ExNB	Co-ordination of Notified Bodies Equipment for use in potentially explosive atmospheres on Council Directive 94/9/EC (ATEX)	Clarification Sheet N° ExNB/10/388/CS

Originator		**Status:**	Initial proposal	**Date:**	2010-11-12
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Significant changes between European Standards and the previous editions

Authorised by Chairman:	**Dr. Thedens**	**Date:**	**2011-05-20**
Date of application:	**2011-05-20**	**Signature:**	M. Thedens

Hereafter the reader will find the list of changes between each already published standard and their previous edition. Each change is classified as:

- Minor and editorial changes,
- extension or
- major technical changes

Contents

1 Definitions

The definitions of these terms are given by the following:

a) Minor and editorial changes clarification
decrease of technical requirements
minor technical change
editorial corrections

Changes in a standard classified as ‘Minor and editorial changes’ refer to changes regarding the previous standard, which modify requirements in an editorial or a minor technical way. Also changes of the wording to clarify technical requirements without any technical change are classified as ‘Minor and editorial changes’.
A reduction in level of existing requirement is also classified as ‘Minor and editorial changes’

b) Extension addition of technical options

Changes in a standard classified as ‘extension’ refers to changes regarding the previous standard, which add new or modify existing technical requirements, in a way that new options are given, but without increasing requirements for equipment that was fully compliant with the previous standard. Therefore these ‘extensions’ will not have to be considered for products in conformity with the preceding edition.

c) Major technical changes addition of technical requirements
increase of technical requirements

Changes in a standard classified as 'Major technical changes' refer to changes regarding the previous standard, which add new or increase the level of existing technical requirements, in a way that a product in conformity with the preceding standard will not always be able to fulfil the requirements given in the standard. 'Major technical changes' have to be considered for products in conformity with the preceding edition.

Note: These changes represent current technological knowledge[1]. However, these changes should not normally have an influence on equipment already placed on the market.

2 General Requirements

2.1 EN50014:1997+A1+A2 (dow 1.10.2008) vs EN60079-0:2006.

EN60079-0:2006	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
5.1.2 External source of heating or cooling		X	
5.2 Re-definition of service temperature, affecting the temperature of the environmental exposure test for some equipment		X	
5.5 Importation of "Small Component" requirements from Ex i, to apply to all relevant concepts		X	
6.1 General requirement for electrical equipment	X		
6.2 Mechanical strength of apparatus	X		
6.3 Opening times - value of residual energy of capacitor defined	X		
6.4 Circulating currents in enclosures – requirement to provide protection (imported from ENV 50269)			X
6.5 Gasket retention			X
6.Z1 Introduction of ATEX requirements for consideration of operating faults	X		
6.Z2 Introduction of ATEX requirements for consideration of overloads	X		
7.1.3 Acceptance of RTI as an alternative to TI		X	
7.3.2 Avoidance of build-up of electrostatic discharge for fixed equipment		X	

[1] see also ATEX Guide 10.3 and Annex ZZ

EN60079-0:2006	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
7.3.2 Avoidance of build-up of electrostatic discharge for non fixed equipment			X
8.1 Material composition	X		
12 Materials used for cementing regarding the lowest service temperature			X
15.2 Connection facilities for earthing or bonding conductors - External		X	
15.6 Connection facilities for earthing or bonding conductors - Secureness		X	
16.2 Identification of entries	X		
17.6 Equipotential bonding conductors			X
21.2 Covers for luminaries	X		
23 Apparatus incorporating cells and batteries		X	
26.4 Tests of enclosures – Order of test	X		
26.12 Earth continuity			**X**
26.14 - Charging tests		X	
29 Change of Marking from “EEx” to “Ex”	X		
29.8 Additional marking “WARNING”	X		
29.9 Marking - Cells and batteries		X	
30 Instructions	X		

2.2 <u>EN60079-0:2006 (dow 1.06.2012) vs EN60079-0:2009.</u>

EN60079-0:2009	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
1 Requirements for explosive dust atmospheres transferred from IEC 61241-0.	X		

EN60079-0:2009	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
4.2 The marking Group “II” alone has been replaced by “IIA”, “IIB”, or “IIC” as many of the enclosure requirements are now aligned with a specific sub-group.	X		
4.3 Dust groups defined as Group IIIA, IIIB and IIIC.	X		
6.6 Limits for ultrasonic and electromagnetic radiation introduced.		X	
7.4.2 Remainder of “electrostatic” requirements transferred from IEC 60079-26.	X		
Ann D. Equipment protection levels (EPL) introduced.	X		

