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www.sia-abrasives.com





Composites

Swiss high-tech abrasives for composite fibre materials



Finished by sia Abrasives

Many materials hold a secret; they keep their true beauty concealed. Only a precise finish reveals what is inside. For over 130 years, sia Abrasives has championed perfect surfaces.

“finished by sia Abrasives” – the final finish for materials of all kinds is what makes the great difference: wood achieves its expressive colouration, the distinctive colour contrasts or astonishing grain, leather captivates through subtle nuances, contact lenses guarantee optimum visual acuity, metal shines in its utmost perfection, marble develops its robust yet filigree diversity, and synthetics or coatings become the epitome of functionality and aesthetic appeal.



3 Product overview

		Coarse sanding					Flat grinding							Fine sanding						Microfinishing						Conversion						
		16	24	36	40	50	60	80	100	120	150	180	220	240	280	320	360	400	500	600	800	1000	1200	1500	2000	2500	3000	4000				
1913 siawat																																
1950 siaspeed																																
1940 siacar																																
5550 siaprime																																
7940 siaair																																
7240 siacarat																																
7241 siacarbon																																
4819 siaron																																
4515 siabite																																
4700 siaral																																
1749 siaral																																
1815 siatop																																
4924 siamet																																
2824 Spiraband																																
2848 siacut siafix																																
1950 siaspeed siasoft																																
6120 siavlies speed																																
2275 flatpad																																

Grit range available
 Main use

The demands made of materials are increasing. Composite fibre materials are the answer to this. They are used whenever components with unusual combinations of properties are called for. Optimally matched abrasives ensure the perfect sanding finish.

Lighter, stronger, more elastic, more precise, safer, more economical. In these times of rapid technological change, the functionality and properties of composite fibre materials know virtually no bounds, and processing with abrasives makes an important contribution to them.

New applications are continually being discovered: environmentally friendly air travel, safer automobile and boat construction, ecological wind power, ingenious medical technology, high-quality information technologies or reliable mechanical and plant engineering testify to the opportunities opened up by composite fibre materials.

The demands made of abrasives are high, and continually changing. The products are therefore of a modular construction and are adapted to applications: edges are cut or deburred and surfaces are sanded. The best preconditions are created for the force lines, functionality, finishing, coating or appearance of products.

The advantages of composite fibre materials are thus ideally supported by the customised sanding process. They lie in, amongst other things, the largely elastic deformation behaviour, the adaptable stability and rigidity, in highly integrative design options, dynamic resilience, a low coefficient of expansion, a good raw material basis, a low investment requirement and ease of repair.





Transport 8



Windmill 14



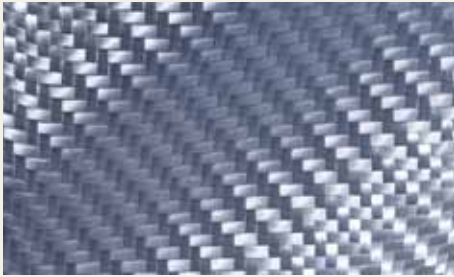
Automotive 20



Marine 26

Composites

The 3 most important types of fibre



Glass fibres

Glass fibres are the most frequently used reinforcement material. They are economical, resistant to ageing, weathering and chemicals, and non-flammable. With optimum sanding, further finishing is enabled and the original unique functions are preserved.

Summary of the most important features:

- High tensile and compression strength
- Good rigidity
- Good impact toughness
- Good temperature resistance
- Economical price



Carbon fibres

Carbon fibres are used above all for rigid constructions. They not only help to reduce the weight five-fold compared with conventional materials such as steel, but also minimise deflection. Processing in the sanding process demands the highest precision and care to prevent predetermined breaking points.

Summary of the most important features:

- Extremely high tensile and compression strength
- Extremely high rigidity
- Very low density
- Low thermal expansion coefficient
- High chemical resistance
- Good temperature resistance
- Good electrical conductivity



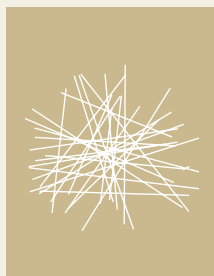
Aramide fibres

Aramide fibres are non-flammable and chemically stable, and they achieve a further weight saving on glass fibres of 25 to 40 percent, increase stability and rigidity by half, and satisfy the most stringent safety requirements. Optimum sanding solutions enable a combination of functions not previously achieved.

Summary of the most important features:

- Extremely high stability
- Extremely high impact toughness
- Very low density
- Good chemical resistance

Open matrix constructions



Mats

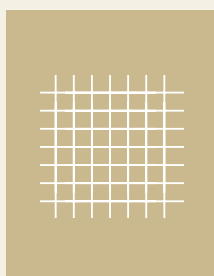
Fibreglass mats are fibre-reinforced synthetics in which the fibres consist of reinforcement materials and casting resins or thermoplastic polymers, and in which the individual spinning threads or yarns are woven with one another. Fibreglass mats are available off the roll, and are used for example in construction parts.



Fibre spraying

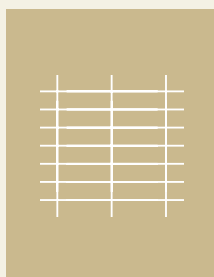
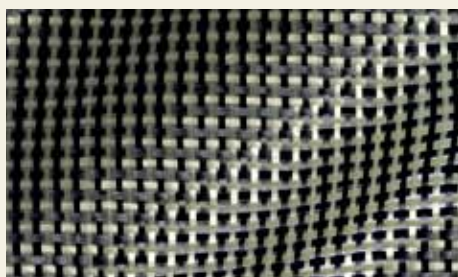
In fibre spraying, a cutting tool is used to cut continuous fibres (rovings) to the desired length, and introduced into the mould together with resin and hardening agent by means of a fibre spraying gun. As with manual lamination, a lamination roll is also used in order to compress the laminate. The greatest disadvantage of this variant is the clearly lower strength compared with laminated woven fabric.

