Special Class

SUPER 1800-3i SprayJet
TRACKED PAVER

Maximum Spray Width 19 ft. 8 in. (6 m)
Maximum Paving Width 29 ft. 6 in. (9 m)
Maximum Laydown Rate 770 tons/h (700 tonnes/h)

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SprayJet technology from VÖGELE has proved its value for many years and is used for pavement rehabilitation and construction in countries around the world.

The new VÖGELE SprayJet features a large array of impressive innovations. One feature of fundamental importance is that operation of the spray module has been integrated into the ErgoPlus 3 operating concept.

The module is designed as a completely self-contained functional unit. This modular design makes the SUPER 1800-3i SprayJet simple to service and allows it to be used both as a spray paver and as a conventional asphalt paver. It has a maximum spray width of 19 ft. 8 in. (6 m). As a conventional paver without spray function it can even pave widths of up to 29 ft. 6 in. (9 m).

It goes without saying that the paver also includes all the “Dash 3” features. The VÖGELE EcoPlus package, for instance, significantly reduces both fuel consumption and noise levels. The new AutoSet Plus functions allow quick and safe repositioning on the job site and make it possible to store frequently recurring paving programs.

With the SUPER 1800-3i SprayJet VÖGELE present a spray paver, unique worldwide, for paving thin asphalt overlay and conventional binder and surface courses.
Highlights of the SUPER 1800-3i SprayJet

With the SUPER 1800-3i SprayJet, VOEGELE present a spray paver, unique worldwide, for paving thin asphalt overlay and conventional binder and surface courses.

The VÖGELE EcoPlus low-emissions package significantly reduces fuel consumption and noise levels.

Cutting-edge ErgoPlus 3 operating system for paver and spray module.

Emulsion sprayed at a rate of 0.06 to 0.33 lbs./sq. ft. (0.3 to 1.6 kg/m²) in a clean and controlled process.

Uniform "Dash 3" service concept ensures easy maintenance and cuts training costs.

AutoSet Plus automatic functions for rapid repositioning of the paver on the job site and storing paving programs.

ErgoPlus 3 screed console with SmartWheel for convenient screed width control.

PaveDock Assistant for better and safer communication when transferring material from the feed truck to the paver.

Advanced and precise screed technology for perfect, high-quality pavements.

Emulsion sprayed at a rate of 0.06 to 0.33 lbs./sq. ft. (0.3 to 1.6 kg/m²) in a clean and controlled process.

The rate of spread per square meter must be determined as a function of the emulsion to be used. The rate of spread depends on the emulsion’s consistency and temperature when applied, and on the size of nozzles used for spraying.
For many road construction and civil engineering contractors, the SUPER 1800-3i SprayJet offers an excellent opportunity to employ their paver in a variety of applications, be it as a conventional upper mid-range paver or as a special machine for particular jobs.

The machine technology of the SUPER 1800-3i SprayJet is ideal in all cases. It is based on the modular concept developed by VÖGELE. As a result, the paver can be used either with the SprayJet module or, after only minor conversion, as a conventional asphalt paver without SprayJet module.
Paving Thin Overlay on Spray Seal, “Hot on Hot”

This is a cost-effective asphalt paving method for rehabilitation or renewal of the surface course. It can be used on all traffic areas. The layer thickness is normally no more than 0.5 to 0.8 in. (1.2 to 2 cm). The method owes its cost-effectiveness to saving expensive surface course material. The procedure is ideal in municipal areas, as paving thin overlay does not require any costly adaptation of curbs or other pavement fittings.

With the SUPER 1800-3i SprayJet, thin overlay can be paved on a spray seal three to five times faster than with conventional equipment. The bitumen emulsion is sprayed and the asphalt placed by the VÖGELE machine in a single pass. This way, job site vehicles do not drive over the sprayed surface and never damage the emulsion film.

Advantages of the technique

**Saving of cost**

1. Thin layer saves up to 50 % of material cost.
2. No costly adaptation of curbs is required.
3. When a spray paver is used, job site vehicles do not drive over the sprayed area. This means that other roads in the area are not soiled and need not be cleaned after completion of the job.
4. Short construction time due to fast progression of the roadworks and quick reopening of the road to traffic.

