



Fort Wayne Wire Die

Nano Diamond Coated Dies

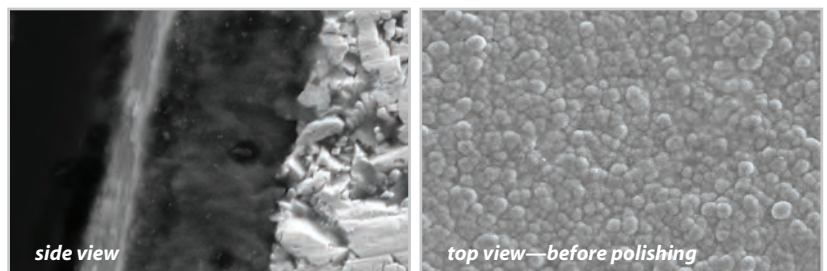
a Revolutionary Wear Resistance in Unprecedented Sizes—
the Optimum Choice for Drawing or Stranding Large Diameter Wire and Cable



A 'QUANTUM' LEAP FORWARD in Wire and Cable Production



Fort Wayne Wire Die's Nano Diamond Coated Dies (Nano DCDs) introduce a completely new advancement in die-surface technology that yields an incredibly smooth wire finish, with minimal generation of fines, in hole sizes as large as an unprecedented 100 millimeters (3.9 inches)—making Nano DCDs an ideal solution for stranding, bunching and compacting applications of conductor cable.

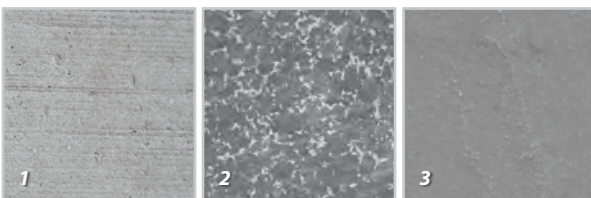


Nano DCDs feature a 30 micron-thick layer of nanocrystalline diamond particles coated over a tungsten-carbide substrate. Remarkably uniform in their small grain size ($0.05 \mu\text{m}$) and directional orientation, and locked together in a tight pattern, these nano-diamond particles maintain exceptional wear resistance, while minimizing die-pull friction.

Unlike other die materials, Nano DCDs:

- Superior surface finish minimizes wire deformation forces for optimum cable conductivity and reduced fines and dust
- Maintain a constant hole size throughout its life
- Eliminate die wear for huge potential savings in raw material cost
- Extend die life at least 10x longer than tungsten carbide
- Offer the broadest range of sizes for stranding applications—up to 100mm (3.9 inches)

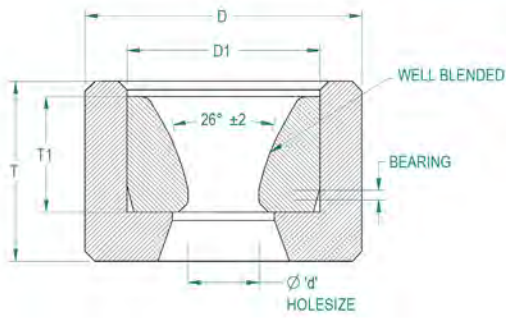
Nano DCD dies are also excellent for the dry drawing of steel wire. See your FWWD salesperson for details.



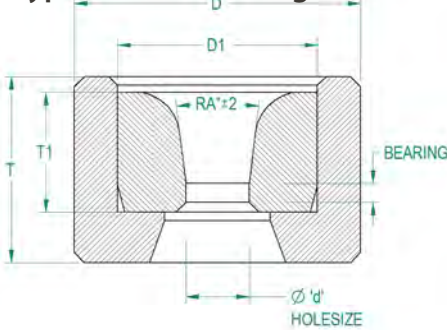
Comparison of polished die surface finishes of (1) tungsten carbide, (2) polycrystalline diamond and (3) nano DCD material at 1000x magnification.

