The family-run company IDEAL was founded under the name "Elektro-Apparate-Bau GmbH" in Lippstadt in December 1923.

Ever since then the name IDEAL has stood for constant innovation and quality in machines and plant engineering. The core competence of this family-run company, which is managed by the third generation, is resistance and laser welding.

IDEAL's product portfolio ranges from welding machines for the joining of wires, wire strands and band saws for wood and metal to wire processing, the manufacture of sheet metal products, and the joining of metal strips. Our machines range from smaller series production machines up to modular standard configurations and all the way up to custom-designed and customer-oriented special solutions.

Our commitment to consistent further development of the product range, as well as competent, problem-oriented consulting have helped us to attain a leading position in the market and made us a reliable partner for the industry. Our knowledgeable representatives in more than 45 countries ensure that we are always close to our customers.

Since 1995 our own sales and service offices in the USA have been directly offering machines and spare parts to our customers in the USA and Canada.

In order to meet the requirements of our demanding and international industrial clientele we build upon fair teamwork with customers, suppliers and our employees.

Our 200 employees contribute towards the success of IDEAL by way of their commitment, knowledge and close ties to our company. Thanks to our own apprenticeship program and continuous training, we are able to sustain in-depth knowledge and experience.
The headquarters in Lippstadt, Westphalia, includes the management, the commercial and technical departments such as project management and the design.

Our mechanical production is equipped with a modern machine park and delivers high-quality individual parts with top precision.

At the second location in Lippstadt the machines are assembled in the production halls, the hydraulic, pneumatic and electrical systems are installed, and finally a function test is carried out. A test run is carried out using the customer’s material to optimally prepare for an acceptance by, as well as for the training of the customer’s personnel.

Many years of experience with the technology of resistance and laser welding, co-operation with those involved in pertinent real-life practice, cooperation arrangements with universities and research institutes, and an unerring sense for technical trends are the roots of our strong innovative abilities.

The basis of our development work is the development of our well proven standard machines and in the design of new customized and individual solutions.

IDEAL has worldwide significance in the field of the joining of wire and stranded conductors. Depending on the requirements, we offer the joining technologies butt welding, flash butt welding and dual force welding.

Our welding machines are “State of the Art” in the wire and wire strands industry. All leading manufacturers prefer to use our machines for flexible and economic welding of their material.

IDEAL delivers

- Customer-specific solutions - the planning of machines in collaboration with the customer
- Execution/testing of joint-specific applications in the test field
- Support in the planning of a new factory or production
- Design of all mechanical and supply-related technical machine parts
- Design of controllers, sequencing programs and communication interfaces
- Production of mechanical and electrical machine parts
- Installation and initial commissioning of all machine parts
- Testing of the machine and determination of the welding parameters
- Dismantling, transport and installation in the factory of the customer
- Initial commissioning and, where necessary, linking into a production line in the plant of the customer
- After Sales Service and the delivery of spare parts

IDEAL Service

Our experienced service team offers professional consulting and support, either on site or over the telephone:

- Spare parts
- Repairs
- Servicing/maintenance
- Remote maintenance
- Upgrades
- Conversions
- Training

Our highly qualified project managers support you as the relevant contact persons so that the individual tasks can be discussed intensively and solved together with you.

Anticipatory project planning leads to developments and CE-certified designs that are matched to the subsequent work processes so as to reduce the life cycle costs.

We have gained our know-how concerning special machines from many complex projects that we successfully implemented.
Our wire welding machines of the DS series have been designed for draw resistant welds in wire drawing plants and cable factories, in wire processing and in front of off-coil machines. We supply proven technology for the welding of wires made of steel, stainless steel and non-ferrous materials.

In the development of the machines, the focus was placed on a simple and ergonomic approach and a robust design suitable for the hard working conditions of plants for wire processing.

All machines have as standard device for the subsequent annealing of steel with low carbon content. Optionally, and depending on the requirements of the amount of carbon, additional annealing devices with separate clamping devices that are adjustable for length are available.

For the basic machines we offer options for pre- and post-treatment and the handling of wires. The modular structure of the machines thus makes it possible to adapt them to the relevant task.

