

ILJIN Company Profile & Products Introduction

ILJIN Diamond



ILJIN 集團...

**“ Korea's Leading
Components/Materials Manufacturer ”**

● Corporate Overview

Company Name	ILJIN GROUP
Established	22 nd , January, 1967
Head Office	Dohwa-dong, Mapo-gu, Seoul
Sales	US\$2 Billion
Overseas Network	ILJIN TAIWAN, JAPAN, CHINA, EUROPE,, USA, etc.
Employees	Approx. 3,000



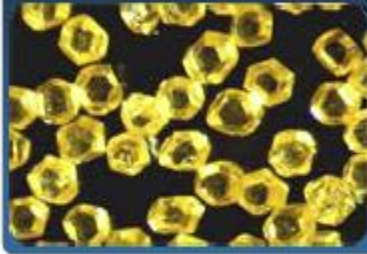
ILJIN關係企業

Inside Technology ILJIN ... Leads to Prosperous Future

ILJIN Electric



ILJIN Diamond



Jeonju Television



ILJIN Display



ILJIN Semiconductor



ILJIN Steel



ILJIN Unisco



ILJIN Materials



研發優勢

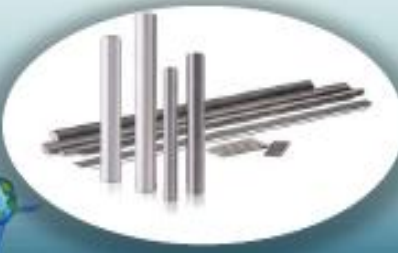
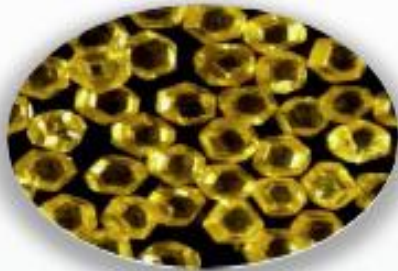
Profitable Growth with Advanced Tech. based on R&D

1. 銷售額的5%提列作為研發費用
2. 自主研發400項產品
3. 200位的碩、博士研發團隊



ILJIN Diamond is...

材料器具的領導先驅



**Corporation
Name**

ILJIN Diamond Co., Ltd

Establishment

April 28, 1988

**Listed in
Stock Market**

December 22, 2004

Head Office

ILJIN bldg., Dohwa-dong Mapo-gu, Seoul

Turnover

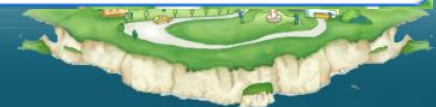
Approx. \$100 Million (2010 E)

**Overseas
Network**

ILJIN JAPAN K.K , ILJIN EUROPE GmbH
ILJIN USA INC., ILJIN CHINA Co., Ltd.
ILJIN TAIWAN(Sales office)

Employees

Approx. 380



Manufacture Plant生產車間



Diamond Wire 金鋼線

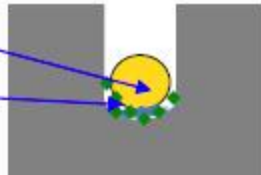
Why Using Diamond Wire...?

為何使用金鋼線?

1. 減少生產時間，增加生產效率
(太陽能快3倍，藍寶石快7倍)
2. 減少環境污染(不需潤滑油)
3. 減少生產成本(不需碳化矽)

