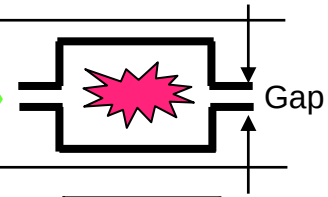
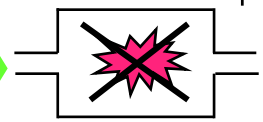
Patlayıcı Gaz & Toz Ortamlarında Motorlarımız

Standard Drives

		Explosion protection is essentially achieved by	Basic principle
Gas	Flameproof enclosure (EEx de)	Pressure-tested gray cast iron enclosure	
	Increased safety (EEx e)	The power/output of active parts and components is reduced	
	Non-sparking (EEx n /Ex n)	Non-sparking cooling system	Non-sparking rotating parts (e. g. Cooling system)
Dust	Conductive	IP 65, max. enclosure temperature, 125 °C	Limiting of the enclosure temperature
	Non-conductive	IP 55, max. enclosure temperature, 125 °C	

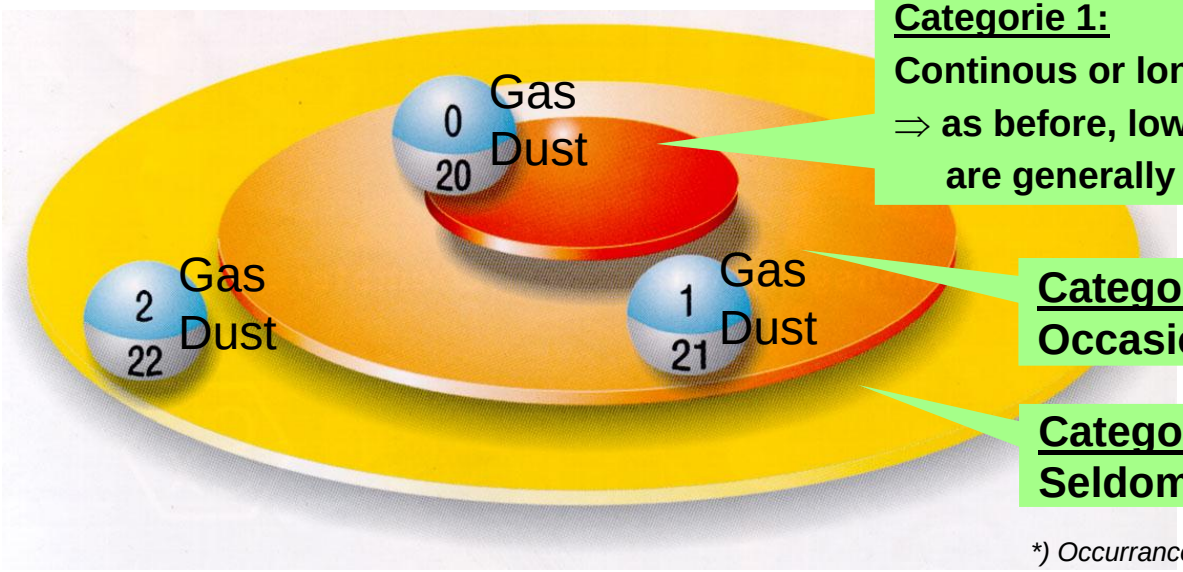
TABLO – SIEMENS AC Motorlarının Patlayıcı Ortamlardaki/Bölgelerdeki Seçim Klavuzudur

Standard Drives

Area	Cate-gory	Zone	Freq.that the expl. atmos.. is pres.	Type of prot.	Temp. class	Degree of prot.	Motor Order No. (MLFB)	Oper.	With code	Standard
Gases and vapors (G)	1G	0	Continous or long-term	Motors not usually used						
	2G	**1**	Occasionally	EEx de IIC[1)] (Flameproof enclosure)	T1 – T4	IP55	**1MJ6 /7** 1MJ8 /1	Line supply	-	DIN EN 50014 DIN EN 50018
								Drive conv.	A15 A16	
				EEx e II (increased safey)	T1 – T3	IP55	**1MA7** **1MA6**	Line supply	-	DIN EN 50014 DIN EN 50019
	3G	**2**	Seldom or briefly	EEx nA II (Non-sparking) Ex nA II (Non-sparking)	T1 – T3	IP55	1LA6 1LA7 1LA8 **1LA9** 1LG4/**6**	Line supply	**M72**	EN 50021/ IEC 60079-15
								Drive conv.	M73	
Dusts (D)	1D	20	Continuous or long-term	Motors not usually used						
	2D	**21**	Occasionally	conductive dust	**Max.** enclosure temp. **T125°C**	**IP65**	1LA5 1LA6 1LA7 1LA9 1LG4/6	Line supply	M34	EN 50281
								Drive conv.	M38	
	3D	**22**	Seldom or briefly	non-conductive dust		IP55		Line supply	M35	
								Drive conv.	M39	

