

125 Years Motorenfabrik Oberursel

1892 - 2017



Traditions of Progress



Geschichtskreis Motorenfabrik Oberursel e. V.

(Historical Society Motorenfabrik Oberursel - Registered Association)

Published by:

Geschichtskreis Motorenfabrik Oberursel e.V.
(Historical Society Motorenfabrik Oberursel)
c/o Rolls-Royce Deutschland Ltd & Co KG,
Postfach 1246, 61402 Oberursel

IBAN: DE73 5125 0000 0010 0035 98

Email: See website www.gkmo.net for Contact

Internet: www.gkmo.net

Issued in August 2017

Responsible for the content: Helmut und Günter Hujer
Translated from the original by Trevor Warren and Helmut Hujer

© 2017 GKMO

Dear Readers

“Better power for a changing world” this is Rolls-Royce’s vision today. This vision was unknown to the young engineer and tinkerer Willi Seck, but he acted accordingly. At the beginning of the 1890s he developed a simple yet robust internal combustion engine, the GNOM, and in doing so he laid the foundations for the Motorenfabrik Oberursel, still known affectionately amongst the locals as the “MO”.

2017 marks the 125th anniversary of the foundation of the Motorenfabrik Oberursel, which is good occasion to pause and reflect. A lot has changed in the world, in Europe and in Germany during the past 125 years, and during this time the MO has experienced a lot of highs and lows, but is still in existence. Today, after changing hands several times during its history, the site is owned by Rolls-Royce Deutschland and is a place, where parts and components for high-tech jet engines are manufactured and where, for over 50 years now, aircraft systems are being repaired, overhauled and supported.

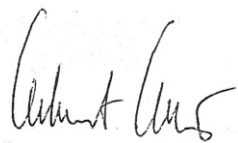
In these past 125 years of industrial history, numerous people, many of them no longer known today, have worked here, not only for their own income, but also for the well-being and prosperity of the company. They all have shared and determined the destiny of the factory and some had been faced even with a perceived demise of the site. However, the phoenix has always risen from the ashes and therefore the site can celebrate its 125 year anniversary in 2017 in good shape and under the roof of Rolls-Royce.

125 years - scarcely any other company in Oberursel or in the surrounding region can look back on such a long history. The Motorenfabrik cannot celebrate its anniversary itself, but the people connected to the factory, today’s employees and management, who appreciate its history can. In 2000, when Rolls-Royce took over the company as sole owner, Michael Kern, who was the site manager for many years, provided the impetus to create a company museum. From this nucleus the Historical Society Motorenfabrik e.V. emerged and would like to take you with this brochure on a journey through the history of the world’s oldest aircraft engine factory still in existence.

We wish you a great journey.



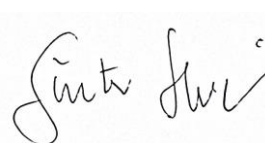
Dr. Holger Carlsburg
Managing Director
Rolls-Royce Deutschland and
Director of Operations Oberursel



Helmut Hujer
Company History



Erich Auersch
Company Museum
Historical Society Motorenfabrik Oberursel e. V.



Günter Hujer
Chairman

125 Years at a Glance

It is quite extraordinary when a company or a factory can look back on such a long history as the Motorenfabrik Oberursel can do. Already ten years before the actual foundation of the Motorenfabrik "W. Seck & Co" in 1892, the site was built up as the first machinery factory in Oberursel working to the then latest industrial and organisational standards. This paved the way for Oberursel to become an industrial location for medium-sized engineering manufacturing.

For well over a hundred years the Motorenfabrik Oberursel has now been one of

the lost war forced the Motorenfabrik into a cooperation with the more powerful Motorenfabrik Deutz at the end of 1921. Thus, Deutz could eliminate its most serious competitor, which meant the end of the products of the Motorenfabrik Oberursel. But it started a new era with the production of tens of thousands of today almost forgotten engines of the Deutz design.

In 1930 the Motorenfabrik Oberursel merged completely into the then newly founded Humboldt-Deutzmotoren AG and continued for sixty years in this company, which exten-



Sammlung GKM / Farbliche Gestaltung Günter Hujer (C) 2016

1892 – View of the Motorenfabrik in Oberursel

the town's largest business enterprises and thus also one of the largest employers of people in Oberursel. The company's history is characterised by positive and also difficult phases and has survived these long times unlike many other factories established in the course of industrialization. For about one hundred years the factory has presented itself through its impressive buildings which line the Hohemarkstrasse and were erected during the First World War. During this period, the Motorenfabrik Oberursel became with its rotary engines one of the most important aircraft engine manufacturers in Germany.

After three decades of growth and success, during which the Motorenfabrik had become a joint-stock company in 1898, the effects of

ded into the Klöckner-Humboldt-Deutz AG in 1938.

The Second World War, during which again aircraft engines were developed in Oberursel, ended in 1945 as a caesura for the Motorenfabrik. The site was occupied by the US-Army and the whole inventory of newly acquired machinery became the victim of reparation disassembly. The buildings were used for eleven years as barracks and repair shops for military vehicles. But already in 1948, in a small separate area, the company could start with a small production of engine parts for the parent company KHD in Cologne and could soon move into the former aeroengine testbed, the „Turmbau“, which had been converted into workshops.

At the end of 1958, following two years with renovation of the run-down premises, the turbine development group of KHD, established only a few years before at the main works in Cologne, was transferred to Oberursel. Thus began a period of four decades with the development of aircraft turbines and equipment "Made in Oberursel". This included the small turbojet T117, which was the first jet engine developed and built in series production in Germany after the Second World War.

Starting in early 1960 the company was transformed into a modern aerospace production factory to produce the Orpheus jet engine under licence. Thus began a long-standing partnership with the Bundeswehr and the public customer. In 1980 the KHD Luftfahrttechnik GmbH was established, which succeeded in entering in 1986 into the civil aerospace industry with participation in the CFM jet engine programme. The production-certification acquired for this programme proved to become the entry ticket into a new era, for which BMW took over the site at Oberursel in 1990 from the ailing KHD. The newly founded company, BMW Rolls-Royce AeroEngines GmbH, was a joint venture between BMW and the British aero engine manufacturer Rolls-Royce. This joint-venture commenced to develop a new generation of turbofan engines for business and commercial aircraft. The Oberursel factory flourished under this ambitious project. The site was reshaped

step-by-step, completely modernised and expanded.

