

SAFETY CLASS, Program 2015-2016

Would you like to be an  - pert?

The market of explosion safety is still developing. For example: Zone 2 applications and the advance of Fieldbus, Ethernet, dust explosion protection and of course ATEX and IECEx.

To meet the continuous demand for information, Electromach provides a practical training program under the name 'Safety Class' since 2007.

Are you an engineer, a manager or part of the Sales team of electrical equipment and involved in design, production, transport, maintenance or storage in hazardous areas? Then our Safety Class is designed for you!

IN-HOUSE OR 'CUSTOM-MADE' COURSE

This training will be held on (your) location or at our premises in Hengelo. We recommend the group of participants not to exceed 15 persons, so there will be enough time for personal attention.

The investment will be approximately € 150,- per person. *

A complete documentation package with training contents and a participation certificate is available on request.

For the 'in-house' training we will have demo materials available to guarantee a practical goal-oriented training. If you choose for a training at the Electromach premises in Hengelo, we will provide a 'company tour' in our factory where we can show almost all available protection methods. A company lunch in our canteen will be provided.

* Based on a group size of 15 persons, at the Electromach premises



Class I: Basics of Explosion Protection

Content:

Why explosion protection?
 What is an explosion?
 Gas explosion versus dust explosion
 How is a hazardous area classified?
 Possible ignition sources
 Types of explosion protection
 Protection techniques electrical equipment
 Basics of installation principles

Target groups:

The training is for technical and commercial orientated employees without basic knowledge of explosion protection. For those who are already acquainted with explosion protection, we recommend Class III.

Goal:

Introduction in explosion protection, the most important factors and concepts, the influence of explosion protection on electrical equipment and the most common protection methods. The focus in Class I is gas explosion protection.

Class II: ATEX Update

Content:

Introduction of the EG directive 94/9/EG, ATEX 95
 A brief explanation about the 1999/92/EG directive, ATEX 137
 Modifications in Standards
 The affect on existing installations
 The affect on new installations
 Introduction to IECEx



Target groups:

For employees who are involved with the design, sales or installation of explosion protected systems and/or machines on a regular base.

Goal:

To get familiar with ATEX, the affects of this directive and the changes that it has caused compared to the CENELEC directive on new and existing installations.
 Furthermore an introduction in IECEx, an international recognized certification.

Class III: Selection of electrical equipment

Content:

Basics of explosion protection (summary)
Protection methods for electrical equipment
Selection of electrical equipment (with regards to gas explosion protection)
Ex-marking
Gas group versus ignition energy
Temperature classes
Zone-classification
Introduction in selection of electrical equipment for dust explosion protection

Target groups:

For employees who are involved in the design, sales or implementation of explosion protected systems and/or machines.

Goal:

The capability of selecting electrical equipment in favour of your budgeting, calculation and/or performance.

Class IV: Industrial Automation in a hazardous areas

Content:

Conventional point-to-point I/O (non-IS)
Point-to-point IS/ExnL
What is remote I/O?
What is a fieldbus?
PLC en PC's
Remote I/O versus fieldbus
Controlling in Ex

Target groups:

Everybody who is directly or indirectly involved with explosion protection and Process Automation.

Goal:

An introduction in explosion protection. How can I use my control panel or process installation in a hazardous area. Which protection methods are there for conventional applications? What is a fieldbus, Profibus/Fieldbus, Remote I/O or Ethernet?

Class V: Introduction SIL (Safety Integrity Level)

Content:

Why SIL?

Goal NEN-EN-IEC 61508

Principle of SIL

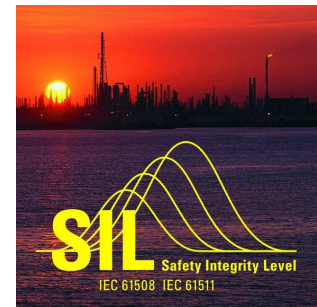
Learning concepts

Case Study

Statistical approach

Qualitative approach

NEN-EN-IEC 62061: Functional safety of safety-related electrical, electronic and programmable electronic control systems.



Target groups:

For employees who often are involved in the design, sales and installation of explosion protected systems and/or machines.

Goal:

Getting familiar with SIL and concepts like fail-safe. The NEN-EN-IEC 61508 is one of the most common methods for achieving a recommended safety level.

Also the new NEN-EN-IEC 602061 will be explained briefly, which replaces the EN 954.

Class VI: Intrinsic safety

Content:

Exi is a protection technique frequently used for instrumentation. Also with modern fieldbus or Remote I/O solutions you will encounter the Exi technique. You will learn to perform Exi comparisons and carry out combined Exi circuits in relation to the hazardous environment where the equipment will be used.

The fieldbus consideration is not limited to FISCO and FNICO, also Exe and Exd techniques with field barriers will be discussed. The advantages and disadvantages will be extensively highlighted, as will the use of Ethernet in a hazardous area.

Target groups:

For anyone who is involved with the engineering of intrinsic safety, as well as the classical approach, with fieldbus or Ethernet controllers.

Goal:

To assess single and simple combined Exi circuits and to decide the right protection technique and layout for your fieldbus.

Class VIII: Installation, maintenance and inspection

Content:

Types of protection and related affect on the installation technique
 Gas explosion protection and dust explosion protection
 Introduction in differences between ATEX installations and American conduit systems.
 Overall equipment demands in ex-area (IP protection class, grounding, impact resistance and ignition sources like optic radiation)
 Principle of protection
 Direct cable entry versus indirect cable entry
 Selection of the cable gland
 What has to be taken into account during inspections, depends on the type of protection like Exd, Exe, Exi and Exp?

Target groups:

Employees who often are involved with the design, sales and installation of explosion protected systems and/or machines.

Goal:

Understanding of the affect of explosion protection principles according to the safety in relation to technical factors for installation and maintenance.



Contacts;

Maike Beld: mbeld@electromach.nl
 Jos Abbing: abbing@electromach.nl