

# Specification for Ancillary Equipment for Flexible Pipes and Subsea Umbilicals

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# Contents

	Page
<b>1</b>	Scope..... 1
<b>2</b>	Normative References ..... 2
<b>3</b>	Terms, Definitions, Abbreviations, and Symbols ..... 5
<b>3.1</b>	Terms and Definitions ..... 5
<b>3.2</b>	Abbreviations and Symbols ..... 13
<b>4</b>	General Requirements..... 14
<b>4.1</b>	Description ..... 14
<b>4.2</b>	Functional Requirements ..... 14
<b>4.3</b>	Design Requirements ..... 17
<b>4.4</b>	Material Requirements ..... 24
<b>4.5</b>	Manufacturing Requirements ..... 29
<b>4.6</b>	Documentation ..... 33
<b>4.7</b>	Factory Acceptance Tests ..... 36
<b>4.8</b>	Marking and Packaging ..... 37
<b>5</b>	Bend Stiffeners ..... 37
<b>5.1</b>	Applicability ..... 37
<b>5.2</b>	Functional Requirements ..... 37
<b>5.3</b>	Design Requirements ..... 40
<b>5.4</b>	Material Requirements ..... 44
<b>5.5</b>	Manufacturing Requirements ..... 45
<b>5.6</b>	Documentation ..... 47
<b>5.7</b>	Factory Acceptance Tests (FAT) ..... 48
<b>5.8</b>	Marking ..... 49
<b>6</b>	Bend Restrictors ..... 49
<b>6.1</b>	Applicability ..... 49
<b>6.2</b>	Functional Requirements ..... 50
<b>6.3</b>	Design Requirements ..... 53
<b>6.4</b>	Material Requirements ..... 56
<b>6.5</b>	Manufacturing Requirements ..... 57
<b>6.6</b>	Documentation ..... 58
<b>6.7</b>	Factory Acceptance Tests ..... 59
<b>6.8</b>	Marking and Packaging ..... 62
<b>7</b>	Bellmouths ..... 63
<b>7.1</b>	Applicability ..... 63
<b>7.2</b>	Functional Requirements ..... 63
<b>7.3</b>	Design Requirements ..... 65
<b>7.4</b>	Material Requirements ..... 66
<b>7.5</b>	Manufacturing Requirements ..... 67
<b>7.6</b>	Documentation ..... 68
<b>7.7</b>	Factory Acceptance Tests ..... 69
<b>7.8</b>	Marking ..... 70
<b>8</b>	Buoyancy and Ballast Modules ..... 70
<b>8.1</b>	Applicability ..... 70
<b>8.2</b>	Functional Requirements ..... 70

## Contents

	Page
8.3	Design Requirements—Loads ..... 73
8.4	Design Methodology ..... 73
8.5	Qualification Requirements ..... 77
8.6	Manufacturing Requirements ..... 80
8.7	Documentation ..... 82
8.8	Factory Acceptance Tests ..... 83
8.9	Marking and Packaging ..... 86
<b>9</b>	<b>Subsea Buoys ..... 87</b>
9.1	Applicability ..... 87
9.2	Functional Requirements ..... 87
9.3	Design Requirements ..... 91
9.4	Material Requirements ..... 95
9.5	Manufacturing Requirements ..... 96
9.6	Documentation ..... 97
9.7	Factory Acceptance Tests ..... 99
9.8	Marking ..... 101
<b>10</b>	<b>Tethers ..... 102</b>
10.1	Applicability ..... 102
10.2	Functional Requirements ..... 102
10.3	Design Requirements ..... 104
10.4	Material Requirements ..... 106
10.5	Manufacturing Requirements ..... 107
10.6	Documentation—Design Report ..... 107
10.7	Factory Acceptance Tests ..... 108
10.8	Marking and Packaging ..... 108
<b>11</b>	<b>General Clamping Device Requirements ..... 109</b>
11.1	Applicability ..... 109
11.2	Functional Requirements ..... 109
11.3	Design Requirements ..... 110
11.4	Material Requirements—Polymer Inner-liner Materials ..... 111
11.5	Documentation—Clamp Design Report ..... 112
<b>12</b>	<b>Subsea Buoy Clamps ..... 112</b>
12.1	Applicability ..... 112
12.2	Functional Requirements ..... 113
12.3	Design Requirements ..... 114
12.4	Material Requirements ..... 115
12.5	Manufacturing Requirements—Process Control ..... 115
12.6	Documentation ..... 115
12.7	Factory Acceptance Tests ..... 116
12.8	Marking ..... 117
<b>13</b>	<b>Tether Clamps ..... 117</b>
13.1	Applicability ..... 117
13.2	Functional Requirements ..... 118
13.3	Design Requirements ..... 119
13.4	Material Requirements ..... 121
13.5	Manufacturing Requirements—Process Control ..... 122

