

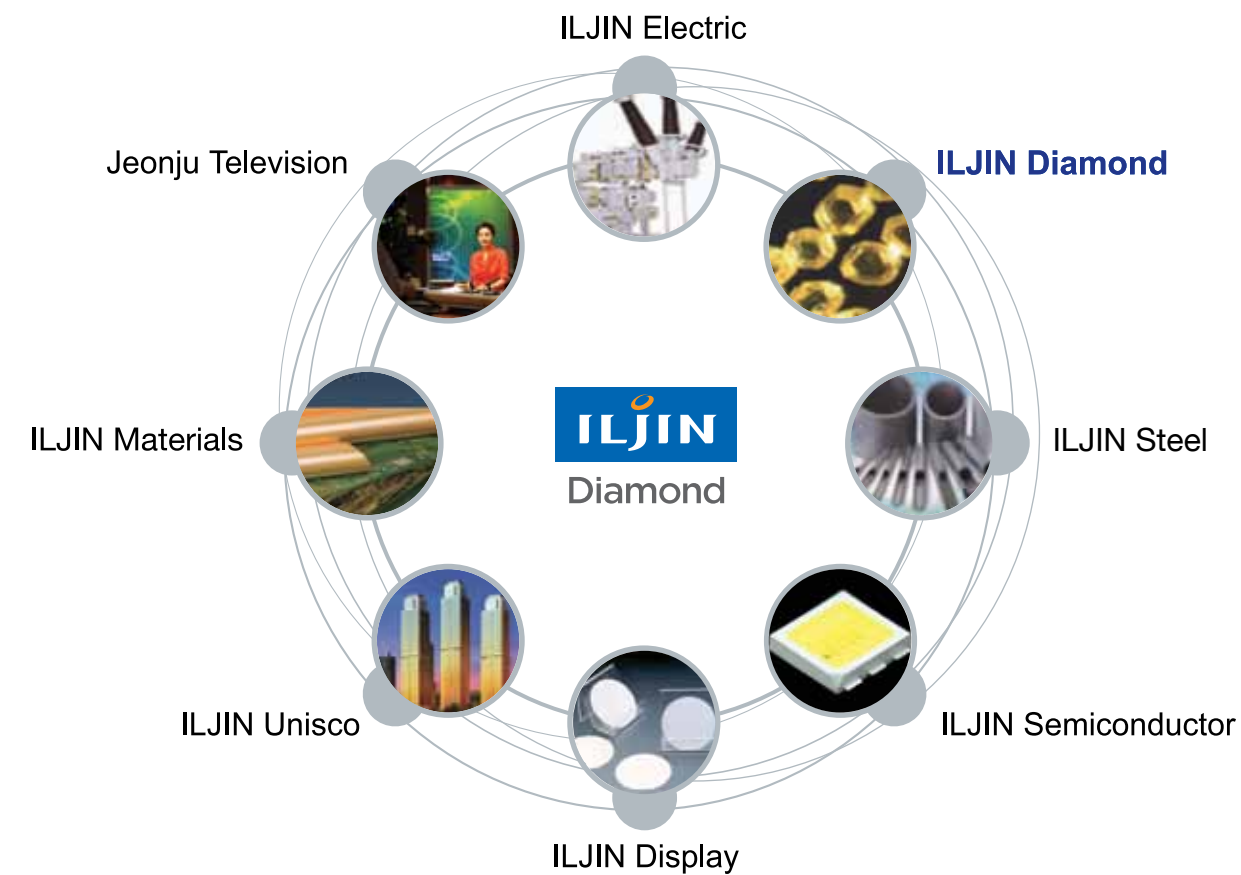
# About ILJIN GROUP

## Overview



Establishment	January 22, 1967
Head Office	Dohwa-dong, Mapo-gu, Seoul
Sales	Approx. \$2.5 Billion
Overseas Network	ILJIN USA, ILJIN CHINA, ILJIN EUROPE, ILJIN JAPAN
Employees	5,000

