

DIN EN ISO 21329:2005-07 (E)

Petroleum and natural gas industries - Pipeline transportation systems - Test procedures for mechanical connectors (ISO 21329:2004); English version EN ISO 21329:2004

Contents

	Page
Foreword	4
Introduction	5
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	8
4 Symbols and abbreviated terms.....	10
4.1 Symbols	10
4.2 Abbreviated terms.....	12
5 Test categories	12
5.1 General	12
5.2 Pressure, temperature and depth ratings.....	12
5.3 Application levels.....	13
5.4 Confidence levels.....	13
6 Test requirements	14
6.1 General	14
6.2 Purpose of tests	15
6.3 Basis for mechanical loads	15
6.4 Test-house selection	16
6.5 Selection of tests and number of test samples	16
6.6 Additional tests	17
6.7 Prior test results.....	17
7 Connector manufacturer requirements	19
7.1 General	19
7.2 Quality control.....	19
7.3 Connector geometry and performance data	19
7.4 Selection of diameter.....	19
7.5 Setting tolerances	19
7.6 Connector material requirements	21
7.7 Preparation of test samples	22
7.8 Ports	25
7.9 Replacement test samples	25
7.10 Test record retention	25
8 Test-house preparations	25
8.1 General	25
8.2 Calibration requirements.....	26
8.3 Pressurization media	27
9 Leak detection	27
9.1 Leak-detection methods.....	27
9.2 Leak-detection sensitivity	27
9.3 External pressure leak detection.....	27
10 Make-and-break testing	28
10.1 General requirements	28
10.2 Make-up method.....	29
10.3 Repeated make-up and breakout	31
10.4 Final make-up	31
10.5 Reverse-torque tests of non-rotational make-up connectors	31
10.6 Acceptance criteria	31

11	Service-load test	32
11.1	Set-up	32
11.2	Confirmation of seal integrity	34
11.3	Selection of test pressures and temperatures	34
11.4	Installation tests.....	36
11.5	Hydrostatic pressure tests	38
11.6	Operational unrestrained tests.....	39
11.7	Operational restrained tests	41
12	Limit-load tests	43
12.1	General.....	43
12.2	Tension-to-failure test	44
12.3	Compression-to-failure test.....	45
12.4	Pressure-to-failure test	46
12.5	Bending-to-failure test	46
13	Bending-fatigue test procedures	47
13.1	General.....	47
13.2	Setting stress ranges for the test.....	47
13.3	Bending-fatigue test set-up	48
13.4	Bending-fatigue test procedure	48
13.5	Interpretation of fatigue results.....	49
	Annex A (normative) Application levels	50
	Annex B (normative) Connector geometry and performance data.....	53
	Annex C (normative) Calculation of connector service loads.....	56
	Annex D (normative) Test data tables.....	60
	Annex E (normative) Connector test reports — Content.....	68
	Annex F (informative) Test sizes and data extrapolation considerations.....	71
	Annex G (informative) Additional testing for special applications	73
	Annex H (informative) Additional information on fatigue	81
	Bibliography	86