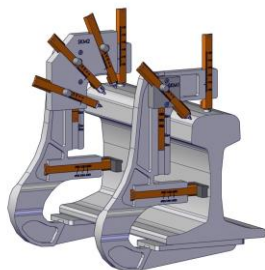




Vogel & Plötscher

User manual SKM 1 | SKM 2

May 2020



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Notes

Please note that, as a general rule, the company names and brand names used in this document are trademarks, brands or patents protected by law.

All the technical data given in the manual has been acquired, compiled, and checked with the greatest of care. However, since errors cannot be completely excluded, please be advised that we give no guarantee as to the correctness of the technical data, nor do we accept legal responsibility nor any other liability for the consequences of such data being incorrect.

Vogel & Plötscher GmbH & Co. KG (hereinafter referred to as V&P) reserves the right to make changes to the product, software, and this document in the sole interest of technical progress.

1 General information

1.1 Contact details

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Germany

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1.2 Purpose

These operating instructions are designed to ensure trouble-free use of the SKM analogue measuring devices.

1.3 Target audience

Users of the measuring device described in this document.

1.4 About this document

This document makes use of a range of different formatting and symbols, such as:

1.4.1 Warning notice



DANGER

Keyword

- Danger notice 1
- Danger notice 2
- ...

A warning or safety notice indicates a potential risk and provides instructions on how to prevent it.

The safety symbol may appear differently depending on the type and severity of the risk concerned (section on → [warning and safety symbols](#)).

1.4.2 Information













An information box provides important information that should be taken into account. Information boxes may provide practical information or refer to additional **information** and **documentation**. References to other sources of information are shown in color and in bold type.

1.5 Nomenclature

There are two versions of the rail head wear measuring device: SKM 1 and SKM 2. If one of the two versions is not explicitly mentioned, the following information applies equally to both versions. For the sake of convenience, in this case, the term “SKM” is used as a substitute for “SKM 1 and SKM 2”.

2 Safety

2.1 Warning and safety symbols

	General warning.	 DANGER	Warns of a major risk which could lead to serious injury or death if not dealt with.
 WARNING	Warns of a risk which could lead to serious injury if not dealt with.	 CAUTION	Warns of a risk which could lead to injury if not dealt with.
	Hot surfaces warning		Electricity and electro-magnetic effects warning.
	Electro-magnetic field warning.		Potential risk of injury because of the effects of machinery on the human body.
	Moving and/or heavy weight warning.		Laser beam warning.

2.2 Use by qualified personnel

The SKM ensures a high level of reliability.

The user must be suitably qualified and trained in the use of the device.

Specifically, the user should ensure that:

- the measuring device is used consistent with its intended use.
- the measuring device is not used if it is damaged or not working properly.
- the operating instructions are clearly legible and available to consult on the site where the device is being used.
- the device is used, repaired, and maintained by suitably qualified personnel only.

2.3 Intended use

The SKM is an analogue measuring device for measurements of the wear of the rail head in exposed Vignoles rails. The rail profile is checked using two measurement parameters:

- Rail height (vertical wear on rail)
- Wear of the running edge (lateral wear on rail)

Do not drop the measuring device.



If the SKM is not used in accordance with these instructions, we cannot guarantee that it will be safe to operate. The user shall be responsible for any injury or damage to property resulting from failure to comply with these operating instructions. V&P shall accept no responsibility in such circumstances.

2.4 Warning notices and safety precautions



GEFAHR

Magnetic clamps

- Be careful when moving around magnetic objects.
- Be careful with personal objects.
- Watch out for people and their personal objects when using the device.

To avoid causing injury to other people and/or damage to the measuring device, always be aware of your surroundings when using the device.

It should be checked which objects are worn on one's own body or on the body of work colleagues to avoid potential damage to these objects by magnetic effects.

3 Product description

3.1 Standard scope of supply

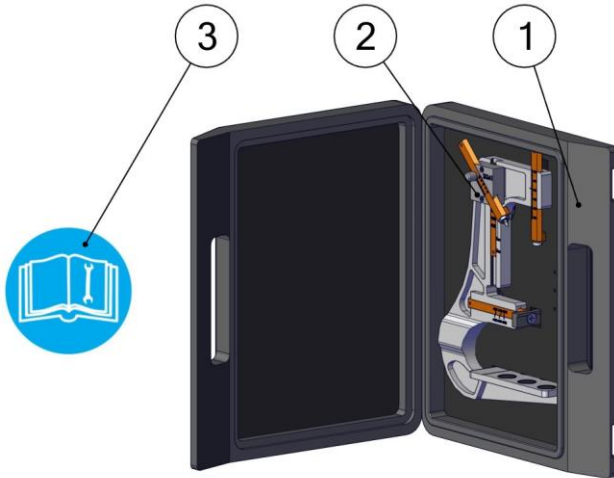


Figure 1: Scope of supply

Table 1: Overview of scope of supply

No.	Description	Quantity
1	Storage case	1
2	Measuring device SKM (the figure shows the SKM 1)	1
3	User manual	1

