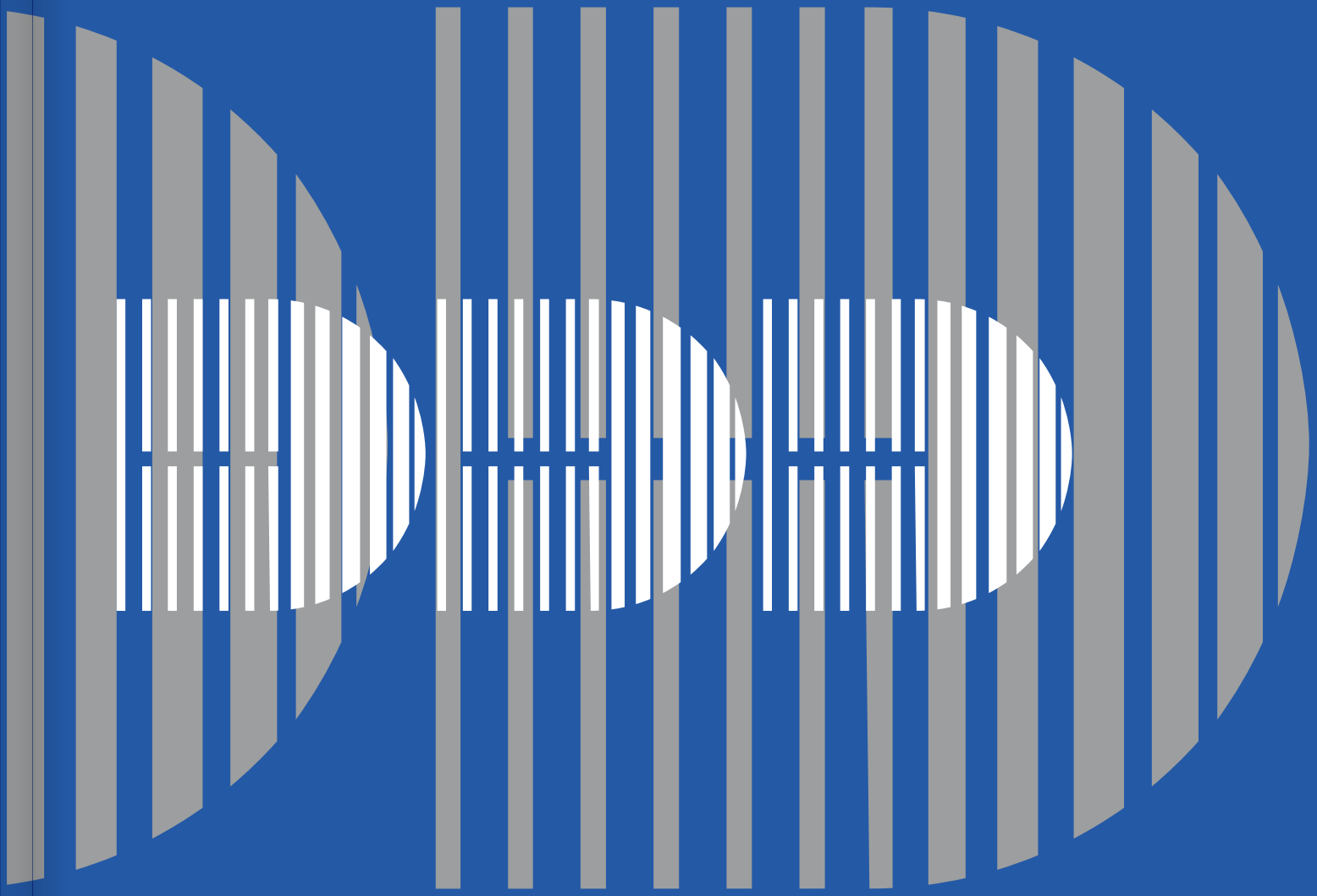
100 YEARS
DORSTENER DRAHTWERKE



1918–2018

JOIN US FOR THE FUTURE

Acar	Semra	2015	
Ahrmann	Johannes	1970	1978
Akca	Murat	1999	
Allekotte	Johannes	1929	1971
Allekotte	Bernd	1969	2009
Althoff	Heinz	1946	1977
Altrogge	Maria	1973	1991
Averkamp	Ludger	1991	
Bachmann	Wilfried	1989	2006
Backhaus	Johannes	1951	1961
Backhaus	Stefan	1992	
Backhaus	Josef	1956	1974
Backhaus	Theodor	1962	2007
Bakan	Cemal	1972	
Bakan	Hüseyin	1973	1985
Balitzki	Günter	1945	1982
Balitzki	Brunhilde	1955	1962
Balster	Johann	1950	1968
Balster	Elisabeth	1957	1964
Bartsch	Maik	2012	
Bechtel	Günther	1976	1982
Bechtel	Klaus	1977	1983
Bensch	Heinrich	1989	
Bergemann	Johannes	1946	1991
Bergemann	Erich	1948	1953
Bethien	Artur	1948	1971
Beyer	Christa	1957	1965
Biermann	Siegfried	1947	1952
Bitter	Josefine	1936	1969
Bitter	Paul-Wilhelm	1969	
Bloeck	Waltraud	1953	1959
Böhm	Irmgard	1958	1964
Bomm	Heinrich	1947	1971
Bomm	Magdalena	1953	1958
Bonfiglio	Fabio	2015	
Börger	Hans Udo	1964	1964
Borowski	Rüdiger	1974	2006
Borzan	Hedwig	1950	1956
Brahim	Karim	2000	2016
Brandenburg	Gerhard	1957	1987
Braukhoff	Willi	1945	1961
Breckel	Waldemar	1999	2007
Brinkmann	Sabine	2001	2016
Brosius	Willi	1968	1972
Brucks	Wilhelm	1954	1958
Büchter	Wilhelm	1947	1972
Büchter	Franz-Josef	1959	1964
Buschhorn	Irmgard	1948	1953
Busen	Gregor	1980	
Candan	Gökhan	1999	
Candan	Uckan	1999	
Celik	Hüseyin	1979	1983
Chmielewski	Heinz	1960	1964
Cladnar	Rosemarie	1957	1966
Dallmer	Michael	1998	
Dallmer	Hanni	1966	1972
Dangschat	Johanna	1950	1955
Daume	Ruth	1964	1970
Deseive	Wilhelm	1948	1964
Döbler	Edelgard	1964	1971
Dobmeier	Herbert	1926	1940
Dolega	Werner	1968	1972
Domke	Adolf	1968	1972
Dorow	Manfred	1974	2018
Dorow	Marion	1980	
Dorow	Rainer	1989	
Doruchowski	Leonhard	1992	2015
Droste	Anette	2000	
Drosten	Ruth	1955	1993
Drücks	Helga	1973	1977
Drücks	Erwin	1974	1980
Duda	Roman	1994	2014
Duve	Bernhard	1946	1972
Duve	Martha	1966	1972
Duwe	Ingrid	1955	1964
Duwe	Otto	1949	1980
Ehrenforst	Christa	1950	1990
Eisele	Theresia	1956	1978
Eisenberg	Jutta	1977	
Eißing	Wilhelm	1968	2004
Ekamp	Christian	2011	
Emmerich	Marita	1963	1973
Engling	Theo	1961	1985
Enning	Werner	1960	2005
Erwin	Alice	2018	
Esser	Ruth	1955	1966
Esser	Reinhard	1946	1951
Eusterfeldhaus	Agnes	1955	1959
Fack	Benjamin	2017	
Faltin	Wera	1971	1975
Fenz	Lore	1963	1967
Fingerhut	Monika	1999	2008
Fischer	Otto	1941	1985
Fischer	Anni	1955	1963
Flür	Christian	2001	
Fogler	Birgitt	1988	2008
Frehoff	Günther	1965	1974
Freitag	Georg	1955	1964
Fuest	Martina	1993	
Gaida	Katharina	2010	
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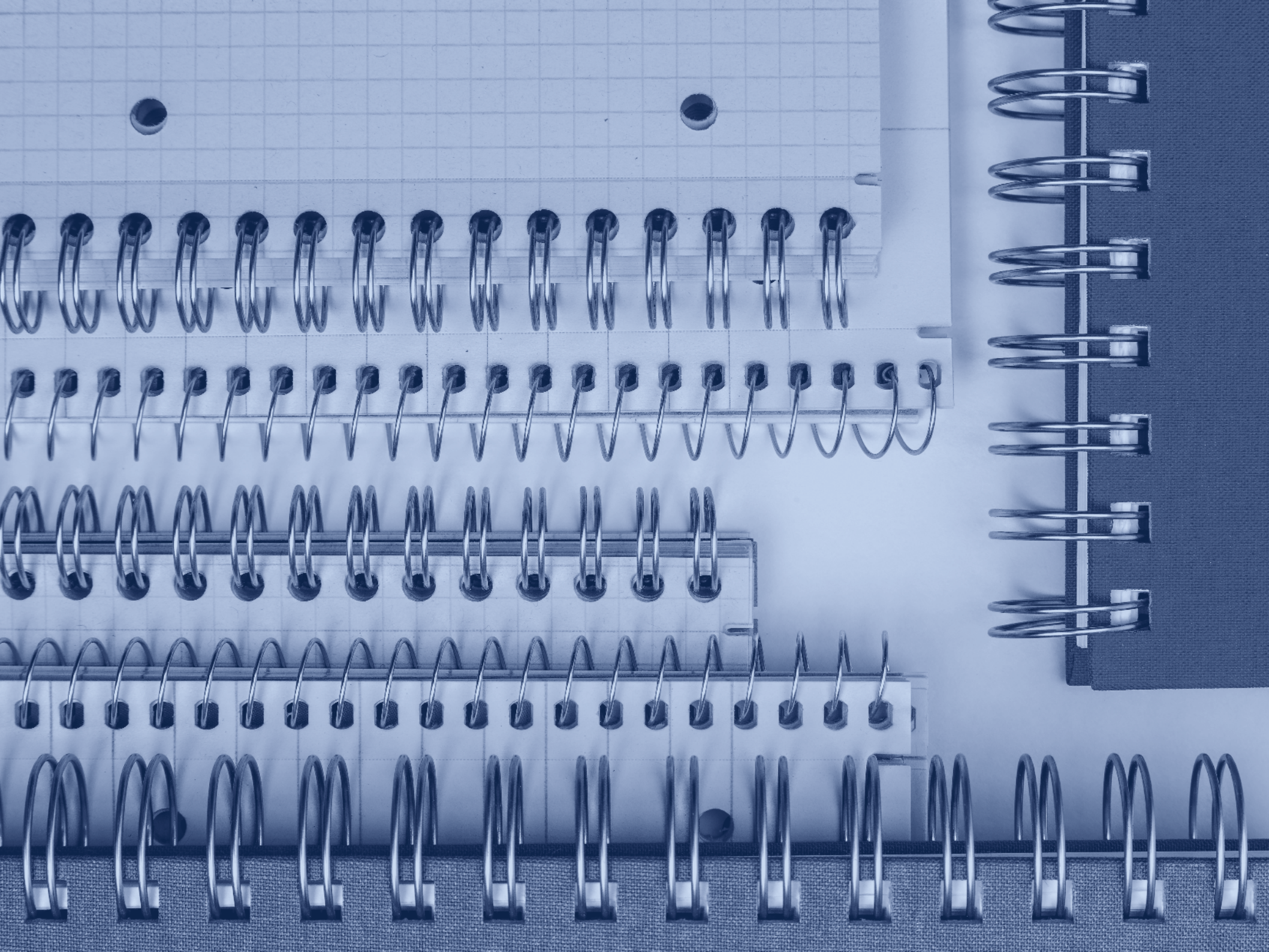
Gajewski	Silvia	1984	
Garczyk	Franz	1948	1973
Gelzenleuchter	Holger	2008	
Georg	Freitag	1967	1979
Gerling	Hildegard	1958	1965
Gerschinski	Inka	2014	
Gisbier	Norbert	1959	1971
Glasmeier	Matthias	1985	
Göbbeler	Hermann	1946	1975

Goldberg	Gisela	1957	1961
Goroll	Dieter	1972	1981
Gorski	Paul	2008	2016
Goßblotekamp	Kai	2006	
Gossen	Viktor	2010	
Grajek	Peter	1959	1975
Granzeier	Heinrich	1946	1972
Grau	Berthold	1968	2018
Grewe	Elisabeth	1957	1962
Grosse Gung	Hans	1947	1954
Große-Heidermann	Michael	1998	
Großmann	Else	1955	1961
Grün	Willi	1958	1962
Grünberg	Lisa	1958	1962
Grund	Margarete	1947	1956
Grund	Lothar	1963	1967
Grundmann	Frank	1992	2003
Grütering	Jaqueline	2007	
Grzywaczyk	Ingeborg	1970	1975
Grzywaczyk	Werner	1984	2016
Grzywaczyk	Hildegard	1966	1984
Gulden	Dieter	1959	1971
Gulden	Hans Dieter	1959	2003
Gumm	Heinz	1954	2002
Hänseler	Patrick	2014	
Hartwig	Werner	1946	1972
Hasenaecker	Franz	1940	1945
Heftmann	Gregor	2008	
Hemke	Dieter	1949	1955
Hemmig	Alfred	1950	1978
Hennig	Maria	1946	1951
Hesselmann	Doris	1963	1969
Hoffmann	Oliver	2000	
Hoffmann	Jörg	2016	
Holewa	Roland	1990	
Homann	Franz	1928	1970
Hoogendyk	Lendert Josef	1972	1980
Hörner	Lars	2000	2007
Horstick	Hildegard	1953	1969
Hubrick	Wilfried	1971	1975
Hucke	Franz	1947	1958
Humme	Günther	1955	1960
Hummel	Jennifer	2014	
Hurtak	Ruth	1979	1983
Hüyng	Maurice	2012	
Imberg	Franz	1947	1976
Iser	Wolfgang	1964	1997
Janowski	Frank	2004	2017
Jansen	Maik	1997	
Jarocki	Julian	2015	
Jekubzik	Anneliese	1959	1964
Jekubzik	Werner	1971	
Jenski	Wilhelm	1946	1951
John	Rudolf	1953	1959
Josten	Bernhard	1989	
Josten	Johann	1989	
Jünger	Ernst	1969	1978
Jünger	Heinrich	1970	1979
Kaczmarczyk	Markus	1998	
Kahn	Waltraud	1950	1958
Kalthoff	Peter	1967	1978
Kasko-Müller	Alexandra	2000	2011
Kasper	Heinz	1969	1993
Katona	Sven	2015	
Katona	Christian	2017	
Kaufmann	Daniel	2003	2009
Kaup	Dagmar	2001	
Kaya	Bayran	1991	
Keiner	Uwe	1978	1982
Keller	Marianne	1977	1990
Kellermann	Detlef	1988	
Ketterkat	Heinz	1946	1978
Ketterkat	Johanna	1950	1954
Kiekenbeck	Sebastian	2001	2008
Kipker	Herbert	1928	1972
Kirstein	Werner	1942	1953
Kischel	Norbert	2005	
Klang	Frieda	1946	1950
Kleczewski	Michael	2005	
Kleffmann	Robert	1996	
Klein	Ursula	1968	1976
Klein Langenhoff	Maria	1947	1957
Kleinekorte	Rabea	1998	
Klein-Ridder	Ludger	2001	2016
Klein-Ridder	Carsten	2001	
Knali	Serafedin	2004	
Knifka	Renate	1964	1969
Knifka	Udo	1985	2018
Knöchel	Jürgen	1960	1964
Koch	Katharina	1950	1977
Koch	Peter	1957	2003
Koch	Wolf-Rüdiger	1960	1964
Köhler	Wolfgang	1929	1939
Köhler	Heinz	1946	1956
Kohls	Marcin	2005	
Kolmer	Else	1946	1950
Kopmann	Ludwig	1946	1952
Köppen	Rudolf	1966	1970
Körner	Adolf	1957	1961
Kortmann	Maria	1953	1958
Krebs	Reinhold	1971	1983
Kreuels	Heinrich	1947	1958
Krischok	Manfred	1968	1992
Krüger	Walter	1947	1961
Kruse	Andreas	1979	2010
Kruse	Markus	2008	
Kruse	Martin	2000	
Kühnel	Michael	2014	
Kuhnert	Arnold	1965	1974
Kunze	Holger	2018	

100 YEARS
DORSTENER DRAHTWERKE
1918–2018

JOIN US FOR THE FUTURE



CONTENTS

	FOREWORD	5
1918–1921	THE ORIGINS OF DORSTENER DRAHTWERKE	6
1922–1926	TURBULENT TIMES	14
1927–1945	THE LATE WEIMAR REPUBLIC AND THE NAZI ERA	22
1945–1968	RECONSTRUCTION AND “WIRTSCHAFTSWUNDER”	32
	STEEL WIRE AND WIRE MESH PRODUCTS FROM STEEL	48
1968–1994	NEW CHALLENGES AND NEW BEGINNINGS	54
	WIRE – CONNECTING PEOPLE	66
1994–2018	BREAKING NEW GROUND	70
	QUALITY AND INNOVATION	86
	DDD GROUP OF COMPANIES	90
	LOOKING TO THE FUTURE	94

Continuity and change: the logo in 1926, 1929, 1935, 2018

FOREWORD

Join us for the future – this is the motto for 2018, the centenary of the *DDD Group of Companies*. 100 years ago, our great-grandfather H. W. Brune joined the *Gebr. Renzing & Co.* wire-drawing company as managing partner. He wanted to become part of the future of this company, which was soon renamed *Dorstener Drahtwerke H. W. Brune GmbH*. Through all the ups and downs that our family business has experienced since 1918, one insight has repeatedly reaffirmed itself: only by working together in partnership can we successfully shape our future.

To mark the occasion of our 100th anniversary, we present you with a history of the company that takes you through the exciting and eventful story of *Dorstener Drahtwerke*. It shows how continuity and change have shaped the company over four generations, how we have overcome crises and celebrated successes together. Skill, innovative products, hard work, and above all committed people have time and again moved *Dorstener Drahtwerke* forward and secured its future. This has enabled what started as a small wire factory to steadily grow into an international group boasting 18 companies and over 400 motivated employees. With a wide array of quality products and outstanding on-site service, the *DDD Group of Companies* enjoys a global presence in 2018 and is superbly positioned for the future.

We are very grateful for the support given to us by Dorsten's local history association, *Verein für Orts- und Heimatkunde Dorsten*, whose authors wrote the first four chapters of this book. Our thanks also go to current and former employees who actively contributed to the success of our book and the anniversary celebrations.

We would like to thank all our employees, customers, and business partners, whose trust, passion, and commitment have enabled *Dorstener Drahtwerke* to reach its 100-year milestone – we hope to have them on board with us as we head into the future. We also hope that future generations will continue to honor and pass on the family-based values that *Dorstener Drahtwerke* and the *DDD Group of Companies* were built on.

Dorsten, July 2018

Rüdiger Tüshaus

Volker Tüshaus

Juli 1918

Conto Credit

		Portis M 20.– 2/7. 11.– 10/7. 20.– 15/7 20.– 22/7. 20 31.7	Unk Cto	91	–
2	Pr.	H. W. Brune.	Privat Ct B.	500	–
3	"	Frdr. Plettenberg	Privat Ct P.	500	–
"	"	Fracht	Unk Cto	33	05
"	"	Prämien & Provision	Unk Cto	700	–
"	"	Karl Jungst	M. fol 44 Unk Cto	28	–
13	"	H Schneidetsmann bis 13/7 18	Unk Cto	64	–
17.	"	Kaufm. Krankenkasse	Unk Cto	8	64
19.	"	4 Pkte. Nägel	Unk Cto	6	–
24	"	Miete Plettenberg	Unk Cto	300	–
"	"	Nägel	Unk Cto	3	20
"	"	Iserl. General-Anzeiger	Unk Cto	3	–
31.	"	H. W. Brune	Privat Cto B.	1000	–
"	"	Frdr. Plettenberg	Privat Ct P.	500	–
"	"	Saldo Cassenbestand		581	16

1918–1921

THE ORIGINS OF DORSTENER DRAHTWERKE

**Ledger at
Gebr. Renzing & Co.,
1918**

Successful wholesaler: a 1921 letterhead of H. W. Brune & Co., Iserlohn

The American historian and diplomat George F. Kennan described the First World War as "the great seminal catastrophe of the 20th century". Today, this war, which held the world in its grip from 1914 to 1918, is regarded as the link between the "long 19th century" and the "short 20th century". It ultimately claimed around 8.5 million lives, left more than 21 million wounded, while prisoners of war and missing persons totaled almost 8 million. On top of this came the incalculable number of individuals left traumatized by the war's events. The small Westphalian town of Dorsten, later home to the *Dorstener Drahtwerke* wire products manufacturer, suffered 192 war dead of its own.

THE FOUNDER: HEINRICH WILHELM BRUNE

Heinrich Wilhelm Brune, born September 5, 1879, in Schwerte in the district of Hörde, worked for three years as an apprentice from September 16, 1895, at the *Fabrik in Nieten aller Art Ludwig Möhling* rivet factory in his home town. His apprentice years saw him gain expertise in all disciplines relevant to running the business. On September 25, 1902, Brune took up a new position at the rivet and bolt company *Actien Gesellschaft für Schrauben u. Nieten Fabrikation F. W. de Fries* in Hemer, 20 kilometers away. Here, he developed and enhanced his all-round business expertise, performing day-to-day correspondence via dictation with at least one typist working for him, processing incoming orders, and also undertaking occasional business trips. He decided to quit the *de Fries* company in 1912 to set up his own business, leaving with a glowing employer's reference that praised the "consistently meticulous approach, punctuality, and great interest shown in his work, which he always performed to our complete satisfaction".

Brune's wife Hermine Plettenberg, had been born on July 18, 1883, in Iserlohn. It was while she and Brune were living in Hemer, at Oberhemer 106b, that they started a family. Their first daughter, Herta, was born on June 7, 1907, and Charlotte, their second, followed a year later on June 17, 1908. On December 30, 1912, though, the family moved to the neighboring town of Iserlohn.


F. W. de Fries
Actien-Gesellschaft für
Schrauben u. Nieten-Fabrikation
Hemer, den 28. Septb. 02


H.W. Brune & Co.

FERNSPRECHER No 1950
TELEGR. ADRESSE: BRUNE
KARRENSTRASSE: REICHS-
BANK-GIROKONTO ISERLOHN

STADT-SPARKASSE ISERLOHN
BARMER BANKVEREIN ISERLOHN
POSTSCHECK-KONTO: COELN
No 22660

GROSSHANDLUNG
FÜR STAHL, EISEN, DRAHT UND DRAHTERZEUGNISSE

Vertreter der Maschinenbauanstalt
Humboldt, Cöln-Kalk,
Abt. Elektro-Stahlwerk.

Iserlohn, den 28. April 1921.

THE FOUNDING OF THE COMPANY

On September 15, 1915, in Iserlohn, H. W. Brune, together with his father-in-law, master carpenter Friedrich Plettenberg, founded the general partnership *H. W. Brune & Co.*, a wholesale company dealing in iron and wire products. Iserlohn had long been one of the most important industrial cities in Prussia, featuring many medium-sized metalworking companies, and provided a good location for the young company.

H. W. Brune & Co. still remains a part of *Drahtwerke's* official company name today and is therefore regarded as one of the two roots from which the company has grown. The success enjoyed in these first few years of independent operation inspired Brune's drive and entrepreneurial creativity.

