

ISO 10439:2002-10 (E)

Petroleum, chemical and gas service industries - Centrifugal compressors

| Contents | | Page |
|--------------------|--|-------------|
| Foreword | | v |
| Introduction | | vi |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms and definitions | 2 |
| 4 | Basic design | 4 |
| 4.1 | General | 4 |
| 4.2 | Casings | 7 |
| 4.3 | Interstage diaphragms and inlet guide vanes | 8 |
| 4.4 | Casing connections | 9 |
| 4.5 | External forces and moments | 10 |
| 4.6 | Rotating elements | 10 |
| 4.7 | Bearings and bearing housings | 11 |
| 4.8 | Shaft seals | 14 |
| 4.9 | Dynamics | 22 |
| 4.10 | "Lube" oil and seal oil systems | 29 |
| 4.11 | Materials | 29 |
| 4.12 | Nameplates and rotation arrows | 32 |
| 5 | Accessories | 33 |
| 5.1 | Drivers | 33 |
| 5.2 | Couplings and guards | 34 |
| 5.3 | Mounting plates | 34 |
| 5.4 | Controls and instrumentation | 36 |
| 5.5 | Piping and appurtenances | 41 |
| 5.6 | Special tools | 42 |
| 6 | Inspection, testing and preparation for shipment | 42 |
| 6.1 | General | 42 |
| 6.2 | Inspection | 43 |
| 6.3 | Testing | 44 |
| 6.4 | Preparation for shipment | 49 |
| 7 | Vendor data | 50 |
| 7.1 | General | 50 |
| 7.2 | Proposals | 51 |
| 7.3 | Contract data | 54 |
| | Annex A (informative) Typical data sheets | 56 |
| | Annex B (informative) Material specifications for major component parts | 81 |
| | Annex C (normative) Centrifugal compressor vendor drawing and data requirements | 86 |
| | Annex D (normative) Procedure for determination of residual unbalance | 95 |
| | Annex E (informative) Rotor dynamic logic diagrams | 102 |

| | |
|--|------------|
| Annex F (informative) Centrifugal compressor nomenclature | 106 |
| Annex G (normative) Forces and moments | 107 |
| Annex H (informative) Inspector's checklist | 110 |
| Annex I (informative) Typical gas seal testing considerations | 112 |
| Annex J (informative) Application considerations for active magnetic bearings | 114 |
| Bibliography | 117 |