



FOR EUROPE



LCIE



FOR INTERNATIONAL

# SIMULTANEOUS APPROVALS

Providing access to ATEX and IECEx global markets

Single set of tests and assessment  
Electrical and mechanical standards are technically identical  
Requirements for manufacturers' quality assurance are identical

## PROTECTION CONCEPTS

GAS ATMOSPHERES							
Installation	ATEX category	IEC Protection Level	Mode of Protection	IEC / EN Standards	EN Standards	ISO / IEC Standards	Protection concept
ZONE 0	II 1G	EPLGa	op is / op sh	40079-10			Zones classification
				40079-0			General requirements
				40079-1			Flameproof enclosure
				40079-11			Intrinsic safety
				40079-18			Encapsulation
				40079-25			Intrinsically safe system
				40079-26			Equipment protection level EPL Ga
				40079-27			FISCO and FNICO
				80079-34	80079-34		Quality system for elec. and non elec. equipment
				13463-1	80079-36		Non electrical equipment, General requirements
ZONE 1	II 2G	EPLGb	op is / op sh / pp pr	40079-0			General requirements
				40079-1			Flameproof enclosure
				40079-2			Pressurised enclosure
				40079-2			Pressurised enclosure
				40079-4			Powder filled
				40079-4			Oil immersion
				40079-7			Increased safety
				40079-11			Intrinsic safety
				40079-13			Pressurised room
				40079-18			Encapsulation
ZONE 2	II 3G	EPLGc	op is / op sh / pp pr	40079-0			General requirements
				40079-1			Flameproof enclosure
				40079-2			Pressurisation
				40079-11			Intrinsic safety
				40079-15			Non sparking
				40079-15			Protected sparking
				40079-15			Energy limited
				40079-15			Restricted breathing
				40079-18			Encapsulation
				40079-25			Intrinsically safe system
ZONE 0	II 0G, II 2G, II 3G	EPL Ga, Gb, Gc	k	40079-34	80079-34	80079-34	Quality system for elec. and non elec. equipment
				13463-1	80079-36	80079-36*	Non electrical equipment, General requirements
				13463-2	80079-37	80079-37	Non electrical equipment, Constructional safety
				13463-5	80079-37*	80079-37*	Non electrical equipment, Control of ignition
				13463-6	80079-37	80079-37	Non electrical equipment, Liquid immersion
				13463-8	80079-37	80079-37	Non electrical equipment, Liquid immersion
				40079-14			Installation
				40079-17			Inspection and maintenance
				80079-19			Repair, overhaul and reclamation

ISO/IEC standards will supersede the EN standards. 80079-36\* and 37\* will be published in 2013

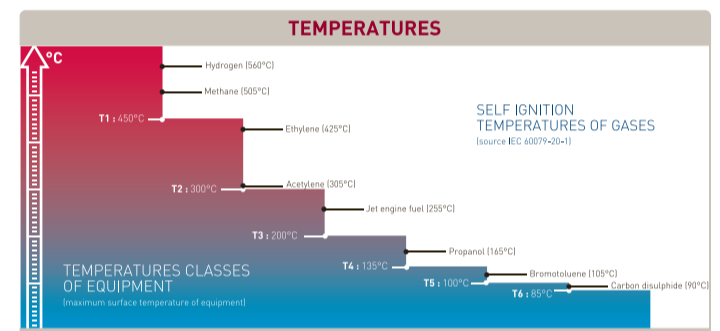
DUST ATMOSPHERES							
Installation	ATEX category	IEC Protection Level	Mode of Protection	IEC / EN Standards	EN Standards	ISO / IEC Standards	Protection concept
ZONE 20	II 1D	EPLDa	id	61241-0			Zones classification
				40079-0			General requirements
				40079-11			Intrinsic safety
				40079-18			Encapsulation
				40079-25			Intrinsically safe system
				40079-31			Protection by enclosure
				61241-0			General requirements
				61241-1			Intrinsic safety
				80079-34	80079-34		Quality system for elec. and non elec. equipment
				13463-1	80079-36*		Non electrical equipment, General requirements
ZONE 21	II 2D	EPLDb	ib	60079-0			General requirements
				40079-11			Intrinsic safety
				40079-13			Pressurised room
				40079-18			Encapsulation
				40079-25			Intrinsically safe system
				40079-31			Protection by enclosure
				61241-0			General requirements
				61241-1			Intrinsic safety
				80079-34	80079-34		Quality system for elec. and non elec. equipment
				13463-1	80079-36*		Non electrical equipment, General requirements
ZONE 22	II 3D	EPLDc	icD	60079-0			General requirements
				40079-11			Intrinsic safety
				40079-13			Pressurised room
				40079-18			Encapsulation
				40079-25			Intrinsically safe system
				40079-31			Protection by enclosure
				61241-0			General requirements
				61241-1			Intrinsic safety
				80079-34	80079-34		Quality system for elec. and non elec. equipment
				13463-1	80079-36*		Non electrical equipment, General requirements
ZONE 21	II 1D, II 2D, II 3D	EPL Da, Db, Dc	k	40079-14			Installation
				40079-17			Inspection and maintenance
				80079-19			Repair, overhaul and reclamation

