



Bonderized steel strip



Material for extreme applications: bonderized steel strip manufactured by CDW

A lot of cyclists make high demands on their mountain bikes – and this often includes even the smallest elements such as pedal bearings. The cyclist relies on them when he uses all the energy he can muster to cope with the steepest slopes and then enjoy the wildest descent. Bonderized steel strip made by CDW is used in the inner and outer rings of the needle bearing. It makes sure that the force is optimally transformed and that the life cycle of the pedals reaches a maximum level even with high loads.

It is also the manufacturing of such a product that makes extreme demands on the material, e.g. high formability combined with optimal strength. Our bonderized steel strip has a special layer of zinc phosphate and soap to achieve such properties.

This layer also helps to considerably reduce the wear of machining tools. Furthermore, as to the final product, it allows for a high running smoothness due to its constant wall thickness and therefore creates the optimal conditions for applications under high loads.

Apart from producing high-quality needle bearing tubes our customers also use bonderized steel strip to manufacture punched, bent and formed sheet metal components for the automotive sector.

Many of the materials made by CDW cannot be detected at first glance. But one thing is certain: you will realize our quality immediately.





Bonderized steel strip shows its excellent properties not only in needle bearings of mountain bike pedals, but also in the production of engine parts for motor vehicles, in trigger elements for airbags as well as in drive elements for tools such as chain saws and drills.

Optimal material properties – just a matter of formability

C.D. Wälzholz has had more than 50 years experience with the production of bonderized steel strip. Meanwhile CDW is the market leader in this niche. In specialized processes we manufacture phosphatized steel strip of utmost quality.

Bonderized steel strip was originally used as an insulating element in small electric motors. Today our customers use the material primarily for the manufacturing of complex punched, bent and formed components because of its excellent formability.

This particular property has proved itself in the production of manifold components for different applications. Apart from being used in the production of needle bearing tubes or bucket tappets for wear-free valve control in the automotive industry our bonderized steel strip is also used in components for motor saws and drills as well as in drive sections for commercial vehicles.