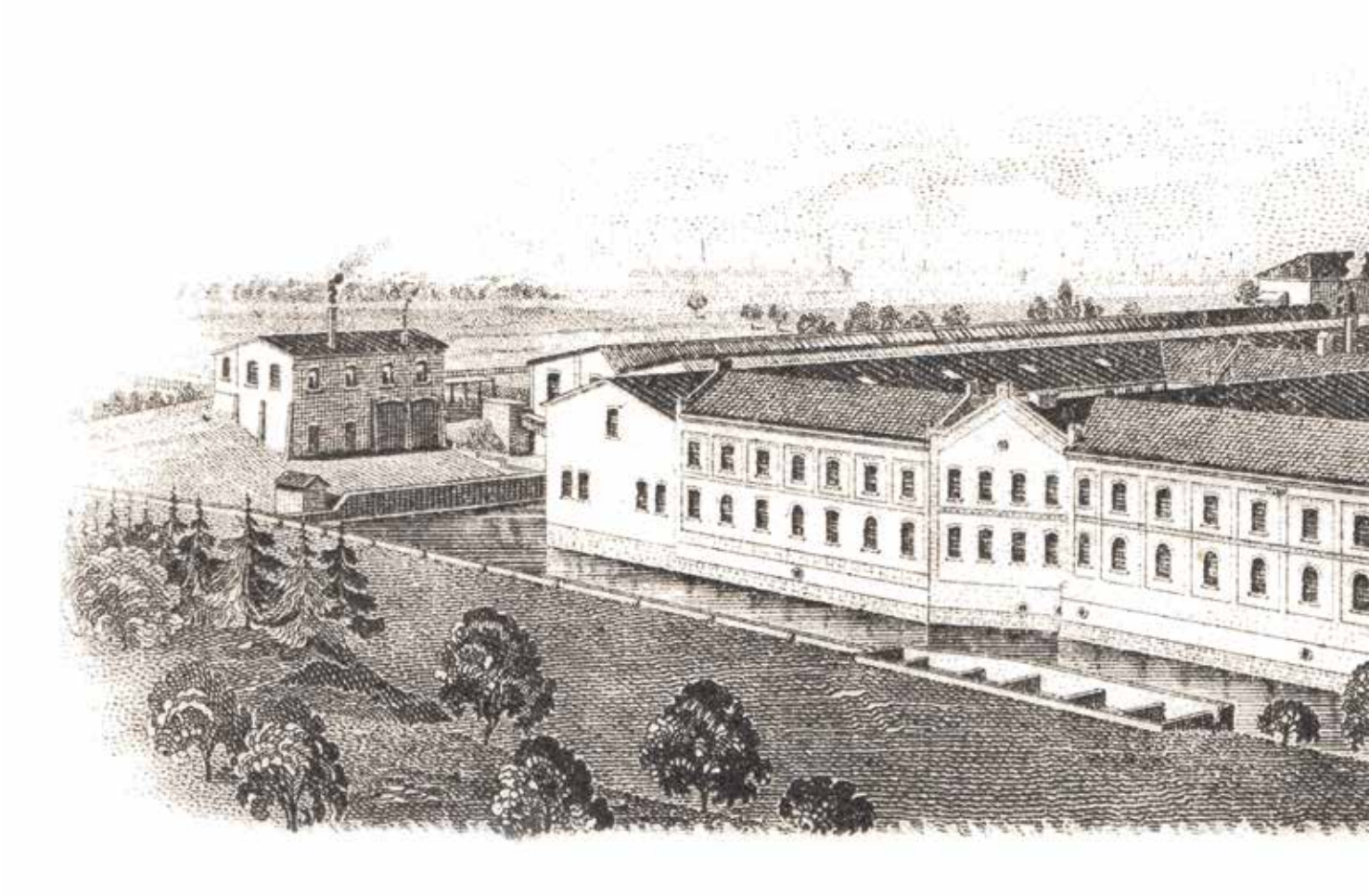
On July 1, 1918, Heinrich Wilhelm Brune's aspiration to move into production came to fruition when he became commercial manager of the Hemer-based wire-drawing company *Gebr. Renzing & Co.* The small wire-drawing company, owned by brothers Heinrich and Wilhelm Renzing, adopted this company name only after H. W. Brune joined their general partnership, having previously been called *Westiger Drahtfabrik Gebr. Renzing.*

The company had specialized in the production and sale of stitching and floristry wires. The amount of capital required from each of the three partners was agreed at 20,000 marks, and Brune, with sizeable funds at his disposal, paid in cash. The Renzing brothers, who in future would be responsible for the technical management of the wire-drawing company, brought in machines, inventory, and contributed smaller cash investments. The exit of one partner did not automatically lead to the dissolution of the firm; instead, the remaining partners, when not agreeing to dissolve the firm, had the right to pay off the departing partner. History would later prove how important it had been to establish this rule.

On July 1, 1918, H. W. Brune combined the sales and production arms of the company, making it the officially nominated birthday of today's group of companies. Stitching-wire production is still a mainstay of *Dorstener Drahtwerke's* business today.

Other company birth dates would, in a historical context, have justifiable claims here too. Ultimately however, the tradition running through the past decades was key in choosing 2018 as the year to celebrate the company's 100th anniversary.

"He is leaving our company to set up his own business." Reference written for H. W. Brune by F. W. de Fries Actien-Gesellschaft für Schrauben- und Nietenfabrikation, Hemer, September 28, 1912



RELOCATION TO DORSTEN

As co-owner and commercial manager of the *Gebr. Renzing & Co.* wire-drawing company Brune quickly saw that the limited space in Hemer would restrict the company's potential to expand. There were concerns that remaining located in the northern Sauerland region would, in the long term, leave the company unable to keep pace with the huge competition from other metalworking companies.

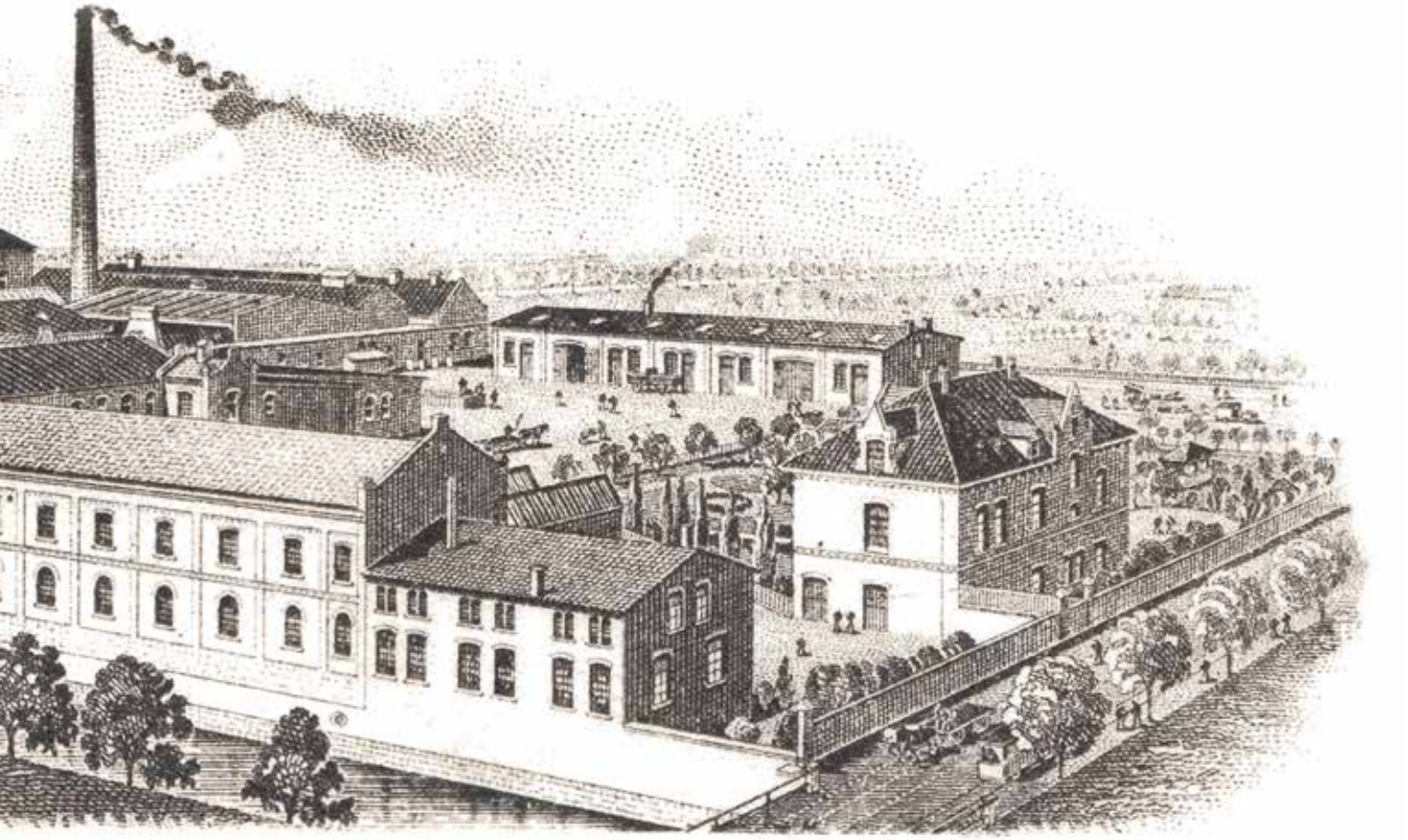
There is no hard evidence identifying precisely what it was that led H. W. Brune to opt for Dorsten as a location; but its position on the edge of the Ruhr area and proximity to sales markets and supply of intermediate products are likely to have made it an attractive proposition.

A former grain mill in Dorsten dating back to the 15th century and sited on the banks of the Barloer Bach creek was standing empty. In 1848, the mill had been turned into a paper mill, in the 1880s it was developed into the site of *Dorstener Papierfabrik AG*, and about ten years later extended to include a pulp and cellulose factory. In 1901, there were 166 people employed at the site. After a time, however, the paper mill's success gradually dropped off. After the winding up of the joint-stock company in 1908 and the forced sale of the factory two years later, the site facilities were acquired by *Atlas Werke Gottschalk* in 1919. The conversion of the former paper mill into a factory for making paper bags in 1920 did not prove successful.

In October 1920, Brune acquired personal possession of the factory site on Marler Strasse at the agreed purchase price of 210,000 marks in order to locate the *Gebr. Renzing & Co.* wire-drawing business there and also to transfer the trading company *H. W. Brune & Co.* to the site.

Brune saw his decision to buy the property in Dorsten as a promising investment for the future, as the extensive site of the former paper mill would allow the small company to develop and expand.

Engraving of the Dorstener Drahtwerke factory site in the 1920s



Although the metal-processing industry had already moved into Dorsten some decades previously with the founding of *Dorstener Eisengießerei und Maschinenfabrik AG* in 1873, there was no wire plant capable of profitable production as a supplier for the mining industry and other businesses in the northern Ruhr area. In addition, the existing buildings on the Dorsten factory site could be used for the production of wire products without any major problems, avoiding the need for investing large sums in new factory buildings. Also, being able to source its own hydroelectric power from the Barloer Bach creek made the site extremely attractive.

The favorable transport links were a major plus point for Dorsten as a location. In the decade after the foundation of the new Imperial Germany in 1871, three railway lines were built: one ran west to east on the northern bank of the River Lippe, with the other two operating north to south. In 1873, the *Cöln-Minden Bahngesellschaft* railway company opened the Wesel-Haltern line (the entire line connecting the cities of Venlo and Hamburg), the *Rheinische Bahngesellschaft* started the Quakenbrück-Rheine-Ruhrort line in 1879, and the Dutch-Westphalian railway company *Niederländisch-Westfälische Bahngesellschaft* launched the Winterswijk-Bismarck-Essen route in 1880. The station built at the intersection of the three lines was given the twin name Hervest-Dorsten to help passengers unfamiliar with the village name Hervest get their bearings. The town of Dorsten later received its own railway station in 1899. The Ruhr area was also easily accessible via a relatively well-maintained road network.

During the First World War, in 1916, construction began of the Wesel-Datteln canal running parallel to the Lippe, with it eventually opening up to traffic in 1930. Three harbors were built throughout the Dorsten district: a municipal harbor, a harbor for the *Fürst Leopold* mine, and the *Dorstener Industriehafen Gebrüder Müller* industrial harbor in Dorsten located at the site of the oil mill. When he was looking for a suitable location, H. W. Brune may have also factored the canal, as a possible transport route, into his decision making.

Dorstener Drahtwerke as seen from the mill pond in the year 1920. The water from the pond was used to power the site

At the end of March/beginning of April 1921, the two companies *H. W. Brune & Co.* and *Gebr. Renzing & Co.* moved their headquarters from Iserlohn and Hemer respectively to the factory site acquired by Brune on Marler Strasse in Dorsten. The entrepreneurs and their families also settled in Dorsten: Wilhelm Renzing lived at Alleestrasse 57, his brother Heinrich at Bochumer Strasse 25, while H. W. Brune and his family moved into the villa on the company premises at Marler Strasse 104.

Brune was the link between the two companies which now shared the factory and office building. The personal ties between the two firms operating right alongside one another prompted the shareholders of *Gebr. Renzing & Co.* to rename their company *Dorstener Drahtwerke Gebr. Renzing & Co. Dorsten* – and the name was entered into the commercial register on July 23, 1921. The company paid rent for the use of the factory site to the owner H. W. Brune.

FIRST EMPLOYEES IN DORSTEN

With the relocation of the company headquarters to Dorsten on March 29, 1921, Friedrich Hoffmann joined *H. W. Brune & Co.* as head of administration. Like many other employees of the company in later years, Hoffmann remained loyal to the company right throughout his career. Hoffmann's role was to handle all office-based work with a small team of staff, and to undertake business trips on behalf of the firm. He received a monthly salary of 2,400 marks for this position, as well as a percentage share of the company's net profit.

The new Dorsten-based company started with just 14 employees, most of whom hailed from the Sauerland region:

1. H. W. Brune, commercial manager
2. Heinrich Renzing, technical manager for wire drawing
3. Wilhelm Renzing, technical manager for wire drawing
4. Wilhelm Renzing Jnr., spool machine operator
5. Emil Walters, son-in-law of Heinrich Renzing, spool machine operator and packer
6. Hermann Pierard, accountant

The Schulte family, all permanent staff:

7. Ferdinand Schulte Snr., wire drawer
8. Ferdinand Schulte Jnr., wire drawer
9. Caspar Schulte, wire drawer
10. Josef Schulte, first as galvanizer, later dispatch manager
11. Albert Schulte, first as an apprentice machine fitter, later a fully qualified machine fitter and a machinist

Also employed were:

12. A fitting shop foreman
13. A pickling and annealing assistant
14. Old Phillipps, the handyman

Over the next few years, this small core staff was responsible for training young men from Dorsten to work for the company. Among the apprentices were Wilhelm Büchter and Bernhard Duve, both born in 1907, who were recruited by *Dorstener Drahtwerke* in 1921 and worked there until they retired a few decades later.

1922–1926

TURBULENT TIMES

Worker at the old dry drawing machine with draw plate, 1929

Office staff and workers, approx. 1930

POST-WAR TURMOIL

Following their move to Dorsten in 1921, *Dorstener Drahtwerke Gebr. Renzing* and *H. W. Brune & Co.* were left with little hope of steadily developing their business in the years ahead due to the difficult political, economic and social circumstances that prevailed in the German Reich following the defeat in World War I.

The harsh peace terms of the Treaty of Versailles required the Weimar Republic to pay vast reparations to the victorious Allied Powers. When, on January 9, 1923, the Allied Reparations Commission concluded that the Weimar Republic was intentionally withholding deliveries of materials – for example, only 11.7 million metric tons of coal had been delivered in 1922 instead of 13.8 million, and only 65,000 of an agreed 200,000 telegraph poles – French and Belgian troops marched in to occupy the Ruhr region. In Dorsten, the Belgians set up their military headquarters in the Petrinum secondary school on Schulstrasse (now Klosterstrasse), which remained there until they withdrew in 1925; this forced the Petrinum school to move into the teacher training college building on Bochumer Strasse, which was largely empty at the time.

The aim of the Ruhr occupation was to demand coal and coke production from the Ruhr area as a "productive guarantee" that Germany would meet its reparation obligations. The occupation provoked great indignation throughout the German Reich and galvanized the population's determination for resistance. On January 13, 1923, the German government called for "passive resistance." The reparation payments to France and Belgium were suspended, and general strikes brought industry, government administration, and transport to a standstill across much of the country. Authorities and businesses often defied the orders of the occupying forces, while civil servants and German state railway employees downed tools and abandoned their workplaces. At numerous rail stations and switchtowers, the lettering was removed, and trains were run into unoccupied territory. The German government financed this campaign of resistance against the takeover of the Ruhr, the so-called Ruhrkampf, by simply printing more money.

The Ruhrkampf and the occupation of the Ruhr were accompanied by inflation, which had already started in the first year of the war in 1914 but reached its peak in the crisis year of 1923. During the summer of 1923 the *Reichsbank*, the German central bank, had placed new banknotes into circulation by the ton on a practically daily basis in order to maintain the money supply. On September 26, 1923, new German Chancellor,

Gustav Stresemann, announced a halt to the passive resistance, which was now no longer financially sustainable.

The government then embarked on a currency reform, a precondition for renegotiating reparations with the Allies. The reform was launched with the introduction of the Rentenmark as a transitional currency – this currency was not legal tender – on November 1, 1923, and concluded with the introduction of the Reichsmark on August 30, 1924. The Reichsmark (RM) was a convertible currency that enabled unproblematic foreign trade. In this context, the following conversion ratios applied: One RM corresponded to 0.35842 grams of fine gold or one trillion paper marks.

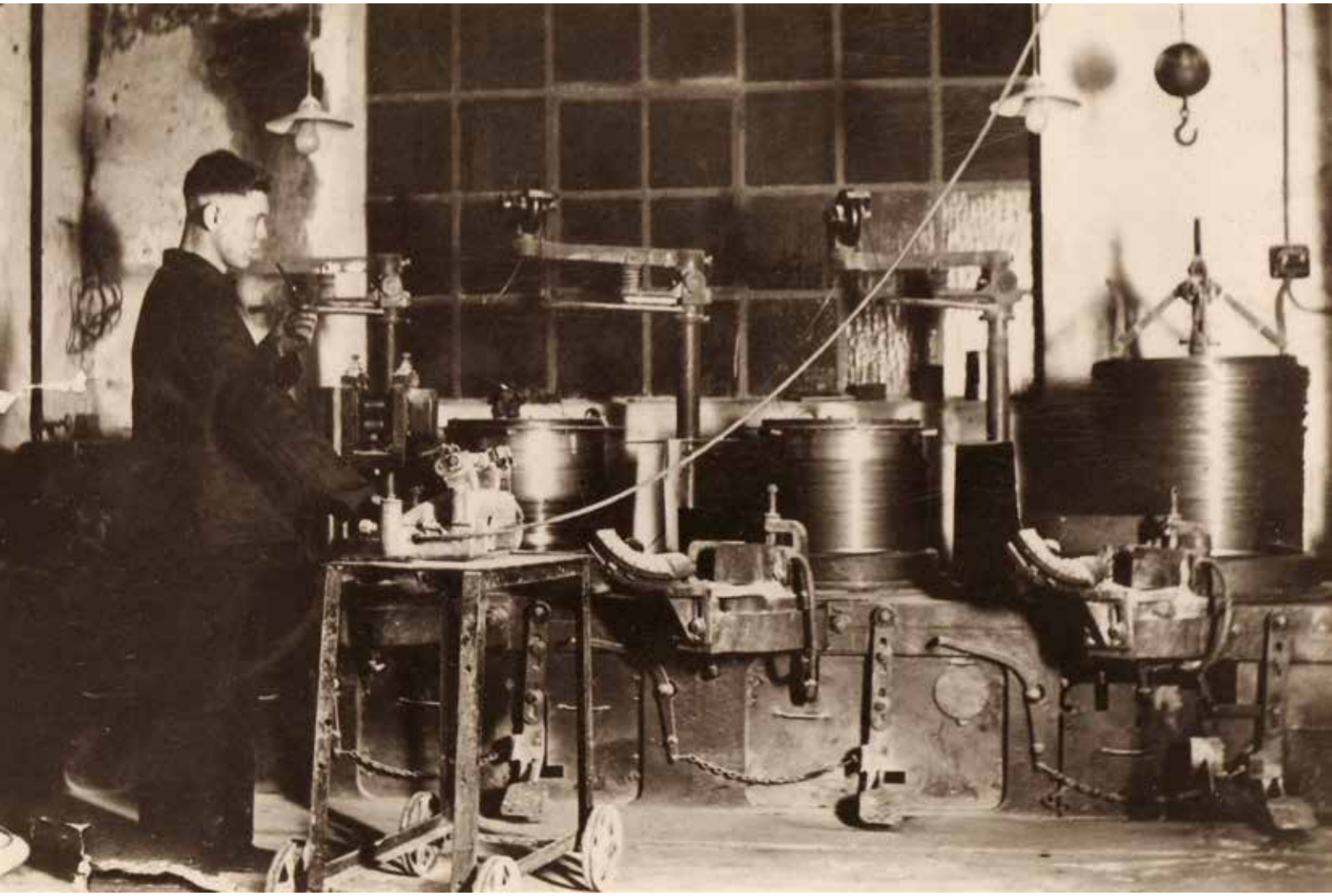
For the Dorsten-based company, still in its early days, inflation brought the advantage of allowing all liabilities to be settled in a comparatively short time. However, the Ruhr occupation had caused the company to lose its connections to suppliers and customers. In 1923, production was suspended for nine months, only resuming at the beginning of 1924. Reactivating the connections with other firms that had broken off now required considerable effort. This included costly advertising as well as business trips by the company's managers to regain the confidence of previous suppliers and customers.

INVESTMENTS AND INSOLVENCY

To secure the company's future competitiveness, Heinrich Wilhelm Brune had to invest. By expanding production to include welded and woven mesh, the company management made a milestone decision, the impact of which remains even to the present day. At that time, i. e. during the period of currency reform, considerable financial resources were needed for these investments, which could no longer be raised by the partners alone and had to be covered by external funds, in other words through loans. These loans, in turn, meant a rapid increase in debt due to high interest rates.

The business development report on the opening balance sheet drawn up in Gold Marks (GM) of January 1, 1924, already contained reference to a critical liquidity situation. The equity of GM 31,000 was offset by debt of GM 28,000. In the course of 1924, borrowing increased further, rising to GM 112,000. At this point, a radical restructuring should have taken place, with conversion of short-term liabilities into long-term ones. Negotiations with the *Barmer Bank-Verein Essen* (B. B. V.) and the *Spar- & Darlehenskassen-Verein* in Dorsten brought an interim solution: These two banks granted further loans, secured by collateral from the partners and a mortgage on the white-collar employees' residential building in the amount of RM 50,000. However, in May 1925, B. B. V. canceled a loan of

A loaf of bread for 10 million marks: "Notgeld", or emergency money, used in the town of Dorsten, September 13, 1923
Private collection of Wolfgang Burkhardt, Verein für Orts- und Heimatkunde Dorsten



New technology: dry drawing machine with drawing dies, 1932

Normal operations resume: court-supervised management order lifted, April 24, 1926

Gn. 3 - 26.

Beschluss.

