

BLOOM ABSOLUTE FILTER

B

A DIFFERENT BALL-GAME

SUSTAINABILITY STARTS HERE

SUSTAINABILITY IS THE NEW NORMAL

Water is an essential part of the world we live in. It is too valuable to simply consume in industrial production.

To become sustainable, we need a paradigm shift: from short-term return on investment to a long-term mindset.

SUSTAINABILITY PAYS OFF

We are making a contribution to a green future that pays off: We help our customers reuse good quality water. Our motto is: reduce, reuse, recycle, repeat. The Bloom absolute filter minimises resource consumption, closes water loops, recovers valuable materials and our customers earn more money.

SUSTAINABILITY IS A WIN-WIN

Sustainability has its price - and it is worth it. A sustainable industrial production makes businesses more resilient and helps deliver better long-term returns.



NAVIGATION

BLOOM ABSOLUTE FILTER

B

GET IN TOUCH



A DIFFERENT BALL-GAME

ABSOLUTE EFFICIENCY

HIGH-FLUX | LOW PRESSURE DROP

EFFECTIVE BACK-WASHING

TESTED + PROVEN APPLICATIONS

PERFECT FIT FOR ZLD

OUTPERFORMING ALL COMPETITORS

THE SPHERE OF ADDED VALUES

LESS IS MORE - COMPETITION + COMPARISON

SAND FILTER VS BLOOM ABSOLUTE FILTER

FILTER CARTRIDGE VS BLOOM ABSOLUTE FILTER



BLOOM ABSOLTE FILTER - A DIFFERENT BALL-GAME



The Bloom Absolute Filter (BAF) is designed to treat a wide range of industrial fluids - and create value for the customer.

Its unmatched properties help our clients

- ♻ Minimise resource consumption
- ♻ Close water loops and
- ♻ Save money



THE DECISIVE DIFFERENCE

A DIFFERENT BALL-GAME



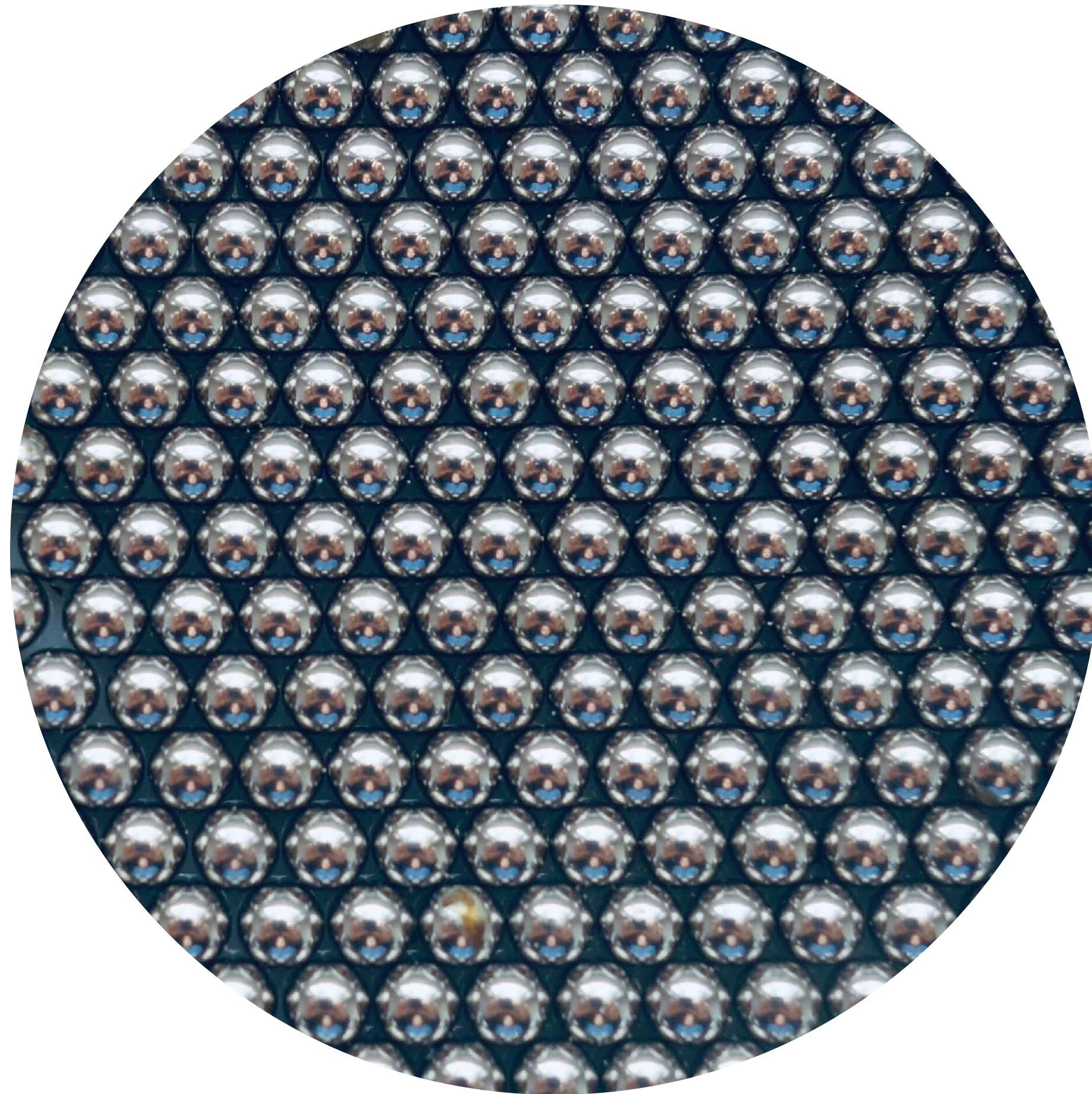
The reason why the Bloom absolute filter is different: its filter media consists of tiny glass spheres in the densest packing.

This "filter matrix" is unique worldwide. It is a patented proven technology with certified efficiency.



HOW TO BE UP TO THE BALL

A DIFFERENT BALL-GAME



This „filter matrix“ makes all the difference. It offers

-  *Perfectly round glass beads*
-  *Precise geometry with defined free space and*
-  *Smooth + hydrophilic surfaces*



