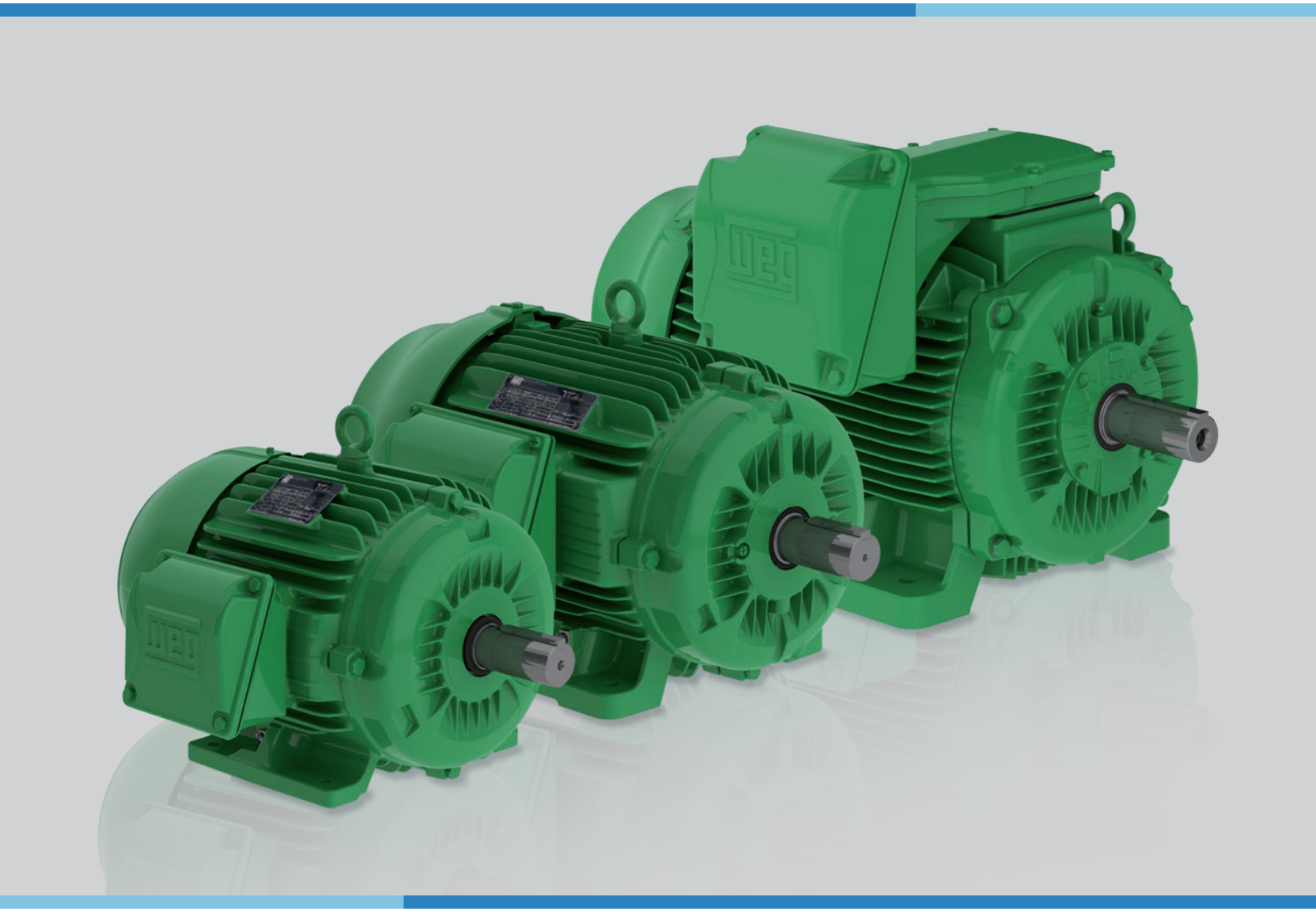
W22 Top Premium IE3

Three-phase Induction Motor



Motors | Automation | Energy | Transmission & Distribution | Coatings

W22 Top Premium Efficiency IE3

A design created to anticipate concepts on performance and energy savings

In the last two decades, the global energy consumption has increased by 50%. And the forecast for the next two forthcoming decades is to keep this growing rate constant.

