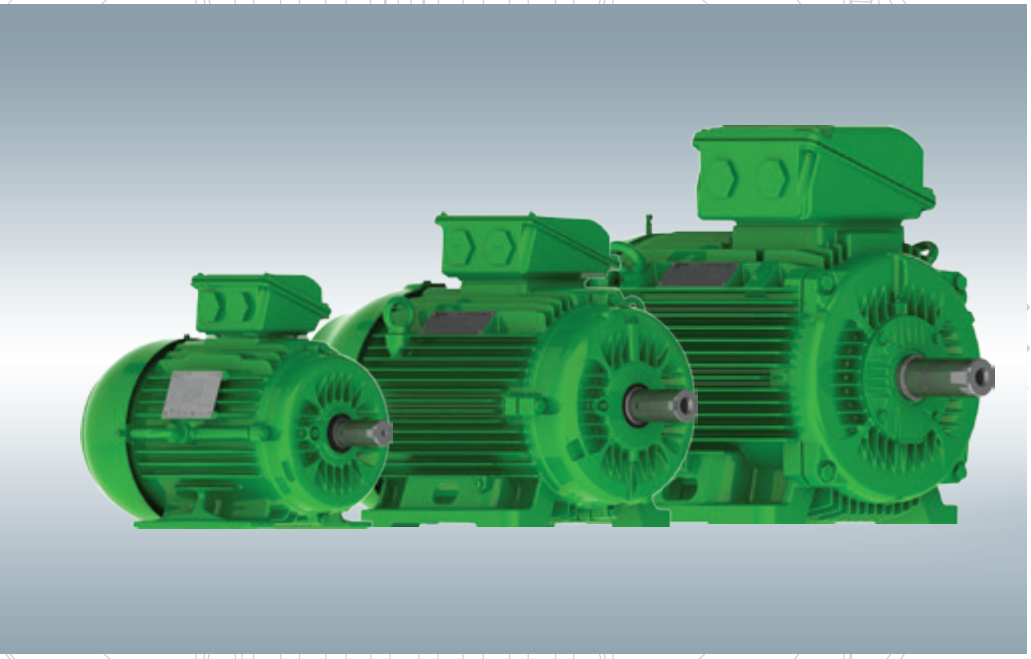
W22

Three Phase Motor

- Energy saving
- Increased productivity
- Extended lifetime
- Lower maintenance
- Available as IE2, IE3 and IE4
- Available to meet all global energy efficiency requirements



W22
Efficiency and Reliability for Industry

High performance with maximum energy efficiency, this is the meaning of the WEG electric motor. High efficiency and Low cost of Ownership throughout the entire motor lifetime have been the basis for the W22 development. A design created to anticipate concepts on performance and energy savings.

Lower Total Operational Costs

A product that can operate the most of its designed lifetime consuming the minimum possible energy with high levels of productivity operating continuously without unplanned stops and with top performance, thus generating the maximum value to the user - this is what is behind W22 concept.

Energy Saving

Costs with energy correspond to approximately 90% of total operational costs throughout motor lifetime, being acquisition, installation and maintenance cost the other 10%. W22 platform are supplied with efficiencies above the IE2, IE3 and IE4 minimum required values, thus guaranteeing energy savings and reduced payback time.

Versatility

The concept allows terminal box to be mounted top, right or left by using an extensor without disassembling the complete motor, thus reducing modification time and stocks (available for frame sizes 225S/M to 355A/B).

Built to Last

W22 motors are built using high quality cast iron from WEG own foundries, assuring maximum durability and high performance in aggressive conditions. The fan cover design provides great resistance against impacts. Additionally the endshield have been designed for a better bearing heat dissipation.

Inverter Duty Applications

The exclusive WISE® insulation system used on the W22 range increases windings dielectrical resistance, thus allowing VFD operation up to 575 V without requiring further modification which results in flexibility and extended motor lifetime.

* *Voltages above 575 V, please contact our nearest sales office.*

Range Extensions for the Future

The W22 line, offering high efficiency and low lifetime costs, will be the basis for further WEG developments.

