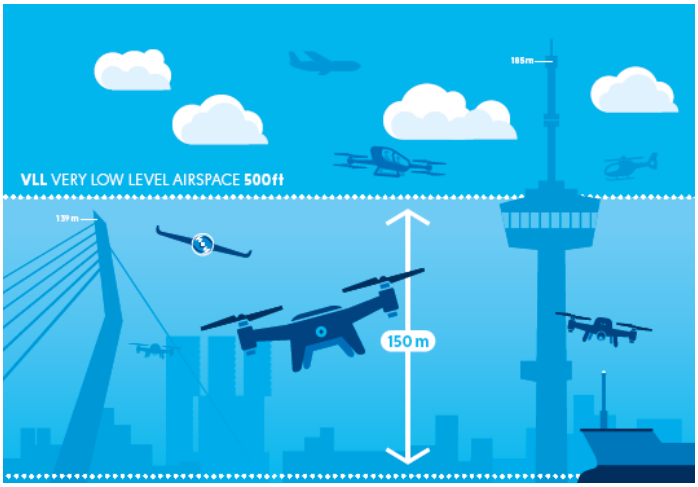
Drones in the port of Rotterdam:

‘the safest port to fly’



Rotterdam is an extremely safe port and will remain so even when drones are deployed for companies and organisations. For drone operators, this means that they can fly in the port area provided they meet the specified conditions.

This document is intended for companies and drone operators. The document describes the opportunities that the Netherlands and the Port of Rotterdam offer for drone flights and the way safety is guaranteed.

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Introduction

The European legislation for drone flights came into force in all the EU Member States on 31 December 2020. The EU Member States are responsible for applying the European regulations for drones in their individual countries. In the Netherlands, this is the task of the Dutch Ministry of Infrastructure and Water Management. This Ministry is also responsible for the register in which all pilots exams are recorded.

European legislation uses a risk-based model. This means that the higher the risk of the proposed drone operations, the stricter the rules and conditions. This document provides an overview of the legislation on which drone operations in the port are based.

Future drone operations will become increasingly complex and fall into higher risk classes; longer distances out of sight of the pilot, heavier drones, autonomous flights without a pilot on the ground, drone flights near to crowds of people, flights with packages and in the longer term unmanned drone flights with cargo and passengers. This means that in the years to come, the permits will be expanded step by step.

For future drone operations we are investigating, in consultation with the competent authorities, whether and to which extent additional regulations are required for specific geographic areas, for critical infrastructure, and in subjects such as privacy and cybersecurity. In addition, the airspace above the port will be gradually prepared for U-Space.

The Dutch Seaport Authorities have decided to grant access only to professional drone operators that fly in the 'Specific' category. This category defines requirements not just for the drone organisation and the pilot but also for drone operation. Flying in the specific category is only possible with a permit from ILT (the Dutch Human Environment and Transport Inspectorate). The 'Open' category, which does not require a permit, is not permitted in the port. Also flying under an STS (Standard Scenario) declaration is not permitted in the port.

The Port of Rotterdam Authority is following the European and Dutch legislation in this regard. This document is an interpretation of that legislation, and no rights can be derived from it. The official regulations are available on the websites of the National Government or ILT.

Drones and legislation

The EU regulations are divided into 3 risk levels: low, medium and high. The risks lie in the chances and consequences of an accident where the drone crashes on the ground and possibly injures a person, or an accident where there is a mid-air collision with a manned aircraft.

- Low-risk flights = **Open category**. The Open category is not permitted in Dutch seaports. The seaports have recommended this zoning to the Ministry because of the low numbers of commercial applications in the port in the Open category, the limited requirements for this category and the absence of a permit requirement. With this measure the airspace can be kept optimally accessible for commercial applications and developments.

