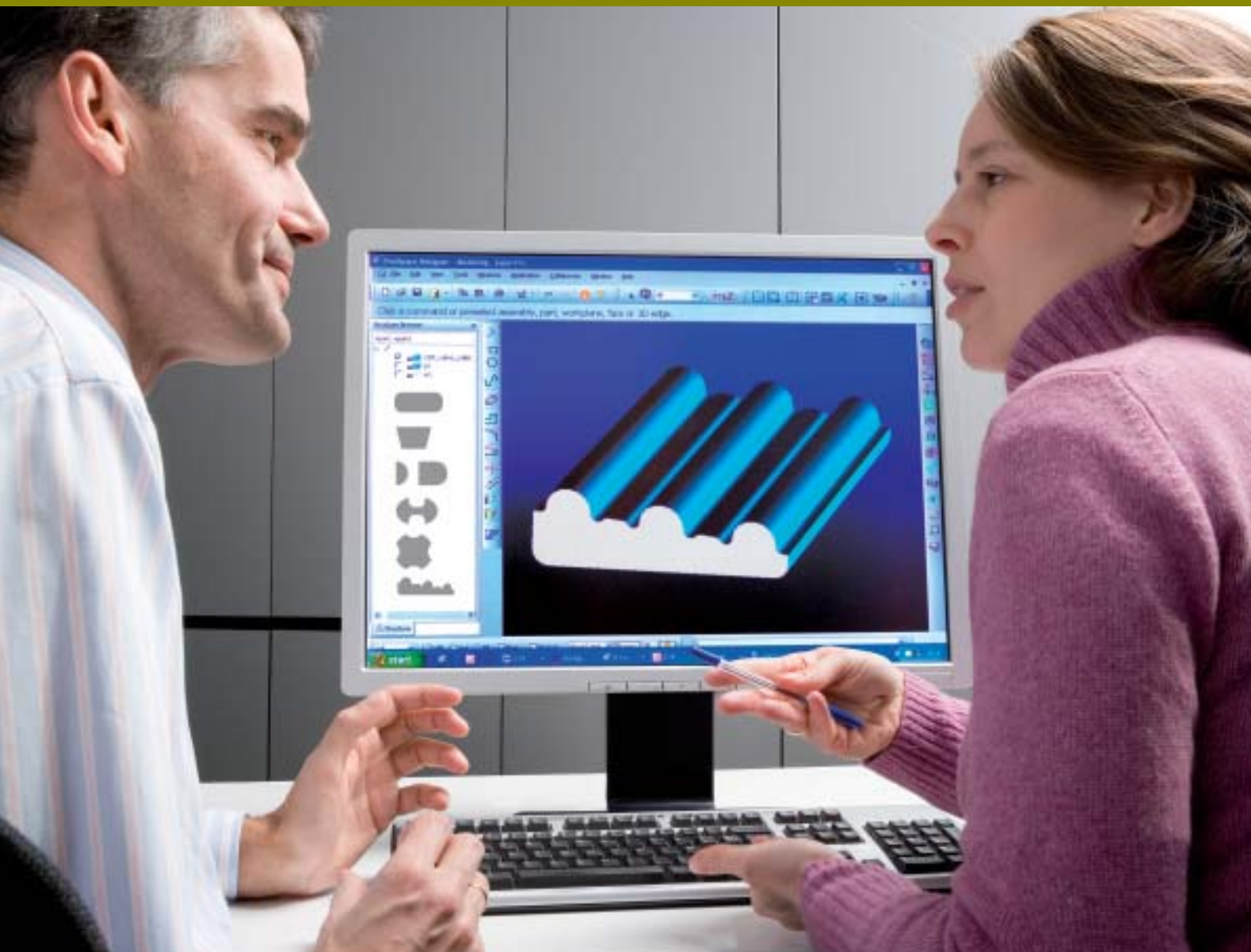


Tailor-made flat and shaped wires



Find the right shaped wire through co-development and innovative technology

Together we can do great things

3 customers testify

A revolutionary design: the flat blade



Lighter, fewer components and noise reduction

About five years ago one of our largest customers, a manufacturer of automotive components asked us to create an alternative wire for the traditional windshield wiper blades, a thin flat rubber sleeved wire supported at four points.

