



ESTEVES  
GROUP

www.estevesgroup.com

# Polycrystalline diamond dies

## Wire drawing dies



## Highlights

- Long lasting tooling, ideal for long production runs
- Wire remains round, even with significant wear
- Wire surface quality matching your requirements
- High-accuracy dies available
- From .00157-1.378" [0.040 to 35 mm]

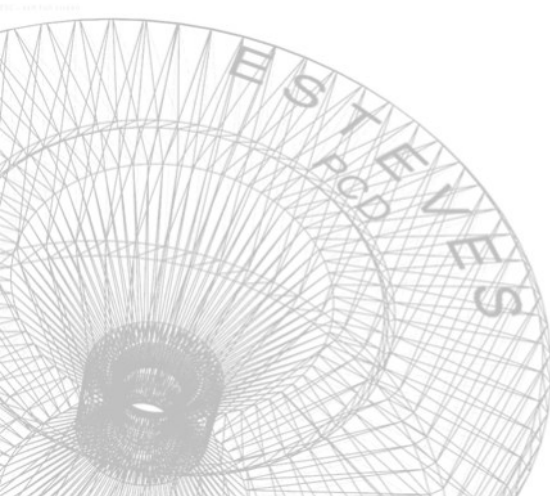
**High performance polycrystalline diamond dies allow wire manufacturers to meet quality, uptime and speed standards.**

Wire drawing dies are commonly used to reduce the diameter of various ferrous and non-ferrous rods and wires. Applications include high, medium and low voltage cables, automotive, medical wire, superconducting, bonding, and welding wires.

**Esteves Group** polycrystalline diamond drawing dies (PCD dies) give the wire manufacturer the ability to maintain uniform wire roundness and minimize material usage.

Polycrystalline diamond dies enable a long drawing die life even at high process speeds and high demanding applications. Esteves Group PCD drawing dies are manufactured with a mirror polish and a smooth wire entry to ensure optimal die life and string-up.

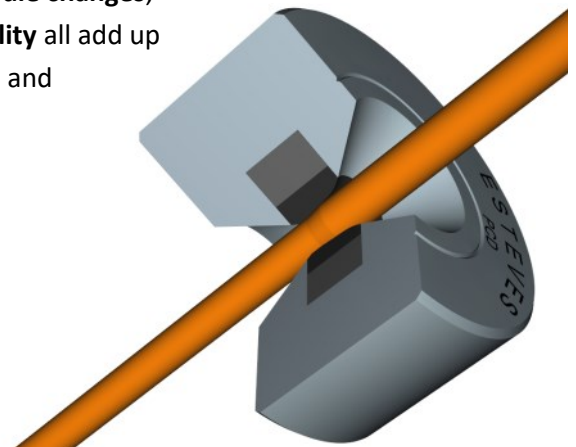
**Esteves Group offers a complete line of PCD drawing dies for rod-size down to fine wire.**



## We Specialize in...

- Wire Drawing Dies
- Bunching, Stranding & Compacting Dies
- Split Dies
- Tubing Dies
- Shaped Dies
- Extrusion Tooling
- Die Reconditioning Tools
- Engineering Services
- Customer Support

Higher **throughput**, **fewer die changes**, **less scrap**, and **higher quality** all add up to more profit for the wire and cable manufacturer.





