

Overview

Siemens motors and converters ensure optimized pumping processes and maximum availability for minimum operating costs. The full benefit is realized when Siemens drive components interact as a system, because the motors and converters are perfectly tuned to each other as early as the development stage and then subjected to tests for ruggedness under real conditions. The drive systems are therefore characterized by a high level of availability and maximum efficiency.

Furthermore, using variable-speed drive technology, volumetric flow can be controlled much more accurately and faster than using mechanical control components for adaptation to actual demand. The advantages are, for example, noticeably higher safety and quality for drinking water from desalination plants. Variable-speed operation also opens up an enormous potential for savings which frequently results in a SINAMICS frequency converter paying for itself after just a few months of operation.

For this reason, an option package has been specially designed for the low-voltage motors of the SIMOTICS FD series in combination with a SINAMICS frequency converter for pump drives. This simplifies offer and order processing, in particular, for pump drives used in desalination plants and similar applications with certification in accordance with the Lloyds Register.

Application

Product range for the water & waste water option packages

Motor version	Cooling method	Motor type	Frame size	Operating mode
Air-cooled, enclosed version with self-ventilation	IC411	1LM1	315 ... 450	VSD
Air-cooled, enclosed version with forced ventilation	IC416	1LQ1	315 ... 450	VSD
Water-cooled version with water-jacket cooling	IC71W	1LH1	315 ... 450	VSD, DOL
Water-cooled version with heat exchanger	IC86W	1LN1	315 ... 450	VSD
Air-cooled, open version with self-ventilation	IC01	1LL1	315 ... 450	VSD
Air-cooled, open version with forced ventilation	IC06	1LP1	315 ... 450	VSD

The water option package has not been approved for use in hazardous areas.

Quotation and ordering processes for option package

The water option package has the following order code:

Additional identification code -Z with order code	Description
E90	Pump drive for seawater desalination plants certified according to Lloyds Register

Commissioning of the classification society must also be specified. It is possible to specify whether Siemens or the contractual partner of Siemens should commission the classification society. The relevant order code must be specified in the order.

Additional identification code -Z with order code	Description
E88	Commissioning of the classification society by Siemens
E89	Commissioning of the classification society by third party

Application-specific motors

Water & waste water

Application (continued)

Technical content of the option package

Order code **E90** comprises the following technical content:

Document "Balancing report"

The following acceptance tests will be performed by Lloyds Register in the Siemens factory at Nuremberg:

Inspection	Remarks
Material used	Certificate of the shaft according to EN 10204-3.1 Certificate for laminated core and copper according to EN 10204-2.1
Weld seams	Weld seams according to EN 287-1 Testing Welders – Welding – Part 1: Steels; German version EN 287-1:2004 + A2:2006
Housing drawings	Site supervision / inspection
Air gap measurements	No measurement, the theoretically determined value based on stator bore and rotor external diameter can be provided on request for an additional charge
Rotor design	Site supervision / inspection
Winding design	Site supervision / inspection
Winding insulation	Site supervision / inspection
Design, balancing	Site supervision / inspection
Motor dimensions, feet dimensions	Site supervision / inspection
Axial rotor play	No measurement, guaranteed value is stated in the documentation
First critical speed	No measurement, depending on the motor type the machines are subcritical or supercritical
Paints and varnishes	Certificate for layer thickness measurement

Additional mandatory options

The following options must be ordered separately when the "Water" option package is ordered:

Additional identification code -Z with order code	Description
F29	Noise measurement (in no-load operation), no noise analysis, with acceptance
F53	Measurement of locked-rotor torque and current, with acceptance
F59	Vibration analysis with acceptance test according to IEC 60034-14
F01	Routine test with customer acceptance test
	or
F83	Type test with heat run for horizontal motors (IM B3), with acceptance
	or
F93	Type test with heat run for vertical motors (IM V1), with acceptance

Additional option recommended by the manufacturer

Based on many years of experience in the field of motors, it is recommended that a special paint finish is applied to them.

Additional identification code -Z with order code	Description
K26	Special finish