Stainless steel finishing

The complete Hermes program for finishing stainless steel sheets, coils and panels







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Hermes — a competent "grinding"

AT HERMES, TRADITION HAS A FUTURE

ermes Schleifmittel is a Hamburg company in the true tradition, with roots going back to 1927. The company is not only one of the world's key manufacturers of coated abrasives – since 1993, it has also occupied a leading market position in the production of precision bonded abrasives.

Hermes owes this market position to its insistence on unsurpassed quality. We feel an obligation to this tradition and it is our main priority for the future. This obligation is the greatest incentive there is, and we devote all our energy and commitment to it — tradition shaping the future.

Hermes maintains numerous production sites and sales offices in all the main industrial and emerging nations of the world, underlining its international commitment and its efforts to provide its customers with a competent local consulting service.











A SELECTION OF OUR SITES

- 1 I Headquarters in Hamburg, Germany
- **2 I** Hermes Schleifkörper GmbH, Dresden, Germany
- 3 I Hermes Austria
- 4 I Hermes USA
- 5 I Hermes China

partner all over the world

SUPPORTING NATURE AND THE ENVIRONMENT

ompliance with national and international laws and regulations is one of the key principles of Hermes corporate policy and protection of the environment is a core constituent of our corporate responsibility.

As a consequence, as long ago as 1996, Hermes was the first European abrasives factory to be successfully audited on a voluntary basis in line with the EMAS (Eco-Management and Audit Scheme).

The management system currently being implemented covers all areas of the company, with processes relevant to the environment, as well as to quality and energy, being described and monitored internally as well as certified externally by the TÜV-Nord organization in line with DIN EN ISO 14001 and 9001 and 50001.



QUALITY – OUR TRADEMARK

ound to tradition on the one hand, yet a pioneering developer of innovative products on the other, Hermes places greatest emphasis on the production of high-quality, state-of-the-art abrasives.

To enable this high standard of quality to be pursued and expanded still further in the future, the TÜV NORD CERT auditing company awarded the Hermes Group the quality seal for meeting the requirements of DIN EN ISO standard 9001.

Our customers – in other words you – benefit considerably from this reliability.



COME AND SEE OUR PAGE

ermes Group website are continuously updated and form an important information platform for customers and interested parties. Here you will find virtually all the information which is useful when planning and purchasing Hermes abrasives.

The Hermes website uses databases to inform you about new products and application solutions and to provide you with facts and figures about the Hermes Group.

Numerous useful functions help you find out quickly and easily everything you need to know about Hermes abrasives. In the "**Product Finder**" for example, enter simple search queries to find the correct Hermes type and have its key product information (such as product structure and benefits) and primary applications displayed. Alternatively, use the interactive "**Contact Finder**" for a list of Hermes experts (both office-based and sales) — all over the world, of course.

Regardless of where you are on our websites, whether in the "Product Finder" or in the application solutions or in the "Service" area — you always have the option of downloading information about our products and application solutions for immediate use on your PC, tablet or smartphone.

Try us out. We look forward to your visit.





Knowing how to — grinding stainless steel to the hig

GRINDING MACHINES

Design and brightness are the priority in surface finishing. Different stainless steel surfaces are required by stainless steel finishers depending on applications and requirements. A distinction is made here between ground, brushed and duplex (ground and brushed) finishes.

The surface finish of cold and hot-rolled stainless steel sheets, coils and panels is usually applied in service centres, but in some cases directly at steelworks. The surface finish is usually created by dry grinding, but for certain applications, also using a coolant additive such as emulsion or oil. Wide belt and brush-grinding machines are used to achieve an ideal, even surface finish. These can be arranged both individually or as a combined unit (grinding/brushing) in one machine or as consecutive grinding stations with separate individual machines.



hest standards

VALUES FOR SURFACE ROUGHNESS

t is possible to achieve the roughness depth values shown in the table to the right using standard aluminium oxide grinding belts when grinding coils and sheets, taking account of grit size when setting the customary machine parameters.

The values quoted on the right are guide values only. Deviating values may result from modified parameters such as grit size, cutting speed, feed speed, contact roller hardness, abrasive grain (aluminium oxide or silicon carbide) and type of grinding belt (standard or HERMESIT®) as well as from dry or wet grinding conditions.

