

Bf109 facts and figures

Technical specifications

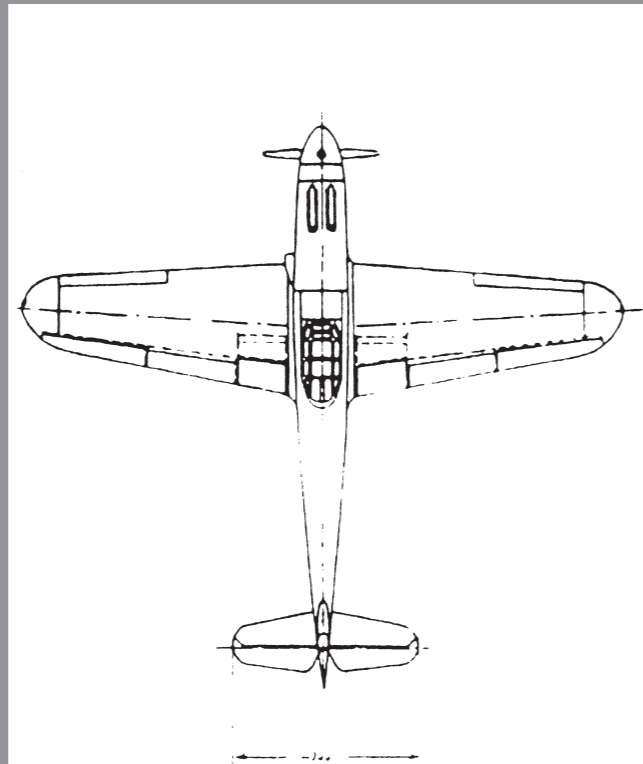
The following are representative specifications from official German documentation for three different marks of Bf109. It is interesting to note the increase in available engine power from the early Bf109B to the later Bf109G, but also the alarming rise in take-off weights. Although the Bf109G-6 had a theoretical maximum speed that was higher than that of its predecessors, in practice and in combat configuration it was slower, particularly when weighed down with the underwing 'gondolas' for MG151/20 cannons. The latter were necessary to give the Bf109G extra 'punch', especially when trying to combat US daylight bombers high over Germany, but in practice these bulky add-ons made the Messerschmitt slower and more vulnerable to the US escort fighters which were increasingly numerous and of higher performance as the war progressed. Although the specifications quoted for the Bf109G are specific to the G-6, they are also representative for the mark of Black 6, which was a Bf109G-2.

Messerschmitt Bf109B-1

Wingspan	32ft 4.5in (9.87m)
Length	28ft 0.66in (8.55m)
Maximum speed	292mph (470kmh) at 14,764ft (4,500m)
Service ceiling	29,528ft (9,000m)
Range	404 miles (650km)
Armament	Two 7.92mm machine guns in upper forward fuselage
Engine	One Junkers Jumo 210D inline piston engine, of 680hp
Crew	One

Messerschmitt Bf109E-3

Wingspan	32ft 4.5in (9.87m)
Length	28ft 4.5in (8.65m) (or 8.76m sometimes quoted)
Maximum speed	354mph (570 kmh) at 12,303ft (3,750m)
Maximum take-off weight	5,875lb (2,665kg)
Range	Approximately 413 miles (665km)
Service ceiling	36,090ft (11,000m)
Armament	Two 7.92mm machine guns in upper forward fuselage, two wing-mounted 20mm cannons
Engine	One Daimler-Benz DB601A inline piston engine, of 1,100hp
Crew	One



Taken from the official manual for the Bf109G-6/U4, D.(Luft) T.2109 G-6/U4, dated 22 February 1944, this general arrangement drawing confirms the dimensions for the Bf109G-6, which are also correct for earlier Bf109G versions, including the Bf109G-2, Black 6. Messerschmitt AG/Malcolm V. Lowe

Messerschmitt Bf109G-6

Wingspan	32ft 6.7in (9.924m)
Length	29ft 4in (8.94m)
Maximum speed	386mph (621kmh) at 22,638ft (6,900m)
Maximum take-off weight	6,944lb (3,150kg)
Range	Approximately 621 miles (1,000km) (with drop tank)
Service ceiling	37,894ft (11,550m)
Armament	One 20mm cannon 'engine-mounted', two 13mm machine guns in upper forward fuselage
Engine	One Daimler-Benz DB605A inline piston engine, of 1,475hp
Crew	One

Bf109 weaponry

The Bf109 was a well-armed warplane, and reflected the evolving German military thinking of the Second World War era in terms of fighter aircraft armament, that heavy-calibre weapons in comparatively small numbers were preferable to the British concept of the later 1930s of multiple rifle-calibre machine guns. The British eventually modified this idea to include heavier calibre weapons, while the Bf109 was developed in time into a formidable fighter and ground-attack aircraft – although the addition of some weapon systems adversely affected performance. Indeed, throughout its life the Bf109 underwent considerable up-gunning and weapons evolution, particularly to suit operational requirements.

The original armament fitted to the initial Bf109B production model comprised two 7.92mm Rheinmetall-Borsig MG17 machine guns, mounted in the forward upper fuselage ahead of the cockpit and synchronised to fire through the propeller arc. There had been the intention to mount a third MG17 centrally, in the engine compartment to fire through the propeller hub (the so-called 'engine-mounted' installation), but this was found to be impracticable even though the Jumo 210 engine could be configured to allow this. Each gun had 500 rounds, but in later models this was extended to 1,000rpg. In the Bf109C the armament was updated, partly as a result of operational experience with the Bf109B,

to include a further MG17 in each wing, outboard of the propeller arc and therefore not needing to be synchronised, in addition to the established two MG17 in the forward upper fuselage. The wing guns had 420 rounds each. It was intended that a centrally-mounted, Oerlikon-licence MG FF 20mm cannon would be installed, but again attempts to perfect this 'engine-mounted' installation were not successful due to vibration and other issues and the weapon was not included on production aircraft. This armament arrangement stayed the same for the Bf109D, the last of the Jumo-engine Bf109 versions.

The MG17 was an air-cooled machine gun with electric firing and pneumatic charging – the compressed air bottles for which were located in the fuselage, although on some later models of the Bf109 these were moved to the wings. The upper forward fuselage installation involved the two guns being staggered due to the positioning of the ammunition chutes, with the left-hand weapon slightly ahead of the right-hand one. The MG17 had a rate of fire, in its best optimum operating conditions, of 1,200 rounds per minute, although as with most airborne weapons the operating altitude, outside temperature and other related features could reduce this rate of fire.

This basic weapons configuration, of two upper forward fuselage and two wing-mounted MG17 was carried on into the first of the Daimler-Benz-powered Bf109E production examples, in the Bf109E-1 block. However, the

BELOW: Diagram from an early Bf109E manual showing the wing structure of that version, and the installation within the wing of the 7.92mm MG17 machine gun. The Bf109 was not designed to carry internal wing armament, and the installation of these weapons within the wings from the Bf109C onwards necessitated modification to the main spar and wing structure. Later Bf109 production versions, including the Bf109F and Bf109G, did not carry internal wing armament. This was in contrast to the Focke-Wulf Fw190, which partnered the Bf109 from 1941 onwards as the Luftwaffe's main fighter types, which was designed from the first to carry machine guns and cannons within its wings. Malcolm V. Lowe Collection

