

DEUTSCHE VERSION:
KATALOG UMDREHEN!



Tradition
Quality
Progress Innovation
Effectiveness **Precision**
Experience



BALANCING WEIGHTS



Our Headquarters

FRANKEN-INDUSTRIE started life as a metal workshop, founded in 1907. In 2006, after nearly 100 years in Würzburg, we decided to move to Veitshöchheim, a few kilometers to the north.

Join us on our tour from Veitshöchheim Castle to the most exciting attractions in Würzburg!

OUR COMPANY



Made in the heart of Germany and at the center of Europe for car manufacturers the world over – the wheel-balancing weights from FRANKEN-INDUSTRIE.





Site and Delivery Address:


FRANKEN-INDUSTRIE GmbH & Co. KG
Rudolf-Diesel-Straße 6
D-97209 Veitshöchheim
Germany

By mail:

FRANKEN-INDUSTRIE GmbH & Co. KG
Postfach 12 60
D-97206 Veitshöchheim
Germany

 **Switchboard**
+49 (0)931-32104 0

 **Fax**
+49 (0)931-32104 999

 **Homepage**
www.franken-industrie.com

 **e-mail**
kontakt@franken-industrie.de

It's only a **trifle**.
But a **decisive** one.

Made in Germany, made in "Main Franconia": While more and more companies emigrate to low-income countries, we stick to our site in the middle of Germany. Because we rely on quality, on the knowledge of our staff, on the 100 years of experience of our company. Think global, act local – in our company this motto is not just on paper. We live it. Day by day.

We are not an anonymous major corporation, we do not hide behind websites and online forms – although we offer this, too. No, you can talk to us directly and tell us your wishes, questions and of course also your problems. That is why you'll find on each page of our catalogue our direct dialling and not a hotline at the owners expense.

Our balancing weights have OEM quality, guaranteed tolerances according to the car manufacturers, a special coating against corrosion. We deliver worldwide and are among other things Original Equipment Manufacturer of BMW, Daimler-Chrysler, MAN and Skoda.

For quality is not a trifle for us.

Yours cordially

Felix Bode
President

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Veitshöchheim Castle

Built between 1680 and 1682, this palace was originally a residence of the prince bishops of Würzburg. Grand Duke Ferdinand of Tuscany began using it as a summer residence in 1806, a practice the kings of Bavaria continued in 1814. Almost more beautiful than the palace itself is the garden, which contains more than 300 sandstone sculptures.



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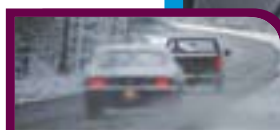
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ZINC BALANCING WEIGHTS

PASSENGER CAR STEEL RIMS



TYPE 80

Range of application

Knock-on weights for steel rims

Characteristics

Zinc weights with silver grey plastic lamination with high impact resistance and different radii for a simpler application.

Material Identification: Zn (zinc)



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

TYPE 81

Range of application

Knock-on weights for steel rims of French cars as well as light trucks (Ford Transit, DC Sprinter).

Characteristics

Zinc weights with silver grey plastic lamination with high impact resistance to avoid the formation of white blister

Material Identification: Zn (zinc)

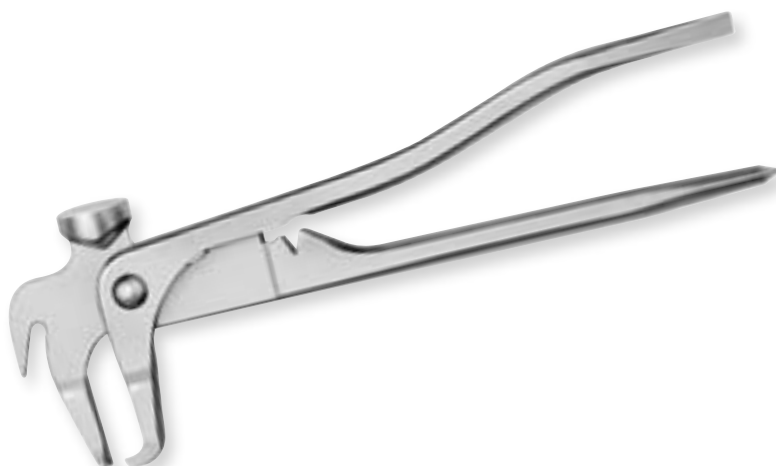


SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60	50 pieces/box
65, 70, 75, 80, 85, 90 g	25 pieces/box

