

DIN 19643-1:2012-11 (E)

Treatment of water of swimming pools and baths - Part 1: General requirements

Contents		Page
Foreword		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	12
4	General	15
5	Water quality requirements	15
5.1	General	15
5.2	Filling water requirements	16
5.2.1	General	16
5.2.2	Primary filling water requirements	16
5.2.3	Secondary filling water requirements	17
5.3	Supply water and pool water requirements	17
6	Design and structural requirements for pools and technical equipment rooms	20
6.1	General	20
6.2	Pool or bath design	20
6.3	Water balancing tanks	20
6.4	Contact surfaces	21
6.5	Technical equipment rooms	21
6.5.1	General	21
6.5.2	Room for filter systems	21
6.5.3	Chemical feeder room	22
6.5.4	Disinfection equipment and ozone plant rooms	22
6.5.5	Monitoring equipment room	22
6.5.6	Repairs workshop and spare parts stores	22
6.5.7	Disinfectant store rooms	22
7	Requirements for baths and pools	22
7.1	General	22
7.2	Diving pools	22
7.3	Swimming pools	22
7.4	Variable depth pools	23
7.5	Artificial wave pools	23
7.6	Pools for non-swimmers	23
7.7	Paddling pools	23
7.8	Pools with water slides and water slides having a shallow exit	23
7.9	Small-scale pools	23
7.10	Exercise pools	23
7.11	Therapeutic pools	24
7.12	Walk-through pools	24
7.13	Spa pools (bubbling pools)	24
7.13.1	General	24
7.13.2	Spa pools (bubbling pools) (for restricted access)	24
7.13.3	Spa pools (bubbling pools) (for open access)	24
7.14	Warm-water pools	25
7.15	Cold-water plunge pools	25
7.16	Treading pools	25

7.17	Additional water circulation or air-injection systems for all types of pool	25
8	Nominal load, load capacity factor, minimum overflow and flow rates	25
8.1	General	25
8.2	Flow rates	26
8.2.1	Nominal load, load capacity factor and treatment flow rate	26
8.2.2	Minimum overflow and pool flow rate	26
8.3	Calculations based on the water area of a pool	27
8.4	Calculations based on the pool volume	27
8.5	Calculations based on the nominal load of a pool	27
8.5.1	General	27
8.5.2	Special case for the rehabilitation of outdoor swimming pools: documented pollution load	28
8.6	Particular specifications	28
9	Hydraulic system requirements	30
9.1	General	30
9.2	Pool flow	30
9.3	Overflow edge	31
9.4	Overflow channel and grating	31
9.5	Water balancing tanks	32
9.5.1	Raw water tank	32
9.5.2	Backwashing water tank	32
9.5.3	Backwashing waste water tank	32
9.5.4	Balancing and storage tank volumes	33
9.6	Components which might cause hydraulic malfunction	33
10	Requirements for the water treatment facility	33
10.1	General	33
10.2	Filters	34
10.2.1	Fixed bed filters (rapid filters)	34
10.2.2	Ultrafiltration systems	35
10.2.3	Precoat filters	35
10.3	Machinery and accessories	35
10.3.1	Pumps	35
10.3.2	Flushing air fans	35
10.4	Screens	36
10.5	Pipework and accessories	36
10.5.1	Pipe sizing	36
10.5.2	Pipe materials	36
10.5.3	Valves	37
10.6	Filling water pipe	37
10.7	Instrumentation and monitoring devices	37
10.7.1	Measuring instruments	37
10.7.2	Water sampling valves	37
10.8	Corrosion protection	38
10.8.1	General	38
10.8.2	Active corrosion protection	38
10.8.3	Passive corrosion protection	38
10.9	Inspection of corrosion protection system	38
11	Chemical feed requirements	38
11.1	General	38
11.2	Chlorine dosage control	39
11.2.1	Chlorination	39
11.2.2	Disinfectants	40
11.2.3	Chlorinators	40
11.3	Dosing of chemicals to adjust the pH value and acid neutralizing capacity	42
11.3.1	General	42
11.3.2	Chemicals used to adjust the pH value and acid neutralizing capacity	42
11.4	Automatically controlled dosage	43
11.4.1	Sampling of test water from pools or baths	43

11.4.2	Measurement of chlorine content	44
11.4.3	Control device	44
12	Process combinations for pool and bath water treatment	44
13	Operation of swimming and bathing facilities	45
13.1	General	45
13.2	Cleaning	45
13.2.1	General	45
13.2.2	Pools and baths	45
13.2.3	Overflow channel	46
13.2.4	Water balancing tanks	46
13.3	Testing the facilities	46
13.4	Filter backwashing	47
13.4.1	General	47
13.4.2	Single-layer and multi-layer filters	47
13.4.3	Precoat filters	47
13.4.4	Ultrafiltration systems	47
13.5	Adding filling water	48
13.6	In-house monitoring and maintenance	48
13.6.1	General	48
13.6.2	Keeping a logbook	48
13.6.3	Inspection and care of plant, machinery, equipment and pool linings	50
13.6.4	Servicing and preventive maintenance	50
13.7	Additional requirements for the operation of spa pools (bubbling pools) having a separate treatment facility	51
13.8	Shutdown and re-commissioning	51
13.8.1	General	51
13.8.2	Outdoor swimming pools	51
13.8.3	Spa pools (bubbling pools)	52
13.9	Special operating considerations	52
13.9.1	Partial load operation outside of pool opening hours	52
13.9.2	Partial load operation with load-dependent regulation during pool opening hours	52
13.9.3	Algal growth	52
13.9.4	Operation of additional water circulation systems	53
13.10	Accident prevention	53
14	Monitoring water quality during operation	53
14.1	Frequency of checks	53
14.2	Sampling points and sampling	53
14.3	Scope of testing	54
14.4	Evaluation and measures to be taken if legionella are detected	57
15	Acceptance conditions	60
	Bibliography	61