

DIN EN ISO 5167-5:2023-08 (E)

Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 5: Cone meters (ISO 5167-5:2022)

Contents	Page
European foreword	3
Foreword.....	4
Introduction.....	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions.....	6
4 Principles of the method of measurement and computation.....	7
5 Cone meters.....	8
5.1 Field of application.....	8
5.2 General shape.....	8
5.3 Material and manufacture.....	12
5.4 Pressure tappings.....	13
5.5 Discharge coefficient, C	13
5.5.1 Limits of use	13
5.5.2 Discharge coefficient of the cone meter	13
5.6 Expansibility (expansion) factor, ε	14
5.7 Uncertainty of the discharge coefficient, C	14
5.8 Uncertainty of the expansibility (expansion) factor, ε	14
5.9 Pressure loss	14
6 Installation requirements.....	15
6.1 General.....	15
6.2 Minimum upstream and downstream straight lengths for installations between various fittings and the cone meter.....	15
6.2.1 General	15
6.2.2 Single 90° bend	16
6.2.3 Two 90° bends in perpendicular planes	16
6.2.4 Concentric expander	16
6.2.5 Partially closed valves	16
6.3 Additional specific installation requirements for cone meters	16
6.3.1 Circularity and cylindricality of the pipe.....	16
6.3.2 Roughness of the upstream and downstream pipe	16
6.3.3 Positioning of a thermowell.....	16
7 Flow calibration of cone meters	17
7.1 General.....	17
7.2 Test facility.....	17
7.3 Meter installation.....	17
7.4 Design of the test programme	17
7.5 Reporting the calibration results	18
7.6 Uncertainty analysis of the calibration	18
7.6.1 General	18
7.6.2 Uncertainty of the test facility	18
7.6.3 Uncertainty of the discharge coefficient of the cone meter	18
Annex A (informative) Table of expansibility (expansion) factor	19
Bibliography	20