Pressure Relief
A Proven Approach
Pressure relief systems can have a significant financial and safety impact on your business. We will help you secure better business performance by delivering:

- Reduced lifetime costs
- Improved asset reliability
- Excellent safety and environmental performance

Our unique life cycle approach to pressure relief considers all these aspects for new and existing plant and processes.

ABB Engineering Services supplies a range of consulting services in manufacturing operations and engineering, including project implementation and management to customers in the chemical, petrochemical, oil and gas, pharmaceutical and consumer industries worldwide.

**Improving safety performance**

The public and employees must be protected from the hazards of high or low pressure and potential loss of containment of hazardous material. Therefore, correctly designed and installed relief systems are critical to plant safety.

Loss of production and damage from the failure of pressure systems erode business performance. Our experience in pressure systems will help you to ensure safe operating limits.

**Capabilities**

We understand that safety is the number one priority and protection of pressure systems is a dedicated technology. We have a consistent and logical approach, proven on thousands of designs throughout the world. We don’t lose sight of the detail and we avoid the complexity and cost associated with a conventional approach to pressure relief design.

We have teams of process, mechanical and instrument engineers specialising in pressure relief design, evaluation of existing systems and troubleshooting. Adherence to our ISO 9000 quality system ensures that results are checked and approved by experienced practitioners in the pressure relief field.

The high workload in this field ensures that our practitioners are continuously discussing and reviewing techniques in order to provide the correct solutions, both technical and commercial, for our many clients. We are familiar with all process issues of flammable, toxic, single phase, two phase, corrosive and explosive materials. We run the IChemE approved training course with over 100 delegates per year.

**Our experience**

We have unique experience in all aspects of relief systems design, specification, installation and operation of:

- Relief valves
- Bursting discs
- Discharge and disposal systems
- Pipework
- Instrumentation
Pressure relief life cycle

ABB Engineering Services has defined an approach to pressure relief design and assessment of existing plant.

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**Pressure relief life cycle**

(protection of equipment against excessive pressure and vacuum)

1. **Evaluation of pressure relief requirements**
2. **Pressure relief system design & specification**
3. **Discharge and disposal system selection & design**
4. **Detail system design and documentation**
5. **Installation, inspection and maintenance**
6. **Evaluation audit of installed systems**
7. **Evaluation of selected system design**

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**Advanced pressure relief**

Standard pressure relief calculation methods have been developed over many years and in most cases provide a satisfactory method of sizing relief devices and verifying the safety of a proposed or installed relief system. Sometimes real situations are too complex for the standard methods and in these situations modelling can provide valuable insights into the behaviour of a pressurising system. Example of these are:

- Pressure relief streams with supercritical fluids
- Two phase flow and DIERS methodology
- Piping reactive forces
- Vent collection header design
- Gas filled vessel relief
- Modelling of plant pressure in relief events

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**Meeting legislative requirements**

We have specific expertise to support:

- Evaluation of alternatives to pressure relief eg Instrumented protective systems
- Containment assessments
- Risk assessments to demonstrate ALARP
- Pressure relief audits on existing plant and processes
- Discharge and disposal system selection
- Safety and environmental dispersion modelling
The services we offer

We offer expertise in the following areas:

- Pressure relief system auditing
- Pressure relief identification and calculation
- Process and mechanical design
- Vent collection system modelling and design
- DIERS methodology for two phase flow relief
- Pressure relief training (IChemE approved)
- Pressure relief design guides
- Instrument protective systems to IEC 61508, IEC61511 and SIL determination
- Discharge and disposal systems
- Flare system design
- Low pressure storage tank assessments
- Legislation support e.g. PED, PSSR
- Installation and in-service inspection

Our capabilities include:

- Asset assurance
- Asset care
- Asset performance improvement
- Business process optimisation
- Capital project management and execution
- Energy and utilities
- Engineering design services
- Environment services and IPPC
- Manufacturing process optimisation
- Operational plant support
- Organisation and competency development
- Safety management
- Software solutions

ABB Engineering Services is part of ABB’s Automation Technologies division serving customers in the chemicals, consumer, life sciences, manufacturing, metals, paper, petroleum and utility industries.

UK locations
Warrington
Teesside
East Kilbride
Derby

International locations
Americas
Asia
Europe
Middle East

ABB Engineering Services
Daresbury Park Business Centre
Daresbury
Warrington
Cheshire WA4 4BT
United Kingdom
Tel: +44 (0)1925 741111
Fax: +44 (0)1925 741212
E-mail: contact@gb.abb.com

www.abb.com/service