

SEW-EURODRIVE IEC electric motors

Direct from the gearbox specialist

An SEW-EURODRIVE DRN electric motor range that fully meets the IEC 60034 electric motor standard (IEC standards) was recently introduced into South Africa. Norman Maleka unravels what this means for plant operators and equipment specifiers and reminds customers that while SEW-EURODRIVE is better known for gearboxes, its geared motor range proves its technical expertise as an electric motor manufacturer.

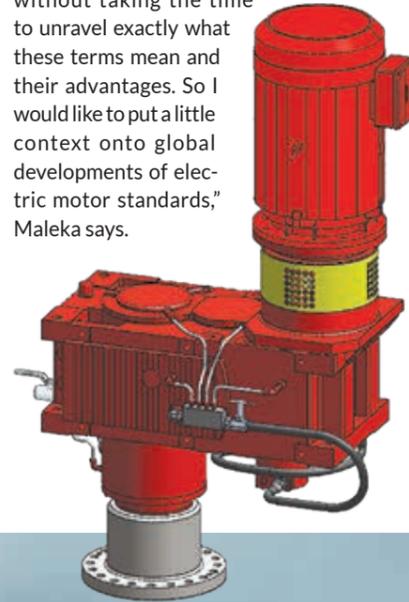
“We are very well known as a supplier of gearboxes and geared motors, which we sell every day in every part of the world. But for over 85 years, SEW-EURODRIVE has also been manufacturing the electric motors that are integrated into our geared motor product range.

“Our customers, however, still tend to see us as a gearbox-only specialists, often specifying our gearboxes for use with the IEC electric motors from other OEMs. While we are always happy to comply with customer-specific specification, we want them to know that there is an alternative. We have a new range of premium efficiency DRN electric motors that are built according to the global IEC standards, which makes them 100% interchangeable with any other electric motor built on this universal platform,” Maleka tells *MechChem Africa*.

The new DRN IEC motor is a standalone electric motor that is relatively new to the SEW-EURODRIVE range. “But the technology

used is the same as that incorporated into our premium efficiency IE3 geared motor range. So the motor technology involved is far from new to us,” emphasises Maleka.

“But we fear we may have confused the market with acronyms such as IEC and IE3 without taking the time to unravel exactly what these terms mean and their advantages. So I would like to put a little context onto global developments of electric motor standards,” Maleka says.



The standardisation of electric motors and their associated efficiencies began in the USA and its National Electrical Manufacturers' Association (NEMA), which still remains the dominant standard in the USA. NEMA was founded back in 1926 in order to enable consumers to select from a range of safe, effective, and compatible electrical products.

More recently, however, efficiency has become the driving force behind innovation and NEMA was first to champion energy efficient electric motors. SEW-EURODRIVE quickly started offering its modular DR motors in three efficiency levels: standard, high efficiency, and NEMA Premium® efficiency.

NEMA motor designs tend to be larger and heavier than modern European motors, though, so the IEC (International Electrotechnical Commission) electric motor standard is fast taking over as the preferred option outside of the US. IEC-approved electric motors and controls tend to be less expensive, more compact, inherently safe and they react far more quickly to overloads.

“The IEC 60034-30 electric motor standard, therefore, caters more to the international markets, while NEMA, although available elsewhere, applies mostly in the USA,” Maleka explains.

So what is an IEC electric motor? Generally speaking, any electric motor that is designed according to the IEC standard is associated with a set of codes that specify the mechanical dimensions (frame sizes 63 to 315), power ratings (0.37 to 375 kW), efficiency (high efficiency: IE2; premium efficiency: IE3; and super premium: IE4) as well as a host of



SEW-EURODRIVE DRN motors are particularly suited for use in systems that already use SEW gearboxes. But they are also ideal for any drive train designed to meet IEC standards.

other technical specifications such as ingress protection (IP) and insulation class ratings (A to H).

“So if a customer is using 45 kW IEC motor with a frame size of 225, any other brand of motor with the same frame size, power rating and the same associated set of IEC codes will do exactly the same job and have the same footprint and mounting arrangement,” Maleka points out. “By choosing an IEC standard motors, users are assured that identical replacement motors are readily available and quickly interchangeable,” he adds.

This makes the new DRN IEC range from SEW-EURODRIVE a universal electric motor offering that can be incorporated into any IEC-based drive train with any SEW gearbox.

“So while the majority of SEW-EURODRIVE motors and brakemotors are pre-mounted in our own gearmotor units, the IEC DRN option gives us a stand-alone motor options that can be incorporated into drive systems from any OEM.

“More importantly, mining project houses, conveyor and fan manufacturers, wastewater treatment plant engineers, hoist designers and any plant operator in need of a universal IEC motor to drive one of our SEW-EURODRIVE gearboxes, no longer needs to specify a third-party electric motor. SEW-EURODRIVE has an equivalent that can be perfectly matched to the selected gearbox and supported by us,” Maleka suggests.