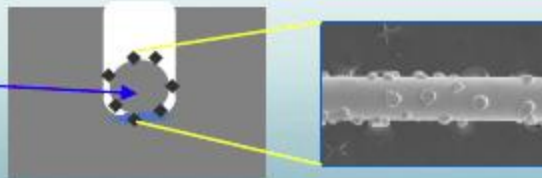
Saw wire

wire
Diamond, SiC+Oil



Diamond wire

Diamond
Coated wire



Reduced Process Time

- Silicon : 2~3 x Faster
- Sapphire : 7 x Faster

Environment -friendly

- Saw wire: Using Oil
- DW : Using Water

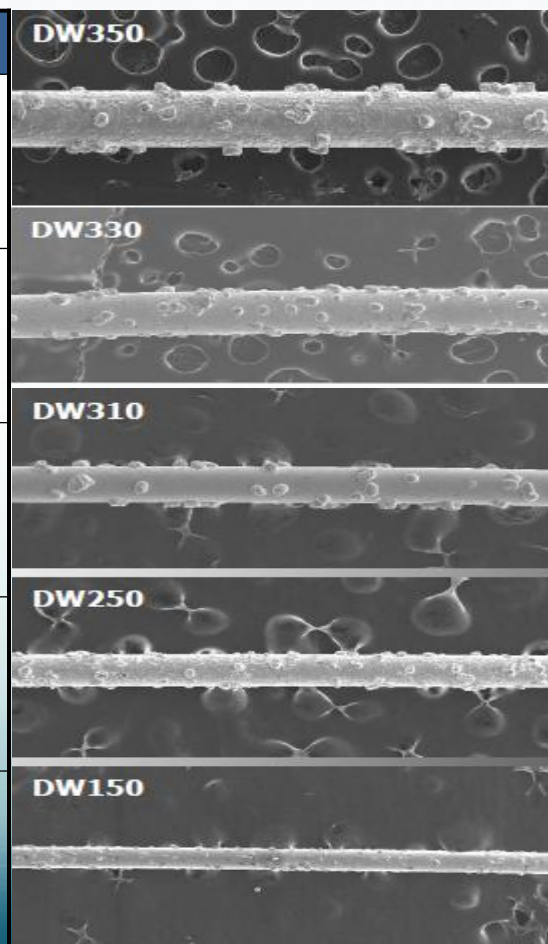
Reduced Costs

- No using SiC
- Do not need recycling

Diamond Wire 金鋼線種類

DW150 / 250 / 310 / 330/350

Products	Description		Application
DW350	Core Wire	Φ250μm	太陽能開方
	Diamond Powder	40-60μm	
DW330	Core Wire	Φ250μm	太陽能開方 & 去頭尾
	Diamond Powder	30-40μm	
DW310	Core Wire	Φ200μm	太陽能去頭尾
	Diamond Powder	40-60μm	
DW250	Core Wire	Φ180μm	藍寶石切片
	Diamond Powder	30-40μm	
DW150	Core Wire	Φ120μm	太陽能切片
	Diamond Powder	8-16μm	



Diamond Wire (DW350)

◆ Diamond Wire Benefits

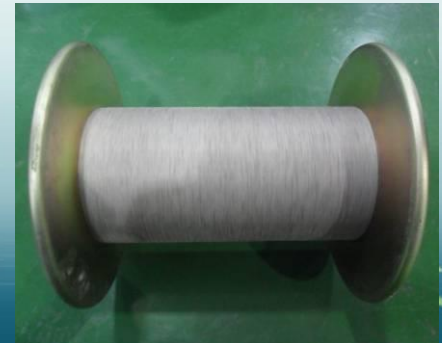
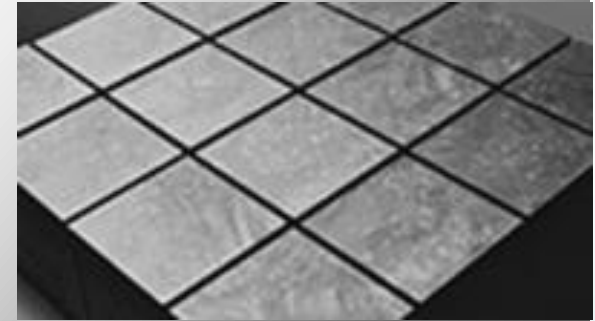
- Increased productivity