## Affiliated Companies



# Quality Control

□ 通过品质保证系统(ISO9001)环境管理标准(ISO14001)认证

□ 产品制造通过严格的检查系统

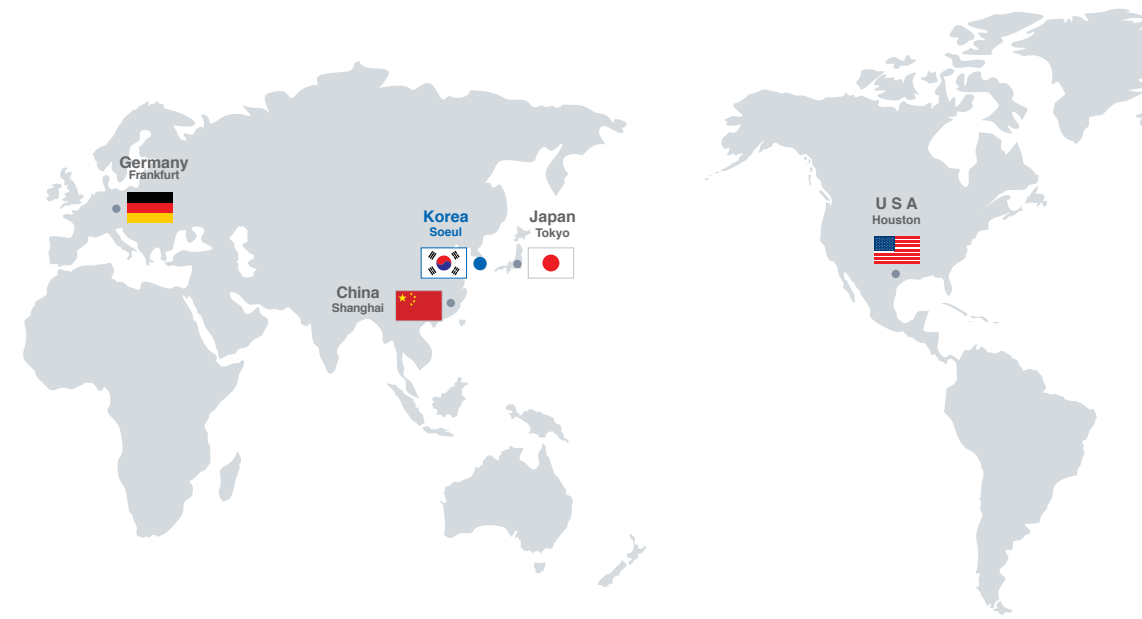


## Sales Network

### KOREA

Headquarters 5F, ILJIN Building 50-1, Dohwa-dong, Mapo-gu, Seoul, Korea  
TEL : +82-2-707-9086 FAX : +82-2-707-9378

Plant 614-2, Oryu-Ri, Daeso-Myun, Eumsung-Gun, Chungcheongbuk-Do, 369-820, Korea



North America **U.S.A**  
ILJIN USA Inc.  
652 N. Sam Houston Parkway E. Suite 140, Houston, TX77060 USA  
TEL : +1-281-448-5111 FAX : +1-281-448-5114

