



**Specialist fastening products,
engineered for highly
corrosive environments**



Metal will react to any environment.

The science is knowing the exact result.

Specifying a fastener type and the material that it is manufactured from is a responsible process even for very standard application areas. When a construction project will be in an area of potentially hazardous environmental influences, decisions become crucial and knowledge is king.

Understanding how materials react in application takes many years of recording, accumulating and collating data from product performance analysis in both the test and the real environment.

It has become EJOT's business worldwide, to thoroughly understand the processes that influence these specification decisions – and to manufacture fastening systems that are supported by technical guidance that will ensure correct and safe performance throughout the lifetime of the product.



The EJOT Applitec resource

EJOT's Applitec laboratories provide a wide range of testing services for the research, development and continual evolution of fastener technology.

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Stainless steel analysis and grading

Understanding the molecular structure and metallurgical composition of stainless steel assists in the selection of the most appropriate material for the environment/application.

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EJOT JT3, JZ3 and JA3 self-drilling / self-tapping fasteners

A2 stainless steel providing a good degree or corrosion resistance in a wide range of environments from semi-industrial to industrial where carbon steel fasteners would be at risk.

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EJOT Corrimaks® JA1/JZ1 self-tapping fasteners

A5 austenitic stainless steel 1.4529 providing a high level of corrosion resistance in chlorinated and chemical laden highly corrosive environments.

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Anchor-Bolts and Chemical Anchors

For attachment of brackets through to structural sections utilising EJOT anchors. Applications include a vast range of concrete and masonry substrates from facades, M&E, structural framing/sections and tunnel linings.

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EJOT Cronimaks® JZ7 A2 high strength stainless steel fastener

High strength austenitic high-grade stainless steel incorporating specialist manufacturing technology providing superior thread tapping performance.

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EJOT Applitec®

A global resource spearheading multi-sector research and environmental development

A hazardous environment can be broadly defined as any atmosphere where the chemical composition of the air, internally or externally, is at risk of being altered by either particulate-laden or humidity-laden air. It may be that you are simply protecting a room from bacteria as in a cold or ambient store in a food processing plant, where food-safe materials are required.

Chemical manufacturing plants that release particulates into the atmosphere that can progressively harm building products and materials are obviously hazardous. Brickworks, road tunnels, swimming pools, coastal areas, oil production platforms, petrochemical plants, nuclear facilities and power stations, are equally typical examples.

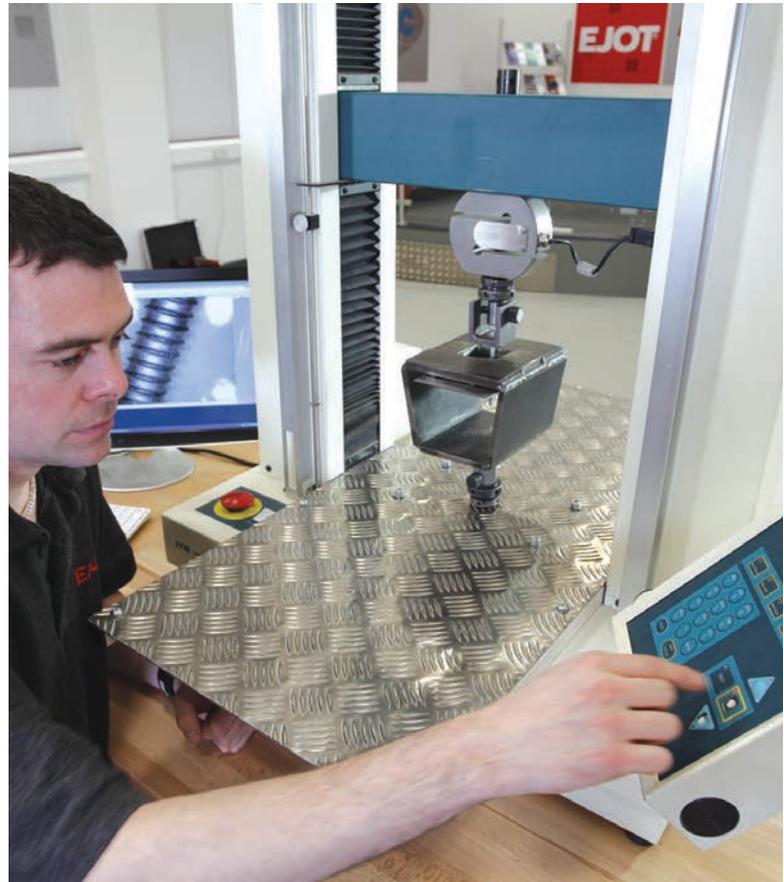
EJOT® Applitec is a global development and testing resource. Its function is pivotal in manufacturing correct and high calibre products as well as the technical data to aid specification. Years of focused research has allowed our technicians to fully understand the environment and its impact on differing materials and how the environment can exacerbate bimetallic corrosion between dissimilar metals.