### Options:

- Separate adjustment of jaw distance, upset pressure and current way - as an alternative to the standard central setting system
- Dual force welding procedure for high-strength welds*  
- SGV annealing device for steel wire with a medium carbon content
- EGV electronic annealing device for steel wire with a higher carbon content
- GTR automatic annealing (pyrometer controlled)* for steel wire with high carbon content
- Undercarriage with two and four wheels**
- Wire shears
- Abrasive cutting tool or circular saw on the work table
- Grinding motor and folding file to deburr the weld
- Illuminated magnifying glass

Some options are not available for all machine sizes.

* only available for DSH 130 and DSH 160
** DSH 130, DSH 160 and DSH 180 have an undercarriage with 4 wheels as a standard

The machines of the DS series connect steel and non-ferrous wires on basis of the butt-welding procedure. We recommend our option of the dual force welding procedure for the connecting of wires.

With the conversion of our well-known dual force welding technology in the standard machines, an additional compression push can be given by a pneumatic cylinder during the regular welding procedure. This makes the grain structure finer within the heat-affected zone and improves the mechanical properties of the weld seam.

The crucial advantages are:

- finer grain structure
- higher tensile strength
- higher bending strength

### Machine Specifications

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Steel wire mm ø</th>
<th>Copper wire mm ø</th>
<th>Aluminium and brass wire mm ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSH 015</td>
<td>0,15 – 1,5</td>
<td>0,4 – 0,8</td>
<td>0,5 – 1,0</td>
</tr>
<tr>
<td>DSH 025</td>
<td>0,4 – 2,5</td>
<td>0,5 – 1,8</td>
<td>0,8 – 2,0</td>
</tr>
<tr>
<td>DSH 035**</td>
<td>0,5 – 3,5</td>
<td>0,6 – 2,5</td>
<td>0,8 – 3,0</td>
</tr>
<tr>
<td>DSH 070**</td>
<td>0,8 – 7,0</td>
<td>1,0 – 4,0</td>
<td>1,0 – 6,0</td>
</tr>
<tr>
<td>DSH 090**</td>
<td>1,5 – 9,0</td>
<td>1,5 – 5,0</td>
<td>2,0 – 8,0</td>
</tr>
<tr>
<td>DSH 130</td>
<td>4,0 – 13</td>
<td>3,0 – 9,0</td>
<td>4,0 – 12</td>
</tr>
<tr>
<td>DSH 160</td>
<td>5,0 – 16</td>
<td>5,0 – 11</td>
<td>6,0 – 14</td>
</tr>
<tr>
<td>DSH 180</td>
<td>7,0 – 18</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

* the machines are supplied with various transformers for 100% adaptation to the welding task, version FE for steel wire joints and as version NE for the connection of non-ferrous wires - in addition, the NE version has as standard separate adjustment of the jaw distance, upsetting pressure and current path

**machines with a manual clamping device are optionally available as type DSF with pedal-actuated clamping device (the DSH 180 has a pneumatic clamping device)
IDEAL is regarded as a pioneer in the field of flash butt welding technology. Our AS series machines are the first choice, in particular when it comes to achieving the highest possible tensile strength and the associated performance standards of technical requirements.

The automatic welding sequence starts with the preheating of the source, followed by the flashing, and ends with the upsetting process.

Superior advantages:

- Best welding quality with metallurgical clean joints; strengths of approx. 90% (related to the base material)
- Short welding times (depending on the diameter of the wire, only a few seconds are required)
- Low requirements for final preparation (any unevenness and dirt is burnt off)
- High reproducibility of the welding parameters, optionally, effective monitoring and regulation of the welding procedure is possible
- High dimensional accuracy of the welded wires through tight length tolerances
- Optional deburring of the weld seams

The machines are provided with a hydraulic clamping device. Rollers or feet are provided, depending on the size of the machine. The basic machines are designed for horizontal joining.

The following options are available as well:

- Variety of annealing devices, partly with pyrometer
- Abrasive cutting tool
- Hand grinder to deburr the weld
- Shear deburring
- Vertical welding device

Our DDS series machines with hydraulic clamping and upsetting produce draw-resistant joints in strong non-ferrous wires.

The two-phase IDEAL dual force welding procedure makes metallurgical homogeneous joints possible. The automatic welding operation with subsequent deburring in the clamping device and the guaranteed reproducibility of the parameters result in fast and reliable welds.

