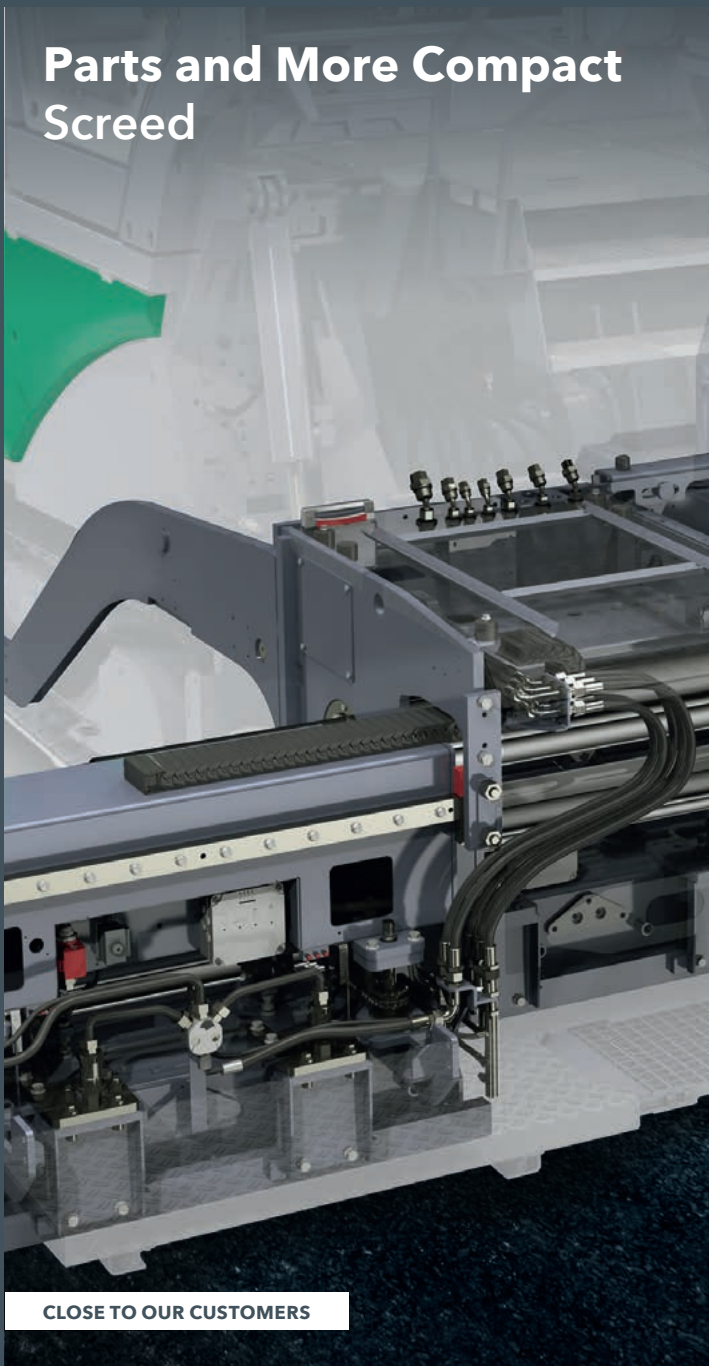


A JOHN DEERE COMPANY



WIRTGEN GROUP

# Parts and More Compact Screed



CLOSE TO OUR CUSTOMERS

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# ORIGINAL VÖGELE SCREEDS



## A LOOK AT EVERYDAY WORK

Shadows in the pavement, a rough surface or an uneven paving result – faults that in the majority of cases are due to the usage of heavily worn components or low-quality cloned parts. However, it is possible to avoid these problems using original VÖGELE screeds.

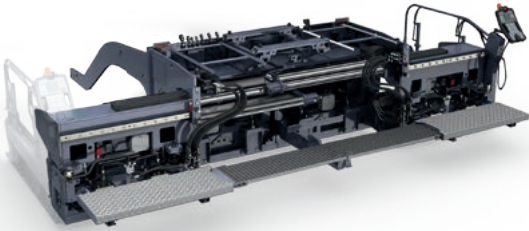
Use our original parts and ensure you meet your high-quality standards during road construction.

It is not only the high standards during the manufacturing process that have a major effect on the service life of the components involved in compaction, but also the special design characteristics.

## **PARTS AND MORE COMPACT SCREED**

This brochure describes VÖGELE screeds with particular emphasis on the compaction, screed heating and telescoping systems, as well as the characteristics of the screed wear parts. You will find information and tips on the replacement at the right time of all relevant components on our extending screeds and our fixed-width screeds.

# ORIGINAL VÖGELE SCREED TYPES



> *Extending screed*

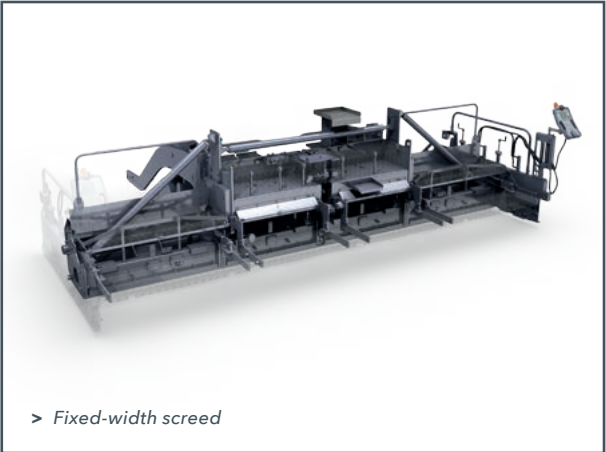
The screed is the heart of each road paver. The screed has the following tasks:

- > Creation of an even, closed surface structure
- > Achievement of high pre-compaction
- > Profiling of the pavement in accordance with the client's requirements

In general a differentiation is made between two different types of screeds.

Using an **extending screed (AB)** it is possible to realise varying pave widths from 1.1 m to 9.5 m. Their strength is their enormous flexibility in case of different pave widths.

- > Today's customary flexible screed
- > Restricted working widths
- > Enormous range of uses
- > Ideal for jobs requiring variability and adaptability



**Fixed-width screeds (SB)** can be used for pave widths from 2.5 m to 16 m – with additional bolt-on screed extensions. Thanks to their 500-mm deep screed plates (on extending screeds 330 mm) these screed types react more slowly, which results in even pavement quality and accuracy of line and level. The continuous, mechanically extended screed configuration does not leave any marks on the surface of the finished asphalt. Not even if the screed planing angle changes. Fixed-width screeds are predominantly used for paving long sections with a large, unchanging pave width and large radii.

- > Great working widths
- > Can be used for a greater variety of purposes thanks to hydraulic extending units
- > High surface accuracy
- > Suitable for paving with high compaction, for concretes such as HGT, RCC and PCC

# ORIGINAL VÖGELE

## SCREED COMPONENTS

### THE FUNCTIONAL PRINCIPLE OF SCREEDS

The screed components shown have a direct or indirect effect on the pavement quality.

The **tamper shields** push forward the paving material in front of the screed. The **tamper** located on the front of the screed pushes the mix under the screed body and creates the necessary pre-compaction; this component also has a significant effect on the “floating behaviour” of the screeds.

The **screed plates** ensure the surface structure is even. The **pressure bars** driven by pulsed-flow hydraulics form the end of VÖGELE high compaction screeds. Using these screed components a perfect paving result with very high pre-compaction can be achieved; in this way the roller passes necessary can be minimised.

The **heating rods** on all compacting systems prevent asphalt adhering and provide a perfect close-textured surface.

The **telescoping tubes** and the torque restraint system (see illustration on the right) along with the **guide bars** and **sliding blocks** ensure the extending screed has the necessary stiffness.