## Contents

	Page
<b>13.6</b> Documentation.....	122
<b>13.7</b> Factory Acceptance Tests .....	123
<b>13.8</b> Marking .....	124
<b>14</b> Piggy-back Systems .....	125
<b>14.1</b> Applicability .....	125
<b>14.2</b> Functional Requirements .....	125
<b>14.3</b> Design Requirements .....	127
<b>14.4</b> Material Requirements.....	130
<b>14.5</b> Manufacturing Requirements.....	131
<b>14.6</b> Documentation.....	132
<b>14.7</b> Factory Acceptance Tests .....	133
<b>14.8</b> Marking .....	134
<b>15</b> Repair Clamps .....	135
<b>15.1</b> Applicability .....	135
<b>15.2</b> Functional Requirements .....	135
<b>15.3</b> Design Requirements .....	136
<b>15.4</b> Material Requirements.....	138
<b>15.5</b> Manufacturing Requirements.....	138
<b>15.6</b> Documentation.....	138
<b>15.7</b> Factory Acceptance Tests .....	140
<b>15.8</b> Marking .....	141
<b>16</b> I/J-tube Seals .....	141
<b>16.1</b> Applicability .....	141
<b>16.2</b> Functional Requirements .....	142
<b>16.3</b> Design Requirements .....	143
<b>16.4</b> Material Requirements.....	145
<b>16.5</b> Manufacturing Requirements.....	146
<b>16.6</b> Documentation.....	147
<b>16.7</b> Factory Acceptance Tests .....	148
<b>16.8</b> Marking and Packaging .....	150
<b>17</b> Pull-in Heads .....	151
<b>17.1</b> Applicability .....	151
<b>17.2</b> Functional Requirements .....	151
<b>17.3</b> Design Requirements .....	152
<b>17.4</b> Manufacturing Requirements—Tolerances.....	153
<b>17.5</b> Documentation Requirements .....	153
<b>17.6</b> Factory Acceptance Tests .....	155
<b>17.7</b> Marking and Packaging .....	156
<b>18</b> Chinese Fingers/Cable Grips.....	156
<b>18.1</b> Applicability .....	156
<b>18.2</b> Functional Requirements .....	156
<b>18.3</b> Design Requirements .....	158
<b>18.4</b> Material Requirements.....	158
<b>18.5</b> Manufacturing Requirements.....	158
<b>18.6</b> Documentation Requirements .....	158
<b>18.7</b> Factory Acceptance Tests .....	159

## Contents

	Page
18.8	Marking ..... 159
19	Connectors ..... 160
19.1	Applicability ..... 160
19.2	Functional Requirements ..... 160
19.3	Design Requirements ..... 161
19.4	Material Requirements ..... 164
19.5	Manufacturing Requirements ..... 164
19.6	Documentation ..... 164
19.7	Factory Acceptance Tests ..... 165
19.8	Marking and Packaging ..... 165
20	Load-transferring Devices ..... 166
20.1	Applicability ..... 166
20.2	Functional Requirements ..... 166
20.3	Design Requirements ..... 168
20.4	Material Requirements ..... 172
20.5	Manufacturing Requirements ..... 172
20.6	Documentation ..... 172
20.7	Factory Acceptance Tests ..... 174
20.8	Marking and Packaging ..... 176
21	Mechanical Protection ..... 176
21.1	Applicability ..... 176
21.2	Functional Requirements—General ..... 176
21.3	Functional Requirements—Abrasion and Impact Protection ..... 177
21.4	Functional Requirements—Blanket Protection ..... 178
21.5	Design Requirements—General ..... 179
21.6	Design Requirements—General ..... 180
21.7	Material Requirements ..... 181
21.8	Manufacturing Requirements—Process Control ..... 182
21.9	Documentation ..... 182
21.10	Factory Acceptance Tests ..... 184
21.11	Marking and Packaging ..... 185
22	Fire Protection ..... 186
22.1	Applicability ..... 186
22.2	Functional Requirements ..... 186
22.3	Design Requirements ..... 188
22.4	Material Requirements ..... 190
22.5	Manufacturing Requirements ..... 191
22.6	Documentation ..... 191
22.7	Factory Acceptance Tests ..... 192
22.8	Marking ..... 193
23	VIV Suppression Strakes ..... 193
23.1	Applicability ..... 193
23.2	Functional Requirements ..... 193
23.3	Design Requirements ..... 194
23.4	Material Requirements ..... 196
23.5	Manufacturing Requirements ..... 196