Woven matrix constructions



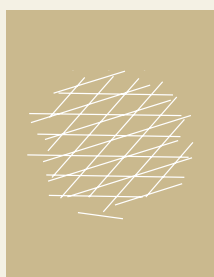
Symmetrical

The simplest weave is plain weave. It is symmetrical and is thus extremely dimensionally stable, slip-proof and fray-proof. Fabrics with plain weave are to be preferred in the production of flat or slightly curved components.



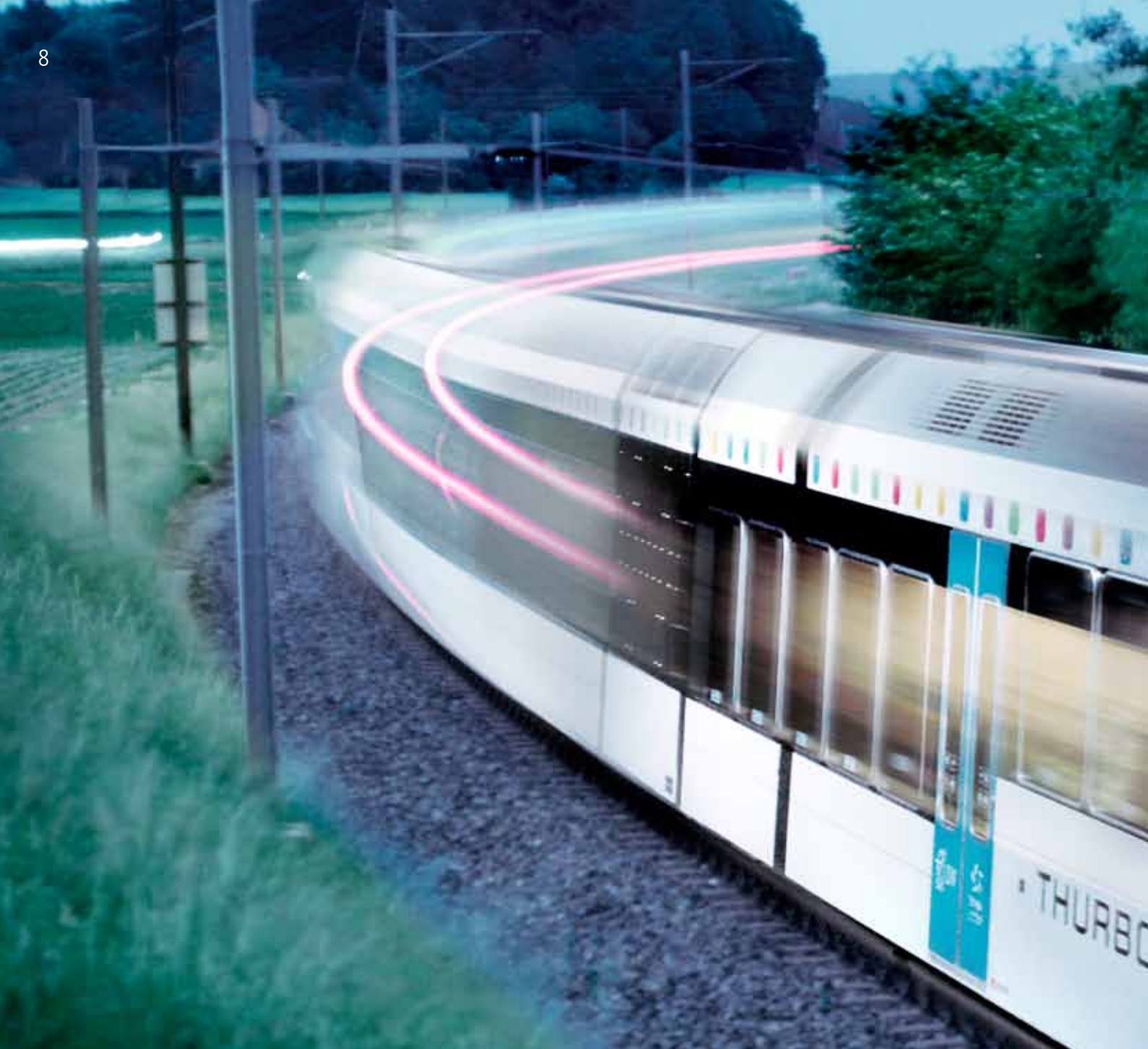
Complex

A more complex matrix enables twill and satin weaves, of which there are numerous variations. In the case of twill weaves, two to three warp threads are skipped. Due to the construction, the strengths of twill weaves are somewhat higher, although their non-slip properties are reduced.



Multi-axial

By placing fibre layers over one another at different angles, reinforcement materials can be produced with fibre orientation that can withstand loading. Due to the extended position of the fibres, for the same wall thickness of the laminate, higher mechanical strengths can be achieved than with woven products.



Transport



Technology with a high degree of utility.

The transport industry counts on new opportunities to reduce energy consumption and optimises costs thanks to lower wind resistance with the targeted sanding finish – finished by sia Abrasives.



