175 years of KERN & SOHN
250 years of balance manufacture in the Sauter family
A success story in eight generations
Eight generations – what a passion!

We have lots of reasons to celebrate this year!

250 years of balance manufacture in the Sauter family,
175 years of Kern & Sohn

It is very rare to find a company with a comparable long tradition. The virtues such as competence and handcrafted quality, but also time and again blows of fate, which create an exciting script over the decades. And it was the same for us. The fate of our company hung by a thread on more than one occasion. Several times, an untimely death in the Sauter family shook the succession of the company.

For one generation, the namesake of our company – Gottlieb Kern even stepped in. This is how the KERN brand was created in 1844, and his successor Councillor of Commerce Albert Sauter was either not able to or did not want to change it.

In spite of all the highs and lows, balance manufacturing has maintained a stable course – over 250 years.

Throughout the world we could only find one other family, which, like us, had been continuously involved with balance manufacture for such a long time.

Even worldwide we could not find any workshops or companies who, like us, have been manufacturing precision balances continuously for 200 years.

This is why we may be the oldest manufacturer of precision balances in the world.
Cautionary words 250 years ago from the church authorities to the Swabian Pastor Philipp Matthäus Hahn in the remote Swabian mountain village of Onstmettingen (Albstadt-Onstmettingen today). Because he was in the process of building an astronomical clock, which was the most intricate and beautiful in all of Württemberg. Amazingly enough, it was the village blacksmith, my five times great grandfather, Jakob Sauter I who helped him.

It was through this that the pastor invented something else: An "automatic balance" for tradesmen. The weight can be read directly from the pointer, a complete innovation. The first products were made completely of wood, but their load capacity of up to 20 pounds was somewhat modest. The balance needed to be made of iron, then you would be able to weigh 100 pounds and more. Now it’s the turn of our village blacksmith and Hahn employee - Jakob Sauter I. 1769 and it arrived, the Hahn balance made of iron, which you could use to weigh up to 200 pounds. A foundation stone for weighing – the inclination scale – was born. It had a long life. You will know it as the dial scale in the corner shop.

From that point balance manufacture has never left our Sauter family. The sons followed the fathers.

A few years later: In the meantime Pastor Philipp Matthäus Hahn became famous from both a theological as well as a technical point of view. One day the call of a scholar caught his attention: “Why not turn your attention to work out how we can determine the quality of the wine right at the time of the harvest.” In the small area of Württemberg not only did they work hard at drinking the wine, they also worked hard to sell it as an export. Even in those days it was a quality issue. After a long search, in 1774 he found the solution in a small, extremely precise beam balance with a sensitivity of a 50th part of pin, i.e. almost a thousandth of a gramme. This level of accuracy had never been seen in Southern Germany before! This marvel in precision sank in the turmoil of the Napoleonic wars and was almost forgotten. But the main concept never completely disappeared, our masterpiece gradually found a new lease of life as a pharmaceutical and chemical balance.

Someone who understood this very early on was my three times great grandfather Simon Sauter, son of the village blacksmith we already know, Jakob I. From 1820 the moment arrived when Simon was finding an emerging customer base for his “fine weighing beams”, today we call them precision balances.
A clever village blacksmith became a balance manufacturer

You already know our ancestor Jakob Sauter I from the previous story of the founding of the company. He was a competent blacksmith and forged automatic balances for his pastor, graded the scale and adjusted to the correct weight. Every balance was a one-off and adapted to suit the customers’ requirements. He was the first balance manufacturer in the Sauter family.
At the same time, Jakob Sauter I became a clock maker and precision engineer and trained three sons to become excellent engineers. With the Napoleonic wars Württemberg became noticeably impoverished and his sons Jakob Sauter II and Johannes Sauter were forced to emigrate. Their outstanding achievements in fine mechanics were made in Sweden and France. An enormous amount of know-how was lost to the hometown. Just one son, Simon Sauter, remained faithful to his hometown of Onstmettingen.