The high-productive machine!

- High economy of operation in the joining of round and profiled wires, especially when producing large coils
- Metallurgical high-quality welding in two phases; application of the welding heat to the impact point at the wire ends after switching on the preliminary pressure and the welding current
- Upsetting with a high specific upsetting force, producing clean material joints and a high tensile strength of the joints
- Time is saved and the work is made easier by automatic deburring after the welding, by shearing off and forcing open the burr ring by means of a blade made of a special steel
- The electrodes and blade inserts have been made to ensure a long life and can be replaced easily

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Copper wire mm ø</th>
<th>Aluminium wire mm ø</th>
<th>Brass wire mm ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDS 120</td>
<td>6 – 12</td>
<td>6 – 15</td>
<td>6 – 12</td>
</tr>
<tr>
<td>DDS 160</td>
<td>6 – 16</td>
<td>6 – 18</td>
<td>6 – 16</td>
</tr>
<tr>
<td>DDS 220</td>
<td>10 – 22</td>
<td>10 – 30</td>
<td>8 – 20</td>
</tr>
</tbody>
</table>

Flash butt welder for vertical joints

Load rings

Special tooling

Stainless steel - construction steel

Construction steel applications

Load rings

Special tooling

Stainless steel - construction steel

Construction steel applications

Ultra fast welding with fused burr

Dual force welding with fused burr

DDS 120 dual force welding machine

Tool insert for welding and deburring

Machine type

<table>
<thead>
<tr>
<th>Copper wire mm ø</th>
<th>Aluminium wire mm ø</th>
<th>Brass wire mm ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDS 120</td>
<td>6 – 12</td>
<td>6 – 15</td>
</tr>
<tr>
<td>DDS 160</td>
<td>6 – 16</td>
<td>6 – 18</td>
</tr>
<tr>
<td>DDS 220</td>
<td>10 – 22</td>
<td>10 – 30</td>
</tr>
</tbody>
</table>
The pneumatic butt welding machines of our DSP series are offered for series production. Thanks to an easy handling and an automated work sequence we can achieve high production rates when manufacturing rings, frames, shaped parts and other articles made of round and profiled wire. The machines are suitable both for manual workstations as well as for integration into production lines. The electrodes are provided with water cooling for continuous operation, and, in most of the machines, this also applies to the transformer.

In addition to conventional butt welding, welds virtually without burrs that require little or no post-processing can be produced with the multi pulsation current control (MIS) welding option.

Options:

- MIS multi pulsation current control for low-burr joints that require little or no post-processing
- Continuously variable adjustment and path- or time-related switching of the welding current - for individual adaptation, to meet the requirements of the individual products
- Electronic annealing device EGV for steel wires with high carbon content, continuously variable setting of the annealing voltage and time
- Graphic control panel and PLC - for stored program control of the parameter
- Interface for line integration
- Manual end stop to attain reproducible dimensional compliance
- Special electrodes for rings, shaped parts, etc.

Some options are not available for all machine sizes.

Superior standard:

- Graphic control panel for PLC-programmable input of the parameters
- Continuously variable adjustment and path-/time-dependent switching off of the welding current for individual adaptation to meet the requirements of the material

Options:

- MIS multi pulsation current control for low-burr joints that require little or no post-processing
- Special electrodes for shaped parts, etc.

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Steel wire mm Ø</th>
<th>Continuous operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSP 080</td>
<td>1,5 – 8,0</td>
<td>1,5 – 6,0</td>
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<tr>
<td>DSP 100</td>
<td>2,0 – 10</td>
<td>2,0 – 8,0</td>
</tr>
<tr>
<td>DSP 120</td>
<td>3,0 – 12</td>
<td>3,0 – 10</td>
</tr>
<tr>
<td>DSP 140</td>
<td>4,0 – 14</td>
<td>4,0 – 12</td>
</tr>
</tbody>
</table>

The machines of our DST series are pneumatic butt welding machines for T- and linear welds.

The automated work sequence means short cycle times.

The electrodes and the transformer can be water-cooled for continuous operation.

