

For electrical equipment

For non-electrical equipment

Correlation between types and levels of explosion protection according to GOST IEC 60079-14-2013

Equipment protection level	Type of protection	Designation	Number of the standard
Ga	Intrinsically safe circuit	ia	60079-11
	Compound encapsulation	ma	60079-18
	Two independent types of protection providing EPL Gb	-	60079-26
	Protection of equipment and transmission systems using optical radiation	op is	60079-28
Gb	Flameproof enclosures	d	60079-1
	Increased safety	e	60079-7
	Intrinsically safe circuit	ib	60079-11
	Encapsulation	mb	60079-18
	Oil immersion	o	60079-6
	Pressurized enclosure	pv px py	60079-2
	Powder filling	q	60079-5
	Fieldbus intrinsically safe concept (FISCO)	-	60079-27
Gc	Protection of equipment and transmission systems using optical radiation	op is op sh op pr	60079-28
	Intrinsically safe circuit	ic	60079-11
	Encapsulation	mc	60079-18
	Non-sparking device «nA»	nA	60079-15
	Restricted-breathing enclosure «nR»	nR	60079-15
	Energy-limited apparatus	nL	60079-15
	Devices «nC»	nC	60079-15
Da	Pressurized enclosure	pz	60079-2
	Protection of equipment and transmission systems using optical radiation	op is op sh op pr	60079-28
	Encapsulation	ma	60079-18
Db	Protection by enclosure	ta	60079-31
	Intrinsically safe circuit	ia	60079-11 or 61241-11
	Encapsulation	mb	60079-18
Dc	Protection by enclosure	tb tD	60079-31 or 61241-1
	Pressurized enclosures	pD	61241-4
	Intrinsically safe circuit	ib	60079-11 or 61241-11
Ma	Encapsulation	mc	60079-18
	Protection by enclosure	tc tD	60079-31 or 61241-1
	Pressurized enclosure	pD	61241-4
Mb	Intrinsically safe circuit	ic	60079-11 or 61241-11
	Intrinsically safe circuit	ia	60079-11
	Encapsulation	ma	60079-18
	Flameproof enclosures	d	60079-1
Mc	Intrinsically safe circuit	ib	60079-11
	Encapsulation	mb	60079-18
	Pressurized enclosures	px py	60079-2
M	Quartz sand filling	q	60079-5
	Increased safety	e	60079-7
	Intrinsically safe circuit	ic	60079-11
	Encapsulation	mc	60079-18
M	Pressurized enclosures	pz	60079-2

s - special type of explosion protection (for all protection levels of equipment groups I and II)

Equipment protection level	Type of protection	Designation	Number of the standard
Ga	Protection by constructional safety	c	13463-5
	Protection by ignition source monitoring	b	13463-6
	Protection by liquid immersion	k	13463-8
Gb	Explosion-proof enclosures	d	13463-3
Gc	Protection by restricted-breathing enclosure	fr	13463-2
Da	Protection by constructional safety	c	13463-5
Db	Explosion-proof enclosures	d	13463-3
Ma	Protection by liquid immersion	k	13463-8
Mb	Explosion-proof enclosures	d	13463-3
	Protection by constructional safety	c	13463-5
	Protection by ignition source monitoring	d	13463-6

Equipment protection levels and zones according to GOST IEC 60079-14-2013

Zone classification	Permissible electrical equipment protection levels (EPLs)
0	Ga
1	Ga или Gb
2	Ga или Gb или Gc
20	Da
21	Da или Db
22	Da или Db или Dc

Classification of maximum surface temperatures of equipment according to 60079-1

Temperature class	Maximum surface temperature, °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Equipment group classification according to 60079-1

Equipment group (subgroup)	Field of application	Specific potentially explosive atmosphere
group I	for use in underground mines and their above-ground structures that may contain damp gas and/or flammable dust	damp gas and coal dust
group II, subgroup IIA	for use in explosion-prone gas environments (except for underground mines and their above-ground structures)	propane
group II, subgroup IIB		ethylene
group II, subgroup IIC		hydrogen
group III, subgroup IIIA	for use in explosion-prone dust environments (except for underground mines and their above-ground structures)	in atmospheres containing combustible flyings
group III, subgroup IIIB		in atmospheres containing non-conductive dust
group III, subgroup IIIC		in atmospheres containing conductive dust