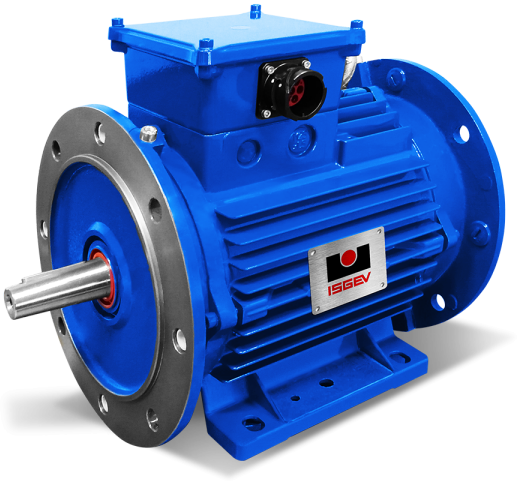
MOTORS FOR RAIL



Power outputs	0,12 - 75kW
Voltages	Up to 690V
Frames	63 - 280
Efficiency classes	IE2 - IE3, where applicable
Sectors	Rail
Most common applications	Fans / Pumps / Auxiliary systems

These motors are the result of careful researches, examining the most extreme operating conditions and producing a specific range of electric motors with high quality standards, to meet the strict requirements of the railway sector.

The series name identifies the combination of materials of the main mechanical components of the engine (case and endshields):

Series name	1B	2B	3B	4B	5B
D-End Endshield	Aluminum	Cast-Iron	Aluminum	Cast-Iron	
Case	Aluminum				Cast-Iron
N-End Endshield	Aluminum		Cast-Iron		

B MOTOR SERIES

	Standard configuration	Special configuration
Standards	Applicable IEC EN 60034 IEC EN 60349/2	Specification on request
Polarity / Speed	Single	Double / Triple
Cooling method	IC 411	IC 410 / IC 416 / IC 418
IP Index of Protection	IP55	IP56 / IP65 / IP66
Insulaton Class	F	H
Temperature rise Class	B	F / H
Altitude	<1000m a.s.l.	up to 4000m a.s.l.
Power supply	Main	Frequency converter
Rotor	Squirrel cage	-
Material of the rotor windings	Aluminum	-
Duty	S1	S2 … S9
Ambient temperature	-20°C / +40°C	-20°C(*) / +100°C
Shaft extension	D-End	D-End + N-End
Shape of the shaft extension	Cylindric, with key	Conical / special
Material of the shaft	39NiCrMo3	Stainless steel / C40
Bearings	Ball	Roller / Angular
Seal ring	Labyrinth	MIM / V-Ring

	Standard configuration	Special configuration
Material of the screws	Stainless steel	-
Vibration grade	B (with half key)	B (with full key)
Material of the fan	Aluminum	-
Material of the fan cover	Steel	-
Lifting eyebolt	From 100 frame and above	On request
Feet	Fixed (Cast-iron) / Removable (Aluminum)	-
Terminal box - position	On the right side, when seen from D-End (Cast-iron) On top (Aluminum)	On top(§) / On the left(§) / Flying leads
Terminal box - material	Aluminum (cast-iron for 200 and 225)	-
Cable entry	On the right side	Rotatable in step of 90°
Q.ty of terminals (single polarity)	6	-
Q.ty of terminals (double polarity)	6	12
Q.ty of terminals (triple polarity)	12	-

(*): -50°C with 5B series only
(§): Available only on 5B Motor series

SPECIAL SOLUTIONS

Windings

Insulation class H
Tropicalisation
Stator windings with enhanced insulation system for inverter
Special voltage and/or frequency
Double impregnation

Bearings

Sealed bearings
Roller bearings
Insulated bearings
Hybrid bearings
Angular bearings
Re-greasing systems

Encapsulation of the windings

Protections

Bi-metal protection
PTC Thermistors
PT100 Thermo-resistances
PT1000 Thermo-resistances
Anticondensation heaters

Transducers

Arrangment for vibration detector
Arrangment for speed detector (toothed wheel)
Tachometer
Encoder

Painting and solutions for extreme environment

Special painting colour (std RAL5010)
Special painting process for agressive environment
Solutions for low temperatures (down to -50°C)
Solutions for high temperatures (up to +120°C)
Anti-rain canopie
Anti-sun canopie
IP56, IP65, IP66 protection degrees
Open drainage hole

D-End fixed bearing (only with Cast-iron endshield)
Silicon ring
V-Ring

Shaft and Fan

Special shaft extension
Second shaft extension
Non-ventilated motor (IC410)
Forced ventilation (IC416)
Non-ventilated motor, externally cooled (IC418)
Vibration grade B (with half or full key)

Terminal box

12 terminals
Special cableglands
Position of terminal box
Direction of cable entry
Flying leads
Auxiliary terminal box
Special cable entry
Sealing of cable passage hole case-terminal box