

Diamond know how®



Talk to our team today to discuss your project, 07 3217 9877

www.AllPreparationEquipment.com.au



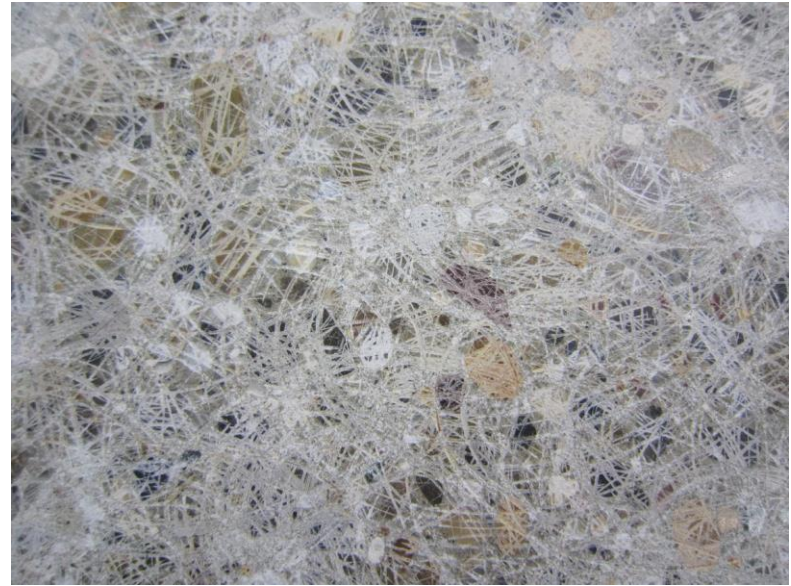


Grinding Pattern

SINGLE HEAD

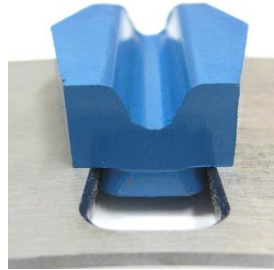


3-HEAD

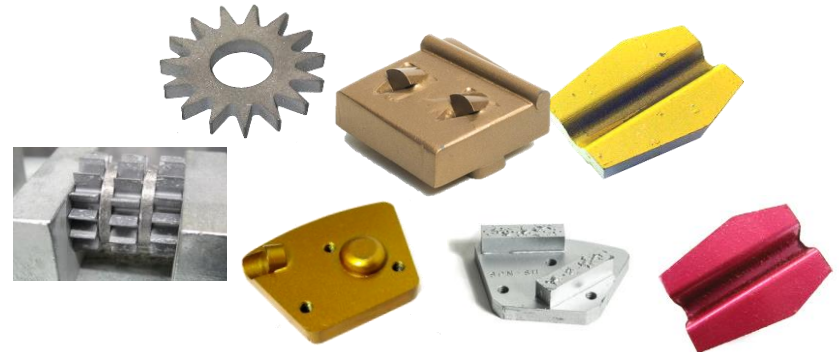




Knock On Diamond Tools



Our Schwamborn Floor Grinding system offers a wide range of diamond tools and scarifiers for the most professional grinding operations allowing you to achieve maximum productivity .



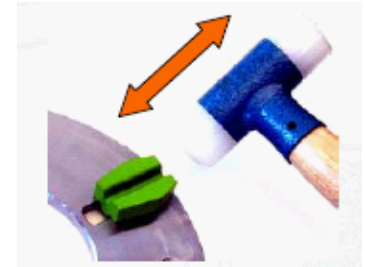


Metal Bond Diamonds

Diamonds are fixed in metal compound.

Used for coarse to medium grinding applications from a 16 to 150 grit finish.

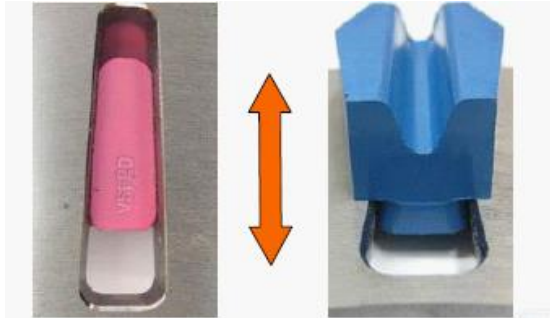
*Knock on and Knock off –
The fastest easy tooling change*





