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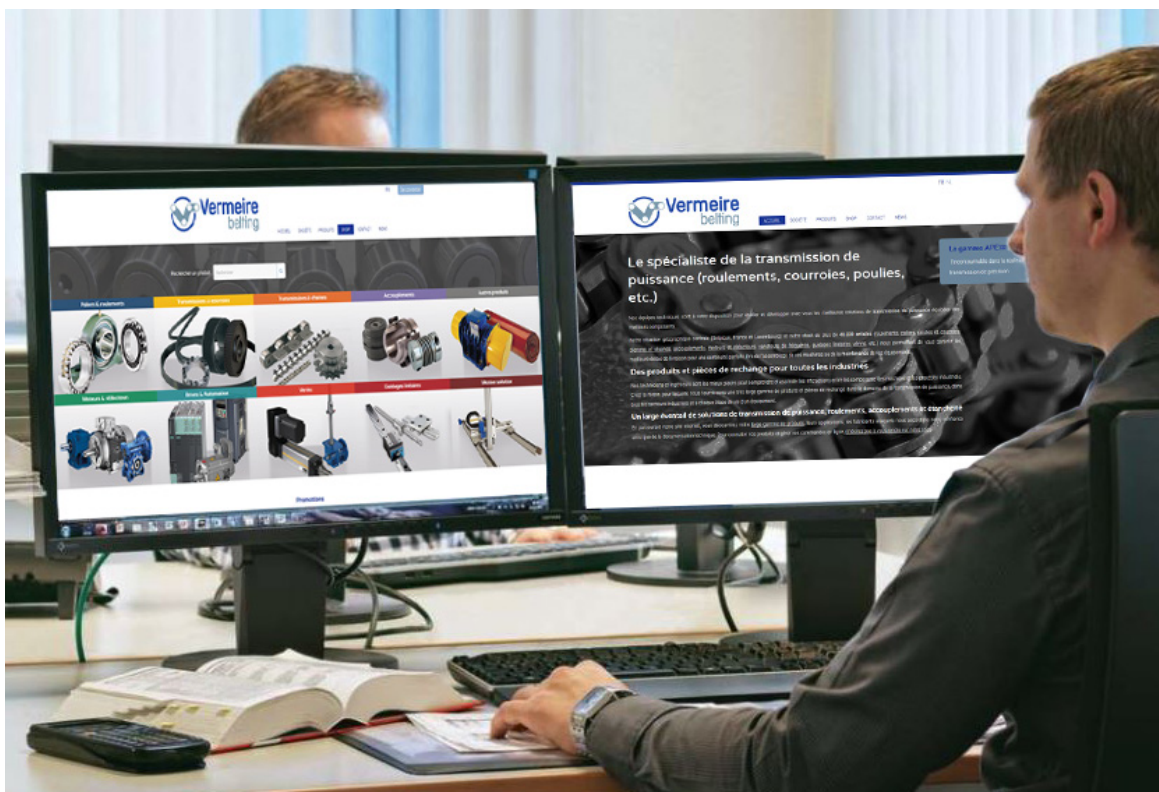
SERAX

Moteurs anti-deflagrants
Explosie veilige motoren
Flame proof motors



Serie RL - RL reeks - RL series
Aluminium

56 - 160



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1. INTRODUCTION

1.0 SI Units

Base units

| Base quantity | Base quantity symbol | SI Name | SI Symbol |
|---------------------------|----------------------|----------|-----------|
| length | <i>l</i> | meter | m |
| mass | <i>m</i> | kilogram | kg |
| time | <i>t</i> | second | s |
| electric current | <i>I, i</i> | ampere | A |
| thermodynamic temperature | <i>T</i> | Kelvin | K |
| amount of substance | <i>n</i> | mole | mol |
| luminous intensity | <i>I_v</i> | candela | cd |

Derived units

| Derived quantity | Derived quantity symbol | SI Name | SI symbol | Expression in terms of other SI units | Expression in terms of SI base units |
|--|-------------------------|----------------|-----------|---------------------------------------|--|
| frequency | hertz | Hz | - | - | s ⁻¹ |
| force | F | Newton | N | - | kg · m · s ⁻² |
| pressure, stress | p | Pascal | Pa | N · m ⁻² | kg · m ⁻¹ · s ⁻² |
| energy, work, quantity of heat | E | joule | J | N · m | kg · m ² · s ⁻² |
| power | P, W | watt | W | J · s ⁻¹ | kg · m ² · s ⁻³ |
| electric charge | q | coulomb | C | | A · s |
| electric potential difference, electromotive force | v | volt | V | J · C ⁻¹ | m ² · kg · s ⁻³ · A ⁻¹ |
| electric resistance | R | ohm | Ω | V · A ⁻¹ | m ² · kg · s ⁻³ · A ⁻² |
| electric conductance | G | siemens | S | A · V ⁻¹ | s ³ · A ² · m ⁻² · kg ⁻¹ |
| capacitance | C | farad | F | C · V ⁻¹ | s ⁴ · A ² · m ⁻² · kg ⁻¹ |
| magnetic flux density | B | tesla | T | V · s · m ⁻² | kg · s ⁻² · A ⁻¹ |
| magnetic flux | Φ(B) | Weber | Wb | V · s | m ² · kg · s ⁻² · A ⁻¹ |
| inductance | L | Henry | H | V · s · A ⁻¹ | m ² · kg · s ⁻² · A ⁻² |
| Celsius temperature | T | degree Celsius | °C | K | |
| plane angle | φ, θ | radiant | rad | 1 | m · m ⁻¹ |
| luminance | | lux | lx | cd · sr · m ⁻² | |

Other derived quantities

| | | | | | |
|-------------------------|---|--|--|-------------------------|--|
| area | A | | | | m ² |
| volume | V | | | | m ³ |
| speed, velocity | v | | | | m · s ⁻¹ |
| angular velocity | ω | | | | s ⁻¹ |
| | | | | | rad · s ⁻¹ |
| acceleration | a | | | | m · s ⁻² |
| Torque, moment of force | M | | | N · m | m ² · kg · s ⁻² |
| moment of inertia | J | | | | kg · m ² |
| mass density | ρ | | | | kg · m ⁻³ |
| specific volume | | | | | m ³ · kg ⁻¹ |
| dynamic viscosity | ρ | | | N · s · m ⁻² | m ⁻¹ · kg · s ⁻¹ |
| | | | | Pa · s | |



1.1 Standards of reference

RAEL motors are constructed in compliance with the following standard.

| Title | EU CENELEC | International IEC |
|---|-------------|-------------------|
| Rotating electrical machines Part 1: Rating and performance | EN 60034-1 | IEC 60034-1 |
| Rotating electrical machines Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles) | EN 60034-2 | IEC 60034-2 |
| Rotating electrical machines. Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code). Classification | EN 60034-5 | IEC 60034-5 |
| Rotating electrical machines Part 6: Methods of cooling (IC Code) | EN 60034 -6 | IEC 60034 -6 |
| Rotating electrical machines Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code) | EN 60034-7 | IEC 60034-7 |
| Rotating electrical machines Part 9: Noise limits | EN 60034-9 | IEC 60034-9 |
| Rotating electrical machines Part 12: Starting performance of single-speed three-phase cage induction motors | EN 60034-12 | IEC 60034-12 |
| Rotating electrical machines Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher - Measurement, evaluation and limits of vibration severity | EN 60034-14 | IEC 60034-14 |
| General purpose three-phase induction motors having standard dimensions and outputs. Frame numbers 56 to 315 and flange numbers 65 to 740 | EN 50347 | IEC 60072-1 |
| Degrees of protection provided by enclosures (IP Code) | EN 60259 | IEC 60529 |
| Electrical apparatus for explosive gas atmospheres Part 0: General requirements | EN 60079-0 | IEC 60079-0 |
| Electrical apparatus for explosive gas atmospheres Part 1: Flameproof enclosures 'd' | EN 60079-1 | IEC 60079-1 |
| Electrical apparatus for explosive gas atmospheres Part 7: Increased safety "e" | EN 60079-7 | IEC 60079-7 |
| Electrical apparatus for use in the presence of combustible dust Part 0: General requirements | EN 61241-0 | IEC 61241-0 |
| Electrical apparatus for use in the presence of combustible dust Part 1: Protection by enclosures "tD" | EN 61241-1 | IEC 61241-1 |



1.2 Tolerances

Mechanical tolerances following EN 50347 and IEC 60072-1:

| Symbol | Description | Tolerance | |
|---------|---|--|----------------------|
| A | Distance between centre-lines of fixing holes (end view) | ± 1 mm | |
| AB | Overall dimensions across the feet (end view) | + 2 % | |
| AC | Diameter of the motor (without terminal box) | + 2 % | |
| B | Distance between centre-lines of fixing holes (side view) | ± 1 mm | |
| C - CA | Distance from the shaft end shoulder to the centre-line of nearest mounting holes in the feet | ± 3 mm | |
| D - DA | Diameter of the shaft extension. | \varnothing 11 – 28 \varnothing 32 – 48 \varnothing ≥ 55 | j6 k6 m6 |
| E - EA | Length of the shaft extension from the shoulder | \varnothing < 55 mm \varnothing > 60 mm | - 0,3 mm + 0,5 mm |
| F - FA | Width of the keyway of the shaft extension | h9 | |
| GA - GC | Distance from the top of the key to the opposite surface of the shaft extension | + 0,2 mm | |
| H | Distance between the centre-line of the shaft to the bottom of the feet | H ≤ 250 H ≥ 280 | - 0,5 mm - 1 mm |
| HD | Distance from the top of the terminal box and to the bottom of the feet | + 2 % | |
| K | Diameter of the holes or width of the slots in the feet of the motor | + 3 % | |
| L | Overall length of the motor with a single shaft extension | + 1 % | |
| M | Pitch circle diameter of the fixing holes | ± 0,8 mm | |
| N | Diameter of the spigot | \varnothing < 230 \varnothing ≥ 250 | j6 h6 |
| P | Outside diameter of the flange | ± 1 mm | |
| R | Distance from the shaft shoulder to the mounting surface of the flange | ± 3 mm | |
| S | Diameter of the fixing holes in the mounting flange or nominal diameter of thread | + 3 % | |
| | Distance from the shaft shoulder to the mounting surface of the flange with locked bearing | ± 0,5 mm | |
| | Mass of the motor | - 5 a + 10 % | |

Tolerances electrical parameter following EN 60034-1 and IEC 60034-1:

| Quantity | Tolerance |
|---|--|
| Efficiency (η) | - 0,15 (1- η) for $P_N \leq 50$ kW |
| Total losses | +10% |
| Power factor (Cos φ) | $\frac{1-\cos\varphi}{6}$ minimum absolute value 0,02 maximum absolute value 0,07 |
| Slip (rpm) (at full load and working temperature) | ± 30% per $P_N < 1$ kW ± 20% per $P_N \geq 1$ kW |
| Locked rotor current (I_A) | + 20% |
| Locked rotor torque (T_A) | -15% a +25% |
| Breakdown torque (T_{max}) | -10% (for this tolerance the value T_{max}/T_n should be at least 1,6) |
| Moment de Inertia (J) | ±10% |
| Sound intensity level (sound pressure) | +3 dB (A) |

1.3 Hazardous places



1.3.1 General information

DIRECTIVE 1999/92/EC on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.

'Explosive atmosphere' means a mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture.

The directive gives information regarding '**Classification of places where explosive atmosphere may occur**'.

The classification of hazardous places in zones competes to the customer whose working centres and activities contain or give place to such dangers.

The safety against explosion can be only reached with the contribution, and the mutual informative exchange, both the manufacturer and the final users.

INDICATIONS REGARDING THE CLASSIFICATION OF PLACES WHERE EXPLOSIVE ATMOSPHERES MAY OCCUR

For the classification of the areas reference to the relative harmonized technical norms regarding the specific fields:

- EN 60079-10 (IEC 60079-10) Electrical apparatus for explosive gas atmospheres.
Part 10: Classification of hazardous areas.
- EN 61241-10 (IEC 61241-10) Electrical apparatus for use in the presence of combustible dust
Part 10: Classification of areas where combustible dusts are or may be present.

Zone 0

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is present continuously or for long periods or frequently.

Note: In general, said conditions, when they present, they interest the inside of tanks, tubes and containers, etc.

Zone 1

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is likely to occur in normal operation occasionally.

Note: such zone can also comprise:

- places in the immediate vicinities of zone 0;
- places in the immediate vicinities of the feeding openings;
- places in the immediate vicinities of the filling openings and emptying;
- places in the immediate vicinities of apparatuses, systems of protection and fragile components of glass, ceramics and analogous materials;
- places in the immediate vicinities of glands not sufficiently sealing, as an example on pumps and valves with glands.

Zone 2

A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

Note: such zone can also comprise, surrounding places zones 0 or 1.

Zone 20

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently.

Note: In general, said conditions, when they present, they interest the inside of tanks, tubes and containers, etc.

Zone 21

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.

Note: such zone can also comprise, for example, places in the immediate vicinities of loading points and powder emptying and places in which powder layers are formed or that, during the normal operation, could produce one explosive combustible powder concentration in mixture with the air.

Zone 22

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

Note: such zone can also comprise, places in proximity of apparatuses, systems of protection and components containing powders, from which the powders can leak out because of losses and to form layers of powders (for example salt from milling, in which the powder leak from the mills and it is deposited).

Notes:

1. Layers, deposits and heaps of combustible dust must be considered as any other source which can form an explosive atmosphere.
2. 'Normal operation' means the situation when installations are used within their design parameters.



1.3.2 Classification of the equipment for areas where explosive atmosphere may occur

GROUPS AND CATEGORIES OF APPARATUSES

Within the directive 94/9/CE, the apparatuses, comprised if necessary the devices and the components are divided in two groups.

Group I comprises equipment intended for use in the underground parts of mines, and to those parts of surface installations of such mines, likely to become endangered by firedamp and/or combustible dust.

It is sub-divided into 2 Categories, as shown below:

- Category M1:** very high level of protection
- Category M2:** high level of protection

Group II comprises equipment intended for use in other places likely to become endangered by explosive atmospheres.

It is sub-divided into 3 Categories, as shown below

- Category 1:** very high level of protection
- Category 2:** high level of protection
- Category 3:** normal level of protection

For the type of protection "d", "i", "nC" and "nL", the electrical apparatus of Group II are subdivided in IIA, IIB and IIC, like prescribed in the relative specific European Norms regarding these types of protection.

How much higher is the possibility that an explosive atmosphere can take place, much higher must be the level of the adopted safety measures.

CRITERIA FOR THE CHOICE OF THE APPARATUSES AND THE SYSTEMS OF PROTECTION

In case the document on the protection against explosion based on the risk assessment does not preview otherwise, in all the areas in which explosive atmospheres can be formed are used apparatuses and systems of protection correspondents to the categories as per directive 94/9/CEE.

In particular, in such areas the following categories of apparatuses are used, provided that adapted, to second of the cases, to gas, vapours or fogs and/or powders:

- in zone 0 or zone 20, apparatuses of category 1;
- in zone 1 or zone 21, apparatuses of category 2;
- in zone 2 or zone 22, apparatuses of category 3;

Below you can find an outline for the choice of means of protection in function of the use zone.

| GRUOP | CATEGORY | Means of protection | | | Explosive atmosphere presence | Zone |
|-------|----------|---------------------|--|---|--|-------------------------------|
| | | Level | Characteristic of protection (All. I) | Characteristic of protection (All. II) | | |
| II | 1 | Very high | In case of breakdown of means of protection, the level of safety is guaranteed from at least a second independent mean of protection. Moreover, the level of safety is guaranteed even if two independent anomalies are manifested | They must be planned and manufactured so that the sources of ignition are not activated, not even in case of exceptional anomalies of the apparatus | continuously or for long periods | 0 1 2 20 21 22 |
| | 2 | High | The level of safety is guaranteed also in presence of recurrent anomalies or defects of operation of the apparatuses of which it is habitually necessary to hold account. | They must be planned and manufactured so as to avoid sources of ignition, also in case of recurrent anomalies or defects of operation of the apparatuses of which it is habitually necessary to hold account. | Intermediate situation between previous and the successive one | 1 2 21 22 |
| | 3 | Normal | The level of safety is guaranteed in the normal operation. | They must be planned and manufactured so as to avoid sources of ignition expectable during the normal operation. | Scarce probability and if it take place is of short duration | 2 22 |

1.4 Temperature Classes

1.4.1 Explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist (GAS)

Ignition temperature of an explosive gas atmosphere

Lowest temperature of a heated surface which, under specified conditions according to IEC 60079-4, will ignite a flammable substance in the form of a gas or vapour mixture with air.

Maximum surface temperature

Highest temperature which is attained in service under the most adverse conditions (but within the specified tolerances) by any part or surface of an electrical apparatus, which would be able to produce an ignition of the surrounding explosive atmosphere.

Group II electrical apparatus, in function of their maximum surface temperature shall be marked either classified in a temperature class given in Table below:

**Classification of maximum surface temperatures
for Group II electrical apparatus**

| Temperature class | Maximum surface temperature (°C) |
|-------------------|----------------------------------|
| T1 | 450 |
| T2 | 300 |
| T3 | 200 |
| T4 | 135 |
| T5 | 100 |
| T6 | 85 |

The maximum surface temperature shall not exceed the lowest ignition temperature of the explosive atmospheres concerned.

As far as the electric motors the maximum surface temperature will be referred to the temperature of:

the **external surface** of the enclosure as far as the *Flameproof enclosures 'd'* (EN 60079-1, IEC 60079-1) and *Equipment protection by pressurized enclosures 'p'* (EN 60079-2, IEC 60079-2)

all the surfaces both external and internal as far as the *Increased safety "e"* (EN 60079-7, IEC60079-7) and the *Construction, test and marking of type of protection 'n' electrical apparatus* (EN 60079-15, IEC 60079-15).

Below there is a representing table of the main inflammable gaseous substances subdivided for group of gas with relative temperatures of ignition and classes of temperature.



Main inflammable substances subdivided for group of gas (IIA, IIB, IIC) and temperature of ignition.

| Inflammable substance | Group of GAS | temperature of ignition | Class of Temperature (°C) | Inflammable substance | Group of GAS | temperature of ignition | Class of Temperature (°C) |
|-----------------------|--------------|-------------------------|---------------------------|-----------------------|--------------|-------------------------|---------------------------|
| 2-Methylpentane | IIA | 300 | T2 | Ethyl formate | IIA | 440 | T2 |
| Amyl acetate | IIA | 360 | T2 | Methyl formate | IIA | 450 | T1 |
| Butyl-n acetate | IIA | 425 | T2 | Natural gas | IIA | 482 | T1 |
| Ethyl acetate | IIA | 426 | T2 | Isobutane | IIA | 460 | T1 |
| Isobutil acetate | IIA | 420 | T2 | Isoheptane | IIA | 220 | T3 |
| Methyl acetate | IIA | 502 | T1 | Isohexane | IIA | 264 | T3 |
| Propil acetate | IIA | 430 | T2 | Isooctane | IIA | 410 | T2 |
| Vinyl acetate | IIA | 425 | T2 | Isoprene | IIA | 220 | T3 |
| Acetone | IIA | 465 | T1 | Methane | IIA | 537 | T1 |
| Methanol | IIA | 464 | T1 | Methylcyclopentane | IIA | 258 | T3 |
| Bromethane | IIA | 511 | T1 | Methylamine | IIA | 430 | T2 |
| Butane | IIA | 287 | T3 | Methylmetacrylate | IIA | 430 | T2 |
| Butene - 1 | IIA | 384 | T2 | Paraldehyde | IIA | 239 | T3 |
| Butene - 2 | IIA | 325 | T2 | Pentane | IIA | 258 | T3 |
| Cycloexano | IIA | 259 | T3 | Pyridine | IIA | 483 | T1 |
| Cycloexanol | IIA | 300 | T2 | Propane | IIA | 470 | T1 |
| Cyclohexanone | IIA | 419 | T2 | Propylamine | IIA | 318 | T2 |
| Cyclohexene | IIA | 244 | T3 | Propylbenzene | IIA | 450 | T1 |
| Cyclopropane | IIA | 498 | T1 | Propylene | IIA | 455 | T1 |
| Cymene (p) | IIA | 436 | T2 | Styrene | IIA | 490 | T1 |
| Chloro-benzene | IIA | 637 | T1 | Toluene | IIA | 480 | T1 |
| Acetyl chloride | IIA | 390 | T2 | m-Xylene | IIA | 522 | T1 |
| Allyl chloride | IIA | 390 | T2 | o-Xylene | IIA | 464 | T1 |
| Chlorbutane | IIA | 240 | T3 | p-Xilene | IIA | 528 | T1 |
| Chloroethane | IIA | 495 | T1 | 1,2 Butadiene | IIB | 430 | T2 |
| Vinyl chloride | IIA | 472 | T1 | 1,3 Butadiene | IIB | 430 | T2 |
| Dichlorobenzene | IIA | 648 | T1 | Dioxane | IIB | 245 | T3 |
| Dichloroethylene 1,1 | IIA | 570 | T1 | Diethyl ether | IIB | 160 | T4 |
| Dichloroethylene 1,2 | IIA | 441 | T2 | Ethyl vinyl ether | IIB | 200 | T3 |
| Diethylamine | IIA | 312 | T2 | Methyl vinyl ether | IIB | 350 | T2 |
| Dimethylamine | IIA | 400 | T2 | Acrylate ethyl | IIB | 350 | T2 |
| Dimethylaniline | IIA | 371 | T2 | Ethylene | IIB | 425 | T2 |
| Dimethylbutane 2,3 | IIA | 405 | T2 | LPG | IIB | 365 | T2 |
| Dimethylpentane 2,3 | IIA | 330 | T2 | Sulphurated Hydrogen | IIB | 260 | T3 |
| Heptane | IIA | 215 | T3 | Methylacrylate | IIB | 415 | T2 |
| Hexane | IIA | 233 | T3 | Carbon monoxide | IIB | 605 | T1 |
| Heptane | IIA | 515 | T1 | Ethylene oxide | IIB | 435 | T2 |
| Ethylacetoacetate | IIA | 350 | T2 | Propylene oxide | IIB | 430 | T2 |
| Ethylamine | IIA | 385 | T2 | Acetylene | IIC | 305 | T2 |
| Ethylmercaptane | IIA | 295 | T3 | Hydrogen | IIC | 500 | T1 |
| Butyl formate | IIA | 320 | T2 | Carbon disulfide | IIC | 95 | T6 |

1.4.2 Explosive atmosphere in the form of a cloud of combustible dust (DUST)

We take in consideration protection by enclosures "tD" (*Ex tD A*). The ignition protection is based on the limitation of the maximum surface temperature of the enclosure and on other surfaces which could be in contact with dust and on the restriction of dust ingress into the enclosure by the use of "dust-tight" or "dust-protected" enclosures.

The choice of these constructions so to avoid primes due to excessive surface temperatures must be carried out in function of the limits of temperature of ignition for the presence of flammable dust both in form of clouds and layers.

