75 Years of Hirschvogel

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Hirschvogel
Automotive Group

1938 – 2013 75 YEARS

Contents

Marc Hirschvogel,
majority shareholder of
Hirschvogel Holding GmbH

Foreword

Dear Employees,
Business Partners and Friends,

I have the honor of providing the opening words to this chronicle marking the 75th anniversary of the company Hirschvogel. It is with great pleasure that I and all those involved in creating the chronicle present you with an insight into our extensive company history.

75 years of Hirschvogel – that is definitely not something that can be taken for granted. Rather, it is the product of entrepreneurial vision, strength of purpose and responsibility. Yet, ideas, goals, concepts, and perhaps even ideals, are by no means the sole guarantors of entrepreneurial success. Just as important is the ability to convince others of your vision. My grandparents Emma and Willy Hirschvogel, as company founders and pioneers, had precisely this persuasive strength as did my father Manfred Hirschvogel, who developed the company into one of the leading suppliers of forged parts to the automotive industry. After all, it is this “power of persuasion” as well as a consistently caring and open management style that binds our most important capital, namely the loyalty and commitment of our numerous employees, who with their immense know-how make a decisive contribution to the outstanding reputation of Hirschvogel as an employer and supplier.

Accompanying Hirschvogel, my father’s life’s work, into the future, is a privilege to me and something very close to my heart. I am profoundly committed to upholding Hirschvogel as an independent family enterprise, and am pleased that in spite of the events and reorganizations over the past three years, the company is resolutely continuing along the path of further development and economic success.

For this, I extend a warm thanks to the employees at Hirschvogel and to you all!

Sincerely,
Marc Hirschvogel

Preface

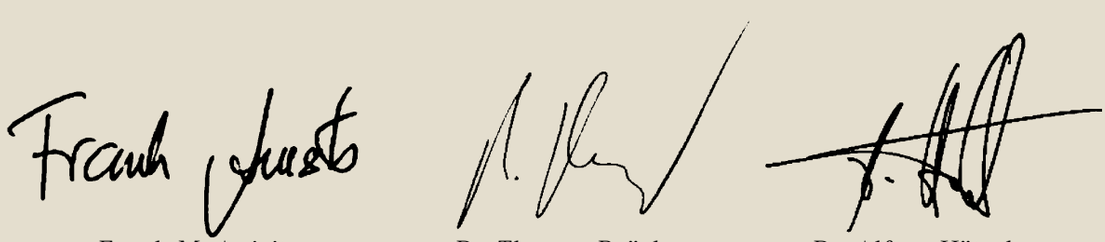
75 years of Hirschvogel – 75 years of tradition and progress – provide a perfect opportunity to thank all employees and business partners who have accompanied Hirschvogel over the years and have thus contributed to the success of the company. Such an evolution from the village forge to a global partner of the automotive industry is only possible through loyal and long-standing business partners as well as competent and committed employees.

In spite of many and sometimes dramatic changes over the years, both on the market as well as at Hirschvogel, it has nevertheless been possible to retain the values and continuity of a family enterprise. The shareholders of Hirschvogel Holding GmbH have been and still are of pivotal importance in contributing to this development through their close ties to the company and their deep trust in the competence of our employees.

With this chronicle recording our 75-year history, we would like to look back on various stages of development and events as well as highlight the special character of the Denklingen plant where it all began. By concentrating on our roots and strengths, we are generating a sound and lasting basis for continuing the success story for many years to come.

We wish the Hirschvogel Automotive Group and our employees all the best, and hope that our readers enjoy this chronicle.

The Executive Board of Hirschvogel Holding GmbH



Frank M. Anisits | Dr. Thomas Brücher | Dr. Alfons Hätscher

The Executive Board of
Hirschvogel Holding GmbH
from left: Dr. Alfons Hätscher,
Frank M. Anisits and
Dr. Thomas Brücher

An Overview of 75 Years of Hirschvogel

1938 – 2013 75 YEARS

1938
Founding of the industrial forge "Hammerwerk Hirschvogel OHG" by engineer Willy Hirschvogel together with his brothers Anton and Hans; first forging unit is a used drop-board hammer; 5 employees generate sales of 26,000 German reichsmark.

1940
Construction of the first hall at the center of Denklingen

Until 1945
During the Second World War, parts for aircraft chassis are forged.

1945–1950
Partial dismantlement of the plant following the Second World War; painstaking new construction; parts for agricultural machines are forged as well as hammers and chisels.

1950–1952
Hurth and Getrag are the first major customers in the area of transmissions.

1952
Startup of the first double-acting hammer; production of camshafts commences for Bosch injection pumps.

1954/1955
Setup of two double-acting hammers

1955
Sales exceed the one million D-mark for the first time.

1959
In November, co-founder Hans Hirschvogel passes away.

1963
Construction of new hall outside of Denklingen on today's premises near the B17 road. This was the first production hall on a rural site, chosen in order to avoid noise pollution and to create space for expansion possibilities; founding of the Pension Fund by Emma and Willy Hirschvogel as a company retirement provision for the employees

1938 | 1940 | Until 1945 | 1950 | 1952 | 1954 | 1955 | 1959 | 1963

1972/1973
In the "old hall" at the center of Denklingen, the first two used cold presses are set up; introduction of the new forging technology of cold forging and first steps taken in the area of warm forging by Dr. Manfred Hirschvogel and Peter Kettner

1991
Founding of the subsidiary Hirschvogel Eisenach GmbH through the purchase of the forging department of the former Wartburg-Werke; set up of the Training Center at the heart of Denklingen

1988/1989
Construction of a new hall for sawing and shearing operations

1989
Startup of a 31,500 kN Maxi press

1971/1972
Construction of Hall 2 (hot forging plant) and Hall 3 (heat treatment and quality assurance) at the new location outside of Denklingen; relocation of the press forge from the center of Denklingen to the new site

1977
In December, co-founder Anton Hirschvogel passes away at the age of 80. Ultrasonic testing is used for the first time.

1979
Setup of the first large hydraulic press for cold forging. Karl Schuster (long-standing Executive Director of Production): **"We had a vision: We just had to have something as big as this!"**

1988
50th company anniversary; sales rise for the first time above 100 million D-mark; start of internationalization with the founding of the first subsidiary abroad, namely Hirschvogel Incorporated in Columbus/Ohio for producing cold forged parts for the US market

1966
Magnetic particle crack inspections and eddy current inspections are introduced for detecting defects.

1974/1975
Construction of Hall 4 for the die shop

1986
Introduction of a CAD/CAM system for tool production

1965 | 1966 | 1969 | 1971 | 1972 | 1973 | 1974 | 1975 | 1977 | 1978 | 1979 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991

1971
Renaming of the company from OHG to Hirschvogel KG with the general partners Anton, Willy and Emma Hirschvogel

1982/1983
Doubling the size of the building for cold forging, and acquisition of a 16,000 kN hydraulic press

1987
Setup of a fully automated cold extrusion press (20,000 kN) for producing heavy transmission shafts and installation of a fully automated forging press (16,000 kN) for wheel hubs

1978
Construction of Halls 5 and 6 for cold forging; first concrete plans for cold forging long transmission shafts and first contact to VW; start of shaft production

1965
Development from a hammer to a press forge, and setting up the first spindle presses in the hall at the center of Denklingen

1969
Setup of the first closed-die forging press (10,000 kN Maxi press) and switch to electric heating; sales exceed 10 million D-mark for the first time.

1985
Setup of one of the world's largest warm forging presses (16,000 kN and 5 stages) for producing rear-axle shafts with centers for BMW

1984
Administration moves into the new office building outside of Denklingen; the location at the center of the village is given up.

1981
The company is renamed from Hirschvogel KG to Hirschvogel Umformtechnik GmbH with the Executive Managers Willy and Dr. Manfred Hirschvogel; introduction of an additional forging process, namely warm forging. Dr. Manfred Hirschvogel: **"As one of only a few companies, we took up what was then the new process of warm extrusion into large-scale industrial production."**

1990
Start of the new production area of machining in Denklingen with facing operation of injection pump camshafts

1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 ›››

1992
Acquisition of Hall 10 in Denklingen for quality assurance and dispatch

1993
Takeover of machines and production lines from VW following closure of the cold forging department in Wolfsburg

1994
Setup of one of the most powerful cold forging presses in the world

1995
A fully automated inspection facility with image processing and laser technology is put into operation.

1996
Hirschvogel Eisenach GmbH moves into a new plant on a rural site in Marksuhl; startup of Hall 12 in Denklingen. Dr. Manfred Hirschvogel: **"In this hall, new production procedures were planned for the first time; in a single building, forgings should be produced in one workflow from the supplied steel bar to the ready-for-dispatch component."**

1997
At the Denklingen plant, the first aluminum parts are forged. Dr. Manfred Hirschvogel: **"The year 1997 has special significance for Hirschvogel. It is a year of record investments, the year of a new sales record – the 200 million D-mark threshold has been exceeded by far – and the year of the highest number of employees at the company, as by the end of the year we shall have more than 1,000 members of staff."**

1998
On February 27, company co-founder Willy Hirschvogel passes away shortly before his 90th birthday.

1999
The machining department moves from Denklingen into a newly built plant in Schongau, and with this the independent company Hirschvogel Komponenten GmbH is founded; shares in the third largest forge in Brazil, Forjas Brasileiras; construction of Hall 13 in Denklingen

2000
Founding of Hirschvogel Aluminium GmbH at a new plant in Marksuhl for producing aluminum parts

2001
Founding of the joint venture in China with the Taiwanese partner Chian Hsing Forging; construction of Hall 15 in Denklingen for producing constant-velocity joints using an optimized, linked material flow system. Karl Schuster (long-standing Executive Director of Production): **"Every time we built a new hall, we thought we had made adequate provisions for the next few years and would never again need a larger hall."**

2002
Reorganization of Hirschvogel Umformtechnik GmbH by introducing a Profit Center structure, and acquisition of a new office building; turnover increases for the first time to above 250 million euros.

2003
At Hirschvogel Komponenten GmbH, the most sophisticated component at the time was produced, namely an eccentric shaft for a new engine development.

2004
The Executive Board of Hirschvogel Umformtechnik GmbH expands to include Josef X. Baumeister, Michael Dahme and Karl Schuster; setup of the Hatebur HM75, the largest multi-stage press in the world, at the Denklingen plant; startup of a fully automated 31,500 kN press at Hirschvogel Aluminium GmbH for producing aluminum chassis parts; with approx. 2,400 employees, total sales of 350 million euros are achieved.

2005
Setup of a fully automated 25,000 kN cold forging press at Hirschvogel Umformtechnik GmbH; dissolution of the joint venture in China and formation of a 100 % subsidiary, Hirschvogel Automotive Components (Pinghu) Co., Ltd., with the construction of a new plant; construction of a new hall at Hirschvogel Incorporated for the area of machining; introduction of swaging at the Denklingen plant

2006
Founding of Hirschvogel Mitarbeiterbeteiligung GmbH

FRANK HIRSCHVOGEL STIFTUNG

2007
Founding of the Frank Hirschvogel Foundation for securing the family enterprise in the long-term, and restructuring of the shareholders; expansion of Hirschvogel Eisenach GmbH with the construction of Hall 4

2008
90th birthday of Emma Hirschvogel; construction of a new Training Center in Denklingen; takeover of the joint venture shares of Forjas Brasileiras by MAHLE and Hirschvogel, and formation of MAHLE HIRSCHVOGEL FORJAS S.A.; founding of the joint venture Hirschvogel Kalyani India Pvt. Ltd. with Kalyani Thermal Systems Ltd. in India

2009
Founding of Hirschvogel Holding GmbH as the parent company of all Hirschvogel companies; new presence in Poland together with Japanese joint venture partner Kotani under the name Hirschvogel Kotani Poland Sp. z o.o.

2010
On July 3, majority shareholder and CEO Dr. Manfred Hirschvogel passes away suddenly and unexpectedly; establishment of an Advisory Board; Josef X. Baumeister and Dr. Dirk Landgrebe take over the Executive Board of the Holding; the Group achieves total sales of around 600 million euros with almost 3,000 employees.

2011
Frank M. Anisits joins the Executive Board of the Holding; 20th company anniversary at Hirschvogel Eisenach GmbH; takeover of the shares of the joint venture partner in Poland and renaming this new 100 % subsidiary Hirschvogel Components Poland Sp. z o.o.; expansion of production in China with the construction of a third hall; with more than 3,500 employees, the Hirschvogel Automotive Group achieves sales of around 760 million euros.

2012
In January, Frank M. Anisits, Dr. Thomas Brücher and Dr. Alfons Hätscher take over as Executive Vice Presidents of the Holding; purchase of the shares of the joint venture partner in India and renaming this new 100 % subsidiary Hirschvogel Components India Pvt. Ltd.

2013
Hirschvogel is proud to look back on 75 years of company history and celebrates with guests and employees as well as the public at an Open Day; 25-year anniversary of Hirschvogel Incorporated

"What was then a huge investment with many uncertainties turned out later to be the only right decision."

From Village Forge to Global Player

1

Karl Schuster senior (left) – the first employee with his colleagues during the year the company was founded

In 1938, as the three Hirschvogel brothers founded the company led by engineer Willy, Denklingen was a small farming village with some trade businesses, the largest of which was a sawmill. The village also had several forges, including the Hirschvogel forge.

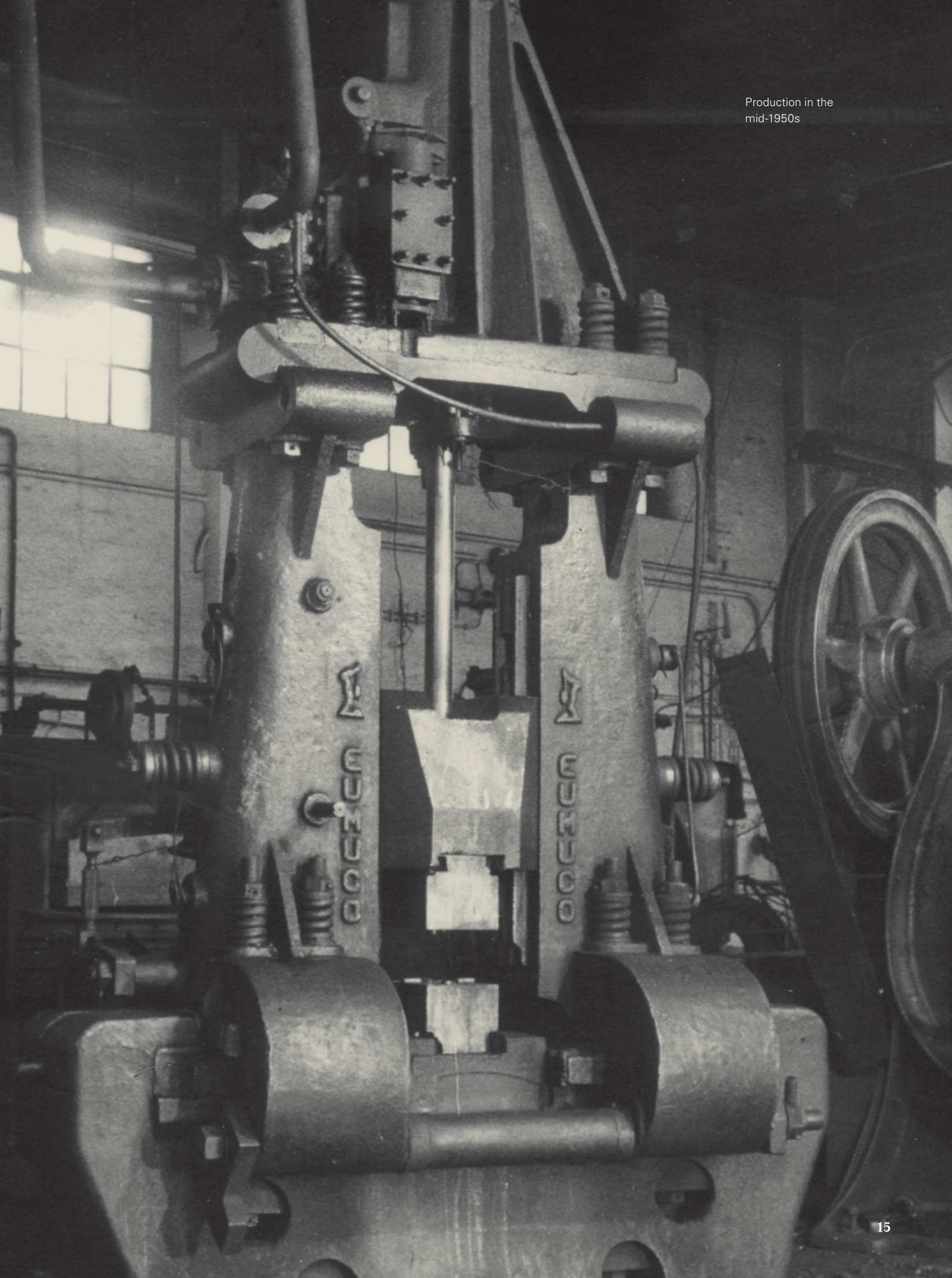
The first hammer was set up at the center of Denklingen, directly next to the dairy, and in the 1940s the first production hall was built. During the war, forged parts were supplied to the aviation industry; engineer Willy Hirschvogel had good connections to the airplane manufacturer MAHLE, who produced aircraft chassis.

