

DIN EN ISO 14119:2014-03 (E)

Safety of machinery - Interlocking devices associated with guards - Principles for design and selection (I SO 14119:2013)

Contents		Page
Foreword		4
Introduction		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	Operating principles and typical forms of interlocking devices associated with guards	11
4.1	General	11
4.2	Principles of guard interlocking without guard locking	13
4.3	Principles of guard interlocking with guard locking	13
5	Requirements for the design and the installation of interlocking devices with and without guard locking	16
5.1	General	16
5.2	Arrangement and fastening of position switches	16
5.3	Arrangement and fastening of actuators	18
5.4	Actuation modes of interlocking devices	18
5.5	Interface to control systems	19
5.6	Mechanical stop	19
5.7	Additional requirements on guard locking devices	19
6	Selection of an interlocking device	24
6.1	General	24
6.2	Selection of a guard locking device	25
6.3	Environmental conditions considerations	27
7	Design to minimize defeat possibilities of interlocking devices	27
7.1	General	27
7.2	Additional measures to minimize defeat possibilities of interlocking devices	29
8	Control requirements	32
8.1	General	32
8.2	Assessment of faults	32
8.3	Prevention of common cause failures	33
8.4	Release of guard locking device	35
8.5	Fault exclusion	35
8.6	Logical series connection of interlocking devices	35
8.7	Electrical and environmental conditions	36
9	Information for use	36
9.1	General	36
9.2	Information for use given by the manufacturer of interlocking devices	36
9.3	Information for use given by the manufacturer of the machine	38
Annex A (informative) Type 1 interlocking device -- Examples		39
Annex B (informative) Type 2 interlocking device -- Examples		44

Annex C (informative) Type 3 interlocking device -- Example	49
Annex D (informative) Type 4 interlocking devices -- Examples	51
Annex E (informative) Examples of other interlocking devices	54
Annex F (informative) Example of guard locking devices	55
Annex G (informative) Application examples of interlocking devices used within a safety function .	61
Annex H (informative) Motivation to defeat interlocking device	67
Annex I (informative) Examples for maximum static action forces	71
Bibliography	74
AnnexZA(informative)RelationshipbetweenthisEuropeanStandardandtheEssential RequirementsofEUDirective2006/42/EC	73