DIN EN 1612:2019-12 (E)

Plastics and rubber machines - Rea ction moulding machines and plants - Safety requirements

Contents

Page

European foreword ... 4

Introduction ... 5

1 Scope ... 6

2 Normative references ... 6

3 Terms and definitions ... 8

4 Safety requirements and/or protective/risk reduction measures ... 12
4.1 General ... 12
4.2 Start function ... 12
4.3 Stop function ... 13
4.4 Restart function ... 13
4.5 Safety related parts of the control system ... 13
4.6 Crushing/impact hazards due to moving parts and/or units ... 13
4.6.1 Drive and power transmission ... 13
4.6.2 Moulding, product shaping and transport equipment ... 13
4.6.3 Setting operation mode ... 14
4.6.4 Cleaning operation mode ... 14
4.6.5 Mixing head ... 14
4.6.6 Mould transport equipment ... 14
4.7 Hazards due to instability ... 15
4.8 Hazards due to whiplash of hoses ... 15
4.9 Hazards due to fluid ejection ... 16
4.10 Hazards due to overpressure ... 16
4.11 Hazards due to malfunction of the hydraulic and pneumatic systems ... 16
4.12 Burning hazards due to elevated temperatures ... 16
4.13 Hazards due to contact with the components or due to the inhalation of gases hazardous to health ... 16
4.14 Contact reactions hazards due to incorrect connection of hoses ... 17
4.15 Hazards due to neglect of ergonomic principles ... 17
4.16 Electrical hazards ... 17
4.16.1 Protection against direct contact ... 17
4.16.2 Protection against indirect contact ... 17
4.16.3 Protection against ingress of solids and liquids ... 17
4.17 Emergency stop ... 17
4.18 Hazards generated by noise ... 18
4.18.1 Noise reduction at source by design ... 18
4.18.2 Noise reduction by protective measures ... 18

5 Verification of the safety requirements and/or protective/risk reduction measures ... 18

6 Information for use ... 21
6.1 General ... 21
6.2 Marking ... 21
6.3 Instruction handbook ... 22

Annex A (informative) **List of significant hazards** ... 24

Annex B (normative) **Noise measurement and declaration** ... 26

B.1 Introduction **26**
B.2 Determination of the A-weighted emission sound pressure level at the workstation **26**
B.2.1 Basic standards and measurement procedure **26**
B.2.2 Measurement uncertainty **26**
B.3 Determination of the A-weighted sound power level **27**
B.3.1 General **27**
B.3.2 Basic standards and measurement procedure **27**
B.3.3 Measurement uncertainty **27**
B.4 Mounting and operating conditions **27**
B.5 Information to be recorded and reported **28**
B.5.1 General **28**
B.5.2 General data **28**
B.5.3 Mounting and operating conditions **28**
B.5.4 Standards **28**
B.5.5 Noise data **28**
B.6 Declaration and verification of noise emission values **28**
Annex ZA (informative) **Relationship between this European Standard and the essential requirements of EU Directive 2006/42/EC aimed to be covered** **30**
Bibliography **32**