DIN EN 809:2011-01 (E)

Pumps and pump units for liquids - Common safety requirements (includes Amendment A1:2009 and Corrigendum AC:2010)

Contents

Page

Foreword 3

Introduction 4

1 Scope 4

2 Normative references 5

3 Definitions 6

4 List of hazards 7

5 Safety requirements and/or measures 9
5.1 General requirements 9
5.1.1 Environmental and working conditions 9
5.2 Special requirements 11
5.2.1 Requirements to avoid mechanical hazards 11
5.2.2 Requirements to avoid electrical hazards 12
5.2.3 Requirements to avoid thermal hazards 13
5.2.4 Requirements to avoid the danger of noise and vibrations 14
5.2.5 Requirements to avoid hazards from materials 14
5.2.6 Requirements to avoid hazards from neglecting ergonomic principles of machine design 15
5.2.7 Requirements to avoid hazards caused by failure of energy supply, break-downs of machinery components and other malfunctions 15
5.2.8 Requirements to avoid hazards through breakdown and/or wrong installation of protection devices 16

6 Verification of the safety requirements and/or measures 16
6.1 General reference 16
6.2 Specific methods of verification 17
6.2.1 Inspection 17
6.2.2 Review of documentation 17
6.2.3 Calculations 17
6.2.4 Hydrostatic pressure test for pressure containing parts 17
6.2.5 Noise measurement 17
6.2.6 Guarding 17
6.2.7 Stability 17
6.2.8 Surface temperatures 18

7 Information for use 18
7.1 General 18
7.2 Instruction for use - Instruction handbook 18
7.2.1 General 18
7.2.2 Contents 18
7.3 !Assembly instruction for partly completed machinery 23

8 Marking 23

Annex ZA (informative) !Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/CE" 25

Annex ZB (informative) !Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC" 26

!Bibliography" 27