

HAWIFLEX[®]

- For ready-mixed concrete and precast plants
- For sand and gravel
- Working with Hawiflex[®] sheets
- Repairing with Hawipair[®]
- Accessories





Original is best!

After introducing the **original brand Hawiflex®** over 60 years ago, **habermann materials** set the scene for wear-reducing polyurethane technologies for use in moulded parts and coatings that are primarily used where a long service life and tremendous wear resistance are called for.

Hawiflex® stands out thanks to excellent resistance against abrasion and wear, allowing it to become firmly established in diverse industries and application fields.

Although there have been many attempts to copy **Hawiflex®**, we have always been able to keep one step ahead technologically and consolidate our prime market position.

Hawiflex® products are used successfully in ready-mix concrete plants, precast plants, in concrete block manufacturing, concrete pipe production and in the roofing tile industry. Anti-wear solutions from **Hawiflex®** provide a great deal of utility with straightforward costs. The mixing tools are available for almost **all current makes** of concrete mixing plants.

The extensive **spare parts range** can be supplied for ring trough mixers, single and double shaft mixers and planetary counter-current mixers.

To guarantee short-term **supply certainty** for our customers, the articles are stocked at numerous warehouses throughout Europe. These stockists are supplied from the **production plant in Witten**. So you can rest assured that all products are “Made in Germany”. Even those we develop individually with you.

The art of plastic with Hawiflex®

The manufacture of low-wear polyurethane can rightly be claimed to be an art. We have developed the plastic to such an extent that we can provide it as a finished moulded part in various hardnesses.

The properties profile of **Hawiflex®** enables use anywhere where high abrasion is to be expected or dynamic loads lead to extreme stresses.

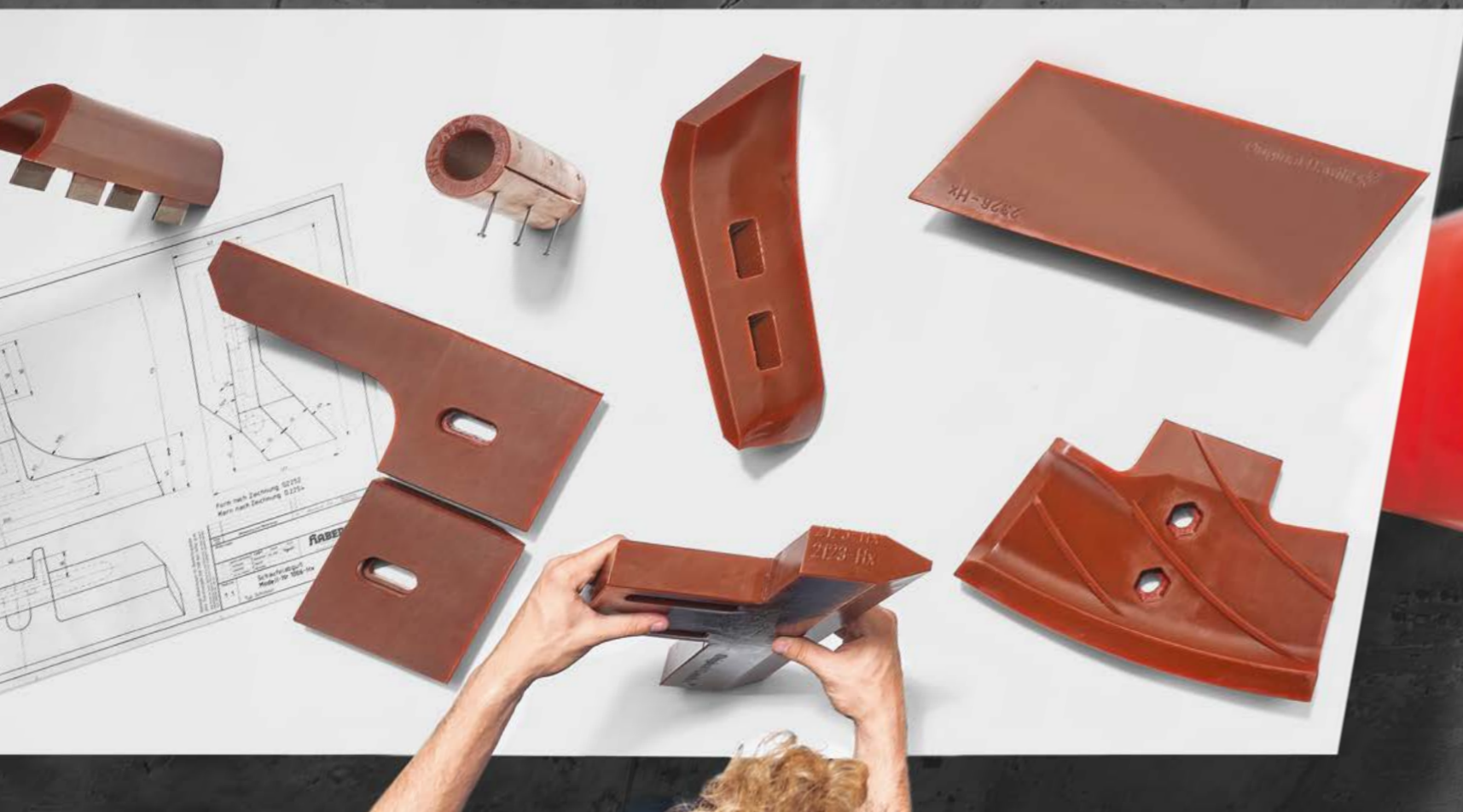
Our **aces** in the battle against wear are currently used successfully in many sectors and almost any industrial application.