MOUNTING PLIERS

Characteristics

Standard tool, tried and tested a thousand fold, for the fitting and removal of FRANKEN-INDUSTRIE wheel weights.



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View of Würzburg

The view of the city to be had from the Marienburg Fortress is really superb. An ancient bishopric and university town, which in 2004 celebrated its 1300th anniversary, Würzburg is home to innumerable churches. Situated on the so-called Main Triangle, its 130,000 residents live on both banks of the river.



PASSENGER CAR ALUMINIUM RIMS



TYPE 62



Range of application

Knock-on weights for aluminium rims

Characteristics

Zinc weights with silver grey plastic lamination with high impact resistance and different radii for a simpler application.

Material Identification: Zn (zinc)



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

TYPE 661



Range of application

Knock-on weights for aluminium rims of Japanese cars (JJ flange)

Characteristics

Zinc weights with silver grey plastic lamination with high impact resistance to avoid the formation of white blister

Material Identification: Fe (iron), Zn (zinc)



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

KNOCK-ON WEIGHTS



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ZINC BALANCING WEIGHTS

PASSENGER CAR ALUMINIUM RIMS



ADHESIVE WEIGHTS

TYPE 90

Range of application

Nearly all aluminium rims for passenger cars.
Series parts at AUDI, BMW, Daimler-Chrysler,
Ford and Nissan.

Characteristics

Sizes **Width** **Height**
15 g to 60 g 15 mm 5.8 mm incl. adhesive tape
Silver grey plastic lamination with high impact
resistance.

From 25 g onwards weights have one notch,
from 45 g onwards two notches to facilitate
the adjustment to the rim radius.

Material Identification: Zn (zinc)



SIZES (IN GRAM)	PACKING UNITS
15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

TYPE 91

Range of application

Nearly all aluminium rims, especially apt for
internal mounting.
Series parts at VW, Opel and Volvo.

Characteristics

Sizes **Width** **Height**
5 g and 10 g 15 mm 3.8 mm incl. adhesive tape
15 g to 60 g 19 mm 3.8 mm incl. adhesive tape

Silver grey plastic lamination with high impact
resistance.

From 25 g onwards weights have one notch,
from 45 g onwards two notches
to facilitate the adjustment to the rim radius.

Material Identification: Zn (zinc)



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

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Please also pay attention to the reference concerning adhesive tapes given in the chapter "technical information" in this catalogue!

The "Käppele"

The architect Balthasar Neumann is famous not just for the Würzburg Residence, but also for the Church of the Visitation of Mary, which was completed in 1748. Known locally simply as the "Käppele" or "Chapel" – which after all has a nicer ring to it than the official name – this church nestling among the vineyards is accessed by climbing the 256 steps leading up to it from the river Main.



PASSENGER CAR ALUMINIUM RIMS



TYPE 92



Range of application

Nearly all aluminium rims for passenger cars

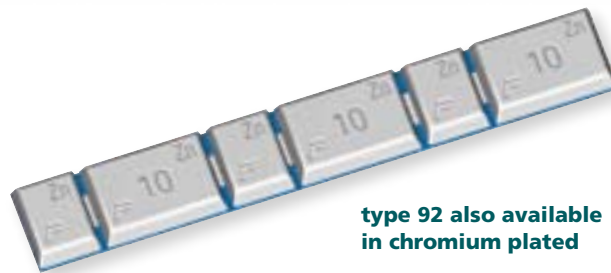
Characteristics

Adhesive strip with segments

Sizes **Width** **Height**
3x5 g, 3x10 g 15 mm 5.5 mm incl. adhesive tape

Silver grey plastic lamination with high impact resistance.

