



since 1909



Blacksmith Jakob Klos (centre) with son Hermann Klos (bottom right) in 1911.

FROM BLACKSMITH TO IDEA-SMITH.

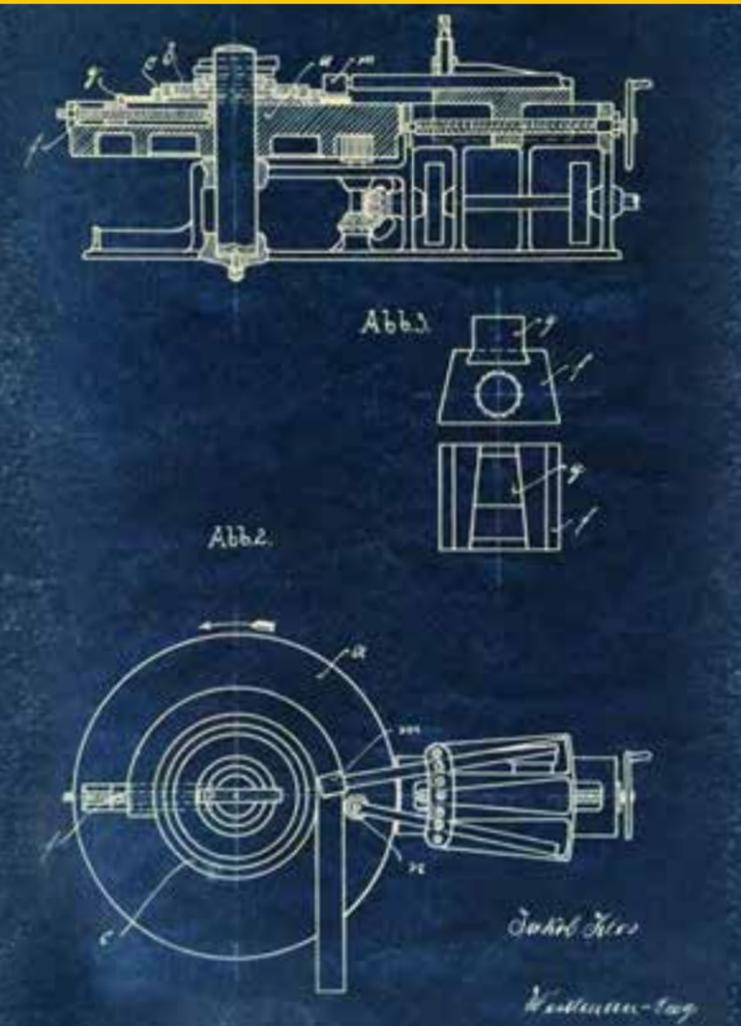
From 1909 to 2013

Exactly how long does a piece of iron bar have to be if you want to produce a ring with an internal diameter of exactly 1328 mm from it. Having a bit of trouble working it out without a pocket calculator or some other modern aid? Then you get an idea of why blacksmith Jakob Klos had almost more orders than he could handle after setting up Europe's first specialist factory making flanges and thrust collars. Even though Jakob Klos, just like all his employees, usually put in way over 60 hours of hard labour a week, he spent the little spare time that he had working on a time and energy-saving method for shaping flat iron bars into a pre-calculated perfect circle. He sketched out his ideas and drawings on the back of delivery notes, because white paper was a luxury in those days. Many of those sketches ended up in the wastepaper because they were not feasible. For his design drawings, he had to stick several delivery notes together to get the necessary scale size.

After a lot of experimentation – mostly on Sundays after church – he became the first in the world to develop a production-ready strip rolling machine, for which he obtained his first patent certificate in 1921. Even the best at mental arithmetic would have trouble using pi to six decimal places to calculate precise circular dimensions. For that reason the relief was great when Jakob Klos presented a modular template system, enabling any required flange diameter to be produced as a matter of child's play. For this pioneering achievement he received legal protection of his registered design.

„Even though Jakob Klos, just like all his employees, usually had to put in way over 60 hours of hard labour a week, he spent the little spare time that he had working on a solution.“

In its third generation, Flanschenfabrik Hüttental GmbH became insolvent in 2013. It was thanks to many longstanding customers that the business did not go under.



Blueprint of flat bar/flange-bending machine for the patent in 1921 (left) Patent certificate from the Reichspatentamt in 1921 (right)



Flanschenfabrik Hüttental 1927



FROM IDEA SMITH TO SYSTEM SUPPLIER.