Easy Tool Exchange

- Save time in changing diamonds
- Gives greater flexibility with diamonds
- Saves time in preparation and removal
- Integrated air channel provides dust flow around the diamond and allows the diamond to cool giving a longer life





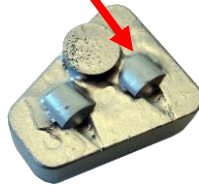
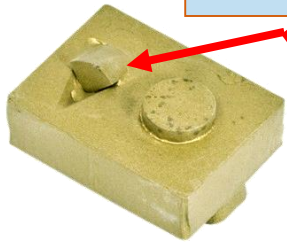
PCD Diamonds

Polycrystalline diamonds

= Coating removal

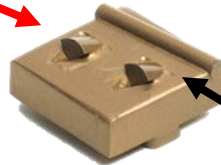
= PCD - thinner coatings, asphalt

$\frac{1}{4}$ PCD

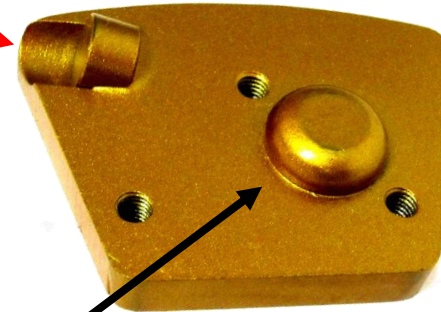


left

Full PCD



right



Support diamond

PCD-Splitt

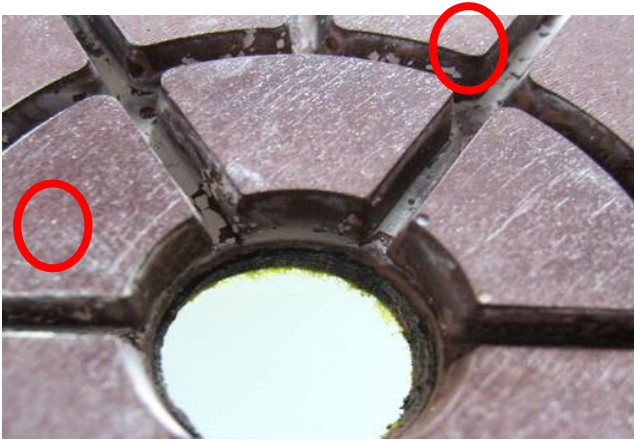




Resin Bond Diamonds

Diamonds are fixed in resin compound.

Used for medium to fine grinding applications from a 100 to 3500 grit finish.





Hybrid Diamonds

Is a mix of metal- and resin bond diamonds

Used after metal bond diamonds as a transition tool for quick scratch removal.