In case of presence of flammable dust cloud, the maximum surface temperature will be

$$T_{\max(1)} = 2/3 \cdot T_{cl} \quad \text{with } T_{cl} \text{ ignition temperature in } ^\circ\text{C} \text{ of the dust cloud.}$$

While in case of presence of a flammable dust layer:

$$T_{\max(2)} = T_l - 75 \text{ } ^\circ\text{C} \quad \text{with } T_l \text{ ignition temperature in } ^\circ\text{C} \text{ of a layer of dust 5 mm thick.}$$

The surface temperature must be smaller or equal to the minimum value between $T_{\max(1)}$ e $T_{\max(2)}$.

Main inflammable substances (DUST) and their own maximum surface temperature

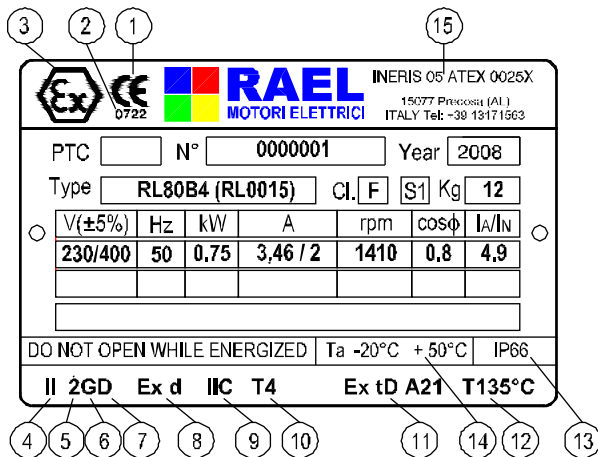
| Substance | Medium largeness particles (μm) | LEL (g/m ³) | Cloud ignition temperature T_{cl} ($^\circ\text{C}$) | Layer 5mm thick ignition temperature T_l ($^\circ\text{C}$) |
|--|--|-------------------------|--|---|
| Metals, alloys | | | | |
| Aluminium | 10 | 60 | 560 | 430 |
| Bronze | 18 | 750 | 390 | 260 |
| Iron | 12 | 500 | 580 | >450 |
| Graphite | 7 | 30 | 600 | 680 |
| Lamp-black (carbon black) | 13 | 15 | 620 | 435 |
| Sulphur | 20 | 30 | 280 | 260 |
| Wood, products of wood, fibres | | | | |
| Paper | | 100 | 620 | 370 |
| Cellulose (93% sweet wood, 6% hard wood) | 14 | 15 | 420 | 335 |
| wood flour | 60 | | 470 | 305 |
| Wood (50% pear tree and 50% kernel) | 35 | 100 | 500 | 340 |
| Wood (beech) | 61 | | 490 | 310 |
| Wood (pear tree) | 27 | 100 | 500 | 320 |
| Sawdust of wood | 65 | | 470 | 290 |
| Cork | 42 | 30 | 470 | 300 |
| Agricultural products | | | | |
| Cacao | 3 | 125 | 460-540 | 245 |
| Coffee | 10 | 25 | 360 | 450 |
| Cereals (mixed powders) | 37 | 125 | 510 | 300 |
| Wheat flour | 56-125 | 60 | 480 | >450 |
| Soy flour | 20 | 200 | 620 | 280 |
| Gelatine | 65 | 60 | 560 | >450 |
| Wheat | | 100 | 470 | 220 |
| Dry milk | 165 | 60 | 460 | 330 |
| Milk sugar | 22 | 60-125 | 450 | >450 |
| Rye | | | 415-470 | 325 |
| Buttermilk | 400 | | 450 | 420 |
| Tobacco | | 60 | 485 | 290 |
| Black tea | 76 | 125 | 510 | 300 |
| Sugar | 32 | 30 | 360 | >450 |
| Powdered sugar | 17 | 60 | 350 | >450 |

1.5 Electric motor choice

After speaking about classification of areas with explosion atmosphere, motors groups and categories and classes of temperature, we can enter in the detail of the choice of the type of protection of the motor and the reading of the motor marking.

| Explosive atmosphere type | | | Motor Marking | | | | | | |
|---------------------------|----------------------------------|------------|---------------|-------|--------------------|----------------------------|---------------------------|---------------------------------------|------|
| Area Classification | Presence of explosive atmosphere | Protection | Category | Group | Type of Protection | Gas Group | Temperature Class | IP degree | |
| GAS | Zone 1 | Probable | High | II | 2G | Ex d (Ex de on request) | IIC IIB ^(d) | T4 (T5 e T6 on request) | - |
| | Zone 2 | Improbable | Normal | II | 2G | Ex d (Ex de on request) | IIC IIB ^(d) | T4 (T5 e T6 on request) | - |
| POLVERI | Zone 21 | Probable | High | II | 2D | Ex tD A21 | - | T135°C (T100°C e T85°C on request) | IP6x |
| | Zone 22 | Improbable | Normal | II | 2D | Ex tD A21 | - | T135°C (T100°C e T85°C on request) | IP6x |

Description of the marking on motor plate



- 1 Marking of conformity in compliance with the European Directives
- 2 Number of Notified Body that gives the Product Quality Assurance Notification
- 3 Specific marking of explosion protection
- 4 Group (surface plants different from mines)
- 5 Category (high protection)
- 6 Explosive atmosphere for the presence of flammable gas, vapour or mist (GAS)
- 7 Explosive atmosphere for the presence of a cloud of combustible dust
- 8 Type of protection for explosive atmosphere for the presence of flammable gas
- 9 GAS Group
- 10 Temperature class of the motor (GAS)
- 11 Type of protection for explosive atmosphere for the presence of a cloud of combustible dust
- 12 Maximum surface temperature of the motor (DUST)
- 13 IP protection degree
- 14 Range of room Temperature
- 15 Type Certificate Number

- a) RAEL motors for zones 21 and 22 have protection type Ex tD A21 (DUST) matched with protection type Ex d (or Ex de) (GAS).
- b) On request is possible to have motors Ex de with motor 'd' and increased safety terminal box 'e'.
- c) Motors marked with gas group IIC are suitable to be used also when are requested gas groups IIB e IIA.
- d) Single-phase motors with internal capacitors can be marked IIC and IIB and are suitable also for IIA (see page 34) .
- e) Motors with temperature class T4 (gas) are suitable to be used also when are requested temperature classes T3, T2, T1. (On request is possible to have temperature classes T5 e T6).
- f) IP degree protection will be IP55 for GAS and IP66 for DUST.
- g) Room temperature range is as follow:
 -20° +50°C for temperature class T4 and surface temperature T135°C (on request is possible to have -20° +60°C)
 -20° +50°C for temperature class T5 and surface temperature T100°C
 -20° +40°C for temperature class T6 and surface temperature T85°C



2. GENERAL INFORMATION

2.1 Range of Motors

Motors RL series are manufactured in compliance with all the European standards concerning equipment and protective systems for potentially explosive atmosphere in compliance with the European Directive ATEX 94/9/CE (better known as ATEX).

As we just told in par. 2.0 to be in compliance with ATEX Directive are necessary:

- EC type Certificate
- Product Quality assurance Notification

Such certificates are issued by notified bodies qualified to release them.

Motors RL series group II category 2G (GAS) with IP%% protection are suitable for zone 1 and zone 2, while the motors group II category 2GD (GAS-DUST) with protection IP66 are suitable also for zone 21 and zone 22.

| Version | Frame size (mm) | Power (kW) | Poles | GAS Group | Temperature Class 2G motors | Surface temperature 2GD motors | Ambient Temperature |
|--|-----------------|--------------------|-------|--------------------|-----------------------------|--------------------------------|------------------------------|
| Three phase - 1 speed 2 - 4 - 6 - 8 poles | 56 - 160 | 0,06 - 18,5 | 2 | IIC | T4 ^(a) | T 135 °C ^(a) | -20°C a +50°C ^(c) |
| | | 0,06 - 15 | 4 | | | | |
| | | 0,035 - 11 | 6 | | | | |
| | | 0,06 - 7,5 | 8 | | | | |
| Three phase - 2 speeds (Constant Torque), 2/4 - 4/8 - 4/6 - 6/8 poles | 63 - 160 | 0,25/0,18 - 15/12 | 2/4 | IIC | T4 ^(b) | T 135 °C ^(b) | -20°C a +50°C ^(c) |
| | | 0,18/0,09 - 10/6,6 | 4/8 | | | | |
| | | 0,2/0,1 - 8,8/5,9 | 4/6 | | | | |
| | | 0,08/0,12 - 5,5/4 | 6/8 | | | | |
| Three phase - 2 speeds (Quadratic Torque), 2/4 - 4/8 - 4/6 - 6/8 poles | 63 - 160 | 0,25/0,06 - 16/4,4 | 2/4 | IIC | T4 ^(b) | T 135 °C ^(b) | -20°C a +50°C ^(c) |
| | | 0,25/0,05 - 12/3,2 | 4/8 | | | | |
| | | 0,3/0,1 - 11/3,3 | 4/6 | | | | |
| | | 0,33/0,09 - 7,5/4 | 6/8 | | | | |
| Three-phase for Inverter 2 - 4 - 6 - 8 poles | 56 - 160 | 0,06 - 18,5 | 2 | IIC | T4 | T 135 °C | -20°C a +50°C ^(c) |
| | | 0,06 - 15 | 4 | | | | |
| | | 0,035 - 11 | 6 | | | | |
| | | 0,06 - 7,5 | 8 | | | | |
| Single-phase 2 - 4 - 6 poles | 56 - 100 | 0,06 - 3 | 2 | IIB ^(d) | T4 | T 135 °C | -20°C a +50°C ^(c) |
| | | 0,06 - 1,6 | 4 | | | | |
| | | 0,06 - 1,1 | 6 | | | | |

^(a) Available also in version T5 (T100°C) and T6 (T85°C) on request

^(b) Available also in version T5 (T100°C) on request


^(c) Available also range of ambient temperature -20°C to +60°C for T4 (T135°C) on request
(for motor T6 (T85°C) the ambient temperature range is -20°C +40°C)

^(d) Available also IIC (frame 56-63-71 see page 34)



2.2 Main features

Motors RL are in conformity with the Essential Health and Safety Requirements for potentially explosive atmospheres provided by European Standards: EN 60079-0, EN 60079-1, EN 60079-7, EN 61241-0, EN 61241-1, EN 60529.

- Three-phase and single-phase squirrel cage asynchronous induction motors.
- Aluminium modular motors, flanges and feet can be assembled and disassembled.
- Type of protection  Ex d, Ex de, Ex tD.
- Overall dimensions comply with IEC 60072 and EN 50347.
- Ventilations **IC 418** (Self ventilated).
- Voltage 230/400 V \pm 5% Δ/Y (56 - 112), 400/690 V \pm 5% Δ/Y (132 - 160), frequency 50 Hz \pm 2%.
- Insulation Class F.
- Protection degree IP55 for zone 1 and zone 2, IP66 for zone 21 and zone 22.
- Maximum noise level 80 dB (A).
- Terminal box (see 3.1):
 - Version Ex d IIC
 - Version Ex e IIC
 - Version without terminal box, motor comprehensive of cable
 - Version Ex d IIB terminal box **A**
(for single-phase - 1 capacitor)
 - Version Ex d IIB terminal box **B**
(for high torque single-phase - 2 capacitors, starting system, soft-starter, poles commutation system)
 - Version Ex d IIB terminal box **C**
(Motor provided with contactor system for starting, soft-starter, contactor system for pole commutation)
- Fan cover in sheet steel.
- Low friction dust seals.

2.3 Main Options

Motors Versions

- Motors 2GD protection degree IP66 suitable for zone 21 and zone 22.
- Special Powers on frame 132 and 160
- Motors without ventilation (**IC 410**).
- Motors with servo-ventilation (**IC 416**).
- Single phase version Ex d IIB with high starting (1 run capacitor – 1 start capacitor).
- Motors with starting system inside the terminal board.

Electrical and mechanical variants

- Special voltage and frequency.
- Thermal protectors (probe PTC or PTO).
- Anticondesation heaters.
- Insulation class H.
- Motors tropicalized.
- Motors suitable for frequency invert drive.
- Double shaft motors.
- Special shafts.
- Special flanges.
- Motor without terminal box with cable (length on request).
- Terminal box on the side (right or left).
- Terminal box with special cable glands.
- Increased safety 'e' terminal box.
- Terminal box type A, B, C for special purpose.
- Protection IP66.
- Temperature class T5 e T6.
- Fan cover with roof.
- Special bearings.
- Locked front bearing.

Tests

All RAEL motors are 100% tested, both at the beginning (winding test) and the end of production (motor electric test).

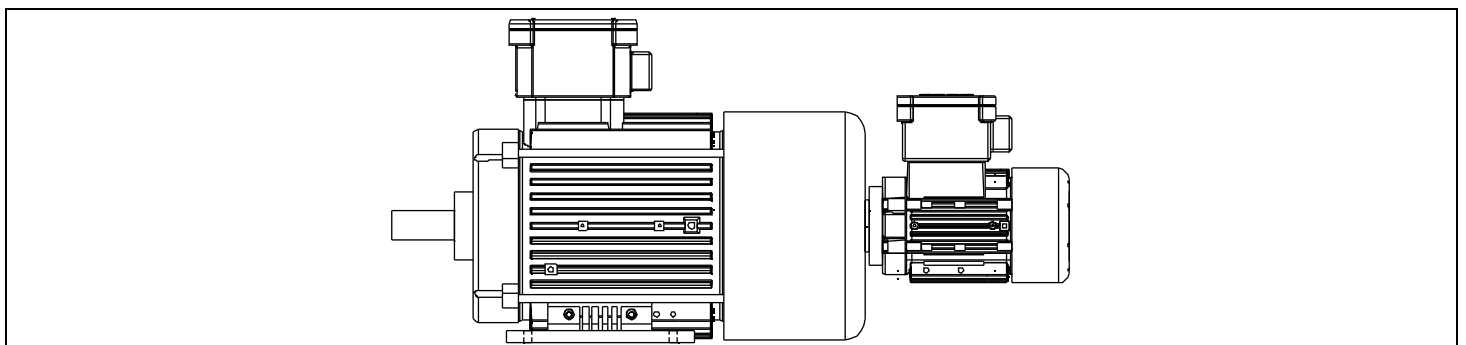
On request additional tests on the motors can be done:

- Standard test "Routine Test".
- Heating test.

Servo-Ventilation (IC416)

Cooling is provided by an auxiliary Ex motor, fitted on the back of the main motor. In RL series the auxiliary motor we use for this purpose is the size 56.

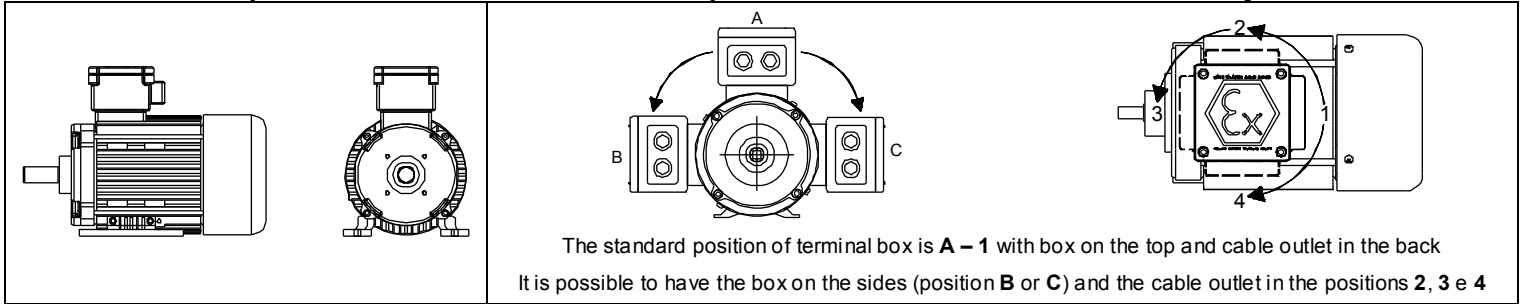
The user shall use an electric device that enables the main motor to run only when the auxiliary motor is already running.



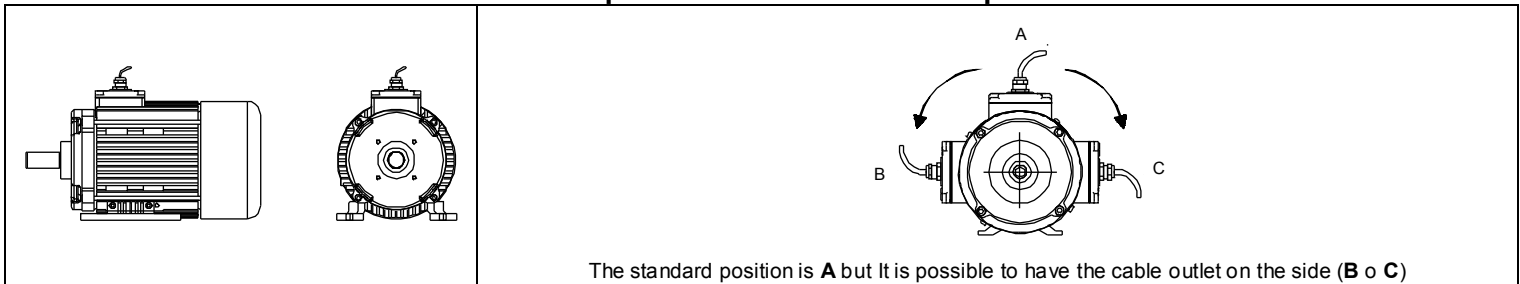
3. TERMINAL BOX

3.1 Possible versions

a. Three phase version Ex d IIC and three phase version Ex e IIC increased safety "e"

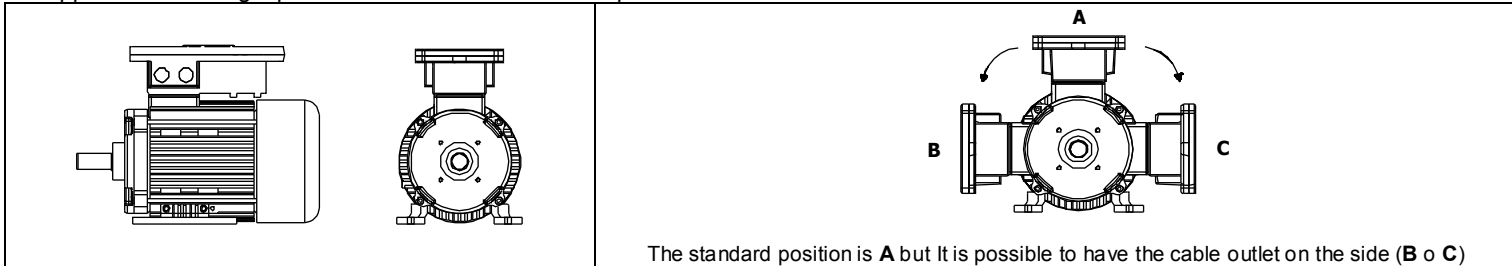


b. Motor without terminal box comprehensive of cable. Three phase version Ex d IIC



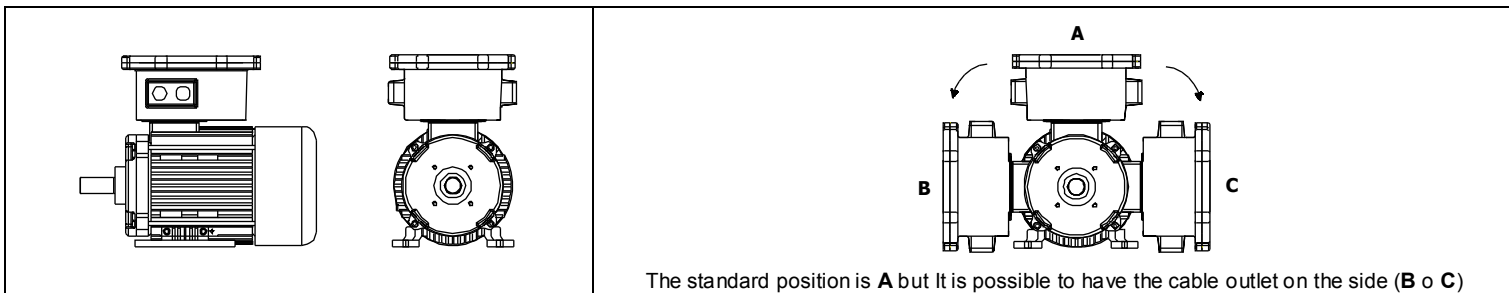
c. Motor with terminal box A Version Ex d IIB+H

Application: single phase motor with internal run capacitor



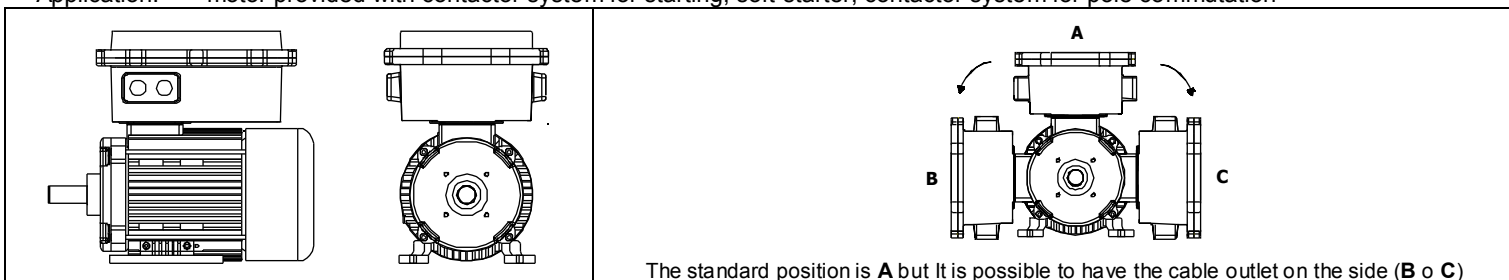
d. Motor with terminal box B Version Ex d IIB

Application: - single phase motor with high starting torque with internal run and start capacitor
- motor provided with contactor system for starting, soft-starter, pole commutation system



e. Motor with terminal box C Version Ex d IIB

Application: motor provided with contactor system for starting, soft-starter, contactor system for pole commutation



