GF Piping Systems

NeoFlow PRV

31/08/2023

5th WATER LOSS BALKANS FORUM AND EXHIBITION

Victor Pinedo
Business Development manager, NeoFlow EMEA

Did you know?

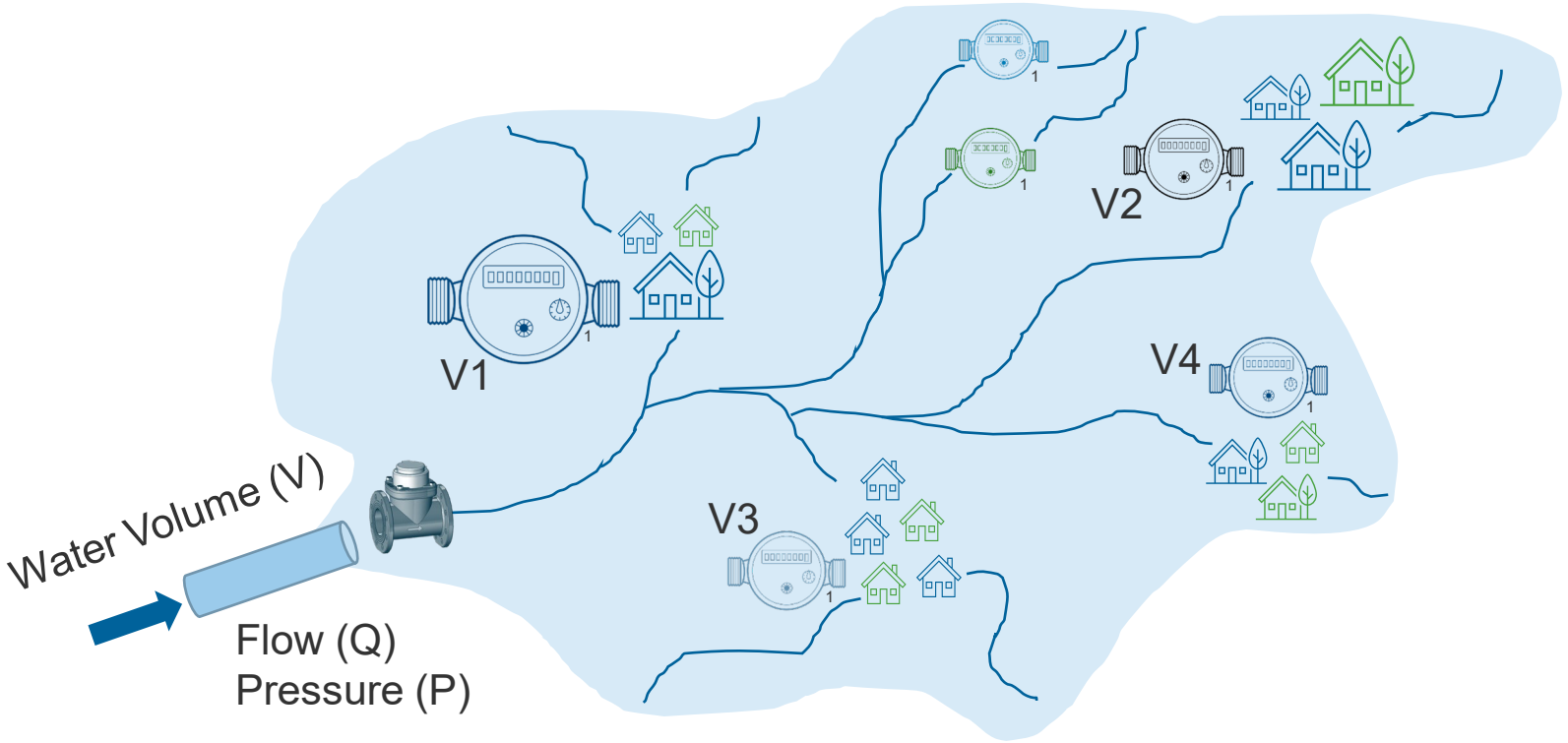
$39 billion annually

Lost water is lost revenue

It costs $39 billion annually for utilities.[1]
1/3 of utilities report loss of more than 40% due to leaks.[7]

1 Roland Liemberger & Alan Wyatt. “Quantifying the global non-revenue water problem”
7 About Energy-Recovery Turbine for Water Pipes: “Periodic Reporting for period 1 - Pydro Turbine”

