

EDDM - München

Airport

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Overview

A **Tier 1 Endorsement** must be held to staff any position at München Airport or to staff any position covering München Airport top-down.

München ATC Stations

| Station | Station ID | Login | Frequency |
|-----------------------|------------|-------------|-----------|
| ATIS | MX | EDDM_ATIS | 123.130 |
| Delivery | ML | EDDM_DEL | 121.730 |
| Apron 1 | MP | EDDM_1_GND | 121.780 |
| Apron 2 | MP2 | EDDM_2_GND | 121.710 |
| Apron 3 | MP3 | EDDM_3_GND | 121.930 |
| De-Icing Coordinator | MDIC | EDDM_I_GND | 121.990 |
| Tower / Ground | | | |
| Ground North | MGN | EDDM_N_GND | 121.980 |
| Ground South | MGS | EDDM_S_GND | 121.830 |
| Tower North | MTN | EDDM_N_TWR | 118.705 |
| Tower South | MTS | EDDM_S_TWR | 120.505 |
| Arrival | | | |
| Low North | DMNL | EDDM_NL_APP | 123.905 |
| High North | DMNH | EDDM_NH_APP | 128.030 |
| Low South | DMSL | EDDM_SL_APP | 127.955 |

| | | | |
|--------------------|------|-------------|---------|
| High South | DMSH | EDDM_SH_APP | 120.780 |
| Feeder Noth | DMND | EDDM_ND_APP | 118.830 |
| Feeder South | DMSD | EDDM_SD_APP | 132.305 |

Quicksheet

Quicksheet LVO

Delivery

Responsibilities

München Delivery is responsible for issuing enroute and startup clearances for departing IFR traffic in Munich. In addition, Delivery receives the first call of departing VFR flights.

The startup and enroute clearance can be given together in one radio message. Afterwards, Delivery hands over the pilots to the next responsible station (depending on the manned stations, usually Apron 1/2/3).

If startup clearance can not be issued together with enroute clearance, the pilot shall standby on Delivery frequency for startup. Afterwards, pilots shall be handed over to the next station, too. If possible, the pilot shall be informed about an expected time for startup if the expected delay exceeds 10 minutes.

München Delivery is additionally issuing startup clearances for VFR departures. The VFR flight makes his initial call on Delivery frequency, receives startup clearance and will be handed over to the next responsible station.

SID Assignment

The table below offers an overview of the SID assignment rules..

Departures on the preferred SID are released, clearance can be issued without further coordination. Should traffic be cleared on a non-preferred SID, Delivery shall get approval from Tower prior issuing enroute clearance.

Restrictions exist on all SIDs, thus the phrase "Climb via SID to (level)" shall be used.

Should a pilot report unable to fly a SID, Delivery shall initiate coordination with Tower and Approach (Low sector) about an alternating departure procedure (e.g. vectored departure). Usually the instruction for a vectored departure will be "Fly runway track, climb to Flight Level 70".

Traffic parking on aprons 6-9, especially cargo, should be cleared onto SIDs off the southern runway (RWY 08R/26L) to minimize taxi times.

All departures: **Contact Muenchen Radar when advised by Tower!**

| Route | RWY 08L | RWY 08R | RWY 26L | RWY 26R | Max. init. Climb | Remarks |
|------------------------|------------------------|-----------|---------|---------|---------------------|--------------------------------|
| AKINI | 1Q | 1E | 1S | 1N | FL 70 | |
| ALG "Allgäu" | 2Q# | 2E# | 2S | 2N | | |
| ANKER | 9Q | 9E | 7S | 9N | | |
| BIBAG | 2Q | 2E | 3S / 3W | 4N | | |
| EVIVA | 4Q | 4E | 4S | 5N | | |
| GIVMI | 6Q | 6E | 6S | 1N | | |
| INPUD | 3Q | 3E | 2S | 2N | | |
| KIRDI | 2Q | 2E | 3S / 3W | 4N | | |
| MERSI | 4Q# / 2T* | 4E# / 2P* | 5S | 6N | | |
| MIQ "Mike" | 9Q | 8E | 8S | 9N | | by ATC for non-RNAV only |
| OBAXA (Non-Jet) | 2T* | 2P* | 6S* | 6N* | | |
| OLASO | 2Q | 2E | 2S | 2N | | |
| RIDAR | 7Q | 7E | 6S | 6N | | |
| ROTAX | 4Q | 4E | 3S / 3W | 4N | | |
| TULSI (Jet) | 2Q | 3E | 7S / 4W | 4N | | by ATC only |
| TURBU (Jet) | 7Q | 6E | 7S / 7W | 7N | | |
| VAVOR (Jet) | 3Q | 3E | 3S / 3W | 4N | | |
| | preferred runway / SID | | | | | |

W-SIDs= Noise-Protection-SIDs: for A/Cs of WTC H and J between 2200-0600 lcl

= Jet only

** = Non-Jet only*

TULSI-Departure

Pilots flying from EDDM to LOWI shall file this route: "TURBU Y107 RTT". If a route via TULSI has been filed, it can be cleared nevertheless after obtaining approval from Approach.

A TULSI departure to any other destination than LOWI should be recleared onto another SID (possible reclearance solutions are included in the Quicksheet), however can be cleared nevertheless after obtaining approval from Approach.

Noise Abatement Procedures

Aircraft of Wake Turbulence Category "H" and "J" departing off runway 26L and flying a SID via OTT shall be cleared onto SIDs with designator "W" between 22h and 06h local time.

Departures of aircraft category B747 shall be cleared of runway 08L/26R between 22h and 06h local time. During single (use of) runway operations the active departure runway can be used nevertheless.