- Medium-risk flights = **Specific category**. The risk relates to the flight itself and the weight of the drone, but also to the conditions and the flight area. for flights with a medium risk, the following applies compared to the open category:
    - it is permitted to fly above people (but not above crowds)

- flights near aerodromes are permitted
- heavier and bigger drones may be flown (>25 kg)
- drones may be flown inside the built environment
- drones may be flown higher than 120 metres
- Drones are permitted to drop or tow something provided there is an exemption from ILT
- it is permitted to fly beyond visual line of sight (BVLOS)
- flying outside UDP is permitted with an exemption from ILT
- flying with dangerous goods is permitted provided agreed by ILT

All these "privileges" must be specifically mentioned in the permit application to the ILT. The permit application must clearly state which measures have been taken to prevent damage. See "Issue of permits in the specific category."

- High-risk flights = **Certified category**: this is the category in which people are transported – but also dangerous substances that can pose a high risk to others in the event of an accident.
  Not all the requirements for the Certified category have yet been defined. It is therefore not yet possible to fly in this category. EASA, the European Aviation Safety Agency, is still developing regulations for this category.

Issue of permits in the specific category

The legislation is risk-based, and it is up to the drone operators to demonstrate how they deal with risks before they receive a flight permit from ILT. The core of the regulations is: the more risk a drone flight entails, the higher the requirements to be met by the operator, the pilot, the drone and the flight operation.

For the specific category, an 'Operating permit for unmanned aircraft' (Operational Authorization/OA) must be applied for from the Human Environment and Transport Inspectorate (ILT). The applicant must be registered as an operator with the Netherlands Vehicle Authority (RDW). A risk assessment must be conducted for the application. The applicant must submit the following with the application:

- The assessment of the flight operations risks. This must be a Specific Operations Risk Assessment (SORA) or a Pre-defined Risk Assessment (PDRA) in the Port of Rotterdam
- An Operational Handbook (OH) that is specifically tailored to the organization, aerial work and risk analysis
- Proof of appropriate insurance

ILT will assess the application for completeness and may request additional information. There is a charge for the operating permit; this charge is specified in article 2.17 of the Transport Sector Fees Regulation. The cost of applying for a permit ranges from €1,456 to €8,814 and depends on the risk profile. To obtain a permit in the specific category, see: Hoe kan ik een vergunning aanvragen? | Inspectie Leefomgeving en Transport (ILT)

VLOS, EVLOS or BVLOS

Most operations are still carried out using VLOS or EVLOS (Extended Visual Line of Sight), but the number of BVLOS flights, including in ports, is increasing rapidly. Beyond Visual Line of Sight flights can be

conducted from a control room, for example. A drone-in-a-box is usually used to conduct the flight automatically, with a trained pilot still supervising. BVLOS permits are issued by the Netherlands Inspectorate (ILT) in both generic and specific forms:

- Generic: a permit that may be carried out anywhere in the Netherlands, subject to the same conditions. An example of this is BVLOS flying over controlled territory and/or in atypical airspace.
- Specific: a permit for a specific location in the Netherlands where flights are permitted during the validity of the permit.

SORA

With a SORA, you perform a risk analysis of the desired operations within the specific category. This risk assessment is required to apply for a one-time permit for a specific type of operation and a range of drones. The Human Environment and Transport Inspectorate (ILT) conducts audits of these operators. Depending on the type of operation, stricter safety requirements apply. With the appropriate risk-mitigating measures, it is possible to obtain a permit for higher risks, such as flying near critical infrastructure or BVLOS (BVLOS).

A SORA consists of several aspects. First, the drones used, where weight and flight speed are taken into account in the risk assessment. Second, a ground risk assessment is performed, distinguishing between VLOS and BVLOS, and the density of an area. Flying VLOS in a sparsely populated area naturally poses a lower risk than flying BVLOS above a group of people.

In addition to ground risk, the air risks of the intended operations are determined. For example, if operations take place in atypical airspace (near buildings and objects), there is a low risk of incidents with other air traffic. Flying in or near a CTR, on the other hand, can pose a higher risk.

The air risk and ground risk combined form a SAIL score (Specific Assurance and Integrity Level). Mitigating measures must be taken depending on this SAIL score. The lowest SAIL score is I, the highest is VI.