At the end of the Second World War, Denklingen had several farmers, skilled tradesmen and many refugees who were unable to feed their families. Many of them traveled to Neugablonz and found work in the jewelry factories. After the war, and after partial dismantlement, Hirschvogel began rebuilding. In the forge, parts for agricultural machines were produced. This was a painstaking new beginning for the small company.

Karl Schuster senior (left) with his brother and colleague Hias in 1940

At the beginning of the 1950s, the first major customers Getrag, Bosch and Hurth were acquired. During this period, the Hirschvogel forge developed into a small industrial operation. This growth provided work to the local population in Denklingen and the surrounding areas.

Hirschvogel in 1959 located at the heart of Denklingen: The die shop was on the first story and above that were the offices and an apartment. The production hall may be seen in the background.



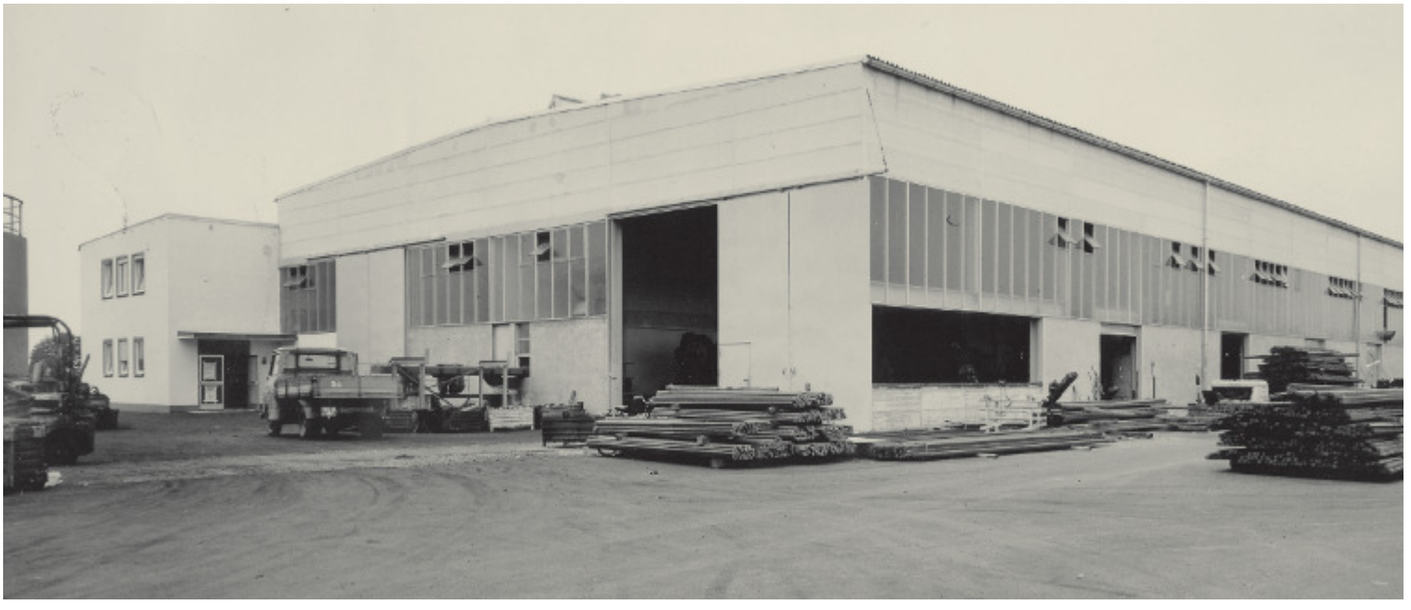
Production in the mid-1950s

Hall 1 under construction in 1962

Due to the enormous production noise, the family decided at the beginning of the 1960s to build a new plant on rural land outside of Denklingen. What was then a huge investment with many uncertainties turned out later to be the only right decision. While many competitors operated within the confines of residential areas, Hirschvogel always had the possibility to expand.

And thus over the following years, new halls were built, new machines were invested in, new production processes introduced and additional customers gained.

The plant premises in
Denklingen in 1972/1973



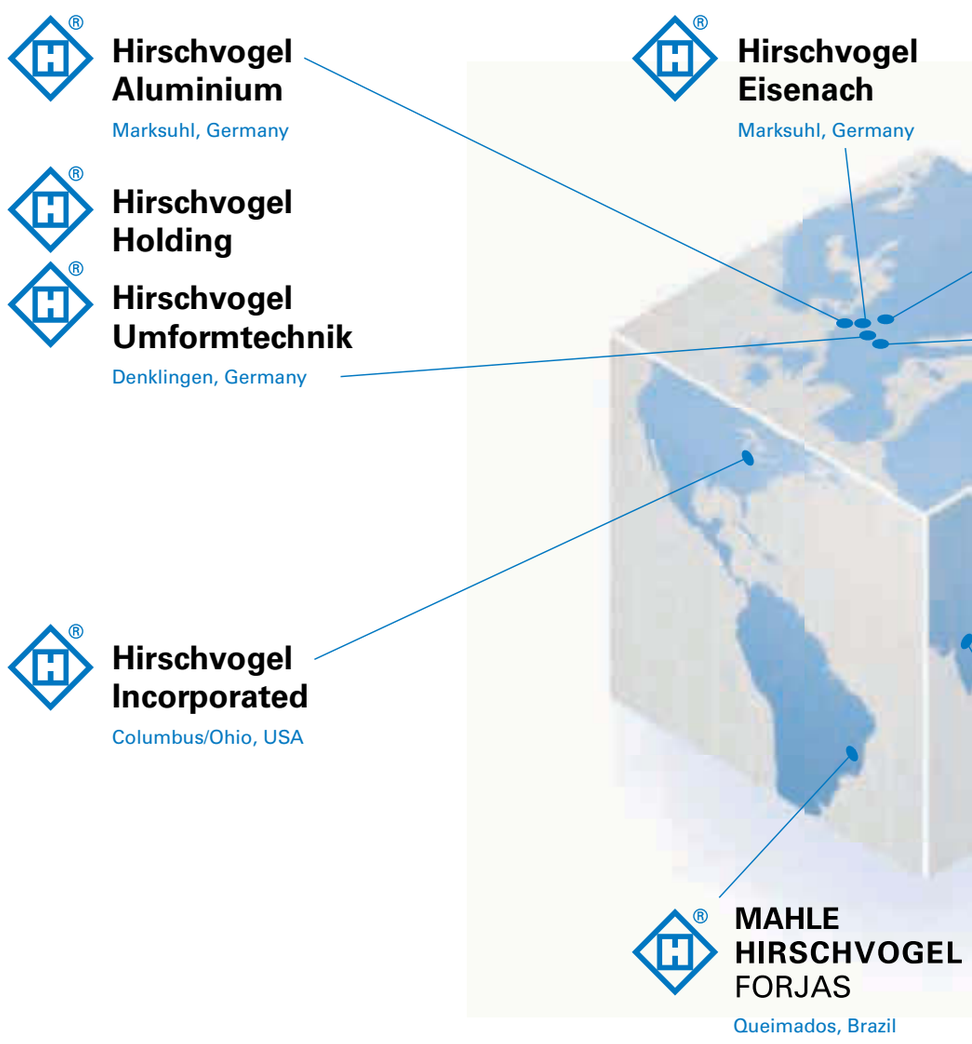
The main plant in 1985

In the 1980s, the son of company co-founder Willy – Manfred Hirschvogel – joined the company executive management, and sales exceeded the 100 million D-Mark threshold for the first time. In 1988, the first subsidiary, located in the US, was founded. This represented the start of Hirschvogel's international commitment.

Other subsidiaries, machine investments, production processes and new customers followed. Hirschvogel, as an employer, brought prosperity to local families, communities and districts, thereby initiating a great change in and around Denklingen. Today, many employees from surrounding towns and cities travel several kilometers to their workplace at Hirschvogel in Denklingen, one of the largest employers in the district of Landsberg.

In 2013, our anniversary year, the Hirschvogel Automotive Group is among the most successful manufacturers of forged steel and aluminum parts. Almost 4,000 employees worldwide produce forged parts and components for the automotive industry and its system suppliers. The consolidated sales of the Group in 2012 was approx. 780 million euros at a yield of 268,000 tons of forged parts.

Hirschvogel Holding GmbH is the parent company of the eight automotive supply companies of the Hirschvogel Automotive Group. At the main plant, Hirschvogel Umformtechnik GmbH in Denklingen, around 1,800 employees produce approx. 208,000 tons of forged and extruded parts made of steel. There are three other plants in Germany: Hirschvogel Aluminium GmbH in Marksuhl near to Eisenach produces sophisticated chassis components made of high-quality aluminum materials. Also located in Marksuhl is an additional steel forge, Hirschvogel Eisenach GmbH.



At Hirschvogel Komponenten GmbH in Schongau, Upper Bavaria, around 700 employees process the steel and aluminum forged parts into ready-for-assembly components.

Besides this, the Group is also active in the US. In Columbus, Ohio, Hirschvogel Incorporated produces warm and cold forged parts as well as ready-for-assembly components for the US market. In China, forged parts and finished parts are produced at Hirschvogel Automotive Components in Pinghu near Shanghai for the Chinese automotive industry. At the plant in Gliwice, Poland, Hirschvogel Components Poland produces warm and warm/cold forged products. In Ranjangaon near Pune, Hirschvogel Components India produces forged and machined parts for the Indian automotive market. Furthermore, Hirschvogel Holding GmbH also has a share of 49 % in the Brazilian forging company MAHLE HIRSCHVOGEL FORJAS S.A., allowing Hirschvogel to apply its know-how on the South American market.

Hirschvogel Components Poland
Gliwice, Poland

Hirschvogel Komponenten
Schongau, Germany

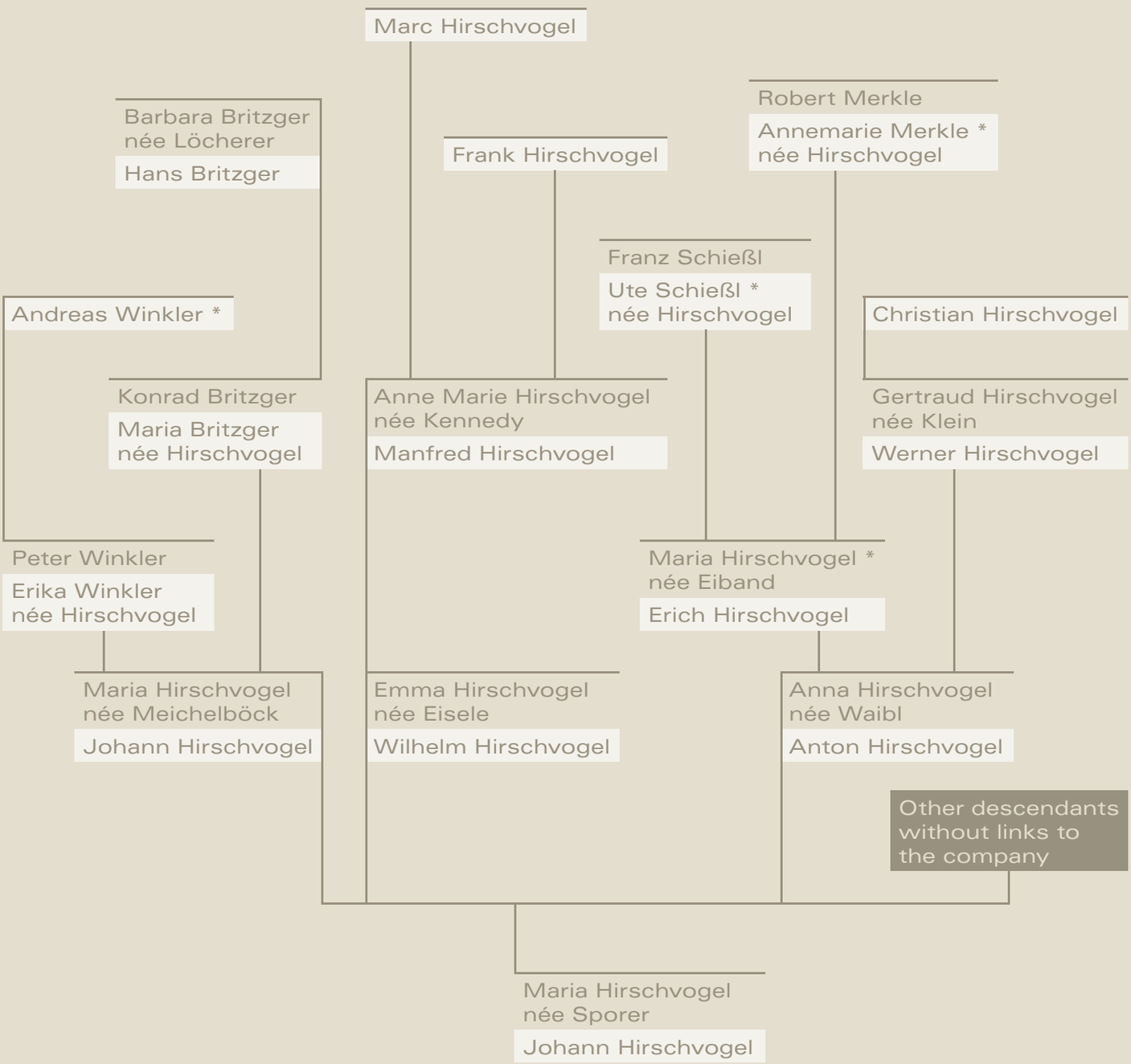
Hirschvogel Automotive Components®
德西福格 汽车配件
Pinghu, China

Hirschvogel Components India
Ranjangaon, India

"Without Emma Hirschvogel the Hirschvogel Automotive Group would not exist in today's size and form."

The Hirschvogel Family 2

The Family Tree



Spouses | Direct descendants | * withdrawn as shareholder

Family photo from 1992; from left Erich Hirschvogel (son of Anton Hirschvogel) with his daughter Annemarie Merkle as well as Dr. Manfred, Emma and Willy Hirschvogel

The shareholders of Hirschvogel Holding GmbH in 2013; from left Hans Britzger, Marc Hirschvogel, Emma Hirschvogel (seated), Christian Hirschvogel and Werner Hirschvogel

The family shareholders today

Recollections from Emma Hirschvogel – An Entrepreneurial Pioneer from the Start

How did the company come into being in 1938?

There were the three brothers Willy, Anton and Hans Hirschvogel – and there was an idea: When Willy Hirschvogel was on a mountain hike with his friend Helmut Bühle from Metzingen, Helmut Bühle said to him: “Wilhelm, a drop forge is what you need.” Helmut Bühle was employed at the time as a vacation worker at the company Henning in Metzingen and was a close acquaintance of the Henning family, who ran a forge.

Anton Hirschvogel (front left) and Hans Hirschvogel (front right) during a company trip at the end of the 1950s

Everyone addressed Anton Hirschvogel (right) simply as “Boss”

After that, Willy Hirschvogel could not get the idea of a drop forge out of his head and went with his thoughts to his brother Anton and his mother. Anton Hirschvogel had inherited the village forge in Denklingen from their parents. This was located right on the main street where today’s war memorial stands. Anton also had some capital available. The other brother Hans, who brought a plot of land to the company, worked at Anton’s forge.

Willy Hirschvogel in 1973

Willy Hirschvogel and his career

Willy Hirschvogel was born in Denklingen on April 5, 1908, and learned the blacksmith's trade at his parents' village forge. In 1926, he went as a journeyman to Augsburg. From 1928 to 1929, he was employed at the company Eberhardt in Ulm as a blacksmith and mechanic. At the same time, he was enrolled at the vocational school in Ulm. Following a successful entrance examination, he attended the mechanical engineering school in Esslingen, where he completed his engineering studies in 1933. After working for a brief period as a young engineer at Bosch in Stuttgart, he then switched at the end of 1933 to the company Elektron, likewise located in Stuttgart. Initially, he was employed as a designer for aircraft chassis before rapidly taking over as production manager for this area.

He worked there until 1945. His last position before leaving was as plant manager with signing authority for the area of aircraft chassis production, and he recognized the need for forged parts in aircraft and cars.

In later accounts, Willy Hirschvogel is described as a passionate engineer with business expertise. His openness to new technologies, his enthusiasm for forging and a thoroughly positive customer orientation were the secrets to his success. His caring attitude not only toward employees, customers and suppliers but also toward competitors earned him great respect in the industry. For the customers he was the contact person for all technical and commercial issues – for them he was the company Hirschvogel, and the company Hirschvogel was his life's work.

Willy Hirschvogel died on February 27, 1998 shortly before his 90th birthday.

1993 – 85th birthday of Willy Hirschvogel

Willy Hirschvogel meets Emma Eisele – and an idea becomes reality

Emma Eisele, born on November 26, 1918, worked at the company Baluff, a mechanical workshop with around 20 employees, where she was responsible for accounting and finances. Here she met Willy Hirschvogel for the first time in 1935. Mr. Baluff senior wanted to find a husband for his daughter and said: "Girls, now we're inviting the engineering boys to visit." It was carnival time and he said: "Girls, make yourselves beautiful." Emma Hirschvogel's mother was a seamstress and made wonderful outfits.

