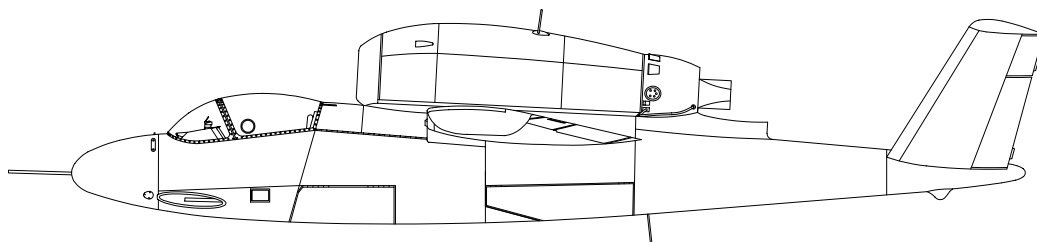


Heinkel He 162 equipped with a single Argus-Schmidt As044 pulse jet

Heinkel He 162, with butterfly tail

The variant A-2 with a butterfly tail is designated in reference literature as the A-9. It was only intended as a test aircraft for the new tail concept.¹⁵³ There were also plans to undertake flights using the He 280 as a launch aircraft,¹⁵⁴ but the course of the war did not allow any trials to be conducted.



Heinkel He 162, with swept wings

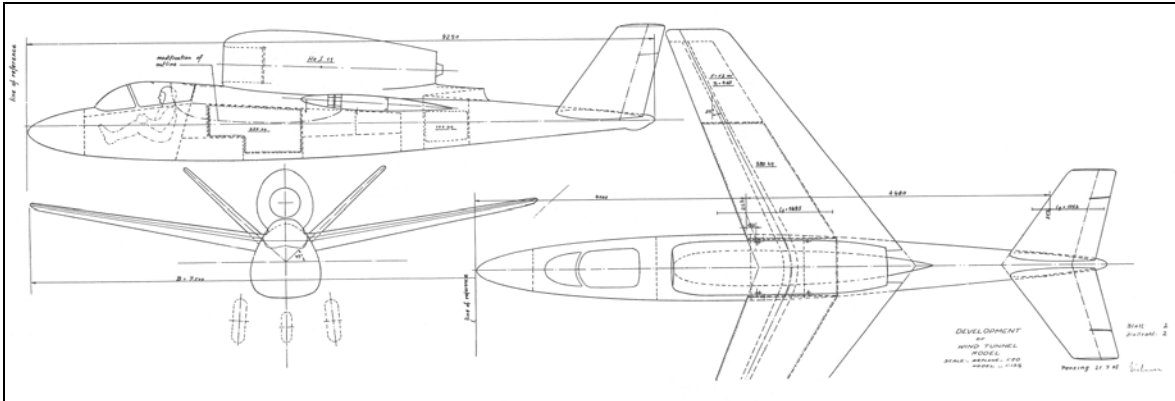
Studies were undertaken to achieve greater critical speeds with the more powerful Heinkel-Hirth He-S11 engine than were being reached with the wing geometry of the He 162 already in production. Variants with a 25° forward sweep and an alternative with a 35° rear sweep in conjunction with a butterfly tail were planned. Production was not expected before the beginning of 1946. By the end of the war, wind tunnel mock-ups with a wingspan of 4.8 m were under construction.¹⁵⁵

¹⁵³ F-TS-672-RE : 6.7.1945 : History and Experiences of the He-162, p. 4

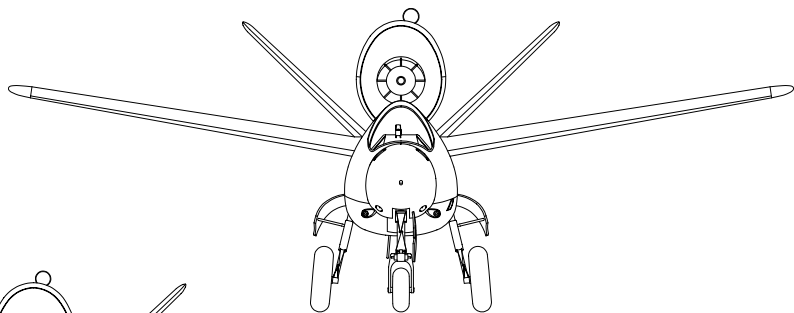
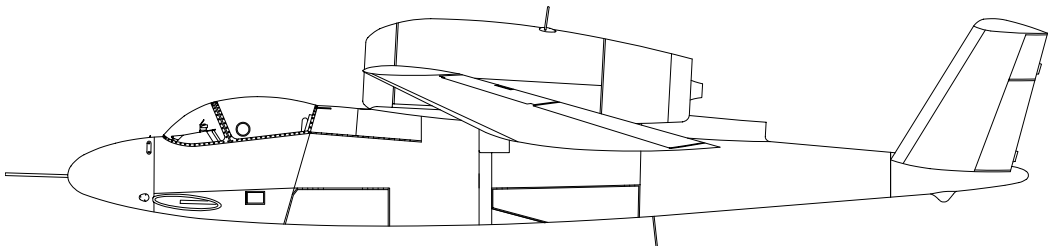
¹⁵⁴ Koos, p. 107