= High grinding performance

= Quick scratch removal

= Grit size 50 – 100 – 200 – 400

= Available for dry + wet application



Hybrid,
LongLife, dry



Tornado Hybrid



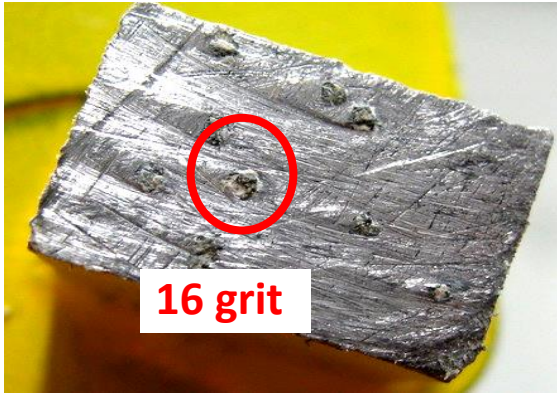
Superflex, wet



BestPolish, Hybrid
LongLife, wet



Diamond Grit



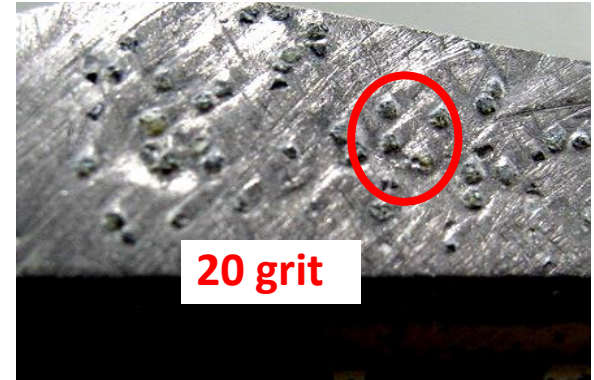
16 grit



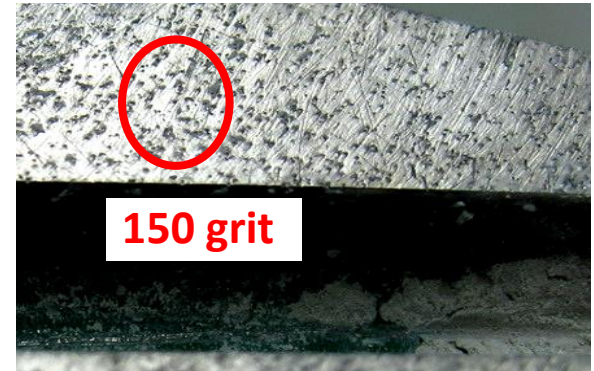
40 grit

*Grit is the term for the size of the diamonds.
The less segments the more aggressive – and the coarser the diamond.*

The more segments the less aggressive and in turn the smoother the finish.



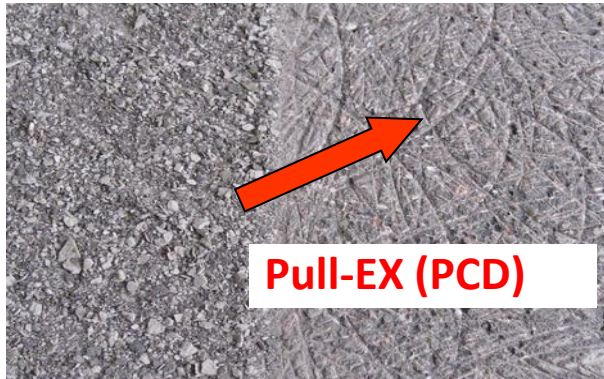
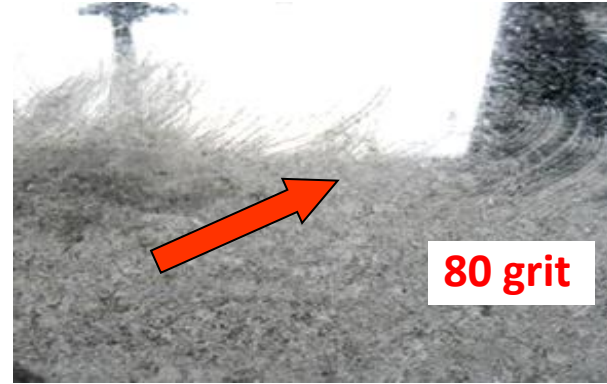
20 grit



150 grit



Diamond Grit Pattern



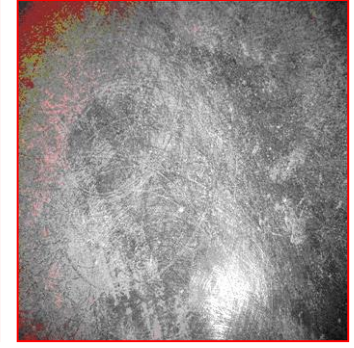
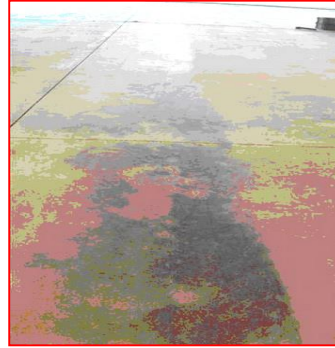


Diamond Glazing



Glazing diamonds

Poor grinding
performance



Depending on the floor conditions,
diamonds may have a poor grinding
performance or pattern. The diamond
starts glazing. Choose another diamond
grit or bond, change diamond turning
direction or use water.