| | |
|--|-------|
| Mixing tools made from Hawiflex® | 4-7 |
| Tools for residual concrete/recycling plants | 8 |
| Truckflex® (loading hose) | 9 |
| Linings for discharge hoppers | 10-11 |



| | |
|--|-------|
| Sheet products | 12-19 |
| Standard sheets | 12-13 |
| Perforated metal sheets | 14 |
| Expanded metal sheets, welded sheets | 15 |
| Function sheets | 16 |
| Corner curve, Hawiflex®LF-low friction | 17 |
| Accessories (fasteners, adhesives) | 18 |
| Hawipair® patching compound | 19 |
| Impact plate, step plate | 20 |
| Segments for heavy wear | 20 |
| Concrete pipe protection for forklift shoes | 21 |
| Concrete spray nozzles | 21 |
| Gripper strips | 21 |
| Quality, research and development | 22-23 |



Standard in mixer technology

Over 50 years of experience with Hawiflex® in concrete mixers ensure you can enjoy crucial service life advantages in comparison to other PU systems.

The Hawiflex® special formulation withstands the tough demands in the concrete industry, such as abrasion due to sharp-edged split, steel fibres and chemical loads from additives to the concrete.

Countless parts are available from stock at any time throughout Europe. See for yourself how extensive our product portfolio is: www.hawiflex.de/online-catalogue

We also manufacture spare parts customised to your specifications.

Suitable for numerous manufacturers, among them:

- | | | | |
|------------------|---------------|-----------------|---------------|
| AMMANN | HAZET-WELZOW | MUT | VÖGELE |
| ARBAU | HENKE | OCMER | W.P. HILLS |
| ARCEN | HILAC | OMAG | WAIMER |
| ARCOMET7 | HUGGLER | OMG | WEILER |
| BETONMASH | HYDRONIX | OMNI MIXER | WEISKIRCHER |
| BHS-SONTHOFEN | IBAG | ORU | WELZOW |
| BIBCO | IME STARMIX | PATAUD | WEMA |
| C.M. | IMER | PMSA | WIGGERT |
| CASSANI | INCOTRANS | QMIX | WINGET CROKER |
| CONCRETELLE | INDÜCO | RAPID | CUMFLOW |
| CONTINUOUS MIXER | KABAG HPGM | ROCCHI | WÖHWA |
| COUVROT | KABAG RTM | SCHLOSSER | ZENITH |
| CUOGHI | KAISER | SICOMA | ZREMB |
| DAMMAN CROES | KIEFERLE | SIMEM | |
| DEMY | KNIELE | SIMI | |
| EIRICH | LAPA | SIPE | |
| ELBA | LEINER | SKAKO | |
| ELKON | LIEBHERR | SKAKO APOLLO | |
| EUROMECC | LIEBHERR DW | STASIS RTM 1500 | |
| EUROMIX | LOREV | STETTER | |
| FEJMERT | MARCANTONINI | STIERRACIA | |
| FIBO INTERCON | MASA | TAURUS | |
| GASUS | MECA | TECHMATIK SPM | |
| GECO | METPOL | TEKA | |
| GRADIS | MICROMIX | TELTOW | |
| HAARUP | MIXER SYSTEMS | TURMAC | |
| | MULDER | UEZ | |