¹⁵⁵ F-TS-672-RE : 6.7.1945 : History and Experiences of the He-162, p. 3

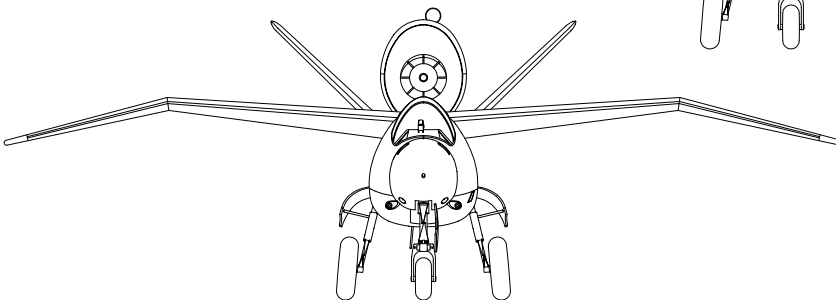
After the war, former Heinkel technicians completed the drawings of both variants in Great Britain. Relevant literature refers to the swept-back option as the He 162 D; the forward-swept version as the He 162 C. Closer examination of the wing roots of both drawings leads to the conclusion that it was hardly likely that both wing configurations could have been fitted to one and the same fuselage. That would have required at least the main spar passing through the fuselage at the same point. The fuselage of both variants was 12 cm longer than those in production at the end of the war.



Heinkel He 162 C / The drawing was drafted in Great Britain in July 1945.