A
Deburring
the edges



B
Keying



C
Primer filler
sanding



D
Finish/polishing



E
Filler sanding



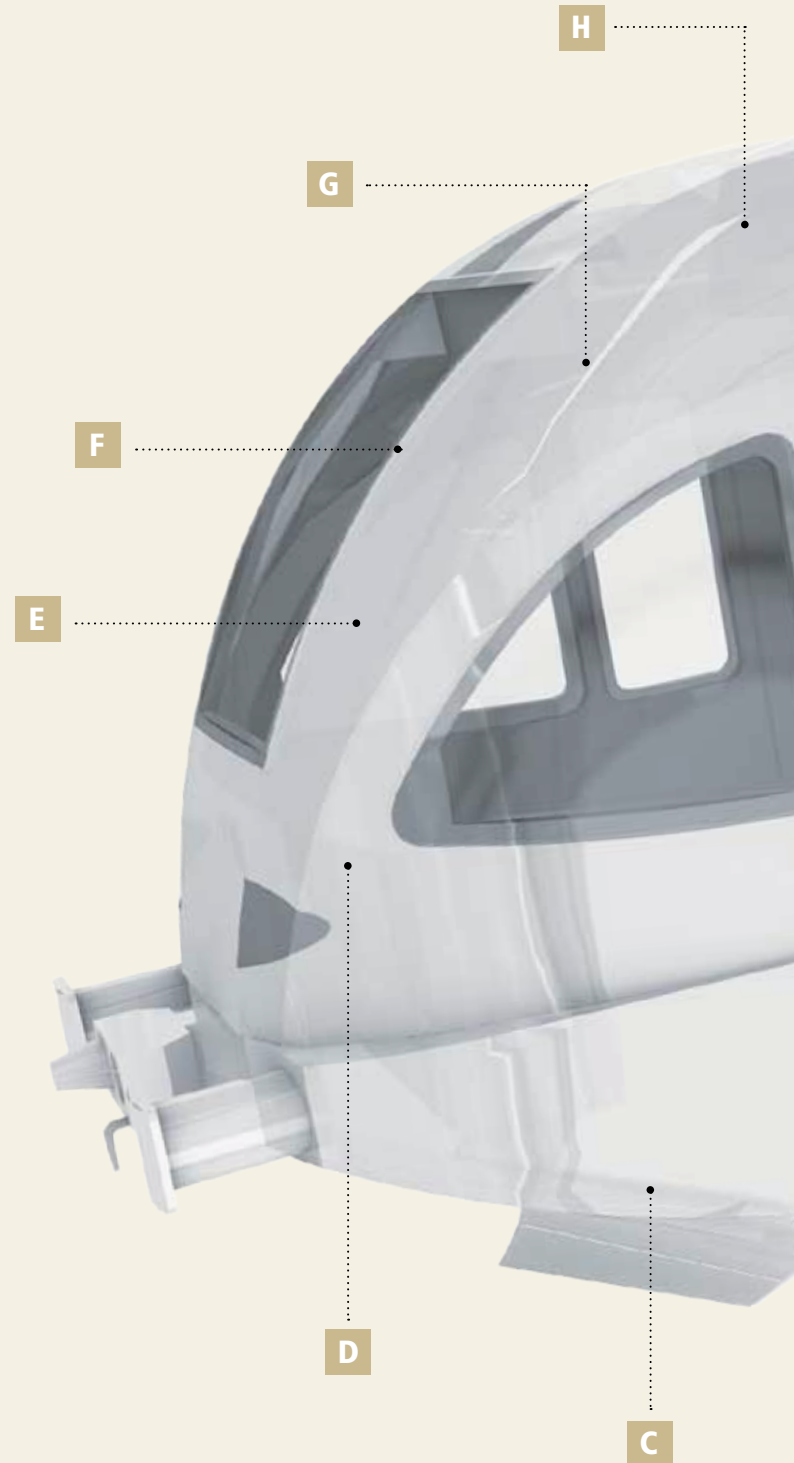
F
Primer filler
sanding

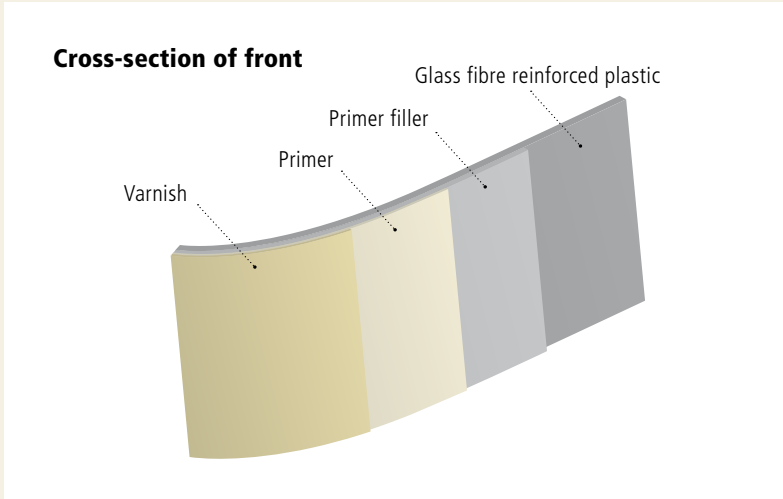


G
Removing dust
inclusions



H
Microfinishing
prior to polishing







Deburring the edges

4700 siaral
fibre discs

K036–K060

4819 siaron
fibre discs

K036–K060



Keying

5550 siaprime
discs

K040–K180

1950 siaspeed
discs, strips

K080–K240

1950 siaspeed siasoft
rolls, strips

K180–K320

1940 siacar
discs, strips

K080–K240



Primer filler sanding

1950 siaspeed
discs, strips

K320–K600

1950 siaspeed siasoft
rolls, strips

K320–K800

6120 siavlies speed
discs, strips, rolls

very fine–ultra fine

2275 Flatpad

fine–super fine



Finish/polishing

siashine

Fast cut /
Speed /
Finish / Magic



E	Filler sanding	5550 siaprime discs	K040–K180
		1950 siaspeed discs, strips	K080–K320
		1940 siacar discs, strips	K080–K320