Special Procedures

IFR Visual Departures off runway 08R

During active runway 08R, single and two-engine propelled aircraft as well as type DHC7, who fly a SID via VOR OTT (OBAXA#P, MERSI#P), can be offered a visual departure off runway 08R.

Following criteria shall be met:

- the pilots accepts or requests the procedure,
- ceiling not below 3400 ft (summer) resp. 3700 ft (winter),
- only during the day,
- initial climb restricted to 5000 ft,
- take-off run commences from full length (intersections B1-B3).

Phraseology example:

"[...] after departure turn right direct OTT, climb to *altitude* 5000 feet, maintain own visual reference to terrain until passing 3400/3700 feet"

Apron

Areas of Responsibility Apron

The Munich Apron can be divided into three areas of responsibility:

| Sector | Login | Station ID | Frequency | AoR |
|----------------|------------|------------|-----------|---|
| Apron 1 | EDDM_1_GND | MP | 121.780 | Apron 1, 6-8 (GAT), 9 (Cargo) and Maintenance |
| Apron 2 | EDDM_2_GND | MP2 | 121.710 | Apron 2 and 12 |
| Apron 3 | EDDM_3_GND | MP3 | 121.930 | Apron 3, 5, 35 and 13 (GAT) |

If more than one Apron is staffed, Delivery must also be staffed. If only one Apron is staffed, it covers all other Apron stations. If Aprons 1 and 2 are staffed, Apron 2 covers Apron 3.

Handovers Apron - Ground

Depending on the runways in use, Apron only gives taxi clearance up to the respective entry and then transfers the traffic to the next station shortly before the aircraft reaches it.

| FROM | TO | ENTRY |
|------|-----|--------|
| MP | MGN | N1, N2 |
| MP | MGS | S1-S6 |
| MP2 | MGN | N3, N4 |
| MP2 | MGS | S7, S8 |
| MP2 | MP3 | N5, S9 |
| MP3 | MP2 | N5, S9 |

Orange/Yellow/Blue lines

Taxiways W1, C3, E1, D3, D6 and E3 not only have the standard "yellow line", but also colored lines, "orange line" and "blue line" (see charts). These colored lines have limitations regarding the wingspan of the aircraft and should always be used for pushback or taxiing if the aircraft meets the limitations and the pilot is able to do so. Especially with the use of these colored lines, traffic can

be handled as efficiently as possible.

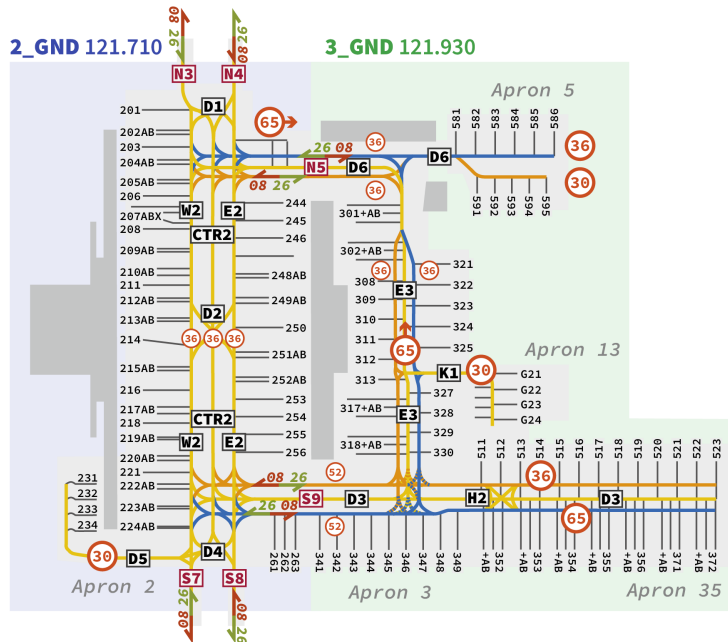
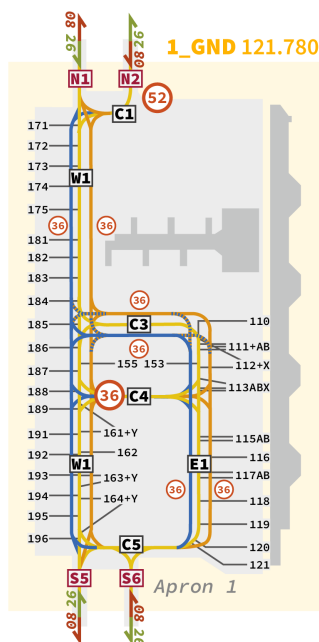
Taxiway restrictions

- **W1, E1, C3, D6, E3 orange/blue** can be used **simultaneously** by aircraft with **max. 36 m** wingspan (B739/A321).
- **C4** can be used by aircraft with **max. 36 m** wingspan
- **D3 orange/blue** can be used **simultaneously** by aircraft with **max. 52m** wingspan (MD11)
- **K1** can be used by aircraft with **max. 30.5 m** wingspan
- **D6, E3, D3 orange, D3 blue** can be used (individually) by aircraft with **max. 65 m** wingspan
- **D6** on Apron 5 can be used by aircraft with **max. 30 m** wingspan (DH8D)
- **E3** between parking positions 313 and D3 can be used by aircraft with max. 80 m wingspan, between positions 313 and D6 E3 can be used by aircraft with max. 65 m wingspan
- **W2, CTR2 and E2** can be used simultaneously by aircraft with max. 36m wingspan, W2 and E2 can be used simultaneously without limitations
- **D3** is not to be used for "swingover" between W2 and E2 (D1, D2 and D4 are intended for this purpose)
- **Entry N2** can only be used by aircraft with **max. 52m** wingspan