As in the DSP series, multi pulsation current control (MIS) is available as an option.
The international cable industry works with our wire strand welding machines of the LS series for the continuous operation of sheathing units for electrical conductors. When it comes to various conductor core cross-sections there is a choice of manually-operated series production machines and special solutions using pneumatic or hydraulic systems. The simple and operationally reliable handling of the machines enables short cycle times for the joining operation.

The burr-free welds are made using the enclosed resistance welding procedures with welding sleeves made of glass, ceramics or graphite. In addition to conventional round wire strands, the use of welding sleeves allows the economic joining of sector-shaped conductors and other special shapes. In addition to the welding machines we can offer options and accessories for the pre- and post-processing of wire strands and for handling all of which are very useful in actual practice.

The machines of type LSH have a manual clamping device, while the machines of type LSF have a pedal-operated one and the machines of type LS0 a hydraulic clamping device.

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Copper wire strand mm²</th>
<th>Aluminium wire strand mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSF 001</td>
<td>0,12 – 1,0</td>
<td>–</td>
</tr>
<tr>
<td>LSF 004*</td>
<td>0,2 – 4,0</td>
<td>0,5 – 4,0</td>
</tr>
<tr>
<td>LSF 006*</td>
<td>0,75 – 6,0</td>
<td>1,0 – 6,0</td>
</tr>
<tr>
<td>LSH 016**</td>
<td>1,0 – 16</td>
<td>2,5 – 16</td>
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<tr>
<td>LSH 035**</td>
<td>4,0 – 35</td>
<td>10 – 50</td>
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<tr>
<td>LSH 095**</td>
<td>6,0 – 95</td>
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<td>LS0 185</td>
<td>16 – 185</td>
<td>25 – 240</td>
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<tr>
<td>LS0 300</td>
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<td>LS0 400</td>
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<td>50 – 500</td>
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<tr>
<td>LS0 630</td>
<td>50 – 630</td>
<td>70 – 800</td>
</tr>
<tr>
<td>LS0 800</td>
<td>70 – 800</td>
<td>95 – 1000</td>
</tr>
</tbody>
</table>

* Machine with pedal-actuated clamping device, also available as LSH version with manual clamping device
** Machine with manual clamping device, also available as LSF version with pedal-actuated clamping device
Welding Machines for Steel Cord

Steel cord - a wire rope made of galvanised or brass-coated steel wire - has applications in rubber products as a form of reinforcing. Due to its high strength in conjunction with high extensibility under tension, the connection is regarded as a very demanding one from a welding point of view.

The machines of our DC series meet these requirements and weld steel cord and wire strands with helical wires.

In order to connect the strongly twisted, inhomogeneous wire strands it is necessary to melt the ends of the individual wires through electrical heating before the actual welding operation.

Following the welding is performed in a special clamping device. The corresponding test devices are provided to check the tensile and bending strength.

The machines of our DC series meet these requirements and weld steel cord and wire strands with helical wires.

Machine type | Steel cord mm ø | Steel cord with helical wire mm ø
--- | --- | ---
DCE 018 | 0,5 – 1,8 | 1,0 – 1,8
DCE 040 | 1,0 – 4,0 | 1,8 – 4,0
DC0 040 | 1,5 – 4,0 | 2,0 – 4,0

Wire Rope Separating Machines

Our machines of the DT series were developed to separate wire ropes and are used for the assembly of rope products and the like.

The parting is done by means of resistance heating; the ends of the wire are melted into one another and thus splicing is prevented.

Depending on the requirements, we offer two different forms of parted ends; with a melted-on rounded end or tapered by rotation.

With IDEAL at your side you can extend your experience by more than 90 years, for new ways towards the rational production and manufacturer of products with demanding requirements.

As standard, the machines are provided with a parting device to melt the individual wires, the welding unit and a grinding motor.

The setting of the parting and welding parameters is continuously variable by way of thyristors and electronic timer (for the DC0 040 with 5-level switch and push button).

Optionally, a test device for tensile strength and a test device for bending strength are available.

Machine type | Wire rope mm ø | Parting version
--- | --- | ---
DTR 040 | 1,5 – 4,0 | rounded end melted on
DTR 080 | 2,0 – 8,0 | rounded end melted on
DTD 040 | 1,5 – 4,0 | tapered by rotation
DTD 080 | 2,0 – 8,0 | tapered by rotation
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