

Junkers Ju 288

Appareil : Junkers Ju 288
Constructeur : Junkers Flugzeug Motorenwerke AG
Désignation : Ju 288
Nom / Surnom :
Code allié / OTAN :
Variante :
Mise en service : 1941
Pays d'origine : Allemagne (IIIe Reich)
Catégorie : Chasseurs de la guerre 39-45
Rôle et missions : Prototype de bombardier moyen rapide



le prototype aux 22 exemplaires

Au tout début de l'année 1940, alors que l'Allemagne s'enfonçait peu à peu dans la « Drôle de Guerre » avec les Britanniques et les Français la Luftwaffe lança l'étude et le développement d'un nouveau type de bombardier moyen rapide, capable de voler de jour comme de nuit, et ce sans la moindre escorte armée. Les enseignements de l'invasion de la Pologne en septembre 1939 étaient passés par là. En effet si la chasse polonaise n'avait pas représenté un danger réel pour les hordes de Junkers Ju-88 et Heinkel He-111 l'état-major allemand savait qu'il en serait tout autrement contre la France, et dans une moindre mesure contre les Pays-Bas et la Belgique. C'est dans ce sens qu'elle demanda à Junkers de développer une version profondément améliorée de son bombardier bimoteur.

Les idées ne manquaient pas dans les têtes des ingénieurs et designers de l'avionneur. Parmi celles-ci certains travaillaient déjà à des tourelles de mitrailleuses automatisées, fonctionnant grâce à des servocommandes dirigées à distance depuis le poste de pilotage. En outre les ingénieurs s'engagèrent dans la voie d'un avion disposant d'un cockpit pressurisé largement vitré. Pour réduire les coûts de développement Junkers utilisa deux anciens prototypes du Ju-88. Représentant le troisième développement direct de cette famille d'avion, après le Ju-188, le nouvel avion reçut la désignation de Ju-288.

Le premier exemplaire de l'avion, désigné Ju-288V1, fut assemblé à la fin de cette même année 1940. Il se présentait sous la forme d'un monoplan à aile haute bimoteur disposant d'un cockpit vitré triplace proéminent. Si ses dimensions générales et son architecture rappelaient fortement son ancêtre il s'avérait qu'il s'agissait bien d'un avion nouveau.