GLAS, STEEL & INGENUITY

A DIFFERENT BALL-GAME



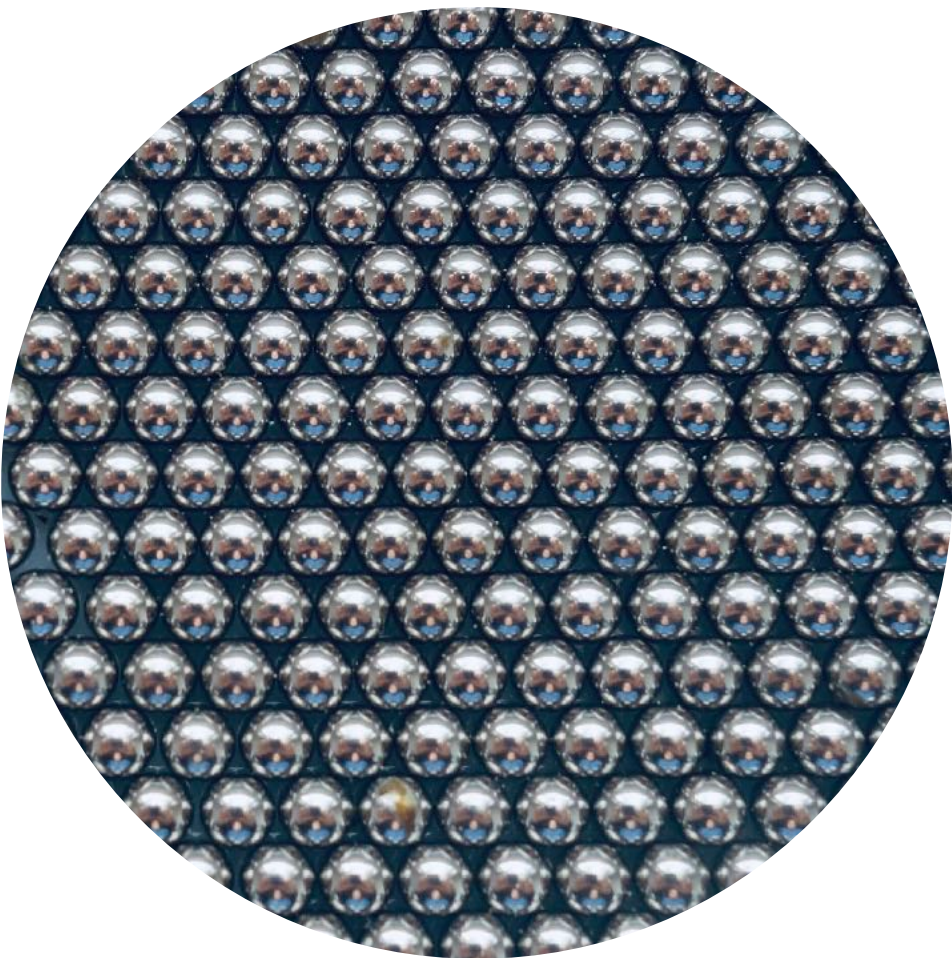
The "filter matrix" makes the Bloom Absolute Filter superior, in terms of

1. Absolute efficiency

	Partikelanzahl >7µm gemessen in 15ml	Vorverdünnung	Partikelanzahl gesamt >7µm in 15ml	Partikel pro ml >7µm	Abscheidegrad
Rohwasser >7µm	67711	25	1692775	112851,66	
Filtrat 7µm >7µm	222	1	222	14,8	99,986%

	Partikelanzahl >12µm gemessen in 15ml	Vorverdünnung	Partikelanzahl gesamt >12µm in 15ml	Partikel pro ml >12µm	Abscheidegrad
Rohwasser >12µm	35007	25	875175	58345	
Filtrat 12µm >12µm	200	1	200	13,33	99,977%

	Partikelanzahl >17µm gemessen in 15ml	Vorverdünnung	Partikelanzahl gesamt >17µm in 15ml	Partikel pro ml >17µm	Abscheidegrad
Rohwasser >17µm	8918	25	222950	14863,33	
Filtrat 17µm >17µm	28	1	28	1,86	99,987%