# Polycrystalline diamond dies

## Wire drawing dies

www.estevesgroup.com



Blank Type <sup>1</sup>	Self-Supported (without support ring)				Thermally stable self-Supported (without support ring)			
ADDMA size	D6	D12	D15	D18	D6	D12	D15	D18
<b>S - Maximum recommended die hole diameter when drawing soft wire - inches [millimeters]</b>								
max. new diameter <sup>2</sup>	.0197 [0.5]	.0394 [1.0]	.0591 [1.5]	.0787 [2.0]	.0197 [0.5]	.0394 [1.0]	.0591 [1.5]	.0787 [2.0]
max. recut diameter <sup>3</sup>	.0394 [1.0]	.0551 [1.4]	.0866 [2.2]	.1102 [2.8]	.0394 [1.0]	.0551 [1.4]	.0866 [2.2]	.1102 [2.8]
<b>H - Maximum recommended die hole diameter when drawing hard wire - inches [millimeters]</b>								
max. new diameter <sup>2</sup>	.0138 [0.4]	.0276 [0.7]	.0413 [1.1]	.0551 [1.4]	.0138 [0.4]	.0276 [0.7]	.0413 [1.1]	.0551 [1.4]
max. recut diameter <sup>3</sup>	.0276 [0.7]	.0386 [1.0]	.0606 [1.5]	.0772 [2.0]	.0276 [0.7]	.0386 [1.0]	.0606 [1.5]	.0772 [2.0]
<b>Grain Size (µm)</b>								
1	D6-N1	D12-N1	D15-N1	D18-N1	D6-T1	D12-T1	D15-T1	D18-T1
3	-	-	-	-	-	-	-	-
5	D6-N5	D12-N5	D15-N5	D18-N5	D6-T5	D12-T5	D15-T5	D18-T5
12	D6-N12	D12-N12	D15-N12	D18-N12	D6-T12	D12-T12	D15-T12	D18-T12
25	D6-N25	D12-N25	D15-N25	D18-N25	D6-T25	D12-T25	D15-T25	D18-T25
50	-	-	-	-	-	-	-	-
<b>Standard casing dimensions <sup>4</sup></b>								
diameter x height [inch]	1 1/8 x 3/8	1 1/8 x 3/8	1 1/8 x 1/2	1 1/8 x 1/2	1 1/8 x 3/8	1 1/8 x 3/8	1 1/8 x 1/2	1 1/8 x 1/2
diameter x height [mm]	28 x 8	28 x 10	28 x 12	28 x 15	28 x 8	28 x 10	28 x 12	28 x 15

Blank Type <sup>1</sup>	Supported (with tungsten carbide support ring)							
ADDMA size	D12	D15	D18	D21	D24	D24	D27	D27
<b>S - Maximum recommended die hole diameter when drawing soft wire - inches [millimeters]</b>								
max. new diameter <sup>2</sup>	.0315 [0.8]	.0709 [1.8]	.0906 [2.3]	.1378 [3.5]	.1811 [4.6]	.2047 [5.2]	.2126 [5.4]	.2283 [5.8]
max. recut diameter <sup>3</sup>	.0394 [1.0]	.0866 [2.2]	.0945 [2.4]	.1457 [3.7]	.1969 [5.0]	.2362 [6.0]	.2362 [6.0]	.2953 [7.5]
<b>H - Maximum recommended die hole diameter when drawing hard wire - inches [millimeters]</b>								
max. new diameter <sup>2</sup>	.0220 [0.6]	.0496 [1.3]	.0634 [1.6]	.0965 [2.5]	.1268 [3.2]	.1433 [3.6]	.1488 [3.8]	.1598 [4.1]
max. recut diameter <sup>3</sup>	.0276 [0.7]	.0606 [1.5]	.0661 [1.7]	.1020 [2.6]	.1378 [3.5]	.1654 [4.2]	.1654 [4.2]	.2067 [5.3]
<b>Grain Size (µm)</b>								
1	D12-S1	D15-S1	D18-S1	-	-	-	-	-
3	D12-S3	D15-S3	D18-S3	D21-S3	D24-S3	-	-	-
5	D12-S5	D15-S5	D18-S5	D21-S5	D24-S5	-	D27d-S5	D27-S5
12	D12-S12	D15-S12	D18-S12	D21-S12	D24-S12	-	D27d-S12	D27-S12
25	D12-S25	D15-S25	D18-S25	D21-S25	D24-S25	D24c-S25	D27d-S25	D27-S25
50	-	D15-S50	D18-S50	D21-S50	D24-S50	D24c-S50	-	D27-S50
<b>Standard casing dimensions <sup>4</sup></b>								
diameter x height [inch]	1 1/8 x 3/8	1 1/8 x 1/2	1 1/8 x 1/2	1 1/8 x 5/8	1 1/8 x 5/8	1 1/8 x 5/8	1 1/2 x 7/8	1 1/2 x 7/8
diameter x height [mm]	28 x 10	28 x 12	28 x 15	28 x 15	28 x 15	28 x 15	43 x 27	43 x 27