Water Networks



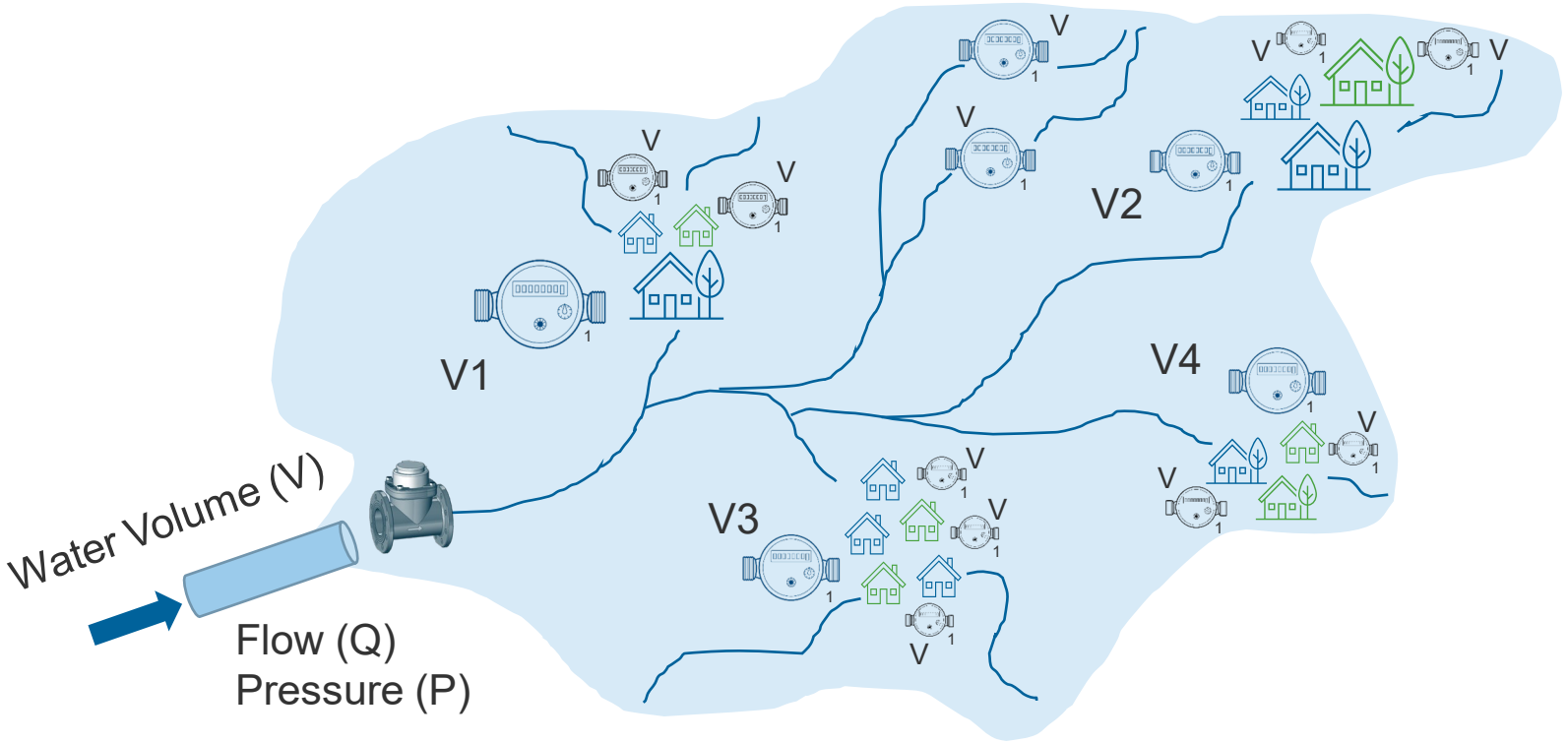
Water Volume (V) ≠ V1+V2+V3+…

?

- Water leakages
- Watermeters inaccuracy
- Frauds
- Errors

[1]manometer by Nikita Kozin from Noun Project (CC BY 3.0)

Water Networks



Water Volume (V) ≈ V1+V2+V3+…

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Increase the number of watermeters

- Watermeter technology
- Size
- Installation

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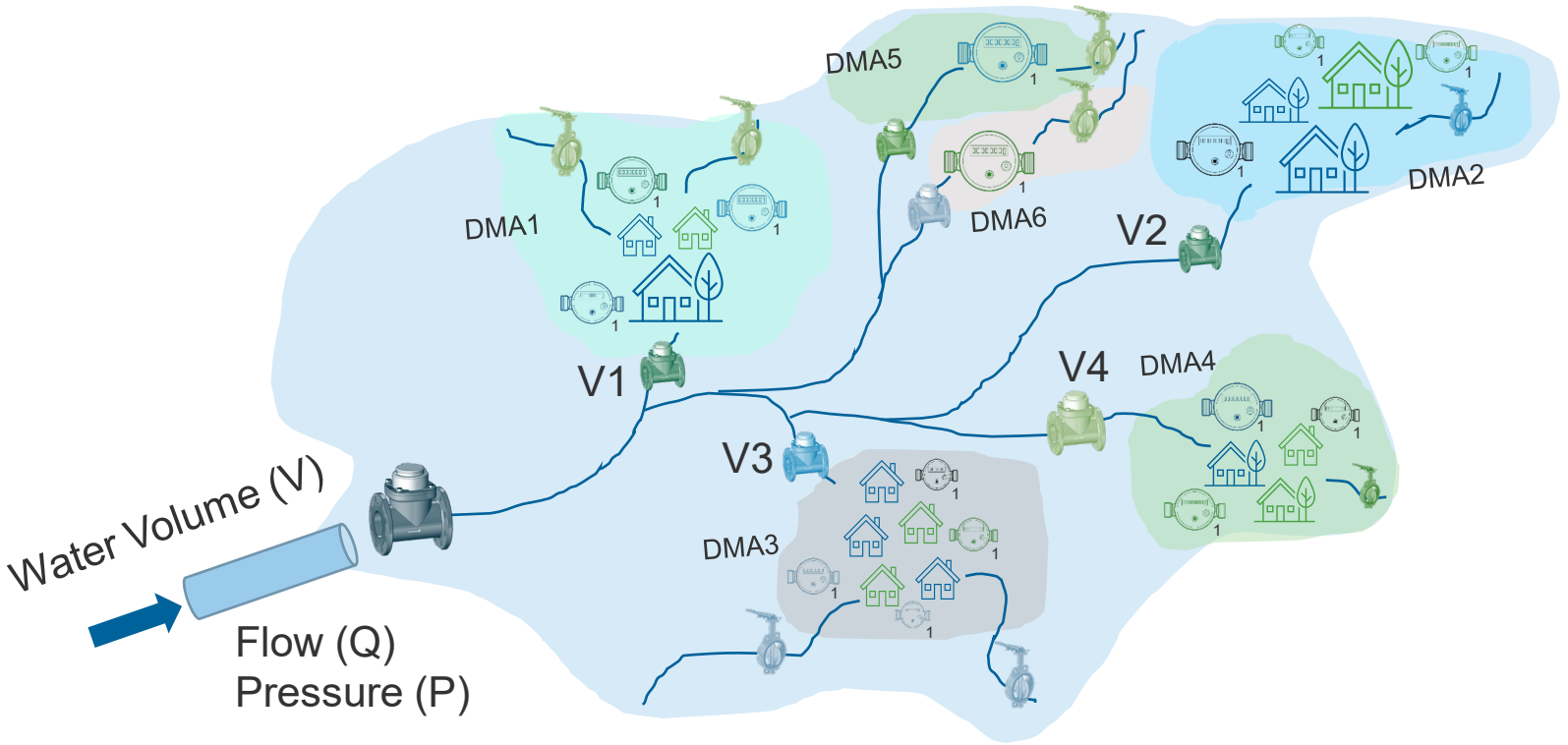
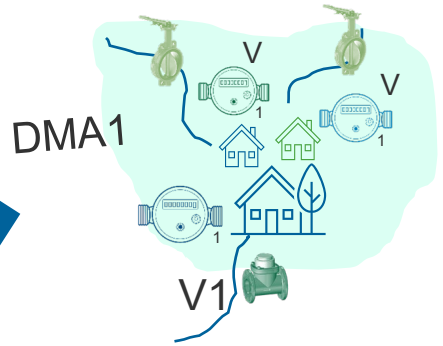
Water Networks





