | 380           | 0.55                 | 940                        | 5.5          | 1.6           | 0.68           | 76.5        | 4.8                              | 2.7                            | 2.7                           | 10.6              | 0.0039                   | 19          |
|             | 400           | 0.55                 | 947                        | 5.5          | 1.6           | 0.65           | 76.2        | 5                                | 3                              | 3                             | 9.8               | 0.0039                   | 19          |
|             | 415           | 0.55                 | 952                        | 5.5          | 1.7           | 0.61           | 75.5        | 5.2                              | 3.3                            | 3.3                           | 9                 | 0.0039                   | 19          |
| FLSE 90 L   | 380           | 0.75                 | 918                        | 7.5          | 2             | 0.76           | 76.2        | 3.8                              | 2                              | 2                             | 11.7              | 0.0048                   | 21          |
|             | 400           | 0.75                 | 927                        | 7.5          | 1.9           | 0.73           | 76.7        | 4.3                              | 2.3                            | 2.3                           | 9.2               | 0.0048                   | 21          |
|             | 415           | 0.75                 | 935                        | 7.5          | 1.9           | 0.70           | 76.9        | 4.6                              | 2.5                            | 2.6                           | 8                 | 0.0048                   | 21          |
| FLSE 100 LK | 380           | 1.1                  | 941                        | 11           | 2.9           | 0.72           | 79.3        | 4.2                              | 1.9                            | 1.9                           | 8.5               | 0.0136                   | 41          |
|             | 400           | 1.1                  | 948                        | 11           | 2.8           | 0.70           | 80          | 4.6                              | 2.1                            | 2.1                           | 7.1               | 0.0136                   | 41          |
|             | 415           | 1.1                  | 954                        | 11           | 2.8           | 0.68           | 80.5        | 5                                | 2.4                            | 2.4                           | 6                 | 0.0136                   | 41          |
| FLSE 112 M  | 380           | 1.5                  | 934                        | 15           | 3.9           | 0.74           | 79.3        | 3.8                              | 1.7                            | 1.7                           | 9.6               | 0.0152                   | 45          |
|             | 400           | 1.5                  | 943                        | 15           | 3.8           | 0.72           | 80.2        | 4.4                              | 1.9                            | 1.9                           | 7.1               | 0.0152                   | 45          |
|             | 415           | 1.5                  | 949                        | 15           | 3.7           | 0.70           | 80.7        | 4.8                              | 2.2                            | 2.2                           | 6                 | 0.0152                   | 45          |
| FLSE 132 SM | 380           | 2.2                  | 963                        | 22           | 5.4           | 0.73           | 84.7        | 4                                | 1.1                            | 1.5                           | 9                 | 0.026                    | 72          |
|             | 400           | 2.2                  | 968                        | 22           | 5.2           | 0.72           | 85.1        | 4.4                              | 1.3                            | 1.6                           | 7.5               | 0.026                    | 72          |
|             | 415           | 2.2                  | 971                        | 22           | 5.1           | 0.71           | 85.1        | 4.9                              | 1.4                            | 1.8                           | 6                 | 0.026                    | 72          |
| FLSE 132 M  | 380           | 3                    | 964                        | 30           | 7.2           | 0.74           | 85.9        | 4.2                              | 1.2                            | 1.5                           | 8.8               | 0.034                    | 76          |
|             | 400           | 3                    | 968                        | 30           | 7             | 0.72           | 86.1        | 4.7                              | 1.4                            | 1.7                           | 7.1               | 0.034                    | 76          |
|             | 415           | 3                    | 972                        | 30           | 6.8           | 0.71           | 86.2        | 5.1                              | 1.5                            | 1.8                           | 6                 | 0.034                    | 76          |
| FLSE 132 MU | 380           | 4                    | 964                        | 40           | 9.4           | 0.75           | 86.4        | 4.4                              | 1.3                            | 1.5                           | 8.7               | 0.043                    | 88          |
|             | 400           | 4                    | 968                        | 40           | 9.2           | 0.73           | 86.6        | 4.9                              | 1.5                            | 1.7                           | 7                 | 0.043                    | 88          |
|             | 415           | 4                    | 971                        | 40           | 8.9           | 0.72           | 86.7        | 5.3                              | 1.6                            | 1.9                           | 6                 | 0.043                    | 88          |

For higher power ratings, please consult Leroy-Somer.

# LSE 3-phase TEFV induction motors for increased safety Dimensions



## D1 - Dimensions: LSE aluminium motors

### PAGES

|  |    |
|--|----|
| Dimensions of shaft extensions .....           | 32 |
| Foot mounting IM B3 (IM 1001).....             | 33 |
| Foot and flange mounting IM B35 (IM 2001)..... | 34 |
| Flange mounting IM B5 (IM 3001) .....          | 35 |
| Foot and face mounting IM B34 (IM 2101) .....  | 36 |
| Face mounting IM B14 (IM 3601) .....           | 37 |
| <hr/>  |    |
| Optional features.....                         | 38 |



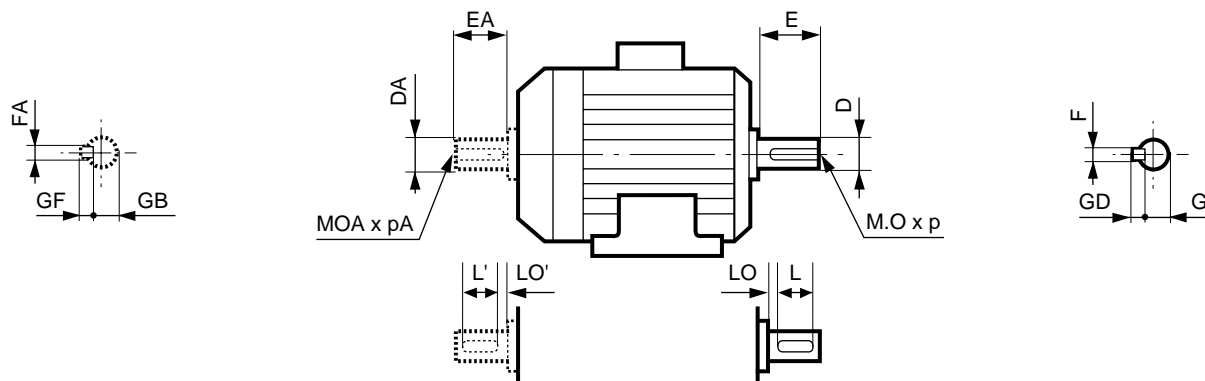
# LSE 3-phase TEFV induction motors for increased safety Dimensions



## D1 - Dimensions: LSE aluminium motors

Dimensions in millimetres

### Dimensions of shaft extensions



| Type                 | Main shaft extensions |    |      |      |     |    |    |     |    |                       |    |      |      |     |    |    |     |    |
|----------------------|-----------------------|----|------|------|-----|----|----|-----|----|-----------------------|----|------|------|-----|----|----|-----|----|
|                      | 4, 6 and 8 poles      |    |      |      |     |    |    |     |    | 2 poles and 2/4 poles |    |      |      |     |    |    |     |    |
|                      | F                     | GD | D    | G    | E   | O  | p  | L   | LO | F                     | GD | D    | G    | E   | O  | p  | L   | LO |
| LSE 80 L             | 6                     | 6  | 19j6 | 15.5 | 40  | 6  | 16 | 30  | 6  | 6                     | 6  | 19j6 | 15.5 | 40  | 6  | 16 | 30  | 6  |
| LSE 90 S/L           | 8                     | 7  | 24j6 | 20   | 50  | 8  | 19 | 40  | 6  | 8                     | 7  | 24j6 | 20   | 50  | 8  | 19 | 40  | 6  |
| LSE 100 L            | 8                     | 7  | 28j6 | 24   | 60  | 10 | 22 | 50  | 6  | 8                     | 7  | 28j6 | 24   | 60  | 10 | 22 | 50  | 6  |
| LSE 112 MG/MU        | 8                     | 7  | 28j6 | 24   | 60  | 10 | 22 | 50  | 6  | 8                     | 7  | 28j6 | 24   | 60  | 10 | 22 | 50  | 6  |
| LSE 132 S/M/SM       | 10                    | 8  | 38k6 | 33   | 80  | 12 | 28 | 63  | 10 | 10                    | 8  | 38k6 | 33   | 80  | 12 | 28 | 63  | 10 |
| LSE 160 M/L/MP/LU/MR | 12                    | 8  | 42k6 | 37   | 110 | 16 | 36 | 100 | 6  | 12                    | 8  | 42k6 | 37   | 110 | 16 | 36 | 100 | 6  |
| LSE 180 MT/L/LU/MR   | 14                    | 9  | 48k6 | 42.5 | 110 | 16 | 36 | 98  | 12 | 14                    | 9  | 48k6 | 42.5 | 110 | 16 | 36 | 98  | 12 |
| LSE 200 LT/L         | 16                    | 10 | 55m6 | 49   | 110 | 20 | 42 | 97  | 13 | 16                    | 10 | 55m6 | 49   | 110 | 20 | 42 | 97  | 13 |
| LSE 225 ST/MR/SR/MT  | 18                    | 11 | 60m6 | 53   | 140 | 20 | 42 | 126 | 14 | 18                    | 11 | 60m6 | 53   | 140 | 20 | 42 | 97  | 13 |

| Type                | Secondary shaft extensions |    |      |      |     |    |    |     |     |                       |    |      |      |     |    |    |     |     |
|---------------------|----------------------------|----|------|------|-----|----|----|-----|-----|-----------------------|----|------|------|-----|----|----|-----|-----|
|                     | 4, 6 and 8 poles           |    |      |      |     |    |    |     |     | 2 poles and 2/4 poles |    |      |      |     |    |    |     |     |
|                     | FA                         | GF | DA   | GB   | EA  | OA | pA | L'  | LO' | FA                    | GF | DA   | GB   | EA  | OA | pA | L'  | LO' |
| LSE 80 L            | 5                          | 5  | 14j6 | 11   | 30  | 5  | 15 | 25  | 3.5 | 5                     | 5  | 14j6 | 11   | 30  | 5  | 15 | 25  | 3.5 |
| LSE 90 S/L          | 6                          | 6  | 19j6 | 15.5 | 40  | 6  | 16 | 30  | 6   | 6                     | 6  | 19j6 | 15.5 | 40  | 6  | 16 | 30  | 6   |
| LSE 100 L           | 8                          | 7  | 24j6 | 20   | 50  | 8  | 19 | 40  | 6   | 8                     | 7  | 24j6 | 20   | 50  | 8  | 19 | 40  | 6   |
| LSE 112 MG/MU       | 8                          | 7  | 24j6 | 20   | 50  | 8  | 19 | 40  | 6   | 8                     | 7  | 24j6 | 20   | 50  | 8  | 19 | 40  | 6   |
| LSE 132 S/M         | 8                          | 7  | 28j6 | 24   | 60  | 10 | 22 | 50  | 6   | 8                     | 7  | 28j6 | 24   | 60  | 10 | 22 | 50  | 6   |
| LSE 160 MP/MR       | 10                         | 8  | 38k6 | 33   | 80  | 12 | 28 | 63  | 10  | 10                    | 8  | 38k6 | 33   | 80  | 12 | 28 | 63  | 10  |
| LSE 160 M/L         | 12                         | 8  | 42k6 | 37   | 110 | 16 | 36 | 100 | 6   | 12                    | 8  | 42k6 | 37   | 110 | 16 | 36 | 100 | 6   |
| LSE 180 MT/L/LU/MR  | 14                         | 9  | 48k6 | 42.5 | 110 | 16 | 36 | 98  | 12  | 14                    | 9  | 48k6 | 42.5 | 110 | 16 | 36 | 98  | 12  |
| LSE 200 LT/L        | 16                         | 10 | 55m6 | 49   | 110 | 20 | 42 | 97  | 13  | 16                    | 10 | 55m6 | 49   | 110 | 20 | 42 | 97  | 13  |
| LSE 225 ST/MR/SR/MT | 18                         | 11 | 60m6 | 53   | 140 | 20 | 42 | 126 | 14  | 18                    | 11 | 60m6 | 53   | 140 | 20 | 42 | 97  | 13  |

For frame sizes 63, 71, 250 and 280: please consult Leroy-Somer.