## Contents

	Page
<b>23.6</b> Documentation.....	197
<b>23.7</b> Factory Acceptance Tests .....	198
<b>23.8</b> Marking and Packaging .....	199
Annex A (informative) Purchasing Guidelines for Bend Stiffeners.....	200
Annex B (informative) Purchasing Guidelines for Bend Restrictors .....	207
Annex C (informative) Purchasing Guidelines for Bellmouths.....	212
Annex D (informative) Purchasing Guidelines for Buoyancy and Ballast Modules .....	217
Annex E (informative) Purchasing Guidelines for Subsea Buoys.....	229
Annex F (informative) Purchasing Guidelines for Tethers .....	236
Annex G (informative) Purchasing Guidelines for Riser and Tether Bases.....	240
Annex H (informative) Purchasing Guidelines for Subsea Buoy Clamps.....	250
Annex I (informative) Purchasing Guidelines for Tether Clamps .....	255
Annex J (informative) Purchasing Guidelines for Piggy-back Systems.....	261
Annex K (informative) Purchasing Guidelines for Repair Clamps.....	269
Annex L (informative) Purchasing Guidelines for I/J-tube Seals .....	274
Annex M (informative) Purchasing Guidelines for Pull-in Heads.....	280
Annex N (informative) Purchasing Guidelines for Chinese Fingers/Cable Grips .....	282
Annex O (informative) Purchasing Guidelines for Connectors .....	284
Annex P (informative) Purchasing Guidelines for Load-transfer Devices.....	289
Annex Q (informative) Purchasing Guidelines for Mechanical Protection.....	295
Annex R (informative) Purchasing Guidelines for Fire Protection .....	302
Annex S (informative) Purchasing Guidelines for VIV Suppression Strakes.....	307
Bibliography.....	310

## Figures

<b>1</b> Bend Restrictor Coverage .....	51
<b>2</b> Module Deployment Through MWL .....	76
<b>3</b> Example of Hang-off Arrangement.....	171

## Contents

	Page
<b>4</b>	Load-transfer Device Pull-in Test..... 175
<b>A.1</b>	Purchasing Guidelines for Bend Stiffeners ..... 200
<b>B.1</b>	Purchasing Guidelines for Bend Restrictors ..... 207
<b>C.1</b>	Purchasing Guidelines for Bellmouths ..... 212
<b>D.1</b>	Purchasing Guidelines for Buoyancy Modules ..... 217
<b>D.2</b>	Purchasing Guidelines for Ballast Modules ..... 224
<b>E.1</b>	Purchasing Guidelines for Subsea Buoys ..... 229
<b>F.1</b>	Purchasing Guidelines for Tethers ..... 236
<b>G.1</b>	Purchasing Guidelines for Riser Bases ..... 240
<b>G.2</b>	Purchasing Guidelines for Tether Bases ..... 245
<b>H.1</b>	Purchasing Guidelines for Subsea Buoy Clamps ..... 250
<b>I.1</b>	Purchasing Guidelines for Tether Clamps..... 255
<b>J.1</b>	Purchasing Guidelines for Piggy-back Systems ..... 261
<b>K.1</b>	Purchasing Guidelines for Repair Clamps..... 269
<b>L.1</b>	Purchasing Guidelines for I/J-tube Seals..... 274
<b>M.1</b>	Purchasing Guidelines for Pull-in Heads ..... 280
<b>N.1</b>	Purchasing Guidelines for Chinese Fingers ..... 282
<b>O.1</b>	Purchasing Guidelines for Connectors ..... 284
<b>P.1</b>	Purchasing Guidelines for Load-transfer Devices ..... 289
<b>Q.1</b>	Purchasing Guidelines for Abrasion and Impact Protection..... 295
<b>Q.2</b>	Purchasing Guidelines for Blanket Protection ..... 299
<b>R.1</b>	Purchasing Guidelines for Fire Protection ..... 302
<b>S.1</b>	Purchasing Guidelines for VIV Suppression Strakes..... 307