Grit size	R _a * [µm]	R _z [µm]
P 80	1.5 - 2.5	12 - 16
P 150	1.0 - 1.2	7 - 9
P 180	0.8 - 1.0	5 - 7
P 240	0.6 - 0.7	5 - 6
P 280	0.5 - 0.7	4 - 5
P 320	0.4 - 0.5	3 - 4.5
P 400	0.35 - 0.45	2.5 - 3.5
P 600	0.25 - 0.35	2 - 3

^{*}Values determined with conventional Aluminium oxide grinding belts. When using HERMESIT® and MERCURIT® grinding belts choose one or two steps finer in comparison to conventional grinding belts.

SURFACE STRUCTURES

ifferent surfaces are produced depending on customer requirements. Cold-rolled 3-D materials serve as the starting material in most cases. The surfaces produced are generally identified by quoting the grit size used in the grinding process. Variations on this arise from the type of abrasive grain and from machine parameters such as feed, cutting speed and design of contact roller (e.g. hardness, grooves).

Ground surfaces with a coarse grinding structure

Surface	Conventional finish, matt				
required	Zirconia alumina grain	Ceramic grain			
	Paper-backed grinding belt	High-performance cloth-backed grinding belt			
40-finish type	BW 184	CERAMIT® CR 456 Z			
60-finish type	DW 104	GENAIVIT ON 450 Z			

Ground surfaces

Surface	"HERN	MESIT® Finish" / C	Conventional finish	, matt	"HERMESIT® Finish" / Conventional finish, brilliant			
required	Aluminium oxide grain				Silicon carbide grain			
	Longlife grinding belts		Paper-backed grinding belt	Cloth-backed grinding belt	Longlife grinding belt	Paper-backed grinding belt	Cloth-backed grinding belt	
180-finish type								
240-finish type	HERMESIT®	MERCURIT®	BW 116	RB 377 YX	HERMESIT®	BS 118	RB 315 YX	
320-finish type	RB 535 X	BW 590	DW 110	I TID OTT TX	RB 545 X	DO 110	TID 010 TX	
400-finish type								

Ground and brushed surfaces (Duplex Finish)

Working steps	"HERMESIT"	® Finish" / Conventional	"HERMESIT® Finish" / Conventional finish, brilliant			
		Aluminium oxide grain	Silicon carbide grain			
	Longlife Paper-backed grinding belts grinding belt			Longlife grinding belt	Paper-backed grinding belt	
1 st step Grinding belt	HERMESIT® RB 535 X	MERCURIT® BW 590	BW 116	HERMESIT® RB 545 X	BS 118	
2 nd step Flap rollers (brushing)		webrax -0A 710 LM0 Density 1 (+ 100) or Density 2 (+ 180)		S 715 LMO (+ 100) or 2 (+ 180)		

 $\textbf{Grit standards:} \ P = FEPA \ standard; \# = ANSI \ standard; + = Hermes \ standard$

HERMESIT® and MERCURIT® longlife grinding belts

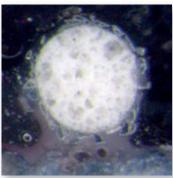


THE HERMESIT® PRINCIPLE

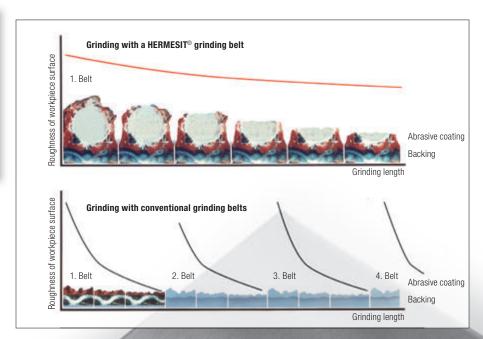
The HERMESIT® longlife grinding belts have special carrier spheres covered with grain and produce the typical HERMESIT® finish, the so-called "HERMESIT® bright effect". When grinding with HERMESIT® abrasives, the roughness depth of the surface of the ground workpiece is the same throughout the entire lifetime of a belt.

Compared to that, an even surface quality can be achieved for only a relatively short time when grinding with conventional abrasives. The abrasive grain becomes blunt and the desired initial roughness depth drops considerably.

As the carrier spheres coated in abrasive grain wear down, new grain is constantly being exposed.



