

Peerless pressure

Ultra-high-pressure technology is the best method for road treatments and demarking applications

Words | Stephan Smets, Smets Technology, Germany

Demarking and re-texturing road surfaces using ultra-high-pressure (UHP) technology has been Smets Technology's specialty since 2009, although the company's owners have been in the business since 1975. Smets has quickly developed its portfolio and its client base, and now has more than 100 customers around the world.

Smets supplies the complete unit needed – a vehicle equipped with a surface treatment function. Every unit can be customized. The company also offers the MRT road marking removal vehicle series, that has various tank volumes, as well as the ARC airport runway cleaner series, used for re-texturing (roughing) of road surfaces. The available working widths for machines are 1m (3.3ft), 1.6m (5.2ft), 2m (6.6ft) and 2.4m (7.9ft).

The largest unit, the ARC 3500, is in production for a client in Spain. With a working width of 3.4m (11.2ft), a maximum working pressure of 2,500 bar and a flow rate of the high-pressure pump of up to 83 l/min (22 US gal/min), it is a unique system.

Opening pores

In many cases, asphalt road surfaces become smooth over the course of their lifetime, thanks to temperatures and heavy traffic. The pores become closed, which can lead to aquaplaning when it rains.

Closed pores can be opened with Smet's technology, without damaging the structure of the surface. Nozzles that rotate at speeds above 400km/h (249mph) remove the micro-texture (bitumen/tar), leaving the surface with a very good friction value.

The ARC 3500 system can be specified with working widths from 0.8-3.5m (2.6-11.5ft) and can treat a whole lane (up to 3.2m/10.5ft) in one sitting. Additionally, this system has a demarking device on each side of the vehicle, with a maximum working width of 0.36m (1.2ft).



Above: Vacuum blowers can last 15 years before having to be replaced

Right: The device can be raised from the road surface in seconds



The devices can be installed at the rear of the vehicle (up to three devices installed at intervals of 0.8m/2.6ft) and between the axles on each side. These demarking devices can be raised from the road surface automatically within seconds. The vehicle is then ready for normal driving on public roads – unlike on some competitors' models, where

cleaning devices must be dismantled from the vehicle to prepare the truck for regular driving.

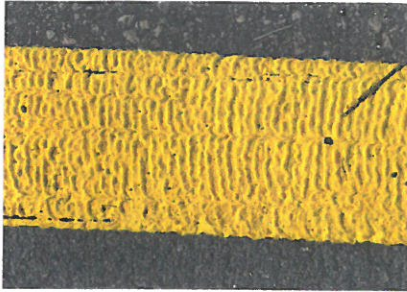
Another big advantage of these systems is their efficiency in operation. Different high-pressure pumps are matched with each model and size. Flow rates vary from 19-83 l/min (5-22 US gal/min), while working pressures from 1,000-3,000 bar are available.

Central touchscreen

An additional selling point is ease of use. While two weeks' worth of training is provided as part of the



These demarking devices can be automatically raised from the road surface within seconds



sales package, the simplicity of the operation system – which, for the operator, involves manipulation of a simple color 12in touchscreen display in the cab – means that most of the training can be performed on the job. The main displays on the screen are shown in local languages.

Warning messages (for example, regarding oil temperature, water level, booster pressure and oil pressures) are shown on the monitor in a yellow frame. If the operator ignores the warning, it will turn red and the system automatically shuts off. If the operator presses the yellow pre-warning window, a protocol

opens, giving clear advice on what to check, control and/or change.

Added extras

Smets systems can be delivered with several optional extras, such as a laser-line pointer, a permanent magnet device, a washing vacuum device with a working width of 2.4m (7.9ft) and a sweeping device with a working width of 2.8m (9.2ft). The company developed the software

Above Demarcating treatment: before and after

in-house; it is this research and development capability that has enabled Smets to develop quality products so quickly.

Other system features that are important for owners and investors include some of the lowest aftersales costs and water consumption per treated square meter of all road treatment systems available.

Drops not jets

The system also offers very high nozzle speeds, resulting in drops rather than aggressive jets that might damage the treated surfaces. Unlike jets, the drops do not have the volume to fill cracks or holes, which would cause extreme damage.

The vacuum blowers used by Smets equipment can go more than 15 years without wear and maintenance, in contrast to standard vacuum pumps, which involve a lot of repairs and spare parts. Smets' blowers create a very high flow rate of up to 16,800m³/h (593,286ft³/h). Smets offers a four-year warranty for the superstructure (not including the UHP pump). ■



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