# Polycrystalline diamond dies

## Wire drawing dies

www.estevesgroup.com



Blank Type <sup>1</sup>	Supported (with tungsten carbide support ring)								
ADDMA size	D30	D33	D33	D36	D36	D36	D39	D39	D39
<b>S - Maximum recommended die hole diameter when drawing soft wire - inches [millimeters]</b>									
max. new diameter <sup>2</sup>	.2992 [7.6]	.4409 [11.2]	.4724 [12.0]	.4921 [12.5]	.5000 [12.7]	.6181 [15.7]	.7480 [19.0]	1.0118 [25.7]	1.1417 [29.0]
max. recut diameter <sup>3</sup>	.3150 [8.0]	.4803 [12.2]	.5118 [13.0]	.5315 [13.5]	.5315 [13.5]	.7480 [19.0]	.8268 [21.0]	1.1811 [30.0]	1.3780 [35.0]
<b>H - Maximum recommended die hole diameter when drawing hard wire - inches [millimeters]</b>									
max. new diameter <sup>2</sup>	.2094 [5.3]	.3087 [7.8]	.3307 [8.4]	.3445 [8.8]	.3500 [8.9]	.4327 [11.0]	.5236 [13.3]	.7083 [18.0]	.7992 [20.3]
max. recut diameter <sup>3</sup>	.2205 [5.6]	.3362 [8.5]	.3583 [9.1]	.3720 [9.5]	.3720 [9.5]	.5236 [13.3]	.5787 [14.7]	.8268 [21.0]	.9646 [24.5]
<b>Grain Size (µm)</b>									
1	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-
5	D30-S5	-	-	-	-	-	-	-	-
12	D30-S12	-	-	-	-	-	-	-	-
25	D30-S25	D30c-S25	D33b-S25	D33c-S25	D36-S25	D36c-S25	D36d-S25	D39-S25	D39b-S25
50	D30-S50	-	-	-	-	-	-	-	-
<b>Standard casing dimensions <sup>4</sup></b>									
diameter x height [inch]	1 1/2 x 7/8	1 1/2 x 7/8	1 1/2 x 7/8	1 1/2 x 7/8	2 x 1 1/8	2 x 1 1/8	2 x 1 1/8	3 x 1 3/16	3 x 1 3/16
diameter x height [mm]	43 x 27	43 x 27	75 x 40	75 x 40	made to order	made to order	made to order	made to order	made to order

<sup>1</sup> Operating temperature for thermally stable blanks should not exceed 1562°F (850°C). Operating temperature should not exceed 1202°F (650°C) for all other blanks.

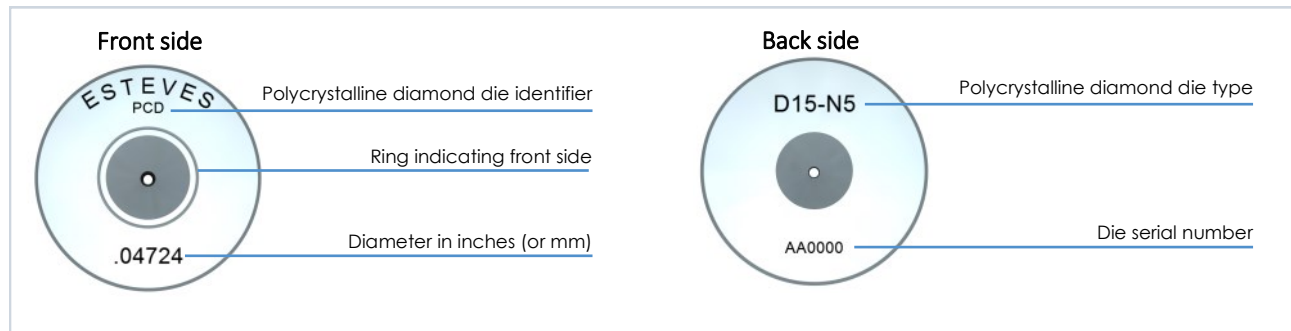
<sup>2</sup> Maximum recommended diameters for new dies are advised by die blank supplier