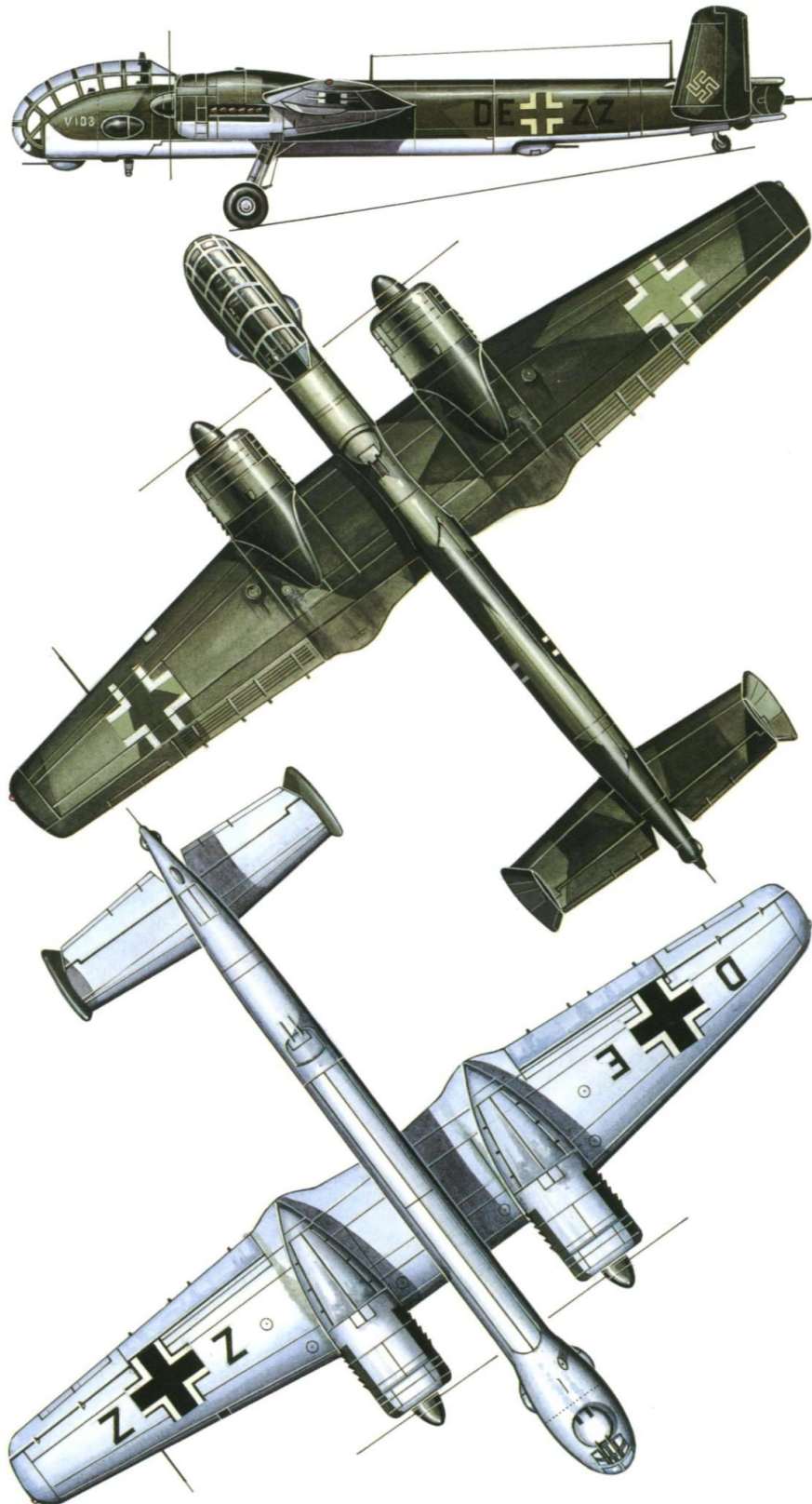
Le Ju-288V1 possédait un train d'atterrissage tricycle intégralement escamotable, y compris la roulette de queue. Son empennage double dérive permettait de stabiliser cette machine dont l'aile avait une envergure moindre que son prédécesseur, pour une propulsion pourtant plus puissante. Celle-ci était assurée par deux moteurs en étoile BMW 801-MA d'une puissance unitaire de 1600 chevaux entraînant chacun une hélice tripale en métal. Niveau armement il disposait de deux mitrailleuses MG131 de 13mm tirant en position de chasse et de deux armes identiques dans une tourelle de queue automatisée. Sa charge de bombes, d'un maximum de trois tonnes, était installée dans le fuselage de section rectangulaire, dont la soute s'ouvrait grâce un complexe mécanisme. Le Junkers Ju-288V1 réalisa son premier vol en janvier 1941.



Bien qu'à cette époque-là, l'Armée de l'Air ne représenta plus la moindre menace Hitler ordonna qu'on poursuive les travaux du Ju-288, et ce sur trois versions de bombardement différentes. Ainsi Junkers étudia les possibilités d'un Ju-288A de bombardement classique, d'un Ju-288B de bombardement nocturne, et d'un Ju-288C destiné à tirer le missile Henschel Hs-293. Pour ce faire l'avionneur se lança dans une vaste campagne d'essais en vol et assembla un total de 22 prototypes, désignés de Ju-288V1 à Ju-288V14 inclus, et de Ju-288V101 à Ju-288V104 inclus. Et cela ne concernait même pas le développement du Ju-288C dont les travaux devaient être menés par les équipes de Henschel. Pour ce faire Junkers envoya son vieux Ju-88V5 auprès de cet avionneur.

Toutefois ce chantier ne déboucha sur rien et le développement du Ju-288C ne dépassa pas la planche à dessin. Le Ju-88V5 rejoignit son usine d'origine.

