



TRUST. WELL EARNED.

4-Pole Air Cooled Generators

BRUSH is a premier OEM of generators with more than 100 years of industry leading design innovation and technology development.



Introduction

BRUSH Generators are built upon years of knowledge and experience.

The 4-Pole air cooled generator range is designed to be driven by gas or steam turbines with outputs from 3 to 65 MVA.

With over 750 active installations, the time-proven DG range built in European ISO accredited sites are specified by leading industrialists, EPCs and facility operators.

Key Features

- High efficiency up to 98.6%
- Quick installation times Rotor is typically installed in unit during transportation
- Modular generator architecture Reduces lead time, and proven designs for customized projects
- Flexible heat exchanger options Open air vent CACA / TEAAC CACW / TEWAC
- Service 24™ Provides one number to call for worldwide support. Gives clear understanding of who to call in case of need. Reduced turnaround time on maintenance issues

Technical Specifications

Voltage

Up to 15 kV

Excitation

Brushless or Static

Insulation

Class F

Frequency

50 or 60 Hz

Output

3 to 65 MVA

Drive

Single or Double End Drive

Driver

Aeroderivative Gas turbine / Heavy frame Gas Turbine / Steam turbine

Design Standards

IEC & IEEE Compliant



Options

- Low temperature operation
- Low noise
- Lightweight
- Hazardous area operation
- Multiple heat exchanger options
- Double end drive
- High inertia
- API 546 compliant
- Harsh environment
- Capable of synchronous compensator operation

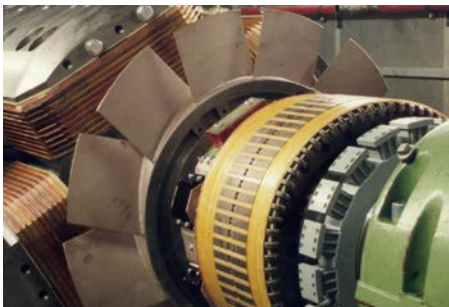
Generator Design

Our depth of knowledge allows us to provide optimised product selections for standard applications, and customised solutions to meet the demands of extreme climatic conditions, hazardous atmospheres and regulated urban locations.

Stator

The stator frame is a rigid structure, fabricated from mild steel plate and designed to withstand the mechanical stresses imposed during operation and under accidental short circuit conditions.

The core is built up from segmented laminations of low-loss, high permeability, high silicon content electrical steel. Radial ventilation ducts are formed at intervals along the core by steel spacers.



The stator winding is of the two-layer diamond type, consisting of identical diamond wound coils with six winding ends brought out, three to the line terminals and three to the neutral terminals.

The insulation system is based on a glass fabric baked mica paper tape which, when processed, results in a high-performance Class F insulation system.

After an extensive vacuum pressure impregnation (VPI) process, the completed stator is heated in an oven to fully cure the insulation.

Rotor

The rotor of a Brush 4-pole air cooled generator is manufactured from a one-piece forging of high-quality alloy steel, which is de-gassed, vacuum poured and stress relieved to obtain a uniform material which has excellent tensile properties.

The four individual coils of the rotor winding are built up from copper strips, brazed to each other by means of inductive heating and silver brazing. The copper strips are insulated from each other with a layer of aramide fibre paper, covered with an epoxy resin adhesive layer. The resin is polymerised at high pressure and temperature, consolidating the coil into a compact, solid unit.

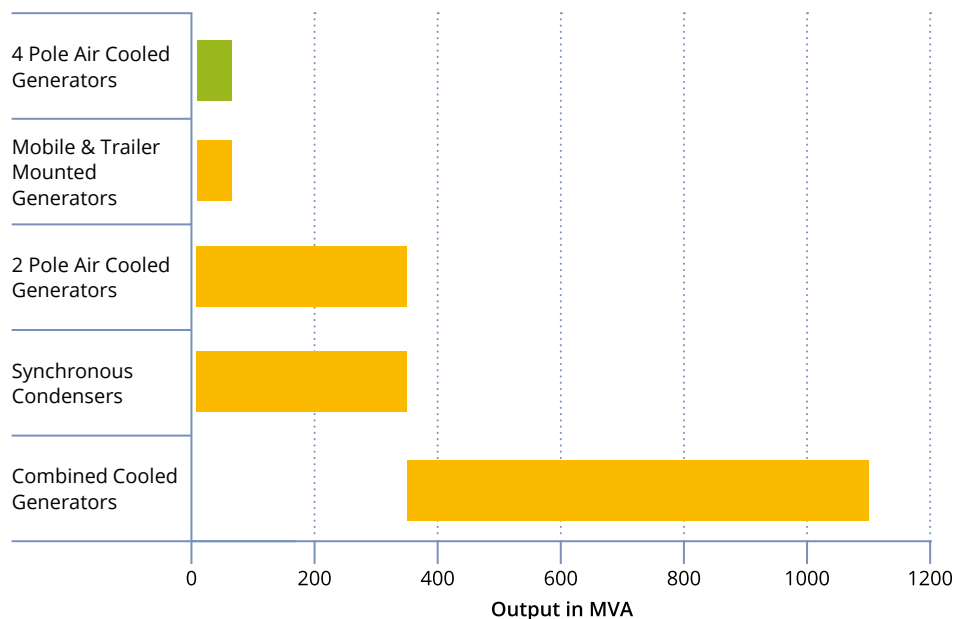
Flexible connections connect the coils in series with the d.c. output of the brushless exciter. The coils are held in place by forged steel poles shoes that are bolted to the top of each pole body.

All completed rotors are tested in the Company's rotor overspeed test facility, which is equipped with comprehensive monitoring equipment.

Excitation

BRUSH 4-pole air cooled generators are fitted with brushless excitation systems. The brushless exciter consists of a three phase, rotating armature, alternating current generator, with a shaft mounted rotating rectifier.

Output Range



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