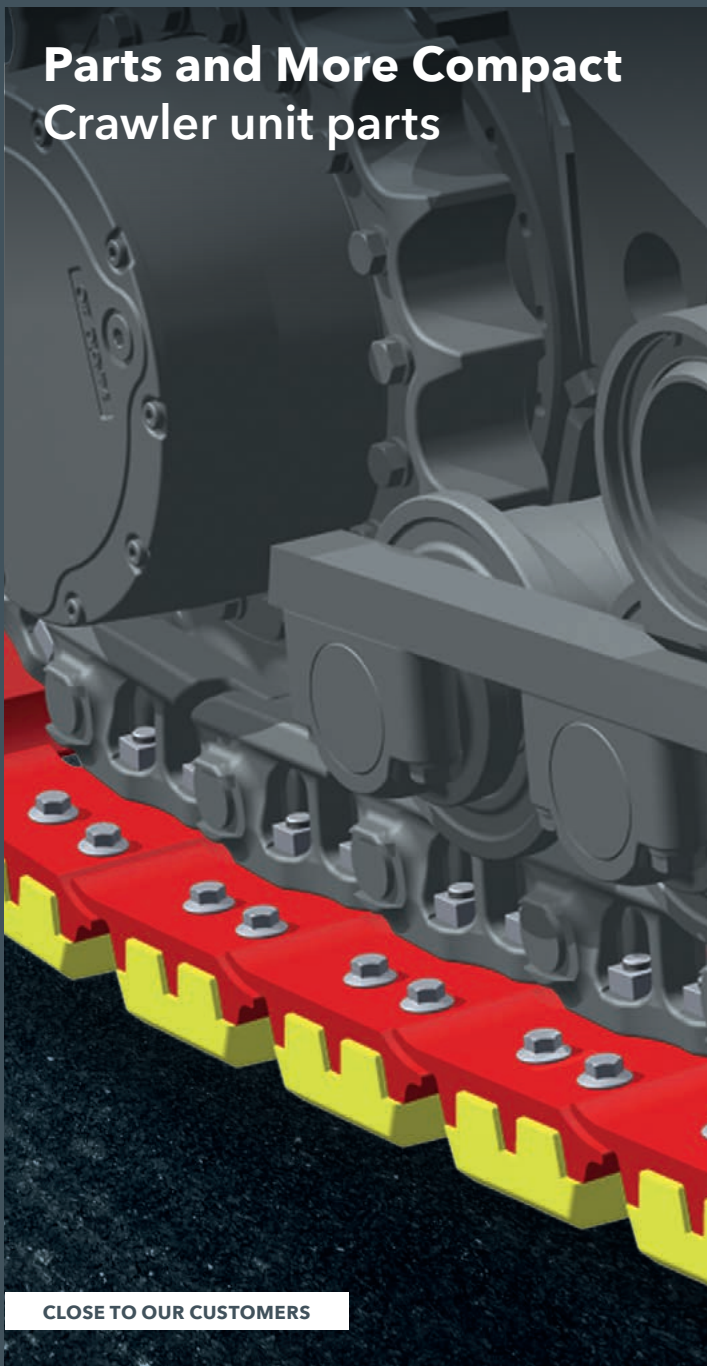




Parts and More Compact Crawler unit parts



CLOSE TO OUR CUSTOMERS

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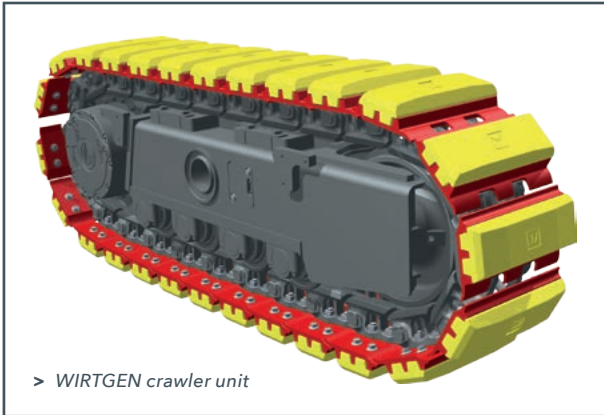
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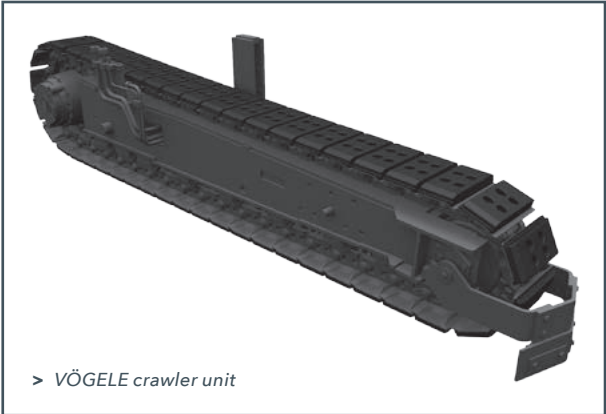
ORIGINAL WIRTGEN GROUP CRAWLER UNITS



Crawler units, and in particular the parts that carry out the motion, are subject to continuous strain in service which over time leads to wear or fatigue in the components.

Many years of cooperation between our design department and suppliers ensure the parts that make up the crawler unit are completely harmonised to give maximum performance.

The objective: maximum service life of our WIRTGEN GROUP machines to ensure high efficiency.



But one crawler unit is not the same as another crawler unit: Different materials are used, different sizes are necessary and a different number of components are used in the construction. All elements are therefore so chosen that the machine is guaranteed to give high traction and operational reliability with the lowest possible wear in service.

PARTS AND MORE COMPACT CRAWLER UNIT PARTS

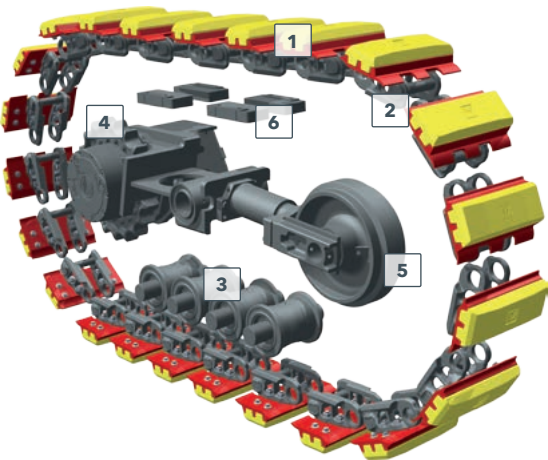
This brochure describes the crawler unit components of WIRTGEN GmbH and JOSEPH VÖGELE AG. It focuses on the most important wear properties, the interaction of damaged components and the correct maintenance of the crawler unit.

ORIGINAL WIRTGEN GROUP

CRAWLER UNIT COMPONENTS

The crawler unit of a WIRTGEN cold milling machine and a VÖGELE paver - at first glance these units appear to be of a completely different design. However, on closer examination of the individual component design, many similarities can be identified. Both crawler units perform the same basic function and are subjected to similar operational loads.