## Tables

<b>1</b>	Steel Permissible Utilization Factors (Not Applicable to Truss Structures, Pressure Vessels, Ancillary Equipment That Perform a Lifting Function or Tethers)..... 21
<b>2</b>	Lifting Standards ..... 21
<b>3</b>	Examples of Metallic Structural Design Standards ..... 22
<b>4</b>	Corrosion-resistant Fastener Standards ..... 23
<b>5</b>	General Test Procedures for Polymer Materials ..... 26
<b>6</b>	Examples of Metallic Material Selection Standards ..... 26
<b>7</b>	Fastener Standards ..... 27
<b>8</b>	Minimum Raw Material Quality Control Test Requirements..... 29
<b>9</b>	Requirements of Material Specifications ..... 29
<b>10</b>	Examples of Fabrication and Welding Standards ..... 31
<b>11</b>	Local Load classes and Subclasses for Bend Stiffeners ..... 40
<b>12</b>	Qualification Requirements for Bend Stiffener Body Polymer Materials..... 44
<b>13</b>	Factory Acceptance Tests for Bend Stiffeners ..... 48
<b>14</b>	Local Load classes and Subclasses for Bend Restrictors ..... 53
<b>15</b>	Qualification Requirements for Bend Restrictor Polymer Materials ..... 56
<b>16</b>	Examples of Metallic Pipeline Material Selection Standards ..... 57
<b>17</b>	Factory Acceptance Tests for Bend Restrictor Components..... 60
<b>18</b>	Qualification Requirements for Fiber-reinforced Composite Bellmouth Materials ..... 67
<b>19</b>	Local Load classes and Subclasses for Buoyancy and Ballast Modules ..... 73
<b>20</b>	Qualification Requirements for Blown, Syntactic and Composite Syntactic Foam Buoyancy Materials..... 78
<b>21</b>	Qualification Requirements for Polymer External Skin Materials ..... 78

## Contents

	Page
22	Qualification Requirements for Internal Clamp Composite Materials ..... 79
23	Qualification Requirements for Module Internal and Integral Clamp Strap Fiber-reinforced Composite Materials ..... 80
24	Factory Acceptance Testing Tests for Buoyancy Module Components ..... 85
25	Local Load classes and Subclasses for Subsea Buoys ..... 90
26	Factory Acceptance Tests for Subsea Buoys..... 99
27	Local Load classes and Subclasses for Subsea Buoy and Flexible Pipe Tethers ..... 104
28	Examples of Mooring Standard Safety Factors ..... 105
29	Examples of Synthetic Tether Standards ..... 107
30	Qualification Requirements for Polymer Inner-liner Materials for Clamping Devices ..... 111
31	Local Load classes and Subclasses for Subsea Buoy Clamps ..... 114
32	Factory Acceptance Tests for Subsea Buoy Clamps ..... 116
33	Local Load classes and Subclasses for Tether Clamps..... 120
34	Qualification Requirements for Composite Clamp Body Materials for Clamping Devices ..... 121
35	Factory Acceptance Tests for Tether Clamps..... 123
36	Local Load classes and Subclasses for Piggy-back Spacers..... 127
37	Qualification Requirements for Piggy-back Spacer Polymer Materials ..... 130
38	Qualification Requirements for Piggy-back Spacer Strap Fiber-reinforced Composite Materials ..... 131
39	Factory Acceptance Tests for Piggy-back Spacers..... 133
40	Local Load classes and Subclasses for Repair Clamps ..... 137
41	Factory Acceptance Tests for Repair Clamps ..... 140
42	Local Load classes and Subclasses for I/J-tube Seals..... 144
43	Qualification Requirements for Polymer Sealing Element Materials ..... 146
44	Factory Acceptance Tests for I/J-tube Seals..... 149
45	Local Load classes and Subclasses for Pull-in Heads ..... 152
46	Factory Acceptance Tests for Pull-in Heads ..... 155
47	Factory Acceptance Tests for Chinese Fingers..... 159
48	Local Load classes and Subclasses for Connectors ..... 162
49	Local Load classes and Subclasses for Load-Transfer Devices ..... 169
50	Factory Acceptance Tests for Load-transfer Devices..... 174
51	Local Load classes and Subclasses for Mechanical Protection ..... 179
52	Qualification Requirements for Mechanical Protection Materials ..... 182
53	Factory Acceptance Tests for Mechanical Protection ..... 184
54	Local Load classes and Subclasses for Fire Protection ..... 188
55	Qualification Requirements for Fire Protection Materials ..... 190
56	Factory Acceptance Tests for Fire Protection ..... 193
57	Local Load classes and Subclasses for VIV Suppression Strakes..... 195
58	Qualification Requirements for VIV suppression strakes Materials ..... 196
59	Factory Acceptance Tests for VIV Suppression Strakes..... 198

