

ELECTRIC MOTORS FOR EXTREME ENVIRONMENTS -40°C to +120°C

CAST-IRON CASING



The toughest challenge for an electric motor is epitomised by the environmental conditions, since extreme temperatures, high humidity and aggressive agents really put motor reliability to the test. Only motors that have been specially designed to withstand such extreme conditions can guarantee a truly extended service life.

As a result of meticulous research, that also



took into account the most extreme operating conditions, I.S.G.E.V.'s engineers were able to design electric motors to satisfy the needs of even the most demanding customers. Thanks to the all cast iron, high-quality construction, this series of motors can operate in environments with temperatures down to -40°C or up to +120°C with 100% relative humidity.



WOOD TREATMENT DRIER



PASTA FACTORY



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THE MAIN SECTORS THAT UTILISE SPECIAL INDUSTRIAL MACHINERY

SECTOR	APPLICATION
Shipbuilding	Saline environment with water
Railway	Ventilation with severe mechanical strain and wide temperature ranges
Textiles	Dry and dusty environment with high temperatures
Chemicals	Highly corrosive environment
Foodstuffs	Environment with high humidity and high temperature
Wood drying	Aggressive environment with wood dust, aggressive vapours, high humidity and high temperature
Plastics	Environment with high temperatures
Tanning	Environment with high humidity and corrosive acidic vapours
Marble working machinery	Aggressive environment with marble dust and high humidity
Wood working machinery	Aggressive environment with wood dust
Cooling plants or plants utilised in polar environments	Environment with extreme temperatures down to -40°C

TECHNICAL CHARACTERISTICS OF ELECTRIC MOTORS

- Defluxed winding to reduce the motor temperature delta
- Optimised efficiency to reduce losses, decrease thermal dissipation and, as a consequence, save energy
- Maintenance free
- Cast iron stator casing
- Cast iron covers
- Cast iron fan cover
- Cast iron terminal box and terminal box cover
- Mechanical protection IP54-IP55-IP56
- Cooling fan:
 - ⇒ in G-AISI13 Cu Mn UNI 3048 die-cast aluminium for hot environments
 - ⇒ in polyamide 6 reinforced with fibreglass (30%) for environments with aggressive acidic vapours
- Shaft:
 - ⇒ for high temperatures: C40 hardened and tempered steel
 - ⇒ for temperatures down to -40°C: 39NiCrMo3 hardened and tempered steel
 - ⇒ for particularly aggressive environments: AISI304 or AISI316 steel
- sealing rings on drive end side and non drive end side:
 - ⇒ for high temperatures: VITON or METALLIC LABYRINTH material
 - ⇒ for low temperatures: NBR material
- Gaskets for terminal box and terminal box cover:
 - ⇒ for high temperatures: SILICONE material
 - ⇒ for low temperatures: NBR material
- Stainless steel external bolts and screws
- Nickel-plated brass cable gland
- Class H insulation materials and copper wire, UL certified insulation system; heat-resistant winding impregnation paint
- For particularly aggressive environments with high humidity, tropicalized winding treatment or double immersion impregnation
- Motors equipped with condensation drain holes for environments with a broad temperature range and high humidity
- Painting cycles:
 - ⇒ Water-based rust-inhibitor primer
 - ⇒ Polyurethane paint on inside of covers and terminal box
 - ⇒ Water-based RAL 5010 topcoat; two coats of two-pack epoxy, polyurethane, polyacrylic paint
- High-temperature bearings:
 - ⇒ Bearings, lubricated for life, shielded (with metallic guards) or watertight (in high temperature-resistant plastic), clearance C3 and high-temperature grease
 - ⇒ Designed for re-greasing with high-temperature grease: KLUBER PETAMO GHY 133N 12 or KLUBER UNISILKON L50/2



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CHARACTERISTICS	ENVIRONMENT				
	TEMPERATURE		HUMIDITY	AGGRESSIVE DUST	ACIDIC VAPOURS
	<-20°C	>80°C			
Aluminium fan	•	•			•
Polyamide fan with fibreglass					
C40 hardened-tempered steel shaft		•		•	•
39NiCrMo3 hardened-tempered steel shaft	•				
AISI steel shaft					
VITON or LABYRINTH sealing rings		•			
Sealing ring in silicone	•				
Gaskets for terminal box and terminal box cover	•	•			
Stainless steel bolts and screws	•			•	
Brass cable gland	•	•		•	•
Insulation class F	•				
Insulation class H		•			
Tropicalized winding	•	•		•	•
Condensation drain holes				•	
High-temperature bearings	•	•			
High-temperature grease	•	•			
RAL 5010 EPOXY paint	•				•
RAL 5010 POLYURETHANE paint				•	
RAL 5010 POLYACRYLIC paint					•

