

RIBE® Technical Springs – Fact Sheet

PUNCHED PARTS



PUNCHED PARTS

› BASIC FORMS

- Wire springs
- Leaf springs
- Custom-built preformed wire / flat metal geometries
- Clamps
- Leaf springs
- Contact elements

› WIRE CROSS-SECTIONS

- Round wires
- Flat & square wires
- Flat metal 0.1 mm to 3.00 mm
- Wire cross-sections \varnothing 0.40 mm to \varnothing 10.00 mm

› MATERIALS

- Untempered, tempered and stainless materials
- Super high strength spring materials according to EN 10270-1, -2 or -3 (up to Rm 2000 MPa)
- Aluminum
- Copper alloys
- Materials with special features regarding extension behavior and magnetism

› PRODUCTION TECHNOLOGIES

State-of-the-art punching / bending machines

Bihler technology

- Maximum flexibility thanks to
 - linear tool setup
 - radial tool setup
- Max. process reliability thanks to cam disk control
- Large flexibility thanks to integrated NC axes
- Maximum production speeds

State-of-the-art computer-controlled spring forming machines

- Processing on up to 15 processing axes
- High flexibility thanks to 3D tool positioning and exchanger units
- Most flexible use of the processing axes by turning the component during the production process
- Reduced setup effort thanks to NC-based wire and tool positioning
- Large flexibility thanks to freely programmable NC axes

Specially developed tool technologies

- Advantage thanks to own tool development
- Short reaction times thanks to our in-house tool manufacture

Maximum process stability

- Inline testing systems
 - Tool-integrated camera systems

Lean processes thanks to process linkage

- Linked spring heat treatment
 - Development partners who determine the ideal optimized process parameters
- Linked assembly processes
 - Assembly of entire system components
- Component cleaning
 - Alcohol-based cleaning
 - Water-based cleaning
 - State-of-the-art residual contamination laboratory
- Automatic packing (stacks, rail, trays, user-specific packing)
- Packing in clean room



› FUNCTION OPTIMIZED CORROSION PROTECTION METHODS

Processing of pre-coated raw materials

- e.g. plastic, ZnAl, PTFE
 - » Advantages: Coating of complex geometries

Duplex coatings

- e.g. zinc flake
 - » Advantages: Maximum corrosion protection, sliding requirements

Coating systems including coloring

- » Advantage: Part marking

Plastic coating

- » Advantage: Component protection + sliding features

Gold & silver coating

- » Advantage: Requirements regarding conductivity & oxidation

DEVELOPMENT PARTNERS

› PROJECT SUPPORT AT ALL DEVELOPMENT STAGES

- Sound and detailed calculation & design
- Latest advances in manufacturing technology and optimized functionality
- Individual spring feasibility analyses based on your application
- Fast implementation of solutions
- Very good, quick and flexible production of near-series prototypes for customer tests

› STATE-OF-THE-ART TESTING EQUIPMENT

- State-of-the-art force assay balances
- Computer-controlled visual testing facilities
- Product-oriented lifetime test benches

PRODUCT PORTFOLIO

› COMPRESSION SPRINGS



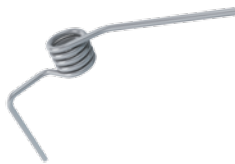
Basic forms: Cylindrical, convex & concave, conical
Spring ends: Open, closed, ground
Wire: Round, flat & square wires, pre-coated wires
from \varnothing 0.15 mm to \varnothing 3.20 mm

› TENSION SPRINGS



Basic forms: Customized lug form
for every customer application
Wire: Round and square wires
from \varnothing 0.20 mm to \varnothing 4.00 mm

› TORSION SPRINGS



Basic forms: A helical body / helical body combinations,
double torsion springs, variable custom-built
leg geometry
Wire: Round, flat & square wires and pre-coated wires
from \varnothing 0.20 mm to \varnothing 4.00 mm

› COIL SPRINGS



Basic forms: Custom-built leg and
helical body geometries
Wire: Round, flat & square wires
from \varnothing 0.12 mm to \varnothing 4.00 mm

› PREFORMED WIRES



Materials

- Untempered, tempered and stainless materials
- Super high strength spring materials – Rm 2000 N/mm²
- Copper alloys
- Aluminum alloys
- Materials with special features regarding extension behavior and magnetism

Wire: Round, flat and square wires
from 0.4 mm to 10 mm, feed length up to 350 mm

› PREFORMED FLAT METAL



Flat metal: from 0.1 to 3 mm with a maximum width up to 150 mm, feed length up to 350 mm