In 1998 the company's management and commercial functions moved to the new site in Dahlewitz in Brandenburg, which had already started as development and assembly plant in 1993. This resulted for Oberursel to become purely a production site for the manufacture of aircraft components as well as for the assembly and maintenance of small military engines and aircraft systems.

In January 2000, the re-arrangement of the company ownership resulted in the creation of the current company, Rolls-Royce Deutschland Ltd & Co KG. Since then the Oberursel site, equipped with the most modern manufacturing technology, has become the centre of competence within Rolls-Royce for the manufacture of rotating aircraft engine components. In particular compressor rotors of the BLISK design for many of the Rolls-Royce aeroengine types are manufactured here.

Alongside, the support and maintenance of aircraft engines for national and international customers continues, as it has done for the past five decades.

The Motorenfabrik Oberursel is the oldest still active aircraft engine manufacturing site world-wide and at the same time the oldest factory within the Rolls-Royce group.

Following this summary we now come to a more detailed account of the long history of the Motorenfabrik.



The names of the company from 1892 to today

125 Years Motorenfabrik Oberursel

1882: Industrial engineering comes to Oberursel

The story of the Motorenfabrik Oberursel started with Wilhelm Seck, who together with his wife Adelgunde purchased in March 1882 the site of the former Wiemers mill with the Urselbach stream providing the hydro power, and he established here a subsidiary of his Bockenheim millwright company, the Seck Brothers and Co. Above all, Seck manufactured in Oberursel the new type roller mills, which replaced the centuries-old method of grinding grain. This production required skilled labour as opposed to the predominant textile factories in Oberursel, which relied chiefly on semi-skilled labour.

Seck brought along some skilled workers from his factory in Bockenheim, and also hired some local craftsmen from Oberursel, but he started immediately to train apprentices as mechanics already two months after acquiring the factory. This was the first machining factory in Oberursel with industrial production

and organisation forms, and this started the build-up of a skilled workforce in Oberursel, which fostered the foundation of further such businesses. This advancement of the industry, coupled with the improving traffic and information conditions, led to the establishment of a technical and commercial management class of people in Oberursel. Such people settled in the emerging town of Oberursel, thus improving the town's attractiveness further.

However, when Wilhelm Seck moved his firm to Darmstadt in 1886, the factory in Oberursel fell into a deep sleep, until his oldest son Willy Seck woke it up again in 1890.

1892: The foundation of the Motorenfabrik Oberursel

After he had completed his studies in engineering, Willy Seck went on to develop a single cylinder stationary engine in his father's Oberursel factory. This engine was named "GNOM", due to its very sturdy and compact design. It was operated with solar oil (a fuel made from brown coal), gas or petroleum and made its successful appearance to the public at the end of 1891. This

encouraged father Wilhelm Seck to found the Motorenfabrik Oberursel under the name of "W. Seck & Co." The registration of this firm at the Royal Prussian Court in Homburg meant the company's start with the 15 January 1892.

The new engine found a ready market, particularly with farm-

ers and with small businesses, where it was met with great interest and won numerous prizes and medals at the exhibitions of its time.

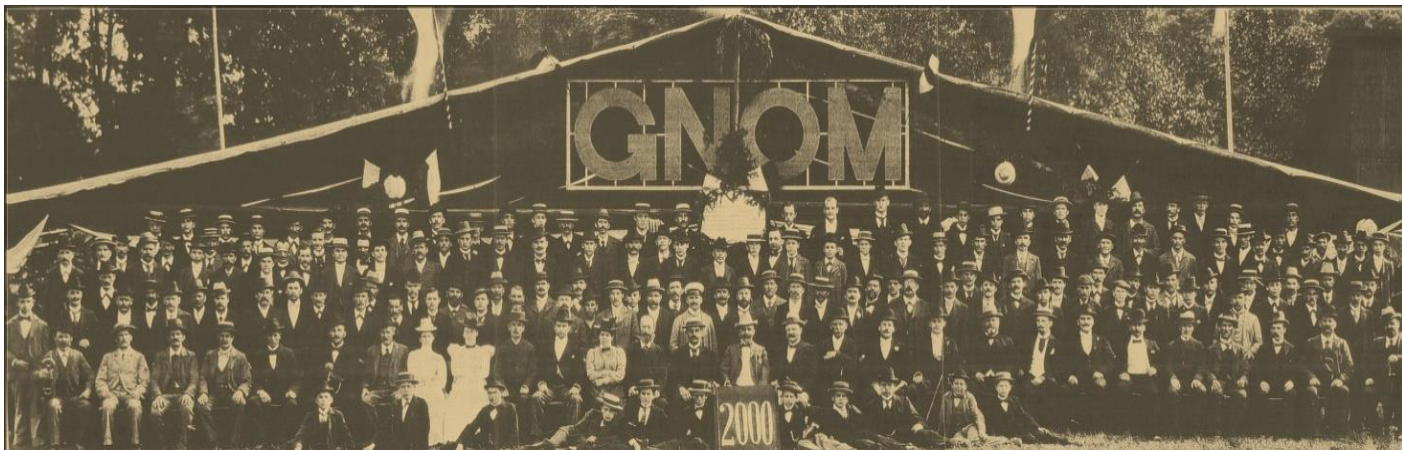
The death of its founder Wilhelm Seck in January 1896 led to a restructure of the company into a Private Limited Company (GmbH). At this time the company had already produced about one thousand Gnom engines as well as the first „Locomobiles“, and the Frenchman Louis Seguin had ac-



1896 – Advertising the GNOM engine

quired the licence to produce and market the Gnom-engine in France. During this period the development of ship winches took place, which were used by the large sailing ships in their heyday and which brought the engines made in Oberursel to the world.