- Between 500 and 5000 customer connections
- Connected only to a transmission main (no connection into other DMAs)
- Number of valves to isolate the DMA (boundary valves)
- Number of flow meters to measure in- and outflows
- Ground level variations
- Types of consumers

District Metered Areas (DMA)

$$V1 \approx V_{11}+V_{12}+V_{13}+\ldots+V_{1n}$$

$$V2 \approx V_{21}+V_{22}+V_{23}+\ldots+V_{2n}$$

……

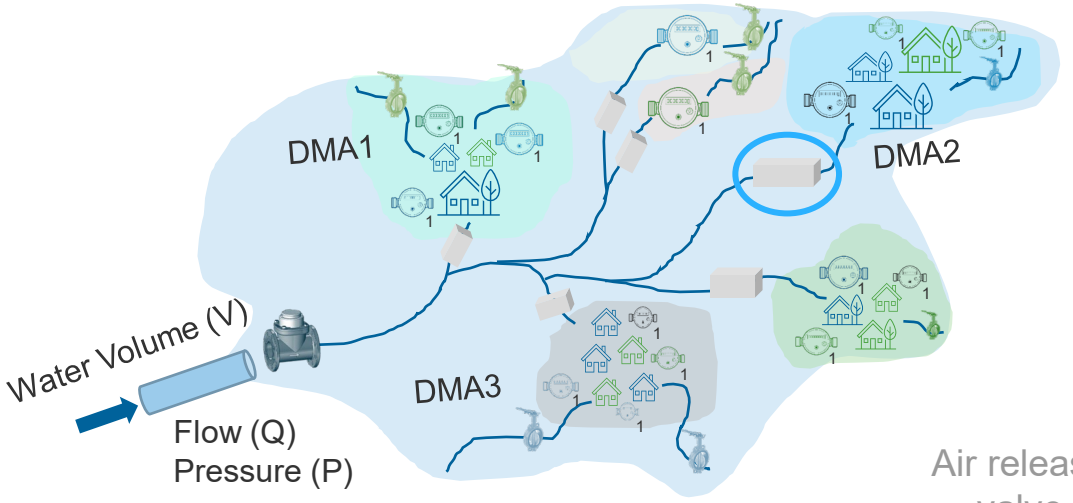
Easy to determine the districts with lower performance

Flow analysis (night flow)

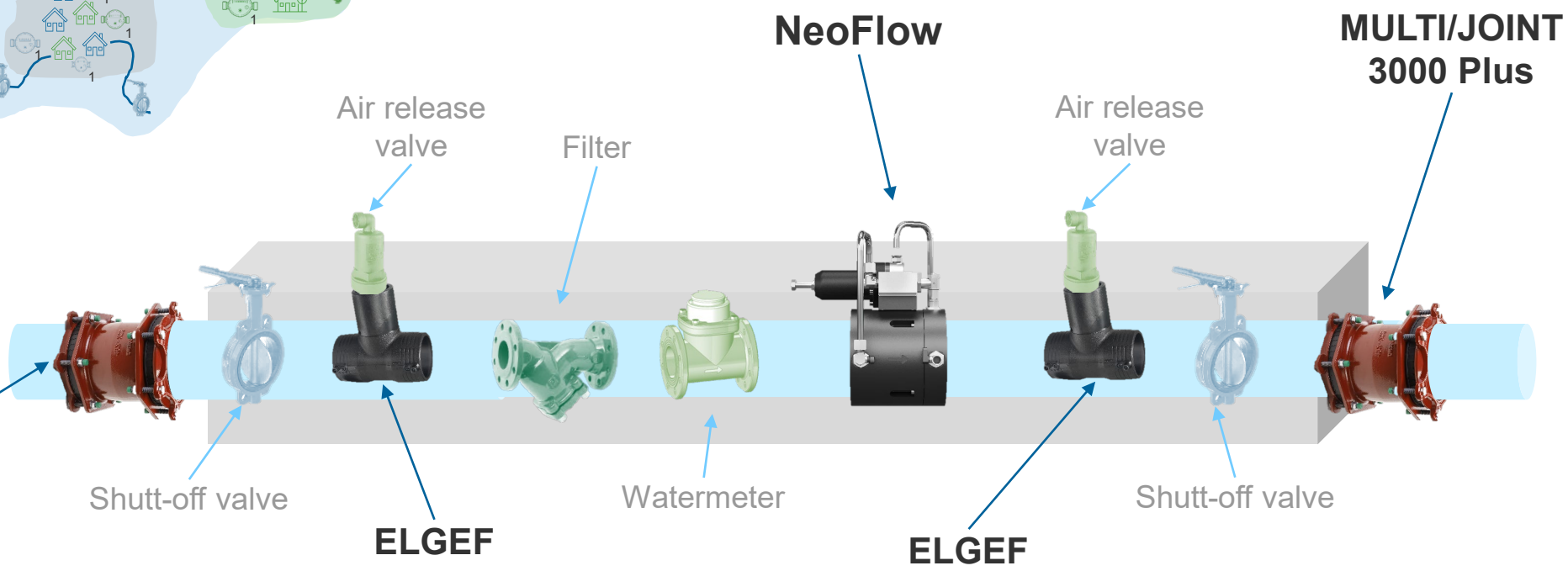
[1]manometer by Nikita Kozin from Noun Project (CC BY 3.0)