Heinkel He 162 C



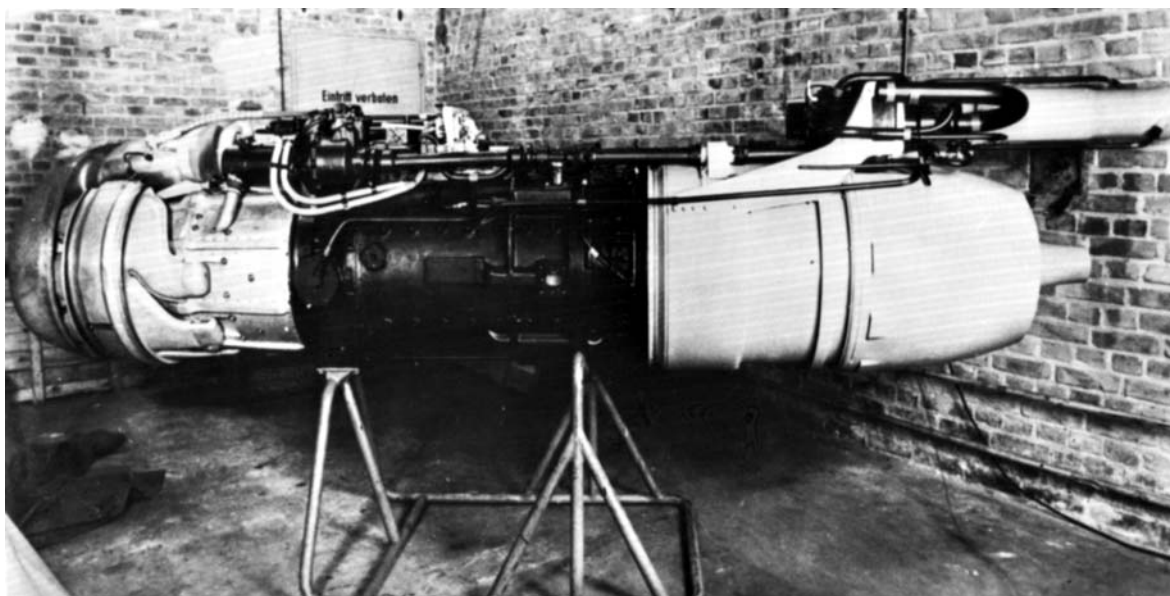
Heinkel He 162 D

BMW, type 109-003 R

In autumn 1943, BMW began development of the 109-003R, a propulsion unit with rocket boost. To achieve this, around 200 h.p. of the main power were diverted and used to supply fuel to a 109-718 liquid fuel rocket drive that could be coupled to the BMW 109-003R as a retrofit. The total thrust achieved was 1250 kp for a maximum duration of three minutes.¹⁷⁷ Tests took place in March 1944 and manufacture of a pilot series began in June 1944. This propulsion unit was tried out on an Me262C-2b flying from Lechfeld on 28.3.1945. A flight with a Heinkel He 162 E using this propulsion unit never materialised as the Vienna plant had to be evacuated just a few days later.

Computed performance figures in conjunction with an He 162:¹⁷⁸

- V_{climb} (depending on altitude) 55-80 m/s, without R thrust 11 m/s
- Maximum take-off weight 3475 kg, without R fuels 2750 kg
- Take-off run up to take-off 842 m, without R thrust 1470m
- Run-up time to take-off 14.6 s, without R thrust 42s
- The R reserve was sufficient to reach an altitude of 10 km



The BMW 109-003R with coupled rocket booster retrofit 109-718 / Easily recognised is the black drive shaft on top of the propulsion unit that transferred the power diverted from the main unit to the rocket drive.

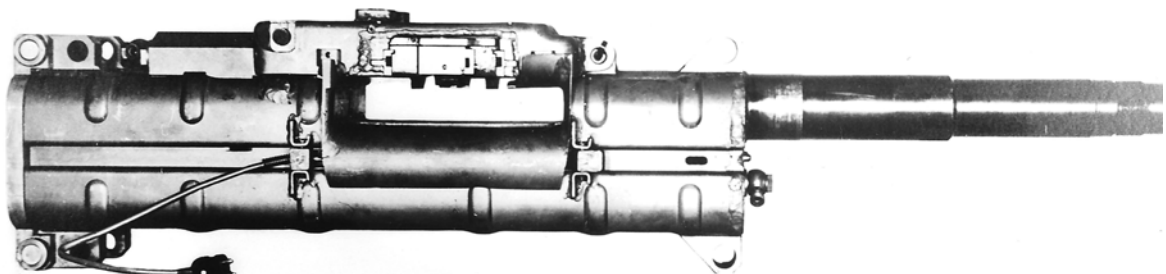
¹⁷⁷ CIOS File No. XXIV-6, p. 13

¹⁷⁸ Flight Performance of the He 162 with 003 R : 9.2.1945

At the beginning of 1945, consideration was also given to installing special-purpose armament such as the SG 117, SG 118 or SG 119 in the Fw 190, Me 262, He 162 and Ar 234. Certainly, in the case of the He 162, no such weapons were fitted. There was no question of installing the MK 112 (55 mm)¹⁹³, which was far too heavy for the He 162. The use of R4M rockets on the He 162 was also to be investigated; however, we have no knowledge of possible results.¹⁹⁴

MK 108 (Rheinmetall)

On their own initiative in 1941, the Rheinmetall company began developing a 30 mm fixed cannon destined for combat aircraft. The objective was to develop a weapon that was easy to manufacture, with a cyclic rate of 600 rounds per minute and achieving a muzzle velocity of 500 m/s. Rheinmetall based its development on the Becker-Oerlikon system. Some 80% of the components were produced as sheet-metal stampings, while only 20% were turned or milled parts. Production outlay was 75 hours per weapon.¹⁹⁵ Trials began in 1943, but production did not have any level of priority until 1944. The weapon was manufactured exclusively by the licensee Deutsche Waffen- und Munitionsfabriken A.-G. (DWM) at its Posnan plant.



MK 108 seen from the right

Prior to firing the first round, the weapon was loaded by compressed air; subsequent rounds were loaded by the recoil action of the breechblock. Belt feeding was possible from either side. Consequently, identical weapons could be installed on either side of the He 162. Rounds were discharged on an open breech, 15 mm before dead centre. Hence, lockup equivalent was achieved through the mass of the breechblock. Empty cases were normally extracted by the belts, thereby eliminating the need for an ejection port. On the He 162, this feature was dispensed with and spent cases were ejected to the open air (see Constructional De-

¹⁹³ Development Status on 31.1.45 : Report 1, item 88

¹⁹⁴ Heinkel file note, item 9, on our pages 168 et seq.

