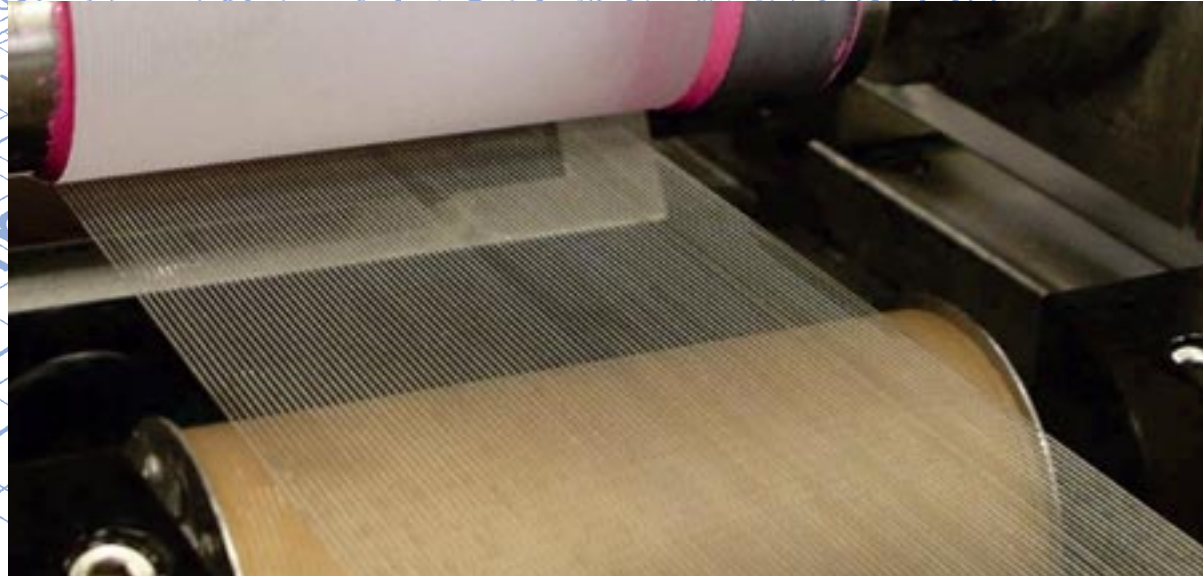
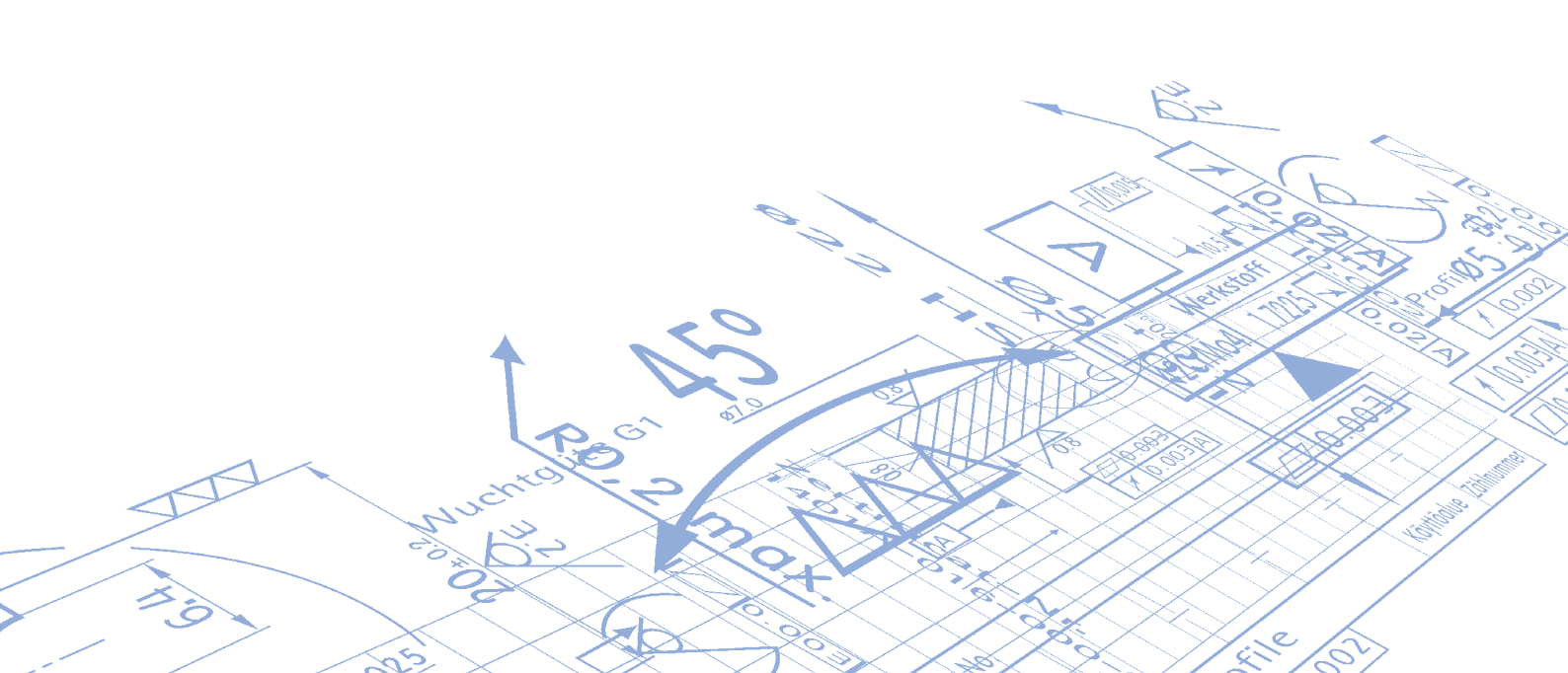