Sharing knowledge, working alongside academic institutions

This knowledge comes as a result of a shared collaboration between EJOT® subsidiaries around the world, and the Group's extensive facilities in Germany. Here, our depth of experience in the construction and automotive sectors combine to provide an unrivalled knowledge pool.

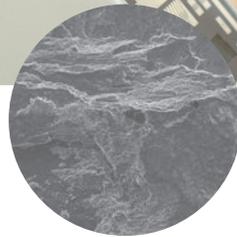
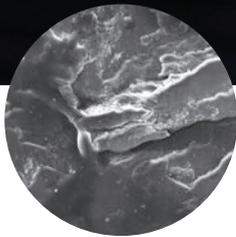
Techniques and methodology that range from climate testing, x-ray analysis of material composition through to researching bimetallic corrosion between dissimilar metals, all combine with realtime data of products in application. The isolation of the fastener head from the environment for external applications, the use of bi-metallic self-tapping screws are all well documented.

The work pioneered by EJOT® Applitec means we sell viable solutions for long term performance and sustainability - from understanding the application of materials and the environment as well as well as a full understanding of the capability of our fasteners.





Current research would suggest that around 65% of the world's austenitic stainless steel uses iron-chromium-nickel of less than 0.1% carbon, termed as non-magnetic in the 'as-delivered' condition.



**Grade A2
Stainless Steel**

304 1.4301

- Offers good oxidation resistance
- Exhibits high corrosion resistance in a wide range of applications
- Provides good welding properties
- Delivers high mechanical properties

**Grade A4
Stainless Steel**

316 1.4401

The introduction of molybdenum to this alloy increases the product's corrosion resistance. Molybdenum does not occur naturally as a free metal. Instead it is found, only in various oxidation states within minerals. It readily forms hard, stable carbides in alloys, and for this reason most of world production of the element is for making many types of steel alloys, including high strength alloys and super-alloys.

**Grade A5
Stainless Steel**

1.4529

Once again the introduction of 6-7% molybdenum, and higher levels (19-21%) of chromium and (24-26%) nickel, gives superior corrosion resistance where exposure is high to sulphur dioxide and concentrated polluted environments. Also adds resistance to SCC stress corrosion cracking that can occur in 304 and 316 stainless steels in chlorinated atmospheres such as a swimming pool environment.



Maximised safety in environments with moderate corrosion risk

EJOT® JT3, JZ3, JA3, JT6 and JT9 self-drilling / self-tapping fasteners

The EJOTJT3/JZ3/JA3 fastener ranges are manufactured from A2 stainless steel, engineered to give performance with high corrosion resistance, providing specifiers and installers with absolute peace of mind. Equally, our JT6 A4 Bi-metallic and JT9 A4 self-drilling fasteners provide further specification options.

Specialist fasteners within the EJOT® self-drilling portfolio have also gained approval from the American insurance company FM Global, with certified products carrying the FM logo.



