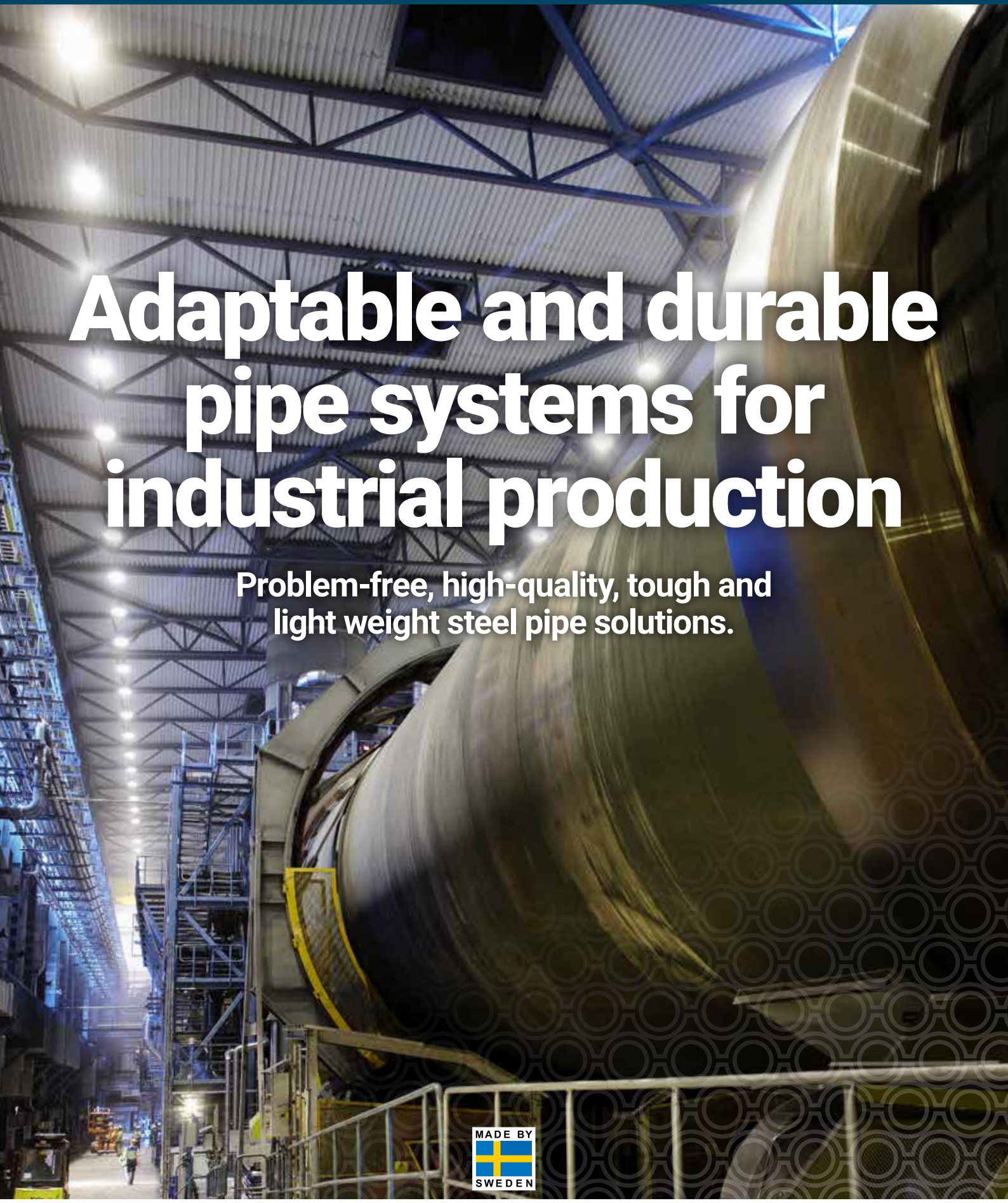
ALVENIUS

INDUSTRY



# Adaptable and durable pipe systems for industrial production

**Problem-free, high-quality, tough and light weight steel pipe solutions.**

MADE BY SWEDEN

Experts in Piping Solutions since 1951

ALVENIUS

# You can count on Alvenius!

**The industrial world is a complex world. Precision is everything, up-time is key and down-time should only take place for planned actions such as maintenance, renovation or updates/new installations. Also changes in the industrial set-up must be carried out in minimum time.**

**In these demanding industrial environments Alvenius FlowMax® pipe systems are ideal. Major advantages are unbeatably quick fitting/installation, maximum reliability and service life, best safety plus supreme overall economy (LCC). These benefits are built into every FlowMax® pipe.**

The FlowMax® pipe systems have been designed and developed for extreme marine environments – with high resistance to corrosion and aggressive media. This means they are ideal for demanding industrial operations, like in port facilities, processing industries, the vehicle industry, paper mills, refineries and in the chemicals industry.