## Extending screed elements



- 1 > *Torque restraint system*
- 2 > *Single-tube telescoping system*
- 3 > *Hydraulic ram for screed width control*
- 4 > *Screed's hydraulically extending unit*
- 5 > *Screed plate with heating rod*
- 6 > *Screed body*
- 7 > *Monitoring unit for heating rods*
- 8 > *Eccentric vibrator*
- 9 > *Tamper with heating rod*

# ORIGINAL VÖGELE

## SCREED VERSIONS FOR COMPACTION

The screed's compacting systems are intended to create the greatest possible pre-compaction so that varying layer thicknesses have less effect on the amount of subsequent compaction by rolling during final compaction. The compacting systems listed in the following are used at VÖGELE:

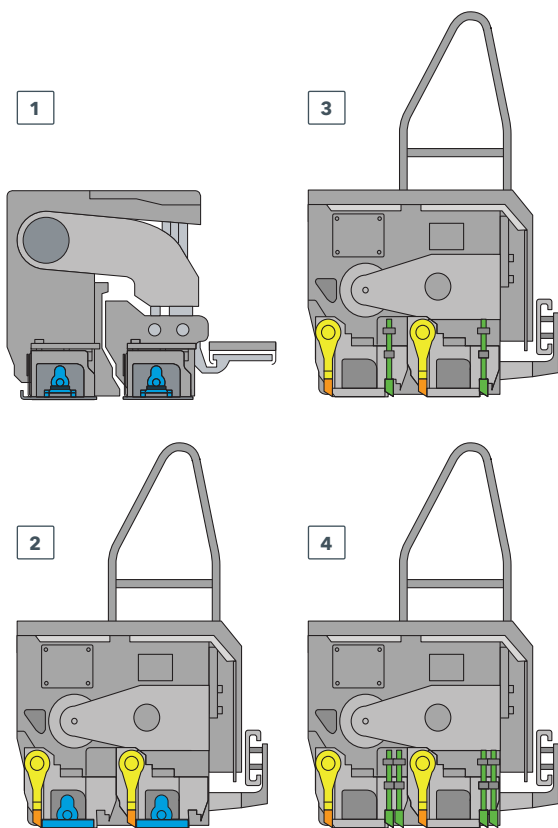
- T >     **Tamper:**** An eccentric shaft causes the tamper bar to move up and down.
- V >     **Vibrators:**** Vibrations are generated by an eccentric shaft acting on the screed plates at right angles to the direction of motion.
- P >     **Pressure bar:**** The pressure bars are hydraulically pressed onto the material at a frequency of approx. 68 Hz and a maximum pressure of 130 bar.
- P1 >     Screed equipped with one pressure bar**
- P2 >     Screed equipped with two pressure bars**
- Plus >   Screed equipped with two pressure bars, modified tamper geometry and additional weights in the screed frame**

### FIELDS OF APPLICATION

**V** and **TV screeds** are used for all conventional, easy to compact mixes.

On the usage of **TP1** and **TP2 screeds** slightly less effort is required for subsequent compaction by rolling. The two variants differ in relation to the compaction values achieved; all conventional mixes can be processed. The TP2 version achieves high pre-compaction in particular even with thick layers.

## Compacting systems of extending screeds



**1** > V: Vibrators

**2** > TV: Tamper and vibrators

**3** > TP1: Tamper and one pressure bar

**4** > TP2 (Plus): Tamper and two pressure bars

# ORIGINAL VÖGELE SCREED VERSIONS FOR COMPACTION

**TVP2 screeds** can be used for all conventional mixes. This variant is also suitable for paving PCC (Paver Compacted Concrete), as in this application there is no subsequent compaction by rolling.

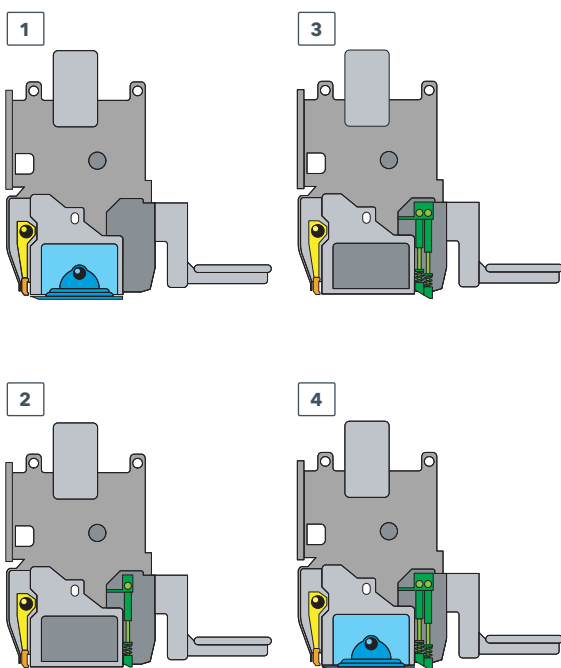
The variant **TP2 Plus** with even higher compaction values is used in the VÖGELE InLine Pave train for producing the binder course. This layer must already have final compaction values as it is immediately driven over by the following paver.

All compacting systems on VÖGELE screeds – tamper, vibrator and pressure bar – are controlled separately and can be switched on or off as required.



*The interaction of the tamper bar, screed body (screed plate), bevel iron as well as the side plate ski and the pressure bar ensures the mix is held in place as a package such the material is prevented from escaping – irrespective of in which direction. An almost finally compacted asphalt pavement is produced.*

## Compacting systems of fixed-width screeds



**1** > TV: Tamper and vibrators

**2** > TP1: Tamper and one pressure bar

**3** > TP2: Tamper and two pressure bars

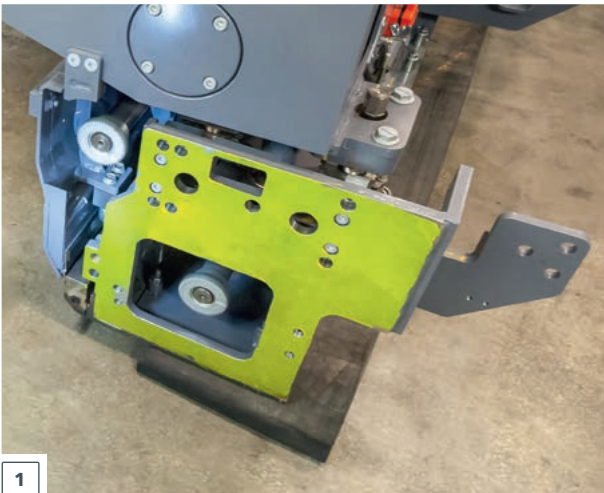
**4** > TVP2 (Plus): Tamper, vibrators and two pressure bars

# ORIGINAL VÖGELE MANUFACTURING PROCESS OF TAMPER BARS

**The tamper packs the mix to be laid under the screed body by means of the vertical stroke. It ensures a regulated supply of material and creates the necessary pre-compaction.**

The up and down movement of the tamper places high requirements on its material due to the constant impact load. A hard surface and a ductile core are important characteristics that tamper bars must have.

At the start of the manufacturing process, a CNC-controlled saw cuts the profiled bars to the required length. Thanks to the bevelled leading edge, the tampers ensure even mix feed and optimal compaction in use. The service life of the components depends on their hardness. Using induction hardening, as on the pressure bars as well, even hardening over the entire length of the bar and a hardening depth of at least 5 mm is achieved.



1

The core remains ductile and flexible while the surface, which is in constant contact with the mix to be compacted, remains wear-resistant.

The bores for the heating rods are made on the CNC deep hole drilling machine specially developed for VÖGELE. With this bore the heating rods can heat the bars (tamper bars and pressure bars) centrally from the inside over the entire length - homogeneous heating is ensured. In this way deposits of bitumen residue are prevented from adhering during subsequent paving (particularly during pre-heating prior to starting work) and abrasive wear on the contact surfaces is reduced.

Then all the bars are straightened on a straightening bench. The permissible error is maximum 0.5 mm.

