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European Association for
Ductile Iron Pipe Systems
Fachgemeinschaft Guss-Rohrsysteme

EADIPS®/FGR® STANDARD 2013-06

Quality assurance for ductile iron pipes and fittings for sewer pipelines

Requirements and test methods

EADIPS®/FGR® 61

Qualitätssicherung für Rohre und Formstücke aus duktilem Gusseisen für die Abwasserentsorgung

Anforderungen und Prüfungen

Replaces 2012-02

edition

Amendments

To Normative references
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1. Scope

This standard applies to quality assurance, requirements and test methods of a wider scope than those dealt with in EN 598. It applies to ductile iron pipes, fittings and flanged joints complying with EN 598.

2. Normative references

EN ISO 9001
Quality management systems - Requirements (ISO 9001:2008)
2008

EN 598
Ductile iron pipes, fittings, accessories and their joints for sewerage applications –
Requirements and test methods
2007+A1:2009

EN 681-1
Elastomeric seals - Material requirements for pipe joint seals used in water and drainage applications –
Part 1: Vulcanized rubber
1996 + A1:1998 + A2:2002 + AC:2002 + A3:2005

EN 1092-2
Flanges and their joints –
Circular flanges for pipes, valves, fittings and accessories, PN designated –
Part 2: Cast iron flanges
1997

EN 14901
Ductile iron pipes, fittings and accessories –
Epoxy coating (heavy duty) of ductile iron fittings and accessories –
Requirements and test methods
2006

EN 15189
Ductile iron pipes, fittings and accessories - External polyurethane coating for pipes –
Requirements and test methods
2006

EN 15542
Ductile iron pipes, fittings and accessories - External cement mortar coating for pipes –
Requirements and test methods
2008

EN 15655
Ductile iron pipes, fittings and accessories –
Internal polyurethane lining for pipes and fittings –
Requirements and test methods
2009

DIN 28601
Ductile iron pipes and fittings –
Screwed socket joints –
Assembly, sockets, screw rings, sealing rings and slip rings
2000-06

DIN 28602
Ductile iron pipes and fittings - Bolted gland joints –
Assembly, sockets, counter ring, sealing ring, bolts and nuts
2000-05

DIN 28603
Ductile iron pipes and fittings - Push-in joints - Survey, sockets and gaskets
2002-05

DIN 28650
Ductile iron fittings - Double socket 30° bends, EN-fittings, MI-fittings, IT-fittings –
Application, dimensions
1999-11

DIN 30674-3
Sheathing ductile cast iron pipes - Part 3: Zinc coating with protective sheathing (finishing layer)
2001-03

DVGW GW 337
Rohre, Formstücke und Zubehör aus duktilem Gusseisen für die Gas- und Wasserversorgung;
Anforderungen und Prüfungen
(Ductile iron pipes, fittings and accessories for the gas and water supply; requirements and test methods)
2010-09

DVGW GW 337-B1
Beiblatt 1 zu DVGW-Prüfgrundlage GW 337 Rohre, Formstücke und Zubehörteile aus duktilem Gusseisen für die Gas- und Wasserversorgung –
Anforderungen und Prüfungen
(Supplement 1 of DVGW testing base GW 337 ductile cast iron pipes, fittings and accessories for gas- and water supply systems –
requirements and test methods)
2011-12

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Ductile iron pipes and fittings –
Marking of ductile iron pipes and fittings
2013-06

RAL-GZ 662
Schwerer Korrosionsschutz von Armaturen und Formstücken durch Pulverbeschichtung - Gütesicherung
(Heavy duty corrosion protection of valves and fittings by powder coating - quality assurance)
2008-01

3. Quality management / quality assurance

The term quality assurance means the practical demonstration that quality management (QM) exists, i.e. the keeping of evidence that a company has a properly functioning QM system. Quality assurance is thus a part of quality management. The aim of quality management is to ensure that quality requirements are met in a sustainable way.

The manufacturer undertakes to maintain in operation a certified QM system complying with EN ISO 9001.
The manufacturer must keep records of the tests and audits which are carried out as part of the internal auditing process.

4. Requirements and test methods

External auditing comprises at least the checking of the internal auditing and takes place at least once a year. The technical requirements, tests and frequencies of testing which apply will be those given in EN 598. The supplementary requirements and test methods are shown in **Table 1**.

Table 1: Supplementary requirements and test methods to EN 598

No.	Attributes	Requirements	Test methods
	External auditing	**Factory production control**	**Documentation of internal auditing**
1	Dimensions and tolerances - sockets	- DIN 28601 (bolted gland sockets) - DIN 28602 (screwed sockets) - DIN 28603 (push-in sockets)	By use of gauge and/or suitable measuring equipment
2	Dimensions of fittings	As specified in DIN 28650 for fittings not covered in EN 598	As specified in DIN 28650; tolerances in accordance with EN 545
3	Coatings of the inner surfaces of sockets for pipes	As specified in EN 598; but sewer pipes additionally with a priming, or a metallic zinc coating, or a socket lining in accordance with EN 15655.	As specified in EN 598, clause 6.7
4	Thicker metallic coatings of zinc for pipes	As specified in DIN 30674-3, when the mean mass of zinc per unit area ≥ 160 g/m^2 with a local minimum value of ≥ 130 g/m^2	As specified in DIN 30674-3
5	Epoxy internal and external coatings for fittings	As specified in Quality Association for the Heavy Duty Corrosion Protection of Powder Coated Valves and Fittings (GSK) RAL-GZ 662	
6	Marking of pipes and fittings	EADIPS®/FGR® 33	

5. Manufacture of ductile iron pipes and fittings

For the manufacture of ductile iron pipes and fittings, each manufacturer must specify the process steps required and the attributes which have to be tested. This is what serves as the basis for the certification of the quality management system under EN ISO 9001: 2008.

6. Internal auditing

As part of its internal auditing, the manufacturer must ensure that the requirements of this standard are met in the course of ongoing production. The results of the internal auditing process must be documented in accordance with the manufacturer's audit plan.

6.1 Frequency and scope

As part of its external auditing system, the manufacturer must specify the frequency (plan for random sampling) and scope of its internal auditing in audit plans. The frequency and scope must at least meet the requirements given in Table 13 of EN 598.

7. External auditing

As part of an annual external audit, a recognized, independent auditing body must check on whether the manufacturer is complying with the requirements of this standard. If non-compliances are found in the course of external audits, a timetable for corrective measures and re-testing must be agreed with the auditing body without delay.