

# DIN EN ISO 13624-1:2010-04 (E)

Petroleum and natural gas industries - Drilling and production equipment - Part 1:  
Design and operation of marine drilling riser equipment (ISO 13624-1:2009); English  
version EN ISO 13624-1:2009

---

| Inhalt  | Seite |
|---|-------|
| Foreword .....  | 4     |
| Introduction.....   | 5     |
| 1 Scope .....   | 6     |
| 2 Normative references .....                                    | 6     |
| 3 Terms, definitions, and abbreviations.....                    | 6     |
| 3.1 Terms and definitions .....                                 | 6     |
| 3.2 Abbreviations.....  | 15    |
| 4 Component function and selection .....                        | 16    |
| 4.1 Introduction.....   | 16    |
| 4.2 Component selection criteria .....                          | 16    |
| 4.3 Marine drilling riser system.....                           | 16    |
| 4.4 Tensioner system .....                                      | 18    |
| 4.5 Diverter system (surface) .....                             | 19    |
| 4.6 Telescopic joint (slip joint).....                          | 19    |
| 4.7 Riser joints .....  | 21    |
| 4.8 Lower marine riser package (LMRP) .....                     | 22    |
| 4.9 Flex and ball joints .....                                  | 23    |
| 4.10 Flexible choke-and-kill lines.....                         | 24    |
| 4.11 Riser running equipment.....                               | 25    |
| 4.12 Riser-mounted choke/kill and auxiliary lines .....         | 26    |
| 4.13 Buoyancy equipment .....                                   | 27    |
| 4.14 Speciality equipment.....                                  | 28    |
| 5 Riser response analysis .....                                 | 29    |
| 5.1 General considerations.....                                 | 29    |
| 5.2 Riser analysis procedure.....                               | 29    |
| 5.3 Design.....   | 30    |
| 5.4 General riser modelling and analysis approach .....         | 34    |
| 5.5 Coupled/decoupled analysis methodology .....                | 40    |
| 5.6 Drift-off/drive-off analysis methodology .....              | 41    |
| 5.7 Weak-point analysis methodology .....                       | 42    |
| 5.8 Recoil analysis methodology .....                           | 43    |
| 5.9 High-current environment .....                              | 43    |
| 5.10 Hang-off analysis methodology.....                         | 46    |
| 6 Riser operations .....  | 49    |
| 6.1 Introduction.....   | 49    |
| 6.2 Riser operations manual .....                               | 49    |
| 6.3 Drilling-riser-operations information systems .....         | 49    |
| 6.4 Preparing to run riser.....                                 | 50    |
| 6.5 Riser running and retrieval.....                            | 53    |
| 6.6 Installed riser operations.....                             | 56    |
| 6.7 Emergency disconnect — Sudden storm, drive-/drift-off ..... | 62    |
| 7 Riser integrity .....   | 63    |
| 7.1 Basis of inspection requirements.....                       | 63    |
| 7.2 Maintenance after riser retrieval .....                     | 67    |
| 7.3 Other riser system maintenance.....                         | 67    |

|   |   |            |
|---|---|------------|
| 7.4   | Transportation, handling, and storage.....          | 67         |
| 7.5   | Scheduled field inspection and maintenance.....     | 69         |
| 7.6   | In-service inspection .....                         | 69         |
| 7.7   | Guidance on components for inspection.....          | 73         |
| 7.8   | Inspection objectives and acceptance criteria ..... | 74         |
| 7.9   | Operational records for riser components .....      | 76         |
| 8   | Special situations .....                            | 78         |
| 8.1   | Deep-water drilling.....                            | 78         |
| 8.2   | Guidelineless systems .....                         | 81         |
| 8.3   | Cold weather considerations.....                    | 81         |
| 8.4   | Riser collapse considerations.....                  | 82         |
| 8.5   | H <sub>2</sub> S considerations .....               | 83         |
| <b>Annex A (informative) Riser analysis data worksheet.....</b>   |   | <b>84</b>  |
| <b>Annex B (informative) Fatigue .....</b>  |   | <b>88</b>  |
| <b>Annex C (informative) Sample riser calculations.....</b>   |   | <b>90</b>  |
| <b>Annex D (informative) Example riser running procedure .....</b>  |   | <b>101</b> |
| <b>Annex E (informative) Sample calculation of maximum and minimum TJ stroke arising from<br/>spaceout tolerance, riser stretch, draft, tide, heave and offset.....</b> |   | <b>103</b> |
| <b>Bibliography .....</b>   |   | <b>107</b> |