FlowMax® with CorroFlo® surface coating brings you a range of advantages, which makes our system a better choice than stainless steel alternatives.

**Alvenius makes pipe life easier for you**

Deciding on and designing an industrial piping system is a complicated task. So let´s split the assignment.
While you are the specialist in defining the needs and the desired function, we are the experts in defining how to configure a system in the most suitable way.

In a cooperation we share this knowledge with you, and we provide you with tools for your design and dimensioning work – for example a range of downloadable 3D-tools and product models.

Flow calculations, dimensioning, technical support and much more – we will be happy to guide you through the piping world!

**Light, strong and maintenance free**

FlowMax® pipes offer a range of advantages:

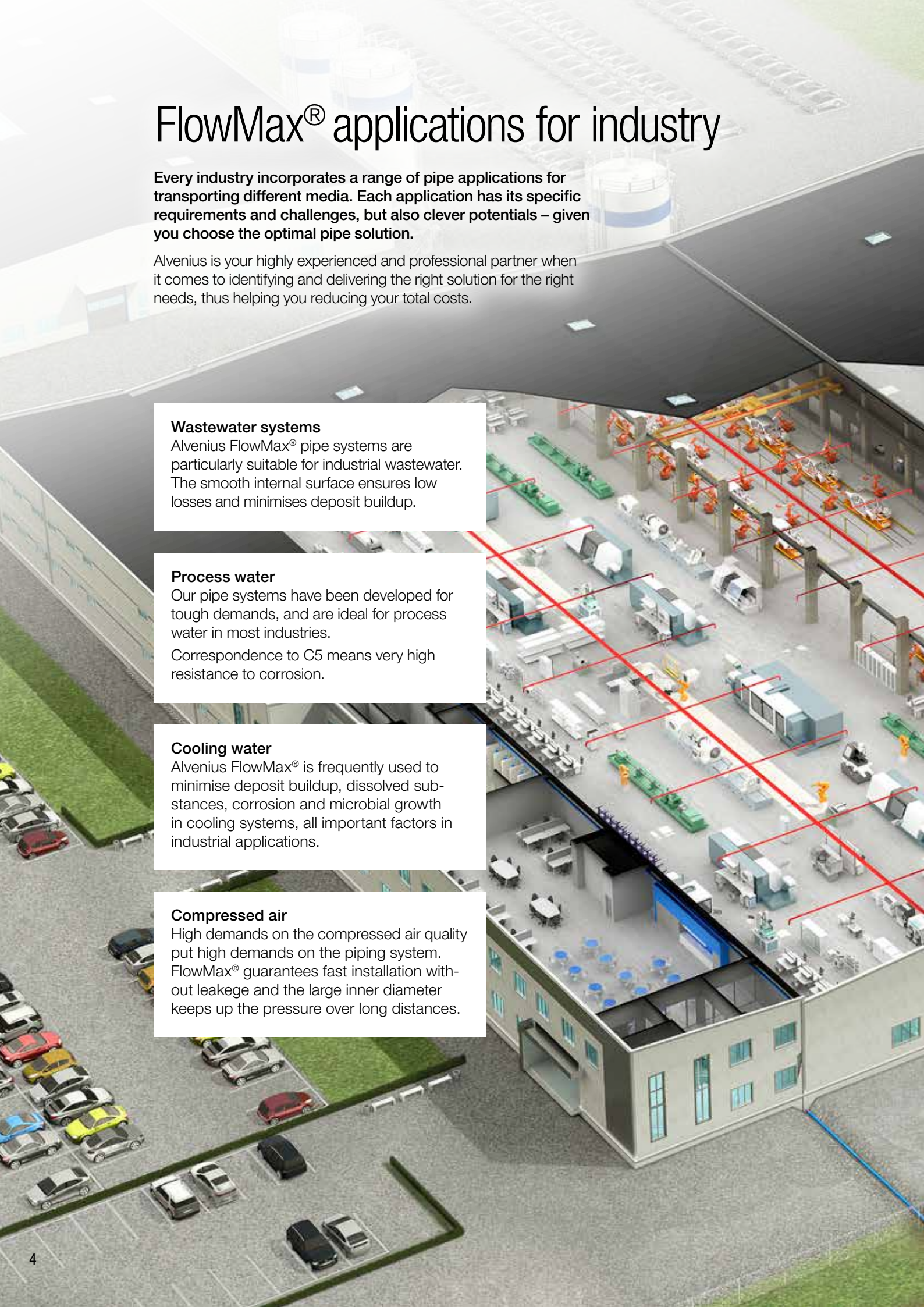
- very low weight and easy handling
- quick couplings reducing installation time
- no maintenance needed due to surface coating
- low energy consumption
- no risk for corrosion
- no build-up of deposits

The anti-corrosion treated FlowMax® system comprises complete solutions – pipes, couplings, T-pieces, bends, elbows, reducers, hydrants, pressure testing pipes. Plus our knowledge, which we put at your disposition!