<sup>3</sup> Maximum recommended diameters for recut dies are calculated for 21% wire elongation with the following geometries:

- soft wire: reduction angle: 18°, bearing length=30%
- hard wire: reduction angle: 12°, bearing length=30%

<sup>4</sup> Other casing dimensions are available on request

### STANDARD PRODUCT CODING



Please contact Esteves Group for any special engraving requirements.



# Polycrystalline diamond dies

## Wire drawing dies

### Key Features

- Usable for dry and wet draw
- Available in any casing size
- Various grain sizes available
- Dies available for high temperature applications
- High-accuracy dies available

### Benefits

- Long lasting tooling (outlasts tungsten carbide and single crystal dies)
- Ideal for long production runs and high abrasive wire materials
- Wire remains round, even with significant wear
- Tailored to wire surface requirements (quality wire surface when required)
- Predictable cast & helix when required

### PCD Wire Drawing Die Standard Tolerances

Diameter	Imperial tolerances [inch]		Diameter	Metric tolerances [mm]	
	Tolerance	Max. ovality		Tolerance	Max. ovality
.0008 - .0010	+0 / -.00001	.00001	0.021 - 0.025	+0 / -0.0003	0.0002
.0011 - .0020	+0 / -.00002	.00001	0.026 - 0.050	+0 / -0.0004	0.0003
.0021 - .0030	+0 / -.00002	.00002	0.051 - 0.075	+0 / -0.0006	0.0004
.0031 - .0040	+0 / -.00003	.00002	0.076 - 0.100	+0 / -0.0008	0.0004
.0041 - .0080	+0 / -.00004	.00004	0.101 - 0.200	+0 / -0.001	0.001
.0081 - .0200	+0 / -.00008	.00006	0.201 - 0.500	+0 / -0.002	0.0015
.0201 - .0390	+0 / -.00012	.00008	0.501 - 1.000	+0 / -0.003	0.002
.0391 - .0790	+0 / -.00016	.00010	1.001 - 2.000	+0 / -0.004	0.0025
.0791 - .1380	+0 / -.00020	.00012	2.001 - 3.500	+0 / -0.005	0.003
.1381 - .2170	+0 / -.00024	.00014	3.501 - 5.500	+0 / -0.006	0.0035
.2171 - .3150	+0 / -.00028	.00016	5.501 - 8.000	+0 / -0.007	0.004
.3151 - .3940	+0 / -.00031	.00016	8.001 - 10.00	+0 / -0.008	0.004
.3941 - .4720	+0 / -.00039	.00020	10.001 - 12.0	+0 / -0.010	0.005
.4721 - .5910	+0 / -.00047	.00024	12.001 - 15.0	+0 / -0.012	0.006
.5911 - .7090	+0 / -.00055	.00028	15.001 - 18.0	+0 / -0.014	0.007
.7091 - .8270	+0 / -.00063	.00031	18.001 - 21.0	+0 / -0.016	0.008
.8271 - .9450	+0 / -.00071	.00035	21.001 - 24.0	+0 / -0.018	0.009
.9451 - 1.378	+0 / -.00079	.00039	24.001 - 35.0	+0 / -0.020	0.010

Tighter tolerances are available when required

More drawing die types, cabling tooling, and extrusion tools are available. Please contact **Esteves Group** for a quotation for your wire and cable tooling.

Drawing, and cabling tooling below:  
TC dies, SSCD dies, ND dies, bunching and stranding dies, split dies, extrusion tools

