

# ISO 11295:2017-11 (E)

## Classification and information on design and applications of plastics piping systems used for renovation and replacement

---

<b>Contents</b>		<b>Page</b>
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>1</b>
<b>4</b>	<b>Abbreviated terms .....</b>	<b>5</b>
<b>5</b>	<b>Classification of renovation and replacement techniques .....</b>	<b>6</b>
<b>6</b>	<b>Classification of renovation techniques .....</b>	<b>7</b>
6.1	General .....	7
6.2	Lining with continuous pipes .....	7
6.3	Lining with close-fit pipes .....	9
6.4	Lining with cured-in-place pipes .....	11
6.5	Lining with discrete pipes .....	14
6.6	Lining with adhesive-backed hoses .....	16
6.7	Lining with spirally-wound pipes .....	18
6.8	Lining with pipe segments .....	20
6.9	Lining with a rigidly anchored plastics inner layer .....	22
6.10	Lining with sprayed polymeric materials .....	23
6.11	Lining with inserted hoses .....	25
<b>7</b>	<b>Classification of trenchless replacement techniques .....</b>	<b>26</b>
7.1	General .....	26
7.2	Pipe bursting .....	26
7.3	Pipe removal .....	29
7.3.1	General .....	29
7.3.2	Pipe eating .....	29
7.3.3	Pipe extraction .....	29
7.4	Horizontal directional drilling -- HDD .....	31
7.5	Impact moling .....	34
7.6	Pipe jacking .....	35
7.6.1	General .....	35
7.6.2	Auger boring .....	35
7.6.3	Microtunnelling .....	36
<b>8</b>	<b>Information on design .....</b>	<b>38</b>
8.1	General .....	38
8.2	Condition assessment .....	38
8.2.1	General .....	38
8.2.2	Pipeline condition affecting functional performance .....	39
8.2.3	Site conditions affecting design .....	40
8.3	System functions .....	40
8.3.1	Renovation .....	40
8.3.2	Replacement .....	41
8.4	Performance criteria .....	41

8.4.1	Structural performance .....	41
8.4.2	Hydraulic performance .....	45
8.5	Other factors affecting technique family selection .....	45
9	Aspects affecting installation .....	46
9.1	Site conditions affecting installation .....	46
9.1.1	Working space requirements .....	46
9.1.2	Environmental impact .....	46
9.1.3	Assessment of site conditions .....	47
9.2	Work preparatory for installation .....	47
9.2.1	General .....	47
9.2.2	Location of existing pipeline system .....	47
9.2.3	Dimensions of existing pipeline system .....	48
9.2.4	Provision for maintenance of pipeline service .....	48
9.2.5	Preparation of existing pipeline .....	48
	Bibliography .....	49