This increasing demand for electrical energy to sustain global development requires consistent heavy investments in power supply generation. However, in addition to complex medium and long term planning, these investments rely on natural resources, which are becoming depleted due to constant pressures upon the environment.

As a reflex of this scenario, electric energy costs are vertiginously rising, and in comparison to other economic indicators, standing out negatively. One of the main responsible for this accenting grow is the industrial segment, which demands around 30% of the electric energy globally available. And, in industrial applications, electric motors driven systems represents around 65% of all energy consumption.

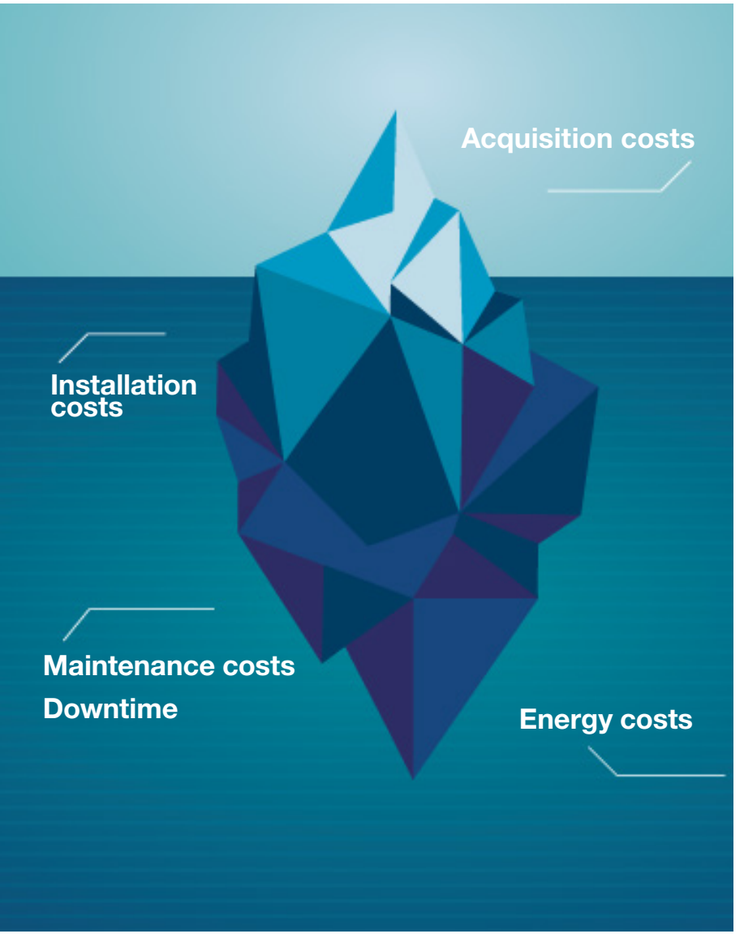
If we consider industrial and domestic applications, including appliances to our analysis, the electric motor energy consumption represents more than 40% of the total.

This emphasizes the world's demand for more and more efficient products that may not only break this increasing demand, but also provide its reduction and, consequently, energy and money saving.

With this situation in mind WEG presents its W22 Top Premium efficiency motor line, meeting the IE3 Efficiency Levels defined in IEC 60034-30-1.

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

Total Cost of Ownership
Much more to be considered!



Industries Operating Costs

Industries require several resources to support their transformation activities such as water, compresses air, stean, electric energy, etc.
And these resources play a major task at the company results, since they directly impact on the final company prices, affecting the general competitiveness.
Due to the hard competition, and the difficulty on reducing purchasing costs or even selling prices, a wise strategy may be focusing the efforts on saving the resources during the production process.
WEG developed the W22 Top Premium efficiency motors to allow for significant electric energy savings due its extreme performance, being a great partner for the industries in the search for costs reduction.

Total Cost of Ownership

When companies need to get new electric motors, the most part of them considers as decisive item the acquisition cost. However, a proper evaluation shall consider all costs that are inherent to the ownership on equipment, such as purchasing, running and maintenance costs.