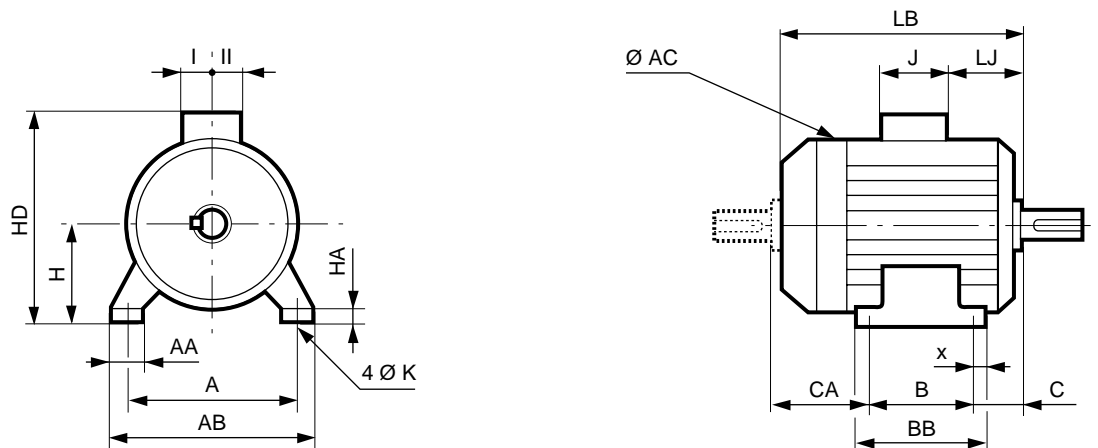
# LSE 3-phase TEFV induction motors for increased safety Dimensions



## D1 - Dimensions: LSE aluminium motors

Dimensions in millimetres

### Foot mounting IM B3 (IM 1001)



| Type         | Main dimensions |     |     |     |     |    |     |      |    |     |     |     |     |      |     |     |     |     |
|--------------|-----------------|-----|-----|-----|-----|----|-----|------|----|-----|-----|-----|-----|------|-----|-----|-----|-----|
|              | A               | AB  | B   | BB  | C   | X  | AA  | K    | HA | H   | AC  | HD  | LB  | LJ   | J   | I   | II  | CA  |
| LSE 80 L     | 125             | 157 | 100 | 120 | 50  | 10 | 29  | 9    | 10 | 80  | 170 | 225 | 215 | 15   | 160 | 55  | 55  | 68  |
| LSE 90 S     | 140             | 172 | 100 | 120 | 56  | 10 | 37  | 10   | 11 | 90  | 190 | 244 | 218 | 15   | 160 | 55  | 55  | 66  |
| LSE 90 L     | 140             | 172 | 125 | 162 | 56  | 28 | 37  | 10   | 11 | 90  | 190 | 244 | 245 | 15   | 160 | 55  | 55  | 68  |
| LSE 100 L    | 160             | 196 | 140 | 165 | 63  | 12 | 40  | 12   | 13 | 100 | 200 | 259 | 290 | 15   | 160 | 55  | 55  | 93  |
| LSE 112 MG   | 190             | 220 | 140 | 165 | 70  | 12 | 52  | 12   | 14 | 112 | 235 | 280 | 315 | 24   | 160 | 55  | 55  | 110 |
| LSE 112 MU   | 190             | 220 | 140 | 165 | 70  | 12 | 52  | 12   | 14 | 112 | 235 | 280 | 334 | 24   | 160 | 55  | 55  | 130 |
| LSE 132 S    | 216             | 250 | 140 | 170 | 89  | 16 | 50  | 12   | 15 | 132 | 235 | 300 | 350 | 41   | 160 | 55  | 55  | 128 |
| LSE 132 SM/M | 216             | 250 | 178 | 208 | 89  | 16 | 59  | 12   | 18 | 132 | 280 | 319 | 387 | 25   | 160 | 55  | 55  | 126 |
| LSE 132 MU   | 216             | 250 | 178 | 208 | 89  | 16 | 59  | 12   | 18 | 132 | 280 | 319 | 410 | 25   | 160 | 55  | 55  | 148 |
| LSE 160 MP   | 254             | 294 | 210 | 294 | 108 | 20 | 64  | 14.5 | 25 | 160 | 315 | 357 | 468 | 55.5 | 160 | 55  | 55  | 154 |
| LSE 160 M    | 254             | 294 | 210 | 294 | 108 | 20 | 60  | 14.5 | 25 | 160 | 310 | 408 | 495 | 45   | 205 | 100 | 95  | 182 |
| LSE 160 MR   | 254             | 294 | 254 | 294 | 108 | 20 | 64  | 14.5 | 25 | 160 | 315 | 357 | 495 | 55.5 | 134 | 92  | 63  | 138 |
| LSE 160 L    | 254             | 294 | 254 | 294 | 108 | 20 | 60  | 14.5 | 25 | 160 | 310 | 408 | 495 | 45   | 205 | 100 | 95  | 138 |
| LSE 180 MT   | 279             | 324 | 241 | 316 | 121 | 20 | 79  | 14.5 | 28 | 180 | 310 | 453 | 495 | 39   | 217 | 103 | 145 | 138 |
| LSE 180 MR   | 279             | 324 | 241 | 316 | 121 | 20 | 79  | 14.5 | 28 | 180 | 310 | 453 | 520 | 39   | 217 | 103 | 145 | 163 |
| LSE 180 L    | 279             | 339 | 279 | 329 | 121 | 25 | 86  | 14.5 | 25 | 180 | 350 | 460 | 552 | 48   | 217 | 103 | 145 | 159 |
| LSE 180 LU   | 279             | 339 | 279 | 329 | 121 | 25 | 86  | 14.5 | 25 | 180 | 350 | 460 | 593 | 48   | 217 | 103 | 145 | 199 |
| LSE 200 LT   | 318             | 378 | 305 | 365 | 133 | 30 | 108 | 18.5 | 32 | 200 | 350 | 480 | 599 | 54   | 217 | 103 | 145 | 167 |
| LSE 200 L    | 318             | 388 | 305 | 375 | 133 | 35 | 103 | 18.5 | 36 | 200 | 390 | 505 | 621 | 62   | 217 | 103 | 145 | 194 |
| LSE 225 MT   | 356             | 431 | 311 | 386 | 149 | 50 | 127 | 18.5 | 36 | 225 | 390 | 525 | 628 | 68   | 217 | 103 | 145 | 178 |
| LSE 225 SR   | 356             | 431 | 286 | 386 | 149 | 50 | 127 | 18.5 | 36 | 225 | 390 | 525 | 676 | 68   | 217 | 103 | 145 | 253 |
| LSE 225 MR   | 356             | 431 | 311 | 386 | 149 | 50 | 127 | 18.5 | 36 | 225 | 390 | 525 | 676 | 68   | 217 | 103 | 145 | 228 |

For frame sizes 63, 71, 250 and 280: please consult Leroy-Somer.

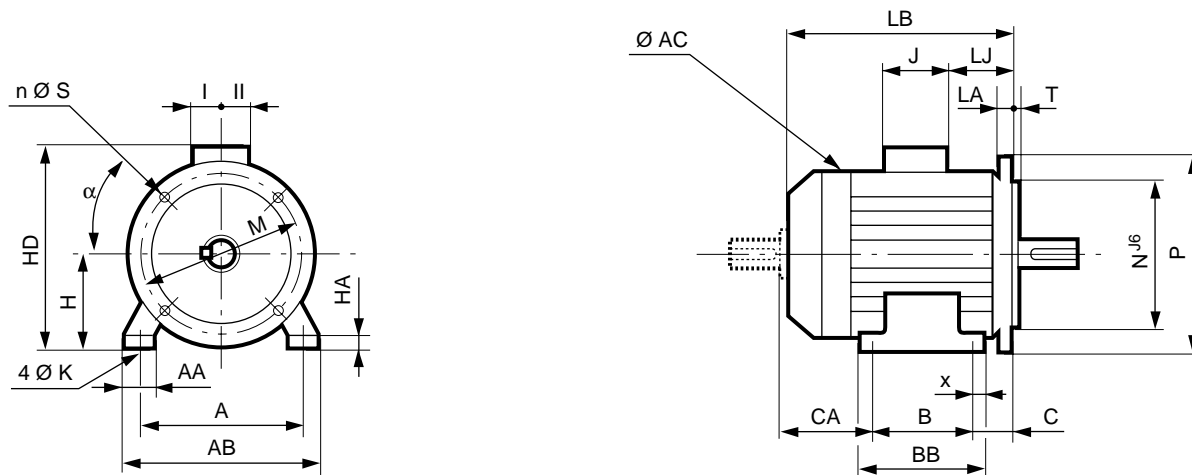
# LSE 3-phase TEFV induction motors for increased safety Dimensions



## D1 - Dimensions: LSE aluminium motors

Dimensions in millimetres

### Foot and flange mounting IM B35 (IM 2001)



| Type         | Main dimensions |     |     |     |     |    |     |      |    |     |     |     |     |      |     |     |     |        |
|--------------|-----------------|-----|-----|-----|-----|----|-----|------|----|-----|-----|-----|-----|------|-----|-----|-----|--------|
|              | A               | AB  | B   | BB  | C   | X  | AA  | K    | HA | H   | AC  | HD  | LB  | LJ   | J   | I   | II  | Sym.   |
| LSE 80 L     | 125             | 157 | 100 | 120 | 50  | 10 | 29  | 9    | 10 | 80  | 170 | 225 | 215 | 15   | 160 | 55  | 55  | FF 165 |
| LSE 90 S     | 140             | 172 | 100 | 120 | 76  | 10 | 37  | 10   | 11 | 90  | 190 | 244 | 238 | 35   | 160 | 55  | 55  | FF 165 |
| LSE 90 L     | 140             | 172 | 125 | 162 | 76  | 8  | 37  | 10   | 11 | 90  | 190 | 244 | 265 | 35   | 160 | 55  | 55  | FF 165 |
| LSE 100 L    | 160             | 196 | 140 | 165 | 63  | 12 | 40  | 12   | 13 | 100 | 200 | 259 | 290 | 15   | 160 | 55  | 55  | FF 215 |
| LSE 112 MG   | 190             | 220 | 140 | 165 | 70  | 12 | 52  | 12   | 14 | 112 | 235 | 280 | 315 | 24   | 160 | 55  | 55  | FF 215 |
| LSE 112 MU   | 190             | 220 | 140 | 165 | 70  | 12 | 52  | 12   | 14 | 112 | 235 | 280 | 334 | 24   | 160 | 55  | 55  | FF 215 |
| LSE 132 S    | 216             | 250 | 140 | 170 | 89  | 16 | 50  | 12   | 15 | 132 | 235 | 300 | 350 | 41   | 160 | 55  | 55  | FF 265 |
| LSE 132 SM/M | 216             | 250 | 178 | 208 | 89  | 16 | 59  | 12   | 18 | 132 | 280 | 319 | 387 | 25   | 160 | 55  | 55  | FF 265 |
| LSE 132 MU   | 216             | 250 | 178 | 208 | 89  | 16 | 59  | 12   | 18 | 132 | 280 | 319 | 410 | 25   | 160 | 55  | 55  | FF 265 |
| LSE 160 MP   | 254             | 294 | 210 | 294 | 108 | 20 | 64  | 14.5 | 25 | 160 | 315 | 357 | 468 | 55.5 | 160 | 55  | 55  | FF 300 |
| LSE 160 M    | 254             | 294 | 210 | 294 | 108 | 20 | 60  | 14.5 | 25 | 160 | 310 | 408 | 495 | 45   | 205 | 100 | 95  | FF 300 |
| LSE 160 MR   | 254             | 294 | 254 | 294 | 108 | 20 | 64  | 14.5 | 25 | 160 | 315 | 357 | 495 | 55.5 | 134 | 92  | 63  | FF 300 |
| LSE 160 L    | 254             | 294 | 254 | 294 | 108 | 20 | 60  | 14.5 | 25 | 160 | 310 | 408 | 495 | 45   | 205 | 100 | 95  | FF 300 |
| LSE 180 MT   | 279             | 324 | 241 | 316 | 121 | 20 | 79  | 14.5 | 28 | 180 | 310 | 453 | 495 | 39   | 217 | 103 | 145 | FF 300 |
| LSE 180 MR   | 279             | 324 | 241 | 316 | 121 | 20 | 79  | 14.5 | 28 | 180 | 310 | 453 | 520 | 39   | 217 | 103 | 145 | FF 300 |
| LSE 180 L    | 279             | 339 | 279 | 329 | 121 | 25 | 86  | 14.5 | 25 | 180 | 350 | 460 | 552 | 48   | 217 | 103 | 145 | FF 300 |
| LSE 180 LU   | 279             | 339 | 279 | 329 | 121 | 25 | 86  | 14.5 | 25 | 180 | 350 | 460 | 593 | 48   | 217 | 103 | 145 | FF 300 |
| LSE 200 LT   | 318             | 378 | 305 | 365 | 133 | 30 | 108 | 18.5 | 32 | 200 | 350 | 480 | 599 | 54   | 217 | 103 | 145 | FF 350 |
| LSE 200 L    | 318             | 388 | 305 | 375 | 133 | 35 | 103 | 18.5 | 36 | 200 | 390 | 500 | 621 | 62   | 217 | 103 | 145 | FF 350 |
| LSE 225 MT   | 356             | 431 | 311 | 386 | 149 | 50 | 127 | 18.5 | 36 | 225 | 390 | 525 | 628 | 68   | 217 | 103 | 145 | FF 400 |
| LSE 225 SR   | 356             | 431 | 286 | 386 | 149 | 50 | 127 | 18.5 | 36 | 225 | 390 | 525 | 676 | 68   | 217 | 103 | 145 | FF 400 |
| LSE 225 MR   | 356             | 431 | 311 | 386 | 149 | 50 | 127 | 18.5 | 36 | 225 | 390 | 525 | 676 | 68   | 217 | 103 | 145 | FF 400 |

