

Understanding standby, prime and continuous gensets

South African businesses are increasingly using generator sets to combat power disruptions, but often struggle with selecting the right genset for their needs. Craig Bouwer from WEG Africa highlights the importance of understanding genset applications – standby, prime and continuous – for optimal performance and longevity.

The increasing reliance of South African businesses on generator sets (gensets) to mitigate power disruptions highlights a crucial need for proper selection based on specific operational demands. Despite their growing use, there's still widespread confusion about how to choose the appropriate genset, often leading to inefficient and costly decisions.

Understanding the differences between standby, prime and continuous applications is essential to optimise genset performance and longevity. This is according to Craig Bouwer, senior manager for Gensets at WEG

Africa, who explains that many customers mistakenly select gensets based solely on nameplate rating.

"Understanding the specific application of the genset is crucial for the right selection, and the first step is knowing that genset applications are broadly categorised into standby, prime and continuous, each with distinct operational requirements," he says.

Standby gensets are seldom used and typically kept for emergency situations. These units have a limit on operational hours per year and a specific load factor. In South Africa, due to frequent load shedding, few

gensets are used solely for standby purposes. Prime and continuous applications are more common in the country. Prime gensets can run for unlimited hours annually with variable loads, maintaining an average load factor below their maximum rating. Continuous gensets also operate unlimited hours, but with a constant and predetermined load.

Damian Schutte, Engineering Manager at WEG Africa, explains that understanding the difference between prime and continuous ratings is also critical. The load factor is a key differentiator and not the unlimited time requirement, with prime applications having variable loads and continuous ones having fixed loads.

Schutte uses a vehicle analogy to illustrate the differences: a continuous genset is like a car on cruise control operating at a steady speed within its capacity on a long-distance trip, while a prime genset is akin to a vehicle driving in the city. Standby can be perceived as racing between traffic lights.

The choice of genset rating impacts its expected lifespan and maintenance needs. For example, continuous power may be required in mines during load shedding to supplement limited grid power, while industrial applications, in workshops with variable loads, for example, would need a prime-rated genset.

Bouwer notes that standby power remains vital in essential service sectors for health and safety reasons, especially in environments such as mines, hospitals and data centres.

WEG Africa, as an Original Equipment Manufacturer (OEM), uses these categories to guide customers in their genset choices, aiming to match their specific needs and expected service life. They caution against oversimplifying the selection process by just matching the total load with a genset's nameplate rating, as this can lead to premature failure and additional costs.

"To ensure the correct choice, we work closely with customers assessing their load requirements, usage frequency and operational conditions and through this process ensure optimal genset selection," Bouwer concludes.



A 3 000 kVA 400 V primary unit prior to enclosure installation.



A super silent 700 kVA WEG generator set running at a university.

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