EADIPS® FGR®

European Association for Ductile Iron Pipe Systems

Fachgemeinschaft Guss-Rohrsysteme

EADIPS®/FGR® STANDARD **2013-06**

Ductile iron pipes

Marking of the allowable operating pressure PFA of restrained flexible push-in socket joints of pipes

Supplement to EN 545:2010

EADIPS®/FGR® 75

Rohre aus duktilem Gusseisen

Kennzeichnung des zulässigen Bauteilbetriebsdrucks (PFA) längskraftschlüssiger beweglicher Steckmuffen-Verbindungen von Rohren

Ergänzung zur EN 545:2010

Replaces 2012-06 edition

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1. Foreword

By introducing pressure classes for non-restrained pipes, EN 545:2010 met an implicit requirement of EN 14801. For pipes which have restrained push-in joints such as are needed for trenchless installation techniques or to ensure the stability of buried ductile iron pipelines, the marking requirements given in EN 545:2010 need to be supplemented.

For the same pipe wall-thickness e_{min}, restrained flexible push-in socket joints reduce the allowable operating pressure PFA of a non-restrained pipe. The reduction depends on:

- the way in which forces are transmitted (by friction locking or positive locking),
- the performance of the design of joint,
- the DN nominal size.

Also, no distinction is made in EN 545:2010 between the different types of restrained push-in joint (positive locking, friction locking, single-chamber system, double-chamber system, etc.). Nor does it include any provision for the marking of the allowable operating pressure (PFA) of restrained push-in joints.

2. Scope

This EADIPS®/FGR® standard supplements EN 545:2010 by adding provisions for the marking of the allowable operating pressure (PFA) of restrained flexible push-in socket joints of pipes.

3. Normative references

EN 545
Ductile iron pipes, fittings, accessories and their joints for water pipelines –
Requirements and test methods
2010

EN 14801
Conditions for pressure classification of products for water and wastewater pipelines
2006

DIN 28603
Ductile iron pipes and fittings - Push-in joints - Survey, sockets and gaskets
[Rohre und Formstücke aus duktilem Gusseisen - Steckmuffen-Verbindungen - Zusammenstellung, Muffen und Dichtungen]
2002-05

4. Terms additional to EN 545:2010

4.1 Restrained flexible push-in joint

Flexible push-in joint of different types of construction (single-chamber or double-chamber socket) in which forces are transmitted in different ways (by positive locking or friction locking).

4.2 Positive locking flexible push-in joint

Flexible push-in joint in which forces are transmitted by integrally or quasi-integrally formed members e.g. a welded bead on the spigot end in conjunction with force-transmitting components and a front chamber.

4.3 Friction locking flexible push-in joint

Flexible push-in joint in which forces are transmitted by friction locking, e.g. by toothed members which hook firmly onto the surface of the spigot end.

4.4 Restrained flexible single-chamber push-in joint

Flexible joint in which a mechanism prevents the push-in joint from separating and in which the sealing and retaining functions are performed in a single chamber in the internal profile of the socket (e.g. a socket to DIN 28603).

4.5 Restrained flexible double-chamber push-in joint

Flexible joint in which a mechanism prevents the push-in joint from separating and in which the sealing and retaining functions are performed in two independent chambers in the internal profile of the socket. In the case of a single-chamber socket, the chamber for the retaining function may be bolted to the front of the socket, thus making the socket into a double-chamber socket.

5. Features and markings additional to EN 545:2010

5.1 Positive locking push-in joints

Pipes with positive locking push-in joints can be recognised by the welded bead which is applied in the factory to the spigot end. The sockets include an integrally cast or bolted-on locking chamber.

The PFA of the restrained (positive locking) push-in joint shall be legibly marked on the pipe together with its types of construction (whether it is single-chamber or double-chamber). If, in a given nominal size, restrained (positive locking) push-in joints of different types of construction and different PFA's are available, the manufacturer's standard PFA shall be marked. The manufacturer shall state the standard and special PFA's in its product documentation.

5.2 Friction locking push-in joints

Pipes with friction locking push-in joints and single-chamber sockets, e.g. to DIN 28603, are generally fitted with special gaskets which include toothed members. The sealing and restraining functions are not independent in this case.

Alternatively, the sockets may have an integrally cast or bolted-on locking chamber. In this case the sealing and restraining functions are independent.

The PFA of the restrained (friction locking) push-in joint shall be legibly marked on the pipe together with its types of construction.