# FlowMax® applications for industry

**Every industry incorporates a range of pipe applications for transporting different media. Each application has its specific requirements and challenges, but also clever potentials – given you choose the optimal pipe solution.**

Alvenius is your highly experienced and professional partner when it comes to identifying and delivering the right solution for the right needs, thus helping you reducing your total costs.



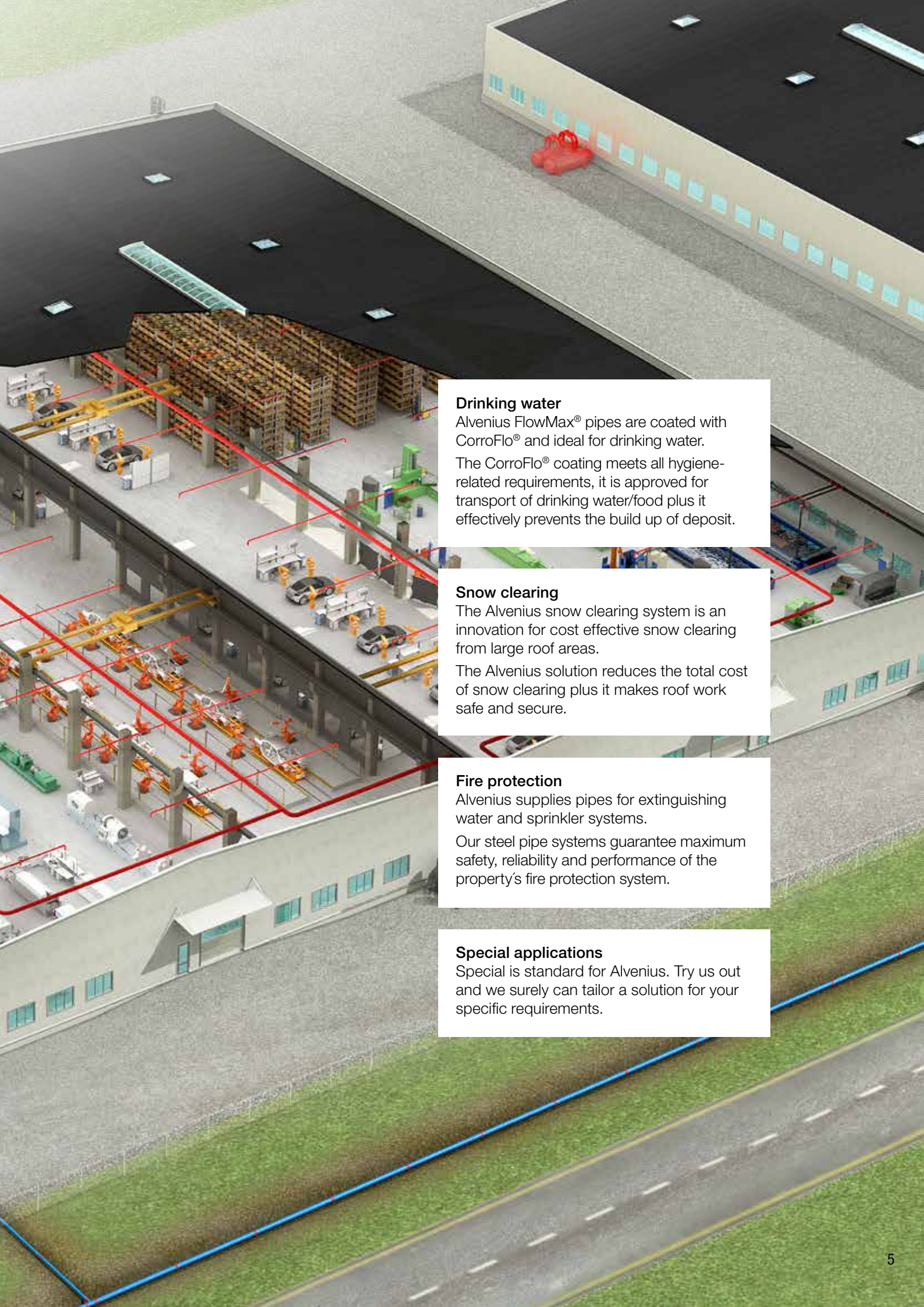
**Wastewater systems**
Alvenius FlowMax® pipe systems are particularly suitable for industrial wastewater. The smooth internal surface ensures low losses and minimises deposit buildup.

**Process water**
Our pipe systems have been developed for tough demands, and are ideal for process water in most industries.

Correspondence to C5 means very high resistance to corrosion.

