

# *Ex Industries*

## **General information about the use of IEC/ATEX cable and glands**

The following information is provided to help our customers sort out the use of cables and glands and to help them avoid common mistakes.

Colors. One of the most confusing issues is the color of the conductor or pair/triad. We see specifications almost on a weekly basis for cables with conductor colors that deviate from the standard the cable was written around and are not available from stock. The data sheets on this web site clearly indicate what the colors should be according to the cable specification that each cable is made from. Deviations are allowed but the issue is minimum quantities and lead times. If you or your customer cannot accept the standard colors expect minimums in the 1500 to 5000 meter range for each cable you require and lead times that can exceed 10-12 weeks.

Voltages on instrument cables. This is another area where we see requests we cannot fulfill. It is very common in North America for instrument cables to be rated 600/1000V. Outside the US it is very uncommon to see this. IEC cables are typically rated 150/300V or 300/500V but rarely higher but we often see a request for BS5308 cables with a 600/1000 volt rating and we just can't get them.

In North America cables are either third party listed (i.e. UL Listed) for the Class and Division or Zone that they can be used in or specified by the NEC. In the IEC/ATEX world cables do not have to be certified or listed by anyone to be used in hazardous locations. The main requirement for use is that the cables meet the minimum requirements of IEC60332 (a flame retardant specification). We often receive requests for CENELEC or ATEX certified cables and they do not exist. The focus on use of cables in these applications is mostly dependent on the cable gland that is chosen. If you follow the cable of your choice on this web site it will walk through the proper selection of the correct cable gland.

The only other requirement for using these cables is to follow the requirements of EN/IEC60079-14, the CENELEC Installation Standard. If you use IEC cables and glands you should own a copy of this standard ([buy it here](#)) and read and understand all clauses.

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## **The following is from EN/IEC60079-14.**

Clause 9 is the general section on wiring systems.

Clause 10 is additional requirements for type “d” protection.

Clause 11 is additional requirements for type “e” protection.

### **Clause 9 Wiring Systems**

First of all, don't use aluminum conductors. It's not outlawed but there are so many exceptions and weird rules it's not worth it.

Cable systems should be installed to prevent mechanical damage, prevent exposure to corrosion, chemicals or heat. This may require the use of conduit, armor or screening.

Unused openings for conduit or cable shall be closed with blanking elements suitable for the type of protection.

The surface temperature of the cable shall not exceed the temperature class of the installation.

**Cables for fixed apparatus should be mineral-insulated metal sheathed cables, thermoplastic sheathed cables, thermosetting sheathed cables, or elastomeric sheathed cables.**

**Cables for external fixed wiring shall have flame propagation characteristics which enable them to withstand the tests according to IEC60332-1.**

### **Clause 10.4 Cable entry systems.**

As you go through the process on the web site of selecting the proper cable gland it will walk you through 10.4 as it relates to flameproof enclosures.

### **Clause 11.3 Wiring systems.**

The main point of 11.3 regarding cables and glands is that when using enclosures with type “e” protection is that the cable gland maintains a minimum type “e” protection and maintains the minimum IP rating or the enclosure being used or minimum IP54.