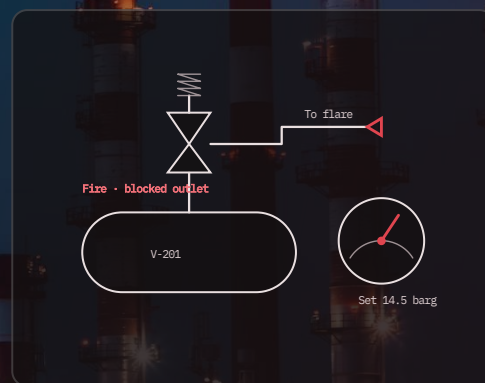


RELIEF SYSTEMS · INTERMEDIATE · 3 DAYS

Relief Systems Design & PSV Sizing

Overpressure scenarios, sizing and documentation to API 520 / 521 / 526



DURATION
3 days

LEVEL
Intermediate

FORMAT
On-site classroom · virtual instructor-led

LANGUAGE
English

MAX. PARTICIPANTS
16

12

sizing exercises

8

overpressure scenarios covered

1

relief-register template

Overview

Every relief valve on the unit is the last line of protection for the equipment behind it. The course works through scenario identification, load calculation and sizing for vapour, liquid, two-phase and fire cases, then the parts most audits find missing: inlet and outlet constraints, installation effects and a relief register that survives management of change.

Learning outcomes

- Identify and screen overpressure scenarios per API 521
- Calculate relief loads for blocked outlet, fire, control-valve failure, tube rupture and thermal expansion
- Size conventional, balanced-bellows and pilot-operated valves and rupture discs
- Check inlet pressure drop, built-up back pressure and reaction forces
- Handle two-phase and supercritical fluids with the DIERS methods
- Compile a relief register with design basis, calculations and MOC hooks

Who should attend

Process engineers responsible for relief design, validation and the relief register; inspection engineers

Course outline

DAY 1

Overpressure protection philosophy · code requirements (ASME VIII, API 520/526) · scenario identification workshop · vapour and liquid sizing

DAY 2

Fire case and wetted area · heat-exchanger tube rupture · thermal expansion and utility failure · rupture discs and combination devices · installation: inlet/outlet losses, back pressure

DAY 3

Two-phase and flashing flow (DIERS/Omega) · flare header and knock-out drum basics · PSV validation on an existing unit · relief register and documentation · CeraVent workshop

Standards referenced

API 520 Part I & II API 521 API 526 / 527
ASME BPVC Section VIII ISO 4126 API 2000

Tools & exercises

Sizing exercises performed in CeraVent

What's included

- ✓ Course manual and slide pack
- ✓ Software access for the course
- ✓ Post-course Q&A with the instructor
- ✓ Exercise and case-study pack
- ✓ Competency quiz and certificate
- ✓ Templates used in the exercises

PREREQUISITES

Process engineering degree; familiarity with P&IDs and hydraulics

CERTIFICATION

Certificate of completion

INSTRUCTORS

Practising engineers — TÜV HAZOP Leader, CCPSC and IEC 61511 Functional Safety certified — with 200+ years of cumulative plant experience.

Book this course or build a custom curriculum

On-site at your plant or virtual · in-house groups · competency assessment included

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