Product Overview

Standard Features

- Efficiency levels: Standard Efficiency (IE1), High Efficiency (IE2), Premium Efficiency (IE3) and Super Premium Efficiency (IE4)
- Cooling method: TEFC (Totally enclosed fan cooled) - IC411
- Rated output: 0.12 to 500 kW
- Number of poles: 2, 4, 6, 8, 10 and 12
- Frame sizes: 63 up to 355A/B
- Frequency: 50 Hz and 60 Hz
- Voltage: 50 Hz: 220-240/380-415 V (up to 100L)
  380-415/660 V (112M to 355A/B)
  60 Hz: 220/380 V (up to frame size 100L)
  380/660 V (112M to 355A/B)
- Color: RAL 5009 (IE1, IE2 and IE3)
  RAL 6002 (Super Premium Effiicency - IE4)
- Design N
- Service factor: 1.00
- Ambient temperature: 40 °C, at 1000 m.a.s.l.
- Class “F” insulation (ΔT=80 K)
- Degree of protection: IP55
- Mounting: B3T
- Terminal block
- Vibration level: Grade A
- Continuous duty: S1
- WISE® (WEG Insulation System Evolution)
- Thermistors (1 per phase) for frames 160M to 355A/B
- Squirrel cage rotor / Aluminium die cast
- V‘Ring seal for frames 63 to 200L and WSeal® for frames 225S/M to 355A/B
- Stainless steel nameplate AISI 316
- Fan covers: steel made for frames 63 to 132M/L and cast iron made for frames 160M to 355A/B
- Grease nipple for frames 225S/M to 355A/B
- Metric threaded cable entries on the terminal box
- Special insulation for voltage above 575 V
- Insulated non-drive endshield bearing for frames 315S/M to 355A/B

* *For additional details about Inverter operation, please contact our technical support.*

Optional Available

- Other mountings
- Other voltages
- Design H
- Class “H” insulation
- Flange FF, C, C-DIN
- Vibration level: Grade B
- Suitable to take vibration detector SPM
- Thermal protection: thermostats or RTD (Pt-100) on windings and bearings
- Degree of protection: IP56, IP65, IP66
- Bearing seals: Lip seal, Oil seal, Labyrinth taconite and W3 Seal®
- Additional terminal box for accessories
- Space heaters
- Fans: aluminum, cast iron and bronze
- Drip cover for vertical applications
- Double shaft end
- Encoder
- Cable glands in plastic and brass
- Stainless steel shaft
- Cooling method: TEBC (Totally enclosed blower cooled)
- Roller bearing (160M to 355A/B)
- Insulated non-drive endshield bearing for frames 225S/M to 280S/M

W22, a new concept

- Excellent cost benefit ratio
- Optimization of environmental resources
- Updated electrical features
- Noise level reduction
- Vibration level reduction
- Easier maintenance
- Improved efficiency levels

For electrical and mechanical data, see the Products & Services area on our website **www.weg.net**

Components Design

Cooling System

Fan Cover
- Aerodynamic concept
- Noise level reduction
- Easier assembly
- Better air flow distribution over frame
- Increase of the mechanical strength
- Provisions for encoder and drip cover

Fan
- Reduction of fan blades
- Reinforced fan hub structure
- Noise level reduction
- Increased air flow
- Fan with higher stiffness
- Less items for easier replacement stock

