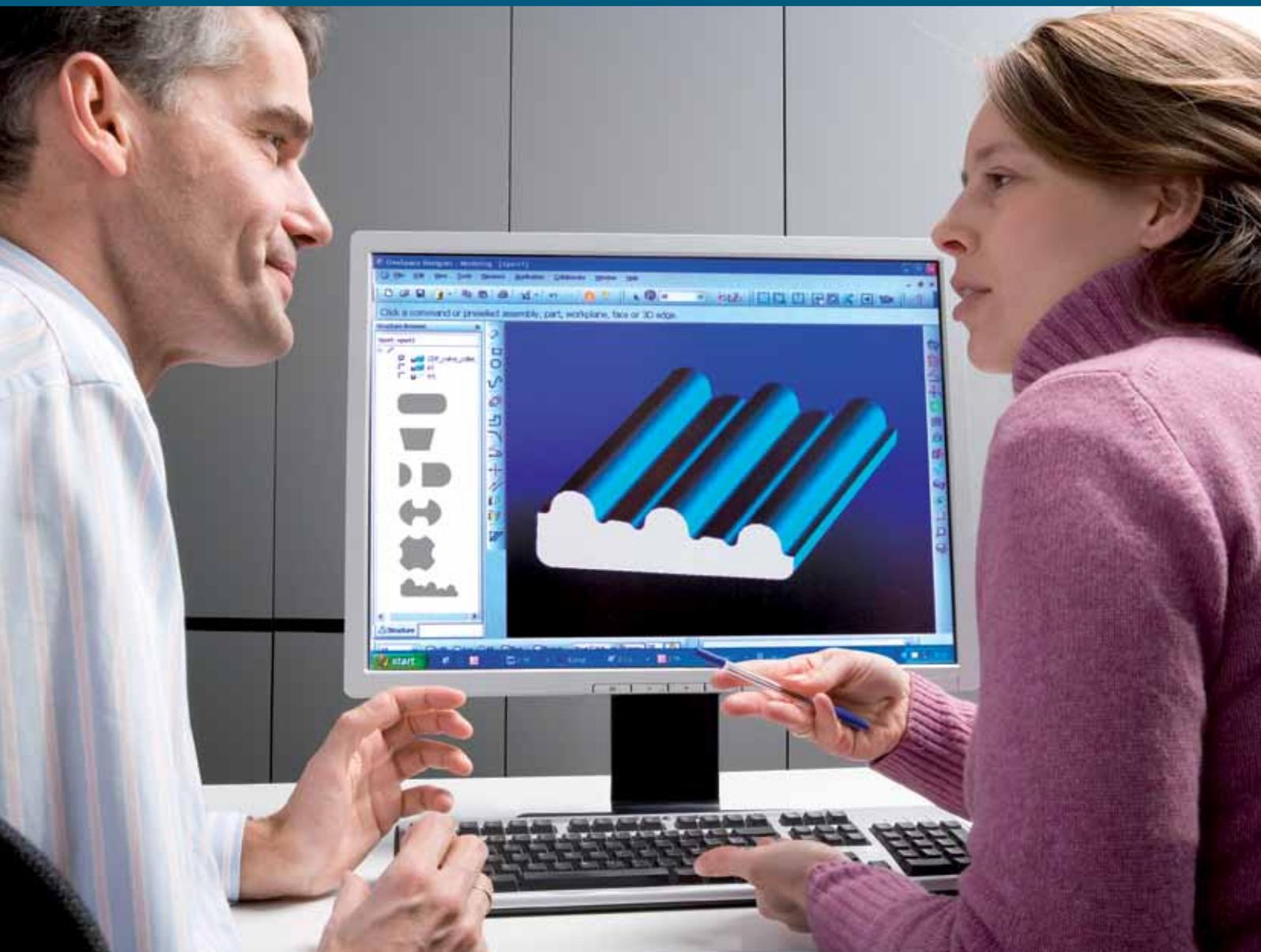


Tailor-made flat and shaped wires and parts



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

Why choose Bekaert?

The wire specialist

With more than 130 years of experience in coating technology and metal transformation, Bekaert has the flexibility and technical know-how to create any steel wire no matter what shape, composition or mechanical characteristic.

To guarantee the quality of their wires Bekaert only uses the best wire rod. For this, they rely on a global network of top-suppliers. In total, Bekaert uses over 50 alloy qualities with diameters ranging from 5.5 to 25 mm (0.216 - 0.984 in).

Continuous innovation

Bekaert is continuously investing in state-of-the-art equipment to allow their project teams to develop and to innovate. To support the development of new products and technologies, Bekaert has an in-house engineering department which develops its own machinery and processing equipment as well as pilot production lines.

Your strategic partner

Bekaert has a global distribution platform that enables them to keep stocks of the most standard grades. Their global experience combined with local presence allows them to be at your service at all times.