After several meetings, Willy Hirschvogel told her of his plans and urged Emma Eisele to come to Denklingen to see everything there. And so the young woman, who at the time lived in Neuhausen near Stuttgart, came to Denklingen for the first time in 1938 and thought to herself: "I won't be coming back here again any time soon."

From an idea the industrial forge "Hammerwerk Hirschvogel" is born

But of course Emma Eisele did return, soon living with her future husband, Willy, in the village forge. In 1938, the "Hammerwerk Hirschvogel" was founded by the brothers Willy (35 %), Anton (35 %) and Hans (30 %). At this time, farmers, acquaintances, relatives and laborers all provided help. Emma Eisele was responsible from the start for accounting; up to the 1970s she was also responsible for steel purchasing. And she always generated and maintained good business contacts. She was the one who single-handedly compiled the first balance sheet in the founding year of 1938.

And so in 1938, the year of its founding, the "young company" began by purchasing used hammers. Only a year later the war began in

Germany and it was not easy to continue operating the forge. To heat the furnaces, for example, good coal was needed, and Emma Eisele succeeded during this difficult time in obtaining enough coal at Kohlenkontor Weyhenmeyer in Mannheim. At that time and over the years that followed, the only way to survive was to have good contacts. Emma Eisele ensured the economic well-being of the young company and, above all, saw to it that the engineer Willy did not just think of the machines but also of the results which needed to be gained.

Aircraft parts were produced at the forge. There right from the start was Karl Schuster senior, father of long-serving Executive Production Director, Karl Schuster junior. Karl Schuster senior, at the company from the word go, implemented many ideas and led them to success.

Marriage and offspring in the middle of the war

In April 1940, in the middle of the war, Emma and Willy Hirschvogel married with special permission at Reutberg convent (Kloster Reutberg) in which Willy Hirschvogel's sister Michaela lived as a Sister and later as the Reverend Mother. At that time, marriages were not allowed at convents. Besides this, marriage in a convent was viewed highly critically during the Third Reich, and so it was very brave of the young couple to do so nevertheless. In 1944, Emma and Willy Hirschvogel's son Manfred was born; he was well looked after by his grandma in Neuhausen whenever his parents were not there.

“Double burden”

Willy Hirschvogel had two jobs in the 1950s. On the one hand, he was employed at the company Rüsch in Rommelshausen, and on the other he worked at the Hirschvogel forge in Denklingen. From Wednesday to Saturday he was in Denklingen, and after that he returned to Neuhausen again – always in his own car, “a blue Adler”. At the beginning of the 1960s, he then devoted himself entirely to expanding the Denklingen plant, thereby paving the way for unfolding the full potential of the company.

Emma Hirschvogel – a highly esteemed lady in what was then a “male-dominated industry” – and the first major customers

Business relationships in the early years of Hirschvogel were a form of barter trade. For example, in exchange for steel from the company Brüggemann in Oberstdorf, the Hirschvogel forge would supply Brüggemann with hammers und chisels. If cement was needed for building work at Denklingen, Emma Hirschvogel obtained it during these difficult times in exchange for a module milling cutter supplied to the cement provider. This is the way in which Emma Hirschvogel also first came into contact with the company Getrag, as she needed someone who could produce gears. She tracked down Getrag in Ludwigsburg and, without making an appointment, asked for the person responsible for gears. Thus she got to know Mr. Jaumann, who was responsible for sales and purchasing. When she returned home, she said to her husband Willy: “The company Getrag most certainly needs forgings. We should make them an offer.” This is how the first important customers such as Getrag, Hurth and Bosch were gained. In 1954, the first official customer visit at Hirschvogel in Denklingen took place. Eberhard Ziegler, Purchasing Manager at Bosch, together with his wife, came for a company tour followed by a hunting dinner at the house of the Hirschvogel family. Emma Hirschvogel was indispensable in the area of sales. She knew all the business partners and supported her husband Willy in dealing with all important customers – for example, by intervening with female charm in price negotiations or by explaining on the telephone the deadline difficulties experienced even back then in the 1970s and seeking understanding for delayed deliveries, or by shining as an outstanding host. Emma Hirschvogel became rapidly known in the industry.

Emma Hirschvogel in 1952 in front of the first production hall

In the 1950s, Emma Hirschvogel also visited various steelworks to maintain the raw material supply for the young plant – and thanks to her charm, she managed to persuade steel providers that even such a small company like a village forge might one day become a large consumer.

In Northern Germany, there has always been a significant number of forges, and so it was Emma Hirschvogel's idea to enter the Forging Association in Hagen. At that time, she was the only woman there, attending all the meetings and mostly representing her husband Willy. Price fixing was naturally not permitted, but information was provided to the Association for Data and Statistics in exchange for anonymous assessments for price and market orientation.

Emma Hirschvogel in 1962
in front of the first hydraulic
hammer in Hall 1

Emma and Willy Hirschvogel in front of the first production hall at the center of Denklingen in 1961

**The married couple –
very busy and on the road**

Emma and Willy Hirschvogel traveled a lot over the years, but never made a world trip. Most of the time they were at the company, commuting between their homes in Neuhausen and Denklingen, receiving visitors, accepting dinner invitations, going on business trips or visiting forging conferences across the world. In the little spare time they had, they liked to travel in summer to Tramin to hike and in winter to Riezlern or Mittelberg to ski. There was not much time for hobbies such as visits to the theater or the opera or other leisure activities. Up until her 85th birthday, Emma Hirschvogel was regularly in the office, mostly from the morning until late into the night.

1983 – 75th birthday of
Willy Hirschvogel

Senior figure and only living witness to the past 75 years of Hirschvogel history

In a special edition of the employee magazine in November 2008 to mark the 90th birthday of his mother, Dr. Manfred Hirschvogel wrote:

"... But we can draw one conclusion, namely that without her, as a driving force, the company Hirschvogel would not exist in the form it does today. Because back in the 1950s it was questionable whether the small family company could survive at all – and there it was my mother who had to face family quarrelling with the co-shareholders and who ultimately also persuaded her husband to keep the company going and to further develop it, supporting him all the way.
...

She was in every respect the decisive center of the company. She was loved and respected by all business partners, no matter whether these were customers, suppliers or even banks. With her commercial expertise as well as her natural charm, she achieved all company goals.
...
Another important calling for her was the company pension scheme. The Hirschvogel pension fund created by her now looks after a number of former employees and pays them an appropriate company pension.
...

Emma Hirschvogel at the inauguration of Hirschvogel Komponenten GmbH in 1999

2003 – Emma Hirschvogel on her 85th birthday

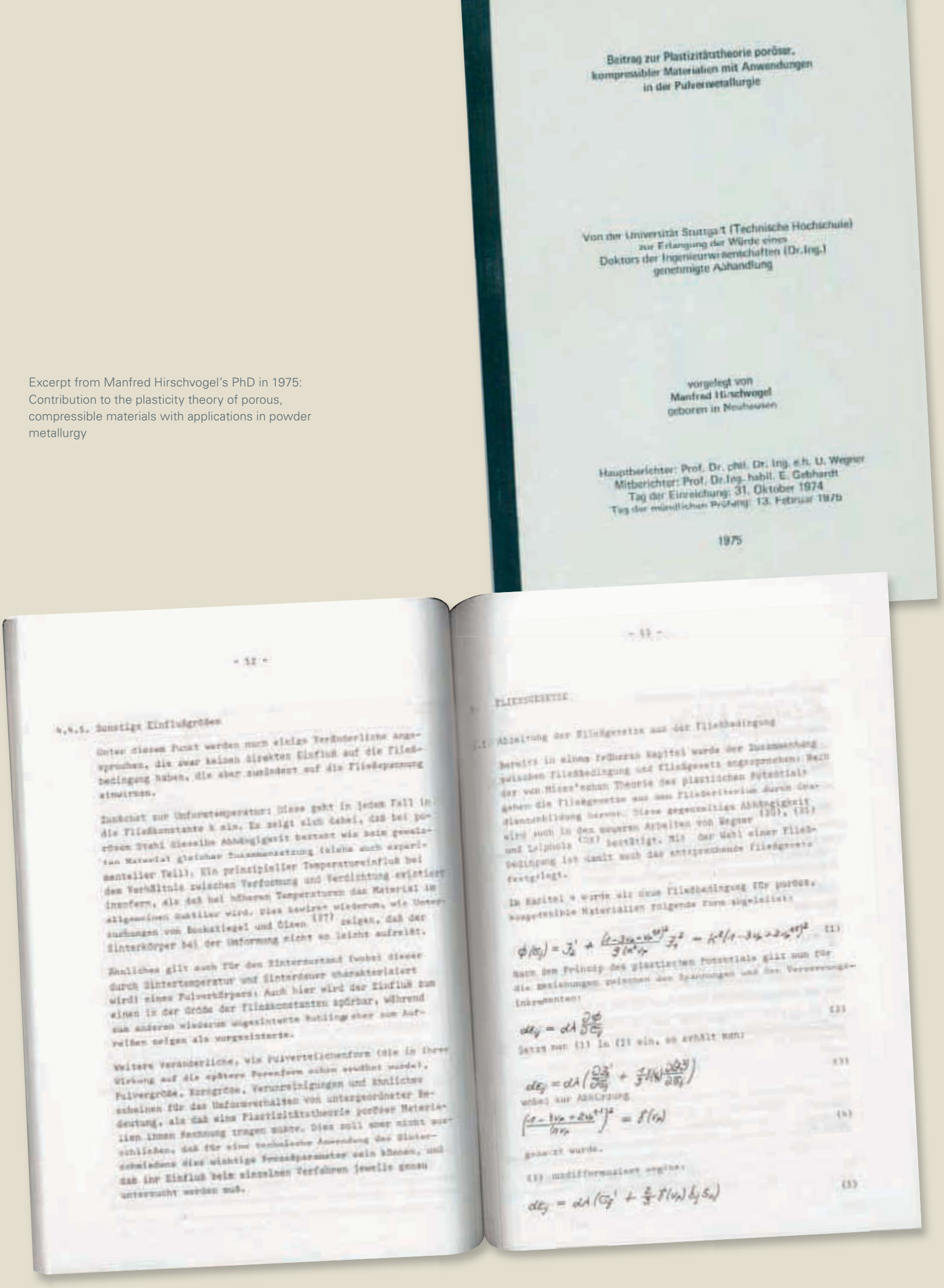
But one thing must be said: Without Emma Hirschvogel, the Hirschvogel Automotive Group would not exist in today's form and size – and for that as well as for all her services for the company over the last 70 years she deserves our gratitude – to my mother Emma Hirschvogel!"

Emma Hirschvogel in the anniversary year 2013

"For many he was not only the
'boss' but also a good friend
and esteemed colleague."

Dr. Manfred Hirschvogel 3

Excerpt from Manfred Hirschvogel's PhD in 1975: Contribution to the plasticity theory of porous, compressible materials with applications in powder metallurgy



Beitrag zur Plastizitätstheorie poröser, kompressibler Materialien mit Anwendungen in der Pulvermetallurgie

Von der Universität Stuttgart (Technische Hochschule) zur Erlangung der Würde eines Doktors der Ingenieurwissenschaften (Dr.Ing.) genehmigte Abhandlung

vorgelegt von
Manfred Hirschvogel
geboren in Neuhausen

Hauptberichter: Prof. Dr. phil. Dr. Ing. e.h. U. Wegner
Mitberichter: Prof. Dr.Ing. habil. E. Gebhardt
Tag der Einreichung: 31. Oktober 1974
Tag der mündlichen Prüfung: 13. Februar 1975

1975

- 12 -

4.4.5. Sonstige Einflußgrößen

Unter diesem Punkt werden noch einige Verdünnerlinie angesprochen, die zwar keinen direkten Einfluß auf die Fließbedingung haben, die aber zumindest auf die Fließspannung einwirken.

Zunächst zur Umformtemperatur: Diese geht in jedem Fall in die Fließkonstante k ein. Es zeigt sich dabei, daß bei porösem Stahl dieselbe Abhängigkeit besteht wie beim gewalzten Material gleicher Zusammensetzung (siehe auch experimenteller Teil). Ein prinzipieller Temperatureinfluß bei dem Verhältnis zwischen Verformung und Verdichtung existiert insofern, als daß bei höheren Temperaturen das Material im allgemeinen duktiler wird. Dies konnte wiederum, wie Untersuchungen von Bockstiegel und Olsen [37] zeigen, daß der Sinterkörper bei der Umformung nicht so leicht aufreißt.

Ähnliches gilt auch für den Sinterzustand (wobei dieser durch Sintertemperatur und Sinterdauer charakterisiert wird) eines Pulverkörpers: Auch hier wird der Einfluß zum einen in der Größe der Fließkonstanten spürbar, während sich anderen wiederum ungesinterte Rohlinge eher zum Aufreißen neigen als vorgesinterte.

Weitere veränderliche, wie Pulverteilchenform (die in ihrer Wirkung auf die spätere Porenform schon erwähnt wurde), Pulvergröße, Korngröße, Verunreinigungen und ähnliches scheinen für das Umformverhalten von untergeordneter Bedeutung, als daß eine Plastizitätstheorie poröser Materialien ihnen Rechnung tragen müßte. Dies soll aber nicht ausschließen, daß für eine technische Anwendung der Sintertheorie diese wichtige Prozeßparameter sein können, und daß ihr Einfluß beim einzelnen Verfahren jeweils genau untersucht werden muß.

- 13 -

5. FLIESSGESETZE

5.1 Ableitung der Fließgesetze aus der Fließbedingung

Bereits in einem früheren Kapitel wurde der Zusammenhang zwischen Fließbedingung und Fließgesetz angesprochen: Nach der von Mises'schen Theorie des plastischen Potentials gehen die Fließgesetze aus dem Fließkriterium durch Gradientenbildung hervor. Diese gegenseitige Abhängigkeit wird auch in den neueren Arbeiten von Wegner [30], [31] und Lolpholz [28] bestätigt. Mit der Wahl einer Fließbedingung ist damit auch das entsprechende Fließgesetz festgelegt.

In Kapitel 4 wurde als neue Fließbedingung für poröse, kompressible Materialien folgende Form abgeleitet:

$$\phi(\sigma_{ij}) = J_2' + \frac{(\sigma - 3\gamma_N \cdot \sigma^M)^2}{\beta(\sigma^*)} J_1^2 - k^2(\sigma, 3\gamma_N, 2\gamma_N^{\sigma^M})^2 \qquad (1)$$

Nach dem Prinzip des plastischen Potentials gilt nun für die Beziehungen zwischen den Spannungen und den Verzerrungsinkrementen:

$$d\varepsilon_{ij} = d\lambda \frac{\partial \phi}{\partial \sigma_{ij}} \qquad (2)$$

Setzt man (1) in (2) ein, so erhält man:

$$d\varepsilon_{ij} = d\lambda \left(\frac{\partial J_2'}{\partial \sigma_{ij}} + \frac{1}{\beta^2(\sigma)} \frac{\partial J_1^2}{\partial \sigma_{ij}} \right) \qquad (3)$$

wobei zur Abkürzung

$$\left(\frac{\sigma - 3\gamma_N \cdot \sigma^M}{\beta(\sigma^*)} \right)^2 = \beta(\gamma_N) \qquad (4)$$

gesetzt wurde.

(3) umdifferenziert ergibt:

$$d\varepsilon_{ij} = d\lambda \left(\sigma_{ij}' + \frac{2}{3} \beta(\gamma_N) \delta_{ij} S_M \right) \qquad (5)$$

His career

The son of company co-founders Willy and Emma Hirschvogel was born on December 14, 1944 in Neuhausen/Filder. After graduating from high school he began studies in Physics in 1964 at the University of Stuttgart, graduating in 1971. After that, he became increasingly drawn to applied sciences and began his PhD in 1971 at the Laboratory for Powder Metallurgy of the Max Planck Institute in Stuttgart, focusing on the sinter forging of billets made by powder metallurgy. As a theoretical description was necessary here, the analysis was extended to the plasticity theory of porous materials. He gained his PhD on this topic at the Institute of Engineering Mechanics under Professor Wegner. Manfred Hirschvogel initially worked part-time at the company from 1972, launching cold forging together with Peter Kettner in 1973. At the end of 1974, he married Anne Marie (née Kennedy), with whom he later had two sons, Marc and Frank. His wife, Anne Marie Hirschvogel, actively supported him in building up what was still a small company, and worked for more than 35 years in the areas of purchasing and PR. In 1975, Manfred Hirschvogel officially began working at Hirschvogel KG in Denklingen. From 1981, he joined the Executive Management of Hirschvogel Umformtechnik GmbH alongside his father Willy. In 2007, Dr. Manfred Hirschvogel founded the Frank Hirschvogel Foundation in memory of his son Frank, who suffered a fatal accident. In 2009, he established Hirschvogel Holding GmbH as the parent company of all Hirschvogel plants.

On July 3, 2010, he passed away suddenly and unexpectedly at the age of 65.


ZUVERLÄSSIG.
DEUTSCHE
SCHMIEDETECHNIK
SICHER.

