

Overview leakage rates

Tightness standards

WASTE WATER STANDARD DIN 19569, PART 4

Allowable leakage rate

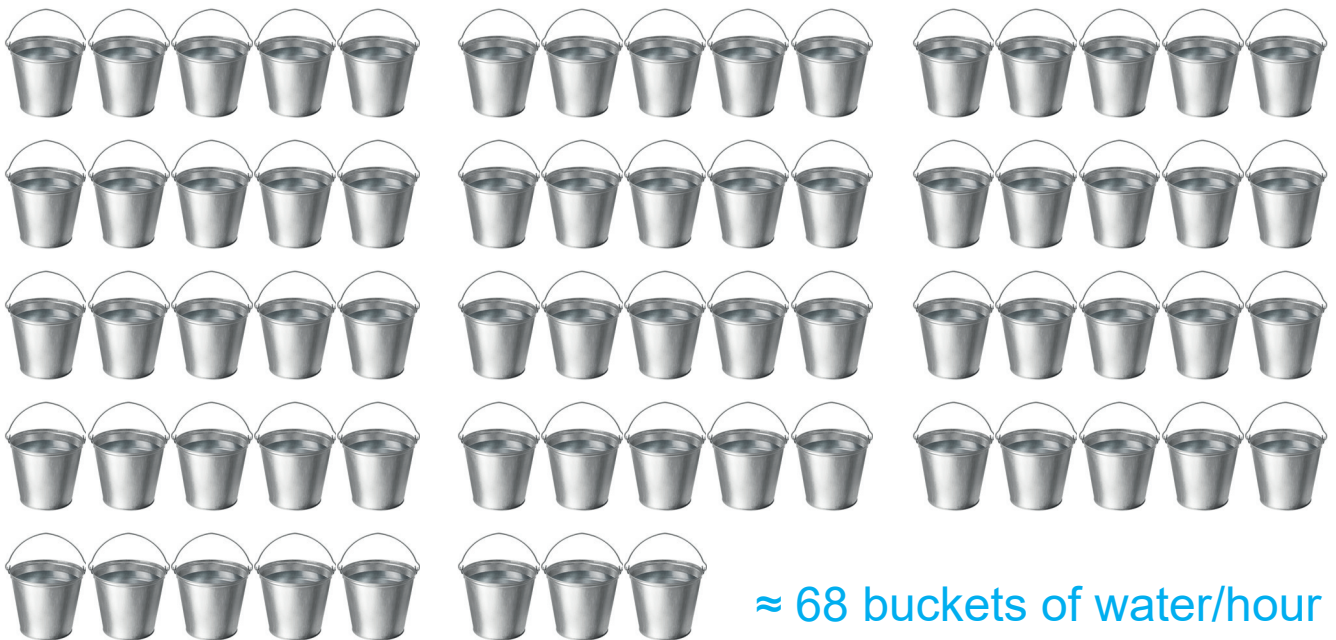
According to table 1, class 4 for penstocks:

Max. allowable leakage rate = $0,02-0,05 \text{ l} \cdot \text{s}^{-1} \cdot \text{m}^{-1}$

72 to 180 litres per hour per meter sealing line

Example DN 1200:

max. $180 \times 3,770 \text{ m} = 678,6 \text{ l/h}$



Off-seating head conditions 1357 l/h allowable!

DRINKING WATER STANDARD EN DIN 12266-2, Table A.5, C for type SAFOX® ≥6 m wc leak proof

Leak proof:

= $0,03 \times \text{DN} \text{ mm}^3/\text{second}$

= $0,000108 \times \text{DN} \text{ l/h}$

Example DN 1200:

max. $(1200 \times 0,000108)$

= $0,1296 \text{ l/h}$



≈ 4 shot glasses/hour

Penstock mounting dimensions

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Nominal size from (DN)	Nominal size to (DN)	Thread	Drill diameter	Drill depth	Length anchor rod	Min. wall thickness	Torque (Nm)
150	600	M10	13	95	130	130	20
700	1200	M16	19	130	190	170	80
1400	1600	M20	25	175	260	220	150
1800	2200	M24	30	215	300	270	200
2400	3000	M30	35	280	380	340	300

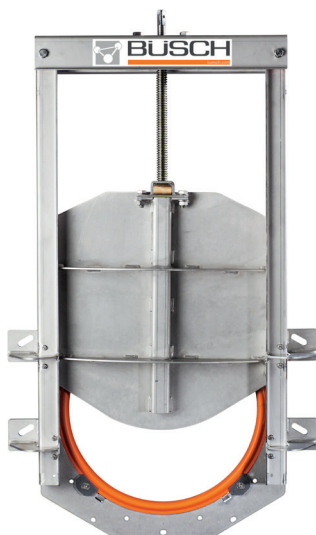
CP4

Nominal size (WxH)	Nominal size to (WxH)	Thread	Drill diameter	Drill depth	Length anchor rod	Min. wall thickness	Torque (Nm)
150 x 150	1200 x 1200	M10	13	95	130	130	20

XL4

Nominal size from 1200 x 1200	Nominal size to 1600 x 1600	Thread	Drill diameter	Drill depth	Length anchor rod	Min. wall thickness	Torque (Nm)
Fixing of frame and bottom		M12	15	115	160	150	40
Lateral fixing		M20	26	175	260	220	150
Fixing of upper sealing line		M8	13	85	90	100	10

All information in mm



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CP4



XL4