F	Primer filler sanding	1950 siaspeed discs, strips	K280–K600
		1950 siaspeed siasoft rolls, strips	K320–K800
		6120 siavlies speed discs, strips, rolls	very fine–ultra fine
		2275 Flatpad	fine–super fine



G	Removing dust inclusions	1913 siawat strips, buds, sheets	K1500–K2500
		1950 siaspeed discs	K1500



H	Microfinishing prior to polishing	7940 siaair discs	K2000–K4000
		7240 siacarat discs	K2000–K3000



TIPS
siaspeed siasoft – with practical perforation
 The flexible and pressure-equalising foam insulation on the back of the siaspeed siasoft abrasive reduces the risk of sanding through on edges, beads and rounded areas to an absolute minimum. The innovative perforation of the abrasive strips, developed by sia Abrasives, makes tear-off as easy as possible. This way, there are no uneven torn-off edges that can lead to unwanted surface scratches.



Windmill



Power generation paired with ecology.

The wind power industry is built on future-oriented technologies: composite fibre materials with the optimum sanding finish increase energy yield and efficiency – finished by sia Abrasives.



A Grinding edges after cutting



B Deburring of drilled holes, adjusting drilled holes to size



C Keying of joints



D Sanding out defects such as «pinholes»



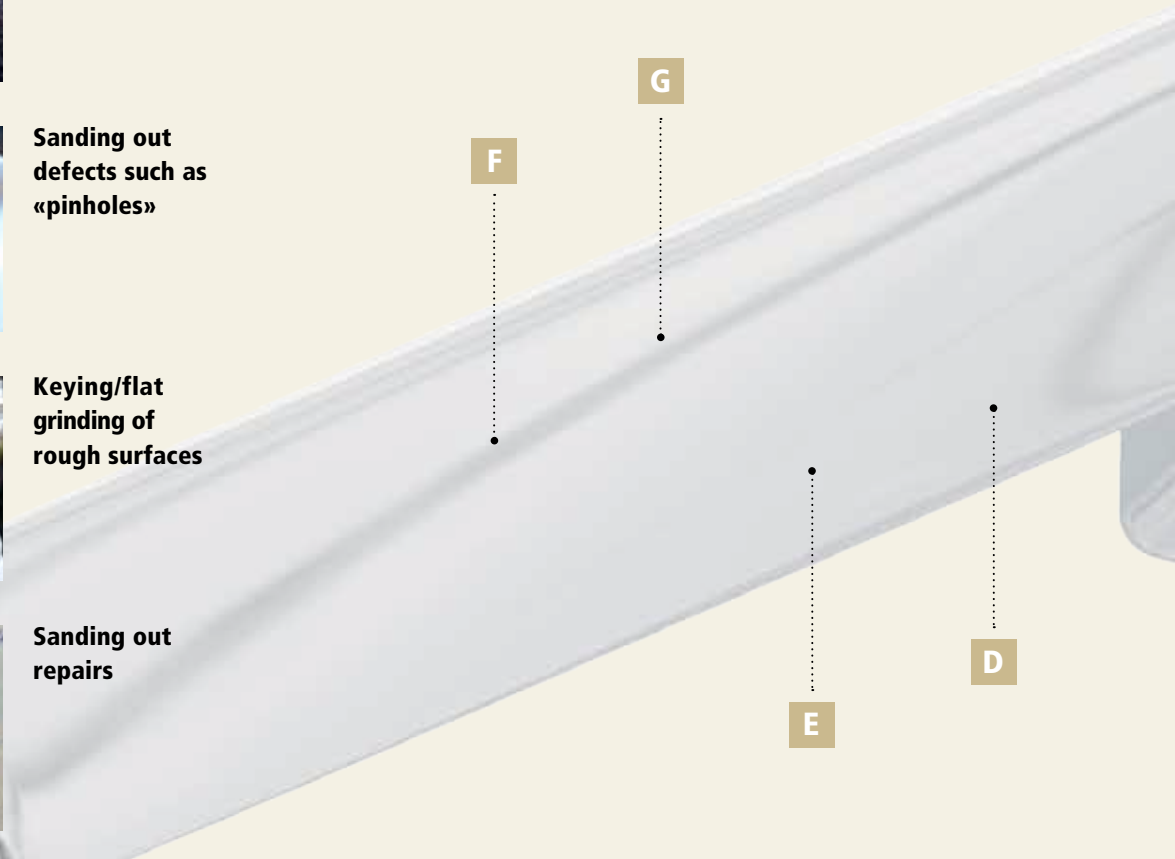
E Keying/flat grinding of rough surfaces



F Sanding out repairs

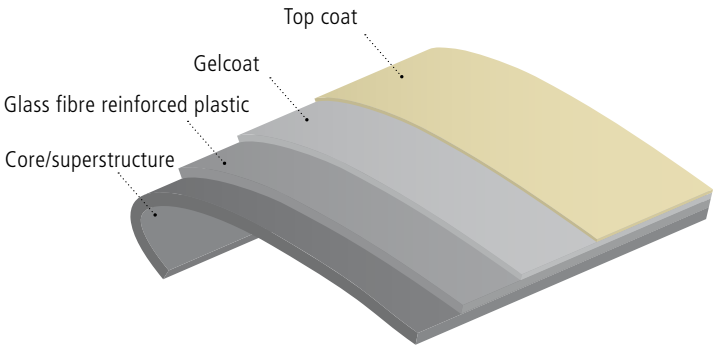


G Flat grinding/ fine sanding of epoxy filler





Cross-section of rotor blade





Grinding edges after cutting

1815 siatop
discs

K040–K120

1950 siaspeed
discs, strips

K040–K120

5550 siaprime
discs

K040–K120



Deburring of drilled holes, adjusting drilled holes to size

2824 Spiraband
Spira belts

K050–K080



Keying of joints

1950 siaspeed
discs

K040–K150

5550 siaprime
discs

K040–K150



Sanding out defects such as «pinholes»