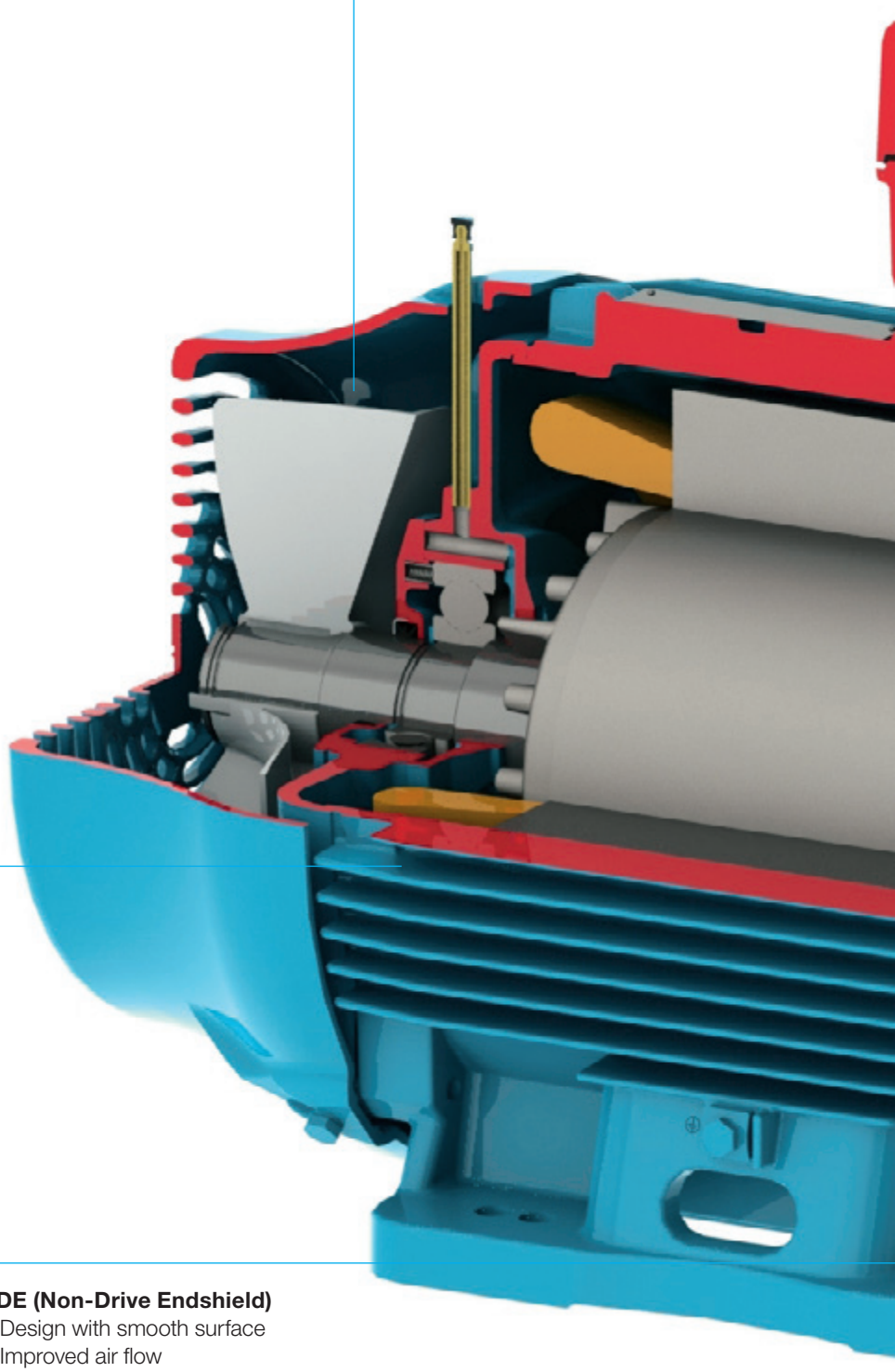
Frame

- Terminal box position changed in order to improve temperature disspation (for frame sizes 225S/M to 355A/B)
- Reduced temperature on windings and bearings
- Noise level reduction

Place for Vibration Sensor
- Displaced 90^0 from each other

Two Eyebolts
- Easier handling
- Higher mechanical resistance and more handling safety