# Specification for Ancillary Equipment for Flexible Pipes and Subsea Umbilicals

## 1 Scope

This specification defines the technical requirements for safe, dimensionally and functionally interchangeable ancillary equipment that is designed and manufactured to uniform standards and criteria.

Minimum requirements are specified for the design, material selection, manufacture, testing, documentation, marking, and packaging of ancillary equipment used in flexible pipe systems and subsea umbilical systems, with reference to existing codes and standards where applicable. See API 17L2 for guidelines on the use of ancillary equipment.

The applicability relating to a specific item of ancillary equipment is stated at the beginning of the particular section for the ancillary equipment in question.

This specification applies to the following ancillary equipment:

- bend stiffeners;
- bend restrictors;
- bellmouths;
- buoyancy modules and ballast modules;
- subsea buoys;
- tethers for subsea buoys and tether clamps;
- riser and tether bases;
- subsea buoy clamps;
- tether clamps;
- piggy-back systems;
- repair clamps;
- I/J-tube seals;
- pull-in heads/installation aids;
- connectors;
- load-transfer devices;
- mechanical protection;
- fire protection;
- VIV (vortex-induced vibration) suppression strakes.

This specification does not cover flexible pipe and umbilical ancillary equipment beyond the connector, with the exception of riser bases and load-transfer devices. Therefore this document does not cover turret structures or

I-tubes and J-tubes for example. In addition, this document does not cover storage devices such as reels, for example.

This specification is intended to cover ancillary equipment made from several material types, including metallic, polymer, and composite materials.

This specification applies to ancillary equipment used in association with the flexible pipe and umbilical applications listed in API 17B, API 17J, API 17E, and API 17K.

Annexes to this specification are not mandatory and are intended to be used as informative guidelines.

## 2 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any addenda) applies.

API Recommended Practice 2A-WSD, *Planning, Designing, and Constructing Fixed Offshore Platforms—Working Stress Design*

API Specification 2F, *Specification for Mooring Chain*

API Recommended Practice 2RD:1998, *Design of Risers for Floating Production Systems (FPSs) and Tension-Leg Platforms (TLPs)*

API Specification 6A, *Specification for Wellhead and Tree Equipment*

API Specification 9A, *Specification for Wire Rope*

API Recommended Practice 17B, *Recommended Practice for Flexible Pipe*

API Specification 17D, *Design and Operation of Subsea Production Systems—Subsea Wellhead and Tree Equipment*

API Specification 17E, *Specification for Subsea Umbilicals*

API Specification 17J:2014, *Specification for Unbonded Flexible Pipe*

API Specification 17K, *Specification for Bonded Flexible Pipe*

API Recommended Practice 17L2, *Recommended Practice for Flexible Pipe Ancillary Equipment*

API Recommended Practice 17R, *Recommended Practice for Flowline Connectors and Jumpers*

API Recommended Practice 17P, *Recommended Practice for Subsea Structures and Manifolds*

AISC,<sup>1</sup> *Steel Construction Manual*

ASME *Boiler and Pressure Vessel Code*,<sup>2</sup> *Section VIII: Rules for Construction of Pressure Vessels*

ASTM C177,<sup>3</sup> *Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus*

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<sup>1</sup> American Institute of Steel Construction, One East Wacker Drive, Suite 700, Chicago, Illinois 60601, [www.aisc.org](http://www.aisc.org).

<sup>2</sup> ASME International, Two Park Avenue, New York, New York 10016–5990, [www.asme.org](http://www.asme.org).

<sup>3</sup> ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428, [www.astm.org](http://www.astm.org).