

# VisiJet® Base Materials for the ProJet MJP 5600

The VisiJet composite family of materials is precisely mixed by the ProJet MJP 5600 print head on-the-fly to achieve superior mechanical properties and custom performance characteristics to meet your exacting specifications. This ingenious system simultaneously prints and blends together flexible and rigid material composites, layer-by-layer at the pixel level, in a variety of colors and shades including opaque, clear, black or white and numerous shades of gray.



Properties	Condition	VisiJet CR-WT	VisiJet CR-CL	VisiJet CE-NT	VisiJet CE-BK
<b>Composition</b>		UV curable plastic	UV curable plastic	UV curable elastomeric	UV curable elastomeric
<b>Description</b>		Rigid ABS-like	Rigid Polycarbonate-like	Elastomeric	Elastomeric
<b>Color</b>		Opaque White	Translucent Clear	Translucent Natural	Opaque Black
<b>Bottle Quantity</b>		2 kg	2 kg	2 kg	2 kg
<b>Solid Density</b>		1.18 g/cm <sup>3</sup>	1.18 g/cm <sup>3</sup>	1.12 g/cm <sup>3</sup>	1.12 g/cm <sup>3</sup>
<b>Tensile Strength</b>	ASTM D638	37-47 MPa	37-47 MPa	0.2-0.4 MPa	0.2-0.4 MPa
<b>Tensile Modulus</b>	ASTM D638	1000-1600 MPa	1000-1600 MPa	0.27-0.43 MPa	0.27-0.43 MPa
<b>Elongation at Break</b>	ASTM D638	7-16 %	7-16 %	160-230 %	160-230 %
<b>Flexural Strength</b>	ASTM D790	61-72 MPa	61-72 MPa	N/A	N/A
<b>Flexural Modulus</b>	ASTM D790	1400-2000 MPa	1400-2000 MPa	N/A	N/A
<b>Impact Strength (Notched Izod)</b>	ASTM D256	16-19 J/m	16-19 J/m	N/A	N/A
<b>Shore A Hardness</b>	ASTM 2240	N/A	N/A	27-33	27-33
<b>Shore D Hardness</b>	ASTM 2241	76-80	76-80	N/A	N/A
<b>Water Absorption</b>	ASTM D570 24 hr	0.5%	0.5%	0.9%	0.6%
<b>Heat Distortion Temperature</b>	D648 @ 0.45 MPa	46 °C	46 °C	N/A	N/A
<b>Heat Distortion Temperature</b>	D648 @ 1.82 MPa	41 °C	41 °C	N/A	N/A
<b>Tear Resistance</b>	ASTM D624	N/A	N/A	3.1 - 3.7 kN/m	3.1 - 3.7 kN/m

DISCLAIMER: It is the responsibility of each customer to determine that its use of any VisiJet® material is safe, lawful and technically suitable to the customer's intended applications. The values presented here are for reference only and may vary. Customers should conduct their own testing to ensure suitability for their intended application.

# VisiJet® Composite Combinations for the ProJet MJP 5600

In addition to printing in pure base materials, the ProJet MJP 5600 can mix any two base materials together pixel-by-pixel to achieve your targeted properties, in up to twelve different composite ratios. An entire object can be printed in any of these composites, or a user can easily select a specific region of a part to be any number of different material combinations.