3 Equipment protection by flameproof Enclosure ‘d’

3.1 EN50018:1997 (dow 1.7.2007) vs EN60079-1:2004.

EN60079-1:2004	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
5.1 Requirements for used grease added	X		
5.1 Limitation of the thickness of galvanic protection		X	
5.2.2 Requirement for “X” condition if designed gap is less than the Table value, in order to provide information for safe repair			X
5.2.7 Flanged joints for IIC possible without volume limitation		X	
5.2.8 Serrated joints added		X	
5.3 Limitation of conical threads to NPT threads only			X[2]
10.9 Requirements for breathing and		X	

[2] Nevertheless, the UNI6125 and ISO 7-R are acceptable

EN60079-1:2004	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
draining devices certified as Ex-components added			
11.1 Requirement for Fasteners for Group I to be shrouded or protected by a counterbore		X	
13 Marking of the threads of entries	X		
13.2 Conduit entries (stopping boxes)		X	
14 - Verification and tests - Test voltage Un + or - 10 % for motors or marking			X
15.1.2 - Determination of explosion pressure - New option for ambient temperatures lower than -20 °C			X
15.1.3 - Overpressure test- New option for ambient temperatures lower than -20 °C			X
15.2 Test for non-transmission of an internal ignition Limitation of flamepaths lengths at 115% Increase of interstice for Tamb > 60°C			X X
16.1 Routine overpressure test for ambient lower than -20°C		X	
19.1 Limitation for flameproof enclosures deleted		X	
C.2 Cable Entries - Constructional requirements		X	
C 3.3 Overpressure test added for blanking plugs			X
C 3.4 Overpressure test added for adaptors			X
D Empty flameproof enclosures Group IIC as Ex components			X
References to EN 50014 must be checked in line with EN 60079-0 and modifications if required observed			

3.2 EN60079-1:2004 (dow 1.7.2010) vs EN60079-1:2007

EN60079-1:2007	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
5.1 X-marking and specific information required if gap is not in line with table			X
5.3 Only NPT-threads can be used for conical thread for flamepaths			X
10.9.3 Volume restrictions and test conditions associated with breathing and draining devices	X		
12.7 Material restrictions associated with zinc and zinc alloys			X
13 Max. quantity and size of entries must be shown	X		
14 ‚End of life' effect for electronic ballasts			X
15.1.2 Testing requirements for temperatures lower -20 °C		X	
15.2 Minimum distance of obstructions from flange openings			X
19.3.1.3 Test of erosion by flame			X
19.3.2 - Flammability		X	

4 Equipment protection by pressurized enclosures “p"

4.1 EN50016:1997 vs EN60079-2:2004.

EN60079-2:2004	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
Introduction of the “Equipment protection level concept” See Annex H	X		
3.13 Eliminate reference to “room” in the definition of pressurisation	X		
5.3.3 Restrict to px	X		
5.3.3 Add warning for type pz and type py for any cover removable without the use of a tool	X		
7.6 Move wording” For type px” to beginning of subclause to clarify 7.6 only applies to type px	X		
7.7 c) Clarify marking requirements throughout the document in the “Marking” clause	X		
16.8 Verifying ability of the pressurized enclosure to limit internal pressure			X

4.2 EN60079-2:2004 (dow 1.11.2010) vs EN60079-2:2007.

EN60079-2:2007	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
3. Introduction px, py and pz	X		

5 Equipment protection by powder filling "q"

5.1 EN50017:1998 (dow 1.11.2010) vs EN60079-5:2007.

EN60079-5:2007	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
4.1 Mechanical stability		X	

EN60079-5:2007	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
4.1.1.2 Opening for repair purposes		X	
4.5 Requirements for field wiring fixed		X	
4.7 Requirements for cells and batteries		X	
4.9 Protection by fuse		X	
Table 6 values modified		X	
5.1.1 Test time modified		X	
5.1.4 Burning test	X		
6 Marking	X		
7 Instruction	X		
References to EN 50014 must be checked in line with EN 60079-0 and modifications if required observed			

6 Equipment protection by oil-immersion "o"

6.1 EN50015:1998 (dow 1.11.2010) vs EN60079-6:2007.

EN60079-6:2007	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
4.1 All equipments used under oil must be in line with ”n” or “i”			X
4.13 Connections		X	
6. Marking	X		
7. Instructions	X		
References to EN 50014 must be checked in line with EN 60079-0 and modifications if required observed			