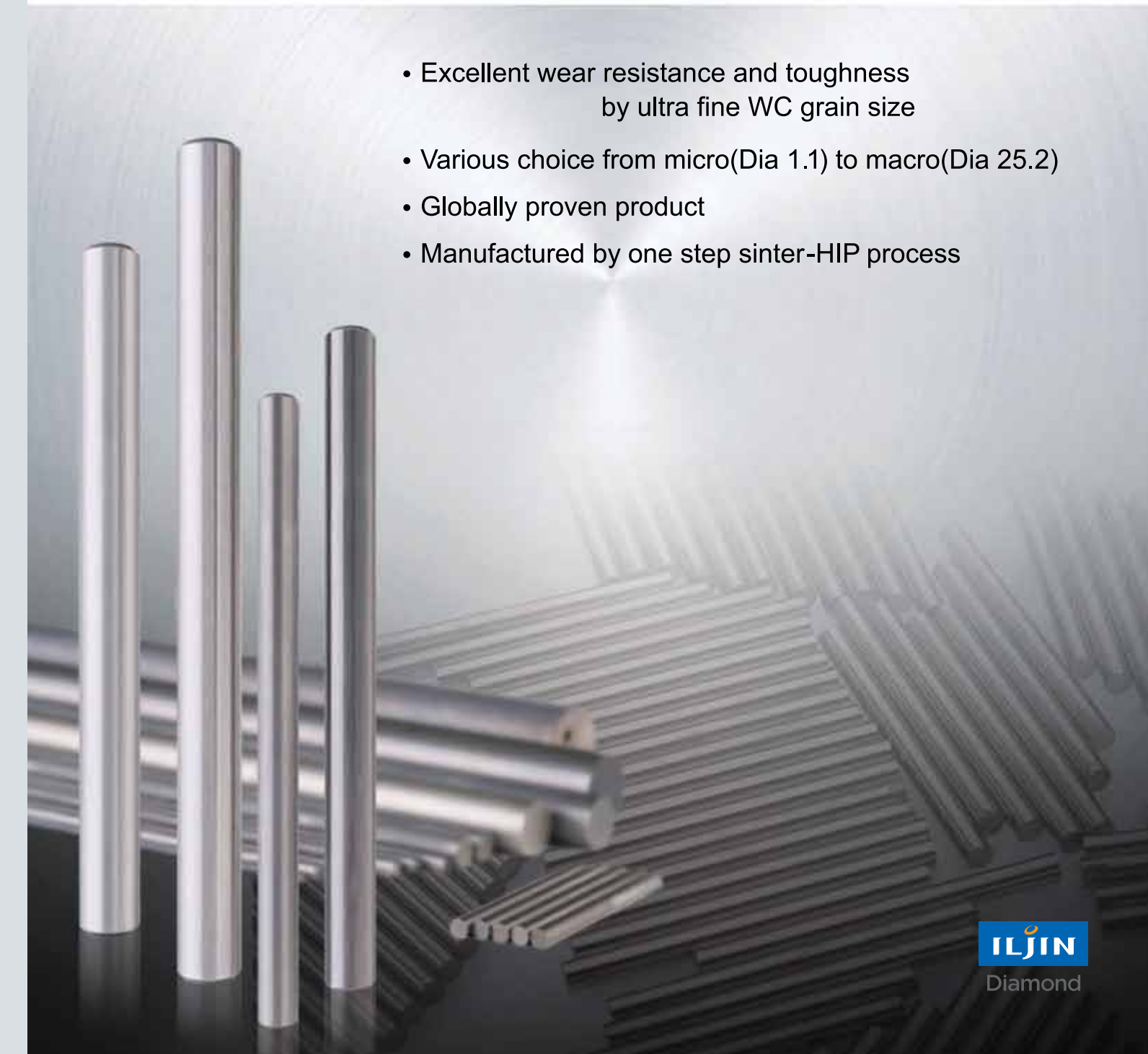
Europe **Germany**  
ILJIN EUROPE GmbH.  
Mergenthaler Allee 23/25, 65760 Eschborn, Germany  
TEL : +49-6196-88759-0 FAX : +49-6196-88759-20

East/Asia Pacific **JAPAN**  
ILJIN JAPAN Co., Ltd.  
Bejita Bldg. 4F, 2-7-7 Shibadaimon, Minato-ku, Tokyo, 105-0012 Japan  
TEL : +81-3-5405-2820 FAX : +81-3-5405-3577