For frame sizes 63, 71, 250 and 280: please consult Leroy-Somer.

Dimension CA and shaft extensions are identical to those for foot mounted motors (page 32).

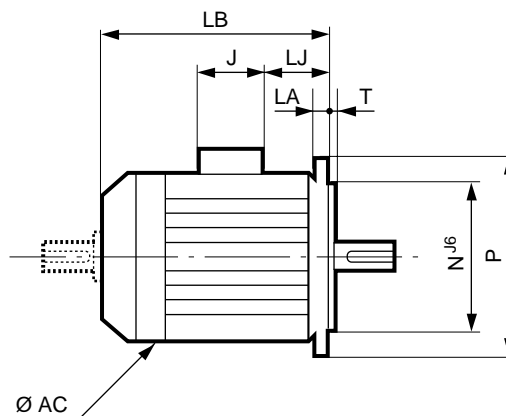
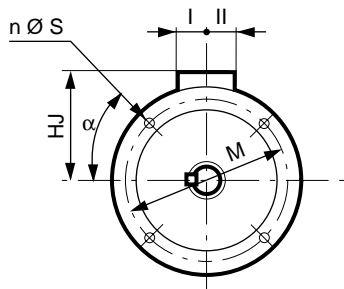
# LSE 3-phase TEFV induction motors for increased safety Dimensions



## D1 - Dimensions: LSE aluminium motors

Dimensions in millimetres

### Flange mounting IM B5 (IM 3001)



| IEC symbol | Flange dimensions |     |     |     |   |      |      |    |
|------------|-------------------|-----|-----|-----|---|------|------|----|
|            | M                 | N   | P   | T   | n | α    | S    | LA |
| FF 165     | 165               | 130 | 200 | 3.5 | 4 | 45   | 12   | 10 |
| FF 165     | 165               | 130 | 200 | 3.5 | 4 | 45   | 12   | 10 |
| FF 165     | 165               | 130 | 200 | 3.5 | 4 | 45   | 12   | 10 |
| FF 215     | 215               | 180 | 250 | 4   | 4 | 45   | 14.5 | 12 |
| FF 215     | 215               | 180 | 250 | 4   | 4 | 45   | 14.5 | 12 |
| FF 215     | 215               | 180 | 250 | 4   | 4 | 45   | 14.5 | 12 |
| FF 265     | 265               | 230 | 300 | 4   | 4 | 45   | 14.5 | 14 |
| FF 265     | 265               | 230 | 300 | 4   | 4 | 45   | 14.5 | 14 |
| FF 265     | 265               | 230 | 300 | 4   | 4 | 45   | 14.5 | 14 |
| FF 300     | 300               | 250 | 350 | 5   | 4 | 45   | 18.5 | 14 |
| FF 300     | 300               | 250 | 350 | 5   | 4 | 45   | 18.5 | 14 |
| FF 300     | 300               | 250 | 350 | 5   | 4 | 45   | 18.5 | 14 |
| FF 300     | 300               | 250 | 350 | 5   | 4 | 45   | 18.5 | 14 |
| FF 300     | 300               | 250 | 350 | 5   | 4 | 45   | 18.5 | 14 |
| FF 300     | 300               | 250 | 350 | 5   | 4 | 45   | 18.5 | 14 |
| FF 300     | 300               | 250 | 350 | 5   | 4 | 45   | 18.5 | 14 |
| FF 350     | 350               | 300 | 400 | 5   | 4 | 45   | 18.5 | 15 |
| FF 350     | 350               | 300 | 400 | 5   | 4 | 45   | 18.5 | 15 |
| FF 400     | 400               | 350 | 450 | 5   | 8 | 22.5 | 18.5 | 16 |
| FF 400     | 400               | 350 | 450 | 5   | 8 | 22.5 | 18.5 | 16 |
| FF 400     | 400               | 350 | 450 | 5   | 8 | 22.5 | 18.5 | 16 |

| Type         | Main dimensions |     |     |      |     |     |     |
|--------------|-----------------|-----|-----|------|-----|-----|-----|
|              | AC              | LB  | HJ  | LJ   | J   | I   | II  |
| LSE 80 L     | 170             | 215 | 145 | 15   | 160 | 55  | 55  |
| LSE 90 S     | 190             | 238 | 154 | 35   | 160 | 55  | 55  |
| LSE 90 L     | 190             | 265 | 154 | 35   | 160 | 55  | 55  |
| LSE 100 L    | 200             | 290 | 154 | 15   | 160 | 55  | 55  |
| LSE 112 MG   | 235             | 315 | 168 | 24   | 160 | 55  | 55  |
| LSE 112 MU   | 235             | 334 | 168 | 24   | 160 | 55  | 55  |
| LSE 132 S    | 235             | 350 | 168 | 41   | 160 | 55  | 55  |
| LSE 132 SM/M | 280             | 387 | 187 | 25   | 160 | 55  | 55  |
| LSE 132 MU   | 280             | 410 | 187 | 25   | 160 | 55  | 55  |
| LSE 160 MP   | 315             | 468 | 197 | 55.5 | 160 | 55  | 55  |
| LSE 160 M    | 316             | 495 | 248 | 45   | 205 | 100 | 95  |
| LSE 160 MR   | 315             | 495 | 197 | 55.5 | 134 | 92  | 63  |
| LSE 160 L    | 316             | 495 | 248 | 45   | 205 | 100 | 95  |
| LSE 180 MT   | 316             | 495 | 273 | 39   | 217 | 103 | 145 |
| LSE 180 MR   | 316             | 520 | 273 | 39   | 217 | 103 | 145 |
| LSE 180 L    | 350             | 552 | 280 | 48   | 217 | 103 | 145 |
| LSE 180 LU   | 350             | 593 | 280 | 48   | 217 | 103 | 145 |
| LSE 200 LT   | 350             | 599 | 280 | 54   | 217 | 103 | 145 |
| LSE 200 L    | 390             | 621 | 300 | 62   | 217 | 103 | 145 |
| LSE 225 MT   | 390             | 628 | 300 | 68   | 217 | 103 | 145 |
| LSE 225 SR   | 390             | 676 | 300 | 68   | 217 | 103 | 145 |
| LSE 225 MR   | 390             | 676 | 300 | 68   | 217 | 103 | 145 |

For frame sizes 63, 71, 250 and 280: please consult Leroy-Somer.

Dimensions of shaft extensions identical to those for foot mounted motors (page 32).

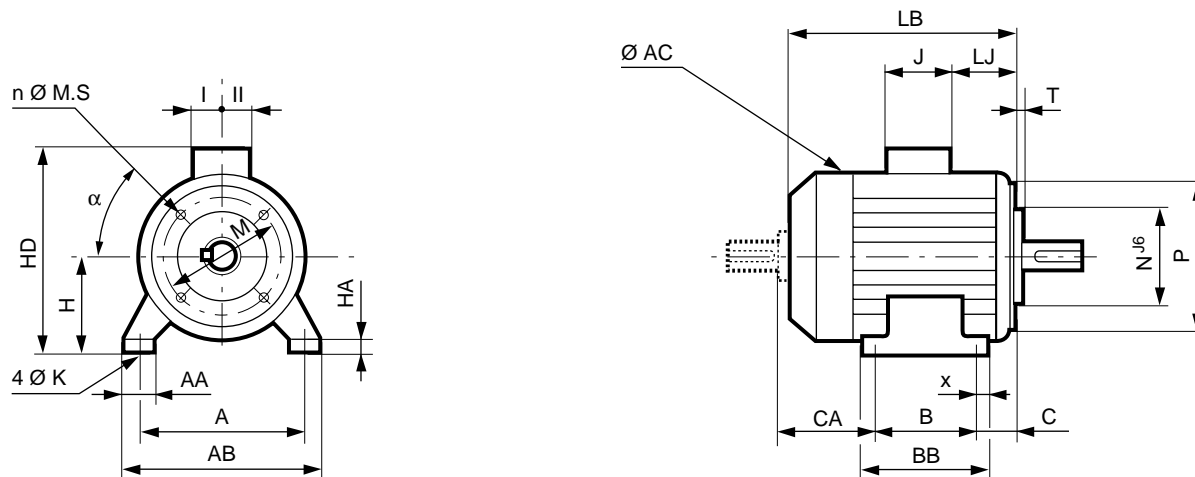
# LSE 3-phase TEFV induction motors for increased safety Dimensions



## D1 - Dimensions: LSE aluminium motors

Dimensions in millimetres

### Foot and face mounting IM B34 (IM 2101)



| Type         | Main dimensions |     |     |     |     |    |     |    |    |     |     |     |     |      |     |    |    |        |
|--------------|-----------------|-----|-----|-----|-----|----|-----|----|----|-----|-----|-----|-----|------|-----|----|----|--------|
|              | A               | AB  | B   | BB  | C   | X  | AA  | K  | HA | H   | AC  | HD  | LB  | LJ   | J   | I  | II | Sym.   |
| LSE 80 L     | 125             | 157 | 100 | 120 | 50  | 10 | 29  | 9  | 10 | 80  | 170 | 225 | 215 | 15   | 160 | 55 | 55 | FT 100 |
| LSE 90 S     | 140             | 172 | 100 | 120 | 56  | 10 | 37  | 10 | 11 | 90  | 190 | 244 | 218 | 15   | 160 | 55 | 55 | FT 115 |
| LSE 90 L     | 140             | 172 | 125 | 162 | 56  | 28 | 37  | 10 | 11 | 90  | 190 | 244 | 245 | 15   | 160 | 55 | 55 | FT 115 |
| LSE 100 L    | 160             | 196 | 140 | 165 | 63  | 12 | 40  | 12 | 13 | 100 | 200 | 259 | 290 | 15   | 160 | 55 | 55 | FT 130 |
| LSE 112 MG   | 190             | 220 | 140 | 165 | 70  | 12 | 52  | 12 | 14 | 112 | 235 | 280 | 315 | 24   | 160 | 55 | 55 | FT 130 |
| LSE 112 MU   | 190             | 220 | 140 | 165 | 70  | 12 | 52  | 12 | 14 | 112 | 235 | 280 | 334 | 24   | 160 | 55 | 55 | FT 130 |
| LSE 132 S    | 216             | 250 | 140 | 170 | 89  | 16 | 50  | 12 | 15 | 132 | 235 | 300 | 350 | 41   | 160 | 55 | 55 | FT 215 |
| LSE 132 SM/M | 216             | 250 | 178 | 208 | 89  | 16 | 59  | 12 | 18 | 132 | 280 | 319 | 387 | 25   | 160 | 55 | 55 | FT 215 |
| LSE 132 MU   | 216             | 250 | 178 | 208 | 89  | 16 | 59  | 12 | 18 | 132 | 280 | 319 | 410 | 25   | 160 | 55 | 55 | FT 215 |
| LSE 160 MP   | 254             | 294 | 210 | 250 | 108 | 20 | 112 | 14 | 25 | 160 | 315 | 357 | 425 | 55.5 | 160 | 55 | 55 | FT 215 |
| LSE 160 MR   | 254             | 294 | 254 | 294 | 108 | 20 | 112 | 14 | 25 | 160 | 315 | 357 | 495 | 55.5 | 160 | 55 | 55 | FT 215 |

For frame sizes 63, 71: please consult Leroy-Somer.