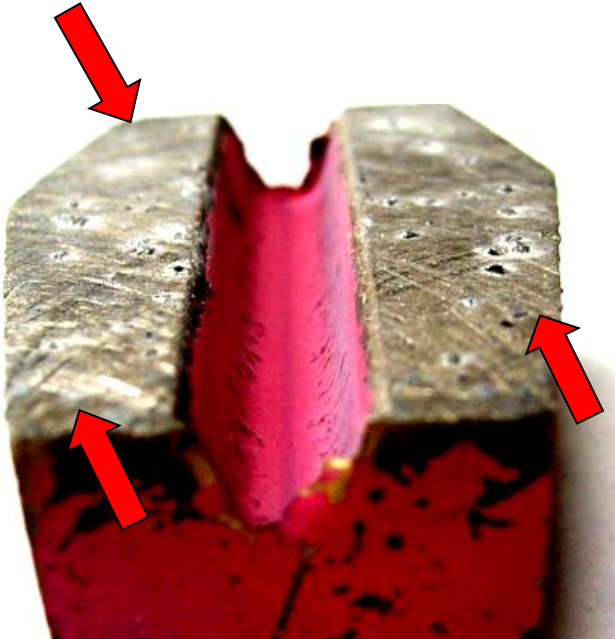


Open diamonds

good grinding
performance



Diamond Consumption



Long and sharp edges on the diamond segment could be a sign for a higher diamond consumption.

= Change to a harder diamond bond



Grinding Steps

9. Step: K 3000 - *polishing*

8. Step: K 1500 - *polishing*

7. Step: K 800 - *polishing*

6. Step: K 400 - *polishing*

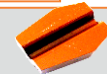
5. Step: K 200 - *polishing*

4. Step: K 150/170 - *fine grinding*

3. Step: K 80/100 - *middle fine grinding*

2. Step: K 40/50 - *medium coarse grinding*

1. Step: K 20/30 - *coarse grinding*



Transition diamond



Mohs Hardness Scale

Marble
Granite



<i>Class</i>	<i>Mineral</i>	<i>Feature</i>	<i>Can be scratched with</i>
1	»Talc	Very soft	Finger nail (2,5)
2	»Gypsum		
3	»Calcite	Soft	Copper coin (4)
4	»Fluorite		
5	»Apatite	Hard	Glass (5,5)
6	»Feldspar		
7	»Quartz	Very hard	Knife (6,5)
8	»Topaz		
9	»Corundum		
10	»Diamond	Very, very hart	Scratches all



Diamond Bonding

NOTE

- » *A soft floor requires diamonds with a hard bonding*
= *Fresh concrete, screed or old floors are example of soft floors*

- » *A hard floor requires diamonds with a soft bonding*
= *Like granite, hard trowelled concrete, microterrazzo with resin*



Grinding Tips

Problem		Remedy
1	Unknown floor conditions	Start with a medium soft (HC) or soft diamond bond (VSF).
2	Soft, open and porous floors	Start with a hard bond (SC) or medium hard diamond bond (GC).
3	Very hard and trowelled floors	Start with a medium soft, soft or very soft diamond bond (HC or VSF).
4	Low grinding performance = Diamond glazing	<ul style="list-style-type: none">● Choose a softer diamond bond.● Increase grinding pressure.● Change tool speed.



Grinding Tips

Problem		Remedy
5	Quick diamond consumption	<ul style="list-style-type: none">● Choose a harder diamond bond.● Reduce grinding pressure.● Mount instead 3, 6 diamonds per carrier
6	Machines moves hard or switches off	<ul style="list-style-type: none">● Reduce grinding pressure, remove saddle weight.● Reduce tool speed● Choose a different tool● Mount a full diamond set.
7	Coating removal	Work with 50% overlap to get a better result



Grinding Tips

Problem		Remedy
8	Scarifying & shot blasting	Floor grinding achieves a more uniform surface compared to shotblasting and scarifying.
9	<u>Hard Floors:</u> Grinding becomes non productive	<ul style="list-style-type: none">● Use a soft bond diamond● Use a higher grit diamond● Vary the tool speed● Vary the weight● Use sand or concrete dust● Use wet grinding



Grinding Tips

Problem		Remedy
10	<u>Soft Floors:</u> <i>Diamond tools wearing to fast</i>	<ul style="list-style-type: none">● <i>Use a hard bond diamond</i>● <i>Reduce the weight</i>● <i>Increase the tool speed</i>● <i>Increase the forward movement</i>● <i>Use a full set of diamonds</i>
11	<i>Bolts and metal object in the floor</i>	<i>Any objects in the floor must be cut or removed to prevent damage on machine and tools.</i>
12	<i>Cracks in the floors</i>	<i>Use cement based filler, for holes and close joints</i>