Have in mind:
The biggest part of the motors consumes the energy equivalent to its acquisition costs in less than half year!

WEG's Top Premium motors are based on the W22 mechanical design, which offers:

- Increased lubrication intervals – less need for maintenance interventions;
- Low operating temperatures – increases the insulation time, resulting in a longer lifespan;
- Flexible terminal box design for frames 225 to 355 – the same design allows for lateral or top-mount machines, reducing the motors replacement inventory;
- Solid and integrated feet – provides a tough construction and enables easier installation and alignment;
- Oversized and diagonally slip terminal box – provides fast and secure procedures, besides more ergonomics;
- Provisions for vibration detectors – motors in frames 160 and above are fitted with flat surfaces for vibration detectors;
- Rubber drains – allows for easy motor drainage at maintenance procedures, and can provide high protection at harsh conditions.

Learn how you can reduce even more your operating costs!

Typically applications do not run at full load all the time. Installing a VFD can help you save money by controlling the speed of your process and adjusting it to the specific load at any time. This is specifically true for variable torque applications like pumps and fans.

Outstanding Performance

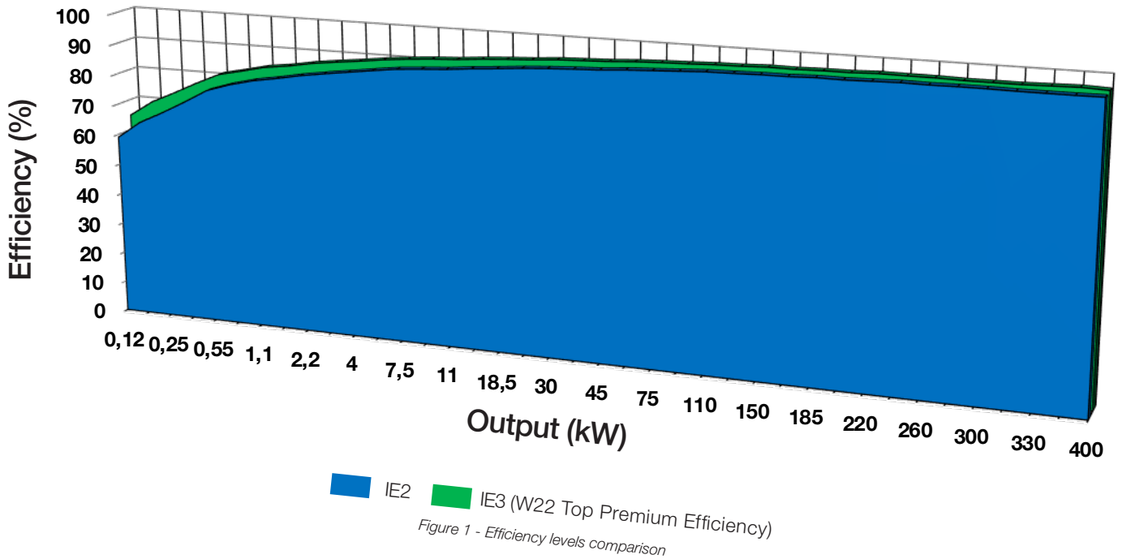


Figure 1 - Efficiency levels comparison

The comparative chart above shows the efficiency comparison between a motor with IE2 efficiency level and the W22 Top Premium Efficiency IE3, for 4-pole machines.
As motors usually run for thousands of hours every year, any gain in efficiency by replacing motors with higher efficiency versions, will translate into considerable savings which would pay for the investment in a few years and in some cases even months.
The Top Premium design, which presents from 20% less losses in comparison to the conventional motors, provides high efficiency levels. Because of this, the investment for the replacement of installed motors by the W22 Top Premium efficiency motors returns in very short periods of time, resulting not only on energy savings, but also on plant reliability and availability, since new motors count on factory warranty and will renew your plant, valorizing your capital.
The energy savings will be even greater if the old motor has been subject to repairs during its lifetime!