Physicist, researcher, technology enthusiast, author and visionary

Dr. Manfred Hirschvogel was not only an outstanding personality, but also an expert in his field, with technical competence in forging, materials and production engineering. He was also a person with a fascinating visionary power, who managed the company Hirschvogel highly successfully for many years.

Dr. Manfred Hirschvogel accumulated several publications to his name. Besides this, he was also a sought-after speaker at conferences and was active in various committees and associations. Among other roles, he was Chairman of today's German Forging Association (Industrieverband Massivumformung) for several years.

Even at the young age of 27, he gave a fascinating description of the future development of the company in his speech manuscript to mark the 75th birthday of his uncle Anton Hirschvogel.

Excerpt from Manfred Hirschvogel's speech to mark the 75th birthday of Anton Hirschvogel

Speech on Anton's 75th birthday (February 12, 1972)

"My dear Uncle Anton, dear Employees and Friends!

As my father considers himself biased, it has fallen this time to the second generation to praise your plant and thus your work, dear Uncle Anton.

As already mentioned, I do not want to commend your past achievements – such eulogies alone are not necessary, as we all know what we have in our revered senior boss. Instead, I will try to present the possible future development of our plant, which may or may not come true.

Certainly some of you are asking yourselves why it is Manfred of all people, who only shows up every 3 weeks in Denklingen, that is holding this speech – well, this is in anticipation of future developments.

...

Perhaps some of you are asking yourselves whether an outlook on the further technical development of our company is really fitting at a birthday celebration. I say it is, and I do so because as a representative of the second generation, it is my duty to consider which direction the plant should take in the future. Therefore, dear Uncle Anton, following the praise of your work, please take the following outlook as an attempt to build on what you have achieved. I think that the best present we can give to you today would be a strong and successful company in future, too.

Now, let us first ask ourselves what possibilities we have for further development in our production. We should begin by briefly summarizing the various options:

1. Maintaining the current production program with continual modernization and possible expansion

2. Expansion of the product range through
a) the addition of complex special parts, such as steering knuckles and turbine blades
b) the addition of other forgeable materials, such as titanium or lightweight metals

3. Taking up new hot forging processes, such as sinter forging, precision forging and warm forging

4. Commencement of cold forging

Naturally, it goes without saying that these four points are not mutually exclusive and that they may be combined.

...

If we were to draw a conclusion from these considerations, the further technical development at our plant could be outlined as follows:

1. Safeguarding and increasing the performance of the drop forge through an additional maxi press

2. Setting up an initially smaller, universal hydraulic press

3. Introduction of extrusion for producing forging billets, as well as powder presses for sinter forging trials

4. Depending on the insights gained, further development of cold forging or sinter technology through procurement of an extrusion press or a powder press

I have discussed some new processes in forging technology and derived from these a possible, not the intended, path for further development.

Dear Uncle Anton, please therefore view these thoughts merely as a kind of birthday present from the next generation, which on the one hand is full of admiration for all that you have achieved, but is also looking toward the future on the other.

I would like to close with a birthday wish: I wish that you continue to put your energies into the plant in the future as you have in the past and that you may have the opportunity to experience many of the developments I have spoken of here and, above all, to contribute to them."

At the turn of the millennium, he looked back on 62 years of company history: “For the future, we will certainly continue to develop the internationalization and globalization of our company in accordance with the wishes of our customers. Our technical know-how, our development competence and the quality of our products have all led to us enjoying renown as an international supplier of precision forged parts. At our main plant in Denklingen, too, we shall be setting the future course of the company. The methods of production as planned in Hall 12 will be further developed and perfected during future production. From this brief outline, it is clear that we have a lot ahead of us over the next few years in the new millennium, and we hope that Hirschvogel will continue to make history – we will consistently do our best.”

Our Mission Statement

We are a world-class company in our markets.
We are one group of companies.

One Hirschvogel

Our Basic Principles

1. We are and will remain a financially and economically independent, family-owned enterprise:

- We are committed to achieving the profit margin required to finance internally our research and investment needs.
- In this way, we can continue our growth with the necessary profitability.

2. The interests of the Group as a whole always take top priority:

- We loyally support decisions made by our Shareholders and the Holding Company.
- We recognize that unified processes and standards are self-evident business necessities.

Our Values

1. Hirschvogel’s caring culture of excellence embodies the following:

- Performance and success are economically necessary and result in high motivation, which in turn leads to success.
- We cultivate a work atmosphere which respects each individual and the environment.
- We express our dedication to the company by fulfilling our tasks.

2. All employees are guided by the company values:

- **Teamwork:** We can only succeed by working together with a shared sense of commitment and mutual appreciation.
- **Power to Integrate:** We contribute to the Group’s common goals and effectively integrate differences.
- **Ability to Develop:** We develop ourselves and the business.

3. The management exemplifies the values that are mandatory for all employees.

Our Vision and Goals

1. We deliver sophisticated forged parts, components and systems at the highest quality to our customers worldwide.

2. We actively meet shifting market and product requirements.

3. We strive to develop an increasing number of products with unique selling points.

Hirschvogel Automotive Group

In 2010, the mission statement of the HirschvogelA utomotive Group was initiated by Dr. Manfred Hirschvogel

Memories of an entrepreneur and a boss with a heart

Even today, at all Hirschvogel plants, there is much that can be seen in memory of Dr. Manfred Hirschvogel, such as the sculpture known as “The Heart Carrier”, the street names at all German locations (“Dr.-Manfred-Hirschvogel-Straße”), or several photos of him. For many, he was not just the “boss” but also a good friend and esteemed colleague. Some simply called him “Doc”.

On the occasion of his 60th birthday, Dr. Manfred Hirschvogel wrote the following in the employee magazine: “Am I 60 already?! ... But perhaps we should take a brief look back: The company success of the past 10 years – a period in which our sales have increased five-fold – is mainly due to outstanding team work. There is no doubt that each individual can provide impetus, yet the league we are playing in today demands that the ensemble fits together. And, if I had to pick out one particular personal achievement, it would be precisely that – namely to have formed a team which, in spite of becoming increasingly larger, still fits together and is pulling in the same direction. It is a team consisting of a healthy mix of home-grown top performers and highly talented young forging engineers, all of whom demonstrate mutual respect and interact to achieve maximum performance – I am glad to be standing at the top of such a highly productive troupe! ...”

Personal memories of
Dr. Manfred Hirschvogel

Many employees, business partners and friends have highly wonderful memories of Dr. Manfred Hirschvogel. There was his fondness for fast cars, VfB Stuttgart or very good wine. Also his way of answering questions which it would have been better not to have asked was something very unique. He would then simply look over the edge of his glasses and give a smile. He liked to be asked if he wanted a coffee, to which he mostly answered, "That's a good idea". His door was always open, and anyone who managed to get past the secretary always got a spontaneous appointment. Thus it was nothing unusual for his carefully planned schedule to be completely messed up. If he was visiting a customer, he was able with his calm manner and his professional expertise to achieve a consensus even on contentious issues. His caring nature and modesty made him highly esteemed among employees and business partners, and he was seen as a successful entrepreneur and human being.

Dr. Manfred Hirschvogel

Dr. Manfred Hirschvogel

A voice which was familiar has fallen silent.

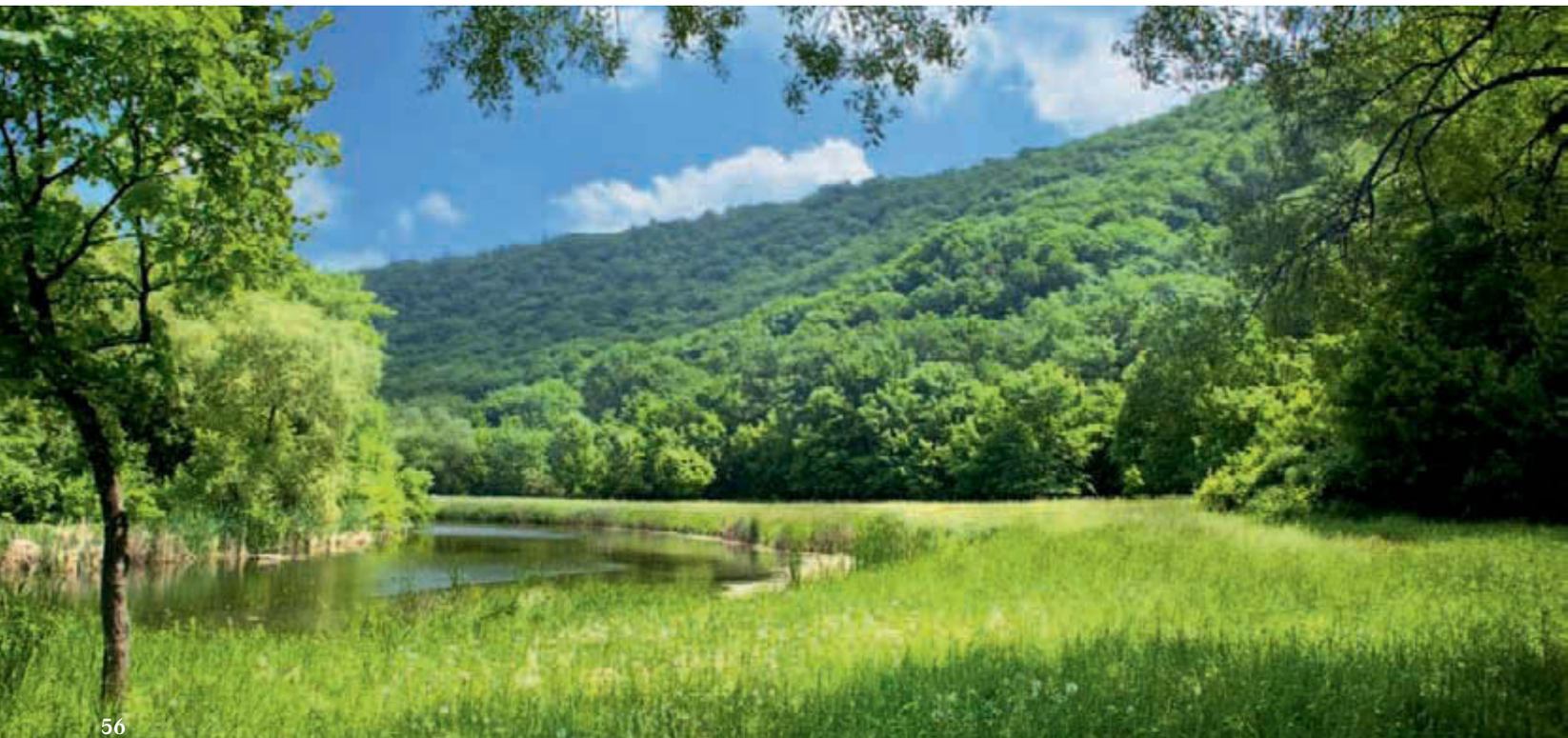
A person who was dear to us has gone.

What remains are love, gratitude and memories.

“With the founding of the Frank Hirschvogel Foundation a clear, life-affirming signal has been provided for the future.”

4 The Frank Hirschvogel Foundation

FRANK HIRSCHVOGEL **STIFTUNG**



In 2007, the Frank Hirschvogel Foundation was founded by Dr. Manfred Hirschvogel and the other family shareholders. The name of the Foundation is in memory of the son of Dr. Manfred and Anne Marie Hirschvogel (née Kennedy), who suffered a fatal accident in 2006 at the age of only 18.

With the transfer of shares from Hirschvogel Holding GmbH by the family shareholders, the Foundation became a co-shareholder. Following its founding as a non-profit making, public institution with legal capacity under civil law, a statute was created in which the goals and tasks of the Foundation are listed and described in detail. Likewise, rules of order were compiled in which the powers and responsibilities within the Foundation are regulated. The observation of the requirements with respect to the non-profit status and to legal regulations is monitored by the regional government of Upper Bavaria as a foundation supervisory authority.

Besides representing its interests as a shareholder of Hirschvogel Holding GmbH, it is also the task of the Frank Hirschvogel Foundation to support pupils and young people in education and careers and to fund projects and activities in science and research at colleges and universities.

Schools and educational institutions in the regions near the German Hirschvogel locations act as partners for the various measures and projects of the Foundation. In the area of research and science, the Foundation is active across the entire federal territory.

The Frank Hirschvogel Foundation will continue in future to maintain and intensify its activities and measures in order to contribute to supporting young people in research and science according to the regulations of the Foundation statute.

Board of Trustees and Executive Board of the Frank Hirschvogel Foundation – from below, beginning each time from the left: Stephanie Klotz (Foundation Manager), Anne Marie Kennedy (Board of Trustees), Dr. Christoph Scholz (Board of Trustees), Walter Pischel (Executive Board), Marc Hirschvogel (Chairman of the Board of Trustees), Prof. Dr. Fritz Aldinger (Board of Trustees), Armin Maudrich (Executive Board), Werner Hirschvogel (Vice-Chairman of the Board of Trustees) and Thomas Eckhardt (Board of Trustees)

With the establishment of the Frank Hirschvogel Foundation, a clear, life-affirming signal has been provided for the future which shows that the founders were and still are aware of their social responsibility in society and that they continue to fulfill this as they have in the past. Sadly, Dr. Manfred Hirschvogel, who passed away prematurely, can no longer personally experience the joy and accept the expressions of gratitude of those providing support and those who have been or shall be supported.

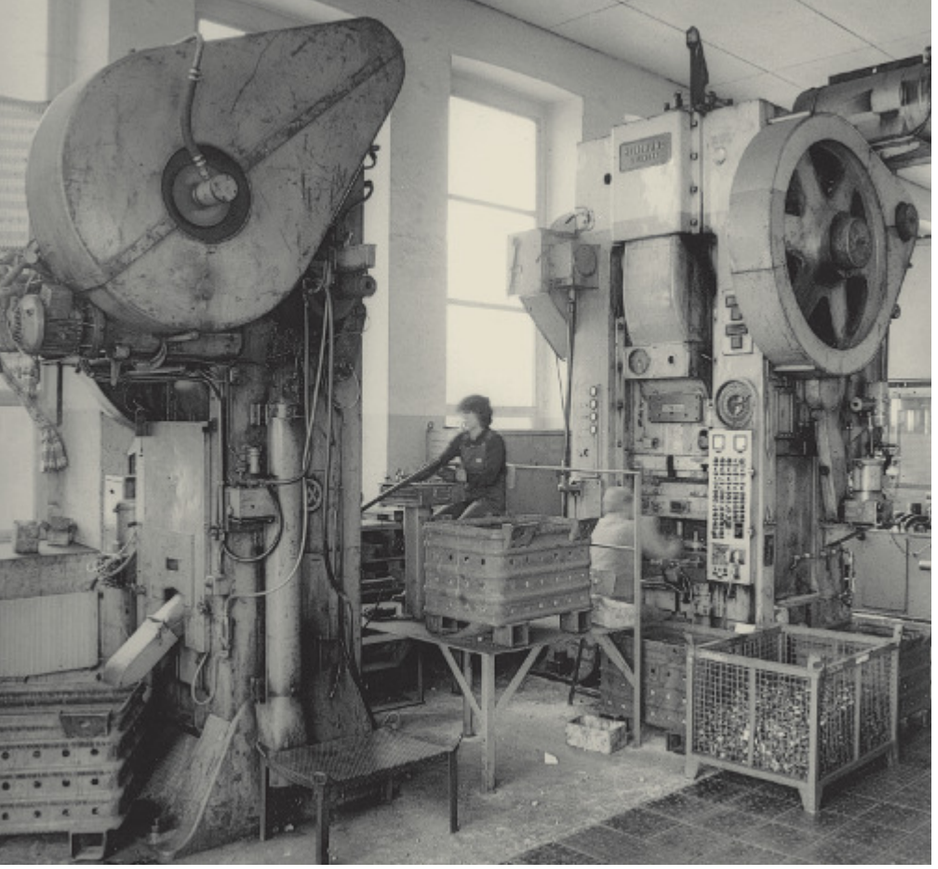
“Hirschvogel = Enthusiasm + Expertise”

5 Production, Engineering and Development

Forging

Metal forging is a method of forming billets with a cylindrical cross section (rolled bar steel), with a rectangular cross section or from extruded profile (aluminum). In the case of open-die forging, the metal is shaped directly from the cast ingot. Closed-die forging encompasses a variety of processes that are carried out hot, warm or cold. The material, component design and forging temperatures need to be coordinated well in order to achieve ideal component properties and to guarantee cost-efficient production. One aspect to bear in mind when selecting a suitable process is that although the choice of material is more limited the colder a part is forged, the result is much more precise. Forgings made of steel and aluminum are completely recyclable.

