

# ISO 16611:2026-01 (E)

## Plastics piping systems for drainage and sewerage without pressure - Non-circular pipes and joints made of glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resins (UP) - Dimensions, requirements and tests

Contents		Page
Foreword		v
Introduction		vi
<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Normative references</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions</b>	<b>2</b>
<b>4</b>	<b>General requirements</b>	<b>8</b>
4.1	Classification	8
4.1.1	Categories	8
4.1.2	Nominal size	8
4.2	Materials	8
4.2.1	General	8
4.2.2	Reinforcement	9
4.2.3	Resin	9
4.2.4	Aggregates and fillers	9
4.2.5	Elastomers	9
4.2.6	Metals	9
4.3	Wall construction	9
4.3.1	Inner layer	9
4.3.2	Structural layer	10
4.3.3	Outer layer	10
4.3.4	Appearance	10
4.4	Reference conditions for testing	10
4.4.1	Temperature	10
4.4.2	Properties of water for testing	10
4.4.3	Loading conditions	10
4.4.4	Conditioning	10
4.4.5	Measurement of dimensions	10
4.4.6	Elapsed time for determination of long-term properties, (x)	11
4.5	Joints	11
4.5.1	General	11
4.5.2	Types of joint	11
4.5.3	Flexibility of the jointing system	11
4.5.4	Sealing ring	11
4.5.5	Adhesives	11
4.6	Assessment of conformity	11
<b>5</b>	<b>Pipes</b>	<b>12</b>
5.1	Geometrical characteristics — Dimensions	12
5.2	Mechanical characteristics	13
5.2.1	General	13
5.2.2	Short-term bending modulus	13
5.2.3	Long-term creep bending modulus	14
5.2.4	Short-term bending resistance	14
5.2.5	Long-term bending strength	15
5.2.6	Resistance to strain corrosion	17
5.2.7	Minimum initial longitudinal tensile strength	17
5.3	Marking	18

<b>6</b>	<b>Fittings</b> .....	<b>19</b>
6.1	All types.....	19
6.1.1	General.....	19
6.1.2	Diameter series.....	19
6.1.3	Mechanical characteristics of fittings.....	19
6.1.4	Installed leak tightness of fittings.....	19
6.1.5	Dimensions.....	19
6.2	Marking.....	19
<b>7</b>	<b>Joint performance</b> .....	<b>20</b>
7.1	General.....	20
7.1.1	Requirements.....	20
7.1.2	Test temperature.....	20
7.1.3	Dimensions.....	20
7.2	Flexible joints.....	20
7.2.1	General.....	20
7.2.2	Maximum allowable draw.....	20
7.2.3	Maximum allowable angular deflection.....	20
7.2.4	Maximum allowable misalignment.....	20
7.2.5	Flexible non-end-load-bearing joints with elastomeric sealing rings.....	21
7.3	Rigid joints.....	21
7.3.1	General.....	21
7.3.2	Number of test pieces for type testing.....	22
7.3.3	Test pieces.....	22
	<b>Annex A (informative) Static calculation methods</b> .....	<b>23</b>
	<b>Bibliography</b> .....	<b>24</b>