Material Identification: Zn (zinc)



**type 92 also available
in chromium plated**

SIZES (IN GRAM)

45 g (3x5 g, 3x10 g)

PACKING UNITS

100 pieces/box

TYPE 93



Range of application

Nearly all aluminium rims for passenger cars

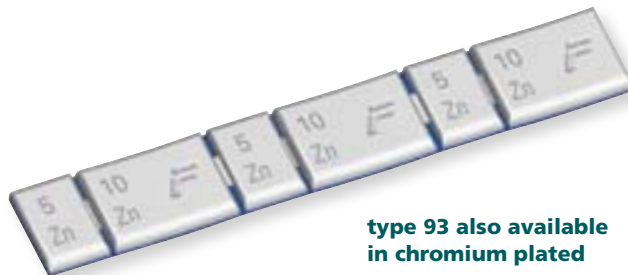
Characteristics

Adhesive strip with segments

Sizes **Width** **Height**
3x10 g, 3x5 g 19 mm 3.8 mm incl. adhesive tape

Silver grey plastic lamination with high impact resistance.

Material Identification: Zn (zinc)



**type 93 also available
in chromium plated**

SIZES (IN GRAM)

45 g (3x5 g, 3x10 g)

PACKING UNITS

100 pieces/box

TYPE 94



Range of application

Nearly all aluminium rims for passenger cars.

Characteristics

Adhesive strip with segments

Sizes **Width** **Height**
6x5 g 19 mm 2.8 mm incl. adhesive tape

Extremely thin 30 gram adhesive strip with silver grey plastic lamination with high impact resistance. Especially apt for vehicles, where there is only little clearance between calliper and rim.

Material Identification: Zn (zinc)



SIZES (IN GRAM)

30 g (6x5 g)

PACKING UNITS

100 pieces/box

Please also pay attention to the reference concerning adhesive tapes given in the chapter "technical information" in this catalogue!

ADHESIVE WEIGHTS



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ZINC BALANCING WEIGHTS

PASSENGER CAR STEEL AND ALUMINIUM RIMS



TYPE 74

Range of application

Zinc weight for BMW and VW steel rims as well as BMW aluminium rims

Characteristics

Body of weight with silver grey plastic lamination with high impact resistance.

5 and 10 g are made of plastic (PP).

Material Identification: PP (Polypropylen), Zn (zinc)



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

TYPE 280

Range of application

Zinc weight for VW aluminium rims

Characteristics

Body of 5 g - weight is made of plastic (PP).

Material Identification: PP (Polypropylen), Zn (zinc)



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

TYPE 75

Range of application

Zinc weight for Daimler-Chrysler steel and aluminium rims

Characteristics

Body of weight with silver grey plastic lamination with high impact resistance.

5 and 10 g are made of plastic (PP).

Material Identification: PP (Polypropylen), Zn (zinc)



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

SPRING LIFT

Range of application

For the fitting and removal of all safety clip weights with separate clip.



NOTE Opening 15.5 mm and 19 mm

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The Residence

Dominating the heart of Würzburg is its world famous Residence. By the time Balthasar Neumann oversaw the completion of the shell on New Year's Eve 1744, work on the building had already been in progress for 24 years. And it took another 36 years to complete the splendid interior, which visitors never cease marveling at even today. The Residence became a UNESCO World Heritage Site in 1981.



PASSENGER CAR STEEL AND ALUMINIUM RIMS



CLIP TYPE 74-1



Range of application

Clip for BMW aluminium rim

Characteristics

Clip with silver grey plastic lamination with high impact resistance.



PACKING UNITS

100 pieces/box

CLIP TYPE 74-2



Range of application

Clip for BMW steel rim

Characteristics

Clip with a zinc coating.