**High quality**

1. An excellent bond between layers, perfect sealing and effective protection of the existing base add up to a long service life for the road.
2. High initial and permanent roughness of the resurfaced road are guaranteed.

Paving Binder and/or Surface Course on Spray Seal

This classical method is widely known in many countries for rehabilitating traffic areas. Until now, it has been common practice to spray the surface with bitumen emulsion beforehand so that the water could evaporate over night. This left a bitumen coat that was subsequently overlaid with a binder course or surface course. However, the time and equipment required was one considerable disadvantage of this method.

Another problem that should be avoided wherever possible is that of transport vehicles crossing over and ruining work on surrounding areas, roads and curbs.

With the SUPER 1800-3i SprayJet, thin overlay can be paved on a spray seal three to five times faster than with conventional equipment. The bitumen emulsion is sprayed and the asphalt placed by the VÖGELE machine in a single pass. This way, job site vehicles do not drive over the sprayed surface and never damage the emulsion film.

![SUPER 1800-3i SprayJet](image)

Pavement rehabilitation using porous asphalt (OPA) is a method of growing importance in several countries. It currently is used mainly for noise control both on municipal roads and on motorways.

What happens when the bitumen emulsion “breaks”?

The water begins to evaporate as soon as the hot bitumen emulsion is sprayed at a temperature of 158 to 176 °F (70 to 80 °C). The remaining water evaporates spontaneously when the emulsion comes into contact with asphalt heated to more than 212 °F (100 °C). In this way, the emulsion “breaks” when using SprayJet technology from VÖGELE.

![What happens when the bitumen emulsion “breaks”?](image)

1. Prepared base: milled surface or freshly laid binder course.
2. Hot bitumen emulsion at a temperature between 158 to 176 °F (70 to 80 °C) is applied by the spray paver.
3. Paving of a binder or surface course. The bitumen emulsion “breaks” immediately as the hot asphalt causes the water to evaporate, leaving a firmly adhering film of bitumen.
4. Any water still remaining in the emulsion evaporates through the “open pores” of the asphalt overlay.

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The capacity of the emulsion tank has been increased to 555 gallons (2,100 liters) to extend the paver's range. Effective insulation and the integrated electric heating system (2 x 7 kW) ensure that the emulsion is maintained at the temperature required for spraying. A heated emulsion pump circulates the bitumen emulsion in the tank and ensures that it is permanently homogenized.

Even with the spray module installed, all the main service points are readily accessible behind large hinged panels. An additional filler port on the left-hand side ensures greater flexibility when refilling the emulsion tank of the "Dash 3" spray module. All circuits are switched automatically via electronically controlled ball valves. An auxiliary gas heating system rapidly heats the bitumen emulsion to the required temperature if it is too cold on delivery. Compressed air system integrated into the spray module.
VÖGELE Spray Technology

The SUPER 1800-3i SprayJet is equipped with 5 spray bars. The front spray bar has 6 spray nozzles and is located between the machine’s crawler tracks, right behind the push-rollers. An articulated spray bar installed on each side of the paver comes with 7 nozzles per side. Finally, a short spray bar with 2 nozzles is provided right behind each crawler track. This arrangement of the spray bars allows full coverage of the existing surface with emulsion, even when the paving width varies. The rate of spread can be selected accurately within the range of 0.06 to 0.33 lbs./sq.ft. (0.3 to 1.6 kg/m²).

The spray nozzles are opened and closed pneumatically. A compressed air system is integrated into the SprayJet module for this purpose.

A very low spraying pressure of no more than 43.6 psi (3 bar) allows absolutely uniform spreading of bitumen emulsion and a clean result when spraying along curbs.

The nozzles do not spray the emulsion continuously, but operate instead in pulsed mode. The frequency of the spray pulses is adjusted automatically as a function of the selected rate of spread, paving speed and paving width. As a result, complete coverage of the existing surface with a uniform film of emulsion is achieved without any overlaps.

