



Hazardous Location Information

NEC/NFPA496 Three Types of Purge (X-Y-Z)

OVERVIEW

Purging is a technique that has been used since Roman times, where mines were "ventilated" to remove hazardous gas. It is used extensively today for purged electrical / instrument enclosures. A purge and pressurized enclosure allows easy maintenance of the internal equipment and there is no limit to the power that can be supplied, other advantages include windows to enable easy viewing of instruments, screens, external push button, switch, etc.

The purge medium, usually compressed air is used to keep the enclosure at a higher pressure than the outside of the enclosure preventing the entrance of explosion gas. After closing the enclosure there must be a purge to dilute any gas that may be present within the enclosure before applying the power. Hence the term "Purge and Pressurize".

Class I (Explosive Gas - Vapors) Applications

The NFPA496 defines three types of Purge and Pressurization Systems for Class I hazardous locations. The protection method depends on the location of the equipment, either Division 1 or Division 2, and the type of equipment inside the purged enclosure.

Advantages:

ACTIVE protection.

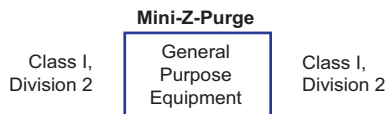
On loss of pressure an **ALARM** at minimum is activated.

Includes gas Groups A, B, C & D.

All MiniPurge Systems measure the purge flow rate at the RLV (Relief Valve) to ensure the purge medium has "passed through" the enclosure. **Safety for the plant Personnel - Safety of the Plant.**

Type Z Purge & Pressurize:

Reduces the area classification within the purged enclosure from Class I, **Division 2** to non-classified where general purpose equipment can be fitted within the enclosure.



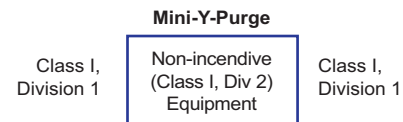
The enclosure must be purged at least 4 full volume changes before the electrical supply can be applied to the general purpose equipment. This is a manual function completed by the plant operator.

On loss of pressure there is not need to disconnect the electrical supply if the Division 2 area is known to be non-hazardous but there **MUST** be a Visual OR Audible ALARM.

The Mini-Z-Purge is normally fitted with an Alarm Indicator and Dry Contacts (VFC) as standard.

Type Y Purge & Pressurize:

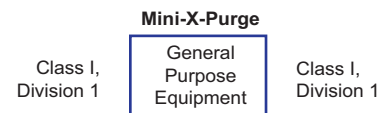
Reduces the area classification within the purged enclosure from a Class I, **Division 1** to Class I, **Division 2**, where non-incendive (Division 2) equipment can be fitted within the enclosure.



The requirements for the operation of the Y Purge are the same as the Z Purge. The difference is the application and contents of the purged enclosure.

Type X Purge & Pressurize:

Reduces the area classification within the purged enclosure from Class I, Division 1 to non-classified where general purpose equipment can be fitted within the enclosure



The enclosure must be purged at least 4 full volume changes, timed automatically before the electrical interlock supplies power to the general purpose equipment.

On loss of pressure the power must be disconnected.

Or see Exception Clause 4.10.2 special conditions allow the power to remain on.

Class II (Explosive Dust) Applications

The principles of X, Y, Z above applies to Class II areas but there is not a requirement to purge the enclosure, only to Pressurize. In a Class I locations there is a need to dilute any gas that may be in the enclosure prior to applying the power. For Class II applications any residue should be removed before closing the enclosure and once pressurized the dust cannot enter from the Class II location.

For Group E, Metal Dust there is only Division 1 so a Z Purge is not applicable, see chart.

Class II	Group	Div 1	Div 1	Div 2
Metal Dust	E	X	Y	
Coal Dust	F	X	Y	Z
Grain Dust	G	X	Y	Z

Minimum Pressure:

For Class I and Class II applications the minimum internal pressure within the enclosure is 0.1"wc for the exception of Class II as follows:

Specific Particle Density >130 lb/ft³, Specific Gravity >2.083, the minimum pressure is 0.5"wc.

"The Purge + Pressurizing Specialists"

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