



BUSINESS PLAN

ISO/TC 185

Safety devices for protection against excessive pressure

EXECUTIVE SUMMARY

The scope of ISO/TC 185 is the standardization of safety devices for protection against excessive pressure. Safety devices include safety valves, bursting disk devices, pilot-operated safety valves, controlled safety pressure relief systems (CSPRS) and combination devices. Each device type is addressed in separate and distinct Parts of the standard ISO/TC 4126. This standardization includes general design requirements, testing for pressure retaining integrity and testing for operating and flow capacity performance.

The market for these safety devices is a global one. The world-wide market is approximately US\$750 million per year. The Pressure Relief Device industry is mature with many similarities between supplier designs. However, the industry is also innovative in developing new designs for ever increasingly difficult applications.

Through a cooperative approach with CEN/TC 69 in accordance with the Vienna Agreement, the following Parts of EN/ISO 4126 have recently been published and available for industry use. These standards have been particularly useful in Europe to support the requirements of the Pressure Equipment Directive;

Part 1: Safety valves

Part 2: Bursting disc safety devices

Part 4: Pilot-operated safety valves

Part 5: Controlled safety pressure relief systems (CSPRS)

Part 6: Application, selection and installation of bursting disc safety devices

Part 7: Common data

The main objectives of the committee are to complete the work on Parts 3, 9 and 10. These Parts will provide standardization in the combination of devices; the application, selection and installation of devices other than bursting disc safety devices and; the sizing of safety valves and connected inlet and outlet lines for gas/liquid two-phase flow.

1 INTRODUCTION

1.1 ISO technical committees and business planning

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 International standardization and the role of ISO

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: [ISO](#) (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of [IEC](#) (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of [ITU](#) (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 140 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the [International Standard](#).

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its [Technical Committees](#) are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO offers also the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

2 BUSINESS ENVIRONMENT OF THE ISO/TC

2.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

The products covered by ISO/TC 185 encompass pressure relief devices for the protection of vessels, pipelines, tanks and other equipment against excessive pressure. These devices are the final level of protection to prevent catastrophic failure that can result in loss of plant, property and human life. The market for these products is worldwide and includes all major industries including oil and gas, chemical, petrochemical, air separation, pulp and paper, food and beverage, power, transportation, water works/municipal, military, and marine. Products are sold directly to end users as well as OEM's.

2.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC:

The total annual servable market for pressure relief devices is estimated to be US\$750 million. The geographical breakdown is approximately 50% North and South America, 37% Europe/Middle East and 13% Asia Pacific.

Major product categories

- Safety Valves
- Pilot Operated Safety Valves
- Controlled Safety Pressure Relief Systems
- Bursting Discs

Products are primarily manufactured from steel, stainless steel and other alloys. Components are machined from cast, forged or formed material readily available throughout the world. Most products are metal seated and utilize metal lapping technology specialized metallurgy to obtain tight seals. These devices are self-actuated and required to operate to very strict performance criteria. The performance is dependent on the fluid dynamic forces generated by the lading fluid itself. Actual testing of each production unit is the best method for design validation.

Major Suppliers:

Anderson Greenwood Crosby	USA
Bailey Birkett	UK
Bopp & Reuther	Germany
BS&B	USA
Continental Disc Corp.	USA
Dresser Consolidated	USA
Farris	USA
Fike Corp	USA
Fukui	Japan
Leser	Germany
Nakakita	Japan

Oseco	USA
Rembe	Germany
SAPAG	France
Sarasin	France
Sempell	Germany
Target Rock	USA

The industrial sector is by far the largest consumer of safety relief devices. All major industries listed above have requirements for these products. The government, via military and waste water/municipal applications, is a distant second. There is virtually no consumer-based usage.

Consumer demand for nearly all types of products is the ultimate factor that drives demand for pressure relief devices. As consumer demand for products increases, new plants are required to generate the materials and energy necessary to manufacture those products. Other factors include increased production from an existing facility, upgrades and changes to processes, maintenance and repair, and replacement of older facilities. Environmental issues are impacting demand, as plants must comply with stricter regulations.

The Pressure Relief Device industry is mature with many similarities between supplier designs. However, the industry is also innovative in developing new designs for ever increasingly difficult applications and to solve new problems. Numerous patents exist to protect these innovations but are not generally considered a significant barrier to trade. The majority of applications can be satisfied with existing unprotected designs.

Because of the safety aspect of the product, the industry has been controlled by national regulations that impose high levels of quality and performance controls. These controls are considered to be somewhat of a trade barrier due to the cost and time required to obtain compliance and approval.

