

springs

and more

The thema Form- & Federntechnologie GmbH & Co. KG is a medium-sized, family-owned company managed by its owners and has been founded in 1977. With our current 160 employees, we are engaged in the production of a wide-spread range of products of various different spring steel components for mechanical- and plant engineering on a world-wide scale.

The core sectors supplied by us include: agricultural machinery, construction machinery, screening machines, forklift trucks, vehicle engineering, municipal services, industrial- and safety valves, electrical industry, elevator technology, vibration engineering, drive engineering, brakes, pneumatic- and hydraulic components and many more.



company

The successful development of the enterprise is founded on effective and efficient, individual production processes for which machines and systems of high technical quality are used.

Certain of these have been developed within the company and are protected by patents.

A comprehensive and well assorted stock of primary materials provides the basis for optimal and economic production: Compression-, tension-, special- and heavy-duty springs, torsion springs/double-leg torsion springs and other torsion springs, spring tines, playground springs, bent wire parts, centering- / snap rings, leaf springs, punched and bent strip parts.





XXL-Size Products



Compression Springs



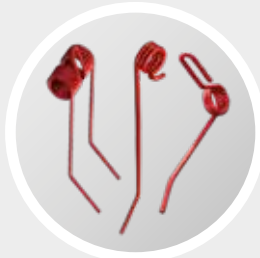
Tension Springs



Tines



Tedder- and Pick-up-Tines



themaDur®



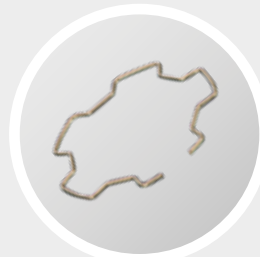
conveyor- and square spirals



Torsion springs & Double leg torsion springs



Bent wire parts



Centering and form rings



Punched & bent strip parts



Playground equipment

Range of production:

from $d=0,50$ to $d=32$ mm

Speciality:

The development of the farming machine industry is faster than ever. The output and thus the constructional dimension of the machines is increased year by year. We have identified this trend at an early stage and we offer the matching solution for the inquiries of our customers for spring steel components in XXL format.

FROM XS TO XXL





Range of production:

from $d=0,50$ to $d=32$ mm

Compression Springs Speciality:

We develop the solution matching your application. When designing a compression spring or a compression spring package, we define the technically required material exhausting the economic limits. In this case, we always aim at a maximum service life. Our range of services covers the performance of long-term tests with up to 10 million load changes on a test equipment developed by ourselves.

Materials used:

- Unalloyed spring steel wire acc. to DIN EN 10270-1: types SL / SM / SH / DH (formerly grades A,B,C,D)
- Unalloyed spring steel wire acc. to DIN EN 10270-1 pre-galvanised: types SL(z) / SM(z) / SH(z) / DH(z)
- Unalloyed spring steel wire acc. to DIN 17223-1:1964 II: (formerly Class II)
- Quenched and tempered spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. FD54SiCr6 standard strength / high strength / super high strength
- Valve spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. VDSiCr super clean, peeled, crack-tested
- stainless steel spring steel wire acc. to DIN EN 10270-3: e.g. 1.4310 / 1.4571 / 1.4568 / 1.4401
- Spring wire acc. to DIN EN 10089: 50/51CrV4
- Special materials for high-temperature applications:
 - e.g. 2.4669 (Inconel X750) / 2.4668 (Inconel X718)
 - e.g. 2.4632, 2.4969 (Nimonic 90)

COMPRESSION SPRINGS



Range of production:

from $d=0,50$ to $d=20$ mm

End designs:

German eyelets, English eyelets, extended-/hook eyelets, rolled-up eyelets, screwed-in threaded plugs, screwed-in brackets, special solutions upon requirement

Speciality:

Development & production of tension spring packages and tension spring assemblies with a limited space or critical load level. Specific processes to guarantee a complete corrosion protection through coating in tensed condition.