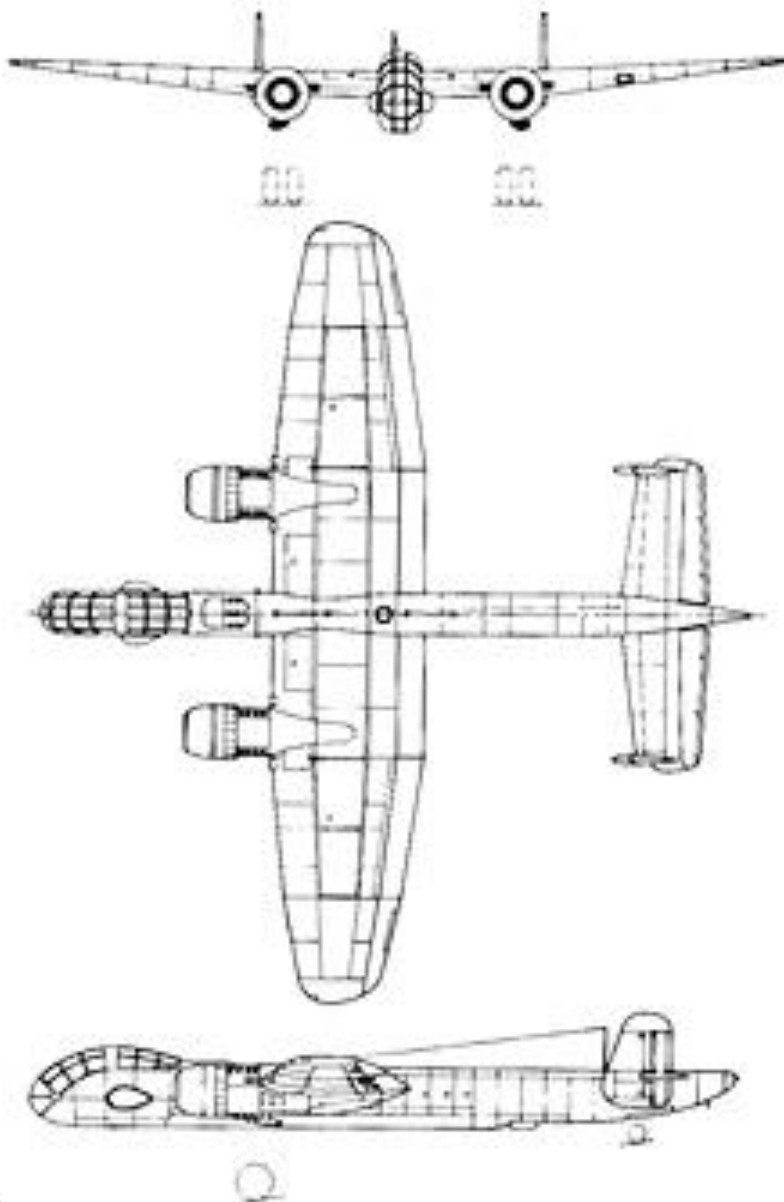
Les essais en vol des Ju-288 se déroulèrent jusqu'en juin 1943, époque à laquelle la Luftwaffe ordonna la fin des travaux et l'abandon de cet appareil. Pourtant la plus part des prototypes apportèrent leur lot d'innovation ou d'améliorations notable, et notamment dans le cadre des systèmes de visée de bombardement. En outre les principes de pressurisation furent largement modernisés. Malgré ces avancées technologiques le programme ne suscitait plus d'intérêt de la part des décisionnaires allemands, qui s'étaient peu à peu tournés vers d'autres avions comme l'Arado Ar-234 qui venait de réaliser son inaugural.



Avec son fantastique nombre de 22 prototypes le Junkers Ju-288 peut être considéré comme un des programmes aéronautiques les plus complexes et les plus onéreux de la Seconde Guerre Mondiale. Et même si chaque prototype vola, ce bimoteur reste dans les mémoires comme un véritable gouffre pour Junkers et la Luftwaffe. Le concept du Ju-288 déboucha sur l'un des rares bombardiers stratégiques allemands, le Junkers Ju-488.

Caractéristiques

Modèle : Junkers Ju-288V9
Envergure : 18.30 m
Longueur : 15.90 m
Hauteur : 4.50 m
Motorisation : 2 moteurs en étoile BMW 801-MA
Puissance totale : 2 x 1600 ch.
Armement : 4 mitrailleuses de 13mm
3000kg de bombes
Charge utile : -
Poids en charge : 17660 kg
Vitesse max. : 670 km/h à 6000 m
Plafond pratique : 11600 m
Distance max. : 3100 Km (à masse maximale)



Equipage : 3

source : <http://www.avionslegendaires.net>
<http://milguerres.unblog.fr/junkers-ju-288/>

version anglaise

The **Junkers Ju 288**, originally known within the [Junkers](#) firm as the **EF 074**, was a [German bomber](#) project designed during [World War II](#), which only ever flew in [prototype](#) form. The first aircraft flew on 29 November 1940; 22 development aircraft were eventually produced.

The Ju 288 was the winner of the [Bomber B](#) contest, although the contest was started by the Junkers firm's submission of the EF 074 and their selection was never really in doubt. The *Bomber B* concept of a [Schnellbomber](#) was originally intended to replace the [Junkers Ju 88](#). The Ju 288 offered a design that was larger, offered cabin pressurization for high altitude missions, had longer range, a much greater bomb payload, was even faster, and had improved defensive firepower. The design was intended to replace all the bombers then in [Luftwaffe](#) service.