Emulsion is applied at an exceedingly low spray pressure of no more than 43.6 psi (3 bar). In combination with the high-quality spray nozzles, this allows the emulsion to be sprayed cleanly and without burdening the environment.

* The rate of spread per square meter must be determined as a function of the emulsion to be used. The rate of spread depends on the emulsion’s consistency, ambient temperature when applied, and on the size of nozzles used for spraying.
Perfect Spraying 
Even at Smallest Rates of Spread

The VÖGELE SprayJet module allows to precisely select a rate of spread ranging from a very small quantity of emulsion through to a large quantity. The range is from 0.06 to 0.33 lbs./sq.ft.* (0.3 to 1.6 kg/m²). Rate of spread and paving width can be selected independently of the paving speed. The possibility of spreading emulsion accurately at a very small rate of just 0.06 lbs./sq.ft.* (0.3 kg/m²) makes VÖGELE SprayJet technology unique in the market. Attention should be paid to the fact that the spread rates depend on the kind of emulsion used, the emulsion viscosity and the temperature when applied.

The SprayJet module’s color touchscreen display provides the operator with all the important information and allows him to easily set the desired rate of spread.

For the spray bars on the SprayJet module, three different types of spray nozzles are available: Size 7, 10 or 16. Size 10 nozzles are fitted as standard. The spray nozzles size 07 have a throughput of some 70 % compared to the nozzles of size 10 (100 %). The nozzles size 16 have a throughput of some 160 %.

<table>
<thead>
<tr>
<th>Nozzle size</th>
<th>Spray pressure</th>
<th>Quantity</th>
<th>Length of sprayed patch</th>
</tr>
</thead>
<tbody>
<tr>
<td>07</td>
<td>29 psi (2 bar)</td>
<td>0.06 – 0.1 lbs./sq.ft (0.3 – 0.5 kg/m²)</td>
<td>1.6 – 2.4 m (60 – 60 in)</td>
</tr>
<tr>
<td>10</td>
<td>36.3 – 43.6 psi (2.5 – 3 bar)</td>
<td>0.1 – 0.2 lbs./sq.ft (0.5 – 1.0 kg/m²)</td>
<td>1.6 – 2.4 m (60 – 60 in)</td>
</tr>
<tr>
<td>16</td>
<td>36.3 – 43.6 psi (2.5 – 3 bar)</td>
<td>0.2 – 0.33 lbs./sq.ft (1 – 1.6 kg/m²)</td>
<td>2 in – 3.1 in (50 – 80 mm)</td>
</tr>
</tbody>
</table>

* The rate of spread per square meter must be determined as a function of the emulsion to be used. The rate of spread depends on the emulsion’s consistency and temperature when applied, and on the size of nozzles used for spraying.
The Drive Concept: Efficiency, Performance, and Low Consumption

VÖGELE’s modern drive concept is perfectly adapted to the large range of different uses of the SUPER 1800-3i SprayJet.

The Special Class paver has an exceedingly powerful drive system for jobs requiring maximum performance and is also highly economical in everyday use.

All drive components, from the diesel engine to the hydraulic system, are designed for maximum efficiency, in keeping with the motto: low input for maximum output.

Further innovations, such as the intelligent engine management with ECO mode and the VÖGELE EcoPlus low-emissions package, additionally ensure low fuel consumption and low-noise operation.
Full Power – Intelligent Technology

Three main components define the power unit of a SUPER 1800-3i SprayJet: its modern, liquid-cooled diesel engine, a splitter gearbox flanged directly to the engine and a large cooler assembly.

The driving force in this VOGELE power pack is its Cummins diesel engine of type QS6.7-C170. This six-cylinder engine delivers 170 hp (127 kW) at 2,000 rpm. Yet the fuel-saving ECO mode is sufficient for many applications. Even in ECO mode, the SUPER 1800-3i SprayJet still has a full 155 hp (116 kW) at its disposal. Moreover, the machine generates less noise when running at just 1,700 rpm.