3.2 Cable entries and terminals

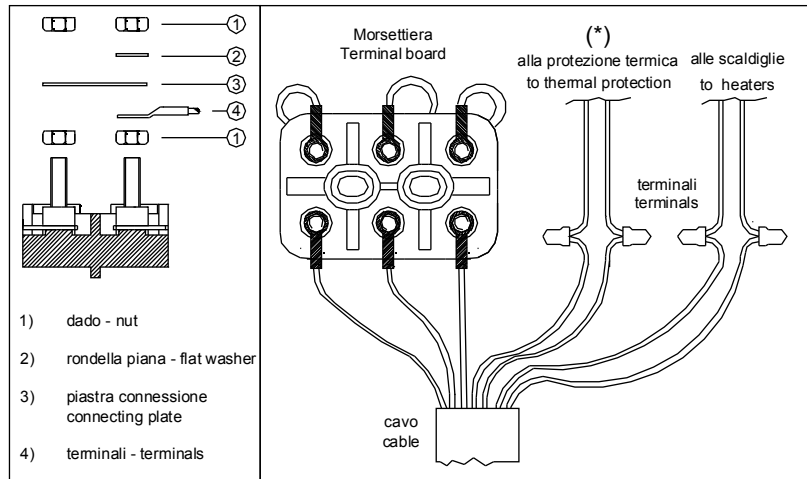
Motor version Ex 'd' must be provided with cable entries that comply with EN 60079-1.
 Motor version Ex 'de' must be provided with cable entries that comply with EN 60079-7.
 Motor version Ex tD must be provided with cable entries that comply with EN 61241-1.

| | | Cable entries | | | Terminals |
|---|-------------|---------------|--------------------------------------|--|-----------------|
| | | Frame | Standard | On request | |
| Three phase version | Mains | 56 - 90 | 1 x M20 | 1 x NPT 1/2" | M4 |
| | | 100 - 112 | 1 x M25 | 1 x NPT 3/4" | M5 |
| | | 132-160 | 2 x M32 | 2 x NPT 1" | M6 |
| | Auxiliaries | 56-160 | 1 x M20 | 1 x NPT 1/2" | See (1) and (2) |
| Version with increased terminal box A, B, C | - | 56 - 112 | Up to n.4 cable entries M20 o M25 | Up to n.4 cable entries NPT 3/4" o NPT 1" | |

When the motor is provided with a thermal protection and/or heaters these must have a separate cable entry and the connection shall be done as shown below (depending on the type of terminal box):

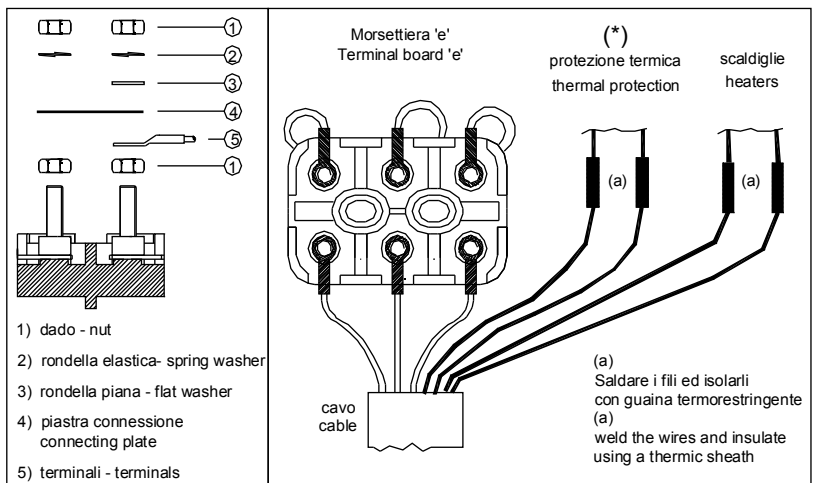
(1) Terminal box version Ex 'd'

(Terminal board 6 pins)



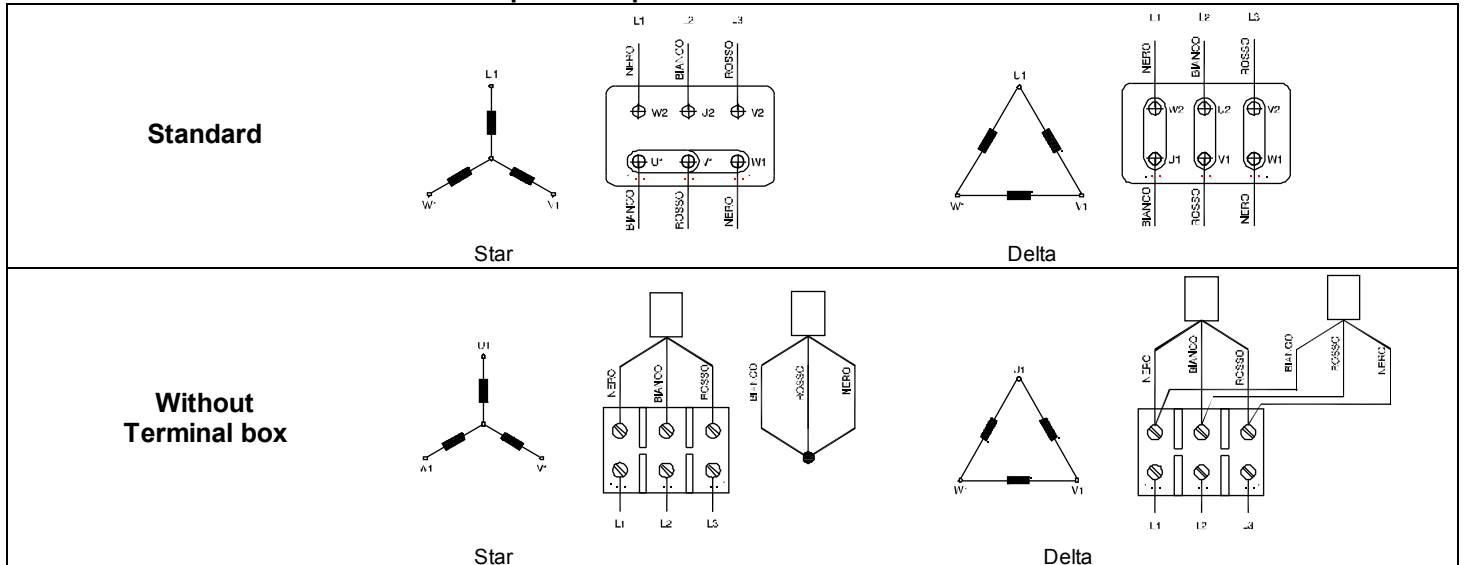
(2) Terminal box version Ex 'e'

(Terminal board 6 pins increased safety 'e')

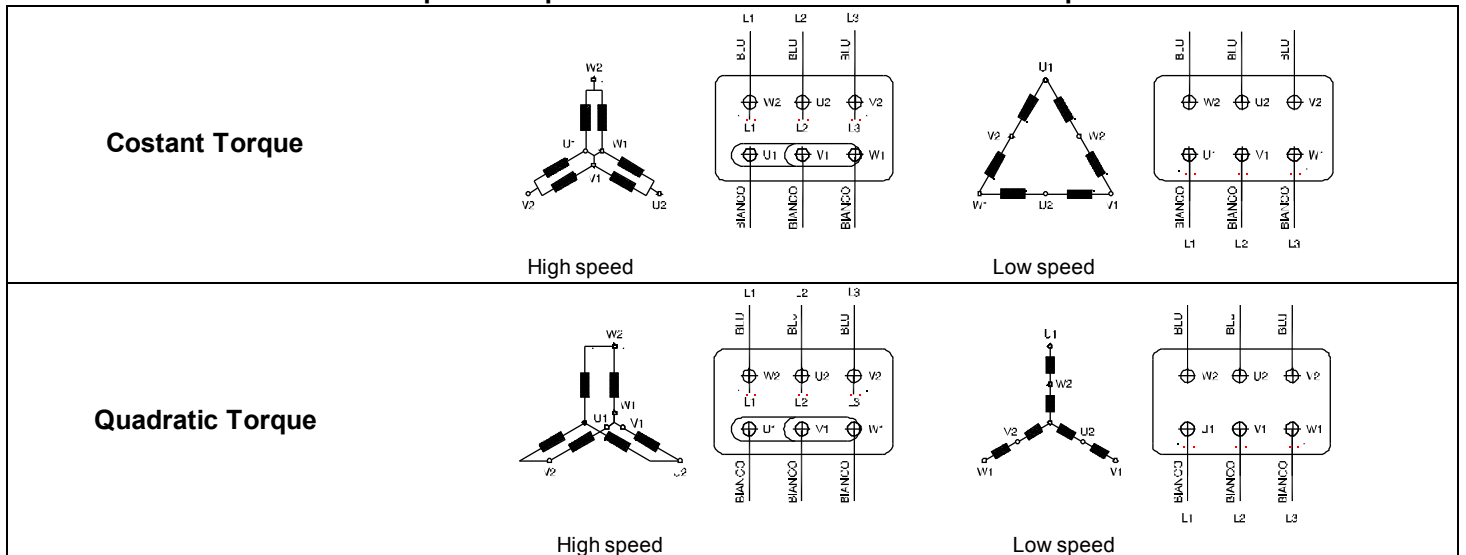


3.3 Connecting diagrams

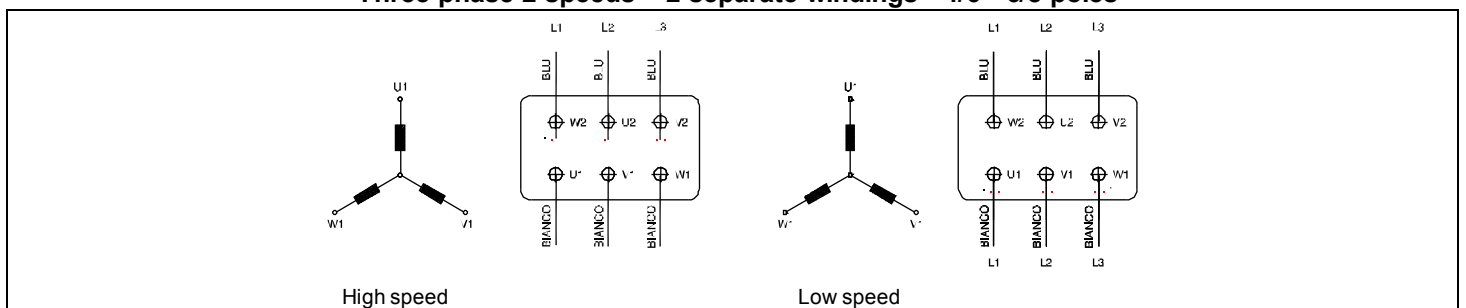
Three phase 1 speed – Star and delta connection



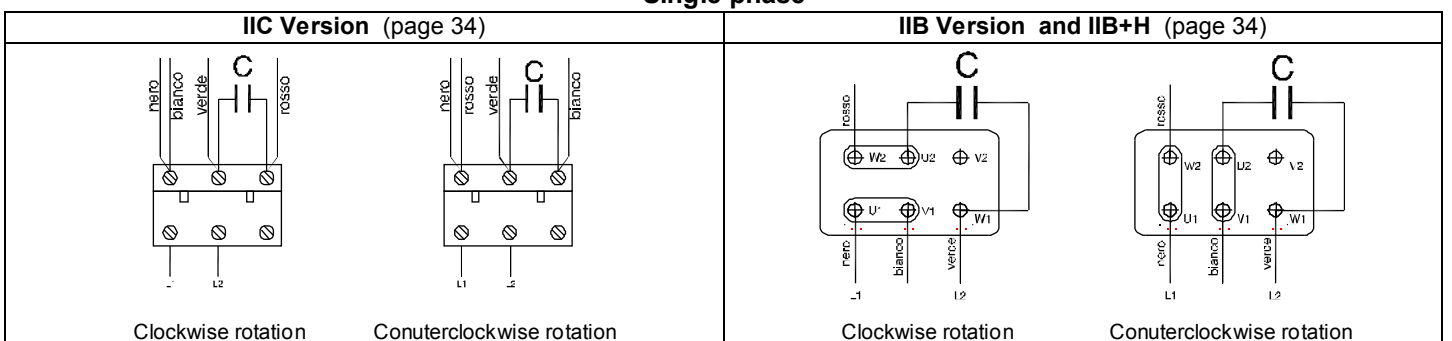
Three phase 2 speeds – Dahlander Connection - 2/4 - 4/8 poles



Three phase 2 speeds – 2 separate windings - 4/6 - 6/8 poles



Single phase



4. MECHANICAL CHARACTERISTIC

4.1 Mounting arrangements

RL motors can be made in the mounting arrangements as shown in the table.

Such motors are designed and manufactured with modular feet and flanges, so to ease the change of mounting arrangement and to optimize the warehouse management.

The basic mounting arrangements are shown in the standard EN 60034-7. Motors with mounting arrangements IM B3, IM B5, IM B14 can also be used in different mounting positions.


















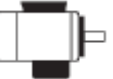






IM B3 IM B6, IM B7, IM B8, IM V5 o IM V6.

IM B35 IM V15 o IM V36, IM 2051, IM 2061, IM 2071.

IM B34 IM 2111 O IM 2131, IM 2151, IM 2161, IM 2171.

IM B5 IM V1 o IM V3. (flange with passing holes).

IM B14 IM V18 o IM V19. (flange with theraded holes).

| Basic mountings | Other mountings | | | | |
|--|--|--|--|---|---|
| IM B3 IM 1001  | IM V5 IM 1011  | IM V6 IM 1031  | IM B6 IM 1051  | IM B7 IM 1061  | IM B8 IM 1071  |
| IM B35 IM 2001  | IM V15 IM 2011  | IM V36 IM 2031  | - IM 2051  | - IM 2061  | - IM 2071  |
| IM B34 IM 2101  | - IM 2111  | - IM 2131  | - IM 2151  | - IM 2161  | - IM 2171  |
| IM B5 IM 3001  | IM V1 IM 3011  | IM V3 IM 3031  | | | |
| IM B14 IM 3601  | IM V18 IM 3611  | IM V19 IM 3631  | | | |



4.2 Materials

Materials of the main components.

Type of material

| Shield fames flanges terminal box | Shaft | Rotor | Fan | Fan cover | Tie rods | Screw | Cable glands | Motor Plate |
|-----------------------------------|-------------|------------------------------------|-------------------------------------|-------------------|-----------|-----------|---------------------|---|
| Aluminium | Steel 35S20 | Die-cast Aluminium (squirrel cage) | Thermoplastic material or Aluminium | Zinc-plated steel | Steel 4.8 | Steel 8.8 | nickel-plated brass | Anodized aluminium or <i>on request</i> stainless steel |

Bearings

The 2Z series bearings are lubricated for life and required not further lubrication. Nevertheless, we recommend in case of continuous running, long time stop, low temperature, radial and/or axial load, frequency inverter used, to control some time to time the ball bearings (40 000 hours for 4,6,8 pole motors and 20 000 hours for the 2 pole motors).

| Motor | | Bearing | | Lubrication |
|-------|---------------|------------------|-------------|-----------------------------|
| Frame | Poles | Drive-end shield | Rear shield | |
| 56 | 2 - 4 - 6 - 8 | 6201 2Z | 6201 2Z | It doesn't need lubrication |
| 63 | 2 - 4 - 6 - 8 | 6202 2Z | 6202 2Z | It doesn't need lubrication |
| 71 | 2 - 4 - 6 - 8 | 6202 2Z | 6202 2Z | It doesn't need lubrication |
| 80 | 2 - 4 - 6 - 8 | 6204 2Z | 6204 2Z | It doesn't need lubrication |
| 90 | 2 - 4 - 6 - 8 | 6205 2Z | 6205 2Z | It doesn't need lubrication |
| 100 | 2 - 4 - 6 - 8 | 6206 2Z | 6206 2Z | It doesn't need lubrication |
| 112 | 2 - 4 - 6 - 8 | 6306 2Z | 6306 2Z | It doesn't need lubrication |
| 132 | 2 - 4 - 6 - 8 | 6308 2Z | 6308 2Z | It doesn't need lubrication |
| 160 | 2 - 4 - 6 - 8 | 6309 2Z | 6309 2Z | It doesn't need lubrication |

Rotary shaft seals

Motors RL series can be equipped with seals so to guarantee an IP66 degree protection. In such a way the motor is protected from the income of dust and polluting agents.

IP65 or IP66 protection degree is furthermore necessary to warranty the protection type Ex tD.

| Motor | | Rotary shaft seal (DIN 3760) | |
|-------|---------------|------------------------------|----------|
| Frame | Poles | Front | Rear |
| 56 | 2 - 4 - 6 - 8 | 22x12x7A | 22X12X7A |
| 63 | 2 - 4 - 6 - 8 | 15x24x5A | 15x24x5A |
| 71 | 2 - 4 - 6 - 8 | 15x24x5A | 15x24x5A |
| 80 | 2 - 4 - 6 - 8 | 20X30X5A | 20X30X5A |
| 90 | 2 - 4 - 6 - 8 | 25X37X5A | 25X37X5A |
| 100 | 2 - 4 - 6 - 8 | 30X50X7A | 30X50X7A |
| 112 | 2 - 4 - 6 - 8 | 30X50X7A | 30X50X7A |
| 132 | 2 - 4 - 6 - 8 | 40X72X7A | 40X72X7A |
| 160 | 2 - 4 - 6 - 8 | 45X72X8A | 45X72X8A |

5. ELECTRICAL DATA

5.1 Three phase motors - 1 speed

The features of three phase motors for general purpose are as follow:

- Three phase asynchronous motor, squirrel cage rotor, self ventilated (IC411).
- Duty S1, Insulation class "F", IP55, 400V - 50 Hz.

- Connections

| Type | Δ | Y |
|------------------------|----------|-------|
| 56 – 112 | 230 V | 400V |
| 132 – 160 | 400 V | 690 V |
| 56-160 for INVERTER | 230 V | 400 V |

- For temperature class T5 and T6 and ambient temperature see par 2.1

5.1.1 Motors for INVERTER duty

In case the motors are driven by **INVERTER** we have to point out some things:

- Motor must be equipped with PTC thermistor.
- Motor driven by inverter means not to have a perfect voltage and current sine wave with increase of losses and heating of the motor.
- Speed variation affects also the ventilation (in case of IC411).
- The stress on the bearings increases and they shall be checked more frequently; for this reason the operating period with a speed above 3600 rpm shall never exceed 10% of the complete working cycle.
- The **best connection** for motors driven by inverter is the **star connection 400V**.
- In case of **constant torque application and with frequency values above 60Hz** it is necessary to use a **delta connection**.

For all these reasons RAEL manufactures special motors for inverter duty so to minimize all the inconveniences described above.

These motors are electrically oversized so to minimize the electrical losses and also reduce the heating and are provided with thermistor PTC120°C for temperature class T4; for this reason the winding of the motor is made on a oversized stator and is fitted with phase-insulators (on request it is possible to have the version T5 with PTC90°C and T6 with PTC70°C).

All the bearings mounted on RAEL motors have the best quality for motors (V2 type).

In this paragraph we will show the rating of the 1 speed 3-phase motors and the rating of the motors for inverter duty.

The data tables of the motors for inverter duty give an idea of power and current values and are reliable only in the case that the inverter used to drive the motor is an high quality and an high performance one.

**1 Speed 3000****Rated data at 400V/50Hz – direct on line start****II 2G - II 2GD - Ex d - Ex de - IIC**

| Part Number | Type | | | | P | | rpm min ⁻¹ | I _n 400 V Amp. | I _a /I _n | η % | Cos φ | M _n Nm | M _a /M _n | m Kg | Class T | Certificate |
|-------------|------|-----|----|---|-------|-------|--------------------------|---------------------------------|--------------------------------|--------|----------|----------------------|--------------------------------|---------|------------|----------------------|
| | | | | | kW | Hp | | | | | | | | | | |
| RL0042 | RL | 56 | A | 2 | 0,06 | 0,08 | 2730 | 0,20 | 3,5 | 67 | 0,77 | 0,2 | 3,5 | 3,5 | T4 | INERIS 05 ATEX 0025X |
| RL0043 | RL | 56 | A | 2 | 0,09 | 0,12 | 2730 | 0,26 | 4,0 | 67 | 0,77 | 0,3 | 4,0 | 4,0 | T4 | INERIS 05 ATEX 0025X |
| RL0044 | RL | 56 | B | 2 | 0,12 | 0,16 | 2750 | 0,33 | 3,5 | 70 | 0,77 | 0,35 | 4,0 | 4,5 | T4 | INERIS 05 ATEX 0025X |
| RL0001 | RL | 63 | A | 2 | 0,12 | 0,16 | 2730 | 0,40 | 3,1 | 50 | 0,80 | 0,4 | 3,3 | 6,5 | T4 | INERIS 05 ATEX 0025X |
| RL0002 | RL | 63 | A | 2 | 0,18 | 0,25 | 2760 | 0,50 | 3,6 | 60 | 0,80 | 0,6 | 3,8 | 6,5 | T4 | INERIS 05 ATEX 0025X |
| RL0003 | RL | 63 | B | 2 | 0,25 | 0,34 | 2740 | 0,80 | 4,3 | 52 | 0,85 | 0,9 | 3,5 | 7,0 | T4 | INERIS 05 ATEX 0025X |
| RL0004 | RL | 71 | A | 2 | 0,37 | 0,50 | 2770 | 1,00 | 4,8 | 70 | 0,80 | 1,3 | 3,0 | 7,0 | T4 | INERIS 05 ATEX 0025X |
| RL0005 | RL | 71 | B | 2 | 0,55 | 0,75 | 2710 | 1,50 | 3,8 | 62 | 0,85 | 2,1 | 3,0 | 8,0 | T4 | INERIS 05 ATEX 0025X |
| RL0006 | RL | 80 | A | 2 | 0,75 | 1,00 | 2820 | 1,80 | 5,0 | 70 | 0,88 | 2,6 | 2,4 | 10,0 | T4 | INERIS 05 ATEX 0025X |
| RL0007 | RL | 80 | B | 2 | 1,10 | 1,50 | 2850 | 2,40 | 5,8 | 76 | 0,88 | 3,8 | 3,0 | 11,0 | T4 | INERIS 05 ATEX 0025X |
| RL0008 | RL | 90 | S | 2 | 1,50 | 2,00 | 2800 | 3,40 | 5,0 | 74 | 0,86 | 5,2 | 2,9 | 16,0 | T4 | INERIS 05 ATEX 0025X |
| RL0009 | RL | 90 | L | 2 | 2,20 | 3,00 | 2860 | 4,80 | 5,4 | 74 | 0,85 | 7,5 | 3,0 | 18,0 | T4 | INERIS 05 ATEX 0025X |
| RL0032 | RL | 100 | LA | 2 | 3,00 | 4,00 | 2845 | 6,50 | 6,0 | 79 | 0,84 | 10,2 | 2,6 | 23,0 | T4 | INERIS 05 ATEX 0025X |
| RL0033 | RL | 112 | M | 2 | 4,00 | 5,50 | 2910 | 8,40 | 5,8 | 80 | 0,86 | 13,2 | 2,6 | 30,0 | T4 | INERIS 05 ATEX 0025X |
| RL0049 | RL | 132 | SA | 2 | 5,50 | 7,50 | 2870 | 11,40 | 6,7 | 84 | 0,82 | 18,3 | 2,6 | 54 | T4 | INERIS 05 ATEX 0025X |
| RL0050 | RL | 132 | SB | 2 | 7,50 | 10,00 | 2880 | 14,00 | 6,9 | 85 | 0,90 | 24,7 | 2,9 | 59 | T4 | INERIS 05 ATEX 0025X |
| RL0051 | RL | 132 | MB | 2 | 9,00 | 12,00 | 2930 | 16,80 | 6,9 | 87 | 0,89 | 30,5 | 2,9 | 65 | T4 | INERIS 05 ATEX 0025X |
| RL0052 | RL | 132 | ML | 2 | 11,00 | 15,00 | 2930 | 20,20 | 6,8 | 89 | 0,89 | 36 | 2,8 | 71 | T4 | INERIS 05 ATEX 0025X |
| RL0053 | RL | 160 | MA | 2 | 11,00 | 15,00 | 2915 | 22,00 | 7,9 | 82 | 0,89 | 36 | 2,8 | 98,0 | T4 | INERIS 05 ATEX 0025X |
| RL0054 | RL | 160 | MB | 2 | 15,00 | 20,00 | 2910 | 28,30 | 8,4 | 84 | 0,91 | 49 | 3,1 | 110,0 | T4 | INERIS 05 ATEX 0025X |
| RL0055 | RL | 160 | L | 2 | 18,50 | 25,00 | 2925 | 34,00 | 8,0 | 87 | 0,90 | 60 | 3,1 | 115,0 | T4 | INERIS 05 ATEX 0025X |