3.2 Functional components SKM 1

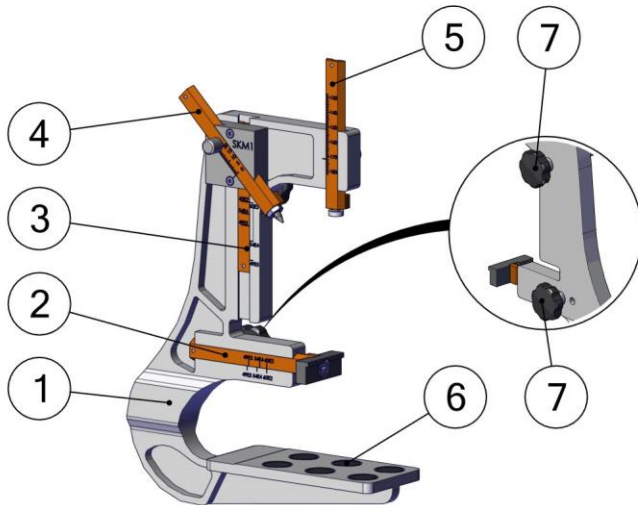


Figure 2: Functional components SKM 1

Table 2: Overview of functional components SKM 1

No.	Description	Quantity
1	Cast body SKM 1	1
2	Horizontal slide	1
3	Vertical slide	1
4	Lateral wear measurement stylus 45°	1
5	Vertical height measurement stylus	1
6	Rail foot contact plate with magnets	1
7	Knurled screw	2

3.3 Functional components SKM 2

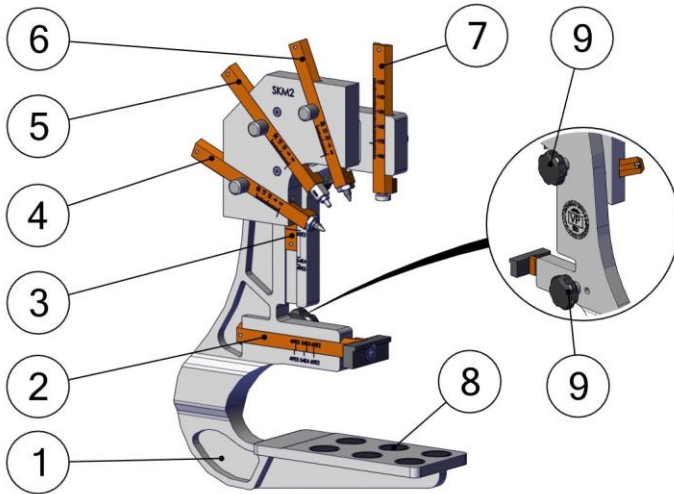


Figure 3: Functional components SKM 2

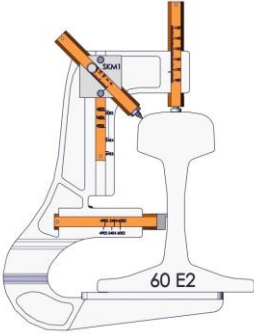
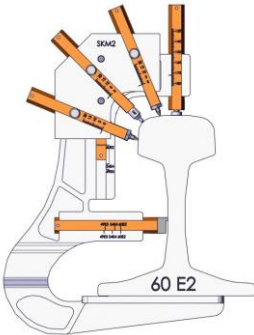
Table 3: Overview functional components SKM 2

No.	Description	Quantity
1	Cast body SKM 2	1
2	Horizontal slide	1
3	Vertical slide	1
4	Lateral wear measurement stylus 67,5°	1
5	Lateral wear measurement stylus 45°	1
6	Lateral wear measurement stylus 22,5°	1
7	Vertical height measurement stylus	1
8	Rail foot contact plate with magnets	1
9	Knurled screw	2

3.4 Versions

The two versions SKM 1 and SKM 2 differ in the quantity of the lateral wear measurement styli. The lateral wear measurement styli are used to measure the wear of the running edge at different angles.