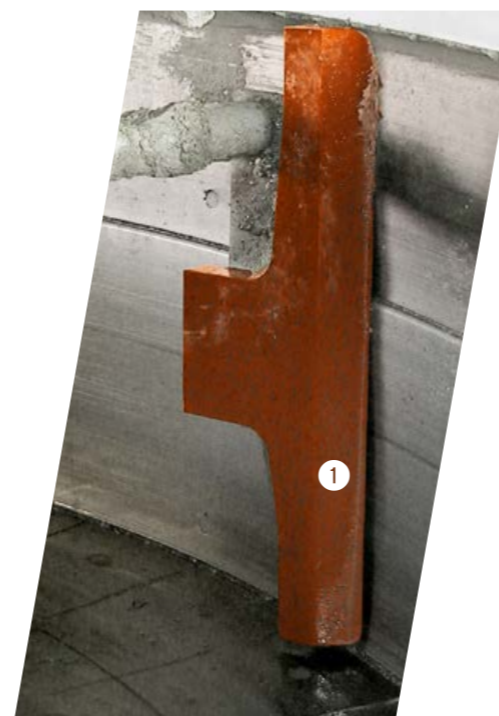
Your replacement mixing tools: lightweight and durable – Hawiflex®

The use of **double shaft mixers** is very popular for the manufacture of ready-mixed concrete. Well functioning centre and side paddles are a key instrument in concrete production here. Owing to the short cycle times of the concrete batches, they are subject to **considerable wear** and need to be replaced at regular intervals. Lightweight replacement mixing tools developed from the plastic **Hawiflex®** offer you significant benefits here: Centre and side paddles for double shaft mixers ensure **weight saving** while also

providing a patented surface plus for **durability**. Numerous patented **guide ribs** attached to the paddle enable the mixing material to flow off along the surface of the paddles via channels, thereby diverting it from the main wearing zone. The principle derived from fluid mechanics reduces the load on the outer edge considerably, which in turn extends the service life of the mixing tools.

Hawiflex® benefits:

- Resistant to cutting
- Wear resistant
- Oil resistant
- Easy to clean
- Reducing wear on linings
- Up to 50% noise reduction
- Energy saving



Tool types for your application

- Arm guard ②
- Beater body
- Floor scraper
- Inner paddle
- Mixing paddle ③
- Outer paddle
- Paddle inner comb
- Scraper ①
- Scraper segment
- Side paddle ④
- Side plate
- Stirrer protection
- Tile for helix





Concrete discharge and loading hoses Truckflex®

Recycling – efficient and eco-friendly

Wear-resistant separating and scooping paddles made from the polyurethane plastic Hawiflex® process residual concrete and concrete wastewater efficiently and ecologically in recycling plants.

The paddles allow the residual concrete sludge to be transported in a way that is kind to the metal lining, as mixing tools made from Hawiflex® are very elastic.