A tailor-made approach for your specific application

Bekaert offers a one-source solution for tailor-made wires and parts. Their extensive technical knowledge, combined with their sophisticated drawing and rolling techniques, enables them to create a shaped wire that will boost your application.



Flexibility is key

You decide the desired properties and Bekaert complies by delivering a tailor-made solution. This means we are able to:

- adapt the properties of the basic materials
- adapt the surface properties through the application of different coatings
- offer you a wide choice of shapes and edges for your wire or part
- deliver your wire anyhow you like; packaging, bar lengths, exact cut pieces and/or hardened and polished parts ready for assembly
- offer you added value services

Certified quality

All Bekaert plants that produce tailor-made flat and shaped wire are ISO 9001 and ISO/TS 16949 certified.



*for automotive applications only

Together we can do great things

Producers of tight-tolerance applications who want to optimize their product find a great partner in Bekaert. To custom-engineer components that match your quality, productivity, handling and maintenance requirements Bekaert works closely with you: from investigating the possibilities of improving your process to the design, development and production of a shaped wire or part.

A few examples:



Lighter, fewer components and noise reduction

Application:

Flat blades

Shape:



Benefit:

Simplify your assembly process and reduce the weight of your wiper by 50% with Bekaert flat blade. This wire consists of a flexible bow made of two parallel wires that follow the curve of the windscreen perfectly. The aerodynamic design is less noisy than the average wiper blade and only counts nine components. More over Bekaert flat blades are coated with Bezalplast®, providing excellent corrosion resistance.



Improved functionality, more discrete size and lower inventory costs

Application:

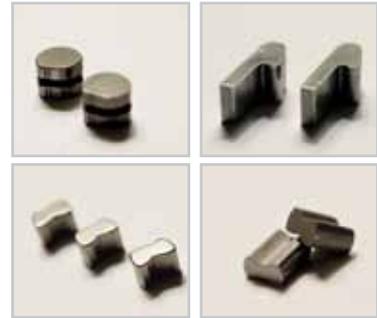
Hose couplings

Shape:



Benefit:

Optimize the functionality of your hose couplings with Bekaert's custom-made hose coupling wire. To support exact and innovative designs for hydraulic hose connectors, Bekaert is able to combine a series shaping and annealing processes to create a sophisticated profile with serrations of varying heights. The unique tolerances on both dimensions and radii of the profile results into more efficient and discrete sized hose couplings that will also help you to reduce your inventory costs.



Shorter process-runs, higher tolerances and better wear resistance compared to alternative production methods

Application:

Sprags, rockers and diodes for one-way clutch mechanisms

Benefit:

Shorten your manufacturing process for one-way clutches with Bekaert's customized sprags, rockers and diodes. Bekaert rockers contributed to an innovative one-way clutch design that uses fewer components compared to alternate designs, reducing the mass of the assembly and thus improving fuel efficiency without sacrificing function or performance. To form these particular parts and maintain precision tolerances, Bekaert developed innovative tooling which was used in conjunction with cutting, slotting, batch heat treating, "isotropic finishing" and 100% sorting.

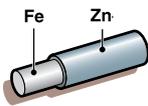
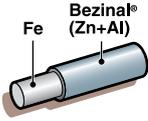
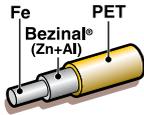
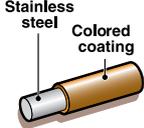
Your one-stop shop for shaped wires and parts

Bekaert supports you in simplifying your production process by offering a one-source solution for your wire products. Besides a vast assortment of added value services Bekaert has established solid, long-term relationships with pre-qualified producers across the globe who reflect the same commitment to quality as they have.

Adaptable properties of the basic materials

| Composition | Treatment | Grades |
|-------------|--|--|
| low carbon | - hard rolled - annealed | - easy forming and subsequent processing |
| high carbon | - oil tempered - induction hardened | - carbon and alloy steels (e.g. CrSi, CrV, CrSiV, 100 Cr6, etc.) - hardened wire by heat treatment - excellent tensile strengths with high fatigue properties and uniform tempered martensite leading to a highly consistent steel structure |
| | - hard rolled - annealed | - carbon and alloy steels - patented HiCa wire (sorbite structure) and cold deformation of wire to shape (elongation/rolling) and to provide strength |
| stainless | - hard rolled - annealed | - most commercial grades available |

Adaptable surface properties

| Zinc | Bezinal® | Bezinal® Color | Bezoplast® | Bekinox® Color |
|---|---|---|--|---|
|  |  |  |  |  |
| good corrosion resistance | high corrosion resistance | color coding | superior corrosion resistance | colored stainless steel |

other coating combinations available on request

A wide range of shapes and edges

| Natural edged flat shapes | Sharp edged squares and rectangles | Half ovals, half rounds and D-shapes | Trapezoids and triangles |
|--|---|---|---|
|  |  |  |  |
| Other shapes on request | | | |
|  | | | |

size and dimension of the shapes available on request

Packaging

- spools: up to 2000 kg / 4409.2 lbs
- bar lengths: up to 6 m / 19.7 ft
- traverse wound coils: 50 – 2000 kg / 110.2 – 4409.09 lbs
- catchweight coils: 50 – 2000 kg / 110.2 – 4409.09 lbs