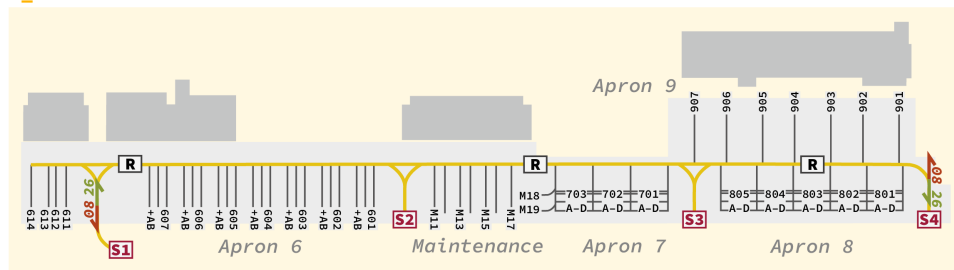
This chart provides an overview:

EDDM Apron Reference

N_GND 121.980
S_GND 121.830
N_TWR 118.705
S_TWR 120.505
DEL 121.730
ATIS 123.130



1_GND 121.780



- LEGEND**
- D3** Taxiway designator
 - S8** Apron entry designator
 - 36** Wing span limit
 - 36 36** Wing span limit when used **independently**
 - 08 26** Traffic flow direction depending on RWY config

Taxi Restrictions Apron München

Common aircraft types and their maximum wingspan can be found in this list:

| Max Wingspan | A/C Types |
|--------------|--|
| 30 m | AT72 / CRJX / DH8D / RJ1H / etc. |
| 36 m | B739 / A321 / BCS3 / E195 / etc. |
| 52 m | B753 / B763 / A306 / etc. |
| 65 m | A333 / A346 / A35K / B744 / B77W / B78X / etc. |
| 80 m | A124 / A388 / B748 / etc. |
| >80 m | A225 |

Usage of the entries

The different entries are used differently depending on the runways in use.

08-Operations:

- **Departures** leave the apron via entries N1, N3, S1-S3, S5 and S7
- **Arrivals** enter the apron via entries N2, N4, S4, S6 and S8

26-Operations:

- **Departures** leave the apron via entries N2, N4, S4, S6 and S8
- **Arrivals** enter the apron via entries N1, N3, S1-S3, S5 and S7

Taxi clearances deviating from the above-mentioned standard procedures are possible after coordination with the station responsible for the ground sector concerned.

Gate assignment

Gates are usually assigned automatically. Lufthansa and Star Alliance Airlines park on Aprons 2 and 3, other airlines on Apron 1. The general aviation parking area (GAT) is located to the east of Apron 3 on Apron 13. Business aviation can also use aprons 6 to 8, and if a pilot's scenery does not have anything else, resort to Apron 5.

Special procedures

The following special procedures are generally not to be used for low visibility operations. If visibility is 200 meters or more on the apron, taxiing into parking positions from CTR2 is permitted, but not below.

Swingover

A "swingover" refers to the **immediate** change of taxiways. This "swingover" can also take place without following the taxi lanes.

“DLH123, swing over on E2, taxi to Entry S8 via E2.

180-Turn

For example, an aircraft taxiing south on W2 can make a 180° turn to the left onto E2 and then taxi north on E2. This can also be applied to the opposite compass directions and can be done on taxi lines W2, CTR2 and E2. If the wingspan is less than or equal to 36 metres, this procedure can also be applied to blue and orange lines.

Ground

Area of Responsibility Ground

Ground can be divided into two sectors:

| Sector | Login | Station ID | Frequency | Area of Responsibility |
|--------------|------------|------------|-----------|---|
| North Ground | EDDM_N_GND | MGN | 121.980 | Taxiways N and M, all intersections of runway 08L/26R |
| South Ground | EDDM_S_GND | MGS | 121.830 | Taxiways S and T, all intersections of runway 08R/26L |

If only one ground station is staffed, it covers the AoR of the other ground station as well.

Ground and Apron, resp. two Ground may only be staffed if Delivery is staffed, too.

Ground is usually only staffed after Tower, Apron and Delivery are already staffed.

Handover

Ground issues a taxi clearance to an entry or a holdingpoint and hands the aircraft over to the next responsible station at the clearance limit.

| FROM | TO | ENTRY / HOLDINGPOINT |
|------|-----|----------------------|
| MGN | MP | N1, N2 |
| MGN | MP2 | N3, N4 |
| MGN | MTN | A1-A15 |
| MGS | MP | S1-S6 |
| MGS | MP2 | S7, S8 |
| MGS | MTS | B1-B15 |

The handover from Ground to Tower can be instructed as "Contact" or "Standby for". It should be coordinated at the beginning of a session how Tower wants to receive handovers from ground.

“Contact München Tower *on* (frequency)
Standby for München Tower *on* (frequency)

Departing traffic

Ground receives departing traffic from Apron depending to operation direction at the respective entries. Ground then issues a taxi clearance to a suitable holding point of the departure runway. Ground shall create an efficient departure sequence by assigning a suitable runway intersection, taking SID, WTC and other factors into account. The handover from Ground to Tower should be made as soon as possible.

Arriving traffic

Incoming traffic should actually call Ground on its own after leaving the runway. Unfortunately, this rarely works on VATSIM, so incoming traffic is usually handed over by Tower. The traffic receives taxi clearance from Ground to one of the entries as a transfer point. The choice of the entry depends on the planned parking position (Terminal 1 or 2) and the operating direction. Shortly before reaching the entry, the traffic is transferred to the responsible Apron controller.