Nano DCD / SPECIFICATIONS

Typical Compacting Die Profile



Typical Steel Drawing Die Profile



Standard Product Dimensions

INCH			
HOLE SIZE		Nib Size D1 x T1	STD Casing D x T
Minimum	Maximum		
.031	.046	.47 x .31	1.10 x .59
.047	.077	.51 x .31	1.18 x .59
.078	.137	.59 x .51	1.38 x .94
.138	.216	.79 x .67	1.38 x .94
.217	.314	.87 x .71	1.69 x 1.06
.315	.472	1.18 x .71	1.69 x 1.06
.473	.590	1.50 x .94	1.97 x 1.18
.591	.865	1.77 x .94	2.36 x 1.18
.866	1.101	1.97 x 1.10	2.75 x 1.57
1.102	1.416	2.36 x 1.18	3.15 x 1.57
1.417	1.968	3.15 x 1.38	3.94 x 1.97
1.969	2.362	3.54 x 1.57	4.33 x 1.97
2.363	2.755	3.94 x 1.57	5.12 x 1.97
2.756	3.345	4.72 x 1.77	5.90 x 2.16
3.346	3.739	5.12 x 1.97	6.30 x 2.36
3.740	3.937	5.51 x 1.97	6.69 x 2.36

MILLIMETER			
HOLE SIZE		Nib Size D1 x T1	STD Casing D x T
Minimum	Maximum		
0.80	1.19	12 x 8	28 x 15
1.20	1.99	13 x 8	30 x 15
2	3.49	15 x 13	35 x 24
3.5	5.49	20 x 17	35 x 24
5.5	7.99	22 x 18	43 x 27
8	11.99	30 x 18	43 x 27
12	14.99	38 x 24	50 x 30
15	21.99	45 x 24	60 x 30
22	27.99	50 x 28	70 x 40
28	35.99	60 x 30	80 x 40
36	49.99	80 x 35	100 x 50
50	59.99	90 x 40	110 x 50
60	69.99	100 x 40	130 x 50
70	84.99	120 x 45	150 x 55
85	94.99	130 x 50	160 x 60
95	100	140 x 50	170 x 60

Choosing the Right Stranding Die

Getting the optimum performance efficiency out of your stranding, bunching and compacting wire applications depends on your die specifications for size, wire surface finish, die life and a number of other variables.

This chart provides a great starting point. But to ensure you order the ideal die solution to meet your stranding wire application, talk to your representative from Fort Wayne Wire Die—the leaders in wire die technology since 1937.



Stranding Die Selection Chart

Material Characteristics	Tungsten Carbide (WC)	Solid PCD	WC Split Stranding	Nano DCD Diamond Coated Dies
Die Wear Resistance	1	20 X+	1	10 X+
Wire Surface Finish	1 Good	1.5 X Better	0.8 X Good	2 X Best
Maximum Hole Diameter	52 mm 2.05"	33 mm 1.30"	44.5 mm 1.75"	100 mm 3.93"
Die Pull Resistance	Good	Better	Good	Best
Die Cost	1	8–12 X	3–5 X	4–5 X
Grain Size	1 um	5–25 um	1 um	0.05 um
Generation of Fines/Dust	Good	Better	Good	Best
Recutability	Yes	Yes	Yes	No
Ability to Change Die w/o Cutting Wire	No	No	Yes	No
Total Cost of Ownership— <i>Long production run—including raw material waste</i>	Poor	Best	Good	Better

the Most Comprehensive Support

Along with exceptional applications support, only FWWD offers you a technically sound and highly cost-effective die program that's developed just for your needs. It includes:

- Applications consulting
- Computerized die inventory management
- Die recutting services
- Educational seminars and other employee training tools

—and more



Operating from facilities in the United States, Canada, Mexico, Germany, China and the Philippines and through representative offices located throughout the world, Fort Wayne Wire Die brings global expertise to service its international customer base. Experienced people and innovative ISO 9001-registered processes build quality assurance into every die. When you need great wire, begin with one call to **Fort Wayne Wire Die**—*your source for innovative, global solutions to wire drawing needs.*



Fort Wayne Wire Die



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