

BETINOX

High integrity stainless steel reinforcement

Ancon[®]

DIBt

- Corrosion Resistant
- Cost Effective
- Price Stability



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people worldwide

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We have been at the forefront of development in high integrity stainless steel construction products for more than 100 years. Today we provide solutions to customers throughout the world, through our businesses in the UK, Germany, Austria, Switzerland, Australia, New Zealand and Dubai.

Our design and manufacturing expertise, global knowledge and focus on innovation mean we continually take on new challenges. We develop new solutions that save customers time and money, and guarantee performance in even the most demanding construction projects.

We're highly motivated and ensure a very high level of design and technical support at every stage. Whatever the project, customers are guaranteed the highest quality, most advanced, fixing solutions - every time.

Why choose stainless steel reinforcement?

Moisture, salts and construction chemicals when in contact with concrete can create a very corrosive environment. Traditional carbon steel reinforcements, even when galvanised or otherwise protected, can quickly corrode. This can result in costly repair and maintenance and, in the worst case, structural failure.

Stainless steel provides a high integrity solution. It will continue to perform even in the most aggressive building environments.

Stainless steel reinforcing bar is inherently corrosion resistant and can be used closer to the edge of concrete slabs than carbon steel rebar. This enables greater flexibility of design and allows the use of thinner, lighter profiles that reduce both slab weight and project cost.

KEY BENEFITS INCLUDE:

- ✓ Guaranteed performance
- ✓ Increased design
- ✓ Excellent corrosion resistance
- ✓ Reduced repair and maintenance costs
- ✓ Reduced concrete thickness and weight
- ✓ 100% recyclable
- ✓ Life cycle costing benefits

Ancon BETINOX

A breakthrough in concrete reinforcement

Ancon BETINOX is an innovative new reinforcing bar manufactured from 1.4362 lean duplex stainless steel. It is the first bar of this type to gain class B accreditation from DIBt (Deutsches Institut für Bautechnik).

A direct, lower cost, replacement for traditional 1.4571 stainless steel, it provides an economic alternative for reinforcement of concrete slabs, walls and columns. BETINOX benefits from having a low nickel content which means it is less affected by global fluctuations in nickel prices, offering a more stable price base.

A high level of corrosion resistance means BETINOX can be used with a reduced concrete cover. This allows greater flexibility in design and enables the use of more economic, thinner and lighter concrete profiles.

BETINOX is supplied as a ribbed bar, hot rolled in a range of diameters from 6mm to 14mm. It is therefore suitable for a full range of reinforcement applications. The smaller diameter bars are ideal for precast applications, where thinner concrete profiles and lower weight offer significant additional cost benefits in lifting and transportation.

Flexibility of supply

Following major investment in new machinery, we are able to accurately and efficiently process new BETINOX rebar direct from the coil. It can therefore be supplied ex-stock, cut and bent into any shape or length to meet individual project requirements.

