DIN EN 14593-1:2018-07 (E)

Respiratory protective devices - Compressed air line breathing devices with demand valve - Part 1: Devices with a full face m ask - Requirements, testing and marking

Contents

Page

European foreword 5

1 Scope 6

2 Normative references 6

3 Terms, description and symbols 7
3.1 Terms 7
3.2 Description 7
3.3 Symbols 7

4 Requirements 8
4.1 General 8
4.2 Nominal values and tolerances 8
4.3 Ergonomics 8
4.4 Materials 8
4.5 Practical performance 9
4.6 Connections 9
4.6.1 General 9
4.6.2 Couplings 9
4.6.3 Strength of connections to full face mask, demand valve, medium pressure connecting tube and breathing hose 9
4.6.4 Connection between RPD and full face mask 9
4.6.5 Unacceptable connections 10
4.7 Compressed air line breathing device used with self-contained breathing device - switch over device 10
4.7.1 General 10
4.7.2 Switch over warning device 10
4.8 Body harness or belt 11
4.9 Pre-conditioning 11
4.10 Flammability 11
4.11 Resistance to pressure 11
4.12 RPD with mobile high pressure air supply systems 12
4.12.1 General 12
4.12.2 Pressure reducer 12
4.12.3 Pressure reducer relief valve 12
4.13 Warning devices for mobile high pressure air supply systems 12
4.13.1 General 12
4.13.2 Audible warning device 12
4.14 Compressed air supply tube 13
4.14.1 Resistance to kinking 13
4.14.2 Resistance to collapse 13
4.14.3 Strength 13
4.14.4 Flexibility 13
4.14.5 Heat resistance 13
4.14.6 Electrostatic properties 13
4.14.7 Couplings 14
4.15 Breathing hose 14
4.15.1 Resistance to kinking 14
4.15.2 Resistance to collapse 14

4.16 Lung governed demand valve ... 14
4.16.1 Without positive pressure ... 14
4.16.2 With positive pressure ... 14
4.16.3 Supplementary air supply ... 14
4.16.4 Couplings ... 14
4.17 Adjustable parts ... 15
4.18 Full face masks ... 15
4.19 Total inward leakage ... 15
4.20 Breathing resistance ... 15
4.20.1 General ... 15
4.20.2 Inhalation resistance ... 15
4.20.3 Exhalation resistance ... 15
4.21 Carbon dioxide content of inhalation air ... 16
4.22 Leaktightness ... 16

5 Testing ... 16
5.1 General ... 16
5.2 Inspection ... 17
5.3 Practical performance ... 18
5.3.1 General ... 18
5.3.2 Preparation of RPD to be tested ... 18
5.3.3 Test conditions ... 18
5.3.4 Work simulation test ... 19
5.3.5 Information to be recorded ... 19
5.3.6 Practical performance tests at low temperature ... 19
5.4 Strength of connections to facepiece, demand valve, medium pressure connecting tube and breathing hose ... 19
5.5 Resistance to collapse of breathing hose ... 20
5.5.1 Principle ... 20
5.5.2 Apparatus ... 20
5.5.3 Procedure ... 20
5.6 Strength of compressed air supply tube, body harness and couplings ... 21
5.7 Pre-conditioning ... 22
5.8 Flammability ... 22
5.9 Pressure relief valve ... 22
5.10 Resistance to kinking of compressed air supply tube ... 22
5.11 Resistance to collapse of compressed air supply tube ... 25
5.11.1 Principle ... 25
5.11.2 Apparatus ... 25
5.11.3 Procedure ... 25
5.12 Heat resistance of compressed air supply tube ... 25
5.13 Tests for lung-governed demand valve ... 26
5.13.1 Without positive pressure ... 26
5.13.2 With positive pressure ... 26
5.13.3 Supplementary air supply ... 26
5.14 Determination of carbon dioxide content of the inhalation air ... 27
5.15 Testing of audible warning device ... 27
5.16 Switch over device ... 28
5.17 Leaktightness ... 28
5.18 Sound level measurement ... 28

6 Marking ... 29

7 Information supplied by the manufacturer ... 29

Annex ZA (informative) Relationship between this European Standard and the essential health and safety requirements of Regulation 2016/425/EU [2016 OJ L81] aimed to be covered ... 32

Bibliography ... 34