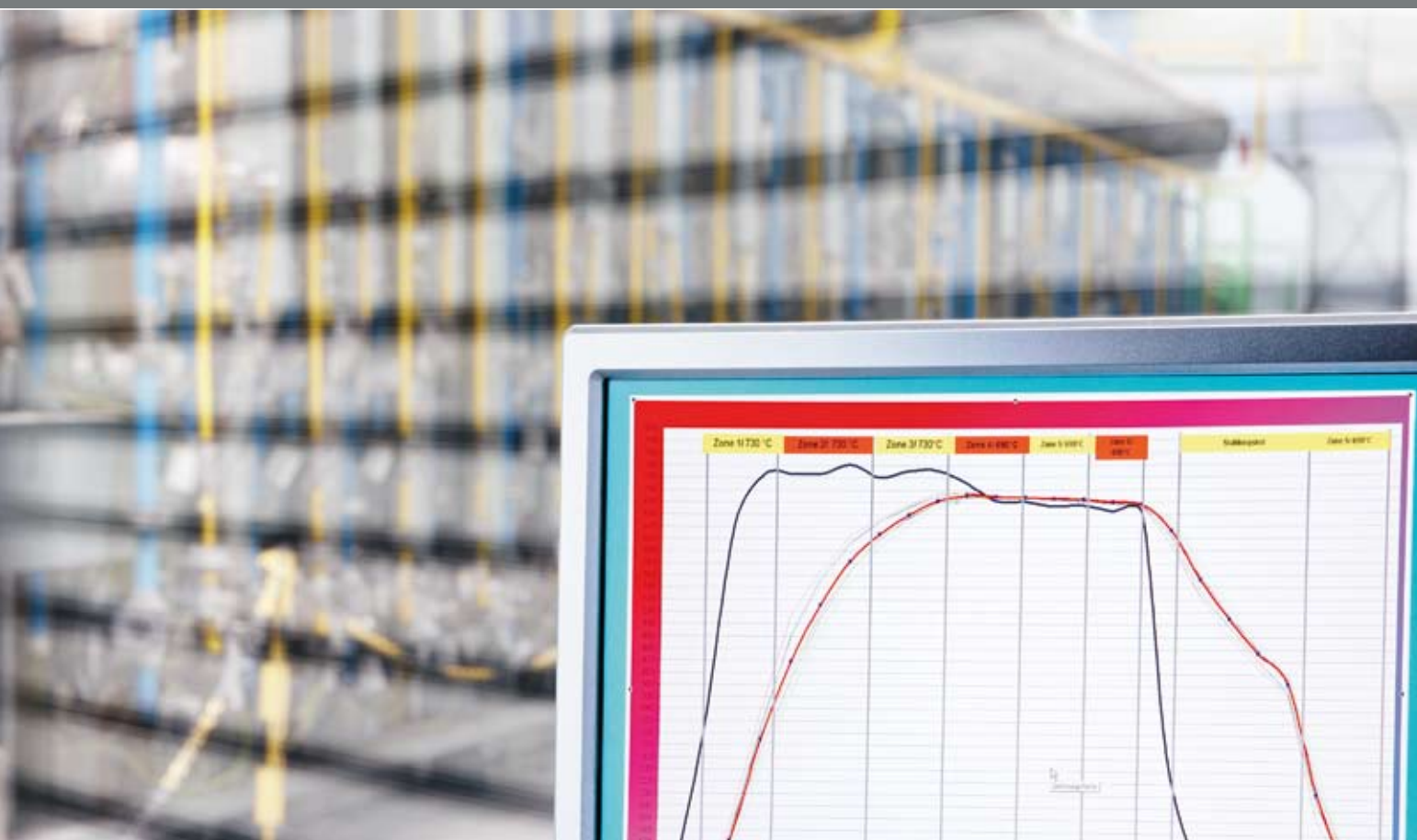
Cold rolled precision

Cold rolling demands the highest precision in processing the starting material so that its hardness as well as its formability can be adjusted exactly to meet your requirements.

Therefore CDW employs state-of-the-art technologies: 4-high tandem rolling mills and 4-high reversing stands, which are able to achieve speeds of up to 850 meters a minute. By using digital control systems and precise

measuring methods we are able to guarantee extremely close tolerances; by means of non-contact x-ray and isotope measuring strip thicknesses are recorded so that roll positions can be automatically adjusted to set the required thickness tolerances. Additionally, strip length as well as speed data is collected with laser beams; laser-supported control of temper rolling levels allows for particularly exact results.





Perfect results in the annealing curve

We influence the structural conditions of steel strip with two procedures – recrystallising annealing and spheroidization annealing. Thus the required mechanical properties will be obtained in an exact manner. Depending on the respective requirements the steel is either batch annealed or the steel strips pass through a roller hearth furnace. There, six separately adjustable zones allow for precise temperature control during each phase of the annealing curve. Thus the optimal structural conditions for your special applications are achieved according to your particular requirements.

We always take our time when working on your steel in order to achieve the best possible qualities in all production phases - and the annealing process is only one of them.



for further details: www.cdw.de

Thickness	0.10 - 5 mm
Width	10 - 650 mm
Tolerances	according to EN 10140 and special agreements
Delivery form	pancake coils, oscillated wound coils and fixed lengths
Material	according to EN 10139, EN 10132 2,-3 und 4 and special grades
Surface condition	phosphatized on one or two sides, normal or thin-layered coating, soaped, optionally brush-finished

Multi layers pay off

The characteristic element of bonderized steel strip is its multi-layer lubrication system on the basis of soaps and zinc phosphate. The metal surface is turned into a metal phosphate layer by means of the bonder solution, which contains primary zinc phosphate and free phosphoric acid as well as oxidizing agents. Chemically this layer is solidly connected to the surface of the steel strip. There are cavities and capillaries between the fine crystals in the layer, which support a high lubricant absorbency.

The second system component adds to the fact that our customers can easily and economically continue to process the material: subsequently to phosphatizing the bonderized steel strip is soaped in a watery solution. Due to this soap lubricant layer additional costly and often technically

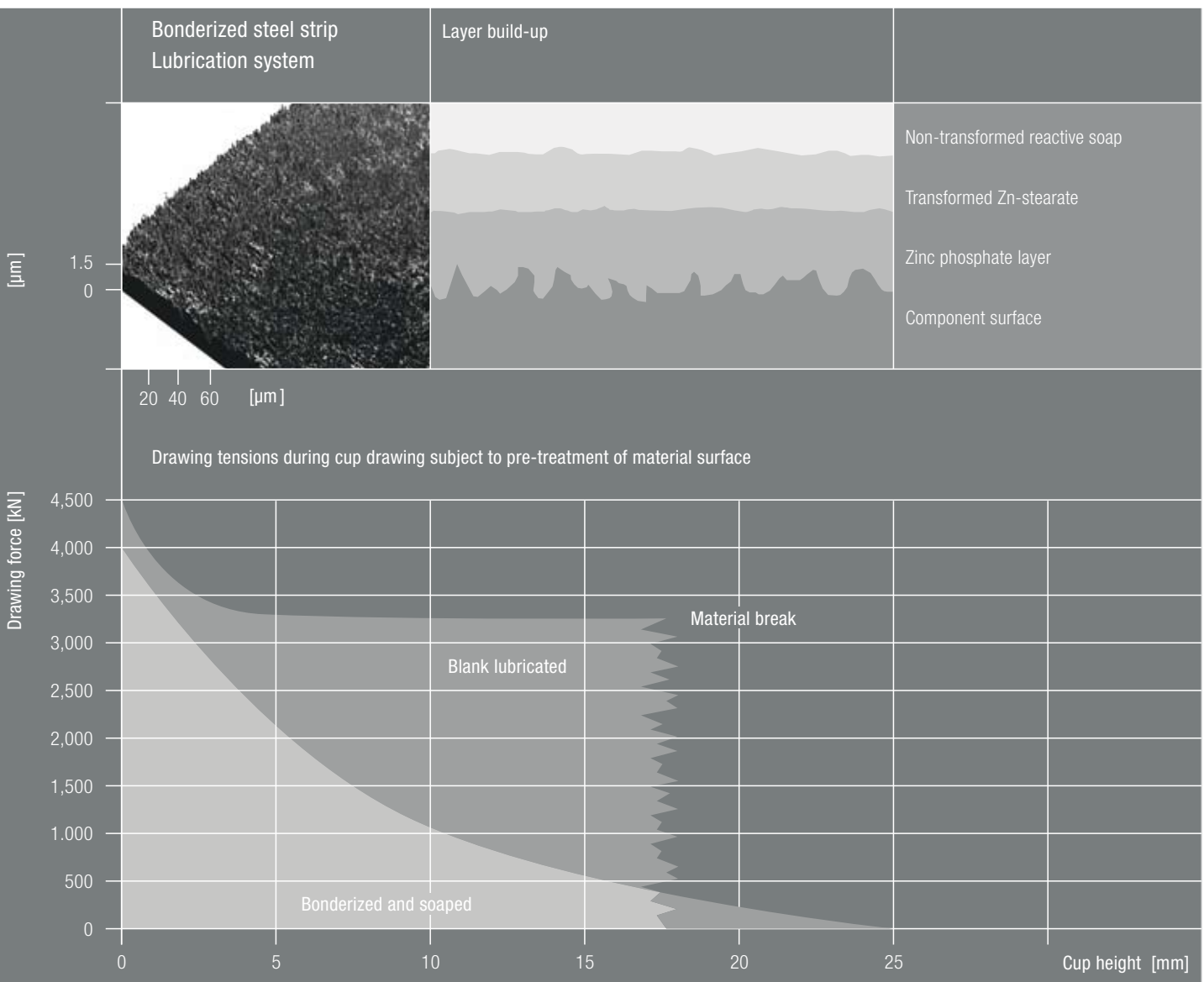
complicated application of further lubricants is not necessary in the following processing phases. Friction is minimized, and so is tool wear. Thus the use of bonderized steel strip allows for a significant increase in production step frequency. Further convincing advantages are e.g. the high deformation degrees and even wall thicknesses.