Hawiflex® benefits:

- Costing savings thanks to longer replacement intervals
- Mixing tools such as separating and scooping paddles for recycling plants of all standard makes in the product portfolio
- Insensitive to impacts
- Low concrete adhesion reduces cleaning times

The **seamlessly fabricated** hose is **highly flexible and rotatable**. It is nevertheless impressive thanks to high dimensional stability. The two colour system safeguards the process via wear progression detection. The **harder outer layer** prevents cut injuries due to fastening clips or damaged inlet hoppers of truck mixers. The **softer inner layer** provides proven protection against abrasive loads.

Hawiflex® benefits:

- Seamless
- Reduced residual concrete adhesion
- "Lowest inclination to material stopping"
- Resistant against mould oils
- No swelling – no embrittlement
- Signal red for good visibility
- Up to 40% lower weight in comparison to conventional hoses
- Immensely improved service lives thanks to longer replacement intervals



Truckflex® – The patented two layer hose with cut-resistant outer layer and wear-resistant inner layer!

The classic and repeatedly proven concrete hose – individually adjustable according to your dimensions.



Hawiflex® for hoppers

Hopper linings for extremely long service lives

Hopper linings made from Hawiflex® are supplied in centric design as a ready part. The **anti-adhesive effect** ensures significantly shorter cleaning times compared to steel hoppers.

The **cantilever effect** enables extremely long service lives in comparison to steel hoppers or lining with rubber.

But that's not all! If the concrete is impacted from one or two sides, you can promptly turn the hopper 90° or 120° and thus **double or treble the service life**. This is easily possible, as the lining is only hung or screwed in loosely.

Hawiflex® benefits:

- Easy to clean
- No need to use heavy equipment such as pneumatic chisels for cleaning
- No denting due to hammer cleaning
- Easy to replace: No laborious assembly or adhesion necessary
- Resistant to standard cleaning agents and mould oils
- Available for any dimension
- Variable thicknesses available

Keeping an eye on wear: Coneflex®

Depending on the application, the Coneflex® hopper insert can be turned easily up to three times.

An early detection system enables the operator to see in time when the hopper needs to be turned.

This is made possible by the two colour system Coneflex®. The inner 8 mm thick layer is white. The 2 mm thick layer is red. This lets you see when the white layer is worn and your hopper insert needs to be turned. That means you minimise

the risk of readjustment too late and thus prevent downtimes due to laborious repair work.

Coneflex® benefits:

- Quick recognition thanks to two colour system
- Layer thicknesses: inner 8 mm white, outer 2 mm red
- Easy to replace: No laborious assembly or adhesion necessary





Working with Hawiflex® sheets

| | |
|---------------------------------|----|
| Standard sheets | 12 |
| Perforated metal sheets | 14 |
| Expanded metal sheets | 15 |
| Welded sheets | 15 |
| Function sheets | 16 |
| Hawiflex® LF-low friction | 17 |

The lowest priced variant to install effective wear protection, e.g. as anti-wear lining in hoppers, buffer tanks (10–15 mm sheets), as impact protection (25–30 mm sheets) or as splash plates in mixers (3 mm sheets). The sheet is **very flexible and can be cut to size and worked easily on site**. The application options are diverse: Hawiflex® has a noise-insulating effect and provides protection as a lining for channels, troughs, hoppers, bins, silos, mixers, chutes, slides, buckets, loading devices, walls and base parts – in the glass, recycling and bulk materials industry, in plant construction, in maintenance, in sand and gravel quarrying and in the concrete industry.

Standard sheets: Flexible and easy to work with

The **choice of Shore hardness** is an important criterion for optimum wear protection. Hawiflex® sheets can be set in the hardness range from 65 to 90 Shore A during manufacture, depending on the application. **According to your data or drawings**, we can **manufacture** Hawiflex® anti-wear sheets in any desired size and shape as well as in many colours.

We shall be pleased to realise your special requirements like:

- Other hardnesses
- Welding multiple sheets
- Special cuts
- Fastening holes

Dimensions:

2000 x 1000 x 1–40 mm,
Other dimensions
on request

Specification/Benefits

- Wear-resistant material
- Resistant against all atmospheric influences
- Noise reducing
- Anti-adhesive
- Easy to clean with water
- No material ageing
- Easy to saw with jigsaw

All wearing sheets can be fastened with standard tools. We supply additional accessories for fastening (see page 18).





