

# ISO 10439-3:2015-02 (E)

## Petroleum, petrochemical and natural gas industries - Axial and centrifugal compressors and expander-compressors - Part 3: Integrally geared centrifugal compressors

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
1	Scope .....	1
2	Normative references .....	1
3	Terms,abbreviatedterms,anddefinitions .....	1
4	General .....	2
4.1	Dimensions and units .....	2
4.2	Statutory requirements .....	2
4.3	Unit responsibility .....	2
4.4	Basic design .....	2
4.4.1	Performance .....	2
4.5	Materials .....	2
4.6	Casings .....	2
4.6.1	Pressure-containing casings .....	2
4.6.2	Casing repair .....	3
4.6.3	Material inspection of pressure-containing parts .....	3
4.6.4	Pressure casing connections .....	3
4.6.5	Casing support structure .....	3
4.6.6	External forces and moments .....	3
4.6.7	Variable inlet and/or diffuser guide vanes .....	4
4.7	Rotating elements .....	4
4.8	Dynamics .....	4
4.9	Bearings and bearing housings .....	5
4.9.1	General .....	5
4.9.2	Hydrodynamic radial bearings .....	5
4.9.3	Hydrodynamic thrust bearings .....	5
4.9.4	Bearing housings .....	6
4.10	Shaft end seals .....	6
4.11	Integral gearing .....	6
4.12	Nameplates and rotation arrows .....	10
5	Accessories .....	10
5.1	Drivers .....	10
5.2	Couplings and guards .....	10
5.3	Lubrication and sealing systems .....	10
5.4	Mounting plates .....	10
5.5	Controls and instrumentation .....	11
5.6	Piping and appurtenances .....	12
5.6.1	General .....	12
5.6.2	Process piping and accessories .....	12
5.7	Special tools .....	12
6	Inspection, testing, and preparation for shipment .....	12
6.1	General .....	12

6.2	Inspection .....	12
6.2.1	Gear contact checks .....	13
6.3	Testing .....	13
6.3.1	Mechanical running test .....	13
6.3.2	Assembled compressor gas leakage test .....	15
6.3.3	* Optional tests .....	15
6.4	Preparation for shipment .....	16
7	Supplier's data .....	16
7.1	General .....	16
7.2	Proposals .....	16
7.3	Contract data .....	16
Annex A (normative) Datasheets .....		17
Annex B (informative) Vendor (Supplier) data and drawing requirements (VDDR) .....		30
Annex C (informative) Nomenclature .....		40
Annex D (informative) Typical materials for integrally geared compressors .....		43
Annex E (informative) Inspector's checklist .....		59
Annex F (informative) External forces and moments .....		64
Annex G (normative) Rating formulae for integral gearing .....		65
Bibliography .....		68