HERMESIT® carrier sphere covered with grain



for greater economy and process reliability

THE MERCURIT® PRINCIPLE

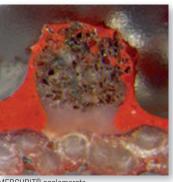
As with HERMESIT® longlife grinding belts MERCURIT® have also a three-dimensional abrasive grain design. In this case as abrasive grain agglomerate which means significant better performance in comparison to conventional grinding belts.

Similar to the HERMESIT® carrier spheres new grain is constantly being exposed during the grinding process. This significantly increases the tool life of the MERCURIT® grinding belt, while maintaining a consistent surface finish and roughness values over the entire tool life of the grinding belt.



YOUR BENEFITS WITH HERMESIT® AND MERCURIT® GRINDING BELTS

- · Consistent surface finish and roughness values on workpiece, throughout tool life
- 3 to 5 times the tool life improves economy compared to conventional grinding belts:
 - Reduced grinding belt change times
 - Reduced disposal costs for used grinding belts
- Lower grinding temperatures

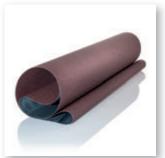


MERCURIT® agglomerate





HERMESIT® grinding belts for the unique "HERMESIT® Finish"



HERMESIT® RB 535 X



HERMESIT® RB 545 X



HERMESIT® RB 530 X

CLOTH-BACKED GRINDING BELTS FOR DRY AND WET GRINDING

HERMESIT® RB 535 X

Abrasive grain HERMESIT® Aluminium oxide Backing X-cloth, waterproof

(coated carrier sphere) Grit range P 150 - P 320, P 400, P 600

Bonding **Resin, red-brown**

The benefits for you

• To produce the HERMESIT® bright effect, matt

HERMESIT® RB 545 X

Abrasive grain **HERMESIT® Silicon carbide** Backing **X-cloth, waterproof**

(coated carrier sphere) Grit range P 150 - P 320, P 400,

Bonding Resin, black P 600, P 800

The benefits for you

• To produce the HERMESIT® bright effect, brilliant

CLOTH-BACKED GRINDING BELTS FOR DRY GRINDING

HERMESIT® RB 530 X

Abrasive grain **HERMESIT® Aluminium oxide** Backing **X-cloth**

(coated carrier sphere) Grit range P 120, P 180 - P 320,

Bonding Resin, red-brown P 400, P 500, P 800

The benefits for you

• To produce the HERMESIT® bright effect, matt

RECOMMENDED USE

When using new HERMESIT® grinding belts, Hermes recommends the belts are dressed prior to full production runs. This can be achieved by grinding two sheets, for example, in order to dress the carrier spheres and achieve the desired finish and optimum performance. When grinding different widths of sheet metal, the wider sheets should be ground first to prevent running-in lines.

Warning:

Sheet metal thicknesses < 0.6 mm cannot be machined with HERMESIT® grinding belts.

Ultra economical — MERCURIT® longlife grinding belts

PAPER-BACKED FOR DRY GRINDING

MERCURIT BW 590

Abrasive grain MERCURIT® Aluminium oxide

(Agglomerate)

Resin, red-brown

Backing Grit range F-weight paper P 180, P 240, P 320,

P 400, P 600

The benefits for you

Bonding

- · Aluminium oxide abrasive grain produces a bright matt decorative finish
- Very even paper backing for consistent surface pattern
- Wide belts with only one joint, available up to a 1.600 mm width

CLOTH-BACKED GRINDING BELTS FOR DRY AND WET GRINDING

MERCURIT RB 590 Y

Abrasive grain MERCURIT® Aluminium oxide

(Agglomerate) Resin, red-brown

Backing Grit range Heavy, synthetic Y-cloth P 80, P 120, P 180, P 240,

P 320, P 400, P 600

The benefits for you

Bonding

Bonding

- · Aluminium oxide abrasive grain produces a bright matt decorative finish
- · Especially suitable for high grinding pressures

MERCURIT RB 591 Y

Abrasive grain MERCURIT® Aluminium oxide

(Agglomerate)

Resin, red-brown

Backing Grit range Heavy, synthetic Y-cloth P 80, P 120, P 180, P 240,

P 320, P 400, P 600

The benefits for you

- · Aluminium oxide abrasive grain produces a bright matt decorative finish
- Especially suitable for medium grinding pressures

MERCURIT RB 595 Y

Abrasive grain MERCURIT® Silicon carbide

(Agglomerate)

