

# GROOVED RUNWAY SURFACES.

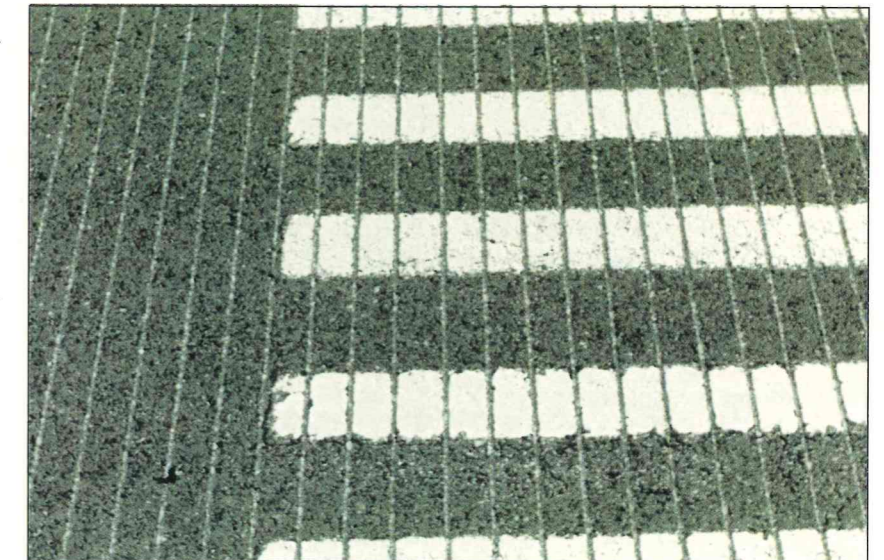
## Give greater safety and a reduced need for chemical de-icing



Grooving increases safety and contributes to a better environment.



The grooved part of the runway is almost dry when the non-grooved part is covered by a sheet of water.



Grooving by V&T's method eliminates the risk of surface break-up.

### Better friction

Grooving means that transverse grooves are cut into the asphalt or concrete runway surfaces. The grooving provides much more rapid water drainage, resulting in higher frictional values in rainy conditions. A grooved runway has almost the same frictional values as a dry runway, even during relatively heavy rain.

### Increased safety on slippery surfaces and reduced risk of aquaplaning

When the friction on the runway is  $\leq 0.5$ , a landing aircraft can be braked from 180 km/h to a standstill in  $\leq 250$  m without using reverse engine thrust. If the friction falls to 0.1, the braking distance required is 5 times as long: 1 250 m.

The higher frictional values provided by grooving thus significantly increase safety in rainy conditions, especially at temperatures around 0 °C.

Grooving of the surface also reduces the risk of both dynamic and viscous aquaplaning. Viscous aquaplaning also occurs at low speeds where the structure of the runway is smooth.

### Grooving provides a range of important benefits:

- Rapid drainage and drying.
- Water is displaced more easily, reducing the risk of aquaplaning.
- Steeply reduced need for chemical de-icing.
- Operational availability, including during heavy precipitation.

It is important, however, for grooving to be executed in such a way that it does not impair the other characteristics of the runways.

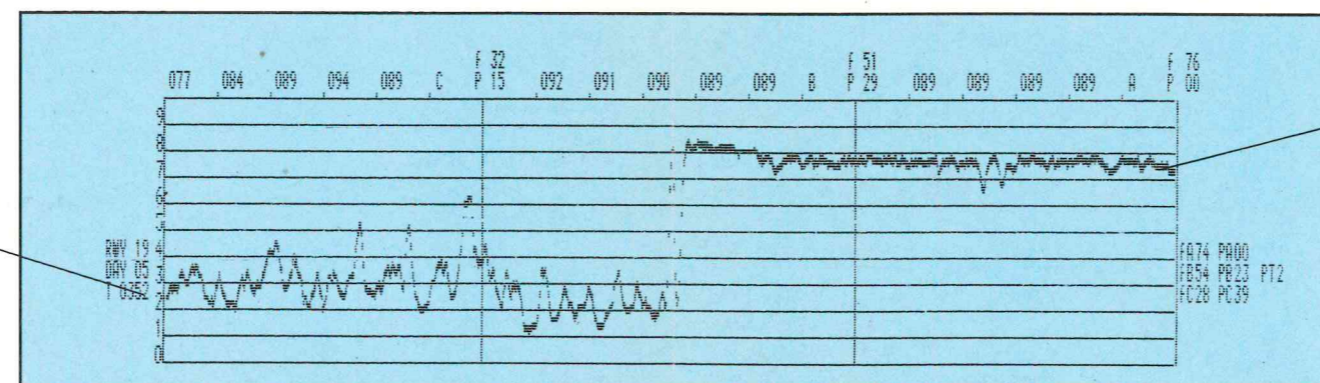
Väg och Trafikarbeten AB has developed a special method for cutting grooves. The method is gentle on the surface and also eliminates the risk of surface break-up.

### Satisfies environmental and cost requirements

When carrying out airport licensing inspections, very strict requirements are now imposed on the use of chemical de-icing agents for runways. These involve tight restrictions and a transition to new and much more expensive alternatives.

Grooving of the operational surfaces of the airport is an effective and cost-effective way of meeting these requirements. The method is permanent and greatly reduces the need for environmentally harmful and costly chemicals.

The friction on non-grooved surfaces usually exhibits values between 0.2 and 0.3. Chemical de-icing agents must be applied immediately to surfaces with such low values.



Friction on the grooved surface - without chemical de-icing - is between 0.7 and 0.8.

The graph shows the friction on a non-grooved and a grooved surface after precipitation, at a temperature of around 0 °C.