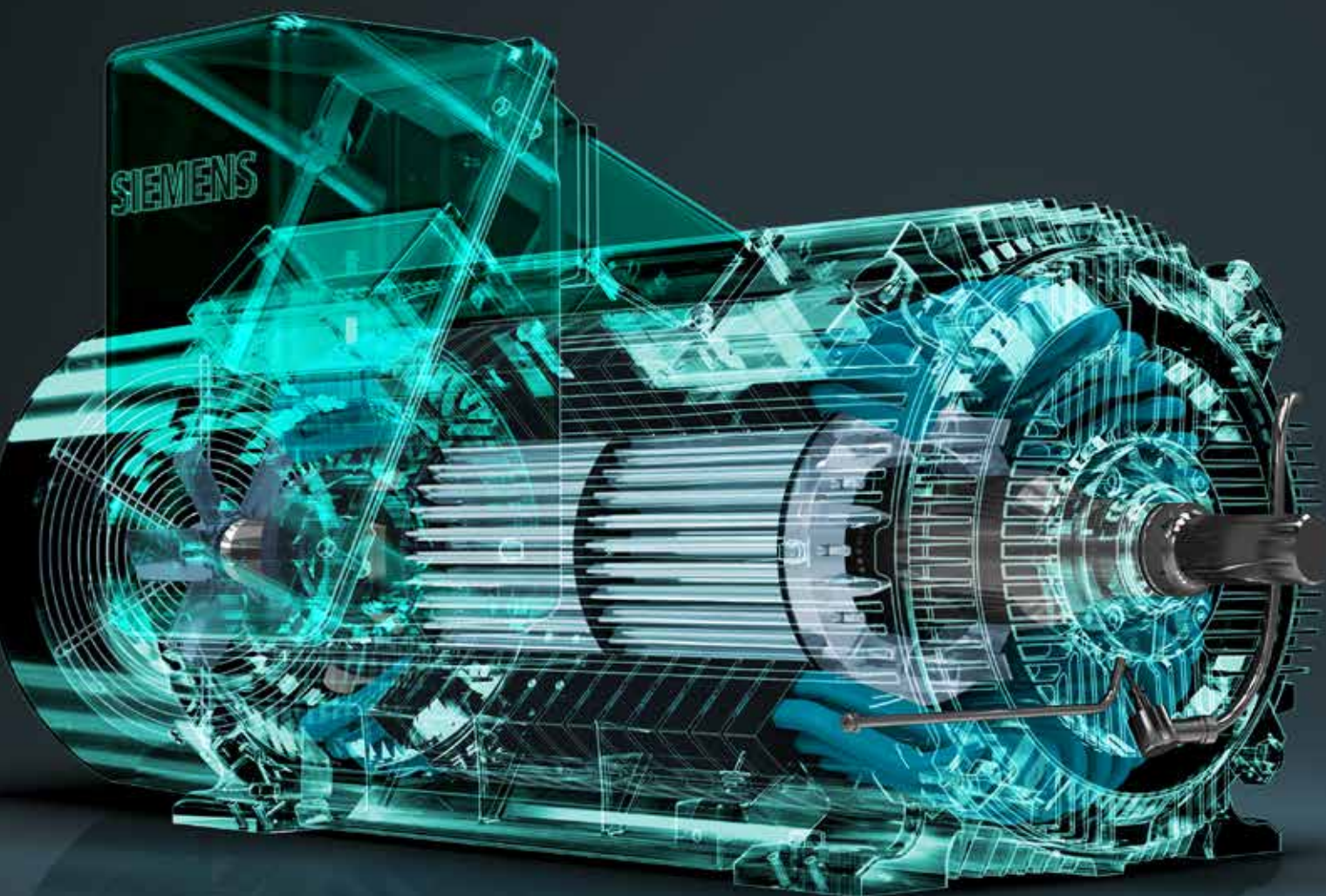


SIEMENS

Ingenuity for life



SIMOTICS Advantage™ Series

General Purpose MV Motors

www.usa.siemens.com/abovenema



Advantage Series is a general purpose TEFC motor best suited for low specification applications in a wide range of industries.