Water Networks

Improve performance by managing the pressure



Pressure management area (PMA)



[1]manometer by Nikita Kozin from Noun Project (CC BY 3.0)

Pressure Management Benefits

- *Water savings*
- Preservation of water
- Water continuity

- *Number of new leakages and surges in the network*
- *Frequency of bursts*
- Unscheduled network repair tasks

- Level of noise of the whole installation
- Lifespan of network components
- *Saving energy*
- Consumption of chemical products

- Consumer complaints
- Time on active leakage detection tasks
- *Number of repairs*

The 4 pillars of leakage management - Real losses

Acoustic detection, acoustic correlation, pre-location, tracer gas detection, in-pipe inspection

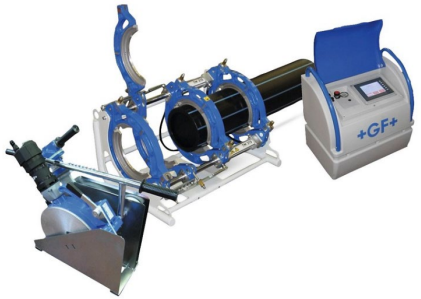
Leak Detection

Pressure Management

Minimize water losses

Speed and Quality of Repairs

Network renewal



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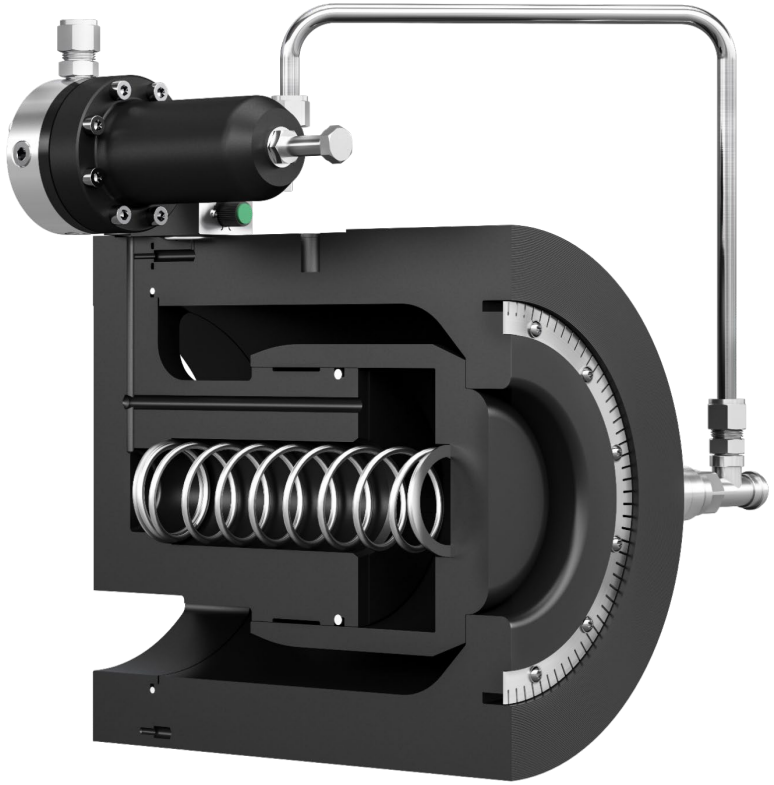
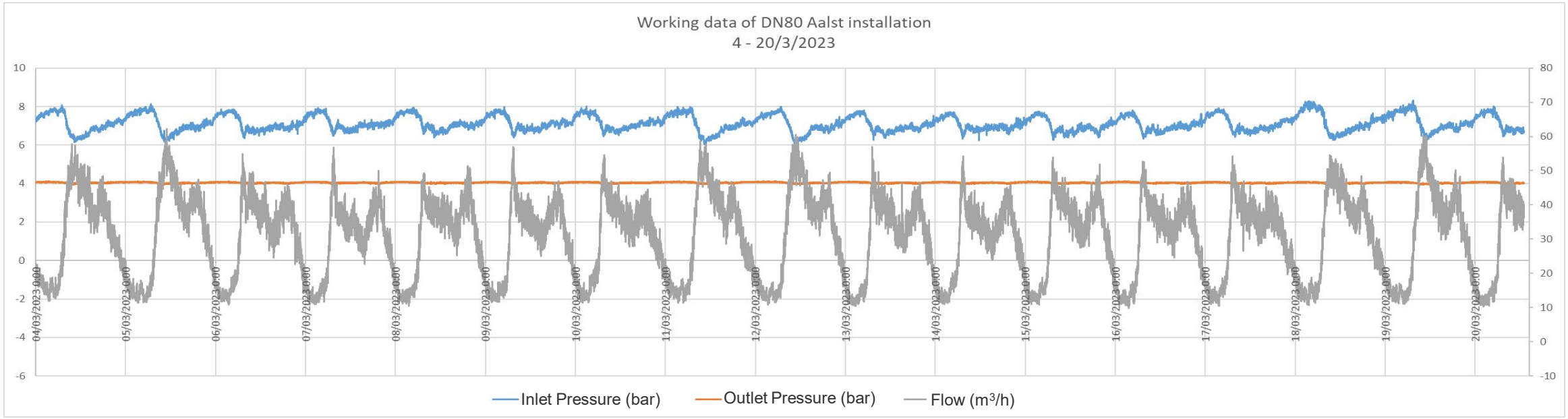
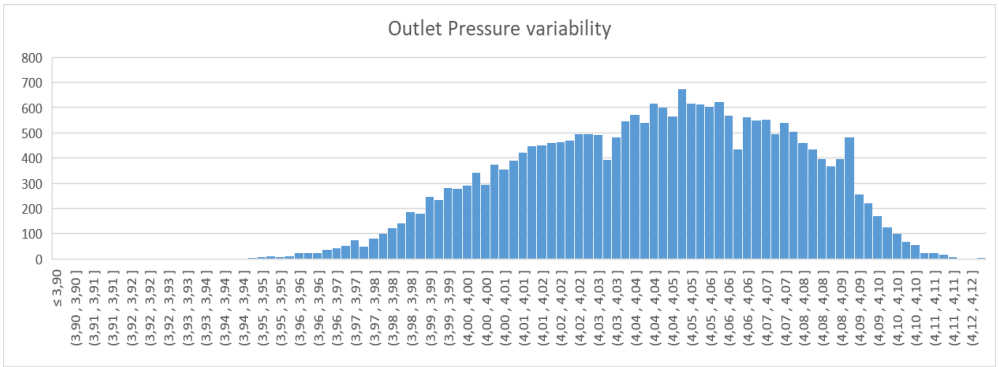
NeoFlow – Pressure Regulating Valve