¹⁹⁵ Unterlüss Report 376, p. 15 et seq.

scription, p. 124). The standard zeroing range for this weapon was 450 metres. The MK 108 was considered to be a functionally reliable system.

Technical data:¹⁹⁶

- Calibre: 30 mm
- Barrel length: 540 mm
- Overall length: 1 050 mm
- Weight of weapon: 60 kg
- Installed weight: 88 kg
- Weight of 100 rounds 53 kg

Characteristics:¹⁹⁷

- Cyclic rate: 600 rounds/min
- V_0 : 505 m/s

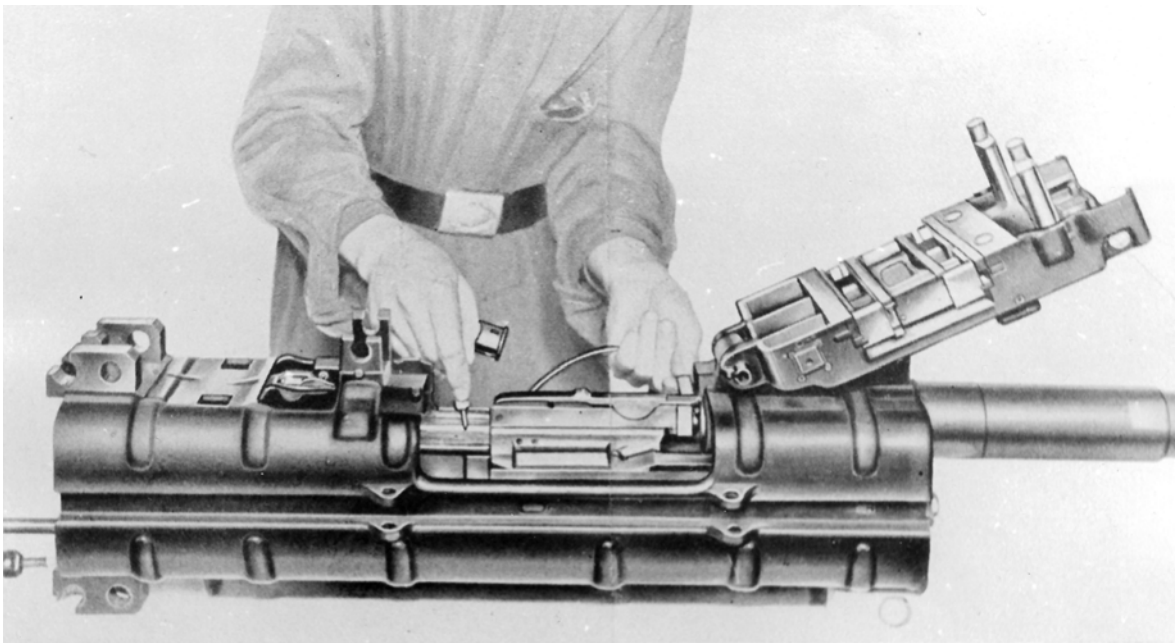


Abb. 26: MK 108; Prüfen des Zündstiftes

This reproduction from the instruction manual gives an impression of the size of the MK 108

¹⁹⁶ Unterlüss Report 295/I, p. 21

¹⁹⁷ Unterlüss Report 376, p. 15 et seq.

Heinkel He 162 in museums

It is noteworthy that of the many prototype and series aircraft to be found in western museums, not one of them originates from the Heinkel Vienna or Junkers plants. All exhibits were built by Heinkel in Rostock-Marienehe. Not a single machine from the Vienna, Oranienburg or Bernburg facilities survived. Currently, there are two aircraft in Canada, two in the USA, another two in Great Britain and one in France. The following descriptions are in the chronological order of the works serial numbers (WNR).

Musée de l'air de France, Le Bourget (France)

He 162 A-2 / WNR 120015 / White 21, 3./JG 1

Following tests conducted by the French armed forces, this aircraft was presented to the museum in August 1952 and has been exhibited there ever since. In 1965, the machine received a green-black paint job and then, in 1976, was given a more or less German style colour scheme. The painted on WNR 200223 is not correct. Currently (2006) the aircraft is undergoing restoration and is to be repainted as authentically as possible.