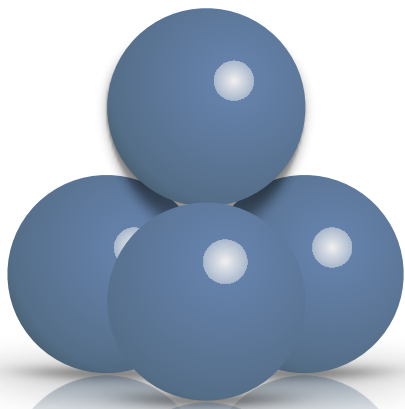


3. Effective back-washing

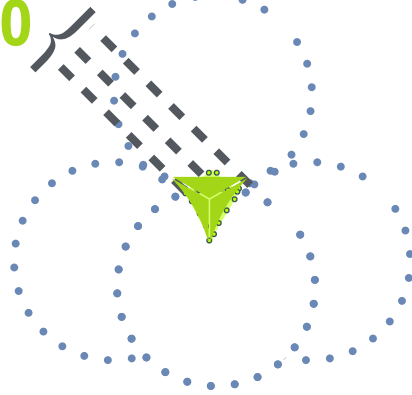


2. High-flux | low pressure drop

3D



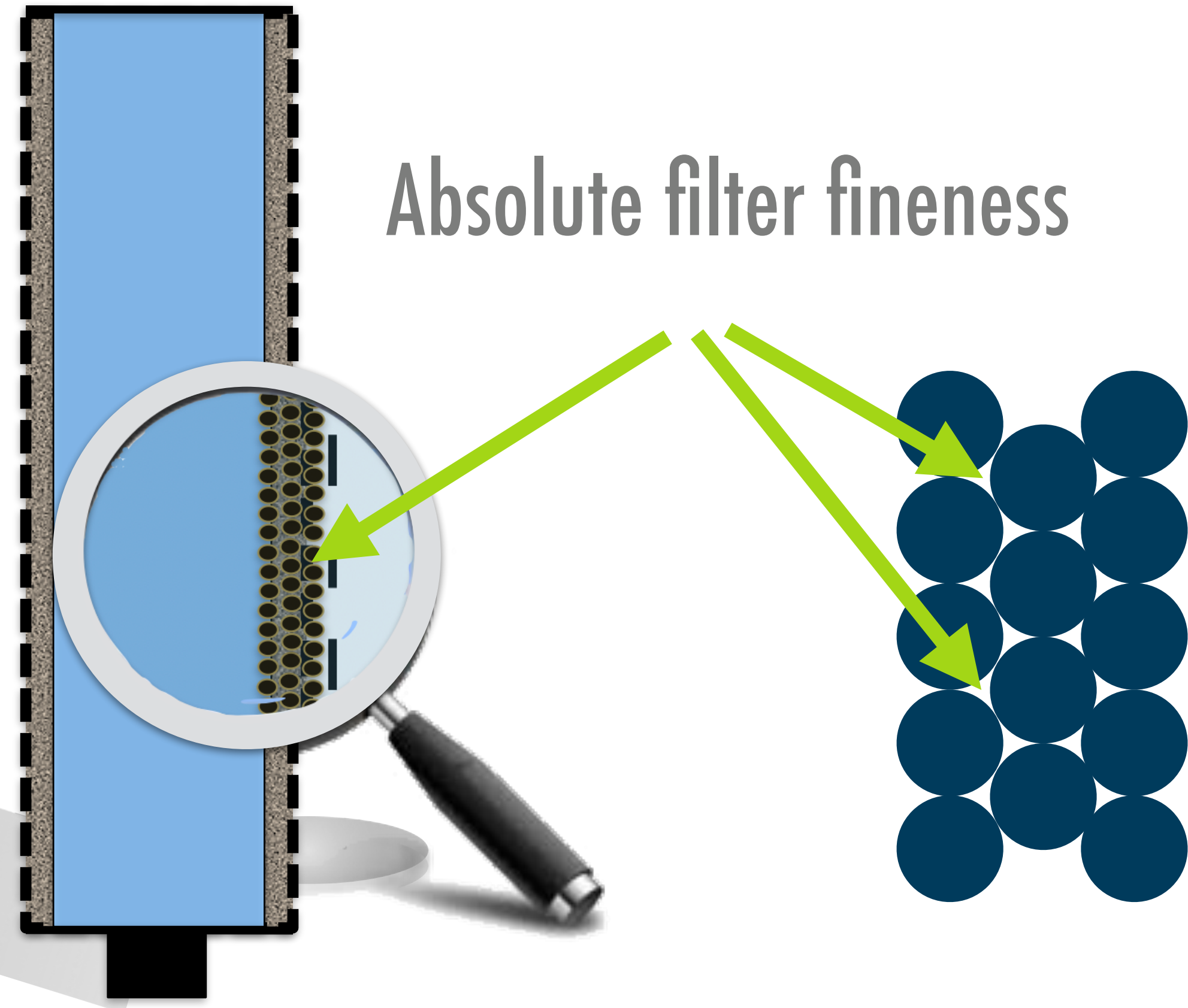
≈ 25%



1. ABSOLUTE EFFICIENCY

ABSOLUTE FINENESS DOWN TO 3 MICRON

Precise geometry of the "filter matrix" results in absolute filter finenesses. Where the usual filters hope for random results, the Bloom Absolute Filter delivers reliable efficiency.



1. ABSOLUTE EFFICIENCY - CERTIFIED

A DIFFERENT BALL-GAME

B

Absolute filter ratings have been witnessed and certified by the German Lloyd:

- ♻️ Absolute filter ratings
- ♻️ $\geq 99,9\%$ - after single pass
- ♻️ Down to 3 micron
- ♻️ Nominal results down to $0,5\mu$



Partikelanzahl $>7\mu\text{m}$ gemessen in 15ml	Vorverdünnung	Partikelanzahl gesamt $>7\mu\text{m}$ in 15ml	Partikel pro ml $>7\mu\text{m}$	Abscheidegrad
67711	25	1692775	112851,66	
222	1	222	14,8	<u>99,986%</u>

BAF Gauge $7\mu\text{m}$

Partikelanzahl $>12\mu\text{m}$ gemessen in 15ml	Vorverdünnung	Partikelanzahl gesamt $>12\mu\text{m}$ in 15ml	Partikel pro ml $>12\mu\text{m}$	Abscheidegrad
35007	25	875175	58345	
200	1	200	13,33	<u>99,977%</u>

BAF Gauge $12\mu\text{m}$

Partikelanzahl $>17\mu\text{m}$ gemessen in 15ml	Vorverdünnung	Partikelanzahl gesamt $>17\mu\text{m}$ in 15ml	Partikel pro ml $>17\mu\text{m}$	Abscheidegrad
8918	25	222950	14863,33	
28	1	28	1,86	<u>99,987%</u>

BAF Gauge $17\mu\text{m}$

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witnessed
test with glass beads

P. Gierhan
Peter Gierhan

29. Nov. 2019

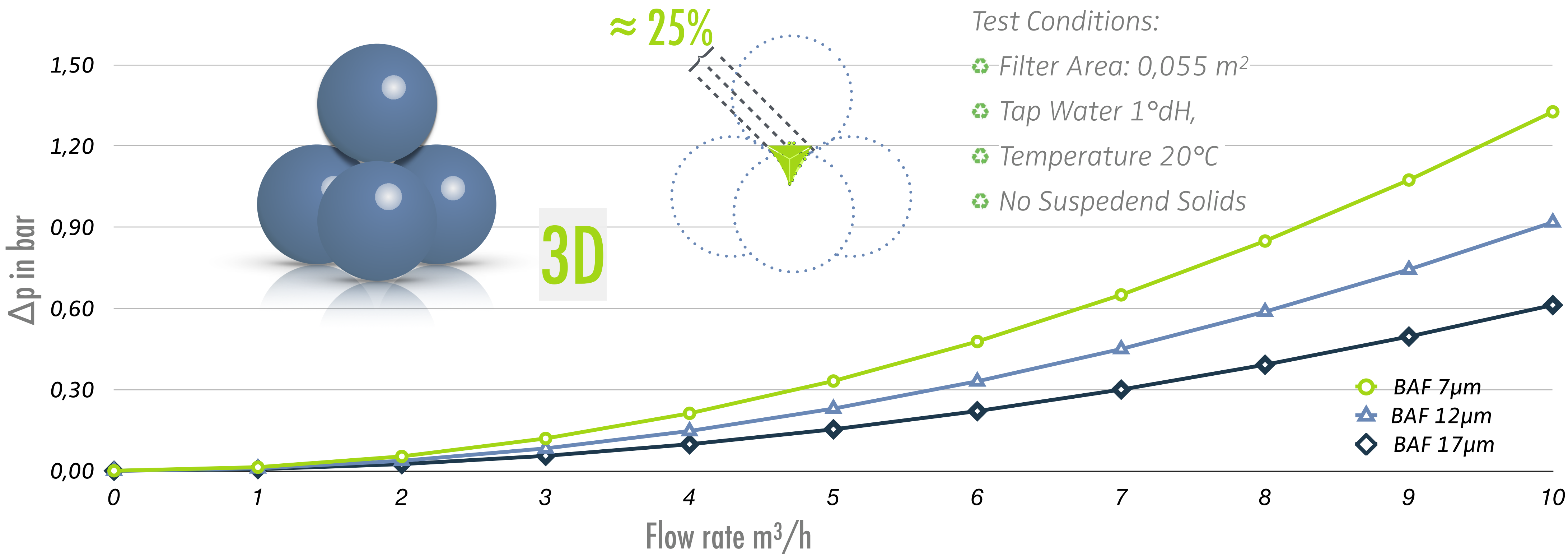


2. HIGH FLUX - LOW PRESSURE DROP

A DIFFERENT BALL-GAME



The measurable free space of 25% within the matrix and the hydrophilic surfaces of the glass beads lead to high flux | low Δp



3. EFFECTIVE BACK-WASHING: ZACK, CLEAN!

THE FASTEST BACKWASHING IN THE WORLD



The Bloom absolute filter can easily be backwashed with compressed air.

It only takes 30 seconds to make it like new again.