A large cooler assembly ensures that the power unit always delivers its full output. With innovative air routing and a variable-speed fan, temperatures are continually maintained within the optimum range, significantly extending the service life of both the diesel engine and the hydraulic oil. A further advantage is that the machine can operate without difficulty in all climate regions worldwide.

All hydraulic consumers are directly supplied with hydraulic oil via the splitter gearbox. Hydraulic pumps and valves are centrally located, making them easily accessible for servicing. Even the powerful generator for screed heating is flanged directly onto the splitter gearbox. Its integrated oil cooling system makes it completely maintenance-free and very quiet.

The large cooler assembly is made up of three parts. It ensures that engine coolant, charge air, and hydraulic oil are maintained at the optimum temperature.

- Machines with the suffix “i” in their product designation are not only economical, but also extremely clean.
- Powerful Cummins diesel engine rated at 170 hp (127 kW).
- ECO mode with 155 hp (116 kW) cuts operating costs and supports super-quiet operation.
- A powerful, oil-cooled generator with direct drive ensures rapid, uniform heating of the screed.

The “i” stands for “intelligent emission control” and is found in the type names of all machines from the WIRTGEN GROUP equipped with the latest engine technology. Thanks to the sophisticated exhaust gas after-treatment, the engine of the SUPER 1800-3i SprayJet complies with the strict EPA Tier 4i standard.
Efficient Transmission of Engine Power

High-quality separate hydraulic drives are essential components of the VÖGELE drive concept. They make VÖGELE pavers extremely cost-efficient, with a high performance level. Since the traction drive units are directly integrated into the drive wheels of the crawler tracks, engine output is translated into paving speed without any loss of power.

- **The hydraulic systems** for the traction drive, conveyors and augers, as well as the compacting systems all operate in separate closed loops for maximum efficiency.
- **Long crawler tracks** with large footprints provide for maximum tractive effort, allowing the paver to get on well at a constant speed even when working on difficult terrain.
- **Positive tracking** when moving straight and accurate cornering due to separate drive and electronic control provided for each crawler track.
Advantages of the “Dash 3” Generation

The SUPER 1800-3i SprayJet can be used both as a spray paver and as a conventional paver at any time. Regardless of the application, the machine always offers its operators all the various advantages resulting from the innovative edge of the “Dash 3” paver generation.

These advantages are of particular significance for construction projects in urban areas. The functions of AutoSet Plus automate on-site repositioning and transport of the machine on the one hand, and store individual paving programs on the other. This not only saves time, but also enhances process safety and the pavement quality. Despite all their differences, the “Dash 3” features have one thing in common: they are all consistently designed to improve the operator’s control of the machine and the paving process, as well as to make the paver more eco-friendly. As a result, the SUPER 1800-3i SprayJet is also ideal for use as a powerful and versatile conventional paver.

VOGELE EcoPlus
The innovative VÖGELE EcoPlus low-emissions package includes a number of features for reducing both noise levels and fuel consumption. Fuel costs are cut by around 25 % through the combination of an energy-optimized tamper drive, variable-speed fan, controlled hydraulic oil temperature circuit and splitter gearbox with ability to disengage hydraulic pumps.

PaveDock Assistant
PaveDock Assistant is the communication system between the paver operator and the feed vehicle driver. It allows particularly fast and reliable transfer of mix to the paver. The PaveDock Assistant communication system contributes greatly to process safety during transfer of the material.

AutoSet Plus
AutoSet Plus incorporates two handy automatic functions: the Repositioning and Transport function makes it easier to change between work sections on the job site. The paver is automatically set to transport mode at the push of a button and the current settings are saved. The Paving Programs function allows to save paver and screed settings, which can be called up when required at a later date, for instance on job sites with comparable conditions.
The ErgoPlus 3 Operating System

Even the very best machine with the most advanced technology can only really show its strengths if it can be operated easily and as intuitively as possible. At the same time, it should offer an ergonomic and safe working environment for the operating team. Therefore, the ErgoPlus 3 operating system focuses on the operator. With VÖGELE pavers, the user consequently retains full control over the machine and construction project.

