EXPLOSION-PROOF Direct Current MOTORS

POWERING WITH RELIABILITY

RADIO-ENERGIE
The best signal since 1928

CE

- SERAMEL S80 -

TABLE OF CONTENTS

POWER RANGE FROM 280 W TO 2 kW

ATEX CERTIFIED ACCORDING TO DIRECTIVE 94/9/CE
INERIS 03ATEX0051X issue 04
II 2 G

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GENERALITIES

Our explosion-proof D.C. motors, serie "S", were designed according to European standards' CENELEC and are manufactured in order to offer the maximum of safety and reliability for all services in explosive atmospheres.

STANDARDS AND CERTIFICATIONS

Our motors are in compliance with:

- European directive ATEX 94/9/CE,
- harmonized European standards:
  EN 60079-0 : electric material for explosive atmospheres : 2012 / A11 : 2013
  EN 60079-1: electric material for explosive atmospheres: 2014
- with the type having been the subject of the certificate of examination:
  INERIS03ATEX0051X

the notified organization: INERIS CE0080

ENVIRONMENTS AND MARKING

Our motors were certified for the following gas explosive atmospheres:

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- Group II G (T4 or T5) - 2G Category - Zone 1

CLASSES OF TEMPERATURE

Our motors are certified for the classes of temperature of surface:
T4 (135°C)
T5 (100°C)

AMBIENT TEMPERATURE

Our motors are certified for ambient temperatures:
-20°C with +80°C

MANUFACTURING STANDARDS

Our motors are manufactured according to international standards':

- Electrical Characteristics: IEC 34-1 and IEC 34-2
- Form of construction: IEC 34-7
- Mechanical protection: IEC 34-5
- Cooling mode: IEC 34-6
- Class of insulation and heating: IEC 85

CONSTRUCTION DETAILS

Our "S" type motors are conceived with compensated poles: 2 or 4

- Available shaft heights are as follow: 80
- Protection: up to IP 55
- Cooling: IC 411
- Frame and flanges in cast iron
- ventilator in aluminium
- ventilator cap in cast iron
- Terminal box in cast iron
- Life lubricated bearings: life expectancy is a function of the shaft load and the speed

- Shaft in "XC 48" steel
- Insulation and components: F Class minimum

For motor form IM 3011 (V1): Dome of protection

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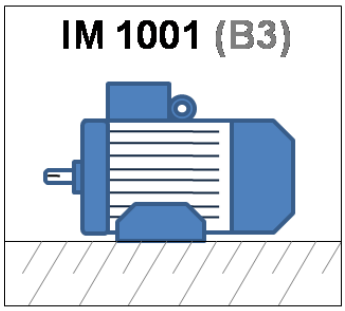
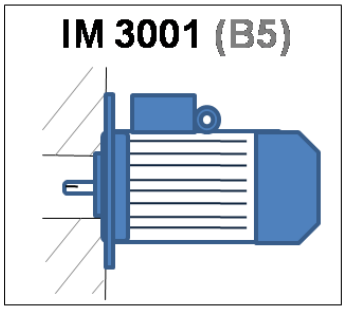
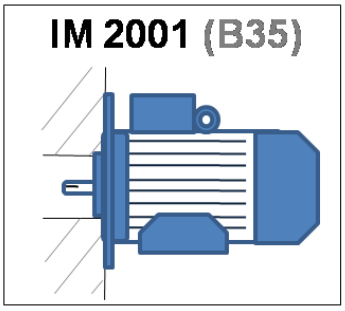
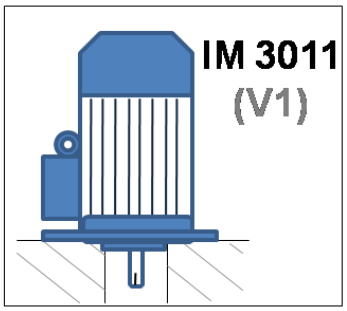
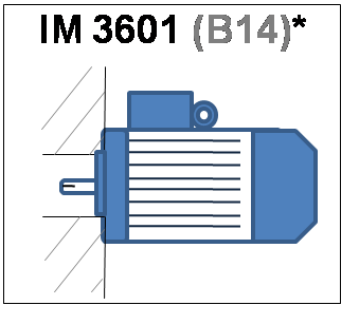
MOUNTING FORMS











*Available until size S112 only

OTHER POSSIBILITIES

Adaptation of:

- heating Resistors of or heating ribbons
- heat sensors Pt 100 in windings
- Dynamic or immobilization brake
- Explosion-proof tachogenerator with 1 or 2 commutators, ATEX certified
- Explosion-proof incremental encoder, ATEX certified
- ATEX certified explosion-proof motor fan for forced ventilation

For drive belts: rollers bearings on shaft end side

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STANDARD VOLTAGES

- Battery supply: 24V, 48V, 110V, 220V
  Form factor (Ff)=1
- Inverter supply (industrial voltage)

Armature voltage	Field voltage
150 V	**200 V**
170 V	**200 V**
260 V	**350 V**
300 V	**350 V**
400 V	**350 V**
440 V	**200 V ou 350 V**

TYPE OF EXCITATION

- battery supply: excitation compound
- inverter supply:
  separated excitation or shunt excitation
  serie excitation
  compound excitation

OPERATING MODES

- at fixed speed
- at constant torque by variation of the armature voltage
- at constant power by de-energizing the excitation
- 1 or 2 directions of rotation (to be specified)

Note: according to the speed range, a forced ventilation may be needed: cooling IC 416

POWER TABLES

These power tables are set along for the following data:

- continuous service: S1
- form factor: Ff = 1
- Insulation class: F
- Heating: F class (100 K)
- Ambient temperature: 40°C
- Altitude: lower than 1000 meters

Note: for other voltages or speeds please consult us.