Click to watch Film on YouTube



3. EFFECTIVE BACK-WASHING

A DIFFERENT BALL-GAME



The usual decline of self-cleaning filters

🔄 Filter efficiency

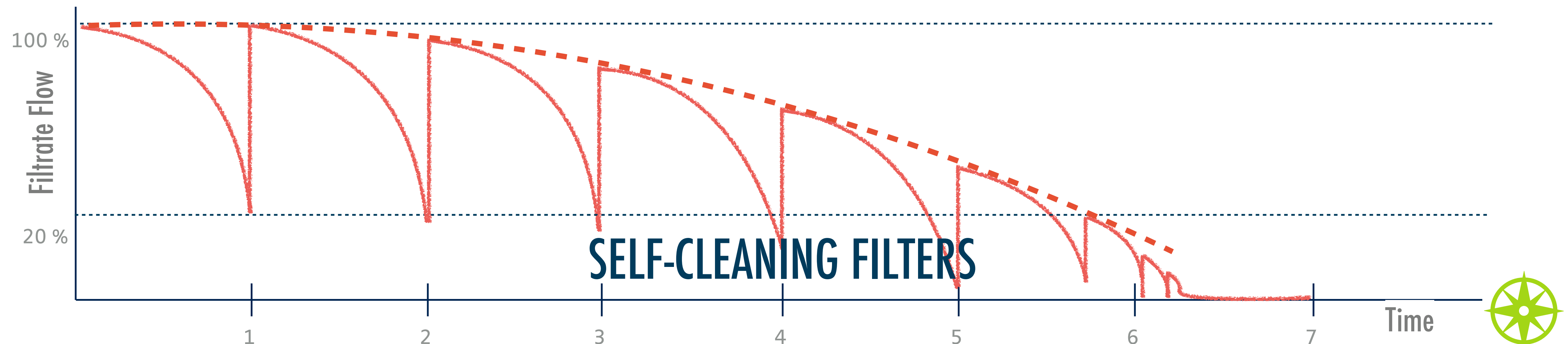
- 🔄 Rating not sufficient
- 🔄 Precision incomparable
- 🔄 Δp higher

🔄 Cleaning efficiency

- 🔄 Incomplete cleaning
- 🔄 Build-up filter cake
- 🔄 Cleaning device failure

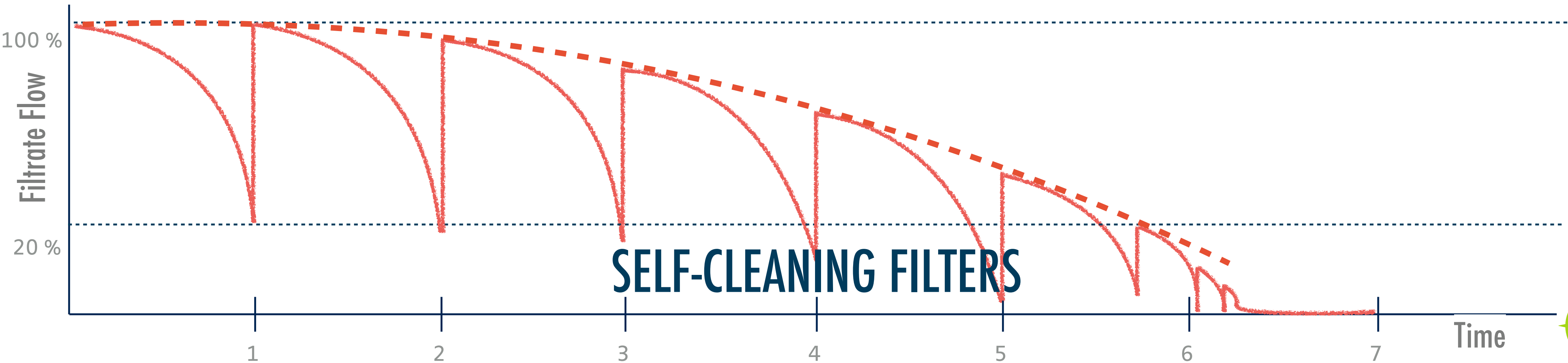
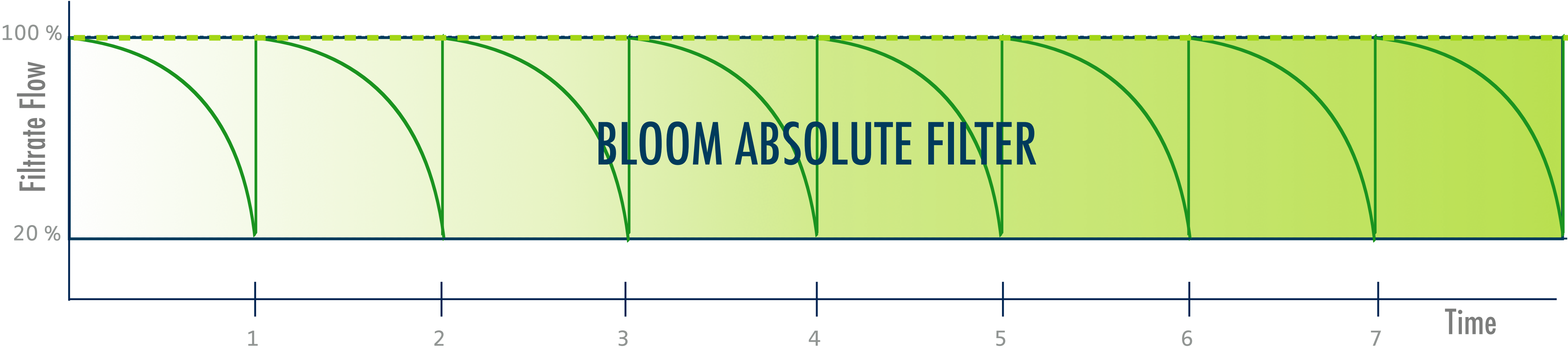
🔄 Total cost of ownership

- 🔄 Higher Investment
- 🔄 Higher cost due to down time and repair
- 🔄 Not scaleable