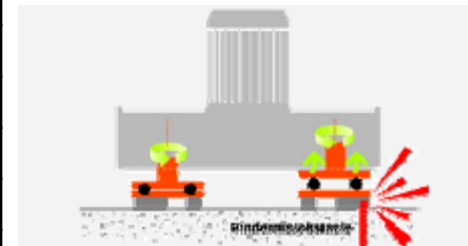
Diamond bond

Code	Floor	Floor type	
SSC	Screed, fresh concrete	Very soft	
SC	Screed, fresh concrete	Soft	
GC	Concrete, old	Hard	
HC	Hard concrete, trowelled concrete, coatings,	Very hard	SBC - Diamond can replace partly HC-Diamond
VSF	Very hard concrete, coatings, epoxy, micro terrazzo, hard trowelled concrete	very, very hard	SBG – Diamond can replace partly the VSF-Diamond
SBC	Marble, terrazzo	Hard	~ = HC
SBG	Granite, concrete tiles	Very hard	~ = VSF



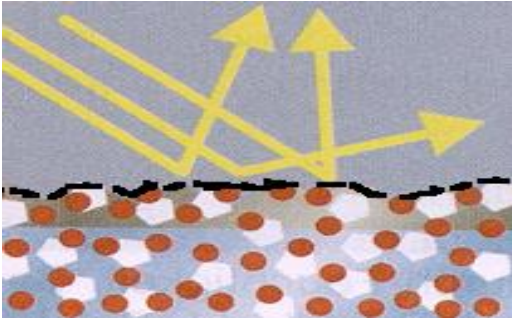
Diamond Code

SSC / SSC-EH	<i>Very soft, abrasive concrete, screed</i>
SC	<i>Soft, abrasive concrete, screed</i>
GC / GCR	<i>General concrete</i>
HC / HCR	<i>Very hard concrete, coatings</i>
VSF	<i>Very, very hard trowelled concrete, coating removal</i>
SBC	<i>Natural stone, marble, terrazzo</i>
SGC	<i>Granite</i>
EX-Pull	<i>Epoxy and coatings</i>
Barracuda	<i>Epoxy and coatings</i>
All Grind	<i>Natural stone, marble, terrazzo, granite</i>
LUX	<i>Natural stone, marble, terrazzo, granite, glass terrazzo</i>
Superflex	<i>Concrete, industrial screed, design floors</i>
Best Polish	<i>Concrete polishing</i>
Hybrid	<i>Concrete grinding, transistion tool</i>
Tornado Clean/Polish	<i>Concrete, terrazzo</i>
Tornado Hybrid	<i>Natural stone, terrazzo</i>