Ground movement control

Taxi

In order to optimize the flow of traffic, the following taxi routing is recommended:

- N/S opposite to runway direction
- M/T in runway direction

Holding Points

The efficient sequencing of traffic at the holding points allows the tower to make optimum use of the available capacity at all times. To achieve this, Ground must route the traffic to the holding points correctly sorted in advance.

Sorting by SID

Departures should be processed in such a way that different SIDs depart one after the other, so that a closer spacing can be used (3NM on different SID vs 5NM on same SID).

The three holding points at the beginning of the departure runway should each be used for a different SID, allowing Tower to create an efficient mix of different SIDs.

The goal is to avoid having traffic at the front of all holding points that will fly the same SID.

The most used SIDs in the northern RWY-System often are GIVMI and INPUD, the most used SIDs in the southern RWY-System often are MERSE, KIRDI and TURBU.

Intersection Departures

Pilots have to prepare the following intersections for departure, depending on the aircraft category:

| Aircraft Category | 08L | TORA | 08R | TORA | 26R | TORA | 26L | TORA |
|-------------------|-------|--------|-------|--------|---------|--------|---------|--------|
| Heavy+ | A1/A2 | 4000 m | B1/B2 | 4000 m | A14/A15 | 4000 m | B14/B15 | 4000 m |
| Medium Jet | A3 | 3800 m | B3 | 3800 m | A13 | 3800 m | B13 | 3800 m |
| Light Jet | A4 | 2820 m | B4 | 2840 m | A12 | 2780 m | B12 | 2820 m |
| Turboprop | A6 | 2200 m | B6 | 2220 m | A10 | 2260 m | B10 | 2200 m |

These intersections can be assigned to pilots without prior consent. If an intersection departure is not possible for any reason, the pilot must actively report "unable".

Tower

Tower Positions

These two Tower Positions exist at München:

| Sector | Login | Station ID | Frequency | Area of Responsibility |
|-------------|------------|------------|-----------|------------------------|
| North Tower | EDDM_N_TWR | MTN | 118.705 | Runway 26R/08L |
| South Tower | EDDM_S_TWR | MTS | 120.505 | Runway 26L/08R |

With both Tower Positions staffed, the controlzone is split abeam the (physical) tower parallel to the runways. North Tower is responsible for the northern part of the CTR, South Tower for the southern part.

If only one tower is staffed, he also takes over the tasks of the other tower. If no Ground is staffed, Tower also takes over the neighbouring Ground AoR (North Tower the North Ground, South Tower the South Ground).

Handover

| FROM | TO | AT | RMK |
|-----------|-----------|---|-------------|
| MGN | MTN | Holdingpoints A1-A15 | |
| MGS | MTS | Holdingpoints B1-B15 | |
| DMND | MTN | Final 08L/26R | |
| DMSD | MTS | Final 08R/26L | |
| MTN / MTS | MTS / MTN | between the runways (or as coordinated individually) | VFR traffic |

Departing Traffic

Tower receives departing traffic at the runway holding points already pre-sorted by the ground. This can be done either with the instruction "*Contact München Tower *on* (frequency)*" or "*Standby for München Tower *on* (frequency)*". The type of handover must be coordinated with Ground in advance.

The tower transfers departing traffic to EDDM_NL_APP for SIDs departing northbound and to EDDM_SL_APP for SIDs departing southbound. The frequencies 123.905 and 127.955 are to be used here. The handover should always take place as early as possible, but only if separation to other traffic is ensured.

There is an exception for parallel departures (lateral distance less than 3 NM), where the handover only takes place as soon as one of the departures turns away from the runway centerline.

Arriving Traffic

Tower receives arriving traffic on final approach from Arrival, transfer of communication should not be made before passing the respective Final Approach Fix/Point.

Arriving traffic is instructed to contact Ground on their own initiative after leaving the runway. As this rarely works on Vatsim, it is usually necessary for inbounds to receive a handoff to ground from the tower as soon as they have left the runway correctly (behind the holding point line).

Arriving traffic which is vacating via the High Speed Turnoff directly connected to the Entry used for inbounds (e.g. A9 during RWY26R), should be coordinated between Tower and Ground so that traffic may remain on Tower frequency and receives taxi clearance by Tower.

VFR Traffic

In München, there are two VFR routes for entering and leaving the control zone, the HOTEL (south) and FOXTROTT (north) routes. There is also a published holding procedure to the north and south of the aerodrome. If required, entry and exit via the Isar (south/east) or the A92 highway (east/west) is recommended to be used, as well.

Depending on the approach route, incoming VFR traffic shall call either the North or South Tower. Traffic calling on the "wrong" frequency shall be identified (e.g. by setting an appropriate squawk), receive RWY in use and QNH before giving handover to the "correct" frequency or giving further clearance after coordination.

VFR crossings should be handed over to the other Tower at the AoR border. After coordination, one Tower can also keep the crossing VFR traffic on his frequency. To transfer VFR traffic between the runways to the other Tower or to delay it until there is a gap, it is advisable to circle around the tower.

The aerodrome circuit of Oberschleissheim (EDNX) leads through the München control zone. Traffic in the aerodrome circuit shall be in radio contact with Schleissheim Radio and does not have to report to the tower or monitor its frequency. Furthermore, the München control zone must be VMC.

