

Guidance on the classification and design of plastics piping systems used for renovation

The European Standard EN 13689:2002 has the status of a
British Standard

ICS 23.040.01

National foreword

This British Standard is the official English language version of EN 13689:2002.

The UK participation in its preparation was entrusted by Technical Committee PRI/88, Plastics piping systems, to Subcommittee PRI/88/3, Rehabilitation, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Additional information

EN 13689 makes reference only to those renovation techniques and materials which are the subject of current European Standards. As further European Standards on renovation are developed, EN 13689 will be updated accordingly.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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English version

Guidance on the classification and design of plastics piping systems used for renovation

Guide pour la classification et la conception des systèmes
de canalisations en plastique destinés à la rénovation

Leitfaden zur Klassifizierung und Planung von Kunststoff-
Rohrleitungssystemen für Renovierung

This European Standard was approved by CEN on 26 August 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document EN 13689:2002 has been prepared by Technical Committee CEN/TC 155 "Plastics piping and ducting systems", the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.

It provides an overview of the system standards for plastics pipeline systems used for renovation, and updates and extends the information given in ISO/TR 11295.

System standards for renovation dealing with the following applications are either available or in preparation:

Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks (prEN 13566).

Plastics piping systems for renovation of underground water supply networks (partly future work).

Plastics piping systems for renovation of underground gas supply networks (partly future work).

Plastics piping systems for renovation of underground drainage and sewerage networks under pressure (future work).

Plastics piping systems for renovation of industrial pipelines (possible future work).

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard is a guidance document, defining families of techniques for renovation of non-pressure and pressure pipelines by use of plastics pipes, fittings and ancillary components.

It provides guidance on the principles of, but not detailed methodologies for, the design of plastics piping systems applied as linings to existing pipelines, covering:

- liner functions;
- existing pipeline and site conditions;
- technique related aspects;
- structural aspects;
- hydraulic aspects.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 805, *Water supply — Requirements for systems and components outside buildings.*

EN 752-4, *Drain and sewer systems outside buildings – Part 4: Hydraulic design and environmental considerations.*

EN 752-5, *Drain and sewer systems outside buildings – Part 5: Rehabilitation.*

EN 12007-4, *Gas supply systems — Pipelines for maximum operating pressure up to and including 16 bar — Part 4: Specific functional recommendations for renovation.*

EN ISO 1043-1:2001, *Plastics – Symbols and abbreviated terms – Part 1: Basic polymers and their special characteristics (ISO 1043-1:2001).*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions in EN ISO 1043-1:1999 together with the following apply.

3.1

lining pipe

pipe to be inserted for renovation purposes

3.2

liner

lining pipe after installation

3.3

lining system

lining pipe and all relevant fittings inserted into an existing pipeline for the purposes of renovation

3.4

maintenance

keeping an existing pipeline system operational without the installation of additional fabric

3.5**rehabilitation**

all measures for restoring or upgrading the performance of an existing pipeline system

3.6**renovation**

work incorporating all or part of the original fabric of the pipeline by means of which its current performance is improved

3.7**repair**

rectification of local damage

3.8**replacement**

rehabilitation of an existing pipeline system by the installation of a new pipeline system, without incorporating the original fabric

3.9**technique family**

grouping of renovation techniques which are considered to have common characteristics for standardisation purposes

3.10**independent pressure pipe liner**

liner capable on its own of resisting without failure all applicable internal loads throughout its design life

3.11**interactive pressure pipe liner**

liner which relies on the existing pipeline for some measure of radial support in order to resist without failure all applicable internal loads throughout its design life

NOTE For ease of reference in this document, definitions of the following individual technique families reproduced from other standards are included throughout clause 4 instead of in this clause:

- lining with continuous pipes see 4.2
- lining with close-fit pipes see 4.3
- lining with cured-in-place pipes see 4.4
- lining with discrete pipes see 4.5
- lining with inserted hoses see 4.6
- lining with spirally-wound pipes see 4.7

4 Classification of renovation techniques**4.1 General**

Renovation techniques within the scope of this standard are classified in technique families as illustrated in Figure 1.

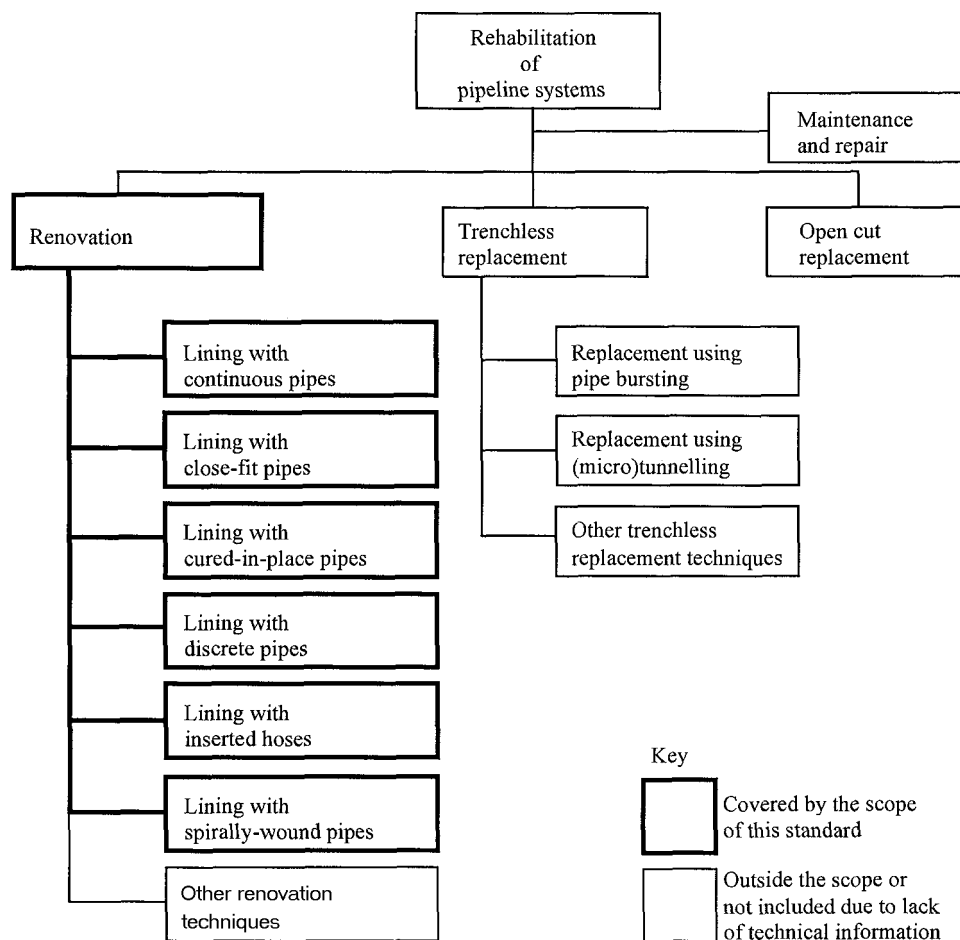


Figure 1 — Renovation technique families using plastics pipes defined in the overall context of rehabilitation of pipeline systems

In 4.2 to 4.7, the different renovation technique families are defined and specified by reference to system standards and the materials and fields of application these cover. In addition, certain general characteristics of each renovation technique family are described.

4.2 Lining with continuous pipes

Definition: Lining with pipe made continuous for the length of the section to be renovated prior to insertion; the cross section of the lining pipe remains unchanged (see Figure 2).

NOTE Often referred to as sliplining.