Materials used:

- Unalloyed spring steel wire acc. to DIN EN 10270-1: types SL / SM / SH / DH (formerly grades A,B,C,D)
- Unalloyed spring steel wire acc. to DIN EN 10270-1 pre-galvanised types SL(z) / SM(z) / SH(z) / DH(z)
- Unalloyed spring steel wire acc. to DIN 17223-1:1964 II: (formerly Class II)
- Quenched and tempered spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. FD54SiCr6 standard strength / high strength / super high strength
- Valve spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. VDSiCr super clean, peeled, crack-tested
- stainless spring steel wire acc. to DIN EN 10270-3: e.g. 1.4310 / 1.4571 / 1.4568 / 1.4401
- Special materials for high-temperature applications:
 - e.g. 2.4669 (Inconel X750) / 2.4668 (Inconel X718)
 - e.g. 2.4632, 2.4969 (Nimonic 90)
 - e.g. 2.4610 (Hastelloy C-4)

tension springs



Range of production:
from d=3,00 to d=28 mm

Speciality:

High-precision tines make the difference. According to our slogan "the one to the other", we are suppliers of the international OEMs in the field of soil tillage implements. The options with thema are nearly unlimited with respect to the dimension of the tines. This competence is impressively substantiated by our capability of manufacturing up to a wire thickness of 28 mm.

Materials used:

- Unalloyed spring steel wire acc. to DIN EN 10270-1: types SL / SM / SH / DH (formerly grades A,B,C,D)
- Unalloyed spring steel wire acc. to DIN EN 10270-1 pre-galvanised types SL(z) / SM(z) / SH(z) / DH(z)
- Quenched and tempered spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. FD54SiCr6
- Spring wire acc. to DIN EN 10089: 50/51CrV4

tines



bedder and pick-up tines

Tedder and pick-up tines play a key role in green forage harvesting. And in terms of impact force, service life and constant work results, they have to meet the highest standards. We face the challenges this brings us with all our dedication and professionalism.

Speciality:

- High-precision and efficient production exclusively on proprietary-developed systems (special machines constructed in-house)
- Use of spring steel wire in specially defined tine quality
- Shot peening for surface hardening accompanied by regular Almen tests
- Possibility of applying high pre-loads coupled with monitoring measurement
- Powder coating according to the customer's own factory standard
- Performance of life tests on our own inhouse testing bench



themaDUR®
Our patented and field-tested
service life solutions for
spring tines / harrow tines

and for the care of sports and riding arena facilities. They are subjected to continuous wear during use. To combat this, themaDUR® offers an extremely novel and high level of wear protection.

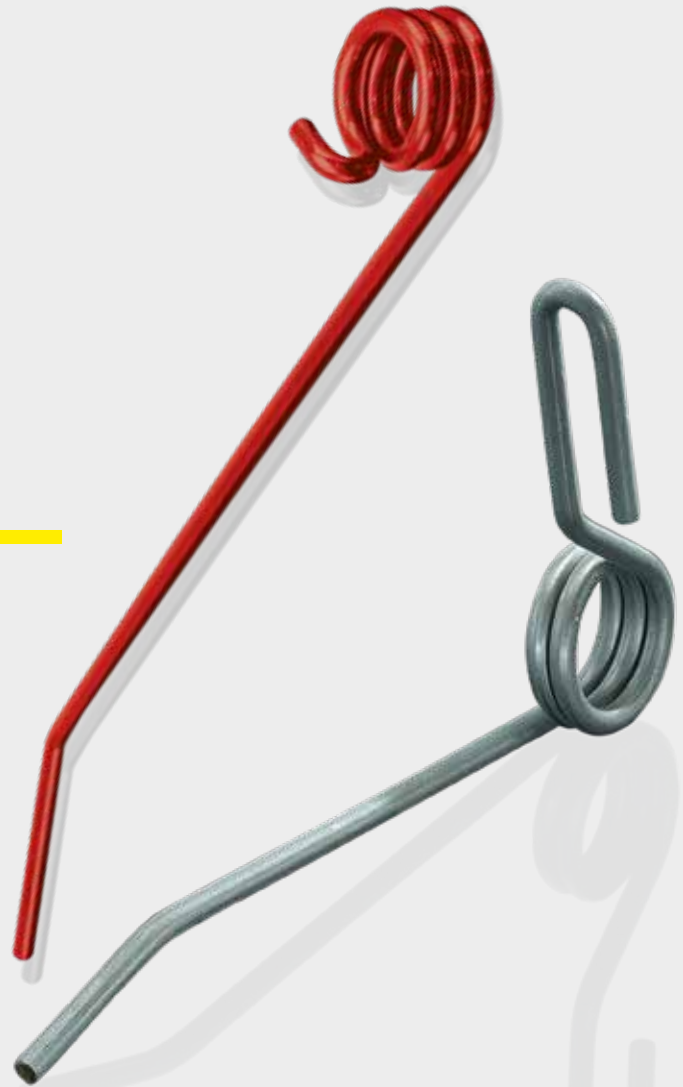
The efficacy of themaDUR® has been thoroughly tested in field trials in the mentioned fields of application and delivered impressive results. The service life of conventional spring and harrow tines has been far exceeded using themaDUR®.

themaDUR® can be applied to all existing spring and harrow tines without having to change them in their current form. For you as a machine manufacturer, this means: No constructive adaptations of your products required.