1 Speed 3000**Motors for INVERTER - Rated data at 400V/50Hz****II 2G - II 2GD - Ex d - Ex de - IIC**

| Part Number | Cooling | | | | Selfventilated - (IC411) | | | | | | | | | Forced ventilation - (IC416) | | | | | | Certificate | | |
|-------------|----------|-----|----|------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------------------|----------------|----------------|----------------|----------------|----------------|-------------|----------------|-----|
| | Torque | | | | Quadratic | | | Constant | | | Constant | | | Constant | | | Constant | | | | | |
| | Range Hz | | | | 5 - 50 Hz | | | 5 - 50 Hz | | | 5 - 87 Hz | | | 5 - 50 Hz | | | 5 - 87 Hz | | | | | |
| | speed | | | | 300 - 3000 rpm | | | 300 - 3000 rpm | | | 300 - 5220 rpm | | | 300 - 3000 rpm | | | 300 - 5220 rpm | | | | | |
| | Type | | | | P | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | | I _n | |
| | | | | (kW) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) |
| RL0642-I | RL | 56 | A | 2 | 0,06 | 0,06 | 0,20 | 0,20 | 0,05 | 0,15 | 0,15 | 0,04 | 0,12 | 0,12 | - | - | - | - | - | - | - | ◆ |
| RL0643-I | RL | 56 | A | 2 | 0,09 | 0,09 | 0,30 | 0,26 | 0,07 | 0,23 | 0,20 | 0,05 | 0,18 | 0,16 | - | - | - | - | - | - | - | ◆ |
| RL0644-I | RL | 56 | B | 2 | 0,12 | 0,12 | 0,35 | 0,33 | 0,09 | 0,26 | 0,25 | 0,07 | 0,21 | 0,20 | - | - | - | - | - | - | - | ◆ |
| RL0601-I | RL | 63 | A | 2 | 0,12 | 0,12 | 0,40 | 0,40 | 0,09 | 0,30 | 0,30 | 0,07 | 0,24 | 0,24 | 0,11 | 0,36 | 0,36 | 0,10 | 0,32 | 0,32 | - | ◆ |
| RL0602-I | RL | 63 | A | 2 | 0,18 | 0,18 | 0,60 | 0,50 | 0,14 | 0,45 | 0,38 | 0,11 | 0,36 | 0,30 | 0,16 | 0,54 | 0,45 | 0,14 | 0,48 | 0,40 | - | ◆ |
| RL0603-I | RL | 63 | B | 2 | 0,25 | 0,25 | 0,90 | 0,80 | 0,19 | 0,68 | 0,60 | 0,15 | 0,54 | 0,48 | 0,23 | 0,81 | 0,72 | 0,20 | 0,72 | 0,64 | - | ◆ |
| RL0604-I | RL | 71 | A | 2 | 0,37 | 0,37 | 1,30 | 1,00 | 0,28 | 0,98 | 0,75 | 0,22 | 0,78 | 0,60 | 0,33 | 1,17 | 0,90 | 0,30 | 1,04 | 0,80 | - | ◆ |
| RL0605-I | RL | 71 | B | 2 | 0,55 | 0,55 | 2,10 | 1,50 | 0,41 | 1,58 | 1,13 | 0,33 | 1,26 | 0,90 | 0,50 | 1,89 | 1,35 | 0,44 | 1,68 | 1,20 | - | ◆ |
| RL0606-I | RL | 80 | A | 2 | 0,75 | 0,75 | 2,60 | 1,80 | 0,56 | 1,95 | 1,35 | 0,45 | 1,56 | 1,08 | 0,68 | 2,34 | 1,62 | 0,60 | 2,08 | 1,44 | - | ◆ |
| RL0607-I | RL | 80 | B | 2 | 1,10 | 1,10 | 3,80 | 2,40 | 0,83 | 2,85 | 1,80 | 0,66 | 2,28 | 1,44 | 0,99 | 3,42 | 2,16 | 0,88 | 3,04 | 1,92 | - | ◆ |
| RL0608-I | RL | 90 | S | 2 | 1,50 | 1,50 | 5,20 | 3,40 | 1,13 | 3,90 | 2,55 | 0,90 | 3,12 | 2,04 | 1,35 | 4,68 | 3,06 | 1,20 | 4,16 | 2,72 | - | ◆ |
| RL0609-I | RL | 90 | LA | 2 | 2,20 | 2,20 | 7,50 | 4,80 | 1,65 | 5,63 | 3,60 | 1,32 | 4,50 | 2,88 | 1,98 | 6,75 | 4,32 | 1,76 | 6,00 | 3,84 | - | ◆ |
| RL0632-I | RL | 100 | LA | 2 | 3,00 | 3,00 | 10,20 | 6,50 | 2,25 | 7,65 | 4,88 | 1,80 | 6,12 | 3,90 | 2,70 | 9,18 | 5,85 | 2,40 | 8,16 | 5,20 | - | ◆ |
| RL0633-I | RL | 112 | M | 2 | 4,00 | 4,00 | 13,20 | 8,40 | 3,00 | 9,90 | 6,30 | 2,40 | 7,92 | 5,04 | 3,60 | 11,88 | 7,56 | 3,20 | 10,56 | 6,72 | - | ◆ |
| RL0649-I | RL | 132 | SA | 2 | 5,50 | 5,50 | 18,30 | 11,40 | 4,13 | 13,73 | 8,55 | 3,30 | 10,98 | 6,84 | 4,95 | 16,47 | 10,26 | 4,40 | 14,64 | 9,12 | - | ◆ |
| RL0650-I | RL | 132 | SB | 2 | 7,50 | 7,50 | 24,70 | 14,00 | 5,63 | 18,53 | 10,50 | 4,50 | 14,82 | 8,40 | 6,75 | 22,23 | 12,60 | 6,00 | 19,76 | 11,20 | - | ◆ |
| RL0651-I | RL | 132 | MB | 2 | 9,00 | 9,00 | 30,50 | 16,80 | 6,75 | 22,88 | 12,60 | 5,40 | 18,30 | 10,08 | 8,10 | 27,45 | 15,12 | 7,20 | 24,40 | 13,44 | - | ◆ |
| RL0652-I | RL | 132 | ML | 2 | 11,00 | 11,00 | 36,00 | 20,20 | 8,25 | 27,00 | 15,15 | 6,60 | 21,60 | 12,12 | 9,90 | 32,40 | 18,18 | 8,80 | 28,80 | 16,16 | - | ◆ |
| RL0653-I | RL | 160 | MA | 2 | 11,00 | 11,00 | 36,00 | 22,00 | 8,25 | 27,00 | 16,50 | 6,60 | 21,60 | 13,20 | 9,90 | 32,40 | 19,80 | 8,80 | 28,80 | 17,60 | - | ◆ |
| RL0654-I | RL | 160 | MB | 2 | 15,00 | 15,00 | 49,00 | 28,30 | 11,25 | 36,75 | 21,23 | 9,00 | 29,40 | 16,98 | 13,50 | 44,10 | 25,47 | 12,00 | 39,20 | 22,64 | - | ◆ |
| RL0655-I | RL | 160 | L | 2 | 18,50 | 18,50 | 60,00 | 34,00 | 13,88 | 45,00 | 25,50 | 11,10 | 36,00 | 20,40 | 16,65 | 54,00 | 30,60 | 14,80 | 48,00 | 27,20 | - | ◆ |

◆ INERIS 05 ATEX 0025X

**1 Speed 1500****Rated data at 400V/50Hz – direct on line start****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Type | | | | P | | rpm min ⁻¹ | I _n 400 V Amp. | I _a /I _n | η % | Cos φ | M _n Nm | M _a /M _n | m Kg | Class T | Certificate |
|-------------|------|-----|----|---|-------|-------|--------------------------|---------------------------------|--------------------------------|--------|----------|----------------------|--------------------------------|---------|------------|----------------------|
| | | | | | kW | Hp | | | | | | | | | | |
| RL0045 | RL | 56 | A | 4 | 0,06 | 0,08 | 1360 | 0,20 | 3,5 | 64 | 0,68 | 0,4 | 4,0 | 4 | T4 | INERIS 05 ATEX 0025X |
| RL0046 | RL | 56 | B | 4 | 0,09 | 0,12 | 1360 | 0,30 | 3,0 | 67 | 0,67 | 0,6 | 3,5 | 4,5 | T4 | INERIS 05 ATEX 0025X |
| RL0010 | RL | 63 | A | 4 | 0,12 | 0,16 | 1400 | 0,54 | 3,3 | 51 | 0,60 | 0,9 | 3,0 | 6 | T4 | INERIS 05 ATEX 0025X |
| RL0011 | RL | 63 | B | 4 | 0,18 | 0,25 | 1400 | 0,64 | 3,5 | 65 | 0,63 | 1,3 | 2,2 | 6,5 | T4 | INERIS 05 ATEX 0025X |
| RL0012 | RL | 71 | A | 4 | 0,25 | 0,34 | 1370 | 1,00 | 3,0 | 50 | 0,73 | 1,8 | 2,2 | 6,5 | T4 | INERIS 05 ATEX 0025X |
| RL0013 | RL | 71 | B | 4 | 0,37 | 0,50 | 1370 | 1,30 | 3,4 | 57 | 0,74 | 2,6 | 2,4 | 7,5 | T4 | INERIS 05 ATEX 0025X |
| RL0014 | RL | 80 | A | 4 | 0,55 | 0,75 | 1410 | 1,50 | 4,4 | 63 | 0,80 | 3,8 | 2,2 | 10 | T4 | INERIS 05 ATEX 0025X |
| RL0015 | RL | 80 | B | 4 | 0,75 | 1,00 | 1410 | 2,00 | 4,9 | 67 | 0,80 | 5,2 | 1,9 | 12 | T4 | INERIS 05 ATEX 0025X |
| RL0016 | RL | 90 | S | 4 | 1,10 | 1,50 | 1410 | 2,80 | 4,2 | 73 | 0,77 | 7,7 | 2,3 | 16 | T4 | INERIS 05 ATEX 0025X |
| RL0017 | RL | 90 | L | 4 | 1,50 | 2,00 | 1400 | 3,80 | 5,0 | 72 | 0,80 | 10,4 | 3,0 | 17,5 | T4 | INERIS 05 ATEX 0025X |
| RL0034 | RL | 100 | LA | 4 | 2,20 | 3,00 | 1410 | 4,80 | 5,0 | 80 | 0,84 | 15,1 | 2,3 | 23 | T4 | INERIS 05 ATEX 0025X |
| RL0035 | RL | 100 | LB | 4 | 3,00 | 4,00 | 1440 | 6,60 | 5,4 | 80 | 0,81 | 20,1 | 2,6 | 25 | T4 | INERIS 05 ATEX 0025X |
| RL0036 | RL | 112 | M | 4 | 4,00 | 5,50 | 1450 | 8,70 | 6,0 | 84 | 0,82 | 26,8 | 2,7 | 35 | T4 | INERIS 05 ATEX 0025X |
| RL0056 | RL | 132 | SB | 4 | 5,50 | 7,50 | 1440 | 11,40 | 6,1 | 85 | 0,82 | 36,0 | 2,4 | 60 | T4 | INERIS 05 ATEX 0025X |
| RL0057 | RL | 132 | MB | 4 | 7,50 | 10,00 | 1448 | 14,80 | 6,6 | 87 | 0,84 | 49,5 | 2,4 | 66 | T4 | INERIS 05 ATEX 0025X |
| RL0058 | RL | 132 | ML | 4 | 9,00 | 12,00 | 1460 | 17,90 | 6,7 | 84 | 0,86 | 58,0 | 2,5 | 71 | T4 | INERIS 05 ATEX 0025X |
| RL0059 | RL | 160 | MB | 4 | 11,00 | 15,00 | 1460 | 21,30 | 5,5 | 88 | 0,85 | 72,0 | 2,6 | 105 | T4 | INERIS 05 ATEX 0025X |
| RL0060 | RL | 160 | L | 4 | 15,00 | 20,00 | 1450 | 28,00 | 5,8 | 87 | 0,83 | 97,1 | 2,6 | 115 | T4 | INERIS 05 ATEX 0025X |

1 Speed 1500**Motors for INVERTER - Rated data at 400V/50Hz****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Cooling | | | | Selfventilated - (IC411) | | | | | | | | | Forced ventilation - (IC416) | | | | | | Certificate | | | | |
|-------------|---------|-----|----|---|--------------------------|-----------|------------------------|------------------------|-----------------------|------------------------|------------------------|-----------------------|------------------------|------------------------------|-----------------------|------------------------|------------------------|-----------------------|------------------------|-------------|------------------------|-----------------------|------------------------|------------------------|
| | | | | | Torque | | | Quadratic | | | Constant | | | Constant | | | Constant | | | | Constant | | | |
| | | | | | Range Hz | | | | 5 - 50 Hz | | | 5 - 50 Hz | | | 5 - 87 Hz | | | 5 - 50 Hz | | | 5 - 87 Hz | | | |
| | | | | | speed | | | | 150 - 1500 rpm | | | 150 - 1500 rpm | | | 150 - 2600 rpm | | | 150 - 1500 rpm | | | 150 - 2600 rpm | | | |
| | | | | | Type | P (kW) | P _n (kW) | M _n (Nm) | I _n (A) | P _n (kW) | M _n (Nm) | I _n (A) | P _n (kW) | M _n (Nm) | I _n (A) | P _n (kW) | M _n (Nm) | I _n (A) | P _n (kW) | | M _n (Nm) | I _n (A) | P _n (kW) | M _n (Nm) |
| RL0645-I | RL | 56 | A | 4 | 0,06 | 0,06 | 0,40 | 0,20 | 0,05 | 0,30 | 0,15 | 0,04 | 0,24 | 0,12 | - | - | - | - | - | - | ◆ | | | |
| RL0646-I | RL | 56 | B | 4 | 0,09 | 0,09 | 0,60 | 0,30 | 0,07 | 0,45 | 0,23 | 0,05 | 0,36 | 0,18 | - | - | - | - | - | - | ◆ | | | |
| RL0610-I | RL | 63 | A | 4 | 0,12 | 0,12 | 0,90 | 0,54 | 0,09 | 0,68 | 0,03 | 0,07 | 0,54 | 0,02 | 0,11 | 0,81 | 0,03 | 0,10 | 0,72 | 0,03 | ◆ | | | |
| RL0611-I | RL | 63 | B | 4 | 0,18 | 0,18 | 1,30 | 0,64 | 0,14 | 0,98 | 0,03 | 0,11 | 0,78 | 0,03 | 0,16 | 1,17 | 0,04 | 0,14 | 1,04 | 0,04 | ◆ | | | |
| RL0612-I | RL | 71 | A | 4 | 0,25 | 0,25 | 1,80 | 1,00 | 0,19 | 1,35 | 0,75 | 0,15 | 1,08 | 0,60 | 0,23 | 1,62 | 0,90 | 0,20 | 1,44 | 0,80 | ◆ | | | |
| RL0613-I | RL | 71 | B | 4 | 0,37 | 0,37 | 2,60 | 1,30 | 0,28 | 1,95 | 0,98 | 0,22 | 1,56 | 0,78 | 0,33 | 2,34 | 1,17 | 0,30 | 2,08 | 1,04 | ◆ | | | |
| RL0614-I | RL | 80 | A | 4 | 0,55 | 0,55 | 3,80 | 1,50 | 0,41 | 2,85 | 1,13 | 0,33 | 2,28 | 0,90 | 0,50 | 3,42 | 1,35 | 0,44 | 3,04 | 1,20 | ◆ | | | |
| RL0615-I | RL | 80 | B | 4 | 0,75 | 0,75 | 5,20 | 2,00 | 0,56 | 3,90 | 1,50 | 0,45 | 3,12 | 1,20 | 0,68 | 4,68 | 1,80 | 0,60 | 4,16 | 1,60 | ◆ | | | |
| RL0616-I | RL | 90 | S | 4 | 1,10 | 1,10 | 7,70 | 2,80 | 0,83 | 5,78 | 2,10 | 0,66 | 4,62 | 1,68 | 0,99 | 6,93 | 2,52 | 0,88 | 6,16 | 2,24 | ◆ | | | |
| RL0617-I | RL | 90 | L | 4 | 1,50 | 1,50 | 10,40 | 3,80 | 1,13 | 7,80 | 2,85 | 0,90 | 6,24 | 2,28 | 1,35 | 9,36 | 3,42 | 1,20 | 8,32 | 3,04 | ◆ | | | |
| RL0634-I | RL | 100 | LA | 4 | 2,20 | 2,20 | 15,10 | 4,80 | 1,65 | 11,33 | 3,60 | 1,32 | 9,06 | 2,88 | 1,98 | 13,59 | 4,32 | 1,76 | 12,08 | 3,84 | ◆ | | | |
| RL0635-I | RL | 100 | LB | 4 | 3,00 | 3,00 | 20,10 | 6,60 | 2,25 | 15,08 | 4,95 | 1,80 | 12,06 | 3,96 | 2,70 | 18,09 | 5,94 | 2,40 | 16,08 | 5,28 | ◆ | | | |
| RL0636-I | RL | 112 | M | 4 | 4,00 | 4,00 | 26,80 | 8,60 | 3,00 | 20,10 | 6,45 | 2,40 | 16,08 | 5,16 | 3,60 | 24,12 | 7,74 | 3,20 | 21,44 | 6,88 | ◆ | | | |
| RL0656-I | RL | 132 | SB | 4 | 5,50 | 5,50 | 36,00 | 11,40 | 4,13 | 27,00 | 8,55 | 3,30 | 21,60 | 6,84 | 4,95 | 32,40 | 10,26 | 4,40 | 28,80 | 9,12 | ◆ | | | |
| RL0657-I | RL | 132 | MB | 4 | 7,50 | 7,50 | 49,50 | 14,80 | 5,63 | 37,13 | 11,10 | 4,50 | 29,70 | 8,88 | 6,75 | 44,55 | 13,32 | 6,00 | 39,60 | 11,84 | ◆ | | | |
| RL0658-I | RL | 132 | ML | 4 | 9,00 | 9,00 | 58,00 | 17,90 | 6,75 | 43,50 | 13,43 | 5,40 | 34,80 | 10,74 | 8,10 | 52,20 | 16,11 | 7,20 | 46,40 | 14,32 | ◆ | | | |
| RL0659-I | RL | 160 | MB | 4 | 11,00 | 11,00 | 72,00 | 21,30 | 8,25 | 54,00 | 15,98 | 6,60 | 43,20 | 12,78 | 9,90 | 64,80 | 19,17 | 8,80 | 57,60 | 17,04 | ◆ | | | |
| RL0660-I | RL | 160 | L | 4 | 15,00 | 15,00 | 97,10 | 28,00 | 11,25 | 72,83 | 21,00 | 9,00 | 58,26 | 16,80 | 13,50 | 87,39 | 25,20 | 12,00 | 77,68 | 22,40 | ◆ | | | |

◆ INERIS 05 ATEX 0025X

**1 Speed 1000****Rated data at 400V/50Hz – direct on line start****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Type | | | | | P | | rpm min ⁻¹ | I _n 400 V Amp. | I _a /I _n | η % | Cos φ | M _n Nm | M _a /M _n | m Kg | Class T | Certificate |
|-------------|------|-----|----|---|--|-------|-------|--------------------------|---------------------------------|--------------------------------|--------|----------|----------------------|--------------------------------|---------|------------|----------------------|
| | | | | | | kW | Hp | | | | | | | | | | |
| RL0018 | RL | 63 | B | 6 | | 0,12 | 0,16 | 900 | 0.60 | 2.6 | 43 | 0.70 | 1,3 | 2.6 | 7 | T4 | INERIS 05 ATEX 0025X |
| RL0019 | RL | 71 | A | 6 | | 0,18 | 0,25 | 900 | 0.80 | 2.8 | 46 | 0.70 | 2,0 | 2.4 | 7 | T4 | INERIS 05 ATEX 0025X |
| RL0020 | RL | 71 | B | 6 | | 0,25 | 0,34 | 910 | 1.20 | 2.9 | 50 | 0.60 | 2,7 | 3.1 | 8 | T4 | INERIS 05 ATEX 0025X |
| RL0021 | RL | 80 | A | 6 | | 0,37 | 0,50 | 935 | 1.40 | 3.9 | 62 | 0.65 | 3,8 | 2.6 | 10 | T4 | INERIS 05 ATEX 0025X |
| RL0022 | RL | 80 | B | 6 | | 0,55 | 0,75 | 930 | 1.80 | 3.5 | 64 | 0.70 | 5,8 | 2.8 | 12 | T4 | INERIS 05 ATEX 0025X |
| RL0023 | RL | 90 | S | 6 | | 0,75 | 1,00 | 930 | 2.20 | 3.5 | 71 | 0.70 | 7,9 | 2.3 | 16 | T4 | INERIS 05 ATEX 0025X |
| RL0024 | RL | 90 | L | 6 | | 1,10 | 1,50 | 910 | 3.20 | 3.7 | 67 | 0.75 | 11,6 | 2.3 | 17.5 | T4 | INERIS 05 ATEX 0025X |
| RL0037 | RL | 100 | LB | 6 | | 1,50 | 2,00 | 940 | 3,60 | 3.8 | 80 | 0,75 | 15,2 | 1.7 | 25 | T4 | INERIS 05 ATEX 0025X |
| RL0038 | RL | 112 | M | 6 | | 2,20 | 3,00 | 940 | 4,90 | 4.7 | 82 | 0,80 | 22,4 | 1.8 | 35 | T4 | INERIS 05 ATEX 0025X |
| RL0061 | RL | 132 | SB | 6 | | 3,00 | 4,00 | 945 | 6,70 | 4,5 | 86 | 0,75 | 30,3 | 1,7 | 62 | T4 | INERIS 05 ATEX 0025X |
| RL0062 | RL | 132 | MB | 6 | | 4,00 | 5,50 | 950 | 9,10 | 4,5 | 82 | 0,77 | 39,0 | 1,8 | 65 | T4 | INERIS 05 ATEX 0025X |
| RL0063 | RL | 132 | ML | 6 | | 5,50 | 7,50 | 950 | 12,30 | 4,6 | 81 | 0,80 | 55,0 | 1,8 | 71 | T4 | INERIS 05 ATEX 0025X |
| RL0064 | RL | 160 | MB | 6 | | 7,50 | 10,00 | 965 | 14,80 | 4,5 | 85 | 0,86 | 75,6 | 1,8 | 106 | T4 | INERIS 05 ATEX 0025X |
| RL0065 | RL | 160 | L | 6 | | 11,00 | 15,00 | 955 | 21,60 | 4,6 | 85 | 0,86 | 110,0 | 1,8 | 118 | T4 | INERIS 05 ATEX 0025X |