Based on the SAIL score, Operational Safety Objectives (OSOs) must be determined. The higher the SAIL score, the more stringent the requirements. An OSO can be optional, low, medium, or high. Many OSOs are optional for SAIL I, while all OSOs must be implemented at high levels for SAIL 6. Most permits issued by the ILT are based on SAIL I and II. Higher SAIL risks require strict measures and often evaluation or assessment of measures by externally assigned organizations (which do not yet exist in the Netherlands). More information about SORA regulations can be found on the ILT website: Flying drones for residents of the European Union | Drones and model aircraft | Human Environment and Transport Inspectorate (ILT)

Light UAS Operator Certificate (LUC)

The Light UAS Operator Certificate (LUC) gives organisations the opportunity to assess the risks of their flights themselves. An approval from ILT for conducting (new) flights is then no longer necessary. With an LUC, an organisation can approve its own flights; for example, as part of a standard scenario (STS), a SORA or a Pre-defined Risk Assessment (PDRA). The process of becoming a LUC operator is quite complicated. It is preceded by a long period in which ILT gains confidence in the organisation through audits. A LUC is issued up to a certain risk profile. The operator then enjoys privileges and can independently develop and deploy new SORAs and PDRAs.

For more information and to submit an application, see; Light UAS Operator Certificate (LUC) - ILT

Rules for Port of Rotterdam and vital infrastructure

Specific category, OA

In Dutch seaports, it is not permitted to operate drones with only an A1/A3 license (the "open category"). This is only permitted for drone operators who hold a permit/Operational Authorization (OA) or a LUC from the Human Environment and Transport Inspectorate (ILT) in the "specific category." Only operations based on a SORA/PDRA are permitted, provided you also have the privilege of flying near critical infrastructure.

Anyone wishing to operate drone flights in the port is free to have them operated by an operator with the appropriate permits. We can provide a list of these drone operators upon request.

Requesting flight areas in Maasvlakte/Europoort

Those with the appropriate permit in the specific category must request use of the WebApp from the Airspace Centre for flights within the management area of the VLL Airspace Centre (Maasvlakte/Europoort Rotterdam, see this link for the exact prototype area); Flying in the port area | Port of Rotterdam. You can use the WebApp to submit your flight requests. It will then check for potential conflicts with flights from other applicants. Please include your permit/Operational Authorization with your WebApp application.

Registering flight areas can also be done automatically, via a direct link (via API/SDK) with the UTM (Unmanned Traffic Management) system or an integration between the drone operating software used and the UTM. Companies that offer UAVOS, drone operating software, that is already linked to the UTM: Aeret Drone Flightlog, DroneDeck.

In addition, several other regulations apply:

Vital Infrastructure

The entire port area has been designated as critical infrastructure. This means that a permit based on an STS is insufficient.
It also means that drone operators flying near a company or site—where the company is not the client for the flights—must contact the land manager/owner and the person responsible for safety in the Operational Volume.
"Proximity" means that the buffer for ground risk is above someone else's site (other than the client). The purpose of contacting this person is twofold: a contact person who can grant permission for flying near their site, and a contact person to assist in verifying that the drone operator has indeed considered all the risks of that specific site.

Remote ID

In the Netherlands, Remote ID has been mandatory for most drones since January 1, 2024. Remote ID functions as a "digital license plate" and contains the operator number of the drone pilot, the drone's serial number or the serial number of an add-on, the drone's location and altitude, the time of day, the drone operator's location or the location where the drone took off, the drone's route and ground speed, and, if applicable, an indication of the drone's emergency status.

This information is continuously transmitted via Wi-Fi or Bluetooth, allowing law enforcement to detect drones flying in prohibited areas.

Security requirements

European legislation stipulates that ISPS-compliant sites and terminals (almost all in the Port of Rotterdam) must implement security measures, such as access controls. Each company has also appointed a PFSO (Port Facility Security Officer).

Anyone conducting drone flights over an ISPS site must ensure that the relevant PFSO is informed of the flights, for example, through the client. A PFSO who spots an unknown drone over their site will report it as a security incident in a port-wide application that forwards all incidents to the Seaport Police.