Dorstener Drahtwerke Dorsten Eing. 22 MAI 1926 Erledigt

Auf den Antrag der Schuldnerin vom 24. April 1926 wird die Geschäftsaufsicht über die Firma Dorstener Drahtwerke Gebr. Renzing u. Co. in Dorsten nach Anhörung der Aufsichtsperson und des Gläubiger - Beirats aufgehoben.

Dorsten, den 24. April 1926.

Das Amtsgericht.

gez. Dr. Kubisch

Amtsgerichtsrat

Ausgefertigt:

Dorsten, den 14. Mai 1926.

Krüger Kzl. Angest.

als Gerichtsschreiber des Amtsgerichts.

PREUSS. AMTSGERICHT DORSTEN

RM 30,000. This meant that amounts already paid on account were not taken into consideration, and parts of the land charge certificate that were no longer encumbered were not returned to property owners. As a result, this collateral, which technically was partly free, was blocked.

After turning to its own sources to mobilize cash funds, *H. W. Brune & Co.* provided *Dorstener Drahtwerke Gebr. Renzing* with operating funds of around RM 25,000. In addition, the *Spar- & Darlehenskasse* in Dorsten received a security of RM 20,000 on the factory site, which was owned by H. W. Brune. But even these additional injections of liquidity proved insufficient. With all the remaining collateral held by B. B. V., the company had no further options of obtaining credit from other lenders.

The general economic situation, the tight money market, the poor order intake and payment delays by customers further exacerbated the company's critical financial situation. As a result, it was no longer able to meet payment deadlines, and creditors threatened to move in on the company's assets (garnishments and payment summons by suppliers, the City of Dorsten and other creditors).

For these reasons – in the interest of the company and all creditors – an application for court-supervised management (today comparable to filing for self-administered insolvency proceedings) was initiated at the local court on January 4, 1926. This was intended to give the company the opportunity to reach an agreement with all creditors and carry out fundamental restructuring. Paul Schürholz from Dorsten was appointed by the local court as insolvency administrator. As early as February 22, 1926, Schürholz was able to present creditors with a proposed settlement by *Dorstener Drahtwerke Gebr. Renzing & Co., Dorsten i. W.*, which was approved by the creditors' meeting on February 25, 1926. On April 24, 1926, the Dorsten District Court lifted the court-supervised management order.

Heinrich Wilhelm and Hermine Brune

A NEW START

In providing *Dorstener Drahtwerke Gebr. Renzing & Co.* with liquidity and collateral throughout the previous critical months, *H. W. Brune & Co.* had already made substantial capital commitments to the business. More funds were required to keep it going, however. But co-partners Heinrich Renzing and Wilhelm Renzing's widow – Wilhelm Renzing had died on August 5, 1925, after which his wife represented his interests in the company – were not in a position to provide yet more financial support. The decision thus had to be made between liquidating the company or having it taken over by H. W. Brune.

The partners finally opted for the takeover by H. W. Brune. By contract dated June 20, 1926, partners Heinrich Renzing and the late Wilhelm Renzing's widow withdrew from the company, with H. W. Brune taking it over as sole partner. The severance agreement of June 28, 1926, settled the financial arrangements but this didn't prevent considerable differences arising between the contractual partners in the months that followed.

H. W. Brune founded a new company in August 1926 under the name *Dorstener Drahtwerke H. W. Brune & Co. GmbH*. The assets and liabilities of the two companies *Dorstener Drahtwerke Gebr. Renzing & Co.* and *H. W. Brune & Co.* were transferred to the new company. The *Dorstener Drahtwerke Gebr. Renzing & Co, Dorsten* company was deleted from the commercial register at Dorsten District Court on December 24, 1926.

Dorstener Drahtwerke H. W. Brune & Co. GmbH, still the official company name in the anniversary year 2018, started with fixed assets of RM 59,600, current assets of RM 52,700 and equity of RM 21,400, with total assets amounting to RM 112,400.

Heinrich Wilhelm Brune held a 66-percent stake in the company until his death in 1957, with his wife Hermine – who died in 1949 – holding 10 percent, and his two daughters Herta and Charlotte 12 percent each. Brune's elder daughter Herta married Wolfgang Köhler (engineer and technical merchant), who joined the company in 1932 as a senior manager, while Charlotte married Paul Tüshaus, a merchant and later senior manager who also joined the company in the same year. Wolfgang Köhler and Paul Tüshaus were granted joint power of attorney, together with F. Hoffmann.

Joint company as a new base: Letter from Dorstener Drahtwerke H. W. Brune & Co. GmbH to business partners, November 1, 1926

Jetzt: **Dorstener Drahtwerke H. W. Brune & Co., G. m. b. H.**

Jetzt: Reichsbank-Girokonto Gladbeck ✓ Postscheck-Konto Köln 24340
Fernsprecher Nr. 35 und 222 ✓ Telegr.-Adresse: Drahtwerke

H·W·BRUNE & Co
DORSTEN
MECHANISCHE DRAHTFLECHTEREI u. KAWEBE DRAHTWEBEREI DRAHTWARENFABRIK
TELEGRAMM-ADRESSE: EISENBRUNE SCHUTZMARKE
TELEFON NR. 35 AMT DORSTEN
BANK: MONTEN, REICHSBANK-GIRO-KONTO GLADBECK, WESTF. BANK-VEREIN DÜSSELDORF POSTSCHECK-KONTO COLN 82060

DORSTEN i. WESTF. den 1. November 1926.

(5

An unsere Geschäftsfreunde!

Wir beehren uns, Ihnen mitzuteilen, daß die beiden Firmen

1. Dorstener Drahtwerke Gebr. Renzing & Co., Dorsten
2. H. W. Brune & Co., Drahtweberei, Drahtflechterei, Dorsten

ab heute vereinigt sind unter der neuen, gemeinsamen Firmenbezeichnung

Dorstener Drahtwerke H. W. Brune & Co. G. m. b. H. Dorsten

Die Verschmelzung ist erfolgt, nachdem infolge freundschaftlicher Übereinkunft aus der unter 1 genannten Firma Herr Heinr. Renzing sowie die Erben des verstorbenen Herrn Wilh. Renzing ausgetreten und die gesamten Aktiven und Passiven durch den damit verbleibenden Teilhaber und kaufmännischen Leiter der Firma, Herrn H. W. Brune übernommen worden sind.

Herr Brune, der gleichzeitig der Alleininhaber der unter 2 genannten Firma war, und unter dessen Leitung beide Firmen ihre Aufwärtsentwickelung genommen haben, ist als Geschäftsführer mit der Leitung unseres nunmehr vereinigten Unternehmens, welches eine Familiengründung darstellt, betraut.

Dem Kaufmann Herrn Friedrich Hoffmann ist Einzel-Prokura erteilt.

Von den nachstehenden Unterschriften bitten wir Kenntnis zu nehmen.

Die Fabrikation von Spezialdrähten, Drahtgewebe und Drahtgeflecht wird in bewährter Weise und seitherigem Umfange weiter betrieben, wie auch fernerhin oberster Grundsatz bleiben wird, nur erstklassige Qualitätserzeugnisse auf den Markt zu bringen.

Für das bisher entgegengebrachte Vertrauen möchten wir an dieser Stelle unseren Dank aussprechen, wobei wir gleichzeitig damit die Bitte verbinden, dieses Vertrauen auch unserer Firma bewahren zu wollen.

Hochachtungsvoll

Dorstener Drahtwerke
H. W. Brune & Co., G. m. b. H.

Herr Brune wird zeichnen: H. W. Brune

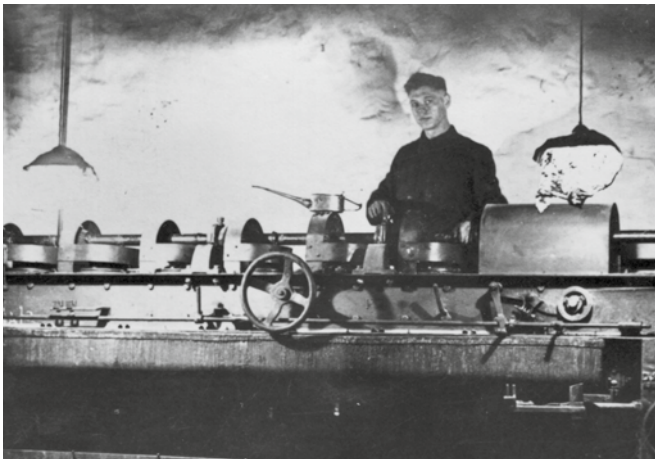
Herr Hoffmann wird zeichnen: ppa. Hoffmann

5000. 6. 26 Hm2.

1927–1945

THE LATE WEIMAR REPUBLIC AND THE NAZI ERA

Major investment in 1932: the new annealer



Fine-wire drawing unit: Breitenbach machine with drawing dies, 1932

The Wall Street Crash of October 1929 triggered the global economic crisis which a few weeks later reached Germany. The consequences were company collapses, bank closures and mass unemployment. Between September 1929 and early 1933, unemployment in Germany rose from 1.3 million to more than six million. Real income fell by a third, while poverty and crime increased sharply.

The Weimar Republic was not up to the complex challenges that arose during these years. On January 30, 1933, the President of the German Reich, von Hindenburg, appointed Hitler German Chancellor. Hitler had never made a secret of his aim to eliminate democracy in Germany. He rigorously implemented this plan over the subsequent weeks and months, and by the end of 1934 had established the totalitarian "Führer State" in Germany.

In *Mein Kampf*, Hitler's diatribe and propaganda tome published in two volumes in 1925 and 1926, he had not only described his authoritarian counter-model to the Weimar Republic, but had also developed an aggressive, racial-ideological concept that envisaged the fight against the Jews as well as the "capturing of new Lebensraum [living space] in the East." As German Chancellor, Hitler adhered unerringly to these goals. For years he attempted to conceal his true intentions from the German people and other countries. In his secret memorandum on his Four-Year Plan, written in 1936, Hitler instructed the German economy to convert to production of essential wartime goods and to be "fit for war" within four years. In the following years, the German economy willingly complied with this demand of its "Führer," and as a result Hitler was able to initiate World War II in 1939, before the four years were up.

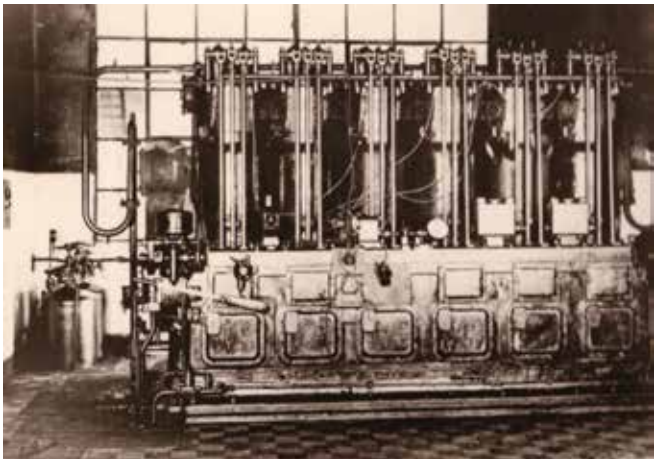
During the war the Nazi regime used forced labor provided by foreign workers, prisoners of war and concentration camp prisoners to maintain production of essential war-time goods. On May 8 and 9, 1945, Germany was forced into unconditional surrender; shortly before, Hitler had evaded being held accountable by committing suicide.

CRISIS-PROOF EVEN IN DIFFICULT TIMES

"Since the foundation of our company, we have attached great importance to producing goods that are not supplied by large-scale industry. History has shown that in times of depression, small and medium-sized wire drawing companies have been pushed aside by big industry whenever they have been producing the same goods."
Heinrich Wilhelm Brune, in a written plan accompanying a loan application to the Industriekreditbank, June 1949

The company management consistently kept to this principle after 1926. The debts Brune had taken over when he founded the new company were paid off within two years, so in 1928 he was able to equip the company to cope with any potential crises.

In actual fact, and partly as a result of the substantial investments by the *Drahtwerke*, business developed positively over the next few years and was hardly affected by the 1929 global economic crisis and its after-shocks. Since 1926, 12 looms had been added to the wire weaving facilities, making a total of 18 looms working in two shifts. Since 1932, wire mesh production had also been working in double shifts with two braiding chairs and accompanying equipment. The company, which until 1925 had focused on production of stitching wire, now also produced Rabitz netting – "Rabitz" being the name for wire plaster which consisted of a supporting substructure of metal, the Rabitz netting as plaster base, and the plaster mortar. Wired-glass mesh inlay for safety windows was supplied to glassworks. In 1930, the production range was expanded to include backfill wire netting, which was supplied to coal mines in addition to the backfill wire cloth. Production of paper clips, which sold well after initial difficulties, began in 1932.



No more reliance on water levels: power courtesy of new gas generator, 1931

In the early 1930s, the company made further important investments that provided a key boost to its modernization:

- switching from power generated by water turbine to using electricity from the company's own gas generator. The move was financed, among other things, by compensation payments to flow regulation of the Rapphof Mühlenbach creek;
- installation of a new, modern dry drawing machine;
- purchase of new finishing block and fine-wire drawing machines and multiple drawing machines, which now used drawing dies instead of drawing irons;
- purchase of a wire-drawing die polishing machine.

In 1934, H. W. Brune founded an association for stitching wire, presiding as chairman for several years. This association was particularly important in regard to price regulation.

The signing of a license agreement three years later enabled the *Drahtwerke* to manufacture metal wire mesh covers for ironing machines and dampers. The company remained unrivaled in this manufacturing sector for a long time.

From 1927 to 1929, *Dorstener Drahtwerke* generated profits of RM 2,200, RM 8,600 and RM 12,000 respectively. The 1930 financial year ended with a loss of approximately RM 7,100. This loss was attributable to one customer's bankruptcy and the default on a receivable due of approx. RM 17,000. The annual revenue in 1927 was around RM 170,000, but by 1928 it had already risen to RM 298,000 and rose again to RM 364,000 in 1930.

Pride in its exports: company float for the May Day Parade 1934


Sie gleiten:
leicht
und ohne Verlust
in den Hefter
DORSTENER DRAHTWERKE H.W. Brune & Co.
G. — M. — B. — H.
DORSTEN i.W.
Telegramm-Adresse: Drahtwerke // Fernruf: Nr. 2735

WAR YEARS

Between 1935 and 1939, the production of wire rod, the intermediate product used by wire drawing plants, was cut back in Germany. Supplying armaments to the German military had absolute priority in industrial production. As a result, companies that produced goods essential to the war effort profited.

Production output of Dorstener Drahtwerke 1929 to 1944, in metric tons (t)

	1929	1930	1936	1939	1941	1944
Stitching wire and shoe thread	390	310	518	794	660	609
Wired-glass mesh inlay	162	139	278	628	256	188
Backfill wire mesh	369	341	457	377	399	
Wire for dressing material	24	31	38	100	120	105
Paper clips	–	–	42	21	18	1

Production at *Dorstener Drahtwerke* between 1929 and 1944 developed in a way that reflected this government's rearmament policy of the 1930s: shoe thread for military boots, wired-glass mesh inlay for military industrial buildings, backfill wire mesh for the mining of coal – Germany's only economically viable fossil fuel – and wires for medical dressing material all provided a solid platform for increasing revenues. Revenues declined to RM 290,000 in 1932 and RM 293,000 in 1933, but achieved record new levels in the years thereafter. 1937 saw the RM 500,000 mark exceeded for the first time.

During the war, emergency programs for urgent buildings for the "Oberkommando der Wehrmacht", i. e. Nazi Germany's Unified Armed Forces High Command, the Army Administration as well as the "Führer-Sofort-Programm", Hitler's emergency program for air-raid shelters, needed backfill wire mesh, Rabitz netting and wired-glass mesh inlay. A new addition to the production program was welding wire, which was indispensable to armament production. Stitching wire for all inner and outer packaging of food products, for sanitary facilities, pharmaceuticals, medicines, for armaments (ammunition boxes, air-drop deliveries, etc.) and shoe thread were in demand to a level that was impossible in peacetime.

Customers included the collieries Dorstfeld, Königsgrube (Wanne), and Ewald (Erkenschwick), as well as Siemens or the glass and mirror manufacturer Schalke.

During the war, in 1941, the company achieved a provisional revenue record of RM 928,100 and posted a profit of RM 88,000; however, 1942 and 1943 saw profits drop sharply again to RM 24,000 and RM 29,000, respectively. In the penultimate year of the war, 1944, profits slumped to RM 9,000. The majority of these profits were transferred to reserves. The voluntary reserve in 1945 totaled RM 423,600 with a share capital of RM 38,000, unchanged since 1927. The principle of "retention of profits before distribution" to the shareholders illustrates H. W. Brune's conservative financing policy of those years.

Brochure from the 1930s
Private collection of Wolfgang Burkhardt, Verein für Orts- und Heimatkunde Dorsten

H. W. Brune (6th fr. left) and staff at an employee's funeral, 1939

Scene of ruin: St. Agathe church and the weigh house at the market, Dorsten, 1945
Stadtarchiv Dorsten, SB3-2356

On the basis of the raw material wire rod, the *Drahtwerke* company sold a total of 1,419 t in 1942, with sales rising to 1,550 t in 1943 and then falling back to 1,380 t in 1944. These sales volumes correlated with revenues of RM 755,000 (1942), RM 811,000 (1943) and RM 727,000 (1944).

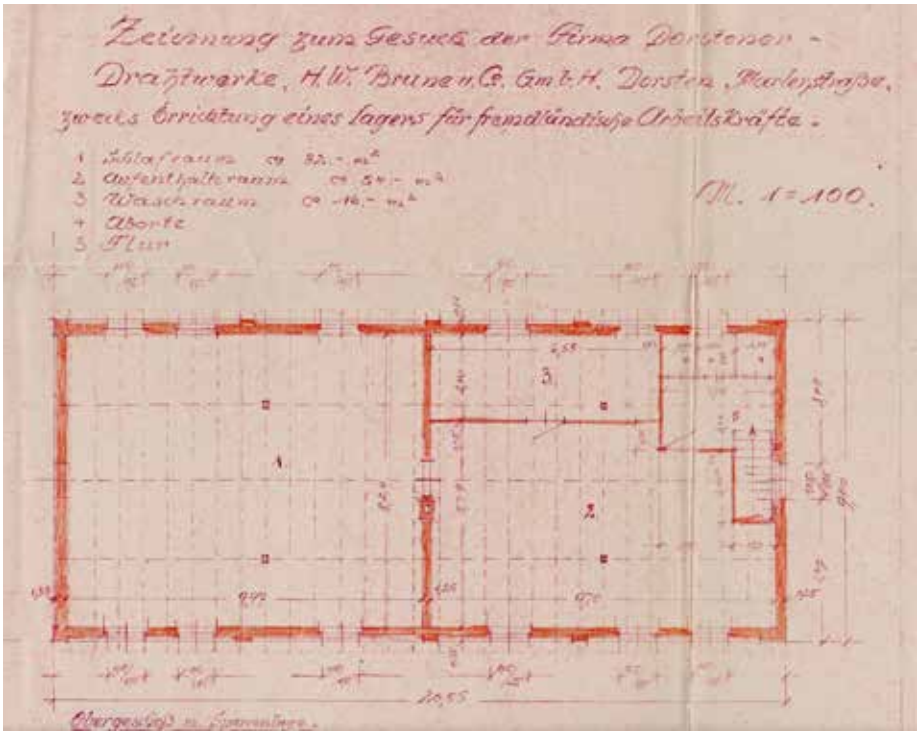
The *Drahtwerke* undoubtedly constituted a vital wartime operation, and were accordingly kept in sufficient supply of wire rod. Ultimately, business profited from the war.

The aerial bombing that destroyed the town of Dorsten on March 22, 1945, had largely spared the *Drahtwerke*, meaning that the business remained in operation almost right to the end of World War II. In March 1945, the Dorsten train station had a total of 168 metric tons of products sitting in rail cars ready for delivery, which had not been dispatched since December 12, 1944, because the rail network and the rest of the infrastructure had been largely destroyed. Although the works management urgently wanted a truck to supply customers in the surrounding area, this was out of the question because the German army needed all available vehicles.

FORCED LABOR

Dorstener Drahtwerke workers were drafted into the armed forces during World War II in yearly cohorts according to birth year, with only a handful avoiding conscription due to having reserved occupation status. On May 1, 1942, the company management applied to the Recklinghausen employment office for the assignment of 21 Russian forced laborers – the application mentions "civilian prisoners" – to offset the increasing shortage of German personnel.

The original idea was to house these workers in a barracks on the company premises. This plan was abandoned as it would have taken too long to deliver the barracks. But time was short, as the company's next German workers were due to be drafted by July 15, 1942. By then, the Russian forced laborers needed to be trained so that production could be maintained. The *Drahtwerke* quickly applied for adding an extra floor onto the 9.00 m x 20.55 m fitters' shop building "in order to find a suitable, albeit primitive, solution using the limited means available" for a "prison camp". "Sufficient windows with ventilation openings" were provided for "lighting and ventilation of the rooms." The drinking- and washing-water system was to be connected to the existing pipe network. The requisite kitchen was to be installed on the ground floor with its own entrance. The construction period was estimated at four weeks, with the cost estimated at around RM 4,800. With a room height of 3.00 m, around 82 m^2 were provided for the forced laborers' sleeping quarters, approx. 54 m^2 of communal space and approx. 16 m^2 for the washroom.



"Lager Paul" labor camp floor plan. Annex to the building application by Dorstener Drahtwerke, July 15, 1942
Stadtarchiv Dorsten, E11–019

The Landrat, i. e. the district administrator, approved the building project on June 16, 1942, thus enabling the *Franz Peuler* construction firm from Dorsten started immediately on adding an extra floor to the fitters' shop. Final inspection of the completed building took place on October 29, 1942; no defects were found. As the employment office also assigned Russian forced laborers to the *Drahtwerke* over the next few years, the bedroom space was split to accommodate the men in one part and the women in the other.

The initial inventory of the camp in summer 1942 consisted of 12 double beds, 24 straw sacks, 24 headboards, 12 double cupboards, three folding tables and six benches. In the winter of 1942/43, 48 blankets were purchased, plus a stove. In October 1943, the "Lager Paul" – as this labor camp was named – also had a "Volksempfänger", a cheap radio promoted by the Nazi regime.

In the end, the *Drahtwerke* had to get by with only three skilled workers. Semi-skilled German workers or unskilled laborers and apprentices kept up production alongside forced laborers from Ukraine. It is notable that almost as many women as men had to carry out the required work, with the proportion of female forced laborers greater than the corresponding figure for German women workers.

Forced laborers from Poland and so-called "Ostarbeiter" from the Soviet Union received the same gross wage as Germans but were taxed according to tax category I (single person with no children), regardless of their actual marital status. In addition to the wage tax, the Poles had to pay a discriminatory special tax, the 15-percent "social compensation levy", and the

Dorstener Drahtwerke workforce in February 1945

1. German workers	male	female
a. Skilled workers	3	–
b. Semi-skilled workers	21	9
c. Laborers (unskilled)	19	18
d. Apprentices	2	–
1. Total	45	27
e. Thereof, part-time workers	–	(4)
2. Foreign workers		
a. Skilled workers	–	–
b. Semi-skilled workers	10	19
c. Laborers	4	12
2. Total	14	31
Total 1 + 2	59	58

Ostarbeiter another special, even higher levy. Since employers were also allowed to deduct RM 1.50 per day for room and board for these two groups, at the end of the week the Polish workers and Ostarbeiter received just a few marks or as little as a few pennies, while a German or Western European skilled worker pocketed around RM 40 to 50 per week. For the 45 forced laborers at the *Drahtwerke* companies, a wage bill of RM 3,610.34 was earmarked in February 1945. After deduction of all taxes and contributions, the company paid a remaining wage total of RM 865.21 (= an average of RM 19.23 per person).