PACKING UNITS

100 pieces/box

CLIP TYPE 74-3



Range of application

Clip for VW steel and aluminium rim

Characteristics

Clip with silver grey plastic lamination with high impact resistance.



PACKING UNITS

100 pieces/box

CLIP TYPE 75-1



Range of application

Clip for Daimler-Chrysler aluminium rim

Characteristics

Clip with silver grey plastic lamination with high impact resistance.



PACKING UNITS

100 pieces/box

CLIP TYPE 75-2



Range of application

Clip for Daimler-Chrysler steel rim

Characteristics

Clip with silver grey plastic lamination with high impact resistance.



PACKING UNITS

100 pieces/box

CLIP WEIGHTS



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LEAD BALANCING WEIGHTS

PASSENGER CAR STEEL AND ALUMINIUM RIMS



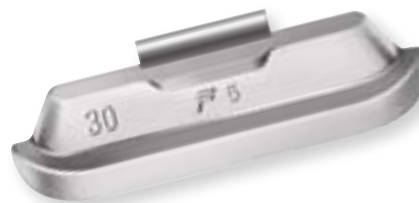
TYPE 5

Range of application

Universal weight for steel rims (J-flange)

Characteristics

The ingenious geometry of the weights' body and clip enables an unusual wide range of application with easy mounting and firm seating; mounting gate is placed far to the front.



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

TYPE 15

Range of application

Universal weight for nearly all passenger cars aluminium rims (J-flange)

Characteristics

Body of weight with mounting gate. Clip with slip radius protects rim from damage.

Type 15 B has an additional plastic lamination with high impact resistance to protect from corrosion.



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

TYPE 16

Range of application

Aluminium rims with a low bead seating area between tyre and flange, e.g. some VW and Ford vehicles.

Characteristics

The shorter clip prevents air loss. Body of weight with mounting gate. Clip with slip radius protects rim from damage. Plastic lamination with high impact resistance to avoid contact corrosion.



SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

All weights on this page are not in accordance with the EU End-of-Life Vehicles Directive 2000/53/EC and therefore must not be used on cars and light trucks up to 3,5t full load.

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Marienberg Fortress

The oldest parts of the fortress are already a thousand years old and testify to an eventful history – from the Swedish invasion during the Thirty Years' War to the Prussian bombardment of 1866 and that fateful day in March 1945 when the fortress and much of Würzburg were almost completely destroyed.



PASSENGER CAR ALUMINIUM RIMS



TYPE K3



Range of application

Nearly all aluminium rims for passenger cars

Characteristics

Adhesive strip with segments, deep indentations for an easy separation.



Type K3 also available in chromium plated.

Weights 4x10 g, 4x5 g **Width** 15 mm **Height** 5 mm incl. adhesive tape

SIZES (IN GRAM)	PACKING UNITS
60 g strip	100 pieces/box

TYPE K13

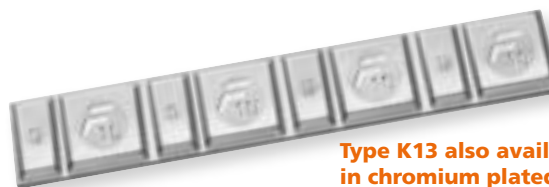


Range of application

Nearly all aluminium rims

Characteristics

Adhesive strip with segments, deep indentations for an easy separation.



Type K13 also available in chromium plated.

Weights 4x10 g, 4x5 g **Width** 18 mm **Height** 4 mm incl. adhesive tape

SIZES (IN GRAM)	PACKING UNITS
60 g strip	100 pieces/box

TYPE K1B



Range of application

Nearly all aluminium rims for passenger cars

Characteristics

Single-piece adhesive weight with moulded radius for better adaptation to the rim radius, with a middle notch from 40 g upwards.

Plastic lamination with high impact resistance.



Type K1 also available in chromium plated.

Width 18 mm **Height** 4.1 mm incl. adhesive tape

SIZES (IN GRAM)	PACKING UNITS
5, 10, 15, 20, 25, 30	100 pieces/box
35, 40, 45, 50, 55, 60 g	50 pieces/box

TYPE K8



Range of application

Nearly all passenger cars aluminium rims, especially suitable for internal mounting.