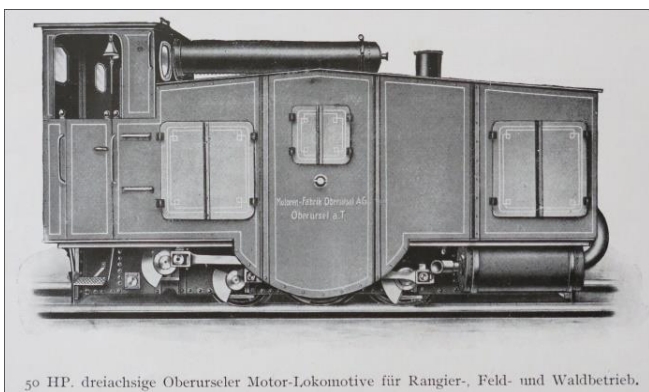
In 1900 the Motorenfabrik commenced with the construction of motor-locomotives and very soon these locomotives made a significant name for themselves in tunnel construction projects in the Alps. The locomotives were also widely used in pits, for shunt-



1900 – The workforce of the MO with the 2,000th GNOM engine

The tireless Willy Seck wanted also to develop a motor vehicle, but his fellow partners refused to do so and the upset Willy Seck left the company and Oberursel upset in the spring of 1898. He continued his career as a chartered engineer with the development of various but only short lived types of automobiles. He turned his attention to new challenges, particularly in the field of engine ignition and the formation of fuel mixture. Willy Seck died in modest circumstances in Berlin-Wilmersdorf in 1955. Willy Seck's departure as shareholder from the Motorenfabrik was one of the reasons for the impending transformation of the company into a public limited company.

ing, in factories and as narrow-gauge locomotives. During the First World War some seven hundred locomotives were produced for the military alone. Having built around two thousand motor-locomotives by 1922, the Motorenfabrik had become the second largest manufacturer in Germany behind the Gasmotorenfabrik Deutz. Initially, many of these locomotives were equipped with engines driven by ethyl alcohol and the Motorenfabrik Oberursel had achieved a leading role in Germany at the introduction of this engine-type from 1899 on. The use of ethyl alcohol was at that time promoted by the state, that wanted to reduce the consumption of spirits.



Engine Locomotive with 50 hp

1912: A new factory comes up

With the permanent growth of the business the original factory from 1892 had expanded as well. However, in 1911 the possibilities to further expand the manufacturing were exhausted and so the foundation stone was laid to build a new factory complex beside the existing buildings. In 1913, a further wing for aircraft engines was added to the first diesel engine building erected in 1912. Additional wings and the impressive new admin-

istration building were added until year 1918. This ensemble of buildings, which even today presents an impressive image of the Motorenfabrik, was declared a cultural monument in 1980.



1917 – The impressive administration building

The aircraft engines in First World War: rise and fall of the Motorenfabrik

In April 1913 the Motorenfabrik Oberursel acquired from the Société des Moteurs Gnome of the Seguin Brothers a license to manufacture and to market their successful French Gnome rotary engine in Germany. One of the Seguin brothers, Louis, owed the upturn of his earlier company to the manufacture of the Gnom engines licensed by Seck. Soon after the outbreak of World War One the rapid development of military aviation resulted in a profound change in the Motorenfabrik Oberursel. Up until the end of 1918 the factory produced around three



Oberursel rotary engines for aircraft

thousand Oberursel rotary engines, whose design was originally based upon the French Gnome-engine.

The most well-known of these engines was the 9 cylinder engine UR-II. With his Fokker tri-plane, powered by such an UR-II, Manfred Freiherr von Richthofen („Red Baron“), the most successful German air ace, achieved 19 of his 80 aerial victories before he was shot down on 21. April 1918 over the Somme.

Not much fewer than the approximately three thousand newly built engines were returned to the factory for overhaul. And almost five thousand airmen visited the Oberursel engine school operated by the Mo-



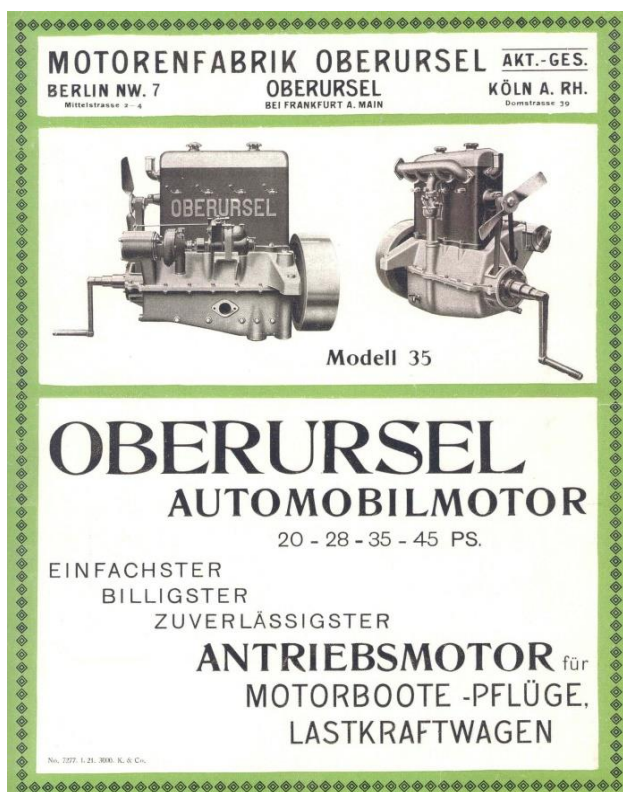
Advertising poster of the Motorenfabrik Oberursel

torenfabrik, where they were instructed during a four-week course in the operation and maintenance of the Oberursel aircraft engines.

During the difficult times after the war the Motorenfabrik Oberursel was not able to

pick up on the earlier sales successes of its meanwhile outdated engines and machines for civilian use. And the newly developed tiny "Oberursel Gnom" engine for bicycles could not stop the demise. However, the legendary motorcycle brand HOREX emerged from this engine.

As a result of its economic problems the Motorenfabrik Oberursel was forced to enter into a cooperation with the older and much larger Gasmotorenfabrik Deutz end of 1921.