**2**

- 1** > *Finish for compacting systems*
- 2** > *Manufacture of the bores for the heating rods on pressure bars and tamper bars*
- 3** > *Section through the tamper (hardening depth < 5 mm)*

**3**

# ORIGINAL VÖGELE MANUFACTURING PROCESS OF SCREED PLATES

**The wear-resistant steel on the screed plates combines the optimal characteristics such as ductility and fracture strength that are imperative for the service life of these components due to the sliding friction that occurs against the mix for the pavement.**

During the manufacturing process the raw material for the screed plates is first cut to the required dimensions with the aid of a laser. A chamfer is milled on the future underside of the screed plate in the forward direction of travel; this chamfer ensures good material feed behind the tamper bar.

To prevent cold welding between the rear of the tamper and the leading edge of the screed plate (forward direction of travel), this area is also machined appropriately. This optimisation ensures accurate tamper bar guiding and also significantly increases the service life of both components. After low-stress straightening to ensure evenness, the threaded bolts are applied to the top using a CNC-controlled stud welding machine. On average 25 threaded bolts are welded to each screed plate with maximum tensile and shear strength.



1





- 1** > *A laser cuts the correct shape from Hardox steel.*
- 2** > *The necessary screed plate chamfer is produced using special milling tools.*
- 3** > *Screed plates are low-stress straightened.*

# ORIGINAL VÖGELE MANUFACTURING PROCESS OF PRESSURE BARS

**The pressure bars driven by pulsed-flow hydraulics of single or double design (TP1 or TP2 variant) are subjected to similar loads to the tamper bars during operation.**

All high compaction screeds from VÖGELE are equipped with pressure bars. They are located immediately behind the screed plates and form the end of the compaction by the screed.

The positioning of the pressure bars at the end of the screed has the advantage that the compaction effect can be regulated independent of the material feed and pre-compaction.

If the profile of the pressure bars is already excessively worn, the compaction results will be well below the values required by the client.

- 1 >** *A CNC-controlled saw ensures the profiled bars are of the required length.*
- 2 >** *Profile and plane-parallel milling of the blanks.*
- 3 >** *The CNC deep hole boring machine makes a 20-mm bore for the heating rods.*



1

The manufacturing process for the pressure bars is similar to the tamper bars; there are two different forms of pressure bars: Pressure bar 1, immediately behind the screed plate, has a uniform chamfered profile. The rear third of pressure bar 2, which follows, has a flattened profile. On TP1 version screeds, only the pressure bar of type 2 is fitted.



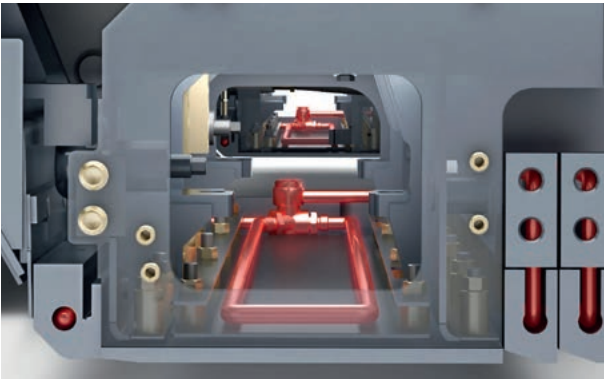
# ORIGINAL VÖGELE ELECTRIC SCREED HEATING SYSTEMS

VÖGELE is the technological leader in the area of electric screed heating. As early as 1952 VÖGELE was the first road paver manufacturer to use this highly efficient, eco-friendly design and has shaped the development of screed heating up to the current day with many innovations.

To provide optimal support to the compaction and to produce a smooth surface structure, all compacting systems are heated across the full screed width. In this way the adhesion of mix is effectively prevented and an operating temperature optimal for the floating behaviour of the screed obtained.

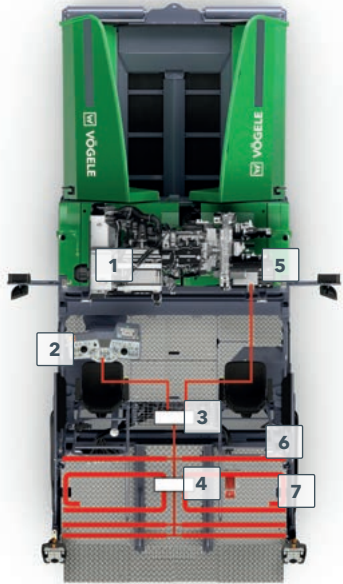
Tamper and pressure bars are heated evenly from the inside via integrated heating rods. As standard the screed plates are fitted with a heating rod that distributes the heat all over the plates. Optionally, the bevel irons and side plate skis can also be equipped with heating.

## > *Heating rods*



## Screed heating

- 1 > Engine
- 2 > Control desk
- 3 > Control box/  
fuse box
- 4 > Distributor box
- 5 > Generator
- 6 > Tamper with  
heating rod
- 7 > Screed plate with  
two heating rods



On all VÖGELE road pavers, powerful and robust three-phase A.C. generators supply the screed heating with the necessary energy. The intelligent **generator management system** provides optimal efficiency. It ensures that enough generator power is available for the current pave width, independent of the engine speed. Power reserves are available in full for paving.

# ORIGINAL VÖGELE TELESCOPING SYSTEM OF EXTENDING SCREEDS

## 3-POINT SUSPENSION

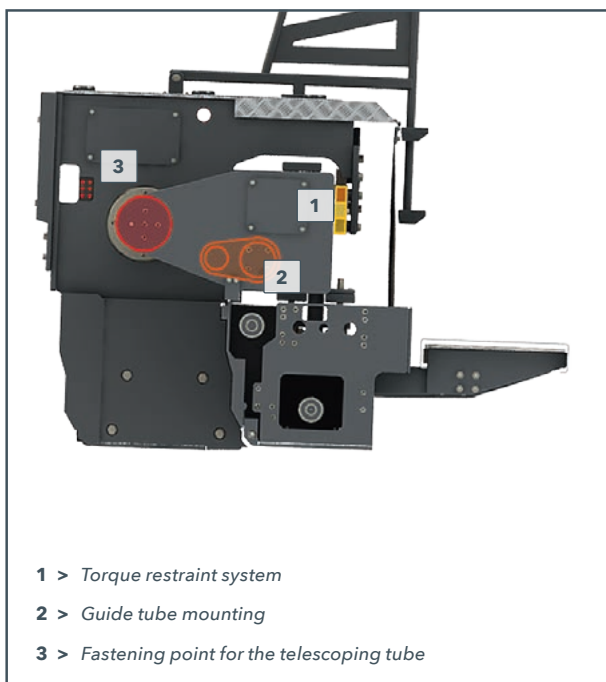
The 3-point suspension for VÖGELE extending screeds comprises the following components: the telescoping tube, the hydraulic ram in conjunction with the guide tube, and the torque restraint system (see illustration on right). The width of the extending screeds is adjusted using two hydraulic rams controlled exactly via the ErgoPlus consoles.

The generously dimensioned telescoping tube keeps the extending units securely in position. At full screed width the three nested individual tubes of telescoping tube are extended by no more than half. Due to the large bearing span the vertical up float forces are reliably counteracted. The smooth movement of the telescoping tubes, without jamming or jerking, is an important prerequisite for impeccable project execution – particularly if frequent pave width changes are required. The slide tapes inside the tubes guarantee freedom from play and ensure jerk-free movement on extending and retracting.

VÖGELE achieves variable width while retaining high stability by using an additional guide tube. This tube, which is connected to the extending unit via a linear plain bearing, makes possible the precise, parallel adjustment of the width of the screed up to large pave widths. Enormous material pressure is applied to the screed's extending units in the horizontal direction, resulting in a torque.

This torque is counteracted by bracing (torque restraint system) that prevents the extending unit twisting or turning around the telescoping tube.

Together with the guide tube mounting (2) and the fastening point for the telescoping tube at the outer end of the extending unit (3), the torque restraint system (1) forms the VÖGELE 3-point suspension that absorbs the forces produced and guarantees the stress-free extension and retraction of the extending units without jerking or jamming.