With high technological competence and the latest equipment in our plant at Oberkochen (Germany) we make sure that all the material requirements of our customers all over the world are reliably met.

Advantages of bonderized steel strip at a glance:

- » Cost-effective forming operation
- » High deformation degrees
- » Fewer drawing steps
- » Higher stroke numbers
- » Extended tool life
- » Little or no additional lubrication necessary
- » No intermediate annealing during the forming process
- » Even wall thicknesses (component geometry)

We produce bonderized steel strip in three different finishes. The strips are phosphatized either on one side or on both sides with thickness layers of approximately 1.5 μm . We can also offer extremely thin layers with a thickness of about 1.0 μm . Furthermore, we produce non-soaped special strip, which can also be used as wash primer.





We like to cut – according to your specifications

After the rolling and bonderization processes we cut the steel strip with its width of up to 650 millimeters into longitudinal strips according to your width requirements in our slitting line. Our modern slitting lines guarantee high quality for all strip thicknesses. Cutting ridge and camber of slitted strips are well below DIN standards.

Size does matter – our oscillated wound coils

Our credo has always been to act in an economically optimal manner; thus we guarantee cost-effectiveness by means of continuous process optimization. In close cooperation with our customers we continually bring production to perfection. Our oscillated wound coils are a good example for these efforts. The strips are joined by means of state-of-the-art welding technology and are subsequently oscillating wound in a computer-controlled procedure. Thus we have managed to considerably increase individual strip length. Therefore our customers' machines have far longer running periods and personnel-intensive change over times can be minimized. Employing CDW technology pays off – that much is guaranteed.

Here are some of the advantages of our bonderized steel strip oscillated wound coils:

- » Strip widths of up to 70 mm
- » Cross-section max. 200 mm²
- » Strip lengths far exceed those of individual coils
- » Individual coil strip widths of 250 - 550 mm



Arriving safely – with individual packaging

We also meet our customers' special requirements with respect to packaging of our high-quality products. Our modern automatic packaging equipment ensures smooth transportation and guarantees the arrival of our bonderized steel strip in immaculate condition.

C.D. Wälzholz offers more than one hundred different ways of packaging, which have mainly been developed together with our customers.

Take our heavy-duty overseas packaging, for example. It will protect the products by withstanding even the longest and roughest transportation across the ocean. In order to benefit the environment as well as our customers, however, the basic idea behind each individual packaging idea will always be: Less is more!





C.D. Wälzholz – at home everywhere in the world

Steel is an extremely versatile material. The C.D. Wälzholz Group of Companies is just as versatile itself. As a progressive German cold rolling mill with a long tradition, C.D. Wälzholz today has subsidiaries and agencies all over the world. Therefore we are in a position to offer our international customers bonderized steel strip in virtually any type and grade required – everywhere in the world.

Satisfied customers, highest quality as well as a responsible handling of the environment are our goal. Always.

Cold rolled high carbon steel strip

Hardened and tempered steel strip

Electrical steel strip

Cold rolled low carbon steel strip

Bonderized steel strip

Narrow steel strip

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