Around the year 1810
Chemical balance, built by son Jakob Sauter II, Stockholm – for the Swedish chemist, Bercelius

Around the year 1810
Astronomic planetarium manufactured by Jakob Sauter II

Around the year 1800
Calculating machines manufactured by Johann Jakob Sauter II, Stockholm
After 1812 the dreadful Napoleonic time slowly drew to a close, trade and commerce recovered in small steps. Simon Sauter took over the workshop of his father, Jakob I and became the standard bearer of a new business. First he built an elaborate clock as a masterpiece, which proved his skill as a perfect clock maker and mechanical specialist. Around the year 1820 he was ready and offered “fine weighing beams” through wholesalers and trading companies.
The super accurate balance from Pastor Hahn from 1774 is recreated. The times were good, which meant that he was soon able to dedicate himself, with his three sons, to balance manufacture, or more precisely, precision balance manufacture.

The remote village of Onstmettingen became the nucleus of a specialty that was unimaginable at the time. It is almost a miracle, that in this mountain village, located far away from universities and long before the industrial need, such precise balances were made.

Around the year 1810
Hahn’s balance in wall-mounted version

Simon Sauter’s hymnbook with dedication from 1814:
“If you buy iron and wire and do not forge with it, then you are not a blacksmith; if you have a book and don’t read from it, – and don’t follow what you have read, then the result will be p – ?
(punishment) Read, pray and follow”

Around the year 1825
Hahn’s balance in wall-mounted version for the mail from Thurn & Taxis.

1825
Pharmaceutical balance stands with hand-held scale for the manufacture of medicines

Around the year 1830
Precision balance. This design principle remains current for over 200 years
In spite of a good order situation, there were hard times within the company

The precision balance business thrived, two sons of Simon, Jakob III and Matthäus took over the business. Tragedy of fate: both died one after the other, neither having reached the age of forty.

The business had no leader, passing it on within the Sauter family seemed to be impossible, at first. There was a risk of having to shut down. The fate of the workshop hung by a thread.

Around the year 1840, first workshop of Jakob III and Matthäus Sauter

Auguste Sauter, the widow of the deceased Matthäus Sauter, mechanical specialist, asked the town council of Onstmettingen for permission to end the period of mourning early, so that she could get engaged to Gottlieb Kern. Excerpt from the town council minutes of 15 July 1846.

“Many orders were placed shortly before the death of your husband and from his bed he gave the necessary instructions to his assistants for the work to be finished, and this is how it has happened that some of the work is finished and some of it is started”

Around the year 1840, workshop equipment in the balance museum, Balingen

Tare balance for pharmacists, exhibited by Johann Jakob Sauter III at the Art and Industry exhibition in Stuttgart in 1842

First price list from 1843

Precision balance around the year 1840, in glass housing with milligramme sensitivity
Now it was the time for Gottlieb Kern. He came into the Sauter workshop as a newcomer and married the widow of Matthäus Sauter and became an attentive stepfather to Albert Sauter, the newborn son. The workshops grew, in 1863 with 9 employees, Gottlieb Kern was already a large company in Württemberg from a tax point of view. Serial production of precision balances began. The GOTTlieB KERN & SOHN brand name was known at home and abroad.

The brand KERN stems from Gottlieb Kern

1847
Balance on the Béringer principle, so-called English balance, first commercial product from Gottlieb Kern

Invoice from 26 June 1874

1851
Gottlieb Kern created the first German letter scale, at the same time as the first stamp appeared in the Kingdom of Württemberg. The principle of the dial scale from Pastor Hahn was unmistakable.

1863
Gottlieb Kern (sitting at the front) with his engineers

Around the year 1860, Analytical balance for delicate weighing procedures

1844
Gottlieb Kern
*1819 - † 1886

Gottlieb Kern with wife Auguste, previously Sauter
Albert Sauter entered the business in 1870. He got on well with his stepfather, Gottlieb Kern. The company name was changed to Gottl. Kern & Sohn (actually stepson). He brought in mechanisation wherever he could. The investment required for new machines was high, it makes Gottlieb Kern proclaim: “Albert – we’ll end up going to auction”. But this didn’t happen, KERN, with 22 employees, became one of the largest precision balance manufacturers in Germany.