By way of comparison: The wage for the 72 German workers was RM 9,602.79. After all tax and contribution deductions, the company paid the German workers a remaining wage of RM 7,742.36 (= an average of RM 107.53 per person). We can assume that the women workers were paid less than the men.

The most common offense that forced laborers were charged with was "Kontraktbruch", i. e. breach of contract. This term was the catch-all classification used to punish forced laborers for labor-law violations. Penalties ranged from reprimands and wage deductions to confinement to concentration camps or worker re-education camps. In the last months of the war, the *Drahtwerke* management used the means of wage deduction to discipline the forced laborers (October 1944: RM 132.00; November 1944: RM 201.00; December 1944: RM 26.50; January 1945: RM 14.60).

Individual members of the *Drahtwerke* staff certainly may have actively represented the political goals of the National Socialists and, for example, have been active in the SA, the Nazi Party's Assault Division. It can also be assumed that the National Socialist propaganda of the previous years had made its mark on the employees who regarded the people from the Slavic settlement area as "subhumans" who had to serve or work for the "German master race".

It is therefore not surprising that former forced laborers took no good memories of *Drahtwerke* with them after the end of the war, for example Iwan, who worked at the Föcker-Holtkamp farm in Altendorf-Ulfkotte after 1945. As Föcker-Holtkamp recalls,

"We called him Iwan. Once the war was over, he joined up with a group of Russians who worked at the Brune *Drahtwerke* location until the liberation came. Our Iwan was employed there before he came to me. He clearly had no good memories of this company. The Russians plundered the owner's mansion. Our Iwan found a shirt and the boss's black tailcoat in the cupboards. He wore both, even though they didn't fit him. He returned to us and threw himself on the bed, and said happily: "I now Brune, I boss and big Nazi!"
www.dorsten-unterm-hakenkreuz.de

Individual attacks against the forced laborers would have also taken place, even if they can no longer be proven today. From a business point of view, H. W. Brune had to avoid attacks of this kind as much as possible, because the economic success of the company relied heavily on the manpower of the forced laborers. The fact that the *Drahtwerke* ended World War II as a fundamentally intact enterprise was, to a very substantial extent, due to the role played by its forced laborers – who in February 1945 accounted for as much as 38.4 percent of the workforce.

Forced laborers have long been among the "forgotten victims" of National Socialism. Class actions and boycott threats in the US led to the establishment of the German Industry Foundation Initiative (*Stiftungsinitiative der deutschen Wirtschaft*) at the end of the 1990s, which provided DM 5 billion to compensate former forced laborers. In 1999, the *Drahtwerke* paid DM 23,000 into this fund. Compensation payments to former forced laborers under National Socialism were officially ended in June 2007.

DENAZIFICATION

H. W. Brune was certainly not a "big Nazi", but an entrepreneur who adapted to the prevailing circumstances of the time after 1933 in order to expand his profitable company. He did become a member of the National Socialist Party (NSDAP) but held no party rank, remaining a regular party member until the end of the war. For official occasions he would wear the Party uniform. In his living room hung a picture of Adolf Hitler, and a metal sculpture of the Führer stood in the hallway of his villa. In 1943 he was appointed to the council of Great-Dorsten. Seen from a current perspective, Brune counts as one of the many "Nazi followers" who "howled with the wolves" after 1933.

During the denazification proceedings investigating Brune, he stated that he had voted for the German People's Party (DVP) in the Reichstag parliamentary elections in November 1932 and March 1933. From 1933 to 1945, he donated the sum of RM 13,785 to the National Socialist government's winter relief fundraising drive and another RM 6,472 to the "Adolf-Hitler Spende" fund, but these were contributions made compulsory by the NS government at the time. The Denazification Committee wanted to assign Brune to category IV (= Follower). Brune lodged an objection to this decision, and on August 14, 1948, the Denazification Committee in Recklinghausen allowed the objection, commuting its decision to classification under Category V (= Persons Exonerated).

The company staff on May 1, 1934

1945–1968

RECON-STRUCTION AND WIRTSCHAFTS-WUNDER

Overhaul and optimization of machinery: the fitter's shop, 1954

CONSEQUENCES OF THE WAR

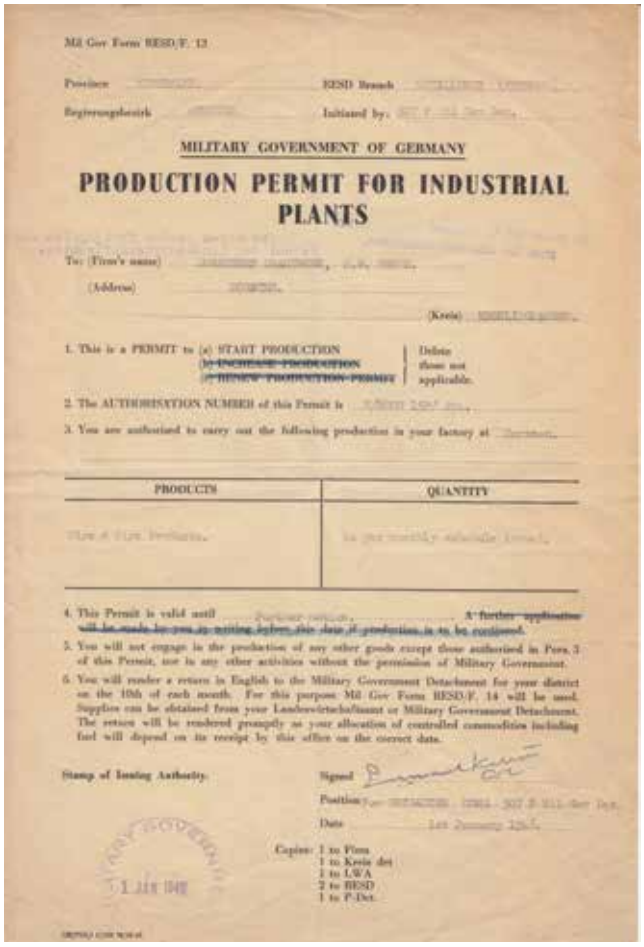
In Europe, World War II ended with the unconditional surrender of the German Reich on May 8 and 9, 1945. Hitler's cowardly suicide only days previously meant that he had eluded being held to account for this war and the crimes committed in the name of Germany. The horrendous destructive power of the atomic bombs dropped by the US on Hiroshima and Nagasaki on August 6 and 9, 1945 forced Japan to surrender on September 2, 1945. World War II thus finally came to an end. The hitherto most extensive military conflict in human history is estimated to have killed over 65 million people, more than half of them civilians.

The material damage was enormous. In Germany, about four million people lost their homes. As a result of the Allies' bombing campaign, approximately 400 million cubic meters of rubble had to be cleared away. Two million homes were destroyed in France, three million in Japan, and six million in the Soviet Union.

About 80 percent of the town of Dorsten was destroyed, and almost every family had lost somebody in the war. The repair of the damage caused by the war and the reconstruction effort absorbed all strength in the next few years.

Dorstener Drahtwerke also suffered the painful loss of many of its staff. A total of 36 employees lost their lives, either killed in action, died in accidents, or were officially recorded as missing.

Bronze plaque listing employees killed, those officially recorded as missing, and those who died in accidents in World War II



Mil Gov Form RESD/F. 12

Province RESD Branch

Regierungsbezirk Initiated by

MILITARY GOVERNMENT OF GERMANY

PRODUCTION PERMIT FOR INDUSTRIAL PLANTS

To: (Firm's name)

(Address)

(Kreis)

1. This is a PERMIT to (a) START PRODUCTION | Delete those not applicable.

2. The AUTHORISATION NUMBER of this Permit is

3. You are authorised to carry out the following production in your factory at

PRODUCTS	QUANTITY

4. This Permit is valid until

5. You will not engage in the production of any other goods except those authorised in Para. 3 of this Permit, nor in any other activities without the permission of Military Government.

6. You will render a return in English to the Military Government Detachment for your district on the 10th of each month. For this purpose Mil Gov Form RESD/F. 14 will be used. Supplies can be obtained from your Landeswirtschaftsamt or Military Government Detachment. The return will be rendered promptly as your allocation of controlled commodities including fuel will depend on its receipt by this office on the correct date.

Stamp of Issuing Authority.

Signed

Position

Date

Copies: 1 to Firm
1 to Kreis det
1 to LWA
2 to RESD
1 to P. Det.

Mining industry supplier able to resume production: permit issued by British occupying authorities, January 1, 1946

RECONSTRUCTION

Gradually, the surviving servicemen returned to the company. The first order of business was the extensive clean-up work required in the office and factory, a task that lasted until January 1947. In July 1946, the company management made a claim for material damages amounting to RM 110,896.45 from the War Damage Office. As early as August 1945, the *Drahtwerke*, as important suppliers to the mining industry, received approval from the military government to resume production, but this was out of the question for the time being.

Since the company's only source of revenue was sales from the production in January and February of 1945 and from the stock, it is not surprising that the company's balance sheet for 1945 closed showing a loss of RM 6,711.85. Nevertheless, the company was on sound financial footing as of December 31, 1945.

Total assets	**570,100 RM**
Share capital	**38,000 RM**
Voluntary capital reserve	**423,600 RM**
Liabilities	**38,400 RM**
Trade receivables	**39,600 RM**

In March 1946, production was able to resume, generating around 20 percent of revenue compared to 1938 and operating at 30 percent of available capacity. Over the next weeks and months, however, raw materials and supplies were received in insufficient amounts and, on top of that, at a very slow rate.

The order backlog was sizable, but there was a shortage of employees to run two shifts to fully utilize the available capacity. In addition, urgently needed means of transport such as trucks and passenger cars were lacking. The railway network, which was seriously damaged during the war, was not able to accommodate regular freight transport for the time being. Price increases of up to 300 percent and high procurement costs adversely affected the company's balance sheet for 1946, which recorded a loss of RM 39,227.91.

In 1947/48, the company management succeeded in bartering for a truck and a car, which allowed them to re-establish or gradually intensify their connections with old and new customers.

CURRENCY REFORM

The 1947 financial year already saw revenue increase from RM 304,900 to RM 416,500. The introduction of the Deutsche Mark (DM) on June 21, 1948, was accompanied by an adjustment of the balance sheets. A reconciliation of the figures from the transitional RM balance sheet of June 20, 1948, and the DM opening balance sheet of June 21, 1948, which takes account of an increase in share capital through reserves, illustrates the situation following the currency reform.

	RM transitional balance sheet 20.6.1948 (RM)	DM opening balance sheet 21.6.1948 (DM)
Total assets	**530,900**	**324,200**
Share capital	**38,000**	**300,000**
Voluntary capital reserve	**417,200**	**8,900**

The introduction of the new currency was an important prerequisite for the economic reconstruction of Germany. Wages, salaries, and rents were converted at a ratio of 1:1, cash, savings, and debts lost value. The arrival of the new DM currency also saw price fixing for most goods abolished, an important step towards the introduction of a market economy. Indeed, shops' display windows were filled from one day to the next with goods that had previously been hoarded. The black market, up to that point a dominant feature of everyday life in the Western occupation zones of the British, Americans, and French, disappeared.

The currency reform was also key to the European Recovery Program (ERP) announced by then US Secretary of State George C. Marshall on June 5, 1947. The economic development program known as the Marshall Plan was intended to facilitate rapid economic reconstruction in Europe and to prevent the (further) spread of communism in the Cold War, which now divided the world into two camps. For the 16 European countries that agreed on a competitive economic system in Paris in July 1947, Marshall Plan aid began to flow in 1948. Between 1948 and 1952, the US provided loans amounting to some 12.4 billion dollars, of which around 1.5 billion dollars went to West Germany.

The *Drahtwerke* also profited from the introduction of the Deutschmark. In the DM's first full financial year, 1949, revenue of DM 2.3 million and a profit of DM 281,000 (=12.5 percent of total revenue) were achieved. Total assets rose to DM 855,000.

Dorstener Drahtwerke soccer team, 1948

H. W. Brune with his daughters Charlotte (left) and Herta (right) at the company party 1948

THE "WIRTSCHAFTSWUNDER"

Just one year after the founding of the Federal Republic of Germany (FRG) and the German Democratic Republic (GDR) in 1949, the Korean War (1950-1953) triggered a global economic boom. Over the next few years, industrial production climbed further, unemployment fell, wages and salaries rose, and the purchasing power of the DM increased appreciably. The founding of the EEC through the Treaty of Rome, which was signed in 1957 and came into force on January 1, 1958, was a key driver behind establishing European economic integration. In the mid-1950s, an ever-increasing number of households could afford to buy sought-after consumer goods such as cars, vacuum cleaners, refrigerators and televisions, and going on vacation. After the depressing hardship this general increase in prosperity of the post-war period was perceived by many people as an economic miracle. Economics Minister Ludwig Erhard was considered the father of the German "Wirtschaftswunder" and the social market economy, which still shapes the economic system of Germany today.

Economic development at *Dorstener Drahtwerke* did not always run smoothly at this stage. The good year of 1949 was marked by catch-up effects due to the currency reform and is, therefore, no yardstick by which to measure "normal" business growth; the following years were characterized by great volatility.

Business growth 1949 to 1953 (in 000s of DM)

	1949	1950	1951	1952	1953
Total assets	855.4	950.4	957.8	1,028.1	1,078.8
Total revenue	2,250.5	1,502.4	1,727.4	1,624.5	1,509.9
Special costs*	103.2	74.9	110.9	127.3	0
Operating result	385.3	147.1	103.7	-95.0	3.5
Depreciation for wear and tear	104.2	42.9	96.0	44.4	47.2
Profit/loss	281.1	104.2	7.7	-139.4	-43.7

* Greater details are lacking here, but development of a circular mesh welding machine was pressing ahead at the time

In the 1951 financial year, despite a brief rise in revenue, profits collapsed dramatically to just DM 7,700, or 0.4 percent of total revenue. This decline was mainly due to high costs – totaling DM 37,000 by 1950 – caused by serious technical problems related to the development of the circular mesh welding machine for wire mesh glass. In addition, the company invested DM 93,000 in expanding its existing facility, the reconstruction of its office building and the staff residential building, as well as in constructing the new transformer building.

The 1952 financial year saw the company post a loss of DM 139,400. Revenue generated through the company's own products fell from DM 1.5 million to 1.3 million. Behind this slump were the fall in sale prices, the decline in exports, and the almost total loss of wired-glass mesh inlay which was previously the top-earning product line; at the same time, coal and electricity prices had risen.

Consequently, it was decided to implement the following measures for the 1953 financial year:

1. Rationalization of administration and operations, including short-time working and staff reductions if necessary;
2. Launch of wire net production;
3. Conversion of the wire weaving facilities to accommodate other types of mesh and penetration of the sales markets for these products;
4. Recruitment of a specialist technical and commercial manager for the wire-weaving business;
5. Manufacture and marketing of backfill wire cloth with paper inlay for the mining sector, required for colliery's mine roads ("Padra cloth").

Booth at the industrial exhibition for the 700th anniversary celebrations of the town of Dorsten, 1951

This raft of measures was implemented immediately. Although the balance sheet result for 1953 was – as in the previous year – negative, the loss was reduced to DM 43,700. Due to technical limitations, it was not yet possible to commission the planned net welding facilities that were still under development. At the same time, a second facility was being developed for flat welding. The machines for these processes were built in the company's own fitters' shop under the master mechanic Schwane and registered as patents. In addition, the wire weaving facility was significantly extended with the help of Thuringia wire cloth specialist Moritz Beyer. Investments in automatic drawing and weaving machines, the expansion of the wire drawing segment, and a modern annealing plant led to brisk construction activity in the manufacturing, storage, and shipping departments. In 1954, it became clear that the circular mesh welding machine that had been built was unsuitable for producing the wire net that formed the mesh inlay in wired-glass; the flat welding process, however, proved to be viable. By the end of the 1954 financial year the company had already returned to profit, posting a plus figure of around DM 42,000.

Production figures for selected products 1951 to 1955 (in metric tons)

	1951	1952	1953	1954	1955
Stitching wire	492	444	332	431	483
Staples	22	9	17	40	50
Paper clips	83	50	47	50	41
Wire net	–	–	–	12	71
Rabitz netting	65	76	48	26	7
Wired-glass mesh inlay	177	42	20	–	–
Backfill wire mesh	377	298	385	231	113
Pneumatic backfill retaining mesh	–	–	–	10	27
Padra netting	–	–	–	184	206
Insulating gauze	–	–	26	68	75

Business growth 1954 to 1957 (in 000s of DM)

	1954	1955	1956	1957
Total assets	1,129.2	1,172.1	1,072.0	1,186.0
Total revenue	1,138.8	1,143.9	1,576.4	1,847.7
Operating result	89.4	156.6	115.2	178.0
Depreciation for wear and tear	47.4	55.0	76.7	86.9
Profit/loss	42.0	101.6	38.5	91.1

Exports also picked up again. On September 4, 1954, in connection with the company celebration marking the 75th birthday of H. W. Brune, the *Ruhrnachrichten* newspaper reported the company's export success under the heading "Dorstener wire all set for Bogota, South America":

"... did you know that *Dorstener Drahtwerke H. W. Brune* has connections throughout the globe? The company has made the town of Dorsten famous all over the world. The finished goods are distributed to all European countries as well as shipped overseas."

The company was back in the black from 1954 to 1957. Although 1956 closed with a positive result of DM 38,500, it was affected by increased costs, mainly due to wage increases for reduced working-hours arrangements (45 hours) and rises in wire rod prices, which could only partially be passed on to customers. The share of revenue generated by welded wire net fell sharply from 50 percent (1949) to 14 percent (1951) and to only 3.5 percent in 1956.

The *Handbook of German Stock Corporations* of 1959 listed the products of *Dorstener Drahtwerke H. W. Brune & Co GmbH* as drawn iron wire, special stitching wire, electro-welded wire net, wire mesh, woven wire cloth, backfill wire net, and paper clips.

At the same time, this period of volatile development saw notable changes in terms of the ownership and management of *Dorstener Drahtwerke*.

GENERATIONAL CHANGE

Heinrich Wilhelm Brune died on March 3, 1957 at the age of 77. He headed the *Dorstener Drahtwerke* for almost forty years, more than thirty of them as sole managing partner. He successfully led the family business through some highly eventful years in German history, through the hyperinflation in the Weimar Republic, the Great Depression, World War II, and the difficult post-war period.

Under Brune's stewardship, a small, highly specialized wire drawing firm grew into an industrial enterprise with more than 100 employees and an extensive portfolio of wire products, ranging from stitching wire to a wide range of wire mesh and wire cloth.

H. W. Brune's commercial skill and willingness to take risks were crucial factors in the continuing success of *Dorstener Drahtwerke*, and the establishment of the DDD brand. He took a flexible approach in adapting the *Drahtwerke* to respective market situations, which changed rapidly due to political and economic changes as well as technological innovation.

Heinrich Wilhelm Brune, nevertheless, always saw the *Dorstener Drahtwerke* as a family business. When the Renzing brothers left the company, he brought his two daughters Charlotte and Herta into the company as partners; his sons-in-law Paul Tüshaus and Emil Wolfgang Köhler as well as his grandson Werner Tüshaus held senior positions at DDD. However, H. W. Brune had neglected to put in place a clear succession plan for the company. Charlotte Tüshaus and Herta Böhm each inherited 50 percent of the company shares, while Friedrich Hoffmann, who had been working on the commercial side of DDD's business, was appointed as a first manager with general commercial power of representation.

A phase of uncertainty and lack of leadership followed, lasting until 1961. The two family lines, with rights of control split equally between them, were seldom unanimous when it came to business decisions, and the managing directors came and went in rapid succession.

At the same time, general economic conditions were taking a negative turn. The minutes of the Supervisory Board meeting of May 27, 1959, for example, reported:
"Competition is becoming increasingly fierce, especially in the context of the Common Market. An effective counter-adjustment is urgently required here, with exports representing a viable option [...]. This strategy would however require rationalization measures. The following near-term investments are therefore necessary:
a) Heightening the fine wire drawing shop
Purpose: Enlargement of the weaving room to achieve more efficient machine grouping
b) Production of two net welding machines = DM 16,000."

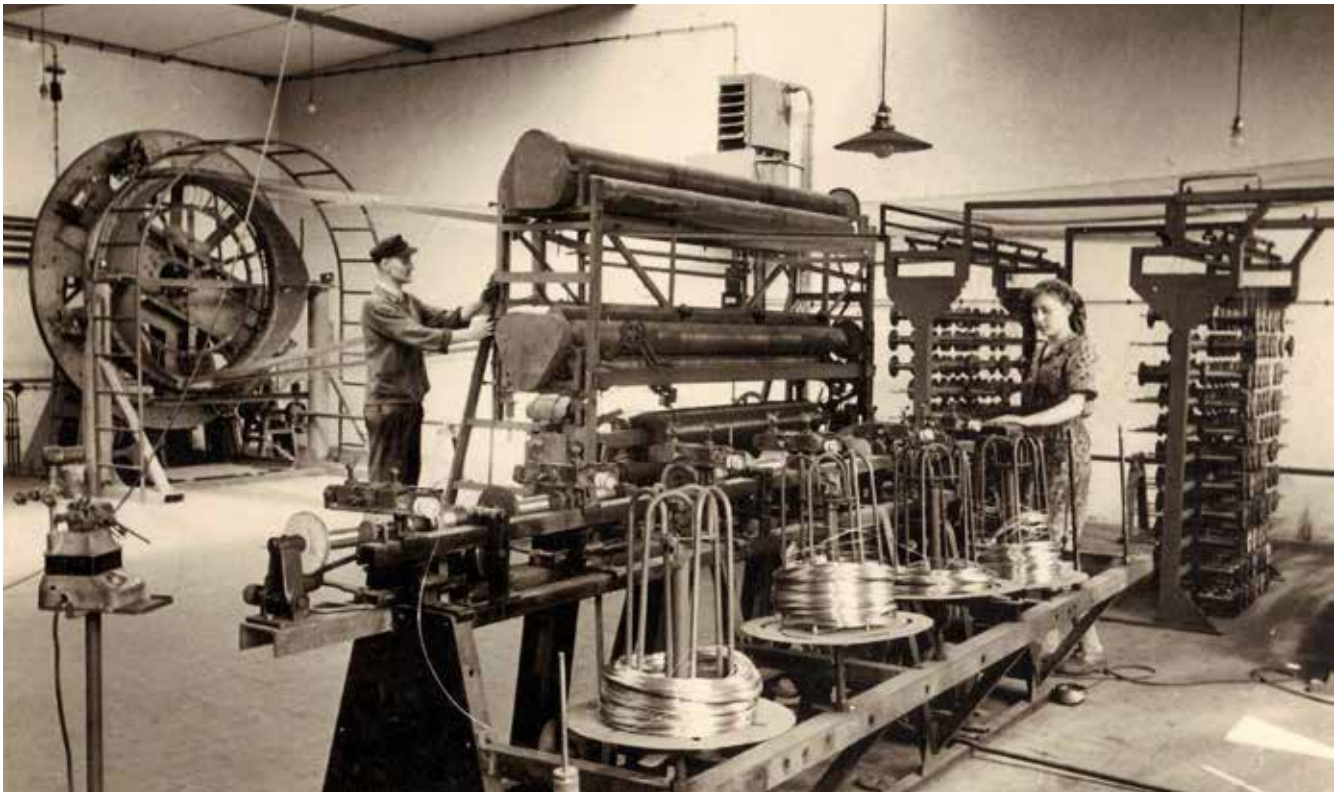
But even in decisions about these pending investments and difficult cuts that would have given *Dorstener Drahtwerke* new impetus, the two family camps within the company failed to reach an agreement.