1923 – Advertising the engine model 35

The era 1922 to 1945: the almost forgotten engines

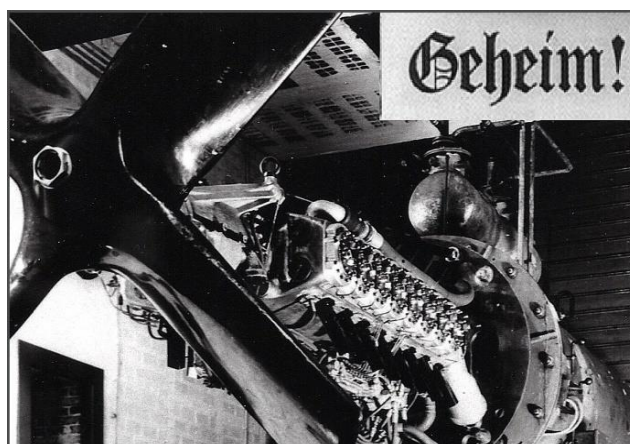
In the Oberursel works, where the business was now controlled by Deutz, production was converted into Deutz types of diesel engines. This meant less different types of engines, but production in large numbers. The only exception was the Oberursel Model 35 engine for trucks, which was to become the grandfather of the future fast-running diesel engines of the Deutz company. In

1930 the Motorenfabrik Oberursel AG, officially still in existence, was completely absorbed into the new Humboldt Deutzmotoren AG.

Two years later, after almost twenty thousand engines had been produced in the past decade, the lights literally went out, not only in the factory but also in the town of Oberursel. The flow-line production introduced in the middle of the 1920s made the Oberursel factory the most profitable in the new group of companies.

The factory was closed as a result of the world-wide depression. The loss of the corporate tax revenue led, amongst others, to the switching off of the street lighting in Oberursel and to the closure of the town lyceum in the Oberhöchstädter Road, into which the town council moved a year later. The entire production machineries of the Motorenfabrik but only a few employees were transferred to Cologne.

It was not until May 1934 that operations could be resumed at Oberursel, and by the end of 1944 the facility had produced again about sixty thousand diesel engines, which had their technical roots in the Oberursel Model 35 engine. The smaller such engine-types powered the legendary "11 Deutz"-tractor or the "Deutz Bauernschlepper", as well as corresponding types from other manufacturers, which together promoted the mechanisation of German agriculture during the 1930s.

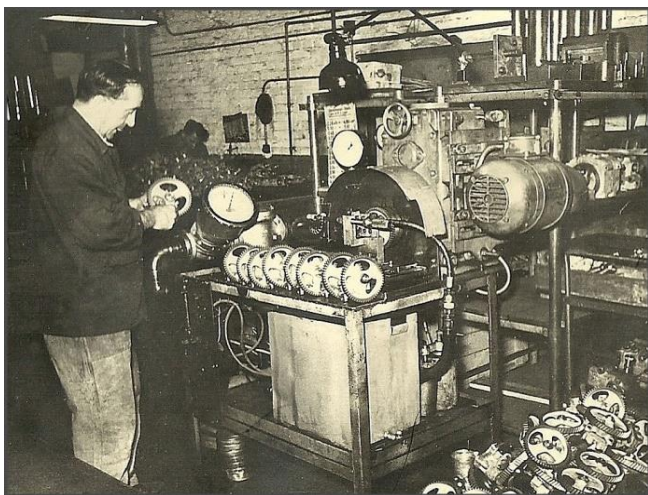


1944 – Development engine Dz 710 on the test bed

One of the engines widely forgotten is the Dz 710 aircraft engine, developed in the Motorenfabrik from 1941 on. To facilitate this development programme, the factory underwent a complete modernisation and saw some expansions, for example by the aeroengine testbed in its characteristic tower-building („Turmbau“). The first run of the circa 2700 hp engine with its 16 cylinders took place beginning of October 1943. The only two engines of this type built were confiscated by the US-Army after the war and sent to the US, where all traces of their whereabouts was lost.

The era 1945 and 1958: a difficult restart

US troops occupied the town of Oberursel and the Motorenfabrik on 30 March 1945 and they did not leave the factory until middle of 1956. They used the site as barracks and as vehicle maintenance depot as well as for accomodation of the motor pools for the US military intelligence corps, which were based in the nearby Camp King.



Circa 1951 – Engine components manufacturing in the tower building

Unfortunately, the allied control council in Berlin ruled that all the modern machinery and equipment of the factory was to be dismantled for reparation purposes. Everything

was duly loaded onto over two hundred rail waggons until end 1947 and was shipped chiefly to Belgium and France, but also to India. Already in the spring of 1948 a modest component manufacture could be started



Exhaust gas turbo charger assembly

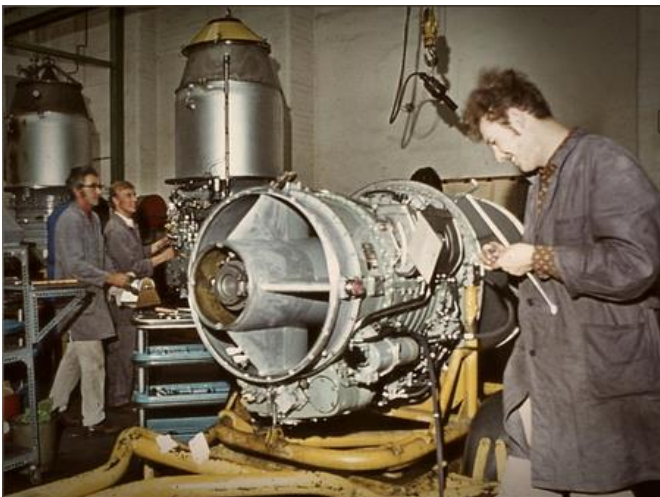
in a small area of the site wrestled away from the Americans, and a year later the works moved into the tower building, which had been saved from destruction. With the production of components for the Cologne and Ulm engines the plant grew to three hundred employees in increasingly cramped conditions. After it was released from requisition in the middle of 1956, it took a further two years to renovate the run-down buildings before operations could start there.

The period 1958 to 1990: four decades small turbo engines and aviation equipment

In November 1958 the development and production of exhaust gas turbochargers, which had been set up five years before in Cologne, was moved from there into the now spacious factory in Oberursel. Following development of an 80 hp industrial gas turbine, work on an auxiliary power unit, the T112 for the German vertical take-off aircraft VAK 191, was taken up in 1966. This started in co-operation with the british firm Bristol

Siddeley. This project was followed by the air supply turbine T212 for a surveillance & reconnaissance platform.

