Enclosed switches ATEX

2CMC300001D0003 November 2007

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Products for use in explosive atmospheres – ATEX

ABB offers switches for use within dust explosive atmospheres, Category 3 for use in Zone 22. Here is a simple guide to ATEX, its meaning and how to choose the right products for your application.

ATEX = "**AT**mosphere **EX**plosive"

What is ATEX ?

ATEX is a European Directive (94/9/EC) valid for products to be used within an explosive atmosphere. The ATEX directive has been in force throughout the European Union since 1 July 2003, replacing the existing different national and European legislation relating to explosive atmospheres.

Why ATEX ?

An ambience with the potential to become an explosive atmosphere during operating conditions and/or under the influence of the environment is defined as a potentially explosive atmosphere. Products covered by directive 94/9/EC are defined as intended for use in potentially explosive atmospheres.

Directive 94/9/EC defines an explosive atmosphere as a mixture of:

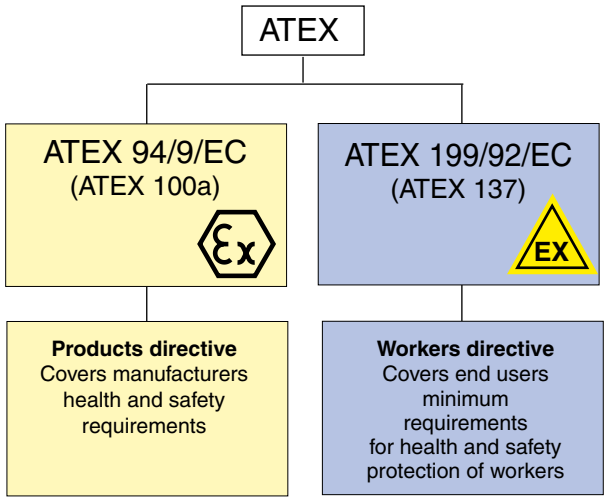
a) flammable substances gases, vapors, mists or dusts
b) with air
c) under specific atmospheric conditions
d) in which, after ignition has occurred, combustion spreads to the flammable mixture

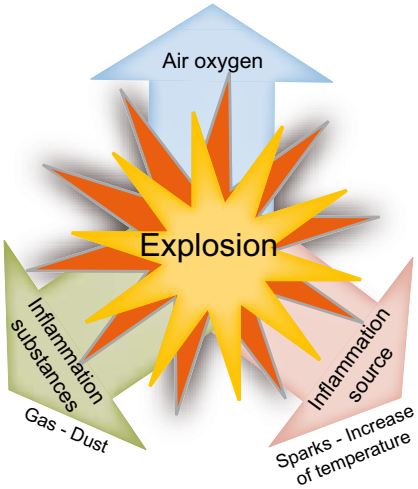
Harmonised European ATEX standard

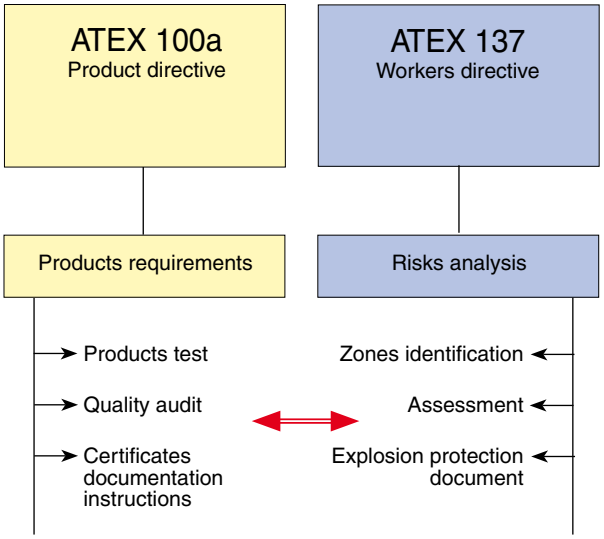
The European Union has adopted two harmonized directives in the field of health and safety. The directives are known as ATEX 100a and ATEX 137.

Directive ATEX 100a (94/9/EC) lays down minimum safety requirements for products intended for use in potentially explosive atmospheres in European Union member states.

