

WAKE TURBULENCE GUIDE

Minimum distance separation – Airborne / Arrival

To be used when an aircraft is following or crossing at the same level or separated less than 1000ft behind an aircraft in a higher wake category:

Preceding aircraft	Followed by	Minimum Separation
Heavy (H)	Heavy (H)	4 NM
Heavy (H)	Medium (M)	5 NM
Heavy (H)	Light (L)	6 NM
Medium (M)	Light (L)	5 NM

Minimum time separation – Departure

- To be used for any aircraft taking off as number two to an aircraft in a higher wake category
- An aircraft performing a touch and go shall always be considered as performing an intermediate take off, i.e. with a shorter runway distance remaining than the preceding aircraft.

When using minutes, it is not permitted to round to the nearest minute, **the full 60 seconds per minute must be used**. The timing shall be between rotations. If you do not use tower view, a positive climb displayed on radar indicates rotation, start the stopwatch here. If Mode C is not on, start the stopwatch when the aircraft passes the departure end of the runway.

Time separation required when aircraft takes off from the same intersection:

Preceding departing aircraft	Followed by	Minimum Separation
Heavy (H)	Medium (M)	2 minutes (120 seconds)
Heavy (H)	Light (L)	2 minutes (120 seconds)
Medium (M)	Light (L)	2 minutes (120 seconds)

Time separation required when number two takes off at an earlier intersection, i.e. with a shorter runway distance remaining:

Preceding departing aircraft:	Followed by:	Minimum separation
Heavy (H)	Medium (M)	3 minutes (180 seconds)
Heavy (H)	Light (L)	3 minutes (180 seconds)
Medium (M)	Light (L)	3 minutes (180 seconds)

“Take off” may be instructed before the full time is achieved if you are confident rotation will occur after the required separation time has passed. Here are some take off run timings to aid judgement:

- Heavy aircraft (unless short flight is planned): 60 seconds
- 737, A320, and similar: 40 seconds
- Regional jets, turboprops, large business jets: 30 seconds
- Light GA aircraft, small business jets: 20 seconds.

CAUTION: THESE ARE ESTIAMTES, USE YOUR BEST JUDGEMENT AND ALWAYS ADD MARGINS IF UNSURE!

Airbus A380

Due to its size, the A380 requires additional wake turbulence separation and fits into its own wake category “J”, spoken on frequency as “Super”.

Airborne distance required:

Preceding aircraft:	Followed by:	Minimum Separation
A380 (J)	Heavy (H)	6 NM
A380 (J)	Medium (M)	7 NM
A380 (J)	Light (L)	8 NM

Time separation required when aircraft takes off from the same intersection:

Preceding departing aircraft:	Followed by:	Minimum Separation
A380 (J)	Heavy (H)	2 minutes (120 seconds)
A380 (J)	Light (L) or Medium (M)	3 minutes (180 seconds)

Time separation required when number two takes off at an earlier intersection, i.e. with a shorter runway distance remaining:

Preceding departing aircraft:	Followed by:	Minimum Separation
A380 (J)	Heavy (H)	3 minutes (180 seconds)
A380 (J)	Light (L) or Medium (M)	4 minutes (240 seconds)

Crossed runways and displaced thresholds:

When operating on airports with crossed runways or displaced thresholds, **and you expect the airborne flightpaths to cross**, whether the aircraft are landing or departing or is a mix of the two, time-based wake turbulence separation is required.

2 minutes (120 seconds) is required if a Heavy (H) is followed by a Light (L) or Medium (M), or a Medium (M) is followed by a Light (L).

Two example airports are ENZV with crossing runways, and ENBR with displaced landing thresholds:

ENZV: If a 737 departs RW36 and a light aircraft departs RW11 as number two, you can normally safely expect the paths **not** to cross. However, a 737 departing RW18 with a light aircraft departing RW11 could easily result in a situation where the flight paths are likely to cross, and thus two minutes is required.

ENBR: Both runway ends have displaced landing thresholds, placing the touchdown zone several hundred meters down the runway from both full-length intersections. If a light aircraft is departing full length after a medium or heavy aircraft has landed on the same runway, there is a risk the flight paths will cross, and two minutes separation is required.

Always know the runway layout of any airport you control, temporary or permanent changes can add or remove displaced thresholds in a way such that wake turbulence separation is required.