For over 120 years, Siemens has built large motors with a single objective in mind - to meet the exacting requirements of our customers' application needs. Today, our motors have earned a reputation for high performance, low maintenance, and long service life in the world's most demanding applications. It is this focus on delivering genuine performance value to our customers, combined with unmatched service and support, that has made Siemens the leading supplier of motors around the world.

We meet or exceed industry preferred standards.

Motor operators rely on standards to assure performance and Siemens has always been at the forefront of compliance with important industry standards.

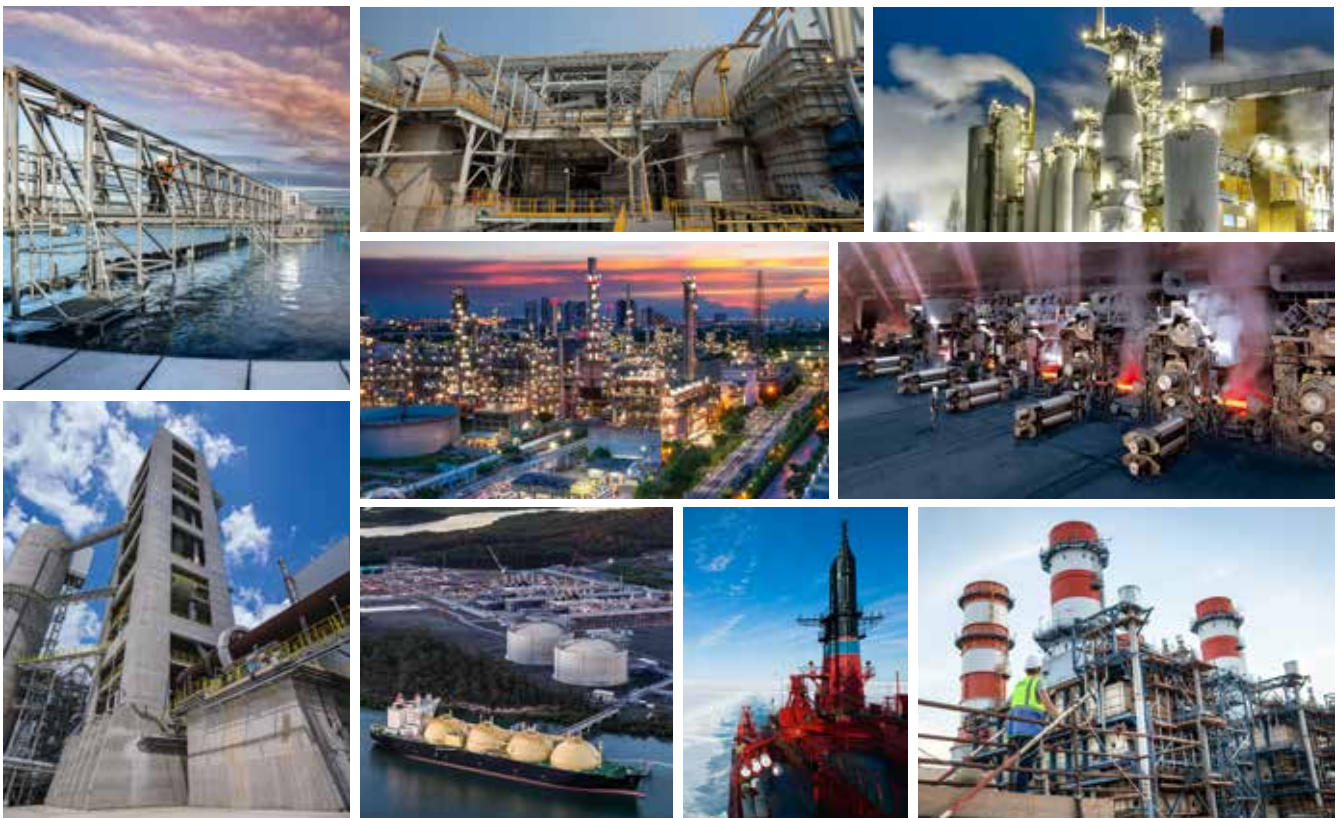
- IEEE841 Features
- ANSI
- NEMA
- CSA
- CSA- US
- NEMA Premium® Efficiency

“There is growing demand for large, low-spec, high quality, stocked motors with a robust set of standard features and pre-engineered modifications.”