Delivering all of these requirements in a single airframe demanded [much more powerful engines](#); all of the Bomber B concepts, at one time or another, relied on the [Junkers Jumo 222](#) engine to deliver this power. Ultimately, the Jumo 222 was a failure in spite of massive effort and several redesigns over a period of several years, with nearly 300 development prototypes produced. No suitable replacement was ever forthcoming, dooming the Ju 288 program, and leaving the [Luftwaffe](#) with older bomber designs during the second half of [World War II](#).

Design and development

Prior to the opening of World War II, the [Luftwaffe](#) bomber force included three major types, the [Dornier Do 17](#) and [Ju 88](#), both classed as [schnellbomber](#), and the slower but somewhat larger [Heinkel He 111](#). Although the Ju 88 outperformed the other designs in service, it however possessed adverse characteristics, including its very small internal [bomb bay](#) that forced it to carry some of its load externally, degrading performance.

Junkers had been outlining a variety of improved models of the Ju 88 since 1937, powered by the planned [Jumo 222](#) multibank engine, or [Jumo 223](#) inline multibank [diesel](#) of greatly increased power meant to achieve a 2,000 horsepower (1,500 kW) output level, a [serious challenge for Germany's aviation engine industry](#) of the time. The EF 074 was essentially a scaled-up Ju 88, sharing its general layout and most of its [fuselage](#) and [wings](#) with extensions in various places. The nose was redesigned with a more streamlined "[stepless cockpit](#)", having no separate windscreen panels for the pilot and co-pilot. This layout allowed [cabin pressurization](#) to be more easily implemented. This design approach had been growing in favour, subsequently appearing in various German types, notably the [He 111P and -H's](#).

All of the defensive armament was meant to be remotely controlled – [in one proposal Archived](#) 13 April 2014 at the [Wayback Machine](#), comprising a remotely operated rear-facing dorsal turret at the rearmost end of the cockpit glazing, and two remotely operated "flank" turrets on the rearwards sides of the fuselage just forward of the empennage, otherwise each resembling the FDSL 131 units of the [Me 210](#). The exclusive use of remotely operated turrets for the Ju 288's defensive firepower allowed them to be positioned more efficiently, as well as eliminating "breaks" in the fuselage pressurization.

The fuselage was expanded along its length to allow for a much longer bomb bay – somewhat as had been done with the [Dornier Do 217](#) then in development itself – that would allow for a 3,630 kg (8,000 lb) payload to be carried internally, eliminating the need to carry ordnance on outside [hardpoints](#).

Bomber B Competition

No serious work was undertaken on these versions, but after [Heinrich Hertel](#) left [Heinkel](#) and joined Junkers in 1939, the EF 074 design was submitted to the RLM in May 1939. Accordingly, the RLM sent out the specifications for the [Bomber B](#) design competition in July, the Ju 88 retroactively becoming the second aircraft to be designated Bomber A, as the 3 June 1936 specification for the [He 177](#) also had that name. The Bomber B program aimed at replacing all of the [medium bombers](#) in the *Luftwaffe* inventory with a new design based on the EF.74 or something with equal performance. Bomber B was intended to have even better speed than the Ju 88, high-altitude cruising with a pressurized cockpit, heavier defensive armament, range allowing it to cover any point in the [British Isles](#), and a 4,000 kg (8,820 lb) warload, double that of the earlier generation bombers. A number of companies returned proposals, but these were to some extent a formality, the EF.74 had already been selected as the winner, and of the rest of the designs submitted, only the [Focke-Wulf Fw 191](#) and [Dornier Do 317](#) progressed even as far as prototypes, and the [Henschel Hs 130](#) coming under consideration as a late entrant.

Work began on building prototypes soon after, and the first example was completed by mid-1940. Power was supposed to be supplied by two 24-cylinder Jumo 222 six-bank, four cylinders per bank, [over-1,500 kW](#) output class powerplants, but problems with the Jumo 222's development – as with almost every new concept for over-1,500 kW output, reciprocating aircraft engines [then underway](#) in the Third Reich – meant the first prototypes flew with [BMW 801 radial engines](#), instead. The first flight-quality 222s did not arrive until October 1941, and even then it was clear they were nowhere near ready for full-scale production. When it became apparent the 222 was not likely to become a viable powerplant, in May 1942, Junkers proposed replacing them, for their projected Ju 288C version, with the much heavier [Daimler Benz DB 606s](#) instead; the same 1.5 tonne, twin-crankcase ["welded-together engines"](#) that *Reichsmarschall* [Hermann Göring](#) complained about some three months later, regarding the [He 177](#)'s own endless powerplant troubles.

