

ISO 13851:2002-03 (E)

Safety of machinery - Two-hand control devices - Functional aspects and design principles

Contents	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Types of two-hand control device and their selection	4
5 Characteristics of safety functions	4
5.1 Use of both hands (simultaneous actuation)	4
5.2 Relationship between input signals and output signal	5
5.3 Cessation of the output signal	5
5.4 Prevention of accidental operation	5
5.5 Prevention of defeat	5
5.6 Re-initiation of the output signal	5
5.7 Synchronous actuation	5
6 Requirements related to categories of control	6
6.1 Category selection	6
6.2 Use of category 1	6
6.3 Use of category 3	7
6.4 Use of category 4	7
7 Use of programmable electronic systems	7
8 Prevention of accidental actuation and of defeat	7
8.1 Common considerations	7
8.2 Prevention of defeat using one hand	8
8.3 Prevention of defeat using the hand and elbow of the same arm	8
8.4 Prevention of defeat using the forearm(s) or elbow(s)	8
8.5 Prevention of defeat using one hand and any other part of the body (e.g. knee, hip)	9
8.6 Prevention of defeat by blocking one control actuating device	9
8.7 Accidental actuation	9
9 General requirements	9
9.1 Ergonomic requirements	9
9.2 Operating conditions and environmental influences	10
9.3 Enclosures	10
9.4 Selection, design and installation of control actuating devices	10
9.5 Prevention of unintended output signals by acceleration forces	10
9.6 Unintended operation of mobile and portable hand-held machines	10
9.7 Mobile two-hand control devices	11
9.8 Safety distance	11
10 Verification	12
10.1 General requirements for verification	12
10.2 Visual inspection	13

10.3	Performance check	13
10.4	Measurement	13
10.5	Prevention of defeat	13
11	Marking	13
12	Information for installation, use and maintenance	14
12.1	Provision of information	14
12.2	Installation instructions	14
12.3	Instructions for use	15
12.4	Maintenance instructions	15
Annex A (normative) Measurement test for the prevention of defeat		16
device		21
Annex C (informative) Relationship between International Standards referenced in clause 2 and corresponding European Standards		22
Bibliography		23