Directive ATEX 137 (99/92/EC) defines minimum requirements for health and safety at the workplace, for working conditions and for the handling of products and materials in potentially explosive atmospheres This directive divides the workplace into zones and defines criteria by which products are categorized within these zones.





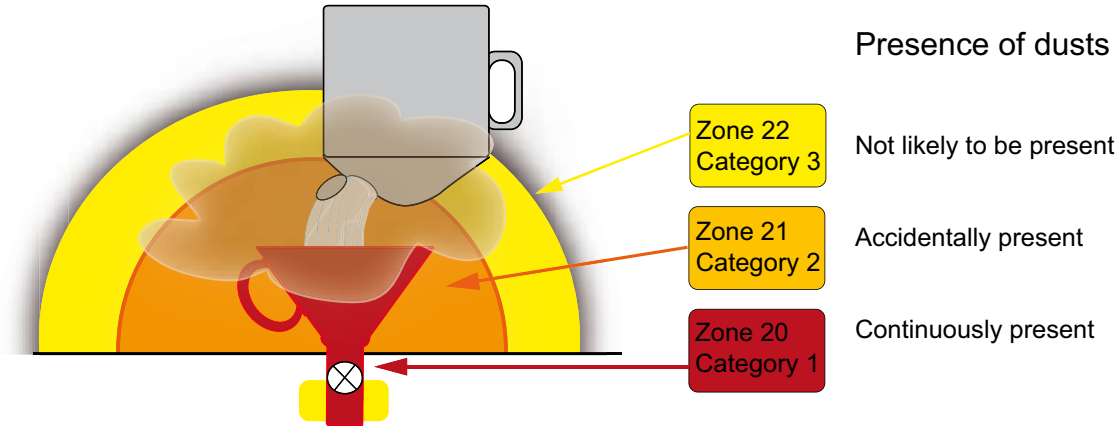


Levels of protection for the various equipment categories

Level of protection	Category		Performance of protection	Conditions of operation
	Group I	Group II		
Very High	M1		Two independent means of protection or safe even when two faults occur independently of each other.	Equipment remains energized and functioning when explosive atmosphere present.
Very high		1	Two independent means of protection or safe even when two faults occur independently of each other.	Equipment remains energized and functioning in Zones 0, 1, 2 (G) and/or 20, 21, 22 (D).
High	M2		Suitable for normal operation and severe operating conditions. If applicable also suitable for frequently occurring disturbances or for faults which are normally taken into account.	Equipment de-energized when explosive atmosphere is recognised.
High		2	Suitable for normal operation and frequently occurring disturbances or equipment where faults are normally taken into account.	Equipment remains energized and functioning in zones 1, 2 (G) and/or 21 22 (D)
Normal		3	Suitable for normal operation.	Equipment remains energized and functioning in Zone 2 (G) and/or 22 (D).

Group I
Equipment intended for use in underground parts of mines as well as those parts of surface installations of such mines likely to be endangered by flammable vapors and/or flammable dusts.

Group II
Equipment intended for use in other places exposed to explosive atmospheres.



The table describes the zones in an installation where there is a potential for explosive atmospheres. The owner of the installation must analyze and assess the area in which the explosive gas/dust mixture may occur, and if necessary must divide it into zones. This process of zoning then allows the correct plant and equipment to be selected for use in the area. The various equipment categories must be capable of operating in accordance with the manufacturer's operating specifications at defined levels of protection.

Zones Gas G	Zones Dust D	Presence of potentially explosive atmosphere	Type of risk
0	20	Present continuously or long periods	Permanent
1	21	Likely to occur in normal occasionally	Potential
2	22	Not likely to occur in normal operation	Minimal

Selection of category of Ex-equipment for use in zone according to the ATEX-directive

G (Gas)	1	0, 1, 2
	2	1, 2
	3	2
D (Dust)	1	20, 21, 22
	2	21, 22
	3	22

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Declaration of conformity

The declaration is only valid in conjunction with the instructions contained in the installation manual relating to the safe use of the product throughout its service life.
The certificate is invalidated if the instructions are found not to have been adhered to during operation of the product.


