



ESTEVES  
GROUP

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# 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 0.040 to 35 mm

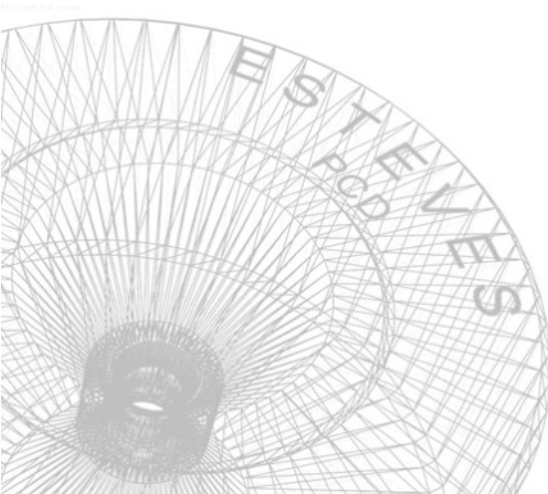
**High performance polycrystalline diamond dies allow wire manufacturers to meet quality, uptime and speed standards.**

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.

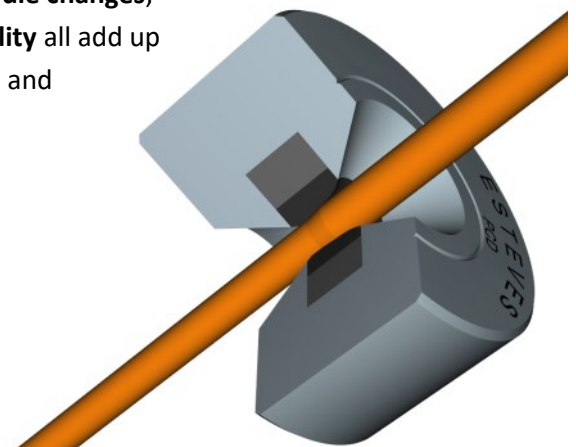
**Esteves Group offers a complete line of PCD drawing dies for rod-size down to fine wire.**



## 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

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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 - millimeters</b>								
max. new diameter <sup>2</sup>	0.5	1.0	1.5	2.0	0.5	1.0	1.5	2.0
max. recut diameter <sup>3</sup>	1.0	1.4	2.2	2.8	1.0	1.4	2.2	2.8
<b>H - Maximum recommended die hole diameter when drawing hard wire - millimeters</b>								
max. new diameter <sup>2</sup>	0.4	0.7	1.1	1.4	0.4	0.7	1.1	1.4
max. recut diameter <sup>3</sup>	0.7	1.0	1.5	2.0	0.7	1.0	1.5	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 [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	D27	D30	D33
<b>S - Maximum recommended die hole diameter when drawing soft wire - millimeters</b>								
max. new diameter <sup>2</sup>	0.8	1.8	2.3	3.5	4.6	5.8	7.6	10.5
max. recut diameter <sup>3</sup>	1.0	2.2	2.4	3.7	5.0	7.5	8.0	11.0
<b>H - Maximum recommended die hole diameter when drawing hard wire - millimeters</b>								
max. new diameter <sup>2</sup>	0.6	1.3	1.6	2.5	3.2	4.1	5.3	7.4
max. recut diameter <sup>3</sup>	0.7	1.5	1.7	2.6	3.5	5.3	5.6	7.7
<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	D27-S5	D30-S5	-
12	D12-S12	D15-S12	D18-S12	D21-S12	D24-S12	D27-S12	D30-S12	D33-S12
25	D12-S25	D15-S25	D18-S25	D21-S25	D24-S25	D27-S25	D30-S25	D33-S25
50	-	D15-S50	D18-S50	D21-S50	D24-S50	D27-S50	D30-S50	-
<b>Standard casing dimensions <sup>4</sup></b>								
diameter x height [mm]	28 x 10	28 x 12	28 x 15	28 x 15	28 x 15	43 x 27	43 x 27	75 x 40

<sup>1</sup> Operating temperature for thermally stable blanks should not exceed 850°C. Operating temperature should not exceed 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



# 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

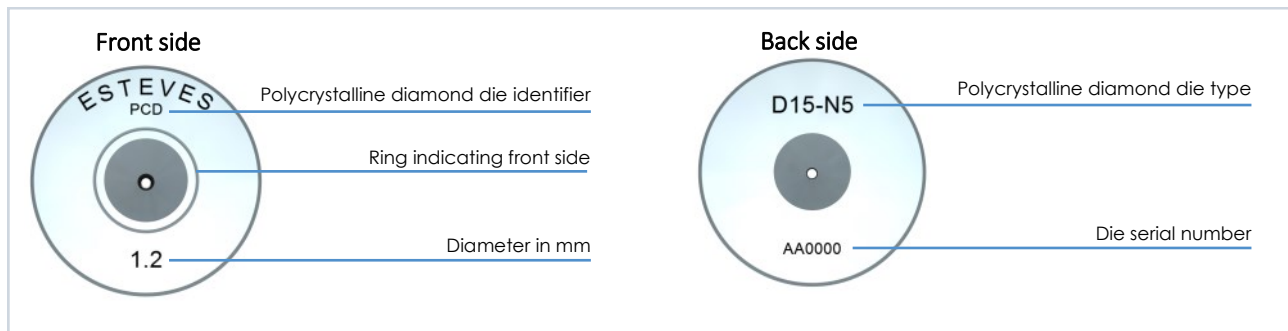
### PCD Wire Drawing Die Standard Tolerances

Metric tolerances [mm]			Metric tolerances [mm]		
Diameter	Tolerance	Max. ovality	Diameter	Tolerance	Max. ovality
0.021 - 0.025	+0 / -0.0003	0.0002	3.501 - 5.500	+0 / -0.006	0.0035
0.026 - 0.050	+0 / -0.0004	0.0003	5.501 - 8.000	+0 / -0.007	0.004
0.051 - 0.075	+0 / -0.0006	0.0004	8.001 - 10.00	+0 / -0.008	0.004
0.076 - 0.100	+0 / -0.0008	0.0004	10.001 - 12.0	+0 / -0.010	0.005
0.101 - 0.200	+0 / -0.001	0.001	12.001 - 15.0	+0 / -0.012	0.006
0.201 - 0.500	+0 / -0.002	0.0015	15.001 - 18.0	+0 / -0.014	0.007
0.501 - 1.000	+0 / -0.003	0.002	18.001 - 21.0	+0 / -0.016	0.008
1.001 - 2.000	+0 / -0.004	0.0025	21.001 - 24.0	+0 / -0.018	0.009
2.001 - 3.500	+0 / -0.005	0.003	24.001 - 35.0	+0 / -0.020	0.010

Continued ⇨

Tighter tolerances are available when required

### STANDARD PRODUCT CODING



Please contact Esteves Group for any special engraving requirements.

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





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