1950 siaspeed
discs

K080–K150

5550 siaprime
discs

K080–K150



Keying/flat grinding of rough surfaces

1815 siatop
discs

K040–K120

1950 siaspeed
discs

K040–K120

5550 siaprime
discs

K040–K120



Sanding out repairs

4924 siamet
discs

K036–K060

4819 siaron
discs

K036–K060



Flat grinding/fine sanding of epoxy filler

1950 siaspeed
discs, strips

K040–K180

5550 siaprime
discs

K040–K180



TIPS

siaspeed – full speed ahead to the perfect surface

siaspeed is an abrasive innovation which in the coarse grain area can, depending on the material and the application, achieve up to 20 percent greater material removal compared with the leading products from competitors. The rapid rate of material removal is associated with improved surface quality. This is thanks to the ingenious stearate coating, which also prevents the abrasive from clogging or jamming.



Automotive



Aesthetics and technology in harmony.

The vehicle industry is built on stylish design, high safety standards and clever functions. Processing with the right sanding finish sets new standards – finished by sia Abrasives.

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A Deburring



B Keying a new part



C Primer filler sanding



D Finish/polishing



E Sanding out



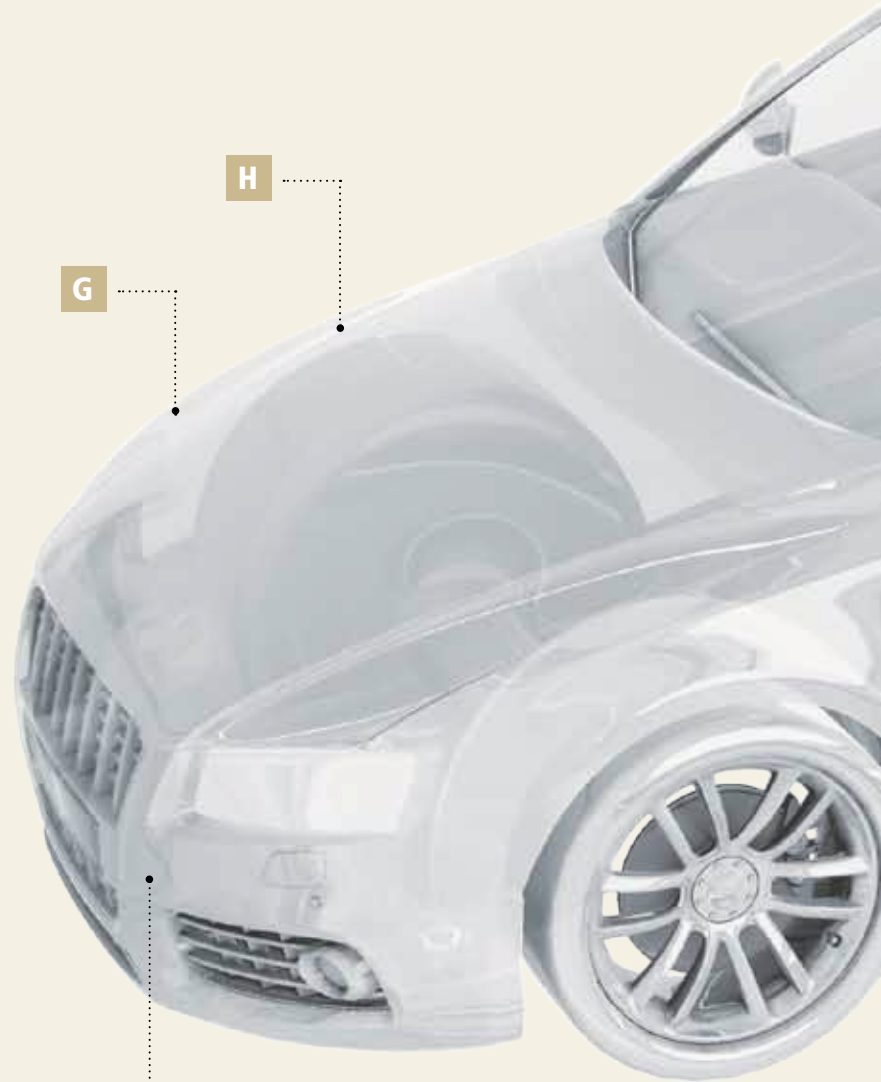
F Sanding of filler

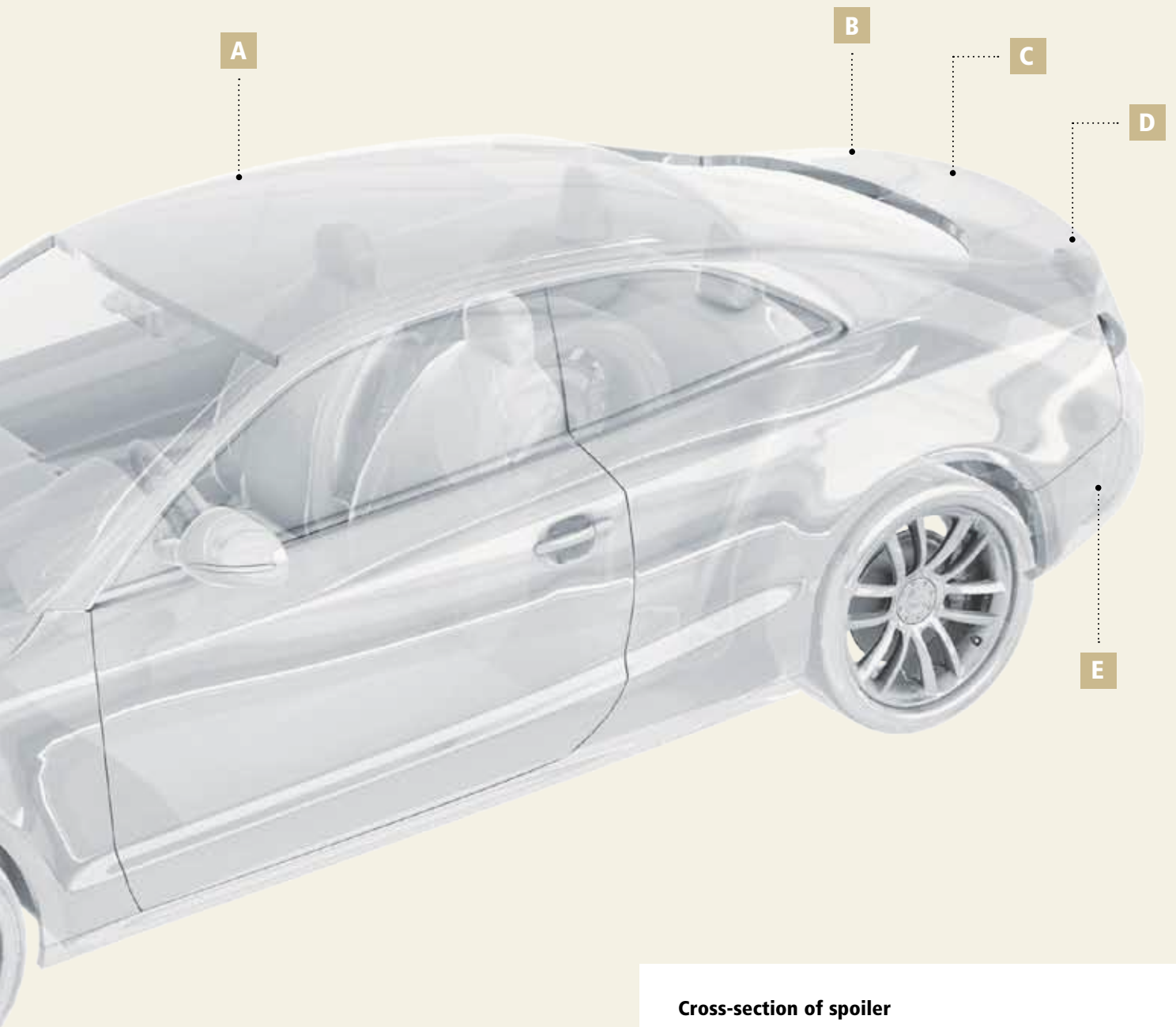


G Primer filler sanding

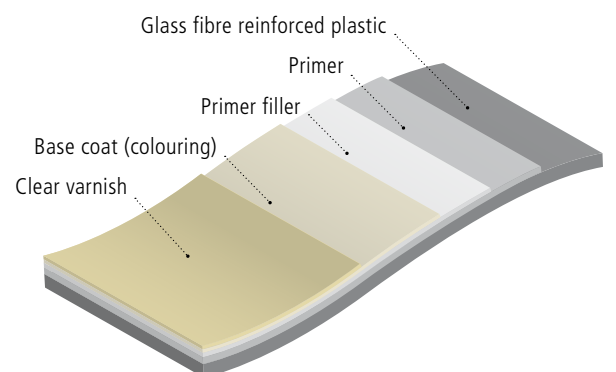


H Removal of defects





Cross-section of spoiler





Deburring

2848 siacut siafix
discs

K036–K120

2824 spiraband

