

# Bakelite Plates

## Standard / Paper / Fabric Type

Bakelite excels in insulation and heat resistance. Paper based materials are less expensive, and fabric based materials are stronger. New finish variations are now available in addition to the conventional saw cut.

\*Details of color samples and features, see P.3070

**Bakelite Plates – Standard Type**

RoHS10 Properties P.3066

Type	Material	Color	Operating Ambient Temperature
BLA	Paper-Based Bakelite	Natural Color	-50~100°C
BLBA		Black	
BLSA	Fabric-Based Bakelite	Natural Color	

Finish	4 Sides		Upper-Lower Surface	
	Drilling Method	Finish Symbol	Drilling Method	Finish Symbol
Circular Sawing (-)	Circular Sawing	✓	Material	—
Guaranteed Perpendicularity of Circular Sawing (NT)	Circular Sawing	✓	Material	—
4-Side Milling (4F)	Milling	∇	Material	—
6-Surface Milling (6F)	Milling	∇	Milling	∇
Upper-Lower Surface Milling (2F)	Circular Sawing	✓	Milling	∇

**Dimension Tolerance of A & B**

Unit: mm	A / B Dimension Tolerance
~99	±0.5
100-250	±0.75
251~	±1.0

**T Dimension Tolerance, Rate of Camber & Torsion**

T	T Dimension Tolerance		Rates of Camber & Torsion per 1,000mm
	Paper Type	Fabric Type	
2	±0.15	±0.25	3.0% or Less
3	±0.20	±0.30	1.2% or Less
4	±0.25	±0.30	1.2% or Less
5	±0.30	±0.40	1.0% or Less
6	±0.30	±0.50	0.6% or Less
8	±0.40	±0.55	0.6% or Less
10	±0.45	±0.65	0.5% or Less
12	±0.50	±0.75	0.5% or Less
15	±0.55	±0.80	0.4% or Less
20	±0.70	±1.10	0.2% or Less

**Precision Guarantee**

Finish	Width Parallelism	Perpendicularity of Reference Plane
	Per 100 mm	
Guaranteed Perpendicularity of Circular Sawing (NT)	0.1	0.1
4-Side Milling (4F)	0.1	0.1
6-Surface Milling (6F)	0.1	0.1

Reference plane stickers are attached to 4-side milled plates.

Material: Bakelite (JIS PL-PEM)

### Standard Type

Type	Finish	Part Number		A	B	T		
		T Dimension Tolerance	A, B Dimension Tolerance					
BLA Paper-Based Bakelite Natural Color	Circular Sawing	Not Available	Not Available	20-800	20-600	2 3 4 5 6 8 10 12 15 20		
		Guaranteed Perpendicularity of Circular Sawing (NT)		0.5 mm Increment		Selection		
		NT	Not Available	T2-10 0→+0.3 N ±0.2 M -0.3-0	T12-20 0→+0.4 ±0.3 -0.4-0	20-500	20-400	2 3 4 5 6 8 10 12 15 20
	4-Side Milling (4F)	Not Available	Q 0→+0.2 N ±0.1 M -0.2-0	0.1 mm Increment		Selection		
		4F	Not Available	Q 0→+0.2 N ±0.1 M -0.2-0	10-400	10-200	5 6 8 10 12 15 20	
		6-Surface Milling (6F)		0.1 mm Increment		0.1 mm Increment		
	6F	Q	0→+0.2	Q	0→+0.2	10-400	10-200	5-19
		N, M	±0.1, -0.2-0	N, M	±0.1, -0.2-0			
	Upper-lower Surface Milling (2F)		1 mm Increments		0.1 mm Increment			
	2F	Q, N, M	0→+0.2, ±0.1, -0.2-0	Not Available	20-400	20-250	5-19	

**Part Number Example**

Part Number	A	B	T
Circular Sawing	BLA	- 300	- 200 - 40
Guaranteed Perpendicularity of Circular Sawing	BLBANTQ	- 200.5 - 100.5	- 10
4-Side Milling	BLSA4FN	- 150.5 - 100.3	- 15
6-Surface Milling	BLA6FMM	- 100.3 - 90.5	- 10.5
Upper-Lower Surface Milling	BLA2FN	- 80 - 50	- 5

**Part Number Alterations**

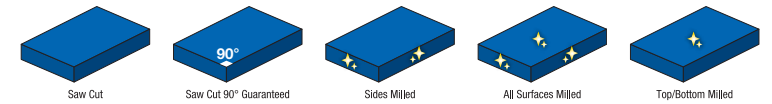
Part Number - A - B - T - (CRA...)