The innovative alternative - Performance

Precision: more accurate and stable, even with low flow and challenging pressure differential

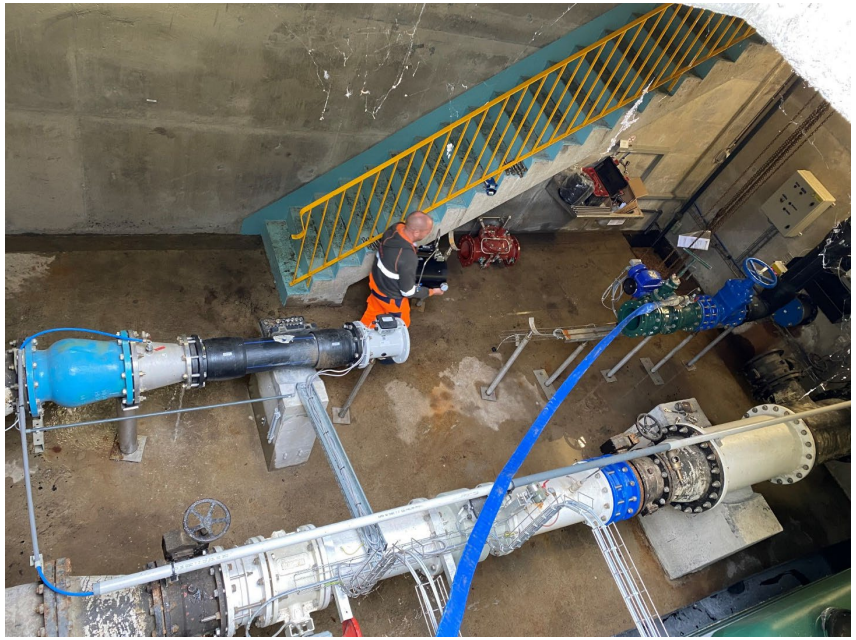




Outlet pressure	
Average	4,04 bar
Maximum	4,12 bar
Minimum	3,56 bar
Diff. Max&Min	0,56 bar
Standard deviation	**0,03 bar**

The innovative alternative - Performance

Headloss: low value



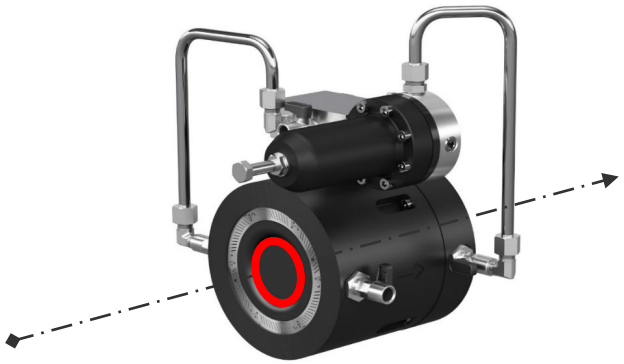
	Average flow (m³/h)		% Flow Difference	Flow Difference (m³/h)
Pressure drop (mwc)	Metal	NeoFlow	NeoFlow vs Metal	NeoFlow vs Metal
1	162,91	199,13	22,2%	36,22
2	179,56	221,14	23,2%	41,59
3	202,57	242,03	19,5%	39,47
4	227,52	265,11	16,5%	37,59
5	244,88	285,57	16,6%	40,70

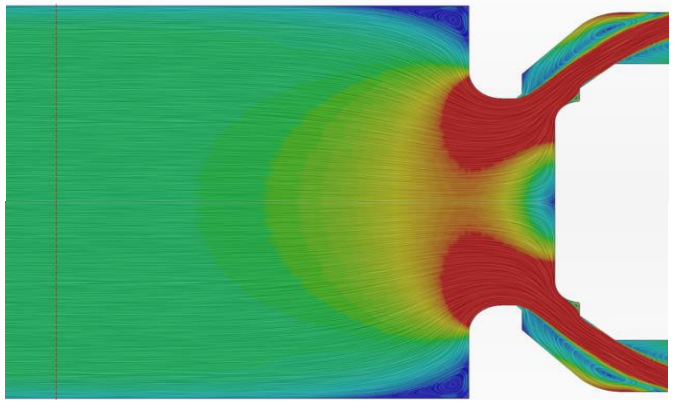
Notes:
- Pressure drop (mwc): pressure difference between the inlet and outlet in the valve in meters of water column