Natura 2000

The port of Rotterdam also has Natura2000 areas. In these areas, specific conditions based on nature conservation regulations apply in certain seasons. To fly in a Natura2000 area, permission from the site manager is required. A special flyer has been developed for these areas.

CTR – the controlled airspace above the Port of Rotterdam

A large part of the port of Rotterdam is located in an airport area, the CTR, which is controlled by Air Traffic Control (LVNL). In this area, contact with the LVNL is required for permission to fly a drone professionally.

For flights within the CTR, the flight plan must be submitted via the LVNL Operator Portal (godrone.nl). (Provisional) permission must be requested from the LVNL Operational Helpdesk at least 24 hours before the flight.

There are still a number of additional requirements for a flight operation in the CTR;

- An exemption for flying without a transponder and the use of the procedure in the Operational Manual.
- Two-way radio contact during the drone operation. Here, the use of a 10-metre antenna is recommended to improve the quality of the signal from a low altitude.

LVNL has set maximum limits for the number of drones that may fly simultaneously in the CTR. Information can be found on lvnl.nl.

The GoDrone website and app, developed by LVNL, show the no-fly zones for the Open category on the drone map of the Netherlands. GoDrone also provides information about restrictions and/or exceptions that apply in a specific area.

Supervision and enforcement

The issue of permits for the Specific and Certified categories is the responsibility of the ILT. The ILT also monitors the correct use of the permits and the certificates of the pilot, aircraft and operator, where necessary.
registration of pilots and drone operators lies with the RDW (the Dutch vehicle approval and information authority).
Operational enforcement is the task of the police. Violations can be heavily fined and can lead to seizure or even recovery of revenue earned for the service.

Who is permitted to be a drone operator?

To make a drone flight in the Specific category, you must:

- Register as an operator by requesting an operator number from RDW. The operator owns one or more drones and is ultimately responsible for the flight. RDW registers operators and pilots and shares this data with the other European countries. This is part of the intended open market in Europe for drone operators.
- The pilot must apply for a pilot's licence. The pilot is the person who flies his own or someone else's aircraft. In addition to the A1/A2/A3 pilot licences, additional competences are required for the Specific category. These competences can be tested at a number of designated flying schools in the Netherlands.
- Have obtained an operating permit (Operational Authorisation) from the ILT, or a LUC (Light UAS operator Certificate). With a LUC, permit-holders are permitted to perform risk assessments and operations without prior approval from ILT.
- Be at least 16 years old.

Foreign operators in the Netherlands

In principle the (generic) foreign Operational Authorisation (OA) allows the desired operation in the Netherlands. Declarations however related to standard scenario's, whether national or EU format, are not accepted by the Dutch Civil Aviation Authority.

In case of a foreign OA it takes in addition an acceptance from the Dutch CAA by means of a form; Application for a cross-border UAS operation in the 'specific' category | MijnILT.
Only when the foreign operator has a LUC permit, a notification to the Dutch CAA is sufficient.

The foreign OA should allow for the desired operations in the Netherlands, f.i. operations in (sparsely) populated areas, in (un)controlled airspace, controlled ground area etc. In addition, national restrictions for the specific category must be respected. Information

Drone certification

Up to SAIL Class II, drone inspection and certification are not required to fly in the specific category. The risk profile is low enough for this, and the risk is sufficiently offset by other measures. Which aircraft receive EASA type certification (T/C) depends on the SAIL class. This class depends on weight, flight speed, wingspan, and the type of operation. Note: this certification is not provided by the operator, but by the supplier or importer of the drone.

Operators flying in the specific category will be required to submit a declaration to the Human Environment and Transport Inspectorate (ILT) regarding the reliability of their aircraft and a Design and Installation Appraisal (DIA). Through a DIA declaration, operators declare that they adhere to the manual and conditions for the use of their drones, such as maintenance.