Well suited for a wide range of industries and applications.

We understand that many industries have common large rotating applications that are low-spec in nature. Users also prefer motor suppliers that are capable of delivering standard and customized equipment. We are one of the few manufacturers today that effectively do both.

- Petroleum & Chemical Processing
- Mining & Minerals
- Cement
- Marine
- Metal Producing and Processing
- Water & Wastewater
- Power Generation
- Fiber / Pulp & Paper
- Industrial Refrigeration

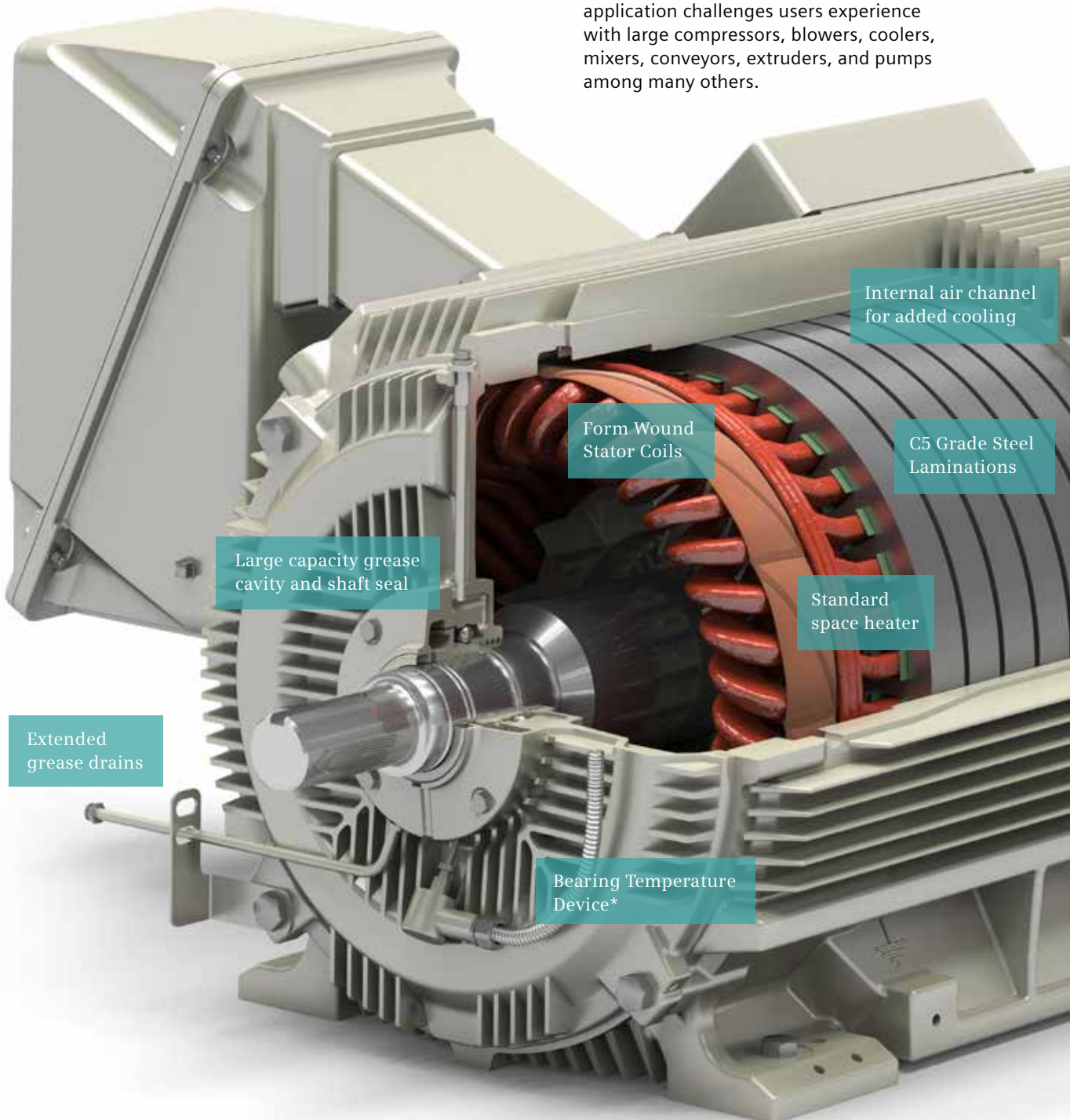


Advantage Series

General Purpose MV Motor Key Features

Experience is built in.

