



# Alvenius FlowMax<sup>®</sup>

Your water & wastewater system for the future





# Stronger - Faster - More flexible

**Still believe a pipe is a pipe?**

**Then it's time to reconsider – Alvenius FlowMax® is something completely different. High strength Swedish steel is the basis, they are spiral-welded for maximum shape retention and finally internally and externally coated with CorroFlo®.**

The high strength steel plus the CorroFlo® coating results in a unique pipe, combining the corrosion resistance and service life of a PE pipe with the strength and durability of steel.

Coated steel pipes have long been a well-proven and accepted material for water and sewerage installations. That's why Alvenius FlowMax® pipes are particularly suitable for permanent systems for raw water, drinking water and wastewater. More over – transmission lines and temporary installations are other typical examples of the FlowMax® pipes' workability.

## **Developed for long service life**

A pipe system is a large and costly investment, requirements on durability and service life are high.

Alvenius FlowMax® has been developed to work far into the future and the high strength steel, CorroFlo® coating and various types of couplings ensures dependability over time. Also the high tolerance specifications eliminate leaks in joints and of course there will be no changes in the mechanical properties in the long run.

## **Easy to handle. Quick to install.**

Thanks to their low weight the FlowMax® pipes are easy to handle and the well-proven quick couplings ensure you can install the system quickly, safely and easily. Also there is no need whatsoever for preparatory work on the pipe ends.

No special tools, no special training needed, no welding involved – you save considerable installation time, as there is no need for cooling and X-raying of welding.

Also on-site cutting is fairly simple.

## **Complete system for all requirements**

Alvenius FlowMax® is a complete system with pipes and pipe fittings from DN80 to DN500, couplings, bends, tapping valves, adjustable fittings, project unique fittings and adapters in various dimensions and variants.

By using transition couplings or flange adapters, you can easily connect FlowMax® pipes to other types of pipes - such as PE or ductile iron – and connecting the pipes to pumps and valves is a breeze.



CorroFlo® \_\_\_\_\_

High-Strength Steel \_\_\_\_\_

CorroFlo® \_\_\_\_\_

RocShield® \_\_\_\_\_



# Unbeatable surface coating

**Alvenius FlowMax® pipes are perfect for water and wastewater applications – even in contaminated ground or soil.**

**CorroFlo® internal and external surface coating. Approved for drinking water.**

CorroFlo® (thermoplastic coating) is a non-porous, solid coating with high mechanical and impact resistance.

The CorroFlo® coating is applied to both the inside and outside and provides superb long-term protection against corrosion and other wear and tear. CorroFlo® also complies to all hygiene specification requirements plus it prevents internal build-up in the pipes.

CorroFlo® is one of the most effective surface coatings on the market and third party tests show that CorroFlo® coated pipes have a service life comparable to polyethylene pipes. CorroFlo® also meets the very tough corrosion class SS EN ISO 12944, that is specified for marine environments (C5-M) and below ground (Im3).

Another advantage is that CorroFlo® offers extremely low friction, resulting in the lowest flow resistance on the market, excellent operating economy and no build-up of inside deposits.

**RocShield® on the outside**

For additional wear and impact protection, the outside of FlowMax® pipes are treated with RocShield® – an extra LDPE layer on top of the CorroFlo® coating.

RocShield® is perfect for pipes in exposed environments, plus the rougher surface finish provides a safer grip which makes for simpler and safer handling.



Backfill with 8-16 mm macadam.

## Advantages of internal coating

- Excellent resistance to corrosion, chemicals and abrasive media
- Optimal hygiene properties – no build-up in the pipes, thanks to the slippery coating
- Bisphenol A free
- Extremely low flow resistance ensures lower energy consumption and lower total costs. K-value: 0.05.

## Advantages of external coating

- Unbeatable service life – proven in third party tests in extreme environments
- Resistance to external forces on pipes
- Excellent resistance to corrosion
- Flexible and easy to repair in the event of possible damage





## FlowMax<sup>®</sup> - everything you need. Complete, quick and easy.

**Quick and easy installation thanks to the mechanical quick couplings, is one of the obvious advantages of the FlowMax<sup>®</sup>-system. It's all there in a well thought through system with different types of couplings, depending on the application and pressure rating.**

### **Shortest possible installation time**

The most common method of connecting FlowMax<sup>®</sup> pipes is with the mechanical quick couplings, that enables significantly shorter

installation times compared to welded PE and steel pipe systems.