K050–K150



Keying a new part

1950 siaspeed
discs, strips

K080–K240

1950 siaspeed siasoft
rolls, strips

K180–K320

1940 siacar
discs, strips

K080–K240



Primer filler sanding

1950 siaspeed
discs, strips

K320–K800

1950 siaspeed siasoft
rolls, strips

K400–K800

6120 siavlies speed
discs, strips, rolls

ultra fine–micro fine

2275 Flatpad

fine–super fine



Finish/polishing

siashine

Fast cut/
Speed/
Finish / Magic



E

Sanding out

1950 siaspeed discs, strips	K080–K240
1950 siaspeed siasoft rolls, strips	K180–K320
1940 siacar discs, strips	K080–K240
5550 siaprime discs	K080–K180



F

Sanding of filler

1950 siaspeed discs, strips	K080–K280
1940 siacar discs, strips	K080–K280
5550 siaprime discs	K080–K180



G

Primer filler sanding

1950 siaspeed discs, strips	K320–K800
1950 siaspeed siasoft rolls, strips	K320–K800
6120 siavlies speed discs, strips, rolls	ultra fine–micro fine
2275 Flatpad	fine–super fine



H

Removal of defects

1913 siawat strips, buds, sheets	K1500–K2500
1950 siaspeed discs	K1500



TIPS

siacarat – for when the going gets tough

Thanks to the coating of the abrasive with diamond abrasive minerals combined with the pressure-damping foam backing, siacarat velvet is an excellent solution for the efficient processing of scratch-resistant automobile lacquers, as well as for use in the sanding of hard materials such as mineral working materials (e.g. Corian) and gelcoat. siacarat velvet has a product life that is up to 40 times longer than that of a conventional abrasive without diamond coating.