1 Speed 1000**Motors for INVERTER - Rated data at 400V/50Hz****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Cooling | | | | | Selfventilated - (IC411) | | | | | | | | | Forced ventilation - (IC416) | | | | | | Certificato |
|-------------|----------|------|------|----------------|----------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | Torque | | | | | Quadratic | | | Constant | | | Constant | | | Constant | | | Constant | | | |
| | Range Hz | | | | | 5 - 50 Hz | | | 5 - 50 Hz | | | 5 - 87 Hz | | | 5 - 50 Hz | | | 5 - 87 Hz | | | |
| | speed | | | | | 150 - 1500 rpm | | | 150 - 1500 rpm | | | 150 - 2600 rpm | | | 150 - 1500 rpm | | | 150 - 2600 rpm | | | |
| | Type | | P | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | |
| | | (kW) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | |
| RL0618-I | RL | 63 | B | 6 | 0,12 | 0,12 | 1,30 | 0,60 | 0,09 | 0,98 | 0,45 | 0,07 | 0,78 | 0,36 | 0,11 | 1,17 | 0,54 | 0,10 | 1,04 | 0,48 | ◆ |
| RL0619-I | RL | 71 | A | 6 | 0,18 | 0,18 | 2,00 | 0,80 | 0,14 | 1,50 | 0,60 | 0,11 | 1,20 | 0,48 | 0,16 | 1,80 | 0,72 | 0,14 | 1,60 | 0,64 | ◆ |
| RL0620-I | RL | 71 | B | 6 | 0,25 | 0,25 | 2,70 | 1,20 | 0,19 | 2,03 | 0,90 | 0,15 | 1,62 | 0,72 | 0,23 | 2,43 | 1,08 | 0,20 | 2,16 | 0,96 | ◆ |
| RL0621-I | RL | 80 | A | 6 | 0,37 | 0,37 | 3,80 | 1,40 | 0,28 | 2,85 | 1,05 | 0,22 | 2,28 | 0,84 | 0,33 | 3,42 | 1,26 | 0,30 | 3,04 | 1,12 | ◆ |
| RL0622-I | RL | 80 | B | 6 | 0,55 | 0,55 | 5,80 | 1,80 | 0,41 | 4,35 | 1,35 | 0,33 | 3,48 | 1,08 | 0,50 | 5,22 | 1,62 | 0,44 | 4,64 | 1,44 | ◆ |
| RL0623-I | RL | 90 | S | 6 | 0,75 | 0,75 | 7,90 | 2,20 | 0,56 | 5,93 | 1,65 | 0,45 | 4,74 | 1,32 | 0,68 | 7,11 | 1,98 | 0,60 | 6,32 | 1,76 | ◆ |
| RL0624-I | RL | 90 | L | 6 | 1,10 | 1,10 | 11,60 | 3,20 | 0,83 | 8,70 | 2,40 | 0,66 | 6,96 | 1,92 | 0,99 | 10,44 | 2,88 | 0,88 | 9,28 | 2,56 | ◆ |
| RL0637-I | RL | 100 | LB | 6 | 1,50 | 1,50 | 15,20 | 3,60 | 1,13 | 11,40 | 2,70 | 0,90 | 9,12 | 2,16 | 1,35 | 13,68 | 3,24 | 1,20 | 12,16 | 2,88 | ◆ |
| RL0638-I | RL | 112 | M | 6 | 2,20 | 2,20 | 22,40 | 4,90 | 1,65 | 16,80 | 3,68 | 1,32 | 13,44 | 2,94 | 1,98 | 20,16 | 4,41 | 1,76 | 17,92 | 3,92 | ◆ |
| RL0661-I | RL | 132 | SB | 6 | 3,00 | 3,00 | 30,30 | 6,70 | 2,25 | 22,73 | 5,03 | 1,80 | 18,18 | 4,02 | 2,70 | 27,27 | 6,03 | 2,40 | 24,24 | 5,36 | ◆ |
| RL0662-I | RL | 132 | MB | 6 | 4,00 | 4,00 | 39,00 | 9,10 | 3,00 | 29,25 | 6,83 | 2,40 | 23,40 | 5,46 | 3,60 | 35,10 | 8,19 | 3,20 | 31,20 | 7,28 | ◆ |
| RL0663-I | RL | 132 | ML | 6 | 5,50 | 5,50 | 55,00 | 12,30 | 4,13 | 41,25 | 9,23 | 3,30 | 33,00 | 7,38 | 4,95 | 49,50 | 11,07 | 4,40 | 44,00 | 9,84 | ◆ |
| RL0664-I | RL | 160 | MB | 6 | 7,50 | 7,50 | 75,60 | 14,80 | 5,63 | 56,70 | 11,10 | 4,50 | 45,36 | 8,88 | 6,75 | 68,04 | 13,32 | 6,00 | 60,48 | 11,84 | ◆ |
| RL0665-I | RL | 160 | L | 6 | 11,00 | 11,00 | 110,0 | 21,60 | 8,25 | 82,50 | 16,20 | 6,60 | 66,00 | 12,96 | 9,90 | 99,00 | 19,44 | 8,80 | 88,00 | 17,28 | ◆ |

◆ INERIS 05 ATEX 0025X

**1 Speed 750****Rated data at 400V/50Hz – direct on line start****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Type | | | | P | | rpm min ⁻¹ | I _n 400 V Amp. | I _a /I _n | η % | Cos φ | M _n Nm | M _a /M _n | m Kg | Class T | Certificate |
|-------------|------|-----|----|---|------|-------|--------------------------|---------------------------------|--------------------------------|--------|----------|----------------------|--------------------------------|---------|------------|----------------------|
| | | | | | kW | Hp | | | | | | | | | | |
| RL0025 | RL | 63 | B | 8 | 0,06 | 0,08 | 660 | 0.40 | 2.3 | 34 | 0.63 | 0,9 | 2.8 | 7 | T4 | INERIS 05 ATEX 0025X |
| RL0026 | RL | 71 | A | 8 | 0,09 | 0,12 | 660 | 0.55 | 2.2 | 38 | 0.63 | 1,3 | 2.7 | 7 | T4 | INERIS 05 ATEX 0025X |
| RL0027 | RL | 71 | B | 8 | 0,12 | 0,16 | 640 | 0.65 | 2,0 | 39 | 0.7 | 1,8 | 2.3 | 8 | T4 | INERIS 05 ATEX 0025X |
| RL0028 | RL | 80 | A | 8 | 0,18 | 0,25 | 690 | 0.95 | 2.8 | 49 | 0.6 | 2,5 | 2.7 | 10 | T4 | INERIS 05 ATEX 0025X |
| RL0029 | RL | 80 | B | 8 | 0,25 | 0,34 | 700 | 1.20 | 2.9 | 55 | 0.55 | 3,6 | 2.8 | 12 | T4 | INERIS 05 ATEX 0025X |
| RL0030 | RL | 90 | S | 8 | 0,37 | 0,50 | 680 | 1.30 | 3,0 | 60 | 0.67 | 5,2 | 1.6 | 16 | T4 | INERIS 05 ATEX 0025X |
| RL0031 | RL | 90 | L | 8 | 0,55 | 0,75 | 690 | 1.90 | 3,0 | 65 | 0.65 | 7,7 | 2.4 | 17.5 | T4 | INERIS 05 ATEX 0025X |
| RL0039 | RL | 100 | LA | 8 | 0,75 | 1,00 | 700 | 2,60 | 3.4 | 65 | 0,65 | 10,0 | 2.3 | 23 | T4 | INERIS 05 ATEX 0025X |
| RL0040 | RL | 100 | LB | 8 | 1,10 | 1,50 | 690 | 3,00 | 3.7 | 72 | 0,73 | 15,6 | 1.8 | 25 | T4 | INERIS 05 ATEX 0025X |
| RL0041 | RL | 112 | M | 8 | 1,50 | 2,00 | 705 | 4,30 | 4.1 | 79 | 0,64 | 20,2 | 1.9 | 35 | T4 | INERIS 05 ATEX 0025X |
| RL0066 | RL | 132 | SB | 8 | 2,20 | 3,00 | 705 | 5,20 | 3,8 | 82 | 0,75 | 30,2 | 1,8 | 56 | T4 | INERIS 05 ATEX 0025X |
| RL0067 | RL | 132 | MB | 8 | 3,00 | 4,00 | 715 | 7,00 | 4,0 | 84 | 0,74 | 40,0 | 1,9 | 61 | T4 | INERIS 05 ATEX 0025X |
| RL0068 | RL | 160 | MA | 8 | 4,00 | 5,50 | 710 | 9,00 | 4,1 | 82 | 0,78 | 52,0 | 1,9 | 97 | T4 | INERIS 05 ATEX 0025X |
| RL0069 | RL | 160 | MB | 8 | 5,50 | 7,50 | 715 | 12,70 | 4,0 | 86 | 0,76 | 72,5 | 2,1 | 106 | T4 | INERIS 05 ATEX 0025X |
| RL0070 | RL | 160 | L | 8 | 7,50 | 10,00 | 720 | 15,90 | 4,2 | 86 | 0,79 | 99,8 | 2,3 | 118 | T4 | INERIS 05 ATEX 0025X |

1 Speed 750**Motors for INVERTER - Rated data at 400V/50Hz****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Cooling | | | | Selfventilated - (IC411) | | | | | | | | | Forced ventilation - (IC416) | | | | | | Certificato | |
|-------------|----------|------|----------------|----------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|---|
| | Torque | | | | Quadratic | | | Constant | | | Constant | | | Constant | | | Constant | | | | |
| | Range Hz | | | | 5 - 50 Hz | | | 5 - 50 Hz | | | 5 - 87 Hz | | | 5 - 50 Hz | | | 5 - 87 Hz | | | | |
| | speed | | | | 150 - 1500 rpm | | | 150 - 1500 rpm | | | 150 - 2600 rpm | | | 150 - 1500 rpm | | | 150 - 2600 rpm | | | | |
| Type | | P | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | P _n | M _n | I _n | |
| | | (kW) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | (kW) | (Nm) | (A) | |
| RL0625-I | RL | 63 | B | 8 | 0,06 | 0,06 | 0,90 | 0,40 | 0,05 | 0,68 | 0,30 | 0,04 | 0,54 | 0,240 | 0,05 | 0,81 | 0,36 | 0,05 | 0,72 | 0,32 | ◆ |
| RL0626-I | RL | 71 | A | 8 | 0,09 | 0,09 | 1,30 | 0,55 | 0,07 | 0,98 | 0,41 | 0,05 | 0,78 | 0,330 | 0,08 | 1,17 | 0,50 | 0,07 | 1,04 | 0,44 | ◆ |
| RL0627-I | RL | 71 | B | 8 | 0,12 | 0,12 | 1,80 | 0,65 | 0,09 | 1,35 | 0,49 | 0,07 | 1,08 | 0,39 | 0,11 | 1,62 | 0,59 | 0,10 | 1,44 | 0,52 | ◆ |
| RL0628-I | RL | 80 | A | 8 | 0,18 | 0,18 | 2,50 | 0,95 | 0,14 | 1,88 | 0,71 | 0,11 | 1,50 | 0,57 | 0,16 | 2,25 | 0,86 | 0,14 | 2,00 | 0,76 | ◆ |
| RL0629-I | RL | 80 | B | 8 | 0,25 | 0,25 | 3,60 | 1,20 | 0,19 | 2,70 | 0,90 | 0,15 | 2,16 | 0,72 | 0,23 | 3,24 | 1,08 | 0,20 | 2,88 | 0,96 | ◆ |
| RL0630-I | RL | 90 | S | 8 | 0,37 | 0,37 | 5,20 | 1,30 | 0,28 | 3,90 | 0,98 | 0,22 | 3,12 | 0,78 | 0,33 | 4,68 | 1,17 | 0,30 | 4,16 | 1,04 | ◆ |
| RL0631-I | RL | 90 | L | 8 | 0,55 | 0,55 | 7,70 | 1,90 | 0,41 | 5,78 | 1,43 | 0,33 | 4,62 | 1,14 | 0,50 | 6,93 | 1,71 | 0,44 | 6,16 | 1,52 | ◆ |
| RL0639-I | RL | 100 | LA | 8 | 0,75 | 0,75 | 10,00 | 2,60 | 0,56 | 7,50 | 1,95 | 0,45 | 6,00 | 1,56 | 0,68 | 9,00 | 2,34 | 0,60 | 8,00 | 2,08 | ◆ |
| RL0640-I | RL | 100 | LB | 8 | 1,10 | 1,10 | 15,60 | 3,00 | 0,83 | 11,70 | 2,25 | 0,66 | 9,36 | 1,80 | 0,99 | 14,04 | 2,70 | 0,88 | 12,48 | 2,40 | ◆ |
| RL0641-I | RL | 112 | M | 8 | 1,50 | 1,50 | 20,20 | 4,30 | 1,13 | 15,15 | 3,23 | 0,90 | 12,12 | 2,58 | 1,35 | 18,18 | 3,87 | 1,20 | 16,16 | 3,44 | ◆ |
| RL0666-I | RL | 132 | SB | 8 | 2,20 | 2,20 | 30,20 | 5,20 | 1,65 | 22,65 | 3,90 | 1,32 | 18,12 | 3,12 | 1,98 | 27,18 | 4,68 | 1,76 | 24,16 | 4,16 | ◆ |
| RL0667-I | RL | 132 | MB | 8 | 3,00 | 3,00 | 40,00 | 7,00 | 2,25 | 30,00 | 5,25 | 1,80 | 24,00 | 4,20 | 2,70 | 36,00 | 6,30 | 2,40 | 32,00 | 5,60 | ◆ |
| RL0668-I | RL | 160 | MA | 8 | 4,00 | 4,00 | 52,00 | 9,00 | 3,00 | 39,00 | 6,75 | 2,40 | 31,20 | 5,40 | 3,60 | 46,80 | 8,10 | 3,20 | 41,60 | 7,20 | ◆ |
| RL0669-I | RL | 160 | MB | 8 | 5,50 | 5,50 | 72,50 | 12,70 | 4,13 | 54,38 | 9,53 | 3,30 | 43,50 | 7,62 | 4,95 | 65,25 | 11,43 | 4,40 | 58,00 | 10,16 | ◆ |
| RL0670-I | RL | 160 | L | 8 | 7,50 | 7,50 | 99,80 | 15,90 | 5,63 | 74,85 | 11,93 | 4,50 | 59,88 | 9,54 | 6,75 | 89,82 | 14,31 | 6,00 | 79,84 | 12,72 | ◆ |

◆ INERIS 05 ATEX 0025X



5.2 Three-phase Motors 2 speed – Constant Torque (for general purpose)

- Three phase asynchronous motor, squirrel cage rotor, self ventilated (IC411).
- Duty S1, Insulation class "F", IP55, 400V- 50 Hz.

- Connections

| Poles | Connections | High Speed | Low Speed |
|-----------|-----------------------|-----------------|---------------|
| 2/4 – 4/8 | (Dahlander) | YY 400 V | Δ 400V |
| 4/6 – 6/8 | (2 Separate windings) | Y 400 V | Y 400V |

- For ambient temperature see par 2.1

2 Speed 3000/1500 CONSTANT TORQUE – Rated data at 400V/50Hz II 2G - II 2GD - Ex d – Ex de - IIC

| Part Number | Type | | | | | | P | rpm | In | I _a /I _n | η | Cos | M _n | M _a /M _n | m | Class | Certificate |
|-------------|------|-----|-----|----|-----|--|-------|-------------------|---------------|--------------------------------|----|-------|----------------|--------------------------------|------|-------|----------------------|
| | | | | | | | kW | min ⁻¹ | 400 V Amp. | % | φ | Nm | Kg | T | | | |
| RL4001 | RL | 2CT | 63 | B | 2/4 | | 0,25 | 2800 | 1,00 | 3,5 | 52 | 0,70 | 0,9 | 1,7 | 6,5 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,18 | 1380 | 0,68 | 3,0 | 58 | 0,66 | 1,3 | 1,7 | | | |
| RL4002 | RL | 2CT | 71 | A | 2/4 | | 0,30 | 2800 | 1,15 | 3,2 | 53 | 0,71 | 1,1 | 1,7 | 6,5 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,20 | 1400 | 0,85 | 3,0 | 57 | 0,66 | 1,4 | 1,5 | | | |
| RL4003 | RL | 2CT | 71 | B | 2/4 | | 0,45 | 2805 | 1,52 | 3,8 | 60 | 0,70 | 1,6 | 1,8 | 7,5 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,30 | 1400 | 1,03 | 3,6 | 68 | 0,62 | 2,1 | 1,8 | | | |
| RL4004 | RL | 2CT | 80 | A | 2/4 | | 0,55 | 2820 | 1,70 | 4,1 | 67 | 0,76 | 1,9 | 1,7 | 10 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,37 | 1390 | 1,49 | 3,9 | 68 | 0,625 | 2,6 | 1,7 | | | |
| RL4005 | RL | 2CT | 80 | B | 2/4 | | 0,75 | 2830 | 2,10 | 4,4 | 72 | 0,81 | 2,6 | 1,8 | 12 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,55 | 1400 | 1,90 | 4,1 | 67 | 0,71 | 3,9 | 1,8 | | | |
| RL4006 | RL | 2CT | 90 | S | 2/4 | | 1,25 | 2830 | 3,00 | 5,4 | 73 | 0,82 | 4,4 | 2,1 | 16 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,90 | 1405 | 2,60 | 4,6 | 69 | 0,72 | 6,4 | 1,9 | | | |
| RL4007 | RL | 2CT | 90 | L | 2/4 | | 1,60 | 2820 | 4,05 | 4,4 | 70 | 0,81 | 5,6 | 2,1 | 17,5 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,20 | 1405 | 3,30 | 4,3 | 69 | 0,76 | 8,5 | 2,0 | | | |
| RL4008 | RL | 2CT | 100 | LA | 2/4 | | 2,35 | 2820 | 4,85 | 6,4 | 77 | 0,85 | 8,3 | 2,4 | 23 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,85 | 1420 | 4,10 | 5,5 | 75 | 0,79 | 13,0 | 2,1 | | | |
| RL4009 | RL | 2CT | 100 | LB | 2/4 | | 3,00 | 2840 | 6,43 | 7,0 | 77 | 0,84 | 10,5 | 2,2 | 25 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 2,40 | 1425 | 4,85 | 6,1 | 77 | 0,85 | 16,8 | 2,0 | | | |
| RL4010 | RL | 2CT | 112 | M | 2/4 | | 4,00 | 2890 | 8,50 | 7,1 | 77 | 0,88 | 13,8 | 2,2 | 35 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 3,30 | 1430 | 7,00 | 6,2 | 78 | 0,87 | 23,0 | 2,2 | | | |
| RL4036 | RL | 2CT | 132 | S | 2/4 | | 5,90 | 2850 | 12,00 | 7,1 | 84 | 0,85 | 19,5 | 2,2 | 60 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 4,80 | 1440 | 9,40 | 6,3 | 85 | 0,87 | 32,0 | 2,1 | | | |
| RL4037 | RL | 2CT | 132 | MB | 2/4 | | 7,50 | 2880 | 13,80 | 7,3 | 87 | 0,91 | 25,0 | 2,1 | 66 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 5,50 | 1450 | 11,00 | 6,5 | 87 | 0,84 | 44,0 | 2,1 | | | |
| RL4038 | RL | 2CT | 132 | L | 2/4 | | 8,00 | 2930 | 14,90 | 7,4 | 87 | 0,89 | 30,5 | 2,2 | 71 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 6,00 | 1460 | 12,00 | 6,2 | 85 | 0,86 | 50,0 | 2,1 | | | |
| RL4039 | RL | 2CT | 160 | M | 2/4 | | 11,00 | 2915 | 22,00 | 7,2 | 82 | 0,89 | 36,0 | 2,2 | 105 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 8,80 | 1460 | 17,00 | 6,4 | 88 | 0,85 | 58,5 | 2,2 | | | |
| RL4040 | RL | 2CT | 160 | L | 2/4 | | 15,00 | 2910 | 28,30 | 7,4 | 84 | 0,91 | 49,0 | 2,5 | 115 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 12,00 | 1450 | 23,70 | 6,5 | 87 | 0,84 | 79,0 | 2,4 | | | |