PROPERTIES	ASTM	MULTI-MATERIAL COMPOSITES (VisiJet CR-WT + VisiJet CE-BK)											
<b>Material Name</b>	RWT-EBK 100	RWT-EBK 150	RWT-EBK 200	RWT-EBK 250	RWT-EBK 300	RWT-EBK 350	RWT-EBK 450	RWT-EBK 500	RWT-EBK 550	RWT-EBK 600	RWT-EBK 650	RWT-EBK 700	
<b>Description</b>	Very rigid	Slightly rigid	Rigid	Rigid	Slightly rigid	Slightly rigid	Slightly flexible	Slightly flexible	Flexible	Flexible	More flexible	Very flexible	
<b>Appearance</b>	Very light grey	Lighter grey	Light grey	Light grey	Light grey	Light grey	Medium light grey	Grey	Medium dark grey	Dark grey	Darker grey	Very dark grey	
<b>Tensile Strength</b>	<b>D-638</b>	18-27 MPa	14-19 MPa	11-14 MPa	8-11 MPa	5-9 MPa	4.5-8.5 MPa	3-6.6 MPa	1.7-3.7 MPa	1-3 MPa	0.7-2 MPa	0.6-1.8 MPa	0.3-1 MPa
<b>Flexural Strength</b>	<b>D-790</b>	18-21 MPa	12-13 MPa	7-7.4 MPa	3.9-4.2 MPa	1.6-1.9 MPa	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Flexural Modulus</b>	<b>D-790</b>	450-750 MPa	350-550 MPa	150-250 MPa	70-180 MPa	30-80 MPa	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Impact Strength (Notched Izod)</b>	<b>D-256</b>	18-25 J/m	22-30 J/m	32-52 J/m	29-42 J/m	74-114 J/m	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Shore A Hardness, Scale A</b>	<b>D-2240</b>	N/A	N/A	N/A	N/A	N/A	N/A	90	80	70	60	50	40
<b>Shore D Hardness, Scale D</b>	<b>D-2240</b>	75	70	65	60	55	50	N/A	N/A	N/A	N/A	N/A	N/A
<b>Tear Resistance</b>	<b>D-624</b>	N/A	N/A	N/A	N/A	N/A	N/A	44-62 kN/m	25-32 kN/m	18-23 kN/m	11-17 kN/m	6.6-9.3 kN/m	6.5-8.5 kN/m

PROPERTIES	ASTM	MULTI-MATERIAL COMPOSITES (VisiJet CR-CL + VisiJet CE-BK)										
<b>Material Name</b>	RCL-EBK 100	RCL-EBK 150	RCL-EBK 200	RCL-EBK 250	RCL-EBK 300	RCL-EBK 350	RCL-EBK 450	RCL-EBK 500	RCL-EBK 550	RCL-EBK 600	RCL-EBK 650	RCL-EBK 700
<b>Description</b>	Very rigid	Slightly rigid	Rigid	Rigid	Slightly rigid	Slightly rigid	Slightly flexible	Slightly flexible	Flexible	Flexible	More flexible	Very flexible
<b>Appearance</b>	Transparent light Grey	Transparent grey	Transparent grey	Transparent grey	Transparent medium grey	Transparent medium grey	Transparent medium grey	Translucent grey	Translucent grey	Translucent grey	Translucent darker grey	Translucent darker grey
<b>Mechanical Properties</b>	Identical properties to VisiJet CR-WT + VisiJet CE-BK composites in table above											

PROPERTIES	ASTM	MULTI-MATERIAL COMPOSITES (VisiJet CR-WT + VisiJet CE-NT)										
<b>Material Name</b>	RWT-ENT 100	RWT-ENT 150	RWT-ENT 200	RWT-ENT 250	RWT-ENT 300	RWT-ENT 350	RWT-ENT 450	RWT-ENT 500	RWT-ENT 550	RWT-ENT 600	RWT-ENT 650	RWT-ENT 700
<b>Description</b>	Very rigid	Slightly rigid	Rigid	Rigid	Slightly rigid	Slightly rigid	Slightly flexible	Slightly flexible	Flexible	Flexible	More flexible	Very flexible
<b>Appearance</b>	Translucent white	Translucent white	Translucent white	Translucent amber	Translucent amber	Translucent amber	Light amber	Medium amber	Medium amber	Darker amber	Darker amber	Darker amber
<b>Mechanical Properties</b>	Identical properties to VisiJet CR-WT + VisiJet CE-BK composites in table above											

