

Radar Vectors

'Radar vectors' just means that an aircraft is guided by the air traffic controller through specific headings. In contrast to a standard IFR procedure (STAR, SID, Standard Approach), a so-called Minimum Vectoring Altitude (MVA) must be adhered to. This is specified for certain precisely defined areas and guarantees an obstacle clearance of at least 500 ft and sufficient radar and radio coverage. The MVA areas can be displayed in Euroscope. Values in brackets apply to the winter months.

Radar vectors can be given as heading (e.g. heading 210) or as relative turn instruction (e.g. right/left by 10 degrees). The latter should only be used if there is not enough time to request a heading. Otherwise, always work with headings.

If a radar vector is not self-explanatory (e.g. for final approach), the reason should always be given (for separation, for spacing, etc.).

Particular care must be taken when an aircraft is in a turn. In this case, requests such as: "Turn left/right by..." are completely pointless, as the aircraft in the turn can not know which heading this instruction refers to! If it is important that the aircraft turns immediately to a specific heading, the following phrase is a good idea:

“ DLH123 stop turn heading 180

Radar vectors for an ILS approach or localizer should be given with a heading within 30° to the final approach course. Example: Runway direction 26 - Heading for intercept 230° or 290°.

A clearance for an approach does not cancel a previously assigned speed! A new speed assignment must be explicitly communicated to the pilot.

“ DLH123 resume normal speed, turn right heading 220, cleared ILS 26R.
DLH123 turn right heading 230, cleared ILS 26R, maintain 220 kts to 10NM final thereafter 170 kts until 5 miles final.

The end of a STAR is the IAF, which also includes a holding pattern. This IAF automatically is the clearance limit for the approach unless the clearance limit is specified earlier in the charts.

If the pilot receives no further instructions on what to do before reaching the clearance limit, he must enter the holding pattern. It is therefore a good idea to instruct the pilot on what to do after the last waypoint as soon as the initial contact is made. The clearance to a transition waypoint (e.g. DM427) includes the clearance to continue flying the transition.

“ DLH123, identified, leave ROKIL on Heading 120, expect ILS 26R.

This prevents the pilots from calling when the frequency load is high and demonstrates good proactive planning!

If you want to turn a departure away from a SID, you must note that for noise protection reasons this is only permitted in Germany above 5000 ft AGL for jets and 3000 ft AGL for props. Below MVA it is totally prohibited.

Tip: A quick note on intercept headings: If strong northerly or southerly winds are known to be present, it is sometimes worth adjusting the course accordingly, i.e. shifting it by 5° or even 10°. Otherwise the pilot flying into the wind may not reach the landing course before the glide path. It makes sense to ask two or three pilots for a wind check at the beginning. Pilots seem to be flying less and less with extremely different winds in recent years (at least it feels like it). It's the exception rather than the rule and requires a little sensitivity in case someone has the wind from somewhere completely different.

Further links

- **Skybrary:** [Basic Controller Techniques - Vectoring](#)
- **Skybrary:** [Vectoring Geometry](#)
- **Skybrary:** [Conflict Solving](#)
- **Skybrary:** [Basic Controller Techniques - Vertical Speed](#)

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