

EXPLOSIVE GAS ATMOSPHERES 爆炸性氣體環境 (e.g. Class I Division System) (如CLASS I DIVISION體系)

Includes flammable gases, flammable liquid-produced vapors, and combustible liquid-produced vapors
包括可燃性氣體、可燃性液體蒸氣、可燃性液體蒸氣

CONTINUED 續

EXPLOSIVE DUST ATMOSPHERES 爆炸性塵體環境 (e.g. Class II & III Division Systems) (如CLASS II 和 III DIVISION體系)

Includes combustible dusts and ignitable fibers/flyings
包含可燃性塵體和可燃性纖維/飛絮

CONTINUED 續

Zone System Non-Electrical Equipment Protection Techniques (Equipment Protection Levels) Zone體系非電氣設備防護技術(設備防護等級)

Area 區域	Protection Techniques 防護技術	防護技術	Applicable Certification Documents 適用的認證標準	UL Mark	C-UL Mark	IECEX	ATEX
Zone 0 0區	• Constructional safety, "c" (Ga)	結構安全, "c" (Ga)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Control of ignition source, "b" (Ca)	控制點火源, "b" (Ca)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Liquid immersion, "k" (Ga)	液浸型, "k" (Ga)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Flameproof, "da" (Ca)	耐壓防燃外殼, "da" (Ca)	ANSI/UL 60079-1	ANSI/UL 60079-1	CSA 60079-1	IEC 60079-1	EN 60079-1
Zone 1 1區	• Constructional safety, "c" (Cb)	結構安全, "c" (Cb)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Control of ignition source, "b" (Cb)	控制點火源, "b" (Cb)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Liquid immersion, "k" (Cb)	液浸型, "k" (Cb)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Flameproof, "db" (Cb)	耐壓防燃外殼, "db" (Cb)	ANSI/UL 60079-1	ANSI/UL 60079-1	CSA 60079-1	IEC 60079-1	EN 60079-1
	• Pressurization, "pxb"/"pyb" (Cb)	正壓, "pxb"/"pyb" (Cb)	ANSI/UL 60079-2	ANSI/UL 60079-2	CSA 60079-2	IEC 60079-2	EN 60079-2
• Any Zone 0 technique	任何Zone 0的防護技術	See above 如上	See above 如上	See above 如上	See above 如上	See above 如上	
Zone 2 2區	• Flow restricting enclosure, "fr"	流量限制外殼, "fr"	—	—	—	—	EN 13463-2
	• Constructional safety, "c" (Cc)	結構安全, "c" (Cc)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Control of ignition source, "b" (Cc)	控制點火源, "b" (Cc)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Liquid immersion, "k" (Cc)	液浸型, "k" (Cc)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37	EN ISO 80079-37
	• Flameproof, "dc" (Cc)	耐壓防燃外殼, "dc" (Cc)	ANSI/UL 60079-1	ANSI/UL 60079-1	CSA 60079-1	IEC 60079-1	EN 60079-1
• Pressurization, "pzc" (Cc)	正壓, "pzc" (Cc)	ANSI/UL 60079-2	ANSI/UL 60079-2	CSA 60079-2	IEC 60079-2	EN 60079-2	
• Any Zone 0 or 1 technique	任何0區或1區的防護技術	See above 如上	See above 如上	See above 如上	See above 如上	See above 如上	

Note 1: Zone 0, 1 and 2 general requirements are contained in ISO 80079-36 (IECEX) and EN ISO 80079-36 (ATEX), along with prUL 80079-36 (UL Mark) and prCSA 80079-36 (C-UL Mark) under development.

註1: 0區, 1區和2區的一般要求包含在ISO 80079-36(IECEX)和EN ISO 80079-36(ATEX)體系, 以及正在制訂目前尚未發布的prUL 80079-36(UL標識)和prCSA 80079-36(C-UL標識)當中。

Note 2: Equipment Protection Levels (EPLs) are used to provide additional details regarding the level of protection against ignition in explosive atmospheres. EPLs are designated by a letter "G" for Gas, "D" for Dust or "M" for Mining, followed by a letter "a" for "very high", "b" for "high" or "c" for "enhanced" level of protection.

