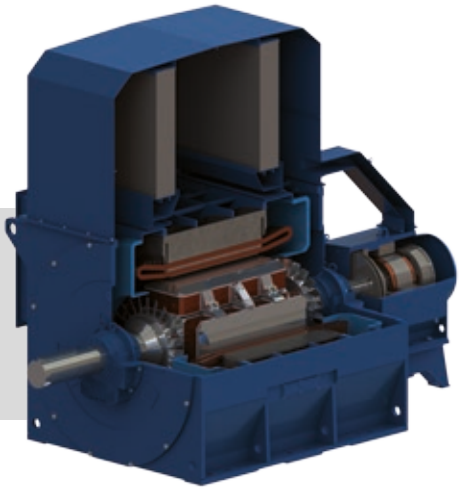
Solid Integral Poles Synchronous Motors

SM40 Line

SM40 motors are manufactured with integral solid poles ensuring mechanical strength and stability to the rotor set.



Power Ratings

- Output: 5,000 up to 35,000 kW
  8,000 up to 50,000 HP
- Frame sizes: 800 to 1,250 (IEC)
  128 to 200 (NEMA)
- Voltage: up to 13,800 V
  50/60 Hz
- Poles: 4

Advantages of WEG SM40 Sync Motors

Integral Rotor Construction
SM40 motors offer high reliability and extended maintenance-free operation.
Shaft and poles are machined from one single steel piece, resulting in strong and stable construction, which provides:

- No risks of loosen poles or loosen bolts
- No stoppages required to check bolts and poles tightness

High Starting Torque
The electric current induced on the surface of the pole shoes, known as eddy current, provide the high starting torque and low starting current observed during the asynchronous start of the solid poles synchronous motors.
The higher starting torque allows SM40 to be used in heavy starting loads, such as centrifugal compressors, large fans, refiners and others.

Low Starting Current
The low starting current is an important economical advantage of Line SM40. Smaller impact in the power grid and cost reduction with related electrical equipment such as circuit breakers, transformers, cabling, etc. are benefits provided by SM40 motors.

Power Factor
Synchronous motors can help to reduce energy costs and to improve the power system efficiency by supplying reactive energy to line they are connected to. Return of investment can be achieved in few years.

Constant Speed
SM40 motors are capable of maintaining steady speed operation during voltage oscillations or even overload conditions within the limits of pull-out torque.

High Efficiency
SM40 motors are designed to provide high efficiency under a large range of operational conditions providing significant savings with energy costs along its lifetime.

Applications

The high starting torque provided by the SM40 solid salient pole synchronous motors are the best solution to accelerate high inertia loads such as:

- Centrifugal compressors
- Pulp refiners
- Pumps
- Fans

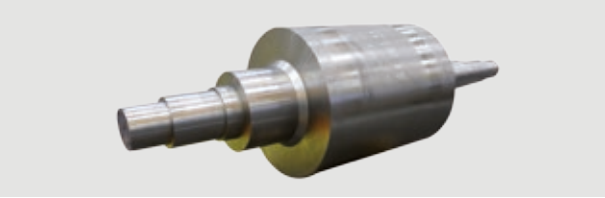
Industries running 24/7 such as Oil & Gas, petrochemical, mining, steel and water also take excellent advantages from SM40 synchronous motors, since the benefit from the higher reliability and efficiency becomes even higher.

Solid Integral Poles Synchronous Motors

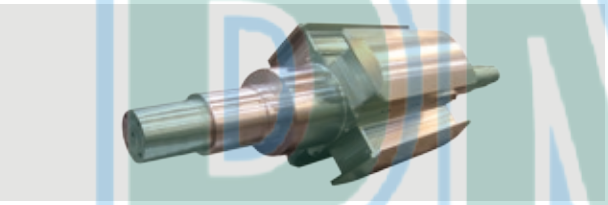
SM40 Line

Construction Features

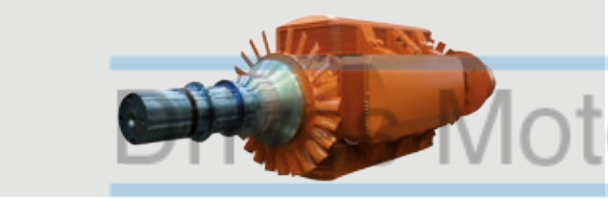
Rotor
SM40 rotors are manufactured with integral solid salient poles, made from one single steel piece, guaranteeing mechanical strength and stability to the rotating set. The windings, properly fixed to the poles, are insulated with high quality materials.



Integral rotor steel forging.



Machined rotor.



Complete rotor.

Frame
The frame is built in welded steel profiles and sheets, forming a solid and robust structure capable of withstanding severe mechanical stresses, ensuring low vibration even in the most severe applications.

Stator
Built with a core of high-quality silicon steel laminations and preformed coils insulated by a state of the art VPI - Vacuum Pressure Impregnation - system.
An optimized cooling design provides homogeneous temperatures along the stator and long lifetime to the insulation.

Enclosure
SM40 motors can be designed with different enclosures and cooling methods, depending on the customer / application requirements: IC01 - WPII; IC616 - TEAAC; IC81W - TEAWC.

Brushless Exciter
The brushless excitation system eliminates periodic brush and collector ring maintenance and replacement, reducing operation costs and increasing motor availability.

Rectifying Circuit
SM40 motors are supplied with WEG Electric Machinery Sync-Rite™ system, a high performance digitally controlled module with quality and market recognition. As an option, a portable Sync-Rite™ testing device can be supplied for easy verification of the electronic components.

Standards
The motors for industrial applications are built in accordance with the latest versions of international standards: IEC, NEMA, ABNT and API 546.

API 546
SM40 motors can be designed and manufactured in compliance with API 546, meeting welding, structural, vibration and testing requirements.

Hazardous Area
WEG solid salient poles motors can be built for operation in explosive atmospheres as per international standards requirements and regulations. The standard brushless excitation is non-sparking for explosive atmospheres typical for Oil & Gas industry. SM40 motors can be provided with types of protection able to operate in gas and/or dust atmospheres as per IEC (ATEX, IECEx, INMETRO, TR-CU, others under request) and NEC/CEC (CSA) requirements, as Ex nA (non-sparking), Ex t (protection by enclosure "t") or Ex pz/Ex px (pressurized enclosure) and also as Class I, Division 2.

Certification
WEG Quality system is certified in accordance with the requirements of ISO 9001 and 14001, as well the ATEX and IECEx system for Ex products. The SM40 line synchronous motors can be certified by different certification entities according to the legislation and the country where they will be installed. The line can be also certified for Marine and Offshore application by classification societies as ABS, DNV, Lloyd's Register, BV or another marine and offshore classification society.

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Cod: 50021181 | Rev: 01 | Date (m/y): 10/2014