ABB

Declaration of ATEX Compliance

Declaration of ATEX Compliance

A declaration of ATEX compliance is available at
www.abb.com

Example of product label

Meaning of ATEX information of the label

	States that the product fulfils the ATEX directive
II	Equipment group (II = remaining risk areas)
3 D	Equipment category (can be used in zone 22)
T 65°C	Max surface temperature
X	Conditions for installation and use, see instruction sheet

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2CMC341011F0037

BWS 325ExD

Thermoplastic (PBT)

Cable entries:	Metric threaded when EX II 3D degree of protection is required EX II 3D glands must be used. Glands not included	
Lockable:	Yes	
Degree of protection:	IP 65, EX II 3D	
Auxiliary contacts:	Included	
Neutral terminal:	Included	
Colors:	Enclosure:	Grey
	Handle:	Black
Max surface temp.:	T 75˚ C	

Poles	I_e A AC 23A 400/500/690 V			Cable entries M	Terminals mm²	Type	Order Code	Pack. qty	Weight kg/ea
3	25	25	16	2+2/M25	10	BWS 325ExD	2CMA142105R1000	1	0.40

- Extra auxiliary contacts to be ordered separately.

Dimension mm			
Type	**H**	**W**	**D**
BWS 325ExD	120	103	58

2CMC341011F0039

LBAS 325ExD

2CMC341011F0040

LBAS 336ExD

Aluminum alloy

Cable entries:	Metric threaded when EX II 3D degree of protection is required EX II 3D glands must be used. Glands not included.	
Lockable:	Yes	
Degree of protection:	IP 65, EX II 3D	
Auxiliary contacts:	Not included	
Neutral terminal:	Included	
Colors:	Enclosure:	Grey
	Handle:	Black
Max surface temp.:	T 70˚ C	

Poles	I_e A AC 23A 400/500/690 V			Cable entries M	Terminals mm²	Type	Order Code	Pack. qty	Weight kg/ea
3	25	25	16	2xM25 2xM25+M16	10	LBAS 325ExD	2CMA142125R1000	1	0.68
3	45	45	20	2xM32+M16 1xM32	16	LBAS 336ExD	2CMA142127R1000	1	1.25
3	75	58	20	2xM32+M16 1xM32	35	LBAS 363ExD	2CMA145277R1000	1	1.30

- Extra auxiliary contacts to be ordered separately.
- Lid interlocking included in switches LBAS 336ExD and LBAS 363ExD.

Dimension mm			
Type	**H**	**W**	**D**
LBAS 325ExD	150	125	77
LBAS 336ExD	207	147	140
LBAS 363ExD	207	147	140

Polycarbonate plastic (PC)


0710CD15

OTP16T3MX


0710CD14

OTP36T3MX

Cable entries: Metric threads
Lockable: Yes
Degree of protection: IP 65, EX II 3D
Auxiliary contacts: Included
Neutral terminal: Included
Colors: Enclosure: Grey
Handle: Black
Max surface temp.: T 60˚ C

Poles	I_e A AC 23A 400/500/690 V			Cable entries/ side	Terminals mm^2	Type	Order Code	Pack. qty	Weight kg/ea
3	16	16	10	2xM25+M16	10	OTP16T3MX	1SCA022839R8450	1	0.50
3	30	30	20	2xM32+M16	35	OTP25T3MX	1SCA022839R8530	1	0.90
3	38	32	20	2xM32+M16	35	OTP36T3MX	1SCA022839R8610	1	0.90
3	63	50	35	2xM32+M16	35	OTP63T3MX	1SCA022839R8700	1	1.00
3	80	60	40	2xM50+M16	70	OTP75T3MX	1SCA022839R8880	1	2.40
3	90	70	50	2xM50+M16	70	OTP90T3MX	1SCA022839R8960	1	2.40

Dimension mm			
Type	**H**	**W**	**D**
OTP16T3MX	150	130	60
OTP25T3MX	200	145	90
OTP36T3MX	200	145	90
OTP63T3MX	200	145	90
OTP75T3MX	400	200	140
OTP90T3MX	400	200	140