From 2014 to 2016

2014

The over 100-year old company was handed over by the insolvency administrator to Oliver and Kai Breitenkamp in June 2014 and was renamed as Flanschenwerk Hüttental GmbH. It was given an entirely new external image. Both the investors come from the international supplier industry, and they got the business comprehensively and efficiently back on its feet in no time at all. The business has been intensively modernised, with major investment in manufacturing and production machinery to meet current standards and customer requirements.

2015

New distribution partnerships were concluded at home and abroad in June 2015, to market the products with a century-long heritage over and beyond the borders of Europe. Since then, flanges, rings, ring bearing mounts and special bending elements have been marketed by the company's own subsidiaries in Turkey, the United Arab Emirates, Poland, China and the Netherlands.



Via our own production plant in the United Arab Emirates, we supply our products without any intermediaries, directly to our customers in:

Egypt, Iraq, Saudi Arabia, Kuwait, Oman, Bahrain



Expansion creates a competitive edge

2016

In January 2016, Mr Oliver Breitenkamp (Business Studies graduate) was appointed as Chief Executive Officer, returning to the plant after many years setting up companies in the Asian and Arab world. As a result of massive capacity bottlenecks and a corporate task of KLAES Flanschen GmbH & Co. KG., the company KLAES GmbH & Co. KG was taken over in March 2016 with the entire production plant in Siegen – Birlenbach, 2.5 kilometres away. This amalgamation doubled the capacity options to meet the globally increasing, variable customer demand.

Today Flanschenwerk Hüttental GmbH employs more than 60 staff at home and abroad and as a result of the takeover of KLAES GmbH & Co KG is considered one of the world's leading manufacturers of flash butt welded flanges and rings.

In this way, the circle from the idea smith to the system supplier is continuously completed and extended. From the forged blank to the CNC-machined end product, customers get everything from a single source.



„As a result of cultural differences between our customers worldwide we must have a presence close to those customers and their markets at all times – which gives us a competitive edge and creates lasting trust – as well as personal friendships in many cases.“



GUARANTEED QUALITY FROM THE OUTSET.

We hold the necessary type of steel in stock

Depending on customer requirements we can submit the chemical composition and physical properties of the rolled steel bars and sheets to the rolling mill even before rolling, in order to ensure that our end products have above-average material structure and physical properties.

We obtain our input materials directly from well-known rolling mills at home and abroad, which roll them to the lengths needed for efficient use and provide quality certificates for the various steels, including stainless steels.

„As a result of ultra-short delivery times and the continuous availability of the raw materials, we create an edge right from the start of the order process by means of speed, because with careful planning we are half-way to production.“



MATERIAL QUALITIES.

MATERIAL NO.	UNS	ASTM/AISI	EN
1.4006	S41000	410	X12Cr13
1.4301 / 1.4307	S30400 / S30403	304 / 304L	X5CrNi18-10 / X2CrNi18-9
1.4401 / 1.4404	S31600 / S31603	316 / 316L	X5CrNiMo17-12-2 / X2CrNiMo17-12-2
1.4435	S31603	316L(Mo+)	X2CrNiMo18-14-3
1.4438	S31703	317L	X2CrNiMo18-15-4
1.4462	S31803 / S32205	329NL	X2CrNiMoN22-5-3 / -
1.4539	N08904	904L	X1NiCrMoCu25-20-5
1.4541 / 1.4878	S32100 / S32109	321 / 321H	X6CrNiTi18-10 / X8CrNiTi18-10
1.4542	S17400	630	X5CrNiCuNb16-4
1.4547	S31254	254 SMO	X1CrNiMoCuN20-18-7
1.4550	S34700 / S34709	347 / 347H	X6CrNiNb18-10
1.4571	S31635	316Ti	X6CrNiMoTi17-12-2
1.4828	-	309	X15CrNiSi20-12
1.4833	S30908	309S	X12CrNi23-13
1.4835	S30815	A213	X9CrNiSiNc21-11-2
1.4841	S31000/S31400	310/AISI 314 / A 632	X15CrNiSi 25-21
1.4845	S31008	310S	X8CrNi25-21
1.4948	S30409	304H	X6CrNi18-10

MATERIAL QUALITIES.