The Advantage Series medium voltage totally enclosed fan-cooled motor design is a result of meeting the common application challenges users experience with large compressors, blowers, coolers, mixers, conveyors, extruders, and pumps among many others.



Internal air channel for added cooling

Form Wound Stator Coils

C5 Grade Steel Laminations

Large capacity grease cavity and shaft seal

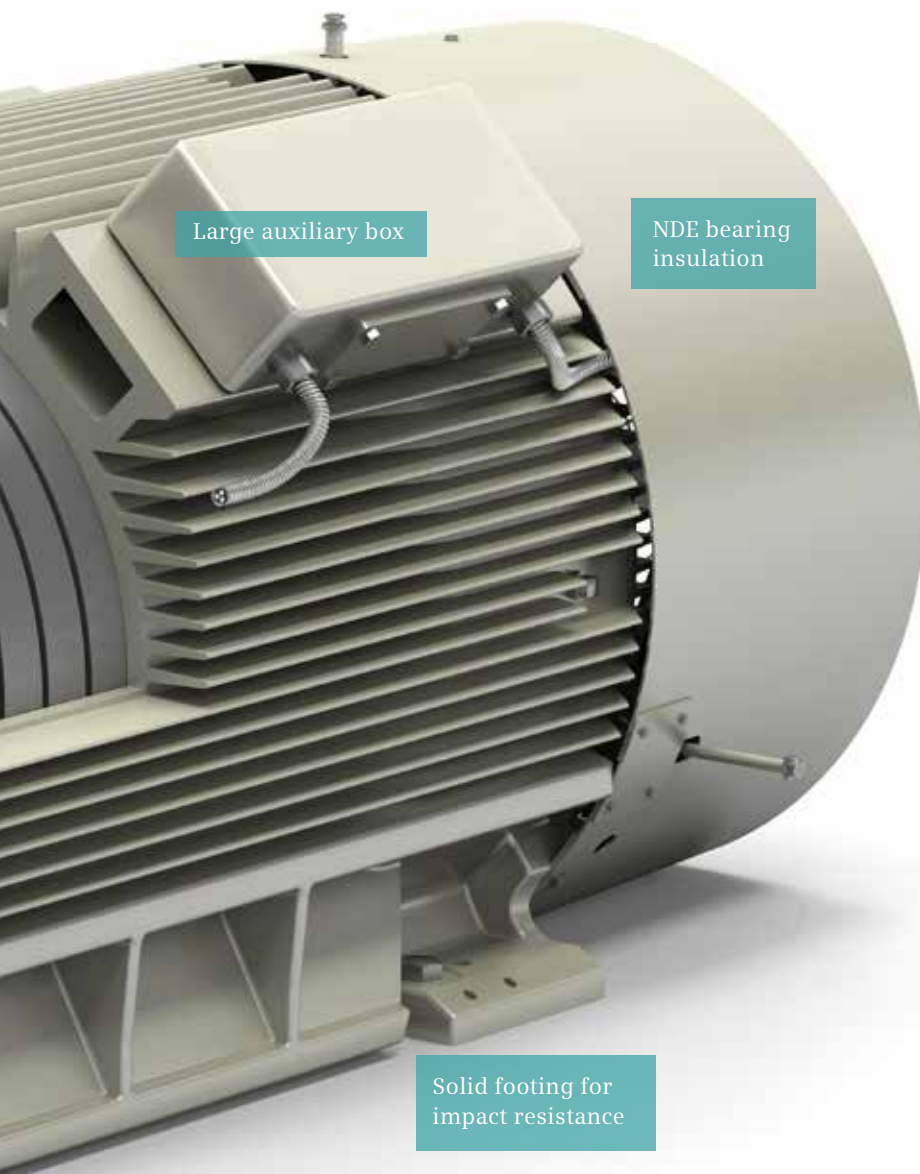
Standard space heater

Extended grease drains

Bearing Temperature Device*

*Standard or optional for different frames sizes. See page 7.