The added value: The frequent, wear-related exchange of harrow tines regularly confronts the user with downtime and considerable spare parts and assembly costs. By using themaDUR®, you can offer a groundwork machine that is superior to other systems in terms of service life. themaDUR® will decisively and sustainably improve your product sales.



themadur



As a manufacturer or first supplier of groundwork equipment, have we piqued your interest? If so, feel free to visit us at the Agritechnica in Hanover from 11 to 18 November in Hall 11 Stand D53. We look forward to seeing you.

Production area

profiles: Square, Rectangular, Round
Max. Cross section on request

Speciality:

We manufacture the high-precision spirals on specially developed equipment to meet the requirements for fitting accuracy. An outstanding feature of our technological capabilities is the extreme pitch with which we can manufacture the conveying spirals. With up to 4.6 times the pitch in relation to the outside diameter, there are almost no limits to the requirements for the design of the spirals..

Materials used:

- Unalloyed spring steel wires according to DIN EN 10270-1 design SL / SM / DM and DH (formerly grades A / B / C / D).
- Unalloyed spring steel wires according to DIN EN 10270-1 pre-galvanised version SL(z) / SM(z) / DM(z) and DH(z)
- Stainless spring steel wire according to EN 10270-3: e.g. 1.4310 / 1.4571 / 1.4568 / 1.4401
- Unalloyed quenched and tempered steels such as C45
- Iron and cold upsetting wires e.g. S235 and S355

CONVEYOR- and square spirals



Range of production:
from d=0,80 to d=20 mm

Materials used:

- Unalloyed spring steel wire acc. to DIN EN 10270-1: types SL / SM / SH / DH (formerly grades A,B,C,D)
- Unalloyed spring steel wire acc. to DIN EN 10270-1 pre-galvanised types SL(z) / SM(z) / SH(z) / DH(z)
- Unalloyed spring steel wire acc. to DIN 17223-1:1964 II: (formerly Class II)
- Quenched and tempered spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. FD54SiCr6 standard strength / high strength / super high strength
- Valve spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. VDSiCr super clean, peeled, crack-tested
- Stainless steel spring wire acc. to DIN EN 10270-3: e.g. 1.4310 / 1.4571 / 1.4568 / 1.4401
- Special materials for high-temperature applications:
 - e.g. 2.4669 (Inconel X750) / 2.4668 (Inconel X718)
 - e.g. 2.4632, 2.4969 (Nimonic 90)
 - e.g. 2.4610 (Hastelloy C-4)