SSR Codes

The following non-discrete transponder (group) codes can be issued by München Tower for VFR traffic. If required, a discrete transponder code can be assigned:

| Mode A-Code | Verwendung | Darstellung |
|-------------|------------------------------|-------------|
| 6305 | VFR traffic within CTR EDDM | T |
| 7000 | Groupcode VFR | V |
| 7001 | VFR outbounds | VOUT |
| 7002 | VFR inbounds | VIN |
| 7003-7026 | if required (discrete codes) | TWR |

Helicopter Traffic

Helicopters are to be treated as normal VFR traffic. Three helipads are located to the west of Apron 6 and two further helipads are located on Apron 12 to the north of D6 if required. Larger rotorcraft can also be parked on Apron 6 next to the helipads. Direct landing on the helipads is not permitted. Helicopters stationed at the airport however, such as those of the Bavarian State Police (ICAO CODE: EDW), can take off and land on the helipad in both directions. All other helicopters take off and land on the runways.

Operating Direction and use of the Runways

Choice of operating direction

- Tower is responsible for determining the operating direction
- Operating direction 26 is preferred and should be used in case of doubt

Use of Runways

The two runways 08/26 in Munich can be used independently of each other. Nevertheless, in case of various conditions such as traffic volume, weather, etc., sometimes only one runway can be used for take-off and landing or one runway for take-off and the other for landing (see below).

If departures always use the preferred runway (and SID), take-off clearances can be issued on both runways simultaneously and independently of each other. Particular attention should be paid to departures of cargo aircraft from the southern runway flying northwards (INPUD, GIVMI, etc.).

These are no longer independent of departures on the northern runway, meaning that no departures may take place there at this time until separation is ensured.

Approaches are also independent of each other and ILS approaches can even take place in parallel. If the controller [during a parallel approach using the ILS] detects course deviations in one of the approaching aircraft that reduce the lateral separation, not only the deviating aircraft is requested to perform an avoidance manoeuvre, but also the aircraft on the parallel approach, even if it is on the correct final approach.

Examples for Runway Configurations

- **Independent OPS:** Both runways can be used for take-offs and landings. ILS approaches and departures on **preferred** SIDs are independent of each other.
- **Single Use of Runway OPS:** One runway is only used for take-offs, the other only for landings. The preferred runway is 08L/26L for take-offs and 08R/26R for landings. This runway configuration is recommended for Low Visibility Procedures (LVP). Take-offs and landings are also independent here, as the published G/A procedures are separate from all departures.
- **Single Runway OPS:** In winter conditions and when the runway(s) must be treated and therefore being closed accordingly, this runway configuration is used, in which only one runway is used for take-offs and landings; the south runway (08R/26L) is preferred.

Change of Operating Direction

- TWR decides on a change of operating direction in coordination with Arrival and arranges a specific time for this
- ALL other stations are informed of the change of direction. The traffic on the ground and in the air will be resequenced and recleared accordingly
- Tower reports the last departure of the old operating direction for each runway to all Approach controllers and Director
- The Arrival controllers report the last planned approach to Tower in the old operating direction for each runway
- Director informs the responsible Tower about the first arrival in the new operating direction during the base turn of the flight
- No intersection departures are permitted during the changeover until the last aircraft has left the runway

Arrivals

Separation on Final

- Generally, the responsibility for separation of flights subject to separation in CTR München (Airspace D) lies with Tower.

- The responsibility for separation of IFR-Arrivals on Final (not Visual Approach) lies with Director.
After Transfer of Communication, München Tower shall monitor separation and (if necessary) shall take appropriate measures to maintain separation.
- Reduced separation on final may be applied, if all requirements are fulfilled: In this case the separation on Final may be reduced to 2.5 NM, **as long as both involved aircraft are in contact with Tower**.
- Assignment of speeds on Final by Tower are permitted without coordination. However, it is recommended to inform the responsible Arrival controller about speeds assigned. After speed assignment by Tower, responsibility of separation for all involved flight lies with Tower!

Missed Approaches

Tower is responsible for separation of Missed Approaches to all other flights subject to separation within CTR München. In case of a missed approach, the respective "Low" controller (DMNL / DMSL) is to be informed immediately. Callsign, planned Runway and reason for the missed approach shall be communicated to Low. Low may restrict following departures as "subject to release" (rf.

Departure Release).

Missed Approaches should generally follow the published Missed Approach Procedure, as it is independent to departures of the parallel Runway. After coordination with Low, alternate instructions may be instructed to the pilot (e.g. vector on the downwind, runway track, etc.)

Departures

Separation between Departures

For departures that depart via the same SID or via the SID combination KIRDI/BIBAG, the previous departure must be at least 5 NM on the SID (track miles) from the end of the runway before the following departure flies over the departure end of runway.

The performance of the aircraft types must also be taken into account in order to prevent a loss of spacing due to different speeds.

Wake Turbulence Separation shall be applied at all times!

Intersection Departures

Following table shows the Intersection and TORA pilots have to expect. Deviations from this scheme always require the prior consent of the pilot.

| ATYP | 08L | TORA | 08R | TORA | 26R | TORA | 26L | TORA |
|--------|-------|--------|-------|--------|---------|--------|---------|--------|
| Heavy+ | A1/A2 | 4000 m | B1/B2 | 4000 m | A14/A15 | 4000 m | B14/B15 | 4000 m |

| | | | | | | | | |
|------------|----|--------|----|--------|-----|--------|-----|--------|
| Medium Jet | A3 | 3800 m | B3 | 3800 m | A13 | 3800 m | B13 | 3800 m |
| Light Jet | A4 | 2820 m | B4 | 2840 m | A12 | 2780 m | B12 | 2820 m |
| Turboprop | A6 | 2200 m | B6 | 2220 m | A10 | 2260 m | B10 | 2200 m |

Intersections A5, A8, A9 as well as B7, B8, B11 are not permitted for lining up on the runway.
Intersections A7 and B9 are not to be used in general.

