DIN EN 598:2008-01 (E)

Ductile iron pipes, fittings, accessories and their joints for sewerage applications - Requirements and test methods

Contents

Page

Foreword 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 7

4 Technical requirements 10
4.1 General 10
4.2 Dimensional requirements 12
4.3 Material characteristics 14
4.4 Coatings and linings for pipes 15
4.5 Coatings for fittings and accessories 18
4.6 Marking of pipes and fittings 18
4.7 Leak tightness 18

5 Performance requirements 19
5.1 General 19
5.2 Longitudinal bending of pipes 20
5.3 Diametral stiffness of pipes 20
5.4 Leak tightness of components for gravity pipelines 21
5.5 Leak tightness of flexible joints 21
5.6 Flanged joints 23
5.7 Pipes with screwed or welded flanges 23
5.8 Chemical resistance to effluents 23
5.9 Abrasion resistance 23
5.10 Strength of the cement mortar lining 24

6 Test methods 24
6.1 Pipe dimensions 24
6.2 Straightness of pipes 25
6.3 Tensile testing 25
6.4 Brinell hardness 26
6.5 Works leak tightness test for pipes and fittings for positive pressure pipelines 27
6.6 Works leak tightness test for pipes and fittings for negative pressure pipelines 27
6.7 Zinc mass 27
6.8 Thickness of paint coatings 28
6.9 Thickness of cement mortar lining 28

7 Performance test methods 28
7.1 Compressive strength of the cement mortar lining 28
7.2 Longitudinal bending of pipes 29
7.3 Diametral stiffness of pipes 30
7.4 Leak tightness of components for gravity pipelines 32
7.5 Leak tightness of flexible joints to positive internal pressure 32
7.6 Leak tightness of flexible joints to negative internal pressure 33
7.7 Leak tightness of flexible push-in joints to positive external pressure 33
7.8 Leak tightness of flexible joints to dynamic internal pressure 34
7.9 Chemical resistance to effluents 35
7.10 Abrasion resistance 36

8 Tables of dimensions 37
8.1 Socket and spigot pipes 37
8.2 Fittings for gravity sewers 39
8.3 Fittings for pressure sewers and vacuum sewers 41

9 Evaluation of conformity 42
9.1 General 42
9.2 Initial type testing 42
9.3 Factory production control (FPC) 44

Annex A (normative) Allowable pressures for pressure sewers 49

Annex B (informative) Alternative coatings and field of use in relation to characteristics of soils 51

Annex C (informative) Field of use in relation to characteristics of effluents 54

Annex D (informative) Calculation method for buried pipelines, permissible heights of cover 55

Annex E (informative) Resistance to jet cleaning and to root penetration 60

Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives 61

Bibliography 66

Tables Table 1 -- Limit deviation on internal diameter 13

Table 2 -- Standardized length of socket and spigot pipes 13

Table 3 -- Tensile properties 15

Table 4 -- Thickness of cement mortar lining 17

Table 5 -- Pressure 19

Table 6 -- DN groupings for performance tests 20

Table 7 -- Performance tests for joints 22

Table 8 -- Dimensions of test bar 26

Table 9 -- Test bending moments 29

Table 10 -- Diametral stiffness test requirements 31

Table 11 -- Dimensions of pipes 38

Table 12 -- Number of test samples for initial type testing 44

Table 13 -- Minimum frequency of product testing as part of FPC 46

Table 14 -- Maximum batch sizes for tensile testing 47

Table A.1 -- Allowable pressures 50

Table D.1 -- Pressure pipes 58

Table D.2 -- Gravity pipes 59

Table ZA.1 -- Relevant clauses for ductile iron pipes, fittings, accessories and their joints for sewerage applications 62

Table ZA.2 -- System of attestation of conformity 63

Table ZA.3 -- Assignment of evaluation of conformity tasks for ductile iron pipes, fittings, accessories and their joints for sewerage applications under system 4 63

Figures Figure 1 -- Longitudinal bending test 29

Figure 2 -- Diametral stiffness test 30

Figure 3 -- Leak tightness test of joints (internal pressure) 33

Figure 4 -- Leak tightness test of joints (external pressure) 34

Figure 5 -- Chemical resistance test 37

Figure 6 -- Socket and spigot pipes 37

Figure 7 -- Collars 39

Figure 8 -- Manhole connectors 39

Figure 9 -- Double socket bends 39

Figure 10 -- Angle branches 40

Figure 11 -- Connection branches 40

Figure 12 -- Inspection tees 41

Figure 13 -- Access traps 41

Figure ZA.1 -- Example of CE marking information for marking on the product 64

Figure ZA.2 -- Example of information on the accompanying documents 65