Torsion springs & double leg torsion springs



Range of production:
from $d=0,80$ to $d=28$ mm

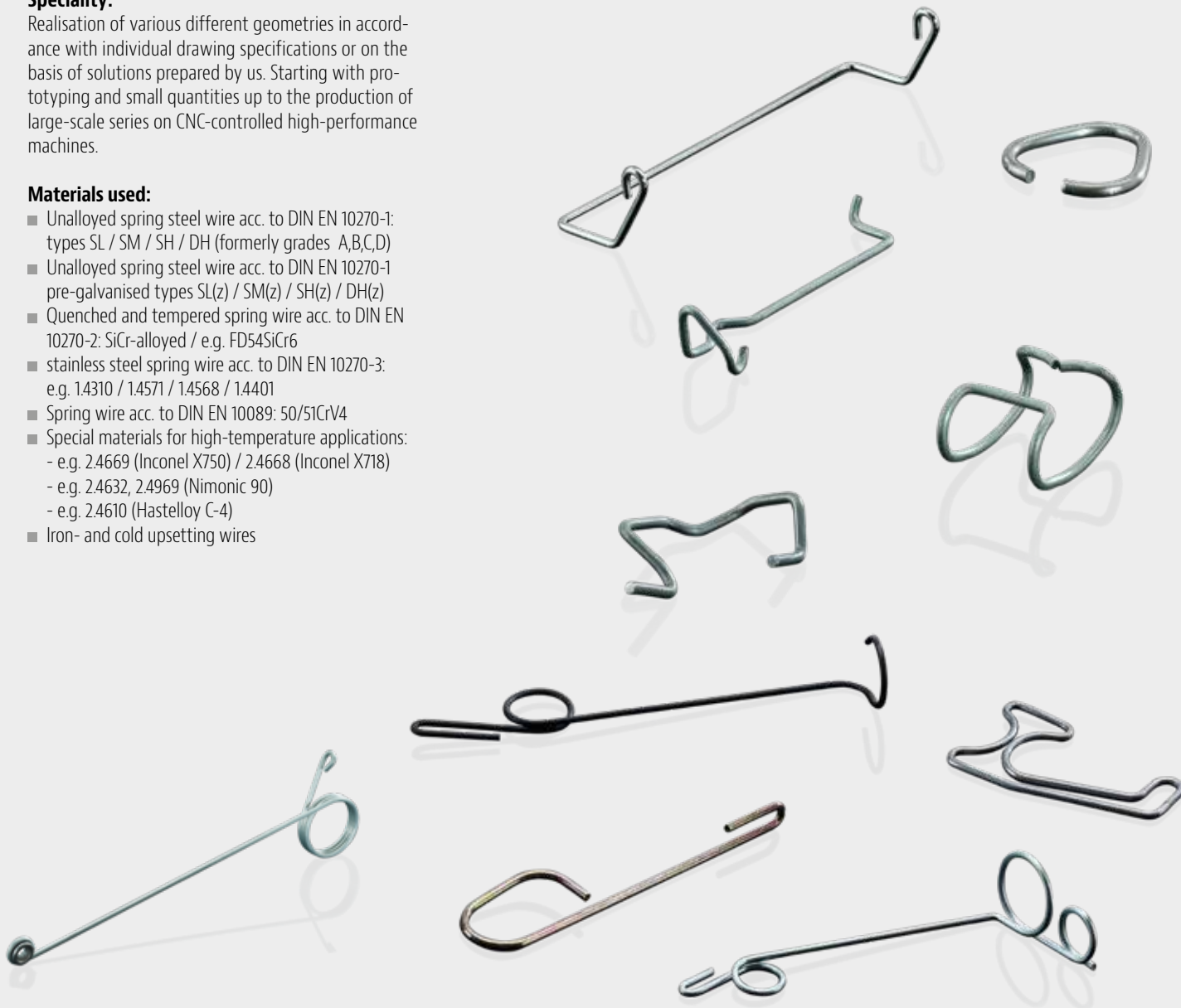
Speciality:

Realisation of various different geometries in accordance with individual drawing specifications or on the basis of solutions prepared by us. Starting with prototyping and small quantities up to the production of large-scale series on CNC-controlled high-performance machines.

Materials used:

- Unalloyed spring steel wire acc. to DIN EN 10270-1: types SL / SM / SH / DH (formerly grades A,B,C,D)
- Unalloyed spring steel wire acc. to DIN EN 10270-1 pre-galvanised types SL(z) / SM(z) / SH(z) / DH(z)
- Quenched and tempered spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. FD54SiCr6
- stainless steel spring wire acc. to DIN EN 10270-3: e.g. 1.4310 / 1.4571 / 1.4568 / 1.4401
- Spring wire acc. to DIN EN 10089: 50/51CrV4
- Special materials for high-temperature applications:
 - e.g. 2.4669 (Inconel X750) / 2.4668 (Inconel X718)
 - e.g. 2.4632, 2.4969 (Nimonic 90)
 - e.g. 2.4610 (Hastelloy C-4)
- Iron- and cold upsetting wires