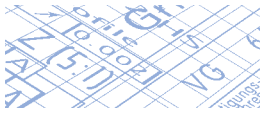
WINTER

Precision Grinding Solutions



Diamond Coated Wire
OPTO SLice - SILI Slice - SOLAR Slice - SUPER Slice

Proven Performance



Diamond Coated Wire OPTO SLice - SILI Slice - SOLAR Slice - SUPER Slice

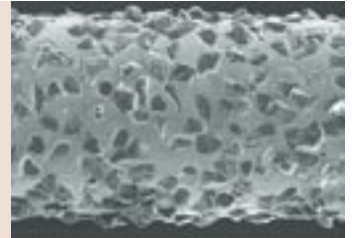
- Increase of productivity/ efficiency in comparison with bare wires

- Highly uniform grain distribution ensures consistent cutting actions and safeguards high workpiece quality

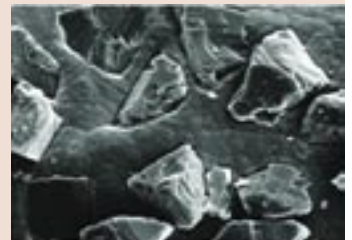
- Coated diamond technology eliminates slurry recycling and disposal concerns; environmental advantage

- Can be spooled directly onto customer's reels

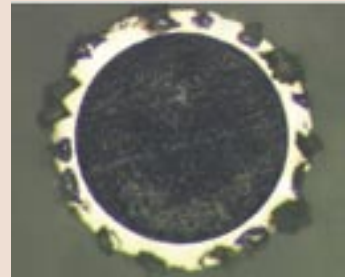
excellent grain distribution along wire



excellent strong grit retention



excellent grain distribution around core

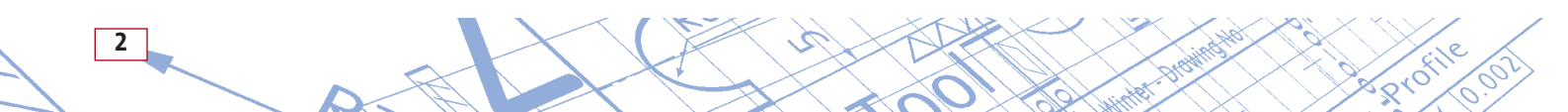


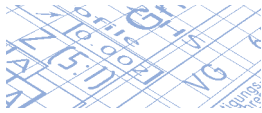
Case Study 2-Inch Sapphire Wafer Sawing for LED Production