**2 Speed 1500/750****CONSTANT TORQUE – Rated data at 400V/50Hz****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Type | | | | | | P | rpm | In | I _a /I _n | η | Cos | M _n | M _a /M _n | m | Class | Certificate |
|-------------|------|-----|-----|----|-----|--|-------|-------------------|-------|--------------------------------|----|------|----------------|--------------------------------|-----|-------|----------------------|
| | | | | | | | kW | min ⁻¹ | 400 V | | % | φ | Nm | | Kg | T | |
| | | | | | | | | | Amp. | | | | | | | | |
| RL4011 | RL | 2CT | 71 | A | 4/8 | | 0,18 | 1380 | 0,62 | 3,5 | 68 | 0,62 | 1,3 | 2,2 | 6,5 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,09 | 660 | 0,45 | 2,2 | 40 | 0,72 | 1,4 | 2,7 | | | |
| RL4012 | RL | 2CT | 71 | B | 4/8 | | 0,25 | 1380 | 0,68 | 3,0 | 70 | 0,75 | 1,5 | 2,2 | 8 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,12 | 660 | 0,58 | 2,0 | 42 | 0,71 | 1,5 | 2,3 | | | |
| RL4013 | RL | 2CT | 80 | A | 4/8 | | 0,37 | 1400 | 1,00 | 3,4 | 71 | 0,75 | 2,2 | 2,4 | 10 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,18 | 670 | 0,77 | 2,8 | 50 | 0,67 | 2,3 | 2,7 | | | |
| RL4014 | RL | 2CT | 80 | B | 4/8 | | 0,55 | 1400 | 1,43 | 4,4 | 75 | 0,74 | 3,1 | 2,2 | 12 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,25 | 670 | 0,97 | 2,9 | 54 | 0,69 | 2,9 | 2,8 | | | |
| RL4015 | RL | 2CT | 90 | S | 4/8 | | 0,75 | 1405 | 1,85 | 4,9 | 71 | 0,77 | 4,5 | 1,9 | 16 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,37 | 675 | 1,23 | 3,0 | 62 | 0,70 | 4,4 | 1,6 | | | |
| RL4016 | RL | 2CT | 90 | L | 4/8 | | 1,00 | 1405 | 2,50 | 4,2 | 77 | 0,75 | 6,9 | 2,3 | 18 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,55 | 675 | 1,68 | 3,0 | 67 | 0,70 | 6,8 | 2,4 | | | |
| RL4017 | RL | 2CT | 100 | LA | 4/8 | | 1,30 | 1420 | 3,10 | 4,5 | 79 | 0,77 | 9,1 | 3,0 | 23 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,70 | 700 | 2,10 | 4,9 | 70 | 0,68 | 8,9 | 1,9 | | | |
| RL4018 | RL | 2CT | 100 | LB | 4/8 | | 1,80 | 1430 | 4,00 | 5,0 | 80 | 0,81 | 11,5 | 2,5 | 25 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,90 | 690 | 2,60 | 3,7 | 72 | 0,74 | 12,0 | 1,8 | | | |
| RL4019 | RL | 2CT | 112 | M | 4/8 | | 2,50 | 1450 | 5,00 | 5,5 | 81 | 0,85 | 17,2 | 2,1 | 35 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,25 | 705 | 3,70 | 4,1 | 78 | 0,65 | 16,9 | 1,9 | | | |
| RL4041 | RL | 2CT | 132 | S | 4/8 | | 3,30 | 1445 | 6,80 | 4,9 | 83 | 0,85 | 22,0 | 1,6 | 56 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,85 | 705 | 4,40 | 4,1 | 82 | 0,75 | 25,0 | 1,6 | | | |
| RL4042 | RL | 2CT | 132 | MB | 4/8 | | 4,80 | 1430 | 10,00 | 5,2 | 85 | 0,82 | 32,0 | 1,7 | 61 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 2,40 | 710 | 5,50 | 4,3 | 82 | 0,76 | 33,0 | 1,7 | | | |
| RL4043 | RL | 2CT | 132 | L | 4/8 | | 5,50 | 1440 | 11,50 | 5,5 | 85 | 0,82 | 36,0 | 1,8 | 71 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 3,00 | 715 | 7,00 | 4,5 | 84 | 0,74 | 39,7 | 1,8 | | | |
| RL4044 | RL | 2CT | 160 | M | 4/8 | | 7,50 | 1450 | 17,10 | 5,7 | 87 | 0,84 | 49,0 | 1,9 | 106 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 4,80 | 715 | 10,70 | 4,7 | 86 | 0,76 | 63,0 | 1,8 | | | |
| RL4045 | RL | 2CT | 160 | L | 4/8 | | 10,00 | 1450 | 20,70 | 6,8 | 83 | 0,84 | 66,0 | 1,9 | 118 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 6,60 | 720 | 12,80 | 5,6 | 86 | 0,87 | 88,0 | 1,9 | | | |

**2 Speed 1500/1000****CONSTANT TORQUE – Rated data at 400V/50Hz****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Type | | | | | | P | rpm | In | I _a /I _n | η | Cos | M _n | M _a /M _n | m | Class | Certificate |
|-------------|------|-----|-----|----|-----|--|------|-------------------|-------|--------------------------------|----|------|----------------|--------------------------------|-----|-------|----------------------|
| | | | | | | | kW | min ⁻¹ | 400 V | | % | φ | Nm | | Kg | T | |
| | | | | | | | | | Amp. | | | | | | | | |
| RL4020 | RL | 2CT | 71 | B | 4/6 | | 0,20 | 1400 | 0,55 | 3,3 | 70 | 0,75 | 1,3 | 1,4 | 8 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,10 | 900 | 0,38 | 2,4 | 53 | 0,71 | 1,1 | 1,4 | | | |
| RL4021 | RL | 2CT | 80 | A | 4/6 | | 0,40 | 1400 | 1,10 | 3,4 | 71 | 0,75 | 2,9 | 1,4 | 10 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,20 | 905 | 0,65 | 2,5 | 62 | 0,72 | 2,1 | 1,5 | | | |
| RL4022 | RL | 2CT | 80 | B | 4/6 | | 0,50 | 1405 | 1,38 | 3,6 | 71 | 0,74 | 3,4 | 1,5 | 12 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,30 | 910 | 0,90 | 3,1 | 66 | 0,73 | 3,0 | 1,5 | | | |
| RL4023 | RL | 2CT | 90 | S | 4/6 | | 0,65 | 1405 | 1,65 | 5,8 | 76 | 0,75 | 4,5 | 1,6 | 16 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,45 | 910 | 1,26 | 4,3 | 70 | 0,73 | 4,6 | 1,5 | | | |
| RL4024 | RL | 2CT | 90 | L | 4/6 | | 0,95 | 1410 | 2,36 | 5,5 | 77 | 0,76 | 6,3 | 1,5 | 18 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,60 | 910 | 1,66 | 3,6 | 70 | 0,74 | 6,4 | 1,6 | | | |
| RL4025 | RL | 2CT | 100 | LA | 4/6 | | 1,40 | 1415 | 3,20 | 5,7 | 81 | 0,73 | 9,4 | 1,8 | 23 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,90 | 910 | 2,40 | 4,1 | 74 | 0,74 | 9,3 | 1,7 | | | |
| RL4026 | RL | 2CT | 100 | LB | 4/6 | | 1,85 | 1415 | 4,10 | 5,8 | 80 | 0,81 | 12,4 | 1,6 | 25 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,10 | 910 | 2,90 | 3,9 | 74 | 0,74 | 12,1 | 1,6 | | | |
| RL4027 | RL | 2CT | 112 | M | 4/6 | | 2,40 | 1420 | 4,95 | 6,1 | 82 | 0,85 | 16,2 | 1,8 | 35 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,60 | 940 | 3,66 | 4,3 | 81 | 0,77 | 16,5 | 1,7 | | | |
| RL4046 | RL | 2CT | 132 | S | 4/6 | | 3,00 | 1440 | 6,20 | 5,9 | 81 | 0,89 | 20,0 | 1,9 | 55 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 2,00 | 970 | 4,40 | 3,9 | 77 | 0,74 | 20,2 | 1,6 | | | |
| RL4047 | RL | 2CT | 132 | MA | 4/6 | | 4,00 | 1445 | 8,00 | 6,1 | 82 | 0,88 | 26,3 | 2,0 | 60 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 2,60 | 965 | 6,20 | 4,5 | 79 | 0,76 | 25,9 | 1,8 | | | |
| RL4048 | RL | 2CT | 132 | MB | 4/6 | | 4,40 | 1445 | 9,00 | 6,3 | 83 | 0,89 | 29,0 | 1,9 | 66 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 3,00 | 965 | 6,60 | 4,4 | 80 | 0,8 | 30,3 | 1,7 | | | |
| RL4049 | RL | 2CT | 132 | L | 4/6 | | 5,15 | 1470 | 11,90 | 6,8 | 84 | 0,75 | 33,5 | 1,9 | 71 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 3,30 | 965 | 9,40 | 4,7 | 80 | 0,65 | 33,0 | 1,7 | | | |
| RL4050 | RL | 2CT | 160 | M | 4/6 | | 6,60 | 1450 | 16,60 | 6,8 | 85 | 0,88 | 43,0 | 1,9 | 106 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 4,40 | 965 | 12,50 | 4,4 | 83 | 0,82 | 43,9 | 1,8 | | | |
| RL4051 | RL | 2CT | 160 | L | 4/6 | | 8,80 | 1450 | 18,60 | 6,8 | 87 | 0,88 | 57,7 | 1,9 | 118 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 5,90 | 970 | 13,50 | 4,9 | 85 | 0,79 | 58,0 | 1,8 | | | |



2 Speed 1000/750

CONSTANT TORQUE – Rated data at 400V/50Hz

II 2G - II 2GD - Ex d – Ex de - IIC

| Part Number | Type | | | | | | P | rpm | In | I _a /I _n | η | Cos | M _n | M _a /M _n | m | Class | Certificate |
|-------------|------|-----|-----|----|-----|--|------|-------------------|-------|--------------------------------|----|------|----------------|--------------------------------|-----|-------|----------------------|
| | | | | | | | kW | min ⁻¹ | 400 V | % | φ | Nm | Kg | T | | | |
| | | | | | | | | | Amp. | | | | | | | | |
| RL4028 | RL | 2CT | 71 | B | 6/8 | | 0,12 | 900 | 0,53 | 2,4 | 50 | 0,71 | 1,3 | 1,4 | 8 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,08 | 690 | 0,44 | 2,2 | 49 | 0,61 | 1,1 | 1,3 | | | |
| RL4029 | RL | 2CT | 80 | A | 6/8 | | 0,15 | 935 | 0,68 | 2,6 | 50 | 0,71 | 1,5 | 1,5 | 10 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,13 | 690 | 0,63 | 2,1 | 52 | 0,60 | 1,9 | 1,5 | | | |
| RL4030 | RL | 2CT | 80 | B | 6/8 | | 0,25 | 930 | 1,00 | 3,2 | 52 | 0,72 | 2,7 | 1,5 | 12 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,15 | 685 | 0,82 | 2,2 | 49 | 0,60 | 2,2 | 1,4 | | | |
| RL4031 | RL | 2CT | 90 | S | 6/8 | | 0,35 | 910 | 1,35 | 3,8 | 55 | 0,74 | 3,6 | 1,4 | 16 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,25 | 650 | 1,00 | 3,1 | 60 | 0,60 | 3,8 | 2,5 | | | |
| RL4032 | RL | 2CT | 90 | L | 6/8 | | 0,60 | 935 | 2,00 | 3,8 | 60 | 0,76 | 6,1 | 1,5 | 18 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,30 | 685 | 1,35 | 3,4 | 61 | 0,60 | 4,3 | 1,6 | | | |
| RL4033 | RL | 2CT | 100 | LA | 6/8 | | 0,80 | 920 | 2,35 | 4,0 | 65 | 0,77 | 8,2 | 1,5 | 23 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,55 | 700 | 1,90 | 3,6 | 68 | 0,63 | 7,4 | 1,6 | | | |
| RL4034 | RL | 2CT | 100 | LB | 6/8 | | 1,00 | 930 | 2,90 | 4,1 | 67 | 0,75 | 10,5 | 1,6 | 25 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,65 | 700 | 2,20 | 3,7 | 68 | 0,66 | 8,8 | 1,6 | | | |
| RL4035 | RL | 2CT | 112 | M | 6/8 | | 1,50 | 960 | 4,20 | 4,0 | 75 | 0,72 | 15 | 1,7 | 35 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,00 | 710 | 3,30 | 3,9 | 65 | 0,70 | 13,4 | 1,6 | | | |
| RL4052 | RL | 2CT | 132 | S | 6/8 | | 1,85 | 960 | 5,20 | 4,1 | 74 | 0,71 | 18,4 | 1,6 | 60 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,30 | 720 | 4,10 | 4,0 | 68 | 0,65 | 17,5 | 1,8 | | | |
| RL4053 | RL | 2CT | 132 | MB | 6/8 | | 2,55 | 965 | 6,90 | 4,2 | 74 | 0,73 | 25,1 | 1,8 | 66 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,85 | 720 | 5,90 | 4,1 | 69 | 0,67 | 24,6 | 1,8 | | | |
| RL4054 | RL | 2CT | 132 | L | 6/8 | | 3,00 | 980 | 7,30 | 4,2 | 80 | 0,75 | 29,5 | 1,8 | 71 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 2,00 | 735 | 5,90 | 4,1 | 74 | 0,65 | 26,3 | 1,9 | | | |
| RL4055 | RL | 2CT | 160 | M | 6/8 | | 4,00 | 980 | 9,40 | 4,3 | 82 | 0,75 | 39,3 | 1,9 | 106 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 2,80 | 725 | 7,50 | 4,2 | 78 | 0,70 | 37,2 | 1,9 | | | |
| RL4056 | RL | 2CT | 160 | L | 6/8 | | 5,50 | 985 | 12,90 | 4,3 | 84 | 0,74 | 53,5 | 1,9 | 118 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 4,00 | 730 | 9,90 | 4,2 | 78 | 0,75 | 53,0 | 1,9 | | | |



5.3 Motori trifasi 2 velocità Coppia Quadratica (For centrifugal machines)

- Three phase asynchronous motor, squirrel cage rotor, self ventilated (IC411).
- Duty S1, Insulation class "F", IP55, 400V- 50 Hz.

• Connections

| Poles | Connections | High Speed | Low Speed |
|-----------|-----------------------|-----------------|---------------|
| 2/4 – 4/8 | (Dahlander) | YY 400 V | Y 400V |
| 4/6 – 6/8 | (2 Separate windings) | Y 400 V | Y 400V |

- For ambient temperature see par 2.1

2 Speed 3000/1500 QUADRATIC TORQUE – Rated data at 400V/50Hz II 2G - II 2GD - Ex d – Ex de - IIC

| Part Number | Type | | | | | | P | rpm | I _n | I _a /I _n | η | Cos | M _n | M _a /M _n | m | Class | Certificate |
|-------------|------|--|--|--|--|--|----|-------------------|----------------|--------------------------------|---|-----|----------------|--------------------------------|---|-------|-------------|
| | | | | | | | kW | min ⁻¹ | 400 V | % | φ | Nm | Kg | T | | | |
| | | | | | | | | Amp. | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|--------|----|-----|-----|----|-----|-------|-------|-------|-----|----|------|------|-----|------|----|----------------------|
| RL6001 | RL | 2QT | 63 | B | 2/4 | 0,25 | 2780 | 0,90 | 3,3 | 52 | 0,70 | 0,9 | 2,0 | 7 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,06 | 1410 | 0,20 | 2,5 | 58 | 0,68 | 0,4 | 1,7 | | | |
| RL6002 | RL | 2QT | 71 | A | 2/4 | 0,37 | 2790 | 1,10 | 3,5 | 59 | 0,80 | 1,3 | 1,8 | 7 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,09 | 1410 | 0,40 | 2,8 | 33 | 0,70 | 0,6 | 1,8 | | | |
| RL6003 | RL | 2QT | 71 | B | 2/4 | 0,50 | 2800 | 1,90 | 3,6 | 60 | 0,70 | 1,7 | 1,8 | 8 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,14 | 1410 | 0,45 | 2,9 | 65 | 0,70 | 1,0 | 1,9 | | | |
| RL6004 | RL | 2QT | 80 | A | 2/4 | 0,75 | 2800 | 2,26 | 4 | 63 | 0,76 | 2,6 | 1,8 | 11 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,18 | 1415 | 0,50 | 3,5 | 66 | 0,79 | 1,2 | 2,2 | | | |
| RL6005 | RL | 2QT | 80 | B | 2/4 | 1,10 | 2810 | 3,00 | 4,1 | 66 | 0,81 | 3,7 | 1,8 | 13 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,25 | 1415 | 0,64 | 3,7 | 70 | 0,81 | 1,7 | 2,2 | | | |
| RL6006 | RL | 2QT | 90 | S | 2/4 | 1,50 | 2820 | 4,00 | 4,5 | 66 | 0,82 | 5,1 | 2,0 | 17,5 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,37 | 1420 | 1,00 | 3,9 | 64 | 0,81 | 2,5 | 2,2 | | | |
| RL6007 | RL | 2QT | 90 | L | 2/4 | 2,20 | 2860 | 5,00 | 4,4 | 70 | 0,89 | 7,5 | 1,9 | 19 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,55 | 1400 | 1,30 | 4,4 | 67 | 0,87 | 3,7 | 2,1 | | | |
| RL6008 | RL | 2QT | 100 | LA | 2/4 | 2,60 | 2820 | 5,30 | 5,6 | 77 | 0,92 | 8,8 | 2,1 | 25 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,62 | 1420 | 1,42 | 5,3 | 73 | 0,89 | 4,2 | 2,0 | | | |
| RL6009 | RL | 2QT | 100 | LB | 2/4 | 3,30 | 2800 | 6,64 | 5,6 | 78 | 0,92 | 11,3 | 2,1 | 27 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 0,75 | 1415 | 1,60 | 5 | 73 | 0,90 | 5,1 | 2,0 | | | |
| RL6010 | RL | 2QT | 112 | M | 2/4 | 4,40 | 2890 | 8,50 | 5,4 | 76 | 0,95 | 14,6 | 2,0 | 35 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 1,10 | 1440 | 2,30 | 5 | 76 | 0,90 | 7,4 | 1,9 | | | |
| RL6035 | RL | 2QT | 132 | S | 2/4 | 6,50 | 2900 | 12,40 | 6,1 | 84 | 0,92 | 21,4 | 2,2 | 60 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 2,00 | 1450 | 4,70 | 5,9 | 75 | 0,81 | 13,1 | 2,1 | | | |
| RL6036 | RL | 2QT | 132 | M | 2/4 | 8,50 | 2910 | 15,90 | 6,7 | 92 | 0,83 | 28,1 | 2,3 | 66 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 2,50 | 1450 | 4,90 | 6,4 | 90 | 0,80 | 16,4 | 2,3 | | | |
| RL6037 | RL | 2QT | 132 | L | 2/4 | 9,20 | 2900 | 17,40 | 6,8 | 89 | 0,85 | 30,5 | 2,4 | 71 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 2,80 | 1450 | 5,60 | 6,5 | 86 | 0,83 | 18,5 | 2,3 | | | |
| RL6038 | RL | 2QT | 160 | M | 2/4 | 12,00 | 2930 | 25,90 | 6,1 | 76 | 0,90 | 39,0 | 3,5 | 105 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 3,00 | 1450 | 7,90 | 4,3 | 69 | 0,82 | 19,6 | 2,2 | | | |
| RL6039 | RL | 2QT | 160 | L | 2/4 | 16,00 | 2930 | 28,40 | 7,3 | 86 | 0,94 | 52,0 | 2,1 | 115 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | 4,40 | 14760 | 10,40 | 6,9 | 79 | 0,80 | 28,5 | 2,0 | | | |

**2 Speed 1500/750****QUADRATIC TORQUE – Rated data at 400V/50Hz****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Type | | | | | | P kW | rpm min ⁻¹ | I _n 400 V Amp. | I _a /I _n | η % | Cos φ | M _n Nm | M _a /M _n | m Kg | Class T | Certificate |
|-------------|------|-----|-----|----|-----|-------|---------|--------------------------|---------------------------------|--------------------------------|--------|----------|----------------------|--------------------------------|---------|----------------------|-------------|
| | | | | | | | | | | | | | | | | | |
| RL6011 | RL | 2QT | 71 | A | 4/8 | 0,25 | 1400 | 0,69 | 3,0 | 70 | 0,75 | 1,7 | 2,2 | 6,5 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,05 | 700 | 0,36 | 2,3 | 28 | 0,68 | 0,7 | 2,8 | | | | |
| RL6012 | RL | 2QT | 71 | B | 4/8 | 0,37 | 1380 | 1,10 | 3,4 | 59 | 0,80 | 2,6 | 1,2 | 7,5 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,07 | 680 | 0,45 | 2,2 | 33 | 0,70 | 1,1 | 1,2 | | | | |
| RL6013 | RL | 2QT | 80 | A | 4/8 | 0,55 | 1405 | 1,43 | 4,4 | 75 | 0,74 | 3,7 | 2,2 | 10 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,10 | 700 | 0,58 | 2,0 | 38 | 0,66 | 1,4 | 2,3 | | | | |
| RL6014 | RL | 2QT | 80 | B | 4/8 | 0,75 | 1410 | 1,90 | 4,1 | 70 | 0,76 | 5,1 | 1,7 | 12 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,15 | 690 | 0,70 | 2,4 | 48 | 0,66 | 2,1 | 1,5 | | | | |
| RL6015 | RL | 2QT | 90 | S | 4/8 | 0,90 | 1415 | 2,75 | 4,0 | 77 | 0,75 | 6,1 | 2,3 | 16 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,25 | 710 | 0,96 | 2,9 | 54 | 0,70 | 3,4 | 2,8 | | | | |
| RL6016 | RL | 2QT | 90 | L | 4/8 | 1,20 | 1420 | 3,40 | 4,2 | 80 | 0,79 | 8,1 | 2,3 | 17,5 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,30 | 710 | 1,10 | 1,3 | 57 | 0,70 | 4,0 | 3,0 | | | | |
| RL6017 | RL | 2QT | 100 | LA | 4/8 | 1,90 | 1390 | 4,10 | 5,0 | 80 | 0,80 | 13,1 | 3,0 | 23 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,45 | 710 | 1,60 | 3,0 | 61 | 0,68 | 6,1 | 2,0 | | | | |
| RL6018 | RL | 2QT | 100 | LB | 4/8 | 2,20 | 1440 | 4,86 | 6,0 | 84 | 0,85 | 14,6 | 2,5 | 25 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,55 | 720 | 1,68 | 3,0 | 68 | 0,70 | 7,3 | 2,4 | | | | |
| RL6019 | RL | 2QT | 112 | M | 4/8 | 3,00 | 1450 | 6,60 | 6,0 | 83 | 0,85 | 19,8 | 2,6 | 35 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,75 | 720 | 2,27 | 3,0 | 70 | 0,68 | 9,9 | 2,4 | | | | |
| RL6040 | RL | 2QT | 132 | S | 4/8 | 4,40 | 1450 | 9,90 | 5,8 | 77 | 0,85 | 29,0 | 2,2 | 60 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 1,10 | 720 | 3,90 | 3,5 | 65 | 0,63 | 15,0 | 1,9 | | | | |
| RL6041 | RL | 2QT | 132 | MB | 4/8 | 5,90 | 1450 | 12,90 | 6,2 | 82 | 0,82 | 39,0 | 2,1 | 66 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 1,50 | 720 | 5,00 | 3,9 | 71 | 0,62 | 20,0 | 1,8 | | | | |
| RL6042 | RL | 2QT | 132 | L | 4/8 | 7,50 | 1440 | 15,90 | 6,7 | 84 | 0,83 | 50,0 | 2,1 | 71 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 1,85 | 710 | 6,10 | 4,3 | 73 | 0,61 | 25,0 | 1,9 | | | | |
| RL6043 | RL | 2QT | 160 | M | 4/8 | 8,80 | 1450 | 19,40 | 6,8 | 78 | 0,86 | 58,3 | 2,2 | 106 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 2,50 | 730 | 8,50 | 3,9 | 65 | 0,67 | 32,8 | 2,9 | | | | |
| RL6044 | RL | 2QT | 160 | L | 4/8 | 12,00 | 1450 | 22,80 | 6,8 | 88 | 0,88 | 78,6 | 2,2 | 118 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 3,20 | 730 | 9,80 | 4,0 | 69 | 0,69 | 42,2 | 2,1 | | | | |

