

DIN EN 997:2015-09 (E)

WC pans and WC suites with integral trap (includes Amendment A1:2015)

Contents		Page
Foreword		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	Classification	10
5	Functional requirements and test methods for class 1 products	10
5.1	Depth of water seal	10
5.2	Flushing requirements	11
5.2.1	General	11
5.2.2	Wash of bowl	11
5.2.3	Flushing of toilet paper	11
5.2.4	Flushing of fifty small plastic balls	11
5.2.5	Oversplashing	11
5.2.6	After-flush volume	11
5.3	Water absorption	11
5.4	Static load	12
5.5	Additional requirements of flushing cisterns for close-coupled suites and one-piece WCs	12
5.5.1	General	12
5.5.2	Inlet valve of the flushing cistern	12
5.5.3	Supply piping	12
5.5.4	Flush volume(s) of the flushing cistern	12
5.5.5	Leaktightness between flushing cistern and bowl	12
5.5.6	Outlet valve leaktightness	12
5.5.7	Outlet valve reliability	12
5.5.8	Overflow	12
5.5.9	Safety margin - dimension "c"	13
5.5.10	Safety margin - dimension "a"	14
5.6	Durability	14
5.7	Test methods	14
5.7.1	Depth of water seal	14
5.7.2	Flushing tests	14
5.7.3	Determination of water absorption	17
5.7.4	Load test	18
5.7.5	Tests for flushing cisterns of close-coupled suites and one-piece WCs	18
5.8	Types of independent WC pans, close-coupled suites and one-piece WCs	21
5.8.1	Nominal flush volume	21
5.8.2	Flushing devices	22
5.8.3	Verification of types	22
6	Functional requirements and test methods for class 2 products	22
6.1	Inlet valve	22
6.2	Backflow prevention	23
6.3	Marking of flushing cistern	23
6.4	Warning pipe and overflow provision	23
6.5	Flush volume	23
6.5.1	Full flush	23

6.5.2	Reduced flush	23
6.6	Flush rate	23
6.7	Physical endurance and leakage of flushing device	23
6.8	Chemical endurance of flushing device	23
6.9	Solids discharge and after-flush volume for maximum flush	24
6.10	Paper discharge for reduced-flush volume	24
6.11	Liquid contaminant dye retention	24
6.12	Wash of bowl	24
6.13	Depth of water seal	24
6.14	Static load of class 2 products	24
6.15	Water absorption	24
6.16	Durability of class 2 products	24
6.17	Test methods	24
6.17.1	Inlet valve tests	24
6.17.2	Warning pipe and overflow provisions	25
6.17.3	Flush volume and water trap seal tests	25
6.17.4	Flush rate test	26
6.17.5	Physical endurance and leakage test of flushing device	27
6.17.6	Chemical endurance test of flushing device	28
6.17.7	Solids discharge and after-flush volume for maximum flush volume test	28
6.17.8	Paper discharge for reduced-flush volume test	30
6.17.9	Liquid contaminant dye retention test	30
6.17.10	Wash of bowl	31
6.17.11	Summary of requirements for compatibility testing of class 2 products	31
7	Dangerous substances	32
8	Marking	32
9	Assessment and verification of constancy of performance - AVCP	35
9.1	General	35
9.2	Type testing	35
9.2.1	General	35
9.2.2	Test samples, testing and compliance criteria	36
9.3	Factory production control (FPC)	37
9.3.1	General	37
9.3.2	Equipment	38
9.3.3	Raw materials and components	38
9.3.4	Product testing and assessment	38
9.3.5	Non-complying products	38
9.3.6	Corrective action	38
Annex A (normative) Valve-type test flushing cistern		39
A.1	Valve-type test flushing cistern (Figures A.1 to A.3)	39
A.2	Calibration of the valve-type test flushing cistern	41
A.3	Procedure to test the flush rate of the test flushing cistern	41
A.4	Procedure to test the flushing requirements of the WC	42
A.5	Procedure to measure the impact force of the test flushing cistern	42
A.5.1	General	42
A.5.2	Test device	42
A.5.3	Procedure for calibrating the load cell unit and the measurement amplifier	44
A.5.4	Measurement procedure	44
A.5.5	Calculation procedure for fixed time frame 0,35 s to 0,5 s	45
A.5.6	Calculation procedure for maximum impact force	45
Annex B (normative) Test rig for test pressure flush valve		46
B.1	Test rig (Figure B.1)	46
B.2	Procedure to measure the impact force	47
Annex C (normative) Test rig for after-flush volume test		49

C.1	Test rig for after-flush volume test for independent WC pans (Figures C.1 and C.2)	49
C.2	Test rig for after-flush volume test for one-piece WC pans, close-coupled suites and WC suites (Figure C.3)	50
Annex D (normative)	Basket method	51
Annex E (normative)	Preparation of test specimens	52
Annex F (informative)	Examples of flush pipes and outlet valves for test flushing cisterns	54
Annex ZA (informative)	"Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation"	58
Bibliography		67