WIRTGEN crawler unit

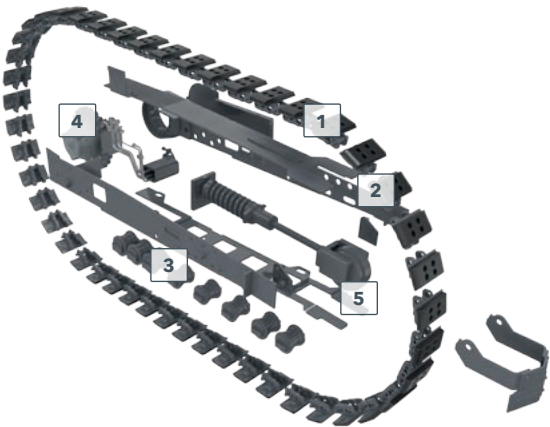


- | | |
|-------------------|---------------------|
| 1 > Track pad | 4 > Drive sprocket |
| 2 > Crawler track | 5 > Idler |
| 3 > Track roller | 6 > Chain slide bar |

Please note that parts of the crawler units of WIRTGEN GmbH and JOSEPH VÖGELE AG differ mechanically and from a design point of view. Thus components of WIRTGEN machines cannot be exchanged with those of VÖGELE.

Different applications require different solutions, and in addition give rise to different wear patterns. This is another reason to depend on the knowledge and expertise of the WIRTGEN GROUP.

VÖGELE crawler unit



1 > *Track pad*

2 > *Crawler track*

3 > *Track roller*

4 > *Drive sprocket*

5 > *Idler*

ORIGINAL WIRTGEN GROUP TRACK PADS

DESIGN FOR SPECIFIC APPLICATIONS ENSURES A SMOOTH PROJECT DEVELOPMENT

Track pads transmit the propulsive power of the crawler units to the ground underneath. Softer track pads made of rubber offer extremely high traction compared to hard track pads made of polyurethane. The wear may be a little higher.

MAXIMUM LIFE

WIRTGEN cold milling machines have the job of pushing the milling drum, which is used in the work process through the asphalt or pulling it depending on the position of the crawler unit (in front of or behind the milling drum). The traction of the polyurethane pads is not endangered by the comparatively high weight of a cold milling machine, in addition recent technical developments such as a flow distributor in the hydraulic system, or on later models a traction control (ISC), prevent the crawler tracks slipping. Longer life for the track pads can be obtained if they are made of polyurethane instead of rubber. The higher hardness of the polyurethane pads significantly reduces the risk of damage when negotiating milled edges and kerbstones.

MAXIMUM TRACTION

VÖGELE pavers need extremely high traction, in order to be able to push lorries that supply mix, especially on uphill movements. During the paving process, the mix must be "pushed along" before the screed. In order to minimise as far as possible the risk of the crawler units slipping, rubber track pads with maximum traction are used exclusively on VÖGELE machines.



ORIGINAL WIRTGEN GROUP TRACK PADS

WIRTGEN POLY GRIP TRACK PADS

The track pads are bolted to the chain links. These “chain pads” are made of polyurethane and provide the necessary traction. The choice of the size and composition of the track pads is basically determined by the machine weight and the ground over which it will run.

Genuine WIRTGEN Poly Grip track pads consist of a steel base plate made of high-quality heat-treated boron steel onto which a pad made of a polyurethane mixture is cast. The latter was chosen so that on a variety of terrains **reliable traction** is always guaranteed. Here, the subbase can be loose and unattached, as well as smooth and hard.



Poly Grip track pads are fitted directly on the chain links with nuts and bolts.

The track pads **resistance to wear** is very impressive, especially when negotiating sharp edges, as, for example, kerbstones or milled edges.

You can recognise the genuine WIRTGEN track pads thanks to their yellow-red colour combination.



ORIGINAL WIRTGEN GROUP TRACK PADS

WIRTGEN EPS *PLUS* TRACK PADS

The innovation in the genuine WIRTGEN track pad product family is the Easy Pad System (**EPS *PLUS***). It allows the pads to be replaced **simply by unscrewing** them from the baseplate when the useful polyurethane layer is worn through. The compact spare part simplifies transport and assembly.

The **EPS *PLUS*** track pad has **no holes** in its tread surface, which would otherwise cause the accumulation and build up of milled material. The track pads conserve the finished ground as a result.

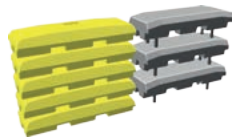
The advantages of the **EPS *PLUS*** track pads lie in the **higher polyurethane volumes of up to 20 %** in comparison with the Poly Grip track pad and the **greater surfaces in contact with the ground of up to 24 %**. Both these properties extend the life of the individual pad and thus increase the machine's availability.



Since the **EPS PLUS** pads are conventional wearing parts, the **logistic advantage of sending** parts is important. The unique design of the **EPS PLUS** pad guarantees a higher packing density in comparison to conventional track pads, and, in addition, a satisfactory condition on the arrival of the transporter. With WIRTGEN **EPS PLUS** track pads, unlike those of other manufacturers, nuts are used in the pad instead of screws or bolts, which effectively prevents chafe marks or chips. Thanks to the saving in weight due to the separation of pad and steel we are able to send the **EPS PLUS** pads more cheaply and they arrive undamaged.

You can recognise the genuine WIRTGEN track pads thanks to their yellow-red colour combination.

> *Comparison of **EPS PLUS** pads with conventional track pads*



ORIGINAL WIRTGEN GROUP TRACK PADS

VÖGELE RUBBER TRACK PADS

VÖGELE road pavers are real powerhouses. It takes an undercarriage with a strong grip to convert their high engine power into optimum traction.

Every centimetre of ground contact counts here. And the right rubber compound. VÖGELE uses track shoes with rubber pads of premium quality to meet their high standards.

Compared with imitation track shoes, original VÖGELE shoes yield clearly higher values in terms of **tensile strength, resistance to abrasion, ultimate strain and resistance to tear propagation**. VÖGELE rubber pads stand out through a long service life due to a **larger volume of solid rubber material**.



The combination of level, that is to say flat, steel base plate with rubber pad is specifically designed so that VÖGELE pavers can process their screed in the minimum end position. This is not possible with triple grouser track pads, i.e. on those where the rubber coating thickness is higher than on the original VÖGELE flat track pads.



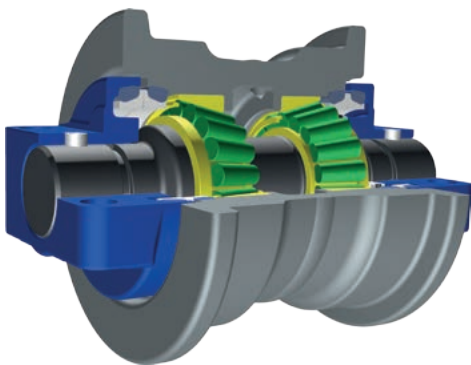
ORIGINAL WIRTGEN GROUP

CRAWLER UNIT TRACK ROLLERS

ROLLER BEARING TRACK ROLLER

The track rollers of chain driven machines (e.g.: diggers, road milling machines, pavers, etc.) carry the complete weight of the machine. Their design is so chosen that the load on the machine in regular operation can be carried without problems and the heat generated due to the continuous loading is dissipated safely from all elements such as bearings, seals, etc.

As is well known, WIRTGEN road milling machines achieve high advance rates, even with great milling depths. The crawler units on road milling machines are exposed to very high load conditions. WIRTGEN uses high-quality track rollers which have been exclusively developed for the respective machine types concerned. Particular emphasis was placed on **optimal performance without maintenance**. Therefore, on all current construction machines, WIRTGEN uses exclusively prestressed crawler unit track rollers mounted on roller bearings.