DDD design: circular mesh welding machine for wire net used in wired glass, 1954

Werner and Charlotte Tüshaus, 1968

Internal family quarrels caused by the ownership situation persisted until Charlotte Tüshaus and her eldest son Werner acquired Herta Böhm's 50-percent stake in the company in 1961. The operational restructuring and rationalization measures that then took place were greatly eased by these intra-family arrangements. The generational change had been accomplished, and *Dorstener Drahtwerke* turned to the future under the stewardship of Werner Tüshaus.

Werner Tüshaus, born in 1930, studied commercial business and management at vocational school and then joined his grandfather's company in 1947. He worked in all the departments on the business side of the company; as first-hand reports from the time confirm, Tüshaus had to work hard without any privileged treatment as the boss's grandson in order to familiarize himself quickly with the complex subject matter. In 1950, he moved to the well-known Cologne export company *Otto Wolff*, then one of the largest trading companies in West Germany. Five years later, Tüshaus returned to *Dorstener Drahtwerke* now well-versed in the export business, which was also becoming increasingly important for the *Drahtwerke*. Tüshaus again did stints working in each of the company's departments until, after a six-month stay in England in 1959, he took over the commercial and technical management of the *Drahtwerke*. All of which meant that Werner Tüshaus was well prepared for guiding the destiny of *Dorstener Drahtwerke* when he took over the reins as managing partner in 1961.



NEW SUCCESSES

The new company management was immediately confronted with significant challenges. The mining crisis that developed in the 1960s began to have an impact on the production program of *Dorstener Drahtwerke*. Sales of backfill wire mesh for underground mining and Padra cloth declined sharply, forcing the braiding machines to be shut down. Other uneconomical facilities such as the paper clip department, galvanizing and tinning plant were also shut down.

DDD's response was to invest immediately: Two new wire drawing machines were purchased to ensure efficient production of weaving wire, and investments were made in wire drawing machines with final copper-coating units, thus modernizing the wire drawing process. A new grid-gas fired controlled atmosphere annealing furnace went into operation at the end of 1962, eliminating the need for the company to produce its own gas.

On September 29, 1964, the *Ruhrnachrichten* newspaper reported on the internal measures as follows:
"The Dorsten-based company, which exports about 30 percent of its products, has already implemented extensive rationalization measures in order to remain competitive. Its production portfolio, previously focused on drawn iron wire, has been widened, now including wire cloth for household goods and the automotive and chemical industries, among others."

Between 1961 and 1967 this led to an increase in revenue from DM 3.6 million to over DM 4.1 million, while at the same time the workforce went from 150 down to 110 employees as a result of the rationalization measures. Regarding the latter circumstance, Werner Tüshaus stated that, despite the good order situation, it was difficult to get skilled workers because the labor market was empty.

In 1965, the tone struck in a *Dorstener Anzeiger* special supplement reporting on the successful development of DDD was almost euphoric: "A hundred thousand kilometers of wire a month at *Dorstener Drahtwerke*. If you were to weld all the ends together, you could comfortably circle the globe twice."

The DDD success story was not only important for the town of Dorsten at local level, it was celebrated in the top echelons of national politics. As reported by the *Ruhrnachrichten* of September 9/10, 1966, the then Chairman of the FDP and Vice Chancellor Erich Mende visited the *Drahtwerke* during an election campaign event.

Ever since the early fifties, the success of the company has been, and still is, due not least to a notably good relationship between the company's senior management, the works council, and the employees and their families. The local press regularly reported on employee outings, company celebrations, and company anniversaries. The company's annual end-of-year

Factory tour: Vice Chancellor Erich Mende (3rd fr. right) accompanied by Werner (4th fr. right) and Charlotte Tüshaus, July 1966

New perspectives: business delegation in Ontario, 1965. Werner Tüshaus standing 1st fr. left

party in the Kleinespel Hall featured a dinner, a report on the company's key internal matters, its revenue projections, employment trends, future plans, and the recognizing of staff who had completed 25 and 40 years of service with the company. For example, the *Ruhrnachrichten* published an article on September 29, 1964, titled "Drahtwerke are proud of their long-serving staff":
"For *Dorstener Drahtwerke GmbH*, a good working atmosphere is very important. [...] The firm is particularly proud of its long-serving staff. This year Herbert Kipker was honored for forty years of loyal service. [...] Seven employees have been with the company for 40 years, [...] and 12 have notched up 25 years of service."

In addition, an article about *Dorstener Drahtwerke* in a special supplement of the *Dorstener Anzeiger* from 1965 notes:
"The good relations that he [H. W. Brune] and his successor have maintained with their employees have played a major role in maintaining the company's working atmosphere [...] at such a positive level that no less than 25 men and women can now look back on 25 years of service, with 14 men even boasting 40 years with the firm."

The company was also actively engaged on behalf of its employees with respect to social welfare. For example, an employee benefit fund was set up in 1961, which included disability and old-age pensions, widow's and death benefits as well as a sick-pay supplement. This support scheme still pays cash benefits to long-term employees today.

In 1968, 50 years after its foundation, *Dorstener Drahtwerke* could safely say that it had charted a path of successful development. The entire company family, Charlotte and Werner Tüshaus, 120 employees and numerous guests of honor, including mayor Lampen and town director Quinders, celebrated the anniversary on September 6, 1968, with pride and confidence. The next day the *Ruhrnachrichten* ran the headline:
"DDD shuts down for the day to celebrate its 50th birthday."

Business growth 1958 to 1969 (in 000s of DM)

	1958	1960	1962	1964	1966	1968
Total assets	1,242	1,378	1,609	1,813	1,924	2,530
Total revenue	1,767	2,062	2,230	2,322	2,630	3,117
Operating result	105	153	164	237	301	321
Depreciation for wear and tear	94	102	88	126	220	173
Profit/loss	11	51	76	111	81	148

A festive occasion:
50th anniversary of
Dorstener Drahtwerke
1968


50 Jahr
6.9.1

The Dorstener Drahtwerke staff, 1968

STEEL WIRE AND WIRE MESH PRODUCTS FROM STEEL

Wire products from Dorsten can be found wherever you look. They are used for fastening, stitching, carrying, protecting, sifting and filtering. They are present in brochures and packaging, cars and airplanes, medical equipment, as well as in machines and large chemical industrial plants and equipment. Whether in a short or long format, welded or woven, DDD wire holds our world together in many ways.

The range of products that *Dorstener Drahtwerke* has put out during its 100-year history is staggering, a direct reflection of the attributes that have typified the company right through to today: adaptability, flexibility, willingness to innovate and a close relationship with its customers. DDD has continually tapped new markets and pioneered new and innovative applications for wire and mesh.

INNOVATION FROM TRADITION: 100 YEARS OF STITCHING WIRE

Stitching wire goes right back to the beginning of DDD's history: it was already produced by *Gebr. Renzing* before H. W. Brune joined the company in 1918. Whether for brochures, catalogs, or boxes, for cartons or horse saddles, to this day *Dorstener* stitching wire ensures optimal fastening of the widest variety of materials, also meeting the most rigorous demands in terms of tensile strength, elasticity and surface quality.

Dorstener Drahtwerke specializes in stitching and binding wire for the graphic industry. And DDD wire works in multifunctional systems that perform printing, scanning, copying and stitching in modern offices, as well as in inline stitchers in high-speed rotary printing machines of printing plants. DDD works closely with graphic equipment OEMs to further develop the qualities of the stitching wire in line with ever-increasing customer demands.

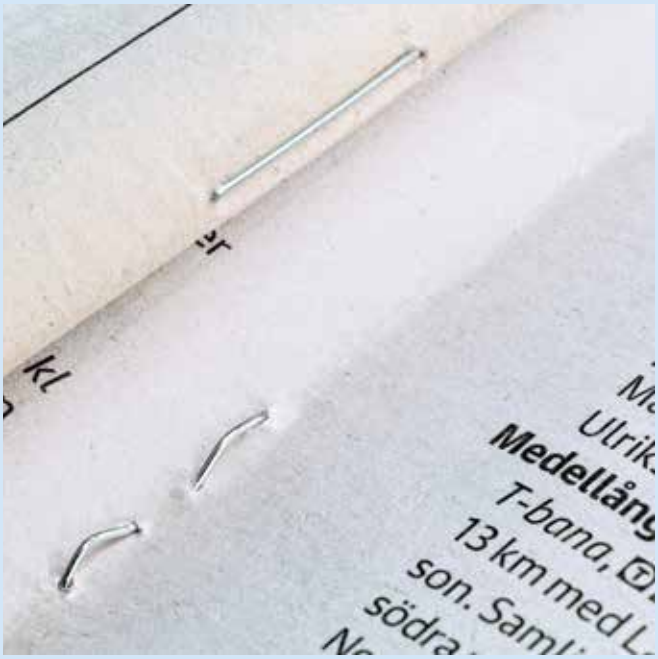
With its innovative and flexible solutions for all stitching wire needs, *Dorstener Drahtwerke* continues to set standards: the high-performance stitching wire, POWERBIND™, offers considerable quality and cost advantages in wire stitching processes. EASYDRUM™, the system for torsion-free winding of stitching wire, gives customers real productivity gains. And under the BINDSERVICE™ product name DDD offers various tools for further processing, from unwinding devices to eco-friendly reusable spool logistics and special lubricants.

With 100 years' experience behind it, DDD has built up unique expertise that is continually incorporated into further developing the product that has traditionally been the company's main focus – stitching wire. Since 2017, the DDD Group has ranked as the true world market leader in this segment.

NEW WIRE MARKETS

Stitching wire is of course not the only product in the drawn-wire portfolio. The full array of steel wires produced by *Dorstener Drahtwerke* can be seen today in electric and thermal applications.

Left: Fabrication and cold heading wire



Above: High-performance stitching
Left: EASYDRUM™ system for inline stitching

File and paper clips: Dorstener Drahtwerke products from the 1930s till the 1950s

Range: a small selection from the flat-wire product portfolio

Patent for seat cushions for ironing machine press plates from May 29, 1940

Fig. 1

DEUTSCHES REICH

AUSGEGEBEN AM
19. DEZEMBER 1941

REICHSPATENTAMT

PATENTSCHRIFT

№ 715375

KLASSE 8d GRUPPE 20 25

B 190816 VII/8d

Heinrich Wilhelm Brune in Dorsten

ist als Erfinder genannt worden.

Where high mechanical strength is required, selected steel grades with low carbon content and defined alloying elements can offer an alternative to non-ferrous materials.

DDD currently manufactures the base wires for the production of resistance and thermal-melted alloys, heating spirals and conductor wires for detonator mechanisms in the cable industry.

Bright finish, copper coated, tinned, galvanized or lacquered – the possibilities for surface finishing are endless.

WOVEN WIRE CLOTH – THE MARKET DRIVES INNOVATION

Ever since H. W. Brune established the wire weaving facility in 1924, DDD has continued to develop its mesh business line. Until the 1950s, three products – wire mesh covers, backfill wire, and mesh inlay for wired glass – were of special economic and technological significance for the *Drahtwerke*.

From the 1930s, under an exclusive license, DDD produced wire mesh which formed part of the heat-transfer mechanism in new ironing machines in the textile industry. The company also registered its own patents in 1940 and 1949 in order to maintain its leading position in this market.

The mining industry and requirements for reinforced glass were key to the product range offered by the company right through to the 1960s. Wire cloth made of steel wires was mainly used as a mesh inlay for window glass in glassworks and as backfill wire mesh for tunnel driving in mines. DDD invested considerable effort in developing these products as a welded wire mesh variant, which led to several patents. The costly construction of a production facility for 3,000-mm width welded wire meshes eventually proved unsuccessful as the product failed to establish itself on the market.

HARDBOARD TRANSPORT AND DRAINAGE CLOTH – CONQUERING THE MARKET VIA DETOURS

Sometimes innovations simply come about in a roundabout way. The Swedish subsidiary *DTN – Dorstener Tråd Norden*, founded in 1995, was actually aiming to gain a foothold in the Swedish stitching wire market. However, hardboard production using wood as a raw material also plays an important role in Scandinavia. The panels are made out of wet wood fibers; the water is drained from the fibers at high pressure on a wire mesh transport screen. For this purpose, new screens based on a 5-heddle weave technology were developed with DTN's customers. After initial tests, *Dorstener Drahtwerke* established itself on the market thanks to its proven quality and many years of expertise in cloth design. Ever since, DDD has been supplying highly robust and durable drainage screens for the pressing process.

... more than wire

FILTER TECHNOLOGY

Woven wire cloth is a classic filtration product: precise, robust, corrosion- and heat-resistant, and therefore extremely versatile. *Dorstener Drahtwerke* offers filter cloth for liquids and gases that start at a micron rating of 5 µm (= 5 thousandths of a millimeter). In collaboration with our American subsidiary PMF, the filter media range was expanded to include highly innovative sintered wire cloth laminates.

The SinterPore™ brand product consists of several layers of wire cloth firmly bonded together through a sintering process using pressure and temperature in a vacuum. The ideal combination of meshes produces a filter media with new properties for demanding applications not only in the process industry, but also in the aerospace industry.

Of course, the market wanted more – and so filter elements as well as components for filter systems used in the most extreme operating conditions were gradually added to the product offering. Today the filter products line is among the major assets of the *DDD Group of Companies*.

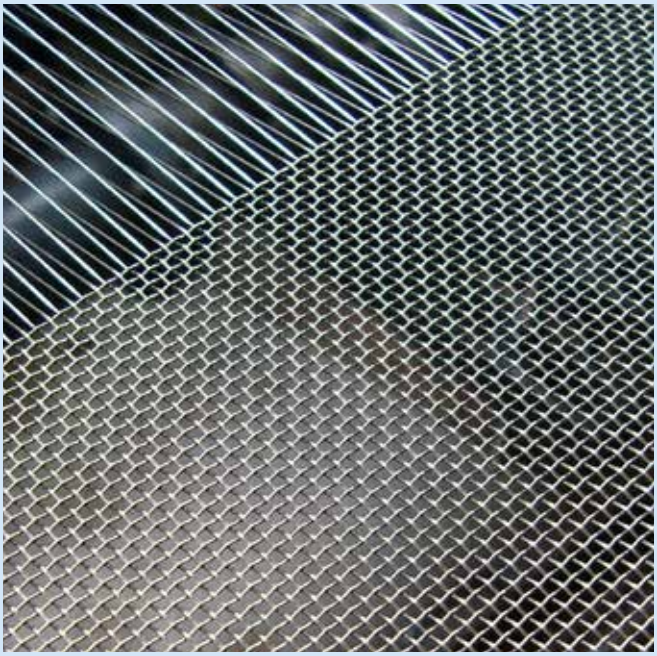
The range of applications is extremely diverse. For example, SinterPore™ elements are used very successfully in the ballast water filters of ocean liners or are supplied to the oil and gas industry which uses them as sand control filters in exploration work. Also the plastics industry buys made-to-measure filter elements, for example for plastic extrusion.

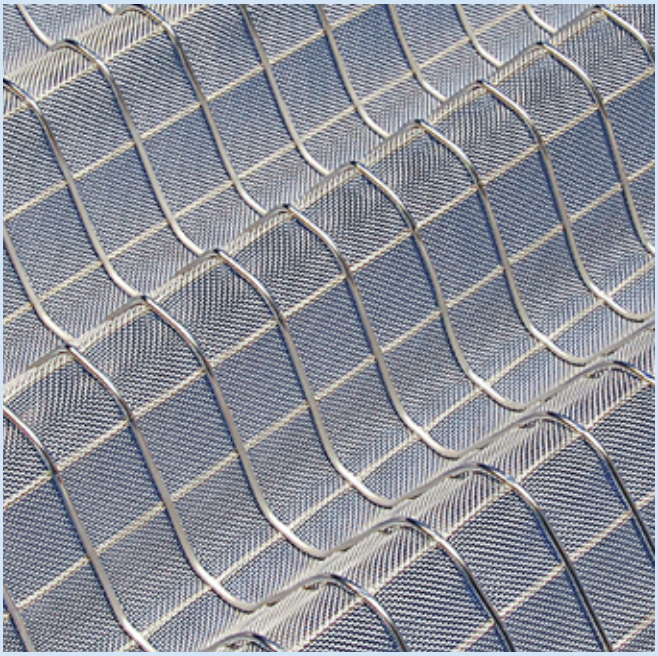
FROM SCREEN MEDIA TO THE HIGH-END SCREEN SYSTEM SONIC SPEED SCREEN™

Since early historical times, interwoven wires were used for sieving minerals and seeds. Although DDD has been supplying mesh for screens for a long time, it took until the 1990s to discover the full potential. Very quickly, DST in Dorsten, CES in Dortmund and MSD in Spain expanded the specifications of metal screen media for applications ranging from ultra-fine mesh screens for powdered sugar through to screens with thumb-width thicknesses for quarries.

assonic, part of the *DDD Group of Companies* since 2013, develops "ultra-fine" separation technology. One key focus of innovation is the screening and conditioning of high-tech metallic powders used in 3D printing.

With their SONIC SPEED SCREEN™ technology, the screens are directly stimulated by high-frequency ultrasonic energy and medium-frequency vibrations. *assonic* screening machines also screen fine and difficult organic and inorganic powders in confined spaces at high throughput rates. The screening media, designed for the high-performance machines, are of course produced by the *DDD Group of Companies*.





Precision:
stainless steel mesh on the loom

Versatility:
a selection of small filter inserts

SANDWICH: woven mesh, structurally reinforced by welded mesh

Screening basket for SONIC SPEED SCREEN™ centrifugal sifting machines

1968–1994

NEW CHALLENGES AND NEW BEGINNINGS

Future markets: a Japanese business delegation on a visit to Dorstener Drahtwerke, September 1969. Right: Werner Tüshaus

The 50th anniversary of *Dorstener Drahtwerke* in 1968 heralded an eventful period in the company's history. The persistent economic growth of the Wirtschaftswunder came to an end in 1966/1967 with the first recession of the post-war period. Social and economic upheavals that *Dorstener Drahtwerke* would have to respond to were looming large. In the 1970s, the two oil crises and the slowdown in growth had a lasting impact on economic life in West Germany. A recession then followed in the 1980s, particularly affecting the metal processing industry. International economic integration deepened and the global economy as a whole was more susceptible to crises. The fall of the Berlin Wall, the opening up of Eastern Europe, and the emergence of competitors from Asia changed the market environment for *Dorstener Drahtwerke* again.

A POWERFUL TEAM

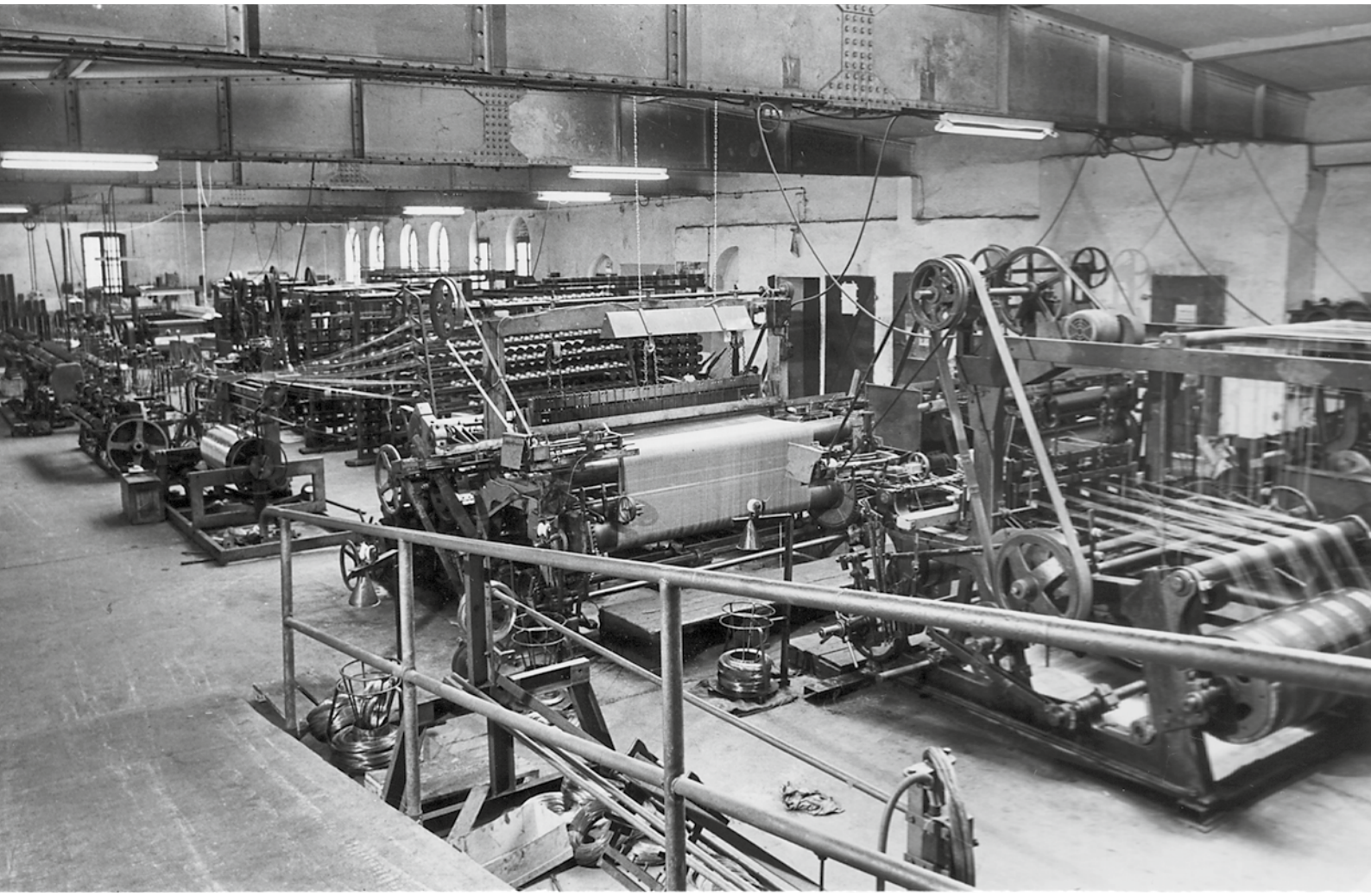
Werner Tüshaus, as managing partner, steered the family enterprise through this period of ups and downs. Charlotte Tüshaus, partner and managing director, took a back seat when it came to the operational side of the business. In 1978, she transferred the majority of her stake to Werner, and resigned from her post as managing director. She knew the company was in good hands, but still continued to advise her son from the sidelines when required.

Werner Tüshaus assembled an efficient and open-minded management team around him who helped him master the challenges ahead. At the beginning of the 1970s, Tüshaus appointed Christian Beyer as technical and commercial manager as well as authorized signatory. The qualified businessman had learned his trade at *Emil Jaeger,* the leading German manufacturer of wire weaving looms, before he joined the *Drahtwerke* in 1957. Like his father, Moritz Beyer, Christian Beyer was a wire cloth specialist but had to work his way through all departments of the company. Later he was primarily in charge of the organization of production processes, a responsibility that also extended to the procurement of machines as well as base material such as wire rod. Werner Tüshaus expanded the management team by bringing in Günther Streppelhoff as commercial manager and Peter Koch as sales manager, each with commercial power of representation. This powerful team remained together until the early 1990s, their working relationship typified by mutual respect and trust, with great freedom to act and scope for taking decisions on behalf of the business.