Backing Grit range Heavy, synthetic Y-cloth P 80, P 120, P 180, P 240

Bonding Resin, black

The benefits for you

- Silicon carbide abrasive grain produces a brilliantly bright decorative finish
- Especially suitable for wet applications with medium grinding pressures

MERCURIT RB 598 Y

Abrasive grain MERCURIT® Silicon carbide

(Agglomerate)

Backing Grit range Heavy, synthetic Y-cloth P 240, P 320, P 400,

P 600 - P 1200

Bonding Resin, black

The benefits for you

• Particularly suitable for producing everything from a brilliantly bright decorative finish to mirror-finish surfaces



MERCURIT® BW 590



MERCURIT® RB 590 Y



MERCURIT® RB 591 Y



MERCURIT® RB 595 Y



MERCURIT® RB 598 Y



Further Hermes decorative finish grinding belts

PAPER-BACKED GRINDING BELTS

Resin, Procut, blue



BW 116

resistance, paper grinding belts can be used even when oil is used as cooling lubricant.

BW 116
Abrasive grain Aluminium oxide Backing F-weight paper

Grit range

In metal grinding, paper grinding belts with particularly strong paper backings are used for surface grinding/ finishing. These stable backings are primarily beneficial with wide belts for dry grinding. Due to their oil

P 60 - P 320, P 400

The benefits for you

- · Aluminium oxide grain produces a bright matt decorative finish
- Use of high-performance aluminium oxide means longer tool life
- Coating with active ingredient Procut prevents workpiece surface overheating
- Less sheet metal rejected at sheet metal thicknesses <1 mm
- Wide belts with only one joint, available up to 1.600 mm width



CERAMIT® CR 116

CERAMIT® CR 116

Abrasive grain Ceramic grain Backing F-weight paper
Bonding Resin, green Grit range + 60 to + 180, + 240

The benefits for you

- High-performance ceramic grain grinding belt
- · High stock removal rates
- Low grinding temperatures
- Uniform surface pattern
- Wide belts with only one joint, available up to 1.600 mm width



BS 118

BS 118

Abrasive grain Silicon carbide Backing F-weight paper
Bonding Resin, black Grit range P 16, P 24, P 36 - P 1200

- Particularly suitable for producing a brilliantly bright decorative finish
- Wide belts with only one joint, available up to 1.600 mm width

CLOTH-BACKED GRINDING BELTS

he applications for cloth grinding belts are similar to those of paper grinding belts. However, they are even more robust and in addition to dry grinding, can also be used for wet grinding (resistant to water, emulsion and oil).

RB 377 YX

Abrasive grain Aluminium oxide YX-cloth Backing Bonding Resin, red Grit range + 36, + 40, + 60 to + 320, + 400, + 500

The benefits for you

- Durable standard product for producing a bright matt finish on stainless steel surfaces
- · Polyester/cotton mix cloth backing can withstand high loads
- New mix of aluminium oxide grain means high stock removal rates, especially in the coarse grit range
- Especially suitable for producing the finest surfaces with a very even grinding pattern

RB 315 YX

Abrasive grain Silicon carbide Backing YX-cloth Grit range P 24, P 36 - P 320, P 400 Bonding Resin, black

The benefits for you

- Polyester/cotton mix cloth backing can withstand high loads
- Silicon carbide grain produces brilliant brightness

CERAMIT® CR 456 Z

Z-cloth Abrasive grain Ceramic grain Backing Bonding Resin, Procut, green Grit range + 36 to + 120

- High-performance ceramic grain grinding belt with a very heavy, stiff polyester backing
- Procut coating means low grinding temperatures



RB 377 YX



CERAMIT® CR 456 Z



The faster way to the brush finish



THE "REPLICATED" BRUSH FINISH WITH CORK GRINDING BELTS

As required by the customer different surface qualities can be produced. In most cases cold-rolled 3D material is the basic material. Normally the used grit size changes the produced surface pattern.

Variations can be achieved by different abrasive grain types or different machine parameters as for example the feed or the cutting speed or the design of the contact rollers.

