



Hazardous Location Information

National & International Area Classification Applicable to Purge & Pressurization

OVERVIEW

When specifying equipment that will be installed in a hazardous location it is very important to determine which set of standards should be applied. There are several standards that are in common use throughout the world and have different requirements. If an assumption is made without clarification it can be expensive to rectify and could be hazardous if installed in a plant.

This applies to all forms of hazardous location protection but this article concentrates on Purge and Pressurization.

Question:

Which standard the application must work to? See Fig 1
Once this question has been clarified we can start to determine the type of purge system required.

Location	Standard	Area Classification	Temp
International	IEC 60079-2	Zone 1 or 2, Group II A, B or C	T1 - 6
Canada	E 60079-2	Class I, Zone 1 or 2, Group II A, B or C	T1 - 6
USA NEC 505	ISA60079-2*	Class I, Zone 1 or 2, Group II A, B or C	T1 - 6
USA NEC 500	NFPA 496	Class I, Division 1 or 2 Group D, C, B&A	T1 - 6
Europe	EN60079-2	Zone 1 or 2, Group II A, B or C	T1 - 6
Australia	IEC 60079-2	Class I, Zone 1 or 2, Group II A, B or C	T1 - 6

Fig 1

Notes:

* NEC505 allows the USA to use "Zones" for area classification and it is based on the IEC standards.

However there are differences so do not assume they are the same as the published IEC standards. At present, differences are mainly relevant to Offshore installation.

A Class I location is for gas areas and Class II is for dust. Several countries have adopted the IEC standards in their entirety such as Australia, Brazil, Japan, etc. See www.iecex.com

The standard and the area classification determine the type of purge system to be specified. Most purge standards use the X, Y, Z principle.

Note: Apparatus being installed in hazardous locations are normally certified / approved to the relevant standard by a Notified Body.

X Purge:

Reduces the purged enclosure internals from a Class I, Div 1 / Zone 1 to unclassified. Operation is fully automatic, with purge timer and power interlocks.

Y Purge:

Reduces the purged enclosure internals from a Class I, Div 1 / Zone 1 to a Class I, Div 2 / Zone 2. Manual purging.

Z Purge:

Reduces the purged enclosure internals from a Class I, Div 2 / Zone 2 to unclassified. Manual purging.

See Fig 2

(Contents)	Zone 1 / Div 1 Incendive	Zone 1 / Div 1 Non Incendive	Zone 2 / Div 2 Incendive
Zones	Ex px	Ex py	Ex pz
USA Divisions	'X' purge	'Y' purge	'Z' purge

Fig 2

Certification / Approvals:

Operators / Users normally specify the Purge System to be certified / approved. The Expo Mini-X-Purge has been certified in the USA by FM and cULus, in Europe by Sira to ATEX and globally by IECEx.

The MiniPurge Interface Units for the power interlock are IECEx & ATEX certified and designed to NEC500 for use in the USA. For some installations certification of the purged enclosure and contents is specified. Where this is a requirement Expo can assist with a personalized consultancy service, either by producing an independent Third Party Report or working through a relevant Notified Body to a recognized standards.

European Union ATEX Certification

ATEX is a series of Directives issued by the European Parliament and became effective from July 2003.

Note: Offshore mobile rigs are not included within this directive.

Expo has a range of Pressurized Enclosure that have been certified to ATEX which greatly reduces the man hours, cost and time for obtaining ATEX certification, including the certification for the clients equipment.

IEC Certification

It is now possible to obtain IEC certification through the IECEx Scheme. See www.iecex.com

When the IEC is adopted by a country the User / Operator may or may not require certification from an IECEx Notified Body, so again, clarification is required from the client before proceeding. Normally they will require a Third Party Certificate on the purge system and the complete purged enclosure.

Expo can supply the Third Part Certificate or offer consultancy to obtain the IECEx certificate via one of the Notified Bodies to ease this process.

"The Purge + Pressurizing Specialists"

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