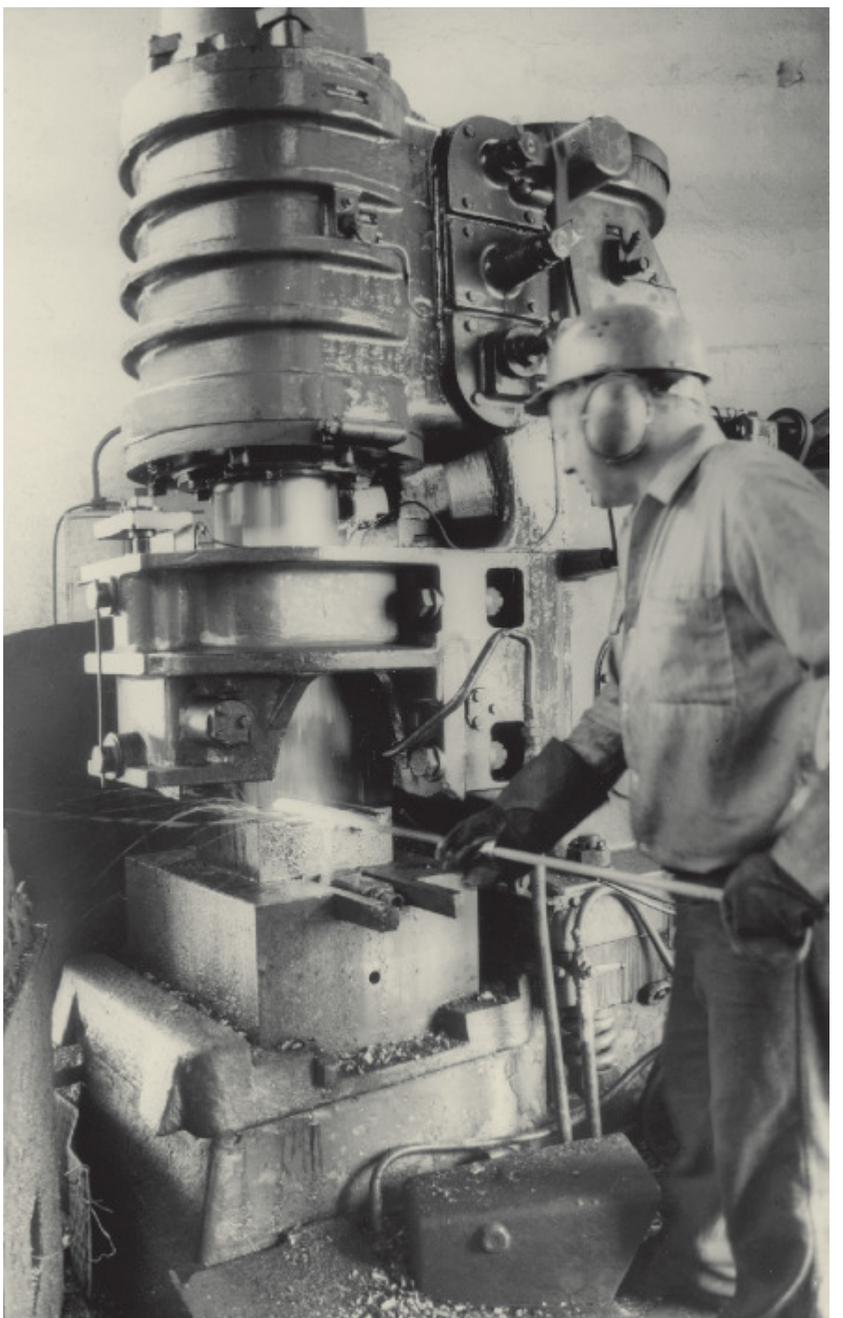
Forging in 1976



Cold forging in 1976 at the center of Denklingen

Milling a plastic model in the die shop in 1976

1979 – the first large press for cold forging



Forging directly from bar in the 1970s

5-stage fully automated cold press

4-stage fully automated hot forging press

Large aluminum forging machine

Hot Forging of Steel

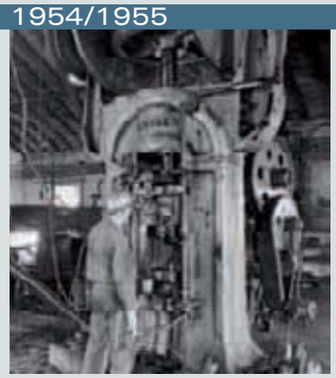
Hot forging is carried out at a temperature of approx. 1,050–1,250 °C. The continuous recrystallization which takes place leads to almost unlimited formability. Controlled cooling of the parts following forging allows the mechanical properties (hardness and grain structure) of the material to be adapted in a targeted way. Hot forged parts are characterized by the fact that highly complex geometries are possible, that the choice of material is almost unlimited and that high strengths can be achieved.

Complexity

1938

Belt drop hammer
Cycle time 30–60s

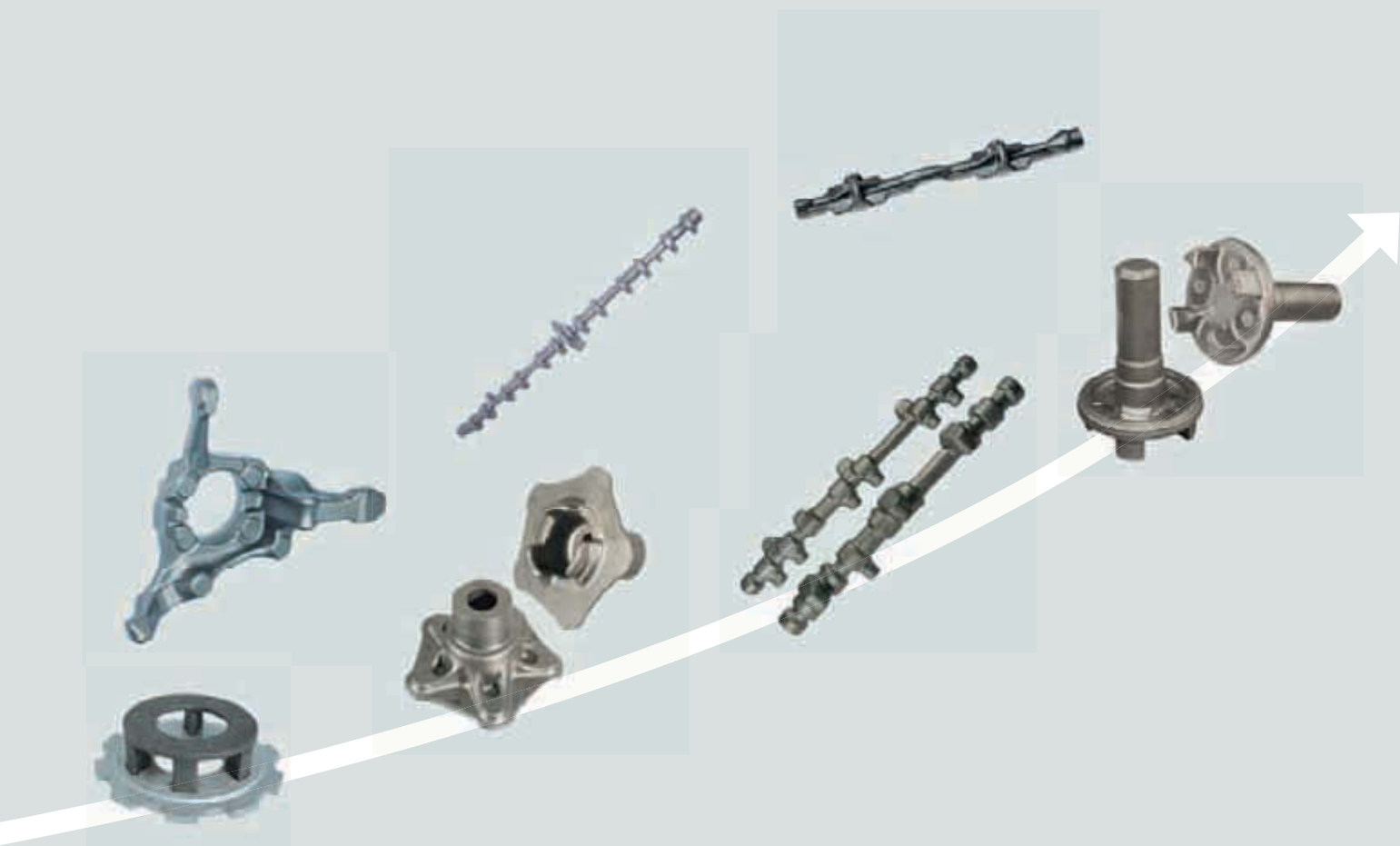
1954/1955



Friction spindle press
Cycle time 20–30s

1963

Crank press, manual
Cycle time 10–20s



1984/1985

Crank press, fully automated
Cycle time 2.5–6s

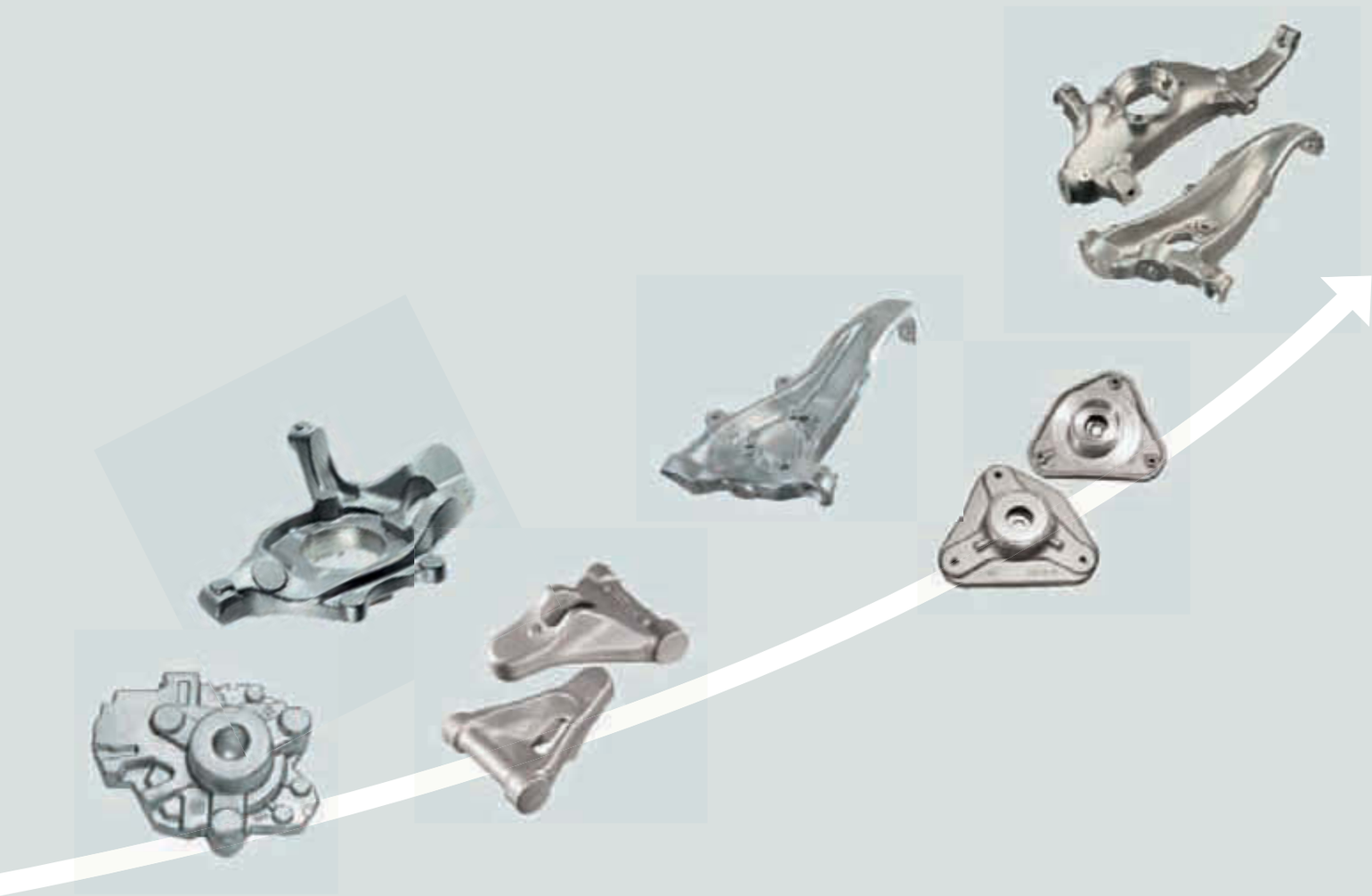
2005 2013

Horizontal, mechanical multi-stage press
Cycle time 0.8–1s

Hot Forging of Aluminum

At Hirschvogel, hot forging of aluminum takes place at a forging temperature of approx. 480–530 °C. After steel, aluminum is the most frequently used metal for forged parts. It optimally combines the properties of strength, low density and processability. Aluminum is being used increasingly in automotive construction in the areas of chassis and bodywork. The forged parts for the chassis have a clear weight advantage over comparable steel and cast parts. Due to their low weight, aluminum forged parts have made a decisive contribution to reducing fuel consumption.

Complexity of the parts and plant engineering:
From simple raw part according to customer drawing to completely developed, inspected and ready-for-assembly component



2009 2013

Fully automatic aluminum forging press

Cold Forging

Cold forging is a process in which the billets are not preheated, but are forged at room temperature. Due to the fact that shrinkage and scaling do not occur, cold forged components have greater shape and dimensional accuracy than comparable hot forged parts. The drawback of cold forging stems from the limited ductility of the workpiece material compared to hot or warm forging. When cold forging steel, it is absolutely imperative, therefore, that a suitable material is selected and that the billets undergo a special pretreatment in order to optimize the grain structure and surface for the subsequent forging operation, as well as that special tool technologies are used. In combination with other forging technologies, cold forging processes such as calibration may be used to produce splines or ball tracks, for example, with very low machining allowances or even as ready-for-assembly parts.

Complexity

1973 1976 1979 1983

1-stage manual cold press
Cycle time: 8–10s
Pressing force: 400 tons

3-stage manual cold press
Cycle time: 8–10s
Pressing force: 1,000 tons

1993

4-stage fully
automated cold press
Cycle time: 8–10s
Pressing force: 2,500 tons

2000 2003

2010 2013

5-stage fully
automated cold press
Cycle time: 2s
Pressing force:
2,000 tons

Warm Forging

The warm forging of steel is carried out at temperatures of between 700 °C and 950 °C. The aim of warm forging is to combine the benefits of cold and hot forging. In contrast to cold forging, warm forging offers a wider range of shaping options, while compared to hot forging it provides greater precision.

Swaging

Rotary swaging of steel is carried out on special machine tools and which, strictly speaking, falls under the category of open-die forging, as the workpiece is not completely enclosed by a tool. At Hirschvogel, this process is used in combination with closed-die forging technologies. A part is firstly produced in a conventional way, such as by warm forging, before being further shaped in a certain region by means of swaging. Swaging may be used to produce undercuts on shafts, for example, which would otherwise need to be generated by machining. This leads to a reduction in the billet weight, which in turn leads to a decrease in costs.

Complexity

1981

Hydraulic press
Cycle time: 7s
Pressing force: 400 tons

1985

Eccentric press
Cycle time: 2.5s
Pressing force: 1,600 tons

1997

2002 2013

Eccentric press
Cycle time: 2.5s
Pressing force: 2,000 tons

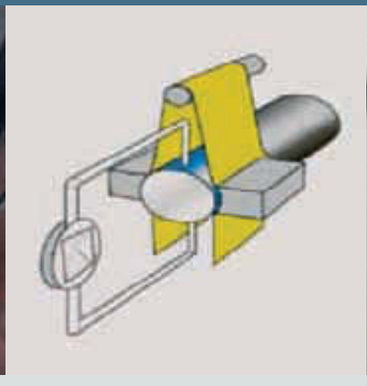
Machining and Finishing

Depending on requirements, forged parts may be provided with contours that are ready-for-assembly across the entire component or on some surfaces. In many cases, forging is followed by additional, mainly cutting, production processes. Subsequent heat treatment is often then used to provide the final material properties. When developing processes, Hirschvogel works with standard machine concepts in order to react flexibly to customer demands. Besides this, we differentiate between soft and hard machining. The broad service spectrum ranges from simple operations such as cutting to length and centering through to ready-for-assembly components with sub-assemblies.

Complexity

1999 2001

External cylindrical grinding



Surface finishing

Centerless grinding

Gear hobbing

2013

Plasma nitriding

Forging internal splines

Grinding cam geometry

Density test

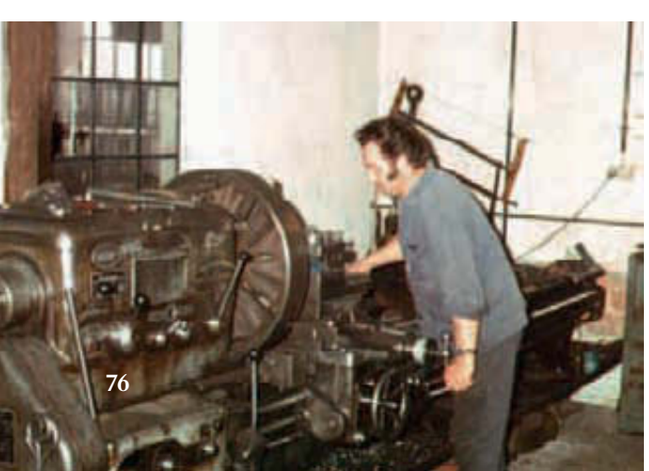
The Die Shop

From the beginning, the production of forging dies at the in-house die shop represented a considerable success factor for Hirschvogel. Generations of toolmakers not only produced tools and fixtures according to drawings, but also used their forging know-how in close collaboration with development and production to supply optimally designed dies that were able to withstand the necessary loads.