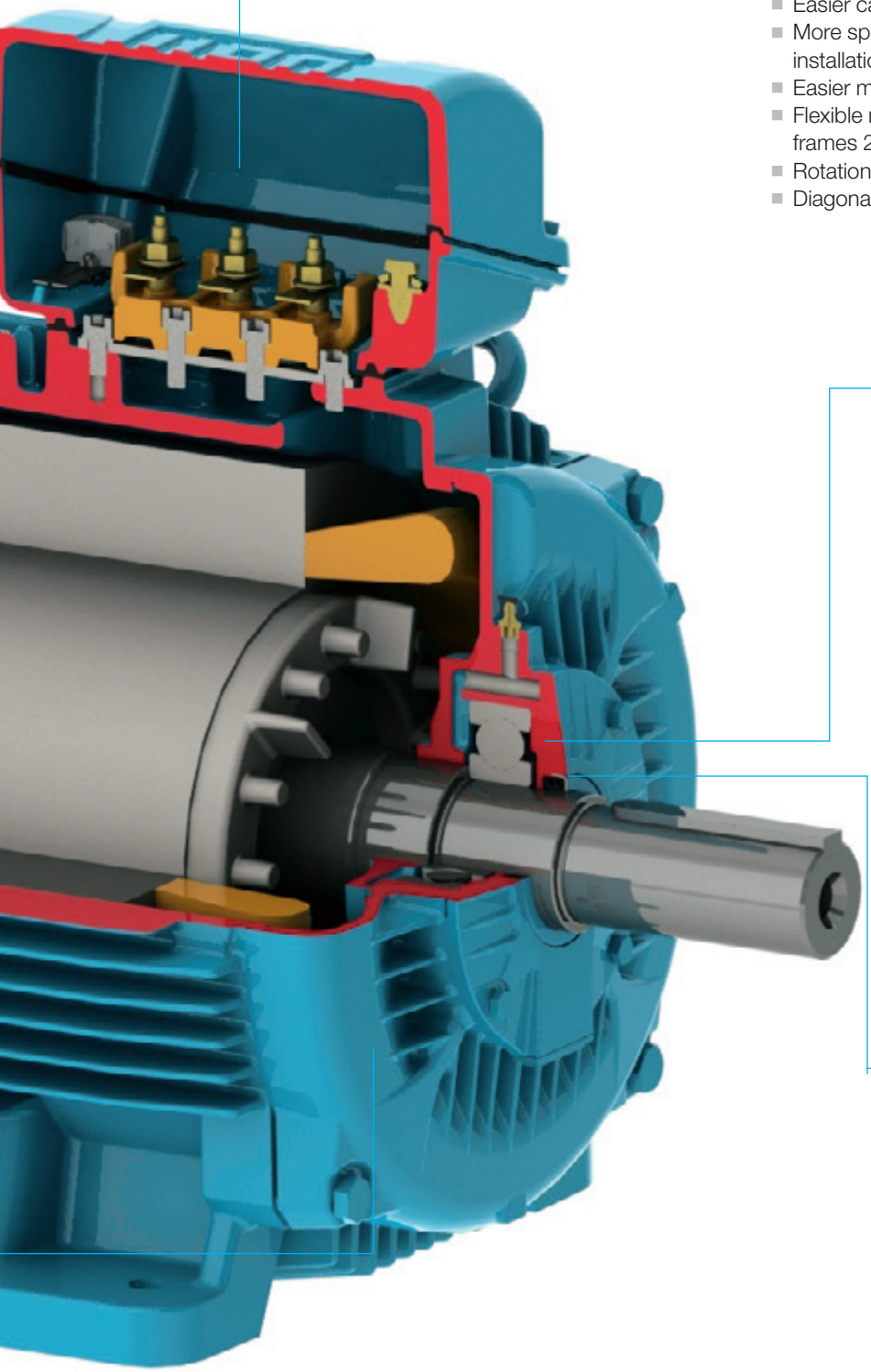
Solid Feet
- More impact resistance
- Ideal for high vibrations level applications
- Easier installation and aligment



Endshields Subsystem

DE (Drive Endshield)
- Bearing displaced outwards the endshield
- Reduced operating temperature
- Reinforced endshield structure
- Bolt protection

NDE (Non-Drive Endshield)
- Design with smooth surface
- Improved air flow
- Noise level reduction
- Structure stiffening to avoid machining deformation



Terminal Box

- Better connection quality
- Easier cable handling during installation
- More space available for accessory installation
- Easier maintenance
- Flexible mounting (B3T, B3R, B3L) for frames 225S/M to 355A/B
- Rotation on 90° stages
- Diagonal split cut

Bearing Caps

External

- Finned surface for bearing heat dissipation improvement

Internal

- Change of grease path
- Bearing lubrication quality improvement
- Reduced bearing lubrication temperature

Sealing System

- The exclusive WSeal® for frame sizes 225S/M to 355A/B
- Increased dust and moisture protection