80079-36\* and 37\* will be published in 2013

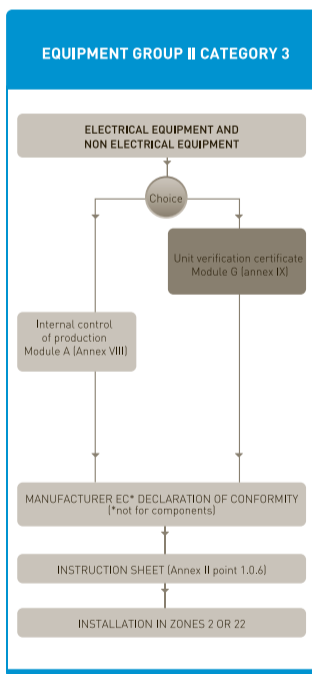
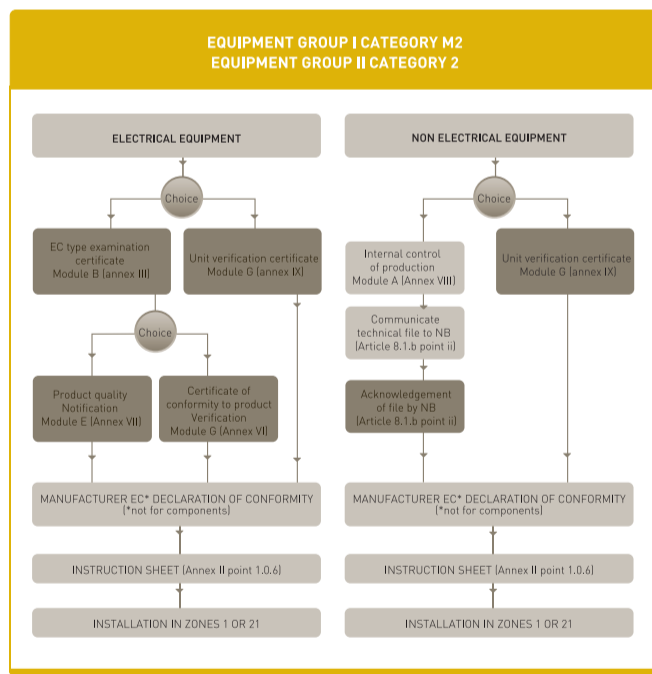
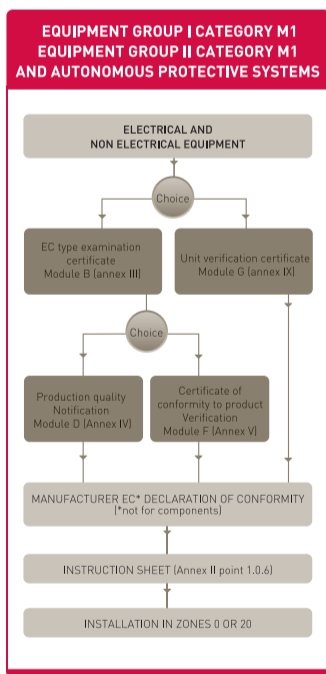
## EXPLOSIVE ATMOSPHERES

GAS GROUPS		DUST GROUPS	
I	: Methane*	IIA	: Combustible flyings
IIA	: Propane*	IIIB	: Non conductive dust
IIB	: Ethylene*	IIIC	: Conductive dust
IIIC	: Hydrogen*		

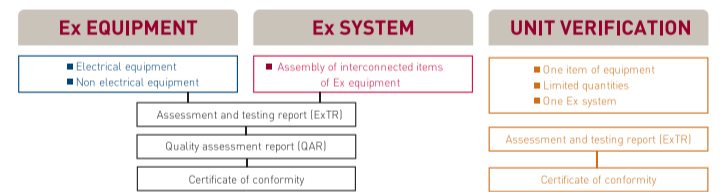
EQUIPMENT			
ATEX CATEGORY	IEC PROTECTION LEVEL (EPL)	ZONE OF INSTALLATION	ATMOSPHERE
1G	Ga	0	GAS
2G	Gb	1	
3G	Gc	2	
1D	Da	20	DUST
2D	Db	21	
3D	Dc	22	
M1	Ma	MINING	COAL DUST METHANE
M2	Mb		