Marine





Fun and safety on the water.

Modern boat building is characterised by increased safety, improved efficiency, elegant shapes and perfect surfaces for reduced water displacement – finished by sia Abrasives.



A Deburring the casting mould edge



B Deburring of edges in hard-to-reach places



C Coarse sanding of primer filler/gelcoat



D Fine sanding of primer filler/gelcoat



E Removing osmosis



F Flat grinding of large areas

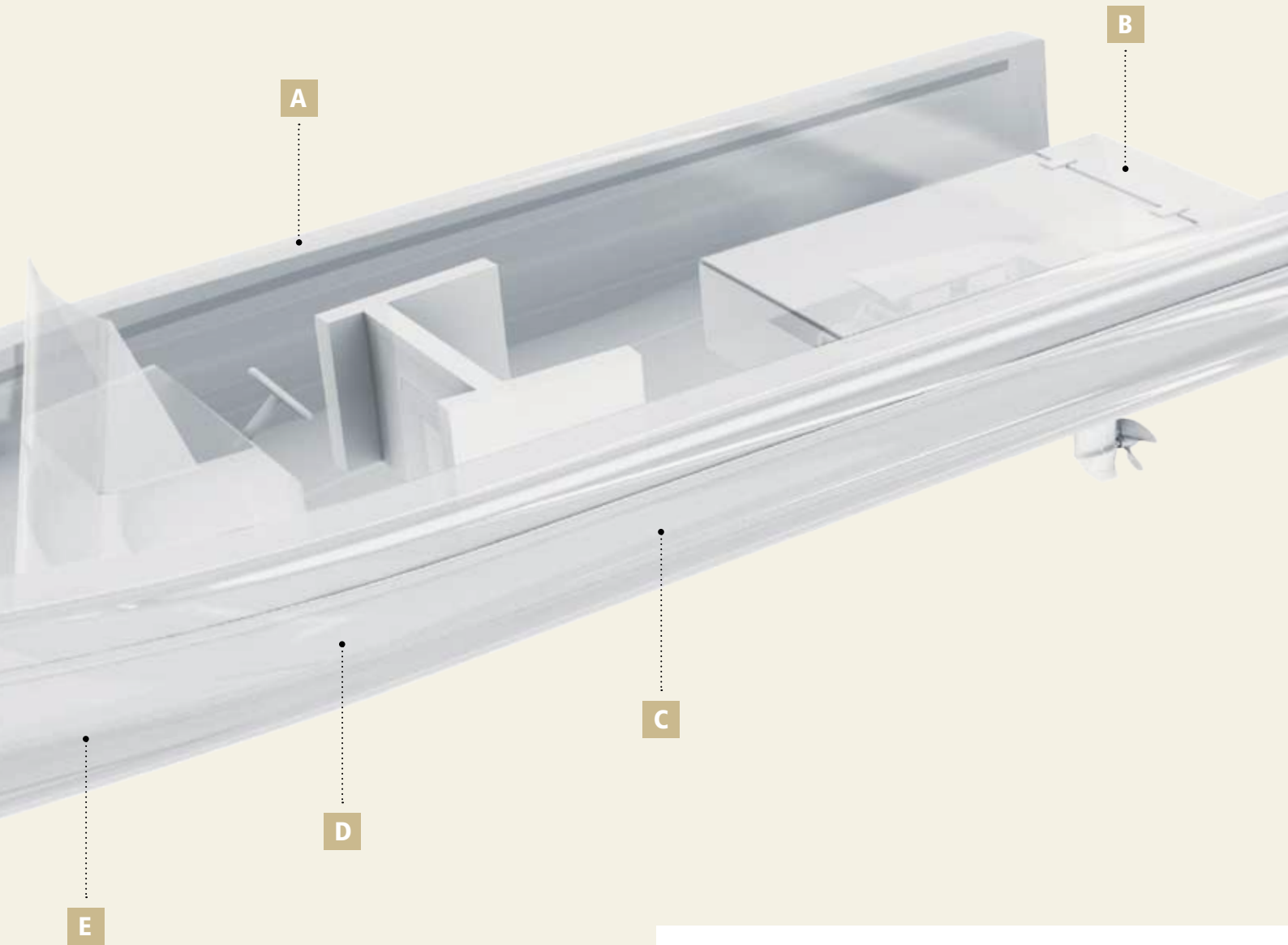


G Microfinishing prior to polishing

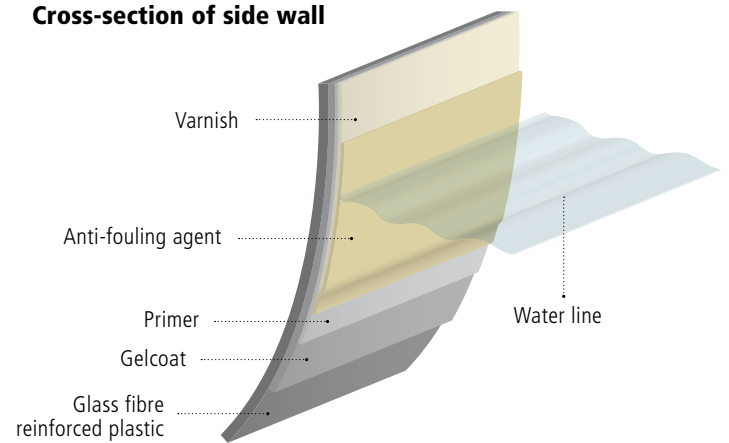


H Polishing/finish for a high-gloss finish





Cross-section of side wall





A Deburring the casting mould edge

4819 siaron
fibre discs

K036–K060

4515 siabite
fibre discs

K036–K060



B Deburring of edges in hard-to-reach places

2824 spiraband
Spira belts

K036–K150

2848 siacut siafix
discs

K060–K120



C Coarse sanding of primer filler/gelcoat

1950 siaspeed
discs, strips

K040–K240

1940 siacar
discs, strips

K040–K240

5550 siaprime
discs

K040–K180



D Fine sanding of primer filler/gelcoat

1950 siaspeed
discs, strips

K280–K800

1940 siacar
discs, strips

K280–K600

7241 siacarbon
discs

K240–K500



Preparation/repair of the negative mould

2275 Flatpad
strips

medium /
microfine

7940 siaair
discs, strips

K800–K4000

7240 siacarat
discs

K500–K3000

1950 siaspeed siasoft
rolls perforated, sheets

K800–K1000



Polishing the basic mould

sia shine Polishing Material
polishing pad range,
lambskin, microfibre cloth

Fast cut /
Speed /
Finish / Magic



Removing osmosis

4819 siaron
fibre discs

K024–K120

4515 siabite
fibre discs

K024–K120



Flat grinding of large areas

1950 siaspeed
discs, strips, rolls

K040–K600

1940 siacar
discs, strips, rolls

K040–K600



Microfinishing prior to polishing

1950 siaspeed
discs

K800–K1500

7940 siaair
discs, strips

K800–K4000

7240 siacarat
discs, strips

K500–K3000



Polishing/finish for a high-gloss finish

siashine Polishing Material
polishing pad range,
lambskin, microfibre cloth

speed / finish /
magic



TIPS

siabite – high-performance fibre disc with ceramic aluminium oxide

Thanks to the new ceramic aluminium oxide, the more aggressive and powerful 4515 siabite fibre disc, which is produced with the new production method, offers increased material removal in a shorter time, protects the work piece from heat deformation, and has a longer product life. The result: very aggressive and powerful, for absolute efficiency.

Commitment



Company

The sia Group is based in Frauenfeld, Switzerland, and is one of the world's top three suppliers of innovative abrasives. sia develops, manufactures and sells complete sanding systems tailored to specific requirements and applications of all kinds, transforming sanding into surface technology.

sia Abrasives employs about 1250 people and is represented in more than 80 countries.

Top-quality products from Switzerland

Our careful choice of premium materials, the latest production and manufacturing equipment and sophisticated production technologies enable us to provide sanding products of the highest level. Abrasive materials from sia undergo continuous development based on demanding customer requirements and our detailed analysis of production materials. They thus represent the finest examples of Swiss precision and quality with one goal: a commitment to the perfect surface.

Innovative abrasives



Coated abrasives

Classic flexible abrasives and systems for conventional surface treatment on all types of material.



