

**Explosion-Proof Increased Safety Motors****DESCRIPTION OF THE CATALOGUE VERSION**

Duty type:	S1
Rated voltage:	230V/400V
Frequency:	50 Hz
Ambient temperature:	from -20°C to + 40°C
Mounting height:	up to 1000 m above sea level
Insulation class:	F

Explosion-proof increased safety motors are adapted for operating in areas endangered by explosion other than methane mines, (apparatus group II, explosion group II) in zone 1 (zone 21).

The Exe motors belong to the apparatus category 2G (zone 1, gas hazardous area) or 2D (zone 21, dust hazardous area) or 2G and 2D (zone 1, zone 2, zone 21, zone 22, gas and/or dust hazardous area) which means that it is either necessary to ensure that the occurrence of ignition source is excluded, or the ignition source must be encapsulated by a recognized type of protection in such a way that the ignition of an explosive atmosphere surrounding the motor is prevented.

Classification of temperature classes according to the ignition temperature of explosive atmosphere:

Ignition temperature of explosive atmosphere [°C]	Temperature class	Max. temperature of motor [°C]
Above 450	T1	450
300 - 450	T2	300
200 - 300	T3	200
135 - 200	T4	135



<b>II</b>	specific marking of explosion protection for use in hazardous areas other than mines
<b>2</b>	apparatus category 2 for use in zone 1 (zone 21)
<b>G</b>	for use in gas hazardous areas
<b>D</b>	for use in dust hazardous areas
<b>Ex</b>	indicates that the product corresponds to one or more of the types of protection which are subject of the specific standards listed in general requirements standards
<b>e</b>	increased safety
<b>tD</b>	Indicates the type of protection used for flammable gas / combustible dust
<b>A21</b>	areas category
<b>II</b>	explosion group
<b>T3</b>	temperature class
<b>T125°C</b>	maximal housing temperature

The motors are designed for the temperature class T3 which means that the maximum temperature of any part of the motor can not exceed + 200°C or for the temperature class T4 where maximum temperature can not exceed + 135°C.

**IDENTIFICATION, BEARINGS, DEGREE OF PROTECTION**

Motor Type	Bearings	Increased Safety Gas Hazardous Area	Degree of Protection	Increased Safety Dust Hazardous Area	Degree of Protection	Increased Safety Gas and Dust Hazardous Area	Degree of Protection
Sg 56	6201 2Z	II 2G Exe II T3-T4	IP 55	-	-	-	-
Sg 63	6202 2Z	II 2G Exe II T3-T4	IP 56	II 2D Txxx°C	IP 65	II 2G Exe II T3-T4/ II 2D Txxx°C	IP 65
Sh 71	6203 2Z	II 2G Exe II T3-T4	IP 56	II 2D Txxx°C	IP 65	II 2G Exe II T3-T4/ II 2D Txxx°C	IP 65
Sh 80	6204 2Z	II 2G Exe II T3-T4	IP 56	II 2D Txxx°C	IP 65	II 2G Exe II T3-T4/ II 2D Txxx°C	IP 65
Sh 90	6205 2Z	II 2G Exe II T3-T4	IP 55	II 2D T125°C	IP 65	II 2G Exe II T3-T4/ II 2D T125°C	IP 65
Sg 100	6206 2Z	II 2G Exe II T3-T4	IP 55	II 2D T125°C	IP 65	II 2G Exe II T3-T4/ II 2D T125°C	IP 65
Sg 112	6306 2Z	II 2G Exe II T3-T4	IP 55	II 2D T125°C	IP 65	II 2G Exe II T3-T4/ II 2D T125°C	IP 65
Sg 132	6308 2Z	II 2G Exe II T3-T4	IP 55	II 2D T125°C	IP 65	II 2G Exe II T3-T4/ II 2D T125°C	IP 65
Sg 160	6309 2Z	II 2G Exe II T3-T4	IP 55	II 2D T125°C	IP 65	II 2G Exe II T3-T4/ II 2D T125°C	IP 65
Sg 180	6311 2Z	II 2G Exe II T3-T4	IP 55	II 2D T125°C	IP 65	II 2G Exe II T3-T4/ II 2D T125°C	IP 65

As part of our development program, we reserve the right to alter or amend any of the specifications without giving prior notice.