The old-style wiper blade was a complex assembly of no fewer than 24 separate components; No wonder the customer asked Bekaert to simplify both product and process in order to give them a better edge in the market.

In close consultation with our customer, we developed the flat blade: a flexible bow made of two parallel wires that conform perfectly to the curvature of the windshield. The high-tech high-carbon spring steel wire comes with a corrosion-resistant zinc-aluminum coating and consists of only nine components. This makes it much easier to assemble, and it is also 50% lighter. Its smooth and aerodynamic form also guarantees significantly less noise.

We launched the flat blade in 2001. Today, practically all new vehicles in Europe are fitted with this type of blade and the market segment is growing at 30% a year.



A smooth aerodynamic design

A tailor-made profile for a creasing rule



Longer machine cycles, less scrap

In order to improve their production process, a specialised producer of printers rules was looking for a new shaped section for a creasing rule, an important tool in the process which is used to crease the cardboard prior to folding.

The objective was to find a more accurate profile than the current strip-based product. The challenge was to create a tight toleranced precision profile with a comparatively large width to thickness ratio, but with a high hardness to provide a “tough” product for the end application.

We first sent a technical team to the end-user to establish the exact requirements of the product and to understand specifically what the end user needed in the shaped wire. Initial trials were produced and further refined until the wire completely met the customer's needs.

This example reflects our philosophy that working ‘better together’ really does lead to a better end-product. Even though each application is different, we recognize that whatever the request, Bekaert possesses the technical expertise to produce the shaped wire you need.



A more accurate production

Collaborative hose coupling development



Improved functionality, fewer discrete sizes, lower inventory for end-user

Engineers from a global manufacturer of hydraulic components came to Bekaert with an innovative design for making hydraulic hose connectors.

This design concept required a metal profile with serrations of varying heights presenting a unique process development challenge for the Bekaert team. Maintaining size tolerance on the serration height and overall width was of utmost importance.

Because of the severe deformation involved, multiple shaping and in-process annealing steps were required. These custom-made profiles are provided in coils to feed automatic high speed presses in the customer's forming process. A dedicated team effort between engineering personnel at both companies took this proprietary design from concept to launch in record time.

The creation of these profiles improved functionality over traditional designs and increased the customer's market share, while reducing cost and inventory.



Improved hose couplings for heavy off-road equipment

Discover the possibilities of our tailor-made wire

Automotive

Wiper components



Wiper arm

Good formability, superior corrosion resistance and no zinc post coating necessary.



Flat blades

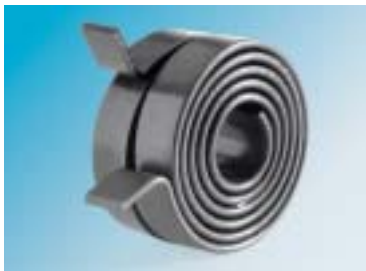
Simplified assembly and superior corrosion resistance thanks to the Bezalplast® coating.



Wiper blade

Your alternative for the classic stainless wire. Excellent corrosion resistance on the cut edges.

Power springs



Power spring

A broad range of sizes and tensile strengths with excellent fatigue properties.



Belt tensioner



Window regulators

Other applications



Steering shaft

Custom rolled, drawn and cut shapes mate perfectly with profiled tubes.



Seatbelt shoulder harness

Value added - post wire production reduces assembly complexity and provides greater harness adjustment.



Hose coupling wire

Profiled wire eliminates extensive machining operations and scrap.



Seatbelt retractor shaft

Robust, exact cut component for a safety-critical application.



Retaining rings

Consistent internal structure.



Valve collets

Complex shapes with unique tolerances on both dimensions and specified radii.

Equipment & machine building



Self piercing fasteners
Special wire groove geometry allows for collation of nuts.



Pawl (drill component)
Complex precision shape by use of unusual steel grades.

Agriculture



Auger wire
High tensile strength and good fatigue properties.

Building and infrastructure



Rock protection
Guaranteed strength and rigidity by use of profiled wires.



Fish tape
An optimal combination of strength, flexibility and wire straightness.



Welded lath for plastering walls and ceiling - Stucanet
Light, strong and easy to shape.



Wall reinforcement for masonry – Murfor
Prevents cracking and increases the resistance of the wall.