Conditional Line Up on Intersections

To guarantee the correct identification of Traffic during a conditional Line-Up on Intersections, which are not in a right angle to the runway, a traffic information and a confirmation that traffic is in sight is required **prior** to line up clearance.
This is not necessary for conditional line ups from the beginning of the runway (e.g. A1-A3)

Specifically, traffic shall be reported "in sight" before a conditional clearance is issued for the following intersections: A4/A6, B4/B6 or A10/A12 and B10/B12.

“ C: DLH123, traffic, A320, 2NM final runway 26R, report traffic in sight.

P: DLH123, traffic in sight.

C: DLH123, behind mentioned traffic line-up RWY 26R, behind.

As with all traffic information, a more detailed description of the traffic is not absolutely necessary, but can be helpful for the pilot.

Noise Abatement between 2200 and 0600 lcl

During nighttime, departures are not to be cleared below FL70.

Low Visibility Procedures

The ILS in München is certified for CAT IIIb operations.

Low Visibility Operations are conducted in Single Use of RWY OPS, individual approaches may deviate from this.

Active LVP shall be broadcasted in the ATIS by adding &lvp to the ATIS Maker URL:

“ LOW VISIBILITY PROCEDURES IN OPERATION CAT II AND III AVAILABLE

Separation during LVP

Arrivals to Arrivals

München applies the **Landing Clearance Line (LCL)** procedure of preceeding aircraft of WTC **Medium (M)** and **Light (L)**, which means: If an aircraft of WTC Medium or Light has **vacated the runway, passed the LCL** and is **still in movement** the next arrival may be overflying the threshold. If the preceeding arrival has not yet passed the LCL a Go Around shall be instructed.

Aircraft of WTC **Heavy (H)** need to vacated the **CAT II/III Holding Point** before the next arrival may pass 2 NM on final. If the next arrival passes 2 NM final and the Heavy did not vacate the CAT II/III Holding Point, a Go Around shall be instructed.

Aircraft of WTC **Super (J)** need to **reach TWY N** respective **TWY S** before the next arrival may pass 2 NM on final. If the next arrival passes 2 NM final and the Super did not reach TWY N/S, a Go Around shall be instructed.

Arrivals of aircraft WTC Super are recommended to be assigned the Southern Runway, even during 26 where normally used for departures.

Recommended spacing on final during LVP:

| WTC preceeding A/C | Spacing |
|------------------------|---------|
| Light (L) / Medium (M) | 3,5 NM |
| Heavy (H) | 6 NM |
| Super (J) | 8-10 NM |

Departures

Between two departures **full Runway separation** shall be applied.

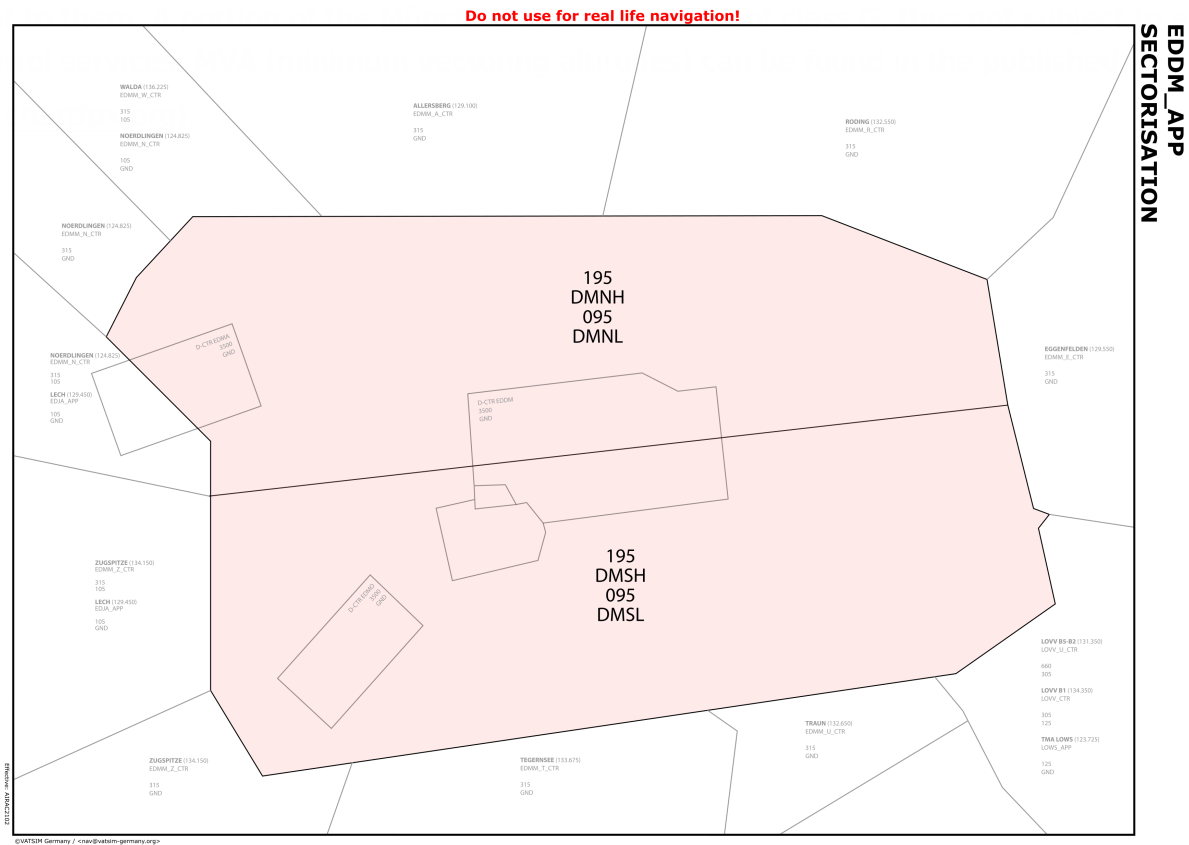
During use of **Guided Take Off** it shall furthermore be ensured that a preceeding departure has overflown the Localizer or a preceeding arrival has vacated the CAT II/III Holding Point before the succeeding aircraft starts it's take off roll.