Dimension CA and shaft extensions are identical to those for foot mounted motors (page 32).

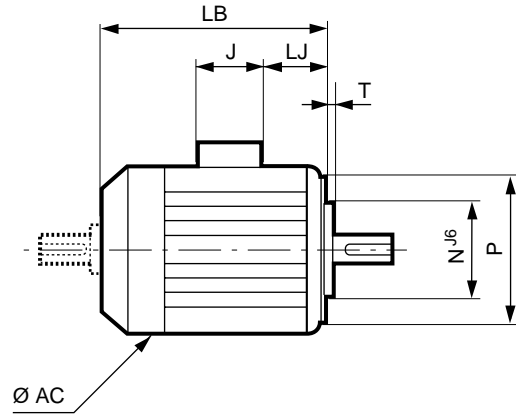
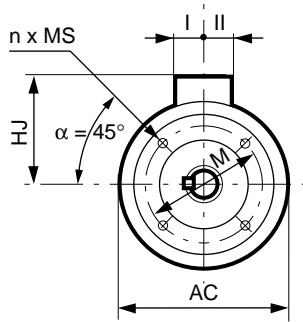
# LSE 3-phase TEFV induction motors for increased safety Dimensions



## D1 - Dimensions: LSE aluminium motors

Dimensions in millimetres

### Face mounting IM B14 (IM 3601)



| IEC symbol | Faceplate dimensions |     |     |     |   |     |
|------------|----------------------|-----|-----|-----|---|-----|
|            | M                    | N   | P   | T   | n | MS  |
| FT 100     | 100                  | 80  | 120 | 3   | 4 | M6  |
| FT 115     | 115                  | 95  | 140 | 3   | 4 | M8  |
| FT 115     | 115                  | 95  | 140 | 3   | 4 | M8  |
| FT 130     | 130                  | 110 | 160 | 3.5 | 4 | M8  |
| FT 130     | 130                  | 110 | 160 | 3.5 | 4 | M8  |
| FT 130     | 130                  | 110 | 160 | 3.5 | 4 | M8  |
| FT 215     | 215                  | 180 | 250 | 4   | 4 | M12 |
| FT 215     | 215                  | 180 | 250 | 4   | 4 | M12 |
| FT 215     | 215                  | 180 | 250 | 4   | 4 | M12 |
| FT 215     | 215                  | 180 | 250 | 4   | 4 | M12 |
| FT 215     | 215                  | 180 | 250 | 4   | 4 | M12 |

| Type         | Main dimensions |     |     |      |     |    |    |
|--------------|-----------------|-----|-----|------|-----|----|----|
|              | AC              | LB  | HJ  | LJ   | J   | I  | II |
| LSE 80 L     | 170             | 215 | 145 | 15   | 160 | 55 | 55 |
| LSE 90 S     | 190             | 218 | 154 | 15   | 160 | 55 | 55 |
| LSE 90 L     | 190             | 245 | 154 | 15   | 160 | 55 | 55 |
| LSE 100 L    | 200             | 290 | 154 | 15   | 160 | 55 | 55 |
| LSE 112 MG   | 235             | 315 | 168 | 24   | 160 | 55 | 55 |
| LSE 112 MU   | 235             | 334 | 168 | 24   | 160 | 55 | 55 |
| LSE 132 S    | 235             | 350 | 168 | 41   | 160 | 55 | 55 |
| LSE 132 SM/M | 280             | 387 | 187 | 25   | 160 | 55 | 55 |
| LSE 132 MU   | 280             | 410 | 187 | 25   | 160 | 55 | 55 |
| LSE 160 MP   | 315             | 425 | 197 | 55.5 | 160 | 55 | 55 |
| LSE 160 MR   | 315             | 495 | 197 | 55.5 | 160 | 55 | 55 |

For frame sizes 63, 71: please consult Leroy-Somer.

Dimensions of shaft extensions identical to those for foot mounted motors (page 32).

# LSE 3-phase TEFV induction motors for increased safety Dimensions



## Optional features

### Non-standard flanges

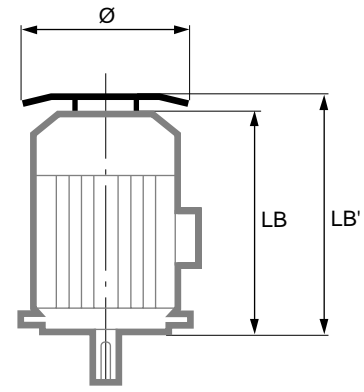
| Motor type        | Flange mounted (FF) |        |        |        |        |        |        |        |        | Face mounted (FT) |       |        |        |        |        |        |        |
|-------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|-------------------|-------|--------|--------|--------|--------|--------|--------|
|                   | Flange type         | FF 115 | FF 130 | FF 165 | FF 215 | FF 265 | FF 300 | FF 350 | FF 400 | FF 500            | FT 85 | FT 100 | FT 115 | FT 130 | FT 165 | FT 215 | FT 265 |
| LSE 80            |                     | ○      | ○      | ●      | *      |        |        |        |        |                   | *     | ●      | *      | *      | *      |        |        |
| LSE 90            |                     | *      | *      | ●      | *      |        |        |        |        |                   |       | *      | ●      | *      | ○      |        |        |
| LSE 90 (Foot)     |                     | ○      | ○      | ○      | ○      |        |        |        |        |                   |       | *      | ●      | *      | ○      |        |        |
| LSE 100           |                     | ○      | ○      | ○      | ●      |        |        |        |        |                   |       |        | *      | ●      | *      | *      |        |
| LSE 112 MG/MU     |                     |        | ○      | ○      | ●      | *      |        |        |        |                   |       |        | *      | ●      | *      | *      |        |
| LSE 132 S         |                     |        |        | ○      | *      | ●      |        |        |        |                   |       |        |        | *      | *      | ●      | *      |
| LSE 132 SM/M/MU   |                     |        |        | ○      | ○      | ●      | ○      |        |        |                   |       |        |        |        | *      | ●      | *      |
| LSE 160 MP/L/MR/M |                     |        |        |        | *      | *      | ●      | *      |        |                   |       |        |        |        |        | *      | ●      |
| LSE 180           |                     |        |        |        |        |        | ●      | *      |        |                   |       |        |        |        |        |        |        |
| LSE 200           |                     |        |        |        |        |        |        | *      | ●      | *                 |       |        |        |        |        |        |        |
| LSE 225           |                     |        |        |        |        |        |        |        |        | ●                 | *     |        |        |        |        |        |        |

● Standard B3    ○ Adapted shaft    \* Adaptable without shaft modifications

### Drip cover for operation in vertical position, shaft end facing down

| Type         | LB'      | Ø   |
|--------------|----------|-----|
| 80           | LB +20   | 145 |
| 90           | LB +20   | 185 |
| 100          | LB +20   | 185 |
| 112 MG/MU    | LB +25   | 210 |
| 132 S        | LB +25   | 210 |
| 132 SM/M     | LB +30   | 240 |
| 160 MP/MR    | LB +30   | 240 |
| 160 M/L      | LB +36.5 | 265 |
| 180 MT/MR    | LB +36.5 | 265 |
| 180 L/LU     | LB +36.5 | 305 |
| 200 LT       | LB +36.5 | 305 |
| 200 L        | LB +36.5 | 350 |
| 225 MR/ST/SR | LB +36.5 | 350 |

Dimensions in millimetres



For frame sizes 63, 71, 250 and 280: please consult Leroy-Somer.

# FLSE 3-phase TEFV induction motors for increased safety Dimensions



## D2 - Dimensions: FLSE cast iron motors

### PAGES

|  |    |
|--|----|
| Dimensions of shaft extensions .....           | 40 |
| Foot mounting IM B3 (IM 1001).....             | 41 |
| Foot and flange mounting IM B35 (IM 2001)..... | 42 |
| Flange mounting IM B5 (IM 3001) .....          | 43 |
| Foot and face mounting IM B34 (IM 2101) .....  | 44 |
| Face mounting IM B14 (IM 3601) .....           | 45 |
| <hr/>  |    |
| Optional features.....                         | 46 |



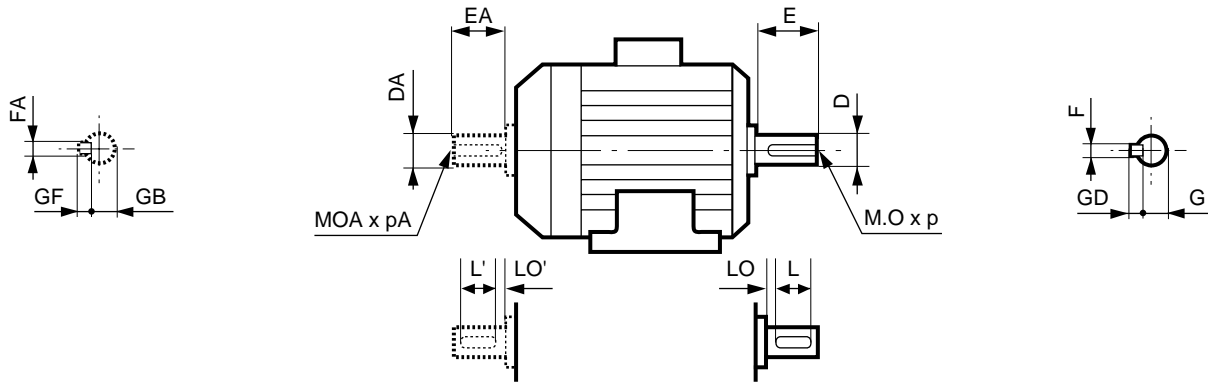
# FLSE 3-phase TEFV induction motors for increased safety Dimensions