**中国**  
意尽商贸上海有限公司  
上海市闵行区先锋街25号 宝纳大厦3楼C单元, 201103  
电话 : +86-21-61268711 传真 : +86-21-61268713



# TUNGSTEN CARBIDE RODS and BLANKS 硬质合金棒料



- Excellent wear resistance and toughness by ultra fine WC grain size
- Various choice from micro(Dia 1.1) to macro(Dia 25.2)
- Globally proven product
- Manufactured by one step sinter-HIP process





# Excellent Wear Resistance & Toughness by ultra fine grain size

## 规格说明和适用范围(Grade Specification and Application)

### MD

牌号	密度 (g/cm³)	硬度		抗弯强度 (Mpa)	晶粒度 (μm)	含钴量 (%)	适用范围	外径 (mm)
		HV	HRA					
N810X	14.55	1,980	94.0	4,300	0.3	7.5	PCB Micro Drill : < φ0.35	φ1.15~φ1.52
N810A	14.47	1,960	93.9	4,400	0.3	8.2	PCB Micro Drill : φ0.20~φ0.40	φ1.15~φ1.52
M710	14.61	1,930	93.8	4,100	0.5	7.5	PCB Micro Drill : > φ0.40	φ1.15~φ1.52
EF6A	14.75	2,020	94.2	3,700	0.5	6.0	PCB Router & End mill	φ3.30

### EDR

牌号	密度 (g/cm³)	硬度		抗弯强度 (Mpa)	晶粒度 (μm)	含钴量 (%)	适用范围	外径 (mm)
		HV	HRA					
EF8	14.57	1,920	93.8	4,050	0.5	8.0	End Mill, Drill HRC > 50 Steel, Cast iron, Al & Non-ferrous metal, Graphite & fiber reinforced materials Dental Bur	φ1.5~φ25.2
EF10	14.35	1,760	92.7	4,100	0.5	10.0	End Mill, Drill, Reamer HRC < 50 Steel, Cast iron, Stainless steel, Al & Non-ferrous metal, Graphite & fiber reinforced materials Dental Bur	φ1.5~φ25.2
EF12	14.15	1,640	92.1	4,200	0.5	12.0	End Mill, Drill, Reamer HRC < 45 Steel, Cast iron, Stainless steel, Al & Non-ferrous metal	φ2.2~φ25.2
ED6	14.59	1,790	92.8	3,000	0.8	6.5	End Mill & Drill for CVD Diamond Coating Non-ferrous & Non-metal materials(Graphite)	φ3.2~φ25.2
TH908	14.44	1,680	92.2	3,600	0.8	9.5	End Mill, Drill HRC < 45 Steel, Stainless steel, Non-ferrous metal	φ3.2~φ25.2

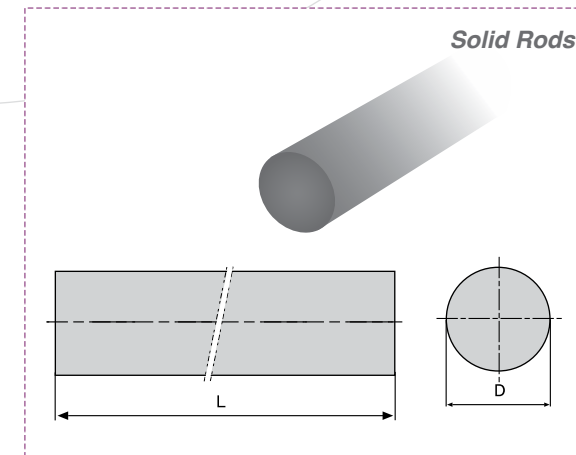
# Various choice from micro to macro

## 圆棒—长棒

外径	公差	长度	差
1.15		320	
1.30	+0.05	330	
1.50			
2.20		310	
3.20	+0.30	320	
4.20			
5.20	+0.40		
6.20			
7.20			
8.20	+0.45		
9.20			
10.20			
11.20			
12.20			
13.20			
14.20			
15.20	+0.55	310	
16.20		330	
17.20			
18.20			
19.20			
20.20			
21.20			
22.20			
23.20	+0.65		
24.20			
25.20			