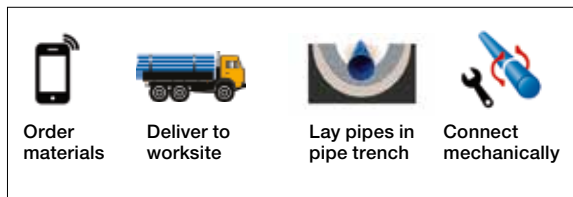
No special tools. No welding. No special training to install the system. No hot work and therefore no time-consuming steps such as cooling and welding X-rays control.

Alvenius FlowMax<sup>®</sup> pipes require fewer installation steps to connect, which means far shorter installation time and hence lower installation costs.

## Installation of Alvenius FlowMax® pipes

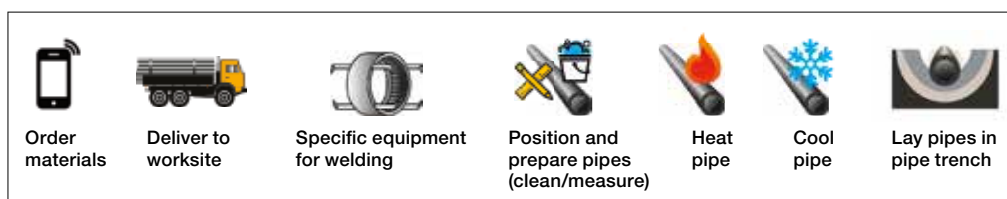
All you need is quick couplings and a socket wrench.

Very few installation steps save time and money.



## Installation of traditional PE pipes

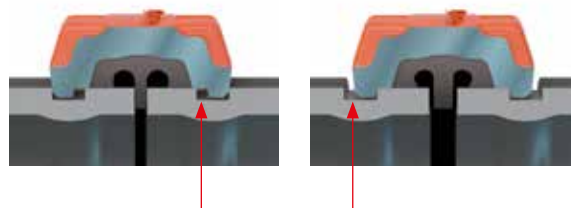
Numerous installation steps and a complicated fitting process takes far longer and increase costs dramatically.



## No risk of leaking joints

The couplings are installed in the grooved ends of the pipe, meaning that the connected pipework can absorb axial movements – up to four times greater end loads compared to PE pipes – as well as changes in length, caused by both temperature differences and vibrations.

When drained, the couplings are sealed against back suction, and the rubber gaskets are self-sealing, which makes the system suitable for both high and low pressure applications.



Quick couplings withstand expansion, contraction and axial movements, without any risk of leakage in pipe joints.

## Joint deflection up to 3°

The quick couplings are designed to ensure each joint can withstand deflection of up to 3° depending on the size of the coupling.

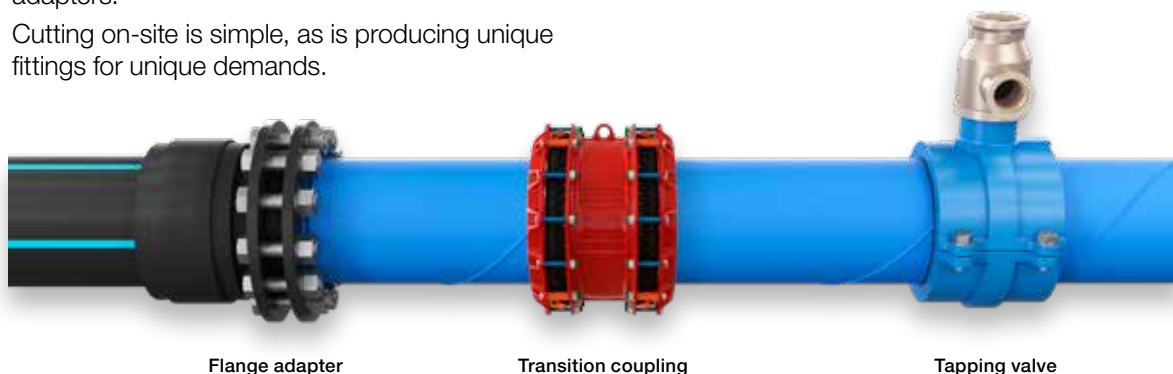
This means FlowMax® systems smoothly follow the topography of the ground and minimise the use of bends.