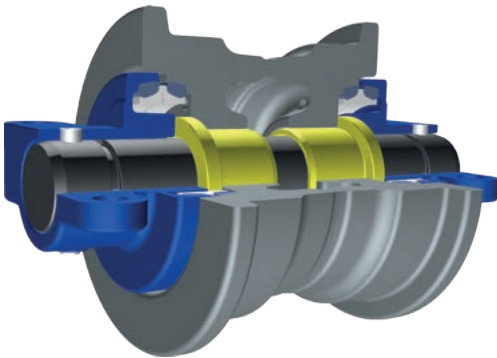


> *Roller bearing track roller*

These track rollers, mounted on roller bearings, are designed to carry much higher loads. They have been fitted for several years with especially robust and high value materials, and around the slide ring sealing and bearing, in order to minimise the risk of leakage and increase the service life.

SLIDING BEARING TRACK ROLLER

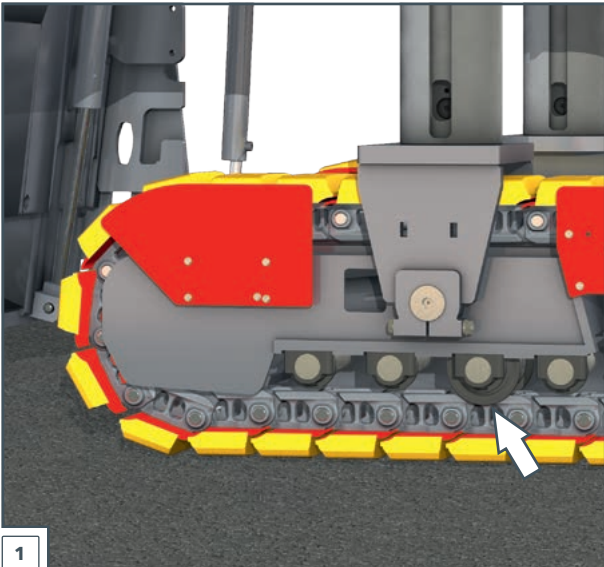
The crawler units of VÖGELE are more sturdily designed and heavier than the WIRTGEN machines. The result of this is that there are more track rollers per machine side to carry the load. Consequently the weight taken by each roller, bearing in mind the track roller diameter, is less. For this reason VÖGELE uses sliding bearing track rollers of **particularly rugged design and perfectly matched** to the crawler unit system.



> *Sliding bearing track roller*

ORIGINAL WIRTGEN GROUP CRAWLER UNIT TRACK ROLLERS

Track rollers running on sliding bearings of lower quality suffer damage during long journeys at high speed. Leakage occurs from which oil escapes. This results in defective lubrication of the bearing, which finally leads to failure of the track rollers. If there is insufficient oil in the track roller the bearing inside cannot rotate on its axle, it seizes and serious damage is caused.

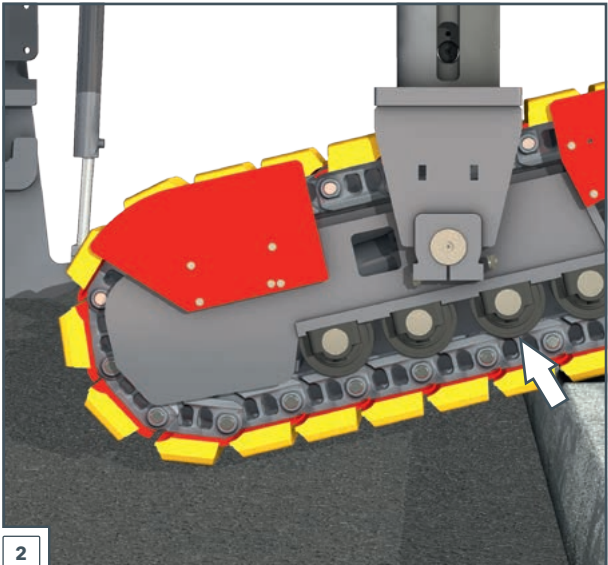


1

Unequal loading of the track rollers can lead to premature failure. A typical example for this loading occurs when the machine is working with track rollers that have differing amounts of wear because they were not changed in sets during maintenance.

Repeated negotiation of kerbstones leads to asymmetrical loading on the track rollers.

- 1 > *Unequal loading of the track rollers*
- 2 > *Repeated negotiation of kerbstones*

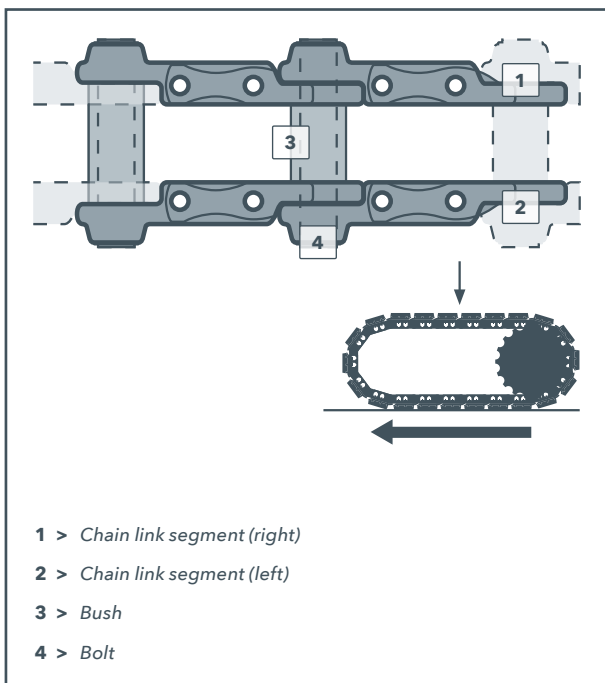


ORIGINAL WIRTGEN GROUP CRAWLER UNIT CHAINS

Crawler unit chains consist of chain link segments, which are fastened together with bushes and bolts.

The drive sprocket drives the machine through the track chains in the desired direction of travel. The chain tension must be sufficiently high that the drive sprocket can safely engage in the crawler unit chain.

Depending on the loading of the track chains by the service weight of the machine as well as its maximum possible feed speed, in WIRTGEN GROUP machines not only dry but also lubricated track chains are used.

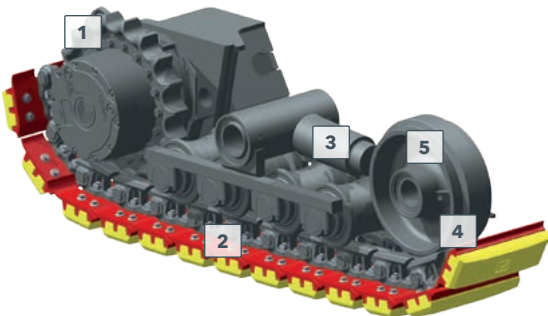


With lubricated chains there is a lubricant between bushes and bolts which minimises the friction between these components and increases the life of the crawler unit chain, depending on the machine application.

The chain tension is produced by a tensioning system. The necessary tension is produced either by a spring-grease tension cylinder or a hydraulic tensioning cylinder and held at the correct level (see diagram below).

All genuine WIRTGEN GROUP crawler unit chains are matched in size and material to the drive sprockets, track pads and track rollers. They are easily able to **withstand constant, enormous mechanical stress during day-to-day operations**.