Fourth generation

New business premises and home, 1885/86 in walking distance of the Ebingen railway station. The production building extends to the rear.

1874
First balance catalogue

1904, Councillor of Commerce, Albert Sauter (third from the right) was elected to the committee of the Chamber of Commerce with the largest number of votes.

The wild year of 1871. The old Württemberg weight units such as the Lot and pound became obsolete. The modern metric units with gramme and kilogramme gained legal status. Orders flooded in. Gottlieb Kern and Albert Sauter are hardly able to cope with the flood of orders, they can initially handle only half of all orders.

1870
Albert Sauter
*1846 - † 1913

From the workshop to the factory

1870

1880
Pharmaceutical tare balance with Aesculapius scale
1885, it was now time for the move from Onstmettingen to the new premises in neighbouring Ebingen, Albstadt-Ebingen today, as there was a new railway there. After the death of Gottlieb Kern, Albert Sauter then was the sole owner, as there were no successors in the Kern line. Albert Sauter was not only a business man, but also one of the most active citizens in the town of Ebingen. In 1902 he was awarded the title of Councillor of Commerce by the Württemberg King.

Around the year 1900, a gas engine ran the individual machines in the production hall through a transmission on the ceiling by means of leather straps.

1910
Opel type 6/14
(14 = 14 PS)
First car in the Sauter family.
First driver: Amazingly, Frida Jung née Sauter, the daughter of Albert Sauter

Inscription on the wall in Albert Sauter’s garage
“God as the leader, luck as a companion.”

with wife Julie Sauter,
née Landenberger
Trying times were on the horizon

German industrialisation gained tremendous momentum, balance manufacturers sprang up all over the place. Everyone was undercutting everyone else so terribly that even the customers urged the manufacturers to take more care with quality. In desperation the Reutlingen Chamber of Commerce wrote in 1902: “There is nothing else we can do other than hope that an angel comes down from heaven to help.” Macabre enough, it wasn’t an angel that came to help, but the First World War.
The military discovered the balance industry and ordered hospital scales, powder balances, and eventually rifle and detonator parts.

Gustav Sauter survived the turmoil of the First World War and the troubled times of inflation which followed. To pay the wages he printed the money on packing paper himself.

After the war it was a new era: In 1918 women gained entry to the balance factories for the first time. Tariff partnership was born, there were months of strikes and lockouts about standard wages. With the 8-hour day which was won, working time was reduced down to 48 hours.

1923, printing their own banknotes helped get over the worst times during the period of inflation

1915
Powder balance for automatic filling of powder to a precise weight

1900
Exhibition cabinet for global exhibitions

1918
Union meeting in Ebingen

1924
GOTTL. KERN & SOHN, picture from the sales catalogue at the time
Right in the middle of the severe economic crisis in the Weimar Republic, sons Paul and Walter took over the succession from their father Gustav Sauter. The commercial world seemed to stand still – KERN’s turnover fell by 50%. After 1933, the few years of peace were used intensively. But soon the fine mechanical businesses had to be converted to making military equipment – whether they wanted to or not. In 1944 both company owners were killed by an air raid on the company. Again the fate of the company is hanging by a thread.
After this catastrophe, the sister of the two brothers, Else, made every effort to make sure that the business continued, as she wanted to keep it for the children of Walter Sauter. This was a success to an extent, however the economic growth period in the 1950s which was so prosperous, passed GOTTL. KERN & SOHN by. Businesses were in decline, one survived on its capital, from economic miracle no trace. With a baking and diet scale, there was an attempt at a fresh start.
Martin Sauter, at the age of 22, son of the deceased Walter Sauter took on a task which was not straightforward. It didn’t look good, the product range was completely outdated and needed to be fully re-vamped. After hard years of development, KERN was ready for mechanical balances and business started to pick up again. But the joy was short-lived, in the 1970s the mechanical age fell victim to the age of electronics, a painful break. Once again, a fresh start, which succeeded with the help of globalisation.
In addition, along came high-quality metrological test services such as the calibration of balances and weights (DKD). KERN was then growing substantially and Martin Sauter was actively supported by his wife Dr. Marijke Sauter in sales and financial accounting.