註2: 設備防護等級(EPLs)是用來進一步詳述設備具有對於爆炸性環境的防護等級。字母"G"代表氣體, "D"代表塵體, "M"代表礦區, 接續字母"a"代表非常高, "b"代表高, "c"代表加強的防護等級。

Note 3: Under the ATEX Directive (2014/34/EU), the marking of Categories is additionally required. ATEX Categories are similar to EPLs in function and designation as follows, ATEX Category 1G, 2G, 3G, 1D, 2D, 3D, M1, M2 = EPL Ga, Gb, Gc, Da, Db, Dc, Ma, Mb respectively.

註3: 在ATEX指令(2014/34/EU)中, 額外的類別標識是必需的。ATEX類別與設備防護等級(EPLs)功能相似的, 並有下列的對應關係:ATEX類別1G, 2G, 3G, 1D, 2D, 3D, M1, M2依序等於設備防護等級Ga, Gb, Gc, Da, Db, Dc, Ma, Mb。

Note 4: References in one area to "any" protection techniques from another area require these other area techniques to be for the same gas atmosphere; and with a suitable temperature class.

註4: 在一個區域中參考另一個區域"任何"防護技術時, 這些其他區域的防護技術需要是適用於相同的氣體環境與合適的溫度等級。

Note 5: The prefix "pr" in front of a standard number indicates a proposed new standard under development but not yet published.

註5: 在標準的號碼前的"pr"代表正在制定但尚未正式發布。

Zone System Non-Electrical Equipment Protection Techniques (Equipment Protection Levels) Zone體系非電氣設備防護技術(設備防護等級)

Area 區域	Protection Techniques 防護技術	防護技術	UL Mark	C-UL Mark	IECEX	ATEX
Zone 20 20區	• Constructional safety, "c" (Da)	結構安全, "c" (Da)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Control of ignition source, "b" (Da)	控制點火源, "b" (Da)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Liquid immersion, "k" (Da)	液浸型, "k" (Da)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Enclosure, "ta" (Da)	外殼防護, "ta" (Da)	ANSI/UL 60079-31	ANSI/UL 60079-31	CSA 60079-31	IEC 60079-31
Zone 21 21區	• Constructional safety, "c" (Db)	結構安全, "c" (Db)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Control of ignition source, "b" (Db)	控制點火源, "b" (Db)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Liquid immersion, "k" (Db)	液浸型, "k" (Db)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Pressurization, "pxb"/"pyb" (Db)	正壓, "pxb"/"pyb" (Db)	ANSI/UL 60079-2	ANSI/UL 60079-2	CSA 60079-2	IEC 60079-2
	• Enclosure, "tb" (Db)	外殼防護, "tb" (Db)	ANSI/UL 60079-31	ANSI/UL 60079-31	CSA 60079-31	IEC 60079-31
• Any Zone 20 technique	任何Zone 20的防護技術	See above 如上	See above 如上	See above 如上	See above 如上	
Zone 22 22區	• Flow restricting enclosure, "fr"	流量限制外殼, "fr"	—	—	—	—
	• Constructional safety, "c" (Dc)	結構安全, "c" (Dc)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Control of ignition source, "b" (Dc)	控制點火源, "b" (Dc)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Liquid immersion, "k" (Dc)	液浸型, "k" (Dc)	prUL 80079-37	prUL 80079-37	prCSA 80079-37	ISO 80079-37
	• Pressurization, "pzc" (Dc)	正壓, "pzc" (Dc)	ANSI/UL 60079-2	ANSI/UL 60079-2	CSA 60079-2	IEC 60079-2
• Enclosure, "tc" (Dc)	外殼防護, "tc" (Dc)	ANSI/UL 60079-31	ANSI/UL 60079-31	CSA 60079-31	IEC 60079-31	
• Any Zone 20 or 21 technique	任何Zone 20或21的防護技術	See above 如上	See above 如上	See above 如上	See above 如上	

Note 1: Zone 20, 21 and 22 general requirements are contained in ISO 80079-36 (IECEX) and EN ISO 80079-36 (ATEX), along with prUL 80079-36 (UL Mark) and prCSA 80079-36 (C-UL Mark) under development.

註1: 20區, 21區和22區的一般要求包含在ISO 80079-36(IECEX)和EN ISO 80079-36(ATEX)體系, 以及正在制訂目前尚未發布的prUL 80079-36(UL標識)和prCSA 80079-36(C-UL標識)當中。

Note 2: Equipment Protection Levels (EPLs) are used to provide additional details regarding the level of protection against ignition in explosive atmospheres. EPLs are designated by a letter "G" for Gas, "D" for Dust or "M" for Mining, followed by a letter "a" for "very high", "b" for "high" or "c" for "enhanced" level of protection.