**Cooling water**
Alvenius FlowMax® is frequently used to minimise deposit buildup, dissolved substances, corrosion and microbial growth in cooling systems, all important factors in industrial applications.

**Compressed air**
High demands on the compressed air quality put high demands on the piping system. FlowMax® guarantees fast installation without leakege and the large inner diameter keeps up the pressure over long distances.



**Drinking water**
Alvenius FlowMax® pipes are coated with CorroFlo® and ideal for drinking water.

The CorroFlo® coating meets all hygiene-related requirements, it is approved for transport of drinking water/food plus it effectively prevents the build up of deposit.

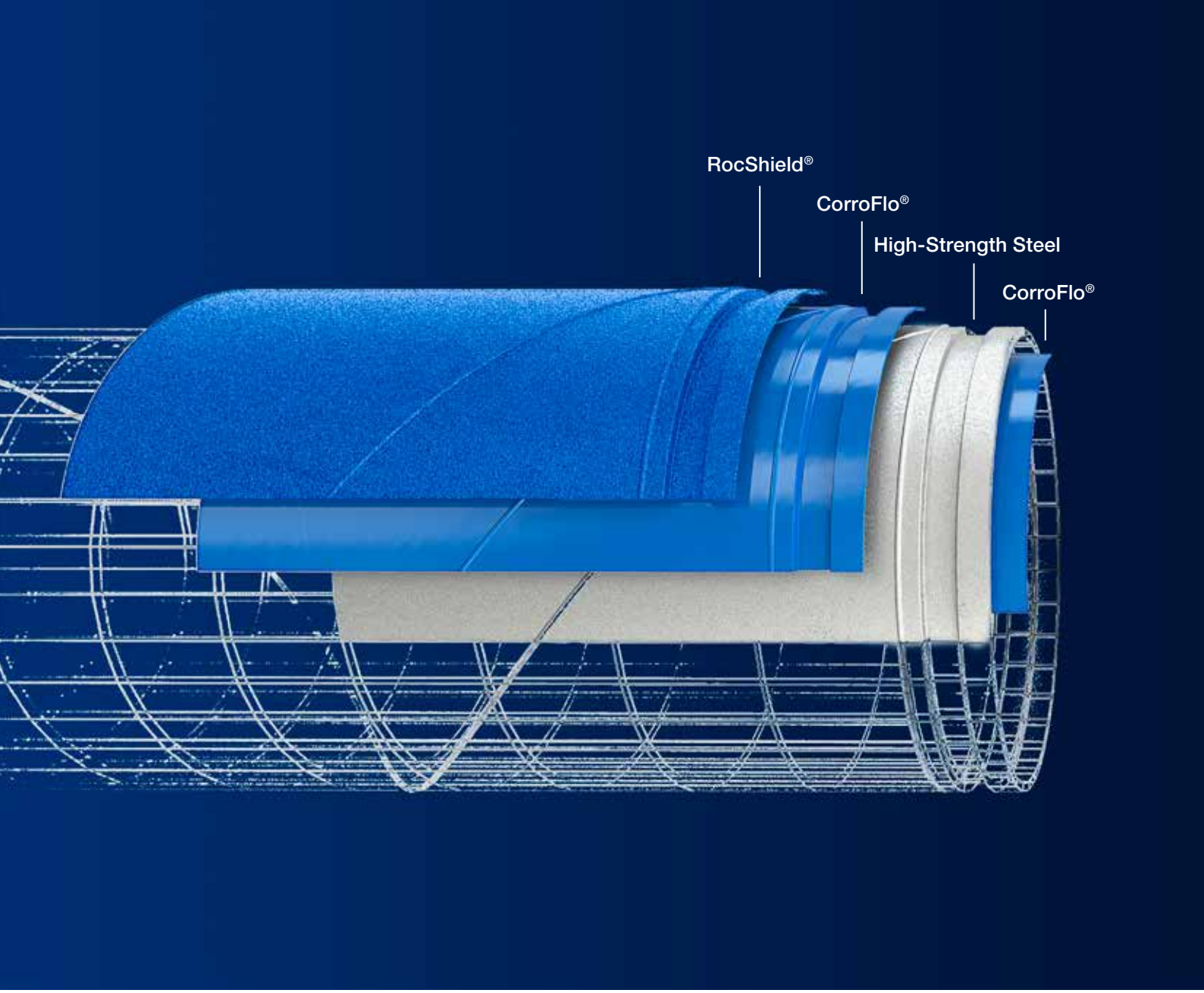
**Snow clearing**
The Alvenius snow clearing system is an innovation for cost effective snow clearing from large roof areas.

The Alvenius solution reduces the total cost of snow clearing plus it makes roof work safe and secure.

**Fire protection**
Alvenius supplies pipes for extinguishing water and sprinkler systems.

Our steel pipe systems guarantee maximum safety, reliability and performance of the property´s fire protection system.

