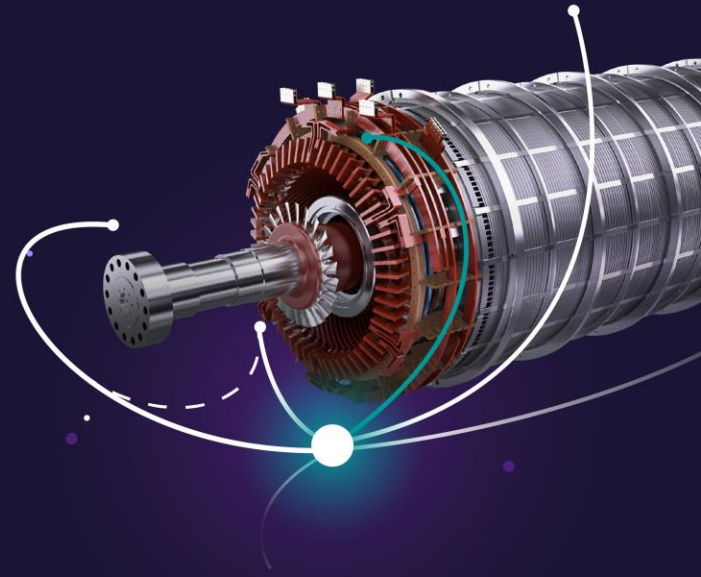


Brushless Asynchronous Exciter

ELRA 62/19



What is the ELRA 62/19?

The ELRA 62/19 is a newly developed brushless exciter machine. The main changes compared to existing brushless exciters are the stator design and the adapted automatic voltage regulator (AVR). These changes enable the exciter system to provide a DC generator rotor field at standstill. The field is required in order to accelerate the shaft via a static frequency controller (SFC). Which is connected to the generator terminals.

The exciter machine has two stator winding configurations for start-up and nominal operation. These configurations guarantee the best performance for each mode. The winding switchover is realized with reliable Siemens switches which are connected to the adapted AVR.

This exciter machine is a unique selling point for Siemens in the business of air-cooled generators up to 370 MVA.

Generator field values with the ELRA 62/19

	Field current I_f	Field voltage U_f
Start-up mode	400 A AC	114 V AC
Nominal mode	1400 A DC	400 V DC
Ceiling mode	1960 A DC	560 V DC

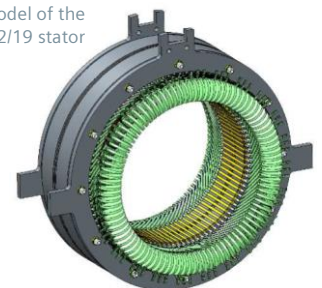
What are the possibilities and benefits of this exciter machine?

- ✓ Generator rotor winding can be excited at standstill without
- ✓ Shaft acceleration via SFC
 - Generator acts as a synchronous motor
 - the rotor field – exciter does not act as a motor!
- ✓ Usage of well-known and reliable Siemens standard components (e.g. SFC; AVR; switches; exciter rotor; rotating rectifier)
- ✓ Switchable stator winding design to enable best performance at AC and DC operation
- ✓ Reduced maintenance costs compared to static excitation systems (no brush wear)
- ✓ Reduced product costs and plant space compared to brushless systems with pony motor
- ✓ Applicable to all Siemens air-cooled two pole generators
- ✓ Unique selling point in the business of air-cooled generators up to 370 MVA

Fields of application

- Replacement of static excitation systems (e.g. in combination with a rotor exchange)
- Oil and gas projects with explosion protection (no sparks due to brushless excitation)
- Synchronous condenser applications (reduced maintenance effort compared to an excitation system with brushes / reduced product costs compared to a solution with pony motor)

CAD model of the ELRA 62/19 stator



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