Crawler unit parts of a WIRTGEN cold milling machine

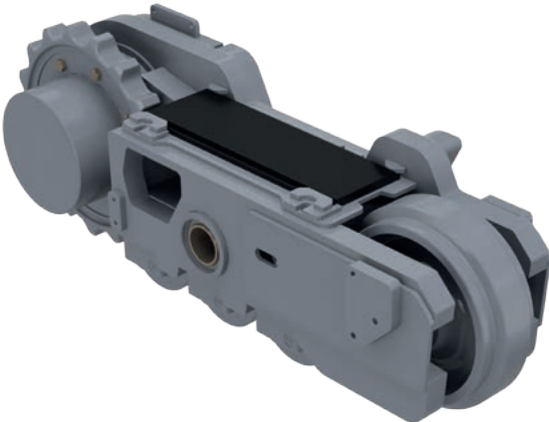


- 1 > Drive sprocket
- 2 > Chain pins and bushings
- 3 > Tensioning cylinder
- 4 > Guide system
- 5 > Idler

ORIGINAL WIRTGEN GROUP CHAIN SLIDE BARS

The compact crawler unit of WIRTGEN cold milling machines has no space for track carrier rollers. Because of this, chain slide bars made of plastic are used, in order to avoid the track chains rubbing on the crawler unit frame. Thus friction between track chains and steel frames can be excluded - the **life of the chain increases** significantly and **damage to the steel structure (chassis frame) is avoided**.

With the long crawler units of VÖGELE the risk of the **chain member rubbing can be minimised** by a sufficiently high chain tension (see pages 44 - 45) and by the wedged shaped crawler track design.



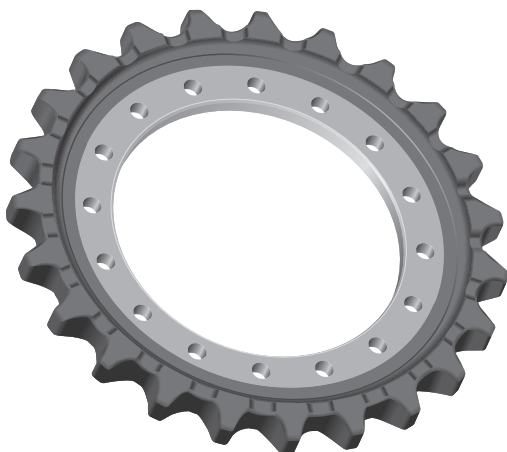
> Chain slide bar

DRIVE SPROCKETS

The drive unit in all WIRTGEN and VÖGELE machines has a frictional connection with the drive sprocket.

This allows to transmit engine power to the tracks the best way and translate it into **high tractive effort**.

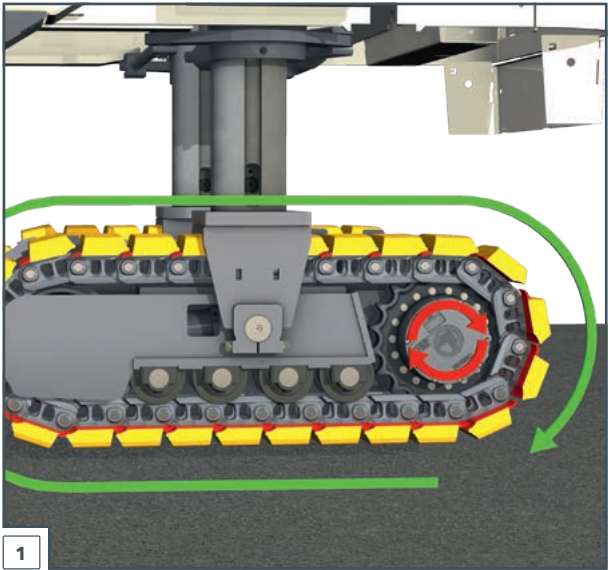
The drive sprocket transmits the driving torque from the respective hydraulic motor through the gearbox to the track chains, so that it acts in the crawler unit chain, rotates and so the crawler unit is set in motion.



> *Drive wheel*

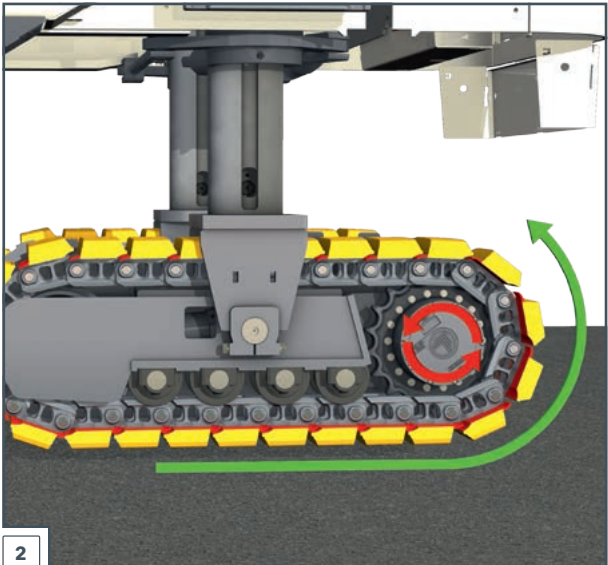
ORIGINAL WIRTGEN GROUP DRIVE SPROCKETS

The drive sprocket is located in the crawler units, seen in direction of travel, on the rear axle. Thus, **travelling backwards** increases the wear on the track, since the track loading increases due to the longer section of track under load over the idler unit. Long backwards travel considerably increases the wear of the crawler unit components.



When **travelling forwards** without milling the shorter section of track under load reduces the load on the crawler unit parts. When the machine is moving forwards the **track wear can thus be minimised**.

- 1 > *Position of the drive sprocket for backwards travel*
- 2 > *Position of the drive sprocket for forwards travel*



WEAR ON CRAWLER UNIT PARTS

REASONS AND MAINTENANCE TIPS

All parts of the chain crawler units suffer wear to a greater or lesser extent.

There are many reasons for this. Wear can indeed be reduced, but not completely eliminated. Fouling, incorrect assembly or pirate parts from other suppliers affect not only the productivity of the machine, but can also increase the wear of other components.

Among the most frequent reasons for heavy wear are:

- > Coatings and accumulations of grinding dust or asphalt residues (ineffective cleaning)
- > High speeds when the machine is being transported
- > Running backwards
- > Incorrect chain tension
- > Abrasive materials (sand, grinding dust, etc.) on slide or rolling places

WHAT IS WEAR?

Wear is produced by a pressure of two elements on one another when there is relative movement. When this happens small particles become detached from the surface of both elements.

HOW CAN WEAR BE AVOIDED?

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

The life can be increased by:

- > Giving the machine a thorough daily clean,
- > Regularly checking the wearing parts in order to take action at the right time to counteract wear or damage on the components,
- > Undertaking regular maintenance.



ORIGINAL WIRTGEN GROUP

WEAR ON CRAWLER UNIT PARTS

FORM FOR CALCULATION OF THE LIFE OF THE WEARING PARTS

In order to predict the service life of a wearing part of crawler units as reliably as possible, the following formula should be used:

Current time in service of
the wear part

Current wear status
in %*

x

Maximum
wear status
in %**

**WEAR CALCULATION USING A WIRTGEN TRACK PAD
AS AN EXAMPLE**

The amount of wear of the pad after 750 hours in service is about 40 %. From these figures the probable time in service of the track pads with uniform wear conditions can be calculated.

750 hours

40 %*

x

100 %**

=

1875 hours

Consequently the calculated time in service until the change point of the pads is 1875 hours.

* Take the wear status in % from the comparison tables on the following pages.
** In general 100%, since if this figure is exceeded the damage on other components increases at an above average rate.

This calculation formula provides a guide which helps you plan the maintenance on your WIRTGEN GROUP machines at the right time and so maximise the availability of the machines.

This formula helps to estimate the wear of the various crawler unit components. It is merely a projection which only gives a statistical figure.



Changes of the factors involved such as, for example, the amount of fouling, the damage (such as cracks or pieces breaking off the components) or the maintenance intervals, change the results. The wear status in percentage terms is always based on a point measurement at a certain time and can change during the life of the wearing part which can result in a shortening or lengthening of the calculated life.