In 1970 development of the auxiliary power unit T312 and the gearboxes for the secondary power system of the Tornado fighter and reconnaissance aircraft started. This aircraft later formed the backbone of the air forces of Great Britain, Italy and Germany and of the Royal Saudi Air Force. Oberursel continues to this day, four decades after the maiden flight of a Tornado aircraft, to repair, provide technical and logistical support and to manufacture spare parts for the system.



1962 – Orpheus jet engine assembly

The appearance of the turbine-engine development was complemented already in late 1959 by the entry into the license manufacturing of aircraft engines. It started with production and subsequent support services for the Bundeswehr's Orpheus turbojet engine under licence of the british company Bristol Siddeley.



1969 – T53 turbo shaft engine on the test bed

Bristol-Siddeley was taken over a few years later by the Rolls-Royce Group, the same Group to which the site at Oberursel since 1990 belongs. During time, further aircraft engines were produced, supported and repaired under license or in co-operation. This including the T53-engine for the UH-1D helicopter, the turbofan-engine Larzac 04 for the Franco-German Alpha Jet reconnaissance and trainer aircraft. With the very well-known name Gnome Oberursel took over in the mid 1970s the support and repair and overhaul

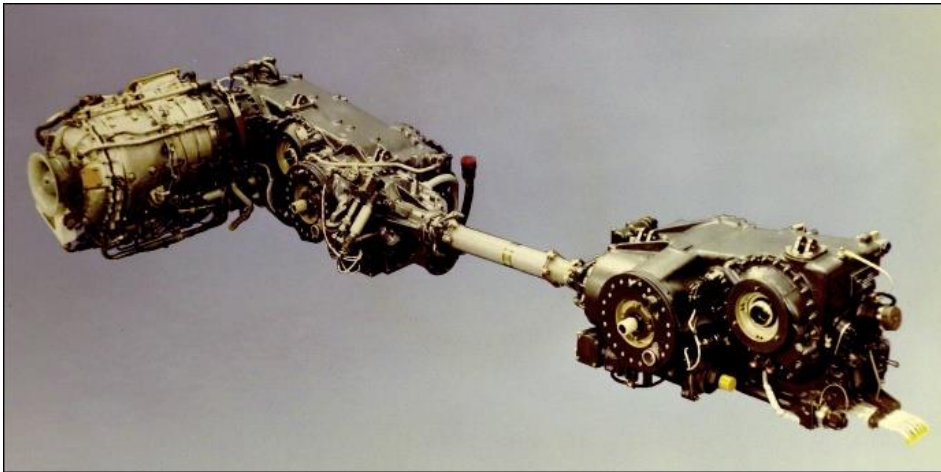


1980 – Mack Superliner truck with a GT601 vehicle gas turbine drive unit

of this helicopter-engine for the German Navy, later on for other customers of Rolls-Royce as well.

When KHD, the world's oldest combustion engine manufacturer, began to deal with the possibilities of the gas turbine as an alternative drive unit for heavy trucks and other heavy vehicles in the early 1970s, engineers from the gas turbine plant in Oberursel were at the forefront. After a first road trial-programme with a modified aircraft engine, KHD entered a co-operation with four gas turbine and truck manufacturers in order to develop the 550 hp vehicular gas turbine GT601. This development took place predominantly in Phoenix/Arizona.

In the mid-1970s a new chapter was opened in Oberursel, the development of a turbojet engine with a thrust of 1,000 Newton for the Franco-German reconnaissance drone CL289. This small engine, the T117, was the



Secondary Power System
MRCA Tornado

first turbojet developed in Germany after 1945 and to be built for serial use.

At the end of the 1970s the KHD AG formed within its division „Power Units“ a gas turbine branch, from which the KHD Luftfahrttechnik GmbH emerged in 1980.

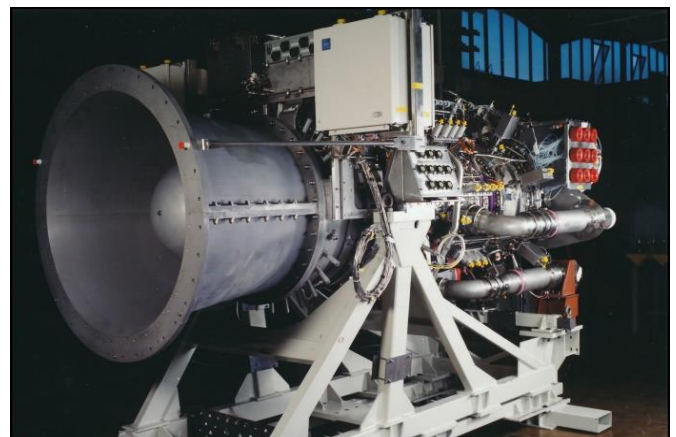
The very busy 1980s were characterized by the production and servicing of the Larzac engines in Franco-German cooperation, the serial production and support of the auxiliary power unit and the gear boxes for the multi-role combat aircraft Tornado, as well as the business and production partnership for the engines of CFM International.

With CFM being a joint venture between the engine manufacturers General Electric and Snecma, history has made a full circle. Snecma was the successor company of the early Société des Moteurs Gnome of the Seguin brothers, which itself had its foundation in the licensed manufacture of the Oberursel Gnom engines as early as 1895. Now in 1986, Snecma with its CFM programme had become a stirrup holder for the future of the Oberursel engine factory, because with its qualifications and the certification approvals of the civil aviation authorities KHD Luftfahrttechnik had met the conditions set by BMW required for its planned reentry into the aircraft engine business.

1990: With BMW and Rolls-Royce into a new future

In 1990, the BMW AG, which had been established originally in 1916 as an engine manufacturer, took over the business of the former KHD Luftfahrttechnik from the KHD-group, which had run into economical difficulties. At the same time, BMW, together with the British aeroengine manufacturer Rolls-Royce founded the new company BMW Rolls-Royce Aero Engines, with its base at the historical site of the Motorenfabrik Oberursel.

Shortly after its foundation, BMW-Rolls-Royce Aero Engines began the development of the core engine for the new engine family BR700, which was continued in the



1993 - BR700 Core Engine

newly built development and assembly centre in 1993 in Dahlewitz (Brandenburg).