Explosion-Proof Increased Safety Motors

TECHNICAL DATA

- In the Exe motors there are applied additional means to increase safety in case of appearance of excessive temperature or occurrence of arcs and sparks inside the motor and on its external parts. There are special terminal board, terminal box ensuring suitable insulating distances, certified cable gland, two neutral terminals, reinforced insulation etc. The parts of motor housing are made of material with magnesium contents less than 6% apart from the fan cover which is made of steel.
- The overload protection of the motor must cause the motor to disconnect from the supply voltage in a time shorter than the specified time  $t_E$  when the current is equal to the starting current. Time  $t_E$  is the time when, during the flow of the starting current, the motor winding heats up to the limit temperature from the temperature of rated conditions at maximum ambient temperature. For  $t_E$  please refer to the table with parameters.
- The motors can be provided with a cable gland with a holder (protecting the supply wire against pulling out). The motors that are provided with special fan cover can work in perpendicular position with the shaft down, However detailed conditions specified in service manual being enclosed to each motor, must be fulfilled.
- The motors II 2D Ex tD A21 Txxx°C are equipped with posistor-based PTC temperature sensors. During normal operation within the nominal range, temperatures of motor component external surfaces do not exceed xxx°C. The user must install the equipment compliant with PTC sensors. The equipment should cut power off if motor temperature is exceeded. Motor overheating may be caused by its overload, shaft locking, motor failure, etc.

STANDARDS

**The electric motors are manufactured according to international standards:**

Electrical requirements	EN 60034-1 EN 60034-6 EN 60034-9
Mechanical requirements	EN 60034-5, EN 60529 EN 60034-6 EN 60034-7 EN 60034-14 IEC 72-1, EN 50347

The motors meet requirements of EN 60079-0, EN 60079-7 and EN 13980 (production quality requirements).

The products comply with the specifications regarding the electromagnetic compatibility specified in: EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4.

"II 2D Ex tD A21 Txxx°C" range motors meet also requirements of EN 61241-0 and EN 61241-1.

**Each motor is manufactured according to requirements of ATEX Directive 94/9/EC and has a certificate of conformity with the documentation approved by N.V. KEMA, Netherlands.**

Type Sg56.-	KDB 07 ATEX057 for temperature class T3/T4
Type Sg63.-	KEMA 03 ATEX2176 for temperature class T3 KEMA 03 ATEX2177 for temperature class T4
Type Sh71.-	KEMA 03 ATEX2178 for temperature class T3 KEMA 03 ATEX2179 for temperature class T4
Type Sh80.-	KEMA 03 ATEX2180 for temperature class T3 KEMA 03 ATEX2181 for temperature class T4
Type Sh90.-	KEMA 02 ATEX2136 for temperature class T3 KEMA 02 ATEX2137 for temperature class T4
Type Sg100.-	KEMA 02 ATEX2138 for temperature class T3 KEMA 02 ATEX2139 for temperature class T4
Type Sg112.-	KEMA 02 ATEX2140 for temperature class T3 KEMA 02 ATEX2141 for temperature class T4
Type Sg132.-	KEMA 02 ATEX2142 for temperature class T3 KEMA 02 ATEX2143 for temperature class T4
Type Sg160.-	KEMA 02 ATEX2144 for temperature class T3 KEMA 02 ATEX2145 for temperature class T4
Type Sg 180.-	KEMA 02 ATEX2146 for temperature class T3 KEMA 02 ATEX2147 for temperature class T4
"II 2D Ex tD A21 T125°C" range	KEMA 06 ATEX0113

All the motors are manufactured in Quality Assurance System consistent with ISO 9001.



The motors covered by the present catalogue comply with the regulations and standards consistent with IEC standards.



All the motors described in present catalogue are provided with CE mark. It means that our products are consistent with the European Union directives regarding the safety features.