Characteristics

Extremely thin 30 gram adhesive strip.

Especially apt for vehicles, where there is only little clearance between calliper and rim.



Weights 12x2.5 g **Width** 15 mm **Height** 2.8 mm incl. adhesive tape

SIZES (IN GRAM)	PACKING UNITS
30 g strip	100 pieces/box

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ADHESIVE WEIGHTS



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LEAD BALANCING WEIGHTS

TRUCK STEEL AND ALUMINIUM RIMS



KNOCK-ON AND ADHESIVE WEIGHTS

TYPE 52

Range of application

Wheel balancing weights for 15° tapered rims of 17.5 x 5.25 up to 22.5 x 6 inches, with max. plate thickness of 4.5 mm

Characteristics

Knock-on balance weight with excellent mounting qualities and absolutely safe seat. Clip with slip radius.



SIZES (IN GRAM)	PACKING UNITS
25, 50, 75, 100, 150, 200 g	25 pieces/box

TYPE 53

Range of application

Wheel balancing weights for 15° tapered rims of 22.5 x 6.75 up to 26.5 x 12 inches, plate thickness of 4.5 mm or more.

Characteristics

Knock-on balance weight with excellent mounting qualities and absolutely safe seat. Clip with slip radius.



SIZES (IN GRAM)	PACKING UNITS
50, 75, 100, 150, 200	25 pieces/box
250, 300, 350, 400 g	10 pieces/box

TYPE 50

Range of application

Single-piece adhesive weight for truck/bus aluminium rims.

Characteristics

Weight with moulded radius. Silver grey plastic lamination with high impact resistance.

Sizes	Width	Height
50 g	18 mm	6.4 mm
75 g	18 mm	8.3 mm
100 g	18 mm	10.1 mm
125 g	30 mm	7.0 mm
150 g	30 mm	9.3 mm
175 g	30 mm	10.4 mm
200 g	30 mm	10.7 mm
250 g	30 mm	12.7 mm
300 g	30 mm	14.6 mm



SIZES (IN GRAM)	PACKING UNITS
50, 75, 100, 125, 150,	25 pieces/box
175, 200, 250, 300 g	25 pieces/box

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The Old Crane

This rotating crane with two lifting arms on the banks of the river Main was built by Franz Ignaz Neumann, Balthasar's son. When it went into operation in 1773, each arm was driven by two men on treadmills and could lift loads weighing up to two tons. Which by the way is the equivalent of 400,000 of our tiniest weights...



Source: HWE-N Honda



MOTORCYCLE RIMS



TYPE K6



Range of application

Nearly all aluminium rims with small adhesive area

Characteristics

Strip with 8 x 5 g segments, deep indentations for an easy separation and fitting to the rim radius.

Width 10 mm **Height** 4.7 mm including adhesive tape



Type K6 also available in chromium plated.

SIZES (IN GRAM)

40 g strip

PACKING UNITS

50 pieces/box

TYPE K7



Range of application

Nearly all aluminium rims; especially suitable for motorcycles with small adhesive area.

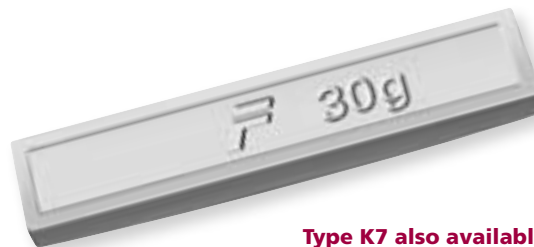
Characteristics

Series parts at BMW

Weight with moulded radius.

Silver grey plastic lamination with high impact resistance.

Width 11 mm **Height** 3.5 mm including adhesive tape



Type K7 also available in chromium plated.

SIZES (IN GRAM)

5, 10, 15, 20, 25, 30 g

PACKING UNITS

25 pieces/box

ADHESIVE WEIGHTS



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COATING – WHY ?