7 Equipment protection by increased safety "e"

7.1 EN50019:1997 (dow 1.7.2006) vs EN60079-7:2003.

EN60079-7:2003	Type

Significant Changes	Minor and editorial changes	Extension	Major technical changes
4.2 Clamping of min cross section		X	
4.3 Isolation properties test acc 6.9 required		X	
4.4 Clearances	X		
4.7.1.1 Only one layer may be an enamel	X		
4.7.1.2 Enamelled round winding wires shall be in accordance with different Grade defined EN 60317 series		X	
5.2.4.3 The rotor construction shall be assessed for possible air gap sparking. (imported from ENV 50269)			X
5.2.4.6 - Motors supplied at varying frequency and voltage by a converter shall be tested and	X		
5.2.5 Winding requirements		X	
5.2.6 Equipotential bonding conductors for rotating machines with multi-section. Enclosures (also at 6.4 of 60079-0, imported from ENV 50269)		X	
5.2.7 6 Shaft seals		X	
5.2.8 6 Stator winding terminals		X	
5.2.9 Assessment and representative testing of high-voltage machines			X
5.3.1 Lamps modified (MTBF lamps deleted)	X		
5.7 Battery section new structured and requirements modified Capacity > 25 Ah, capacity < 25Ah Charging in hazardous area only possible for cap < 25Ah			X
5.9 Trace heating deleted (now covered by EN 62086-1)		X	
6.1 Isolation properties (testing with DC added)		X	
6.2.3 Additional tests for high-voltage rotating machines (imported from ENV 50269)			X

EN60079-7:2003	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
6.3.3 Additional assessment of lamps pins and their arrangement		X	
6.5 Transformers	X		
6.7 Connection and junction boxes - the conductors shall be arranged in groups of six with a length outside the box of at least 0,5 m.		X	
6.8 Resistance heating devices – new test to determine the cold start current		X	
6.9 Test of a terminal assembled and subjected to thermal endurance then installation of a copper driver and tensile test.			X
8. Marking requirements and documents for batteries increased	X		
Annex B Type test requirements for heating devices added		X	
References to EN 50014 must be checked in line with EN 60079-0 and modifications if required observed			

7.2 <u>EN60079-7:2003 (dow 1.10.2009) vs EN60079-7:2007</u>

EN60079-7:2007	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
4.2.1 Opening of screwless terminals	X		
4.2.2.2 Temperature test	X		
4.2.2.4 Fixing of cables	X		
4.2.3.4 Plug in connector		X	
4.2.3.5 Connections		X	
4.7 If electrical machine is designed and tested for voltage range A „X“ marking is required		X	

EN60079-7:2007	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
5.2.4.3 Limited starting current „X“ marking		X	
5.2.5 min distance 3	X		
5.2.7 Type test isolations system for > 1kV, heating, additional measures			X
5.2.8.1 min distances rotating parts		X	
5.2.8.2 Sealing			X
5.3.7.3 / Annex H: End of the Lamp Life			X
9.1 Dividing in marking IIA, IIB and IIC		X	
9.3 Warnings	X		

8 Equipment protection by intrinsic safety "i"

8.1 EN50020:2002 (dow 1.10.2009) vs EN60079-11:2007.

EN60079-11:2007	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
5.4 Introduction of the level of protection “ic”		X	
6.1.2 Apparatus complying with Annex F		X	
10.1.5.2 Circuits with both inductance and capacitance			X
12.3 New warning markings	X		
Annex F: New option for creepage and clearances		X	
References to EN 50014 must be checked in line with EN 60079-0 and modifications if required observed			

9 Equipment protection by type of protection "n"

9.1 EN50021:1999 (dow 1.7.2006) vs EN60079-15:2005.

EN60079-15:2005	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
Table 1 Total change to become dependent on 60079-0 for many requirements			
6.2 Reference to 60079-0 for impact levels, effectively doubling all values			X
6.6 electric strength (DC measurement)		X	
7 Non-metallic enclosures test of EN60079-0 apply		X	
12 Materials used for cementing		X	
14.2.3 KLE	X		
14.3 Internal connection facilities		X	
20 Non sparking sockets		X	
21.1 Lamp holder (vibration test)	X		
21.2.5.3 Electronic starters and igniters		X	
21.2.5.5 Ballasts		X	
23 Low power apparatus		X	
26 Type of protection “nP” deleted	X		
29.7 Encapsulation		X	
33.3.2.1 Doubling of environmental exposure from two weeks to four weeks for non-metallic enclosures			X
33.3.3 Reference to 60079-0 for impact levels, effectively doubling all values			X
33.8 Test for screw lamp holders		X	
33.14 Importation of tests for large motors from ENV 50 269			X
35 Marking	X		

