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Ergonomska načela za načrtovanje delovnih sistemov (ISO/DIS 6385:2014)

Ergonomic principles in the design of work systems (ISO/DIS 6385:2014)

Grundsätze der Ergonomie für die Gestaltung von Arbeitssystemen (ISO/DIS 6385:2014)

Principes ergonomiques de la conception des systèmes de travail (ISO/DIS 6385:2014)

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Ergonomic principles in the design of work systems

Principes ergonomiques de la conception des systèmes de travail

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This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

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61 Foreword

62 ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies
 63 (ISO member bodies). The work of preparing International Standards is normally carried out through ISO
 64 technical committees. Each member body interested in a subject for which a technical committee has been
 65 established has the right to be represented on that committee. International organizations, governmental and
 66 non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the
 67 International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

68 International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

69 The main task of technical committees is to prepare International Standards. Draft International Standards
 70 adopted by the technical committees are circulated to the member bodies for voting. Publication as an
 71 International Standard requires approval by at least 75 % of the member bodies casting a vote.

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 73 rights. ISO shall not be held responsible for identifying any or all such patent rights.

74 ISO 6385 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 1, and by
 75 Technical Committee CEN/TC 122, *Ergonomics* in collaboration.

76 This third edition cancels and replaces the second edition (EN ISO 6385:2004), which has been technically
 77 revised. The terms were aligned with the terms given in ISO 26000. The definition of the term worker was
 78 deleted. Furthermore clauses 3.2, 3.7 and 4 have been technically revised. The life cycle of a work system
 79 was introduced in 3.2. The principle of adjustment was added to 3.7 and validation replaced by verification. A
 80 new clause on conformity was added to clause 4. Examples were added in several clauses of this edition of
 81 ISO 6385.

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82 Introduction

83 Technological, economic, organizational and human factors affect the work behaviour and well-being of
84 people as part of a work system. Applying ergonomic knowledge in the light of practical experience in the
85 design of a work system is intended to satisfy human requirements.

86 This International Standard provides a basic ergonomic framework for professionals and other people who
87 deal with the issues of ergonomics, work systems and working situations. The provisions of this International
88 Standard will also apply to the design of products for use in work systems.

89 Following the principles and requirements described in this International Standard will support management in
90 making better decisions, for instance related to the sustainability of investments in work system innovation.

91 In the design of work systems in accordance with this International Standard, the body of knowledge in the
92 field of ergonomics is taken into account. Ergonomic evaluations of existing or new work systems will show
93 the need for, and encourage attention to, the role of the worker within those systems.

94 ISO 26800 provides a general starting point for thought on ergonomics and determines the essential general
95 principles and concepts. This International Standard (ISO 6385) presents these in the context of the design
96 and evaluation of work systems.

97 This International Standard is also valuable in the application of management systems such as
98 OHSAS 18001. Besides guidelines for processes it also offers guidance for achieving good human
99 performance.

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Ergonomic principles in the design of work systems —

1 Scope

This International Standard establishes the fundamental principles of ergonomics as basic guidelines for the design of work systems and defines relevant basic terms. It describes an integrated approach to the design of work systems, where ergonomists will cooperate with others involved in the design, with attention to the human, the social and the technical requirements in a balanced manner during the design process.

Users of this International Standard will include executives, managers, workers (or their representatives), and professionals such as ergonomists, project managers and designers who are involved in the design or redesign of work systems. Those who use this International Standard may find a general knowledge of ergonomics (human factors), engineering, design, quality and project management helpful.

The term “work system” in this International Standard is used to indicate a large variety of working situations including permanent and flexible work places. The intention of this International Standard is to assist in the improvement, (re)design or change of work systems. Work systems involve combinations of workers and equipment, within a given space and environment, and the interactions between these components within a work organization. Work systems vary in complexity and characteristics, for example the use of temporary work systems. Some examples of work systems in different areas are:

- production, e.g. machine operator and machine, worker and assembly line;
- transportation, e.g. driver and car or lorry, personnel in an airport;
- support, e.g. maintenance technician with work equipment;
- commercial, e.g. office worker with work station, mobile worker with a tablet computer, cook in a restaurant kitchen;
- and other areas like health care, teaching and training.

The observance of ergonomic principles applies to all phases throughout the life cycle of the work system from conception through development, realization and implementation, utilization, maintenance and support to decommissioning.

The systems approach in this International Standard gives guidance to the users of this standard in existing and new situations.

The definitions and ergonomic principles specified in this International Standard apply to the design of optimal working conditions with regard to human well-being, safety and health, including the development of existing skills and the acquisition of new ones, whilst taking into account technological and economic effectiveness and efficiency.

The principles in this International Standard are applicable to many other human activities, e.g. in the design of products for domestic and leisure activities. A more general description of the principles in this standard can be found in ISO 26800.

NOTE This International Standard is considered to be the core ergonomic standard for work systems from which many others on specific issues are derived.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

well-being

<work system> internal state perceived by the worker while working by enhancing comfort and satisfaction and reducing work fatigue and other adverse reactions

Note 1 to entry: Well-being can contribute to the quality of working life.

Note 2 to entry: This definition is based on EN 614-1:2006+A1:2009, definition 3.6.

2.2

work system

system comprising one or more workers and work equipment acting together to perform the system function, in the workspace, in the work environment, under the conditions imposed by the work tasks

2.3

ergonomics

human factors

scientific discipline concerned with the understanding of interactions among human and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance

[SOURCE: ISO 26800:2011, definition 2.2]

2.4

worker

person performing one or more activities to achieve a goal within a work system

[SOURCE: ISO 26800:2011, definition 2.11, modified – synonym "operator" omitted]

2.5

work organization

sequence and interaction of work systems fitted together to produce a specific result

2.6

work equipment

tools, including hardware and software, machines, vehicles, devices, furniture, installations and other components used in the work system

2.7

work process

sequence in time and space of the interaction of workers, work equipment, materials, energy and information within a work system

2.8

work environment

physical, chemical, biological, organizational, social and cultural factors surrounding a worker

2.9

workspace

volume allocated to one or more persons in the work system to complete the work task