The Ebingen factory created by the great grandfather and grandfather, in the middle of the Ebingen city centre, becomes too small and so, in the year 2000 the factory moved to a new building in Balingen.
2003

Albert Sauter
*1975

Eighth generation

Heading for new shores

At the beginning of the new millennium, Albert Sauter, the oldest son of Martin Sauter, came into the business. During these years the classic precision balance range was expanded significantly to include industrial balances. In 2008 there was further diversification and an impressive range of medical balances was launched. Six years after that, a new, promising segment was introduced: Microscopes and refractometers.

SAUTER force-measuring devices – Advert from 2006

2006
The start of the SAUTER force-measuring device range

From 2008
Medical balances complement KERN’s line of business

KERN management team and others on the occasion of the retirement of the long-serving works manager Elmar Hauschel

Since 2014, microscopes and refractometers have been available through KERN Optics
Once again, space was getting tight at KERN & SOHN, so in 2014-2015 the site in Balingen was significantly extended, with the addition of a multi-function building and a high-bay warehouse with 100,000 storage locations.

With the founding of SAUTER GmbH, Albert Sauter re-invigorated the traditional family name and, under the KERN umbrella, offered measuring devices for force, hardness and layer thickness.

Investment in the future: KERN in the anniversary year of 2019, with building extension and state-of-the-art, fully-automated high-bay warehouse
DAkkS-Kalibrierung nach DIN EN ISO/IEC 17025:2005 für Waagen, Masse, Kraft, Festkörpervolumen, Festkörperdichte

Our calibration services range from high-precision analytical balances through to floor scales for 6,000 kg. With crane scales we calibrate up to 50,000 kg.

Together with the calibration we can offer you a wide range of further services:

- **DAkkS calibration of balances**
  - Our calibration services range from high-precision analytical balances through to floor scales for 6,000 kg. With crane scales we calibrate up to 50,000 kg.

- **Installation qualification (IQ)**
  - Commissioning of the balance including the correct documentation.

- **Maintenance qualification (MQ)**
  - Ensuring that maintenance is out professionally from a technical point of view and is properly documented and ensuring accurate measurement.

- **Operating qualification (OQ)**
  - Checking all the parameters which determine the performance of the measurement process. This also includes user training.

- **Performance qualification (PQ)**
  - The PQ is the documented proof that, in the selected application, the balance or weighing system is working as intended.

Another little anniversary:

**25 years of the calibration laboratory at KERN & SOHN**

The beginning of 1944 was not easy: Clearing the high hurdle of accreditation in accordance with DIN EN 45001 (today DIN EN ISO/IEC 17025:2005) in the German calibration service DKD (today DAkkS = Deutsche Akkreditierungsstelle (German accreditation body)), was an important step for us, as the benefit for our customers is so great:

- DAkkS calibration certificates open doors, with no ifs or buts, to Quality Management Systems such as, for example, the DIN EN ISO 9000 family of standards.
- For DAkkS-tested measuring devices, you can be sure that the measuring results fully comply with internationally-recognised regulations.
- In this way, the metrological requirements specified in a certified company’s management system for test equipment are fulfilled.

Ensuring correct position and database supported management of test equipment by KERN

We will take responsibility for your complete documentation including the reminder service for recalibrations.

**Short calibration times**

at the KERN factory, 4 days, express service 48 hours

KERN will also carry out the complete test service at your premises.
DAkkS calibration of weights

We calibrate to all international OIML weight classes: E1, E2, F1, F2, M1, M2, M3. Our calibration service ranges from 1 mg up to 2,500 kg. In addition we offer calibration of free nominal values, e.g. Newton or special weights.