3 BENEFITS EXPECTED FROM THE WORK OF THE ISO/TC

The standards developed by ISO/TC 185 will reduce the need for user specifications, facilitate the transfer and application of devices worldwide, reduce barriers to trade across country boundaries, and allow the purchase of compatible equipment from multiple suppliers.

The goal of ISO/TC 185 is the coordination of technical input for all interested parties, with no consideration of national or regional origin, or employer. Regional standards and commonly available standards form the basis of all work. The industry standards developed through ASME, DIN and BSI have been used historically to develop an ISO standard. ASME is the most widely used standard worldwide and most other regional standards are based from ASME.

4 REPRESENTATION AND PARTICIPATION IN THE ISO/TC

4.1 [Countries/ISO members bodies that are P and O members of the ISO committee](#)

4.2 **Analysis of the participation**

Major manufacturers and regulatory bodies are represented on the technical committee. There is no participation by end users except perhaps through individual country advisory groups. The committee membership represents a significant force in the industry. All major consumer countries and the major manufacturers are represented. With the exception of Japan and Korea, there are no Asia Pacific member countries and there is no Middle East or African member. However, there are no major manufacturers in these regions.

Region	P-member Countries	O-member Countries
Europe	Belgium, France, Germany, Ireland, Italy, Netherlands, Russian Federation, United Kingdom	Austria, Bulgaria, Czech Republic, Finland, Hungary, Iceland, Norway, Poland, Romania, Serbia and Montenegro, Slovakia, Spain, Sweden, Switzerland, Yugoslavia
North/South America	USA	Brazil, Cuba, Mexico,
Asia/Oceania	Japan, Korea	Australia, China, Hong Kong, India, Indonesia, Malaysia, Mauritius
Middle East		Egypt,
Africa		Tunisia

5 OBJECTIVES OF THE ISO/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

5.1 **Defined objectives of the ISO/TC**

The objective of ISO/TC 185 is to publish a series of standards relevant to pressure relieving devices that will contribute added value to the design, purchase and use of these products.

5.2 **Identified strategies to achieve the ISO/TC's defined objectives**

The strategy adopted by ISO/TC 185 is to develop a multipart standard covering all aspects of pressure relief device products. Two existing standards, ISO 4126 and ISO 6718 cover the two largest product groups, Safety Valves and Bursting Discs. In 1993, ISO/TC 185 voted to implement the Vienna Agreement and allow CEN/TC 69/WG10 to take the lead in developing additional standards for pilot operated safety valves, controlled safety pressure relief systems, and safety valves and bursting discs in combination. The work being done by CEN would also result in replacing ISO 4126 and 6718. Close collaboration with CEN/TC 69/WG10 was established with liaison members and document sharing agreements. This agreement eliminated the duplication of effort and has benefited both parties. CEN used existing ISO standards and unpublished ISO drafts from TC185 working groups as the initial drafts for their development. Many individuals serving as delegates of the members of ISO/TC 185 are also participate on CEN/TC 69/WG10. The new CEN standards are nearing completion and parallel voting will take place as the prEN documents are completed. ISO/TC 185 now has the responsibility to assure the ISO document is internationally acceptable before publication. Active contribution from non-European members will be important during this stage.

Beyond the seven parts that will result from the work of CEN, ISO/TC 185 is initiating additional work items. These will be developed under the Vienna agreement with ISO taking the lead.

In order to work effectively, the ISO standards are prepared in specialized work groups in which the experts for the respective work item are concentrated. Only the final decisions or decisions concerning paramount problems are taken in the TC.
There are no liaisons or dependences on other ISO Technical Committees.

6 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC WORK PROGRAMME

The major factor that directly affects the completion of TC185 documents is the time resource for people to dedicate to ISO business. The committee is well staffed and all market segments are equally represented with expert volunteers. However, these experts time is limited and extremely valuable to their sponsoring companies.

Under the Vienna Agreement ISO is dependent on CEN to develop these standards within a reasonable timeframe.

Compromising the historically and regionally different specifications among member countries is sometimes time consuming. Compromising at the least common level tends to result in a weak standard from the users viewpoint.

7 STRUCTURE, CURRENT PROJECTS AND PUBLICATIONS OF THE ISO/TC

This section gives an overview of the ISO/TC's structure, scopes of the ISO/TCs and any existing subcommittees and information on existing and planned standardization projects, publication of the ISO/TC and its subcommittees.

7.1 [Structure of the ISO committee](#)

7.2 [Current projects of the ISO technical committee and its subcommittees](#)

7.3 [Publications of the ISO technical committee and its subcommittees](#)

Reference information

[Glossary of terms and abbreviations used in ISO/TC Business Plans](#)

[General information on the principles of ISO's technical work](#)