unit:mm

+10.0



## 圆棒—短棒

外径	差	长度	差	加工
3.21				
3.25	±0.01	38.5	±0.1	Ground
3.30	±0.04			Unground
3.0~25.0	h6	38~150	+1.0	Ground

unit:mm

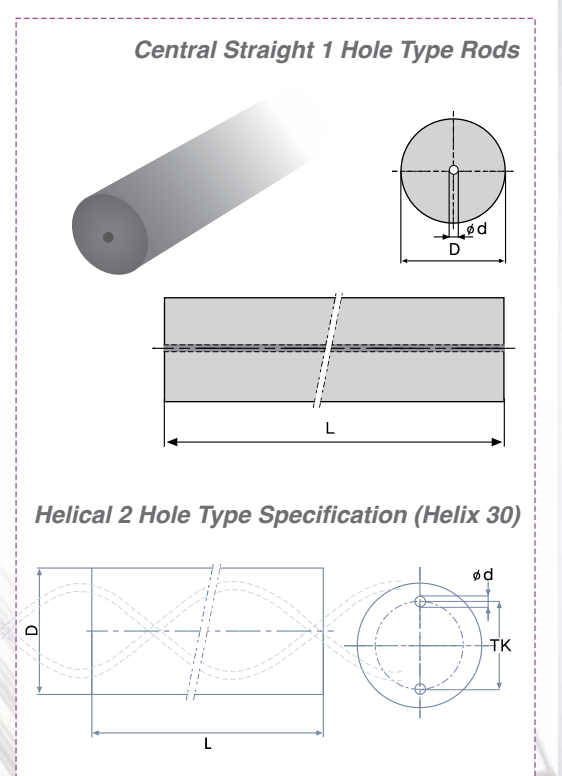
Available size : dia 1.1 to dia 25.2

# Proven Performance & Quality

## 单孔直孔圆棒

外径	公差	内径	公差	牌号	
				EF10	EF12
3.3	+0.3/0.0	0.8	±0.15		○
5.3		1.0			○
6.3	+0.4/0.0	1.5		○	○
8.3		1.5		○	○
10.3		1.5	±0.20	○	○
10.3	+0.5/0.0	2.0		○	○
12.3		2.0		○	○
14.3		2.0		○	○
16.3	+0.6/0.0	2.0		○	○

unit:mm



## 双孔直孔圆棒

外径	公差	双孔孔距	公差	内径	公差	牌号	
						EF10	EF12
6.3						○	○
8.3	+0.4/0.0	2.4	±0.2	1.0	±0.15	○	○
10.3	+0.5/0.0	2.6				○	○
12.3		3.7	○	○			
14.3	+0.6/0.0	5.0	○	○			
16.3				1.5		○	○

unit:mm

## 30° 双孔螺旋圆棒 (Helix 30)

外径	公差	双孔孔距	公差	内径	公差	螺距长度	公差	牌号		
								EF10	EF12	
4.3	+0.50	1.7		0.6		21.75			○	
6.3		2.4	±0.2	0.7	±0.15	32.65	±1.5	○	○	
7.3		3.5		1		38.09		○	○	
8.3		3.5	1	43.53		○		○		
9.3	+0.60	4.5		1.4		48.97			○	○
10.3		4.5	±0.3	1.4	±0.2	54.41	±2	○	○	
11.3		4.9		1.4		59.86		○	○	
12.3	+0.90	5.85		1.4		65.30			○	○
13.3		6.1	±0.4	1.75		70.74			○	○
14.3		6.7		1.75	76.20		○	○		
15.3	+1.00	7.3			1.75	81.62		○	○	
16.3		7.9			1.75	87.06		○	○	

unit:mm