ORIGINAL WIRTGEN GROUP

WEAR ON THE TRACK PADS

Track pads made of polyurethane or rubber must be changed on reaching the wear limit of the pad. The pads should be changed before the spacers of the steel base plate become visible. The coefficients of friction (the traction) of steel on asphalt are significantly worse than with polyurethane or rubber. This has a direct influence on the possible feed speed and consequently on the machine productivity. At the same time these coatings minimise damage on the ground and prevent possible payments of damages to service providers or owners of building machines to the customer.

Then roads or ground which were in good condition but were damaged due to worn track pads must, in general, be repaired or remade.

If the spacers of the steel base plate on the Poly Grip track pads become visible at the side this is not a reason to change it. The casing of the steel base plates (for **EPS PLUS** track pads that project from the wider pads) serves to protect kerbstones and other carriageway limits which can be damaged by contact with the steel of the base plate. If sharp edges or other obstacles are negotiated the side layers of polyurethane can be torn, but this does not have any negative effects on the reliable connection of the polyurethane and steel base plate.

- 1 > *Sideways chips on the Poly Grip track pad*
- 2 > *Worn track pads: Damage on the asphalt layer is likely*
- 3 > *Cracks caused by assembly holes filled with asphalt*

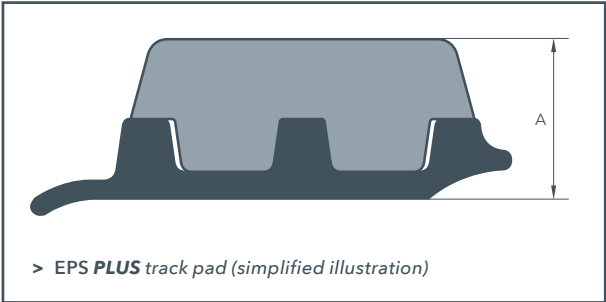




ORIGINAL WIRTGEN GROUP

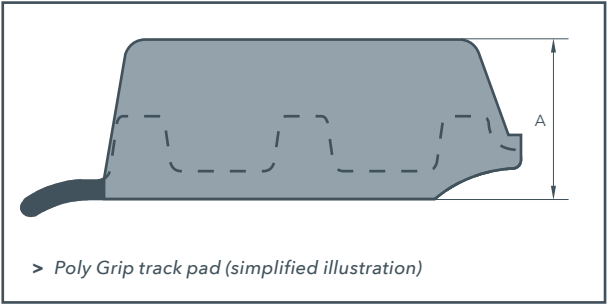
WEAR DIMENSIONS OF THE WIRTGEN TRACK PADS

Machine type	Crawler size
WIRTGEN EPS PLUS track pads	
W 1000 F, W 1200 F, W 1300 F, W 100 F(i), W 120 F(i), W 130 F(i), W 100 CF(i), W 120 CF(i), W 130 CF(i), W 150(i), W 150 CF(i), W 1500, W 1900, W 195, W 200(i), W 200 H(i)	W1
W 2000, W 205, W 215, W 210(i), W 210 XP	W3
W 2100, W 220(i)	W4
W 2200, W 250(i)	W5
WIRTGEN Poly Grip track pads	
W 1000 F, W 1200 F, W 1300 F, W 100 F(i), W 120 F(i), W 130 F(i), W 100 CF(i), W 120 CF(i), W 130 CF(i), W 150(i), W 150 CF(i), W 1500, W 1900, W 195, W 200(i), W 200 H(i)	W1
W 2000, W 205, W 215, W 210(i), W 210 XP	W3
W 2100, W 220(i)	W4
W 2200, W 250(i)	W5



	Wear dimension A (mm)					
	0%	20%	40%	60%	80%	100%
	57	51	45	39	33	27
	57	51	45	39	33	27
	72.5	64.9	57.3	49.7	42.1	34.5
	75.7	68.2	60.6	53.1	45.5	38
	52	47	42	37	32	27
	52	47	42	37	32	27
	70	62.9	55.8	48.7	41.6	34.5
	72	65.2	58.4	51.6	44.8	38

Figures can differ slightly due to the manufacturing tolerances.



ORIGINAL WIRTGEN GROUP
WEAR DIMENSIONS OF THE
VÖGELE TRACK PADS

Machine type

VÖGELE rubber track pads

SUPER 700, SUPER 800

SUPER 700-3(i), SUPER 800-3(i)

SUPER 1100-2, SUPER 1300-2, SUPER 1100-3(i), SUPER 1300-3(i)

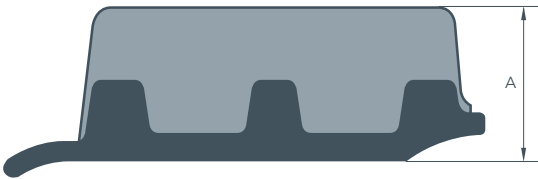
SUPER 1600-1, SUPER 1800-1, SUPER 1600-2, SUPER 1800-2 (SJ),
SUPER 1600-3(i), SUPER 1800-3(i), SJ, MT 3000-2

SUPER 1900-2, SUPER 2100-2, SUPER 2100-2 IP, SUPER 1900-3(i),
SUPER 2100-3(i)

SUPER 3000-2




> *Simplified illustration for: SUPER 700, SUPER 800,
SUPER 700-3(i), SUPER 800-3(i)*



> *Simplified illustration for: SUPER 1100-2, SUPER 1300-2,
SUPER 1100-3(i), SUPER 1300-3(i)*

	Wear dimension A (mm)					
	0%	20%	40%	60%	80%	100%
	45	41	37	33	29	25
	52	47	42	37	32	27
	52	47	42	37	32	27
	57	52	47	42	37	32

Figures can differ slightly due to the manufacturing tolerances.



A technical drawing of a mechanical component, likely a gear or a shaft, shown in a cross-sectional view. The component has a complex shape with a central shaft and a wider base. A dimension line labeled 'A' indicates the wear dimension, which is the vertical distance between the top surface of the component and the bottom surface of the base.

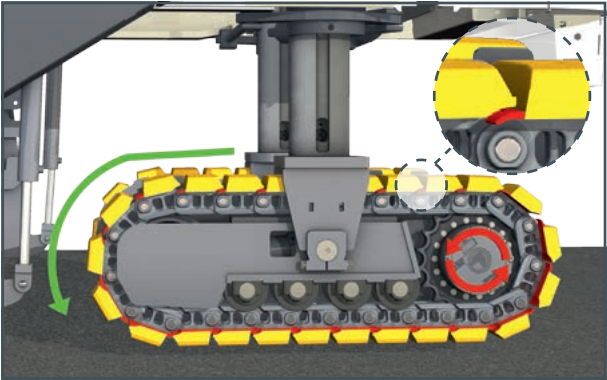
> *Simplified illustration for:*
SUPER 1600-1,
SUPER 1800-1,
SUPER 1600-2,
SUPER 1800-2 (SJ),
SUPER 1600-3(i),
SUPER 1800-3(i), SJ,
MT 3000-2,
SUPER 1900-2,
SUPER 2100-2,
SUPER 2100-2 IP,
SUPER 1900-3(i),
SUPER 2100-3(i)

ORIGINAL WIRTGEN GROUP

CHANGING THE TRACK PADS

Like all nut and bolt connections, the track pad - WIRTGEN Poly Grip track pad or **EPS PLUS** base plate or VÖGELE rubber track pad - must be tightened with a sufficiently high torque. The following table gives information on the **correct tightening torques for WIRTGEN and VÖGELE machines**.