MODERNIZATION WITH A SENSE OF PROPORTION

The management team had the task of continuing the modernization process that had already been started, ensuring the company remained state of the art and thus internationally competitive. Werner Tüshaus acted with foresight and a sense of proportion: the Dorstener entrepreneur was open to new ideas, as well as willing to commit large sums of his own capital. He mainly invested during periods when the economy was sluggish, taking advantage of lower prices for construction services and machinery.

Rationalizing and optimizing production processes was the order of the day. In order to keep up in a highly competitive market over the long term, productivity and quality urgently needed enhancing and costs reducing. This feat was tackled both in the company's wire drawing area as well as in wire weaving and logistics.



The lower level of the weaving plant, 1968

Fine-wire drawing machine, 1965, and the modern dry drawing machine, 1977. The dry drawing machine had a 6 to 7 ton-per-shift capacity

RATIONALIZATION OF WIRE DRAWING

Wire drawing was one of the core elements of production. More powerful multiple die drawing machines were purchased for the dry drawing and fine-wire drawing facilities, first from Italy and then from Germany. They featured higher running speeds and a greater degree of automation. However, the wire became much warmer in the faster-running wire-drawing units, so new cooling systems also had to be installed. The purchase of a bending-and-descaling system and the availability of appropriate steel rendered the processes of chemical pickling in hydrochloric acid and subsequent liming redundant. The continuous operation of final copper plating equipment removed the need for the lengthy process of dipping the wire coils in copper sulphate in a vat. Time-consuming procedures which interrupted the actual drawing process were thus eliminated.

It was clear that in the long term wire drawing would only be efficient and economical if larger quantities could be processed. The technicians configured the drawing machines in a way that feed for the wire rod and the accumulation for drawn wire could accommodate bigger coil weights. By the late 1990s, wire rod coils of 2.2 metric tons were used, up from the maximum 100 kg at the end of the 1960s. The improvement in productivity achieved in the 1970s and 1980s was enormous: the production speed of the wire increased tenfold from 1.4 m/s to 14 m/s. At the same time, the higher degree of automation made it possible for an operator to work four drawing machines, instead of two.

First "Ameise" forklift, 1968

NEW WIRE-WEAVING TECHNOLOGY

Investments in machinery also significantly increased productivity in the wire weaving operations. The most important innovation of the 1960s was the rapier weaving machine. *Dorstener Drahtwerke* worked closely with the loom manufacturer *Emil Jaeger* to introduce this up-and-coming technology. It was a resounding success: the previously used shuttle looms ran at about 40 to 60 rpm and shuttles only took up about 200 g of wire, meaning they had to be continuously exchanged. A weaver could thus operate a maximum of four looms at the same time.

The rapier weaving machines, however, operated at speeds of up to 140 rpm (in the 1970s). They were designed without shuttles because the bar gripper now took the wire from a source external to the machine. Large wire reels could now be used, enabling a weaver to operate six to eight machines at one time. The higher productivity rate had its price though: fitting out one weaver's workplace did cost about one million deutschmarks. Nevertheless, the reduction in unit labor costs resulting from the use of modern technology made *Dorstener Drahtwerke* significantly more competitive.

LOGISTICAL BOTTLENECK

The operational logistics side of the business was also aligned to the new production requirements. The practice of workers conveying material by hand, on their backs or using wheelbarrows, commonplace until the 1960s, was no longer compatible with the larger quantities that the machines were now producing. The first forklift truck with a lifting capacity of 2.5 t purchased in 1963 was soon followed by other industrial trucks and forklifts. However, spatial constraints hindered the use of their full capacity: the cramped production area, with the machines lined up right next to each other, gave the forklifts hardly any room to maneuver. Cranes had to be installed to feed the machines, taking up further space. So, overall, while technical solutions did alleviate the bottleneck situation in logistics, the lack of space kept options limited.

Below: The factory grounds in 1990, with the new annealing plant on the right past the so-called blue halls

Right: Two generations of annealing systems – the old annealing plant, which was modernized several times, and the modern inert gas annealing facility, approx. 1983 and 1985

GREATER VOLUME, MORE SPACE NEEDED

Investing in the company's buildings was therefore just as important as putting money into equipment. After all, space was a prerequisite for installing larger machines and producing, storing, and moving greater volumes of wire and mesh. Production, logistics and storage simply required roomier premises fitted out to modern standards. So, in the late 1960s, *Dorstener Drahtwerke* had to expand its operational facilities.

But this required a clarification of the company ownership structure. In 1969 *Dorstener Drahtwerke* acquired the 50-percent stake in the company's real estate held by former DDD shareholder Herta Böhm. This removed any obstacle to necessary investments in the conversion and expansion of factory buildings. In the same year, *Drahtwerke* bought an extensive site in the immediate vicinity. This site offered additional space for new production areas.

Numerous conversions and new buildings were planned for the area where the older buildings stood. As late as 1969, the fine-wire weaving plant had an extra floor added to make room for the new weaving facility. The decommissioned galvanizing plant and the old fitter's shop were replaced by a new building that accommodated the dry drawing machines with the warping department on the second floor. 1973 saw the first so-called blue halls built on the new site: the 3,000 m² floorspace in these halls provided ample room for the weaving facility, fitter's shop and wire rod storage. As Werner Tüshaus saw it, this major investment was the only way to "secure the ongoing existence of the company" and achieve the necessary growth.

COMBATING THE CRISIS THROUGH INVESTMENT

When the company's revenue nosedived due to the crisis in the early 1980s, Werner Tüshaus again responded through bold decision-making. *Dorstener Drahtwerke* bought new weaving machines and initiated a large internal relocation of almost all departments in 1983/84. The production processes in both wire drawing and weaving were now considerably rationalized in terms of how they were organized. "In one go, we became competitive again," was how Tüshaus put it.

Safeguarding the company's long-term competitiveness internationally prompted further investments in the late 1980s. The annealing facility, now over twenty years old, was replaced in 1985 by a new inert gas annealing facility. It was then possible for 6 instead of 1.6 metric tons of base material or finished wire to be annealed in one go. Alongside greater capacity, this major purchase led to further advantages: energy consumption and workload decreased, while the quality of wires produced was better. Fine wires now combined a more uniform tensile strength with a clean surface, a key sales argument for customers around the world.

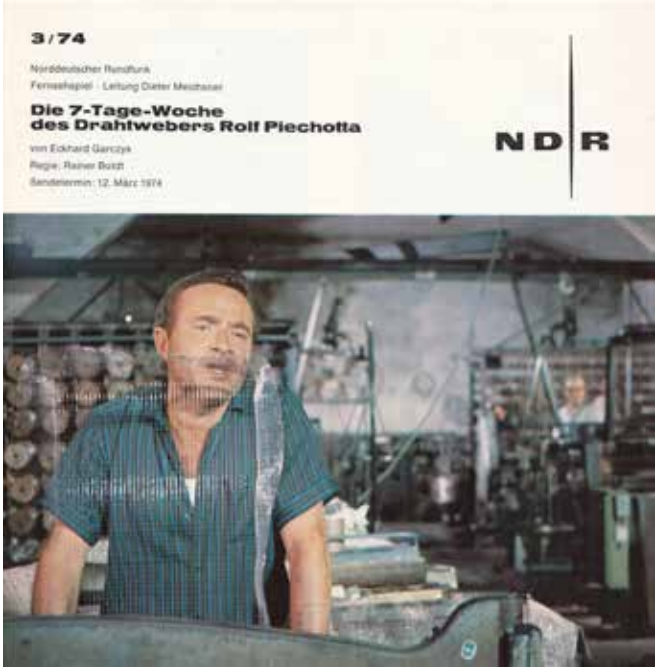
Three years later, several major orders from overseas customers confronted *Dorstener Drahtwerke* with another capacity problem. Large quantities of stitching and staple wire had to be stored before being shipped in containers. DDD immediately invested in new dispatch and warehouse facilities boasting 3,000 m^2 of space, the second blue halls, which were inaugurated in 1988.

Dorstener Drahtwerke repeatedly invested its profits in modernization measures. The far-sighted investment strategy enabled stable growth: despite intermittent economic setbacks, DDD's revenue doubled from DM 5 million to DM 10 million between 1970 and 1980. And in the 1980s, crisis-related slumps were quickly overcome: between 1980 and 1990, revenue rose by 70 percent from DM 10 million to DM 17 million.

SECURE JOBS

Competitiveness provided long-term job security at DDD. Although technological advances meant that the number of people employed actually fell from 110 in 1967 to 96 in 1990, this drop remained a minor one compared with general job losses throughout Germany's manufacturing sector. Natural staff turnover through retirement and workers switching roles was usually sufficient to avoid layoffs.

One exception was the global recession at the start of the 1980s. From 1980 to 1983, *Dorstener Drahtwerke* suffered a 10-percent drop in revenue, a crisis that could only be overcome through short-time operation and layoffs. Thereafter, however, the number of employees rose again.



Film booklet for "The 7-day Week of Wire Weaver Rolf Piechotta," 1974
Director Eckhardt Garczyk, who was born in Dorsten, shot his 1973 film in the Dorstener Drahtwerke

SUCCESS ON THE GLOBAL MARKET

Dorstener Drahtwerke achieved this stability also due to its wide range of extremely high-quality products which the company successfully marketed both in Germany and abroad.

Werner Tüshaus, who was a qualified specialist in foreign trade, closely tracked sales and purchasing opportunities on the world market. As early as 1965, he traveled out to the US. While there, he not only caught up on production and further processing methods for wire and wire cloth, but also established successful business contacts. This soon resulted in major American customers being added to the *Dorstener Drahtwerke* books. In the US, however, the company mainly sold mesh, as the weight-dependent transport costs played a proportionally smaller role in relation to the value.

Werner Tüshaus nevertheless cast his focus and that of the company beyond just the US. In 1969, as part of a West German business delegation, he visited Japan, which at that time was starting to gain its footing on the global market. Among the companies he visited were *Amasaki Nails*, a nail manufacturer, and *Kobe Steel*, one of the largest steel producers in this young, emerging industrial nation.

From the 1970s, exports played an increasingly important role for *Dorstener Drahtwerke*: while only 18 percent of revenue was generated abroad in 1969, the foreign share had already risen to over 30 percent by 1980. Shortly before German reunification, DDD sold more than 40 percent of its goods to customers beyond German borders.

Valuable insights: Werner Tüshaus (11th fr. right) with a business delegation at Kobe Steel, Japan, April 1969

FIT FOR THE FUTURE

At the start of the 1990s, with Werner Tüshaus preparing to hand the reins of the company over to his sons, the company's situation was as follows: the machinery stock was in good working condition, the processes were efficient, and the factories modernized. *Dorstener Drahtwerke* offered sought-after products at internationally competitive prices; DDD was well known and present on the most important foreign markets.

But a few clouds were also gathering on the horizon. Since the mid-1980s, Asian competitors had been applying pressure to *Dorstener Drahtwerke* on the market. For DDD, some major markets – such as those for filter cloth, iron wire cloth for extruder screens, and also staple wire – shrunk or fell away completely. But there was no short supply of ideas on how to counter this development. Some approaches did prove unsuccessful, such as the attempt to become a single-source supplier for filter elements manufacturers by offering perforated support tubes and end caps. Other moves, however, brought lasting success: for example, the purchases of an electroplating plant for galvanizing pre-drawn wires and a weaving machine with a large width for heavy wire cloth, or the conversion of the hair curler mesh weaving machines to produce double selvaged woven ribbons for automotive seals or for power-plant filters – many of these are still successful *Dorstener Drahtwerke* products today.

However, reorganization of *Dorstener Drahtwerke* at a more fundamental level became necessary – not only to cope with the demands of globalization, but also to profit from it. Successfully mastering this undertaking would become one of the big challenges for the next generation of the company's managers.

WERNER TÜSHAUS – SOCIALLY COMMITTED ENTREPRENEUR

Social commitment was something Werner Tüshaus saw as a must. He played a leading role in a wide array of industry associations, including as Chairman of the Board of the Association of German Wire Weavers (*Vereinigung der Drahtwebereien)* from 1975 to 1979. He also served for many years on the Recklinghausen Regional Committee of the Münster and Gelsenkirchen Chamber of Industry and Commerce. Werner Tüshaus took up the post of honorary commercial judge at Essen Regional Court in 1981, a role for which he was awarded the "Bundesverdienstkreuz", the German Federal Cross of Merit, in 1992.

Werner Tüshaus was at the helm of *Dorstener Drahtwerke* for 33 years, from 1961 to 1994. Together with his team, he thoroughly modernized the company in all areas, enabling it to penetrate new market niches – also internationally. He handed his sons a company that offered a healthy foundation for further development, but which had also reached its limits in certain areas.

GENERATIONAL CHANGE

For Werner Tüshaus, the crisis which had hampered the company in the years following the death of H. W. Brune was etched into his mind. He knew he had to avoid history repeating itself. He therefore put the generational transition into motion in good time and based on careful planning. In the early 1990s, Tüshaus gradually transferred his executive responsibilities over to his sons Volker and Rüdiger. And when the two brothers proved to be a well-balanced management team, he acted quickly and decisively: on July 1, 1994, at the age of 64, Werner Tüshaus retired from his executive role and left the day-to-day business to Rüdiger and Volker. Until his death in 2011, Tüshaus supported his sons in the strategic orientation of the family business as a shareholder and consultant.

Rüdiger and Volker Tüshaus, Businessmen of the Year 2008, together with Inge and Werner Tüshaus
Prize awarded by the Dorstener Zeitung; photo: Dorstener Zeitung

WIRE – CONNECTING PEOPLE

It's the people who make the *DDD Group of Companies* what it is. Both in Dorsten and in all its subsidiaries and partnerships, our people work with great dedication to secure success for the company all over the world. They are all connected with one another, not just through their joint connection to the wire industry, but also through their shared day-to-day working environment. However, these work settings have changed hugely in recent years. A few colleagues agreed to share their thoughts on this subject.

GREGOR BUSEN – A SALESMAN WITH HEART AND SOUL

A classified ad in the newspaper brought Gregor to *Dorstener Drahtwerke* in 1980. The company needed someone for its cost accounting, costing, and operations and production planning. Gregor was hired, and the trained industrial sales manager was soon setting up the operations and production scheduling system in the weaving department. He spent six years as the "deadline hawk", ensuring that work processes ran smoothly.

Then he found himself drawn to the sales side of the business. He wanted to get out and about, to talk to customers. In 1995 he was given commercial power of representation and was now responsible for sales of wire mesh, wire cloth, and fabricated parts in Germany, the Netherlands, and Austria.

Digitization has dramatically cut the time Gregor needs for much of his work. Previously, it took a week to send out a written offer after receiving a letter of inquiry: nowadays, e-mailing gets this done in a matter of hours. But direct, personal contact with customers and business partners is nevertheless important to Gregor – deep down, he's still a salesman with heart and soul.

JUTTA EISENBERG – "… OR SOMETHING USING A TYPEWRITER"

"Kindergarten teacher or something using a typewriter were my ideas when I was looking for an apprenticeship in 1977," recalls Jutta. Fortunately for DDD, the current sales manager found her way to *Drahtwerke* and trained as an office clerk. She still fondly remembers the "beautiful" teleprinter, the first fax machine, or the big amazement in the office when everyone saw the first computer.

The past 20 years have seen her sales department grow quite substantially in size. "I remember being at a trade fair once and suddenly noticing just how many people we had, and that virtually all languages from around the world were represented," recalls Jutta. Despite its international nature, the department has retained the feeling of a close-knit family. Jutta greatly appreciates the cooperative atmosphere, the open approach, and the fast channels of communication.

She is responsible for around 800 customers as manager for domestic wire sales in Germany. With her team she is always looking out for new markets and applications that could benefit from what the *Dorstener* wire portfolio has to offer. She looks at the technical options available with the production managers – a task she still really enjoys after a career spanning 40 years.

STEFAN BACKHAUS – "MY FAMILY HAVE RACKED UP AN IMPRESSIVE NUMBER OF HOURS WORKING HERE"

It was through his father that Stefan Backhaus came to work at DDD in 1992. Josef Backhaus was looking for a new addition to his mesh fabrication department staff, and since his son was a trained auto mechanic, he seemed the right man for the job. So, Stefan followed in the footsteps of not just his father but also both of his uncles. And with a subtle smile, he remarks that the Backhaus family has "worked at DDD for an hour or two." In actual fact, the figure adds up to more than 110 years.

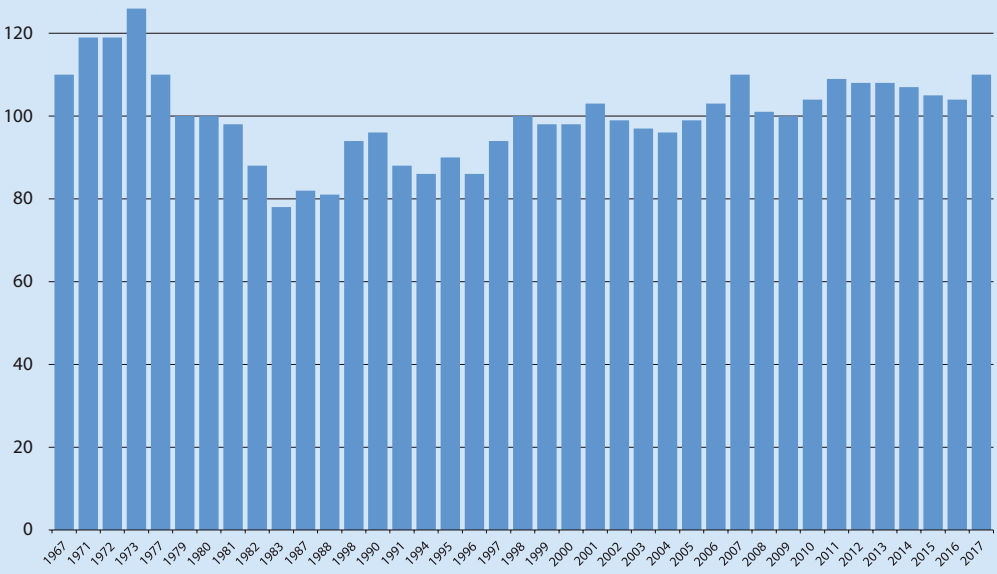
Stefan has been in charge of mesh fabrication since 1999 – a period that has seen the department expand enormously. In the early 1990s, it was mainly responsible for cutting and packaging. Two cutting machines coped with the workload easily. Today, triple the number of staff work there, with five cutting machines, various forming and welding machines, as well as washing equipment and a mesh stretching device. The main activity is the fabrication of filter cylinders and screens, for example those which are welded into a PU edging frame. Service, as well as fast delivery of orders – including many small-quantity orders – are the department's day-to-day bread and butter.

Stefan is a team player. For him, it's important that his people work with their heads, not just their hands. He wants them, as experts, to look closely at what's possible and where improvements can be made.

ALMOST 300 YEARS OF COMBINED EXPERIENCE

Bernd Allekotte, Josef Backhaus, Christian Beyer, Peter Grajek, Heinz Gumm, Dieter Scholz, and Wolfgang Sprenger boast a total of almost 300 years' experience at DDD between them, as former plant and factory managers, weavers, wire drawers, or bookkeepers. They all took the time to tell the editorial team about themselves, their day-to-day work, and the changes they have experienced. Their vivid memories of DDD have been incorporated in numerous parts of our book celebrating the company's history. And we would therefore like to express a very special thank you to our retirees.

Dorstener Drahtwerke employees, 1967 to 2017



BERTHOLD GRAU – THE POWER EXPERT

"Becoming an industrial electrician wasn't exactly something I fantasized about," recalls Berthold. However, his application to become a draftsman came to nothing, and so he spontaneously decided to inquire at *Dorstener Drahtwerke*. After a brief interview and a short test, he landed a spot in the training program in the summer of 1968. The interview was so short and sweet that he even had time to take a dip at the local swimming pool before the end of the day.

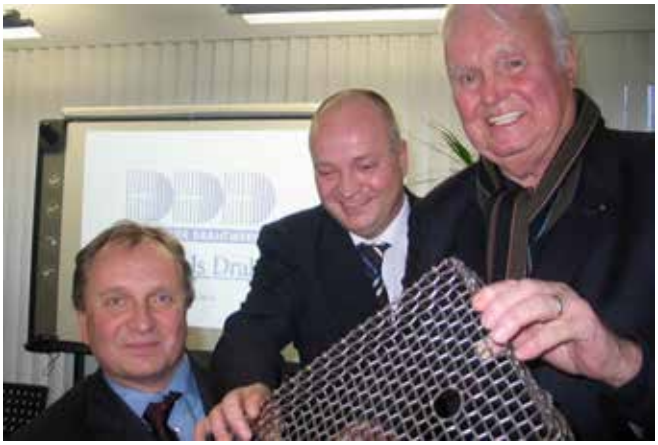
His first stint with DDD lasted until his master craftsman's exam in 1979. After that, he was on his way to foreign shores, working in Saudi Arabia and Iran. After a year and a half though, the family man realized that being constantly on the road wasn't for him in the long run. In 1980 he returned to *Drahtwerke* as head of the electrical workshop.

The day-to-day routine in the workshop includes planning and scheduling of performance testing, repairs, and the integration of new machines. For Berthold, highlights of recent years have been the extensive electrical installations at the new buildings in Dorsten and Marl as well as replacing the 10 kV system in 2005.

And he is still proud of the high-level infrastructure at *Dorstener Drahtwerke*, in which he and his colleagues from the electrical workshop have played a decisive hand. In April 2018, after a career lasting almost 50 years, Berthold started his well-earned retirement.

1994–2018

BREAKING NEW GROUND



Rüdiger, Volker and Werner Tüshaus, 2008.

The challenges faced by *Dorstener Drahtwerke* starting in the 1990s were enormous. Globalization had accelerated and transformed the exchange of information and capital, goods and technologies around the globe at a breathtaking pace. Emerging countries such as China or India appeared on the world stage as new economic powers. With their low-priced products, even in high-tech segments, they exerted considerable competitive pressure on European and US suppliers. In these eventful times, the task fell to Volker and Rüdiger Tüshaus to break new ground and make the family business fit for the future. Their vision: the internationalization of *Dorstener Drahtwerke*. Their philosophy: to locally create and maintain close ties with the customer.

NEW MANAGEMENT STYLE

Rüdiger and Volker Tüshaus took over at the helm of the family business in 1994, bringing it into the fourth generation of family ownership. They possessed both the qualifications and the will to lead *Dorstener Drahtwerke* into the future. Rüdiger, a qualified mechanical engineer, joined DDD in 1990 aged 30 as technical manager and managing director. Just a few years later Volker, with a degree in economics, joined DDD in 1993 as an authorized signatory, head of sales abroad, as well as head of finance and human resources. The brothers quickly developed a cooperative style of management in every respect. They learned to make far-reaching decisions together and gained the employees' support for these decisions. And they brought a new management culture to *Dorstener Drahtwerke*: what was previously at times a patriarchal, hierarchy-based approach was replaced by open and equal cooperation in a spirit of collective responsibility, which nevertheless also demanded greater flexibility and personal responsibility from employees.

