ISO 13703:2000-12 (E)

Petroleum and natural gas industries - Design and installation of piping systems on offshore production platforms

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Terms, definitions, symbols and abbreviated terms 2
3.1 Terms and definitions 2
3.2 Symbols and abbreviated terms 4

4 General considerations 6
4.1 Materials 6
4.2 Code of pressure piping 7
4.3 Demarcation between systems with different pressure ratings 7
4.4 Corrosion considerations 9

5 Piping design 10
5.1 Pipe material grades 10
5.2 Sizing criteria -- General 12
5.3 Sizing methods for liquid lines 12
5.4 Sizing criteria for single-phase gas lines 19
5.5 Sizing criteria for gas/liquid two-phase lines 23
5.6 Pipe wall thicknesses 26
5.7 Joint connections 30
5.8 Expansion and flexibility 31
5.9 Start-up provisions 32

6 Selection of valves 32
6.1 General 32
6.2 Types of valves 33
6.3 Fire resistance of valves 35
6.4 Valve sizing 35
6.5 Valve pressure and temperature ratings 36
6.6 Valve materials 37

7 Fittings and flanges 37
7.1 General 37
7.2 Welded fittings 38
7.3 Screwed fittings 38
7.4 Branch connections 38
7.5 Flanges 39
7.6 Proprietary connectors 41
7.7 Special requirements for sulfide stress-cracking service 41
7.8 Erosion prevention 41

8 Design considerations for particular piping systems 41
8.1 General 41
8.2 Wellhead accessory items 41
8.3 Flowline and flowline accessories 42

8.4 Production manifolds 45
8.5 Process vessel piping 45
8.6 Utility systems 47
8.7 Heating fluid and glycol systems 48
8.8 Pressure relief and disposal systems 48
8.9 Drain systems 50
8.10 Bridge piping between platforms 50
8.11 Risers 50
8.12 Sampling valves 51

9 Considerations of related items 51
9.1 General 51
9.2 Layout 51
9.3 Elevations 51
9.4 Piping supports 51
9.5 Other corrosion considerations 51
9.6 Thermal insulation 54
9.7 Noise 56
9.8 Pipe, valves and fittings tables 56
9.9 Inspection, maintenance, repair and modification 56

10 Installation and quality control 56
10.1 General 56
10.2 Welding 56
10.3 Pressure testing 57
10.4 Test record 58

Annex A (informative) Example problems 59

Annex B (informative) Examples of pipe, valves and fittings tables 71

Annex C (informative) Acceptable butt-welded joint design for unequal wall thicknesses 74

Bibliography 76