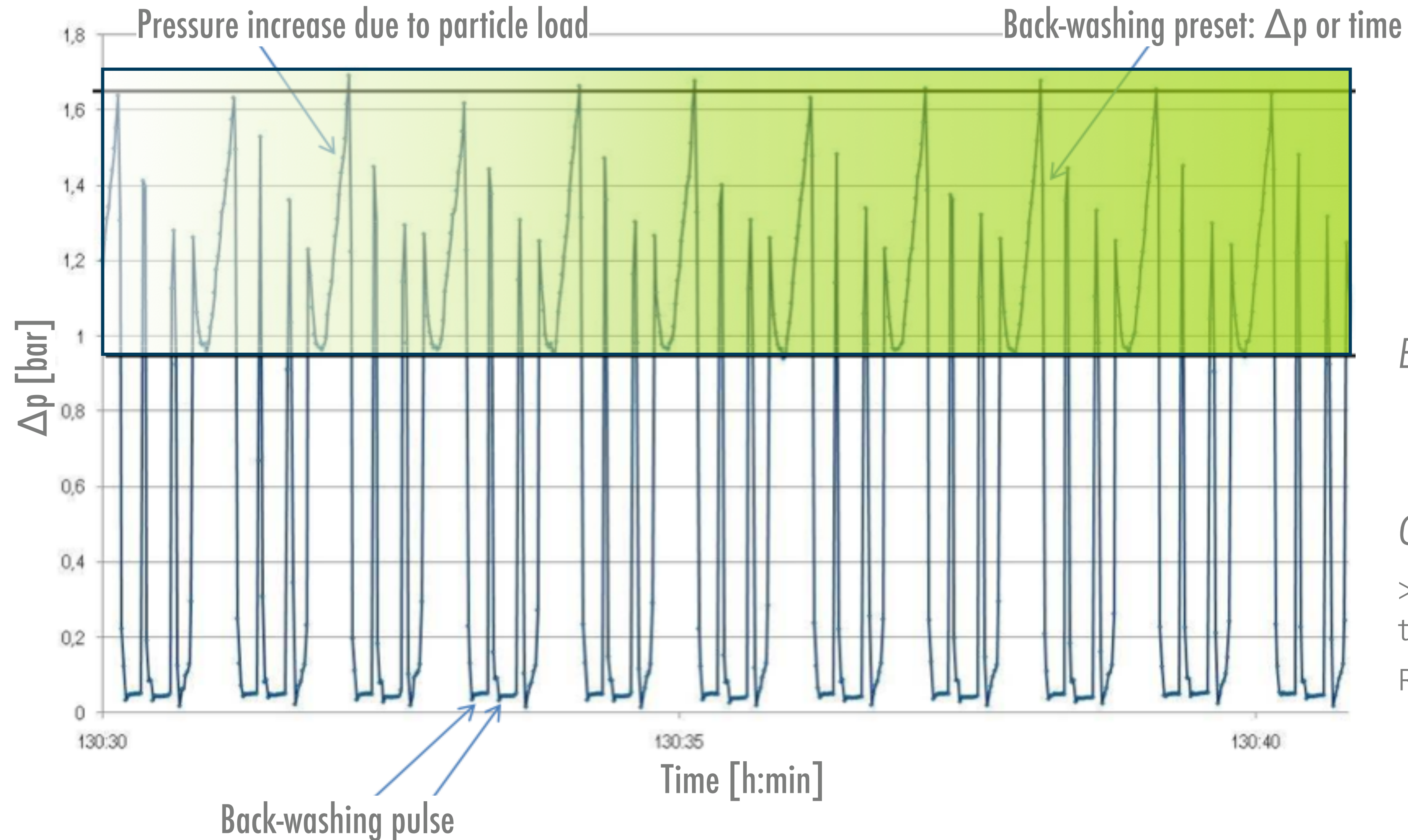
3. EFFECTIVE BACK-WASHING

A DIFFERENT BALL-GAME



3. EFFECTIVE BACK-WASHING

A DIFFERENT BALL-GAME



LESS IS MORE€

COMPETITION + COMPARISON

LESS SPACE, NO WATER, NO WASTE + LESS COST

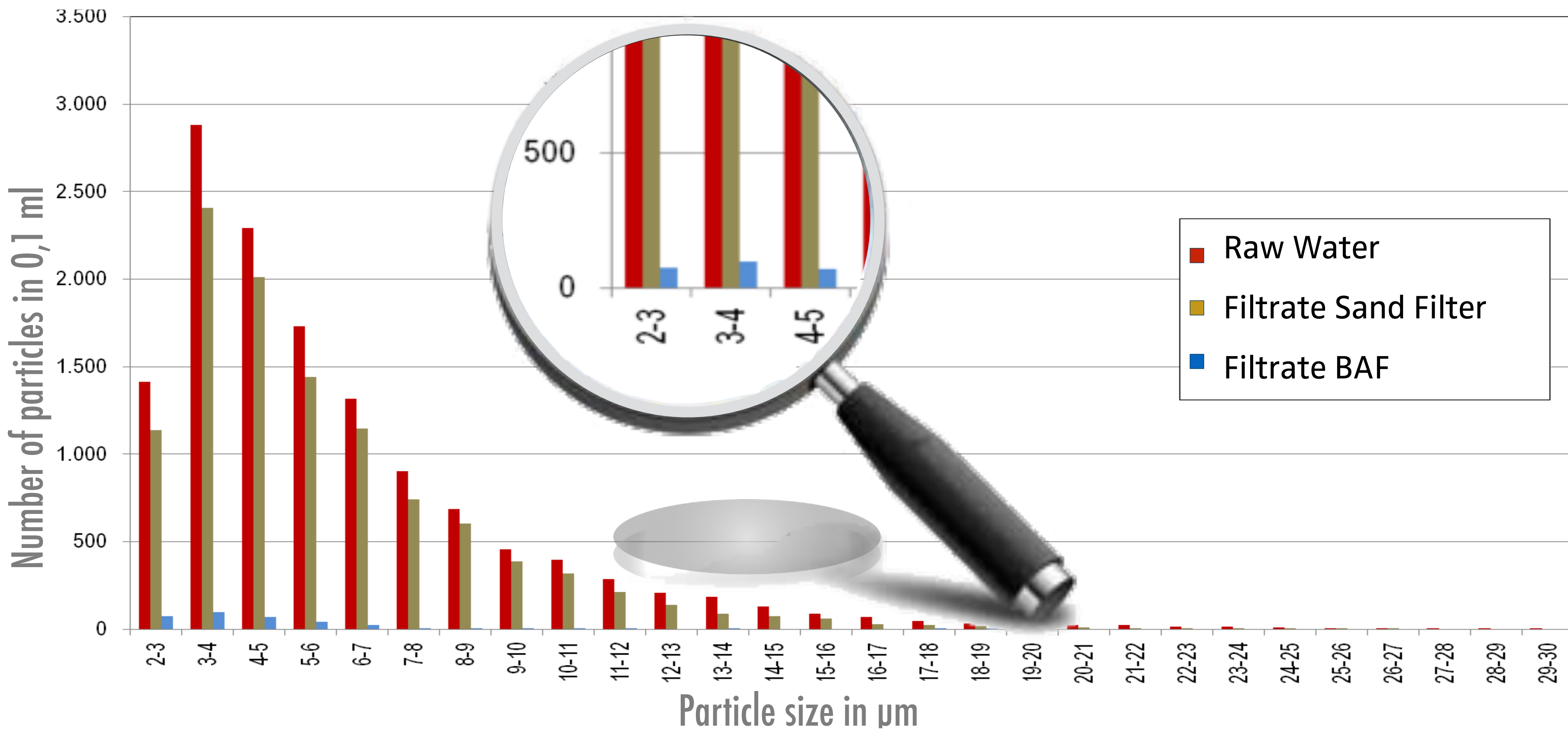


SAND FILTER VS BLOOM ABSOLUTE FILTER

COMPETITION + COMPARISON

Life-Test comparison: Absolute efficiency

Task: 5 m³/h cooling water in copper production



Sand Filter

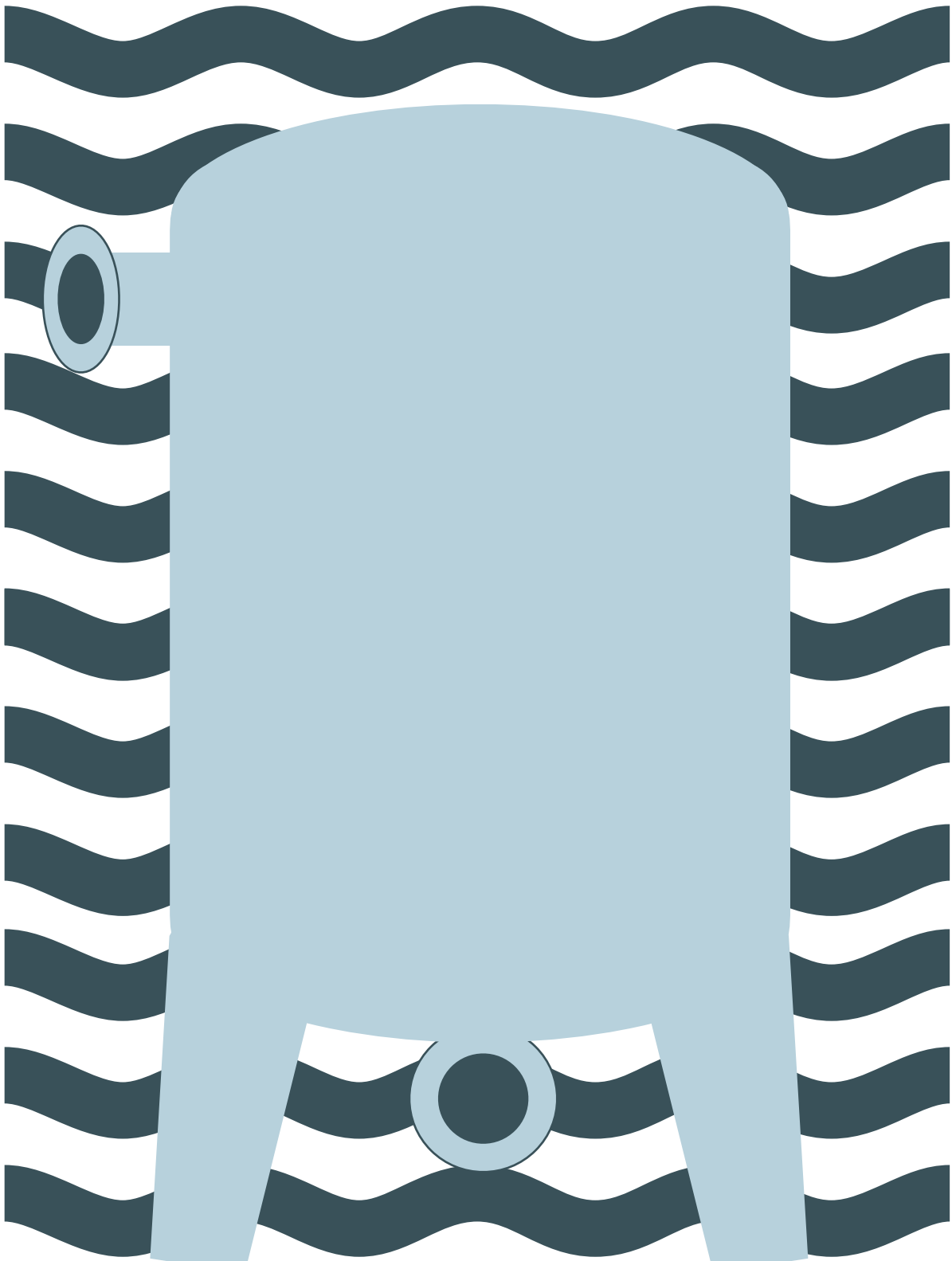


BAF-System



SAND FILTER VS BLOOM ABSOLUTE FILTER

COMPETITION + COMPARISON



Life-Test comparison: space + water
Task: public swimming pool