PROPERTIES	ASTM	MULTI-MATERIAL COMPOSITES (VisiJet CR-CL + VisiJet CE-NT)										
<b>Material Name</b>	RCL-ENT 100	RCL-ENT 150	RCL-ENT 200	RCL-ENT 250	RCL-ENT 300	RCL-ENT 350	RCL-ENT 450	RCL-ENT 500	RCL-ENT 550	RCL-ENT 600	RCL-ENT 650	RCL-ENT 700
<b>Description</b>	Very rigid	Slightly rigid	Rigid	Rigid	Slightly rigid	Slightly rigid	Slightly flexible	Slightly flexible	Flexible	Flexible	More flexible	Very flexible
<b>Appearance</b>	Translucent clear	Translucent clear	Translucent clear	Translucent amber	Translucent amber	Translucent amber	Light amber	Medium amber	Medium amber	Amber clear	Amber clear	Amber clear
<b>Mechanical Properties</b>	Identical properties to VisiJet CR-WT + VisiJet CE-BK composites in table above											

# Visijet® Composite Combinations Continued

PROPERTIES	ASTM	MULTI-MATERIAL COMPOSITES (Visijet CE-BK + Visijet CE-NT)					
<b>Material Name</b>	EBK-ENT 100	EBK-ENT 200	EBK-ENT 300	EBK-ENT 400	EBK-ENT 500	EBK-ENT 600	RCL-ENT 700
<b>Description</b>	Very flexible	Very flexible	Very flexible	Very flexible	Very flexible	Very flexible	Very flexible
<b>Appearance</b>	Translucent black	Translucent black	Translucent grey	Light grey	Light grey	Light amber	Light amber
<b>Mechanical Properties</b>	Similar properties to Visijet CE-NT or Visijet CE-BK base materials						

PROPERTIES	ASTM	MULTI-MATERIAL COMPOSITES (Visijet CR-CL + Visijet CR-WT)						
<b>Material Name</b>		RCL-RWT 100	RCL-RWT 200	RCL-RWT 300	RCL-RWT 400	RCL-RWT 500	RCL-RWT 600	RCL-RWT 700
<b>Description</b>		Rigid ABS-like	Rigid ABS-like	Rigid ABS-like	Rigid ABS-like	Rigid ABS-like	Rigid ABS-like	Rigid ABS-like
<b>Appearance</b>		Transparent pale white	Transparent white	Transparent white	Translucent white	Translucent white	Opaque white	Opaque bright white
<b>Tensile Strength</b>	D-638	37-47 MPa	37-47 MPa	37-47 MPa	37-47 MPa	37-47 MPa	37-47 MPa	37-47 MPa
<b>Tensile Modulus</b>	D-638	1000-1600 MPa	1000-1600 MPa	1000-1600 MPa	1000-1600 MPa	1000-1600 MPa	1000-1600 MPa	1000-1600 MPa
<b>Elongation at Break</b>	D-638	7-16 %	7-16 %	7-16 %	7-16 %	7-16 %	7-16 %	7-16 %
<b>Flexural Strength</b>	D-790	61-72 MPa	61-72 MPa	61-72 MPa	61-72 MPa	61-72 MPa	61-72 MPa	61-72 MPa
<b>Flexural Modulus</b>	D-790	1400-2000 MPa	1400-2000 MPa	1400-2000 MPa	1400-2000 MPa	1400-2000 MPa	1400-2000 MPa	1400-2000 MPa
<b>Heat Deflection Temperature</b>	D-648 @ 0.45 MPa	46 °C	46 °C	46 °C	46 °C	46 °C	46 °C	46 °C
<b>Impact Strength (Notched Izod)</b>	D-256	16-19 J/m	16-19 J/m	16-19 J/m	16-19 J/m	16-19 J/m	16-19 J/m	16-19 J/m
<b>Shore Hardness (D), Scale D</b>	D-2241	76-80	76-80	76-80	76-80	76-80	76-80	76-80

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