

# ISO 12100-2:2003-11 (E)

## Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>1</b>
<b>4</b>	<b>Inherently safe design measures .....</b>	<b>1</b>
4.1	General .....	1
4.2	Consideration of geometrical factors and physical aspects .....	2
4.3	Taking into account the general technical knowledge regarding machine design .....	3
4.4	Choice of an appropriate technology .....	3
4.5	Applying the principle of the positive mechanical action of a component on another component .....	4
4.6	Provisions for stability .....	4
4.7	Provisions for maintainability .....	4
4.8	Observing ergonomic principles .....	5
4.9	Preventing electrical hazard .....	6
4.10	Preventing hazards from pneumatic and hydraulic equipment .....	6
4.11	Applying inherently safe design measures to control system .....	6
4.12	Minimizing the probability of failure of safety functions .....	11
4.13	Limiting exposure to hazards through reliability of equipment .....	12
4.14	Limiting exposure to hazards through mechanization or automation of loading (feeding) /unloading (removal) operations .....	13
4.15	Limiting exposure to hazards through location of the setting and maintenance points outside of danger zones .....	13
<b>5</b>	<b>Safeguarding and complementary protective measures .....</b>	<b>13</b>
5.1	General .....	13
5.2	Selection and implementation of guards and protective devices .....	13
5.3	Requirements for the design of guards and protective devices .....	19
5.4	Safeguarding for reducing emissions .....	21
5.5	Complementary protective measures .....	22
<b>6</b>	<b>Information for use .....</b>	<b>25</b>
6.1	General requirements .....	25
6.2	Location and nature of the information for use .....	25
6.3	Signals and warning devices .....	25
6.4	Markings, signs (pictograms), written warnings .....	26
6.5	Accompanying documents (in particular, instruction handbook) .....	27
Bibliography .....		30