◆ 金鋼線優勢

- 增加生產率

Products	Description		Application
DW350	Core wire 線徑	Φ250 _{μm}	太陽能開方
	Diamond金鋼砂	40-60 _{μm}	
	Tensile Strength 張力	3,250N/mm ²	
	Breaking Strength 切削力	150N	
	Diameter線徑	Φ365 _{μm}	
	No of Diamond 金鋼砂數量	160ea/10mm	
Strength	- Uniformly Diamond Distribution - Excellent Cutting Force / Low Wire Broke		

DW350



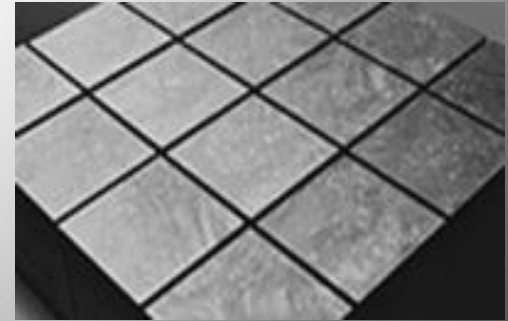
Diamond Wire (DW330)

◆ Diamond Wire Benefits

- Excellent cutting accuracy /Very low kerfloss/ Low Saw mark
- 精確開方/減少切割損耗/減少切割線痕

Products	Description		Application
DW330	Core wire線徑	Φ250 _{μm}	太陽能開方
	Diamond金鋼砂	30-40 _{μm}	
	Tensile Strength張力	3,250N/mm ²	
	Breaking Strength切削力	150N	
	Diameter線徑	Φ335 _{μm}	
	No of Diamond 金鋼砂數量	200ea/10mm	
Strength	- Uniformly Diamond Distribution - Excellent Cutting Force / Low Wire Broke		

DW330



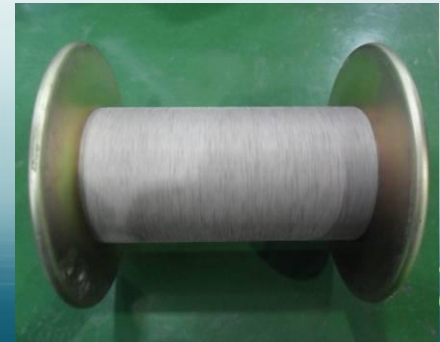
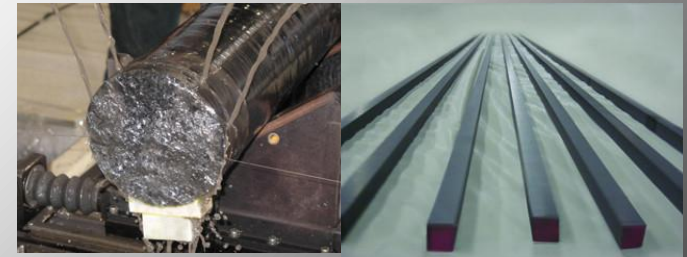
Diamond Wire (DW310)

◆ Diamond Wire Benefits

- Increased productivity / Excellent cutting accuracy
- 增加生產率/精確的切割

Products	Description		Application
DW310	Core wire線徑	Φ200 _{μm}	太陽能 去頭尾
	Diamond金鋼砂	40-60 _{μm}	
	Tensile Strength 張力	3,300N/mm ²	
	Breaking Strength 切削力	97N	
	Diameter線徑	Φ310 _{μm}	
	No of Diamond 金鋼砂數量	190ea/10mm	
Strength	- Uniformly Diamond Distribution - Excellent Cutting Force / Low Wire Broke		

DW310



Diamond Wire (DW250)

◆ Diamond Wire Benefits

- Fast cut times / Excellent TV5 values / Improved bow values
- 切割速度快 / 傑出的TV5值 / 改善bow值

