



Polycrystalline diamond dies

Wire drawing dies



www.estevesgroup.com



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.

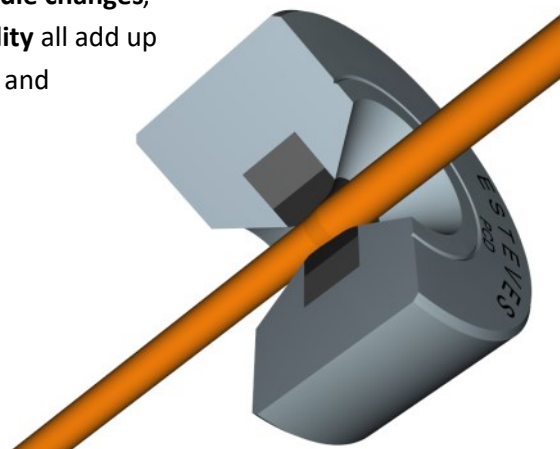
Polycrystalline diamond dies enable a long drawing die life even at high process speeds and high demanding applications. Esteves Group PCD drawing dies are manufactured with a mirror polish and a smooth wire entry to ensure optimal die life and string-up.

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.





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Blank Type ¹	Self-Supported (without support ring)				Thermally stable self-Supported (without support ring)			
ADDMA size	D6	D12	D15	D18	D6	D12	D15	D18
S - Maximum recommended die hole diameter when drawing soft wire - inches [millimeters]								
max. new diameter ²	.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 ³	.0394 [1.0]	.0551 [1.4]	.0866 [2.2]	.1102 [2.8]	.0394 [1.0]	.0551 [1.4]	.0866 [2.2]	.1102 [2.8]
H - Maximum recommended die hole diameter when drawing hard wire - inches [millimeters]								
max. new diameter ²	.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 ³	.0276 [0.7]	.0386 [1.0]	.0606 [1.5]	.0772 [2.0]	.0276 [0.7]	.0386 [1.0]	.0606 [1.5]	.0772 [2.0]
Grain Size (µm)								
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	-	-	-	-	-	-	-	-
Standard casing dimensions⁴								
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 ¹	Supported (with tungsten carbide support ring)							
ADDMA size	D12	D15	D18	D21	D24	D24	D27	D27
S - Maximum recommended die hole diameter when drawing soft wire - inches [millimeters]								
max. new diameter ²	.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 ³	.0394 [1.0]	.0866 [2.2]	.0945 [2.4]	.1457 [3.7]	.1969 [5.0]	.2362 [6.0]	.2362 [6.0]	.2953 [7.5]
H - Maximum recommended die hole diameter when drawing hard wire - inches [millimeters]								
max. new diameter ²	.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 ³	.0276 [0.7]	.0606 [1.5]	.0661 [1.7]	.1020 [2.6]	.1378 [3.5]	.1654 [4.2]	.1654 [4.2]	.2067 [5.3]
Grain Size (µm)								
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
Standard casing dimensions⁴								
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



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Blank Type ¹	Supported (with tungsten carbide support ring)								
ADDMA size	D30	D33	D36	D39					
S - Maximum recommended die hole diameter when drawing soft wire - inches [millimeters]									
max. new diameter ²	.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 ³	.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]
H - Maximum recommended die hole diameter when drawing hard wire - inches [millimeters]									
max. new diameter ²	.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 ³	.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]
Grain Size (µm)									
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	-	-	-	-	-	-	-	-
Standard casing dimensions⁴									
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

¹ 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.

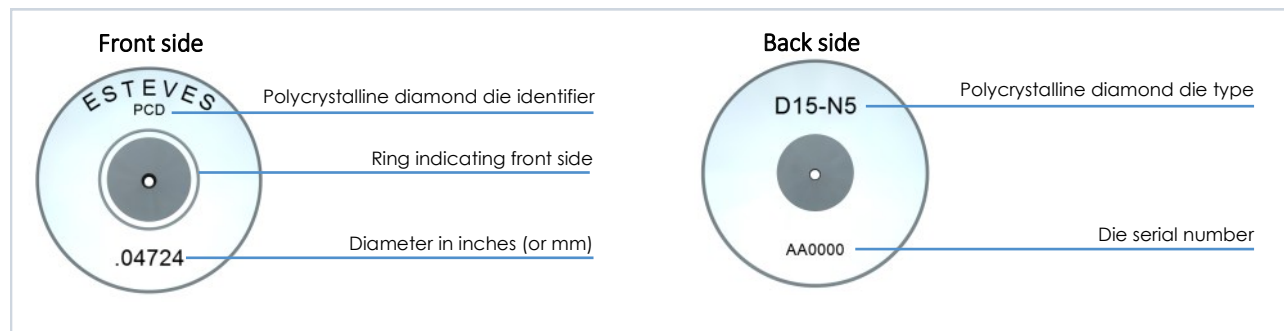
² Maximum recommended diameters for new dies are advised by die blank supplier

³ 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%

⁴ Other casing dimensions are available on request

STANDARD PRODUCT CODING



Please contact Esteves Group for any special engraving requirements.



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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

Imperial tolerances [inch]			Metric tolerances [mm]		
Diameter	Tolerance	Max. ovality	Diameter	Tolerance	Max. ovality
.00157 - .00560	± .00002	.00002	0.040 - 0.141	± 0.00051	0.00051
.00561 - .00891	± .00003	.00003	0.142 - 0.226	± 0.00076	0.00076
.00892 - .01263	± .00004	.00004	0.227 - 0.320	± 0.00102	0.00102
.01264 - .02009	± .00005	.00005	0.321 - 0.510	± 0.00127	0.00127
.02010 - .02845	± .00006	.00006	0.511 - 0.722	± 0.00152	0.00152
.02846 - .04029	± .00007	.00007	0.723 - 1.023	± 0.00178	0.00178
.04030 - .05706	± .00008	.00008	1.024 - 1.449	± 0.00203	0.00203
.05707 - .08079	± .00009	.00009	1.450 - 2.051	± 0.00229	0.00229
.08080 - .14427	± .00010	.00010	2.052 - 3.664	± 0.00254	0.00254
.14428 - .22941	± .00012	.00012	3.665 - 5.826	± 0.00305	0.00305
.22942 - .32485	± .00014	.00014	5.827 - 8.250	± 0.00356	0.00356
.32486 - .36479	± .00016	.00016	8.251 - 9.265	± 0.00406	0.00406
.36480 - .40963	± .00018	.00018	9.266 - 10.404	± 0.00457	0.00457
.40964 - .45999	± .00020	.00020	10.405 - 11.683	± 0.00508	0.00508
.46000 - .51654	± .00022	.00022	11.684 - 13.119	± 0.00559	0.00559
.51655 - .58004	± .00024	.00024	13.120 - 14.732	± 0.00610	0.00610
.58005 - .65135	± .00026	.00026	14.733 - 16.544	± 0.00660	0.00660
.65136 - .73142	± .00028	.00028	16.545 - 18.577	± 0.00711	0.00711
.73143 - .82134	± .00030	.00030	18.578 - 20.861	± 0.00762	0.00762
.82135 - .92232	± .00032	.00032	20.862 - 23.426	± 0.00813	0.00813
.92233 - 1.3780	± .00035	.00035	23.427 - 35.000	± 0.00889	0.00889

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