Road reinforcement – Meshtrack
Reduced deformation in the asphalt overlay.

Spring applications



Die spring
High hardness and tensile in shaped condition.



Rake tine
Profiled wire for better performance and longer life.

A tailor-made approach for your specific application

You decide the desired properties;
Bekaert delivers a tailor-made solution.

Flexibility is the key in our co-development approach, meaning;

- Adaptable properties of the basic materials
- Adaptable surface properties through application of unique coatings
- A wide range of different shapes and edges
- Delivery of end products in different make-ups, bar lengths and exact cut pieces
- Extensive offering of wire sizes



Adaptable properties of the basic materials

<ul style="list-style-type: none"> • HiCa: - oil tempered - induction hardened 	<ul style="list-style-type: none"> - Carbon and alloy steels - Hardened wire by heat treatment (oiltempered or induction hardened) - Excellent tensile strengths with high fatigue properties and homogenous tempered martensite.
<ul style="list-style-type: none"> • HiCa: - hard rolled - annealed 	<ul style="list-style-type: none"> - Carbon and alloy steels - Patented HiCa wire (sorbite structure) and cold deformation of wire to shape (elongation/rolling) and to provide strength.
<ul style="list-style-type: none"> • Stainless: - hard rolled - annealed 	<ul style="list-style-type: none"> - Most commercial grades available

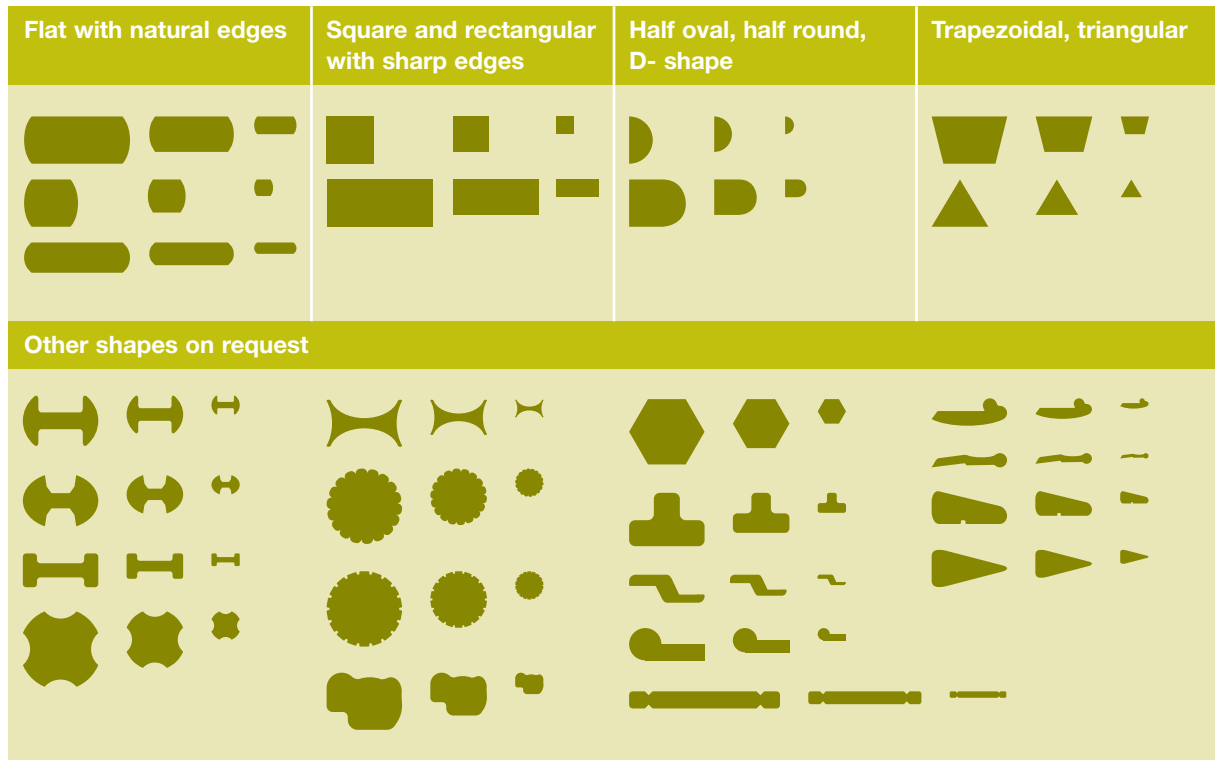
Adaptable surface properties - Four unique coatings

