



# RENY® MODIFIED MXD6 POLYAMIDE ENGINEERING THERMOPLASTIC

RENY® IS A REGISTERED TRADEMARK OF MITSUBISHI ENGINEERING PLASTICS CORPORATION (JAPAN)

## RENY® 1012F

RENY® 1012F is the 40% glass fibre filled Polyamide MXD6 grade in the Reny® range. Compared to standard Nylon 6 and 66 reinforced grades, Reny® 1012F offers exceptional high strength and rigidity, low water absorption and a high glass transition temperature. Reny® 1012F is especially suitable as a metal replacement for structural components with typical uses being automotive ignition key assemblies, bicycle seat frames and domestic window winder casing mechanisms.

	CONDITIONS	UNITS	DRY VALUES	WET VALUES	TESTING METHODS
<b><u>1. Mechanical Properties</u></b>					
Izod Impact Strength	12.7 x 6.4 mm - notched	J/m	90	86	ASTM D256
	12.7 x 6.4 mm - unnotched	J/m	670	590	ASTM D256
Tensile Strength	12.7 x 3.2 mm @ 5.0 mm/min	MPa	226	184	ASTM D638
Tensile Modulus	12.7 x 3.2 mm @ 5.0 mm/min	MPa	16,200	14,600	ASTM D638
Elongation to Fail	12.7 x 3.2 mm @ 5.0 mm/min	%	2.0	2.0	ASTM D638
Flexural Strength	12.7 x 6.4 mm @ 2.8 mm/min	MPa	308	243	ASTM D790
Flexural Modulus	12.7 x 6.4 mm @ 2.8 mm/min	MPa	13,400	11,000	ASTM D790
Compressive Strength	6.4 mm	MPa	242	-	ASTM D695
Shear Strength	2.0 mm	MPa	118	-	ASTM D732
Tensile Impact Strength	1.6 mm	kJ/m <sup>2</sup>	167	-	ASTM D1822
<b><u>2. Thermal Properties</u></b>					
Heat Deflection Temperature	12.7 x 6.4 mm @ 1.82 MPa	°C	233	-	ASTM D648
Coefficient of Linear Thermal Expansion		cm/cm/°C	1.4 exp-5	-	ASTM D696
<b><u>4. Physical Properties</u></b>					
Specific Gravity		-	1.54	-	ASTM D792
Rockwell Hardness		M	111	-	ASTM D785
UL Flammability	1.6 mm	Rating	HB	-	UL 94
Water Absorbtion	24 hours	%	0.18	-	ASTM D570
Moisture Regain	65% RH	%	1.7	-	ASTM D570
Reinforcement Level		%	40	-	n/a
Taber Abrasion	1000 cycles	mg	29	-	ASTM D1044
Mould Shrinkage		%	0.4±0.2	-	ASTM D955

# TYPICAL PROCESSING CONDITIONS

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The following typical guidelines are offered as initial processing conditions for **RENY® 1012F**. In practice, processing parameters may need to be varied to give commercially acceptable performance in conjunction with optimum physical properties. For specific technical advice on part design or processing conditions, contact the Marplex Technical Service Department.

Temperature of pellet bed in dehumidifying drier	75 - 85 °C
Minimum drying time at desired pellet bed temp	2 hours if unopened bag >12 if already opened bag
Mould temperature	120 - 140 °C
Nozzle temperature	Do not exceed stock temperature
Stock temperature	255 - 285 °C
Cylinder temperatures	Rear 240 - 260 °C Middle 250 - 270 °C Front 260 - 280 °C
Fill speed	Fast
Screw speed	40 - 60 rpm
Screw back pressure	0.1 - 0.5 MPa
Injection pressure	60 - 140 MPa
Clamp pressure	5 - 9 kN/cm <sup>2</sup>

### Comment(s):

- 1 Reny® MXD6 absorbs moisture readily once the original packaging is opened. Ensure adequate drying of stored material and regrind to avoid moulding splay, nozzle drooling and embrittlement.
- 2 Reny® MXD6 is not compatible with other polymers.
- 3 It is strongly suggested that the actual drying, moulding die and material temperatures are manually confirmed using a hand held temperature measuring device.

**Conversions:** 1 MPa = 145 psi  
= 10.2 kg/cm<sup>2</sup>  
= 10 bar  
°C = 5(°F-32)/9  
1 kN/cm<sup>2</sup> = 0.65 ton/in<sup>2</sup>

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