The first such turbofan engine, with the type designation BR710, achieved its internation-

al certification in 1996, the first German turbojet ever for civil use. Parallel to the development of the BR700 engine family, BMW Rolls-Royce in late 1993 entered in the development of an auxiliary gas turbine for regional and corporate aircraft under the leadership of Allied Signal in Phoenix. This APU was urgently needed for the business jets equipped with BR710 engines. Oberursel was responsible for the development of the compressor section of the APU designated RE220, in which the leading Oberursel radial compressor technology could be used for the last time.



August 1996 – The BR710 is approved!

Development of the second type of such turboengines, the more powerful BR715, was taken up soon afterwards to power the new Boeing 717 passenger aircraft, which entered service in 1999.

In late 1998 the management of BMW Rolls-Royce was moved from Oberursel to Dahlewitz at the southern part of the Berlin Ring, in July 2000 Dahlewitz became the company's registered headquarters..

In 2000, the Dahlewitz site as the nominated centre of competence for two-shaft engines within the Rolls-Royce Group, took over responsibility for the BR700, Tay, Spey and Dart series of engines. Furtheron the assembly and test of IAE V2500 two-shaft engines, which were used in short and medium-range airliners of the types Airbus A319, A320 and A321 as well as in A319

Until mid 2017 more than seven thousand engines in total were produced in Dahlewitz, almost half of them of the BR710-type, which at that time powered more than 1,600 long-distance Gulfstream and Bombardier business jets. In addition, around nine thousand engines being in use around the world were supported from Dahlewitz.

During the 1990s the new owners subjected the Oberursel plant to an extensive modernization and expansion programme to build up a competitive production site for complex aeroengine components. Prior to run-up of such aeroengine parts the fabrication of variable camshaft control systems (VANOS) for BMW sport-vehicles was taken over in order to built up practical experience with production in manufacturing cells.

The full take-over by Rolls-Royce in January 2000 meant a further boost for the company. The Oberursel site of the new Rolls-Royce Deutschland Ltd & Co KG has since been consistently expanded into a modern centre of excellence for the production of rotating engine components and is part of the globally operating Rolls-Royce Group as a com-



petitive and competent production site. Using state-of-the-art production technologies, high-tech components are manufactured for numerous Rolls-Royce engine programmes as well as engine modules assembled. Furtheron the site continues its business as a service and maintenance centre for small gas turbine engines for various applications.

Engine components manufacturing thought through

What could the future of production in Oberursel look like?

By Dr. Gregor Kappmeyer – Rolls-Royce Associate Fellow Machining

The top position acquired during the last decades in the production of complex and critical aeroengine components is a guarantor for the Oberursel production location of Rolls-Royce Deutschland Ltd & Co KG. This site will continue to evolve and change continuously in the future in order to maintain and expand its position in the company's global production network. In the not too distant future, such production should look something like this.



Digitalisation – Industry 4.0

In addition to the digital transformation of production by Industry 4.0, materials and planning methods, as well as a largely data-oriented assessment of processes and an increasingly augmented level of automation, determine the picture of production in Oberursel.

Components with different characteristics will be manufactured on multifunctional machine platforms in the future. Standardisation and direct data connections to machine and tool manufacturers will enable the early detection of defects as well as the choice of optimized process parameters so as to limit the stress on critical machine elements, such as the spindles, and to protect them from overloading.

A multitude of measurement data from the processes and from the production environment are used to detect deviations from the normal state and the initiation of measures even before damage to the workpiece, the tool or the machine tool can occur.

There will be robots in the factory of the future which will support people in handling, loading, measuring and logistical tasks. They are more space-saving, more flexible and more economical than fixed installations.

New organizational structures will be developed to manage internal systems, communication and data exchange within the factory, and to communicate on the one hand with the suppliers and on the other hand with Rolls-Royce's internal customers at other locations around the world. New service providers will develop the necessary technologies, drive the systems and adapt them flexibly according to the needs of the site.

Tests on workpieces will largely be performed automatically and digitally supported, allowing the workshop staff to focus on potential defects on the component and on its assessment and resolution. Employees will increasingly be assigned with tasks to process monitoring, planning and coordination



Additively manufactured bearing housing (diameter 1,5m) with generatively manufactured blades

in order to ensure the trouble-free operation of the production process and in order to adapt flexibly the production equipment to the currently needed requirements. They will also be more involved in the development of scenarios for future changes in the production programme, the development of suppliers' performance and new technical solutions for the production of components for the next engine generations.

In addition to established machining, joining- and special processes, as well as test methods, generative methods will be used - generally referred to as 3D printing - in the manufacture of components and parts thereof, but also of devices and production aids, as well as spare parts for machines.

This description of a future scenario is based on aspects which are already recognisable and implementable at the outset. In addition, the fantasy of course still allows for even more far-reaching ideas and scenarios. Essential for the existence of the production site Oberursel and the employees here remains that they and the management of the company continuously develop their performance by means of permanent improvement and innovation so that they can maintain their leading position in national and international competition. Then the history of the Oberursel engine factory will be added to by further large chapters.

Chronology

1882

Wilhelm Seck, a millwright, acquires the Wiemersmühle, a previous grain mill, and erects a branch of his Mühlenbauanstalt located in near-by Bockenheim for the manufacture of grain mills. This is the first machine manufacturing plant operating on an industrial production basis in Oberursel. Start of apprenticeship training.

1890

Willy Seck, son of Wilhelm, commences the development of the stationary engine named „GNOM“

1892

Wilhelm Seck establishes the engine factory Oberursel "W. Seck & Co" for the production of the GNOM engine developed by his son.

1895

Locomotives, wood crushing machines as well as generators- and winch drives complement the product range. The Frenchman Louis Seguin acquires the licence for the construction of the GNOM engines. From his company emerges after 1945 the company Snecma.

1896

After the death of the company founder Wilhelm Seck the company is transformed into a GmbH. (Comp. Ltd.)

1897

First mention of a workers' council, the forerunner of today's works council.

1898

Willy Seck leaves the company. The capital requirement for the further development of the company leads to the conversion to a public company, the "Motorenfabrik Oberursel AG".

