PED – SPVD – ADD

DG GROW UNIT H2: Machinery and Equipment

Pressure equipment sector - European Commission (europa.eu)

TDG Technical Committee, 06 March 2024

Pressure Equipment Directive (PED) 2014/68/EU

Objective

- Ensure free movement of stationary pressure equipment in EU and EEA
- while guaranteeing a high level of safety
- PED deals with risks due to pressure.
  - other risks of the equipment may fall within the scope of other legislation dealing with those risks

Origin

- Traditional highly regulated sector since industrial revolution (steam engines)
- Initial version of PED (1997) harmonises the previously fragmented European Pressure Equipment market
- Similar to other product safety legislation: low voltage, lifts, machinery, gas appliances, etc…

PED basics

- Scope: stationary pressure equipment with maximum allowable pressure PS > 0,5 bar but also a lot of exclusions !
- Classifies equipment in categories according increasing hazard levels
- Defines Essential Safety Requirements (ESR)
- Defines Conformity Assessment Procedures involving in most cases an independent third-party (conformity assessment body)
- Provides for CE Marking / EU Declaration of Conformity
- Aligned to the New Legislative Framework (NLF) in 2014
- Technical details in harmonised European standards providing presumption of conformity

Pressure Equipment Directive (PED) 2014/68/EU

Why pressure equipment safety is important ?

- **If a piece of pressure equipment fails and bursts violently apart, the results can be devastating**

- the higher the pressure and the higher volume of the equipment, the higher the stored energy and the higher the potential damage in case of failure

What are the hazards ?

- impact from the blast of an explosion or release of compressed liquid or gas
- impact from parts of equipment that fail or any flying debris
- contact with the released liquid or gas, such as steam or hazardous chemicals
- fire resulting from the escape of flammable liquids or gases

What are causes of pressure-related incidents

- poor equipment design and/or manufacturing, poor installation, poor maintenance of equipment, inadequate repairs or modifications, an unsafe work procedures, operator error, poor training/supervision

Examples of products in the scope of PED

Mainly industrial equipment

- pressure vessels / storage tanks
- pressurised process plant and piping (chemical, petrochemical, pharmaceutical, food processing, …)
- heat exchangers and refrigeration plants
- boilers and steam heating systems
- pressure accessories (e.g. valves), safety accessories (e.g. pressure relief valves)

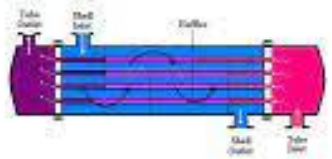
Few consumer products

- portable fire extinguishers
- pressure cookers
- breathing apparatus

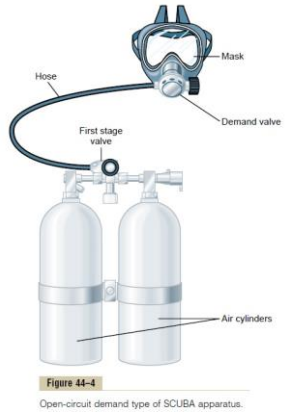
Examples of products in the scope of PED

Items of pressure equipment: pressure vessels, piping, safety accessories

PED assemblies: boilers, heat exhangers



Consumer products: fire extinguishers, pressure cookers, breathing apparaturs



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Simple Pressure Vessels Directive (SPVD) 2014/29/EU

Objective

- Ensures free movement of simple pressure vessels in EU and EEA
- while guaranteeing a high level of safety
- SPVD deals with risks due to pressure.

Origin

- Pneumatics: technology of pressurized gas (air, nitrogen) to transmit force and energy.
  - Simple pressure vessels are a key component in such systems to store the compressed gas (energy storage)
- Initial version of SPVD (1987) harmonises the previously fragmented European market of simple pressure vessels

SPVD basics

- Covers only pressure vessels of simple design with internal gauge pressure greater than 0,5 bar to store compressed air or nitrogen
- Defines Essential Safety Requirements (ESR)
- Defines Conformity Assessment Procedures involving in most cases an independent third-party (notified body)
- Provides for CE Marking / EU Declaration of Conformity
- Aligned to the New Legislative Framework (NLF) in 2014