MATERIAL NO.	MATERIAL	OLD DESIGNATION	TYPE	BASIC MATERIAL STANDARD
1.0037	S235JR+AR / N	RSt-37-2	unalloyed structural steel	EN 10025
1.0116	S235J2+N	St-37-3N	unalloyed structural steel	EN 10025
1.0118	S235J2C+N	-	unalloyed structural steel	EN 10025
1.0570	S355J2+N	St-52-3	unalloyed structural steel	EN 10025
1.0569	S355J2C+N	-	unalloyed structural steel	EN 10025
1.0595	S355K2+N	-	unalloyed structural steel	EN 10025
1.0593	S355K2C+N	-	unalloyed structural steel	EN 10025
1.0045	S355JR+AR / N	-	unalloyed structural steel	EN 10025
1.0553	S355J0+AR / N	St-52-3U	unalloyed structural steel	EN 10025
1.0425	P265GH	H II	pressure vessel steel	EN 10028-2
1.0481	P295GH	17Mn4	pressure vessel steel	EN 10028-2
1.0473	P355GH	-	pressure vessel steel	EN 10028-2
1.5415	16Mo3	15Mo3	pressure vessel steel	EN 10028-2
1.7335	13CrMo4-5	13CrMo44	pressure vessel steel	EN 10028-2
1.7380	10CrMo9-10	10CrMo9.10	pressure vessel steel	EN 10028-2
1.0487	P275NH	WStE 285	pressure vessel steel	EN 10028-3
1.0488	P275NL1	TStE 285	pressure vessel steel	EN 10028-3

MATERIAL NO.	MATERIAL	OLD DESIGNATION	TYPE	BASIC MATERIAL STANDARD
1.1104	P275NL2	ESTe 285	pressure vessel steel	EN 10028-3
1.0565	P355NH	WStE 355	pressure vessel steel	EN 10028-3
1.0566	P355NL1	TStE 355	pressure vessel steel	EN 10028-3
1.1106	P355NL2	ESTe 355	pressure vessel steel	EN 10028-3
1.8935	P460NH	WStE 460	pressure vessel steel	EN 10028-3
1.8915	P460NL1	TStE 460	pressure vessel steel	EN 10028-3
1.8918	P460NL2	ESTe 460	pressure vessel steel	EN 10028-3
1.8928	S690QL	TStE 690 V, Naxtra M700, Dillimax 690T, Maxil 690, Aldur 700QL, Supralsim 690, Weldox 700, RQT 701	high-strength, fine-grained steels	EN 10025-6
1.8983	S890QL	TStE 890 V, XABO 890, Dillimax 890T, Maxil 890, Superelso 890, Weldox 900	high-strength, fine-grained steels	EN 10025-6
1.8933	S960QL	TStE 960 V, XABO 960, Dillimax 965T, Maxil 960, Superelso 960, Weldox 960, RQT, 901	high-strength, fine-grained steels	EN 10025-6

HIGH-QUALITY BLANKS.

We did not invent the flange, but we did invent the best way to produce it.

Flanschenwerk Hüttental is ideally equipped for the production of high-quality blanks. At two plants and on four forging lines we produce blanks with an external diameter of:

**Ø300 – 3000 mm
(20.000 mm²)**

All rings are calibrated and straightened after the bending and welding process. The risks of overheating and excessive cooling are prevented by means of automatic control, monitoring and logging of the temperature.

- › Homogeneous bonding zone guaranteed by welding technique free of extraneous materials!
- › Consistently uniform material and joint structure in the finished end product, thanks to the standardisation procedure applied by FWH!

„The continuously monitored flash butt welding process is used for production. The flange blanks are flash butt welded with up to 580 KvA and a forging pressure of up to 60 tonnes.“



WE DON'T DO THINGS BY HALVES –
ONLY WHEN WE KNOW THAT IT'S
A PERFECT FIT



MECHANICAL PROCESSING.

According to customer requirements and drawings

For finishing we have a wide range of CNC-controlled processing machines available, guaranteeing high quality standards for our customers. Even for complex components we have the right machine and the appropriate know-how.

As a result of the fact that the blanks we produce are annealed with little or no tension, we maintain close tolerances even in automatic machining.

CNC-turning
ø 50 – 3000 mm

CNC-drilling
ø 50 – 2800 mm

CNC-milling
200 x 800 mm



MAN AND MACHINE.

Merged into one unit

Behind every product there stands the person who made it. Over 60 employees contribute to the production of components to the customers' specifications every day. In the field of CNC-machining, we focus on continuous training and further qualification. In that way, we are always ideally equipped to meet the ever-increasing requirements of our customers.