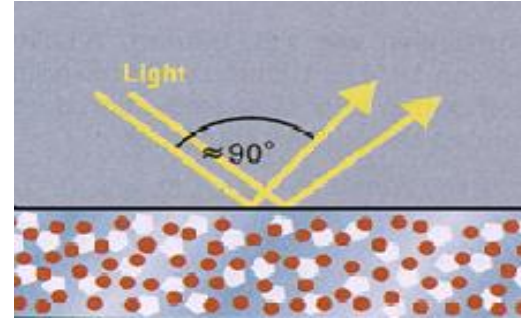
Light Reflection



» Crystals in a disorder

» Irregular light reflection

» No gloss, floor is dull



» Crystals are well placed

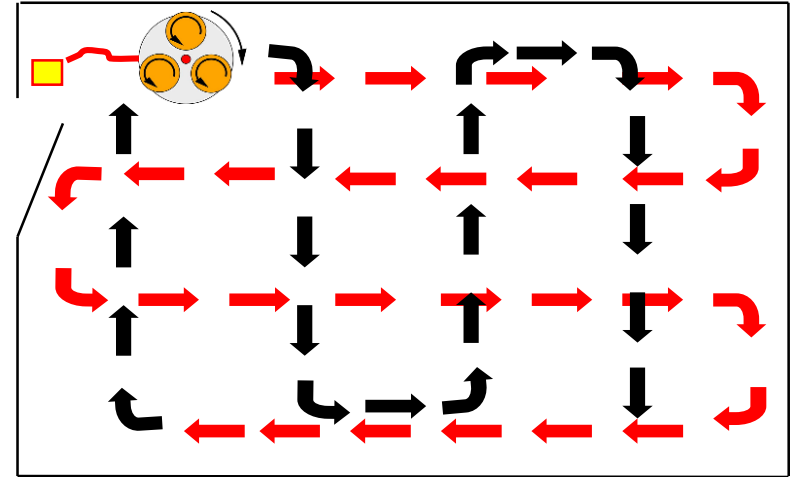
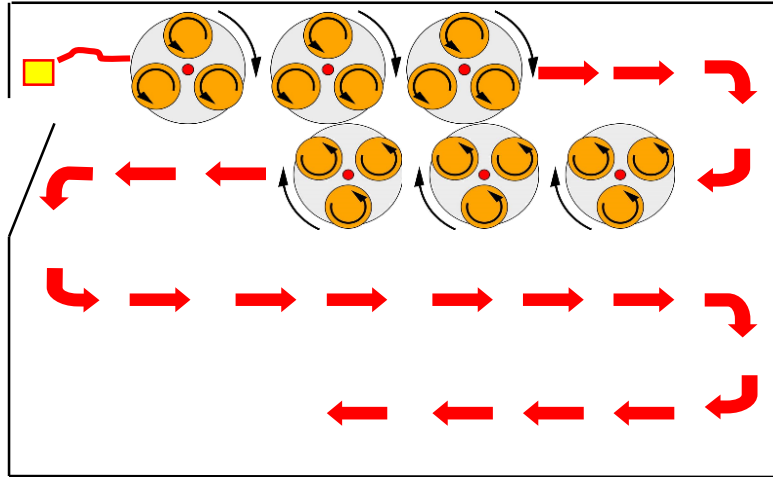
» Uniform light reflection

» High gloss natural floor finish



Working procedure

- » Work in a criss cross pattern with approx. 5 cm overlap to get a good result.

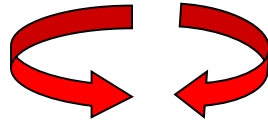




Tool Speed min^{-1}



The maximum tool speed does not allways give a good and fast result !





Grinding speed

<i>Diamond tool</i>	<i>Diamond grit</i>	<i>Grinding speed depending on the floor conditions (in m/min)</i>	<i>Potentiometer position</i>
<i>Metal bond, low grit</i>	20 – 60 PCD Diamonds	2,5 m/min	min: (between 7-9 o clock)
<i>Metal bond, high grit</i>	60 - 150	3,0 m/min	between 9-12 o clock
<i>Resin bond, low grit</i>	100 - 400	3,5 m/min	between 12-15 o clock
<i>Resin bond, high grit</i>	400 - 3000	4,0 m/min	max: between 15 – 17 o clock






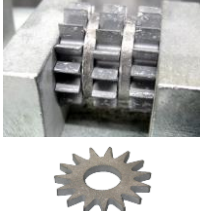
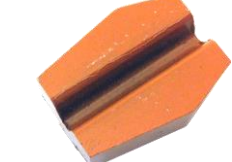

Before start to grind think about

- »» What type of surface do you plan to grind
- »» Hard concrete
- »» Soft concrete
- »» Removing a coating first
- »» What type of coating you have to remove
- »» How thick is the coating
- »» Do you plan to recoat with a thin or thick layer
- »» Do you plan to polish the surface? If so what is the highest grit you can start with?





Coating removal





					
EX-Pull-D	Barracuda-S-R	Barracuda-Split	Scarifier	EX-VSF 22	EX-HC 16/20 EX-VSF 16/20
<i>Epoxy, coatings, thinn layer</i>	<i>Epoxy, OS 11 coatings</i>	<i>Thinn coatings, asphalt</i>	<i>Glue, coatings</i>	<i>Hard trowelled concrete</i>	<i>Thin coatings, hard trowelled concrete</i>

Aggressiveness

High

Low



ETX-Diamonds		Applications
	EX-Pull-S-R	<i>Thin coating, single disc machine, (not suited for abrasive subfloors)</i>
	EX-Pull-D-R	<i>Thick coatings, light 3-head grinders (not suited for abrasive subfloors)</i>
	Barracuda-S-R	<i>Thick coatings, OS 11 coatings, (heavy 3-head grinders)</i>
	SC-GC-HC Barracuda-Split	<i>Thin coatings, asphalt (all 3-head grinders)</i>




The use of PCD-diamonds on abrasive subfloors may reduce their life time.