## Further components and accessories

The FlowMax® system also includes tapping valves, adjustable fittings, bends and various adapters.

Cutting on-site is simple, as is producing unique fittings for unique demands.









# Made in Sweden

**Alvenius FlowMax® pipes are spiral-welded with Swedish pressure-equipment classed steel material (SSAB Domex®). Thanks to these steel qualities, they have a number of unique built-in advantages. The pipes can be made thin-walled but yet strong, while the spiral welding ensures that the pipes retain their shape.**

No other manufacturer can offer the FlowMax® pipes' unique combination of material strength together with thin walls and a very smooth surface. Plus first class mechanical properties, thanks to the Domex® high purity. It is exactly this combination of Domex® steel and Alvenius' long experience of spiral welding that makes our products unsurpassed on the market.

Another big advantage of their thin walls is that the pipes have a significantly larger inner diameter compared to other types of pipes and materials.

Spiral-welded steel pipes also retain their shape and stay straight during storage, transport, unloading and lifting. In other words - no risk of ovality or other distortions.

Alvenius is certified according to the quality standard ISO 9001, the environmental standard ISO 14001 and the welding quality standard ISO 3834-2.

The FlowMax® pipes are designed and manufactured according to the pressure equipment directive PED 2014/68/EU and SS-EN 13480 series. Tolerances according to SS-EN 10217-1. This means FlowMax® pipes are of the highest possible quality.



Steel grades			
	Yield point, ReH [MPa]	Tensile strength, Rm [MPa]	Elongation at break [%]
Domex 240 YP	240	360 – 460	28
Domex 420 MC	420	490 – 620	20

Available pressure ratings					
Pipe dimension			Working pressure bar		
ISO DN	Inches	DY [mm]	16	25	40
80	3	88.9	x	x	x
100	4	114.3	x	x	x
125	5	139.7	x	x	x
150	6	168.3	x	x	x
200	8	219.1	x	x	x
250	10	273.0	x	x	x
300	12	323.9	x	x	x
350	14	355.6	x	x	
400	16	406.4	x	x	
450	18	457.0	x	x	
500	20	508.0	x	x	