The machine with its museum paintwork scheme / The position of the Pitot tube^{TT}, located on the nacelle during French testing is unusual. The original German Pitot tube is missing completely.

Revi	Reflexvisier (Zieleinrichtung in Kampfflugzeugen) Reflex sight (aiming device in combat aircraft)
RLM	Reichsluftfahrtministerium German Air Ministry
RMfRuK	Reichministerium für Rüstung und Kriegsproduktion Reich (lit. Empire) Ministry for Armaments and War Production
SG	Sondergerät (Spezialbewaffnung) Special device (purpose-built armament)
SS	Schutzstaffel (NS-Machttruppe im Innern) Elite Guard (Nazi internal security force)
TLR	Chef Technische Luftrüstung Head of Technical Aviation Equipment
TL	Luftstrahltriebwerk (Düsentriebwerk) (lit. Air stream turbine) Jet engine
UDSSR	Union der sozialistischen Sowjetrepubliken Union of Soviet Socialist Republics (USSR)
USA	United States of America
USAF	US Air Force
USSBS	United States Strategic Bombing Survey
Vk	Vergaserkraftstoff Carburation fuel
VO	Mündungsgeschwindigkeit von Geschossen Muzzle velocity of projectiles
Vlande	Landegeschwindigkeit Landing speed
Vmax	Höchstgeschwindigkeit Maximum speed
Vsteig	Steiggeschwindigkeit Rate of climb
WASAG	Westfälisch-Anhaltische Sprengstoff-Actien-Gesellschaft Westphalian-Anhalt Explosives Joint Stock Company
WNr	Werknummer Works serial number
WVHA	Wirtschafts- und Verwaltungshauptamt der SS Head Office of the SS Economics and Administration Ministry
zbV	Zur besonderen Verfügung (lit. for the particular disposal of), special allocation

Glossary of terms

Abschuss	kill
Absturz	crash
Anfangsgeschwindigkeit	muzzle velocity (of guns)
Angriff	attack
Ansaugrohr	suction pipe, induction pipe
Anschlusspunkt (für Motoren)	attachment point
Aufklärer	reconnaissance aircraft
Ausgleichsgewicht, Trimmgewicht	mass balance, counterweight
Auslassventil	exhaust valve
Auspuffstutzen, Auspuffrohr	exhaust pipe
Ausrüstung	equipment
Äusseres Bombenschloss	external bomb rack
Baubeschreibung	constructional description
Baugruppe	assembly, sub-assembly
Beplankung	fairing
Beschleunigung	acceleration
Bewaffnung	armament
Bombenflugzeug	bomber
Bombenlast	bomb load
Bordwaffen	armament
Brandschott	fire-proof bulkhead
Bremse	brake
Bremshebel	brake lever
Brennstoff	fuel, combustible
Brennstoffbehälter	fuel tank
Brennstoffpumpe	fuel pump
Bruchlandung	crash-landing

Index of individuals, place names and subjects

Individuals

- Axmann : 233
 Butter : 70, 176
 Dähne : 271
 Demuth : 267, 326
 Diesing : 49, 128, 130, 180, 289
 Fischer : 343
 Fisher : 380
 Francke : 49, 51, 126, 135, 136,
 154, 175, 176
 Frielinghaus : 268
 Frydag : 21, 31, 32, 181, 197, 289
 Full : 146
 Galland : 129, 183, 184, 262, 263,
 289
 Geier : 142
 Geilenberg : 16
 Goebbels : 182
 Gollob : 142, 191, 263
 Göring : 18, 23, 49, 51, 180, 200,
 233, 289, 385
 Günther : 23, 69, 70, 176
 Hanf : 326, 338, 349
 Hayn : 21, 70, 200, 202
 Heinkel : 18, 20, 21, 22, 69, 126,
 130, 152, 181, 289
 Himmler : 233
 Hitler : 50, 51, 126, 179, 180, 193,
 196, 197, 198, 199, 205, 223,
 233, 289, 360, 363, 384
 Ihlefeld : 266, 270, 277, 327
 Kammler : 199, 200
 Keller : 205, 233
 Kemnitz : 175
 Kessler : 51, 128, 222
 Knemeyer : 31, 184, 289
 Koller : 199
 Kommandeure of JG 1 : see
 Annotation oo
 Kudicke : 129
 Lange : 234
 Lehrer : 21
 Lucht : 50, 51, 234, 289
 Lüddemann : 175
 Maloney : 380
 Messerschmitt : 18, 22, 183, 184,
 191, 289
 Milch : 15, 22, 179, 180, 184, 289,
 356, 357
 Peter : 126, 129, 130, 146
 Petersen : 49, 262, 263
 Rauchensteiner : 142
 Ritter : 21
 Saur : 175, 179, 191, 200, 289
 Schmidt : 357
 Schmitt : 228, 272, 325, 327
 Schwartz : 233
 Schwärzler : 23, 69, 70, 126
 Speer : 16, 50, 51, 126, 179, 180,
 181, 184, 191, 193, 196, 200,