<i>Step</i>	<i>Coatings, Epoxy, glue, elastic coatings (Tartan)</i>			
1	EX-HC 16	EX-VSF 16		Barracuda-S, R
2	EX-HC 20	EX-VSF 20	EX-Pull-S, L	EX-Pull-S, R
3	EX-HC 40	EX-VSF 40	EX-Pull-D, L	EX-Pull-D, R
4		<i>Scarifier</i>		

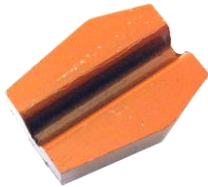




ETX-Diamond

<i>Bond</i>	ETX-Diamonds		<i>Grit</i>	<i>Applications</i>
<i>very hard</i>		EX-SSC, red EX-SSC-E	20 - 40	<i>Fresh concrete, asphalt, screed.</i>
<i>hard</i>		EX-GC, black EX-GC-E	16 - 20 40 - 80 150	<i>General concrete, asphalt-terrazzo, screed, terrazzo.</i>
<i>medium</i>		EX-HC, yellow EX-HC-E	16 - 20 40 - 80 150	<i>Hard concrete, micro-terrazzo, epoxy-terrazzo, coating, paint, glue removal.</i>

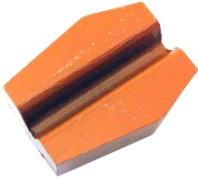





ETX-Diamond

<i>Bond</i>	ETX-Diamonds		<i>Grit</i>	<i>Applications</i>
<i>very soft</i>		EX-VSF, orange <i>EX-VSF-E</i>	16 - 20 40 - 80 150	<i>Very, very hard concrete, coating, epoxy, hard trowelled concrete</i>
<i>medium</i>		EX-SBC, <i>green</i>	40 - 60 120	<i>Marble, Terrazzo</i>
<i>soft</i>		EX-SBG, <i>blue</i>	40 - 60 80 - 120	<i>Granite, epoxy terrazzo</i>



XL + Eco *Diamonds*

XL Diamond tools		Volume	Performance:
	Type: <ul style="list-style-type: none"> • SSC / SC • GC • HC • VSF 	9,0 mm³	1000-1300 m²
	Type: <ul style="list-style-type: none"> • SSC 20E / 40E • GC 20E / 40E / 80E • HC 20E / 40E / 80E • SBC • SBG 	6,6 mm³	500-700 m²
Competition		Comparison with Schwamborn XL-tools	
		$9 \times 10 \times 40 = 3,6 \text{ mm}^3$ x 2 segments = 7,2 mm³	700-900 m²

**Schwamborn
XL - Diamonds
have 20 %
more volume
= longer life time**



<i>Fresh concrete, screed</i>	<i>Concrete standard</i>	<i>Concrete, very hard</i>	<i>Concrete, very, very hart</i>	<i>Grit</i>
	EX-GC 16	EX-HC 16	EX-VSF 16	16
EX-SC 20/SSC 20	EX-GC 20	EX-HC 20	EX-VSF 20	20-30
EX-SC 40	EX-GC 40	EX-HC 40	EX-VSF 40	40-50
	EX-GC / GCR 80	EX-HC / HCR 80	EX-VSF 80	80-100
	EX-GC / GCR 150	EX-HC / HCR 150	EX-VSF 150	150-170



R 9 – 13: Slip Resistant

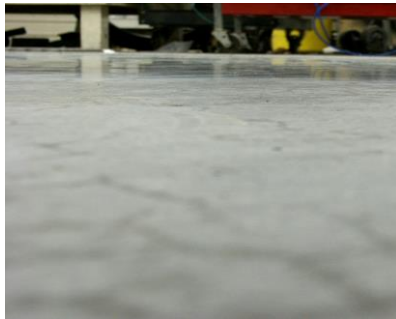
The higher the grit level the higher the risk for slipping !

< 200 grit is approx. = R 9

- 200 grit it is recommended to control the slip coefficient and
- use a final impregnator with an anti-slip protection.



