



BSI Standards Publication

**Plastics piping systems - Validated design
parameters of buried thermoplastics piping systems**

National foreword

This Published Document is the UK implementation of CEN/TS 15223:2017.

The UK participation in its preparation was entrusted to Technical Committee PRI/88, Plastics piping systems.

A number of errors and omissions have been detected in this document. Until these can be addressed by CEN/TC 155, the following clarifications have been provided by BSI committee PRI/88, Plastics piping systems, for the guidance of readers.

Clause 3.1.6: q_{crit} should refer to the critical external pressure causing buckling of the pipe.

Figure 1: The middle box on the right-hand side of the flow chart should state 'Use calculation for structural design' rather than 'Use practical for structural design'.

Clause 5.3: It is the view of the UK committee that the cited Reference [4] is not the source of the statements on strain limits in this subclause. Readers are guided to reference [17], which together with the subsequent book by the same author, listed below as additional reference [20], makes clear that the cited conclusion from research studies that 'for all practical purposes these [thermoplastics] materials are not strain limited' applies only to solid wall pipes. For structured wall plastics pipes, the strain limits specified in Table 3 can prove critical in structural design.

The statement in the second paragraph that "Passing this [EN ISO 13968 ring flexibility] test ensures stability against buckling." should refer to local buckling stability of structured wall pipes only.

Clause 5.6: It is the view of the UK committee that the cited Reference [9] is not the source of Formula (1) and Formula (2). Readers are guided to additional Reference [20], which advises that Formula (1) is amended in the case of soft soils, with the long-term ring stiffness S_L of the pipe replacing the short-term ring stiffness expressed by SN. For clarification, E_t refers to the soil tangent modulus.

Clause 5.6, EXAMPLE: Readers are guided to additional Reference [20], which for deep burial with sustained groundwater head advises the use of an amended Formula (1), with the long-term ring stiffness S_L of the pipe replacing the short-term ring stiffness expressed by SN.

Clause 6.7.1: The second paragraph of Clause 6.7.1 should relate to the free creeping design condition for positive internal pressure resistance described in Clause 6.7.2.

Clause 6.10: The UK committee draws attention to the need to consider the additional longitudinal stresses and strains arising from any internal pressurization, due to the Poisson effect and/or any unrestrained changes in pipe alignment. These can particularly impact the design or selection of suitable joints and connection fittings.

The following additional reference, cited above, provides essential background to the document:

[20] Janson, L.E. (1999). *Plastics pipes for water supply and sewage disposal*. 3rd ed. Stockholm: Borealis.