Products	Description		Application
DW250	Core wire線徑	Φ180μm	藍寶石切片
	Diamond金鋼砂	30-40μm	
	Tensile Strength 張力	3,400N/mm²	
	Breaking Strength 切削力	86N	
	Diameter線徑	Φ243μm	
	No of Diamond 金鋼砂數量	190ea/10mm	
Strength	- Uniformly Diamond Distribution - Reduced subsurface damage		

DW250

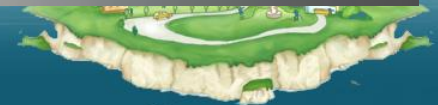
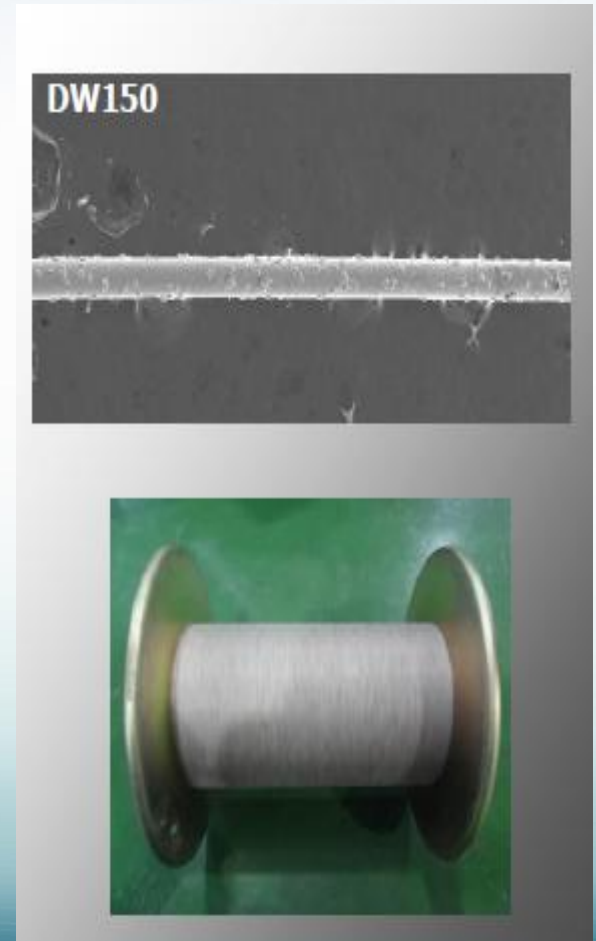


Diamond Wire (DW150)

