

# DIN EN 13861:2003-04 (E)

## Safety of machinery - Guidance for the application of ergonomics standards in the design of machinery

---

### Contents

	Page
Foreword.....	3
Introduction .....	4
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions.....	5
4 Application of ergonomics standards in the design of machinery .....	5
4.1 Introduction .....	5
4.2 Process for guidance to the appropriate ergonomics standards.....	5
4.2.1 General.....	5
4.2.2 Step 1: Hazard analysis and risk estimation .....	5
4.2.3 Step 2: Investigation of applicability of standards.....	6
4.2.4 Step 3: Evaluation of the risks using relevant ergonomics standards .....	7
4.2.5 Step 4: Risk reduction using the various standards.....	7
4.2.6 Step 5: Verification .....	7
5 Information for use .....	9
Annex A (informative) Inventory of selected hazards from EN 1050 with list of applicable B-standards.....	10
Annex B (informative) Checklist for listing the limits of the machinery (step 1) .....	17
B.1 External preconditions .....	18
B.1.1 Use limits .....	18
B.1.2 Space limits .....	18
B.1.3 Time limits .....	18
B.1.4 Environmental conditions (of the intended work sites, NOT related to the machinery design) .....	18
B.2 Work tasks (man/machine interface) .....	18
B.2.1 Intended and expected types of job.....	18
B.2.2 Expected use of personal protective equipment.....	19
B.2.3 Foreseeable misuse in terms of ergonomics (EN 292-1:1991, 3.12).....	19
Annex C (informative) Additional requirements for C-type standardization .....	20
C.1 To clause 1 "Scope" .....	20
C.2 To clause 4.2.3, "Step 2: Investigation of applicability of standards" .....	20
C.3 To clause 4.2.4, "Step 3: Evaluation of the risks using relevant ergonomics standards" .....	20
C.4 To clause 4.2.5, "Step 4: Risk reduction using the various standards" .....	20
C.5 To clause 4.2.6, "Step 5: Verification" .....	20
C.6 Requirements for residual risks .....	21
Annex D (informative) List of ergonomics standards applicable to the design of machinery safety standards .....	22
Bibliography .....	33