Siemens has engineered a cost-efficient design that offers users one of the most robust and reliable general-purpose MV motors in the industry.



Large auxiliary box

NDE bearing insulation

Solid footing for impact resistance

Frame and End Shields

Enclosed in a cast iron frame, end shields, and a durable main terminal box. Features high strength zinc-plated hardware, epoxy paint, and stainless-steel nameplates resistant to rust and corrosion for harsh environments.

Rotor and Stator Windings

A high-strength carbon steel shaft holds a dynamically balanced die cast aluminum rotor assembly for maximum performance, efficiency and bearing life. The stator is manufactured with C5 grade steel lamination and copper magnet wire designed to minimize electrical losses.

Insulation

The 449 frame utilizes a Class F non-hydroscopic MiCLAD™ form wound stator insulation system with a sealed epoxy mica design that meets or exceeds the NEMA MG1-20 standard. It also affords the user a high thermal margin with NEMA Class B temperature rise.

Other frames utilize MICALASTIC™ insulation system, a vacuum pressure impregnation (VPI) insulation free of gaps or voids. It meets the insulation requirements for MG1 Part 31 with a 6kV rated insulation system.

Cooling System

All rotor fans are designed to meet most CSA Class II areas and are bi-directional except for S449 frame and larger 2 pole machines. Its fan design improves cooling while reducing windage losses and noise. It is protected by a cast iron fan cover on all frame sizes.

Bearings

Single shielded with sealed bearings on both drive end and non-drive end are designed for easy serviceability and protection against contaminants.

Technical Details

Construction Features	
Enclosure	TEFC (IC411)
Degree of Protection	IP55
HP Range	150 - 1100 HP (2, 4 pole), 150 - 900 HP (6 pole)
Frame Size / Shaft Height	449, S449, 5011, 5810, SH400
Voltage	2300V/4000V
Service Factor	1.15 @ 40°C
Warranty	36 months from date of manufacture
Construction Materials	
Frame	Cast Iron
Bearing Housings	Cast Iron
Main Terminal Box	Fabricated Steel (449 frame), Cast Iron (5011+ frames)
Auxiliary Boxes	Cast Iron - NEMA 4X
Shaft	AISI 1045 (449 frame) 4140 (S449-449T frames), S355J2+N (5011+ frames)
Rotor	Aluminum Die Cast
Lamination Material	C5 Core Plate
External Cooling Fan	Polyamide & Polypropylene (449) Bronze (S449) Anti-Static Reinforced Polyamide (5011+ frames)
Fan Cover	Cast Iron
Top Cover / Heat Exchanger / Tube Material	N/A
Insulation	MiCLAD™ Class F non-hydroscopic, NEMA Class B temp rise (449 frame), MICLASTIC™ VPI (5011+ frames)
Hardware	Zinc Plated Carbon Steel
General Information	
Noise Level	85 dB(A)
Vertical Mounting	N/A
Inverter Operation	Meets NEMA MG1-20 (449 frame), Meets NEMA MG1-31 rated at 6kV (5011+ frames) Variable Torque: 10:1; Constant Torque: 2:1
Paint	Two-part Epoxy
Paint Color	RAL 7030 Gray
Bearing Type	Anti-friction ball
Vibration	0.12 IPS
Hazardous Area	CSA Class 1, Division 2, Groups B, C, D, Temp Class T3 (5011 frame on VFD Temp Class T2D)

Frame Chart - 2300/4000V, 60Hz			
HP	2P	4P	6P
150	449TS	449T	449T
200	449TS	449T	S449T
250	449TS	449T	S449T
300	S449TS	S449T	5011
350	S449TS	S449T	5011
400	5011	5011	5011
450	5011	5011	5810
500	5011	5011	5810
600	5810	5810	5810
700	5810	5810	SH400
800	SH400	5810	SH400
900	SH400	SH400	SH400
1000	SH400	SH400	-
1100	SH400	SH400	-

Additional Options

Roller Bearings

Motors having roller bearings require a minimum radial load. Use of these motors in direct connected applications is discouraged to avoid excessive drive end bearing noise and/or reduced bearing life.

