DIN EN ISO 15970:2014-09 (E)

Natural gas - Measurement of properties - Volumetric properties: density, pressure, temperature and compression factor (ISO 1597 0:2008)

Contents

Page

Foreword 4

Introduction 5

1 Scope 5

2 Normative references 5

3 Terms and definitions 7
3.1 Terms and definitions for density at reference conditions 7
3.2 Terms and definitions for density at operating conditions 7
3.3 Terms and definitions for pressure 8
3.4 Terms and definitions for temperature 9
3.5 Terms and definitions for compression factor 9

4 Symbols and units 9
4.1 Symbols and subscripts for density at reference conditions 9
4.2 Symbols and subscripts for density at operating conditions 10
4.3 Symbols and subscripts for compression factor 10

5 Density at reference conditions 11
5.1 Principle of measurement 11
5.2 Performance assessment and acceptance tests 15
5.3 Sampling and installation guidelines 16
5.4 Calibration 16
5.5 Verification 16
5.6 Maintenance 17
5.7 Quality control 17

6 Density at operating conditions 17
6.1 Principle of measurement 17
6.2 Performance assessment and acceptance tests 18
6.3 Sampling and installation guidelines 21
6.4 Calibration 25
6.5 Verification 25
6.6 Maintenance 26
6.7 Quality control 26

7 Pressure 27
7.1 Principle of measurement 27
7.2 Performance assessment and acceptance tests 29
7.3 Sampling and installation guidelines 29
7.4 Calibration 32
7.5 Verification 33
7.6 Maintenance 34
7.7 Quality control 34

8 Temperature 34
8.1 Principle of measurement 34
8.2 Performance assessment and acceptance tests 35
8.3 Installation guidelines 36

8.4 Calibration 38
8.5 Verification 39
8.6 Maintenance 39
8.7 Quality control 39

9 Compression factor 39
9.1 Principle of measurement 39
9.2 Working principle 40
9.3 Performance assessment and acceptance tests 43
9.4 Sampling and installation guidelines 43
9.5 Calibration 44
9.6 Verification 45
9.7 Maintenance 45
9.8 Quality control 45

Annex A (informative) Guidance for instrument selection, instrument test and operational procedures 46

Annex B (informative) Instrument documentation 50

Bibliography 52