INFORMATION

(Un)coated zinc weights – field tests



Experimentally, the winter tyres on a VW Golf with steel rims were mounted with **FRANKEN-INDUSTRIE** weights **type 80** and Hofmann weights type 161 in **uncoated version**. After a running time of about 7500 km in a period from November to March, the weights looked like you see in the photos on the left side. These photos were taken after the cleaning of the rims with a high-pressure cleaner. You can see clearly the deposition of the oxidation as well as the brake dust, which can not be removed. The photos of the **coated weights** below, show **FRANKEN-INDUSTRIE weights type 80** and Hofmann weights type 161, which were mounted on the same rim on the interior side. There are no signs of corrosion to be seen!



Uncoated weights



Coated weights on the same vehicle



Coated weights

Closed epoxy surface.
 Min. 0.1 mm thick. Approx. 5 % aluminium pigments, embedded in synthetic molecules.
Therefore no surface oxidation.



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The Old Main Bridge

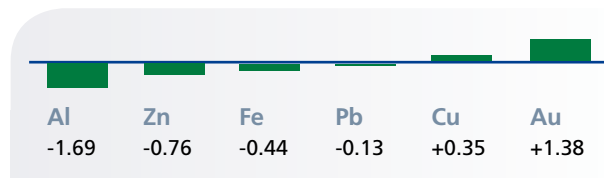
One of Würzburg's most famous landmarks is the 180-m-long Old Main Bridge built in 1543. The statues on the piers depict people who have had an important role to play in the history of Würzburg and Franken and include the Emperor Charlemagne and his father Pippin. Until the 18th century, the bridge was secured by two massive gates at either end.



Adhesive **weights type 90 uncoated** from **FRANKEN-INDUSTRIE** were fitted on an aluminium wheel of a Ford Maverick next to coated weights. After a running time of about 8000 km in a period of approx. 6 months, the **uncoated weights** fell off. The **coated weights type 90** showed no difference compared to the time of initial adhesion.

Electrochemical contact series

Electric charge of various materials

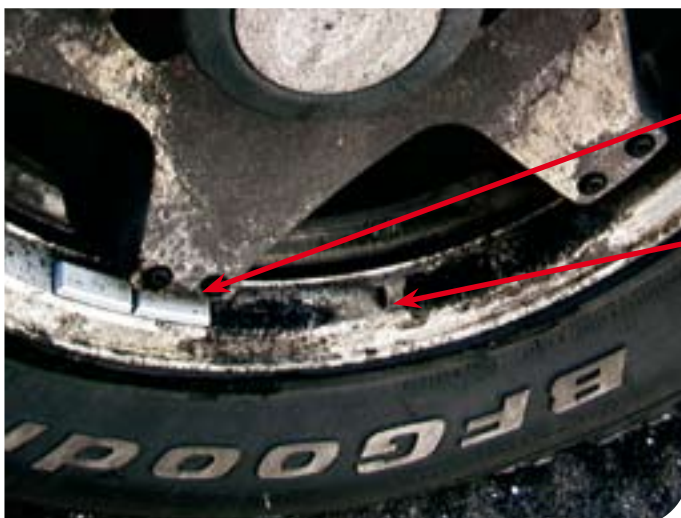


The higher charged electronegative material will be corroded by the weaker one.



weight type 90 coated
no corrosion at all

weight type 90 uncoated – lost.
Residues of the adhesive tape on the rim.



weight type 90 coated
no corrosion at all

weight type 90 uncoated – lost.
Residues of the adhesive tape on the rim.



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APPLICATION OF ZINC ADHESIVE WEIGHTS

TECHNICAL INFORMATION



1 Preparatory work

Ensure that the weight, rim and ambient temperature have at least 16 °C. Clean the rims with an appropriate cleaning agent (e.g. isopropanol 70 %) to avoid grease and silicone residues on the rim.