„So that your production never comes to a stop, we can guarantee the rapid processing and delivery of small batches because of our ultra-flexible CNC processing machines.“

Many complex workpieces require a lot of time and effort for programming and subsequent machining. We are ideally equipped to meet these requirements with our twelve CNC carousel lathes, as well as our trained technicians. Our CNC processing machines are real all-rounders: They combine precision and speed with lots of options for the carousel turning and the machining of everything from single items to mass-produced series.

So that your production never comes to a stop, we can guarantee the rapid processing and delivery of small batches because of our ultra-flexible CNC processing machines. We ourselves know just how annoying it is when production stops because of a lack of components. For that reason, our employees do their utmost every day to accept even urgent orders and to deliver them promptly as agreed.





- › O-rings
- › Bearing races
- › Dome flanges
- › Ring bearing mounts
- › Compensator flanges
- › Steel construction flanges
- › Supporting rings
- › Reinforcing rings
- › Anchor rings
- › Flat flanges and collars
- › Welding neck flanges
- › Blind flanges
- › Stirrer flanges
- › Equipment assembly flanges
- › Shipbuilding flanges
- › Bushes
- › Binding bands
- › Locking rings
- › Connectors
- › Collars
- › Turret rings
- › Seals

APPLICATIONS AND DELIVERY PROGRAMS.

In use worldwide – Tried and tested a thousand times over

Our international customers come from many different industries. Everywhere that anything turns, moves or is joined together, you will find our products reliably in use worldwide.

- › Chemical industry
- › Drinking and waste water industry
- › Oil and gas industry
- › Power plant and reactor construction
- › Equipment and plant construction
- › Machine construction
- › Container construction
- › Compensator and ventilator construction
- › Construction machinery
- › Shipbuilding
- › Rail and vehicle construction
- › Materials handling equipment
- › Pipeline construction



„No two products are the same – every application is different. Based on customer requirements and specifications – we are the sought-after specialists for tailored solutions worldwide.“

 made in Germany

We produce free samples for universities and polytechnics, encouraging innovation and promoting the Federal Republic of Germany in the long term.

NORMS AND STANDARDS.

German Industry Standards (DIN) for flanges

DIN2527 PN6 – PN100	Blind flanges
DIN2573; DIN2576	Flanges, flat, for brazing or welding
DIN2630, DIN2631, DIN2632, DIN2633, DIN2634, DIN2635, DIN2636, DIN2637, DIN2638, DIN2628, DIN2629, DIN2627	Welding neck flanges
DIN2641, DIN2642	Loose flanges, welding neck flanges, flat collars
DIN2655, DIN2656	Loose flanges, flat collars
DIN2673	Loose flanges with welding neck collar
DIN86029, DIN86030	Hubbed slip-on flanges for welding
DIN 86044	Shipbuilding flanges
DIN 24154	Ventilation duct flanges for non-pressurised connections
DIN 28030, DIN 28031, DIN 28032, DIN 28033, DIN 28034, DIN 28036, DIN 28038	Flange connectors for equipment for non-pressurised and pressurised containers.
DIN 28117, DIN 28137-1	Stirrer flanges

Foreign flange standards

ASME/ANSI B16.5	Pipe Flanges and Flanged Fittings
ASME/ANSI B16.36	Orifice Flanges
GOST12820-80	Flat flanges for welding
GOST12821-80	Welding neck flanges
GOST12822-80	Loose flanges, flat collars

European flange standards according to EN1092-1

EN1092-1 Typ 01 PN2,5 – PN100	Flat flange for welding
EN1092-1 Typ 02 PN2,5 – PN40	Loose flange for types 32–37
EN1092-1 Typ 04 PN10 – PN40	Loose flange for type 34
EN1092-1 Typ 05 PN2,5 – PN100	Blind flange
EN1092-1 Typ 11 PN2,5 – PN400	Welding neck flange
EN1092-1 Typ 12 PN6 – PN100	Hubbed slip-on flange for welding
EN1092-1 Typ 21 PN2,5 – PN400	Integral flange
EN1092-1 Typ 32 PN2,5 – PN40	Flat collar
EN1092-1 Typ 34 PN10 – PN40	Welding neck collar
EN1092-1 Typ 35 PN2,5 – PN40	Welding neck

„Items differing from the standards can also be manufactured at the customer's request.“



COMPETITIVE EDGE THANKS TO QUALITY.

Surface quality

$\mu\text{Ra } 0,25 - \mu\text{Ra } 50$
 $\mu\text{Rz } 1,6 - \mu\text{Rz } 100$

In spite of seamless quality management according to ISO 9001:2008: from procurement of materials through all the stages of production to the end product ready for dispatch, not a single flange leaves our company without passing a final inspection. But even when looking with the utmost care, it is possible for defects in the weld hidden inside the ring to remain undetected.