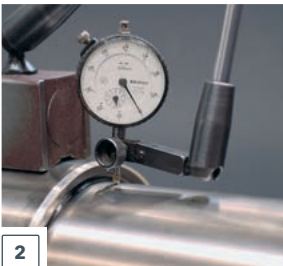


# ORIGINAL VÖGELE TELESCOPING SYSTEM OF EXTENDING SCREEDS

## TELESCOPING TUBES

The telescoping tubes provide the extending screeds with the necessary stability (system stiffness) and ensure maximum precision (freedom of the system from play) on extending and retracting. While the stiffness is determined above all by the large tube diameter, a high accuracy fit between the inner and outer tubes is crucial for the freedom from play. Due to the precision necessary on the telescoping tubes, they are manufactured in an elaborate process with several work steps.

After cutting, the elements are machined in several honing and grinding processes to ensure there is as little play on the fit as possible. On the honing machine extremely fine, accurate surfaces are achieved on the inner surfaces of the



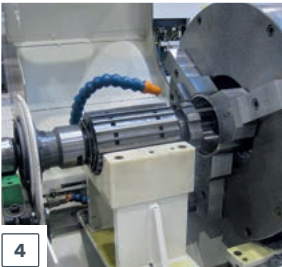


telescoping tubes with a roughness of maximum 5 thousandths of a millimetre.

*A human hair for comparison has a diameter of approx. 0.1 mm.*



For a hard, corrosion-resistant surface, the outer surfaces are first ground again and then Kanigen nickel-plated. The telescoping tubes from VÖGELE are only manufactured as a set in one process to safeguard the characteristic features of stability and precision and to ensure the usual high pavement quality.



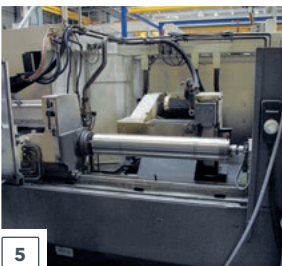
**1** > *Teflon slide tapes on the end of the tubes guarantee perfect sliding properties.*

**2** > *Measurement of the play between the telescoping tubes.*

**3** > *Machining the surface on the honing machine.*

**4** > *The workpieces are finish honed in one pass.*

**5** > *Grinding process for a particularly smooth outside diameter.*



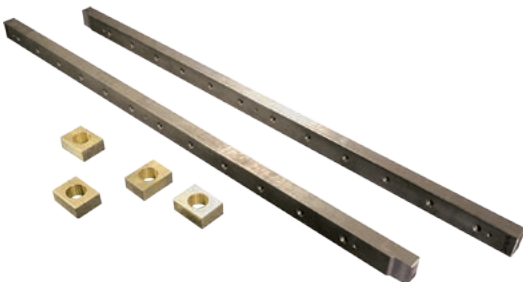
# ORIGINAL VÖGELE TELESCOPING SYSTEM OF EXTENDING SCREDS

## GUIDE BARS AND SLIDING BLOCKS

The guide bars and sliding blocks are part of the VÖGELE torque restraint system. The guide bar is attached to the extending units' screed body using screws. A special locking compound is applied to the screws and the screws are roughened on the underside. In this way the loosening of the screws due to the continuous vibration from the screed is counteracted.

The sliding blocks are attached at the screed's outer extending units. One sliding block is above the guide bar, the other is below the guide bar (see photo on the right).

The bottom sliding block is permanently attached; on the other hand the top sliding block is attached in such a way that in case of wear it can be adjusted without difficulty using an eccentric attachment. This configuration ensures the secure guiding of the extending units and the high stiffness of the entire screed system.



*> The guide bars and sliding blocks of the torque restraint system*



- > *The sliding blocks lie tightly against the guide bar.*

# ORIGINAL VÖGELE WEAR ON SCREEDS

## REASONS AND TIPS FOR MAINTENANCE

All elements of the screeds, and especially those that are directly involved in the compaction (tamper bars, screed plates and pressure bars), are subject to material-dependent wear of varying degree.

There are many reasons for this. Wear can be delayed to some extent, however wear cannot be avoided. Fouling, incorrect assembly or ill-fitting parts from other manufacturers affect not only the productivity and/or pavement quality, but can also increase the wear on other components.

### **The most frequent reasons for an unusually short component service life include:**

- > Incrustations and accumulations of old mix (inadequate cleaning or, e.g., the usage of tamper bars without heating rods)
- > Inadequate pre-heating of the screeds
- > Paving abrasive materials (e.g. polymer asphalt)
- > Incorrect screed settings or settings that are not optimal



## WHAT IS WEAR?

Wear is produced by the pressure between two elements in contact (e.g. between mix to be laid and screed plate) when there is relative movement. When this happens, small particles become detached from the surface of both elements.

## HOW CAN WEAR BE AVOIDED?

Fouling enhances the wear process: abrasive materials rub between all contact surfaces and drastically reduce the service life of the components. Regular maintenance and cleaning is an imperative prerequisite to maximise the service life of the components.

### **Increasing service life means:**

- > Paying attention to thorough daily cleaning (before and after paving),
- > Regularly checking the wear parts so that action can be taken at the right time to counteract wear or damage to other components,
- > Undertaking regular maintenance and regularly checking the screed settings.

# ORIGINAL VÖGELE WEAR ON SCREEDS

## INFLUENCING FACTORS

It is possible to differentiate in general between external and internal influencing factors.

Here the **external** factors are those factors that are defined by the material to be laid, the tonnage per hour or special job site requirements:

- > Paving with strongly abrasive material
- > Paving polymer-modified materials
- > Paving surface courses (in general these courses will produce more wear than, e.g., thicker binder courses)
- > Paving "hot to cold" with heavy wear in the overlap area
- > Paving on job sites with large variations in the layer thicknesses over the entire pave width (e.g. on levelling)



Material  
to be laid



Job site  
requirements  
(pave width /  
overlap)

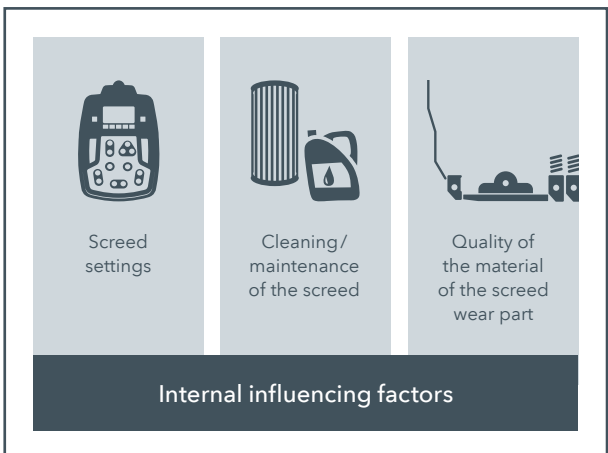


Operating  
hours and  
tonnage laid

External influencing factors

The **internal** influencing factors are mostly incorrect settings on the screed or the consequences of inadequate cleaning. Specifically this could be:

- > Excessively low tamper speeds cause an excessively large screed planing angle and therefore heavy wear on the rear edges of the screed plates.
- > Excessively high tamper speeds (in relation to material and pave speed) cause a negative planing angle on the entire screed.
- > Incorrect adjustment of the extending units (not same height).
- > Incorrect adjustment of the tamper shield and the spring steel. This situation will result in a spontaneous increase in the height of the material in the screed area.
- > Heavily fouled or excessively firmly attached pressure bars that cannot “move” freely.
- > Working with heavily worn screed wear parts.



# ORIGINAL VÖGELE WEAR ON SCREEDS

## FACTOR SCREED PLANING ANGLE

On paving with mix, the screed planing angle plays a significant role. This angle is set by the tow point on the road paver's screed arm.

The position of the screed reacts, along with the adjustment of the height of the screed tow point, also to a change in the road paver feed speed and to the different characteristics of the mix to be compacted.