**Special applications**
Special is standard for Alvenius. Try us out and we surely can tailor a solution for your specific requirements.




# Surface coatings for increased service life and reduced costs

**Effective surface coating dramatically improves the pipe system´s performance. Especially in environments where corrosion or aggressive media are common. Or where you want the lowest possible energy consumption meaning low operating costs.**

Alvenius FlowMax® systems can be used in a wide range of industrial applications, and one big advantage is that you can order the system or systems with exactly the right surface coating needed. Each solution has its own specific advantages, designed for the impact the specific environment put on the pipe system.

Maximum long-term protection against wear and tear, against corrosion or approved for drinking water? No problem – we provide the correct protective coating required.

# Which surface coating do you need?

**Although Alvenius pipe systems can be supplied untreated, one of our three surface coating systems is where you gain the real bottom line benefits.**

**CorroFlo®**
Low flow resistance – lowest possible operating costs

CorroFlo® is a thermoplastic coating, with a series of unique advantages.

- Lower flow resistance thanks to a larger inner diameter and coating with CorroFlo®
- Scope to use smaller pumps – or with lower output – thanks to less flow resistance
- Scope to reduce the number of pumps in the system
- Extremely good adhesion – no risk of cracks or flaking
- High chemical resistance to acidic and alkaline liquids
- Ideal in outdoor environments – insensitive to UV, flexible down to -70°
- Working temperature in air – up to +60°
- Corresponds to C5, i.e. very high resistance to corrosion in extreme environments with high saline content
- Electrically insulating
- Environmentally friendly
- Extremely low flow resistance. Absolute surface roughness: 0.05 mm
- Layer thickness 500 µm
- 800% elongation
- Free from Bisphenol-A. Approved for drinking water by KTW (German Water Agency)

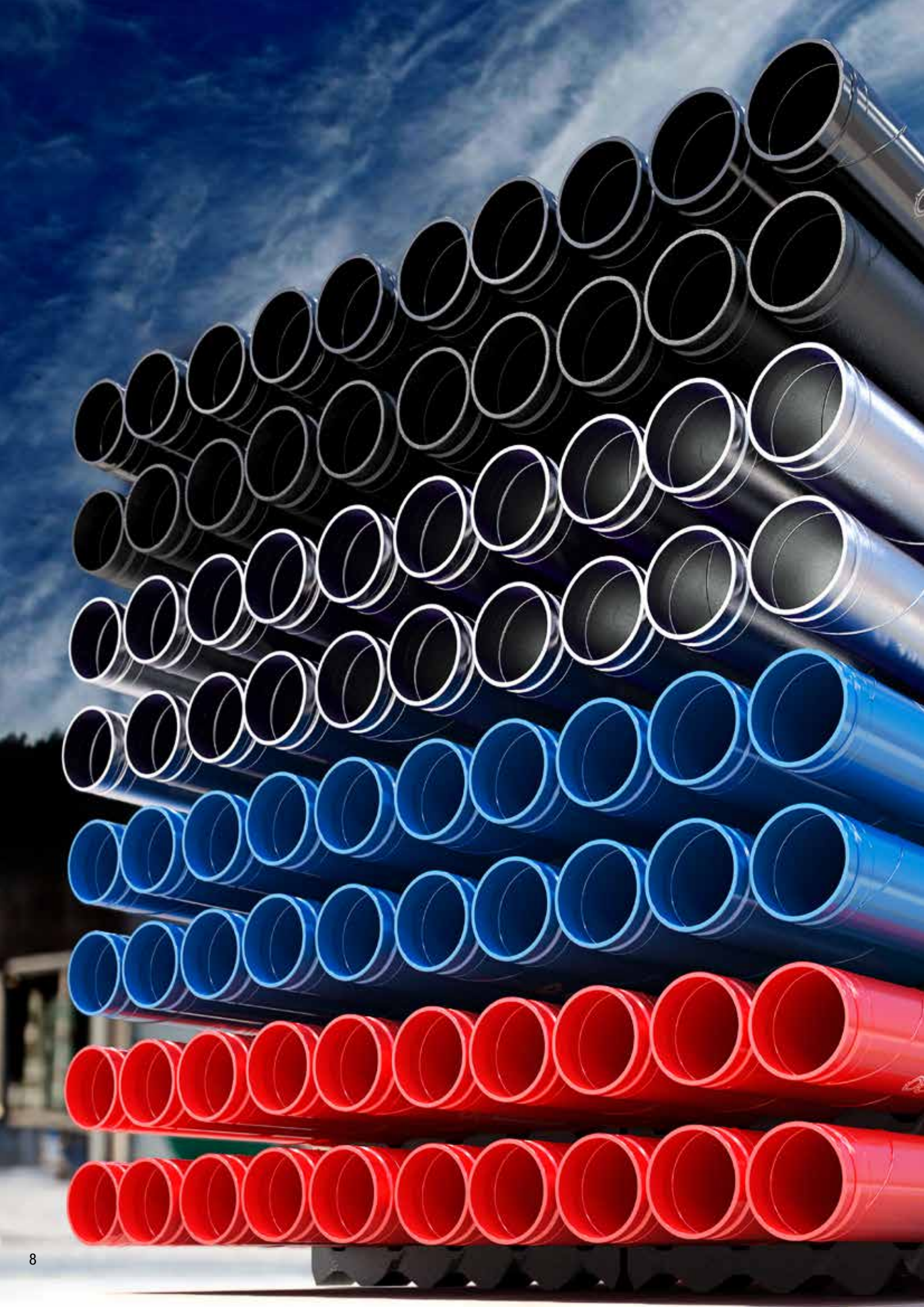
**RocShield®**
For extra durability and resistance to wear and tough treatment, FlowMax® pipes can be coated with an extra 500 µm LDPE layer on top of the CorroFlo® coating.