2 Adjusting the adhesive weight to the rim contour

Adjust the adhesive weight with the protective foil to the rim radius. The radius of the weight body and the rim must run at least parallel to each other. It is even better, if the radius of the weight body is smaller than the rim radius.



3 Removing the protective foil

After having adjusted the weight to the rim radius, remove the protective foil from the adhesive tape. Ensure that the adhesive weight is not touched prior to the adhesion!



4 Assembling the weight

Now press the weight to the rim from the middle towards the outer edges. The pressure should be at least 100 kPa.

NOTE After the assembly, 80–90 % of the final adhesive force are achieved after approx. 24 h. The full adhesive force is achieved after 72 h.

CHANGES OF THE RIM PAINTINGS!

Upon pressure of the automotive companies, all rim manufacturers have changed over to "water-soluble paintings" in the year 2005. So far "solvent-containing paintings" were in use. Those paintings contain waxes, which allow exhalations when burning-in the paintings and avoid the formation of blisters. The formerly added solvents mostly compensated the waxes. This is no longer the case with water-soluble paintings and thus

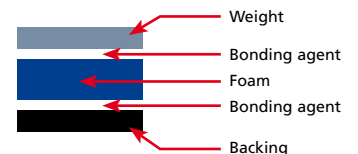
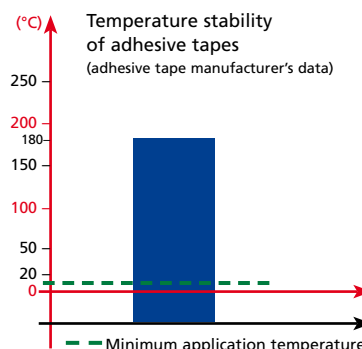
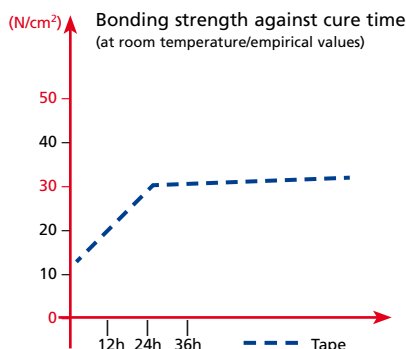
various wax concentrations develop on the adhesion surfaces, which can only be removed by a wet cleaning with e.g. isopropanol (70–75%). The required surface tension values of > 32 mN/m can only be achieved with such a pre-treatment! Without a pre-cleaning the adhesion values drop below 28 mN/m and a secure adhesion is not obtained, and after 1 or 2 days the weights may detach from the rim for no apparent reason.

Adhesive tape

The adhesive tape has a blue protective foil. The tape itself is black. It is a foamed adhesive tape consisting of an acrylate adhesive with a slow initial adhesive force. The tape thickness is about

0.8 mm. The temperature resistance of the adhesive tape is relatively high and ranges between -40 °C to +180 °C. The final adhesive force is achieved after approx. 24 h, depending on the temperature influence.

Re-siting of the weight immediately after the initial application is possible, if carefully handled. The weight and the adhesive tape can be removed almost without any residues when dismantling.



INFO HOTLINE

National:
+49 (0) 931-32104 230

International:
+49 (0) 931-32104 220

e-mail:
kontakt@franken-industrie.de

Office hours:
Monday – Thursday
8:00 – 17:00 o'clock
Friday
8:00 – 13:00 o'clock

Out of opening hours, our answering machine will record your wishes at any time.