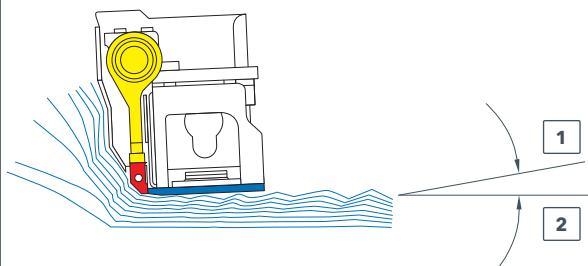
The layer thickness should be checked after pulling away to determine the ideal position of the tow fastening point and therefore the resulting screed planing angle. This angle can be positive or negative (see illustrations on the right). A slightly positive screed planing angle is of advantage for the pavement quality and pavement quantity. Also the application-related wear is reduced to a minimum.



*The greater the layer thickness, the larger the screed planing angle should be set. The more material in front of the screed, the greater the up float of the screed, which in turn has effects on the screed planing angle.*



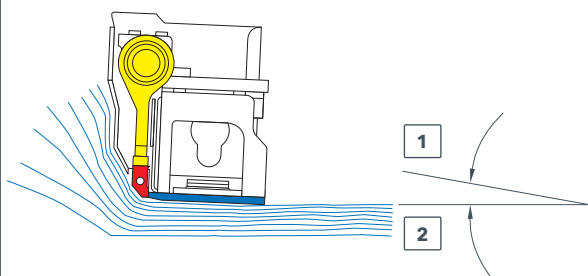
### Negative screed planing angle



1 > *Screed plate*

2 > *Base*

### Positive screed planing angle



1 > *Screed plate*

2 > *Base*

# ORIGINAL VÖGELE

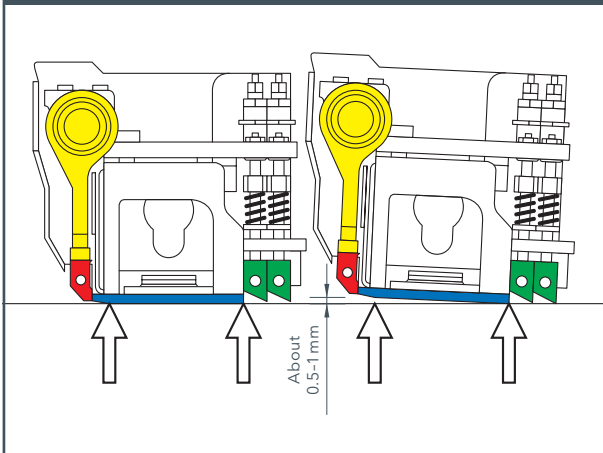
## WEAR ON SCREEDS

### FACTOR SCREED PLANING ANGLE

An excessively large, positive screed planing angle will cause increased wear on the screed plates and irregularities on the pavement. A negative screed planing angle, caused by an excessively high tamper speed or an excessively large tamper stroke, causes small, regularly occurring irregularities. With a correctly set, slightly positive screed planing angle, the complete screed plate surface is used to smooth the surface of the pavement.

All screed plates on an extending screed should be set to the same screed planing angle so that different pave widths do not degrade the floating behaviour of the screed. For this purpose the leading edge of the screed plate on the extending units should be about 0.5-1 mm higher than the rear edge on setting up the screed.

Correct screed planing angle on the extending unit





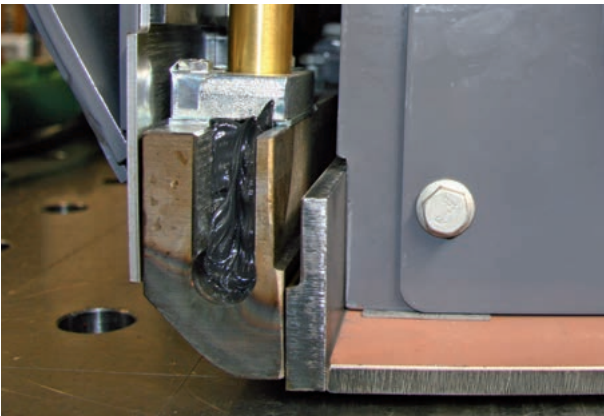
## ORIGINAL VÖGELE WEAR ON THE TAMPER

The tamper is the crucial compacting system if the issue is to keep the wear on the other components such as the screed plate or pressure bars as low as possible. This means if the tamper is heavily worn, wear on the screed plate and pressure bars will quickly follow.

If increased wear is found in the central area of the tamper bar, the cause is mostly a twisted (rotated) bar. The bar should be checked to ensure it is straight and replaced if necessary.

If the extending units are not adjusted to the correct height, on an incompletely extended screed increased wear can occur on the part of the tamper bar behind the basic screed. The "freely moving" section of the tamper bar wears more slowly, as here the material has not yet been compacted by the basic screed and is "softer" than the material already compacted behind the basic screed.

*> Model of a tamper bar  
in the compaction process*



Unusually high wear occurs on the outer edges of the tamper bars if overlapping "hot to cold" paving is undertaken frequently. In these cases the tamper bars compact already compacted pavement over a length of approx. 3-4 cm.

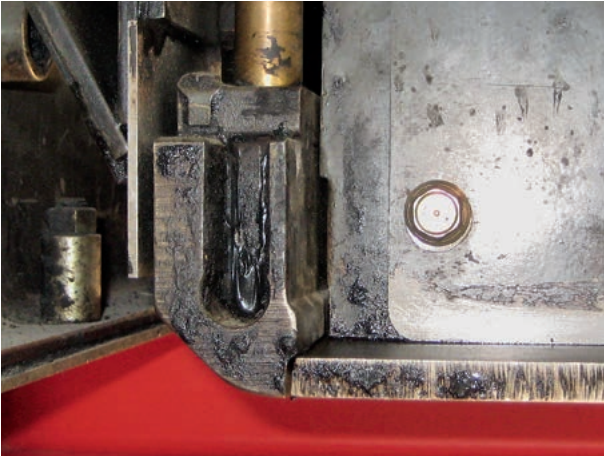
### EFFECT OF TAMPER WEAR ON FLOATING BEHAVIOUR OF THE SCREED

The shape of the tamper affects the floating behaviour of the screed. If the tamper is pointed, there is no pre-compaction effect on the entire screed system and the rear edge drops. The screed experiences an excessively large screed planing angle, which causes the screed to react strongly during paving, an uneven surface structure is produced and the wear on all other components increases significantly.



*In case of sharply pointed tamper bars, all bars on the screed should be replaced as a set.*

## WEAR ON THE SCREED PLATE



**If the screed plate is heavily worn at the rear with wedge-shaped wear, the screed planing angle was consistently too large and as a consequence the pre-compaction under the screed was too low.**

The cause is mostly a tamper speed continuously set too low.

There is often heavy wear on the leading edge of the screed plate caused by an excessively high contact force, applied by the screed tamper shield, via the tamper on the leading edge of the screed plate.

If shadowing occurs in the pavement surface, in the majority of cases partial erosion on the screed plate is the cause. This erosion is due to heavy, partial wear (e.g. during levelling) in combination with strong thermal action.



- 1** > Heavy erosion on nonoriginal screed plates with through bolts
- 2** > Left: Heavily worn screed plate with wedgeshaped wear  
Right: New screed plate



In the case of screed plates with through stud bolts (nonoriginal VÖGELE screed plates), partial erosion occurs almost always around the bolts on the underside of the screed plate. This erosion is due to the different wear behaviour of the bolt and screed plate material.

# ORIGINAL VÖGELE

## EXAMPLES OF WEAR ON SCREED COMPONENTS



### TAMPER BAR

**Condition:** The tamper bar is heavily worn. The profile necessary for the pre-compaction is completely worn away.

**Cause and consequences:** The cause is an excessively low tamper speed and as a consequence low pre-compaction and the dropping of the rear edge of the screed. In turn this situation produces excessively high wear on the rear edge of the screed plate. If the incorrect setting is used for an extended period, the screed plate may be completely worn away at the rear edge and almost look like new at the front.