◆ Diamond Wire Benefits

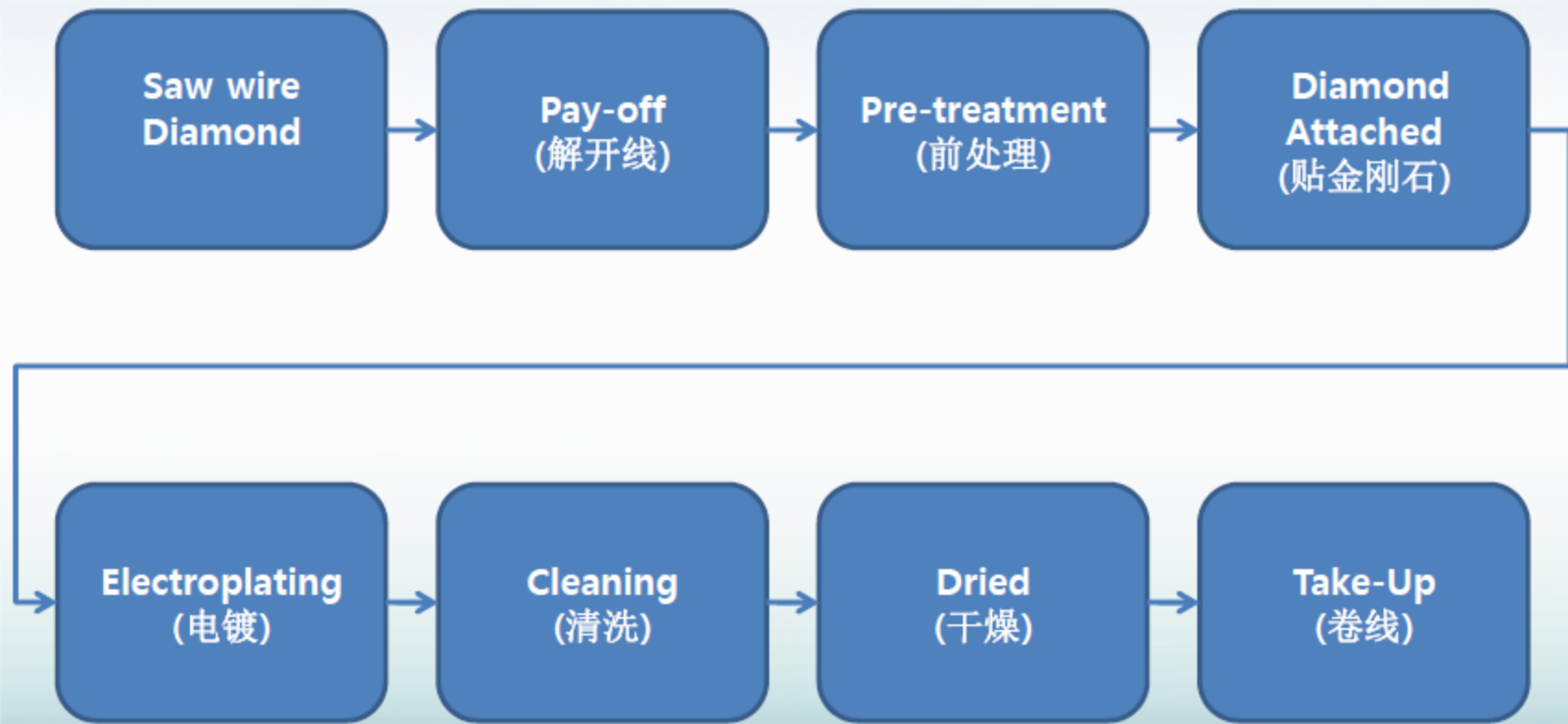
- Increased productivity / Excellent cutting accuracy / Low kerf
- 增加生產率/精確的切割 /減少切削損耗

Products	Description		Application
DW150	Core wire線徑	$\Phi 120\mu\text{m}$	太陽能切片
	Diamond金鋼砂	8-16 μm	
	Tensile Strength 張力	4,000N/mm ²	
	Breaking Strength 切削力	45N	
	Diameter線徑	$\Phi 145\mu\text{m}$	
Strength	- Uniformly Diamond Distribution - Excellent Cutting Force / Low Wire Broke		