bent wire parts



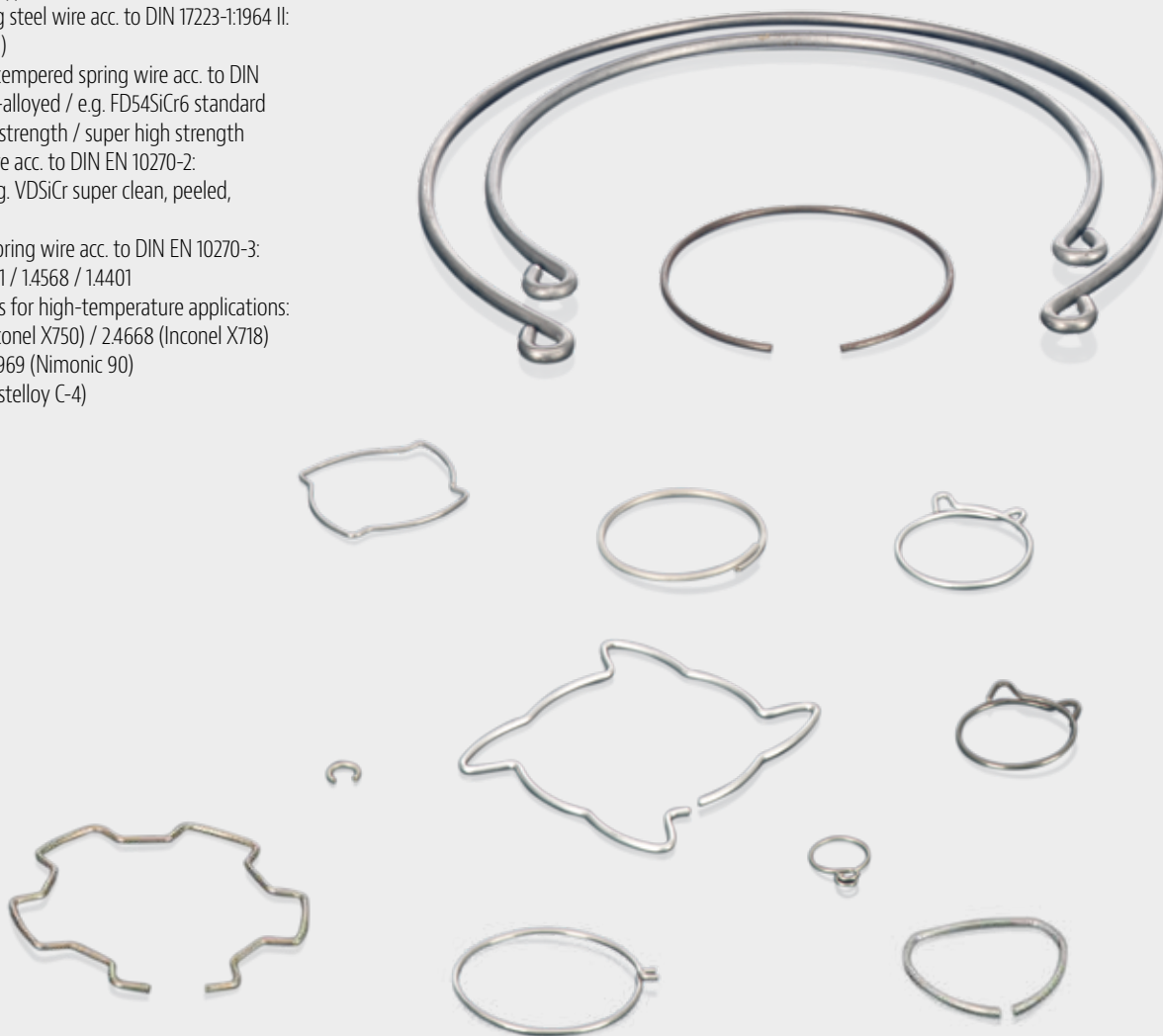
Range of production:

from d=0,80 to d=20 mm

Materials used:

- Unalloyed spring steel wire acc. to DIN EN 10270-1: types SL / SM / SH / DH (formerly grades A,B,C,D)
- Unalloyed spring steel wire acc. to DIN EN 10270-1 pre-galvanised types SL(z) / SM(z) / SH(z) / DH(z)
- Unalloyed spring steel wire acc. to DIN 17223-1:1964 II: (formerly Class II)
- Quenched and tempered spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. FD54SiCr6 standard strength / high strength / super high strength
- Valve spring wire acc. to DIN EN 10270-2: SiCr-alloyed / e.g. VDSiCr super clean, peeled, crack-tested
- stainless steel spring wire acc. to DIN EN 10270-3: e.g. 1.4310 / 1.4571 / 1.4568 / 1.4401
- Special materials for high-temperature applications:
 - e.g. 2.4669 (Inconel X750) / 2.4668 (Inconel X718)
 - e.g. 2.4632, 2.4969 (Nimonic 90)
 - e.g. 2.4610 (Hastelloy C-4)

centering and FORM RINGS



Range of production:

from 0,10 to 12 mm thickness

Speciality:

The extensive range of production covers high filigree spring sheets up to massive leaf springs made of heat-treatable materials. We are extremely competent in the field of the manufacturing of spring band clamps and clips for the applications of forklift trucks and vehicle construction.