Hawiflex® perforated metal sheets: Easy assembly via screw connection

The perforated plate cast in the Hawiflex® sheet reduces expansion, compression and elastic recovery to a minimum. That makes this sheet ideal for chamfering, e.g. as side guide of conveyor belts or lining for buckets, channels and chutes. The design rigidity of the sheet allows more cost-effective frame-like structures instead of complex metal structures in some cases.

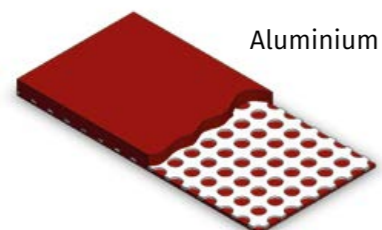
Dimensions:

2000 x 1000 mm (Standard)
1200 x 800 mm (Euro pallet)
Thickness: 12, 15, 20, 25 mm
and on request

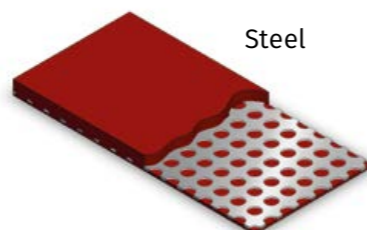
Hawiflex® benefits:

- Ideal for coating large areas
- Good anti-friction properties
- Enormous anti-adhesion properties
- Noise retardant
- Cleaning processes simplified
- On Euro pallet: transport optimised

Tip:
Self-tapping fastening screw (S. 18)



Aluminium



Steel

Hawiflex® expanded metal sheets: Easy to adjust difficult geometries

The cast expanded metal gives the sheet a solid structure and offers you the additional option of adapting the sheet flexibly and optimally to conical and oval components, e.g. hoppers and channels.

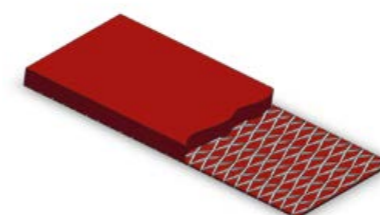
Dimensions:

2060 x 1025 mm
in e.g. 8, 10, 12 mm
and on request

Tip:
Joining with Hawipair® (S.19)

Hawiflex® benefits:

- Good anti-friction properties
- Enormous anti-adhesion properties
- Noise retardant
- Cleaning processes simplified



Hawiflex® welded sheets: Quick assembly – strong connection

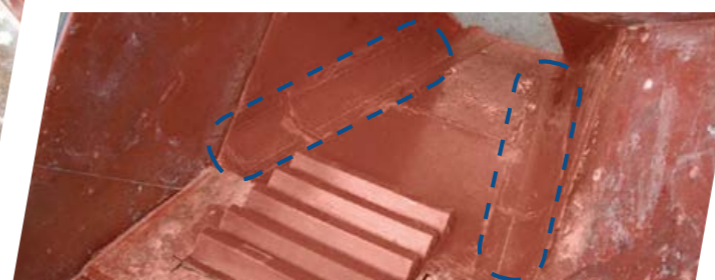
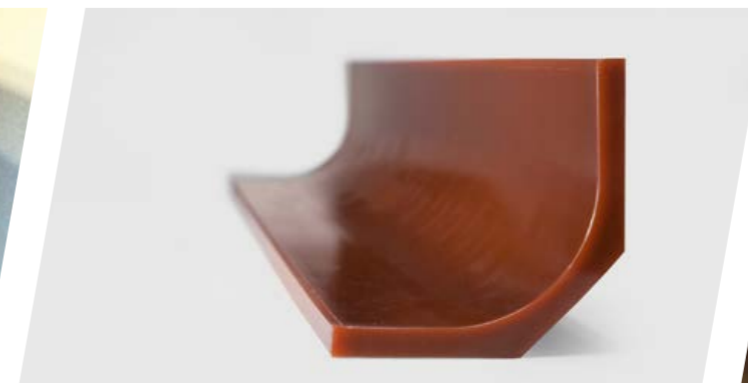
The Hawiflex® welded sheets with preconfigured welding points allow a rapid high-strength welded joint, e.g. as lining for drums, silos, tanks. Fastening is done at welding points (12 per m²). The weld holes are closed quickly and permanently with plugs. And because there is no protrusion here, there is no need for reworking either.