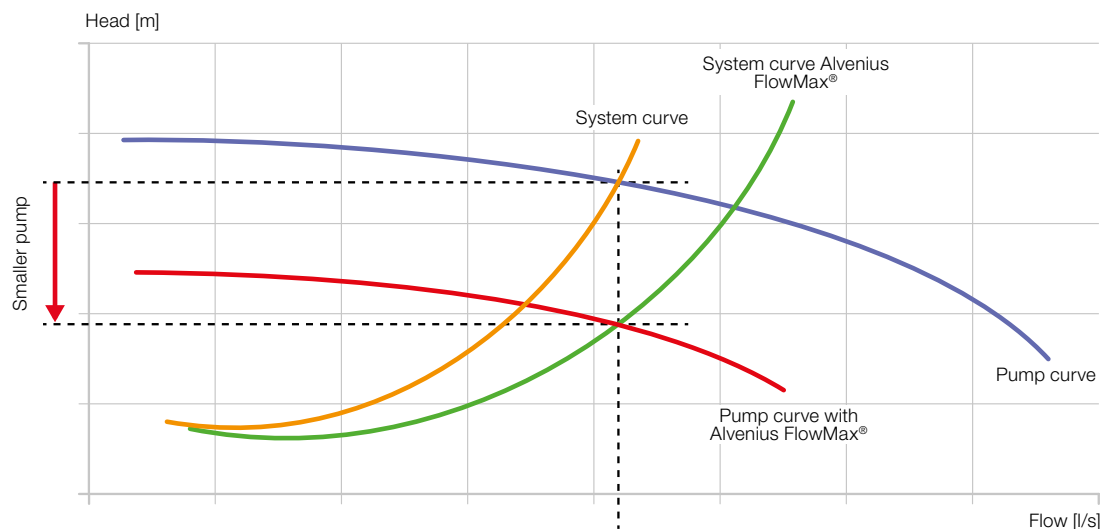


# FlowMax<sup>®</sup> - superior performance

Alvenius FlowMax<sup>®</sup> pipes offer unsurpassed performance compared to any other system, and the combination of a range of advantages make the pipes unbeatably cost effective. FlowMax<sup>®</sup> pipes give you loads of operating benefits:

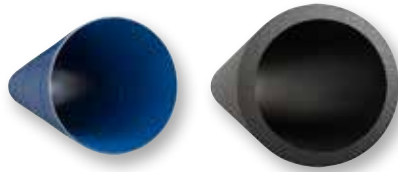
- You can specify pipes in smaller dimensions, but still reach the same pump capacity
- You can specify smaller or fewer pumps in the system
- You will lower both investment costs and operating costs

## Pump dimensioning for pipe systems with the same DN



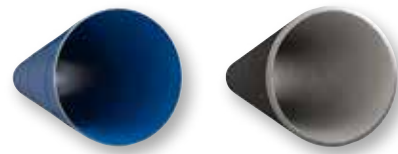


Smaller pipe dimension,  
same pressure drop compared to PE



Comparison Pressure loss at 150 l/s, pipe run 1,000 m	DN 300 Pressure drop 0.8 bar.	DN 400 Pressure drop 0.8 bar.
	Alvenius FlowMax®	PE100 (SDR 11)
PN [bar]	25	16
Dimension [mm]	Ø 323.9	Ø 400.0
ID [mm]	Ø 316.9	Ø 327.4
Thickness [mm]	3.0	36.3
Weight/m [kg]	24.7	41.7
Velocity [m/s]	1.90	1.78

Same pipe dimension,  
lower pressure drop compared to cast iron

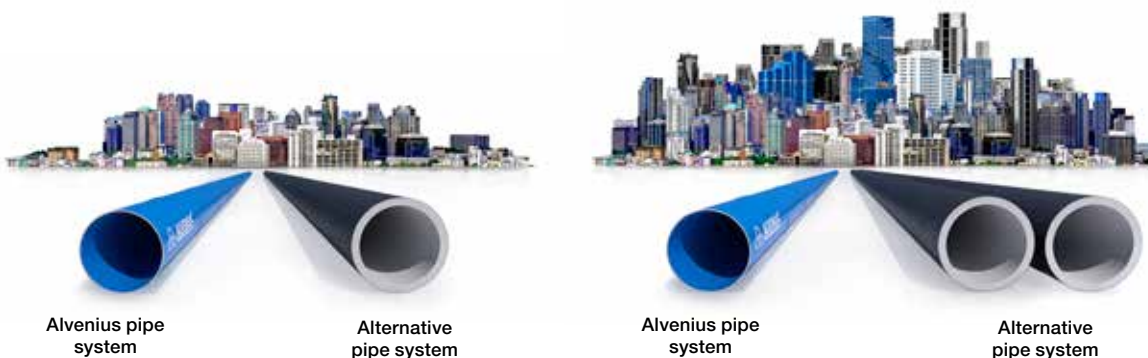


Comparison Pressure loss at 150 l/s, pipe run 1,000 m	DN 300 Flow area 78,874 mm² Pressure drop 0.8 bar.	DN 300 Flow area 71,347 mm² Pressure drop 1.6 bar.
	Alvenius FlowMax®	Cast iron
PN [bar]	25	40
Dimension [mm]	Ø 323.9	Ø 326.0
ID [mm]	Ø 316.9	Ø 301.4
Thickness [mm]	3.0	12.3
Weight/m [kg]	24.7	65.0
Velocity [m/s]	1.90	2.10

### A future proof water and sewerage system

When you choose a FlowMax® system you can design and dimension it very cost effectively to allow it for future expansion of for example a residential area, or for an expanded number of water consumers.