註2: 設備防護等級(EPLs)是用來進一步詳述設備具有對於爆炸性環境的防護等級。字母"G"代表氣體, "D"代表塵體, "M"代表礦區, 接續字母"a"代表非常高, "b"代表高, "c"代表加強的防護等級。

Note 3: Under the ATEX Directive (2014/34/EU), the marking of Categories is additionally required. ATEX Categories are similar to EPLs in function and designation as follows, ATEX Category 1G, 2G, 3G, 1D, 2D, 3D, M1, M2 = EPL Ga, Gb, Gc, Da, Db, Dc, Ma, Mb respectively.

註3: 在ATEX指令(2014/34/EU)中, 額外的類別標識是必需的。ATEX類別與設備防護等級(EPLs)功能相似的, 並有下列的對應關係:ATEX類別1G, 2G, 3G, 1D, 2D, 3D, M1, M2依序等於設備防護等級Ga, Gb, Gc, Da, Db, Dc, Ma, Mb。

Note 4: References in one area to "any" protection techniques from another area require these other area techniques to be for the same dust atmosphere; and with a suitable temperature class.

註4: 在一個區域中參考另一個區域"任何"防護技術時, 這些其他區域的防護技術需要是適用於相同的塵體環境與合適的溫度等級。

Note 5: The prefix "pr" in front of a standard number indicates a proposed new standard under development but not yet published.

註5: 在標準的號碼前的"pr"代表正在制定但尚未正式發布。

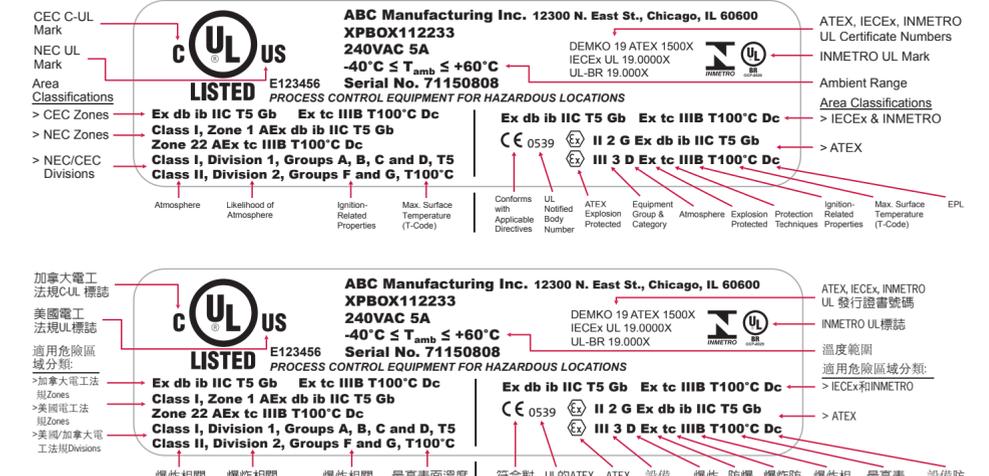
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MARKINGS 標識



INGRESS PROTECTION (IP) RATINGS IP防護等級

Comparison of IP Ratings IP等級比較

First numeral 第一位數字	Protection against access to hazardous parts by: 觸及設備內部危險部件的防護	Protection against entry of solid objects: 外部異物侵入設備內的防護	Second numeral 第二位數字	Protection against entry of water: 對水進入設備內的防護
0	No protection 無保護	No protection 無保護	0	No protection 無保護
1	The back of a hand 以手背	Objects greater than 50 mm 直徑大於50mm的物體	1	Vertically falling water drops 垂直滴水
2	A finger 以手指	Objects greater than 12.5 mm 直徑大於12.5mm的物體	2	Vertically falling water drops when enclosure tilted up to 15° 櫃體向任一側傾斜15°角, 垂直滴水
3	A tool 持工具	Objects greater than 2.5 mm 直徑大於2.5mm的物體	3	Spraying water 灑水
4	A wire 持金屬線	Objects greater than 1.0 mm 直徑大於1.0mm的物體	4	Splashing water 濺水
5	A wire 持金屬線	Dust-protected 防塵型	5	Water jets 噴水
6	A wire 持金屬線	Dust-tight 塵密型	6	Powerful water jets 強力噴水
			7	Temporary immersion in water 暫時浸沒
			8	Continuous immersion in water 持續浸沒
			9	High pressure and temperature water jets 高壓和高溫噴水