Insurance

For flying with a drone, according to Regulation EC 785/2004, liability insurance for physical or material damage to third parties of at least €750,000 is mandatory. Drone operators take out special drone insurance for this, because normal insurance policies do not cover drones. In the Netherlands, a number of insurers specialise in drones, such as Coverdrone.

When applying for an operating permit, ILT asks for an up-to-date insurance policy for the drone being registered.

Support for risk assessments and requests for permission

There are a number of companies that can help operators write a SORA and apply for a permit:

- Drone consultancy
- Airhub
- Dutch Drone Academy
- Drone Flight Company

Several companies have developed a tool to determine the SORA. In all cases, the operator must independently provide evidence in order to receive approval from ILT. A tool speeds up the process, but it is not enough to be able to use a SORA for an application.

Tools are provided by Airhub, EUROUSC and SAMWISE.

Privacy law

Filming or photographing with a drone is only permitted in cases where this is usually also permitted with a 'normal' camera. So not in gardens, not people outside the public road, not filming from outside to indoors or above closed (business) areas. Prior permission from the owner is always required. Operators have procedures in their manuals regarding 'blurring' if people are accidentally recorded.

Reporting drone incidents

If a drone is observed that may be flying ILLEGALLY OVER THE PORT AREA, call the police at 0900-8844 if you suspect a violation.
Apps (e.g., Drone Scanner) can be used to read the Remote ID and thus the identity of a drone. Remote ID is fast, but the signal has a limited range; the drone is only visible to receivers within the (limited) range of the signal.

You can report any NUISANCE CAUSED BY A DRONE to the local police at 0900-8844. They can take action in the event of a violation or nuisance from a drone. Is a drone flying over your property, house, or neighborhood? Please provide the police with as much information as possible about the location, date and time, the drone, and the pilot. If possible, take a photo or video. It is important that you report any nuisance caused by a drone. This allows the police to take action, and it also allows the government to gain a better understanding of drone incidents.

In the event of an ACCIDENT OR INCIDENT INVOLVING DRONES, call 112 if there is an acute safety risk and an urgent situation. Please note that those involved may also be required to file a safety report.

In addition, drone operators must REPORT INCIDENTS IN ORDER TO INVESTIGATE THE CAUSE;

- Serious incidents and accidents (pursuant to EU Regulation 996/2010 and the Dutch Safety Board Act) must be reported immediately to the Dutch Safety Board by calling 0800 6353 688.
- Incidents and minor incidents (pursuant to EU Regulation 376/2014) to the ILT's Aviation Incident Analysis Bureau

Rotterdam U-Space Airspace Prototype

U-Space Airspace is a designated area of low airspace with legal requirements for airspace users; manned aircraft must be electronically visible, while unmanned aircraft must meet certain requirements for access to the airspace. U-Space is also a digital air traffic control system that ensures conflict prevention during flights. In the future, this air traffic control system will guide drones and unmanned aircraft such as flying taxis. Drones will then use U-Space (with the U for "unmanned") to determine their routes among themselves to avoid collisions. Emergency helicopters or police helicopters will automatically be given priority. Drone operations will be permitted in U-Space Airspace if the offered support services are purchased.

The Port of Rotterdam Authority is preparing to establish a U-Space airspace above the port, including agreements, protocols, communication tools, and standards as prescribed by European legislation.

In preparation for this, the Port of Rotterdam Authority's Airspace Centre has offered "pre-flight area deconfliction" since March 2023. Licensed drone operators gain access to a web app to register and be assigned a flight area, or establish a direct connection with the Unmanned Traffic Management system. This applies to the prototype area: the uncontrolled airspace above the port, namely Europoort and Maasvlakte. In this way, we transform the port into a controlled area to which every authorized operator has authorized access and can conduct their flights safely and without conflicts with other traffic.

See "Flying in the Port Area | Port of Rotterdam".

For background information on the U-Space Airspace prototype in Maasvlakte/Europoort, Rotterdam, see 202202ID-047_WHITE_PAPER_DRONES_EN.indd (portofrotterdam.com).

July 2025