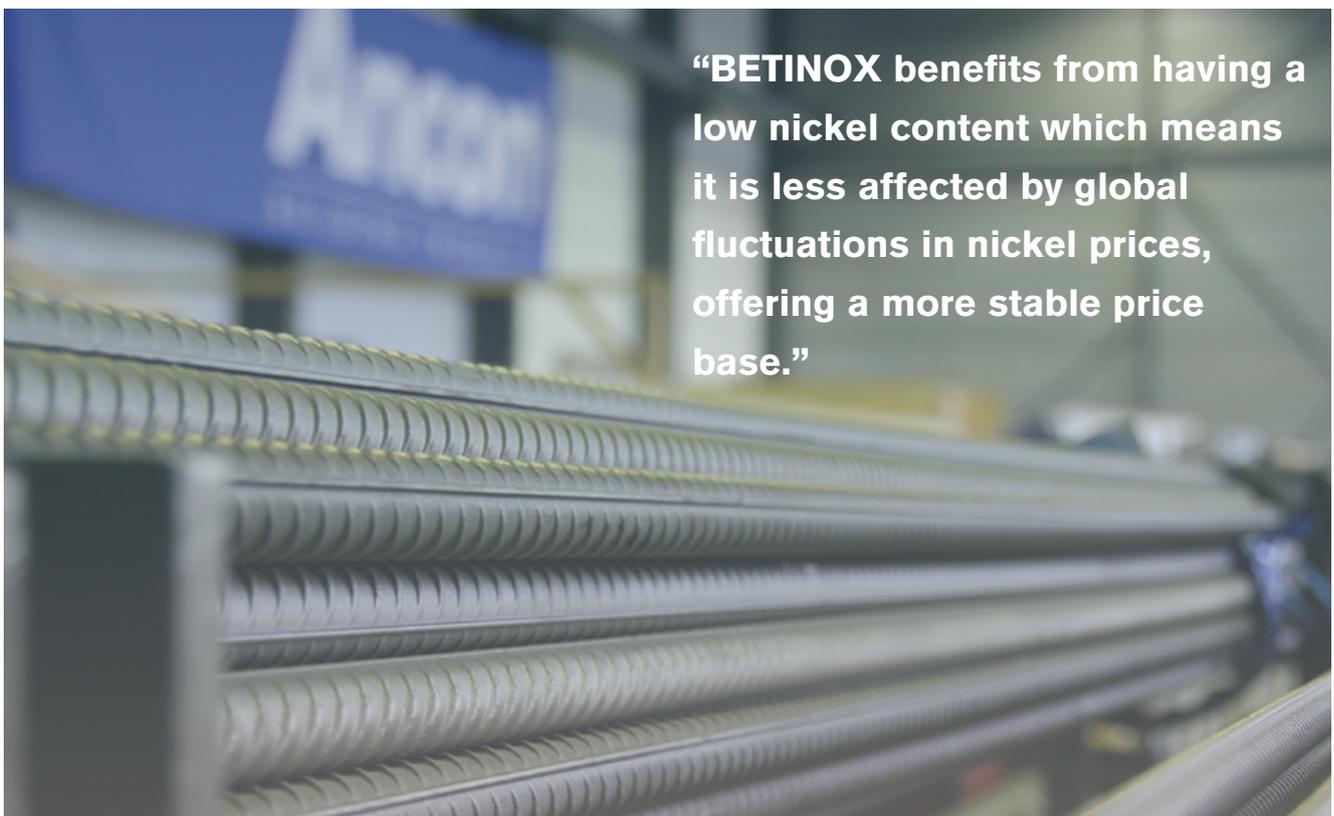
The new process is very efficient. It is also much less wasteful than using traditional bar lengths, so offers a more sustainable solution.

BENEFITS FOR USERS

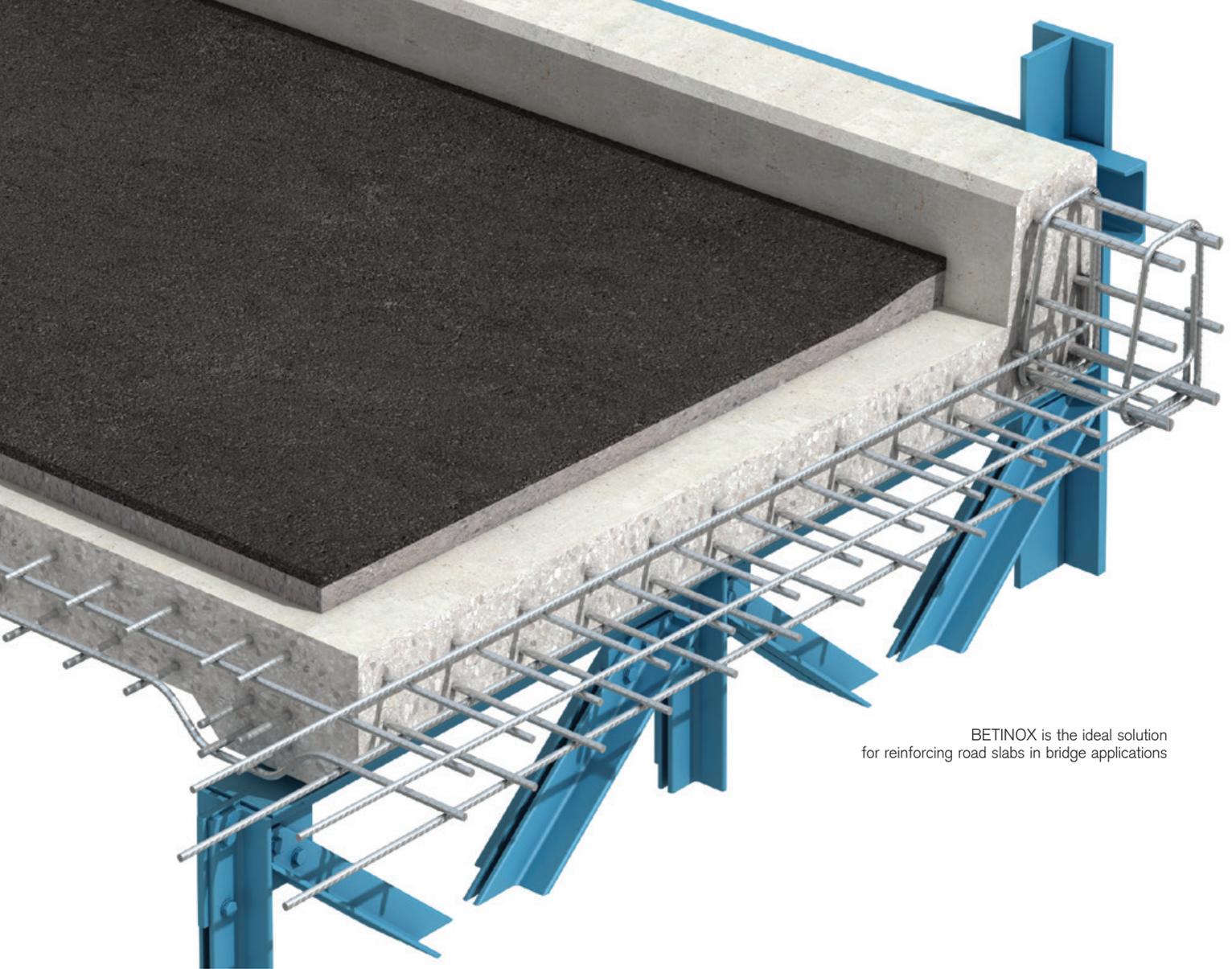
- ✓ DIBt accredited
- ✓ Class B Ductility
- ✓ PREN 25 corrosion resistance
- ✓ Lower more stable cost than traditional stainless steel reinforcement
- ✓ Improved resistance to stress corrosion cracking
- ✓ Wide range of sizes, including small diameter bars