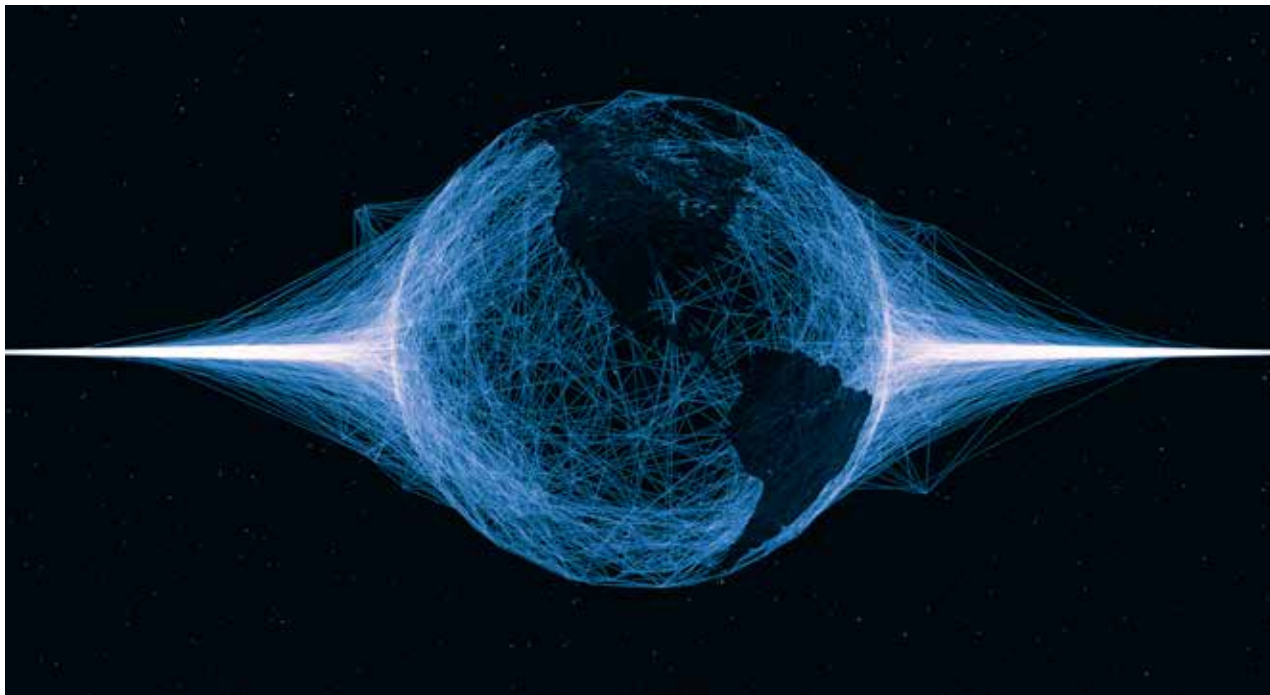
So forget about the standard procedure of over-dimensioning the pipe system on the design stage. Instead you can specify a pipe dimension meeting today's requirements and at a later stage in the development process, you quite simply increase the flow via the existing pipe system. This is possible because Alvenius FlowMax® systems are dimensioned for higher pressure than other systems, and offer significantly lower flow resistance.



Today

Future expansion

It is much easier to dimension a pipe system to cater for future expansion and increased water needs with the Alvenius FlowMax® system.  
No additional pipes are required and no pipes will need to be replaced with larger dimension pipes.



Alvenius was founded in 1951 and ever since we have focused on supplying the global market with high-quality quick coupling steel pipe systems.

Today, Alvenius focuses its expertise on the segments tunnels, mines, industry, fire protection and extinguishing, water and wastewater systems and artificial snow making.

We have a presence in Asia, Africa, the Middle East, North and South America, Europe and, of course, our domestic market Sweden.

Our international approach offers many advantages.

Above all else, it means that we understand the conditions and demands of your particular market – wherever that may be.



Member of Boxholm Group



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