

# Aircraft Knowledge

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# German aircraft registration

For reasons of traffic safety and for identification purposes, German aircraft are subject to compulsory registration:

- Compulsory admission (Zulassungszwang)
- Compulsory registration (Eintragungszwang)
- Compulsory marking (Kennzeichnungszwang)

German aircraft must be marked with:

- the federal flag
- the letter "D" and
- four additional letters (registration marking) e.g. "D-ABIY"

The registration mark is unique and unambiguous for each registered aircraft and must be clearly visible, on aircraft registered in Germany it might, for example, be displayed on the side of the fuselage or vertical tail and on the underside of the left wing.

The registration marking is preceded by the country code of the place of registration (e.g. D for Germany, OE for Austria, HB for Switzerland). This is followed by a combination of letters and numbers, both parts of the registration marking can be separated by a hyphen.

In Germany, 4 numbers are only used for gliders, all other aircraft are assigned a combination of letters, with the first letter corresponding to the type or category of aircraft (number of engines, maximum take-off weight) and providing information about it.

Below is an overview of the most common types.

Registration mark	Type	Category
D - <b>A</b> xxx	Aircraft	MTOM more than 20,000 kg
D - <b>B</b> xxx	Aircraft	MTOM between 14,000 kg and 20,000 kg
D - <b>C</b> xxx	Aircraft	MTOM between 5,700 kg and 14,000 kg
D - <b>E</b> xxx	Aircraft	Single-engine, MTOM 2.000 kg or less
D - <b>F</b> xxx	Aircraft	Single-engine, MTOM between 2,000 kg and 5,700 kg
D - <b>G</b> xxx	Aircraft	Multi-engine, MTOM less than 2,000 kg

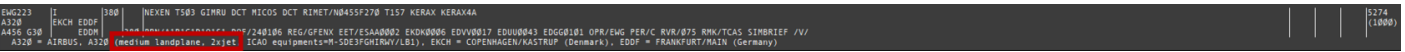
D - <b>H</b> xxx	Rotorcraft	Helicopter
D - <b>I</b> xxx	Aircraft	Multi-engine, MTOM between 2.000 kg and 5.700 kg
D - <b>K</b> xxx	Motor glider	
D - <b>L</b> xxx	Airships	
D - <b>M</b> xxx	Air sports equipment	Ultralight
D - <b>O</b> xxx	Manned balloons	
D - <b>1234</b>	Gliders	

On **VATSIM**, a realistic registration marking should be used as a **callsign** if possible, as this provides other traffic participants with information about the type of aircraft. For example, the callsign for a Cessna 172 registered in Germany would be DEABC, for a Beechcraft Baron DIABC (the hyphen is omitted when logging on to Vatsim).

# ICAO Type Description

In addition to the familiar ICAO Type Designator such as A320, B738, C172, ICAO Document 8643 - Aircraft Type Designators also contains the ICAO Type Description. This is a code that describes the characteristics of an aircraft, such as L2J, H1T, S1P.

Euroscope already displays this description in the flight strip.



But how exactly is the code actually composed?

The ICAO type description consists of three characters. These are explained in the following table.

1. Character Aircraft category		2. Character Number of engines	3. Character Type of engine	
L	Landplane	1, 2, 3, 4, 6, 8 - Number of engines  C - if the engines are coupled and powered through a propeller system	P	Piston engine
S	Seaplane			
A	Amphibian		T	Turboprop engine
H	Helicopter			
G	Gyrocopter		J	Jet engine
T	Tilt-wing aircraft			

## Examples

Aircraft Type Designator	Aircraft Type Description	Description
B748	L4J	Landplane with 4 jet engines
A320	L2J	Landplane with 2 jet engines
DH8D	L2T	Landplane with 2 turboprop engines
EC35	H2T	Helicopter with 2 turboprop engines
C172	L1P	Landplane with 1 piston engine

# ICAO Aerodrome Reference Code

## Definition

The ICAO Aerodrome Reference Code is a two part categorisation of aircraft types which simplifies the process of establishing whether a particular aircraft is able to use a particular aerodrome. It is included in ICAO Annex 14. It has two 'elements', the first is a numeric code based on the Reference Field Length for which there are four categories and the second is letter code based on a combination of aircraft wingspan and outer main gear wheel span.

## Element 1 - Reference field length

Code number	Aeroplane reference field length	Typical aircraft types
1	< 800 m	<u>DE HAVILLAND CANADA DHC-6/PIPER PA-31</u>
2	800 m, but < 1200 m	<u>ATR ATR-42-300/320/BOMBARDIER Dash 8 Q300</u>
3	1200 m, but < 1800 m	<u>SAAB 340/BOMBARDIER Regional Jet CRJ-200</u>
4	1800 m and above	<u>BOEING 737-700/AIRBUS A-320</u>

Field length means the **balanced field length** (which is when the take-off distance required is equal to the accelerate-stop distance required) if applicable, or take-off distance in other cases. Aeroplane reference field length is defined as "the minimum field length required for take-off at maximum certificated take-off mass, at sea level, in International Standard Atmosphere conditions in still air and with zero runway slope as documented in the Aircraft Flight Manual (AFM) or equivalent document.

## Element 2 - Aircraft wingspan / Outer main gear wheel span

Element 2 of the Code is derived from the most restrictive of either the aircraft wingspan or the aircraft outer main gear wheel span. The categories are as follows:

Letter code	Wing span	Typical aircraft
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A	< 15 m	<u>PIPER PA-31/CESSNA 404 Titan</u>
B	15 m, but < 24 m	<u>BOMBARDIER Regional Jet CRJ-200/DE</u> <u>HAVILLAND CANADA DHC-6</u>
C	24 m, but < 36 m	<u>BOEING 737-700/AIRBUS A-320/</u> <u>EMBRAER ERJ 190-100</u>
D	36 m, but < 52 m	<u>B767 Series/AIRBUS A-310</u>
E	52 m, but < 65 m	<u>B777 Series/B787 Series/A330 Family</u>
F	65 m, but < 80 m	<u>BOEING 747-8/AIRBUS A-380-800</u>

It should be noted that Element 2 is often used on its own since it has direct relevance to detailed airport design.

Source: [www.skybrary.aero](http://www.skybrary.aero)

# Wake Turbulence Category

## Description

The ICAO wake turbulence category (WTC) is entered in the appropriate single character wake turbulence category indicator in Item 9 of the ICAO model flight plan form and is based on the maximum certificated take-off mass, as follows:

- **J** (Super) aircraft types specified as such in Doc 8643 (Aircraft type designators). At present, the only such type is the Airbus A380-800 with a maximum take-off mass in the order of 560 000 kg. (see Airbus A380 Wake Vortex Guidance)
- **H** (Heavy) aircraft types of 136 000 kg or more (except those specified as **J**);
- **M** (Medium) aircraft types less than 136 000 kg and more than 7 000 kg; and
- **L** (Light) aircraft types of 7 000 kg or less.

A special case is the **B757** (MTOM: 116 000 kg - 124 000 kg) which shall be treated as an **H** (Heavy) aircraft in Germany, unless requested by the pilot.

Based on the article ICAO Wake Turbulence Category, source: [www.skybrary.aero](http://www.skybrary.aero)