9.2 EN60079-15:2005 (dow 1.5.2013) vs EN60079-15:2010.

EN60079-15:2005	Type

Significant Changes	Minor and editorial changes	Extension	Major technical changes
Introduction of the Equipment Protection Levels (EPL)		X	
Introduction of undated references to IEC 60079-0	X		
Removal of the requirements for energy-limited “nL” and associated energy limited apparatus “[nL]”	X		
Removal of the requirements for encapsulated Devices “nC”	X		
Clarification and extension of the requirements for electrical connections		X	
Clarification and extension of the requirements for luminaire ballasts		X	
Clarification of the requirements for evaluation and testing of motor rotors	X		
Addition of the 15 kV limit for equipment protection by type of protection "n"		X	
Modification of the spacing requirement for voltages above 10 kV		X	
Modification of the requirements for restricted breathing enclosures		X	
Modification to requirements for motor rotors and stators		X	
Addition of Annex A (informative): Considerations relating to the implementation, the installation and with tests of the asynchronous machines Ex “nA”	X		

10 Equipment protection by encapsulation "m"

10.1 EN50028:1987 vs EN60079-18:2004.

EN60079-18:2004		Type		
Significant Changes		Minor and editorial changes	Extension	Major technical changes
4.3	Introduction of level of protection ‘ma’		X	
5.2	Requirement for TI or RTI information for compounds		X	
7.4.6	Requirements for rigid multi-layer circuit boards		X	
7.9.2.1	Reduction in assumed fusing capacity from 4000A to 1500A	X		
8.2.6	Pressure test for voids above a certain size		X	

9.2	Dielectric strength test of the batteries in accordance with 60079-7		X	

10.2 EN60079-18:2004 & EN61241-18 (dow 1.10.2012) vs EN60079-18:2009.

EN60079-18:2009		Type		
Significant Changes		Minor and editorial changes	Extension	Major technical changes
1.	Introduction of the dust requirements		X	
4.1	Introduction of level of protection « mc »		X	
4.1	Introduction of protection levels (EPL Ma, Ga, Da, Mb, Gb, Db, Gc, Dc)		X	
7.5	Incorporation of switching contacts for level of protection “ma”		X	

11Equipment dust ignition protection by enclosures “tD

11.1 EN50281-1-1:1998 (dow 1.10.2008) vs EN61241-0:2006.and EN 61241-1:2004

EN61241-0:2006.and EN 61241-1:2004		Type		
Significant Changes		Minor and editorial changes	Extension	Major technical changes
Additional requirements throughout for Category 3 products, particularly in respect of testing of non-metallic materials				X
4.2	New Principles for design and testing of apparatus for use in Zone 20		X	
5.2	Maximum surface temperature with respect to dust layers above 50 mm		X	
6.1.5	Electrostatic charges		X	
6.2.1	Enclosures containing light metals composition		X	
12.1	“X” marking for a equipment built with an interdependent permanently cable which do not have terminal	X		
22	New requirement for apparatus incorporating cells and batteries		X	
2	New type of protection marking	X		

11.2 EN 61241-1:2004 (dow 1.10.2012) vs EN60079-31:2009

EN60079-31:2009	Type		
Significant Changes	Minor and editorial changes	Extension	Major technical changes
title changed to Equipment dust ignition protection by enclosure "t"	X		
combination and rationalisation of practice A and B into a single practice, and some constructional requirements that may have applied to only one practice now apply to all enclosures		X	
introduction of three levels of protection, “ta”, “tb” and “tc”		X	
defined test voltage ranges and overload conditions for thermal tests		X	
introduction of a pressure test prior to the IP test		X	
restrictions on power and voltage levels for level of protection “ta”		X	
introduction of a variant of the IP6X test for level of protection “ta”		X	
compulsory dust layer thermal test for protection level “ta” by surrounding the enclosure with dust to a depth of at least 500 mm on all available surfaces		X	