

Standardization and International Standards

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Standardisation is the process of formulating and applying rules for an orderly approach to a specific activity for the benefit and with the cooperation of all concerned, and in particular for the promotion of optimum overall economy taking due account of functional conditions and safety requirements. The development of science, technology, and experience is utilised in the process of standardisation. Thus standards determine not only the basis for the present but also for future development, and should keep pace with progress.

Standardisation in the modern world, in general, is mainly concerned with the simplification of the growing variety of products and procedures of human life, communications, overall economy, safety, health and protection of life, protection of consumer and community interests and the elimination of trade barriers. The usefulness of standards as a means of communicating ideas and technical data, and the role in the elimination of trade barriers between nations has been recognised. Advances in technology and the increase in the volume of goods passing between countries have created a demand for new up-to-date standards of international level.

Standards could be carried out at individual, company, national and international levels. Individual level standards were described as those specially laid down by an individual consumer or user, a builder or contractor, a government department or a corporate body, in fact, anyone to suit his own specific needs. Examples for this type of individual standards are the specifications for making a piece of furniture, a design for building a house or constructing a dam, or a project for erecting a bridge or a factory.

Company standards cover every aspect of the working of an enterprise, whatever may be the nature of its business. Thus it may deal with engineering standards, administration and financial norms, code of practice for manufacturing and maintenance, and even codes for conducting market surveys and estimating costs. The company standards cover those activities relating to any of the various activities of the enterprise whatever.

The most important of all levels of standardisation is the national level of standardisation. The national standards co-ordinate the lower levels of standardisation with the higher levels—the regional and international standards. It is at this level that the requirements of the individual, company and international levels are co-ordinated and integrated and purposetul national standards emerge, which serve as effective instruments for guiding the development of a nation's industry and commerce, bringing about order in the existing pattern of the national economy.

International standardisation which is the goal of standardisation, brings about understanding ultimate of all technical questions which are related to the exchange of goods and services between one nation and another.

During the first phase of national standardisation the primary effort of all national bodies was directed towards the preparation of product standards. The standardisation of products invariably require the adoption of a certain number of special terms or existing terms with a very special meaning.

A product standard deals with the performance, reliability and the outer appearance. It is therefore essential to know which of the characteristics are to be incorporated in the standard.

The dimensional standard generally means standardisation of the linear dimension of a product, such as length, width, height, diameter, etc. But it may include other characteristic features which can, in a broad sense be expressed by physical quantities, eg. weight carrying capacity of cranes, efficiency of motors or power of engines.

Dimensional standardisation is an important aspect of mainly all product standards. It is used for interchangeability, for reduction of types and sizes or to provide a general clarification by means of a standard, and for comparing products of different origin.

Safety in the use of a product is a matter requiring special attention. It safety is a principal aim of standards then characteristics necessary and sufficient to achieve safety should be selected and defined, and values for these characteristics should be selected. The methods of testing should be specified completely and mention be made as to whether or not the standard has to meet public safety regulations established by law or merely advise as to the best means of securing safety.

Standardisation results in the reduction of varieties and hence a reduction in production cost. If the customer wants reliable goods at the cheapest price, then he must be prepared to sacrifice some part of his individual demands. On the other hand, the needs of all people are not the same and too much limitation of variety would lead to a very dull and drab existence. In standardisation, the degree to which variety reduction can be applied is a compromise and each individual case has to be considered on its merits.

The contribution of standardisation on large — scale production, consequently, lower cost of production of manufactured goods in industrialised nations and for export on a world-wide scale will provide larger markets for the raw materials coming from developing nations. This will enable their people to afford and to purchase more of the manufactured products that go along with the higher standards of living that the inhabitants of developing nations wish and have a right to achieve. Production scales geared to international as well as national markets, with the minimum of necessary variation made possible by standards bring improved products into the grasp of more and more people.

An analysis of the role of international standards, will show that these can provide the means for more economic use of our shrinking world resources. They can offer protection against artificial trade barriers and pave the way for expanded international commerce and freer trade among nations. They can spare emerging nations unnecessary cost and effort in building up their national industries and in entering world markets. At the industrial level they can bring about unified market requirements providing better opportunities for the producers, large and small, and so provide more competitive optimum to users and consumers.

Another important role of international standards is that they would promote the safety and well-being of our populations, enhance our ecology and environment and facilitate the availability of the tools and technology which tackle the many problems facing our planet today.

The international standards are laid down by the International Standards Organisation. An International Standard is the result of an agreement between the member bodies of I.S.O. An International Standard may be used as such, or may be implemented through incorporation in national standards of different countries.

The activities of the International Standards Organisation came to the forefront in the sixties and one of the obvious reasons for this was the revolution in the transportation methods to cope with the growing international trade. Also the development of multinational companies which found their commercial activities hampered by conflicting national standards, the growing interest of governments in an international, technical platform, for the development of harmonized regulations, the creation of standards institutions in a number of developing countries, which realised the need for a sound international basis for their national work, the widening scope of I.S.O., which engage more and more people from different interest groups —not least the consumer movement and the recognition by other international organisations of the need for rules in technical questions, contribute to this situation.