Diamond wire	S18B-0.27-0.18 D25 G820 (66260133195)
Material	2" (50.8mm) C-plane sapphire; length < 86 mm
Sawn wafer thickness	860 μm
Sawing time	4 to 6 hours *
Total thickness variation	< 7 μm (< 15 μm on SiC)
Bow	< 15 μm (< 20 μm on SiC)
Surface finish (Ra)	< 0.7 μm (< 0.7 μm on SiC)
Edge chipping	< 8 μm

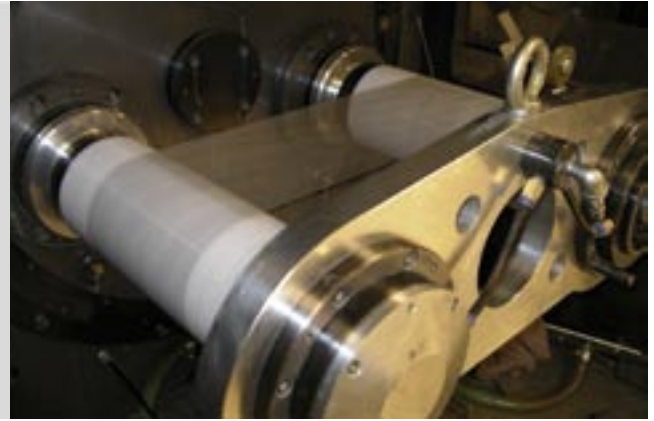
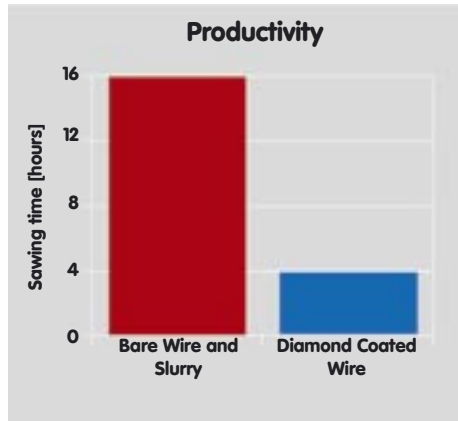
* DEPENDING ON MACHINE PLATFORM

Wafer Sawing Breakthroughs





Diamond Coated Wire OPTO SLice - SILI Slice - SOLAR Slice - SUPER Slice

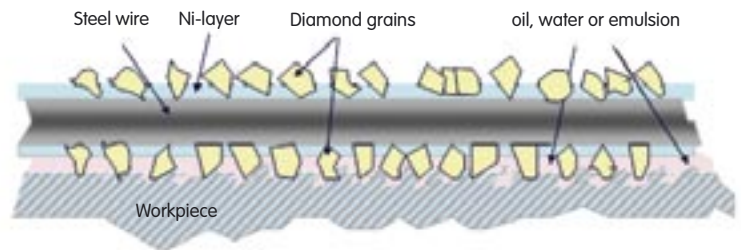


Competitive performance comparison

Productivity increase up to 500% in comparison to slurry systems

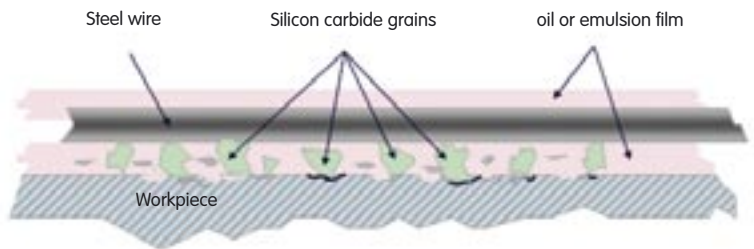
Diamond coated wire

- Grinding technology
- Fixed grits
- Material removal by slicing
- One-dimensional scratches