R 9	<i>Low requirement for lobby, entrance, stairs,</i>
R 10	<i>Low requirement low for toilets, washing rooms, production, schools</i>
R 11	<i>High requirement for butchers, car washing stations, workshops</i>
R 12	<i>High requirements for kitchens, bakeries, cold storage areas</i>
R 13	<i>Very high requirement for food processing areas</i>



Grit 20



Grit 80



Grit 150



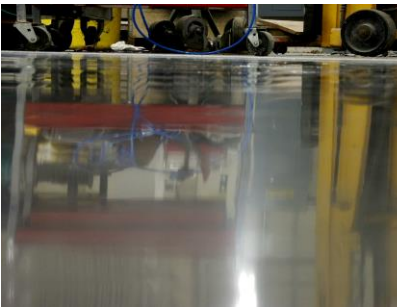
Grit 220 **(G1)**



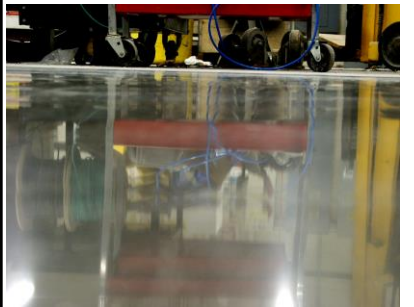
Grit 400 **(G 2)**



Grit 800



Grit 1500



Grit 3000 **(G 3)**



Step	Concrete floor			Grit
	Normal	Hard	Very hard	
1	EX-GC / GCR 80	EX-HC / HCR 80	EX-VSF 80	80
2	100 Superflex or Hybrid, resin bond diamond			100
3	Apply grout to fill pin holes and expansion cracks			
4	Densifier : Chemical treatment to harden the concrete			
5	200 Best Polish or Superflex, Resin Bond Diamond			200
5	SBR 400 Impregnation			



Step	Concrete floor			Grit
	Normal	Hard	Very hard	
1	EX-GC 40	EX-HC 40	EX-VSF 40	40
2	EX-GC / GCR 80	EX-HC / HCR 80	EX-VSF 80	80
3	Apply grout to fill pin holes and expansion cracks			
4	100 Superflex or Hybrid, resin bond diamond			100
5	Densifier : Chemical treatment to harden the concrete			
6	200 BestPolish or Superflex, resin bond diamond			200
5	400 BestPolish, resin bond diamond			400
6	SBR 400 Impregnation			



Step	Concrete floor			Grit
	Normal	Hard	Very hard	
1	EX-GC 20	EX-HC 20	EX-VSF 20	20
2	EX-GC 40	EX-HC 40	EX-VSF 40	40
3	EX-GC / GCR 80	EX-HC / HCR 80	EX-VSF 80	80
4	Apply grout to fill pin holes and expansion cracks			
5	100 Superflex or Hybrid, resin bond diamond			100
6	Chemical treatment to harden the concrete			
7	200 BestPolish or Superflex, resin bond diamond			200
8	400 BestPolish, resin bond diamond			400
9	800 BestPolish, resin bond diamond			800
10	3000 BestPolish, resin bond diamond			3000
11	SBR 400 Impregnation			



Step	Marble, terrazzo, limestone, travertine	Grit
1	Tornado Hybrid	50
2	Tornado Hybrid	100
3	Tornado Hybrid	200
4	Tornado Hybrid / Polish	400
5	Tornado Hybrid / Polish	800
6	Marmolin, G	
7	No. 21, Pre-conditioning, chemical	
8	No. 22, Impregnation, chemical	



TornadoPolish
400-800-1800-3000

Step	Marble, terrazzo, limestone, travertine	Grit
1	EX-SBC 40	40
2	EX-SBC 60	60
3	EX-SBC 120	120
4	All Grind	120
5	All Grind	220
6	All Grind	400
7	All Grind	800
8	Marmolin, G	
9	No. 21, Pre-conditioning, chemical	
10	No. 22, Impregnation, chemical	





Step	Granite	Grit
1	EX-SBG 40	40
2	EX-SBG 60	60
3	EX-SBG 80	80
4	EX-SBG 120	120
5	All Grind	120
6	All Grind	220
7	All Grind	400
8	All Grind	800
9	Crystal powder	
10	No. 21, Pre-conditioning, chemical	
11	No. 22, Impregnation, chemical	

Step	Granite	Grit
1	EX-SBG 40	40
2	EX-SBG 60	60
3	EX-SBG 80	80
4	EX-SBG 120	120
5	All Grind	120
6	All Grind	220
7	All Grind	400
8	All Grind	800
9	All Grind	1800
10	All Grind	3500
11	All Grind	Lux-Black
12	All Grind	Lux-White
13	No. 21, Pre-conditioning, chemical	
14	No. 22, Impregnation, chemical	



Talk to us today about your specific floor preparation project –

We are here to help ! Call 07 3217 9877



**ALL
PREPARATION
EQUIPMENT**

TOUGH JOBS MADE EASY