**Solution:** Moderately increase tamper speed until the screed adopts a balanced screed planing angle again.





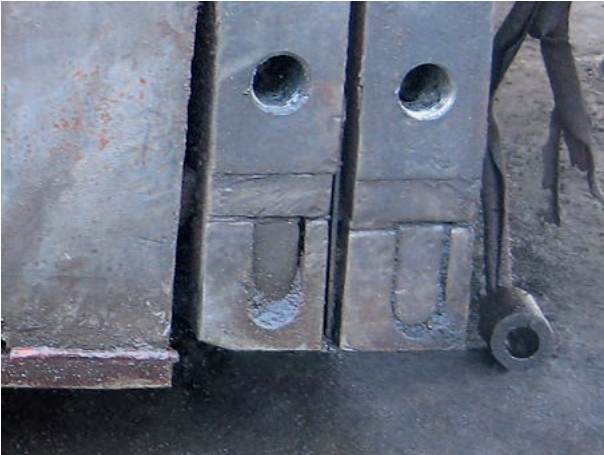
## SCREED PLATE

**Condition:** The screed plate is extremely worn in the rear area.

**Cause and consequences:** The cause of the uneven wear is that too much mix was used in front of the screed such that the higher resistance caused a larger screed planing angle. In case of extreme wear the fastening bolts for the screed plate become detached and the connection to the screed frame is no longer ensured.

**Solution:** During paving always pay attention to the usage of paddle sensors at the end of the conveyor tunnel and auger sensors to ensure a correct supply of mix in front of the screed.

# ORIGINAL VÖGELE EXAMPLES OF WEAR ON SCREED COMPONENTS



## PRESSURE BARS

**Condition:** The pressure bars have an extremely flattened profile and can no longer compact the mix as required.

**Cause and consequences:** Over time the pressure bars lose their profile due to the continuous friction with the material. The pressure bars are no longer in direct, constant contact with the mix and the required high compaction can no longer be achieved.

**Solution:** In this case the replacement of the worn pressure bars is unavoidable. The pressure bar distances should be regularly checked. Thorough cleaning will significantly slow down the wear.



### TORQUE RESTRAINT SYSTEM

**Condition:** The bottom edge of the top sliding block is worn and is not in contact with the guide bar.

**Cause and consequences:** The friction on extending and retracting the extending units and the pressure between sliding block and guide bar result in wear on the brass components. As a result the pressure produced by the material can longer be fully countered.

**Solution:** The top sliding block can be re-adjusted using an eccentric attachment. In case of excessive wear the sliding block can be rotated by 180°.

# ORIGINAL VÖGELE EXAMPLES OF WEAR ON SCREED COMPONENTS



## TELESCOPING TUBES - SCRATCHES

**Condition:** There are scratches and notches on the surface of the tubes.

**Cause and consequences:** During everyday operation the telescoping tubes can be damaged by shovels or the soles of boots. The mechanical scratches and notches produced on the tube damage the Teflon slide tape on the retraction and extension of the telescoping tubes and reduce the guiding accuracy of the screed.

**Solution:** The telescoping tubes should be smeared daily with an original WIRTGEN GROUP grease containing silicone and contact with sharp edges should be avoided to ensure a long service life and high guiding accuracy.



### TELESCOPING TUBES - ADHERING MATERIAL

**Condition:** The telescoping system is not adequately moistened with grease and asphalt is starting to adhere.

**Cause and consequences:** On retracting and extending the extending units with a high head of mix at the same time, asphalt may come into contact with the guide tubes. If the telescoping tubes are not adequately moistened with silicone grease, the asphalt will adhere to the metal. If continuous width changes are then made, lasting damage is caused to the tape and as a result the play increases.

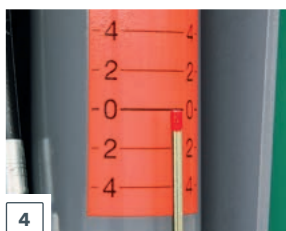
**Solution:** Regular lubrication of the telescoping tubes and internal guide tubes with silicone grease.

## **SET-UP OF THE SCREED**

One of the most important precautions to prevent wear is to correctly set-up the screed. On the following pages you will find the procedure for various screed components.

### **Attention is to be paid to the following steps on setting up an extending screed:**

- > Clearance between sliding blocks and sliding rail has been set and checked (see fig. 1).
- > Height adjustment: Adjusting spindles have been set and checked (see fig. 2).
- > Screed has been raised and laid down on locking bolts (see fig. 3).
- > Both tow point rams are in zero position (see fig. 4).
- > Crown has been set to 0% (see fig. 5).
- > Clamping screw for height adjustment is released (see fig. 6).
- > Height adjustment of the extending screed has been set to 0 on the scale (see fig. 7).



# SET-UP OF THE SCREED

## SCREED PLANING ANGLE OF THE EXTENDING SCREED

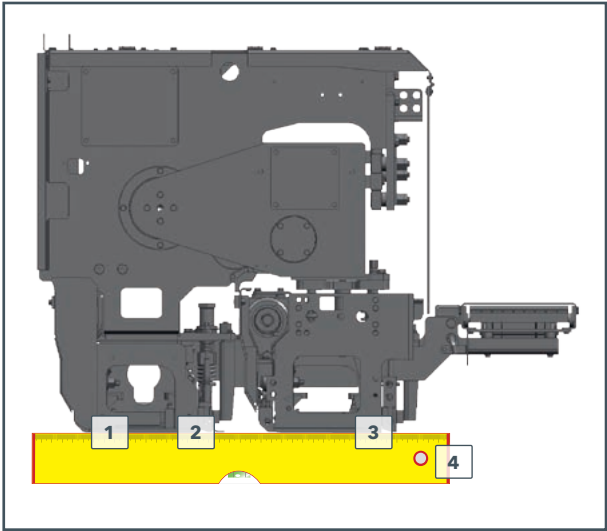
### **Setting the screed planing angle - outer extending screed:**

- > Retract the screed completely.
- > Hold the ruler (4) under the screed plates in the area of the outer adjusting spindles.
- > Set the extending unit via the mechanism for height adjustment so that the ruler makes contact with the three points (1), (2) and (3).
- > Measure the clearance. About 30 mm behind the rear edge of the tamper, there must be a gap of roughly 1 mm between the ruler and the screed plate.
- > Unscrew the chains on the adjusting spindles.
- > Make the setting at the front adjusting spindle with a suitable tool.
- > Measure the clearance and repeat the procedure if necessary.



*Please retighten the clamping screw for height adjustment after setting the screed planing angle. Then check the setting again.*



**Setting the screed planing angle - inner extending screed:**

- > Extend the screed until the adjusting spindles are located under the sliding blocks.
- > Continue according to the settings of the outer extending screed from bullet point two onwards.

# ORIGINAL VÖGELE

## SET-UP OF THE SCREED

### ADJUSTING SPINDLE

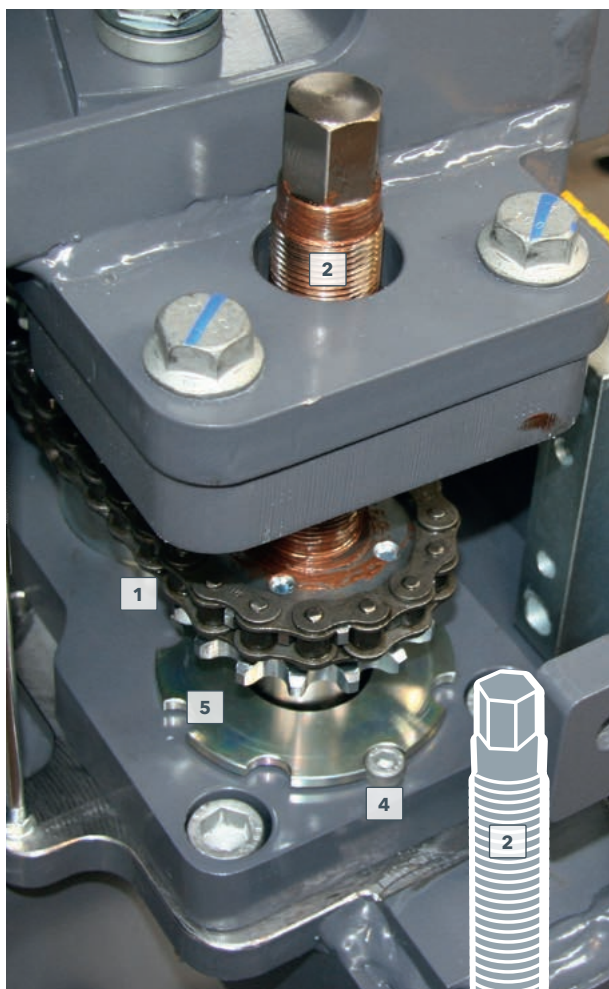
To set the adjusting spindle, first the play on the threaded bush (5) is checked with locking screws tightened.

