

ISO 16134:2006-02 (E)

Earthquake- and subsidence-resistant design of ductile iron pipelines

Contents	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Terms and definitions	1
3 Earthquake-resistant design	1
3.1 Seismic hazards to buried pipelines	1
3.2 Qualitative design considerations	2
3.3 Design procedure	2
3.4 Earthquake resistance calculations and safety checking	3
3.5 Calculation of earthquake resistance -- Response displacement method	3
4 Design for ground deformation by earthquake	6
4.1 General	6
4.2 Evaluation of possibility of liquefaction	6
4.3 Checking basic resistance	7
5 Design for ground subsidence in soft ground (e.g. reclaimed ground)	7
5.1 Calculating ground subsidence	7
5.2 Basic safety checking	7
6 Pipeline system design	8
6.1 Pipeline components	8
6.2 Earthquake-resistant joints	8
Annex A (informative) Example of earthquake resistance calculation	9
Annex B (informative) Relationship between seismic intensity scales and ground surface acceleration	17
Annex C (informative) Example of calculation of liquefaction resistance coefficient value	18
Annex D (informative) Checking pipeline resistance to ground deformation	23
Annex E (informative) Example of ground subsidence calculation	26
Bibliography	32