1900

A renewed growth spurt with the construction of engine locomotives begins, and by the end of 1921 nearly 2,000 units are produced.

1911

Start of construction of a new factory complex, which until 1918 will grow to become an aircraft engine factory with an impressive administrative building.

1913

Acquisition of the license for production of Gnome rotary engines from the "Société des Moteurs Gnome", founded in 1905 by the Seguin brothers.

1917

Construction of an own apprentices workshop, the first one in Oberursel.

1918

After the manufacture of some three thousand rotary engines, the end of the First World War ushers in the decline of the company.

1921

The entry into a joint venture with the Gasmotorenfabrik Deutz AG results a loss of independence. Conversion of the production programme to engines of the Deutz design.

The only exception is the Model 35 truck engine, which will become the basis for the successful family of Deutz diesel engines A and FM.

1930

The Motorenfabrik Oberursel AG is fully absorbed into the Humboldt- Deutzmotoren AG and becomes "The Oberursel Plant".

1932

The factory closes in the wake of the economic crisis, production of engines is relocated to Cologne. Approximately 20,000 engines of this type had been built in Oberursel since 1922.

1934

The factory is re-commissioned and diesel engines once again produced, until the end of 1944 around 60,000 engines. Such engines power the 11 hp "Deutz tractors" as well as tractors from several other manufacturers, leading to mechanization in German agriculture.

1938

Renaming of the Humboldt-Deutzmotoren AG to Klöckner-Humboldt-Deutz (KHD) AG.

1941

Expansion of the Motorenfabrik factory for development of aircraft engines, transferred from KHD in Cologne. The plant becomes modernized and equipped with the latest development and production facilities.

1943

First run of a 16 cylinder flight engine Dz 710 with 2,700 hp on a testbed.

1945

The US-Army occupies the factory and uses it until mid-1956. Both Dz710 aircraft engines are shipped for comparative tests to the USA, where all trace of their whereabouts is lost. The Allies determine the factory to be dismantlement for reparation.

1947

The factory becomes emptied, all production facilities are transported away as reparation goods. The US Army expands the repair of military vehicles, which had begun in 1945.

1948

Production of component parts for the main plant of KHD in a small designated area of the factory.

1949

Relocation of production into the released tower building.

1950

Commissioning of the new administrative building "Weißes Haus" (White House).
After 15 years of forced interruption, a works council was set up again.

1956

The last US military units leave the factory, it takes two years to repair the ruined buildings and facilities.

1958

The workforce has increased to 300 employees and can now move into the renovated main factory. The Cologne gas turbine development of KHD is transferred to Oberursel, which so becomes the gas turbine plant of the KHD AG.

1959

Beginning of the production of aircraft engines with the manufacture and support under license of the Orpheus jet engine for the G-91 aircraft of the Bundeswehr.
Further licensing or co-operation programmes follow, as well as the development, production and support of various aircraft turbines and equipment.
Re-establishment of a factory fire brigade.

1961

Establishment of the company sports association.

1963

The 100 hp industrial Gasturbine T216 under development goes into series production.

1964

Entry into the installation and support of industrial gas turbine systems, such as the pipeline pump station in Lingen with two 4,200 hp Proteus gas turbines.
Start of development of the APU T112, the auxiliary gas turbine for the German vertical take-off aircraft VAK 191.

1965

Various projects to power locomotives and railways with gas turbines.

1967

Projects for mobile and stationary electricity generation plants.

1966

Start of the license production and the technical logistical support of the T53 engine for the UH-1D helicopters of the Bundeswehr and Border Control.

1969

Development of the variant gas turbine T212 as an air supplier for the blade tip drive of an experimental reconnaissance drone.
Start of development of the auxiliary power turbine T312 as well as the gearboxes for the secondary power system of the multinational combat and reconnaissance aircraft Tornado.

1971

Production of parts for the T64 helicopter-engine. Entry into NC technology with the first numerically controlled machines and into machining of titanium.

1972

Trials to drive Intercity railway wagons of the German Railway with industrial gas turbines.

1973

Entry into development programme of the 410 kW gas turbine GT601 in the USA.

Start of the support of the Gnome H 1400 engine for the marine helicopter Sea King.

Commissioning of the new training centre with a modern apprentices training workshop.

1975

Start of development of the turbojet engine T117 for a reconnaissance drone. This is the first jet engine developed and produced in series and in operation from 1990 on, after 1945 in Germany.

1977

Start of series production for the turbofan engine Larzac 04 in Franco-German co-operation, as well as for the APU and gearboxes of the secondary power system (SPS) for the Tornado.

Equipping the hovercraft ferry SEDAM Naviplan 500 with industrial gas turbines.

1980

KHD establishes the KHD Luftfahrttechnik GmbH. The fast-growing series production of the Larzac and Tornado programmes leads to a spurt in growth.

The ensemble of historical buildings of the Motorenfabrik is declared a cultural asset.

1985

Development of the auxiliary gas turbine T118 for the projected fighter aircraft 90, test run of a technology demonstrator.

Start of development of a missile engine designated as T128.

1986

Start of the production of components for the CFM 56 turbofan engines as partner of the French company Snecma and thus entry into the civil aviation business.

The industrial gas turbine activities are handed over to MWM Diesel- und Gastechnik GmbH in Mannheim, which is part of the KHD Group.

1990

BMW acquires the Oberursel site and the business of KHD Luftfahrttechnik and, together with Rolls-Royce, founds the company BMW Rolls-Royce Aero Engines. Purpose of the new company is development and production of a series of turbofan engines with the family name BR700.

1991

Start of development of the BR700 core engine.

Start of the restructuring of the factory with the establishment of a repair and overhaul line segregated from production of new components.

Construction of a production cell for variable camshaft controls "VANOS" for BMW vehicles.

Establishment of the club "Kreis der Jubilare" for long-serving employees of the Motorenfabrik Oberursel.

1992

Gulfstream orders as the launch customer the first 200 BR710 engines for their new Gulfstream V

1993

Commissioning of the newly built development and assembly plant, in Dahlewitz, south of Berlin. Comprehensive modernization of the Oberursel plant and its production facilities. Transformation from the workshop principle to self-sufficient manufacturing cells.