Specification

| Bar Diameter (mm) | Length/Shape/Availability (mm) | Mass (kg/m) | Cross-sectional area (mm ²) |
|-------------------|--|-------------|---|
| 6 | | 0.221 | 28.3 |
| 8 | | 0.392 | 50.3 |
| 10 | All standard/custom lengths and shapes available | 0.613 | 78.5 |
| 12 | | 0.882 | 113.0 |
| 14 | | 1.201 | 154.0 |



“BETINOX benefits from having a low nickel content which means it is less affected by global fluctuations in nickel prices, offering a more stable price base.”

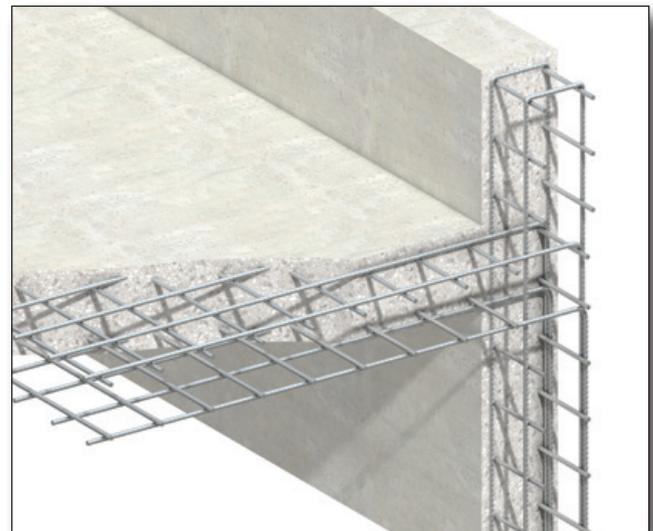


BETINOX is the ideal solution for reinforcing road slabs in bridge applications

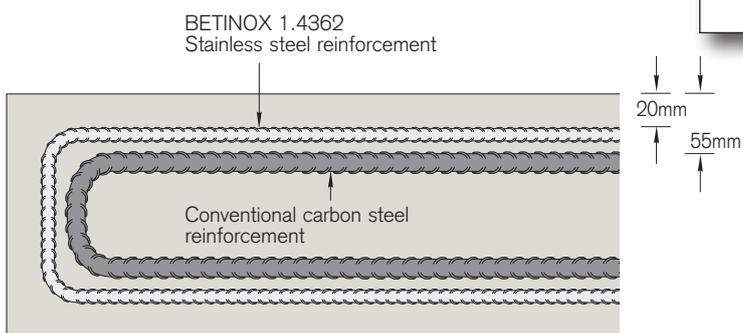
Applications

The high corrosion resistance and the B-Class ductility of BETINOX ribbed bar makes it ideal for use in most concrete reinforcement applications. It is particularly useful in highly corrosive areas such as marine locations where structures are affected by carbonation and chloride penetration.