Dimensions:

1000 x 1000 x 15 mm,
1000 x 1000 x 25 mm
and on request

Tip:
This keeps expensive components undrilled



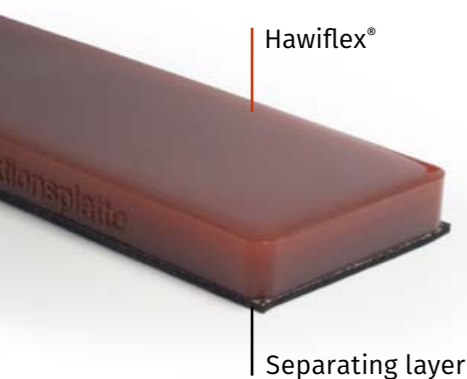


Patented Hawiflex® function sheets: Simple functioning

The function sheet is ideally suitable for transport buckets, impact walls, channels, outflows. A special layer ensures a perfect joint between the component and Hawiflex® system. This also forms the **target fracture point**, which allows you to later remove the old coating. You can **immediately bond a new Hawiflex® function sheet** onto the thin residual coating – with no need for extensive preparation of the substrate.

Hawiflex® benefits:

- Substrate treatment only once (cleaning, blasting, degreasing, drying)
- Easy assembly by bonding with contact adhesive
- Easy replacement
- Reduced environmental pollution as no need to remove the old coating
- Noise insulation and damping due to thicker separating layer



Seams and joints are often the reason for premature failure of the coating. To counteract this, you can use the wear-resistant Hawipair® patching compound system as joint filler and for sealing protrusions of old coating and sheet edges (see page 19).

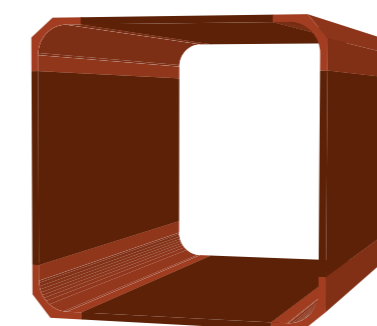
Hawiflex® corner curve: for efficient working

Hawiflex® benefits:

- An accumulation/caking of material in corners is prevented by the corner curve
- Uniform material flow
- Easier cleaning
- High abrasion resistance
- Short replacement time

Dimensions:

- Height/Width: 150 mm
- Length: 1000 mm
- Radius: 85 mm
- Thickness: 12, 15 and 20 mm



Hawiflex® LF-low friction: Ideal for bulk materials

The significantly reduced coefficient of friction makes Hawiflex® low friction especially suitable for fine-grained bulk materials that normally tend to adhere. With Hawiflex® LF-low friction a lot less adheres.

Hawiflex® benefits:

- No adhesion
- Low coefficient of friction

Applications:

- Conveyor scrapers
- Bin linings
- Transfer points
- Hoppers

Accessories for Hawiflex®

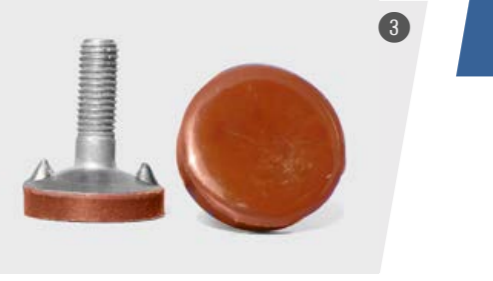
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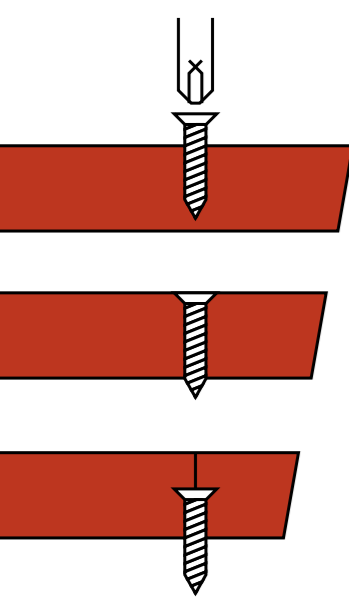
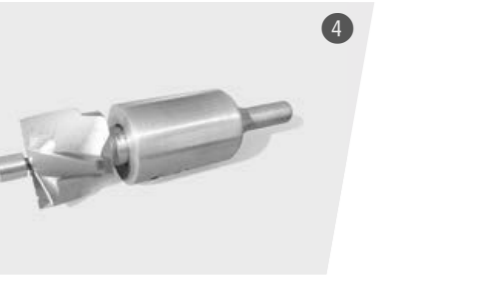
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3



4



Fastening material for Hawiflex® sheets

1 Self-tapping screw

- Fillister head sheet metal screw
- Dimensions: 5.5 x 38 mm
- Material: Galvanised steel
- DIN 7981

2 Plate screw

- Dimensions: M8 x 30 mm
- Material: 3.6
- DIN 15237

3 Plate screw with 5 mm Hawiflex® coating

- Dimensions: M8 x 30 mm
- Material: 3.6
- DIN 15237

4 Counterbore set consisting of:

- Guide pin D 8 mm
- Counterbore D 30 mm
- Pin holder

Hawiflex® glue – specially for direct adhesion

Application:

Suitable for a wide range of materials: Polyurethane (Hawiflex®), metal, glass, wood, fibreglass, rubber, ceramic, concrete, tiles and polystyrene, both with and among one another.

Benefits:

- For processing without primer (apart from chrome steel)
- Only degreasing
- Rapid bonding result
- No extraction necessary
- Very good shaping at weld seams
- Contact adhesive, sticks immediately

Repairs with Hawipair®

Hawipair® is a spreadable, elastic material based on polyurethane for repairing worn coatings. It is characterised by **good abrasion values** and can be used as an adhesive owing to its affinity with many materials. It is really easy to work with Hawipair®. This usually allows you to make repairs quickly and without any problems in the area of use, thereby reducing downtimes drastically. What is more, Hawipair® is compatible with products of all manufacturers.

Hawipair® is also ideally suitable for connecting joint edges of Hawiflex® sheets.

There's no easier way:

With a **mixing ratio of 1:1**

you do not need any scales. The **container sizes correspond to the mixing ratio**. This prevents dosing errors.

Hawiflex® benefits:

- Wear resistant
- Good chemical resistance
- Highly elastic
- Microbe resistant
- Hydrolysis protected
- Seawater resistant
- Very good abrasion resistance

| Property | Value | Test method |
|------------------------|----------------------|-------------|
| Shore hardness | 85 Shore A | DIN 53505 |
| Abrasion value | 30 mm ³ | DIN 53516 |
| Tensile strength | 17 N/mm ² | DIN 53504 |
| Elongation at fracture | 450% | DIN 53504 |

The technical data indicated represent guide values. They are determined under optimal conditions in the materials laboratory. No liability is assumed for the suitability of the product with the relevant application purposes of the ordering party. We recommend checking the suitability for use in preliminary tests. Please contact us in cases of doubt.



Impact plate

Impact plates made from Hawiflex® can be used at handover and transfer points of conveyor belts. They utilise the catchment compartment principle for self-protecting wear reduction.

Hawiflex® benefits:

- Suitable for grain sizes up to 32 mm
- No shattering of coarse gravel upon impact
- Impact-proof and cut resistant
- Noise reducing
- Easy assembly thanks to studs at the rear
- Can be retrofitted in existing plants
- Lower maintenance expense due to long service life

Standard dimensions:

650 x 275 x 60 mm

Low dead weight:

just approx. 7.2 kg

Step plate

The design of the impact surface creates a wear-minimising impact angle. This reduces abrasion and allows the material properties (grain size) to be retained.