Example of products in the scope of SPVD

Storage vessels for compressed air

Brake systems on heavy duty vehicles or railway applications

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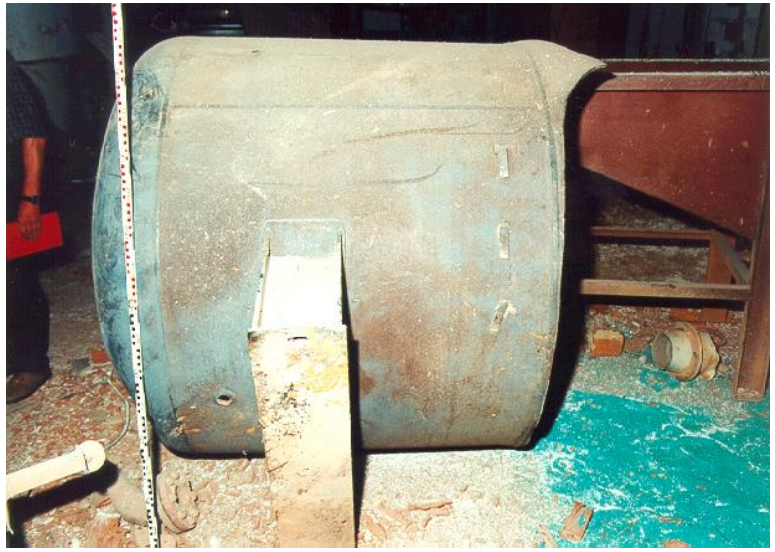
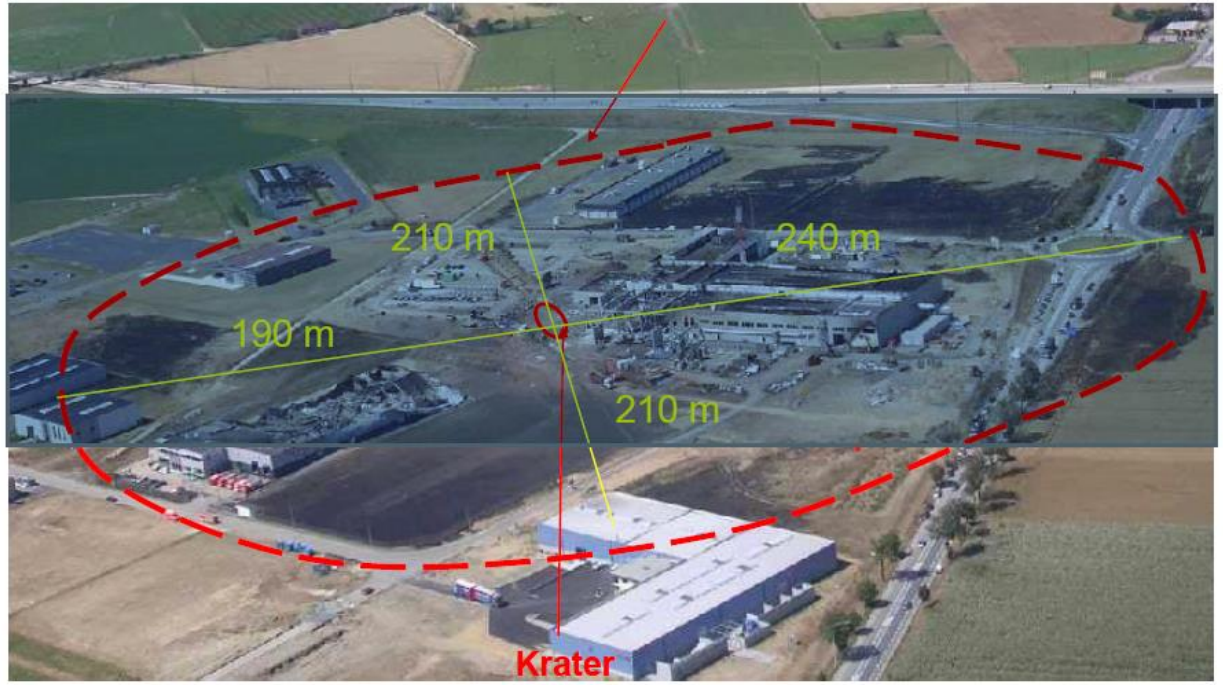
Safety objective – preventing accidents



Exploded storage vessels



Perimeter with severe damage following pipeline explosion

LPG storage tank fire:
https://www.youtube.com/watch?v=iH5bT7xk_Rw

Aerosol Dispensers Directive (ADD) 75/324/EEC

Objective

- Ensures free movement of aerosol dispensers
- while guaranteeing a high level of safety
- ADD deals with risks due to pressure and where appropriate, flammability and inhalation.
- General obligation to analyse all hazards which could apply to a particular aerosol product. Based on such an analysis, the aerosol dispenser is designed, constructed and tested accordingly

ADD basics

- Covers non-reusable containers made of metal, glass or plastic and containing a gas compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state
- Compliance of aerosol dispensers with the ADD is indicated by an ADD-specific mark, the "inverted epsilon"

Example of products in the scope of ADD

- Europe is a world leader in the sector of aerosol dispensers
- Mainly consumer products: cosmetic, healthcare, food, etc.
- Also products for professional use on the market e.g. construction products, paints, lubricants, etc.

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