## D2 - Dimensions: FLSE cast iron motors

Dimensions in millimetres

### Dimensions of shaft extensions



| Type               | Main shaft extensions |    |      |      |    |    |    |    |    |         |    |      |      |    |    |    |    |    |
|--------------------|-----------------------|----|------|------|----|----|----|----|----|---------|----|------|------|----|----|----|----|----|
|                    | 4, 6 and 8 poles      |    |      |      |    |    |    |    |    | 2 poles |    |      |      |    |    |    |    |    |
|                    | F                     | GD | D    | G    | E  | O  | p  | L  | LO | F       | GD | D    | G    | E  | O  | p  | L  | LO |
| FLSE 80 L          | 6                     | 6  | 19j6 | 15.5 | 40 | 6  | 16 | 30 | 6  | 6       | 6  | 19j6 | 15.5 | 40 | 6  | 16 | 30 | 6  |
| FLSE 90 S/L/LU     | 8                     | 7  | 24j6 | 20   | 50 | 8  | 19 | 40 | 6  | 8       | 7  | 24j6 | 20   | 50 | 8  | 19 | 40 | 6  |
| FLSE 100 L         | 8                     | 7  | 28j6 | 24   | 60 | 10 | 22 | 50 | 6  | 8       | 7  | 28j6 | 24   | 60 | 10 | 22 | 50 | 6  |
| FLSE 112 M/MU      | 8                     | 7  | 28j6 | 24   | 60 | 10 | 22 | 50 | 6  | 8       | 7  | 28j6 | 24   | 60 | 10 | 22 | 50 | 6  |
| FLSE 132 S/M/SM/MU | 10                    | 8  | 38k6 | 33   | 80 | 12 | 28 | 63 | 10 | 10      | 8  | 38k6 | 33   | 80 | 12 | 28 | 63 | 10 |

| Type               | Secondary shaft extensions |    |      |      |    |    |    |    |     |         |    |      |      |    |    |    |    |     |
|--------------------|----------------------------|----|------|------|----|----|----|----|-----|---------|----|------|------|----|----|----|----|-----|
|                    | 4, 6 and 8 poles           |    |      |      |    |    |    |    |     | 2 poles |    |      |      |    |    |    |    |     |
|                    | FA                         | GF | DA   | GB   | EA | OA | pA | L' | LO' | FA      | GF | DA   | GB   | EA | OA | pA | L' | LO' |
| FLSE 80 L          | 5                          | 5  | 14j6 | 11   | 30 | 5  | 15 | 25 | 3.5 | 5       | 5  | 14j6 | 11   | 30 | 5  | 15 | 25 | 3.5 |
| FLSE 90 S/L/LU     | 6                          | 6  | 19j6 | 15.5 | 40 | 6  | 16 | 30 | 6   | 6       | 6  | 19j6 | 15.5 | 40 | 6  | 16 | 30 | 6   |
| FLSE 100 L         | 8                          | 7  | 24j6 | 20   | 50 | 8  | 19 | 40 | 6   | 8       | 7  | 24j6 | 20   | 50 | 8  | 19 | 40 | 6   |
| FLSE 112 M/MU      | 8                          | 7  | 24j6 | 20   | 50 | 8  | 19 | 40 | 6   | 8       | 7  | 24j6 | 20   | 50 | 8  | 19 | 40 | 6   |
| FLSE 132 S/M/SM/MU | 8                          | 7  | 28j6 | 24   | 60 | 10 | 22 | 50 | 6   | 8       | 7  | 28j6 | 24   | 60 | 10 | 22 | 50 | 6   |

For larger frame sizes, please consult Leroy-Somer.



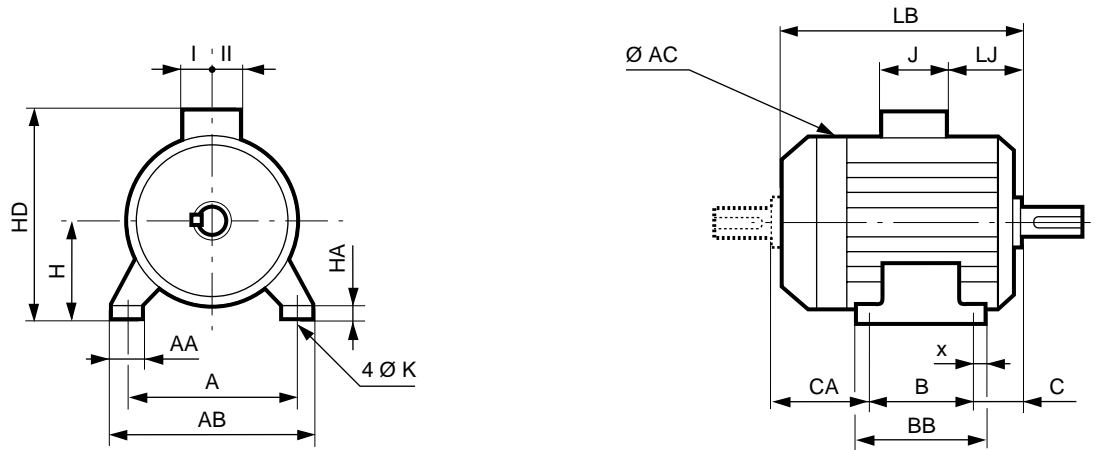
# FLSE 3-phase TEFV induction motors for increased safety Dimensions



## D2 - Dimensions: FLSE cast iron motors

Dimensions in millimetres

### Foot mounting IM B3 (IM 1001)



| Type        | Main dimensions |     |     |     |    |    |    |    |    |     |     |     |     |    |     |    |    |     |
|-------------|-----------------|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|----|-----|----|----|-----|
|             | A               | AB  | B   | BB  | C  | X  | AA | K  | HA | H   | AC  | HD  | LB  | LJ | J   | I  | II | CA  |
| FLSE 80 L   | 125             | 157 | 100 | 130 | 50 | 20 | 32 | 9  | 10 | 80  | 160 | 230 | 214 | 27 | 126 | 63 | 63 | 68  |
| FLSE 90 S   | 140             | 172 | 100 | 160 | 56 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 243 | 22 | 126 | 63 | 63 | 93  |
| FLSE 90 L   | 140             | 172 | 125 | 160 | 56 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 243 | 22 | 126 | 63 | 63 | 68  |
| FLSE 90 LU  | 140             | 172 | 125 | 160 | 56 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 263 | 22 | 126 | 63 | 63 | 88  |
| FLSE 100 L  | 160             | 200 | 140 | 174 | 63 | 22 | 42 | 12 | 12 | 100 | 226 | 293 | 323 | 37 | 150 | 75 | 75 | 125 |
| FLSE 112 M  | 190             | 230 | 140 | 174 | 70 | 22 | 45 | 12 | 12 | 112 | 226 | 305 | 323 | 37 | 150 | 75 | 75 | 119 |
| FLSE 112 MU | 190             | 230 | 140 | 174 | 70 | 22 | 45 | 12 | 12 | 112 | 226 | 305 | 342 | 37 | 150 | 75 | 75 | 138 |
| FLSE 132 S  | 216             | 255 | 140 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 387 | 28 | 150 | 75 | 75 | 164 |
| FLSE 132 M  | 216             | 255 | 178 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 387 | 28 | 150 | 75 | 75 | 126 |
| FLSE 132 MU | 216             | 255 | 178 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 410 | 28 | 150 | 75 | 75 | 149 |

For larger frame sizes, please consult Leroy-Somer.

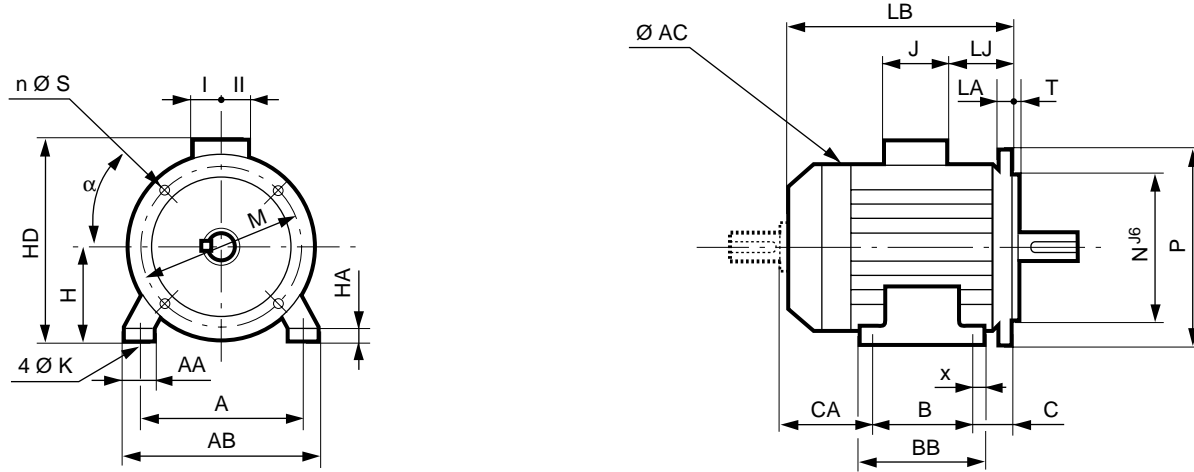
# FLSE 3-phase TEFV induction motors for increased safety Dimensions



## D2 - Dimensions: FLSE cast iron motors

Dimensions in millimetres

### Foot and flange mounting IM B35 (IM 2001)



| Type        | Main dimensions |     |     |     |    |    |    |    |    |     |     |     |     |    |     |    |    |        |
|-------------|-----------------|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|----|-----|----|----|--------|
|             | A               | AB  | B   | BB  | C  | X  | AA | K  | HA | H   | AC  | HD  | LB  | LJ | J   | I  | II | Sym.   |
| FLSE 80 L   | 125             | 157 | 100 | 130 | 50 | 20 | 32 | 9  | 10 | 80  | 160 | 230 | 214 | 27 | 126 | 63 | 63 | FF 165 |
| FLSE 90 S   | 140             | 172 | 100 | 160 | 76 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 263 | 22 | 126 | 63 | 63 | FF 165 |
| FLSE 90 L   | 140             | 172 | 125 | 160 | 76 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 263 | 22 | 126 | 63 | 63 | FF 165 |
| FLSE 90 LU  | 140             | 172 | 125 | 160 | 76 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 283 | 22 | 126 | 63 | 63 | FF 165 |
| FLSE 100 L  | 160             | 200 | 140 | 174 | 63 | 22 | 42 | 12 | 12 | 100 | 226 | 293 | 323 | 37 | 150 | 75 | 75 | FF 215 |
| FLSE 112 M  | 190             | 230 | 140 | 174 | 70 | 22 | 45 | 12 | 12 | 112 | 226 | 305 | 323 | 37 | 150 | 75 | 75 | FF 215 |
| FLSE 112 MU | 190             | 230 | 125 | 160 | 76 | 22 | 45 | 12 | 12 | 112 | 226 | 305 | 342 | 37 | 150 | 75 | 75 | FF 215 |
| FLSE 132 S  | 216             | 255 | 140 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 387 | 28 | 150 | 75 | 75 | FF 265 |
| FLSE 132 M  | 216             | 255 | 178 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 387 | 28 | 150 | 75 | 75 | FF 265 |
| FLSE 132 MU | 216             | 255 | 178 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 410 | 28 | 150 | 75 | 75 | FF 265 |

For larger frame sizes, please consult Leroy-Somer.

Dimension CA and shaft extensions are identical to those for foot mounted motors (page 40).