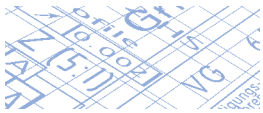


Bare wire and slurry

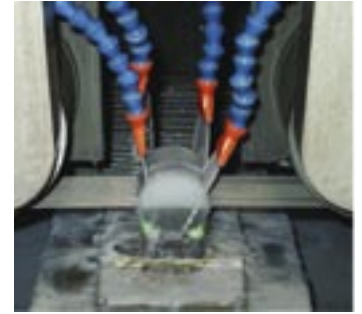
- Lapping technology
- Loose routing grits
- Material removal by crack
- Multidirectional scratches



on Hard Materials



Diamond Coated Wire OPTO Slice - SILI Slice - SOLAR Slice - SUPER Slice



Specification explanation

S18B - **0.27** - **0.18** **D25** **G820** **S33**
 Diamond coated wire Cutting width Core diameter Grit size Bond code Concentration

PART NO.	SPECIFICATION	CORE Ø *	GRIT SIZE **	CUTTING WIDTH
OPTO Slice				
66260133195	S18B-0.27-0.18 D25 G820 S33	180 µm (0.0071")	D25	270 µm (0.0106")
66260128002	S18B-0.25-0.15 D25 G820 S33	150 µm (0.0059")	D25	250 µm (0.0098")
SILI Slice & SOLAR Slice				
66260113822	S18B-0.31-0.18 D46 G820 S33	180 µm (0.0071")	D46	310 µm (0.122")
66260127995	S18B-0.29-0.15 D46 G820 S33	150 µm (0.0059")	D46	290 µm (0.0114")
SUPER Slice				
69014164510	S18B-0.22-0.15 D20B G820 S33	150 µm (0.0059")	D20B	220 µm (0.0087")

Custom Availability

* 150 to 300 µm (0.0059"-0.0118") core diameters available upon request

** D15A to D46 diamond available upon request

Standard Availability

Core Material

Spring steel, 150 µm and 180 µm [0.0059" and 0.0071"] diameter

Grain Type

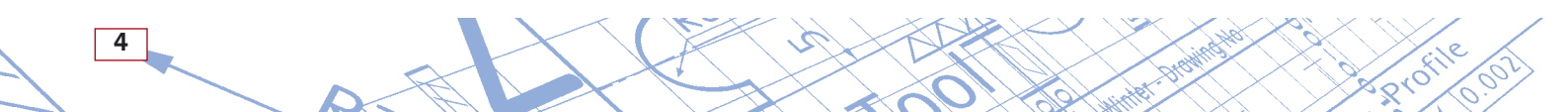
Synthetic or Natural diamond, D20B to D46