Features

- JT3 A2: Austenitic stainless steel bi-metallic self-drilling
- JT4 A2: Austenitic stainless steel self-drilling
- JZ3/JA3: A2 austenitic stainless steel self-tapping
- Industrial environments where carbon steel fasteners would be at risk

Benefits

- General applications where long life expectancy is required
- FM Approval available
- ETA 10/0200 and ETA 13/0177
- Wide range of applications: Built-up systems, composite panels to specialist applications
- Range of head styles
- Colorfast integral nylon heads for self-drilling fasteners to provide additional barrier to corrosion.

Product range

Self-drilling range includes:

EJOT® JT3 range, JT4 range, JT6 range and JT9 range
Variants of headstyle, and washer configuration available, please contact the EJOT technical team.

Self-tapping range includes:

EJOT® JZ3-6.3, JZ3-S-6.3, JA3-6.5 and JA3-S-6.5



The construction of Novarka's vast confinement arch at the Chernobyl nuclear power plant utilises over 2.5 million JT3 fasteners.

At 108m in height, this huge mobile steel structure weighs over 29,000 tons and will secure the plant's reactor block for at least 100 years.

Typical applications



Maximised safety in environments with high corrosion risk

EJOT Corremaks® JA1 / JZ1 Self-tapping fasteners

The Corremaks® JZ1 and JA1 range is manufactured from the highest anti-corrosion class stainless steel, 1.4529 (A5), making these highly specialised products very suitable for a range of corrosive environments. These fasteners are specified for the mechanical fixing of brackets and liner sheets onto steel, aluminium and timber sub-constructions for atmospheres ranging from swimming pools to industrial processing.

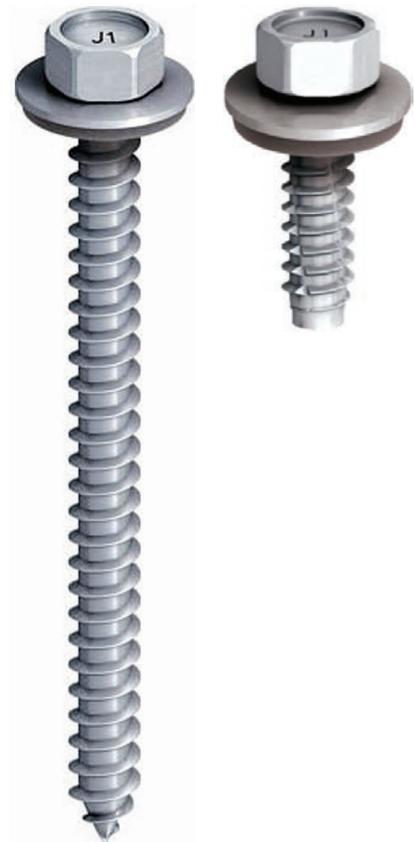


Features

- A5 stainless steel 1.4529
- JZ1: For steel and aluminium
- JA1: For thin steel, aluminium and timber substrates
- High corrosion resistance to Chlorine environments
- Resistant to SCC Stress corrosion cracking
- Resistant to sulphur dioxide

Benefits

- Suitable for swimming pool environments
- Suitable for tunnels
- ETA 10/0200
- Drive 3/8 hexagon head
- Requires a pilot hole suitable for the application/substrate



Product range

Name	Dia mm	Length mm
EJOT Corremaks JZ1	6.3 x	22 to 125mm
EJOT Corremaks JA1	6.5 x	22 to 145mm



Typical applications



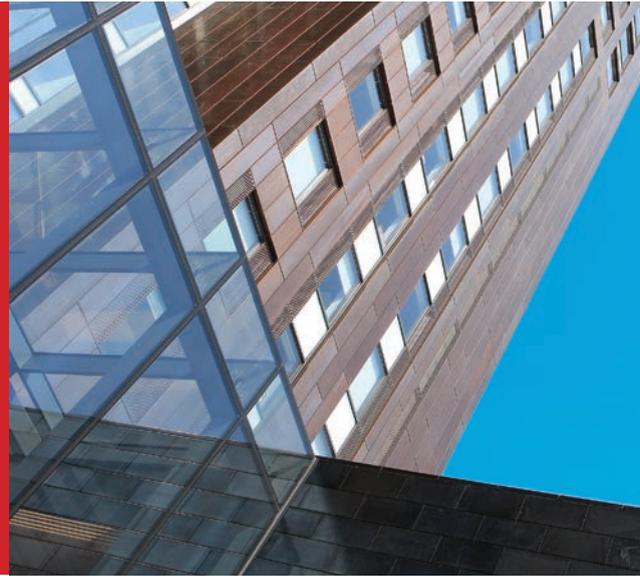
Specialist Anchoring Systems for variable solid substructures



