



**DP-1051**  
**DIE PLANK®**

**PRODUCT BULLETIN**



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**DESCRIPTION:**

**DIE PLANK® DP-1051** is an aluminum filled urethane Tooling Plank specifically developed as a lightweight, tough, and cost effective alternative to aluminum for abrasion-resistant applications such as checking and assembly fixtures that experience abusive production environments. **DP-1051** is a dimensionally stable material with superior machining characteristics used to produce fast and accurate checking fixtures, holding fixtures, and many other types of tooling including vacuum-form tools, low-volume foundry patterns, temporary models, and headliner tools.

**HANDLING CHARACTERISTICS:**

	<u>U.S. Test Results</u>	<u>Metric Test Results</u>
Color.....	Grey	
Hardness @ 75°F.....	75 Shore D	
Density <sup>1</sup> .....	52.2 lbs/ft <sup>3</sup>	0.836 g/cm <sup>3</sup>
Flexural Strength <sup>2</sup> .....	7,180 psi.....	49.4 MPa
Flexural Modulus <sup>2</sup> .....	317,000 psi.....	2,190 MPa
Tensile Strength <sup>3</sup> .....	4,820 psi.....	33.3 MPa
Elongation <sup>3</sup> .....	2.34%	
Compressive Strength <sup>4</sup> .....	7,420 psi.....	51.1 MPa
Unnotched Izod Impact(complete break) <sup>5</sup> .....	2.52 ft lbs/in.....	135 J/m
Heat Deflection Temperature @ 264 psi <sup>6</sup> .....	188°F.....	87°C
Operating Temperature @ 220°F.....	55 Shore D	
Coefficient of Linear Thermal Expansion <sup>7</sup> .....	2.75 x 10 <sup>-5</sup> in/in/°F.....	4.94 x 10 <sup>-5</sup> mm/mm/°C
Machinability.....	Excellent	
Stability.....	See Page 2	

**Ambient Use Adhesive System ..... TCC-230 with 102 or 104**  
**Elevated Use Temperature Adhesive ..... ADTECH EL-336 R/H**  
**Patch Paste ..... P-17 Grey with White Cream Hardener**

**Standard Size Available: 2", 3", 4" T x 16"W x 60"L**

**\*\*Other sizes available upon request**

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.**

**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
Additional 24 hours at standard lab conditions	429.94	101.10

**RECOMMENDED CNC MACHINING INFORMATION**

(Carbide Cutters are highly recommended)

	<b>Inches per minute (Feed IPM)</b>	<b>Plunge (mm)</b>	<b>Spindle Speed (rpm)</b>
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.

Revised 5/20/10  
 Supercedes 6/6/06