The task of advancing the knowledge of both national and international standards and encouraging their use are normally entrusted to a national standards body. The main functions of such a body are the preparation

and promulgation of national standards, the promotion for the adoption and application of standards, quality assurance and certification of products, provision of means for disseminating information on standards and related technical matters, both national and international, and the representation of its country in international standards work. The active participation of the national standards organisation in the international discussions on standards work should be considered as a matter of high priority, because it not only enables them to influence final decisions, but also helps them to have their own peculiar needs duly reflected in the international standards.

The main activities of the International Standards Organisation is to promote the development of standards in the world with a view to facilitating international exchange of goods and services and to developing mutual cooperation in the spheres of intellectual, scientific, technological and economic activity. As a step in achieving this, the following procedures are adopted. By taking action to facilitate co-ordination and unification of national standards and issuing necessary recommendations to member bodies for this purpose, setting up international standards provided in each case no member body opposes, also to encourage and facilitate as occasion demands, the development of the new standards having common requirements for use in the national and international spheres and to arrange for exchange of information regarding work of its member bodies and technical committees and also to cooperate with other international organisations interested in related matters, particularly undertaking at their request studies relating to standardisation projects.

Present day international standards cover a very wide field. This field extends from graphic symbols, terminology and documentation paper and office equipment, photography, cinematography, industrial machinery, safety, consumer information, to quality of life, acoustics and time and space.

International standards covering vocabularies for paper and plywood, fire tests, and fishing nets, plastics and rubber, building and data processing have been formulated. A well designed symbol can convey clear cut image more quickly and surely than words. This is a particularly so in a multilingual situation—at an international air port for example—or when addressed to illiterate people. Various ISO Technical Committees have developed or adopted hundreds of carefully researched signs and symbols covering such matters as pipe line systems in ships and air crafts, handling instruction for cargoes, flow shut diagram for data processing equipment, road vehicle controls, etc.

Standardised paper formats are of immense use in the rationalization of the office routines. The ISO Standard on paper sizes published in 1975 is now used in almost all countries. Further implementation was achieved through the recent UN decision to adopt ISO sizes.

ISO standards also cover the dimension of envelopes, filling folders, address areas on post cards and specification for credit cards. In the related fields of paper pulp and board another six international standards were published in 1975. The publication of a series of ISO Standards on basic type writer keyboard arrangements for the Latin alphabet had tremendously simplified the key board operation and design, reduced operator training and facilitated staff exchanges across national borders.

International standards in the field of photography had removed the problem of obtaining the film rolls as these standards specify the relevant dimensions. Also these standards made it possible to screen films in any part of the world, produced anywhere, as the dimension of the cores in motion picture film rolls have been standardised internationally.

Modern industry could hardly function without the wealth of standards which are used routinely in so many spheres—welding, gears, refractories, technical drawings, compressors and making tools, to name just a few.

The number of safety codes published by ISO are adopted all over the world when assembling or operating continuous mechanical handling equipment. Also, the approved procedures for the manufacture, use and maintenance of safety clothing and equipment, rules for the construction of nuclear power facilities. Standards relating to tractors, earth moving equipment or road vehicles are also formulated. Among these the test method for frontal fixed barrier collision, and test methods for the mechanical and optical proportion of road vehicle safety glass are some of the international standards which cover the safety aspects.

ISO work in the field of consumer items play a vital role. Through the large number of ISO Standards on agricultural food products it has become possible to achieve a global harmonization of preservation and test methods, as well as quality specification relating to a great many of the food stuffs.

ISO work in the field of ergonomics which are concerned with the fundamental characteristics of man, the functional value of equipment, process, products and systems, the effects of physical factors of the environment on man, ergonomics test procedures and processing of ergonomic data.

Among other aspects which are covered by the ISO Standards which affect the quality of life are methods for testing air and water, engine performance and fuel filters for cars, sampling of radioactive particles and also it has been decided recently to study the standardisation of tests on quality of work places.

In 1975 International Standards were published on acoustics of auditoria and the standard musical pitch and also standards dealing with noise in the vicinity of railways, harbours and airports. A study of the effects of vibration on the human body is also undertaken by I.S.O.

International Standards which specify the characteristics of an internationally agreed atmosphere is intended for use in the design of flying vehicles and their components under identical conditions. Also the ISO technical committee on horology had issued standards on the optical, mechanical and radiation characteristics of the luminescent deposits fixed on time measurement instruments and the technical definition concerning gold alloy coverings for watch cases and their accessories in 1975.

In 1976 January there were 2836 available International Standards and in addition 1750 draft proposals had been registered by the ISO Central Secretariat.

References

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QUALITY CONTROL TRAINING CENTRE

A regional Centre to train industrial quality control officers in Asia is likely to be set up in Sri Lanka. In the past, Sri Lanka personnel were trained in quality control at the Centre in Rotterdam. Prof. J. Sietig from Rotterdam visited Sri Lanka recently in this connection and made a feasibility study of the project.