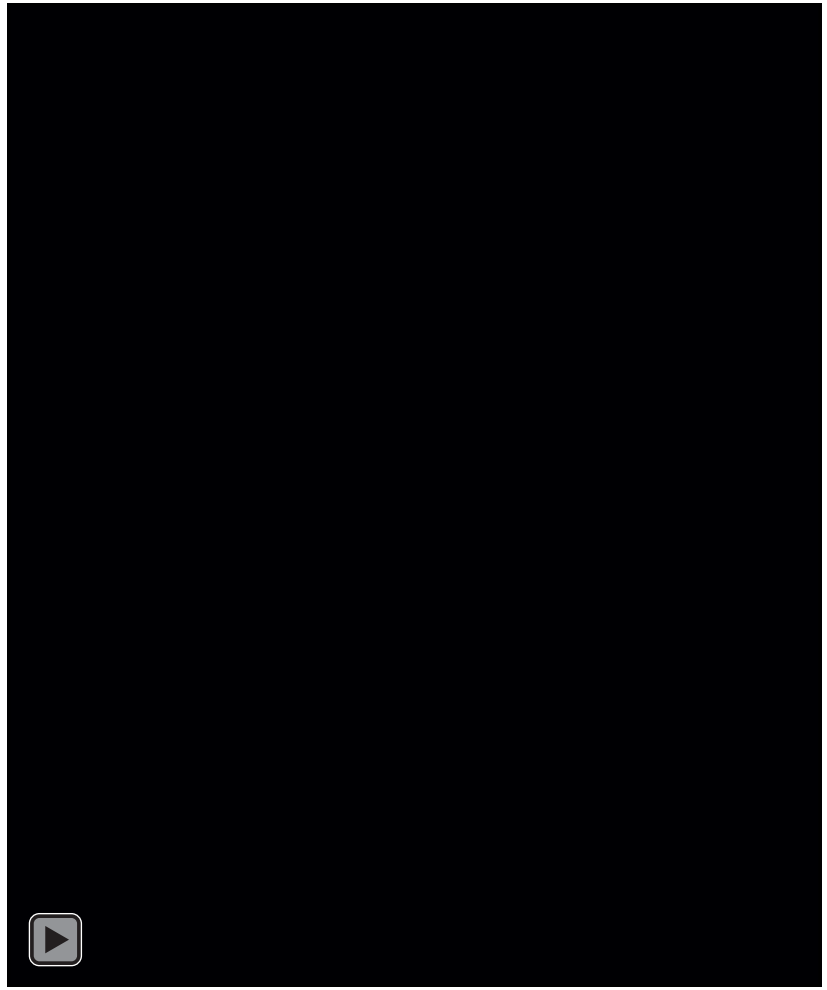
- NeoFlow adds on average 20% plus of flow vs the Metal valve
- For the same pressure drop, NeoFlow is delivering more flow ➡ NeoFlow has a lower headloss

The innovative alternative - Performance

Cavitation: lower impact of this phenomenon





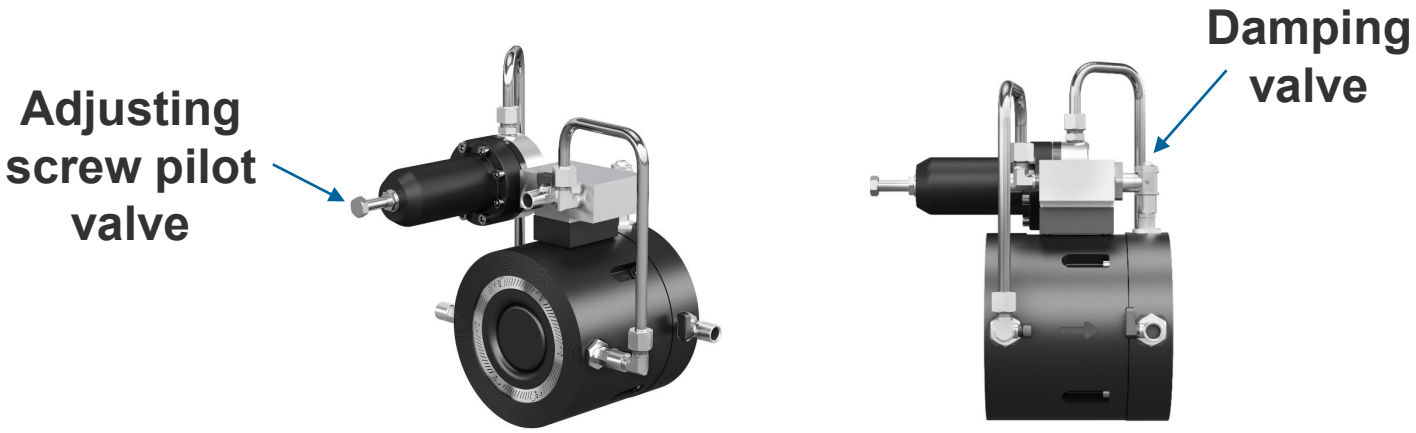


10-0.8bar 45m³/h FPS30 (ratio 12,5)

- Symmetrical velocity profile around the piston
- Install a flowmeter directly upstream
- Less impact of cavitation phenomenon

The innovative alternative - Simplicity

Easy commissioning: less time and water waste



Simplified maintenance: 10x less components

No diaphragm. The corrosion and incrustation-resistant materials minimize failure ad maintenance requirements