“Technically, these motors are a German-engineered premium brand and carry the same quality guarantee associated with all of our other products. Also though, they are price competitive with any premium-brand equivalent. And if associated with one of our custom-engineered drive solutions, the total package can often be significantly cheaper than one put together using units from several different suppliers,” he assures.

Describing a recent success in the pulp and paper industry, Maleka says that a KwaZulu-Natal customer has recently standardised on the use of SEW-EURODRIVE products across its plant. “We are now supplying drive

solutions for the conveyors handling the raw materials arriving onto the site and all of the industrial gearboxes and gearmotors driving the plant equipment. Our most recent success was that the plant has chosen our premium efficiency DRN IEC motor range as its preferred standalone motor as well,” Maleka tells *MechChem Africa*.

“A significant benefit to the plant is the standardisation of its mechanical drive equipment, which can be custom-engineered, supplied, installed, warranted and serviced from a single supplier: SEW-EURODRIVE. This gives the customer full confidence that, in the event of an issue arising, product, technical and service support is readily available on a 24/7 basis, across the full lifecycle of each of the individual drive systems.

“In addition, by standardising on our premium efficiency (IE3) IEC DRN motor range, the company can be assured of reduced operating costs with respect to energy, along with high reliability and fast response with respect to downtime: the motors can be changed out

with a like-for-like equivalent faster than ever before,” he says.

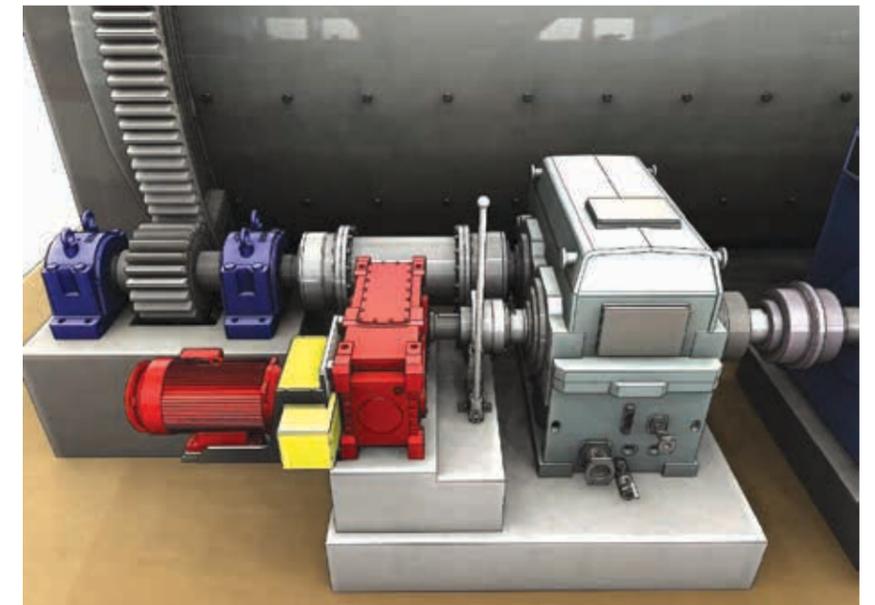
From a warranty perspective, it is far easier and cheaper for us and for the customer when a single warranty covers all of the drive equipment. When a third-party motor is specified, separate contracts have to be drawn up and, when a problem arises, individual responsibilities are not always obvious.

“By choosing to couple our DRN motors to our IG gearboxes for new drives, the customer can sign a single long-term contract dealing with the overall drive solution, which can reduce the initial investment costs by up to 10%.

“More importantly, though, should a problem arise, we will take full responsibility for every component on the drive train. In addition, instead of simply replacing a failed component, we will seek to determine the exact cause of the failure so as to prevent a re-occurrence,” Maleka assures.

Also, he continues, “those people already using our IG industrial gearboxes in multi-brand drive trains can now start to replace the IEC motors they are using with our DRN IE3 motors, which are 100% compatible and interchangeable. Over time, this will enable users to improve the energy efficiency of all their drive systems while also benefiting from our one-supplier drive service offering.

“It is no longer necessary for customers to specify a third-party motor on any system that uses a gearbox,” Maleka says. “With access to our own motors, we can offer full turnkey power pack solutions for both new and retrofit drive systems that incorporate IEC motors of any brand – and our motors are particularly suited for use in systems that already use SEW-EURODRIVE gearboxes,” he concludes. □



A 250 kW premium efficiency (IE3) IEC DRN electric motor was incorporated into the SEW-EURODRIVE drive train for a mill-drive at a chromium mine.

Ten SEW-Eurodrive DRN motors with MC-series gearboxes were recently chosen for the aerators at a Meyerton wastewater treatment plant.