## ATEX CERTIFICATION PROCEDURES



## IECEX CERTIFICATION SYSTEM

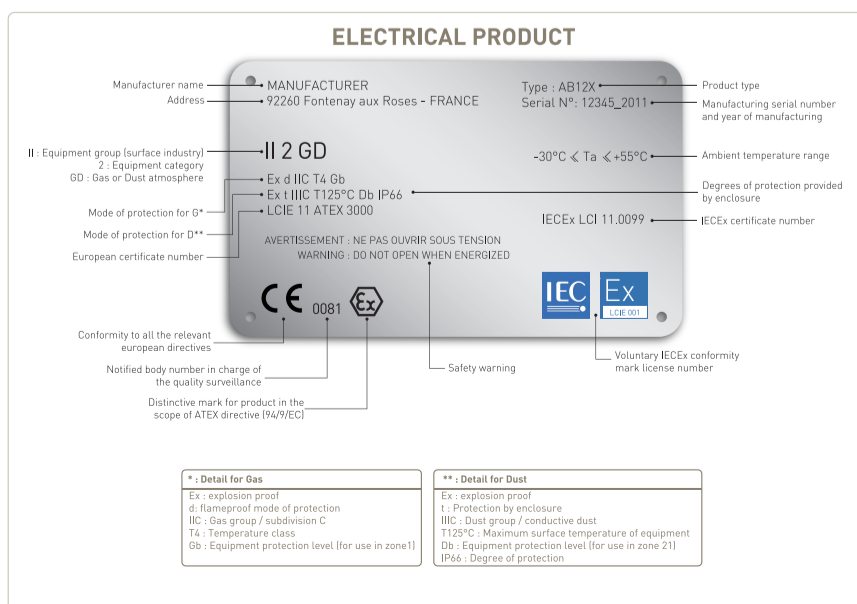


## GENERAL INFORMATION

ZONES / DIVISIONS CLASSIFICATION					
Country	Explosive atmosphere	Reference	Continuously present	Often present	Accidentally present
USA	GAS/DUST	NEC 500	Division 1		Division 2
	GAS	NEC 505	Class I - Zone 0	Class I - Zone 1	Class I - Zone 2
	DUST	NEC 506	Zone 20	Zone 21	Zone 22
Europe / International	GAS	EN/IEC 40079-10	Zone 0	Zone 1	Zone 2
	DUST	EN/IEC 40079-10	Zone 20	Zone 21	Zone 22

COMPARISON IEC / CENELEC AND NEC					
GAS VAPOR	Class	Division	NEC 500		IEC / EUROPE
			Group	Representative substances	
I	1-2	A	A	Acetylene	0-1-2
			B	Hydrogen	
			C	Cyclopropane, Ethyl ether, Ethylene	
			D	Acetone, Benzene, Butane, Propane, Hexane, Paint solvent, Natural gas	
			E	Magnesium, Aluminium, Conductive dust with R<410 <sup>3</sup> Ohm/cm	
DUST	1	F	F	Coal	20-21-22
			G	Flour, Conductive dust with R<310 <sup>3</sup> Ohm/cm	20-21-22
			H	Carbon black	20-21-22
FIBER FLYINGS*	1-2	I	I	Cotton, Linen, Wood, Hemp	20-21-22
			IIA		

## PRODUCT MARKING



**NON ELECTRICAL PRODUCT**

MANUFACTURER 92260 Fontenay aux Roses - FRANCE  
Type: MEC.5  
Serial N°: 27421\_2011

IIIG cT5 LCIE 11 ATEX 3000X

CE 0081 Ex

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ATEX SAFETY DEVICES		
Zone of use of the EUC	Safety device ensuring the safety alone. Safety is ensured even if one fault occurs on the EUC.	Additional Safety device. Safety is ensured even if two faults occur on the EUC.
Zone 0	HFT = 1 and SIL 2	HFT = 0 and SIL 1
Zone 1	HFT = 0 and SIL 1	No requirement
Zone 2	No requirement	No requirement

**LCIE BUREAU VERITAS SERVICES**

**CERTIFICATION SERVICES**

- Product certification
- Audits
- Testing
- Technical consultancy
- Storage of technical documentation
- SIL (Safety Integrity Level)

**ACCESS TO LOCAL NATIONAL CERTIFICATION**

Country	Documentation	Local LCIE partner
China	Chinese explosion proof certificate	PEC-COSET
Korea	Korean national certificate	NEPSI/SIPAI
Brazil	BIMETRO certificate	BV Brazil
Russia	GOST certificate + RTN	NANIO COVE

**TRAINING**  
Standard and customized training : **FORMATX**

**INSPECTION OF INSTALLATIONS**  
Gap analysis program : **ECARATEX**

**QUALIFICATION OF REPAIR SHOPS**  
Scheme for motors : **REPARATEX**

**QUALIFICATION OF PERSONNEL**  
4 levels program : **QUALIFATEX**