The innovative alternative – Easy integration

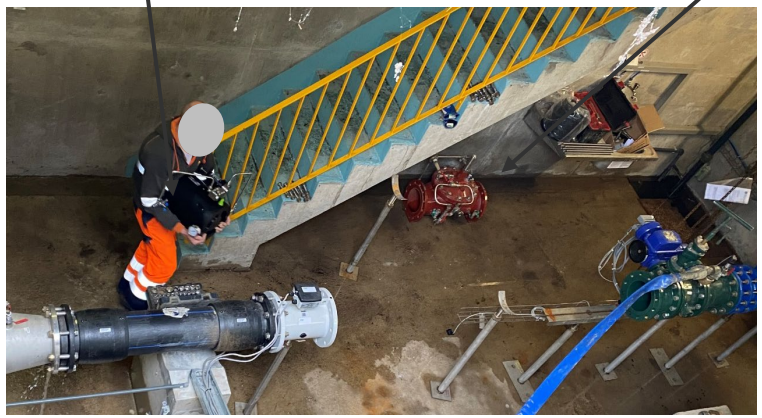
Wafer type connection

Small size
up to 60% length reduction

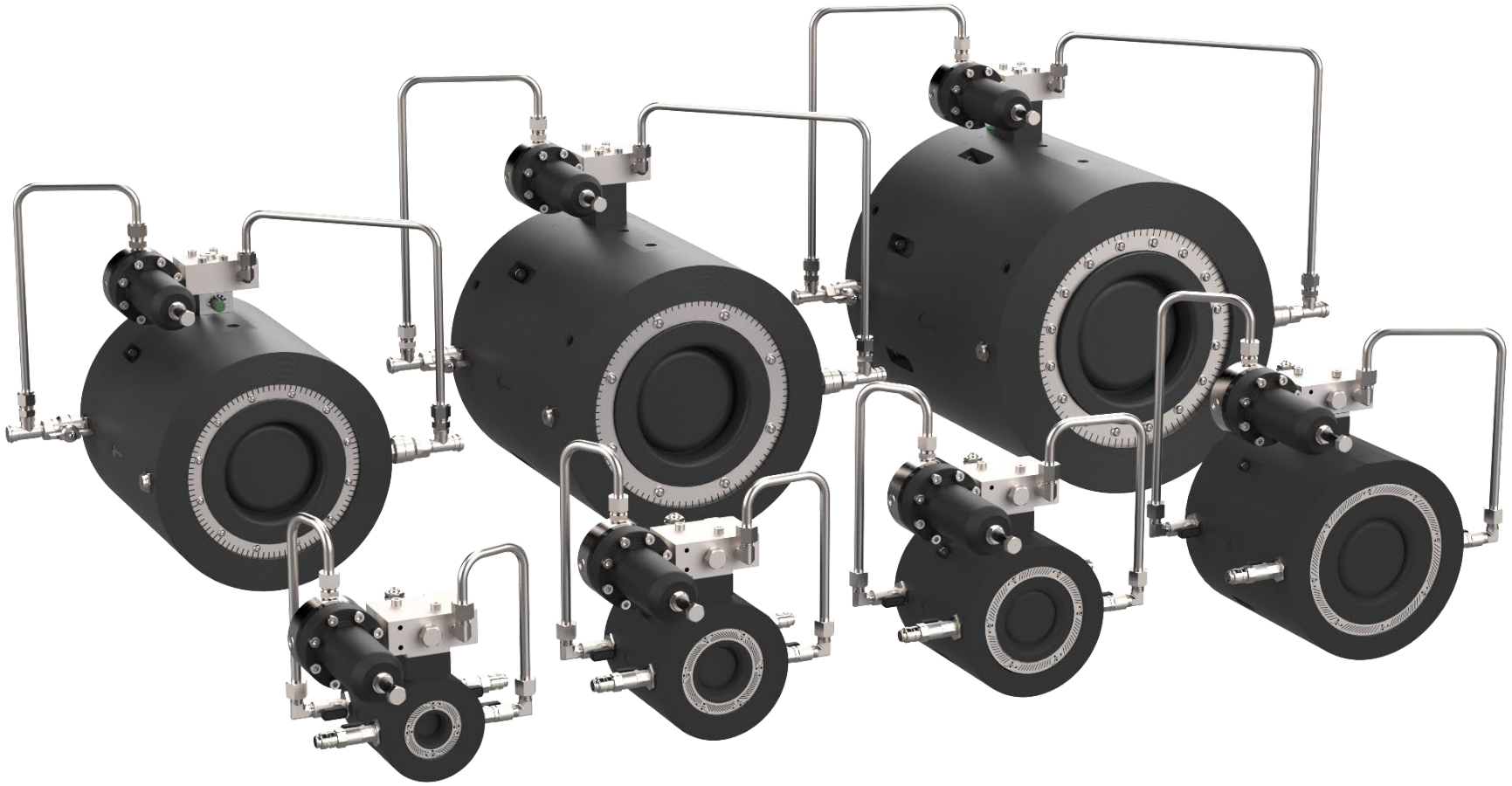
Lightweight
up to 90% weight reduction

DN200

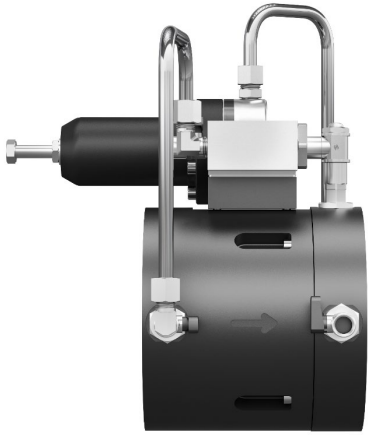
22 kg 120 kg



From DN50 to DN300 / PN16



Variants



PRV

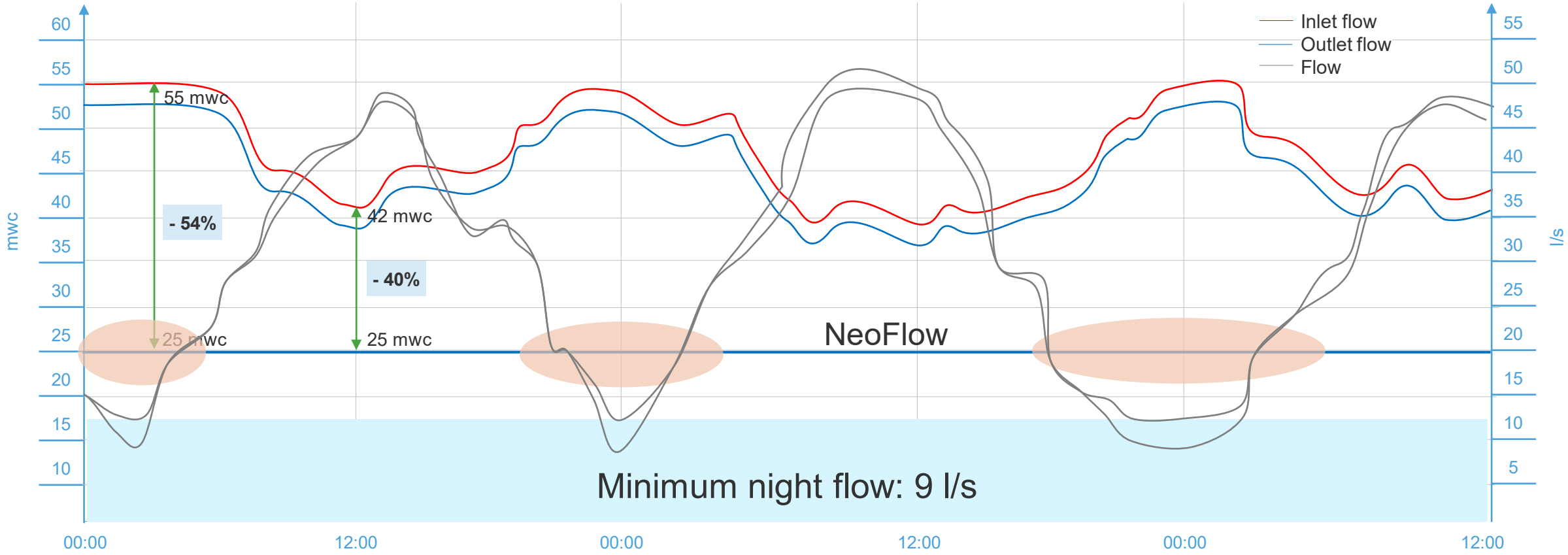
PSV

Tank Level Control

Smart

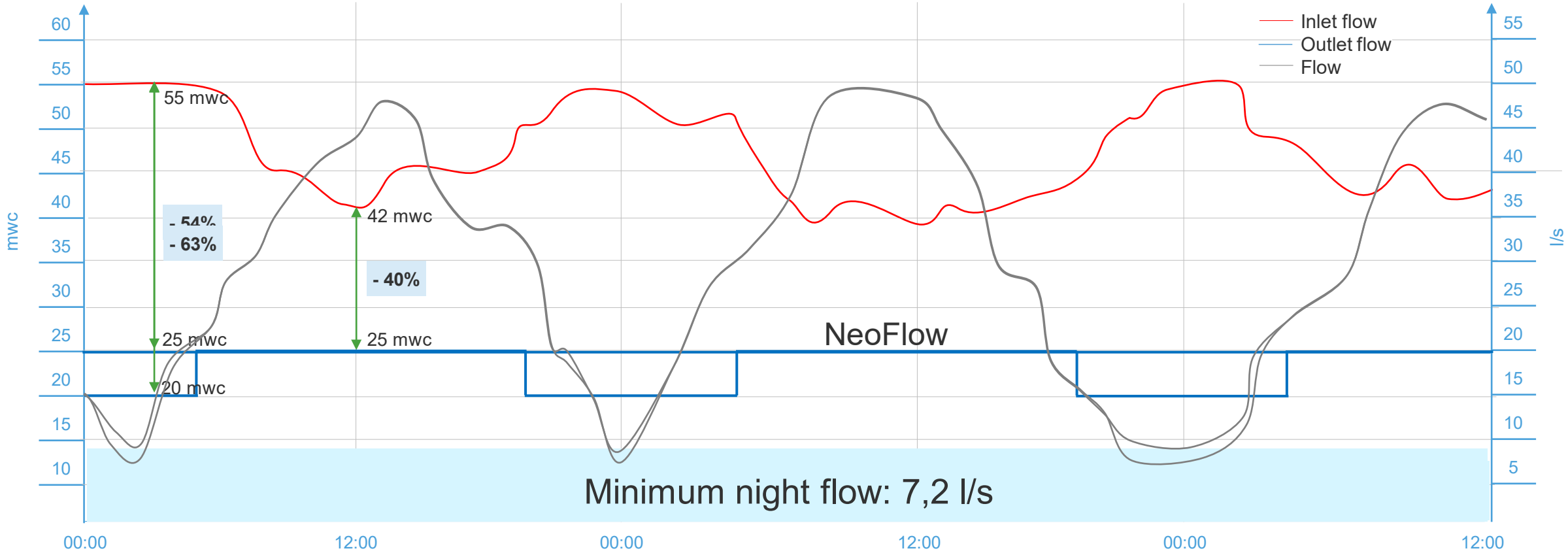
Dual-Setpoint

NeoFlow Dual Set-point PRV



Example: NeoFlow regulating at 25 mwc

NeoFlow Dual Set-point PRV



Example: Dual-setpoint NeoFlow regulating at 25 and 20 mwc

NeoFlow - Conclusions

- Alternative technology to traditional metal valves
- Massive benefits for water utilities due to its
  - Performance
  - Simplicity and
  - Easy integration
- Reduction in TOTEX of the product

GF Piping Systems, your partner to deal with Water Network Performance

Thank you for you participation

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