[1)] **Highest explosion group IIC includes IIB and IIA**

Tehlikeli Bölgelerin Kategorilendirilmesi



Categorie 1:
Continous or long-term*)
⇒ as before, low-voltage motors are generally not used.

Categorie 2:
Occasionally*)

Categorie 3:
Seldom or briefly *)

**) Occurrance of explosive mixture*

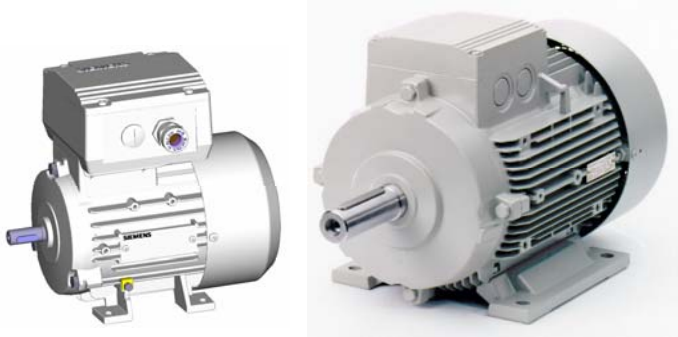
New Standards for Non-Sparking (Zone 2) & Dust Explosion protection (Zone 21, 22)

Non-sparking Design “EEx n and Ex n”

Standard Drives

For EN 50021:
CE (Ex) II 3G EEx nA II T3

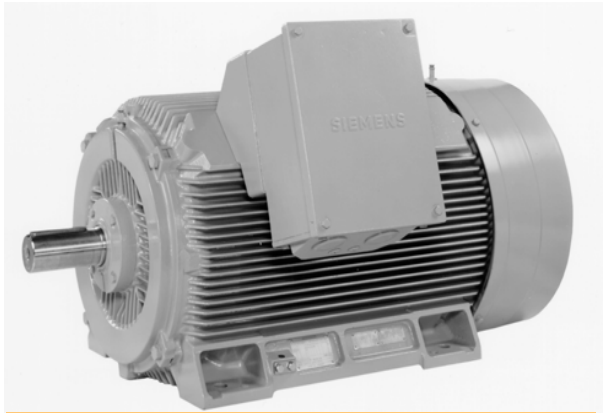
For IEC 60079-15:
CE (Ex) II 3G Ex nA II T3



1LA7, FS 63M to 160L (Al)

1LG4/6, FS 180M to 315L (CI)