RocShield® provides an even stronger and more durable surface with greater resistance to weather, chemicals and mechanical wear. Numerous advantages:

- Simpler and safer pipe handling with good grip, thanks to the rougher structure
- Very high resistance to wear and mechanical effects, such as when backfilling pipe trenches, rough handling etc.
- Very high impact resistance

**HDG**
HDG – Hot-Dip Galvanising is ideal for pipe systems where the pipes are subject to both installation and dismantling, thanks to the very robust surface.

The thick zinc layer resists weather-beating and also has the ability to “self-heal” if the surface suffers damage.



# Quick couplings for quick jobs

**One of the many advantages of Alvenius FlowMax® is quick and easy installation, thanks to its quick coupling systems.**

No welding. No special tools required. No time consuming training. No hot work at all.

### Couplings

The FlowMax® system offers a wide range of couplings, depending on dimension, pressure class, application plus which type of media to be transported.

- Dimensions DN 80 - 500. Other dimensions on request.
- Rigid couplings or flexible couplings where certain movement or temperature changes can be expected
- Different types of rubber seals (like EPDM, Silicon, Nitrile)
- Self-sealing gasket, seals also under vacuum
- Joint deflection up to 4°. This mean you can lay long pipe runs with fewer bends
- Insensitive to vibrations
- Withstands axial movement, e.g. heat build up, thanks to axial play in the coupling

### Quick couplings that cut costs

Alvenius FlowMax® systems have an unbeatably simple and reliable coupling system. Forget welding and hot work, forget special training and special equipment – all you need is the right size socket wrench.

The cold formed joints eliminate welding´s risks for fire and fumes. Coupling with the Alvenius system, is quicker, safer and with a significantly reduced risk of damage and injuries.

Also, the quick coupling system can be adapted very easily if/when you need to change or extend the pipe system.

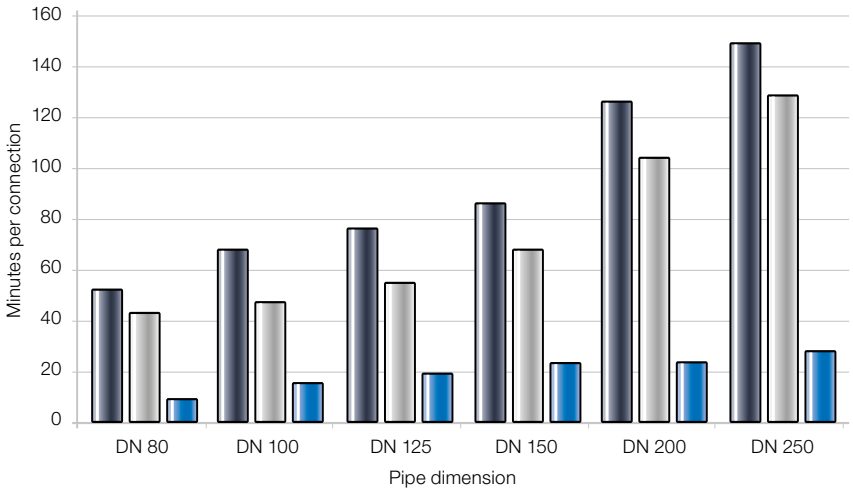
1.

2.

3.

4.

**Quick coupling comparison**




**Welding**

**Flanged**

**Alvenius quick coupling**

The chart compares assembly times for welding, flanged systems and Alvenius quick couplings

# Complete pipe system

**The Alvenius FlowMax® system is loaded with advantages that you will benefit from – no matter in which application you plan to use it.**

**You can be sure that you will get a pipe system corresponding to your requirements for low environmental impact, low operating costs and long service life.**

Alvenius FlowMax® systems include everything you need to design and install the optimum system – pipes, couplings, valves, threaded sockets, T-pieces, bends, adapters, etc.