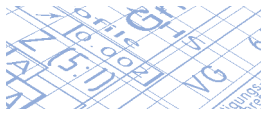
Concentration

High and continuous, around & along core

Bond

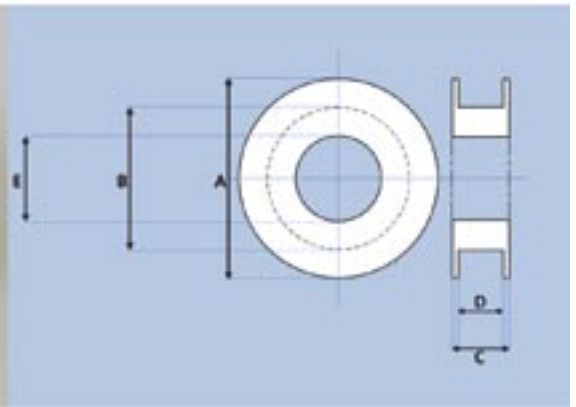
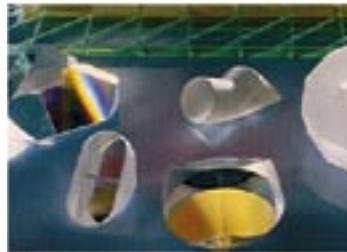
Nickel-electroplated on steel, single layer high heat and wear resistance





Diamond Coated Wire OPTO SLice - SILI Slice - SOLAR Slice - SUPER Slice

Diamond Coated Wire - Spool Availability



SPOOL TYPE	MILLIMETERS				
	(A) FLANGE DIAMETER	(B) BARREL WIDTH	(C) OVERALL WIDTH	(D) BARREL WIDTH	(E) INNER DIAMETER
001A	160.00	118.00	55.00	45.00	33.00
001B	160.00	118.00	166.00	152.00	33.00
001C	260.00	118.00	55.00	45.00	33.00
002	149.86	101.60	30.48	20.32	63.50
003	88.90	63.50	25.40	20.32	38.10
B60	255.00	117.00	270.00	158.00	32.00
B80	254.00	121.00	329.00	315.00	33.00
T610	215.00	164.00	270.00	250.00	50.00
Y01	180.00	84.00	243.00	216.00	30.60

Custom Availability

We can provide wire on spools above, or any custom reel upon request



Worldwide Sales & Engineering Support

Asia

SAINT-GOBAIN Abrasives
(Singapore) Pte Ltd
15 Beach Road
#04-03 Beach Centre
Singapore 189677
Phone: +65 337 22 76
Fax: +65 337 22 47

Europe

SAINT-GOBAIN
Diamantwerkzeuge
GmbH & Co. KG
Schützenwall 13-17
D-22844 Norderstedt, Germany
P.O.Box 2049
D-22841 Norderstedt
Phone: +49 (0)40-52 58-0
Fax: +49 (0)40-52 58-215
winter-superabrasives.com
info-winter@saint-gobain.com

North America

SAINT-GOBAIN Abrasives, Inc.
21 Saddleback Cove
Travelers Rest, SC 29690
U.S.A.
Phone: +1 (864) 834-4145
Fax: +1 (864) 834-3730

diamondwire.saint-gobain.com
electronics@saint-gobain.com

Lg.-No: E3 / 07



WINTER Questionnaire

Diamond Wire Data		
Company:	_____	Name: _____
Address:	_____	Phone: _____
Note:	_____	Fax: _____
Please provide below information		
1 Machine platform		
1.1	model *)	
1.2	spool type & dimensions *)	
2 Workpiece		
2.1	material *)	
2.2	size [mm or inch]	
2.3	target TTV [μm]	
2.4	target Bow [μm]	
2.5	target Roughness [μm]	
3 Barrel requirements		
3.1	empty barrel supplied by customer [yes/no] *)	
3.2	per spool requested wire length [m] *)	
3.3	per spool minimum allowable length [m] *)	
3.4	if necessary wire tension on spool [N]	
4 Start procedure		
4.1	initial rewinding before application [yes / no]	
4.2	if 4.1 „yes“ how many meters per new spool	
5 Process		
5.1	wire tension [N]	
5.2	wire speed [mm/min]	
5.3	table feed [mm/hour]	
5.4	pendulum motion forward & back [mm]	
5.5	rocking angle [°]	
5.6	rocking speed [°/min]	
5.7	coolant	
5.8	coolant flow [l/h]	

*) essential

SAINT-GOBAIN Diamantwerkzeuge
 GmbH & Co. KG
 CustomerService
 Schützenwall 13-17
 22844 Norderstedt
 Germany