Materials used:

- Spring steel strips acc. to EN 10132-4 / 10140
Materials: C67S, C75S, C85S, C100S
- Spring steel strips acc. to EN 10083 / 10051
Materials: 51CrV4 / 55Si7 / 61SiCr7
- Stainless steel spring strips acc. to DIN EN 10088-2 / 10151
- e.g. 1.4310, 1.4571

punched & bent strip parts



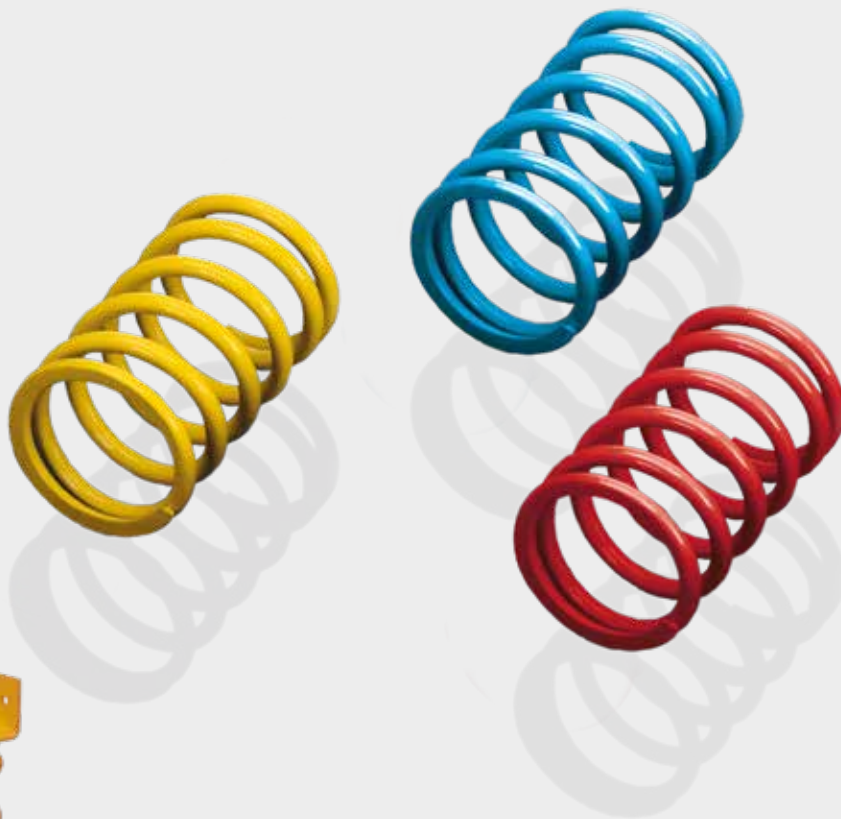
Complete is the best solution

Make a decision for quality and innovation with respect to components for your playground equipment. Complete solutions from thema include fixing elements, special springs and ground anchors out of one hand. Profit from our comprehensive approach and from the optimum compatibility with your playground equipment. In addition to our standard systems, we would also be pleased to offer to you the development and implementation of customer-oriented solutions.

The Components

All components are corrosion-proof and UV-resistant. Our professional processing and the use of high-strength spring steel fulfil the highest requirements for stability and stress of your playground equipment. We would be pleased to design the colouring of the plastic-coated springs in accordance with your specifications. This will ensure individuality and clear recognition.

playground equipment



Our range of services includes all surface- and corrosion-protection processes established on the market. We perform these processes in accordance with the drawing specifications or with the individual company standards of our customers.

