



Wire Machinery for the Challenges of Tomorrow

Multiple-drawing systems  
for wire processing





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## Future technology for the wire industry

### Wire for tomorrow's world

Markets are in movement. They demand new technologies that are as flexible as possible, and they demand them fast. At KOCH, you will find solutions today to tomorrow's challenges. Wire, after all, plays an important role in every single progressive industry. It is present in the reliable production of mobility, in strong connections for architecture, and in highly sensitive medical applications.

Do you need to integrate a wire production system into your production facilities? Then you can count on us. Ernst Koch GmbH & Co. KG is one of the world's leading manufacturers of wire drawing and cold rolling systems for the iron and steel wire industry, which is able to build its own machinery. As a system supplier, we plan, supply and install complete machine lines for the production of wire – lines that are designed for your particular task and implemented with all the components you need.

### Welcome to KOCH

Our consultancy, products and services are of the very highest standard, and have been for more than 90 years. Customers in more than 60 countries value this long experience and our pioneering technological capabilities. Take, for example, the industrial wire segment. In this field, our OTA multiple-drawing technology places us in a leading position on the global market.





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## Wire that meets the highest demands

### Close up, far and wide

Wire fulfils many important roles in engineering, science and society – and in our bodies. Used medically as a bolt or a joint, an implant or an endoscope, wire has to have no side effects whatsoever. But it is not just medical technology which presents strict quality demands. Rope wire supports bridge structures, carries cable cars and provides the necessary stability in glass fibre cables for transmitting data. Spring wire can be found in automobiles, furniture and gardening equipment. And when a space station in orbit unfolds its solar sail, this too is done with the help of wire.

### Moving, conducting, safeguarding

A necessary factor in challenging applications is precise dimensions and high-quality surfaces, things which KOCH achieves using multiple-drawing machines. These machines have always set benchmarks, a fact illustrated by our OTA technology, a non-diverting, straight-drawing process developed by us which has revolutionized the wire industry, and which enables our customers to produce top-quality wire economically. Computer-controlled production minimizes adjustment errors and enables easy, highly efficient handling.

### Wire for tomorrow's world

Medical technology, power engineering, IT – the industries of the future will embody many challenges. We are striving to understand these challenges today and meet them with technologies that make wire better and better all the time. As a system supplier, we specialize in complete solutions that incorporate all of the necessary peripheral equipment. We can undertake complete project management, from planning to commissioning.





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## Pioneering drawing process for quality wire

### German engineering

The OTA drawing process does not involve dancer or sensor rollers and is the result of a remarkable engineering achievement. OTA enables genuine non-diverted, straight-line drawing under a constant and reproducible counter-tension. KOCH achieves this dead-straight, non-diverting wire-drawing process using sophisticated control technology alone. Linear wire-drawing from the outlet to the spooler achieves better production and higher wire qualities than any other process.

### Technologies that meet every need

KOCH has also developed Tunerline technology, in which a sensor roller monitors the wire running. The electronic signal thus produced allows the speed of each of the drawing-blocks to be controlled individually. This conventional process enables synchronized wire-drawing using multiple blocks, even under extreme conditions, such as the production of very thin wire diameters, to name one example. Tunerline and OTA technology demonstrate KOCH's capabilities in the fields of engine-

ring, drive technology, programming and control. Our lead in developing groundbreaking technologies ensures that our customers remain competitive.





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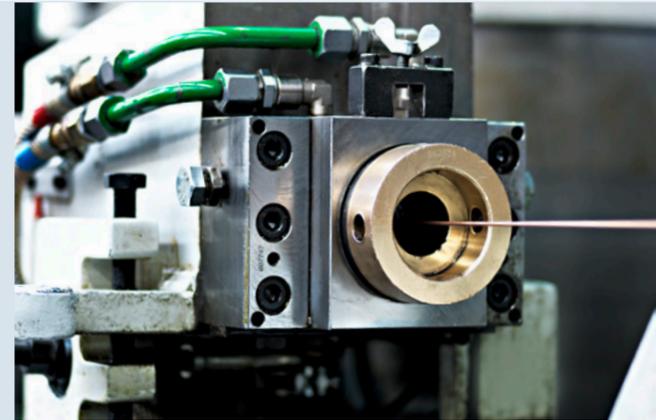
## The pioneer of top technology

### Impressive strength

KOCH has a range of different OTA and Tunerline systems to produce different qualities and dimensions of wire, and to meet different end-product requirements. Pre-stressing steel wire and spring steel wire are produced by OTA systems incorporating capstans with diameters of up to 1,200 millimetres. The benchmark in this segment is the KGT 47 OTA, with its high-performance planetary gearing and tractions of up to 90,000 Newtons. That's impressive strength – although, because of its compact dimensions and low noise-level, you would hardly know it.

### System diversity

Also part of the OTA family is the KGT 25. This system is especially suitable for low- and high-carbon steel as well as stainless steel wire for a wide range of applications. High-quality rope wires with diameters of less than 0.8 millimetres are produced by the Tunerline KGT 12. Dynamically regulated process optimization ensures the utmost accuracy and top product quality.