Commissioning of the newly built development and assembly plant, in Dahlewitz, south of Berlin. Comprehensive modernization of the Oberursel plant and its production facilities. Transformation from the workshop principle to self-sufficient manufacturing cells.

Participation in the development of the auxiliary gas turbine RE220 by Allied Signal. BMW Rolls-Royce takes responsibility for the development of the compressor section.

1994

First run of the engine BR710. Start of development of the engine BR715 for the MD 95 commercial aircraft of McDonnell Douglas, which later becomes the Boeing 717.

1995

First flight of a Gulfstream V with BR710 engines.

1996

The BR710 engine is awarded its international certification, it is the first German jet engine to be used in civilian aviation.

1998

Commercial and administrative functions are relocated from Oberursel to Dahlewitz.

2000

Foundation of Rolls-Royce Deutschland Ltd & Co KG as a wholly-owned subsidiary of the British Rolls-Royce plc.

Relocation of the company's headquarters from Oberursel to Dahlewitz.

2002

Opening of the company museum on occasion of the 110th anniversary of the Motorenfabrik Oberursel.

2004

Delivery of the first RTM 322 engine built in Oberursel for the NH 90 helicopter.

2007

Start of the technical and logistical support for the T56 propulsion system installed in the P-3C Orion reconnaissance aircraft of the German Navy.

2008

A G-91 aircraft, whose Orpheus engine stood at the new begin of the manufacture of aircraft engines in the Motorenfabrik in 1959, becomes part of the Oberursel factory museum.

2009

Beginning of the restructuring of the factory as a competence centre for rotating engine components, especially for "BLISKs" - blade integrated discs - and for compressor rotors in accordance with "lean manufacturing" principles.

2010

Establishment of the "Historical Society Motorenfabrik Oberursel".

Decommissioning of the CL-289 drone-system ends support for the T117 jet engine.

2012

The last of more than 2,400 T53 helicopters engines repaired and overhauled since 1969 in Oberursel is handed over to the Bundeswehr. Heritage is retained by acquisition of a UH-1D helicopter of the Bundeswehr for the factory museum.

A large friction welding system for joining of turbine- and compressor- components is put into operation In Oberursel.

The factory museum acquires a historic GNOM stationary engine built in 1904. This type of engine had led to the foundation of the Motorenfabrik Oberursel in 1892.

2013

Celebration of 100 years of aeroengine manufacture at the Motorenfabrik Oberursel, a restored seven-cylinder U-0 rotary-engine makes its first run.

First flight of the Airbus 350 with the Rolls-Royce engine Trent XWB, whose heart is the high-pressure compressor manufactured in Oberursel.

2015

Start of the repair of GEM engines for the German Navy's Sea Lynx helicopter in the converted historical jet engine test stand A2.

2017

The Oberursel Motorenfabrik celebrates its 125th birthday under the motto „Traditions of Progress".



Oberursel trainees present Warren East, CEO of Rolls-Royce Holdings, with a souvenir of the 125th anniversary of the Oberursel Motorenfabrik

Rolls-Royce in Germany

Rolls-Royce is a world-leading manufacturer of power systems, with its Civil Aerospace, Defence Aerospace, Marine and Power Systems divisions being represented in Germany.

Germany has the second-largest workforce after the United Kingdom within the Group with around 11,000 employees at 14 locations.

In 2014 **Rolls-Royce Power Systems** became a wholly owned subsidiary of Rolls-Royce. The German traditional company - emanating from Maybach-Motorenbau GmbH (until 1918 Luftfahrzeug-Motorenbau GmbH) - headquartered in Friedrichshafen, Germany, supplies large engines, propulsion systems and decentralized energy systems.

Rolls-Royce Deutschland is active in the aviation industry and is the only German manufacturer of aircraft engines with certification for development, production and maintenance of civil and military jet engines.

As of April 2017, Rolls-Royce Germany currently employs over 3,600 employees at its Dahlewitz and Oberursel facilities,

of which approximately 1,100 are based in Oberursel.

Oberursel is acknowledged by the Rolls-Royce Group as a production site. With state-of-the-art manufacturing technology for high-tech components for numerous Rolls-Royce engines. The facility is also a maintenance and repair centre for small and medium-sized gas turbine engines for military and civilian applications.

The development and final assembly of all engines of the BR700 family is at the Dahlewitz facility. As a centre of competence for two-shaft engines, Dahlewitz is also responsible for Tay, Spey and Dart engines. In total, Rolls-Royce Dahlewitz supports more than 9,000 engines in service around the world. Rolls-Royce also operates a test bench for civilian large-scale engines in Dahlewitz as well as a test centre for testing the mechanical behaviour of gas turbine components. A new development test bench for main reduction gearboxes was put into operation in 2017. Main reduction gearboxes will be used in future Rolls-Royce engines with ultrahigh secondary flow ratio.



Oberursel (Hesse)



Dahlewitz (Brandenburg)

Historical Society Motorenfabrik Oberursel

The engine factory Motorenfabrik Oberursel was, with the 1882 started branch of Wilhelm Secks mill-equipment factory as predecessor, the first industrial operation of the mechanical engineering sector in Oberursel. Today Rolls-Royce Deutschland is the last major industrial operation of this kind in Oberursel.

This of course leads to the obligation to capture, to preserve and to present the history of this engine factory as an essential part of the town of Oberursel. The Historical Society Motorenfabrik Oberursel e.V., founded in 2010, is committed to this task. The firm Rolls-Royce Deutschland performs a valuable contribution to this task by means of the factory museum, which is situated on the company's site and which is run by the Historical Society.





WERKSMUSEUM MOTORENFABRIK OBERURSEL

Factory Museum Motorenfabrik Oberursel

Prof. Günter Kappler Haus
c/o Rolls-Royce Deutschland Ltd & Co KG
Willy-Seck-Straße 1
61440 Oberursel

Open from January to November on the last Friday of each month
from 15.00 to 18.00 hours

Special tours or groups require reservation

Entry for adults: 2,50 €

For further information and reservation please contact:

Sabine Gerstner
Telephone: +49 6171 90-6121
E-Mail: sabine.gerstner@rolls-royce.com

Internet: www.rolls-royce.com / www.gkmo.net