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24 Vdc

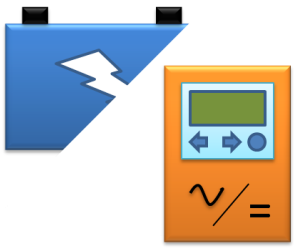
Battery supply

Type	Lf	Poles	Power (kW)			Nominal torque at 1500 rpm (N.m)
			1000 rpm	1500 rpm	3000 rpm	
S 80	S	2C	0,28	0,43	0,6	2,74
	L	2C	0,4	0,6	--	3,82
	S	4C	0,5	0,7	1,2	4,46
	L	4C	0,6	--	--	--

48 Vdc

Battery supply

Type	Lf	Poles	Power (kW)			Nominal torque at 1500 rpm (N.m)
			1000 rpm	1500 rpm	3000 rpm	
S 80	S	2C	0,28	0,43	0,86	2,74
	L	2C	0,4	0,6	1,2	3,82
	S	4C	0,5	0,7	1,4	4,46
	L	4C	0,6	1	--	6,37
	L	4C	4,3	6,5	--	41,40



110 / 220 Vdc

Battery or inverter supply

(industrial voltages)

Type	Lf	Poles	Power (kW)			Nominal torque at 1500 rpm (N.m)
			1000 rpm	1500 rpm	3000 rpm	
S 80	S	2C	0,28	0,43	0,86	2,74
	L	2C	0,4	0,6	1,2	3,82
	S	4C	0,5	0,7	1,4	4,45
	L	4C	0,6	1	2	6,37

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DERATING FACTOR APPLICABLE TO POWER TABLES

Derating according to the duty cycle

S2

TEMPORARY DUTY	Duration in min			
	10	30	60	90
Overload	**1.6**	**1.3**	**1.1**	**1**

S3

INTERMITTENT PERIODIC SERVICE	Duty ratio			
	15 %	**25 %**	**40 %**	**60 %**
Overload	**1.6**	**1.4**	**1.2**	**1.1**

S6

CONTINUOUS DUTY WITH INTERMITTENT LOAD	Duty ratio			
	15 %	**25 %**	**40 %**	**60 %**
Overload	**1.6**	**1.4**	**1.3**	**1.2**

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Derating according to the power-factor

the motors are derated in order to take into account the form factor Ff due to the motor supply through variable speed inverter: $P=P_0$ (table)/Ff
Usual form factor Ff:

- Single-phase supply: Ff = 1,5 (with the addition of smoothing coil: Ff = 1,2)
- Three-phase supply: Ff = 1,05

Derating according to the ambient temperature

The motors are derated in order to take into account the ambient temperature:

Ambient temperature	45°C	50°C	55°C	60°C	65°C	70°C	75°C	80°C
Derating factor	0.95	0.90	0.83	0.76	0.63	0.54	0.43	0.31

WEIGHT & INERTIA

TYPE	Laminations length	Weight (kg)	Inertia ($kg.m^2$)
S80 2C/4C	S	32	0.0068
	L	36	0.0087

NOISE LEVEL

The indicated values are given for a motor functioning without charge under nominal voltage. Measurement is taken in sound pressure dB(A) at a distance of 1 meter from the machine. Tests in accordance with standards NFC 51119 and CEI 34-9.

Type	Noise level in dB(A) at speed (rpm)						
	500	1000	1500	1750	2000	2500	3000
S80	48	62	63	65	66	68	70