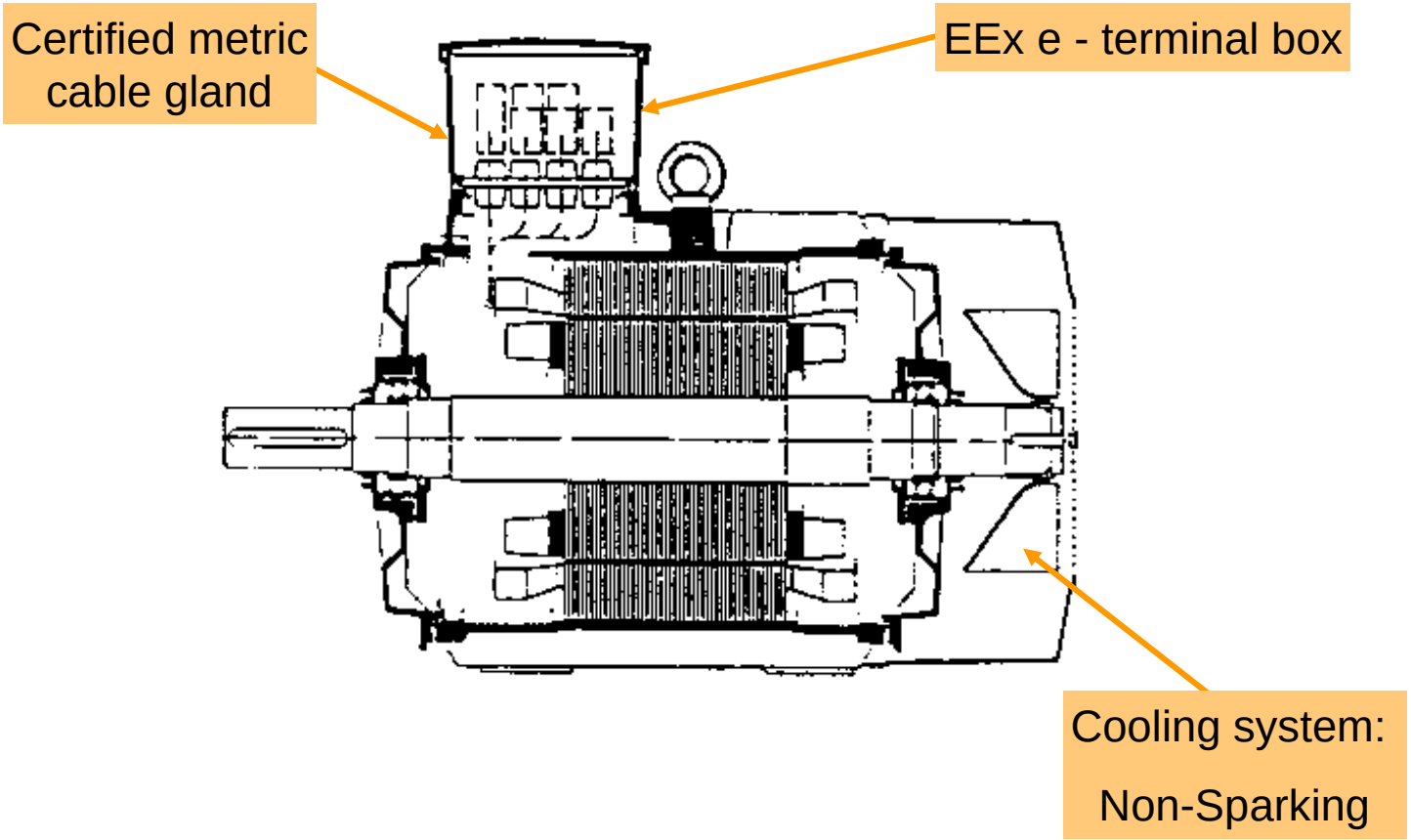
1LA6, FS 100L to 160L (CI)



1LA8, FS 315 to 450 (CI)

SIEMENS

Non-Sparking Design "EEx n and Ex n"



Frame and active parts of 1LA / 1LG motors

Non-sparking Design "EEx n and Ex n"

Principle: Prevention of sparks and inadmissibly high temperatures

Mechanical design:

Fans, fan shrouds, bearings and terminal boxes are designed according to DIN EN 50014 (IEC 60079-7)

- Limited "fan circumferential velocity" and low surface resistance for plastic fan shrouds
- Large air gap between rotating components
- Wide air and creepage distances in the terminal box
- - FS 63M tot 160L: 1 certified metric cable gland
  - FS 180M tot 315M: 2 certified metric cable glands

  will be supplied together with the motor

Electrical design:

- **The same output** as for the basic 1LA /1LG version

The ignition temperature may not be reached at any location inside the motor.
Sparks/sparking is NOT permissible

Non-Sparking "(E)Ex n"

Technical modifications to 1LA and 1LG motors

Basic modifications for versions used in Zone 2:

- EEx e terminal boxes
- The metric threads in the terminal box are closed using certified glands and gland caps/plugs.
- The following is included in the scope of supply for frame sizes
  - 56M to 160L: 1 certified metric gland
  - 180M to 315L: 2 certified metric glands
- External grounding stud
  (this is already standard for motors from frame size 180M)
- Metal fan cowl (this is already standard for 1LA-motors up to frame size 160L)
- Rating plate with information on the version (E)Ex n
- Option A11: 3 PTC thermistors for tripping (EWN: 130°C, FST: 155°C).
  Inverter-fed-operation: 3 PTC thermisters 130°C as standard.
  (a certified tripping device is required).