Mixing and Pumping Equipment

The AlivaPutzmeister SP 11 Pump

The Aliva/Putzmeister SP11 is purpose built for the **SikaPave® System**.

The SP11 mixes the **SikaPave® NF Grout** to a consistently high quality every time.

Specification

- Length - 3.5m
- Width - 1.42m
- Height - 1.22m
- Weight - 750kg
- Highway legal
- 120m horizontal pumping range
- Bag splitter with a dust extraction system
- In-line water meter providing accurate control
- Sprinkler system reduces balling of the cementitious product
- Variable pump speed, producing 5 to 55 litres/minute
- Remote controlled by nozzle operator
- Onboard pressure washer

Sika Worldwide

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Certificate No. EMS 45308

Certificate No. FM 12504

Sika®Pave System

Technology

Innovation & Consistency | since 1910

Sika®Pave System

History

The **Sika®Pave System** was developed to provide a highly durable alternative to conventional methods of pavement construction. Natural and concrete setts have traditionally been installed using a sand and cement bedding mortar with a separate joint filling grout. History has proved that these traditional systems do not have robustness to deal with the demands of the ever changing world.

Problem

Failures in conventional pavement systems result in expensive and time consuming remedials, the closure of essential roads and pavements causing disruption to the general public.

Many of the failures are of a result of either the break down of the bond between the bedding mortar and the sett or the lack of quality workmanship with the compaction of the sand and cement bedding mortar.

The **Sika®Pave System** is a unique solution, the concept is to create a monolithic structure that will not only give superior loading properties but also reduce workmanship related issues and the number of potential failure points within the structure.

The Sika®Pave System

The **Sika®Pave System** incorporates bedding aggregate rather than a traditional sand cement bedding mortar. This bedding aggregate provides an extremely porous sub-structure that presents the ideal environment for the **Sika®Pave NF Grout** to penetrate. The **Sika®Pave NF Grout** totally encapsulates the bedding aggregate producing a highly durable monolithic structure.

The **Sika®Pave System** is supplied as two components

Sika®Pave Aggregate
Specially selected lightweight aggregate

Sika®Pave NF Grout
Specifically formulated high flow structural grout

Design Considerations

The **Sika®Pave NF System** is designed for use with natural and concrete stone setts for rigid road pavement construction. The **Sika®Pave System** behaves as a high performance monolithic structure to achieve rotation shear restraint creating a robust roadway solution.

Setts

A natural or concrete stone sett can be classified as either a reclaimed sett or a new sett. In the case of reclaimed setts they should be cleaned so that they are free of surface detritus, oil or grease and any loose cement mortar.

BS EN 1342 (setts of natural stone for external paving) defines the requirements for natural stone setts. Precast concrete setts being a manufactured product, comply with various individual specifications.

Quality Control

The quality control of the **Sika®Pave NF Grout** should be completed using a Sika flow board and cone to ensure the correct consistency. An experienced trained contractor will support the quality and enhance the program. Each batch of **Sika®Pave** is manufactured under strict quality controls.

Design Approach

Over the service life, the layers forming a pavement structure need to be able to sustain the applied stresses imposed by traffic movements.

Design Procedure

The **Sika®Pave System** will withstand the most rigorous trafficking. The designer should select a suitable natural or concrete stone sett and complete a structure design for the appropriate traffic level (site category) and sub-grade bearing strength prior to the installation of the **Sika®Pave System**.

Advantages

- Low maintenance
- Excellent whole life costing.
- Frost and freeze/thaw resistant.
- No requirement for bonding bridge
- Eliminates mixing of bedding mortar
- Sett laying does not need to be stopped during periods of rain as with traditional systems
- Increase productivity
- Reduced labour

Construction

Bedding and Sett Laying

Sika®Pave Aggregate is laid to a minimum depth of 30mm. Natural or Concrete setts are positioned in place and **Sika®Pave Aggregate** is then used to fill the joints. The joints should be filled to no more than 20mm from the surface.

Structural Grouting

Prior to the grouting of the **Sika®Pave Aggregate**, the whole structure should be dampened with fresh water. The grout is mixed in a purpose built forced action mixer to the required flow (425mm +-25mm) and is pumped into place. If installing on a gradient or camber, a stiffer topping layer can be applied.

System Specification

How to specify

- All pavement construction to be **Sika®Pave System**
- **Sika®Pave System** to be installed by trained contractor
- **Sika®Pave NF Grout** to be mixed and pumped using Sika approved mixing and pumping equipment
- Site access must be given to Sika for the purpose of quality control and site support

Generic specification

- All pavement construction to be a composite of specially selected lightweight bedding aggregate which has a minimum voidage of > 50% and a high flow structural grout that will produce a totally encapsulated monolithic structure