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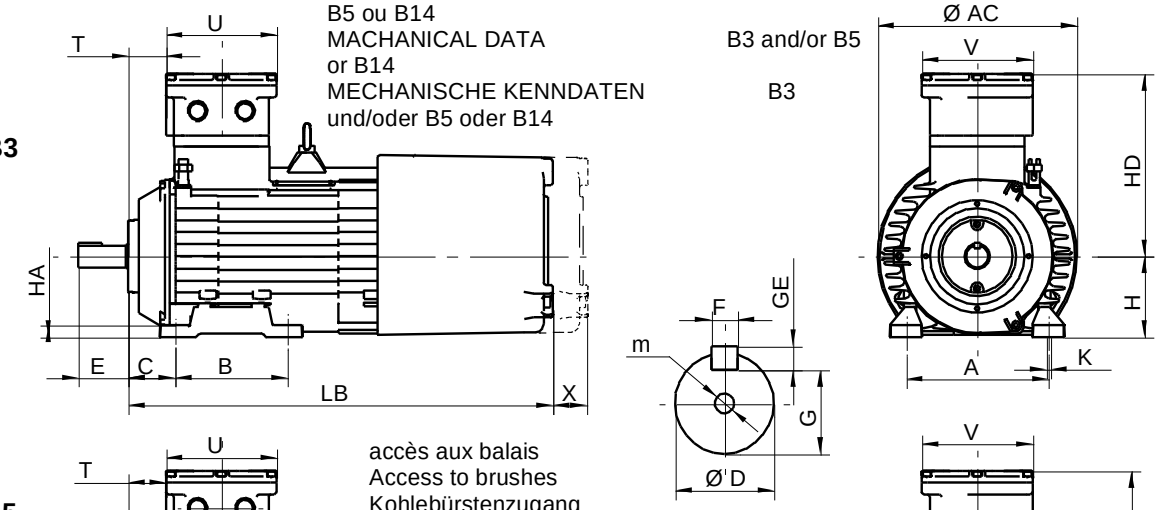
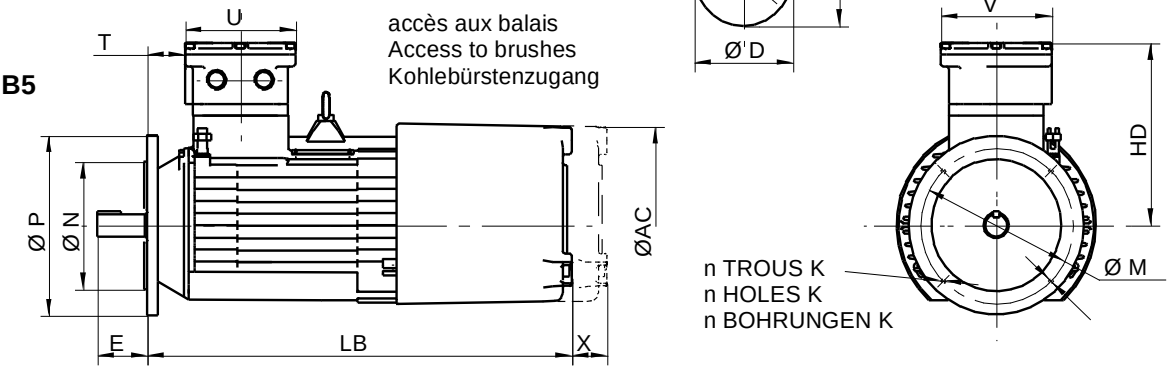
OVERALL DIMENSIONS

CARACTERISTIQUES MECHANIQUES B3 et/ou B5 ou B14
MACHANICAL DATA B3 and/or B5 or B14
MECHANISCHE KENNDATEN B3 und/oder B5 oder B14

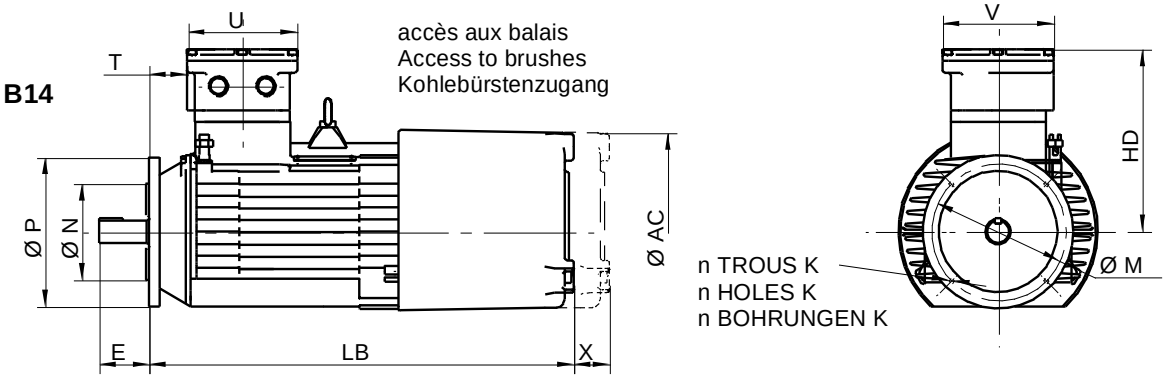
B3



B5



B14



TYPE	Lf	Foot-mounted						Flange-mounted						Others sizes						Shaft end					
		H	A	B	C	K	HA		M	N	P	n	S	LB	AC	HD	T	U	V	D	E	F	GE	G	m
S 80 2C/4C	S	80	125	100	50	9	10	B14	100	80	120	4	M6	394	202	172	-20	Ø160	Ø160	19	40	6	6	15.5	M6
	L							B5	165	130	200	4	Ø11												

RADIO-ENERGIE
41, Route de Nonnes-86100 CHATELLERAULT – FRANCE – Tel : +33 5 49 21 76 22 – Fax : +33 5 49 93 26 79
Une société de **AMW Group** www.amwgroup.fr

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