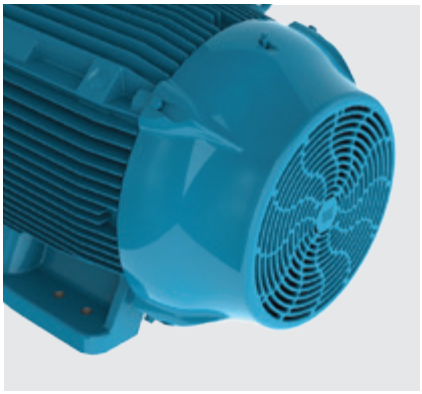
Design Details

Cooling System

Designed to provide improved air flow through all motor frame keeping low operational temperatures and assuring reliability and extended lifetime. The aerodynamic concept of the fan cover increases effective airflow, thus minimizing losses due to the recirculation of air between fan and fan cover. The fan was designed to provide a tough structure and to reduce noise level. Motor terminal box (for frame sizes 225S/M to 355A/B) and eyebolts were positioned to allow better airflow.

This cooling system also contributes to:

- Cooler bearing temperature extending relubrication intervals.
- Lower Noise Level fulfilling the most demanding Health & Safety regulations.
- Lower Overall Operational Temperature resulting in a more efficient material usage.



Terminal Box

Increased internal space and terminal block more accessible to the user reflecting in an easier and safe cable handling and cable connection. The dimensions were optimized to provide more space to the power supply cables inlet and to auxiliary connectors resulting in easier assembly.

For frame sizes 225S/M to 355A/B, the terminal box can be mounted on top, left or right side of the motor using the same frame, and was placed closer to the drive end side of the motor resulting in bearing temperature and noise level reduction once the airfl ow is better distributed through the frame.

Frame

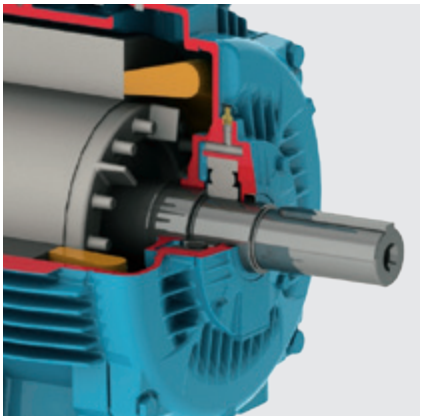
Motor feet are solid providing a more resistant structure against vibration. For frame sizes 160M to 355A/B, the frame design has also points that can be used as provisions for vibration sensors as a standard feature.

Benefits from the frame design:

- Motor temperature reduction
- Eyebolts positioned to provide easier handling in the application.
- Provision for vibration sensors - frame and endshields with provisions 90° displaced according to maintenance technical recommendations (for frame sizes 160M to 355A/B).Easier and more reliable vibration analysis.
- Solid feet - Enhanced resistance when operating at high vibration application and also provide easier alignment on installation.

Exclusive Bearing Sealing System WSeal®

Extends motor lifetime when operating in aggressive environments by protecting the motor against water and dust guaranteeing proper degree of protection (available for frame sizes 225S/M to 355A/B).



W22 Super Premium

Presenting the world's most comprehensive range of energy efficient motors

High overall performance which is translated into a lower Total Cost of Ownership, due to its reliability, easy maintenance and energy savings!

Consider this:
Most motors consume their initial purchase cost in power within 6 months

Calculate yourself your savings

$$\text{Energy Savings kWh} = \frac{\text{Output}_{\text{old motor}}(\text{kW})}{\left(\frac{\text{Efficiency}_{\text{old motor}}(\%)}{100}\right)} - \frac{\text{Output}_{\text{Super Premium}}(\text{kW})}{\left(\frac{\text{Efficiency}_{\text{Super Premium}}(\%)}{100}\right)}$$

Anual Energy Savings kWh = Energy Savings kWh x Operating days per year x Operating hours per day

$$\text{Anual Savings (\$)} = \text{Anual Energy Savings kWh} \times \text{Energy Cost } \frac{\$}{\text{kWh}}$$

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