**2 Speed 1500/1000****QUADRATIC TORQUE – Rated data at 400V/50Hz****II 2G - II 2GD - Ex d – Ex de - IIC**

| Part Number | Type | | | | | | P | rpm | In | I _a /I _n | η | Cos | M _n | M _a /M _n | m | Class | Certificate |
|-------------|------|-----|-----|----|-----|--|-------|-------------------|-------|--------------------------------|----|------|----------------|--------------------------------|------|-------|----------------------|
| | | | | | | | kW | min ⁻¹ | 400 V | | % | φ | Nm | | Kg | T | |
| | | | | | | | | | Amp. | | | | | | | | |
| RL6020 | RL | 2QT | 71 | B | 4/6 | | 0,30 | 1400 | 0,95 | 2,6 | 71 | 0,75 | 2,1 | 2,0 | 7,5 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,10 | 900 | 0,50 | 1,4 | 63 | 0,72 | 1,4 | 1,8 | | | |
| RL6021 | RL | 2QT | 80 | A | 4/6 | | 0,44 | 1405 | 1,02 | 3,2 | 59 | 0,8 | 3,0 | 1,5 | 10 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,13 | 900 | 0,50 | 1,7 | 33 | 0,7 | 1,4 | 1,1 | | | |
| RL6022 | RL | 2QT | 80 | B | 4/6 | | 0,59 | 1405 | 1,60 | 3,5 | 76 | 0,8 | 3,9 | 1,7 | 12 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,18 | 905 | 0,65 | 2,3 | 72 | 0,75 | 1,9 | 1,2 | | | |
| RL6023 | RL | 2QT | 90 | S | 4/6 | | 0,90 | 1400 | 2,25 | 4,1 | 77 | 0,75 | 6,1 | 2,1 | 16 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,30 | 900 | 0,83 | 3,1 | 68 | 0,76 | 3,1 | 1,6 | | | |
| RL6024 | RL | 2QT | 90 | L | 4/6 | | 1,15 | 1420 | 2,60 | 4,1 | 80 | 0,79 | 7,5 | 1,8 | 17,5 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,40 | 910 | 1,10 | 2,9 | 74 | 0,74 | 4,2 | 1,3 | | | |
| RL6025 | RL | 2QT | 100 | LA | 4/6 | | 1,80 | 1410 | 3,67 | 5,1 | 80 | 0,83 | 12,1 | 2,1 | 23 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,60 | 930 | 1,44 | 3,9 | 80 | 0,75 | 6,1 | 1,8 | | | |
| RL6026 | RL | 2QT | 100 | LB | 4/6 | | 2,20 | 1440 | 4,90 | 3,8 | 82 | 0,87 | 15,2 | 1,7 | 25 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,70 | 940 | 2,10 | 3,0 | 80 | 0,75 | 7,5 | 1,5 | | | |
| RL6027 | RL | 2QT | 112 | M | 4/6 | | 3,00 | 1450 | 6,30 | 5,5 | 84 | 0,82 | 19,8 | 2,0 | 35 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 0,90 | 940 | 2,00 | 4,0 | 81 | 0,79 | 9,1 | 1,9 | | | |
| RL6045 | RL | 2QT | 132 | S | 4/6 | | 4,00 | 1450 | 9,30 | 6,3 | 80 | 0,78 | 26,0 | 2,1 | 55 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,20 | 980 | 4,50 | 4,9 | 70 | 0,6 | 11,8 | 1,7 | | | |
| RL6046 | RL | 2QT | 132 | MA | 4/6 | | 4,80 | 1460 | 11,30 | 6,6 | 75 | 0,81 | 31,2 | 1,9 | 60 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,40 | 970 | 5,00 | 5,2 | 69 | 0,6 | 14,0 | 1,9 | | | |
| RL6047 | RL | 2QT | 132 | MB | 4/6 | | 5,50 | 1455 | 12,80 | 5,4 | 77 | 0,81 | 36,0 | 2,1 | 66 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 1,70 | 960 | 6,40 | 4,8 | 64 | 0,62 | 17,0 | 1,9 | | | |
| RL6048 | RL | 2QT | 132 | L | 4/6 | | 6,60 | 1460 | 15,30 | 6,7 | 89 | 0,72 | 43,2 | 1,9 | 71 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 2,00 | 950 | 7,90 | 5,2 | 78 | 0,55 | 20,1 | 1,9 | | | |
| RL6049 | RL | 2QT | 160 | M | 4/6 | | 7,50 | 1470 | 16,40 | 7,2 | 81 | 0,85 | 49,0 | 2,2 | 106 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 2,50 | 985 | 7,20 | 5,9 | 72 | 0,72 | 24,2 | 2,3 | | | |
| RL6050 | RL | 2QT | 160 | L | 4/6 | | 11,00 | 1450 | 22,80 | 6,9 | 84 | 0,85 | 72,0 | 2,2 | 118 | T4 | INERIS 05 ATEX 0025X |
| | | | | | | | 3,30 | 960 | 9,30 | 6,1 | 73 | 0,72 | 32,0 | 2,3 | | | |


2 Speed 1000/750
QUADRATIC TORQUE – Rated data at 400V/50Hz
II 2G - II 2GD - Ex d – Ex de - IIC

| Part Number | Type | | | | | | P kW | rpm min ⁻¹ | I _n 400 V Amp. | I _a /I _n | η % | Cos φ | M _n Nm | M _a /M _n | m Kg | Class T | Certificate |
|-------------|------|-----|-----|----|-----|------|---------|--------------------------|---------------------------------|--------------------------------|--------|----------|----------------------|--------------------------------|---------|----------------------|-------------|
| | | | | | | | | | | | | | | | | | |
| RL6028 | RL | 2QT | 80 | A | 6/8 | 0,33 | 920 | 1,32 | 3,1 | 55 | 0,70 | 3,4 | 1,8 | 10 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,09 | 680 | 0,40 | 1,9 | 57 | 0,62 | 1,3 | 1,4 | | | | |
| RL6029 | RL | 2QT | 80 | B | 6/8 | 0,40 | 935 | 1,48 | 2,9 | 58 | 0,70 | 4,0 | 1,8 | 12 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,12 | 685 | 0,50 | 2,1 | 55 | 0,63 | 1,7 | 1,4 | | | | |
| RL6030 | RL | 2QT | 90 | S | 6/8 | 0,48 | 925 | 1,78 | 3,1 | 61 | 0,65 | 4,8 | 1,9 | 16 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,19 | 690 | 0,85 | 2,1 | 55 | 0,62 | 2,7 | 1,5 | | | | |
| RL6031 | RL | 2QT | 90 | L | 6/8 | 0,66 | 900 | 2,00 | 3,2 | 60 | 0,80 | 7,1 | 2,0 | 17.5 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,25 | 700 | 1,20 | 2,3 | 52 | 0,62 | 3,5 | 1,7 | | | | |
| RL6032 | RL | 2QT | 100 | LA | 6/8 | 0,90 | 960 | 2,85 | 4,1 | 67 | 0,68 | 8,9 | 1,9 | 23 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,37 | 720 | 1,75 | 3,5 | 50 | 0,65 | 4,8 | 1,8 | | | | |
| RL6033 | RL | 2QT | 100 | LB | 6/8 | 1,10 | 950 | 3,35 | 3,9 | 70 | 0,70 | 11,2 | 1,6 | 25 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,45 | 720 | 2,10 | 3,4 | 52 | 0,64 | 5,9 | 1,4 | | | | |
| RL6034 | RL | 2QT | 112 | M | 6/8 | 1,50 | 970 | 3,90 | 4,4 | 75 | 0,74 | 15,1 | 2,1 | 35 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,75 | 720 | 2,80 | 3,5 | 61 | 0,68 | 10,1 | 1,7 | | | | |
| RL6051 | RL | 2QT | 132 | S | 6/8 | 2,20 | 960 | 5,60 | 4,4 | 75 | 0,75 | 22,2 | 2,2 | 60 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 0,90 | 720 | 3,20 | 3,7 | 62 | 0,66 | 11,9 | 1,8 | | | | |
| RL6052 | RL | 2QT | 132 | MA | 6/8 | 3,00 | 970 | 6,90 | 4,8 | 77 | 0,82 | 29,7 | 2,1 | 66 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 1,20 | 730 | 4,80 | 3,8 | 61 | 0,63 | 15,6 | 1,8 | | | | |
| RL6053 | RL | 2QT | 132 | MB | 6/8 | 3,70 | 970 | 8,80 | 5,1 | 80 | 0,77 | 36,5 | 2,1 | 71 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 1,50 | 720 | 4,90 | 3,8 | 65 | 0,70 | 20,1 | 2,1 | | | | |
| RL6054 | RL | 2QT | 160 | M | 6/8 | 5,50 | 980 | 12,30 | 5,5 | 88 | 0,75 | 53,5 | 2,2 | 106 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 2,50 | 730 | 6,70 | 4,2 | 84 | 0,65 | 32,5 | 2,3 | | | | |
| RL6055 | RL | 2QT | 160 | L | 6/8 | 7,50 | 970 | 15,30 | 5,7 | 84 | 0,85 | 73,5 | 2,1 | 118 | T4 | INERIS 05 ATEX 0025X | |
| | | | | | | 4,00 | 720 | 9,10 | 3,9 | 81 | 0,80 | 53,2 | 2,1 | | | | |



5.4 Single-phase motors

- Single-phase asynchronous motor, squirrel cage rotor, self ventilated (IC411).
- Duty S1, Insulation class "F", IP55, 230V - 50 Hz.
- For ambient temperature see par 2.1
- The motors considered in teh rating table are single-phase motors with 1 capacitor. In case of single-phase motors with high starting torque it is possible to have a start capacitor complete with electronic switch (on request mechanical).

Rated data at 230V/50Hz

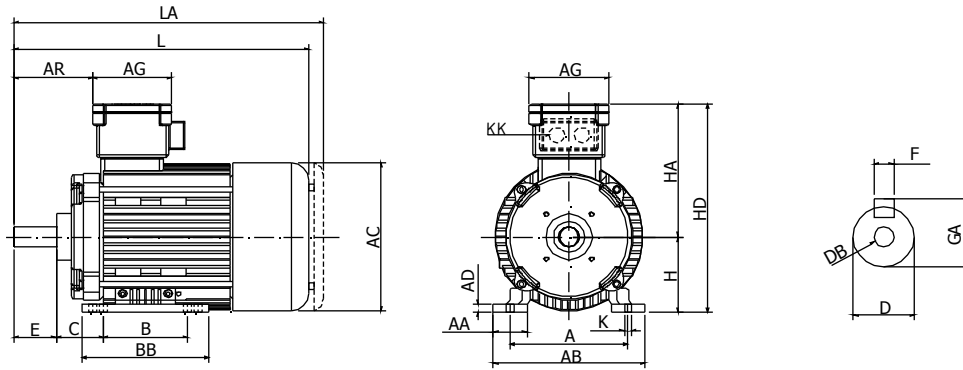
| Part Number | Type | | | | P | | rpm min ⁻¹ | I _n Amp. | I _a /I _n | η % | Cos φ | M _n Nm | M _a /M _n | Cap. (450V) μF | m Kg | Class T | Certificate | |
|-------------|------|-----|----|---|------|------|--------------------------|------------------------|--------------------------------|--------|----------|----------------------|--------------------------------|----------------------|---------|------------|-------------|---|
| | | | | | kW | Hp | | | | | | | | | | | ① | ② |
| RL8001 | RL | 56 | A | 2 | 0,06 | 0,08 | 2710 | 0,60 | 2,8 | 42 | 0,88 | 0,15 | 0,6 | 2,5 | 4 | T4 | ① | ② |
| RL8002 | RL | 56 | B | 2 | 0,09 | 0,12 | 2720 | 0,84 | 3,0 | 43 | 0,90 | 0,2 | 0,6 | 3 | 4,5 | T4 | ① | ② |
| RL8003 | RL | 63 | A | 2 | 0,12 | 0,16 | 2770 | 1,23 | 3,2 | 50 | 0,90 | 0,3 | 0,7 | 6,3 | 6 | T4 | ① | ② |
| RL8004 | RL | 63 | B | 2 | 0,18 | 0,25 | 2780 | 1,76 | 3,7 | 51 | 0,86 | 0,55 | 0,7 | 6,3 | 6,5 | T4 | ① | ② |
| RL8005 | RL | 71 | A | 2 | 0,25 | 0,34 | 2785 | 1,91 | 3,6 | 60 | 0,93 | 0,75 | 0,8 | 8 | 6,5 | T4 | ① | ② |
| RL8006 | RL | 71 | B | 2 | 0,37 | 0,50 | 2800 | 2,71 | 2,6 | 62 | 0,97 | 1,5 | 0,8 | 10 | 7,5 | T4 | | ② |
| RL8007 | RL | 80 | A | 2 | 0,55 | 0,75 | 2800 | 3,79 | 2,4 | 61 | 0,97 | 1,95 | 0,7 | 16 | 10 | T4 | | ② |
| RL8008 | RL | 80 | B | 2 | 0,75 | 1,00 | 2840 | 4,82 | 4,4 | 62 | 0,94 | 2,7 | 0,9 | 20 | 12 | T4 | | ② |
| RL8009 | RL | 90 | S | 2 | 1,10 | 1,50 | 2850 | 7,60 | 4,3 | 67 | 0,89 | 3,9 | 0,8 | 25 | 16 | T4 | | ② |
| RL8010 | RL | 90 | L | 2 | 1,50 | 2,00 | 2850 | 9,25 | 4,8 | 67 | 0,94 | 5,0 | 0,8 | 30 | 17,5 | T4 | | ② |
| RL8011 | RL | 100 | LA | 2 | 2,20 | 3,00 | 2840 | 13,10 | 4,9 | 69 | 0,93 | 7,4 | 0,7 | 36 | 23 | T4 | | ③ |
| RL8012 | RL | 100 | LB | 2 | 3,00 | 4,00 | 2810 | 17,50 | 4,9 | 72 | 0,95 | 10,1 | 0,7 | 55 | 25 | T4 | | ③ |
| RL8013 | RL | 56 | B | 4 | 0,06 | 0,08 | 1285 | 0,68 | 2,7 | 49 | 0,90 | 0,4 | 0,6 | 3,5 | 4,5 | T4 | ① | ② |
| RL8014 | RL | 63 | A | 4 | 0,09 | 0,12 | 1360 | 0,88 | 3,1 | 51 | 0,88 | 0,6 | 0,7 | 5 | 6 | T4 | ① | ② |
| RL8015 | RL | 63 | B | 4 | 0,12 | 0,16 | 1380 | 1,15 | 2,9 | 53 | 0,86 | 1,1 | 0,7 | 6,3 | 6,5 | T4 | ① | ② |
| RL8016 | RL | 71 | A | 4 | 0,18 | 0,25 | 1410 | 1,54 | 3,1 | 61 | 0,83 | 1,8 | 0,8 | 8 | 6,5 | T4 | ① | ② |
| RL8017 | RL | 71 | B | 4 | 0,25 | 0,34 | 1385 | 2,04 | 3,2 | 63 | 0,85 | 2,3 | 0,8 | 8 | 7,5 | T4 | ① | ② |
| RL8018 | RL | 80 | A | 4 | 0,37 | 0,50 | 1385 | 2,66 | 2,7 | 63 | 0,94 | 2,9 | 0,8 | 12,5 | 10 | T4 | | ② |
| RL8019 | RL | 80 | B | 4 | 0,55 | 0,75 | 1380 | 3,87 | 3,7 | 64 | 0,96 | 3,8 | 0,8 | 16 | 12 | T4 | | ② |
| RL8020 | RL | 90 | S | 4 | 0,75 | 1,00 | 1380 | 5,27 | 3,1 | 69 | 0,90 | 5,1 | 0,95 | 20 | 16 | T4 | | ② |
| RL8021 | RL | 90 | L | 4 | 1,10 | 1,50 | 1380 | 7,71 | 3,9 | 69 | 0,90 | 7,2 | 0,7 | 25 | 17,5 | T4 | | ② |
| RL8022 | RL | 100 | LA | 4 | 1,30 | 1,75 | 1385 | 8,25 | 3,2 | 71 | 0,96 | 9,0 | 0,55 | 32 | 23 | T4 | | ③ |
| RL8023 | RL | 100 | LB | 4 | 1,60 | 2,20 | 1440 | 10,45 | 2,6 | 75 | 0,90 | 11,1 | 0,55 | 45 | 25 | T4 | | ③ |
| RL8024 | RL | 63 | A | 6 | 0,06 | 0,08 | 900 | 0,80 | 2,4 | 50 | 0,85 | 0,6 | 0,5 | 6,3 | 6 | T4 | | ① |
| RL8025 | RL | 63 | B | 6 | 0,09 | 0,12 | 890 | 1,00 | 2,3 | 60 | 0,82 | 0,8 | 0,5 | 8 | 6,5 | T4 | | ① |
| RL8026 | RL | 71 | A | 6 | 0,12 | 0,16 | 910 | 1,30 | 2,5 | 61 | 0,83 | 1,2 | 0,6 | 8 | 6,5 | T4 | | ② |
| RL8027 | RL | 71 | B | 6 | 0,18 | 0,25 | 930 | 1,60 | 2,7 | 61 | 0,91 | 1,8 | 0,6 | 12,5 | 7,5 | T4 | | ② |
| RL8028 | RL | 80 | A | 6 | 0,25 | 0,34 | 920 | 2,40 | 2,8 | 62 | 0,92 | 2,2 | 0,6 | 16 | 10 | T4 | | ② |
| RL8029 | RL | 80 | B | 6 | 0,37 | 0,50 | 920 | 2,90 | 2,9 | 65 | 0,85 | 3,2 | 0,7 | 20 | 12 | T4 | | ② |
| RL8030 | RL | 90 | S | 6 | 0,55 | 0,75 | 910 | 4,20 | 2,9 | 65 | 0,85 | 5,9 | 0,7 | 25 | 16 | T4 | | ② |
| RL8031 | RL | 90 | L | 6 | 0,75 | 1,00 | 920 | 5,90 | 3,1 | 68 | 0,90 | 8,1 | 0,7 | 32 | 17,5 | T4 | | ② |
| RL8032 | RL | 100 | LA | 6 | 1,10 | 1,50 | 920 | 8,10 | 3,1 | 69 | 0,90 | 11,5 | 0,7 | 45 | 23 | T4 | | ③ |

- ① II 2G - II 2GD - Ex d - Ex de - IIC
- ② II 2G - II 2GD - Ex d - Ex de - IIB+H
- ③ II 2G - II 2GD - Ex d - Ex de - IIB

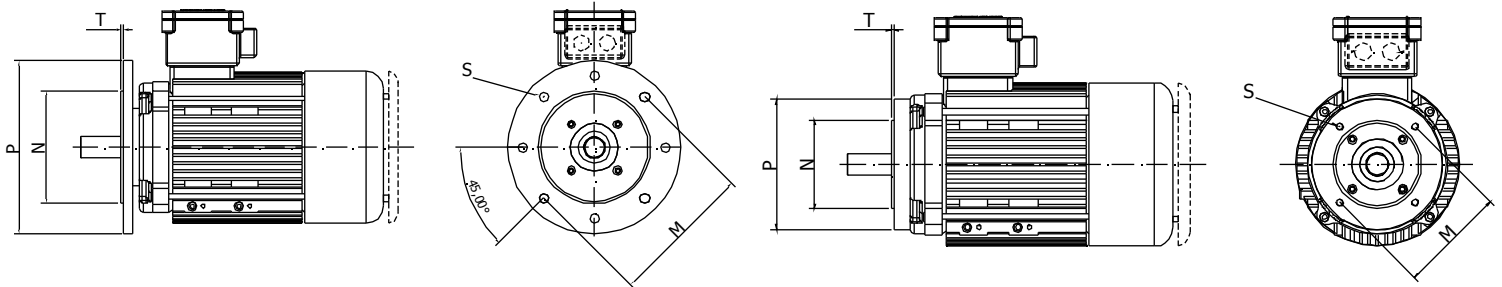
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 Certificate INERIS 08 ATEX 0005X
 Certificato INERIS 08 ATEX 0005X

6. OVERALL DIMENSIONS

6.1 Three-phase motors



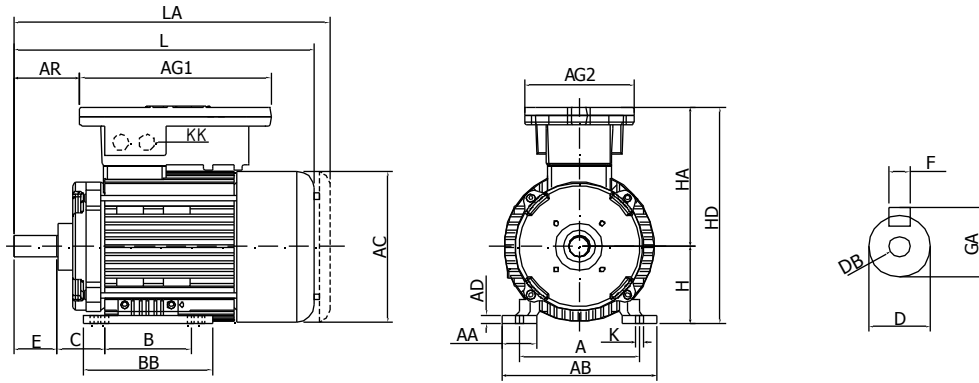
| Mounting B3 | | | | | | | | | | | | | | | | | | Shaft | | | | |
|-------------|-----|----|-----|-----|----|-------|-------|-----|-----|-----|------|---------|-----|-----|-----|-------|-----|-------|-----|-----|----|------|
| Tipo | A | AA | AB | AC | AD | AG | AR | B | BB | C | K | KK | H | HA | HD | L | LA | D | DB | E | F | GA |
| 56 | 90 | 24 | 108 | 110 | 9 | 94,2 | 46,9 | 71 | 84 | 36 | 6,2 | M20x1,5 | 56 | 125 | 181 | 211,5 | 223 | 9j6 | M3 | 20 | 3 | 10,2 |
| 63 | 100 | 25 | 125 | 131 | 6 | 94,2 | 63,4 | 80 | 108 | 40 | 7,0 | M20x1,5 | 63 | 142 | 205 | 270,8 | 283 | 11j6 | M4 | 23 | 4 | 12,5 |
| 71 | 112 | 30 | 142 | 138 | 8 | 94,2 | 64,4 | 90 | 120 | 45 | 7,0 | M20x1,5 | 71 | 142 | 213 | 271,8 | 284 | 14j6 | M5 | 30 | 5 | 16 |
| 80 | 125 | 30 | 155 | 156 | 8 | 4,2 | 80,4 | 100 | 125 | 50 | 9,0 | M20x1,5 | 80 | 151 | 231 | 299 | 314 | 19j6 | M6 | 40 | 6 | 21,5 |
| 90S | 140 | 40 | 180 | 176 | 10 | 94,2 | 93,4 | 100 | 150 | 56 | 9,0 | M20x1,5 | 90 | 158 | 248 | 350 | 368 | 24j6 | M8 | 50 | 8 | 27 |
| 90L | 140 | 40 | 180 | 176 | 10 | 94,2 | 93,4 | 125 | 150 | 56 | 9,0 | M20x1,5 | 90 | 158 | 248 | 350 | 368 | 24j6 | M8 | 50 | 8 | 27 |
| 100 | 160 | 40 | 200 | 197 | 12 | 123,5 | 107 | 140 | 180 | 63 | 12,0 | M25x1,5 | 100 | 188 | 288 | 404 | 416 | 28j6 | M10 | 60 | 8 | 31 |
| 112 | 190 | 40 | 230 | 218 | 12 | 123,5 | 112,3 | 140 | 180 | 70 | 12,0 | M25x1,5 | 112 | 198 | 310 | 418 | 442 | 28j6 | M10 | 60 | 8 | 31 |
| 132S | 216 | 63 | 248 | 257 | 16 | 168 | 93 | 140 | 213 | 89 | 12 | M32X1,5 | 132 | 287 | 419 | 633 | 646 | 38k6 | M12 | 80 | 10 | 41 |
| 132M | 216 | 63 | 248 | 257 | 16 | 168 | 93 | 178 | 213 | 89 | 12 | M32X1,5 | 132 | 287 | 419 | 633 | 646 | 38k6 | M12 | 80 | 10 | 41 |
| 160M | 254 | 70 | 255 | 310 | 20 | 168 | 215 | 210 | 300 | 108 | 14 | M32X1,5 | 160 | 270 | 430 | 750 | 788 | 42k6 | M16 | 110 | 12 | 45 |
| 160L | 254 | 70 | 255 | 310 | 20 | 168 | 215 | 254 | 300 | 108 | 14 | M32X1,5 | 160 | 270 | 430 | 750 | 788 | 42k6 | M16 | 110 | 12 | 45 |



