EDDM - München Airport

- Overview
- Delivery
- Apron
- Ground
- Tower
- Arrival

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		
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	FL 70	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.

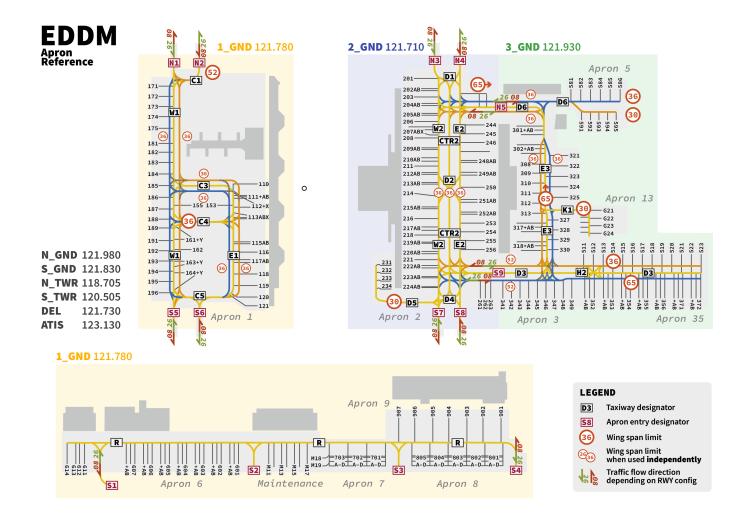| FROM	TO	ENTRY
MP	MGN	N1, N2
MP	MGS	S1-S6
MP2	MGN	N3, N4
MP2	MGS	S7, S8
MP2	MP3	N5, S9
MP3	MP2	N5, S9

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

1_GND 121.780
2_GND 121.710
3_GND 121.930

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

Apron 1
Apron 2
Apron 3
Apron 5
Apron 13
Apron 35

1_GND 121.780

Apron 9
Apron 6
Maintenance
Apron 7
Apron 8

LEGEND

D3	Taxiway designator
S8	Apron entry designator
36	Wing span limit
36 36	Wing span limit when used **independently**
26 08	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 ornage 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 MERSI, 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 preceding 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 preceding 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 can 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.

Departures to Arrivals

To ensure ILS signals are not interfered with, all departures need to be clear of the

- **critical area** before any succeeding arrival is less than **4 NM** out, and
- **sensitive area** before any succeeding arrival is less than **2 NM** out.

This separation applies irrespective of the WTC of the involved aircraft, and a missed approach is to be instructed if separation is not achieved. Both critical and sensitive areas can be shown by activating the *LVP / Critical Areas* map in the Ground Radar.
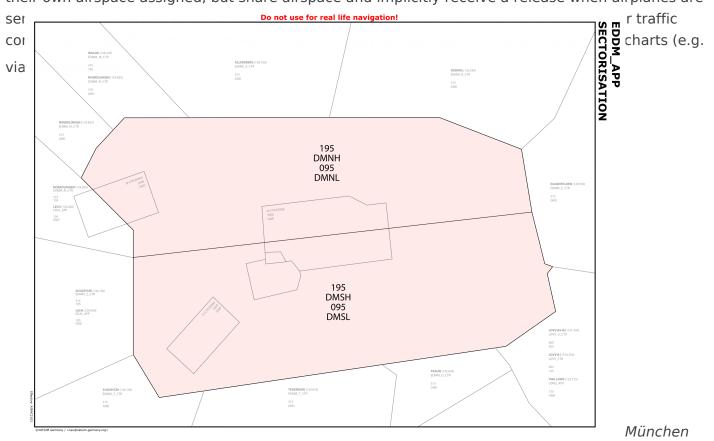
Departures

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 se~~...~~ r traffic co~~...~~ charts (e.g. via~~...~~

München

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.

Low Visibility Procedures

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

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 / KUFAZ / 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 / KUFAZ / 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 / UMTEX	**inactive:** TRA Allgäu (107/207)	RAVED / UMTEX
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

EDDM 26

WLD
WALDA

ALB
ALLERSBERG

UPALA

RDG
RODING

GOMAX 170

KUFAZ 170

OSTES 170

ROSAB 170

RENLO 130

BURAM 130

RIDAR 140

AKINI
if ED-R 170 active
if ED-R 138 inactive

RENLO

BURAM

GIVMI 190

INPUD 190
EVIVA 190
MIQ 190

AKINI 190
ANKER 190

GOMAX

KUFAZ

OSTES

NDG
NOERDLINGEN

RIDAR

↔ ↓ FL195
FL110

VESIX

MITNU

BINGU

ROSAB

↔ ↓ FL195
FL110
after LURER

LELTA

RIDAR 180

ROKIL

DMNL 100
220 - 240 kt

DMNAT 6000
220 kt (+)

DMNL 110
220 - 240 kt

LANDU

TUSTO

↔ ↓ FL195

EGG
EGGENFELDEN

LURER 140

LURER

DMNH FL195
DMNL FL95

DMSH FL195
DMSL FL95

OLASO 190

DMSAT 5000
220 kt (+)

DMSL 110
220 - 240 kt

BIBAG 190
KIRDI 190

Release Line EDDM

ZUG
ZUGSPITZE

MERSI 190
ALG 190

DMSL 100
220 - 240 kt

NAPSA

TITIG 8000

AMADI 130

BETOS

↔ ↓ FL195
north of L608

OBAXA 150
TULSI 150

ROTAX 150
VAJOR 150
TURBU 150

↔ ↓ FL95
after coordination

AMADI

TITIG

RAVED / UMTEX
if TRA 107/207 inactive

MERSI

LOB
LOVV

DISUN

ANDEC

STA
STARNBERG

TRU
TRAUN

REDBU

REDBU 140

DISUN 120

ANDEC 130

TEG
TEGERNSEE

▶ direct handoff to CTR by DMNL/DMSL

L608