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- Flugzeug Classic 11/2005 : München 2005 : GeraMond
- Flugzeug Classic 7/2006 : München 2006 : GeraMond

1941 Also Generalluftzeugmeister [Chief of Aircraft Procurement and Supply] following the suicide of Udet

1942 Endowment of RM 250 000 from Hitler

1943 Chairman of Lufthansa

1944 (19.6.) Demoted from position as Generalluftzeugmeister, continues activities in Armaments Ministry

1945 (January) Relieved of all functions

1947 (17.4.) Sentenced to life imprisonment at Trial 2 of the Subsequent Nuremberg Trials

1954 (4.6.) Released

† 1972 (25.1.) Wuppertal, Germany

D The Jägerstab [Fighter Staff] was formed on 1.3.1944 by Decree 320-992/44g. It was headed by Reichsminister Speer, Hauptdienstleiter Saur and Chief of Aircraft Procurement and Supply, Milch. On 1.8.1944, the Jägerstab was transferred to the Rüstungsstab [Armaments Task Force] where Saur was also the operational Head of Staff.

E In the reduced “Jägerstab-Flugzeug-Programm” [Reduced Fighter Staff Aircraft Programme], only the following fighter planes were still earmarked for production: Bf 109T,G,K,H / Fw 190A4–A10 / Ta 152A,H / Me 163B,C. The Me 262 was not classed as a fighter but was listed under combat aircraft.

F Edmund Geilenberg (☼ 1902, † 1964) was Defence Economy Leader, headed the Central Committee Munitions and was appointed Commissioner General for Emergency Measures in the Reich Ministry for Armaments and War Production on 10.6.1944.

G Brief biography of Reich Minister Speer, Albert:



Speer preparing his defence while under arrest in Nuremberg during the Trial of Major War Criminals by the IMT 1945 – 1946.

Hitler's comments on Speer and Saur, recorded by Goebbels on 31.3.1945: »Speer is not, after all, the strong personality that he always used to project. Saur overshadows him both in energy and ability to improvise.« (Diary p. 449). See also note **x** on Saur.

☼ 1905 (19.3.) Mannheim, Germany, studied architecture in Karlsruhe, Munich and Berlin

- 1931 SA / NSKK
- 1932 NSDAP, Architect for NS buildings and monuments, subsequently several other functions
- 1937 Inspector General of Buildings for the Reich Capital
- 1942 Reich Minister for Armaments and Munitions (later known as Armaments and War Production), Head of Central Planning
- 1943 Endowment of 100 hectares of forest from Göring
- 1945 (23.5) Arrested as member of the acting government under Dönitz
- 1946 (1.10.) Sentenced to 20 years imprisonment at the Trial of Major War Criminals by the International Military Tribunal
- 1966 (30.9.) Released
- † 1981 (1.9.) London, England
- Title: Professor

■ Brief biography of Professor Heinkel, Ernst:



- ⊗ 1888 (24.1.) Grunbach, Württemberg. Studied mechanical engineering at the Technical University of Stuttgart (did not graduate).
- 1911 Design engineer with Luftverkehrsgesellschaft in Johannistal near Berlin
- 1912 Appointed Chief Design Engineer at Albatros with the assistance of Hellmuth Hirth (aviation pioneer and engine designer)
- 1914 to 1918 Chief Design Engineer and Technical Director with Brandenburgischen Flugzeugwerken GmbH in Briest, Vienna and Budapest
- 1918 Iron Cross Class II
- 1922 Founded own company at the Warnemünde airfield
- 1937 NSDAP
- 1939 National Prize for Arts and Science (National-Socialist variant of the Nobel Prize, forbidden in 1935), together with arch-rival Messerschmitt
- 1948 Arrested as a “hanger-on”
- 1949 (18.1.) Released as exonerated after an appeal