	<i>Sandfilter</i>	<i>BAF</i>
<i>Size</i>	5000mm x Ø 3000mm	700mm x Ø 225mm
<i>Flow-Rate</i>	5m³/h	5m³/h
<i>Back-washing</i>	1 x d	1 x d
<i>Water used for back-washing</i>	5m³	5l *

* Concentrate from filter housing was discharged into municipal waste water

← Your choice →

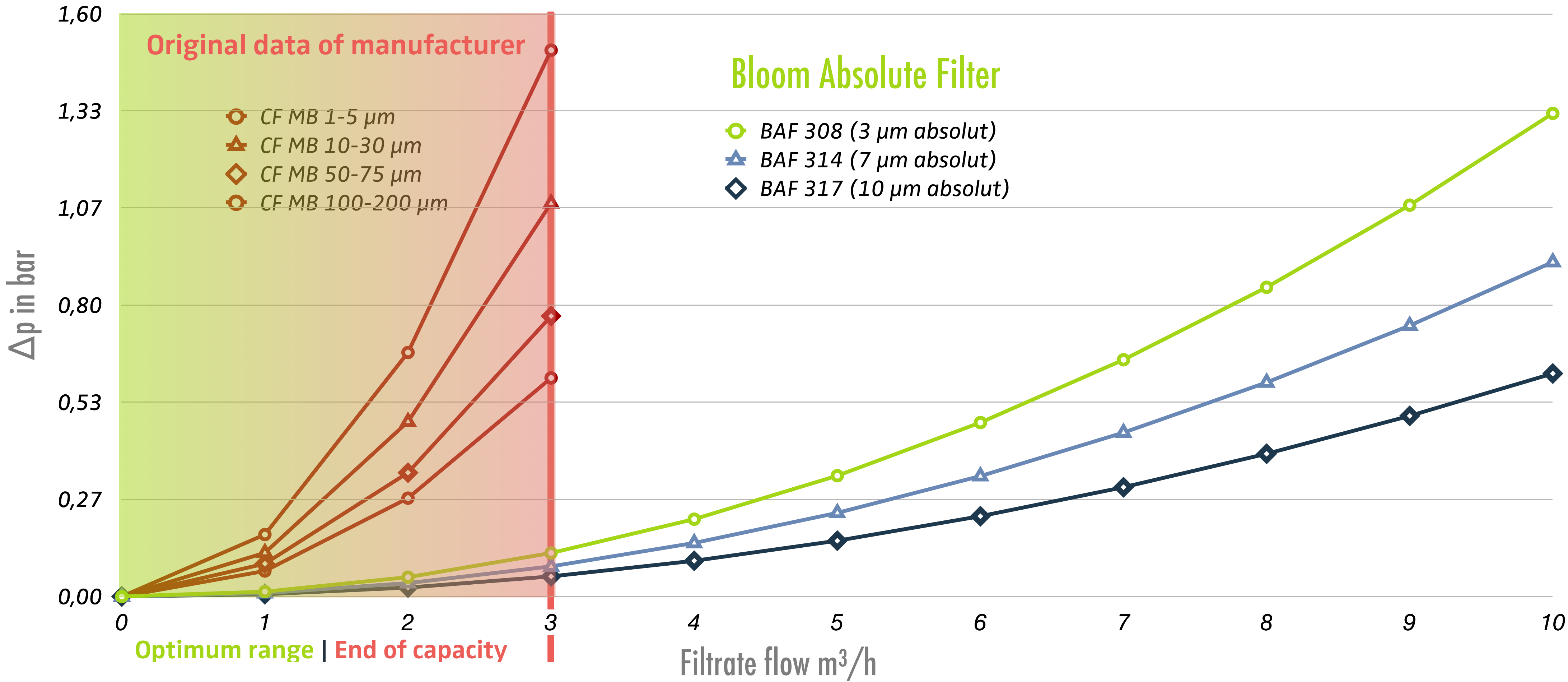


FILTER CARTRIDGE VS BLOOM ABSOLUTE FILTER

COMPETITION + COMPARISON



Data comparison: flux | pressure drop



FILTER CARTRIDGE VS BLOOM ABSOLUTE FILTER

COMPETITION + COMPARISON



Data comparison: effective back-washing over lifetime

Task: 10 m³/h, 10 µm, Particle load 25 mg/l

Original manufacturers recommendations:

DHC = 0,15 kg / TIE

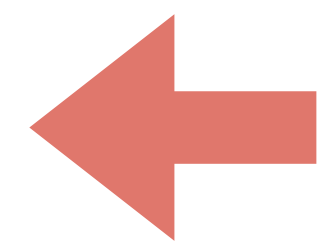
10 TIE needed = 1,5 kg DHC total



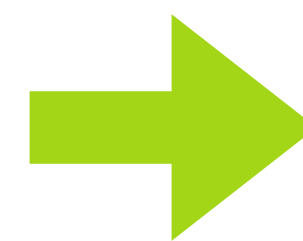
Lifetime = 1,5 kg : 0,25 kg/h = 6 h



Change every
6 hours



Your choice



Like new again
in 30 seconds



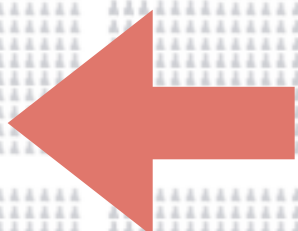
FILTER CARTRIDGE VS BLOOM ABSOLUTE FILTER

COMPETITION + COMPARISON

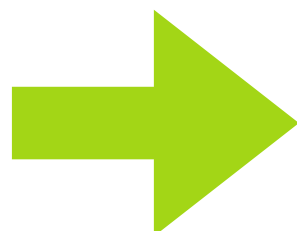


Data comparison: waste
Task: 10 m³/h, 10 μm, Particle load 25 mg/l

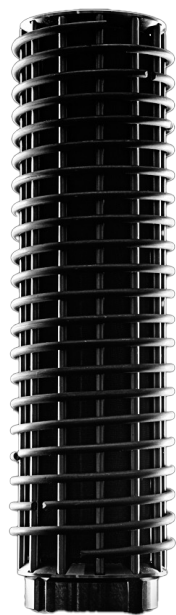
14.600
Disposable
filters / year



Your choice



1-2 BAF



FILTER CARTRIDGE VS BLOOM ABSOLUTE FILTER

COMPETITION + COMPARISON



Data comparison: total cost of ownership

Task: 10 m³/h, 10 µm, Particle load 25 mg/l

(AUTOMATED SYSTEM, WORKING HOURS, DOWNTIME IN PRODUCTION, AND WASTE DISPOSAL NOT INCLUDED)

2,5€ / TIE x 10 TIE

x 4 changes /d

= 100 € /d

⇒ 36.500 € /year

x 5 year operating time

= 182,500 € for disposable filters



← Your choice →

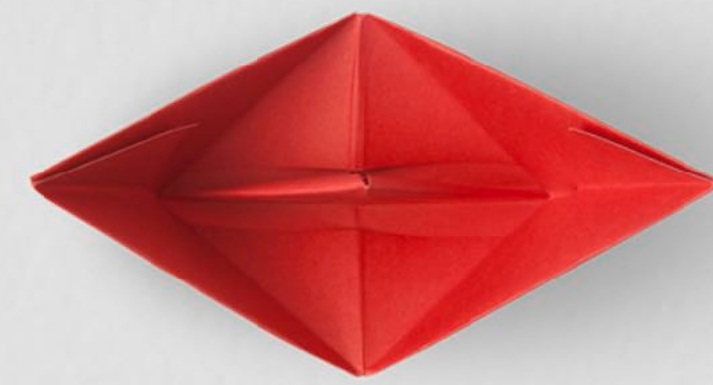


Fully automated BAF Filter system

≅ 5 year operating time

Invest ≈ 30.000,- €





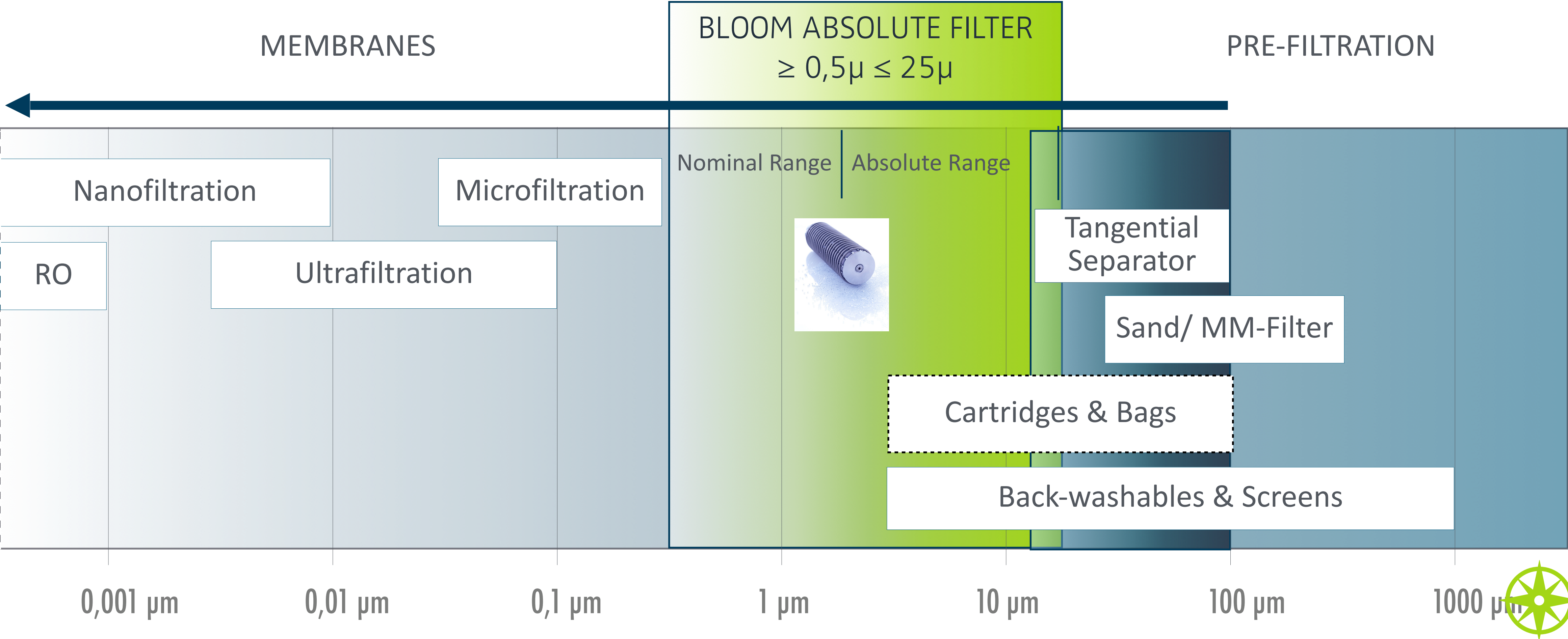
TESTED + PROVEN APPLICATIONS
SUSTAINABILITY IS ABOUT VALUE CREATION

FILTER SPECTRUM - PERFECT FIT FOR ZLD

TESTED + PROVEN APPLICATIONS



The Bloom Absolute Filter is an optimal protection for all downstream membranes and EDI.