On the following pages, example illustrations will provide you with more detailed information on the extensive functions of the ErgoPlus 3 operating system. For the SUPER 1800-3i SprayJet, ErgoPlus 3 encompasses the paver operator’s console, the screed consoles and the control panel for the SprayJet module.

“Full Control for the Machine Operator”
Like all "Dash 3" generation pavers, the SUPER 1800-3i SprayJet comes with the VÖGELE ErgoPlus 3 operating system which substantially facilitates the paver’s handling. In this way, VÖGELE offers the operators every conceivable convenience expected of a modern operating system. All the important, commonly used functions are clustered in logical groups. This makes their operation easy to learn.

Important spraying functions have been integrated into the large color display on the paver operator’s console which offers outstanding legibility even in poor lighting conditions. The maximum possible paving speed is displayed here for the paver operator as a function of the set rate of spread. In addition, the handy automatic functions “Start of Job” and “End of Job” can be activated at the push of a button.

Module 1: conveyors and Augers, Traction
Module 2: Screed
Module 3: Material hopper and Steering
Module 4: Display screen for monitoring and adjustment of basic settings

The display screen shows the maximum possible paving speed at which full coverage of the existing surface with emulsion is still ensured.

“Start of Job” (f6) and “End of Job” (f8) are provided so that spraying always starts and ends at exactly the required point and continues over the full paving width.

The VÖGELE SmartWheel is an exceedingly practical innovation. With it, the pave and spray width can be conveniently adjusted in two speeds: slow, for precise screed width control along an edge, or fast for final extension and retraction of the screed.

The two outermost nozzles on the lateral spray bars can be switched on and off via the screed console to produce an accurate, clean spray line.

All the functions needed to prepare for spraying can be set via the menus 5.1 to 5.3. Menu 5.1 controls the process of filling the emulsion tank, menu 5.2 is used to set-up the nozzles, while the parameters for heating and circulating the emulsion are set in menu 5.3.

The ErgoPlus 3 SprayJet module has been consistently integrated into the ErgoPlus 3 operating system. This applies not only for the symbols used on the operator interface, but also for the “Touch and Work” principle.

All functions for preparation, spraying and cleaning are conveniently selected and started via the touchscreen mounted directly on the module. Work sequences pass automatically in accordance with the function which has been entered.

All this makes operation of the SUPER 1800-3i SprayJet module extremely safe and simple.

**Module 1**: conveyors and Augers, Traction
**Module 2**: Screed
**Module 3**: Material hopper and Steering
**Module 4**: Display screen for monitoring and adjustment of basic settings

**Operation of the SprayJet module**

**5.1 Preparation**
All the functions needed to prepare for spraying can be set via the menus 5.1, 5.2 and 5.3. Menu 5.1 controls the process of filling the emulsion tank, menu 5.2 is used to set-up the nozzles, while the parameters for heating and circulating the emulsion are set in menu 5.3.

**5.2 Spraying**
The paver operator can set up and monitor all relevant spraying parameters, such as the filling level of the emulsion tank, the rate of spread, the rate of delivery of the dosing system, and more.
The **ErgoPlus 3 Control Panel** for the SprayJet Module

**Operation of the SprayJet module** is effected entirely via the ErgoPlus 3 control panel on the module. Clearly legible in all weather conditions, the touchscreen assures the operator of full control over the spraying process at all times.