With our ultrasound test we give our customers the ultimate certainty that no defects have in fact been overlooked. Surfaces meeting customer specifications are checked by our employees during and after the turning process. Thanks to the latest CNC lathe technology, we are capable of producing ultra-smooth surfaces. We also grind and polish surfaces to the customer's requirements. The ultra-fine machining rounds off the total package without causing delivery times to stretch over weeks.

As the inventors of the sheet metal rolling machine and what is clearly Europe's oldest flanging factory, we are obliged as innovative pioneers of flash butt welding with over 100 years of experience to provide our international customers with optimum quality at all times.

„The competitive edge provided by quality, coupled with flexible, fast production, allows us to be certain of passing this competitive edge on to our customers.“

We also offer these other tests

- » Surface crack testing with liquid penetrant
- » X-ray testing
- » Magnetic flux leakage method
- » Workpiece measurement (external)

0,25 – 50
 μKA -Werte

CERTIFICATE

The Certification Body
of TÜV NORD Systems GmbH & Co. KG
certifies that the company

Flanschenwerk Hüttental GmbH
Einheitsstraße 11, 12 + 14
D-57076 Siegen

has been verified and recognized
as manufacturer of

Flash-butt welding flanges, rings and connectors
according to the rules of
AD 2000-Merkblatt HP0

Certificate-no.: 07-203-1405-HP-3781/14

The range of validity and details of the inspection can be taken from
Report-no.: 1405 P HP-3781/14

The company has established a product-related quality system
together with personnel and equipment which assures
manufacturing and testing corresponding to the technical rules.

This certificate is valid until

Oktober 2020

APPROVALS AND INSPECTIONS.

The correct type approval for every application

For our production processes we submit ourselves to many internal and external quality audits every year. Please find enclosed a summary of our approvals.

- › TÜV Nord - recognised QM system according to DIN EN ISO 9001:2008
- › Manufacturer recognition by TÜV Nord according to AD2000-HP0/W0, W1, W2, W9; EN 3834-3 and EN 13445
- › Approval as a material manufacturer according to Pressure Equipment Directive PED 97/23/EG & 2014/68/ EU, Annex I, No 3.1
- › Approval for the manufacture and welding of rail vehicle parts, EN 15085-2 CL-1/-2

Inspections according to EN 10204 3.2 and AD 2000 are carried out, as well as special inspections by the following authorized inspection agencies:

- › TÜV Nord
- › TÜV Süd
- › Germanischer Lloyd
- › Deutsche Bundesbahn
- › Det Norsk Veritas

...or worldwide according to customer requirements.

„You can rely on technical safety in all areas. We guarantee this safety! Because our seamless welded flanges, rings and collars comply with all the safety standards according to DIN, EN, TÜV, ÖNORM, DB and other inspection agencies.“



OUR SPEED – YOUR TRUMP CARD.

Call orders create planning security with immediate availability

Thanks to our manufacturing processes and the continuous availability of raw materials, we are capable of manufacturing flanges, rings and collars within a very short time. The entire value added process remains unbroken and in our hands. This generates speed along with ultra-low cost

We produce series orders as well as call orders to meet customer requirements and hold them in stock specifically for our customers. The goods leave the factory on the very same day that a call order is placed.

At the same time, we save you as a system supplier from delivery delays in your international projects, in your automated further processing and in the resale of our products. For this purpose we offer our customers a comprehensive, worldwide dispatch service using our own carriers, by ship or airfreight, with longstanding and selected logistic partners.

„So we can confirm you preferred delivery date as soon as we receive your order.“



**“FASTER, MORE PRECISE, BETTER,
SHORTER DELIVERY TIMES**



**“WITH QUALITY AT A STANDARD PRICE
WE PROTECT YOU FROM EXPENSIVE
SURPRISES – AND YOU CAN RELY ON THAT**



 made in
Germany

Flanschenwerk Hüttental GmbH

HQ / Plant 1

Einheitsstraße 11–12 + 14
57076 Siegen-Weidenau
Germany

Plant 2

Birlenbacher-Str. 143
57078 Siegen-Birlenbach
Germany

Plant 3

Industriestr. 10-12
57555 Brachbach
Germany

T +49 (0)271 – 485 333 - 0
F +49 (0)271 – 485 333 - 44
E info@ffh-flansche.com
W www.ffh-flansche.com