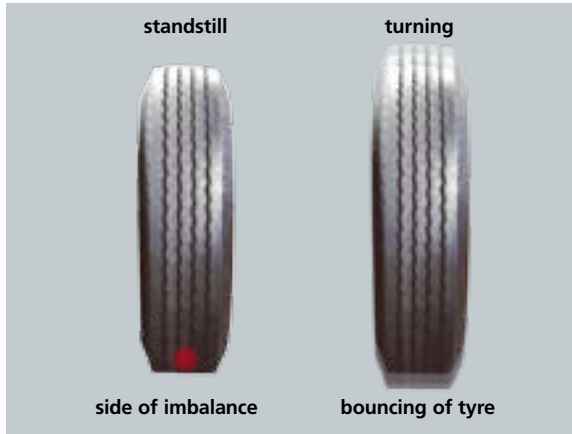


Marienkapelle

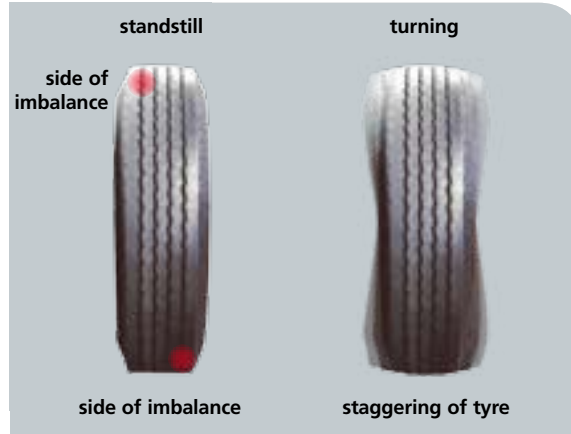
It took 60 years of hard work by several generations of craftsmen before this church watching over Würzburg's market square could be consecrated in 1440. The south portal is famous for the figures of Adam and Eve, carved in 1493 by the legendary Tilman Riemenschneider. The Marienkapelle also contains the tomb of Balthasar Neumann, who was buried here in 1753.



IMBALANCE



STATIC IMBALANCE



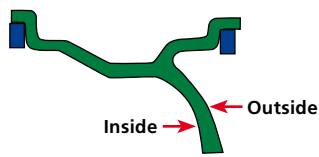
DYNAMIC IMBALANCE

One differs between two sorts of imbalance, which as a rule arise in combination: the *static imbalance* and the *dynamic imbalance*.

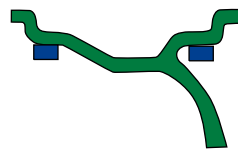
Static imbalance is caused by a difference of weight over the whole plane of the wheel.

Dynamic imbalance means a difference of weight outside the plane of the wheel.

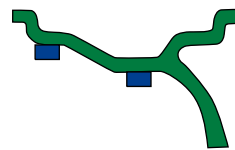
6 different methods of balancing passenger car rims:



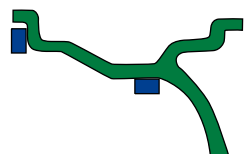
1 Balancing using clip-on weights for both planes. This method requires the least mass for balancing. This method is applied by most of the automobile manufacturers.



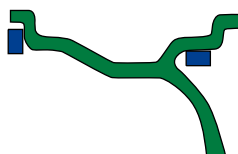
2 Balancing using adhesive weights for both planes. The weights are applied to the interior and exterior side in the outermost positions.



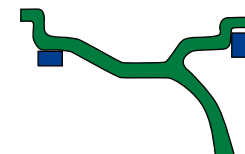
3 Both adhesive weights are applied to the interior side in the rim nave.



4 The exterior balance plane is transferred to the inside and the adhesive weight is applied to the rim nave within the brake disc area. A clip-on weight with integral or separate clip is applied to the inner rim flange.



5 An adhesive weight is used on the outer rim. It is applied to the outermost position. A clip-on weight with integral or separate clip is applied to the inner rim flange.



6 A clip-on weight with integral or separate clip is applied to the outer rim flange. An adhesive weight is used on the inner rim. The weight is applied to the outermost position in the rim nave.

IMPORTANT NOTE

When using any of the described methods of balancing aluminium rims, the vehicle or rim manufacturers' specifications and the release by the Technical Inspection Agencies concerning the balance weights to be used, should be strictly adhered to. The use of incorrect balance weights can reduce the freewheel of brakes or damage the track rod or the track rod end.



THE IDEAL WEIGHT
FOR EVERY MODEL