Steel sheet


0710CD20

OT400DLRR3TX

Cable entries: Ring flange entries
Lockable: Yes
Degree of protection: IP 65, EX II 3D
Auxiliary contacts: Included
Neutral terminal: Not included
Colors: Enclosure: Grey
Handle: Black
Max surface temp.: T 80˚ C

Cable entries from top and bottom

Poles	I_e A AC 23A 400/500/690 V			Cable entries/ side	Number of cover flanges included	Type	Order Code	Pack. qty	Weight kg/ea
3	135	125	80	4xring-flange	6	OT160ELRR3TX	1SCA022839R9420	1	19.00
3	200	200	200	4xring-flange	6	OT200KLRR3TX	1SCA022839R9510	1	21.00
3	250	250	250	4xring-flange	6	OT250KLRR3TX	1SCA022839R9690	1	21.00
3	315	315	315	4xring-flange	6	OT315KLRR3TX	1SCA022839R9770	1	21.00
3	400	400	400	4xring-flange	5	OT400DLRR3TX	1SCA022839R9850	1	27.00
3	630	630	630	4xring-flange	4	OT630KLRR3TX	1SCA022839R9930	1	31.00

- Ring-flanges and additional flange covers to be ordered separately

Dimension mm			
Type	**H**	**W**	**D**
OT160ELRR3TX	600	400	230
OT200KLRR3TX	600	400	230
OT250KLRR3TX	600	400	230
OT315KLRR3TX	600	400	230
OT400DLRR3TX	800	400	230
OT630KLRR3TX	1000	400	230


0711CD01

OT630KAUR3TX

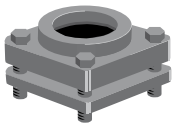
Cable entries from bottom

Poles	I. A AC 23A 400/500/690 V	Cable entries/ bottom side	Number of cover flanges included	Type	Order Code	Pack. qty	Weight kg/ea
3	105 70 50	4xring-flange	4	OT90AAUR3TX	1SCA022840R0880	1	12.00
3	125 90 70	4xring-flange	4	OT125EAUR3TX	1SCA022840R0960	1	12.00
3	135 125 80	4xring-flange	2	OT160EAUR3TX	1SCA022840R1000	1	21.00
3	200 200 200	4xring-flange	2	OT200KAUR3TX	1SCA022840R1180	1	23.00
3	250 250 250	4xring-flange	2	OT250KAUR3TX	1SCA022840R1260	1	27.00
3	315 315 315	4xring-flange	2	OT315KAUR3TX	1SCA022840R1340	1	27.00
3	400 400 400	4xring-flange	2	OT400DAUR3TX	1SCA022840R1420	1	30.00
3	630 630 630	8xring-flange	4	OT630KAUR3TX	1SCA022840R1510	1	50.00

- Ring-flanges and additional flange covers to be ordered separately

Dimension mm			
Type	**H**	**W**	**D**
OT90AAUR3TX	400	400	230
OT125EAUR3TX	400	400	230
OT160EAUR3TX	600	400	230
OT200KAUR3TX	600	400	230
OT250KAUR3TX	800	400	230
OT315KAUR3TX	800	400	230
OT400DAUR3TX	800	400	230
OT630KAUR3TX	1000	800	230

Accessories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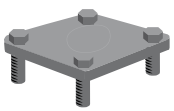
Ring-flanges for different cable diameters

Outside diameter	Type	OrderCode	Pack. qty	Weight kg/ea
22...35	OEZXR134	1SCA022277R5610	1	0.45
31...44	OEZXR143	1SCA022277R5880	1	0.40
39...51	OEZXR150	1SCA022277R6000	1	0.35
46...59	OEZXR158	1SCA022277R6260	1	0.30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Ring-flange covers with knock-out openings

Knock-out size Ø [mm]	Type	Order Code	Pack. qty	Weight kg/ea
20,5	OEZXR020	1SCA022656R8130	1	0.16
22,5	OEZXR023	1SCA022277R5290	1	0.16
25,5	OEZXR025	1SCA022656R8120	1	0.16
37	OEZXR037	1SCA022277R5450	1	0.16
40,5	OEZXR040	1SCA022656R8300	1	0.16

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