



BUSINESS PLAN

ISO/TC 14

Shafts for machinery and accessories

INTRODUCTION

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.

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.

Scope of the ISO/TC 14

Standardization in the field of shafts for machines, their keys and keyways, splines and serrations and their accessories such as couplings, flanges, etc.

Market Environment and objectives of the ISO/TC 14

This section establishes a sequential development of thoughts regarding the market for which the ISO/TC aims to fulfil the needs. Details in relation to the market analysis are given in the Guidance document on ISO Business Planning. The sequence of thoughts starts from a description of the current market situation relevant to the product or product grouping under consideration by the ISO/TC, continues on to an analysis of the different factors motivating/influencing the activities of the ISO/TC, to come to clear description of objectives and expected benefits resulting from the work of the ISO/TC, together with an accompanying strategy how to reach those objectives. Finally, a general "risk and analysis" is included highlighting issues that may delay or stop the ISO/TC achieving its set objectives.

Market Environment

Political, economical, social, technical, legal and international factors that either directly require some or all of the standardization activities proposed by the ISO/TC, or significantly influence the way these activities are carried out are the following.

General description of the market

The market for shafts for machinery and accessories is huge because nearly every machine, gear units etc needs these components. This means that products as shafts and keys must be highly standardized, capable of operating in extremes of environments and be available in every part of the world to support replacement demand at short notice.

The principle aim of ISO/TC 14 is to ensure that all standards are kept up to date with the changing conditions in the industry. This is to be achieved in a manner that reflects the needs of the industries concerned and give assurance to the users, through the development of meaningful standards, that shafts and keys are safe and easy to use.

Description of the total market

This question is not to answer because there are neither national nor international statistics available. There are for example only statistics for complete machines for units only value and weight available.

Shafts for machinery and accessories are needed in all machines, engines, gears, pumps etc. They are used everywhere, where something rotates. The exact number is not known. But the number is certainly higher than 5.000.000.000.

Description of the market structure and the major market players

Structure of the market: Suppliers/Manufacturers (descriptive and quantitative)

Especially the industrial countries produce machines and therefore also the shafts and other components as all kinds of keys. At a later time also the other countries are available to produce these components as spare parts.

So these components can be produced world wide.

Structure of the market: Customers

The diversity of the market for shafts and accessories has resulted in literally thousands of suppliers (first supplier and spare part supplier) and millions of customers world-wide, the key players are in the following areas:

Automotive industry

Machinery industry

Electrical industry

even in bicycles, motorcycles, mixers, etc.

Major factors which may have an impact on the development of the markets

The machinery industry demands more and more safety products. In Europe you have to declare that your product is safe and as the result you put the CE-symbol on the machine. These safety aspects you have to consider in the construction. For example on shafts: grooves, holes, dimension of radius, etc.

For the safety constructions there is a need for research projects. You have to use the right material, the right hardening process and at last also the right manufacturing process. Especially the wrong grinding of the shafts could lead to cracks and afterwards to damage.

Technical barriers could be that the supplier has not the knowledge how to produce a safe shaft (e.g. he has no grinding machine, no measurement equipment, no testing facilities etc.).

Benefits expected from the work of the ISO/TC

In the existing standards all necessary geometric data for shafts are described. If the companies have all necessary equipment they are in the position to produce shafts themselves. At a later time standards should be available for the load capacity calculation of shafts and keys, too. Knowledge in this field could lead to smaller dimensions and higher reliability (e.g. reduction of material).

Representation of major players in the ISO/TC

The constitution of ISO/TC 14 includes representatives from the major manufacturers in France, Germany, Italy, Japan, UK, USA and others. These countries produce more than 60% of all machines which consist of shafts and accessories. But these components as spare parts will be produced by manufacturers around the world.

Objectives of the ISO/TC and Strategies for their Achievement

Based on the consideration above the ISO/TC proposes the following objectives and strategic directions for its future work:

Objectives of the ISO/TC

1. To elaborate standards covering the selection, specification and testing of shafts and accessories.
2. To ensure through a regular programme of review that the standards already published and available for use are kept up to date and accurately reflect the state of the art at the time of the review.
3. To review and adjust the work programme as necessary in order to ensure that prevailing and long term market needs are met.
4. To introduce maximum working loads for shafts and keys used in safety related applications.

Strategies adopted to the objectives

In order to prosecute its work programme effectively, ISO/TC 14 operates essentially as an administrative committee, appointing as less working groups as possible for elaboration of the standards. During the last years a meeting was not necessary because in the moment only 1 Working Group exists, in 2005 another one or two will follow.

The existing Working Group meets twice a year. Additionally they work by correspondence throughout the year.

Risk analysis

Although it has not been an issue so far, one of the key risks to the satisfactory completion of the work programme is the withdrawal of or reduction, commitment from key players.

Up to date, working group members have always been of the highest technical calibre and they were well supported by their own companies or technical universities. A critical risk is failure to achieve adequate technical resource in the future to ensure the preparation of relevant standards.

Work Programme

This section gives an overview of existing and planned standardization projects, called Work Items (WI). The aim of this listing is to demonstrate the adequacy of the proposed programme of work with the actual market or stakeholders' needs. You will find that the projects are listed according to the Working Group that is responsible for the drafting of the documents. More comprehensive information regarding the ISO/TC structure can be found under the next section "ISO/TC Structure and Resources".

Reference: ISO/FDIS 4156-1

Available: 2004-12 as FDIS

**Straight cylindrical involute splines -- Metric module, side fit -- Part 1: Generalities
(Revision of ISO 4156:1981, ISO 4156:1981/Amd 1:1992)**

Reference: ISO/FDIS 4156-2

Available: 2004-12 as FDIS

**Straight cylindrical involute splines -- Metric module, side fit -- Part 2: Dimensions
(Revision of ISO 4156:1981, ISO 4156:1981/Amd 1:1992)**

Reference: ISO/FDIS 4156-3

Available: 2004-12 as FDIS

**Straight cylindrical involute splines -- Metric module, side fit -- Part 3: Inspection
(Revision of ISO 4156:1981, ISO 4156:1981/Amd 1:1992)**

International Standards and other publications of this ISO/TC

This section gives a list of International Standards that have been published by the ISO/TC.

ISO 14:1982

Straight-sided splines for cylindrical shafts with internal centering -- Dimensions, tolerances and verification

ISO 496:1973

Driving and driven machines -- Shaft heights

ISO 2491:1974

Thin parallel keys and their corresponding keyways (Dimensions in millimetres)

ISO 2492:1974

Thin taper keys with or without gib head and their corresponding keyways (Dimensions in millimetres)

ISO 3117:1977

Tangential keys and keyways

ISO 3912:1977

Woodruff keys and keyways

ISO 4156:1981

Straight cylindrical involute splines -- Metric module, side fit -- Generalities, dimensions and inspection

ISO 4156:1981/Amd 1:1992

Straight cylindrical involute splines -- Metric module, side fit -- Generalities, dimensions and inspection Amendment 1: Section three: Inspection

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.

[Structure of the ISO committee](#)

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

[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*](#)