Surface treatment

Shot peening
Glass bead blasting
Vibratory grinding / barrel finishing
Electrolytic polishing
Pickling

Corrosion protection processes

Electrostatic powder coating (EPS)
Cathodic dip-paint coating (KTL)
Zink flake coating
Electro galvanising +
Chromate coating / Passivation
Zink nickel coating (Zn-Ni)
further processes upon customer
requirement

Marking systems

Laser engraving
Tampon- and laser printing
Labelling

surface treatment, corrosion protection processes 100%



We are engaged in the manufacturing of 7000 different products for 750 customers on a European-wide scale. The success of our company is based on a technologically sophisticated and individual production. We mostly use self-developed and patent-protected equipment and machinery. Our constantly high investment ratio is the basis for a modern-type and high-performance machinery.

production



All tools required for the production of our products (punching, bending, canting etc.) are exclusively developed and manufactured by us. This way, we protect our knowhow and exclusively use it for our customers. In addition to the manufacturing, we generally maintain and repair our tools through our tool making department. We are thus able to react at short notice and to ensure the high degree of availability of our equipment.

An essential part of our product portfolio cannot be economically produced with standard machines available on the market. Our company-internal plant engineering is engaged in the preparation of innovative solutions implemented into the construction of high-performance special machines: starting with the first idea, implemented into a complete construction, up to the manufacturing, commissioning and serial production of the plant.

Our CAD system includes the most updated methodology of innovative design and construction generating the condition for the successful performance of our tool and plant engineering. The CAD system has also become a daily and indispensable component for our joint development projects with our customers.

development, tool- and machinery construction



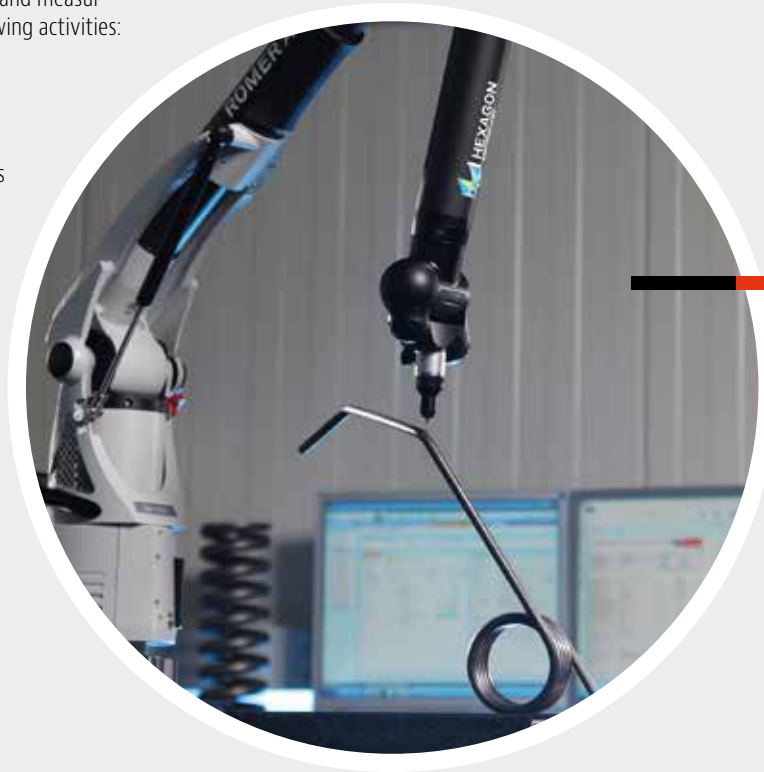
An efficient quality management system is not a sure-fire success. The production of quality is daily lived by our staff members. The system is monitored through specialized staff at the best supported through the availability of most up-to-date test- and measuring equipment.

In addition to the established test- and measuring methods, we perform the following activities:

- Preparation of force-path diagrams
- Dynamic endurance tests
- Relaxation tests
- Optical image measurement
- Tactile measuring of 3-D geometries
- Automatic length- and diameter measuring (inline)
- Permanent furnace monitoring
- Metaflux method for surface crack tests
- Metallurgical tests
- CAQ system

Our current certificates are available to you as downloads from our website.

quality management



Logistics concepts based on EDI, KANBAN and call- and delivery schedules are part of the daily requirements of the market. In addition to a well-organized production, the availability of storage space capacities is an indispensable condition in this context. thema has recognized this development and has extended the logistics area by an impressive 4,000 m² through the construction of a new ultra-modern industrial building in 2013. The total area for storage, shipment and commissioning amounts to 5,800 m² in the meantime.

logistics





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