Together with the calibration we can offer you a wide range of further services:

Volume determination for the most accurate Class E1, as a weight experiences small, but measurable, air buoyancy.

Testing the magnetic properties (sensitivity and polarisation) for weight material to avoid measuring errors from magnetic fields. On-site calibration with the MACOS calibration system from KERN.

We can come to your premises and calibrate your test weights (class M1 to M3) from 10 kg up to 2,500 kg with our mobile MACOS calibration system and will generate the DakkS calibration certificates on-site.

Qualifications for any weights:

- Selection of the appropriate test weight for the balance
- Reconditioning and adjustment of old customer weights
- Short calibration times: 4 working days, express service in 48 hours

DAkkS calibration for tension and compression forces

For mobile force-measuring devices, calibration ranges in Newtons from 50 N up to 5 kN

Factory calibrations (ISO calibrations too)

Not all calibrations must or are able to be carried out in accordance with DAkkS, in many cases a factory calibration is sufficient. Factory calibration certificates meet international standards and are proof of a sophisticated, trusted calibration.

Factory calibration of the temperature in moisture analysers. These are balances with drying devices for solid samples which contain moisture. Maintaining the correct temperature in the drying area is an important criteria for the results of a moisture analysis procedure to be meaningful. Calibration of your moisture analyser will be carried out at the KERN & SOHN factory.

Factory calibration of torque wrench test devices. When being used, torque wrenches or screwdrivers must guarantee the specified torque. These are calibrated with a torque wrench test device. The factory calibration certificate for this proves the measuring accuracy of the test device.

The calibration range goes from 1 Nm up to 200 Nm (Newtonmeter)

Factory calibration of devices for measuring layer thickness for lacquer coatings and metallic coatings. The calibration range goes up to a wall thickness of 2000 micrometer.

Factory calibration of hardness testing devices and hardness comparison plates in accordance with UCI, Shore, Leeb
An impressive mark of confidence: Since the year 2000, over 2.2 million balances sold

KERN – a powerful partner by your side

Typical KERN advantages:
You have the choice of more than 800 different balance models
- Ordered today – on its way tomorrow.
- KERN hire purchase looks after your cash
- Up-to-date information on availability

Free of charge from KERN:
- We will build your customer-specific webshop
- You save – we will hold the stock for you
- Tailor-made marketing support
- Support with digital system solutions from the KERN Centre of Expertise

For many years, KERN has been certified and accredited in accordance with international metrological standards.

<table>
<thead>
<tr>
<th>System solutions</th>
<th>Precision balances</th>
<th>Analytical balances</th>
<th>Moisture analysers</th>
<th>Bench scales</th>
<th>Price-computing</th>
<th>Counting balances/Counting systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry 4.0</td>
<td></td>
<td></td>
<td></td>
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<td><img src="image5.png" alt="Bench scales" /></td>
<td><img src="image6.png" alt="Price-computing" /></td>
<td><img src="image7.png" alt="Counting balances" /></td>
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</tbody>
</table>

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<thead>
<tr>
<th>Parcel scales/Platform scales</th>
<th>Floor scales/Pallet scales/Drive-through scales</th>
<th>Display devices/Platforms/Weighing bridges</th>
<th>Hanging Scales/Crane scales</th>
<th>Pallet truck scales</th>
<th>Test weights</th>
<th>Medical scales</th>
</tr>
</thead>
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<td><img src="image11.png" alt="Hanging Scales" /></td>
<td><img src="image12.png" alt="Pallet truck scales" /></td>
<td><img src="image13.png" alt="Test weights" /></td>
<td><img src="image14.png" alt="Medical scales" /></td>
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</tbody>
</table>
“Our customers are the key to our longevity in this industry”

We serve our customers and learn from them. This wealth of experience is a precious asset, which we will continue to maintain carefully in the future. As a medium-sized, owner-managed business no-one can stop us in our endeavours in this area. We have been serving our oldest specialist dealers for more than 100 years.

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