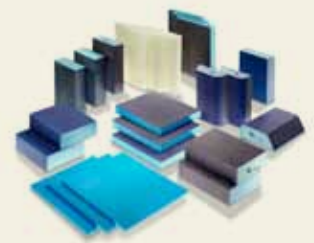
Nonwoven abrasives

Nonwoven products for preparation and cleaning tasks and for structuring, especially on metal.



Microabrasives

Products on special polyester film to give defined surface structures in the areas of graphics, optics and the auto industry.



Foam abrasives

Foam sanding pads in the widest possible range of shapes and grades for precision sanding on wood, fillers, paintwork and varnish.

Environment



Environmental-friendly production, competent and ethical waste disposal

For many years we have concerned ourselves with the efficient use of energy and committed ourselves to protecting the environment. We have implemented many measures within our production processes to protect the air, earth and water. We use our energy and raw-material resources efficiently and carefully.

We care.

By joining the EnAW (Energy Agency for Industry) programme, we have voluntarily made a commitment to improve energy efficiency and limit our CO₂ emissions as part of our day-to-day operations.

We take responsibility.

As a «dry factory», we protect nature by not putting untreated industrial wastewater back into the water system (i.e. public drains). Weekly testing of additional industrial wastewater for compliance with regulations demonstrates that our wastewater is clean.

Quality



Choosing raw materials, setting quality standards

The comprehensive inspection programme in place in our manufacturing operations enables us to produce premium-quality products. The superior properties of sia products represent excellent value for our customers.

We verify.

We select our raw materials and their suppliers in accordance with strict criteria on quality, environmental impact and safety. Long-standing partnerships and continuous testing of raw materials ensure good-quality, reliable and fault-free materials.

We continually optimise.

Our internal process management system (PMS) records and improves important procedures and allows direct intervention in the production process where necessary. In this we can operate an active, committed opportunity-management programme.

People



A safe, healthy workplace

We set the standard for an accident- and hazard-free workplace. The well-being of people is an integral part of our culture and is based on OHSAS 18001 (Occupational Health and Safety Management Systems).

We are clean.

We develop products that also effectively help our customers remain healthy. We have had our finishing products tested for dust formation by the Swiss Accident Insurance Fund (SUVA). The results are impressive: the lowest dust emissions compared with our competitors' products.

We set an example.

sia Abrasives is one of the first companies in the world to comply with the new OHSAS 18001:2007 standard. We also comply strictly with the recommendations of the FEPA safety standards and publish this, together with other safety information, at www.sia-abrasives.com.



«REACH» Regulations for chemicals

REACH (Registration, Evaluation and Authorisation of Chemicals) concerns a European Community regulation dealing with chemicals and has been in force since June 2007. Its purpose is to gather all necessary information regarding the properties of chemical substances and to examine their use and the associated risks to humans and the environment. We ensure compliance with REACH by keeping up-to-date records of all chemical materials and substances and by taking all necessary steps to meet our REACH obligations.