Finished part services

Enable yourself to focus more on your core competences by relying on Bekaert finished part services. These services combine advanced cutting technologies with punching, surface finishing, packaging and other operations to meet your exact requirements leading to reduced lead times and the elimination of expensive post-treatments.

| Cut-to-length technologies | Cutting capacity | Cut-to-length |
|----------------------------|--|--|
| adiabatic impact cutting | - shaped wire - 3 to 32 mm / 0.125 to 1.25 in - up to 5 mm ² / 0.20 in ² cross in section | 6 to 1524 mm / 0.25 to 60 in (length tolerance up to 0.0025 in / 0.06 mm) |
| fenn impact cutting | - shaped wire - 3 to 32 mm / 0.125 to 1.25 in - up to 31 mm ² / 1.22 in ² cross in section | 19 to 600 mm / 0.75 to 24 in (length tolerance up to 0.12 mm / 0.005 in) |
| lewis straight and cut | - shaped wire - 50 mm / 2 in - up to 22 mm / 0.875 in cross in section | 600 mm to 6 m / 24 inches to 20 ft |
| cold sawing | - round bars - 50 mm / 2 in - up to 100 mm ² / 4 in ² cross in section | 0.25 to 12 in / 6 to 305 mm |

| Mechanical press operations | Cutting capacity | Cut-to-length |
|---|--|---|
| staked and cut lengths with the option of partially punched round or shaped holes, bending and embossing operations | - shaped or flat wire - 9.5 x 38 mm / 0.375 x 1.50 in | 6 to 1524 mm / 0.25 to 60 in (length tolerance of ± 0.25 mm / 0.01 in on overall part length*) |

*size and dimension of the shapes adaptable on request

| Bar stock capabilities | Cutting capacity | Cut-to-length |
|--|--|--|
| heavy duty flying shear systems produce shaped bar stock | - shaped wire - up to 20 mm ² (22 mm) / 0,785 in ² (0.875 in ² bar) cross in section | typical lengths 4 to 6 m / 12 to 20 ft |

Surface finishing

- standard vibratory deburr plus isotropic super smooth surface finishing
- chamfering, CNC turning and drilling of round and shaped cut lengths to length bar ends
- automated mechanical wire brush burr removal of cut-to-length bar ends
- speciality plating: BeZinal[®], zinc, black oxide, nickel, electroplating, barrel and rack, etc.



Learn more about Bekaert's profiling capabilities

Discover the possibilities of our tailor-made wire

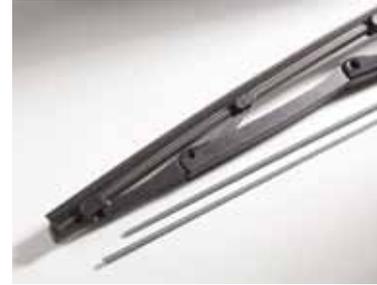
Automotive



Wiper arm
good formability, superior corrosion resistance and no post coating required



Flat blade
lighter and fewer components for a simplified assembly



Wiper blade
a coated wire with stainless steel like properties for a competitive wiper design



Retainer rings
consistent internal structure and tensile strength allowing large dimensions and sizes



Wheel weights
lead-free shaped steel wire that enables accurate wheel balancing and the insertion of clips



Steering shaft
custom rolled, drawn and cut shapes match perfectly with profiled tubes



Seatbelt shoulder harness
a custom-made profile fine-tuned to simplify assembly and improve harness adjustment



Exhaust clamps
custom-made profiles to insure a tight seal on exhaust pipes of any (off-)road vehicles



Valve collets
complex shapes with unique tolerances on both dimensions and specified radii

Equipment



Power spring
a broad range of sizes, tempers and tensile strengths that can be combined to reach excellent fatigue properties



Wedge wire
a wedge shaped stainless steel wire with a smooth surface and stable mechanical properties



Self-piercing fasteners
a special wire groove geometry that allows for the collation of nuts



Tilt rod for window blinds
multiple shapes, straightness and special packaging that keep the wires clean in a corrugated tube



Hand tools
a shaped wire fine-tuned by added-value post-production



Pawls
a complex precision shape featuring special steel grades

Agriculture



Auger wire
reliable performance with a long lifetime and excellent processability



Rake tine
excellent forming stability thanks to its consistent internal structure



Fish tape
an optimal combination of strength, flexibility and wire straightness

Building

Bekaert at your service

Find out how a tailor-made wire or 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 specialized team of engineers will design a shaped part or wire that meets the required properties.

Don't hesitate. Contact us at shaped.wire@bekaert.com.

Or surf to www.bekaert.com for more information.

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**Wire can
tell you
a story**



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