In order to produce forging dies in die blocks from 1938, the outline of the part geometry was traced onto a soft annealed die block using a scriber. The form was pre-milled. Sometimes the die cavity was prepared using a chisel and grinder. The accuracy could only be checked using a sheet gage. For complex camshaft geometries, two to three days were necessary. The machined die block was quenched and tempered and was then made available to the forge.

The first significant progress was made in 1962 with the purchase of a Deckel copy milling machine. Firstly, the geometry was milled into the plastic base body. Each required diameter was set precisely on the fixture, enabling a very accurate, true-to-size geometry to be produced. The plastic model was filled with cement, the upper and lower die glued together and presented to the customer for release. Following release, die production could then begin. For this, the die block and the plastic model needed to be clamped with precise alignment on the milling table. With the copy milling machine, the model was scanned and milled onto the die true to dimension.

The first spark erosion facility was purchased in 1972 for producing deep filigree dies. Production of dies using CNC machines began in 1986. Only these milling machines allowed



high-precision dies and punches to be produced for cold and warm tools. With the introduction of the first 5-axis CNC milling machine and 3-axis HSC milling machine at the end of the 1990s, all die cavities could be milled with high precision and very good surface quality.

Round cavities were produced from 1938 on a lathe, which demanded a high level of sensitivity and instinct. Careful attention needed to be paid to draft angles and radius transitions. The cavity was subsequently checked using templates to prevent repeated errors in serial production. In 1973, the first copy lathe was put into operation; in 1981, the first NC lathe was employed. A fully automatic CNC lathe with an automatic tool changing system was introduced in 1985.

A big step for the Denklingen die shop was the move in spring 1977 to today's location in Hall 4 as well as the expansion into Hall 7 over the following years.

The die shop has thus progressed over the decades from manual to industrial-scale tool production, which is now characterized by modern machinery with a high degree of automation, central NC programming, SAP-aided order planning and control, as well as global networking with the die shop departments of the other Hirschvogel locations.

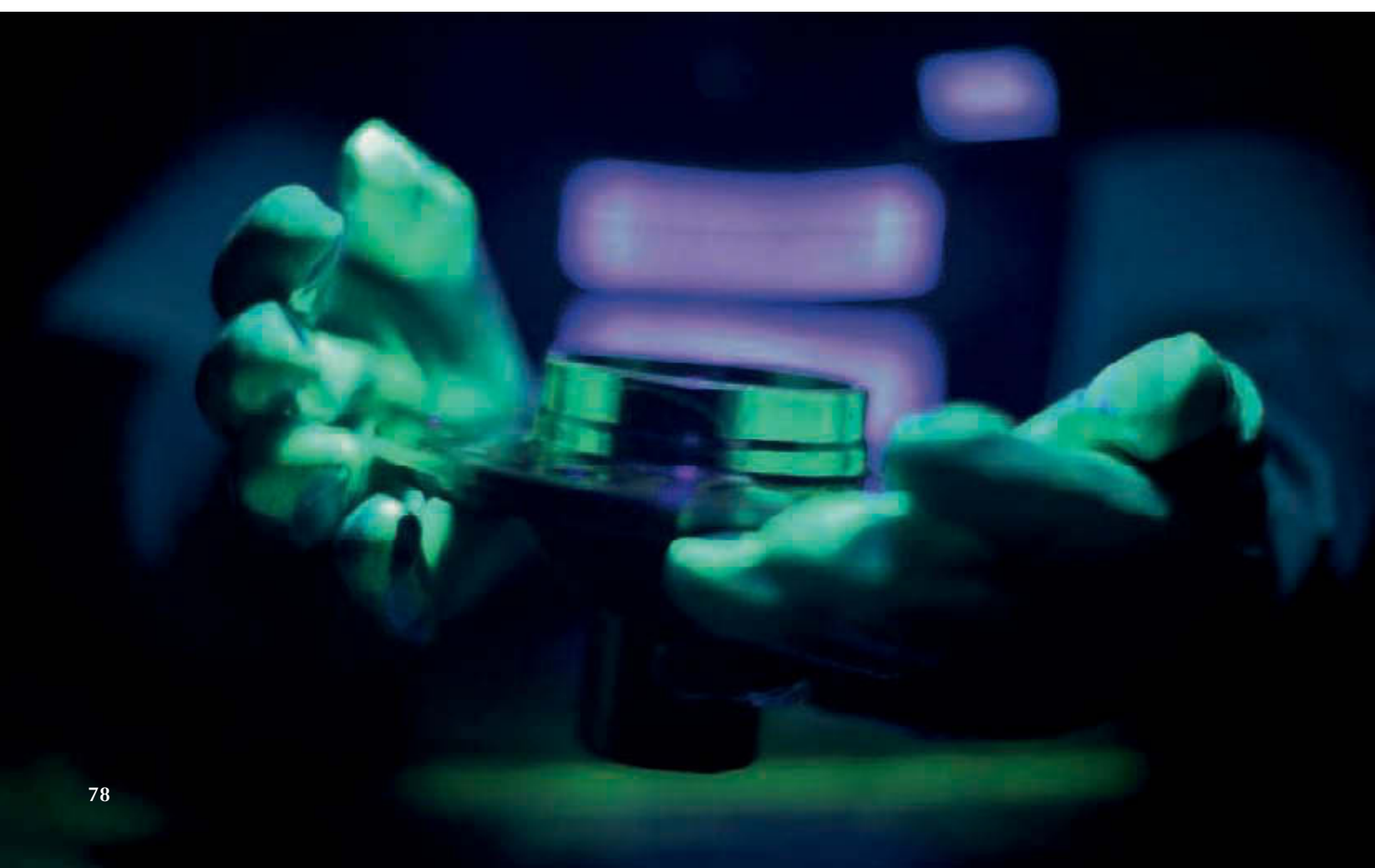
In 2010, the Hirschvogel die shop network was named "Die Shop of the Year" in a nationwide benchmark competition.

Finished part inspection

All forged parts are undergo visual inspections to check that they are complete and have the right characteristics. Sometimes crack, eddy current or ultrasonic testing is carried out to check for defects.

Quality management

The basic prerequisite for supplying parts to the automotive industry is working according to the specifications of the quality management system in place. The system guarantees that all organizational, commercial and technical activities are planned, controlled and monitored. It also ensures that the requirements agreed upon in the contract are observed. The requirements of the quality management system are described in generic standards, some of which are valid worldwide.



Development competence

Whereas in the past it was standard procedure to solely produce parts according to the customer drawing, the process of simultaneous engineering has increasingly established itself over the past few years. The advantage is that the supplier, as an expert, is able to design the part targeted toward the relevant production process, thereby enabling cost-efficient production. To do this, various computer-aided systems are used on the basis of the finite element method (FEM). Parts may be calculated, designed and optimized according to force and load specifications, for example. After the part has been designed and the forging steps have been defined, special computer programs simulate the forging process (material flow). This leads to a significant reduction in development time for tests on the press. An optimum development process guarantees high design quality, economic production and the briefest delivery times, and thereby forms the basis for a high level of customer satisfaction.

"Internationalization at Hirschvogel means following our customers to supply them with parts locally in the relevant country."

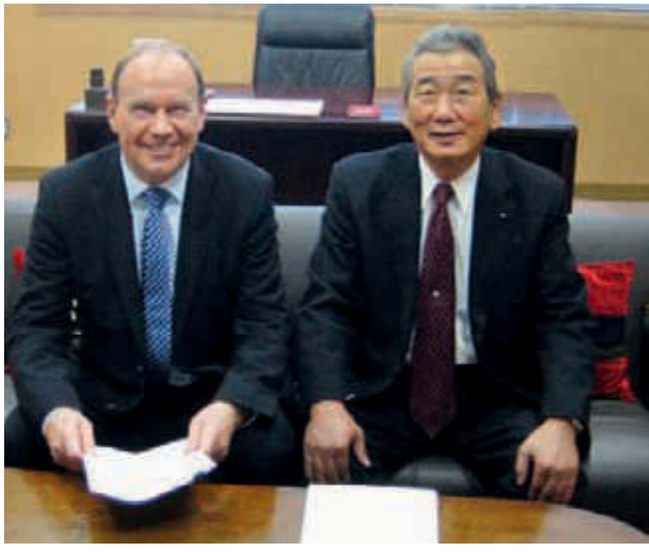
Hirschvogel International 6

Global presence

Today, in 2013, our anniversary year, Hirschvogel is now a global player. Internationalization at Hirschvogel means following our customers to supply them with parts locally in the relevant country. It was and is still not planned to supply parts from abroad back to Germany on the basis of lower production or labor costs in another country.

In response to the unease among the employees with respect internationalization, Dr. Manfred Hirschvogel wrote in the employee magazine in 1994: "... Nevertheless, I still view the main plant in Denklingen as the "heart" of our Group. With our increasingly specialized portfolio and capital-intensive production, the Denklingen plant shall remain the "price leader on the global market" in the case of certain parts. We therefore have no need to go to a low-wage country to supply our parts from there to Germany like some of our competitors are currently doing. I shall continue to rely on the performance of our good employees here."

To expand its international presence, visits were made over the years to several companies across the whole world and these companies were closely examined. For instance, there was a Swiss firm which produced looms and operated a department for cold forging, or a couple of Austrian forges which were due for sale or auction. Furthermore, Hirschvogel considered purchasing an aluminum production company to complement the plant in Marksuhl, or taking over competitors in Germany, Spain, England, Sweden as well as a plant with Hatebur presses in Italy, beautifully situated at Lake Maggiore. Hirschvogel regularly received offers to purchase companies from the forging and machining industry, and in some cases these offers were investigated and tracked intensively.



Cooperation

Furthermore, there were also cooperation agreements, such as in 1998 with the Swiss forging company SM, later RUAG, which involved collaboration at sales level and which provided Hirschvogel with a production possibility for heavy cold forged shafts weighing over 20 kg. When the cooperation came to an end, Hirschvogel took over one press from RUAG for producing heavy shafts.

In 2000, a cooperation agreement was entered into with the Japanese company Gohsyu for the purposes of technical exchange. Here, mutual visits by engineers from both companies provided the opportunity to learn from each other in certain areas.

Technical support worldwide

Hirschvogel, as technology leader, has also provided technical support for renowned companies abroad. For example, Hirschvogel assisted Hyundai in 1988 and Krupp Metalúrgica (Campo Limpo, Brazil) in 1991 in setting up their cold forging operations.

Hirschvogel Locations Worldwide:

Germany

Denklingen

Hirschvogel Umformtechnik GmbH

Founded as the forge “Hammerwerk Hirschvogel OHG” in 1938 and renamed “Hirschvogel KG” in 1971 and then “Hirschvogel Umformtechnik GmbH” in 1981, the production site in Denklingen is the oldest and largest plant and the origin of today’s Group.

Hirschvogel Holding GmbH

As part of a reorganization process, Hirschvogel Holding GmbH was founded as the parent company of all Hirschvogel plants. This is now the base of all central functions, allowing the subsidiaries to receive support from Denklingen.

Marksuhl

Hirschvogel Eisenach GmbH

After the fall of the Berlin Wall in Germany, there was huge interest in working with a forge in the former East German states. The purchase of the forging department of the former Wartburg-Werke enabled Hirschvogel Eisenach GmbH, the first subsidiary in Germany, to be founded in 1991.

Dr. Manfred Hirschvogel explained this move in an employee magazine issued in 1991: “Currently, the media is full of the desolate situation in the newly-formed German states. Much effort is also being spent on blaming the current federal government – and without doubt some of these reproaches are justified, particularly the complaint that the problems have been underestimated. Nevertheless, a government can only create certain boundary conditions for an economic upturn. After that, it is companies that are called upon to boost economic development through investments. And that is where we currently find ourselves. If financially strong West German companies do not now become active in making investments and job offers in the newly-founded German states, this could lead to a collapse there. ... At our company, we are continually facing the problem of capacity shortages – the forge of the former Wartburg-Werke has five Maxi presses with a capacity of between 1,000 and 1,600 tons – precisely the amount to cover our current shortage. ... In addition, the requirements which will certainly arise in the newly-founded German states through investments in the automotive industry shall be easier to fulfill from a local production site than from Denklingen ...”

Hirschvogel Aluminium GmbH

In 2000, Hirschvogel Aluminium GmbH was founded as a new subsidiary for producing aluminum parts. It was built as a separate plant directly next to Hirschvogel Eisenach GmbH.

Schongau

Hirschvogel Komponenten GmbH

In 1999, the machining department moved from the main plant in Denklingen to a newly built plant in Schongau. This was because the space in Denklingen was no longer sufficient to add more machines to the existing 40 or so already in place in three different hall areas nor to take on new projects. Thus the independent company Hirschvogel Komponenten GmbH was founded.

USA

Columbus/Ohio

Hirschvogel Incorporated

Here the internationalization process was kicked off in 1988 with the founding of the first subsidiary abroad. The plant was set up to produce cold forged parts for the US market. Initially, it was a joint venture with the German press manufacturer Schuler. In the years that followed, Hirschvogel took over the shares held by Schuler, thereby rendering the plant in the US a 100 % Hirschvogel subsidiary.

Brazil

Queimados (near to Rio de Janeiro)

MAHLE HIRSCHVOGEL FORJAS S.A.

Initially, this company started out in 1999 as a joint venture with the forging specialist Brockhaus & Söhne GmbH & Co. KG. Named Forjas Brasileiras, it was the third largest forge in Brazil. In 2008, these joint venture shares were bought by MAHLE and Hirschvogel to form a new joint venture.

Uwe Rautzenberg, former Director of Strategy and Internationalization, explained the plans for Brazil in 1999 as follows: "... With this, Hirschvogel's strategy of building up the main plant in Denklingen as a competence center for all Hirschvogel production sites (central development, local production) is being driven forward step by step. Development of the required parts is already in full swing. Training shall be provided at the main plant on the production technologies needed to manufacture these high-tech parts. These technologies will then be introduced locally with our support. The goal is to provide our customers with the high production quality that they are accustomed to in Brazil, too – and not only in the area of forging, but also in machining. What has just begun in Brazil shall also be continued for other regions, too. China is already earmarked as the next target market ..."

China

Pinghu (near to Shanghai)

Hirschvogel Automotive Components (Pinghu) Co., Ltd.

Initially, in 2001, operations in China were in the form of a joint venture with the Taiwanese partner Chian Hsing Forging in Taicang, where stamped and extruded parts were produced largely for the two-wheel industry. In 2005, the joint venture was dissolved, and with the construction of a new plant in Pinghu a 100 % subsidiary was born.

In December 2005, Dr. Dirk Landgrebe, today Vice President Corporate Engineering and former General Manager at the plant in China, wrote on the occasion of the groundbreaking ceremony there: "... We are pursuing the strategy of supplying to both our German and European automotive customers and their suppliers in China as well to the Chinese automotive market. Many of our international automotive customers have approached us in the past with the request that we produce parts locally for the local market. ... With this "local for local" principle, we are not putting jobs at risk at our existing plants, but are rather helping to secure these. If local Chinese companies are given the opportunity to build up production know-how and the required capacities, they will certainly venture into Europe as soon as they have mastered the technologies. We must limit this danger as far as possible and take the first step ..."

India

Ranjangaon (near to Pune)

Hirschvogel Components India Pvt. Ltd.

In 2008, a joint venture was entered into with the Indian partner Kalyani Thermal Systems Ltd. to form Hirschvogel Kalyani India Pvt. Ltd. In 2012, Hirschvogel took over the shares and founded a 100 % subsidiary.

Frank M. Anisits, today Executive Vice President of Production of Hirschvogel Holding GmbH and back then Director of Strategy and Internationalization, wrote in the December 2008 issue of the employee magazine: "... As with all international activities of Hirschvogel, the primary goal here is to supply the local Indian market and not supply back to Europe or North America. In view of the existing aircraft production volumes and the two-digit growth rate of the Indian automotive market, we certainly have sufficient business potential ..."

Poland

Gliwice

Hirschvogel Components Poland Sp. z o.o.

In 2009, Hirschvogel and the Japanese joint venture partner Kotani Corporation started the joint company Hirschvogel Kotani Poland Sp. z o.o. In 2011, Hirschvogel took over the shares of the joint venture partner and founded a 100 % subsidiary.

Witold Salandyk, General Manager in Gliwice, wrote the following in the September 2011 issue of the employee magazine: "... We are a well organized and modern plant which is attracting potential customers. Even now we are receiving inquiries from some customers from the Czech Republic, Slovenia and Poland, all of whom would like to work with us. Naturally our geographical location is advantageous ..."

“If archaeologists were to one day dig us up, they wouldn’t be able to tell if we were a paper factory or a forge.”

First-Hand Accounts and Anecdotes

7

First-Hand Accounts

Peter Kettner –
50 Years at Hirschvogel

Peter Kettner was not even 14 when he began an apprenticeship in toolmaking in 1963 at Hirschvogel. From 1972, he built up the area of cold forging together with Dr. Manfred Hirschvogel and was involved in the development of warm forging in 1981. During his 30 years as Director of Production for Cold and Warm Forging, Peter Kettner also traveled worldwide on behalf of Hirschvogel, providing support in setting up joint ventures and subsidiaries, among other activities. From 2003 to 2008, he headed Product Development for the areas of cold and warm forging. For the past few years, Peter Kettner has been working as International Senior Engineer for product development and projects worldwide.

