

Selection of Electrical equipment in FMCG facilities

Don't let Electrical down-time down your Facility

Correct selection and installation of electrical equipment in any industry is crucial for its safe and effective use. Whether it is for lighting, or the operation of equipment, poor selection and installation can lead to expensive maintenance costs and the smallest fault can create an unsafe environment for personnel. In this article Astratek Manufacturing Engineers will highlight some of the factors we consider when designing and selecting electrical equipment, components, and fittings.

Environmental Conditions

The environmental aspect has a great influence on the selection of electrical equipment. It will influence how often the equipment will need to be serviced, the materials that need to be used, the IP rating of each piece of equipment, and if EX ratings are applicable the electrical design can become more costly. All facilities have a different environment based on the geographical location, the facility layout and the product being developed or manufactured.

Location

Firstly, one would identify the industry in which the facility falls under. The mining, food, and medical industry each have their own set of standards in which it operates and different areas where extra consideration needs to be taken when selecting electrical equipment. With this information we have a better understanding on the level of care that is required in different environments. It is important that in any installation international standards are also considered and adhered to.



Ingress Protection

This requirement defines the levels of sealing effectiveness against “ingress” i.e. intrusion from foreign bodies such as tools, dirt and liquids. When selecting a piece of equipment to determine the IP rating one must consider the ingress of dust, dirt, or other foreign bodies, as well as moisture either intentional or accidental, where such equipment will be in operation. With this understanding one can select electrical equipment with a rating that will sufficiently protect the equipment from damage.

Corrosive Environments

Although IP ratings indicates protection against Ingress of water, dust, and foreign objects it does not include protection against corrosion. Corrosion to equipment is an important factor to consider when selecting the equipment and can lead to costly downtime, contaminants that threaten sanitation and product integrity and in some industries such as mining corrosion has the potential to lead to life threatening incidents. It is therefore an important consideration in the selection of equipment in these hazardous locations and conditions in order , to prevent undue down-time and potential injury from occurring.



Explosion Protection

Some environments where flammable materials are used have a higher risk of fire or explosions. This risk is rated in different zones in each zone there is a corresponding EX rating must be adhered to. If there are any flammable substances in play, we at Astratek recommend an evaluation of the area to determine the correct zoning identification and to select the equipment pertaining to that zone. Inappropriate or incorrect selection of electrical equipment can lead to unnecessary damage to equipment; plant and personnel around the hazard to select any equipment to adequately prevent any fires or explosions and save unnecessary costs in future upgrades.

Maintainability

Servicing of and accessibility is an important consideration when selecting and positioning of electrical equipment.. It is important that electrical equipment is serviced and inspected timeously, since the impact on the business due to an unplanned breakdown could lead to significant production down-time and profitability. The placement and location of electrical components within the facility must be considered when these items are to be accessed for maintenance or replacement. If equipment is placed in an area where it is difficult to access, these items will be easily neglected by maintenance system. Should it need to be maintained, one must ensure it is safe to do so without undue risk of injury to the electrician or maintenance staff.

Local availability of spares and replacement parts is vital in the selection of electrical equipment. Critical components should be identified and kept in stock for immediate and quick replacement to minimize down-time. Thus local representation and availability of non-critical components is essential to avoid costly down-time waiting for imported parts, shipping and delivery of these much needed components

Unstable Energy Supply

A loss in production is not the only concern when it comes to unstable energy supply or the lack thereof. With unstable energy supply, we experience aggressive spikes or surges in the power grid, which are not only dangerous to the production equipment but also to your IT infrastructure, utilities, and electrical infrastructure. Therefore, surge protection, lightning protection, standby generating units, and uninterrupted power supplies (UPS) have become a serious consideration in attaining these additional assets, to prevent the possibility of component failure or damage.

Scope for future modifications

It is important to understand the client's requirements and specifically take note of future upgrades they would want to embark on. Re-designing of the facility's electrical infrastructure

can be costly and time and care must be taken to complete this detail, especially if the upgrade is power intensive, which can lead to increasing of the notified maximum demand (NMD) from the service provider. With this in it would be best to prevent this by ensuring flexibility for future expansion/s in the initial design to avoid unnecessary costs down in future.

In conclusion, the initial design, selection of equipment, environment, maintainability and future requirements are a key part of any electrical installation to ensure that your facility is safe for staff and equipment.

To contact Astratek Manufacturing Engineers for assistance and advice regarding Electrical Equipment Selection or alternative Electricity options for your FMCG facility you can scan the QR code and complete the online form or e-mail us at info@astratek.co



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