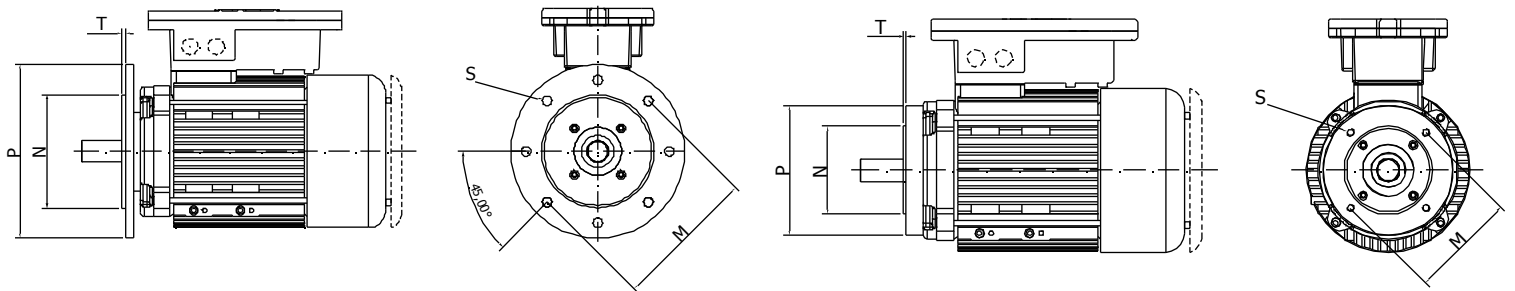
| Mounting B5 | | | | | |
|-------------------|-----|-------|-----|----|-----|
| 4 (8) holes - 45° | | | | | |
| Tipo | P | N | M | S | T |
| 56 | 120 | 80j6 | 100 | 7 | 3 |
| 63 | 140 | 95j6 | 115 | 9 | 3 |
| 71 | 160 | 110j6 | 130 | 10 | 3,5 |
| 80 | 200 | 130j6 | 165 | 12 | 3,5 |
| 90S | 200 | 130j6 | 165 | 12 | 3,5 |
| 90L | 200 | 130j6 | 165 | 12 | 3,5 |
| 100 | 250 | 180j6 | 215 | 15 | 4 |
| 112 | 250 | 180j6 | 215 | 15 | 4 |
| 132S | 300 | 230j6 | 265 | 15 | 4 |
| 132M | 300 | 230j6 | 265 | 15 | 4 |
| 160M | 350 | 250h6 | 300 | 18 | 5 |
| 160L | 350 | 250h6 | 300 | 18 | 5 |

| Mounting B14 | | | | | |
|---------------|-----|-------|-----|-----|-----|
| 4 holes - 45° | | | | | |
| Tipo | P | N | M | S | T |
| 56 | 76 | 50j6 | 65 | M4 | 2,5 |
| 63 | 90 | 60j6 | 75 | M5 | 2,5 |
| 71 | 105 | 70j6 | 85 | M6 | 2,5 |
| 80 | 120 | 80j6 | 100 | M6 | 3 |
| 90S | 140 | 95j6 | 115 | M8 | 3 |
| 90L | 140 | 95j6 | 115 | M8 | 3 |
| 100 | 160 | 110j6 | 130 | M8 | 3,5 |
| 112 | 160 | 110j6 | 130 | M8 | 3,5 |
| 132S | 200 | 130j6 | 165 | M10 | 3,5 |
| 132M | 200 | 130j6 | 165 | M10 | 3,5 |
| 160M | 250 | 180h6 | 215 | M12 | 4 |
| 160L | 250 | 180h6 | 215 | M12 | 4 |

6.2 Single-phase motors



| Mounting B3 | | | | | | | | | | | | | | | | | Shaft | | | | | |
|-------------|-----|----|-----|-----|----|------------|------|-----|-----|----|------|---------|-----|-------|-------|-------|-------|------|-----|----|---|------|
| Tipo | A | AA | AB | AC | AD | AG1 AG2 | AR | B | BB | C | K | KK | H | HA | HD | L | LA | D | DB | E | F | GA |
| 56 (IIB) | 90 | 24 | 108 | 110 | 9 | 223 128 | 46,9 | 71 | 84 | 36 | 6,2 | M20x1,5 | 56 | 125 | 181 | 211,5 | 220 | 9j6 | M3 | 20 | 3 | 10,2 |
| 56 (IIC) | 90 | 24 | 108 | 110 | 9 | 94,2 | 46,9 | 71 | 84 | 36 | 6,2 | M20x1,5 | 56 | 125 | 181 | 211,5 | 223 | 9j6 | M3 | 20 | 3 | 10,2 |
| 63 (IIB) | 100 | 25 | 125 | 131 | 6 | 223 128 | 46,5 | 80 | 108 | 40 | 7,0 | M20x1,5 | 63 | 146,5 | 209,5 | 270,8 | 283 | 11j6 | M4 | 23 | 4 | 12,5 |
| 63 (IIC) | 100 | 25 | 125 | 131 | 6 | 94,2 | 63,4 | 80 | 108 | 40 | 7,0 | M20x1,5 | 63 | 142 | 205 | 270,8 | 283 | 11j6 | M4 | 23 | 4 | 12,5 |
| 71 (IIB) | 112 | 30 | 142 | 138 | 8 | 223 128 | 47,5 | 90 | 120 | 45 | 7,0 | M20x1,5 | 71 | 146,5 | 217,5 | 271,8 | 284 | 14j6 | M5 | 30 | 5 | 16 |
| 63 (IIC) | 112 | 30 | 142 | 138 | 8 | 94,2 | 64,4 | 90 | 120 | 45 | 7,0 | M20x1,5 | 71 | 142 | 213 | 271,8 | 284 | 14j6 | M5 | 30 | 5 | 16 |
| 80 | 125 | 30 | 155 | 156 | 8 | 223 128 | 63,5 | 100 | 125 | 50 | 9,0 | M20x1,5 | 80 | 155,5 | 235,5 | 299 | 314 | 19j6 | M6 | 40 | 6 | 21,5 |
| 90S | 140 | 40 | 180 | 176 | 10 | 223 128 | 76,5 | 100 | 150 | 56 | 9,0 | M20x1,5 | 90 | 162,5 | 252,5 | 350 | 368 | 24j6 | M8 | 50 | 8 | 27 |
| 90L | 140 | 40 | 180 | 176 | 10 | 223 128 | 76,5 | 125 | 150 | 56 | 9,0 | M20x1,5 | 90 | 162,5 | 252,5 | 350 | 368 | 24j6 | M8 | 50 | 8 | 27 |
| 100 | 160 | 40 | 200 | 197 | 12 | 206 190 | 96,0 | 140 | 180 | 63 | 12,0 | M20x1,5 | 100 | 208 | 308 | 404 | 416 | 28j6 | M10 | 60 | 8 | 31 |

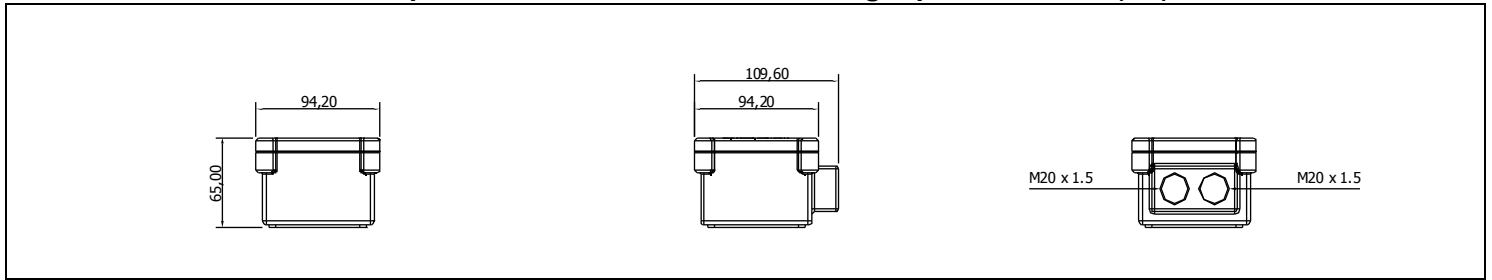


| Mounting B5 | | | | | |
|-------------------|-----|-------|-----|----|-----|
| 4 (8) holes - 45° | | | | | |
| Tipo | P | N | M | S | T |
| 56 | 120 | 80j6 | 100 | 7 | 3 |
| 63 | 140 | 95j6 | 115 | 9 | 3 |
| 71 | 160 | 110j6 | 130 | 10 | 3,5 |
| 80 | 200 | 130j6 | 165 | 12 | 3,5 |
| 90S | 200 | 130j6 | 165 | 12 | 3,5 |
| 90L | 200 | 130j6 | 165 | 12 | 3,5 |
| 100 | 250 | 180j6 | 215 | 15 | 4 |

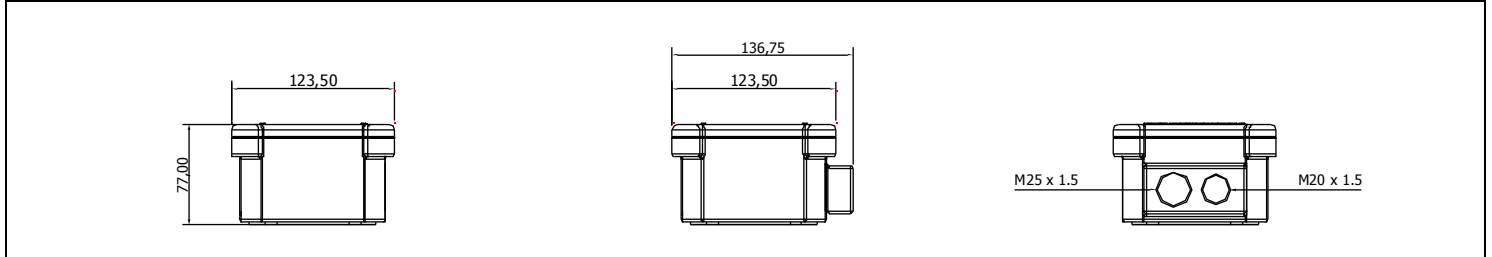
| Mounting B14 | | | | | |
|---------------|-----|-------|-----|----|-----|
| 4 holes - 45° | | | | | |
| Tipo | P | N | M | S | T |
| 56 | 76 | 50j6 | 65 | M4 | 2,5 |
| 63 | 90 | 60j6 | 75 | M5 | 2,5 |
| 71 | 105 | 70j6 | 85 | M6 | 2,5 |
| 80 | 120 | 80j6 | 100 | M6 | 3 |
| 90S | 140 | 95j6 | 115 | M8 | 3 |
| 90L | 140 | 95j6 | 115 | M8 | 3 |
| 100 | 160 | 110j6 | 130 | M8 | 3,5 |

6.3 Terminal box

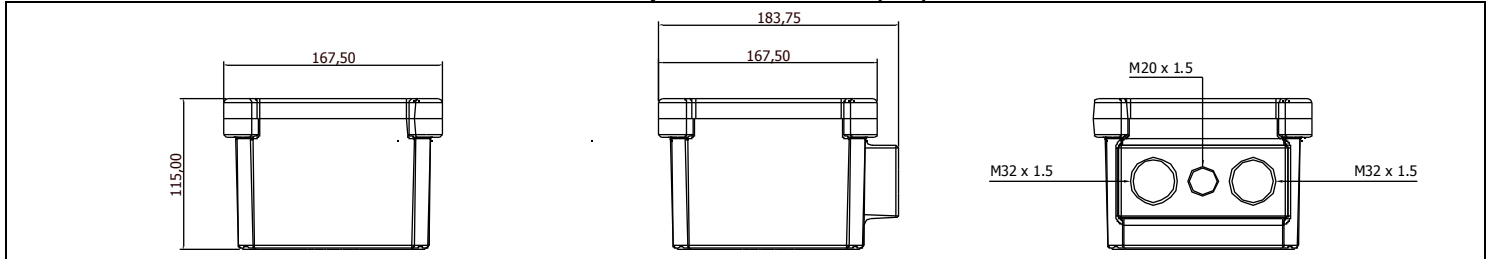
Three-phase 56 - 63 - 71 - 80 - 90 / Single-phase 56 - 63 (IIC)



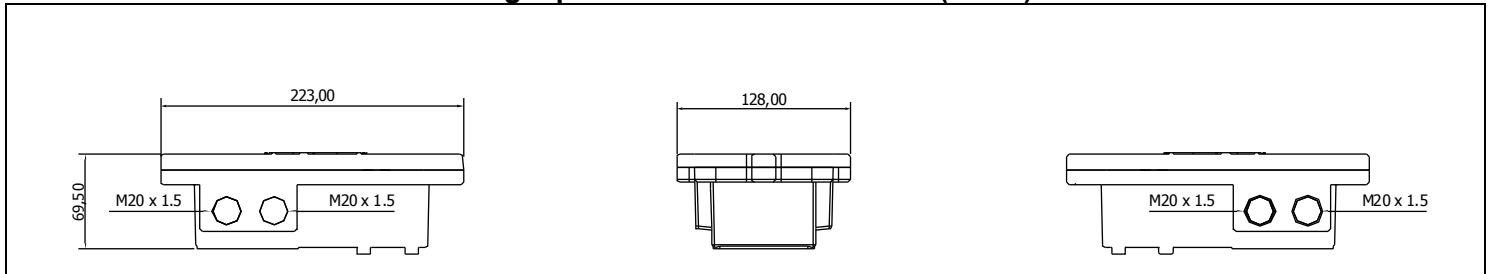
Three-phase 100 -112 (IIC)



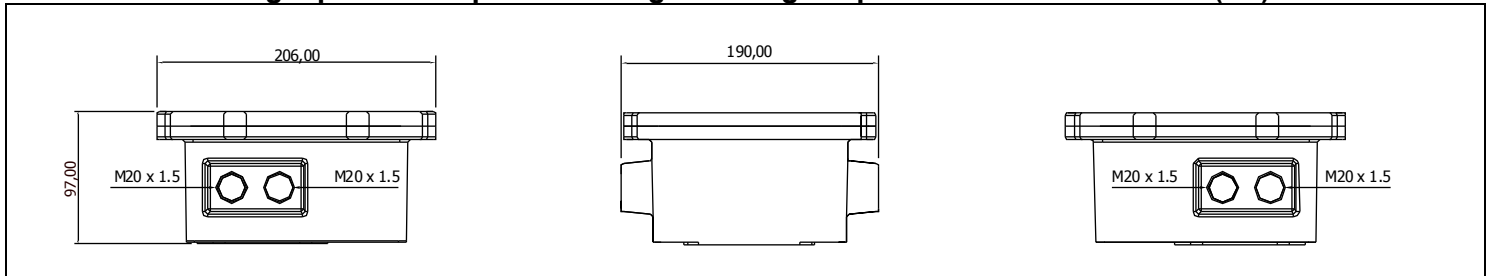
Three-phase 132 -160 (IIC)



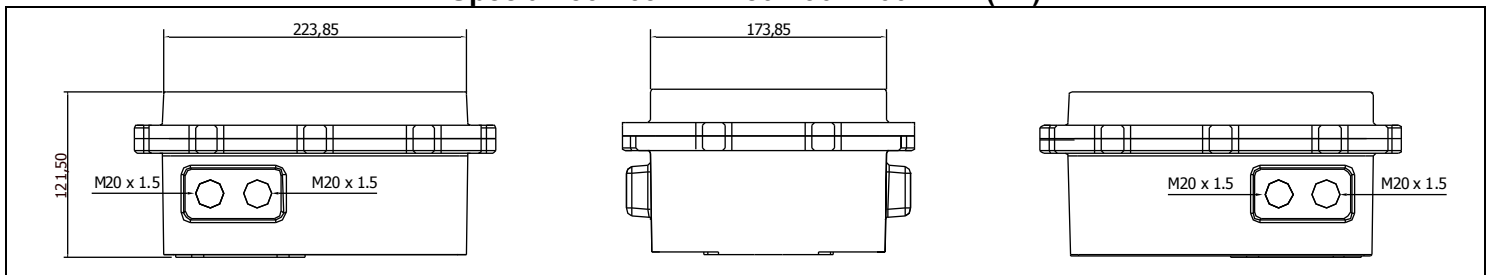
Single-phase 56 - 63 - 71 - 80 - 90 (IIB+H)



Single-phase 2 Capacitors - High starting torque 63 - 71 - 80 - 90 - 100 (IIB)



Special 56 - 63 - 71 - 80 - 90 - 100 -112 (IIB)



7. SPARE PARTS

7.1 Personnel qualification

Overhauls and repairs must be only realised by qualified people in accordance with the standards EN 60079-17 or national standards (last edition). Qualified people must have knowledge about explosion protection.

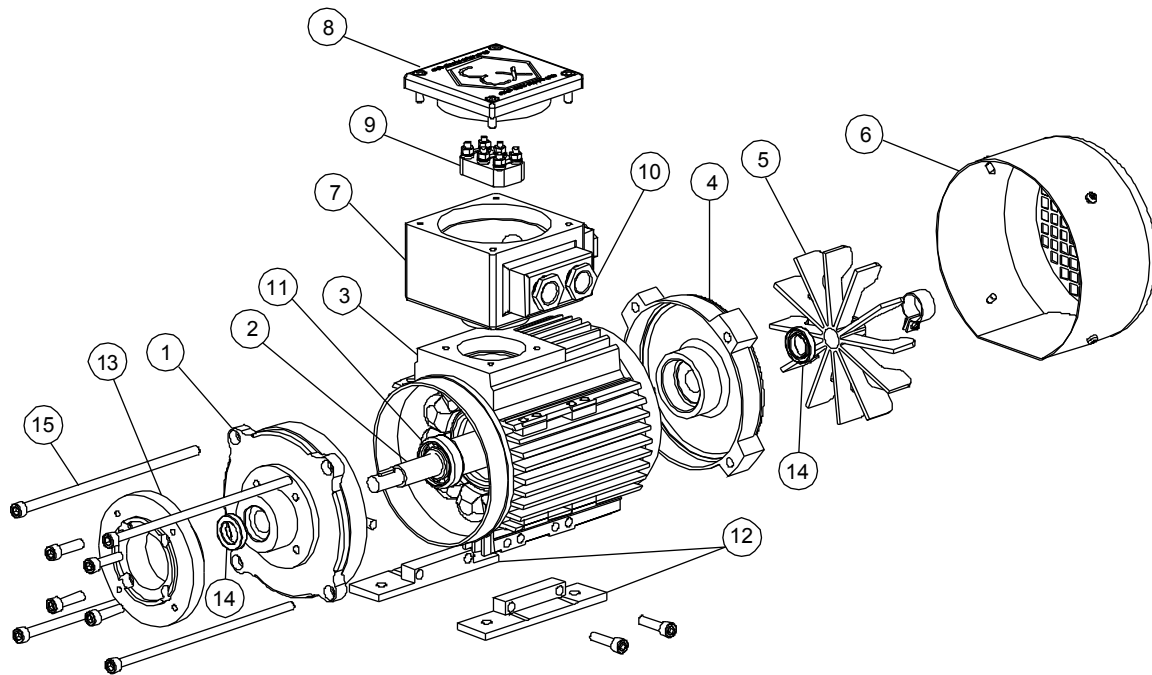
Repairs must be made regarding the rules as define in EN 60079-19 standards.

These repairs can only be done under the control or agreement with RAEI Motori Elettrici by a repair shop designed by RAEI or a recognized laboratory.

In case these rules are not respected, RAEI liability is released.

7.2 List of spare parts

All motors components must be replaced by original spare parts. In these cases please contact RAEI directly and give the serial number of the motor so to ask the authorization to repair the motor too.



| | | | | | |
|---|---------------------|----|--------------------|----|------------------------|
| 1 | DRIVE END SHIELD | 6 | FAN COVER | 11 | BALL BEARINGS |
| 2 | SHAFT WITH ROTOR | 7 | TERMINAL BOX | 12 | MOTOR FEET |
| 3 | FRAME | 8 | TERMINAL BOX COVER | 13 | FLANGE B14 (or B5) |
| 4 | NO-DRIVE END SHIELD | 9 | TERMINAL BLOCK | 14 | ABY ANGULAR BEARING |
| 5 | COOLING FAN | 10 | CABLE GLAND | 15 | TIE RODS (quality 4.8) |

SCREWS

Screws quality 8.8

| | 56 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| FLANGE B14 (o B5) | M5x14 | M6x20 | M6x16 | M6x16 | M6x20 | M6x20 | M6x20 | M8x25 | M8x25 |
| MOTOR FEET | M5x10 | M6x12 | M6x14 | M6x16 | M6x16 | M8x20 | M8x25 | M8x20 | M8x25 |
| TERMINAL BOX COVER | M5x14 | M5x14 | M5x14 | M5x14 | M5x14 | M5x20 | M5x20 | M8x20 | M8x20 |

| | M4 | M5 | M6 | M8 | M10 |
|------------------------|----|-----|----|----|-----|
| TIGHTENING TORQUE (Nm) | 2 | 3.2 | 5 | 12 | 18 |

Certificates

RAEL Motori Elettrici S.r.l. is certified ISO9001:2000 from February 2003 and as we manufacture motors complying with Directive 94/9/CE we also have both the 'Product Quality Assurance Notification' and the CE certificates regarding motors RL series.





Vermeire belting



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