If you ask Peter Kettner about his 50 years at Hirschvogel, he says that for him they simply flew past. He worked together with many different characters – both in Germany and abroad. For him, getting to know foreign cultures and mentalities was always a positive experience.

Until the end of 2014, Peter Kettner will be in the passive phase of early retirement; from January 2015, he will be officially in retirement. Then he will have been employed at Hirschvogel for a total of 51 years and 4 months. Peter Kettner is thus part of Hirschvogel history and to this day the longest-serving employee.

The “young” Peter Kettner with his colleagues – from right: Peter Kettner, Peter Schleich, Hans Hefele and Karl Sporer

Peter Kettner today

Georg Volk –
Long-serving production foreman

Georg Volk began working at Hirschvogel in 1967 in the production hall at the center of Denklingen. He came from a farming family and had not learned a profession. Josef Schöttl from Epfach, who knew Georg Volk, had seen a job advertisement and suggested he take a look at Hirschvogel. As soon as he set eyes on the production area, Georg Volk thought to himself: "My goodness! Where have I ended up here?" Josef Schöttl sent him into the production hall with the following words: "Walk round a bit and just see for yourself." Within ten minutes Georg Volk had seen everything. It was terribly loud, and in the neighboring village of Epfach the people would say: "If you can hear the hammers from Hall 1 at Hirschvogel, bad weather is on the way."

And so Georg Volk began as an unskilled laborer on a press in the production hall in Denklingen. His first duties included cold flash removal and a form of shearing much simpler than that employed today. After some time, Erich Kettner trained him on the press; the first parts were simple shafts. Then Georg Volk had to do his military service and returned again to Hirschvogel in 1971. In that year, Hirschvogel built Hall 2. Some years after his return, Josef Schöttl said: "You, we need a foreman." And Manfred Hirschvogel asked him: "Would you do it?" Georg Volk agreed.

When Josef Schöttl retired, Georg Volk was asked to become his successor. The job offer was made on the condition that Georg Volk visit a school to qualify as a skilled foreman. The problem was that he had not learned a profession. However, as he had more than eight years relevant experience, he was able to begin training to become an industrial foreman. He landed a place at a training school in Kempten. On October 1, 1989, Georg Volk took over the department from Josef Schöttl and started with his two-year training in January 1990. And so, alongside his work at Hirschvogel, he attended the school every Friday evening and Saturday up to the time of his examinations. Georg Volk was thus the first foreman in production at Hirschvogel with an "official" qualification as a skilled foreman. He was responsible for the spindle presses, initially with 40 and later with 60 employees.

Georg Volk actively experienced and shaped the development of the company over all the years. It was in his area that one of the first groups with group work moved from piecework to premium wages. Georg Volk has officially been in retirement since December 1, 2012.

Georg Volk (front right) in 1989 when taking over the department from Josef Schöttl (front left)

Georg Volk today

Erika Stiegeler –
The second office employee

At barely 18, Erika Stiegeler began working at Hirschvogel in 1961 as the second office employee. At that time, there was only one building at the center of Denklingen; on the first story was the die shop and on the second story there were two office rooms and living areas. The main office equipment at that time included a typewriter, carbon papers for duplicate copies, a dictation machine, two telephones and a teletype with punched paper tape. Erika Stiegeler ran errands to the bank and post office on foot. The office material was collected by bicycle from a bookmaker in Denklingen. The wage accounting was carried out manually; the wages themselves were paid out in cash in little bags. In 1963, the first guest workers came to Hirschvogel from Greece. Communication was barely possible, yet the data for the new employees needed to be recorded somehow.

Three years later, Erika Winkler, the third office employee, came along. The two “Erikas” mastered the office work together for almost 40 years. In the early days of the company, there was a very familiar atmosphere.

The two “Erikas” from the office – Erika Stiegeler (left) and Erika Winkler (right)

Erika Stiegeler on an errand

Erika Stiegeler today

Anecdotes

In a Ton of Trouble

To produce tools, models were needed for the customer from which plaster casts were made. Per month, approx. 10 kilograms of plaster were needed. The plaster was stored in a round paper bin. Johann Huemer, the Head of the Die Shop at the time, asked his secretary to order the usual "Tonne" of plaster. The word "Tonne" is used in German to designate a "bin" as well as the "metric ton". He gave this order verbally, and she assumed he meant a metric ton, that is 1,000 kilograms. The ordered plaster arrived from Lower Bavaria by truck: 1,000 kg, packed in individual sacks – in other words, ten times more than the amount actually needed. Luckily, the plaster was able to be returned, and as a result order forms were introduced.

Much Ado About Hirschvogel

When senior boss Willy Hirschvogel received a telephone call and it was very loud from the production hall, he would always explain the company name to the other person on the line as follows: Hirschvogel – like the deer in the forest and the bird in the air ("Hirsch" is the German word for "deer" and "Vogel" is the German word for "bird").

Blazing Excursion and Lost Employee

An excursion for the foremen, supervisors and their boss Karl Schuster to the romantic Eng, in Tyrol, was intended to further enhance team spirit. Following an evening meal together, everyone was happy when the fireplace was lit and they managed to get a really good fire burning. The fireplace which usually only burned on a low flame clearly could not handle much more than that. Soon the old soot in the fireplace became hot and caught fire. Suddenly, the whole fireplace was ablaze. With spirited efforts, the group managed to limit the damage at the hotel. Having got over that shock, everyone embarked on a mountain walk the following morning. Around midday, it was time to head home again. As always, no headcount was made on the coach, but everyone was asked if they had their partner sitting next to them. After they all said yes, they set off. When getting off the coach back at the company, there was one rucksack left over. Only then did everyone realize that one of their party was missing. This missing colleague luckily returned home the following day having made a few detours to get there.

Paper Factory or Forge

After many customers decided to no longer carry out an incoming inspection, Hirschvogel had to set up its own department for outgoing quality control. In times without computers, this led to large volumes of unpopular paperwork. One day, the dispatch foreman said: "If archaeologists were to one day dig us up, they wouldn't be able to tell if we were a paper factory or a forge."

No Time for the First Shaft

During a company tour in 1992, senior boss Willy Hirschvogel met Mr. Jahn and Mr. Hupfeld from the Hirschvogel plant in Eisenach. When saying hello he said to both of them: "Should I offer consolation or congratulations for all the work that is coming your way?" They replied: "You may choose which. We are happy. After all, we are using the most modern presses around to make the first cold forged shafts on this scale in the newly-formed German states. But you must keep your promise and be there for the forging of the first shaft." Willy Hirschvogel thought to himself: "These young people obviously don't know that retirees have no time."

There's No Such Word as "Can't"

In a request for quotation meeting, a part drawing was laid on the projector. All those present quickly agreed that the part could certainly not be produced by forging. While this opinion was being confirmed and the next part was already being shown on the projector, people noticed how Dr. Manfred Hirschvogel and Karl Schuster had put their heads together and were talking animatedly while sketching on a piece of paper. When the person leading the discussion asked if they could proceed with the next part, especially in view of the fact that the part previously shown could not be produced, Dr. Hirschvogel said: "Please feel free to carry on; we are just designing the part that cannot be produced."

"Out of 'the' company became 'our' company – through a caring culture and mutual respect, we employees ensure success as part of the 'Hirschvogel family'."

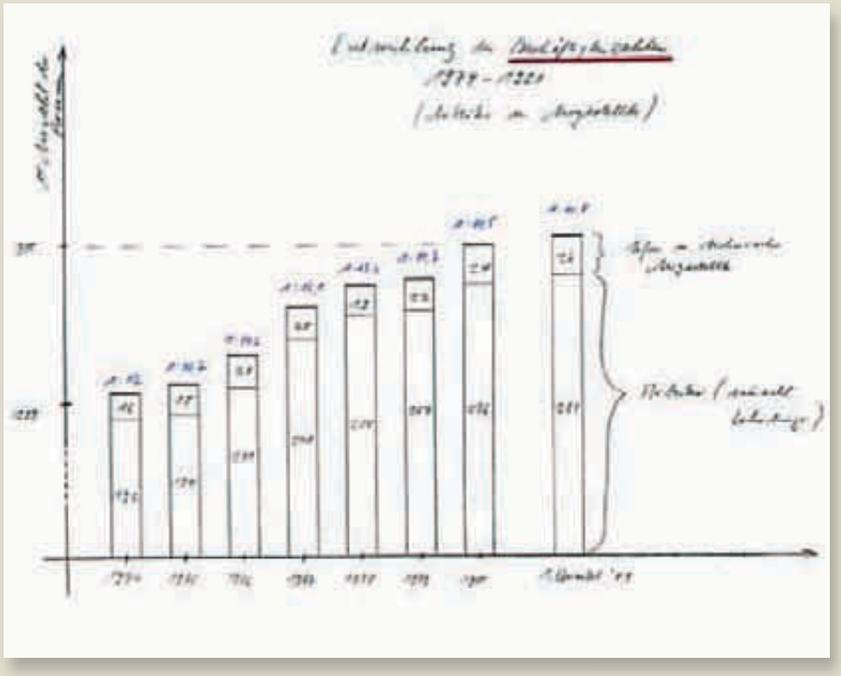
Our Employees 8

Employee development

In 2013, our anniversary year, almost 4,000 employees are working at the Hirschvogel Automotive Group worldwide.

The development of the employee figures speak for themselves: In 1938, we had just 5 employees; by the end of 1997, we had over 1,000.

Development in the number of employees from 1974 to 1981



The first employees

Group photo from 1964

Long-serving employees

Many employees have been working at Hirschvogel for many years – some of them for more than 40 or even up to 50 years. Several times a year, numerous long-serving employees at all plants are honored.


Hirschvogel


10 Jahre


UNSERE "PRES

Nr. 1/91 • DIE HAUSZEITUNG DER HIRSCHVOGEL UNIFORMTECHNIK GmbH

Hirschvogel Eisenach G

Start am 1. Juli

Christoph Enzensberger

UNSERE PRESSE

www.hirschvogel.com

Nr. 46 / September 2002

Führungswechsel bei Hirschvogel Incorporated und in den Hirschvogel-Firmen in Marksuhl

UNSER

Nr. 10 · DIE HAUSZEITUNG DER HIRSCHVO

MOBILITÄT - VIELFA

Aktuelles über Hirschvogel • Aktuelles über Hirschvogel

Employee magazine

In 1991, the first employee magazine, “Unsere Presse” (“Our Press”), was published at the Denklingen plant. As Hirschvogel became increasingly international, employee magazines later appeared at the plants in the US and in China. In 2011, the employee magazine was renamed “One” and was published for all Hirschvogel employees worldwide in the languages German, English and Chinese.

Apprenticeships

In 1952, the first toolmaker apprenticeship contracts were signed at Hirschvogel. Back then, senior bosses Anton and Willy Hirschvogel as well as Karl Schuster senior and Erich Hirschvogel were responsible for apprentice training. In 1961, Johann Huemer took over as Head of Training for the toolmaker apprentices. He was succeeded in 1971 by Gerhard Hagenbusch. In 1991, our own in-house Training Center at the center of Denklingen was opened. At that time, 40 young people underwent apprentice training there.

Since 2007, Johann Reisacher has been Head of the Hirschvogel Training Center in Denklingen. In the same year, the groundbreaking ceremony at the new, larger and more modern Training Center took place. The building costs amounted to around three million euros.

Dr. Manfred Hirschvogel said on the occasion of the groundbreaking ceremony in 2007: “It is worth every cent. The training of young people in a total of 11 careers is and remains highly important to us ... Particularly training people to become skilled workers is essential – it is also something that positively sets Germany apart from other countries. We need highly qualified specialists for our future growth ... We believe in the Denklingen site and thus also in Germany as a business location, and we want to continue to remain active here.”

Currently, Hirschvogel trains around 170 young people in 10 different apprenticeship careers.

The goal of Hirschvogel is to train personnel to cover its own requirements and to offer all apprentices a permanent position.

The Works Council as a representative for employees – Denklingen

Until 1985, no one at Hirschvogel felt the need to establish an employee representative body, as the working atmosphere was familiar and very good. The employees earned very well in relation to those at other companies in the area, and they were proud of and satisfied with their place of work.

As the Catholic Workers' Movement (KAB) called for employee representation repeatedly and at regular intervals, the employees elected a committee of eleven Shop Stewards in 1985 to avoid electing a Works Council. The first agreements were worked out between these Shop Stewards and the Executive Management relating to normal working hours or Christmas bonuses, for example.

As the committee of Shop Stewards had no legal right of co-determination, the first Works Council, consisting of seven members, was elected at Hirschvogel in Denklingen in 1988. During the Works Council elections in 1990 and 1994, the number of members had already risen to eleven; in the following years, the number of employee representatives rose in relation to the size of the company.

Currently, the Works Council at the main plant in Denklingen consists of 17 members.

In November 2000, a Corporate Works Council, consisting of representatives from the German Hirschvogel plants, was founded. This body is responsible for the matters which relate to the Group as a whole or to several companies within the Group and which cannot be regulated by the individual Works Councils within the relevant companies.

Hirschvogel Mitarbeiterbeteiligung

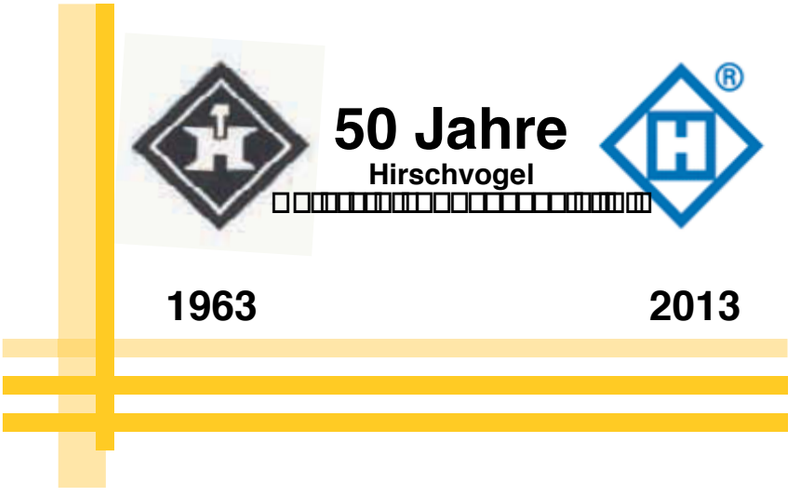
From employee to co-shareholder

At the end of 2006, an additional milestone was reached: With the founding of Hirschvogel Mitarbeiterbeteiligung GmbH, the employees received the opportunity to participate financially in the Hirschvogel Automotive Group and to thus have a share in the economic success of Hirschvogel with an “indirect equity stake”. The goal of this participation model is to generate greater scope for a sense of co-ownership and entrepreneurship.

Since 2007, there has been an annual participation offer for all employees who have been employed at the company for at least six months up to the cutoff date, and who are in a permanent employment relationship which has not been terminated.

Since the founding of Hirschvogel Mitarbeiterbeteiligung GmbH, the development has been consistently positive, both with respect to the number of participating employees as well as to the average amount of participation.

Dr. Peter Wiebe, who at the time was Head of Profit Center 1 and is now Head of Corporate Engineering Forging, said in 2008 during a survey for the employee magazine: “The opportunity to participate in the company allows the employees to profit from the success of the company beyond their remuneration ... Financial participation leads to the employees having stronger ties to and greater identification with the company. ‘The’ company becomes ‘our’ company. The greater sense of connection which the employees have to ‘their’ company results in even higher levels of motivation, greater initiative and less fluctuation. It is to be expected that the attitude of the employees with respect to their work, to the work of their colleagues and to handling resources will develop positively.”



The Pension Fund

With the founding of the Pension Fund in 1963 by the socially committed entrepreneur Emma Hirschvogel and her husband Willy Hirschvogel, the foundation was laid for retirement provisions financed by Hirschvogel.

Back then, the company was barely 25 years old and had 126 employees. Company pension schemes for employees were unknown in Bavaria back then. At the beginning of 1964, an application was made at Buchloe District Court for the registration of the Pension Fund, and at the end of the year, the statutes were definitively authorized by the register of associations.

The driving force behind the Founding Board of the Pension Fund ("Hirschvogel Unterstützungskasse e. V.") was Emma Hirschvogel as Chairwoman. Anton Hirschvogel as well as the two Foremen Josef Schöttl and Heinrich Keller completed the Board.

The first contribution to the Pension Fund was made with retroactive effect for the year 1962. Since the founding of Hirschvogel Unterstützungskasse e. V., the company has always allocated the maximum amount permissible for tax purposes. The aim and intention of the Pension Fund is to provide financial support to the members (employees) and former members as well as their dependents in case of need, occupational invalidity and in old age. The tasks of the association are defined in the statutes and in the pension scheme.

Changes to tax legislation meant that, in 1992, a subsequent system needed to be implemented for new employees. The pension scheme financed by Hirschvogel is still up and running today – since 1998 in its new form.