BETINOX is typically used to provide reinforcement for in-situ cast concrete slabs, walls and columns. At smaller diameters, it is ideal for precast applications where the ability to install close to the concrete edge enables thinner, lighter and more cost-efficient profiles to be achieved.



Typical wall-to-slab application



Comparison of concrete cover required for traditional carbon steel and BETINOX stainless steel reinforcement

Technical Performance

Strength

BETINOX is manufactured from, and offers the mechanical properties of, B500B in accordance with DIN488. It offers the resistance to stress corrosion cracking required for reinforcing a range of concrete structures.

Corrosion resistance

BETINOX is manufactured from 1.4362 austenitic-ferritic stainless steel and offers PREN 25 corrosion resistance.

| Grade | PREN |
|------------------|-----------|
| Carbon Steel | 0 |
| EN 1.4003 | 10 |
| EN 1.4301 | 17 |
| EN 1.4306 | 18 |
| EN 1.4311 | 19 |
| EN 1.4401 | 23 |
| EN 1.4404 | 23 |
| EN 1.4571 | 23 |
| EN 1.4362 | 25 |
| EN 1.4429 | 27 |
| EN 1.4462 | 30 |
| EN 1.4501 | 37 |
| EN 1.4529 | 40 |

PREN 25

Ductility

BETINOX offers class B ductility, enabling the design of robust and safe structures preventing sudden catastrophic collapse. For detailed performance see the table below.

| Ductility Class | $R_m/R_{eh}^{(1)}$ | $A_{gt}^{(1)}$ |
|-----------------|--------------------|----------------|
| A (normal) | 1.05 | 2.5 % |
| B (high) | 1.08 | 5.0 % |

⁽¹⁾ in each case p = 10% quantile

| Method to determine stress resultants | Applicable Ductility Class |
|---------------------------------------|----------------------------|
| Linear elastic | A, B |
| Linear elastic, $\Delta M \leq 15\%$ | A, B |
| Linear elastic, $\Delta M \leq 30\%$ | B |
| Plastic limit analysis | B |
| Non-linear method | A, B |

DIN 1045-1: 2001-07

Table 11 of DIN 1045-1 has assumed the two ductility classes A (normal) and B (high) for the different methods of determining stress resultants.

Weldability

If mechanical joints or lapping are not feasible, BETINOX reinforcement bars can be welded using normal welding processes. Post-welding heat treatments will, however, be required to compensate for microstructural changes that occur during welding.

Approval

BETINOX has achieved class B accreditation from DIBt (Deutsches Institut für Bautechnik).

DIBt



Automatic Wire Feeder



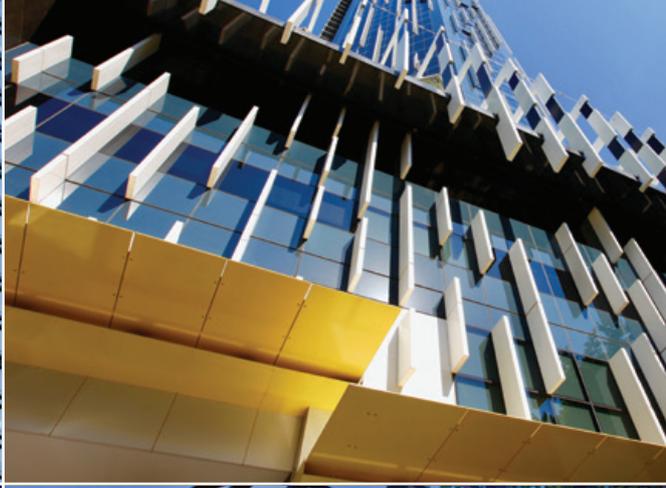
Decoiler Diverter Pulley



Jagdberg Tunnel, Jena, Germany



Blacktenbrücke, Bauma, Switzerland



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