Click on this link to view the entire product range, and to download drawings etc., in CAD and other formats:

www.alvenius.solidcomponents.com

**Simplest possible installation**

Alvenius FlowMax® pipes are made of high strength steel and are 30 - 50% lighter than standard tubes.

This adds up to very simple handling with no heavy lifting, no heavy transports and a rare need to hire expensive cranes or excavators.

And transportation of the pipes means fewer heavy trucks on our roads – another gain for the environment.

# Our coupling types

**K10/K70. Metric standard.**
Quick coupling system for pressure up to 40 bar, depending on pipe dimension. K10 is flexible and simple to install.

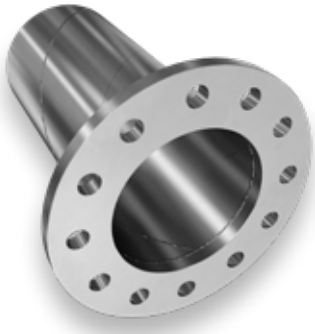
K70 is an articulated coupling for even quicker and more flexible installation – all you need to do is tighten a single bolt.

- K10 - dimensions Ø48 - 355 mm
- K70 - dimensions Ø76 - 152 mm
- Self-sealing seal. Also acts under vacuum in certain conditions
- Standard seal in EPDM rubber, resistant to chemicals
- Working temperature -35 to + 110°
- Insensitive to vibrations
- Absorbs axial movements in the pipe system thanks to axial play in the coupling
- Joint deflection up to 4°

**Quick coupling of Victaulic type (ANSI/AWWA C-606)**
Quick coupling system for grooved pipes (roll formed end or welded on cut ring), available in a fixed or flexible design depending on type of installation, pipe dimension and pressure rating. The couplings can withstand pressure to over 100 bar.

- Standard seal in EPDM rubber, resistant to chemicals
- Working temperature -35 to + 110°
- Insensitive to vibrations
- Absorbs axial movements in the pipe system thanks to axial play in the coupling
- Joint deflection up to 2.5°

**Flange connection**
Alvenius pipes can be supplied with welded on flanges at the pipe ends. The flanges are available in ANSI and DIN standards and with several pressure ratings.



- Very strong thanks to high impact resistance
- Very high resistance to pressure differences, water hammer and external effects

**Plane end coupling type Straub**
Plane end couplings are used where the pipes are not prepared for usage of K10 or Victaulic couplings.

Smooth end couplings are available in different designs and dimensions, depending on the type of installation, pipe system dimension and pressure rating.

- Axial restraint connection
- Prevents axial movement
- Can be loosened and reused easily

# Made in Sweden

**Alvenius FlowMax® pipes are spiral-welded with SSAB Domex® – Swedish pressure equipment classed steel – offering a range of unique built-in advantages.**

**These steel qualities results in pipes which are thin-walled but yet strong, and the spiral welding method ensures that the pipes retain their shape.**

FlowMax® pipes offer a range of unique advantages, thanks to their steel qualities. No other manufacturer can offer the same combination of material strength, very smooth surface and extremely thin-walled products with no loss of strength.

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

The pipes are dimensioned according to the SS-EN 13480 series. Tolerances are according to SS-EN 10217-1. This means FlowMax® pipes are of the highest possible quality.

| Steel grades | | | | |
|---|---|---|---|---|
| SSAB | Yield point, ReH [MPa] | Tensile strength, Rm [MPa] | Elongation at break [%] | EN 10149-2 equivalent |
| Domex 240 YP | 240 | 360 – 460 | 28 | S235 |
| Docol 260 LA | 260 | 350 – 430 | 16 | N/A |
| Domex 420 MC | 420 | 490 – 620 | 20 | S420 MC |

| Available pressure ratings | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pipe dimension | | | Working pressure, bar | | | | |
| ISO DN | Inches | DY [mm] | 16 | 25 | 40 | 63 | 80 |
| 80 | 3 | 88.9 | x | x | x | x | x |
| 100 | 4 | 114.3 | x | x | x | x | x |
| 125 | 5 | 139.7 | x | x | x | x | x |
| 150 | 6 | 168.3 | x | x | x | x | x |
| 200 | 8 | 219.1 | x | x | x | x | x |
| 250 | 10 | 273.0 | x | x | x | x | x |
| 300 | 12 | 323.9 | x | x | x | x | x |
| 400 | 16 | 406.4 | x | x | x | | |
| 500 | 20 | 508.0 | x | x | | | |

