DIN EN ISO 3691-2:2017-02 (E)

Industrial trucks - Safety requirements and verification - Part 2: Self-propell ed variable-reach trucks (ISO 3691-2:2016) (includes Corrigendum :2016)

Contents

Page

European foreword ... **4**

Foreword ... **5**

Introduction ... **6**

1 Scope ... **8**

2 Normative references ... **8**

3 Terms and definitions ... **10**

4 Safety requirements and/or protective measures ... **12**

4.1 General ... 12
4.1.1 Overall requirements ... 12
4.1.2 Normal climatic conditions ... 12
4.1.3 Normal operating conditions ... 12
4.1.4 Sharp edges ... 13
4.1.5 Electrical requirements ... 13
4.1.6 Stored energy components ... 13
4.2 Starting/moving ... 13
4.2.1 Unauthorized starting ... 13
4.2.2 Unintended movement and inadvertent activation ... 13
4.3 Brakes ... 14
4.3.1 General ... 14
4.3.2 Failure of energy supply ... 14
4.4 Manual control actuator ... 14
4.4.1 General ... 14
4.4.2 Travel and braking controls ... 14
4.4.3 Steering controls ... 15
4.4.4 Load-handling controls ... 15
4.4.5 Other controls ... 16
4.4.6 Marking ... 16
4.5 Power systems and accessories ... 16
4.5.1 Exhaust system ... 16
4.5.2 Cooling system ... 16
4.5.3 Fuel tanks ... 17
4.5.4 Access to engine and other compartments ... 17
4.5.5 Liquefied petroleum gas (LPG)-powered trucks ... 17
4.6 Systems for telescoping, lifting and tilting ... 19
4.6.1 Lift chains ... 19
4.6.2 Hydraulic lifting, telescoping and carriage tilting ... 20
4.6.3 Hydraulic systems ... 21
4.6.4 Fork arms ... 21
4.6.5 Fork-arm extensions ... 21
4.6.6 Fork carriers ... 21
4.6.7 Load-handling attachments ... 22
4.7 Operator positions ... 22
4.7.1 Dimensions ... 22
4.7.2 Operator’s seat ... 22
4.7.3 Operator restraint ... 23
4.7.4 Operator access and egress ... 23
4.7.5 Protection from road wheels and objects thrown up by the wheels ... 24
4.7.6 Protection from burning ... 24
4.7.7 Protection against crushing, shearing and trapping ... 24

4.8 Stability ... 24
4.8.1 General ... 24
4.8.2 Specific operating conditions ... 25
4.8.3 Longitudinal stability determination ... 25
4.9 Protective devices ... 25
4.9.1 Overhead guard ... 25
4.9.2 Load backrest extension ... 25
4.9.3 Roll-over protective structures ... 26
4.9.4 Warning device ... 26
4.9.5 Starter battery requirements ... 26
4.10 Visibility and lighting ... 26
4.10.1 Visibility ... 26
4.10.2 Lighting ... 26
4.11 Operator's cab ... 26
4.11.1 General ... 26
4.11.2 Doors and windows ... 26
4.11.3 Fire resistance ... 27
4.11.4 Ventilation ... 27
4.11.5 Heating, air conditioning and ventilation system ... 27
4.11.6 Air filters ... 28
4.11.7 Demisting and defrosting ... 28
4.11.8 Pressurization system ... 28
4.11.9 Wipers and washers ... 28
4.11.10 Access and an emergency exit ... 29
4.11.11 Storage of instruction handbook ... 29
4.11.12 Additional operator's position ... 29
4.12 Provisions for transportation of the truck and removable attachments ... 29
4.13 Environmental requirements ... 29
4.13.1 Noise emissions ... 29
4.13.2 Vibration ... 29
4.13.3 Electromagnetic compatibility (EMC) ... 30
4.14 Devices for towing ... 30

Verification of safety requirements and/or protective measures ... 30
5.1 General ... 30
5.2 Structural verification ... 30
5.2.1 Test loads ... 30
5.2.2 Static test ... 30
5.2.3 Dynamic test ... 31
5.3 Functional verification ... 31

Information for use ... 32
6.1 General ... 32
6.2 Instruction handbook ... 32
6.2.1 Truck/attachments ... 32
6.2.2 Operation of truck ... 32
6.2.3 Details for battery powered trucks ... 33
6.2.4 Details for internal-combustion-engine powered trucks ... 33
6.2.5 Service and maintenance ... 34
6.2.6 Transportation, commissioning and storage ... 34
6.2.7 Truck modification ... 34
6.3 Marking ... 35
6.3.1 Information plates ... 35
6.3.2 Load chart ... 36
6.3.3 Information plate for trucks operating in special conditions ... 38
6.3.4 Other information ... 38
6.3.5 Languages ... 39
6.3.6 Operator restraint ... 39

Annex A (informative) **Rated capacity of truck ... 40**
Annex B (informative) **List of significant hazards ... 43**
Annex ZA (informative) **Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC ... 48**
Bibliography ... 49