Arrival

Sectorization

As per the reference drawing below, the München TMA airspace can be divided into four sectors. The two feeder positions (Callsign "Arrival", formerly "Director", DMNAT and DMSAT) do not have their own airspace assigned, but share airspace and implicitly receive a release when airplanes are

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Arrival Sectorization

The following station identifiers are used in the overview:

| Station Identifier | Euroscope ID | Station | Frequency |
|--------------------|--------------|--------------------|-----------|
| DMNL | DMNL | München North Low | 123.905 |
| DMNH | DMNH | München North High | 128.030 |

| | | | |
|--------------|-------------|--|----------------|
| DMSH | DMSL | München South Low | 127.955 |
| DMSL | DMSH | München South High | 120.780 |
| DMNAT | DMND | München Arrival North | 118.830 |
| DMSAT | DMSD | München Arrival South | 132.305 |

DMNH is the primary station and to be staffed first. Without any further stations online, this station covers the complete TMA. The second station to be staffed is Arrival North (DMNAT).

After DMNH and DMNAT are staffed, there are two strategies for further staffing:

- **North/South split:** The next station after DMNH and DMNAT is DMSH: The border is drawn as per the drawing above.
- **High/Low split:** The next station after DMNH and DMNAT is DMNL: DMNL and DMNH split the airspace vertically at FL95.

Thereafter, the remaining stations can be staffed in any order. Note that in the combination (DMNH, DMNL, DMSH), DMSH staffs the southern half of the TMA, DMNL is restricted to the upper half.

Cross-couple (XC) all frequencies of the sectors your station covers (apart from the Feeder)! As stand-alone DMNH, for example, you should cross-couple DMNL, DMSL, DMSH; as DMNAT (without DMSAT), cross-couple DMSAT as well.

DMSAT is only to be staffed, after DMNL and DMSL are staffed. Two-feeder independent operations are in effect.

Arrivals

STARs

The STARs in München have their clearance limit at the first waypoint and **are usually not used**. The only exceptions are lost communication situations and non-RNAV flights. The procedures lead pilots from the clearance limits to the initial approach fixes of the approach procedures (MIQ in the north, OTT in the south).

Transitions

To bring planes onto a controlled arrival procedure within the TMA, clear pilots to fly the RNAV transitions starting at the STAR clearance limits and bringing planes into an up- and/or downwind. High and Low can clear arrivals to any of the DMXXX waypoints on the transitions to generate or reduce track miles without prior coordination. Should the direct be situated beyond DM425/DM454 (26 ops) or DM425/DM455 (08 ops), coordination is highly suggested to avoid conflicting with crossing departures.

The München procedure package also includes CDO (continuous descent operations) transitions that can be cleared in coordination with center. The usage of the CDO transitions is only recommended during periods of low traffic.

Approach procedures

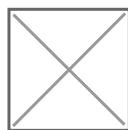
München offers a CATIIIB certified ILS approach for either runway in either direction, as well as published RNP, and NDB approach procedures. ILS is the preferred approach type. Visual approaches for IFR traffic are generally not permitted, except for visual approaches on final.

Two-feeder operations

Final approaches into München can be managed by one or two Feeder positions. Before opening the second feeder position, DMNL, DMSL, DMNH, and DMNAT need to be staffed. Staffing the second Feeder position is not(!) required to operate parallel independent approaches. If two feeders are staffed, DMNL and DMSL are responsible for assigning the runways. Planes on the northern downwind use the northern runway, planes on the southern downwind the southern runway. Exceptions are possible (cargo), but absolutely have to be coordinated in time.

To keep the amount of required coordination low, we employ **prescribed intercept areas** and intercept altitudes.

There is the **low final**, where planes intercept the localizer at **5000ft (or 4000ft)**, and the **high final** where planes are to intercept the localizer at **6000ft (or 5000ft)**. During **26 operations**, the **low final is north, during 08**, it is in the **south**. The low final is shown with the additional intercept "box" along the extended centerline:



Noise abatement between 2200 and 0600 lcl

Between the time of 2200 and 2300 lcl, airplanes may not be cleared to descend below 6000ft, and between 2300 and 0600 lcl, not below FL70/7000ft until they:

- are in the downwind between DM420 and 429, or DM450 and DM459; or
- are in the airspace enclosed by DM420, DM429, DM459, and DM450.

Planes are to be guided to intercept the glide slope at 5000ft or above.