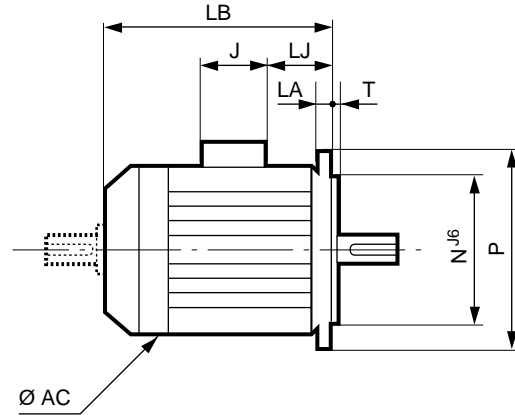
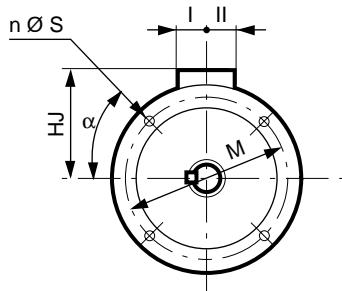
# FLSE 3-phase TEFV induction motors for increased safety Dimensions



## D2 - Dimensions: FLSE cast iron motors

Dimensions in millimetres

### Flange mounting IM B5 (IM 3001)



| IEC symbol | Flange dimensions |     |     |     |   |    |    |
|------------|-------------------|-----|-----|-----|---|----|----|
|            | M                 | N   | P   | T   | n | S  | LA |
| FF 165     | 165               | 130 | 200 | 3.5 | 4 | 12 | 10 |
| FF 165     | 165               | 130 | 200 | 3.5 | 4 | 12 | 10 |
| FF 165     | 165               | 130 | 200 | 3.5 | 4 | 12 | 10 |
| FF 165     | 165               | 130 | 200 | 3.5 | 4 | 12 | 10 |
| FF 215     | 215               | 180 | 250 | 4   | 4 | 15 | 12 |
| FF 215     | 215               | 180 | 250 | 4   | 4 | 15 | 12 |
| FF 215     | 215               | 180 | 250 | 4   | 4 | 15 | 12 |
| FF 265     | 265               | 230 | 300 | 4   | 4 | 15 | 14 |
| FF 265     | 265               | 230 | 300 | 4   | 4 | 15 | 14 |
| FF 265     | 265               | 230 | 300 | 4   | 4 | 15 | 14 |

| Type        | Main dimensions |     |     |    |     |    |    |
|-------------|-----------------|-----|-----|----|-----|----|----|
|             | AC              | LB  | HJ  | LJ | J   | I  | II |
| FLSE 80 L   | 160             | 214 | 142 | 33 | 114 | 57 | 57 |
| FLSE 90 S   | 185             | 263 | 153 | 48 | 114 | 57 | 57 |
| FLSE 90 L   | 185             | 263 | 153 | 48 | 114 | 57 | 57 |
| FLSE 90 LU  | 185             | 283 | 153 | 48 | 114 | 57 | 57 |
| FLSE 100 L  | 226             | 323 | 176 | 55 | 114 | 57 | 57 |
| FLSE 112 M  | 226             | 323 | 176 | 55 | 114 | 57 | 57 |
| FLSE 112 MU | 226             | 342 | 176 | 55 | 114 | 57 | 57 |
| FLSE 132 S  | 264             | 387 | 195 | 46 | 114 | 57 | 57 |
| FLSE 132 M  | 264             | 387 | 195 | 46 | 114 | 57 | 57 |
| FLSE 132 MU | 264             | 410 | 195 | 46 | 114 | 57 | 57 |

For larger frame sizes, please consult Leroy-Somer.

Dimensions of shaft extensions identical to those for foot mounted motors (page 40).

# FLSE 3-phase TEFV induction motors for increased safety

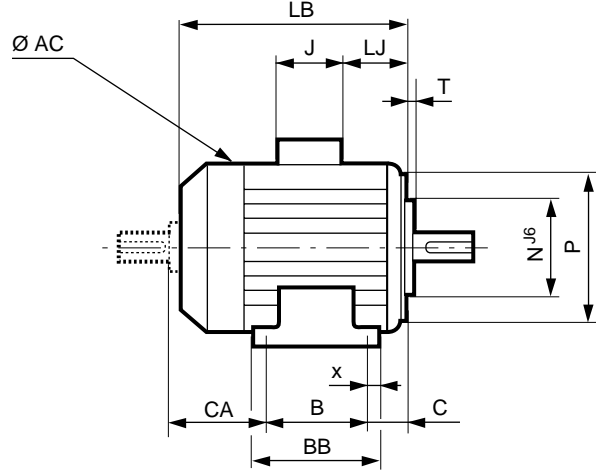
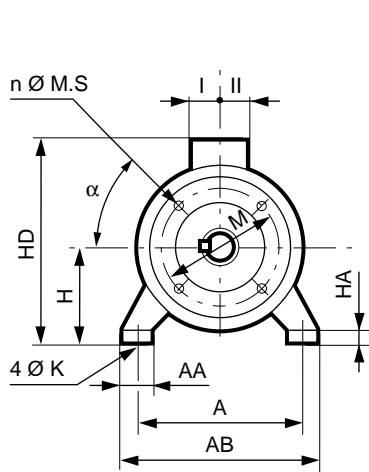
## Dimensions



### D2 - Dimensions: FLSE cast iron motors

Dimensions in millimetres

#### Foot and face mounting IM B34 (IM 2101)



| Type        | Main dimensions |     |     |     |    |    |    |    |    |     |     |     |     |    |     |    |    |        |
|-------------|-----------------|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|----|-----|----|----|--------|
|             | A               | AB  | B   | BB  | C  | X  | AA | K  | HA | H   | AC  | HD  | LB  | LJ | J   | I  | II | Sym.   |
| FLSE 80 L   | 125             | 157 | 100 | 130 | 50 | 20 | 32 | 9  | 10 | 80  | 160 | 230 | 214 | 27 | 126 | 63 | 63 | FT 100 |
| FLSE 90 S   | 140             | 172 | 100 | 160 | 56 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 243 | 22 | 126 | 63 | 63 | FT 115 |
| FLSE 90 L   | 140             | 172 | 125 | 160 | 56 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 243 | 22 | 126 | 63 | 63 | FT 115 |
| FLSE 90 LU  | 140             | 172 | 125 | 160 | 56 | 22 | 34 | 9  | 11 | 90  | 185 | 250 | 263 | 22 | 126 | 63 | 63 | FT 115 |
| FLSE 100 L  | 160             | 200 | 140 | 174 | 63 | 22 | 42 | 12 | 12 | 100 | 226 | 293 | 323 | 37 | 150 | 75 | 75 | FT 130 |
| FLSE 112 M  | 190             | 230 | 140 | 174 | 70 | 22 | 45 | 12 | 12 | 112 | 226 | 305 | 323 | 37 | 150 | 75 | 75 | FT 130 |
| FLSE 112 MU | 190             | 230 | 140 | 174 | 70 | 22 | 45 | 12 | 12 | 112 | 226 | 305 | 342 | 37 | 150 | 75 | 75 | FT 130 |
| FLSE 132 S  | 216             | 255 | 140 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 387 | 28 | 150 | 75 | 75 | FT 215 |
| FLSE 132 M  | 216             | 255 | 178 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 387 | 28 | 150 | 75 | 75 | FT 215 |
| FLSE 132 MU | 216             | 255 | 178 | 223 | 89 | 31 | 58 | 12 | 15 | 132 | 264 | 345 | 410 | 28 | 150 | 75 | 75 | FT 215 |

Dimension CA and shaft extensions are identical to those for foot mounted motors (page 40).

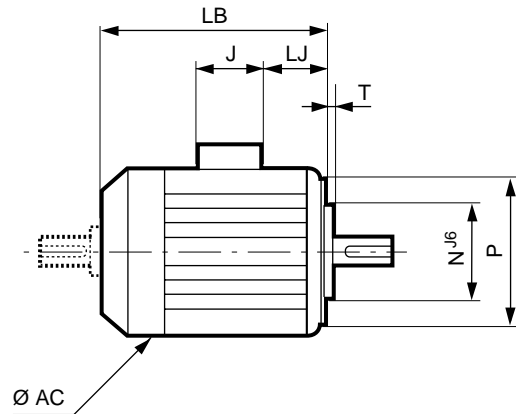
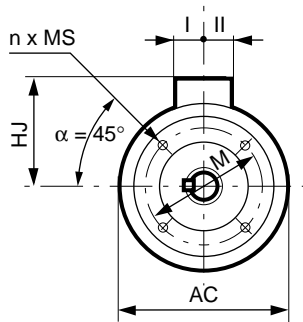
# FLSE 3-phase TEFV induction motors for increased safety Dimensions



## D2 - Dimensions: FLSE cast iron motors

Dimensions in millimetres

### Face mounting IM B14 (IM 3601)



| IEC symbol | Faceplate dimensions |     |     |     |   |     |
|------------|----------------------|-----|-----|-----|---|-----|
|            | M                    | N   | P   | T   | n | MS  |
| FT 100     | 100                  | 80  | 120 | 3   | 4 | M6  |
| FT 115     | 115                  | 95  | 140 | 3   | 4 | M8  |
| FT 115     | 115                  | 95  | 140 | 3   | 4 | M8  |
| FT 115     | 115                  | 95  | 140 | 3   | 4 | M8  |
| FT 130     | 130                  | 110 | 160 | 3.5 | 4 | M8  |
| FT 130     | 130                  | 110 | 160 | 3.5 | 4 | M8  |
| FT 130     | 130                  | 110 | 160 | 3.5 | 4 | M8  |
| FT 215     | 215                  | 180 | 250 | 4   | 4 | M12 |
| FT 215     | 215                  | 180 | 250 | 4   | 4 | M12 |
| FT 215     | 215                  | 180 | 250 | 4   | 4 | M12 |

| Type        | Main dimensions |     |     |    |     |    |    |
|-------------|-----------------|-----|-----|----|-----|----|----|
|             | AC              | LB  | HJ  | LJ | J   | I  | II |
| FLSE 80 L   | 160             | 214 | 150 | 27 | 126 | 63 | 63 |
| FLSE 90 S   | 185             | 243 | 162 | 22 | 126 | 63 | 63 |
| FLSE 90 L   | 185             | 243 | 162 | 22 | 126 | 63 | 63 |
| FLSE 90 LU  | 185             | 263 | 162 | 22 | 126 | 63 | 63 |
| FLSE 100 L  | 226             | 323 | 193 | 37 | 150 | 75 | 75 |
| FLSE 112 M  | 226             | 323 | 193 | 37 | 150 | 75 | 75 |
| FLSE 112 MU | 226             | 342 | 193 | 37 | 150 | 75 | 75 |
| FLSE 132 S  | 264             | 387 | 213 | 28 | 150 | 75 | 75 |
| FLSE 132 M  | 264             | 387 | 213 | 28 | 150 | 75 | 75 |
| FLSE 132 MU | 264             | 410 | 213 | 28 | 150 | 75 | 75 |

Dimensions of shaft extensions identical to those for foot mounted motors (page 40).

# FLSE 3-phase TEFV induction motors for increased safety Dimensions

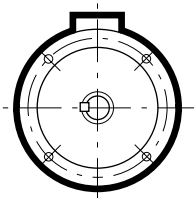


## Optional features

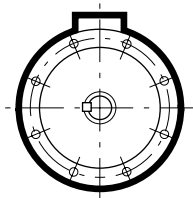
### Non-standard flanges

| Motor type      | Flange mounted (FF) |        |        |        |        |        |        |        |        | Face mounted (FT) |        |        |        |        |        |        |
|-----------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|
|                 | FF 115              | FF 130 | FF 165 | FF 215 | FF 265 | FF 300 | FF 350 | FF 400 | FF 500 | FT 85             | FT 100 | FT 115 | FT 130 | FT 165 | FT 215 | FT 265 |
| FLSE 80 L       | ○                   | ○      | ●      | *      |        |        |        |        |        | *                 | ●      | *      | *      | *      |        |        |
| FLSE 90         | *                   | *      | ●      | *      |        |        |        |        |        |                   | *      | ●      | *      | ○      |        |        |
| FLSE 90 (Foot)  | ○                   | ○      | ○      | ○      |        |        |        |        |        |                   | *      | ●      | *      | ○      |        |        |
| FLSE 100 L      | ○                   | ○      | ○      | ●      |        |        |        |        |        |                   |        | *      | ●      | ○      | *      |        |
| FLSE 112 M/MU   | ○                   | ○      | ○      | ●      |        |        |        |        |        |                   |        | *      | ●      | ○      | *      |        |
| FLSE 112 MU     |                     | ○      | ○      | ●      | *      |        |        |        |        |                   |        | *      | ●      | *      | *      |        |
| FLSE 132 S/M/MU |                     |        | ○      | ○      | ●      | ○      |        |        |        |                   |        |        |        | *      | ●      | *      |

● Standard      ○ Adapted shaft      \* Adaptable without shaft modifications



NOTE: for flanges up to FF 350, the flange is drilled with 4 holes oriented at 45° in relation to the axis of the terminal box.