### Machine sizes\*

KOCH Tunerline: Designation machine line	GLZ 12 Tunerline	GLZ 16 Tunerline	GLZ 20 Tunerline	GLZ 25 Tunerline	GLZ 28 Tunerline	GLZ 32 Tunerline	GLZ 36 Tunerline	
KOCH OTA-technology: Designation machine line		GLZ 16 OTA	GLZ 20 OTA	GLZ 25 OTA	GLZ 28 OTA	GLZ 32 OTA	GLZ 36 OTA	GLZ 47 OTA
<b>Possible inlet diameter</b> depending on scope of supply and pulling force, low carbon content	3.0 mm	4.0 mm	6.5 mm	8.0 mm	10.0 mm	14.0 mm	17.0 mm	20.0 mm
<b>Possible inlet diameter</b> depending on scope of supply and pulling force, high carbon content	2.5 mm	3.5 mm	5.5 mm	6.5 mm	8.0 mm	12.0 mm	14.0 mm	16.0 mm
<b>Nominal power at the first block</b>	4 kN	10 kN	16 kN	25 kN	30 kN	40 kN	60 kN	90 kN
<b>Possible drawing capstan diameter</b>	250 mm 300 mm	400 mm	500 mm	630 mm	710 mm	800 mm	900 mm	1200 mm
<b>Wire take-up with coiler</b> possible final wire diameter depending on machine configuration	0.8 - 1.2 mm	0.8 - 1.5 mm	1.0 - 3.0 mm	1.2 - 4.2 mm	1.5 - 6.0 mm	2.5 - 8.0 mm	3.0 - 8.0 mm	
<b>Max. speed with coiler</b> depending on scope of supply and working range	16 m/s	25 m/s	30 m/s	30 m/s	30 m/s	25 m/s	20 m/s	
<b>Wire take-up with spooler</b> possible final wire diameter depending on machine configuration	0.25 - 1.2 mm	0.4* - 1.5 mm *(OTA 0.7 mm)	0.8 - 3.0 mm	1.2 - 4.2 mm	1.5 - 6.0 mm	2.5 - 10.0 mm	3.0 - 12.0 mm	3.0 - 12.0 mm
<b>Max. speed with spooler</b> depending on scope of supply and working range	40 m/s	50 m/s* *(OTA 40 m/s)	50 m/s* *(OTA 40 m/s)	40 m/s	35 m/s	25 m/s	15 m/s	15 m/s



\* Version spring 2014. Technical data and working range to be optimized according to the project and thus can be above or below the data of this table.

## The whole range – individualized yet all-inclusive

### Thinking and acting in terms of systems

At KOCH, we think and act in terms of systems and always in relation to our customers' complete projects. From initial discussions all the way to commissioning and comprehensive support, you can count on our expertise and experience in complete drawing lines.

### Winding and spooling

As with all of KOCH's machines, our spoolers and winders operate at a high technical level – and that can include continuous process monitoring and fully automated procedures, depending on the version. They ensure that the wire is collected efficiently and carefully, even on heavy coils. KOCH's quick-change automatic spoolers and KOCH drawing coilers are both at the technological cutting edge.

### Intelligent additions made by partner companies

Our drawing-machines and wire collecting systems are made in-house. We also incorporate high-performance peripheral modules made by partner companies that fulfil functions such as cleaning the wire surface and treating it with copper, aluminium or zinc. We assemble the various machines to create a custom production line, which will provide you with high-quality wire that can be reliably reproduced – long-term.



**ÜKA**  
Overhead pay-off



**WEZ**  
Reverse bending descaler



**SEZ**  
Grinding descaler



**KGT**  
Multiple wire drawing machine



**KHS**  
Horizontal spooler



**KEWS**  
Coiler



**KSA**  
Spool pay-off



**WEZ**  
Reverse bending descaler



**PERS**  
Polishing system



**KGT**  
Multiple wire drawing machine



**KVS**  
Vertical spooler



**KEWSW**  
Coiler



**KFA**  
Wire pay-off



**WEZ**  
Reverse bending descaler



**HSBE**  
Cleaning and coating machine



**KTV**  
Dancer unit vertical



**KSS**  
Double spooler



**WBE**  
Brush descaler



**KTH**  
Dancer unit horizontal



**KHS**  
Horizontal spooler



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## Quality from the specialists

### **Comprehensive testing**

All over the world, people make wire by drawing – and when they do, they rely on solutions made by KOCH. And this is with good reason. Our machines' durable designs and build quality can stand the rigors of industrial production, long-term. This kind of reliability requires strict quality testing.

Monitoring capstan geometry and the quality of surfaces ensures that the end product is of high quality. Tested drive equipment, pneumatics and hydraulics ensure that

machine processes function reliably. Other important feature of our machines – which we test under voltage – are their electronic installations and control cabinets. Machines do not leave our factory until all of their tools and apparatus are set up for the intended wire process.

### **Always up to date**

We are always developing ourselves and improving our processes, technologies and internal procedures. Because they are regularly trained, our engineers,

machine-builders, IT technicians and designers are kept permanently up to date with the latest knowledge. Their expertise helps us set technical and economic standards in the development of new products in the wire processing industry.





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## Genuine partnership. Our after-sales service

We will always be there at your side when you need us. If you have any questions about our multiple-drawing systems in your production line, if you require help operating the machines, or if you need genuine spare and wearing parts that will keep your system functioning at its best, then call our Service Hotline, where we or our subsidiaries around the world will be ready to help you.

A dedicated consultant will be responsible for you on every single KOCH project. He or she will assist and support you actively throughout the life cycle of your system.

We will help you using online diagnosis, or of course by coming to your premises. In order to optimize your operational dependability, we can offer you custom solutions for machine maintenance and preventative servicing. By constantly improving our support at an international level, we aspire to become true partners.

The key to our success is our constant dedication to the needs of our customers. That is what enables us to respond flexibly to changing markets. We aim to open up new industry solutions for our partners by developing

forward-looking and technically sophisticated applications. We can advise you comprehensively on production logistics and automation, information technology and other future technologies. And we can find solutions that help you achieve your aims and move forward in the market.





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