



Transforming energy
into solutions

Complete solutions for oil & gas industry



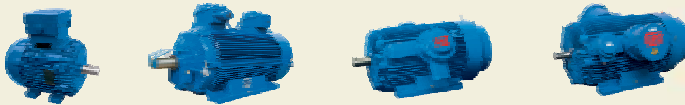
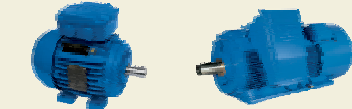
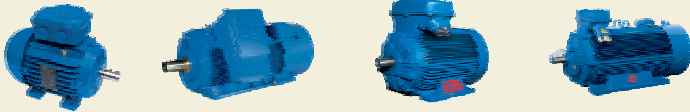






WEG range of hazardous area motors

EXPLOSION PROOF – EEx d EXPLOSION PROOF WITH INCREASED SAFETY TERMINAL BOX – EEx de	<p>LOW VOLTAGE MEET ATEX DIRECTIVE ALSO AVAILABLE PREMIUM EFFICIENCY LINE</p> <p>90 100 112 132 160 180 200 225 250 280 315 355</p>	<p>Certified by</p> <p>CESI</p>	<p>ATEX CLASSIFICATION Category 2G and 3G (gas); Groups IIA and IIB; T4 IEC CLASSIFICATION Zone 1 and 2; Groups IIA and IIB; T4</p> <p>Coming soon DIP Motors</p>
	<p>LOW & MEDIUM VOLTAGE MEET ATEX DIRECTIVE</p> <p>355 400 450</p>		
	<p>LOW VOLTAGE MEET ATEX DIRECTIVE</p> <p>90 100 112 132 160 180 200 225 250 280 315 355 400</p>		
	<p>MEDIUM VOLTAGE MEET ATEX DIRECTIVE</p> <p>315 355 400</p>		
INCREASED SAFETY – EEx e	<p>LOW VOLTAGE MEET ATEX DIRECTIVE W21</p> <p>63 71 80 90 100 112 132 160 180 200 225 250 280 315</p>	<p>CERTIFIED BY</p> <p>PTB</p> <p>Note: EEx e above 100 Horse to be certified by PTB</p>	<p>ATEX CLASSIFICATION Category 2G and 3G; Groups IIA, IIB and IIC; T4 IEC CLASSIFICATION Zone 1 and 2; Groups IIA, IIB and IIC; T4</p>
	<p>LOW & MEDIUM VOLTAGE MEET ATEX DIRECTIVE</p> <p>315 355 400 450 500 560 630</p>		
NON SPARKING – EEx nA	<p>NEW LOW VOLTAGE MEET ATEX DIRECTIVE W21</p> <p>63 71 80 90 100 112 132 160 180 200 225 250 280 315 355</p>	<p>Manufacture's Claim of Compliance</p>	<p>ATEX CLASSIFICATION Category 3G/D; Groups IIA, IIB and IIC; T3 (gas) / T125°C (dust) IEC CLASSIFICATION Zone 2 and 22; Groups IIA, IIB and IIC; T3 (gas) / T125°C (dust)</p>
	<p>LOW & MEDIUM VOLTAGE MEET ATEX DIRECTIVE</p> <p>315 355 400 450 500 560 630</p>		
	<p>LOW VOLTAGE MEET ATEX DIRECTIVE</p> <p>315 355 400 450 500</p>		
	<p>MEDIUM VOLTAGE MEET ATEX DIRECTIVE</p> <p>315 355 400 450 500</p>		
PRESSURIZATION – EEx p	<p>LOW, MEDIUM & HIGH VOLTAGE MEET ATEX DIRECTIVE</p> <p>315 355 400 450 500 560 630 710 800 900 1000</p>	<p>Available on request.</p>	<p>ATEX CLASSIFICATION Category 2G and 3G; Groups IIA, IIB and IIC IEC CLASSIFICATION Zone 1 and 2; Groups IIA, IIB and IIC</p>

Nameplate marking

Below you have an example of an EEx e nameplate marking:



WEG PRODUCTS				
	Designation	Objective	Standards	WEG Products
EEx d	Explosion Proof Motors	Keep an internal explosion not allowing to propagate to the external environment.	EN 50018 IEC 60079-1	
EEx de	Explosion Proof Motors with Increased Safety Terminal Box	Keep an internal explosion not allowing to propagate to the external environment, with special attention to the terminal box.		
EEx e	Increased Safety	Ensure non occurrence of arcs or sparks under normal operation or on starting.	EN 50019 IEC 60079-7	
EEx nA	Non Sparking	Ensure non occurrence of arcs or sparks under normal operation.	EN 50021 IEC 60079-15	
EEx p	Pressurization	To prevent forming or entrance of an explosive atmosphere inside the motor.	EN 50016 IEC 60079-2	
<div>Other certifications:</div> <div><div>SOUTH AFRICA</div><div>Standards Australia AUSTRALIA</div><div>BRAZIL</div><div>CANADA</div><div>USA</div></div>				

IEC CLASSIFICATION

The IEC Standard classifies the risk areas into ZONES and GROUPS. The ZONES are classified according to frequency and period of time that the explosive atmosphere is present. The division into GROUPS is based on the aggressiveness of the environment.