Machine type
Screws for Poly Grip track pads and EPS PLUS base plates by WIRTGEN
W 1000 F, W 1200 F, W 1300 F, W 100 F(i), W 120 F(i), W 130 F(i), W 100 CF(i), W 120 CF(i), W 130 CF(i), W 150(i), W 150 CF(i), W 1500, W 1900, W 195, W 200(i), W 200 H(i)
W 2000, W 205, W 215, W 210(i), W 210 XP
W 2100, W 220(i)
W 2200, W 250(i)
Screws for rubber track pads by VÖGELE
SUPER 700, SUPER 800
SUPER 700-3(i), SUPER 800-3(i)
SUPER 1100-2, SUPER 1300-2, SUPER 1100-3(i), SUPER 1300-3(i)
SUPER 1600-1, SUPER 1800-1, SUPER 1600-2, SUPER 1800-2 (SJ), SUPER 1600-3(i), SUPER 1800-3(i), SJ, MT 3000-2
SUPER 1900-2, SUPER 2100-2, SUPER 2100-2 IP, SUPER 1900-3(i), SUPER 2100-3(i)
SUPER 3000-2



> *Correct position of track pads when crawler unit chain is fitted properly*

	Dimensions (mm)	Tightening torque	
		Ma (Nm)	Ma (ft-lb)
	M 12 x 1	160 +/- 10	118 +/- 7
	1/2" UNF	180 +/- 10	133 +/- 7
	9/16" UNF	260 +/- 15	192 +/- 15
	5/8" UNF	370 +/- 20	273 +/- 15
	M 10 x 1	90 +/- 5	66 +/- 4
	M 12 x 1	160 +/- 10	118 +/- 7
	1/2" UNF	180 +/- 10	133 +/- 7

ORIGINAL WIRTGEN GROUP

CHANGING THE TRACK PADS

The use of **EPS PLUS** track pads on WIRTGEN machines **simplifies the job of fitting EPS PLUS** pads enormously. The important difference between both systems (Poly Grip vs. **EPS PLUS**) is the possibility of leaving the steel base plates in position after the pads fitted on the track chains have worn (the steel base plate is fitted in the same way as the Poly Grip track pads). Only the worn **EPS PLUS** polyurethane pad needs to be removed and replaced by a new one. Also with WIRTGEN **EPS PLUS** track pads it is important to note that they must be tightened with the specified torque in order to ensure a safe connection between pad and steel base plate. If this is not the case the details can be taken from the operating instructions or the table below. A safety adhesive on the special screws prevents the pads working loose after tightening.



Due to the coating of adhesive on the shaft of the screws they must be tightened directly with the indicated torque.

Machine type	Crawler size
Screws for EPS PLUS pads by WIRTGEN	
W 1000 F, W 1200 F, W 1300 F, W 100 F(i), W 120 F(i), W 130 F(i), W 100 CF(i), W 120 CF(i), W 130 CF(i), W 150(i), W 150 CF(i), W 1500, W 1900, W 195, W 200(i), W 200 H(i)	W1
W 2000, W 205, W 215, W 210(i) W 210 XP	W3
W 2100, W 220(i)	W4
W 2200, W 250(i)	W5



> Due to the better accessibility of the fastenings located on the outer side the fitting times are reduced. This increases the machine availability of the WIRTGEN construction machines.

	Dimensions (mm)	Tightening torque	
		Ma (Nm)	Ma (ft-lb)
	M 12 x 1.5	150	110
	M 14 x 1.5	240	177

In general the tightening torque to be used can be found on the screw head.

WEAR ON THE TRACK ROLLERS

A premature change of the track rollers is generally caused by leakage of the rollers.

However, real leakage is not the same as untightness.

A small escape of oil is completely normal due to the seal design (slide ring sealing) and is described in technical literature as “sweating”. This typically normal process with slide ring sealings cleans the lapped surfaces of the slide ring and prevents dirt getting into roller or sliding bearings in the track roller.

Track rollers with leaking or seized bearings should be replaced as soon as possible in order to take care of other crawler unit components, as for example, the track chains. This is because “non-rotation” of the track roller leads to rapid wear of the crawler unit chains, since the frictional forces on the track roller casing and the contact area of the chain links increase.

In addition a pressure increase in the hydraulic system of the advance drive will be recorded, since the necessary energy to propel the crawler unit increases. High loadings also occur on other mechanical components, as for example, on the tooth flanks of the drive gear or the bushes to protect the chain bolts.

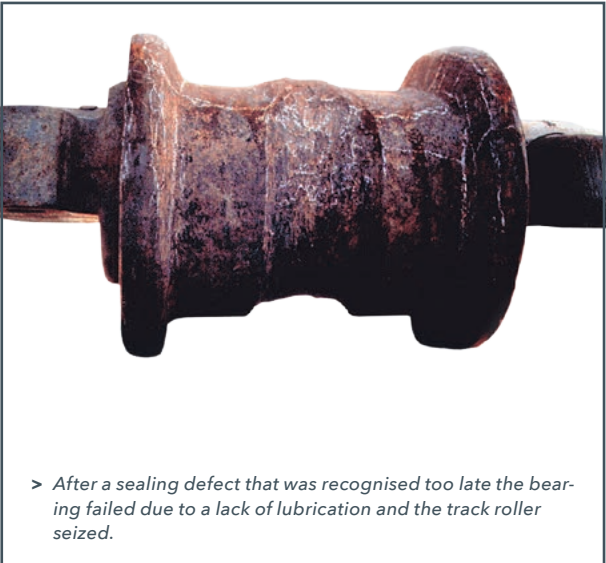


> Leakage



> Sweating

If the diameter of the track roller contact surfaces is smaller than wear dimension A (see following pages) wear can occur on the outer edges of the chain which as a result allow the bolts of the crawler track to wear. In addition the bearings of the idler guide as well as the drive gearbox on the drive sprocket will be too heavily loaded by a high machine weight, since the vertically applied forces can no longer be safely withstood by the track rollers which have a diameter that is too low.



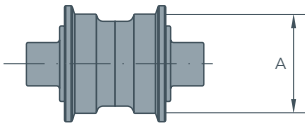
ORIGINAL WIRTGEN GROUP

WEAR DIMENSIONS

OF THE TRACK ROLLERS

Machine type	Size	Part No.
WIRTGEN track rollers		
W 1000 F, W 1200 F, W 1300 F, W 1500, W 1900	W1	193999
W 100 F(i), W 120 F(i), W 130 F(i), W 100 CF(i), W 120 CF(i), W 130 CF(i), W 150(i), W 150 CF(i), W 195, W 200(i), W 200 H(i)		191936
W 2000	W3	2066123
W 205, W 215, W 210(i), W 210 XP		2111494
W 2100, W 220(i)	W4	2070670
W 2200 (to ser. no. 0311)	W5	118719
W 2200 (from ser. no. 0312)		2053169
W 250(i)		2165046
VÖGELE track rollers		
SUPER 700, SUPER 800	Ø 130	2013745
SUPER 700-3(i), SUPER 800-3(i)		
SUPER 1100-2, SUPER 1300-2	Ø 135	4611340027
SUPER 1100-3(i), SUPER 1300-3(i)	Ø 135	2307941
SUPER 1600-1, SUPER 1800-1, SUPER 1600-2, SUPER 1800-2 (SJ)	Ø 156	4611340028
	Ø 180	4611340029
SUPER 1600-3(i), SUPER 1800-3(i), SJ	Ø 156	4611340028
	Ø 180	4611340029
	Ø 90	2306186
SUPER 1900-2, SUPER 2100-2, SUPER 2100-2 IP	Ø 156	2038734
	Ø 180	2038715
SUPER 3000-2	Ø 180	2038715
		2133094
SUPER 1900-3(i), SUPER 2100-3(i)	Ø 156	2038734
	Ø 180	2038715
	Ø 98	2199919
MT 3000-2	Ø 180	2149095
	Ø 180	2038715