EJOT A4 stainless SDF, Anchor Bolts and Chemical Anchors

EJOT's range of BA-E anchor bolts are manufactured from both A4 and A5 grade steel. Along with specialist nylon anchoring and chemical anchoring systems, this range of products provides a genuinely high performance solution for the most demanding applications and base materials.

EJOT's localised testing resource is backed by a global fastening expertise, fully equipped to support your team with the right products and procedures for a secure and successful installation.



Features

- SDF screw set anchors brackets to concrete masonry. e.g. façade systems
- Anchor-Bolt anchors BA-E, for structural applications.
- Anchor-Bolt anchors approved for cracked and non-cracked concrete
- Anchor-Bolt also available in HCR A5 1.5429 grade stainless steel

Ideal for applications where maintenance access is limited

Benefits

- On-site testing to ensure performance criteria met
- Multifix VSF Resin anchors for difficult substrates, critical and overhead applications.
- Multifix VSF Resin anchors approved for cracked and non-cracked concrete
- SDF ETA 10/0305
- Anchor-Bolt ETA 14/0219
- VSF resin ETA 15/0282



Product range

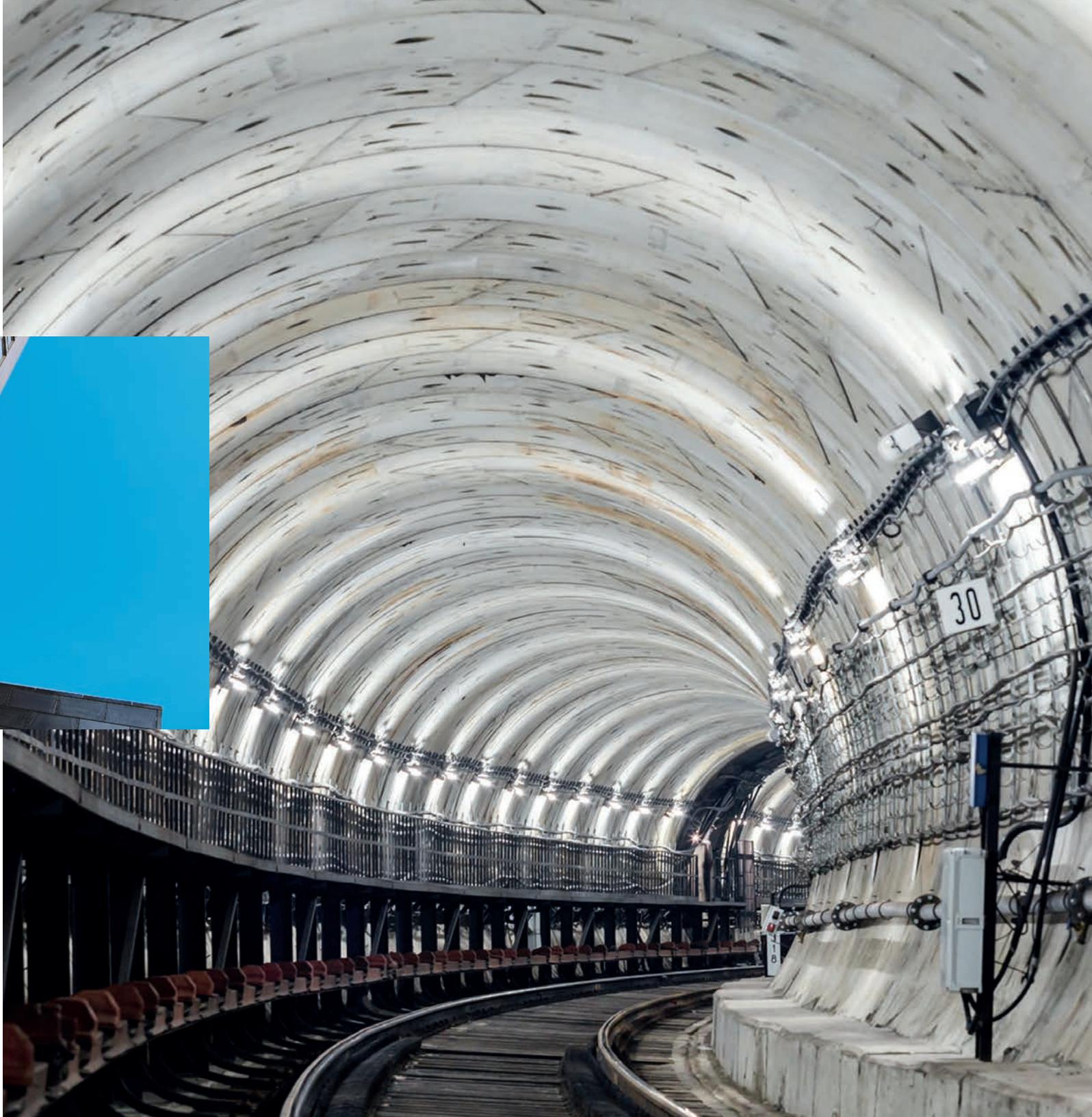
Specialist Nylon Anchoring Systems:

SDF-KB 10V, SDF-S 10V: for concrete solid brick and solid Blockwork
 SDF-KB 10H, SDF-S 10H: for hollow masonry and perforated brickwork

Anchor Bolts: BA-E (A4 and A5) from M6 to M20 diameters

Chemical Anchoring Systems:

Multifix VSF with A4 stainless steel studs from M8 to M16 in diameter



Typical applications



High strength stainless steel with high corrosion resistance for ‘maximised tapping’

EJOT Cronimaks® JZ7 A2 high strength stainless steel fastener

EJOT’s self-tapping Cronimaks® JZ7 fasteners are manufactured from austenitic stainless steel utilising a specially developed alloy composition. This creates a significantly harder thread flank and screw point. Its corrosion resistance is equal to A2-grade stainless steel.

This unique technology allows thread forming into structural steels with tensile strengths up to $R_m=700 \text{ N/mm}^2$. This level of corrosion-resistance engineering provides genuinely high-performance fastening even in high-strength steels.



Features

- A2 stainless steel fastener for high strength steel structures
- Cronimaks JZ7 hardened edge of the threads for defined thread tapping
- The thread flank hardness of the EJOT Cronimaks exceeds the value of conventional A2 fasteners up to 20%
- Fastening components to steel structures (Up to $R_m= 700 \text{ N/mm}^2$)

Benefits

- Thread forming at low installation torque
- Thread forming geometry according to DIN 7500
- Corrosion resistance equivalent to standard A2 stainless steel
- ETA 10/0200 and ETA 13/0177