Calculate yourself your savings

$$\text{Energy Savings kWh} = \frac{\text{Output}_{(IE2)}(kW)}{\left(\frac{\text{Efficiency}_{(IE2)}(\%)}{100}\right)} - \frac{\text{Output}_{\text{Top Premium (IE3)}}(kW)}{\left(\frac{\text{Efficiency}_{\text{Top Premium (IE3)}}(\%)}{100}\right)}$$

$$\text{Anual Energy Savings kWh} = \text{Energy Savings kWh} \times \text{Operating days} \times \text{Operating hours}$$

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

The W22 Top Premium Efficiency motors are designed according to the DIN EN 50347 Standard, which means that you can replace an IE1, IE2 or IE3 motor with total reliability.

W22 IE3 Technical Data

Output (kW)	II Poles		IV Poles		VI Poles		VIII Poles	
	Frame Size	Efficiency at Full Load	Frame Size	Efficiency at Full Load	Frame Size	Efficiency at Full Load	Frame Size	Efficiency at Full Load
0,12	63	60,8	63	64,8	63	57,7	71	52,9
0,18	63	65,9	63	69,9	71	63,9	80	58,7
0,25	63	69,7	71	73,5	80	68,6	80	64,1
0,37	71	73,8	71	77,3	80	73,5	90S	69,3
0,55	71	77,8	80	80,8	L80	77,2	90L	73
0,75	80	80,7	80	82,5	L90S	78,9	100L	75,1
1,1	80	83	90S	84,3	L90L	81	100L	77,7
1,5	90S	84,4	90L	85,3	100L	82,5	112M	79,7
2,2	90L	85,9	100L	86,7	112M	84,3	132S	81,9
3	100L	87,1	L100L	87,7	132S	85,6	132M	83,5
4	112M	88,2	112M	88,6	132M	86,8	160M	86,1
5,5	132S	89,2	132S	89,6	132M/L	88	160M	87,2
7,5	132S	90,1	132M	90,4	160M	89,1	160L	88,3
9,2	132M	90,8	132M/L	91	160L	90	180M	89
11	160M	91,2	160M	91,4	160L	90,3	180L	89,5
15	160M	91,9	160L	92,1	180L	91,2	200L	91
18,5	160L	92,4	180M	92,6	200L	91,7	225S/M	90,1
22	180M	92,7	180L	93	200L	92,2	225S/M	90,6
30	200L	93,3	200L	93,6	225S/M	92,9	250S/M	91,3
37	200L	93,7	225S/M	93,9	250S/M	93,3	280S/M	91,8
45	225S/M	94	225S/M	94,2	280S/M	93,8	280S/M	92,2
55	250S/M	94,3	250S/M	94,7	280S/M	94,2	315S/M	92,5
75	280S/M	94,7	280S/M	95	315S/M	94,8	315S/M	93,1
90	280S/M	95	280S/M	95,2	315S/M	95,1	315S/M	93,4
110	315S/M	95,4	315S/M	95,5	315S/M	95,1	315L	93,7
132	315S/M	95,6	315S/M	95,6	315S/M	95,6	355M/L	94
150	315S/M	95,6	315S/M	95,9	315L	95,7	355M/L	94,2
160	315S/M	95,8	315S/M	95,8	315L	95,8	355M/L	94,3
185	315S/M	95,8	315S/M	96	315L	95,8	355M/L	94,6
200	315L	96	315L	96	355M/L	95,8	355M/L	94,6
220	315L	96	315L	96,3	355M/L	96	355M/L	95,2
250	315L	96	315L	96,2	355M/L	95,8	355A/B	95,2
260	315L	96	315L	96,2	355M/L	95,8	355A/B	95,2
280	315L	96	315L	96	355M/L	96	355A/B	95,3
300	355M/L	96	315L	96	355M/L	96	_	_
315	355M/L	96	355M/L	96	355M/L	96	_	_
330	355M/L	96	355M/L	96,2	_	_	_	_
355	355M/L	95,8	355M/L	96,4	355A/B	95,8	_	_
370	355A/B	96,2	_	_	355A/B	95,8	_	_
400	355A/B	96,3	355A/B	96,1	355A/B	95,9	_	_
450	355A/B	96,4	355A/B	96,2	_	_	_	_
500	_	_	355A/B	96,3	_	_	_	_

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