Undercarriage difficulties



Ju 288 V1 prototype with twin [BMW 801](#) engines. Is it being held in flying attitude by a support under the tail. The actuator rods for the landing gear's oleo struts are visible behind the main struts.

The Ju 288's intricate main landing gear system's design proved to be troublesome, possessing twin vertical members comprising the main "Y-shaped" retraction strut unit, directly behind a single oleo strut, for each pair of twinned wheels mounted through a forward-projecting lever-action arm, to the lower end of the uniquely attached main oleo strut unit. This single-tube oleo strut was pivoted off the lower end of the twin-member, "Y-shaped" retraction strut unit, and was rotated in the vertical plane about this single attachment in a rearwards direction during retraction of the main-gear unit, separate from the twin-member unit to help "shorten" its stowed length within the engine nacelle. This distinctive type of design required the oleo strut's freely moving top end to physically rotate downwards and afterwards during the rear-swinging retraction of the main "Y-shaped" member, operated by a lever and gear-sector system mounted on the portside of each main gear assembly, operated with a long lever that had its upper end pivoted from a fixed bracket, anchored to the firewall's rear surface. The lever/sector gear system swiveled the oleo strut about its attachment point during the retract cycle, through an arc of roughly 180° from its position when the main gear was fully extended. The stowed position of the oleo strut ended up orienting it afterwards within the rear of the engine nacelle, and placing the wheels' axle location just ahead of and above the oleo strut's pivot point when fully retracted. Such a complex main gear design, with only [the single pivoting retraction point](#) for its oleo struts taking the primary stress of touchdown, was likely only one of the many potential sources of trouble causing the Ju 288's main gear units to repeatedly collapse on touchdown.

Operational history

Although the 288 never even reached production status, let alone official operational service, the aircraft did see limited combat duty. In 1944, following the cancellation of the 288 program, the surviving A and C series prototypes were hurriedly fitted with defensive armament and equipment and deployed as reconnaissance bombers on the Western Front. Very few missions were flown, owing to the scarcity of aviation fuel, spare parts and the unresolved problems with the aircraft's powerplant and undercarriage. It is believed that the 288s were attached to the same unit operating the small number of [Ju 388](#) reconnaissance planes that saw service.

Variants

- **Ju 288A** – first seven prototypes with BMW engines
- **Ju 288B** – seven prototypes with slightly enlarged [airframes](#) and better defensive armament
- **Ju 288C** – final eight prototypes (of which only four were completed) with two Daimler-Benz DB 606 or 610 "power system" engines. This version was selected for serial production in 1944, but the program was abandoned before this could take place.
- **Ju 288D** – mock-up of a Ju-288C with improved tail armament
- **Ju 288G** – design for an anti-ship version armed with a [355.6 mm \(14 in\) recoilless cannon](#)

Specifications (Ju 288C-1)

- **Crew:** 4 (C-2 5)
- **Length:** 18.15 m (59 ft 7 in)
- **Wingspan:** 22.657 m (74 ft 4 in)
- **Height:** 5 m (16 ft 5 in)
- **Wing area:** 64.7 m² (696 sq ft)
- **Empty weight:** 13,400 kg (29,542 lb)
- **Gross weight:** 21,390 kg (47,157 lb)
- **Fuel capacity:** 5,360 L (1,420 US gal; 1,180 imp gal) maximum internal fuel (4,915 kg (10,836 lb))
- **Powerplant:** 2 × [Daimler-Benz DB 610](#) 24-cylinder coupled V-12 liquid-cooled piston engines, 2,200 kW (2,950 hp) each
- **Propellers:** 4-bladed constant-speed propellers

Performance

- **Maximum speed:** 655 km/h (407 mph, 354 kn) at 6,800 m (22,300 ft) (estimated)
- **Cruise speed:** 518 km/h (322 mph, 280 kn) (estimated)
- **Landing speed:** 150 km/h (93 mph; 81 kn) (estimated)
- **Range:** 2,600 km (1,600 mi, 1,400 nmi) (estimated)
- **Service ceiling:** 10,400 m (34,100 ft) (estimated)
- **Rate of climb:** 8.167 m/s (1,607.7 ft/min) (estimated)

Armament

- **Guns:**
 - 4 × 13 mm (0.51 in) [MG 131 machine guns](#)
 - 1 × 15 mm (0.59 in) [MG 151 cannon](#) or 20 mm (0.79 in) [MG 151/20 cannon](#)
- **Bombs:** 3,000 kg (6,600 lb) bomb load



source : https://en.wikipedia.org/wiki/Junkers_Ju_288