Step plates are recommended for applications from a grain size of 32 mm. Step plates can be fitted quickly and easily with bolts. If holes are present, the step plates can simply be screwed directly on site without bolts.

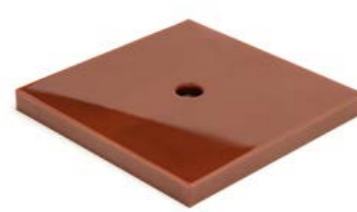
Dimensions:

- Length / Width: 500 x 500 mm
- Thickness: 50 and 65 mm



Segments for heavy wear

The sheets have the dimensions 300 x 300 x 25 mm and a centre hole. The cast metal sheet enables a secure hold to be attained with only one screw, which means no more holes than necessary result. The tiles can be replaced independently in the wear area, without having to dispose of the areas retained. On request, the tile can be fabricated in two colours, thus serving for preventive maintenance.



Concrete pipe protection for forklift shoes

As a Hawiflex® finished part, this protection is **cost effective and flexible**. Assembly and disassembly are really easy.

Hawiflex® benefits:

- No damage and no colour residues on the concrete pipe
- Increased transport safety
- Individually replaceable
- Suitable for screwed and welded joints thanks to mounting link



integrated fastening link

Highly durable concrete spray nozzles

For use in mining and tunnel driving technology, we select appropriate application-specific materials to manufacture **your individual concrete spray nozzle according to drawing or template** for exact spraying.

Hawiflex® benefits:

- Reduces maintenance costs
- Resistant against mould oils and atmospheric influences
- Less abrasion and longer remaining life utility compared to rubber



Get a grip with these gripper strips!

Gripper strips made from Hawiflex® are available for automated restacking and packaging systems, forklifts, production plants and truck transport.

Hawiflex® benefits:

- The very **high grip capacity** entails real time savings for you: Stones and pallets do not have to be gripped fully horizontally.
- Reduce personnel and maintenance costs: The material does not become brittle and offers a much **longer service life** compared with rubber.
- **Avoid material fractures and abrasion residues** like those with rubber.



We'll work out your benefits

Experience that pays off for you.

It's an art in itself to create the perfect mix from different elements, processing systems and special additives for a component that is both tough and low-wear – we've been doing nothing else for over 50 years with Hawiflex®.

Our prominent market position is not least thanks to continuous research for new, even more suitable materials and the refinement of our existing product portfolio.

In conjunction with sound knowledge regarding all standard process requirements today and tomorrow, this interaction always guarantees both product innovations as well as bespoke solutions for your applications. And in doing so, we never fail to fulfil the statutory provisions.

We look at the precise details.

Using state-of-the-art measuring and analysis technology, we can examine the interaction of all components and parameters under laboratory conditions and, of course, in practical operation, down to the finest detail.

These informative measuring data and all feedback from our customers are incorporated in the new and further development of our products, forming a basis for their extraordinary quality.

Service you'll appreciate.

In our Technology Centre, we not only test all our products but can also simulate a wide variety of customer applications very effectively. So we can ensure our products are optimally tailored to the requirements of our customers.

Stay on the safe side and continue to opt for the quality "Made in Germany" you have come to know and expect. Our contacts will be pleased to offer advice.

So what can we do for you?
Make the most of our expertise and all-round service.

Made in Germany

We will gladly inform you personally of our product portfolio, help you choose suitable products for your application, and advise you with our extensive experience if you have any queries regarding customised low-wear plastic parts.

Get in touch with us.

We'll be pleased to help.

T +49 2302 66 06-175

Online catalogue:

www.hawiflex.de/en

**Still not a Hawiflex®-
sales partner?**

Offer your customers numerous benefits and discover where you can save time and money with Hawiflex® products made by habermann materials.

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