➤ Track roller
(simplified
illustration)



	Wear dimension A (mm)					
	0%	20%	40%	60%	80%	100%
	135	133.4	131.8	130.2	128.6	127
	156	154.4	152.8	151.2	149.6	148
	155	153.4	151.8	150.2	148.6	147
	172	168.8	165.6	162.4	159.2	156
	170	167.2	164.4	161.6	158.8	156
	130	128.7	127.4	126.1	124.8	123.5
	135	133.4	131.8	130.2	128.6	127
	135	133.4	131.8	130.2	128.6	127
	156	153.4	150.8	148.2	145.6	143
	180	176.4	172.8	169.2	165.6	162
	156	153.4	150.8	148.2	145.6	143
	180	176.4	172.8	169.2	165.6	162
	90	88.4	86.8	85.2	83.6	82
	156	153.4	150.8	148.2	145.6	143
	180	176.4	172.8	169.2	165.6	162
	180	176.4	172.8	169.2	165.6	162
	156	153.4	150.8	148.2	145.6	143
	180	176.4	172.8	169.2	165.6	162
	98	96.4	94.8	93.2	91.6	90
	156	153.4	150.8	148.2	145.6	143
	180	176.4	172.8	169.2	165.6	162

Figures can differ slightly due to the manufacturing tolerances.

ORIGINAL WIRTGEN GROUP

WEAR ON THE CRAWLER UNIT CHAINS

In order to keep the wear on the crawler unit chains as low as possible, it is necessary to keep the **correct tension on the chain**.

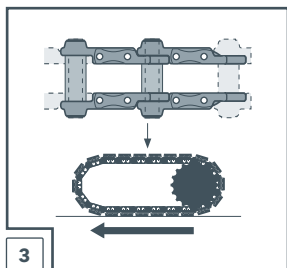
- > If the tension on the track chains produced by the tensioning cylinders on the drive sprocket and idler unit is too high the necessary play between bushes and pins will be too small, which will cause increased wear.
- > Insufficient chain tension leads on the other hand to a tail motion of the chain links between drive sprocket and idler. As a result the chain link flanks rub on the side surfaces of the track rollers and the drive sprocket. This can lead to the chain coming off.

The chain tension should be checked regularly especially on grease tensioned crawler units. How the correct chain tension is measured is described on the next page using as an example a track chain of a VÖGELE crawler unit:

A 1 m – 1.20 m long level or straight edge shall be used for the correct assessment of the chain tension. The straight edge is laid at the highest point of the drive sprocket. The biggest distance or sag from the lower edge of the straight edge to the lower side of the track pads shall not be more than 2 cm with the correct chain tension.



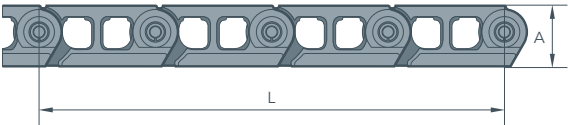
- 1 > Chips on the chain links can lead to cracks in the chain.
- 2 > Chain links wear due to their load in their height and are also extended.
- 3 > Direction of paving of the crawler track



ORIGINAL WIRTGEN GROUP

WEAR DIMENSIONS OF THE
WIRTGEN CRAWLER UNIT CHAINS

Machine type	Crawler size	Chain design
WIRTGEN crawler unit chains – wear dimension A		
W 1000 F, W 1200 F, W 1300 F, W 100 F(i), W 120 F(i), W 130 F(i), W 100 CF(i), W 120 CF(i), W 130 CF(i), W 150(i), W 150 CF(i), W 1500, W 1900, W 195, W 200(i), W 200 H(i)	W1	grease lubricated
W 2000, W 205, W 215, W 210(i), W 210 XP	W3	grease lubricated
W 2100 (to ser. no. 0147)	W4	dry
W 2100 (from ser. no. 0148), W 220(i)		
W 2200, W 250(i)	W5	dry
WIRTGEN crawler unit chains – wear dimension L		
W 1000 F, W 1200 F, W 1300 F, W 100 F(i), W 120 F(i), W 130 F(i), W 100 CF(i), W 120 CF(i), W 130 CF(i), W 150(i), W 150 CF(i), W 1500, W 1900, W 195, W 200(i), W 200 H(i)	W1	grease lubricated
W 2000, W 205, W 215, W 210(i), W 210 XP	W3	grease lubricated
W 2100 (to ser. no. 0147)	W4	dry
W 2100 (from ser. no. 0148), W 220(i)		
W 2200, W 250(i)	W5	dry



> The wear dimension "L" is determined by measuring the length of exactly four track chain links from the centre of the first bolt to the centre of the fourth bolt (simplified illustration).

	Wear dimensions (mm)					
	0%	20%	40%	60%	80%	100%
	73	71.8	70.6	69.4	68.2	67
	76.8	75.6	74.4	73.2	72	70.8
	96	94.3	92.6	90.9	89.2	87.5
	96	94.4	92.8	91.2	89.6	88
	103.9	102.1	100.3	98.5	96.7	94.9
	560	562.4	564.8	567.2	569.6	572
	622.4	626.3	630.2	634.2	638.1	642
	684.2	687.8	691.4	695	698.6	702.2
	686.8	689.2	691.6	694	696.4	698.8
	701.6	705.2	708.9	712.5	716.2	719.8

Figures can differ slightly due to the manufacturing tolerances.

ORIGINAL WIRTGEN GROUP

WEAR DIMENSIONS OF THE VÖGELE CRAWLER UNIT CHAINS

Machine type

VÖGELE crawler unit chains – wear dimension A

SUPER 700, SUPER 800

SUPER 700-3(i), SUPER 800-3(i)

SUPER 1100-2, SUPER 1300-2, SUPER 1100-3(i), SUPER 1300-3(i)

SUPER 1600-1, SUPER 1800-1, SUPER 1600-2, SUPER 1800-2 (SJ),
SUPER 1600-3(i), SUPER 1800-3(i), SJ, SUPER 1900-2,
SUPER 2100-2, SUPER 2100-2 IP, SUPER 1900-3(i), SUPER 2100-3(i)

SUPER 3000-2

MT 3000-2

VÖGELE crawler unit chains – wear dimension L

SUPER 700, SUPER 800

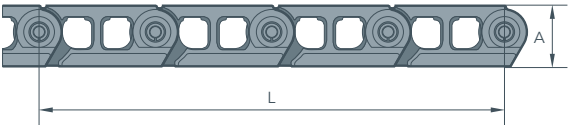
SUPER 700-3(i), SUPER 800-3(i)

SUPER 1100-2, SUPER 1300-2, SUPER 1100-3(i), SUPER 1300-3(i)

SUPER 1600-1, SUPER 1800-1, SUPER 1600-2, SUPER 1800-2 (SJ),
SUPER 1600-3(i), SUPER 1800-3(i), SJ, SUPER 1900-2,
SUPER 2100-2, SUPER 2100-2 IP, SUPER 1900-3(i), SUPER 2100-3(i)

SUPER 3000-2

MT 3000-2



> The wear dimension "L" is determined by measuring the length of exactly four track chain links from the centre of the first bolt to the centre of the fourth bolt (simplified illustration).