	Bezinal®	Bezinal® Color	Bezoplast®	Bekinox® Color
Composition				
Corrosion resistance	+	+	++	+++
Colour	not applicable	++	++	+
Formability	++	+	++	++

+ Good / ++ Better / +++ Best

New Technology

Large variety of shaped wires



Product presentation

Spools



up to 2000 kg / 4409.2 lbs

Bar lengths



up to 6 m / 19.7 ft

Exact cut pieces

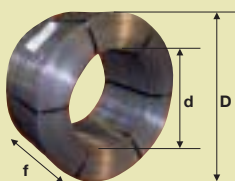


on demand

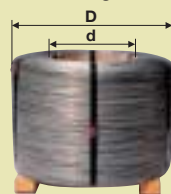
Coils

	Nominal coil weight	d	D	f
Traversal wound coils	50 - 2000 kg 110.2 - 4409.2 lbs	300 - 550 mm 11.8" - 21.6"	500 - 1550 mm 19.7" - 49.2"	100 - 400 mm 3.9" - 15.7"
Catch-weight coils	50 - 2000 kg 110.2 - 4409.2 lbs	500 - 900 mm 19.7" - 35.4"	600 - 1200 mm 23.6" - 47.2"	—

Traversal wound coils



Catch-weight coils



Cut to Length Options

Impact Sheering	20 mm - 600 mm 0.8" - 23.6"
Punch Press *	300 mm - 1500 mm 11.8" - 59"
Flying Shear	660 mm - 6 m 26" - 19.7'

* Simultaneous hole punching and embossing available

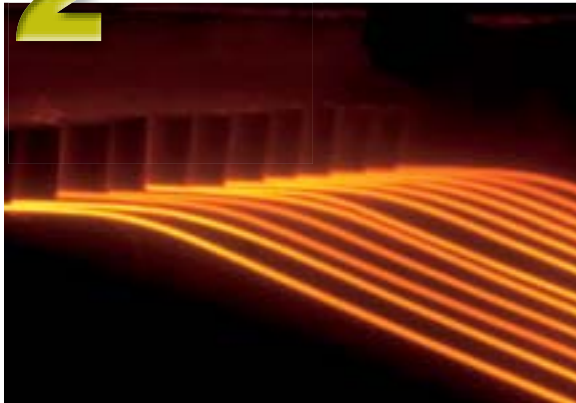
Why choose Bekaert?

1 The specialist in wire rod selection



It is crucial to start from high quality basic material in order to deliver a wire that you can depend on. Bekaert has a vast network of top suppliers and years of experience in selecting only the highest quality wire rod. In total we use over 30 qualities of steel alloys with diameters ranging from 5.5 mm to 35 mm.

2 Flexible and tailor-made production



To accommodate a broad range of applications Bekaert offers a wide range of common and specialised production processes. Depending on the required properties, the classic production process of cleaning, drawing, thermal treatment, transformation, coating and winding can be combined in order to obtain the wire you need.

3 Customised production machinery



Bekaert's engineering division holds a global position in advanced transformation techniques and has a thorough understanding of the rolling and drawing processes in a full-scale environment. In order to offer you a truly unique wire, Bekaert Engineering created special customised rolling and drawing machines that are able to create the wire you need. Thanks to our unique machine park we can take on any project, no matter how complicated.

4 400 international experts at your disposal



Bekaert maintains its technological lead through a process of continuous innovation. Our technology centres (BTC) situated in Belgium and China count over 400 international experts who listen to your demands and have the ability to create the wire that meets your expectations.

Quality certification

Bekaert holds the required EN ISO 9001 BVQI and TS 16949 certificates.



* for automotive applications only!

How can your business benefit from close cooperation with Bekaert?

Find out how a tailor-made wire or metal profile can boost your project. Contact your local Bekaert specialist to discuss the specific properties and application of your desired part. Once we establish an approach, our highly specialised team of engineers will design a shaped part or wire that meets the required properties. So don't hesitate. Contact us at **shaped.wire@bekaert.com**. Or surf to www.bekaert.com for more information.

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