Table 4: Versions

Version	Lateral wear measurement stylus	Standard rail profiles *
 <p data-bbox="107 871 385 895"><i>Figure 4: SKM 1 on Vignoles rail</i></p>	<p data-bbox="732 453 799 477">1 x 45°</p>	<p data-bbox="894 453 945 477">60E2</p> <p data-bbox="894 496 945 520">54E4</p> <p data-bbox="894 539 945 563">49E5</p>
 <p data-bbox="107 1350 385 1374"><i>Figure 5: SKM 2 on Vignoles rail</i></p>	<p data-bbox="732 932 816 956">1 x 22,5°</p> <p data-bbox="732 975 799 999">1 x 45°</p> <p data-bbox="732 1018 816 1042">1 x 67,5°</p>	<p data-bbox="894 932 945 956">60E2</p> <p data-bbox="894 975 945 999">54E4</p> <p data-bbox="894 1018 945 1042">49E5</p>

*More profiles and their combinations are available on request.

4 Commissioning and operating



The operation is explained below using the example of the SKM 1. Unless explicitly described otherwise, the SKM 2 is operated in the same way.

Table 5: Measuring with SKM

#	Step description	Picture
1	<p>Adjust the required rail profile with the horizontal and vertical slides.</p> <p>The possible profiles are engraved in both the slides and the cast body.</p> <p>The engravings must be next to or above each other for the respective profile.</p> <p>Lock the slide setting by using the knurled screws.</p>	<p>Figure 6: Adjust the rail profile</p>

- 2 Position the SKM on the rail. If necessary, remove ballast under the rail foot.
- Place the measuring device with the help of the contact plate on the rail foot.

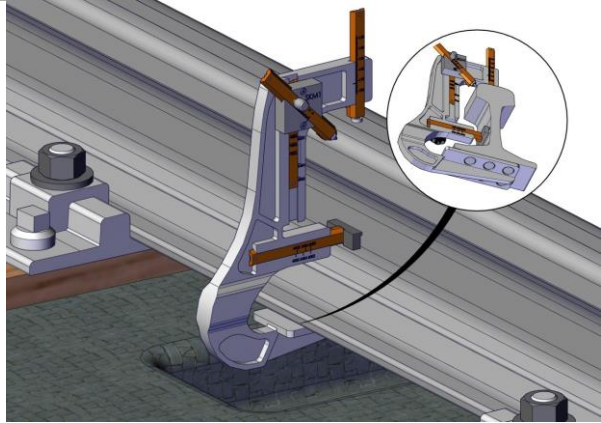


Figure 7: Placement on the rail foot 1/2

To ensure a correct positioning, the horizontal slide must correctly touch the rail foot.

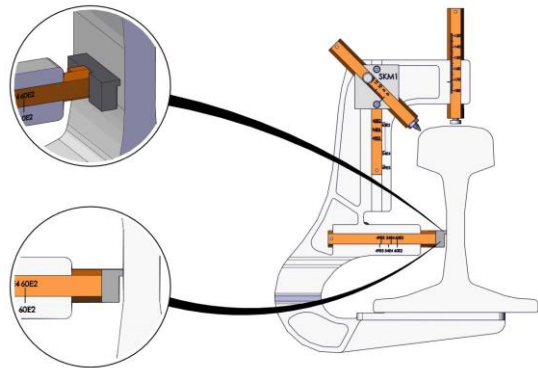
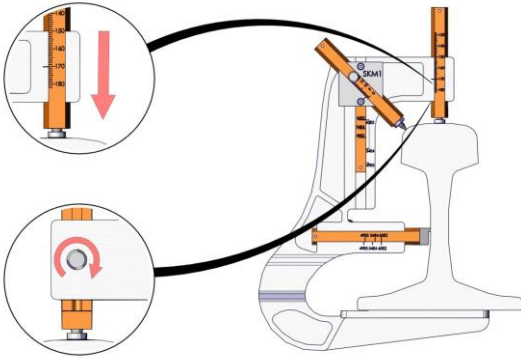
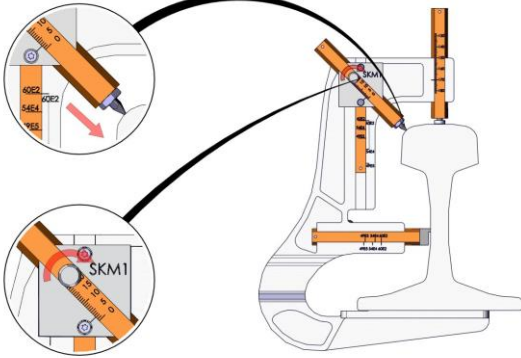