NOTE: from flange FF 400 upwards, the flange is drilled with 8 holes oriented at 22°30' in relation to the axes.

For larger frame sizes, please consult Leroy-Somer.

# LSE - FLSE 3-phase TEFV induction motors for increased safety Maintenance / Installation



## E1 - Identification

### IDENTIFICATION PLATES AND LEGEND - FRAME SIZE 63 to 280

|                                    |             |                            |                    |              |          |
|------------------------------------|-------------|----------------------------|--------------------|--------------|----------|
|                                    |             | <b>Mot. 3 ~ LSE 112 MU</b> |                    |              |          |
| F - 16015 ANGOULEME                |             | N° 027010 LF040            |                    | 0080         |          |
| <b>IP55 IK08</b>                   | <b>cl.F</b> | <b>40°C</b>                | <b>S1</b>          | <b>kg 12</b> |          |
| <b>V</b>                           | <b>Hz</b>   | <b>min<sup>-1</sup></b>    | <b>kW</b>          | <b>cos φ</b> | <b>A</b> |
| Δ 380                              | 50          | 1453                       | 4                  | 0,88         | 7,9      |
| Δ 400                              | -           | 1458                       | -                  | 0,86         | 7,7      |
| Δ 415                              | -           | 1466                       | -                  | 0,82         | 7,7      |
| ID/IN = 6,7 - t <sub>E</sub> = 8 s |             |                            |                    |              |          |
| II 2 G - EEx e II T3               |             |                            | INERIS 01ATEX0010X |              |          |

|                                     |           |                            |                     |              |          |
|-------------------------------------|-----------|----------------------------|---------------------|--------------|----------|
|                                     |           | <b>MOT. 3 ~ LSE 160L-T</b> |                     |              |          |
| F - 16015 ANGOULEME                 |           | N° 125089 MA 001           |                     | 0080         |          |
| <b>IP55 IK08</b>                    |           | <b>cl.F</b>                | <b>40 °C</b>        | <b>S1</b>    |          |
| <b>V</b>                            | <b>Hz</b> | <b>min<sup>-1</sup></b>    | <b>kW</b>           | <b>cos φ</b> | <b>A</b> |
| Δ 380                               | 50        | 1457                       | 13,5                | 0,87         | 26,2     |
| Δ 400                               | -         | 1461                       | -                   | 0,85         | 25,4     |
| Δ 420                               | -         | 1465                       | -                   | 0,83         | 24,7     |
| ID/IN = 7,8 - t <sub>E</sub> = 10 s |           |                            |                     |              |          |
| II 2 GD EEx e II T3 VIK             |           |                            | INERIS 01ATEX0010 X |              |          |
| <b>DE</b>                           | 6212 ZC3  |                            |                     | g            |          |
| <b>NDE</b>                          | 6210 ZC3  |                            |                     | h            |          |

### ▼ Definition of symbols used on nameplates

Legal mark of product conformity to the requirements of European Directives.

**MOT 3 ~** : Three-phase A.C. motor  
**LSE** : LSE series  
**112-160** : Frame size  
**MU - L** : Frame size

#### Motor number

**N°** : Motor batch number  
**L - M \*** : Year of production  
**F - A \*\*** : Month of production  
**040 - 001** : Serial number

\* L = 2001  
M = 2002  
.....

\*\*A = January  
B = February  
.....

**kg** : Weight  
**IP55** : Index of protection  
**IK08** : Shock resistance index  
**I cl. F** : Insulation class F  
**40 °C** : Maximum ambient temperature for operation  
**S1** : Duty  
**V** : Supply voltage  
**Hz** : Supply frequency  
**min<sup>-1</sup>** : Revolutions per minute (rpm)  
**kW** : Rated output power  
**cos φ** : Power factor  
**A** : Rated current  
**Δ** : Connection symbol  
**ID/IN** : Starting current  
**t<sub>E</sub>** : Locked rotor time

#### ATEX-specific markings

**0080** : Identification number from INERIS (Notified Body)

: Special mark denoting protection against risk of explosion

**II 2 G or II 2 GD** : group and category of equipment

**EEx** : Symbol denoting switchgear designed for atmospheres potentially explosive

**e** : Protection type

**II** : Explosion group

**T3** : Temperature class

**VIK** : Specific recommendations for the German market

**INERIS** : Notified Body

**01ATEX0010X** : EC type-examination certificate number

#### Bearings

**DE** : Drive end  
Drive end bearing

**NDE** : Non drive end  
Bearing at non drive end

# LSE - FLSE 3-phase TEFV induction motors for increased safety Maintenance / Installation



## E2 - Documentation - Manuals

LEROY-SOMER manufactures, in its ISO 9001 - Edition 2000 qualified production units, products certified by Notified Bodies: INERIS, LCIE, etc



**EEEx e**

**LSE - FLSE**

Cette notice doit être transmise à l'utilisateur final  
This manual is to be given to the end-user

Moteurs asynchrones triphasés pour atmosphères explosibles gaz type EEx e  
Recommandations spécifiques de mise en service et d'entretien  
Three-phase induction motors for potentially explosive gas atmospheres type EEx e  
Specific recommendations for commissioning and maintenance

Réf. 3606 - 4.33 / a - 7.02

**EN**

**Three-phase induction motors for potentially explosive gas atmospheres type EEx e**

Basic concepts of the instruction manual

This document complements installation and maintenance manual ref. 1889

This document complements installation and maintenance manual ref. 1889

Our motors have degree of protection IP55 (or IP65/IP69 in dusty areas) and we can guarantee their surface temperature. They are designed for use in group II potentially explosive gas atmospheres - category 2 or dust-filled atmospheres in zone 21 (IP 65) or 22 (IP55) and have been CE marked in accordance with Directive ATEX 94/9-EC.

The following instructions should be read in conjunction with standards NF C 15-100, NF EN 60079-17 (electrical apparatus designed for use in the presence of combustible dust), along with all regulations, requirements and good practice concerning the installation and use of equipment in potentially explosive atmospheres. LEROY-SOMER accepts no liability in the event of failure to comply with these rules and regulations.

**Commissioning :**

Ensure compatibility of the information on the motor nameplate with the actual explosive atmosphere, the operating zone, the ambient temperature, the marked temperature (T1 to T6), the mains voltage and frequency.

The maximum storage period is 3 years: after this time, replace the bearings and the seals on the spigots and shaft passages. Even in the event of prolonged storage or downtime, the interval between 2 greasing operations should never exceed 2 years. If one bearing needs to be replaced, the other bearing should also be replaced.

The choice of connection cable is determined by the current, the voltage, the temperature and the cable gland internal diameter.

A qualified operator should be responsible for connection, and should ensure that:

- the tag terminals are welded or crimped tightly on the terminal block
- the air distances are maintained (eg. >10 mm for U<sub>s</sub>=400V)
- the cable is held tight in the cable gland
- IP55 protection is obtained by tightening the joints correctly (it should only be possible to undo them with a tool)
- IP55 protection is obtained by tightening the joints correctly (it should only be possible to undo them with a tool)
- any unused entries are blocked with watertight plugs
- current regulations have been adhered to

If the rotor locks, a protective device should switch off the power supply in less time than the time indicated on the motor nameplate.

If space heaters are used, they should only be switched on when the motor is stopped and cold.

The motors, supplied by a frequency inverter and placed outside the danger zone, are fitted with a winding sensor, a DE shield sensor for frame sizes >160 mm and possibly an NDE shield sensor. These sensors should be connected to a device placed outside the danger zone which switches the motor off to ensure that the maximum surface temperature is never reached.

The drive supply voltage is 400 V ± 10% at 50 Hz. The frequency operating range should not exceed 25/50 Hz.

For motors equipped with a forced ventilation unit, this should have the same EEx e protection and should be commissioned at the same time as the motor (safety device to be incorporated in the cabinet).

If sensors (vibration sensors for example) are fitted, these should have IP 55 degree of protection minimum. They should be connected to the external circuit in a box which provides at least the same degree of protection, placed outside the danger zone.

**During use :**

Remove dust from the machine frequently, ensuring that the layer of dust never exceeds 5 mm and that the cover openings are not obstructed (risk of increased surface temperatures). Drain any condensation water every six months by opening the drain plugs at the bottom of the casing. Clean the drain holes and the plugs. Refit the plugs, replacing the seals to ensure IP55 protection.

The machine should always be cleaned at reduced pressure from the centre of the motor outwards to avoid introducing dust or particles under the seals.

Each time the motor is dismantled, clean all parts, replace the seals on the shaft passages, the shaft spigots and the terminal box cover with new seals of the same type. The seals on the shaft passages should be fitted using the same type of grease as on the bearings.

**All repairs should be carried out by an APPROVED EXPERT REPAIRER.**

Until 30/09/2003, motors introduced onto the market may be fitted with accessories and/or components certified in accordance with the CENELEC regulations relating to electrical equipment for use in group II potentially explosive atmospheres. Motors sold after this date will have to be fitted with accessories or components which have an EC type-examination certificate.

**UNLESS WRITTEN AUTHORISATION HAS BEEN OBTAINED, THE MANUFACTURER CANNOT BE HELD RESPONSIBLE FOR ANY ACTION WHICH COULD AFFECT THE MOTOR'S SAFE OPERATION.**

Under the responsibility of the notified body  
**INERIS**

machines subject to the application of the Machinery Directive and/or assembled in accordance with the "Electrical Equipment for Machinery" and the 5.1989 modified by Directives 92-31 EEC dated 1992/36/EEC

machines in which they are incorporated have been tested in accordance with the applicable decrees, laws, orders, directives, application notes and/or controlled by electronic control or other means. The manufacturer is responsible for ensuring that the motor is installed as observed.

Technical director :

Q1T135 rev C dated 30/04/02

If lost, these documents will be supplied on request.

- Each motor is supplied with accompanying documents which must be handed to the END USER:
- the EC Declaration of Conformity and Incorporation
  - the Instruction Manual consisting of:
    - Recommendations for storing and installing induction motors.
    - Special manual for 3-phase induction motors for explosive gas-filled atmospheres (2G) or gas-filled dusty atmospheres (2GD).

**Warning:** unless the manufacturer's agreement has been obtained in writing, any intervention which might affect the motor protection type is the responsibility of the person carrying out the work.





# Notes



**I - APPLICATION AREA**

Acceptance of our tenders or the placing of any order with us implies acceptance of the following conditions without exception or reservation. These conditions of sale shall prevail over all stipulations appearing on the customer's purchase order, his general conditions of purchase or any other document emanating from him and / or a third party.

A dispensation from these General Conditions of Sale applies to sales concerning foundry parts, which are subject to the European Foundries General Conditions of Sale, latest edition.

**II - ORDERS**

All orders, including those taken by our agents and representatives, by whatever mode of transmission, become valid only after we have accepted them in writing.

We reserve the right to modify the characteristics of our goods without prior warning. However, the customer reserves the possibility to specify technical specifications in the order. Unless such requirements have been notified in writing, the customer will not be able to refuse delivery of new modified goods.

Our company will not accept responsibility for an incorrect choice of goods if this incorrect choice results from incomplete and / or erroneous conditions of use, or conditions that have not been conveyed to the vendor by the customer.

Unless otherwise specified, our tenders and estimates are only valid for thirty days from the date of issue.

When the goods have to satisfy standards, particular regulations and / or be inspected by standards or control organisations, the price request must be accompanied by full specifications with which we must comply with. This is mentioned in the estimate. All test and inspection fees are the customer's responsibility.

**III - PRICE**

Our prices and price lists are shown exclusive of tax and may be revised without prior notice.

Our prices are either firm for the duration specified on the estimate, or subject to revision according to a formula accompanying the tender which, depending on the regulations, covers a change in the cost of raw materials, products, various services and salaries, an index of which is published in the B.O.C.C.R.F. ("Bulletin Officiel de la Concurrence, de la Consommation et de la Répression des Fraudes").