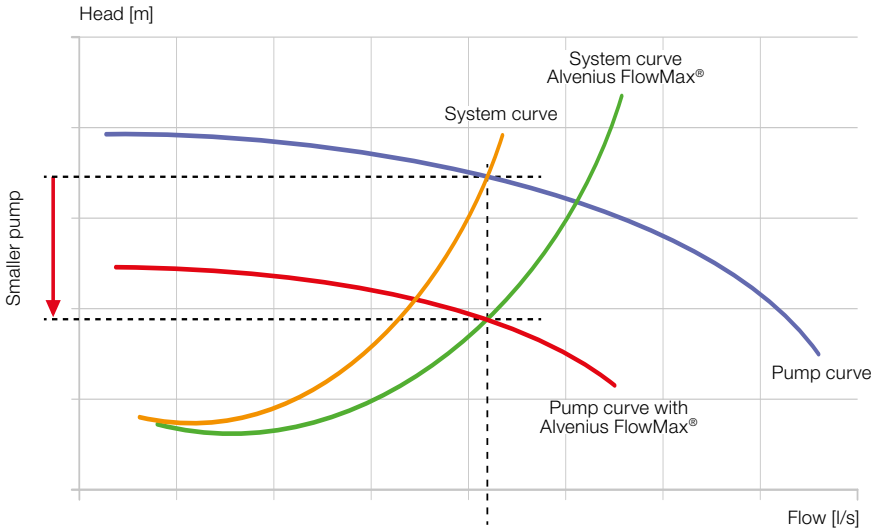
# FlowMax® – superior performance

**Alvenius FlowMax® pipes offer performance that no alternative pipes can match, and the combination of advantages makes them unbeatably cost effective. FlowMax® pipes are light, strong, corrosion proof and have extremely low flow resistance – adding up to the lowest possible life cycle costs.**

**FlowMax® pipes give you a range of operating benefits:**

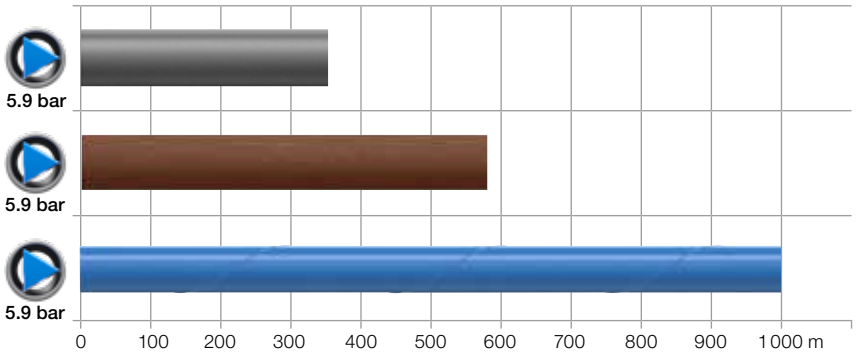
- You can specify smaller dimension pipes, with the same pump capacity
- You can specify smaller or fewer pumps in the system
- You can increase the pump capacity in the future while keeping the same pipe dimension
- Both your investment costs and operating costs will be lower

## Pump dimensioning for pipe systems with the same DN




## Pump over longer distance with same pump pressure

Requirements: Pump pressure 5.9 bar. Defined final pressure 5 bar. Flow requirement 150 l/s. DN 300.




**PE, 350 m**
ID 257.8 mm. Flow rate 2.87 m/s

**Cast iron, 580 m**
ID 301.4 mm. Flow rate 2.10 m/s

**Alvenius FlowMax®, 1,000 m**
ID 316.9 mm. Flow rate 1.90 m/s

# Thinner. Stronger. Lighter.

**Dimensions up to DN 500 and water pressure up to 63 bar – FlowMax® pipes are ideal for industrial applications.**

Thinner pipe walls make for more compact and lighter pipes with a far smaller external diameter, compared to other types of pipe and materials.

**Light, strong and with very low flow resistance**
Compared to any other pipe material available, Alvenius FlowMax® pipes are thinner, lighter and stronger.

| **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 |
| **Rate [m/s]** | 1.90 | 1.78 |

| **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 52,198 mm² Pressure drop 2.7 bar. | **DN 300** Flow area 71,347 mm² Pressure drop 1.6 bar. |
|---|---|---|---|
| | **Alvenius FlowMax®** | **PE100 (SDR 11)** | **Cast iron** |
| **PN [bar]** | 25 | 16 | 40 |
| **Dimension [mm]** | Ø 323.9 | Ø 315.0 | Ø 326.0 |
| **ID [mm]** | Ø 316.9 | Ø 257.8 | Ø 301.4 |
| **Thickness [mm]** | 3.0 | 28.6 | 12.3 |
| **Weight/m [kg]** | 24.7 | 25.9 | 65.0 |
| **Rate [m/s]** | 1.90 | 2.87 | 2.10 |

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

Today, we focus our expertise on the segments: Mining, Fire Protection, Tunneling, Water Supply, Industry, and 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.

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