APPLICATIONS + REFERENCES

TESTED + PROVEN APPLICATIONS

PHARMACEUTICAL + CHEMISTRY

- 🔄 Pre-filtration and Polishing UPW & WFI

POWER INDUSTRY

- 🔄 Boiler Feed Make Up
- 🔄 Condensate Treatment
- 🔄 Flue-Gas Scrubber Waste water

MINING, METALL, AND OIL&GAS

- 🔄 Metal reclamation from spoil heaps
- 🔄 Re-injection of produced water



AUTOMOTIVE

- 🔄 Coating
 - ✕ Rinse-water
 - ✕ Process-bath
- 🔄 Metalworking
 - ✕ High-Pressure Water Jet Cutting

LANDFILL LEACHATE

- 🔄 Pre-filtration to R/O



HIGH-PRESSURE WATER JET CUTTING

TESTED + PROVEN APPLICATIONS

CHALLENGE:

- ♻️ Separate aluminium oxide from water
- ♻️ Protect HP-pumps ($< 3\mu\text{m}$)
- ♻️ Close loop and reuse water
- ♻️ Work without disposables or filtration aids
- ♻️ Reduce annual costs > 11 Mio. € p.a.

SOLUTION:

- ♻️ Loop closed ($> 96\%$)
- ♻️ Aluminium recycled ($< 4\%$)
- ♻️ INVEST: 3,5 Mio. €
- ♻️ Annual cost reduced < 1 Mio. € p.a.
- ♻️ ROI after 4 months





Well water to brewery water



Sea water



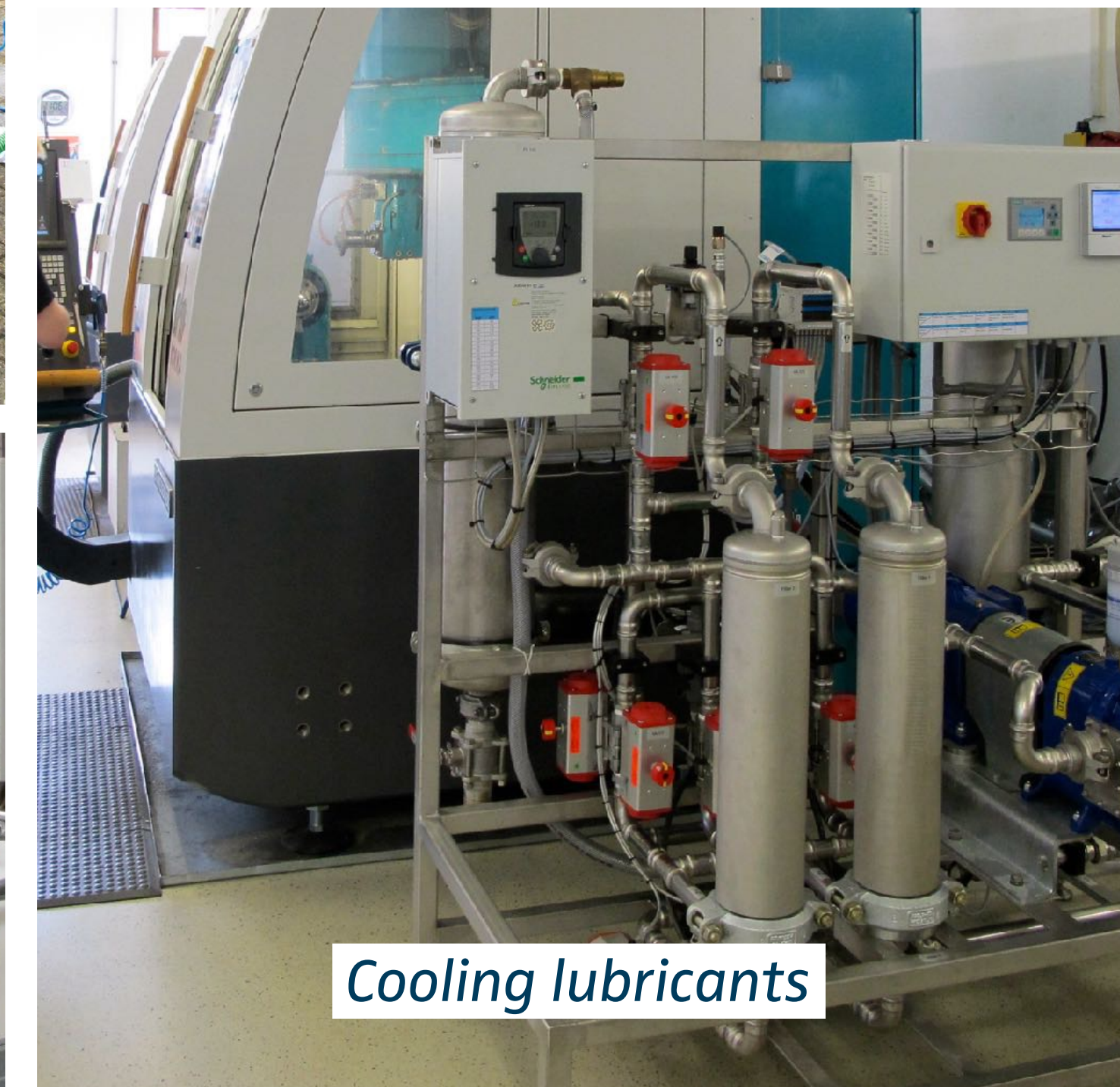
Landfill leachate



Process water



High-pressure water jet cutting



Cooling lubricants

THE SPHERE OF ADDED VALUES



- ♻️ Absolute filter efficiency
 - ♻️ filter rating down to 3 micron
 - ♻️ high-flux 10m³/h per filter + low Δp
- ♻️ Fully back-washable in just seconds for a long and relaxed service life
- ♻️ Lowest TCO
 - ♻️ Save water + resources
 - ♻️ No filter waste
 - ♻️ No down time
 - ♻️ Closed water loops
 - ♻️ Save money
- ♻️ Certified by German Lloyd (GL)
- ♻️ Patented, proven, and the most sustainable filter on the planet



BLOOM ABSOLUTE FILTER

LET'S TALK ABOUT YOUR CHALLENGE
LOOKING FORWARD TO HEARING FROM YOU

STEPHAN SCHUETZE

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