For any order of goods not found in our catalogue, requiring special manufacture, the invoice will include a minimum fixed sum of 600 FRF (six hundred French Francs) exclusive of tax, to cover start - up costs. Any tax due will be charged to the customer.

All related costs, such as customs clearance and special inspections, will be added on.

Customers should remember that the French Franc (or other currency) is being replaced by the Single European Currency (EURO) according to a European Community ruling. In accordance with the general principles of monetary law, references to the French Franc will then as of right be considered to refer to the Euro. This substitution will be enforced on the date and in accordance with the conditions defined by the European Community ruling.

**IV - DELIVERY**

Our export sales are governed by the INCOTERMS published by the International Chamber of Commerce ("I.C.C. INCOTERMS"), latest edition.

Goods are despatched in accordance with the conditions indicated on our order acknowledgement, sent out in response to any order for goods and / or services.

Unless otherwise specified, our prices refer to goods put at customer's disposal in our factories, and include standard packaging.

Unless otherwise specified, goods are always transported at the consignee's risk. Without exception, it is up to the purchaser to raise with the transporter, in the legal form and time limits, any claim concerning the condition or the number of packages received and also to send us at the same time a copy of this declaration. Failure to respect this procedure will relieve us of all responsibility.

In the case of CIF (Cost, Insurance & Freight) or CIP (Carriage & Insurance Paid to) sales, etc..., in the event of damage, our responsibility will only be engaged if any reservations and required declarations have been notified in the required time period, and will not in any case exceed the indemnity sum received from our insurers.

If the arrangements for despatch are modified, we reserve the right to invoice any additional costs arising from such changes. Packages cannot be returned.

Should the delivery of goods be delayed for a reason not attributable to the vendor, goods will be stored on the vendor's premises, at the own risk of the customer, at a charge for storage of 1% (one per cent) of the total order sum per week, beginning, without a grace period, on the day after the scheduled date of delivery indicated in the contract. After thirty days from this date, the vendor has the right to dispose of these goods as he wishes and arrange a new delivery date for the said goods with the customer. In all instances, all down payments received remain the property of the vendor as indemnity, without prejudice to other claims for damages that the vendor may wish to bring.

**V - DELIVERY DATES**

Delivery times are stated for information only, and do not include the month of August.

Delivery dates are counted from the issue date of the order acknowledgement from the vendor and are subject to compliance with the provisions indicated on the order acknowledgement, notably receipt of the down payment for the order, notification of the issuance of an irrevocable letter of credit conforming to all vendor requirements (especially as regards the amount, currency, validity, licence, etc.) and acceptance of the terms of payment with any guarantees which may be required, etc...

In no case does late delivery automatically entitle the customer to damages and / or penalties.

Unless otherwise specified, we reserve the right to make partial deliveries.

Delivery dates are automatically suspended without formal notice, and the vendor shall have no responsibility in cases of Force Majeure, or events beyond the control of the vendor or his suppliers such as delays, saturation, or unavailability of the planned transport methods, energy, raw materials etc., serious

accidents such as fires, explosions, strikes, lock out, or emergency measures taken by the Authorities occurring after the conclusion of the order and preventing its normal execution. Similarly, delivery dates are automatically suspended without formal notice in all cases of failure to perform or late payment by the customer.

**VI - TESTS**

All goods manufactured by the vendor are tested before leaving the factory in accordance with vendor's ISO 9001 certifications. Customers may attend these tests : they simply have to convey the wish to do so in writing when the order is placed.

Specific tests and acceptance tests requested by the customer, whether conducted on the customer's premises, in our factories, on-site, or by inspection organisations, must be noted on the order and are to be paid for by the customer.

Goods specially developed for a customer will have to be approved by the latter before any delivery of mass - produced goods, notified by signing and returning to us the Product Approval Schedule reference Q1. T. 034.

In the event of the customer's insistence on delivery without having signed this form beforehand, the goods will then still be considered as prototypes and the customer will assume sole responsibility for using it or supplying it to his own customers.

**VII - TERMS OF PAYMENT**

All our sales are considered as carried out and payable at the registered office of the vendor, without exception, whatever the method of payment, the place of conclusion of the sale and delivery.

When the customer is based in France, our invoices are payable on receipt in cash, by banker's draft, or by L.C.R. ("Lettre de Change - Relevé"), within thirty days from the end of the month following the invoice date, net and without discount.

When the customer is based outside France, our invoices are payable in cash against delivery of the dispatching documents or by irrevocable documentary credit confirmed by a first class French bank with all bank charges payable by the customer.

Payments must be made in the currency of the invoice.

In accordance with French Law N° 92.1442 dated December 31, 1992, non-payment of an invoice by its due date will give rise, after formal notice, to a penalty equal to one and a half times (1.5) the official rate of interest, and to late payment interest at the bank base rate plus five per cent. If the invoice carries V.A.T. (Value Added Tax), this is calculated on the amount, inclusive of tax, of the remaining sum due and comes into force from the due date.

Should steps have to be taken to recover the said amount, a surcharge of 15% (fifteen per cent) of the sum demanded will be payable.

Moreover, as a consequence of non - payment of an invoice or any term of payment, whatever the method of payment envisaged, the customer shall pay immediately for the whole of the outstanding amount owed to the vendor (including his subsidiaries, sister or parent companies, whether in France or overseas) for all deliveries or services, whatever their initial due date.

Notwithstanding any particular terms of payment arranged between the parties concerned, the vendor reserves the right to demand :

- payment in cash, before the goods leave the factory, for all orders in the process of manufacture, in the event of a problem with payment, or if the customer's financial situation justifies it,
- a down payment for the order.

Unless we are at fault, all down payments are non - returnable, without prejudice to our right to claim damages.

Any payment made in advance of the fixed payment date will lead to a discount of 0.2 % (zero point two per cent) per month of the amount concerned.

**VIII - COMPENSATION CLAUSE**

Unless prohibited by law, the vendor and the customer expressly agree between one another to compensate their respective debts arising from their commercial relationship, even if the conditions defined by law for legal compensation are not all satisfied.

In applying this clause, by vendor we mean any company in the LEROY SOMER group.

**IX - TRANSFER OF RISKS - TRANSFERT OF TITLE**

Transfer of risks occurs upon the handing over of the goods, according to the delivery conditions agreed at the time of ordering.

THE TRANSFER OF TITLE OF THE GOODS SOLD TO THE CUSTOMER OCCURS UPON PAYMENT OF THE WHOLE PRINCIPAL SUM AND INTEREST.

The provision of a document creating an obligation to pay (bank draft or similar) does not constitute payment.

So long as the price has not been paid in full, the customer is obliged to inform the vendor, within twenty - four hours, of the seizure, requisition or confiscation of goods to the benefit of a third party, and to take all safety measures to acquaint others with and respect our right of title in the event of intervention by creditors.

Failure to pay the amount due, whether total or partial, on the due date, for whatever reason and on whatever grounds, authorises the vendor to demand as of right and without formal notice, the return of the goods, wherever they may be, at the customer's expense and risk.

Return of the goods does not imply to cancellation of the sale. However, we reserve the option to apply the cancellation clause contained in these General Conditions of Sale.

**X - CONFIDENTIALITY**

The vendor and the customer undertake to maintain confidentiality of information of a technical, commercial or other nature, obtained during negotiations and / or the execution of any order.

**XI - INDUSTRIAL AND INTELLECTUAL PROPERTY RIGHTS**

The results, data, studies and information (whether patentable or not), or software developed by the vendor during execution of any order, and delivered to the customer, are the sole property of the vendor.

Apart from the instructions for use, servicing and maintenance, reports and documents of any type that we deliver to our customers remain our property and must be returned to us on

request, even when design fees have been charged for them, and they shall not be communicated to third parties or used without the prior written agreement of the vendor.

**XII - CANCELLATION CLAUSE**

We reserve the right to cancel immediately, as of right and without formal notice, the sale of our goods in case of non-payment of any part of the price by the due date, or in case of any breach in the contractual obligations of the customer. In this case, the goods will have to be returned to us immediately, at the customer's own risk and expense, subject to a penalty of 10% (ten per cent) of its value per week of delay. All payments already received shall remain our property as indemnity, without prejudice to our rights to claim damages.

**XIII - WARRANTY**

The vendor warrants the goods against any defect, arising from a default in material or in workmanship, for twelve months starting from the date on which they are made available, according to the conditions defined below.

The warranty for goods with special applications, or goods used 24 hours a day, is automatically reduced by half.

On the other hand, parts or accessories of other origin, which bear their own brand name, are included in our warranty only to the extent of the warranty conditions granted by the suppliers of these parts.

The vendor's warranty will only apply insofar as the goods have been stored, used and maintained in accordance with the vendor's instructions and documentation. It cannot be invoked when the default results from :

- failure to monitor, maintain or store the goods correctly,
- normal wear and tear of goods,
- intervention on or modification to the goods without the vendor's prior authorisation in writing,
- abnormal use, or use not conforming to the intended purpose,
- defective installation at the customer's and / or the final user's premises,
- non-communication, by the customer, of the intended purpose or the conditions of use of the goods,
- failure to use original manufacturer's spare parts,
- Force Majeure or any event beyond the control of the vendor,
- etc ...

In all cases, the warranty is limited to the replacement or the repair of parts or goods recognised as defective by our technical departments. If the repair is entrusted to a third party, it should only be carried out after acceptance by the vendor of the estimate for repair.

No goods should be returned without the vendor's prior authorisation in writing .

Goods to be repaired should be sent prepaid, to the address indicated by the vendor. If the goods have not been repaired under warranty, the cost of dispatching it back will be invoiced to the customer or to the end purchaser.

This warranty applies to our goods in accessible form and therefore does not cover the cost of dismantling and reinstallation of the said goods in the equipment in which they are integrated .

Repair, modification, or replacement of spare parts or goods during the warranty period will not extend the duration of the warranty.

The provisions of this article constitute the only obligation on the part of the vendor concerning the warranty for the goods supplied.

**XIV - LIABILITY**

The vendor will be liable for bodily injury caused by his goods or personnel.

The repair of property damages attributable to the vendor is expressly limited to a sum which may not exceed the amount of the goods found as defective.

It is expressly agreed that the vendor and the customer each waive any right to claim for indirect, consequential and / or punitive damages of any kind, such as loss of production, loss of profit, costs of withdrawal from the market or costs of recall, costs of dismantling and reinstallation of goods, loss of contracts, etc.

**XV - SPARE PARTS AND ACCESSORIES**

Spare parts and accessories are provided on request insofar as they are available. Related costs (carriage and any other costs) are always added to the invoice.

We reserve the right to demand a minimum quantity or invoice a minimum per order.

**XVI - PARTIAL INVALIDITY**

If any provision of these General Conditions of Sale is held to be unenforceable for any reason, it shall be adjusted rather than voided, if possible, in order to achieve the intent of the parties to the extent possible. In any event, all other provisions shall be deemed valid and enforceable to the full extent possible.

**XVII -DISPUTES**

THESE GENERAL CONDITIONS OF SALE ARE GOVERNED BY FRENCH LAW.

ANY DISPUTE RELATING TO OUR SALES, EVEN IN THE CASE OF MULTIPLE DEFENDANTS, SHALL BE, IN THE ABSENCE OF AMICABLE SETTLEMENT AND NOTWITHSTANDING ANY CLAUSE TO THE CONTRARY, SUBJECT TO THE JURISDICTION OF THE COURTS OF ANGOULEME (France).

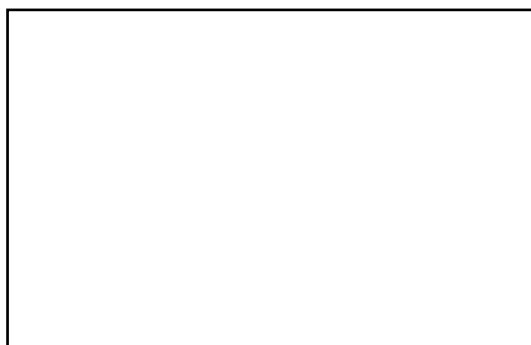


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