Emma Hirschvogel, the initiator of the Pension Fund, together with the Executive Boards and representatives, committed herself over decades to the employees and retired employees, and managed the Pension Fund.

The operations of Hirschvogel Unterstützungskasse e. V. are today managed by a board comprising representatives from the shareholders, the Executive Board, managers, employees and a consulting firm.

The pension scheme financed by Hirschvogel is supplementary to statutory retirement pension. Particularly today, it becomes clear just how great the extent of Emma Hirschvogel's entrepreneurial vision was at the time of founding the Fund.

Emma Hirschvogel in 2000

More than just work

There are many shared activities at Hirschvogel beyond daily work in production or in the office. Examples include the annual spring clean, the “Hivo Cup” – a team ski race, the “Hivo Summer Cup” – a soccer tournament, or excursions.

There are always reasons to celebrate, such as at Christmas or on the occasion of anniversaries.

In commemoration of employees who have passed away

We would like to take this opportunity to remember all of our employees who have passed away, particularly those who lost their life due to a work accident.

Here, we would like to name Alexander Kaufmann as an example, who lost his life due to a set of unfortunate circumstances when working in the steel bar stock. In honor of his memory, the Alexander Kaufmann Prize is awarded each year for the best suggestion in the category of occupational safety.

"One or more Hirschvogel parts are found on board a third of all cars worldwide."

Customers and Awards 9

Our customers –
their satisfaction drives us

On the basis of a trusting and mostly long-standing collaboration, we today supply to all renowned automotive manufacturers and suppliers worldwide.

One or more Hirschvogel parts are found on board almost every car in Germany and in a third of all cars worldwide.

We make our customers feel secure – with products and services which we make available quickly and efficiently, with the reliability of a financially and economically independent family company, and with the conviction that human values take priority in everything we do.

We are there where our customers need us and we meet their requirements with a continually increasing diversity of products and processes.


Hirschvogel
Unternehmensgruppe

Awards

Over the years, the Hirschvogel Automotive Group has received several awards. Assessment criteria have included quality, delivery reliability, technical know-how, good value, productivity and development competence.

From customers we have received numerous awards, such as several supplier awards from Bosch, the Q1 Award from Ford, the "Diplôme Qualité" from Renault and the "Volkswagen Group Award", to name but a few.

Hirschvogel has also won several other awards over the past few years, including the "Top Automotive Employer 2010/11 and 2012/13" award, which is granted to particularly attractive companies in the automotive industry. We also received the "Steel Innovation Prize 2009" in collaboration with the company Schaeffler, the "Best Financial Communication in Medium-Sized Companies", "Die Shop of the Year" in 2005 and 2010 as well as "Bavaria's Best 50" in 2005, which is awarded to the 50 fastest growing companies with respect to sales and personnel figures.

"What is important to us is generating good and positive public relations."

10 In the Public Eye

Trade fair participation worldwide

Since 1993, the International Motor Show (IAA) in Frankfurt has been the most important trade fair for the Hirschvogel Automotive Group.

Dr. Manfred Hirschvogel wrote about the significance of this fair in the employee magazine in 2007: “Why is the Hirschvogel Automotive Group at the IAA? This question always comes up. After all, are the relatively large efforts involved in participating in Frankfurt every two years really justified? Now, my answer to that is a wholehearted ‘yes’ – at no other fair can we present our philosophy and our vision as well, nor make so many contacts as at the International Motor Show in Frankfurt.”

Hirschvogel continues to take part in numerous trade fairs worldwide, such as the Hannover Messe, Auto Shanghai, Tokyo Motor Show, Aluminium Messe and various recruitment fairs.


Hirschvogel
Automotive Group


Audi
BMW
Benteler
Bosch Gruppe
Delphi Diesel Syste
Denso Manufacturing
Ford
Getrag
MTU
Opel
Renault
Saab
Scania


Hirschvogel
Automotive Group

Events

Over the years, several events have been held at Hirschvogel worldwide, including anniversary celebrations, customer days, groundbreaking ceremonies or inaugurations.

1973 – Company tour on the occasion of the company's 35th anniversary celebrations; on the right is Matthias Schuster senior

1963 – 25th company anniversary in Denklingen

1997 – Inauguration of the new plant in Marksuhl


October 23, 2005

Corporate image

Over the last 75 years, the corporate image of Hirschvogel has undergone some changes – to the logo, advertisements, company colors, etc.

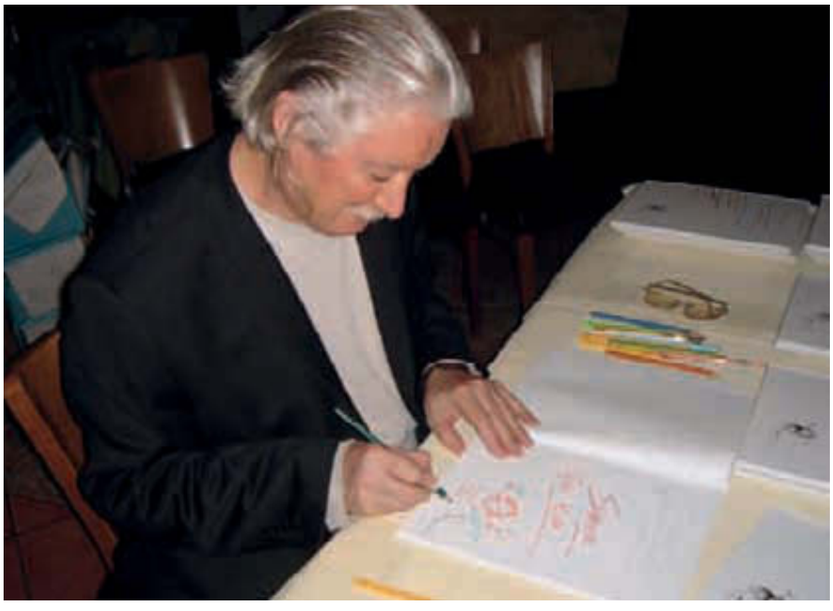
Hirschvogel
Umformtechnik GmbH
8911 Denklingen

Logo in 1989

Hirschvogel
Automotive Group

Current logo of the Hirschvogel Automotive Group

A bold step in this area was taken in 1993 when, for the first time, an artist – Wilhelm Schlote – took on the task of designing a fair poster for the International Motor Show (IAA). He portrayed the Hirschvogel world in bright colors and stick figures, which certainly attracted attention and which still remains something unique, thus fulfilling the main purpose of a sales campaign.



Wilhelm Schlote as a guest at the IAA in 2007

Commitment in many areas

For many years now, all our locations have been supporting local projects in the areas of sport, art & culture as well as school & education. Our employees are also offered support in undertaking special leisure activities.

Besides this, Hirschvogel supports several local charities and institutions with donations from benefit concerts, for example, or by making donations instead of giving Christmas gifts to business partners.


Hirschvogel-Hörsaal
HÖRSAAL

"The continual growth of the company Hirschvogel meant more and more performances for the Hirschvogel Band."

The Hirschvogel Band 11

In 1990, the Hirschvogel Band was founded by Erika Winkler (deceased shareholder) and the employees Johannes Hafenmayr (music director and conductor), Horst Raabe and Ulrich Riedel. The goal at first was to provide a musical framework to company events.

The Hirschvogel Band had its first major performance at the inauguration of the Training Center in Denklingen in 1991. In 1992, the musicians were able to demonstrate their skills at BMW in Eisenach during the employee and family day as well as at BMW in Dingolfing during an open day.

The continual growth of the company Hirschvogel meant more and more performances for the Hirschvogel Band – at inaugurations, birthday parties, celebrations, open days and much more.

The Hirschvogel Band in Sweden

2001

Music knows no borders – and so the Hirschvogel Band was invited to Gothenburg by our customer Volvo in 1995. In 1996, the Band performed at the topping out ceremony at the new Hirschvogel plant in Marksuhl; in 1997, the musicians played at the inauguration of Hirschvogel Eisenach GmbH. Following some other performances over the subsequent two years, it was time in 1999 for the Band to set off again on a trip abroad – this time to our customer Getrag in Bari. In the same year, the Hirschvogel Band also provided the musical framework for the inauguration of Hirschvogel Komponenten GmbH in Schongau.

20th anniversary of
Hirschvogel Eisenach GmbH

Benefit Concert in 2011

In 2002, Dr. Manfred Hirschvogel invited the Hirschvogel Band to participate in a two-week trip to Hirschvogel Incorporated in the US. Several musical performances, including at the Oktoberfest in the German Village and at the Chicago Brauhaus, marked this unforgettable experience. In 2005, a large benefit concert took place in the Fuchstalhalle in Leeder, near Denklingen. A selection of music from this concert has even been immortalized on the Hirschvogel Band's first CD. In 2006, the Band traveled even further afield – to the inauguration of Hirschvogel Automotive Components in China.

Stefanie Bachlehner

Johannes Hafenmayr,
music director and conductor

In 2011, the vocal talents of Hirschvogel employee Stefanie Bachlehner were discovered, and since then her solo performances have continued to impress at all appearances of the Hirschvogel Band. A musical highlight in the same year was, without doubt, an extraordinary benefit concert in memory of Dr. Manfred Hirschvogel at the sold-out Fuchstalhalle. In 2012, another benefit concert in Landsberg brought together the bands from the three largest employers in the Landsberg district – Hilti, Hirschvogel and Rational.

The Hirschvogel Band is happy to have the opportunity of providing the musical accompaniment to the anniversary celebrations in 2013.

The Hirschvogel Band
in 2012

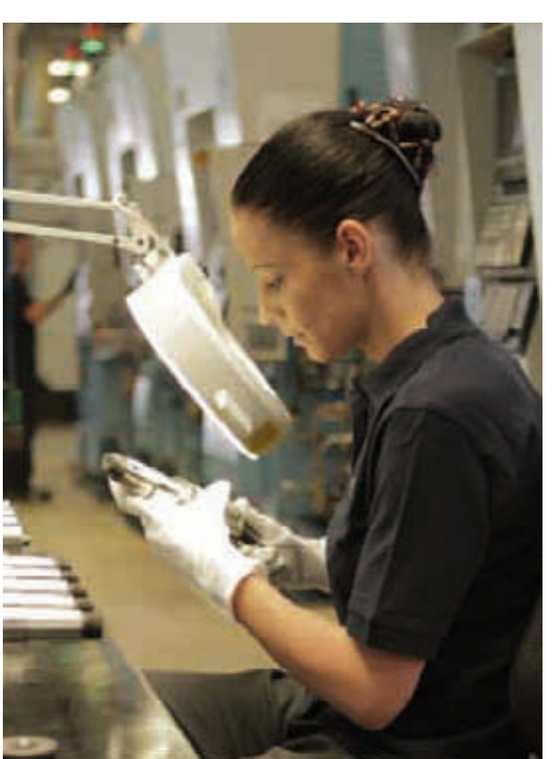
"The course has been set for a future of continued success for Hirschvogel, and the outlook is positive."

12

The Hirschvogel Automotive Group 2013

Outlook

Hirschvogel is looking back on 75 years of successful company history, which is characterized by tradition, progress and continual growth. With trendsetting technologies and application areas, innovative and environmentally friendly processes as well as sound financing and a stable shareholder structure, the Hirschvogel Automotive Group is certainly well-equipped for the next few years. With locations in Europe, America and Asia, the Hirschvogel Group is a global player and reliable partner to the automotive industry.



The Hirschvogel Automotive Group 2013

Frank Hirschvogel Foundation
37 %

Families Hirschvogel/Britzger
63 %

Advisory Board

Hirschvogel Holding GmbH
(HHG)

Consolidated Group Members

Hirschvogel Umformtechnik GmbH (HUG) **100 %**	**Hirschvogel Komponenten GmbH** (HKG) **100 %**	**Hirschvogel Eisenach GmbH** (HEG) **100 %**	**Hirschvogel Aluminium GmbH** (HAG) **100 %**
Hirschvogel Incorporated (HVI) **100 %**	**Hirschvogel Automotive Components (Pinghu) Co., Ltd.** (HAC) **100 %**	**Hirschvogel Components India Pvt. Ltd.** (HCI) **100 %**	**Hirschvogel Components Poland Sp. z o.o.** (HCP) **100 %**

Minority Holding

MAHLE HIRSCHVOGEL FORJAS S.A.
(MHF)
49 %

The mission statement defined by Dr. Manfred Hirschvogel shortly before he passed away formulates the principles, visions, goals and values of the company and is an important legacy, providing the basis for the further development of the Hirschvogel Automotive Group.

At the end of last year, the Hirschvogel Corporate Strategy 2020 was passed. This defines the long-term direction of the company and represents the basis of our internal actions. We are preparing for further growth in future, too – in all regions and at all locations. The prerequisites for this are continued high investments in machines and buildings and, above all, in our most valuable asset, namely our employees. They form the key to all success and are thus at the heart of the strategic orientation of the company.

The course has been set for a future of continued success for Hirschvogel, and the outlook is positive. We are looking forward to continuing the 75-year Hirschvogel success story together with all employees, our esteemed business partners as well as the Advisory Board and the shareholders.

"It is a 'lively' book with interesting 'stories' from the past 75 years of a company which has 'experienced' rapid development."

13 The Making of the Chronicle, Closing Words and Acknowledgments

Jakob-Brucker-Gymnasium (High School), Kaufbeuren

The Frank Hirschvogel Foundation has set itself the goal of supporting pupils and young people in the regions surrounding the German Hirschvogel plants. With the annual award for the best school-leaving examination results, the Jakob-Brucker-Gymnasium (high school) in Kaufbeuren is also among the partners of the Frank Hirschvogel Foundation.

From this collaboration came the idea of writing a chronicle for Hirschvogel to mark the company's 75th anniversary. However, it was not clear at first what exactly needed to be done. One teacher of biology and chemistry and one teacher of German and sport from the school only had vague ideas of what a company like Hirschvogel produces and how it runs its global operations.

Following a preparatory visit with an extensive tour through the main plant in Denklingen in April 2012, the foundation was laid for the generation of the company chronicle. The pupils who worked on this project received an intensive insight into the production halls with their different production processes, into sales, the training center, and much more. To work on the chronicle, the archives needed to be viewed, photos selected and old chronicles and company magazines pored over. Besides this, there were numerous discussions with current and former employees.

The "Chronicle Project Team" of Jakob-Brucker-Gymnasium (high school) from left: Jakob Ringler, Abdullah Gül, Michael Knauer, Michaela Dullak, Sebastian Frank, Aylin Yildirim, Michael Elstner, Dr. Claudia Kalbas, Daniel Lukas and Maximilian Neumann

We were supported all the way by Claudia Bieberstein and Michaela Simon, who tirelessly maintained contact between our school and their employees, previewed comprehensive material, delegated tasks, organized a shuttle service between Kaufbeuren and Denklingen and ensured that we were well provided for at all times. Our "Hirschvogel Crew" met on many afternoons and even on weekends to implement all ideas and bring together the articles for the chronicle.

Here, we would like to express a big thank you to our pupils who found the time and motivation to accomplish this task alongside their school work.

Dr. Claudia Kalbas and Michaela Dullak, teachers at Jakob-Brucker-Gymnasium (high school)

Michaela Dullak (left) and Dr. Claudia Kalbas (right) supervised the chronicle project on behalf of the school.

The "Hirschvogel Chronicle Project Team" from left: Walter Pischel, Karl Schuster, Michaela Simon, Otto Prinzing, Andrea Helmschrott, Adalbert Vogt, Claudia Bieberstein, Peter Kettner and Johann Huemer

Hirschvogel Holding GmbH, Denklingen

When we decided to publish a chronicle to mark our 75th company anniversary, we soon knew that we did not want to create a dry history book nor a list of annual figures. Rather, we wished to have a "lively" book with interesting "stories" from the past 75 years of a company which has "experienced" rapid development from the village forge to a global Group.

This is why we made the spontaneous decision at an initial meeting with those from Jakob-Brucker-Gymnasium (high school) to accept their offer of assisting in writing the chronicle. We found the idea of having someone from the "outside" contributing to the chronicle highly attractive, as it offers another angle. And so we formed our "Chronicle Project Team", comprising eight pupils of the high school, two teachers, six "retirees" who have spent most of their lives at Hirschvogel, and the three ladies from the organization team responsible for the anniversary celebrations in 2013 from the area of Corporate Public Relations.

Many thanks!

We would like to take this opportunity to express our warmest thanks to all those named here as well as to everyone else who assisted us in researching this chronicle. It was a lot of fun to "comb through" the past 75 years in old boxes and documents, and to learn so much about the company Hirschvogel, the family, and above all the employees, who have accompanied and "forged" this successful company over all the years.

Claudia Bieberstein, Andrea Helmschrott and Michaela Simon, Corporate Public Relations, Hirschvogel Holding GmbH

Imprint

Publisher:
Hirschvogel Holding GmbH
Dr.-Manfred-Hirschvogel-Straße 6
86920 Denklingen, Germany
www.hirschvogel.com

Publishing Team:
Claudia Bieberstein
Andrea Helmschrott
Michaela Simon

Concept and Design:
kaltner communication GmbH

Print:
EGGER Druck + Medien GmbH