



German WWII Fighter MESSERSCHMITT Bf 109 E-4 «Emil»

The Messerschmitt Bf 109 E «Emil» was a further development of the very successful fighter line developed by Bayerische Flugzeugwerke under the leadership of Wilhelm Messerschmitt and Robert Lusser, which went into production at the end of 1938. To improve on the performance afforded by the 441-515 kW (600-700 PS) Jumo 210, the larger, longer Daimler-Benz DB 601A engine was used, yielding an extra 223 kW (300 PS) at the cost of an additional 181 kg (400 lb). A much bigger cooling area was needed to disperse the extra heat generated by the DB 601, and this led to the first major redesign of the basic airframe. Enlarging the existing nose-mounted radiator sufficiently to cool the engine would have created extra weight and drag, negating some of the performance gains afforded by the increased power, so it was decided to move the main radiators to the undersurfaces of the wings immediately outboard of the junction of the wing root and wing panel, just forward of the trailing edges' inner ends, leaving the oil cooler under the nose in a small, streamlined duct. The new radiator position also had the effect of counterbalancing the extra weight and length of the DB 601, which drove a heavier three-bladed Vereinigte Deutsche Metallwerke (VDM)-made propeller. Because the radiators were mounted near the trailing edge of the wing, coinciding with the increased speed of the airflow accelerating around the wing camber, cooling was more effective than that of the Jumo engine 109s, albeit at the cost of extra ducting and piping, which was vulnerable to damage. The Bf 109 E-4 modification appeared in May 1940. Compared to the Bf 109 E-3, the new fighter became somewhat heavier. But thanks to the additional armor installed in the cockpit behind the pilot, the pilot's head and shoulders were now protected more reliably. Two wing-mounted 20mm cannons have survived. These were MG FF/M, which could fire high-explosive shells called Minen-Geschosspatronen. The changes also affected the engine. If the first Bf 109E-4s were equipped with DB 601A engines, then in the middle of 1940 new DB 601N (1200 hp.) began to be installed on them. 496 aircraft were built. Additionally there was an unknown number of E-1 and E-3, which were modified to the E-4 standard.

Specifications Bf 109 E-4 - Crew: 1; Length: 28'10 1/2" (8.8m); Wingspan: 32'5 1/2" (9.9m); Weight: 4542-5875 lbs (2060-2665 kg); Wing area: 174.05 sq. feet (16.7 sq. m); Max speed: 360 mph (578 km/h) at 14560 feet (4500 m); Climb rate: 3100 feet per min (15.75 m/s); Ceiling: 33785 feet (10300 m); Range: 410 miles (660 km); Engine: 1 x 895 kW (1200 hp) Daimler-Benz DB601N (12-cylinder, direct fuel injection, inverted V engine); Armament: 2 x 7.92 mm MG 17 machine guns and 2 x 20 mm MG FF/M canons.

CAUTION

- Read carefully and fully understand the instructions before commencing assembly.
- Adult supervisor should also read instructions when assembled by children aged 14 or younger.
- Tear up and throw away the plastic bags containing kit parts as children may suffocate by swallowing or wearing over head.
- Cut the parts off properly and throw the waste parts into dustbin at once.
- Do not play with the parts for any other purpose as some parts may be too sharp. More caution and care needed for families with infants.
- Do not swallow any parts and cut-off chips. Keep away from reach of children.
- Wrong or careless usage of nipper, cutter, file etc. may hurt the assembler.
- Be cautious as follows when using adhesives and / or paints:
 - Do not use near fire to avoid flammability.
 - Do not put any adhesives and/or paints into mouth and eye. If mistakenly put into, wash out promptly with full water and consult a medic.
- Use toolings, adhesives, paints, batteries etc. properly after careful reading of instructions given in each handling manual.