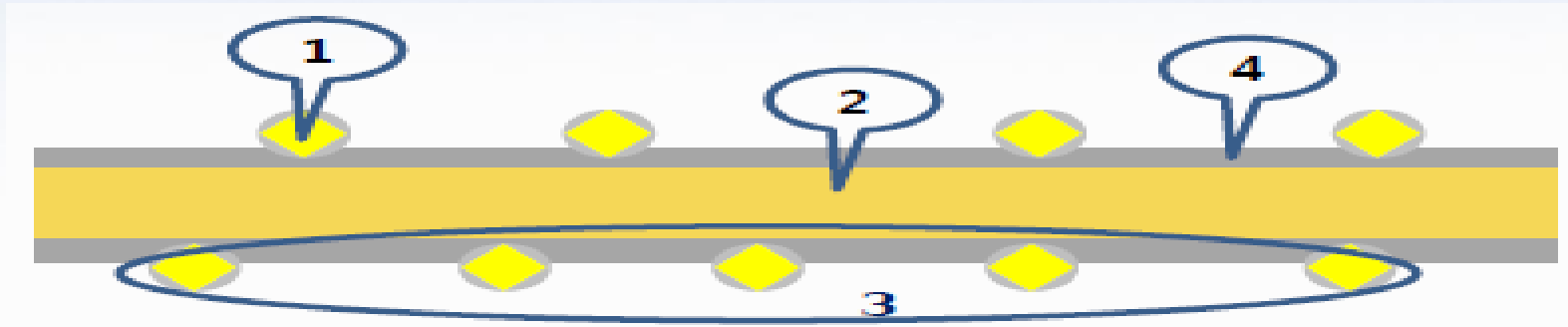
Process of Diamond Wire

金鋼線生產流程



Core Factors of DW Quality

金鋼線品質因素



1. Diamond 金鋼砂

–Toughness Material, PSD, Shape, Quantity, PSD

2. Core Wire 鋼線

–Breaking Down of DW

3. Uniform 均一性

–Direction of Length and Circumference

4. Electroplating Layer 電鍍層

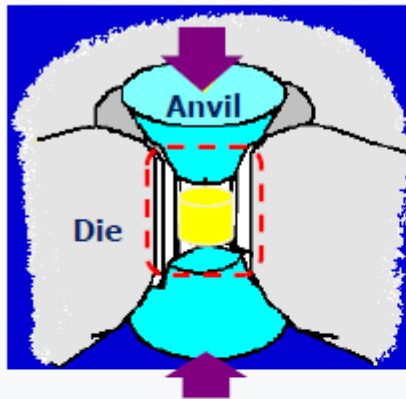
–Diameter of Electroplating Layer(Diamond Height), Properties

Strength of ILJIN Diamond 優勢

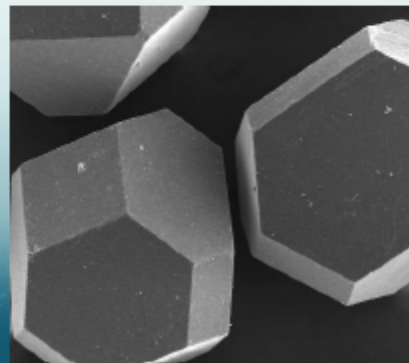
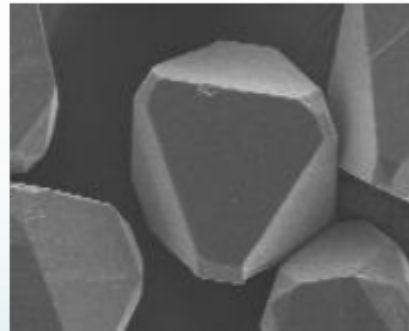
1. Diamond

- Have a manufacturing know-how over 20years 超過20年的製造技術
- Excellent of Diamond Quality (Shape, PSD, Toughness) 優良的金鋼砂品質

HPHT

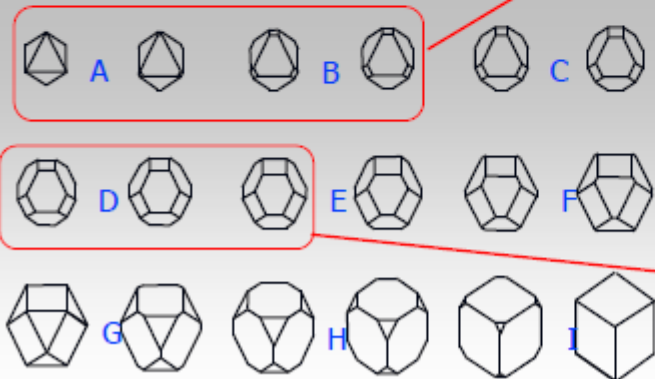
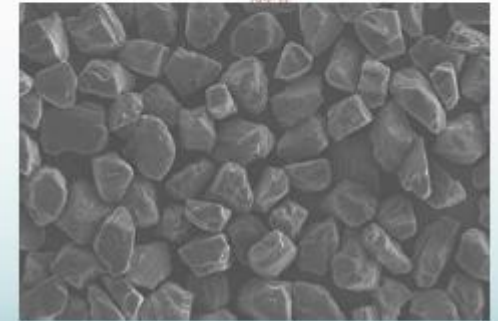
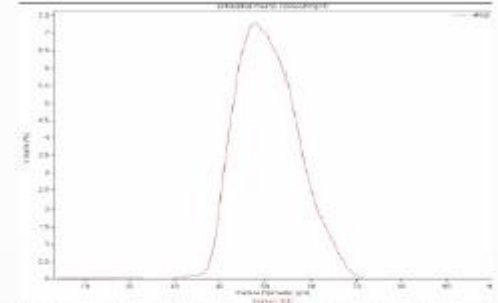


