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**JIS K 7033** : 1998

(ISO/DIS 8513 : 1996)

**Plastics piping systems—  
Pipes made of glass-reinforced  
thermosetting plastics (GRP)—  
Determination of initial longitudinal  
tensile properties**

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ICS 23.040.20

**Descriptors** : plastic pipelines, plastics, reinforcing materials, glass fibres, pipes, pipe fittings, tensile strength, tensile strain, tensile stress

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## Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

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# Plastics piping systems — Pipes made of glass-reinforced thermosetting plastics (GRP) — Determination of initial longitudinal tensile properties

**Introduction** This Japanese Industrial Standard has been prepared based on ISO/DIS 8513, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) — Determination of initial longitudinal tensile properties* issued in 1996 without changing its technical contents.

## 1 Scope

This standard specifies three test methods for determining the longitudinal tensile properties of pipes of glass-reinforced thermosetting plastics (GRP). The properties which can be determined are:

- the longitudinal tensile strength
- the percentage ultimate elongation
- the longitudinal modulus of elasticity.

Method A uses for the test piece(s) a longitudinal strip cut from a pipe.

Method B uses a specified length of the full cross section of the pipe.

Method C uses a notched plate cut from a pipe wall section.

Method A is applicable to pipes with a nominal size DN 50 or greater with circumferentially wound filaments, with or without chopped glass and/or woven rovings and/or fillers, and to centrifugally cast pipes. It is applicable to those pipes with helically wound filaments with a nominal size DN 200 or greater.

Method B is applicable to all types of GRP pipes. It is usually used for pipes with a nominal size up to and including DN 300.

Method C is primarily intended for use for helically wound pipes with a winding angle other than approximately 90°. This method may also be used for other types of pipe.

Results from one method are not necessarily equal to the results derived from any of the alternative methods. However, all methods have equal validity.

## 2 Term(s) and definition(s)

For the purposes of this standard, the following definitions apply:

a)

**initial longitudinal tensile strength** ( $\sigma_{A}^*$ ,  $\sigma_{B}^*$ ,  $\sigma_{C}^*$ )

The maximum tensile force in the longitudinal direction per unit mean circumference (see 2.6) at failure (the upper-case subscripts denote the method of test used).