	Wear dimensions (mm)					
	0%	20%	40%	60%	80%	100%
	63	62.3	61.7	61	60.4	59.7
	73	71.8	70.6	69.4	68.2	67
	77	75.8	74.6	73.4	72.2	71
	500	502.6	505.2	507.8	510.4	513
	560	562.4	564.8	567.2	569.6	572
	622	625.2	628.5	631.7	635	638.2

Figures can differ slightly due to the manufacturing tolerances.

ORIGINAL WIRTGEN GROUP

WEAR ON THE DRIVE SPROCKET AND THE CHAIN SLIDE BARS

A worn **chain slide bar** can no longer protect the crawler track or the frame from wear. Therefore, this part should be checked for wear when a chain link is replaced, and if necessary, changed at the same time. In this way a further dismantling of the crawler track before reaching the actual change point, which is costly both in time and money, due to a chain slide bar that is no longer functional, is avoided.

The in and out movement of the bushes of the crawler track in the teeth of the **drive sprocket** causes wear both on the chain and on the drive sprocket itself and changes the geometry over time.



The tooth divisions of the chain and drive sprocket are matched accurately to one another. By excessive wear of the drive sprocket the distances of the tooth flanks to one another change (the tooth section is reduced by the wear), which leads to increased wear or extension of the chain links (especially when using a worn drive sprocket with a new chain). The pressure on the pins and bushes increases, the wear of these components accelerates.

Because of its shape, the wear of a drive sprocket cannot be determined by measurements with associated comparison of results but can be found with the help of a wear table. For a reliable wear assessment there is consequently the visual check for unusual damage (e.g. cracks on the teeth, cracks in the drive sprocket, etc.) or wear which is caused by the continual rubbing on the tooth flanks or the front of the gear wheel.

1 > *Chipping on the teeth of a drive gear*

2 > *The tops of the teeth are worn, it is likely that the chain of the gear wheel will jump off*



WEAR ON THE IDLER AND THE IDLER GUIDE

In the application the tension in the chain is maintained by spring-grease or hydraulically tensioned cylinders over the **idler** and the **idler guide**. Due to the friction generated by the rolling of the track chains on the idler wheel, which in conjunction with fouling and / or too high or too low tension force of the cylinder, wear is increased.



If the wear dimension A of the idler is exceeded, the bushes of the crawler track slide over the idler which seriously reduces its possible life.

If the idler guide at the end of the crawler unit bracket projects from the frame, then the wear of the chains shall be checked by means of the dimensions given on the previous pages, which can, in general, be due to an excessively worn crawler track.

If the chains are not changed in time this leads to increased vibration of the crawler unit, since the idler guide is not mounted completely with its contact surfaces in the frame. These vibrations can lead to damage of the idler bearing.

Due to the relative movement of the idler bracket in the steel construction of the crawler unit frame there is not only wear in the idler bracket itself but also in the crawler unit frames. After the machine has been used for many years, the play in the idler should be checked either when it is fitted or replaced, in order, if necessary, to repair the steel frames before the renewed assembly of all components, such as the track chains, tensioning cylinders with idler, etc.



1 > *Idler guide of a WIRTGEN crawler unit: The idler guide projects from the steel frames. The wear of the track chains should be checked.*

2 > *Steel frames of a WIRTGEN crawler unit: The guide contact points are worn. Because the play was too big it should be repaired.*

ORIGINAL WIRTGEN GROUP

WEAR DIMENSIONS OF THE IDLERS

Machine type

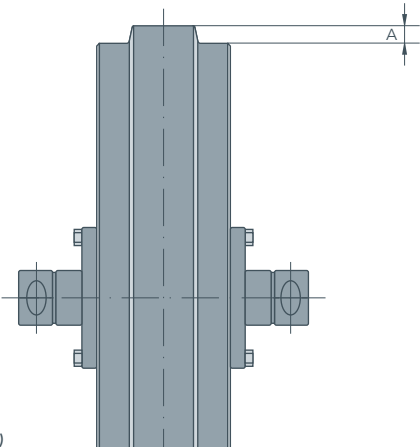
WIRTGEN idlers

- W 1000 F, W 1200 F, W 1300 F, W 100 F(i), W 120 F(i), W 130 F(i), W 100 CF(i), W 120 CF(i), W 130 CF(i), W 150(i), W 150 CF(i), W 1500, W 1900
- W 195, W 200(i), W 205, W 200 H(i), W 215, W 210(i), W 210 XP
- W 2000
- W 2100 (to ser. no. 0147)
- W 2100 (from ser. no. 0148), W 220(i)
- W 2200, W 250(i)

VÖGELE idlers

- SUPER 700, SUPER 800
- SUPER 700-3(i), SUPER 800-3(i)
- SUPER 1100-2, SUPER 1300-2, SUPER 1100-3(i), SUPER 1300-3(i)
- SUPER 1600-1, SUPER 1800-1, SUPER 1600-2, SUPER 1800-2 (SJ), SUPER 1600-3(i), SUPER 1800-3(i), SJ
- SUPER 1900-2, SUPER 2100-2, SUPER 2100-2 IP, SUPER 1900-3(i), SUPER 2100-3(i)
- SUPER 3000-2
- MT 3000-2

> Idler
(simplified
illustration)



	Wear dimension A (mm)					
	0%	20%	40%	60%	80%	100%
	17.5	18.6	19.7	20.8	21.9	23
	27.5	28.3	29.1	29.9	30.7	31.5
	22	23.1	24.2	25.3	26.4	27.5
	19	19.8	20.6	21.4	22.2	23
	25	26.1	27.2	28.3	29.4	30.5
	17.5	18.6	19.7	20.8	21.9	23
	14	15	16	17	18	19
	13	14	15	16	17	18

Figures can differ slightly due to the manufacturing tolerances.

ORIGINAL WIRTGEN GROUP WIRTGEN GROUP WORKSHOP SERVICE

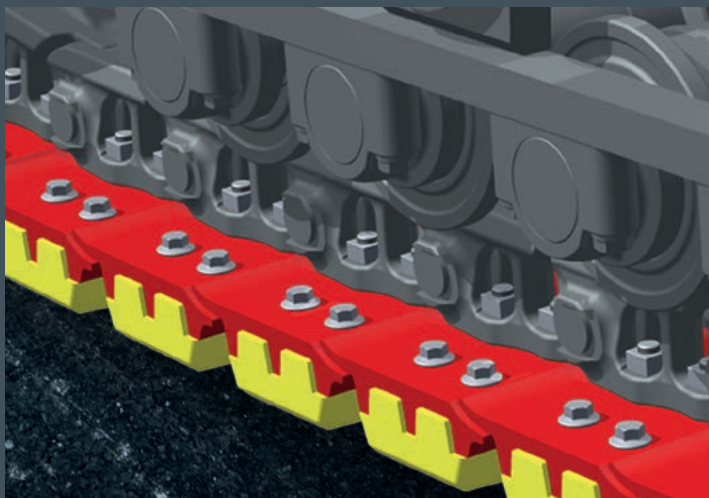
To establish and correctly estimate the wear status of the different crawler unit components of WIRTGEN GROUP machines at the right time is an essential precondition for planned and low cost maintenance. This maintenance work should preferably be done in the workshop and not on the building site, since building site repairs, in general, are more expensive than repairs undertaken in workshop conditions, which have the necessary tools and equipment.

Our local WIRTGEN GROUP sales and service company will be pleased to advise you how to estimate the wear and then arrange to supply all the necessary spare parts when you need them.

With careful planning you can also purchase service packs, which are favourably priced in comparison to the individual components. Our packs ensure that all the spare parts are available on the date required in the workshops.

Further information on ordering crawler unit parts can be found in the Parts and More catalogue and online under www.partsandmore.net.



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