

# DIN EN 545:2007-02 (E)

## Ductile iron pipes, fittings, accessories and their joints for water pipelines - Requirements and test methods

---

Contents	Page
Foreword .....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 Technical requirements .....	9
4.1 General .....	9
4.2 Dimensional requirements .....	11
4.3 Material characteristics .....	15
4.4 Coatings and linings for pipes .....	16
4.5 Coatings for fittings and accessories .....	18
4.6 Marking of pipes and fittings .....	19
4.7 Leak tightness .....	20
5 Performance requirements for joints .....	20
5.1 General .....	20
5.2 Flexible joints .....	20
5.3 Restrained flexible joints .....	22
5.4 Flanged joints .....	22
5.5 Pipes with screwed or welded flanges .....	23
6 Test methods .....	24
6.1 Pipe dimensions .....	24
6.2 Straightness of pipes .....	25
6.3 Tensile testing .....	25
6.4 Brinell hardness .....	27
6.5 Works leak tightness test for pipes and fittings .....	27
6.6 Zinc mass .....	28
6.7 Thickness of paint coatings .....	29
6.8 Thickness of cement mortar lining .....	29
7 Performance test methods .....	29
7.1 Compressive strength of the cement mortar lining .....	29
7.2 Leak tightness of flexible joints to positive internal pressure .....	30
7.3 Leak tightness of flexible joints to negative internal pressure .....	30
7.4 Leak tightness of flexible push-in joints to positive external pressure .....	31
7.5 Leak tightness of flexible joints to dynamic internal pressure .....	31
7.6 Leak tightness and mechanical resistance of flanged joints .....	32
7.7 Leak tightness and mechanical resistance of screwed and welded flanges .....	32
8 Tables of dimensions .....	33
8.1 Socket and spigot pipes .....	33
8.2 Flanged pipes .....	35
8.3 Fittings for socketed joints .....	35
8.4 Fittings for flanged joints .....	51

<b>Annex A (normative) Allowable pressures .....</b>	<b>72</b>
A.1      General .....	72
A.2      Socket and spigot pipes (see 8.1) .....	72
A.3      Fittings for socketed joints (see 8.3) .....	73
A.4      Flanged pipes (see 8.2) and fittings for flanged joints (see 8.4) .....	73
<b>Annex B (informative) Longitudinal bending resistance of pipes .....</b>	<b>75</b>
<b>Annex C (informative) Diametral stiffness of pipes .....</b>	<b>76</b>
<b>Annex D (informative) Alternative pipe coatings, field of use, characteristics of soils .....</b>	<b>78</b>
D.1      Alternative pipe coatings .....	78
D.2      Field of use, characteristics of soils .....	79
<b>Annex E (informative) Field of use, water characteristics .....</b>	<b>80</b>
<b>Annex F (informative) Quality assurance .....</b>	<b>81</b>
F.1      General .....	81
F.2      Performance tests .....	81
F.3      Manufacturing process .....	81
<b>Annex G (informative) Calculation method of buried pipelines, heights of cover .....</b>	<b>83</b>
G.1      Calculation method .....	83
G.2      Heights of cover .....	85
<b>Bibliography .....</b>	<b>87</b>