Figure 8: Placement on the rail foot 2/2

<p>3 Measuring the rail height:</p> <p>Move the vertical height measurement stylus up to the rail head and fix it with the screw.</p> <p>The measuring stylus ensures a contact in the middle of the rail head for most rail types.</p> <p>Read the measuring result off the scale of the vertical height measurement stylus.</p>	 <p><i>Figure 9: Measuring the rail height</i></p>
<p>4 SKM 1 – Measuring the wear of the running edge:</p> <p>Move the 45° lateral wear measurement stylus up to the rail head and fix it with the screw.</p> <p>Read the measuring result off the scale of the lateral measuring stylus.</p>	 <p><i>Figure 10: Measuring the wear of the running edge (SKM 1)</i></p>

- 5 SKM 2 – Measuring the wear of the running edge:
- With SKM 2 it is possible to measure the wear of the running edge additionally at angles of $22,5^\circ$ and $67,5^\circ$.
- The measurement procedure is same as described above for SKM 1.
- Read the measuring results off the scales of the lateral measuring styli.

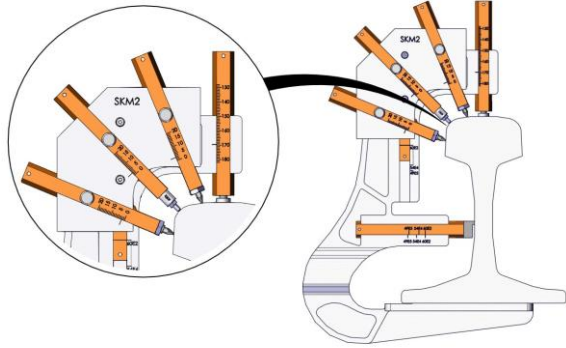


Figure 11: Measuring the wear of the running edge (SKM 2)

5 Care and maintenance

5.1 Maintenance

The device must be maintained by qualified personnel only.

It is recommended that the device should be inspected and re-calibrated on an annual basis by V&P or by an authorized V&P service partner.



Local regulations and guidelines for track measuring devices and how they should be calibrated should always be observed.

5.2 Care instructions

Dirt: Any contamination (such as dirt, grinding dust or grease) should be cleaned off the measuring device immediately after use. It is particularly important to ensure the measuring probes are clean.

Moisture: When using the measuring device in moist environments and/or in the rain, dry the device thoroughly before putting it into its transport case.

Shocks: Care should be taken not to shake or drop the device or expose it to any other significant shock, as this can damage the calibration mechanism in the device.

6 Transport

The SKM measuring device should ideally be stored and transported in the provided transport case.

When transporting the case in a vehicle, the case should be secured to make sure it cannot shift in transit.

Inspect the device for damage after every journey.

7 Technical data

	SKM 1	SKM 2		
Adjustable rail profiles	60E2 54E4 49E5	60E2 54E4 49E5		
<i>Optionally, the measuring devices can be adapted for other rail profiles on request.</i>				
Scale vertical height measurement stylus	130-174 mm	130-174 mm		
Scale lateral wear measurement stylus	45°	0-20 mm	22,5°	0-20 mm
			45°	0-20 mm
			67,5°	0-20 mm
Measurement resolution	± 1,0 mm			

Dimensions and weight	
SKM (length x width x height)	~ 220 x 60 x 280 mm
SKM weight	~ 1,4 kg
Storage case (length x width x height)	~ 310 x 95 x 360 mm
Storage case weight (when empty)	~ 0,95 kg

8 Decommissioning and disposal

CAUTION: The materials used in this device can be harmful to the environment

- Mechanical components can damage the environment.
- All potentially harmful materials must be disposed of in accordance with local regulations.
- Components should be separated out according to the materials used and recycled as appropriate.
- The transport case is not recyclable and should be disposed of as general waste.
- V&P can dispose of the measuring device for you if you wish.

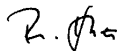
9 Appendix

9.1 EG declaration of conformity

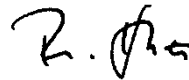
We, the manufacturer, hereby confirm that the product named below conforms with the Measuring Instruments Directive 2014/32/EU and the CE Marking Directive 93/68/EWG.

The manufacturer	Vogel & Plötscher GmbH & Co. KG Geldermannstrasse 4 79206 Breisach Germany
makes this declaration in respect of the following measuring device:	SKM 1 SKM 2

Any changes to the design that affect the technical data and intended use set out in the operating instructions constitute significant alterations to the measuring instrument and shall render the present declaration of conformity invalid.



Breisach, Germany, 18 May 2020



Rolf Herter
CEO

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