Arrival Agreements

Center to High

26 ops

| Transferring Sector | COPX | Level | Optional Levels | Release | DCT |
|---------------------|-----------------------|-------|-----------------------|-----------------------------|-------|
| NDG | LURER / RIDAR | FL160 | -- | ↔ ↓ FL110 at FL195 or below | ROKIL |
| WLD | BURAM / RENLO | FL170 | FL150 / FL130 / FL110 | | |
| RDG | GOMAX / KUFUZ / OSTES | FL110 | FL110 - FL130 | ↔ ↓ at FL195 or below | LANDU |
| EGG | ROSAB | | | | |
| FUE | DISUN / MERSI | FL160 | -- | ↔ ↓ north of L608 | -- |
| STA | ANDEC / KONIN | FL150 | FL130 | | |

08 ops

| Transferring Sector | COPX | Level | Optional Levels | Release | DCT |
|---------------------|-----------------------|-------|-----------------|-----------------------------|-------|
| NDG | LURER / RIDAR | FL140 | -- | ↔ ↓ FL110 at FL195 or below | ROKIL |
| WLD | BURAM / RENLO | FL130 | FL110 | | |
| RDG | GOMAX / KUFUZ / OSTES | FL110 | FL110 - FL170 | ↔ ↓ at FL195 or below | LANDU |
| EGG | ROSAB | | | | |
| FUE | DISUN / MERSI | FL120 | FL140 | ↔ ↓ north of L608 | -- |
| TEG | ANDEC / KONIN | FL130 | FL150 | | |

Releases

| Routing | Release | Released by |
|-----------------------|-------------------------------|-------------|
| ANORA / AKANU | ↓ to FL110 ↔ below FL195 | CTR |
| LURER | ↓ to FL110 ↔ after LURER | CTR |
| LANDU | ↓ ↔ below FL195 | CTR |
| BETOS | ↓ ↔ after passing airway L608 | CTR |
| ANORA / AKANU / LURER | DCT ROKIL | APP |
| LANDU | DCT LANDU | APP |

High to Low

Arriving traffic is handed over established on the upwind or downwind at the following altitudes with an assigned speed of 220–240 kt IAS (exceptions depending on the traffic situation are possible):

- Aircraft on the upwind are to be cleared to descend to FL100,
- Aircraft on the downwind are to be cleared to descend to FL110.

With transfer of communication, all aircraft are fully released.

Low to Arrival

Arriving traffic is to be handed over to München Arrival at 220 kt IAS. Higher speeds are acceptable depending on the traffic situation.

Traffic is to be handed over with the following conditions:

| Position | RWY 26 | RWY 08 | Release |
|------------|-----------|-----------|---|
| Downwind N | ↓ 5000 ft | ↓ 6000 ft | fully released at transfer of communication |
| Downwind S | ↓ 6000 ft | ↓ 5000 ft | |

After coordination with München Arrival, High and Low can hand over arriving traffic on the base leg or a dog leg under the following conditions:

| Position | RWY 26 | RWY 08 | Release |
|--|---------|---------|---|
| Base/Dog-leg N Crossing of the downwind | 5000 ft | 6000 ft | fully released at transfer of communication |
| Base/Dog-leg S Crossing of the downwind | 6000 ft | 5000 ft | |

All aircraft transferred to Arrival shall be issued the current local QNH and cleared to an altitude on local QNH.

Arrival to Tower

Arrival generally is to only hand over arrivals that are established on a published arrival procedure to tower. Visual final approaches are to be coordinated with Tower.

Separation between two arrivals on the same arrival procedure or runway shall at all times equate to or surpass the applicable radar and wake turbulence separation. Arrival shall monitor the departing traffic situation at the runway holding points and increase separation on final to allow departures to use the resulting gaps. Notwithstanding, tower can always request specific and further increased separation on final.

Separation recommendations during LVP

During Low Visibility Procedures, increased separation required for runway movements is to be established on the final as well. Experience has shown these separation minima work well between two arrivals:

| WTC preceding aircraft | Separation |
|------------------------|------------|
| Light (L) / Medium (M) | 3,5 NM |
| Heavy (H) | 6 NM |
| Super (J) | 10 NM |

Departure Agreements

Low to High

Departures on the GIVMI, INPUD, EVIVA, MIQ, ANKER, AKINI, OBAXA, TURBU, and VAVOR departures are transferred from Low to Center climbing to FL 150/190. Low shall ensure separation to aircraft within the High sectors at all times.

All other departures are cleared by Low to climb to FL90 and are sent to High (climbing). After coordination with High, Low can also send these Departures directly to Center.

High to Center

High can generally clear departures direct to the SID end fix. For same routes, if a minimum separation of 5 NM cannot be established at time of transfer, the departure aircraft are to be handed over on different flight levels. For differing routes, 3 NM separation are acceptable as well.

Exceptionally, High can transfer departures to Center on a heading. In this case, pilots shall be instructed to report their heading to the Center controller during their initial call.

These procedures can likewise be applied to departures handed over directly from Low to Center.

Level Agreements

| SID | Runway | Level |
|---|--------|-------|
| North | | |
| AKINI / ANKER / EVIVA / GIVMI / INPUD / MIQ | ALL | FL190 |
| RIDAR | 08 | FL180 |
| | 26 | FL140 |
| South | | |
| ALG / BIBAG / KIRDI / MERSI / OLASO | ALL | FL190 |
| OBAXA / ROTAX / TULSI / TURBU / VAVOR | ALL | FL150 |

Released Directs by Center

| Routing | Restricted Airspace | Directs released |
|---------------|---|------------------|
| MOMUK / UMTX | inactive: TRA Allgäu (107/207) | RAVED / UMTX |
| ANKER / AKINI | active: ED-R 170 ; inactive: ED-R 138 | AKINI |
| ANKER / AKINI | RWY26 only, inactive: ED-R 170 und ED-R 138 | RUDNO |
| INPUD | / | UPALA |

Releases by Arrival

All aircraft sent by all München approach units are considered as fully released for climb, descend, turns, and speed control upon transfer of communication.

Agreement and Procedure Quicksheets