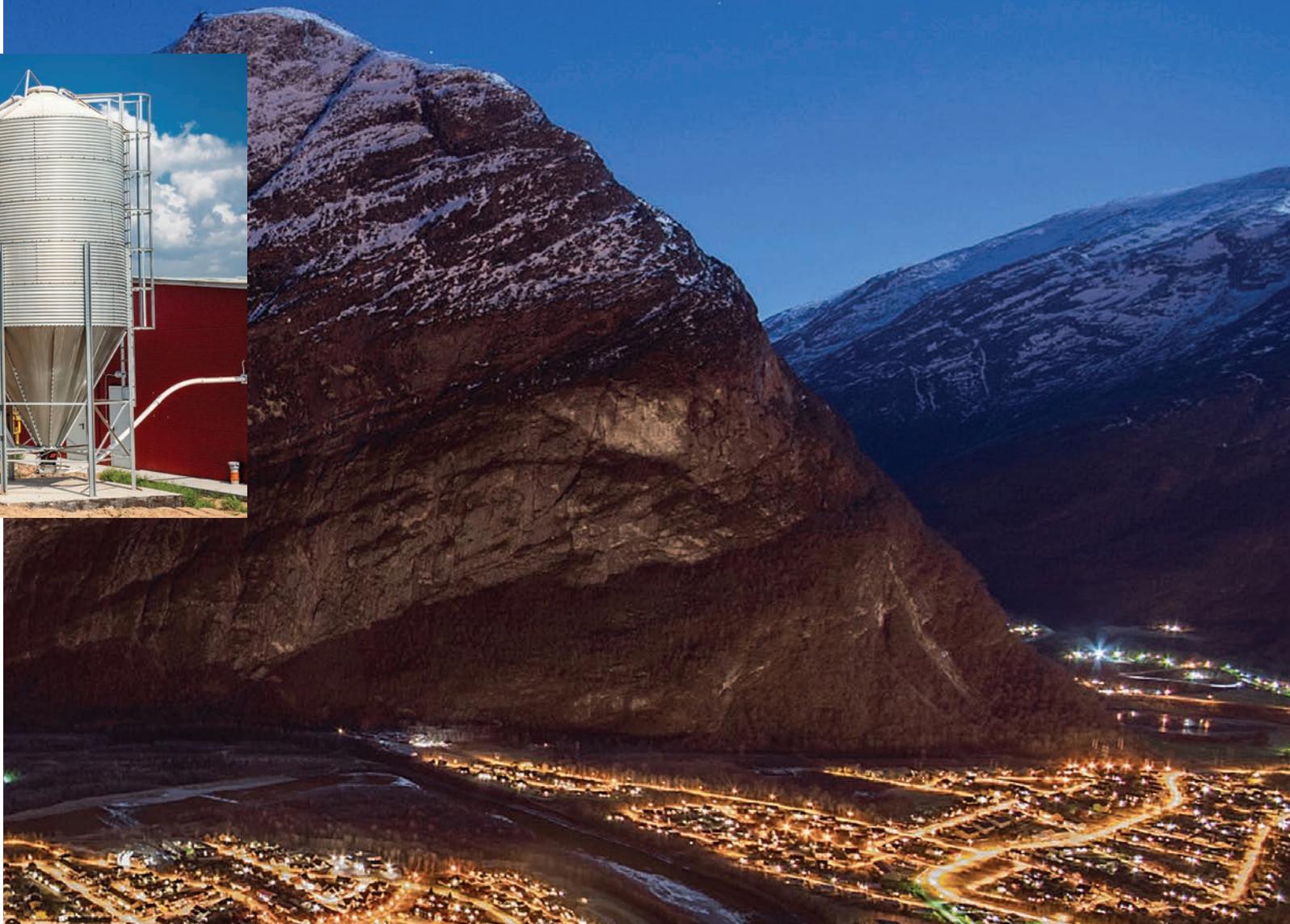


Product range

Name	Dia z	Length thickness mm
EJOT Corremaks JZ7	6.3 x	22 to 185

Over 300,000 EJOT Cronimaks® fastenings are installed at the Norsk Hydro Aluminium Production Plant on Sondalson in Norway. The plant is one of the largest construction projects in Scandinavia.

Photo © Christian Nasset.



Typical applications



Our commitment

EJOT is committed to the design and manufacture of technically proficient fastening systems. Our understanding of critical areas such as metal composition and lifetime environmental conditioning, involves partnering other academic research institutions around the world. This includes the acquisition of performance data for industry wide applications across the automotive and engineering sectors, through to all aspects of building and construction processes.



Locally, it is part of our service and support commitment to assist customers with the correct specification of products and to share the value of our technical resource.

We would encourage designers, architects and specifiers to contact EJOT's technical support team when choosing the right fastener and the correct material for a known environment.

**Call EJOT's Applitec Centre in the UK
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