



# Snow at Schiphol

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Welcome to Amsterdam Airport

## **Snow at Schiphol**

Of the 475 staff working in snow squads, around 235 are employed directly by Amsterdam Airport Schiphol and a further 240 are hired professionals.

Around 100 of the 235 Schiphol employees work on 'airside' every day. Airside, also known as the airfield or runway area, is the area where aircraft take off, land, taxi and are handled. In addition to their snow clearance and ice prevention activities, these employees also marshal aircraft and supervise contractors carrying out airside work. They remove litter from the runway area as well.

**Schiphol**



### Sprayer on the runway

The other 135 Schiphol staff working in snow operations are known as 'polar bears'. They are well-trained Amsterdam Airport Schiphol staff who ordinarily fulfil a wide range of roles, from secretaries to managers and advisers. After a special training, they become polar bears. The training course starts in the summer with a theoretical introduction, which explains how snow operations are carried out. During these training sessions, the polar bears acquire the relevant knowledge of technology, health and safety, vehicle operation and driving skills. Following the theory sessions, practical training starts in early October. A total of ten exercises are conducted by the full snow fleet driving 'in formation'. From 1 October to 30 April, Schiphol remains on alert to deal with the winter weather.

As the on-duty operations manager, the Flow Manager Aircraft (FMA) springs into action when meteorologists predict wintry precipitation. When they do, the FMA will also serve as FMS (Flow Manager Snow) and instruct the snow fleet to deploy. A number of snow squads are made available several hours in advance to keep the airfield/air-side area clear of snow so as to minimise any disruption to passengers in the event of snowfall. In such cases, the snow squad staff are released from their regular duties. The squads are made up of employees from various departments, ensuring that the workload is distributed as evenly as possible across the organisation.

Clearing Amsterdam Airport Schiphol of snow requires three eight-hour shifts and around 100 vehicles distributed across three snow fleets, five aircraft stand squads and one landside squad. Some twenty polar bears are deployed on each shift.

## Clearing the runways

To keep the runways clear, nine snow sweepers first push the snow to the side of the runway in a shingled stream. Two snow blowers operate between and behind the snow sweepers. These new vehicles can eject up to 6,750 tonnes of snow per hour across a distance of 35 metres. To put that figure in perspective: it is equivalent to the weight of one passenger car per second. Finally, a last snow sweeper comes along and removes the remaining bits of snow.

## AirportCity

**Amsterdam Airport Schiphol has the atmosphere of a metropolis and is a shining example of an Airport-City: a leading, efficient airport that provides the full range of services required by travellers, visitors and companies located there 24 hours a day, seven days a week.**

**Royal Schiphol Group's mission is Connecting the Netherlands: connecting the Netherlands to the rest of the world in order to contribute to prosperity and well-being in this country and elsewhere. Connecting to compete and connecting to complete.**

Working together, two snow fleets of 15 snow sweepers each can clear a runway in around 20 minutes. With its 40-metre wide spraying installation, the airport spraying vehicle prevents ice formation and slippery conditions on the runway. The runways are not gritted with the 'ordinary' salt used on roads. To prevent aircraft corrosion, the runways are first sprayed with potassium formate, an anti-freeze liquid which is fully biodegradable.

## Keeping aprons clear

Five separate snow squads are needed to keep aircraft stands, such as those at the gates, clear of snow. The aircraft stand squads consist of one front sweeper, one jet sprayer, one aircraft stand cleaner and three shovels. These shovels are six metres wide and can remove a considerable amount of snow in a short space of time. As there is no space near the aprons to dispose of all the snow, ten large lorries transport the snow to a snow storage area and from there to an external water purification plant.

## Roads, parking spaces and footpaths

Nine gritters are deployed to keep any publicly accessible roads safe and clear. Gritting salt is used on roads, cycle paths and footpaths.

A ten-strong snow team ensures that the Jan Dellaertplein, the bus stops and all remaining parts of the public landside infrastructure are kept free of snow and ice.

## De-icing and anti-icing

It is not just the runways that have to be kept clear. Aircraft are given de-icing and anti-icing treatment before departure as well. De-icing means clearing the effects of any winter weather off the aircraft. Anti-icing means keeping the aircraft clear of ice between the time of de-icing and take-off, and preventing new ice formation. Either the airlines or the ground handlers take care of ice removal operations. The four parties involved at Schiphol are KLM, Menzies, Aviapartner and Swissport.

## Cleaning products

A special liquid called glycol is used for cleaning aircraft and keeping them clean.

Glycol is mixed with hot water up to a temperature of 82 degrees Celsius. The liquid is then sprayed onto the aircraft by special vehicles.

During de-icing operations, aircraft use special de-icing aprons with a closed sewer system. This system captures

the liquid and pumps it into a reservoir, where it is purified. Aircraft that are unable to use the de-icing aprons are de-iced at the regular aircraft stands instead. Special cleaning vehicles remove all the run-off liquid at the aircraft stands and transport it to the reservoir for purification. Glycol is biodegradable.



## Equipment

Amsterdam Airport Schiphol has a total of more than 100 special snow and gritting vehicles. The snow fleet shoves, sweeps and blows the snow away to clear the runways. This fleet includes cranes for loading snow, in addition to the large salt gritters for all the roads of the airport, as well as a range of smaller equipment for keeping footpaths and cycle paths clear of snow. The aim is to keep the airport infrastructure – including the front of the terminal, the gates and the runways – clear of snow and ice.

One of the most recent acquisitions is a new, advanced and innovative spraying machine which detects areas that have already been sprayed. This process allows the runways to be cleared of ice and snow in an even more efficient and sustainable manner. What is more, the airport has recently acquired two state-of-the-art vehicles which can measure both the roughness of the runways' surface and the amount of potassium formate located there. The measurement data help the snow squads to perform their work.



**Snowblower removes snow from the runway**

## The entire snow fleet consists of:

### Snow fleet 1: runways

- 10 P21S snow sweepers, a large sweeping/blower combination
- 1 lorry with a snow blade, a small sweeper
- 2 high-capacity snow blowers
- 1 airport sprayer

### Snow fleet 2: runway exits

- 6 P21S snow sweepers, a large sweeping/blower combination
- 1 lorry with a snow blade, a small sweeper
- 2 medium-capacity snow blowers
- 1 airport sprayer

### Snow fleet 3: taxiways and bays

- 5 compact sweepers, a large sweeping/blower combination with a smaller turning circle than P21
- 1 medium-capacity snow blower
- 1 jet sprayer

### Aircraft stand squads: aprons

- 8 front sweepers, snow brushes for aprons
- 12 shovels with ramp-hogs, large scoops
- 4 Monobloc snow blowers, also used for snow removal
- 5 jet sprayers, also used on the taxiways
- 5 mini sprayers for spraying around the passenger bridges

### General

- 2 large combi gritters
- 2 vehicles to measure runway surface roughness

### Snow removal

- 4 cranes for loading snow
- 10 lorries to transport snow

### Roads, cycle paths and footpaths

- 5 large salt gritters
- 4 small salt gritters

### Cleaning

- 4 cleaning vehicles/tractors
- 2 cleaning lorries