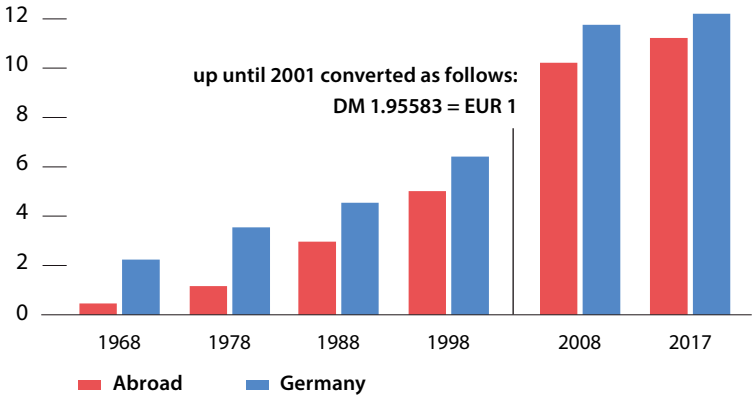
CORPORATE PHILOSOPHY: TO CREATE AND MAINTAIN LOCAL RELATIONSHIPS WITH CUSTOMERS

In 1989, Rüdiger Tüshaus traveled to the US. A two-week tour took him from Houston to Knoxville and Atlanta and then on to New York. While there he visited customers and potential buyers of DDD products, and reported back home as follows: "Chinese mesh is definitely becoming a real threat." He recognized that the connection to the customer that DDD had so carefully nurtured in the past also had to be expanded geographically to enable the company to locally stand firm in the face of growing global competitive pressure. The international markets demanded companies that could provide both expert advice and outstanding service after the sale. With this in mind, Volker and Rüdiger Tüshaus developed their internationalization strategy for *Dorstener Drahtwerke*.

An unfailing commitment to maintaining a meaningful connection to the customer combined with innovation and expertise became the overarching company philosophy, summed up in the motto 'work local, think global.' From 1994 the sole proprietorship restructured in stages to form the *DDD Group of Companies*, a family-run group, headquartered in Dorsten but whose activities now span the whole world.

Marcus Radlica welding mesh at the Marl site, 2018

Dorstener Drahtwerke revenue figures for Germany and abroad, 1968 to 2017 (in millions of euros)



CZECH COMPANY MDL – THE FIRST STEP TOWARDS PRODUCTION ABROAD

A customer's request was the impetus to open the Czech subsidiary company *MDL – Moravské drátovny Libiná s. r. o.* in 1994. An automotive supplier, which also had its own wire weaving facility, wanted to purchase large quantities of wire cloth, but only at prices that were not achievable through production in Germany. So, instead of turning the business away, Volker and Rüdiger Tüshaus went out and found a potential joint venture partner in Eastern Europe, the largest wire weaving firm in the Czech Republic. However, the cooperation arrangement collapsed shortly before the contract was signed. Nevertheless, *Dorstener Drahtwerke* had already committed to supply the customer, so fast action was required. With much luck, Volker and Rüdiger Tüshaus gathered an enterprising and committed team – initially consisting of eleven employees – under Czech engineer Jana Potěšilová. Together, MDL s. r. o. was created.

Production in the small Moravian town of Libiná started quickly. MDL initially rented all of the equipment to produce the required wire cloth and also suitable production halls.

With the active support of a few experts from Dorsten, MDL was very soon supplying high-quality mesh. MDL gradually bought the machinery, and a new plant was built as early as 1996. In 2001, the company expanded further: a second production hall was acquired in Libiná and the product portfolio was expanded to include precrimped woven mesh and fabricated mesh products. The local Czech employees and partners knew how to make MDL profitable in close cooperation with DDD. As a result, MDL firmly established itself on the Central European market.

The move to Eastern Europe did not, as some feared, trigger the relocation of production from Germany abroad at the expense of jobs in Dorsten: instead, MDL revived business at *Dorstener Drahtwerke* and opened up new market segments and markets for the company. The positive experience in the Czech Republic was groundbreaking: from then on, the local partner policy formed the basis for many other joint ventures abroad.

The first MDL building in Libiná, Czech Republic, 1995

Group international management meeting at Barcelona, 2007

FROM SWEDEN TO CHINA: THE INTERNATIONAL SALES AND SERVICE NETWORK

In line with the company philosophy of being as close to the customer as possible, Volker and Rüdiger Tüshaus quickly built up an international sales and service network. 1995 alone saw *Dorstener Drahtwerke* strengthen its presence in the European core market by launching sales companies in Sweden, Spain, and France. The companies were founded with local partners and employees who were very familiar with the characteristics and special requirements of their markets and customers.

As a result, new and unexpected opportunities emerged. One example here was the Swedish firm *DTN – Dorstener Tråd Norden*. Based in Finspång, about 200 km southwest of Stockholm, the company was founded together with the Swedish partner Jan Johanson in order to develop DDD into the market leader in the Swedish stitching wire market. As daily newspapers in Sweden are stitched, this location provided a particularly large potential customer base for *Dorstener Drahtwerke's* core product, enabling good business to be developed. However, contacts were also forged with the hardboard industry, which is strongly represented in Sweden. DDD subsequently supplied transport and drainage cloth used for pressing the panels. The *DDD Group of Companies* soon held a leading position in this market worldwide. Today, Jan Johanson's son Henrik Lindh runs the business in Finspång.

However, at the same time, the companies in France and Spain were suffering temporary setbacks. While the French firm *Britexco* eventually managed, with the help of the new partners Patrick Champagne and Maurand Rogez, to develop – albeit relatively slowly – into a successful performer within the Group, the pursuit of business in the wire sector in Spain had to be reconsidered and re-oriented. Since 2011, *Filservis S.A.* in Terrassa, Barcelona has overseen the Group's wire activities on the Iberian Peninsula. Today *Filservis* successfully operates under the management of our partner Xavier Tomás, supported by fellow partner Josep Abad.

The US, Chile, and China constituted further posts along the route to becoming what is today's *DDD Group of Companies*. In the summer of 1996, DDD and its partner Pat McGrenera set up *DWT – Dorstener Wire Tech* as a sales company in Houston, Texas. From this US oil metropolis, the Group began to break in to the US market. Business took off rapidly for mesh; soon wire cloth was also fabricated and filters were manufactured. The US, as the largest integrated single market for wire cloth and later also for wire, was, and still is of considerable strategic importance for DDD.

South America followed on the heels of North America in 1998. In the metropolitan region of the Chilean capital Santiago, DDD together with Josep Jordi and local partner and managing director Rodolfo Saldias set up the joint venture *Perfomallas*, which began as a trading company for perforated sheets and wire cloth.

And in 2001, DDD completed the line-up of its worldwide sales companies with *SBD Dorsten – Shanghai Baozhang Dorstener Products GmbH*. Since then this German-based joint venture with the Chinese Zhang family has successfully supplied the European market with the galvanized wire products from the firm *Bao Zhang* from Shanghai.

The *DDD Group of Companies* was thus represented in all important markets worldwide at the beginning of the new millennium. For the time being, this marked the temporary end of the expansion of the international sales network through the Group's own companies. However, it became apparent that the changes in sales and market conditions also required adjustments in production and development.

Trade fair booth at Drupa 2016 – built using MeshArt™ architectural wire mesh

NEW COMPETENCIES

International competition intensified further in the 2000s, with price pressure increasing particularly in the volume markets. At the same time, prices for intermediate products climbed. DDD had to keep an eye on productivity and costs as well as expand and diversify its product range and push into completely new niches. Increasingly important were products for which innovation, know-how, and processing quality counted, traditional competencies that the Group has been consistently strengthening ever since.

First, *Dorstener Drahtwerke* founded *T & R Engineering GmbH* in 2001. The Hamm-based company initially developed its own welding machines and wire cloth products. Later, other DDD companies took over the engineering activities.

In 2006, the wholly-owned subsidiary *DST – Dorstener Siebtechnik GmbH* was established to improve the Group's market position in technically advanced screen cloth. The integration of the Dortmund-based firm *CES – Curt Ebert Siebtechnik GmbH* in 2008 served the same purpose: with the takeover of this manufacturer of screens, the Group expanded its production range for wire cloth and wire mesh in Germany in the size range up to 14.0 mm.

In 2010, *Dorstener Drahtwerke* launched two new product categories, cold heading wire and free-cutting steel wires. They founded *EDD – Eksi Dorstener Draht GmbH* in Altena. Fehmi Eksi, former partner in an insolvent wire company whose production facilities and machines were taken over by EDD, was present right from the start. Also some of the employees could be retained in the new Sauerland company. EDD specializes in the production of steel wires with special requirements for surface and forming properties, in particular cold heading and free-cutting steel wires. It has opened up important sales and procurement markets for the Group.

DDD became a manufacturer of special screening machines using direct ultrasonic excitement when it purchased a majority stake in *assonic Mechatronic GmbH* in 2013. The start-up company, founded in 2010 in Radevormwald, was looking to commercialize its innovative *assonic* SONIC SPEED SCREEN™ screening technology, which is based on combined ultrasound and medium-frequency screen excitation. Now that it was part of the *DDD Group of Companies* network, *assonic* benefited from the Group's screening expertise and the existing customer relationships.

DDD secured mechanical engineering know-how with the acquisition of the Dorsten-based company *D & S – Diegner & Schade GmbH* in 2014. This was a company that could look back on a long tradition having originally started as a company that provided engineering services and technical installations for churches. It had gradually developed into a manufacturer of special machines, a capability that the *DDD Group of Companies* uses today for the construction and maintenance of its own machines and thus keeping this highly valuable know-how in the Group.

Each of these start-ups and takeovers in Germany is of particular strategic importance. Through their respective profiles, the subsidiaries contribute to strengthening the *DDD Group of Companies* as a network for wire with its wide-ranging and complex applications. They help the Group to secure a lead position in important niches based on their experience, know-how, and drive to innovate. In the long term, they make a decisive contribution to *DDD Group of Companies'* competitive edge in the markets by leveraging in-house technological developments and the enhancement of the value chain.

NEW PRODUCTION CAPACITIES IN DORSTEN AND MARL

The wide-ranging activities of the *DDD Group of Companie*s led to a steady rise in demand for DDD products, resulting in the need to adjust production capacities in the 2000s. DDD also took a global approach in this respect, but initially the Dorsten site was the focus of new investments.

The Dorsten headquarters had reached its spatial limits by the mid-2000s. There was no room to install new machines such as more powerful welding machines, which took up considerably more space. Warehouses were also no longer able to cope with the growing volumes of intermediate and finished products. As expansion of the plant was impossible, the management decided to set up a second production site at the Dorsten/Marl Industrial Park, only five kilometers away.

Just in time for its 90th anniversary in 2008, *Drahtwerke* inaugurated the new building on Werrastrasse in Marl. At a cost of 3.5 million euros, industrial facilities covering a total of 3,300 square meters, housing wire cloth and welded mesh production, were built. Both existing as well as new weaving and mesh welding machines were installed, and the production processes were designed more rationally in line with logistical processes. Additional land offered scope for later extension and upgrade.

The Marler Strasse location benefited equally from this major investment. The core of the site's wire production, the wet drawing machinery, was fundamentally upgraded and the old annealer was completely renewed in order to increase energy efficiency and quality. The warehouses for wire and wire rod, those for cloth and mesh along with the sites for fabricated mesh products were enlarged and restructured. The screen production facilities of *Dorstener Siebtechnik* were given a larger home. The investments enabled the production of more than 9,600 metric tons of wire and wire products in 2013. Existing jobs in both Dorsten and Marl were secured and new ones created.

Above: Modern production facilities at the Marl site, 2018
Right: Michael Dallmer setting up a loom at the mesh production facilities at the Marl site, 2018


JÄGER

Inauguration of Perfomallas' new production facilities in Santiago de Chile, November 23, 2015. Center: North Rhine-Westphalia Prime Minister Hannelore Kraft
Photo: Land NRW/U. Wagner

INTERNATIONAL PRODUCTION SITES

Being close to the customer is crucial in order to enable fast delivery, superior service, and appropriate quality of wire products. Which is why the *DDD Group of Companies* has been setting up production facilities in Asia, Europe, North and South America since the mid-2000s. The respective sales offices, with their knowledge of the countries and markets, their employees, their infrastructure, and their know-how, formed the ideal basis for this strategy.

Chile – a far-reaching commitment

A key production location outside Europe developed in Chile. Ever since 1998 *Perfomallas* had been handling business in perforated sheets and cloth products in line with the core businesses of the partners. In 2005, the *Perfomallas* partners decided to expand their involvement in Chile. The key arguments in favor of this move were not just the excellent economic prospects and the functioning legal system of the South American country. Its well-trained, highly motivated, and not to mention hospitable, people proved to be the decisive factor.

Perfomallas, under the management of Rodolfo Saldias, invested in modern sheet metal processing technology with laser cutting and punching machines as well as automatic press brakes. Also, in collaboration with local partners, two companies were set up: *Reysan*, a screening media manufacturer, and *Hexapack*, a packaging material importer. Production and trading volumes as well as the number of employees increased rapidly, and thoughts therefore turned to expanding capacity. In 2015, with the support of local banks, the partners invested the equivalent of 2.3 million euros in a 10,800 m² plot of land and 5,000 m² of production facilities. The topping-out ceremony in autumn 2016 was also attended by the then North Rhine-Westphalia Prime Minister Hannelore Kraft, who was visiting Chile with a delegation of entrepreneurs. "This is the kind of "Mittelstand" company we love in North Rhine-Westphalia," was how Kraft praised what had been achieved by the SME: "Locally rooted in the Ruhr area, but operating internationally."

Alongside *Perfomallas*, *Reysan* and *Hexapack*, *GPM – Grupo Perfomallas* now also includes the trading company *DLA – Dorstener Latinoamérica*. GPM employs currently more than 50 people and in 2017 generated revenue of over USD 7.0 million.

Mesh production facility at SBD China in Anhui, 2008

China – a difficult location

The *DDD Group of Companies* started production in China in 2004, a move made necessary due to global cost pressures. *SBD Dorsten GmbH* founded the subsidiary *SBD China*, a plant not far from Shanghai dedicated to large-quantity production of a standard wire cloth. *SBD China*'s mesh production developed well, especially when the plant moved to Anhui province in 2006, thus solving the problem of its chronic space shortage. After ten successful years, however, difficulties arose with local authorities and party officials, leading to production being discontinued in 2016.

Another main pillar in Spain

In 2005, *Dorstener Drahtwerke* decided to strengthen its activities on the Spanish market. The *MSD – Mallas Screens Dorstener* company was set up for the production of mesh and wire cloth screens and has since been operated in collaboration with the Catalan family Jordi, who are also partners in DDD's Chile-based activities. The joint venture produces heavy pre-crimped woven mesh and has developed into an important supplier within the Group as a manufacturer of wire screens. The managing director is Raimon Jordi.

USA – high-tech production for a large market

Dorstener Drahtwerke continued to forge ahead with internationalizing its production by also making additional moves into the US. DDD wanted to significantly boost its activity on this market as a filter and wire producer.

DWT – Dorstener Wire Tech, Inc. formed an initial base of operations. Soon after its foundation in 1996, it had begun to process meshes and spooling wire. On this basis Pat McGrenera successfully expanded the filter manufacturing line of the business. 2008 saw the creation of the joint venture *PMF – Porous Metal Filter, Inc.* together with Rick Kinney, which develops and produces high-quality sintered filters, with a stronghold in the oil and gas industry.

Celebration for the 10th anniversary of DWT, Houston, 2006. Left: Pat McGrenera

Martin Kruse controls the predrawn wire before galvanizing, 2018

In 2013, *DWD – Dorstener Wire Drawing, Inc.* was set up in York, Pennsylvania, which began with the construction of a modern wire drawing plant. However, this project encountered several problems along the way. It took almost a year before the products achieved the high standard of quality demanded by *Dorstener Drahtwerke*. At the same time, market entry proved difficult for the products despite their "Made in USA" badge. In a market already shrinking as a result of digitization the strong level of customer loyalty to the established market participants prevented sales volume reaching the level required. To remedy this situation and to safeguard the large investments made so far, the DWD activities and corresponding product areas of their main competitor *WCJ Pilgrim* were merged in August 2017. Under the leadership of new partner and CEO Bill Jones, the newly formed company has enjoyed a successful first few months.

With the mesh specialist DWT, wire manufacturer *WCJ Pilgrim*, and filter manufacturer PMF, the *DDD Group of Companies* is strongly represented in the North American core market. This presence is further enhanced by the sales company *DDM – Dorstener de México*, founded in 2017.

POWERFUL NETWORK

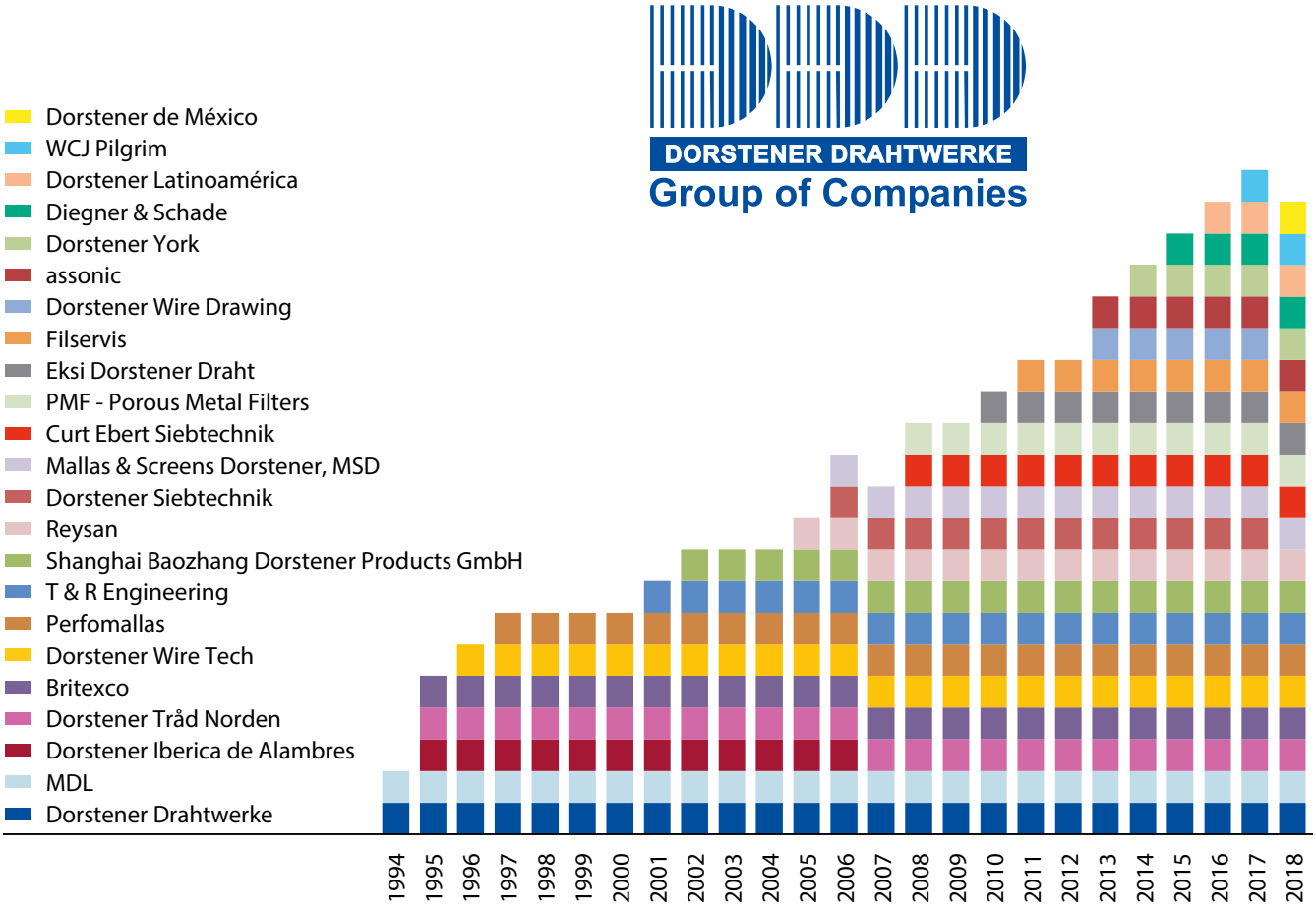
With 18 companies around the world, the *DDD Group of Companies* has become a network that differs fundamentally from the sole proprietorship that Volker and Rüdiger Tüshaus took over in the early 1990s. The network's flexibility and performance capability stem from the policy of *Dorstener Drahtwerke*, consistently applied since the start of the Group's internationalization initiative, of bringing on board committed and skilled local partners as stakeholders. This has created a management culture within the Group that is based on personal responsibility and consensus, which allows room to maneuver, promotes cooperation, and respects and incorporates cultural differences. Being close to the customers geographically while keeping a close eye on their needs, offering attractive products at competitive prices, and agile local management, have fueled the Group's growth.

SPECIALIZATION – ESTABLISHING THE DIVISIONS MESH AND WIRE

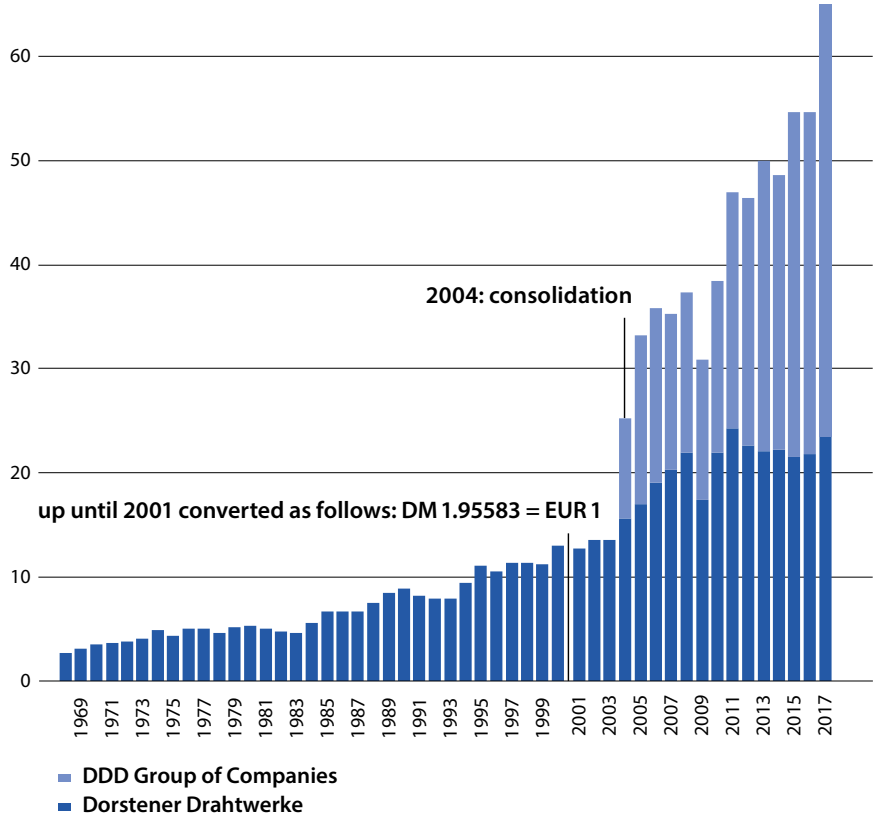
The trend towards specialization requires a deep understanding of the complex processes and products in which customers use wire and wire cloth. A high-performance stitching wire is fundamentally different from a power plant filter, to name but two examples. In addition, wire and mesh products have very different requirements when it comes to production processes and the purchasing of base material.