Ground and brushed surfaces ("replicated" brush finish)

	Longlife Paper-backed cloth-backed grinding belt		Longlife cloth-backed	Paper-backed grinding belt
	grinding belt	3 4 3 44	grinding belt	3 4 3 44
1. Step	HERMESIT® RB 535 X	BW 116	HERMESIT® RB 545 X	BS 118
2. Step "replicated" brush finish	Cork RB 525 X		Cork R	B 515 X

- Homogeneous finish without defects, such as lines or shadows caused by variations in brush roller construction
- Second choice base material can be used for an excellent brush finish
- Improved productivity due to increased line speed (up to 80 m/min at coil-to-coil machines)
- No time lost in dressing or balancing web rollers
- Belts can be handled easier in comparison to rollers
- Only with cork grinding belts a duplo finish can be produced with a higher line speed
- Wide belts with only one joint, available up to 1.600 mm width

CLOTH-BACKED GRINDING BELTS WITH CORK

lexible particles of cork on the polishing belts allow "cushioned" grinding and produces a polishing effect. This allows the mirror-finish surfaces desired by many customers to be produced in stainless steel finishing. Cork polishing belts can be used universally in dry and wet grinding (resistant to water, emulsion and oil).

CORK RB 515 X

Abrasive grain Cork + X-cloth, waterproof Backing

Silicon carbide Grit range P 150, P 220, P 280, P 320,

Resin, black P 400, P 600 - P 1000 Bonding

The benefits for you

- Particularly suitable for producing very bright or mirror-finish surfaces with fine-structured grinding
- Soft and flexible cotton cloth backing means premium surface qualities
- · Wide belts with only one joint, available up to 1.600 mm width

CORK RB 515 Y

Bonding

Schleifkorn Cork + Backing Y-cloth

> Silicon carbide P 150, P 220, P 320, Grit range Resin, black P 400, P 800 - P 1200

The benefits for you

- Particularly suitable for producing very bright or mirror-finish surfaces with fine-structured grinding
- Particularly tear-resistant backing, even at higher belt tensions
- Wide belts with only one joint, available up to 1.570 mm width

MICRO-CORK RB 515 YX

Abrasive grain Micro-Cork + Backing YX-cloth Silicon carbide P 800 Grit range

Bonding Resin, black

The benefits for you

- Very homogenous bright or mirror-finish surfaces due to micro-cork particles
- Especially suitable for grinding very thin material (>0.5 mm)
- Particularly tear-resistant backing, even at higher belt tensions
- Wide belts with only one joint, available up to 1.600 mm width

CORK RB 525 X

Abrasive grain Cork + X-cloth, waterproof Backing **Aluminium oxide** Grit range P 220, P 280, P 400, P 600

Bonding Resin, red-brown

The benefits for you

- Particularly suitable for producing bright matt and fine-structured surfaces
- Soft and flexible cotton cloth backing means premium surface qualities
- · Wide belts with only one joint, available up to 1.600 mm width

CORK RB 555 X

Abrasive grain Cork X-cloth, waterproof Backing Bonding Resin, yellow Grit range without grain

- Cork polishing belt without abrasive grain to produce high-polish or mirror-finish surfaces
- Soft and flexible cotton cloth backing means premium surface qualities
- Wide belts with only one joint, available up to 1.600 mm width

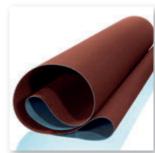




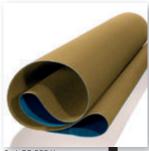
Cork RB 515 Y



Micro-Cork RB 515 YX



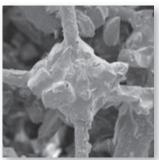
Cork RB 525 X



Cork RB 555 X



Grinding with style — webrax non-woven web



The magnified photograph clearly shows the open structure of **webrax** non-woven web.

3 GOOD REASONS FOR WEBRAX NON-WOVEN WEB

1. Backing

webrax non-woven web is manufactured from high-quality, three-dimensional special fibre web. The abrasive grain is firmly anchored by a bond to make it correspondingly durable. We supply the following variants for finishing stainless steel sheets, coils and panels:

Non-woven web rollers	Non-woven web grinding belts
Non-woven web, high density	Non-woven web, laminated on X _w -cloth* Non-woven web, reinforced with cloth

* Heavy, moderately flexible, waterproof cotton cloth

280

2. Type of grain

The abrasive webs for finishing stainless steel are available in the grit range 80 to 800.

Warning: The abrasive effect and the grain details quoted are not comparable with those of grinding papers and cloths: for the same grit size, **webrax** non-woven web abrasives generally grind finer. Aluminium oxide and silicon carbide are generally used as the grains.

