

DIN EN 16713-1:2016-08 (E)

Domestic swimming pools - Water systems - Part 1: Filtration systems - Requirements and test methods

Contents	Page
European foreword	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Requirements	12
4.1 General	12
4.2 Maximum filter flow rate	12
4.3 Filter media	12
4.3.1 General	12
4.3.2 Granular media	12
4.3.3 Sand filter media	13
4.3.4 Alternatives to sand media	13
4.4 Maximum operating pressure (MOP)	13
4.5 Turbidity reduction efficiency	13
4.6 Retention capacity	13
4.7 Backwashing/Replacement/Cleaning Criteria	13
4.7.1 General	13
4.7.2 Specific backwash conditions	14
4.8 Construction requirements	15
5 Pressure resistance (pressure filter)	15
5.1 General	15
5.2 Static pressure resistance test	15
5.2.1 Principle	15
5.2.2 Test pressure	15
5.2.3 Equipment and reagents	16
5.2.4 Procedure	16
5.2.5 Acceptance criteria	17
5.3 Cyclic pressure variation resistance test	17
5.3.1 Principle	17
5.3.2 Equipment and products	17
5.3.3 Operating protocol	19
5.3.4 Acceptance criteria	20
5.3.5 Expression and presentation of results	20
5.4 Determination of the burst pressure	20
5.4.1 Procedure	20
5.4.2 Acceptance criteria	21
5.4.3 Test report	21
6 Pressure resistance (negative pressure filter)	22
6.1 General	22
6.2 Test pressure	22
6.3 Static negative pressure resistance test	22
6.3.1 Principle	22
6.3.2 Equipment and reagents	22

6.3.3	Procedure	23
6.3.4	Acceptance criteria	23
6.4	Cyclic negative pressure variation resistance test	24
6.4.1	Principle	24
6.4.2	Equipment and products	24
6.4.3	Operating protocol	25
6.4.4	Acceptance criteria	26
6.4.5	Expression and presentation of results	26
6.5	Determination of the negative collapsing pressure	26
6.5.1	Procedure	26
6.5.2	Acceptance criteria	27
6.5.3	Test report	27
7	Test methods for filtration efficiency	28
7.1	Principle	28
7.2	Turbidity reduction and contaminant retained mass	28
7.2.1	Purpose	28
7.2.2	Principle	28
7.2.3	Equipment and products	28
7.2.4	Turbidity reduction test	30
7.2.5	Simplified 20 cycles retention test (dp20)	32
7.2.6	Expression and presentation of results	35
7.2.7	Test report	35
7.3	Filtration efficiency and retention capacity	36
7.3.1	Principle	36
7.3.2	Equipment and products	37
7.3.3	Operating protocol	40
7.3.4	Calculations	43
7.3.5	Expression and presentation of results	44
8	Instructions and operation	45
8.1	General principles	45
8.2	Point-of-purchase information	46
8.3	User's manual	47
8.3.1	Installation	47
8.3.2	Operation	47
8.4	Maintenance advice	48
	Annex A (informative) Harmonized pump curves for the filtration efficiency and retention capacity tests	49
	Annex B (informative) Example of test report verifying the resistance to fatigue caused by cyclic pressure or negative pressure variations	51
	Annex C (informative) Environmental aspects	53
	Bibliography	56