In order to provide optimum support for the development of the various product areas of *Dorstener Drahtwerke* and the synergies created between the individual companies within the *DDD Group of Companies* in sales, service, purchasing, and know-how, the Group was organized into the two divisions "WIRE" and "MESH" in 2010. Management responsibility for the divisions was assigned to Rüdiger (MESH) and Volker Tüshaus (WIRE). This gave the *DDD Group of Companies* and its employees even better opportunity to develop both themselves and their products in collaboration with their customers.

DDD Group companies, 1994 to 2018



Revenue figures for Dorstener Drahtwerke and the DDD Group, 1968 to 2017
(in millions of euros)



SUSTAINABLE SUCCESS

While the wire industry in Germany has been steadily shrinking since the beginning of the 1990s, DDD-Group has bucked this trend. Regular investment in facilities and processes to enhance productivity boosted the Group's competitiveness. The Group's companies have captured shares of even more difficult markets, for example becoming world market leader in the stitching wire sector. With its innovative products, the Meshes division has achieved a strong position in various markets for screening, filtration, air conditioning, and other applications.

The number of people employed by the *DDD Group of Companies* worldwide in 2018 stands at over 400. The revenue of *Dorstener Drahtwerke* alone increased from EUR 9.3 million in 1994 to over EUR 23 million in 2017, while the Group achieved consolidated revenues of EUR 64.9 million worldwide in 2017.

The sustainable success has justified the wisdom behind the international business model pursued by *Dorstener Drahtwerke* since the mid-1990s. With its qualified employees and state-of-the-art machinery, the two *Dorstener Drahtwerke* divisions offer customers worldwide an attractive range of products and services that meet the highest quality standards at a competitive price point.

Staying close to the local customer through internationalization has secured the long-term competitiveness and jobs related to the Group.

The Marler Strasse site, 2012

QUALITY AND INNOVATION

Dorstener Drahtwerke's products have always delivered on the company's promise of best quality; this has always been given top priority for the steel wire and wire mesh product offerings. The company is driven by the goal of meeting and exceeding customers' expectations time and time again. From its solutions for demanding applications in customers' production lines, the innovative properties of the material it uses in production, the quality of its workmanship, and going above and beyond with its service: *Dorstener Drahtwerke* is committed to permanently improving so that it can meet its customers' ever-increasing expectations and be able to offer them new innovative products for the jobs they need to do.

DORSTENER WIRE QUALITY

Uniform stability, elasticity, and surface characteristics paired with precision and consistent quality of workmanship are the most important attributes that DDD wires have to meet. For 100 years, *Dorstener Drahtwerke* has invested in expanding its know-how, refining its manufacturing techniques, and developing technology to fulfill its clients' wishes.

DDD's efforts to improve quality have always involved reexamining the entire process chain: from purchasing base materials to pre-processing and fabrication right through to the end application in clients' production line.

CUSTOMER SATISFACTION

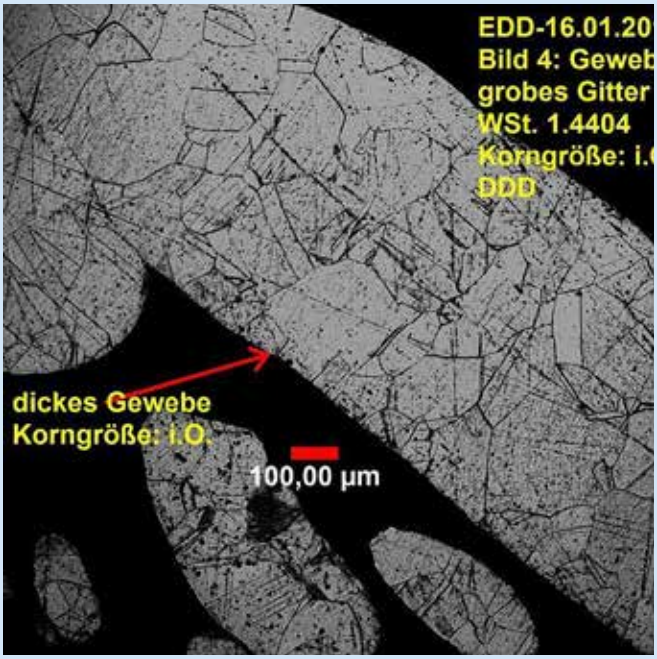
In the first 100 years of *Dorstener Drahtwerke*, quality standards have of course changed radically. In the 1980s, quality management was integrated into the ISO 9000 standards. The driving force in this context was Rüdiger Tüshaus, who began his dedicated involvement in 1988 as a young mechanical engineer. His efforts led to the company's first ISO 9001 certification and culminated in today's formulation of a clear quality management mission statement that include the employees as well as the management:

"The brand DORSTENER DRAHTWERKE (DDD) stands for satisfied customers."

Dorstener Drahtwerke knows that achieving quality requires being proactive: understanding the customers' expectations, selecting or developing a suitable product, manufacturing a product that conforms to the required quality standards, and on-time delivery are the ways to ensure customer satisfaction and to guarantee that customers will go straight back to *Dorstener Drahtwerke* again for their future needs. Naturally, cost-effectiveness plays a crucial role for the company's customers. In order to continue delivering high quality at competitive prices, *Dorstener Drahtwerke* continually reevaluates production processes. Whenever possible, efficiency is improved by integrating more modern and faster techniques into processes.

INNOVATIVE MANUFACTURING TECHNOLOGY

The manufacturing technology at *Dorstener Drahtwerke* reflects more than 100 years of know-how gathered by the company. Every individual production step and each machine form essential links in a chain that culminates in a finished *Dorstener* quality product. Experienced technicians and specialists are constantly working to modernize and further develop the company's precision machinery. In addition to increasing effectiveness, the goal is also to develop new product features in order to pave the



Micro-section analysis of structural conditions in the lab

Testing facility at assonic Dorstener Siebtechnik

Quality control: mesh-measuring device

Teamwork in the Sales and Development department

way for future products and of course to ensure quality.

Already in the 1950s, *Dorstener Drahtwerke* had, for example, been working systematically to improve the manufacturing process for electro-welded wire mesh: inventions were successfully patented, the welding process was improved, and the continuous manufacturing of welded mesh was simplified.

PRODUCT DESIGN

A new focus on innovation gathered steam in the 2000s and has remained strong right through to today. Since then, the members of the *DDD Group of Companies* have registered numerous patents in Germany, Europe and the US – for example, relating to the manufacturing techniques for stitching wire, different forms of wire mesh for filtration applications and new filter variations targeted at the oil industry.

Diegner & Schade, a specialist mechanical engineering firm steeped in tradition, has further bolstered the expertise of the DDD Group since 2015. D & S's extensive experience in the development and construction of complex customized machinery and prototypes that take full advantage of state-of-the-art technologies supports a wide range of synergies across the *DDD Group of Companies*. These synergies spur on the further development of DDD's manufacturing and processing techniques. Now machines can be specifically modified or built for the members of the DDD Group, and the know-how gained in the process stays within the Group.

PURE INNOVATION: SONIC SPEED SCREEN™

With the addition of *assonic Mechatronics GmbH* in 2013, the Group profited from another particularly innovation-focused member company. *assonic* developed and brought to market a technology that for the first time employed a combination of ultrasound and impulse excitation of sintered metal wire mesh screening media to boost the performance of screening machines. In addition to the patents awarded for this technology, *assonic* received the *"Reinhard und Max Mannesmann Prize for Innovation"* in 2014.

As different materials present a diverse range of challenges for the SONIC SPEED SCREEN™ – for example titanium dioxide behaves differently than sugar – *assonic* has its own in-house technology center, which conducts feasibility studies and performance tests in realistic field conditions. The screening machines made by *assonic* have been put into service to perform some of the most demanding tasks in production processes, such as conditioning metal powders for 3D printing.

In collaboration with *Dorstener Drahtwerke*'s wire mesh experts, special screening media are developed for different screening processes. In order to further expand the innovation potential of *assonic* and the Group in this area, *assonic* merged with *Dorstener Siebtechnik* in 2017. The dedicated team at *assonic Dorstener Siebtechnik GmbH* is based in Dorsten and Radevormwald where they develop screening solutions using wire mesh. A wide range of customers – e. g. those working in raw material production for the chemical industry – have come to appreciate the long operational lifespan and high performance that *assonic* products deliver.

Paving the way for future products

SONIC SPEED SCREEN™
centrifugal sifter, 2018

DDD GROUP OF COMPANIES

Dorstener Drahtwerke H. W. Brune & Co GmbH
Dorsten, Germany
Shareholding: 100%
Employees: 110
Product unit Mesh: wire cloth and welded wire mesh, fabricated mesh parts and filters
Product unit Wire: especially low carbon steel wire, stitching and spiral binding wire

assonic Dorstener Siebtechnik GmbH
Radevormwald, Germany
Shareholding: 100%
Employees: 13
Business unit assonic: ultrasonically stimulated screening, solid-/liquid separation
Business unit DST: screening media and screens

Curt Ebert Siebtechnik GmbH
Dortmund, Germany
Shareholding: 100%
Employees: 14
Core business: screening media and screens

Eksi Dorstener Draht GmbH
Altena, Germany
Shareholding: 67.7%
Employees: 32
Core business: wire for industrial applications, cold heading wire and free cutting steel wire

DIEGNER & SCHADE

Diegner & Schade GmbH
Dorsten, Germany
Shareholding: 100%
Employees: 24
Core business: engineering, industrial maintenance, repair service electrical motors, spire technique and maintenance

DORSTENER WIRE TECH

PMF POROUS METAL FILTERS

Dorstener Wire Tech, Inc. (DWT)
Shareholding: 66,7%
Porous Metal Filters, Inc. (PMF)
Shareholding: 50%
Houston, Texas, USA
Employees (DWT and PMF): 62
Business unit DWT: wire cloth, welded mesh and fabricated filters
Business Unit PMF: sintered wire cloth filters – engineering and fabrication

WCJ Pilgrim

WCJ Pilgrim Wire LLC.
York, Pennsylvania, USA
Shareholding: 55%
Employees: 16
Core business: wire for industrial applications, stitching wire and spiral binding wire

GPM GRUPO PERFOMALLAS

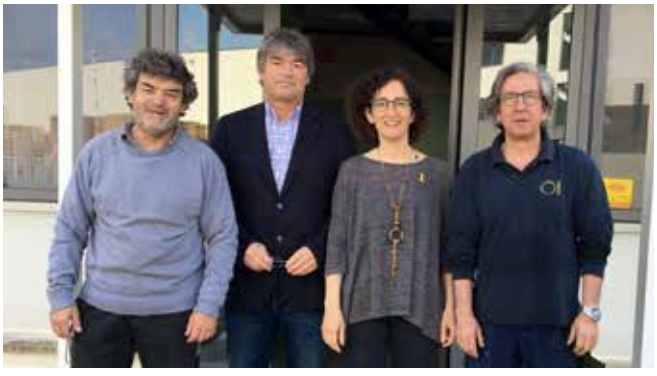
GPM Perfomallas S. A.
Santiago, Chile
Shareholding: 40%
Employees: 57
Business unit Perfomallas: metal sheet processing, perforated sheet and wire cloth
Business unit Hexapack: packaging material
Business unit Reysan: screening media and screens

Dorstener Latinoamérica SpA
Santiago, Chile
Shareholding: 40%
Employees: 2
Core business: Stitching and spiral binding wire, wire for industrial applications, wire cloth, especially also for architectural applications

Dorstener de México S de RL de CV
Shareholding: 33.3%
Employees: 2
Core business: stitching and spiral binding wire, wire for industrial applications, wire cloth and extruder screens

Mallas Screens Dorstener SL
Bigues i Riells, Catalonia
Shareholding: 50%
Employees: 14
Core business: screening media and screens

Filservis SL
Terrassa, Catalonia
Shareholding: 40%
Employees: 4
Core business: wire for industrial applications



Britexco

Britexco Trading S. A.
Velizy, France
Shareholding: 49%
Employees: 6
Core business: wire for industrial applications, welding wire, wire cloth and welded wire mesh

DORSTENER TRÅD NORDEN AB

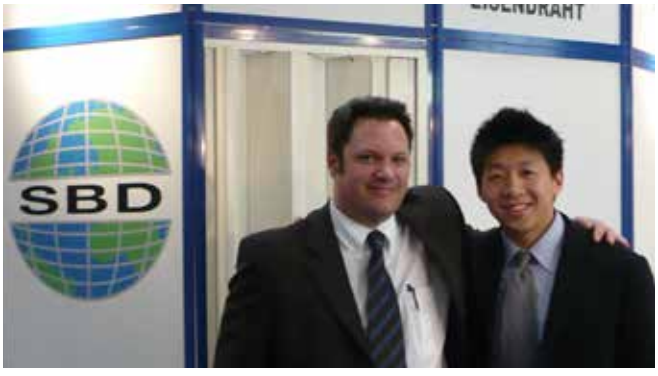
Dorsten Tråd Norden AB
Finspång, Sweden
Shareholding: 50%
Employees: 3
Core business: stitching and spiral binding wire, wire for industrial applications, wire cloth and welded mesh

MORAVSKÉ DRÁTOVNY LIBINA

MDL s. r. o.
Libina, Czech Republic
Shareholding: 95%
Employees: 87
Core business: wire cloth, precrimped and welded wire mesh, baskets and filters

SBD

Shanghai Bao Zhang Dorstener Products GmbH
Dorsten, Germany
Shareholding: 50%
Employees: 2
Core business: galvanized low carbon steel wires



LOOKING TO THE FUTURE

The 100th anniversary of *Dorstener Drahtwerke* is a perfect opportunity to look back over the past, as well as a chance to look to the future. With its tradition, experience, and established strengths, *Dorstener Drahtwerke* is in a position to successfully shape its future. The development of the company, its products, and markets in the past, present, and future is characterized by a common theme of persistent, dynamic drive.

The *DDD Group of Companies* rests on a firm foundation, it has a solid and independent financial base, and its members around the world are highly engaged and successful in their respective markets. In addition, the numerous synergies in the Group strengthen each individual company.

Increasing the large number of satisfied customers is a clear goal. Open communication and a high level of service will continue to pave the way forward.

Dorstener quality products are well known, established, and valued by our customers. Successful technology and development management have enabled the Group to improve market positions and penetrate new, often adjacent segments. And as far as new applications, new materials, and new production techniques for wire and mesh products are concerned, the possibilities are far from exhausted.

An open-minded approach to the world in tandem with maintaining strong ties to its homeland – this is the tradition that *Dorstener Drahtwerke* remains committed to. Employees, subsidiaries, customers and markets are international; strong and motivated partners are located in the US, Mexico and Chile, in France, Sweden and Spain, in the Czech Republic, in China and in Germany. Team spirit, commitment, and unique know-how are the cornerstones of each individual company. *Dorstener Drahtwerke* is particularly proud of the strengths and achievements of its dedicated employees.

The *DDD Group* respects and values cultural differences, acquiring its strong dynamism from cultural and economic impulses gained from all over the world. However, the future needs to build on solid roots and long heritage, two more reasons why Dorsten remains the heart of the Group.

Four generations, represented by H. W. Brune, Charlotte Tüshaus, Werner Tüshaus as well as Rüdiger and Volker Tüshaus, have managed *Dorstener Drahtwerke* over the past 100 years. They have all shaped the medium-sized family business in an unmistakable and unique fashion, demanding and exemplifying a corporate culture in which individuality and openness, respect and tolerance, partnership and responsibility are accorded top priority. These values shall remain the hallmarks of *Dorstener Drahtwerke* and will be carried into the future by all the Group's employees.

Join us for the future!

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Verein für Orts- und Heimatkunde Dorsten

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Labendz	Annegret	1975	1980
Lahmende	Ehrenfried	1971	1982
Lahn	Andrea	1978	1987
Landau	Karl	1946	1958
Laschweski	Josef	1950	1961
Laskowski	Holger	1999	
Lehmann	Rudolf	1973	2013
Lemke	Erich	1948	1965
Leonov	Tatjana	2001	2009
Lewandowski	Alfred	1955	1976
Liebelt	Anton	1957	1963
Liebrecht	Brigitte	1959	1964
Lindemann	Gerhard	1948	1955
Lindenau	Wilhelm	1946	1970
Lischitzke	Hans-Dieter	1971	1989
Lobodda	Nina	1996	2003
Lübcke	Jens	1997	
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Lutz	Richard	1973	1977
Maczcjewski	Jürgen	1969	1973
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Meerfeld	Luise	1967	1973
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Misirli	Durcan	2000	
Möckel	Gertrud	1959	1964
Möller	Raimund	1997	2003
Motyl	Rabea	2005	
Müller	Kurt	1950	1999
Müller	Dorothea	1953	1982
Müller	Hannelore	1956	1992
Müller	Doris	1999	2011
Naujoks	Philip	2010	2016
Neumann	Karl	1954	1973
Neumann	Hildegard	1965	1969
Niechciol	Georg	1957	1962
Niechciol	Gerald	1964	1971
Niechziol	Ewald	1948	1969
Niechziol	Doris	1953	1961
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Nieke	Helmut	1951	1987
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Nitsch	Heinrich	1962	1967
Nyken	Hartmut	1968	2015
Oberländer	Uwe	1974	1992
Oelmüller	Heinz	1947	1952
Oko	Alice	2008	
Onnebrink	Else	1954	1958
Ostrop	Heinz	1968	1989
Overbeck	Markus	2000	
Paruzel	Jan	2005	
Paulsen	Erich	1958	1967
Pawlowski	Johann	1959	1969
Pilzner	Magdalene	1960	1998
Pilzner	Thomas	1983	
Plagens	Paul	1955	1962
Plaßmann	Annemarie	1957	1963
Plaum	Karl	1967	1984
Polednik	Josef	1969	1973
Ponzel	Hedwig	1973	1978
Posmiazek	Leon	1947	1955
Potthoff	Theodor	1948	1957
Pyschny	Irene	1950	1960
Rach	Edeltraud	1960	1964
Radlica	Markus	2010	
Rafael	Manfred	1988	
Rammler-Rafael	Andreas	1984	
Reddig	Reinhold	1955	1962
Rehmann	Hubert	1959	1963
Rehmann	Bertram	2003	
Reining	Detlef	1980	
Rexforth	Wilhelm	1956	1961
Riesener	Lucia	1948	1955
Risthaus	Dennis	2007	
Röhling	Martin	1989	
Römer	Werner	1946	1979
Rood	Kevin	2017	
Roth	Michael	2005	
Rump	Franz-Josef	1973	1984
Rüter	Wilhelm	1956	1964
Rüter	Karin	1958	1964
Rütter	Werner	1991	2013
Rütter	Marija	1992	2003
Sand	Gisela	1973	1983
Sand	Johann	1973	1980
Sax	Darmila	2010	
Schacht	Grete	1948	1957
Schacht	Erno	1957	1961
Schirocky	Erna	1948	1979
Schiroky	Hanni	1976	1991
Schiweky	Karl-Heinz	1945	1984
Schlebke	Lorenz	1949	1974
Schlewitt	Katja	1984	1989
Schlussmann	Magret	1946	1952
Schlüter	Daniela	1990	2011
Schmeing	Birgit	2007	
Schmidt	Hildegard	1946	1951
Schmidt	Gerda	1956	1962
Schmidt	Wolfgang	1959	2008
Schmidt	Hans-Georg	1963	1971
Schmitt	Wolfgang	1965	2008
Schmitt	Elisabeth	1967	1971
Schmitz	Jürgen	1966	1975
Schneider	Theodor	1947	1983

Schneider	Sascha	2005	
Schödder	Thilo	1934	1945
Scholz	Dieter	1958	2004
Scholz	Ralf	1987	2006
Schöttler	Hans-Joachim	1953	1958
Schöttler	Gretel	1957	1966
Schrader	Ruth	1948	1962
Schröder	Walter	1972	1977
Schroer	Werner	1954	1959
Schult	Christa	2018	
Schulte	Josef	1921	1968
Schulte	Albert	1946	1972
Schulte	Josef jun.	1946	1952
Schultz	Klaus	1948	1955
Schulz	Wilhelm	1946	1951
Schulz	Grete	1947	1958
Schulz	Luise	1948	1955
Schulz	Christel	1953	1998
Schütz	Hildegard	1948	1956
Schwane	Bernhard	1926	1972
Schwarzbock	Maria	1953	1958
Sefirian	Tim	2010	
Sencenko	Vladimir	1999	
Seyer	Alexander	2016	
Skorupowski	Helene	1955	1966
Sobotta	Mario	2007	
Sommer	Otto	1976	1982
Soylu	Ismail	2001	
Spaan	Agathe	1955	1982
Splittgerber	Kunibert	1953	1990
Splittgerber	Eva	1953	1964
Splittgerber	Anneliese	1954	1964
Splittgerber	Wilhem	1959	1966
Sprenger	Wolfgang	1967	2015
Springenberg	Franz	1946	1972
Steigerwald	Annegret	1979	2013
Steinkamp	Wilhelm	1946	1950
Stencel	Felix	2001	2010
Stender	Herbert	1955	1963
Stenk	Wilhelm	1946	1951
Stenk	Erich	1950	1955
Stenk	Adolf	1957	1961
Stenk	Guido	2013	
Stenkamp	Renate	1966	1973
Stenkamp	Ludwig	1968	2009
Steudel	Inge	1953	1957
Stier	Denise	1998	
Stiller	Helmut	1989	1996
Stockmann	Johannes	1929	1947
Strehl	Ruth	1987	1992
Streppelhoff	Günter	1947	2014
Streppelhoff	Willi	1950	1958
Surray	Siegfried	1935	1955
Sutter	Karl-Heinz	1960	2004
Tappe	Frank	2009	
Tesmar	Gustav	1954	1978
Thamm	Ursula	1954	1959
Thiel	Christel	1965	1998
Timmermann	Christa	1991	2002
Töns	Maria	1964	1972
Treinzen	Fritz	1969	1991
Ungermann	Otto	1959	1963
van Reth	Hildegard	1961	1982
Vlasak	Adalbert	1948	1976
Vogel	Bernhard	1923	1940
Vogt	Gerhard	2003	
Vogt	Michael	1979	1983
von Nordeck	Erika	1966	1974
von Reth	Walter	1948	1982
von Reth	Hilde	1953	1982
Vospohl	Peter	1971	1976
Voß	Monika	1989	
Waletzki	Johannes	1960	1979
Wallesch	Dieter	1963	1966
Walters	Wilhelm	1924	1947
Watermann	Andrea	1986	2003
Watermann	Martina	1993	2000
Weber	Hans-Günther	1972	1980
Weiler	Tilman	2010	
Welz	Siegfried	1953	1957
Wemhoff	Stephan	1991	
Werner	Lilli	1948	1955
Wiese	Arnold	1956	1999
Wiggershaus	Jutta	1968	1979
Wilken	Andreas	2000	
Winkel	Michael	1988	
Winkler	Margarete	1947	1955
Winnekendouk	Wilhelm	1946	1981
Winter	Ulrich	2009	
Wolters	Paul	1948	1953
Wunderlich	Günter	1962	1973
Zapatka	Frank	2011	
Zaydowicz	Hans	1975	1981
Zeidowitz	Siegfried	1967	1992
Zeidowitz	Peter	2005	2012
Zein	Beate	1992	2003
Zepmeusel	Klaus	1988	
Zerressen	Marianne	1954	1959
Zimmermann	Sina	2018	

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