The “Dash 3” generation VÖGELE spray paver offers a large number of convenient automatic functions meeting practical needs. For the operator, they fundamentally simplify preparation of the spray module, the spraying process itself and cleaning of the spray module:

- **All the settings** required for replenishing, circulating and heating the emulsion can be entered and monitored directly via the touchscreen.
- **Depending on the installed nozzle size** and the selected rate of spread, the maximum paving speed is calculated by the SprayJet module’s control unit and displayed on the paver operator’s ErgoPlus 3 console. This ensures uniform application of the emulsion.
- **The rate of spread** can be set here just as easily and the nozzles calibrated or switched on and off individually. Correct operation of the front spray bar is monitored electronically, as it is out of sight of the screed operator.
- **Lines and valves are cleaned** in a fully automated process controlled by a separate program.
VÖGELE Extending Screeds for Perfect Pavement Quality

For the SUPER 1800-3i SprayJet, two state-of-the-art screeds are available: the AB 500 and AB 600. Either of these extending screeds can handle spraying widths up to 19 ft. 8 in. (6 m). The AB 600 comes with a basic width of 9 ft. 10 in. (3 m) and extends hydraulically up to 19 ft. 8 in. (6 m). The AB 500 can be built up to its maximum width of 19 ft. 8 in. (6 m) with additional bolt-on extensions 2 ft. 6 in. (75 cm). The widths of the screeds are limited electronically to a maximum of 19 ft. 8 in. (6 m). Either screed is available in the TV version (with tamper and vibration) or the TP1 version (with tamper and 1 pressure bar) for high compaction.

Like all VÖGELE screeds, the AB 500 and AB 600 Extending Screeds feature a very efficient electric heating system. The screed and emulsion tank are heated independently, so that heating of the emulsion can take place without having to heat the screed.

The two ErgoPlus 3 screed consoles display all the critical information for the screed operators. Thanks to universal symbols, set-up and adjustments can be made easily.

Possible Configurations

<table>
<thead>
<tr>
<th>SUPER 1800-3i SprayJet</th>
<th>Maximum Spray Width</th>
<th>Maximum Spray Width</th>
<th>Extra Emulsion Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ab 500 TV Extending Screw</td>
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<td>✔</td>
<td>✔</td>
</tr>
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</tr>
<tr>
<td>Ab 600 TP1 Extending Screw</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
All the Facts at a Glance

Power Unit
- Engine: 6-cylinder diesel engine, liquid-cooled
- Manufacturer: Cummins
- Type: QSB6.7-C170

Output
- Nominal: 170 hp (127 kW) at 2,000 rpm
- ECO mode: 155 hp (116 kW) at 1,700 rpm

Exhaust Emissions
- Standard: EU Stage 3b, US EPA Tier 4i
- Exhaust gas after-treatment: DOC

Fuel Tank
- 79 gallons (US) (300 liters)

Undercarriage
- Crawler Tracks: provided with rubber pads
- Ground contact: 9 ft. 3 in. x 1 ft. (2,830 mm x 305 mm)
- Track tension adjuster: spring assembly
- Track roller lubrication: lifetime
- Traction Drive: hydraulic, separate drive and electronic control provided for each crawler track

Material Hopper
- Hopper Capacity: 2,480 lbs. (1,126 kg)
- Width: 10 ft. 9 in. (3,265 mm)
- Dump Height: 23 in. (594 mm) (bottom of material hopper)
- Push rollers: can be displaced forward by 3 in. (75 mm)

Conveyors and Augers
- Conveyors: 2, with replaceable feeder bars; conveyor movement variable for a short time
- Drive: separate hydraulic drive provided for each conveyor
- Speed: up to 108 fps (33 m/min)

SprayJet Module
- Holding capacity: 555 gallons (US) (2,100 liters) as standard, with extra tank (option) 1,876 gallons (US) (7,100 liters)
- Tank shell: insulated against loss of heat
- Spray bars: 5 segments extending from 8 ft. 4 in. to 19 ft. 8 in. (2.55 m to 6 m)
- Spray nozzle: 0.06 to 0.33 lbs./sq.ft.* (0.3 kg/m² to 1.6 kg/m²)
- Spray pressure: 43.6 psi (3 bar) maximum
- Spray cone: 120°

Dimensions (Transport) and Weight
- Length: tractor and screed
  - AB 500 TV/TP1: 19 ft. 8 in. (6 m)
  - AB 600 TV: 19 ft. 8 in. (6 m)
- Maximum Spray Width
  - AB 500/AB 600 TV/TP1: 19 ft. 8 in. (6 m)

Technical alterations reserved.