ZONE 0 - Gas		ZONE 1 - Gas		ZONE 2 - Gas		
Permanent Presence		Incidental Presence		Presence Only By Accident		
ZONE 20 - Dust		ZONE 21 - Dust		ZONE 22 - Dust		
GROUPS	T1 (450°C)	T2 (300°C)	T3 (200°C)	T4 (135°C)	T5 (100°C)	T6 (85°C)
I MINES	methane					
IIA OTHER THAN MINES	acetic acid	acetylacetone	bromobutane	acetaldehyde		
	acetone	acetyl chloride	butyldigol	benzaldehyde		
	allyl chloride	amyl acetate	butyraldehyde	diamyl ether		
	ammonia	butane	coal tar naphtha	dihexyl ether		
	aniline	butanol	cyclohexane	trimethylamine		
	benzene	butyl acetate	cyclohexylamine			
	benzyl chloride	butylamine	decahydronaphthalene			
	bromoethane	chloroethanol	ethyl mercaptan			
	butyl methyl ketone	cyclohexanol	hexane			
	chlorobenzene	cyclohexanone	heptane			
	chlorobutane	cyclohexene	kerosene			
	chloroethane	diaminoethane	methyl acetate			
	chloroethylene	dichloroethane	methylcyclohexane			
	chloromethane	dichloroethylene	methylcyclohexanol			
	chloropropane	diethylamine	naphtha			
	cresol	di-isobutylene	nonane			
	diacetone alcohol	dimethylamine	paraldehyde			
	dichlorobenzene	dimethylaniline	pentane			
	dichloropropane	ethanol	turpentine			
	ethane	ethylbenzene				
	ethyl acetate	ethyl formate				
IIB	ethyl methyl ketone	formdimethylamide				
	methane (industrial)	methylamine				
IIC	methanol	nitromethane				
	methyl acetate	pentanol				
	methyl formate	porpanol				
	naphthalene	propylamine				
	nitrobenzene					
	phenol					
	propane					
	propylene					
	propyl methyl ketone					
	pyridine					
	styrene					
	toluene					
	toluidine					
	trimethylbenzene					
	xylene					
	acrylonitrile	butadiene	ethoxyethanol	dibutyl ether	carbon disulphide	ethyl nitrate
	carbon monoxide	butene	hydrogen sulphide	diethyl ether		
	cyclopropane	dioxane	methoxyethanol	ethyl methyl ether		
		epoxypropane	tetrahydrofuran	isopropyl nitrate		
		ethylene				
		ethylene oxide				
		oxydeformaldehyde				
		nitroethane				
		nitropropane				
		paraformaldehyde				
		trioxane				
	Blue water gas					
	hydrogen					

ATEX DIRECTIVE 94/9/EC

ATMOSPHERE EXPLOSIVES

ATEX DIRECTIVE

ATEX Directive 94/9/EC from June 30, 2003.

DEFINING

Categorize equipment to classified areas. Essential safety requirements based on categorization. Certify equipment design, manufacturing and sales.

SCOPE

Consider electrical and non electrical equipment, also dust-Ex hazardous areas, protective systems and components

ATEX CLASSIFICATION

ATEX Directive 94/9/EC classifies the equipment to operate on explosive atmospheres into GROUPS and CATEGORIES, following the same classification bases used by CENELEC.

GROUP I (Mines)

Categories

M1- Equipment remains with an explosive atmosphere present

M2 - Equipment to be de-energized in the event of an explosive atmosphere

GROUP II (Surface Industries)

Categories Zone

Equipment with a very high level of protection

Equipment with a high level of protection

Equipment with a normal level of protection

1G (gas) 1D (dust) 2G (gas) 2D (dust) 3G (gas) 3D (dust)

0 (gas) 20 (dust) 1 (gas) 21 (dust) 2 (gas) 22 (dust)

TEMPERATURE CLASSIFICATION

The minimum temperature causing an explosion of gas, vapour or explosive mixture is called ignition temperature. To avoid any risk of explosion, motor surface temperature must always stay below the ignition temperature of the explosive mixture.

The internal and external temperature of the electrical equipment must be strictly followed to avoid ignition of an explosive mixture. So the equipment is classified into classes of temperature, according below:

Maximum Surface Temperature (°C)	Temperature Classification
450	T1
300	T2
200	T3
135	T4
100	T5
85	T6



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