#### **To adjust the height of the adjusting spindle:**

- > Lower the screed with extending units onto wooden blocks.
- > Open the chains (1) by means of the shackle type connector.
- > Turn the adjusting spindles (2) down to ensure that their face end (3) rests completely on the flange surface of the screed frame.
- > Remove the hexagon socket screw (4) from the flange.
- > Tighten the threaded bush (5) with a suitable tool.
- > Back off the threaded bush (5) with a 45° turn until the hole of the locking screw is free.
- > Tighten down the hexagon socket screw (4).



*Always set all four spindles for each extending screed.*



# ORIGINAL VÖGELE

## SET-UP OF THE SCREED

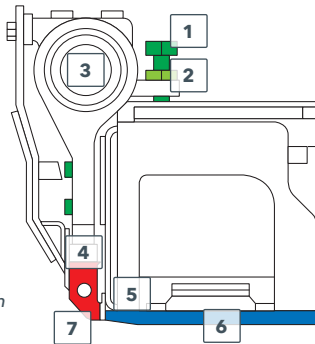
### TAMPER

The tamper shall be set to an identical stroke length across the entire pave width. The setting can be changed by simply turning the eccentric bush on the shaft driving the tamper bar. The driving shaft is accessible from behind, so that this can easily be done between job site sections. Adjusting the lower reversal point of the tamper bar, however, takes more time. First, the tamper shields need demounting. Then remove the screws on all shaft brackets. After loosening the locking nut (2), the tamper bar can be adjusted via bolt (1). The height to be set depends on the tamper stroke selected.



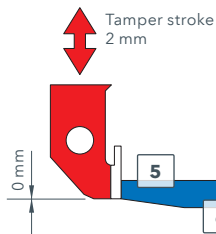
*At a stroke length of 2 mm, the tamper bar should be flush with the screed plate (check with your hand).*

- 1 > Bolt
- 2 > Locking nut
- 3 > Eccentric shaft at lower reversal point
- 4 > Tamper
- 5 > Bevelled edge of screed plate
- 6 > Screed plate
- 7 > 1 mm at stroke length of 4 mm



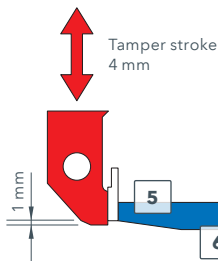
> **Tamper stroke 2 mm**

The tamper bar at the lower reversal point is flush with the bevelled edge of the screed plate.



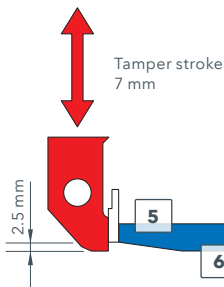
> **Tamper stroke 4 mm**

The tamper bar at the lower reversal point is 1 mm lower (maximum) than the bevelled edge of the screed plate.

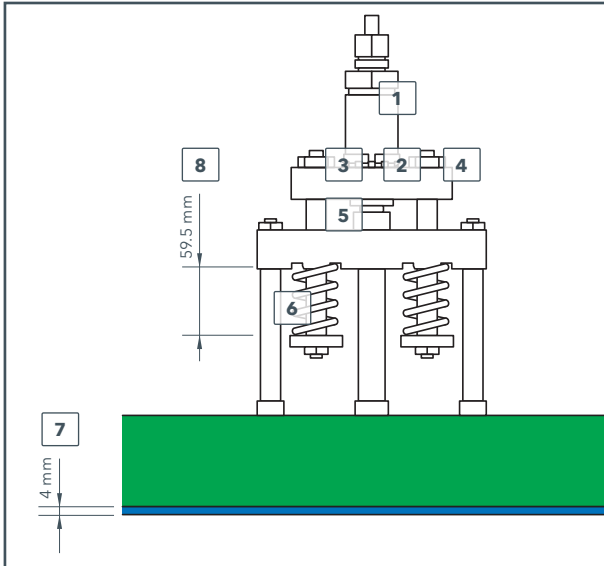


> **Tamper stroke 7 mm**

The tamper bar at the lower reversal point is 2.5 mm lower than the bevelled edge of the screed plate.



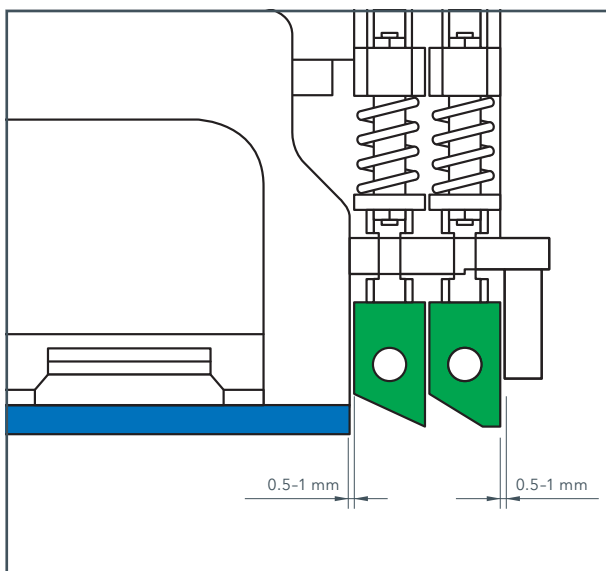
## ORIGINAL VÖGELE SET-UP OF THE SCREED



### PRESSURE BARS

#### Set-up of pressure bars:

- > Unscrew the nut (2) with anti-twist device (3) on the hydraulic ram (1) for the pressure bar.
- > Turn the hydraulic ram (1) to adjust the height of the pressure bar. The clearance (7) between pressure bar(s) and bottom edge of the screed plate should be at least 4 mm.



- > Check that the hydraulic ram for the pressure bar makes contact with metal plate (5) when retracted.
- > Set pre-tension of spring (6) to 5.5 mm via nut (4) to yield a distance (8) of 59.5 mm.
- > Resecure the hydraulic ram (3) for the pressure bar.

# ORIGINAL VÖGELE

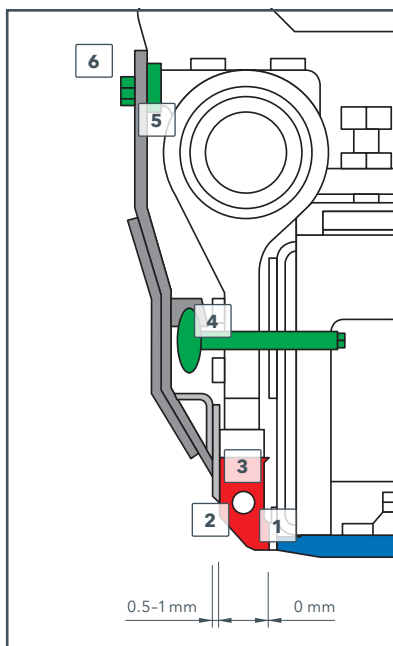
## SET-UP OF THE SCREED

### TAMPER SHIELD

The tamper (3) must be set so that it rests on the wear strip (1) across the full width. Then adjust the spring steel bar (2) on the tamper shield by means of screw (4) from the rear of the screed until a gap of 0.5 to 1 mm is obtained between tamper bar and the spring steel bar.