Control of shape



Analysis of PSD

Particle Diameter

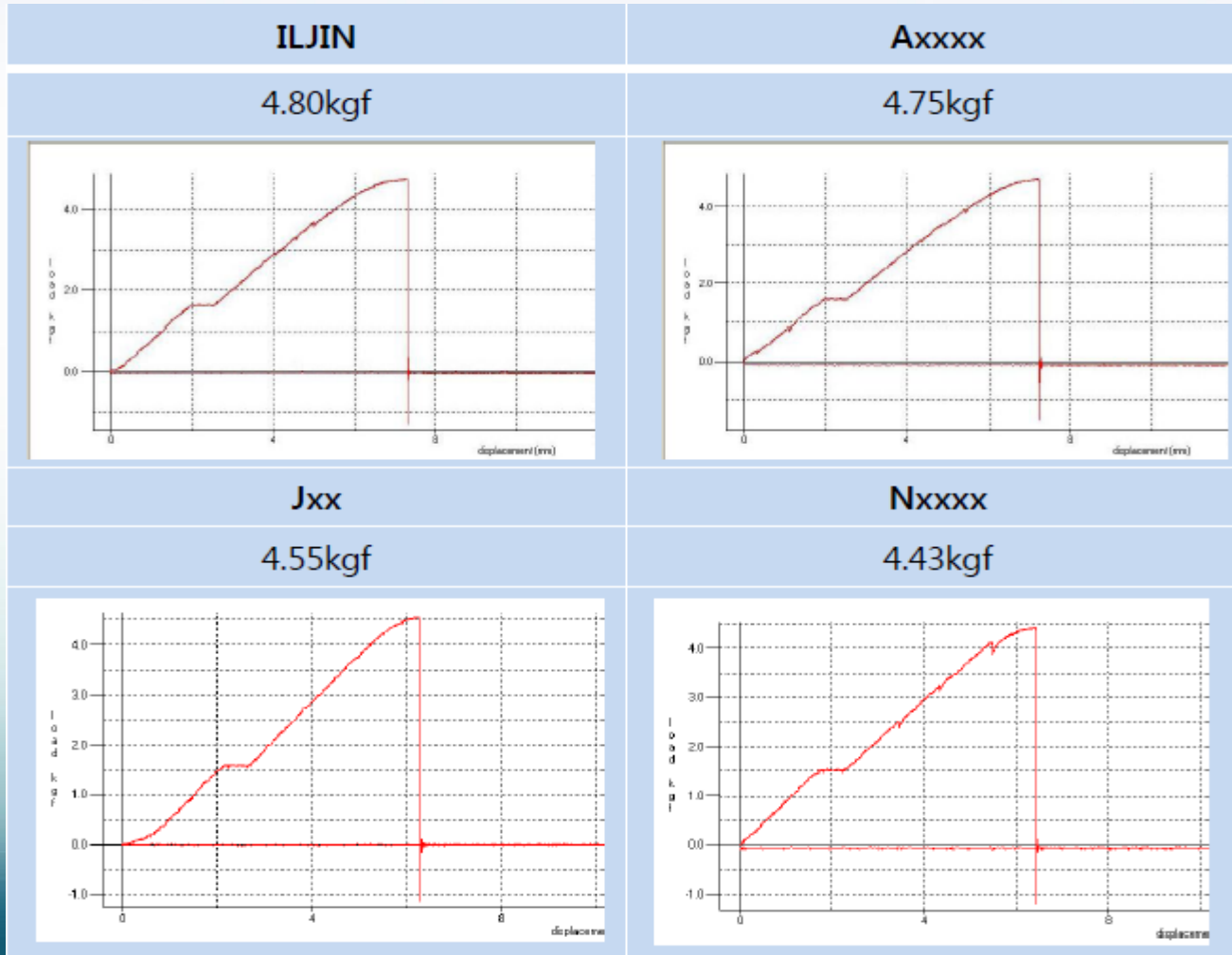


Strength of ILJIN Diamond

2. Core Wire (Tensile Strength) 軸線張力

-ILJIN Diamond wire is the world' s best use of raw materials. (Saw wire)

-使用全世界最好金鋼砂的素材



Strength of ILJIN Diamond

3. Quality Control (ex : DW-330) 品質控制

- In process Diamond Wire is monitored in real time for high quality product
- 在生產過程中監控金鋼砂黏附在軸線上的數量

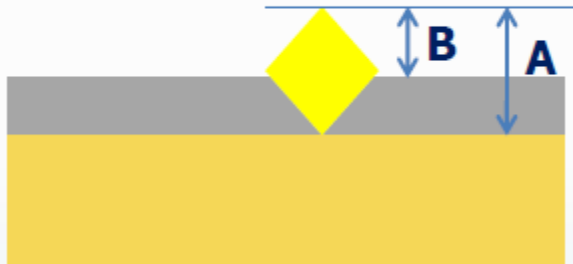


Strength of ILJIN Diamond

4. Electroplating Layer 電鍍層

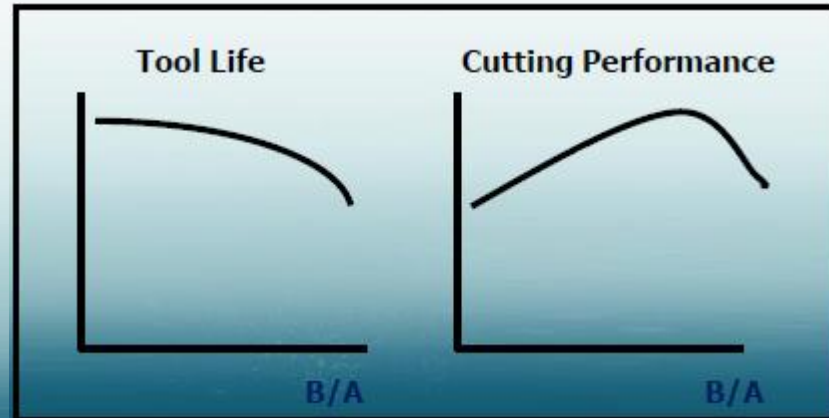
- Diameter of DW is managed under SEM and Vision System(利用SEM和可見系統管理)
- Have knowhow of properties of electroplating layer(擁有電鍍技術)

Optimized Diamond Height



- $B/A \uparrow$ = Cutting Performance $\uparrow$ = Tool Life $\downarrow$

- $B/A \downarrow$ = Cutting Performance $\downarrow$ = Tool Life $\uparrow$



ILJIN DW Strength

1

Abrasive

- Have manufacturing diamond know-how over 20years
- High quality DW is made by high quality diamond

2

Quality Control

- Real time monitoring system in process
- Strict Quality Management System

3

Feed Back

- Have performance evaluation in mass production



Thank You