Resistive Temperature Detectors (RTD)

Stick-type are available for anti-friction bearings. Available for 449 frame and standard on all other frames. The standard RTD is a tip sensitive device consisting of a probe with a hermetically sealed tip inside of which is a resistance element in the form of a coil.

Couplings

Includes mounting only of shrink-fit, customer-supplied coupling which has been finish-bored and key-seated to Siemens standard shaft dimensions. For 449 frames only.

Direction of Rotation

Ratings indicated as "Uni-directional" (2P S449) will be listed CW as standard. All other ratings are Bi-directional.

IEEE 841 Standard - 2009

This standard applies to premium-efficiency TEFC's up to 500 horsepower and 4000 volts. It is used in petroleum, chemical, and other severe-duty applications. For 2 pole motors, exception is taken to sound power levels and data is offered in sound pressure.

Nameplate Additions

Multiple options are available to include specific information on your nameplates.

Shaft Seals

For IP56 and/or specific Inpro/Seal on the drive-end.

Anti-Fungal Treatment

An Anti-Fungal Treatment is offered for the stator in humid areas, which utilizes a tropicalization moisture for protection. For 449 frames only.

Protective Devices - Thermistors

Thermistors are positive temperature coefficient (PTC) sensors embedded in the end turns of the windings in the stator.

Protective Devices - Thermostats

Thermostats use a snap-action, bi-metallic, disc type switch to open or close a circuit upon reaching a preselected temperature.

For a complete listing of Advantage Series options, refer to the back cover.

Advantage Series Options		Frames	
Code	Description	449	5011+
A15	Thermistors - (3) PTC - 1/Phase	✓	-
A16	Thermistors - (6) PTC - 2/Phase	✓	-
A25	KTY84 Thermistors (2)	✓	-
D44	Division 2 Nameplate (Class I, Div 2, Grps B,C,D, Temp. Class T3) (5011 frame on VFD will be T2D)	✓	✓
K09	F-2 Assembly	✓	✓
K20	Roller Bearings	✓	✓
K44	Additional Nameplate (Replica of original)	✓	✓
K51	IP56 Shaft Seal	✓	✓
K91	Inpro Seal - Drive End (Included on R61)	✓	✓
K92	Inpro Seal - Opposite Drive End (Included on R61)	✓	✓
K97	Clockwise Rotation Arrow	✓	✓
K98	Counterclockwise Rotation Arrow	✓	✓
K99	Bi-directional Arrow (4 and 6 Pole only)	✓	-
L17	Mount Customer Supplied 1/2 Coupling	✓	-
L18	Insulated Bearing, DE & NDE	✓	✓
L70	NEMA Type I, Fab Steel (FS1.5 - 13900 cu.in. volume)	-	
L77	Sealed leads (Chico)	✓	✓
R03	Robert Shaw vibration switch	✓	✓
R05	Provision for vibration sensors, PMC/Beta	✓	✓
R08	Provisions for Accelerometer/Velometer - Golf Tee	✓	✓
R16	Thermostat - (2) TI Klaxon; normally closed contacts	✓	-
R61	IEEE 841 Features, with Inpro Seals on DE & NDE	✓	✓
R79	(2) 100 Ohm Platinum (0.00385 TCR) DIN Std, single-element RTDs, 3-wire, 1/brg, stick-type (5011 frames and up use PT100)	✓	Std
S00	Anti-Fungal Treatment, Tropicalization Moisture	✓	-
S98	Sea Freight Packaging - Siemens Standard	✓	✓
Y80	Additional nameplate with values for derating	✓	✓
Y82	Auxiliary Nameplate, max 40 Characters	✓	✓

Comprehensive Service and Support

Siemens warranty, parts and service request call center is available 24/7, providing fast and efficient responses. Siemens service technicians take pride in finding the right solution, the first time, every time.

Telephone: (800) 333-7421 (Toll Free)
 Email: helpline.sii@siemens.com
 Online: support.industry.siemens.com

Siemens Industry, Inc.
 4620 Forest Avenue
 Norwood, OH 45212 USA
 1-800-241-4453
info.us@siemens.com
www.usa.siemens.com/abovenema

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