

Compax[®] PCD and Versimax[™] Composite Die Blanks

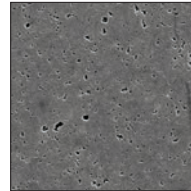


Sub-micron Die Blanks

Sandvik Hyperion is the leading global supplier of manufactured super hard materials required for wire industrial applications. Sub-micron die blanks belong to our Compax® die blanks family of products and are one of many premium products available for the wire industry. Sub-micron die blanks are polycrystalline (PCD) product with an ultra-fine grain microstructure.

The unique material properties provide very good abrasion resistance and the ability to achieve a high quality surface finish.

Property	Units	Typical Value
Diamond content	% vol	91
Diamond grain size	µm	0.9



Microstructure

Standard Product Offering

ADDMA	Diameter (mm)	Thickness (mm)	Metal Filled	Thermally Stable	Maximum Recommend Bore Size (mm)*
D6	3.1	1.0	5010-MFU	5010-TSU	0.5
D12	3.1	1.5	5015-MFU	5015-TSU	1.0

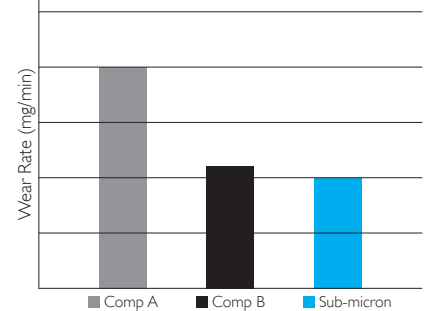
*Maximum recommended die size for non-ferrous wire. Hard-ferrous wire die size normally should not exceed 65% of this diameter.

Compax® is a registered trademark of Diamond Innovations, Inc., U.S.A.

Target applications

brass-plated wire
electrical wire
fine finishing applications
glass scribing
sawing wire
stainless steel
tire cord
welding wire

Abrasion Test Results



Versimax™ Composite Die Blanks

The Versimax family of products includes die blanks for wire stranding, bunching and compacting applications. Versimax is a ceramic-bonded diamond composite with wear resistance approaching sintered diamond, high mechanical strength and high temperature performance. Versimax die blanks are free standing cylinders, which are electrically conductive and can be easily pierced using EDM technology. Versimax die blanks are thermally stable up to 1,200°C.

Property	Units	Typical Value
Diamond content	% vol	80
Diamond grain size	µm	20
Bend strength	MPa	800
HV30 hardness	kg/mm ²	4,000
Density	g/cm ³	3.4
Fracture toughness	MPa√m	9.5
Thermal conductivity	W/mK	360
EDM cut rate	mm ² /min	1,000

Standard Product Offering

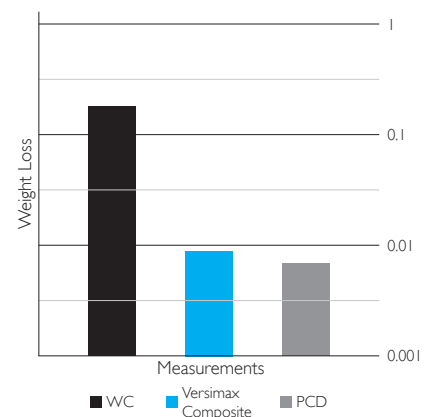
Diameter (mm)		Thickness (mm)			
23	± 0.64	15	± 0.50	0.10	0.38
25	± 0.64	20	± 0.50	0.10	0.51
30	± 0.64	22	± 0.50	0.10	0.56
35	± 0.64	25	± 0.50	0.10	0.64
35	± 0.64	35	± 0.50	0.10	0.74

Tailor made sizes are available upon request. Shrink fit or high temperature, high strength metal setting powder mounting technology recommended for Versimax Die Blanks. Please contact your sales representative for EDM, mounting and fabrication support.

Versimax is a trademark of Diamond Innovations, Inc., U.S.A.




Ferrous & Non-ferrous wire applications

Bunching
Compacting
Extrusion
Stranding



Compax® - Dimensions & Availability Chart




Self-Supported Die Blanks

ADDMA†	Nominal Diamond Diameter x Thickness	Grain size				Product Dimensions [mm]							
		Sub µm		5 µm		25 µm		Diamond Diameter	Diamond Thickness			Recommended Bore Size (mm)*	
D6	3.1 x 1.0	5010-MFU	5010-TSU	5010-MF	5010-TS	5010-MFC	5010-TSC	3.1 ± 0.38	1.0 ± 0.13	0.08		0.13	0.5
D12	3.1 x 1.5	5015-MFU	5015-TSU	5015-MF	5015-TS	5015-MFC	5015-TSC	3.1 ± 0.38	1.5 ± 0.13	0.08	(within diameter limits)	0.13	1.0
D15	5.2 x 2.5			5025-MF	5025-TS	5025-MFC	5025-TSC	5.2 ± 0.64	2.5 ± 0.13	0.08		0.25	1.5
D18	5.2 x 3.5			5035-MF	5035-TS	5035-MFC	5035-TSC	5.2 ± 0.64	3.5 ± 0.13	0.08		0.25	2.0

MF = metal filled TS = thermally stable

*Maximum recommended bore size for non-ferrous wire. Hard-ferrous wire die size normally should not exceed 65% of this diameter.

Tungsten Carbide-Supported Die Blanks

ADDMA	Nominal Diamond Diameter x Thickness	Grain size					Product Dimensions [mm]							
		3 µm	5 µm	12 µm	25 µm	50 µm	Tool Blank Diameter	Diamond Diameter	Diamond Thickness				Recommended Bore Size (mm)*	
D12	1.5 x 1.5				5235		3.99 ± 0.013	1.4	1.5 ± 0.10	0.05	0.01	0.05	0.20	0.8
D15	4.0 x 2.3	5823		5123	5223	5430	8.12 ± 0.013	3.8	2.24 ± 0.05	0.05	0.01	0.08	0.40	1.8
D18	4.0 x 2.9	5829		5129	5229	5435	8.12 ± 0.013	3.8	2.84 ± 0.05	0.05	0.01	0.10	0.40	2.3
D21	7.0 x 4.0		5840		5240	5530	13.65 ± 0.013	6.8	3.86 ± 0.05	0.05	0.01	0.14	0.50	3.5
D24	7.0 x 5.3 13.0 x 7.0	5853			5253	5535	13.65 ± 0.013	6.8	5.13 ± 0.05	0.05	0.010	0.18	0.50	4.6
D27	13.0 x 8.7			5108	5208	5730	24.13 ± 0.025	12.7	8.70 ± 0.25	0.10	0.050	0.30	0.60	5.2
D30	13.0 x 11.6 18.6 x 13.5			5111	5211	5735	24.13 ± 0.025	12.7	11.60 ± 0.25	0.10	0.050	0.40	0.60	7.6
D33	18.6 x 15.5 18.6 x 17.5				5915		34.00 ± 0.025	18.2	15.50 ± 0.50	0.10	0.050	0.45	0.75	11.2
D36	18.6 x 18.5				5917		34.00 ± 0.025	18.2	17.5 ± 0.50	0.10	0.050	0.52	0.75	12.0
					5918		34.00 ± 0.025	18.2	18.50 ± 0.50	0.10	0.05	0.59	0.75	12.5
										0.10	0.05	0.62	0.75	12.7

*Maximum recommended bore size for non-ferrous wire. Hard-ferrous wire die size normally should not exceed 65% of this diameter.

