

Product Data

DIE PLANK® DP-1051

Die Plank® **DP-1051** is an aluminum filled urethane Tooling Plank developed specifically to be a light-weight, tough, and cost effective alternative to aluminum for checking and assembly fixtures that experience abusive production environments. It is manufactured as a dimensionally stable material for fast and accurate machining of C.M.M. checking and holding fixtures by N/C tape or CAD/CAM systems. Other uses include vacuum-form tools and low-volume foundry patterns.

TYPICAL PHYSICAL PROPERTIES

<u>Test Performed</u>	<u>U.S. Test Results</u>	<u>Metric Test Results</u>
Color	Grey	
Hardness @ 75°F	75 Shore D	
Density ¹	52.2 lbs/ft ³	.836 g/cm ³
Flexural Strength ²	7,180 psi	49.4 MPa
Flexural Modulus ²	317,000 psi	2,190 MPa
Tensile Strength ³	4,820 psi	33.3 MPa
Elongation ³	2.34%	
Compressive Strength ⁴	7,420 psi	51.1 MPa
Unnotched Izod Impact (complete break) ⁵	2.52 ft lbs/in	135 J/m
Heat Deflection Temperature @ 264 psi ⁶	188°F	87°C
Operating Temperature @ 220°F	55 Shore D	
Coefficient of Linear Thermal Expansion ⁷	2.75 x 10 ⁻⁵ in/in/°F	4.94 x 10 ⁻⁵ mm/mm/°C
Machinability	Excellent	
Stability	See page 2	
Recommended Adhesive	TCC-205/104 Adhesive System	
Patch Paste	TCC-51 A/B Patch Paste	
Fast Patch Paste	TCC-5120 A/B Fast Patch Paste	

Standard Size Available: 2", 3", 4" T x 16" W x 60" L
50mm, 75mm, 100mm, x 400mm x 1500mm

Testing performed by an Independent Certified Laboratory.

1. ASTM D 792-91
2. ASTM D 790-92
3. ASTM D 638-94
4. ASTM D 695-91
5. ASTM D 256-93
6. ASTM D 648-88
7. ASTM D 696-91

STORAGE: Store all Tooling Planks on a flat surface at 60°F - 100°F.

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STABILITY OF DP-1051 DIE PLANK®

	<u>Weight (g)</u>	<u>Length (mm)</u>
Initial (4" x 4" pieces)	429.62	101.05
After 24 hours at -30°F	430.15	100.77
After 24 hours at standard lab conditions	429.57	101.03
After 6 hours at 130°F	429.58	101.28
After 24 hours at standard lab conditions	429.60	101.08
After 168 hours at 100°F/100% Relative Humidity	430.37	101.10
After 24 hours at standard lab conditions	429.97	101.09
After 24 hours at standard lab conditions	429.94	101.10

RECOMMENDED CNC MACHINING INFORMATION

(Carbide Cutters are highly recommended)

	Inches per minute (Feed IPM)	Plunge (mm)	Spindle Speed (rpm)
2" E-Mill for Roughing	100	25	6000
3/4" Ball	75	20	3000+
1/2" Ball	60-75	10-20	3000+
1/2" x 1/32" R	40	20	4000
1/4" Ball	60	10-20	5000

These are possible recommendations. There may be some variance depending on cutters and CNC mill capabilities.

CUTTING SUGGESTIONS FOR TOOLING PLANKS

CUTTING HORIZONTALLY ON A PLANNER MILL: Head is a 10 insert, 8" in diameter. For best results use 5 inserts. Inserts are SFE-42E-10J-C5. We have found a C2 Carbide insert does not chip as easily. RPM 2200-2400 table feed 50-55 inches per minute. Some modifications may be needed.

SAW BLADES: A carbide-tipped, positive rake saw blade with air slots should be used, if possible. We suggest alternate top bevel ATB or triple chip grind TCG rpm, depending on the saw. We suggest 3,500 max rpm. Check with manufacturer on saw and blade size.

12" blade, 48 teeth

16" blade, 48 teeth

18" blade, 60 teeth

When sawing, you may need to back part away from blade to relieve heat and binding, then proceed with cut. It may be necessary to take more than one cut to achieve best finish.