Hermes Standard	+ 80	+ 100	+ 120	+ 150	+ 180	+ 220	+ 280	+ 320	+ 360	+ 400	+ 500	+ 800
Grit size identification	coarse	med	lium	fine				very fine	;		super fine	ultra fine

3. Bonding

The abrasive grain is firmly anchored to the synthetic fibres by resins. The resin bond allows use under both dry and wet conditions. Benefits you will appreciate.



webrax-0A 710

webrax-0S 715

WEBRAX NON-WOVEN WEB ROLLERS

webrax non-woven web flap rollers produce an ideal brushed finish. We make these products in four different densities: 1 = soft, 2 = medium, 3 = hard, 4 = very hard. The rollers are also available with additional impregnation to increase tool life. webrax abrasive web rollers are supplied with a maximum external diameter of 450 mm and in widths up to 2.050 mm. Universal use in dry and wet grinding (resistant to water, emulsion and oil).

WEBRAX-0A 710						
Design	Flap roller LMO	Backing	Non-woven web			
	Density 1-3**	Grit range	+ 80 to + 120. + 180. +			

Abrasive grain Aluminium oxide

The benefits for you

- Durable non-woven web with permanent incorporation of grain
- Even, three-dimensional special fibre web
- · Aluminium oxide grain for bright matt stainless steel surfaces

WEBRAX-0S 715						
Design	Flap roller LMO	Backing	Non-woven web			
	Density 1-3**	Grit range	+ 100, + 180, + 280, + 500, + 800			
Abrasive o	rain Silicon carbide					

- Durable non-woven web with permanent incorporation of grain
- Even, three-dimensional special fibre web
- Silicon carbide grain for greater brightness and finer brush patterns

^{**}As an alternative, webrax non-woven web rollers can also be manufactured from highly compressed web in density 4 (very hard): webrax-0A 713/webrax-0S 716.

rollers and belts for that special finish

WEBRAX NON-WOVEN WEB GRINDING BELTS

webrax non-woven web belts are used specifically for the decorative finishing of stainless steel coils and panels, but are equally suitable for keying or cleaning stainless steel surfaces. When working with webrax non-woven web belts, the grinding zone should have no sharp-edged openings and be free of surface faults. The belts can be used universally for dry and wet grinding (resistant to water, emulsion and oil).

WEBRAX-AN 701 50

Abrasive grain Aluminium oxide/

Silicon carbide

Bonding Resin Grit range

Non-woven web, Backing reinforced with cloth

Aluminium oxide:

+ 80 (brown), + 100 (red),

+ 180 (red/blue), + 280 (blue) Silicon carbide: + 800 (grey)

The benefits for you

- · Compact, intensive-grinding abrasive web
- For structural grinding of stainless steel coils and sheets
- · Aluminium oxide grain for bright matt stainless steel surfaces

WEBRAX-AN 702

Bonding

Abrasive grain Aluminium oxide

Resin, brown

Backing

Non-woven web, reinforced with cloth

Grit range

+ 80, + 100, + 180, + 280, + 320, + 400

The benefits for you

- · Open but rigid web structure
- · Aluminium oxide grain for bright matt stainless steel surfaces
- · For fine grinding of stainless steel coils and sheets
- · For keying or cleaning stainless steel surfaces

WEBRAX-MAG

Abrasive grain Aluminium oxide Bonding Resin, red-brown

Backing

Non-woven web, laminated on X_w-cloth

Grit range

+80, +120

The benefits for you

- Open, soft web structure
- · Aluminium oxide grain for bright matt stainless steel surfaces
- For fine and finest finishing of stainless steel coils and sheets
- · Particularly suitable for finishing sensitive surfaces

WEBRAX-MSG

Abrasive grain Silicon carbide Bonding Resin, black

Backing

Non-woven web.

laminated on X_w-cloth

Grit range +80, +150, +180, +280,

+ 400, + 500

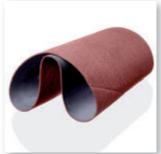
- · Open, soft web structure
- Silicon carbide grain produces bright surfaces on stainless steel
- · For fine and finest finishing of stainless steel coils and sheets
- · Particularly suitable for finishing sensitive surfaces



webrax-AN 701 50



webrax-AN 702



webrax-MAG



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FURTHER HERMES INFORMATION FOR METALWORKING





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