

DIN EN 124-1:2015-09 (E)

Gully tops and manhole tops for vehicular and pedestrian areas - Part 1: Definitions, classification, general principles of design, performance requirements and test methods

Contents		Page
Foreword		4
1	Scope	6
2	Normative references	6
3	Terms and definitions, symbols, units and abbreviated terms	7
3.1	Terms and definitions	7
3.2	Symbols and abbreviated terms	11
4	Classification	11
4.1	Basis of the classification	11
4.2	Classification in the context of intended use	11
5	Materials	13
5.1	General	13
5.2	Cover fillings	13
5.3	Frames in combination with concrete	13
6	Design requirements	13
6.1	Vents in covers	13
6.2	Clear opening of manhole tops for man entry	14
6.3	Depth of insertion	14
6.4	Clearance	14
6.5	Compatibility of seatings	15
6.6	Securing of the cover/grating within the frame	15
6.7	Handling of covers and gratings	16
6.8	Slot dimensions of gratings	16
6.9	Dirt pans and dirt buckets	17
6.10	Positioning of covers and gratings	18
6.11	Flatness of manhole covers and gratings	18
6.12	Concaveness of gratings	18
6.13	Surface conditions	18
6.14	Manhole tops with sealing features	18
6.15	Frame bearing area	18
6.16	Frame depth	18
6.17	Opening angle of hinged covers/gratings	19
6.18	Covers with fillings	19
7	Performance requirements	19
7.1	Appearance	19
7.2	Load bearing capacity	19
7.3	Permanent set	19
7.4	Skid resistance	20
7.5	Child safety	21
8	Testing	22
8.1	General	22
8.2	Permanent set (see 7.3)	22

8.3	Load bearing capacity (see 7.2)	22
8.4	Verification of design requirements	22
8.5	Child safety	24
9	Assessment and verification of constancy of performance (AVCP)	24
Annex A (normative) Permanent set test		25
A.1	Test Samples	25
A.2	Permanent set test load, (FP)	25
A.3	Apparatus	25
A.4	Procedure	26
Annex B (normative) Test of load bearing capacity		29
B.1	Test samples	29
B.2	Test load (FT)	29
B.3	Test procedure	29
B.4	Test report	29
Annex C (normative) Test to determine the unpolished skid resistance value (USRV) of manhole covers		30
C.1	General	30
C.2	Apparatus	30
C.3	Calibration of pendulum friction test equipment	30
C.4	Selection of test samples	30
C.5	Test procedure	30
Annex D (normative) Tilt test		33
D.1	General	33
D.2	Test procedure	33
Annex E (normative) Testing of securing of covers/gratings within the frame		36
E.1	General	36
E.2	Vertical pull-out test procedure	37
Annex F (informative) Recommendations for installation		41
F.1	General	41
F.2	Place of installation and selection of appropriate manhole tops and gully tops	41
F.3	Preparations before installation	41
F.4	Operative skill, training and installation equipment	41
F.5	Bedding and packing materials	42
F.6	Condition of supporting chamber	42
F.7	Fixing of manhole tops or gully tops	42
F.8	Post installation check and cleaning	42
Annex G (informative) Explanations on testing of manhole tops with multiple covers and testing the skid resistance		44
G.1	Explanation to A.4	44
G.2	Explanation to 7.4.2	44
Bibliography		45