Release screws (6) and fit various small shims (5) to align the tamper shield. With the tamper shield correctly aligned, the spring steel bar (2) is at least parallel with the tamper or preferably inclined slightly to the front.

Check the clearance between tamper and spring steel bar and correct, if necessary.





## MECHANICAL-HYDRAULIC SIDE PLATE

Adjusting the height of the screed's side plates is a frequently used function during the paving process. As a user, you know from experience that this function is often needed when paving along high or low kerbs, for instance, or along gutters.

### **How side plates help ensure a perfect pavement quality:**

- > They prevent the mix spreading sideways while paving.
- > They produce perfect longitudinal joints or pavement edges.
- > They provide for optimal compaction in the pavement's lateral areas.



# ORIGINAL VÖGELE SCREEDS FOR THE VISION SERIES

Especially for the American market, VÖGELE offers screeds for road pavers that are particularly suitable for inner-city paving or for paving at high speeds.

## VF SCREED

### **VF extending screed with front-mounted extensions for multivariable width applications**

- > Robust and smooth guide system for precise operation at all widths
- > Infinitely variable range 3.05 m up to 7.75 m (10 ft to 19 ft 8")
- > Suitable for many screed profiles with crown and sloping extensions. Berm is available as an option
- > Sloping extension up to 10%
- > Innovative electric screed heating
- > Easy-to-use ErgoPlus operating system
- > Compact design allows for great visibility in all areas
- > Ideal tool for multivariable width applications and mainline paving



## MAIN APPLICATIONS

Working at high pave speeds with varying pave widths requires a screed that can always be relied on to deliver precise results. The VF 600 from VÖGELE is just such a system.

Several constructive features greatly support fast and precise retraction of the screed. For instance, the material offers virtually no resistance at the bevelled leading edges of the extensions, and blockades and obstacles are avoided.

An additional advantage is that the side plates of a front-mounted screed are only about half as long as those of a rear-mounted screed, permitting particularly precise paving, working close up to obstacles. This, in turn, reduces the subsequent need for shovelling. Its variability is also evidenced in the wide range of possible profiles.

All features combine to make the VF 600 equally suitable for building intersections on highways and for surfacing country roads with multiple obstructions. It is above all invaluable when tackling multivariable applications with many obstacles which require frequent changes in pave width, such as parking lots with several islands, light poles and storm sewers or residential and city streets with gas and water mains.

**VR-SCREED**

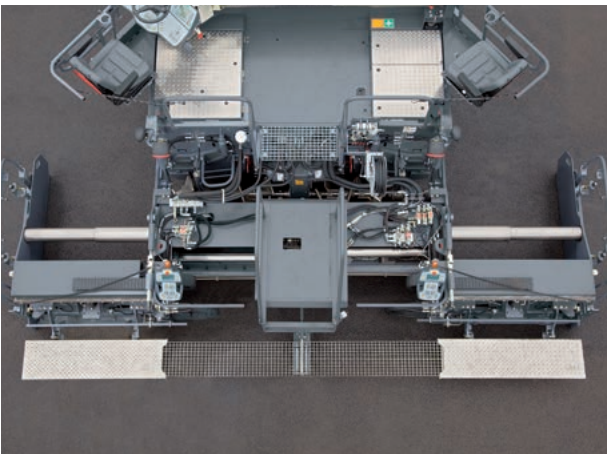
**VR extending screed with rear-mounted extensions for multi-lane paving**

- > Large dimensioned, sturdy telescoping tubes featuring high-precision operation. They provide for excellent stability of the screed, ensuring great paving results.
- > The telescoping tubes of the screed are located in a high position, thus avoiding any contact with the mix.
- > Even with the screed set to its maximum width, the telescoping tubes are extended by no more than half, which provides for zero flexing.
- > Deep screed plate design provides excellent floatation.
- > The attachment of the telescoping tubes, the support of the guide tubes and the torque restraint system make up a sturdy 3-point suspension, absorbing the forces exerted on the screed while paving and guaranteeing smooth width control of the extensions.
- > Infinitely variable range 3.05 m up to 6 m (9 ft 10" to 19 ft 8")
- > Sloping extension up to 10%
- > Sturdy telescoping system with 3-point suspension
- > Innovative electric screed heating system
- > Easy-to-use ErgoPlus operating system

## MAIN APPLICATIONS

When paving across large widths, absolute accuracy of line and level is a crucial criterion for prime-quality results, regardless of the pave width and layer thickness involved. The VÖGELE VR 600 extending screed boasts impressive abilities in this respect: its basic width is 3.05 m and it can be extended hydraulically up to 6 m – nearly twice the basic width. With bolt-on extensions fitted, the screed builds up to a maximum width of 8.6 m and is equipped with vibration across the full pave width. The quick-fitting system allows the 0.65 m wide bolt-on extensions to be mounted very easily and quickly.

Based on its outstanding overall technical concept, the VR 600 is the perfect choice for medium and large-scale road construction projects. When it comes to paving asphalt layers across multiple lanes, the new screed also yields substantial advantages over single-lane paving as it avoids joints, the weak points in every asphalt pavement.



**ORIGINAL VÖGELE**

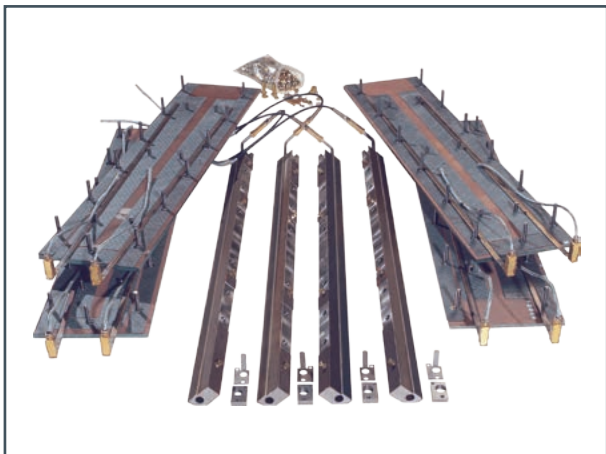
# SERVICE PACKAGES FOR SCREEDS

## THE ALL-ROUND SOLUTION FOR YOUR SCREED

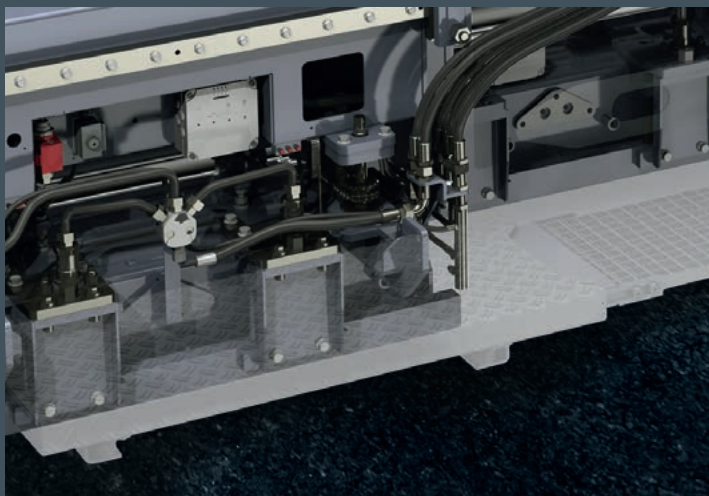
With the service packages, you are optimally equipped to quickly replace the most important wear and spare parts of your screed and your screed extension.

The service packages include screed plates, tamper bars, pressure bars (on TP screeds), heating rods, spring steel strips for tamper bars and pressure bars as well as the complete insulation and fastening material.

You will find information on ordering the service packages as well as the necessary spare parts in the Parts and More catalogue or on the Internet at [www.partsandmore.net](http://www.partsandmore.net).





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