

put safety first Grooving Roads Decreases Accidents, Saving Lives

Inclement Weather – Rain, Snow and Ice – Puts Motorists at Increased Risk of Accidents and Loss of Life





average decrease in accident rates in both wet and dry conditions after grooving.



AUTOMOBILE ACCIDENTS TEND TO INCREASE when there is a loss of friction between the tire and pavement surface due to slippery conditions. Highway departments have found that the best way to decrease accidents during inclement weather is to remove water from the surface and increase the traction between the tire and the road.

Experience has shown that grooving a pavement's surface is a very effective method to increase traction, reduce hydroplaning and minimize splash and spray as well as provide a more effective braking surface. This easily constructed and economical surface treatment provides the superior traction needed for vehicles to maintain control while driving in wet, dangerous conditions.

Municipalities and departments of transportation world wide are finding that grooving has a two-fold benefit: it increases a driver's safety while driving in wet conditions and at the same time, saves on the costs of replacing or overlaying the pavement surface.

>> HOW IS A SURFACE GROOVED?

To groove a pavement surface, grooving machines equipped with circular diamond-tipped saw blades are used to saw grooves into the surface. The blades are mounted and spaced on a horizontal shaft and are cooled constantly by water pumped from a tanker which is then recovered by an on-board vacuum system. These discrete channels can be constructed transversely or longitudinally into both concrete and asphalt surfaces. Engineers typically specify grooves 1/8-inch to 3/16-inch deep and approximately 1/10-inch wide. The spacing is typically ³/₄-inch center-to-center although random spacing of blades is used at times when grooving transversely to control tire/pavement noise.

A road's surface texture can be lost through tire wear and by the action of abrasives, tire chains, salt, freezing and thawing. Studies conducted in California have shown that abrasion resistance is generally proportional to strength.



>> HIGHWAY SAFETY STUDIES

In Los Angeles, the California Department of Transportation (Caltrans) conducted a study of 322 lane-miles of longitudinally grooved concrete pavement and compared it to control sections of 750 miles of ungrooved concrete pavement. The average daily traffic varied from 60,000 to 200,000 vehicles on these freeway research sections. For the grooved sections, the total traffic exposure was over 4,000 million vehicle miles on dry pavement and approximately 70 million vehicle miles on wet pavement.

Wet pavement accident rates decreased an average of 70% on all the grooved pavements studied as compared to the control sections, where there was only a 2% reduction in accident rates. Dry pavement accident rates did not change as a result of the grooving.

In terms of accident types, the largest reduction in wet pavement accidents was in sideswipe and hit object accidents. Rear-end and miscellaneous accidents showed the next largest reduction, and head-on collisions decreased the least.

The study concluded that grooving produced an overall average 69% decrease in accident rates for the highways studied, in both wet and dry conditions.

Another study in California showed how roads wear over time, causing a decrease in friction and an increase in accidents. On Interstate 5 at Laguna Canyon Road near El Toro Marine Air Station in California, there were no wet weather accidents when the road was newly constructed using a burlap drag surface texture. As the road aged, eight wet weather accidents were recorded during the next year and 47 wet weather accidents in the year after. As the road was being used over time, the pavement was wearing, causing the friction values to drop.

The road was then longitudinally grooved, using a specified 1/8-inch by 1/8 inch on 1/2-inch center pattern. Accidents for the following five years were reduced to a total of eight wet weather accidents during this period. This study shows how grooving can increase wet weather traction, reduce hydroplaning potential and make the road a safer place for motorists.

Road conditions ultimately play a part in accidents and therefore it is the responsibility of municipalities and departments of transportation to ensure that the roads are safe to the greatest extent possible. Grooving a road's surface will greatly improve wet weather traction and can significantly reduce accidents during inclement weather conditions.



Please go to IGGA.net for more information and for detailed specifications.

BENEFITS OF A GROOVED SURFACE

Reduced accidents

Reduced hydroplaning

Reduced splash and spray

Faster braking

Environmentally friendly

Economical



ABOUT IGGA

The International Grooving & Grinding Association (IGGA) is a non-profit trade association founded in 1972 by a group of dedicated industry professionals committed to the development of the diamond grinding and grooving process for surfaces constructed with Portland cement concrete and asphalt. In 1995, the IGGA joined in affiliation with the American Concrete Pavement Association (ACPA) to form what is now referred to as the Concrete Pavement Preservation Partnership (IGGA/ACPA CP3). The IGGA/ACPA CP3 now serves as the lead industry representative and technical resource in the development and marketing of optimized pavement surfaces, concrete pavement restoration and pavement preservation around the world.