BLA - 300 - 200 - 15 - CRA10

Alterations	Corner Radius	Corner Cut
Code	CRA, CRB, CRC, CRD	CCA, CCB, CCC, CCD
Spec.	Adds radius to any corner. R=5 mm Increment 10≤A(B)-R(2R) 5≤CRA, CRB, CRC, CRD≤100 Ordering Code: (Ex.) Adds R10 at the corner of A and C. CRA10-CRC10 Not applicable to Sides Milled or All Surfaces Milled.	Cuts any corners. 5≤Corner Cut≤50 10≤A-C(2C) or B-C(2C) 5 mm Increment Ordering Code: (Ex.) When the corners of A and D are cut by C5 →CCA5-CCD5 Not applicable to Sides Milled or All Surfaces Milled.

# Bakelite Plates

## Pre-Drilled / Paper / Fabric Type



**Bakelite Plates – Pre-Drilled Type**

RoHS10 Properties P.3066

Type	Material	Color	Operating Ambient Temperature
BLA	Paper-Based Bakelite	Natural Color	-50~100°C
BLBA		Black	
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15	±0.55	±0.80	0.4% or Less
20	±0.70	±1.10	0.2% or Less

**Precision Guarantee**

Finish	Width Parallelism	Perpendicularity of Reference Plane
	Per 100 mm	
Guaranteed Perpendicularity of Circular Sawing (NT)	0.1	0.1
4-Side Milling (4F)	0.1	0.1
6-Surface Milling (6F)	0.1	0.1

Reference plane stickers are attached to 4-side milled plates.

Material: Bakelite (JIS PL-PEM)

**Drilling Details**

N (Through hole)	Z (Counterbore Hole)	M (Through Hole) Z (Counterbore Hole) Details	M (Thread Insert)	Table 1 M (Thread Insert) Details																																																								
		<table border="1"> <thead> <tr> <th>Bolt Nominal Dia.</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>8</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>d</td> <td>3.5</td> <td>4.5</td> <td>5.5</td> <td>6.5</td> <td>9</td> <td>11</td> </tr> <tr> <td>d<sub>i</sub></td> <td>6.5</td> <td>8</td> <td>9.5</td> <td>11</td> <td>14</td> <td>—</td> </tr> <tr> <td>h</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>9</td> <td>—</td> </tr> </tbody> </table>	Bolt Nominal Dia.	3	4	5	6	8	10	d	3.5	4.5	5.5	6.5	9	11	d <sub>i</sub>	6.5	8	9.5	11	14	—	h	4	5	6	7	9	—		<table border="1"> <thead> <tr> <th>Bolt Nominal Dia.</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>8</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>d</td> <td>3.5</td> <td>4.5</td> <td>5.5</td> <td>6.5</td> <td>9</td> <td>11</td> </tr> <tr> <td>L</td> <td>4.5</td> <td>6</td> <td>7.5</td> <td>9</td> <td>12</td> <td>15</td> </tr> <tr> <td></td> <td>6</td> <td>8</td> <td>10</td> <td>12</td> <td>16</td> <td>20</td> </tr> </tbody> </table>	Bolt Nominal Dia.	3	4	5	6	8	10	d	3.5	4.5	5.5	6.5	9	11	L	4.5	6	7.5	9	12	15		6	8	10	12	16	20
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Ordering Code: (Ex.) M4-L6  
 L≤T-1  
 For details of threaded insert HLTS, See P.2461

**Hole Diameter** b (Min. value)

Hole Diameter	b (Min. value)
3-10	2.5

### Pre-Drilled Type

Type	Finish	T Dimension Tolerance		A	B	T	F	G	
		Saw Cut	Nominal						
BLA Paper-Based Bakelite Natural Color	Circular Sawing	Not Available	2H (Horizontal) 2HL (Vertical) 4H 6H	20-800	20-600	2 3 4 5 6 8 10 12 15 20 (Selectable)	6-791.5 (2H, 4H) 4.5-595.5 (2HL) 6-395.5 (6H)	4.5-595.5 (2H) 6-591.5 (2HL, 4H, 6H)	
		Upper-lower Surface Milling (2F)		1 mm Increment		0.1 mm Increment		0.5 mm Increment	
	6F	2FQ	0-0.2	2H (Horizontal) 2HL (Vertical) 4H 6H	20-400	20-250	5-19 (0.1 mm Increment)	6-391.5 (2H, 4H) 4.5-395.5 (2HL) 6-195.5 (6H)	4.5-245.5 (2H) 6-241.5 (2HL, 4H, 6H)
		2FN, 2FM	±0.1, -0.2-0						

Dimension F Specification Range: For 2H and 4H,  $d(d_i)+2.5 \leq F \leq A-d(d_i)-5$ ; for 2HL,  $d(d_i)/2+2.5 \leq F \leq A-d(d_i)/2-2.5$ ; for 6H,  $d(d_i)+2.5 \leq F \leq (A-d(d_i)-5)/2$ .  
 Dimension G Specification Range: For 2H,  $d(d_i)/2+2.5 \leq G \leq B-d(d_i)/2-2.5$ . For 2HL, 4H and 6H,  $(d_i)+2.5 \leq G \leq B-d(d_i)-5$ . (d for through hole, thread insert, d<sub>i</sub> for counterbore)  
 For Pre-drilled Type, select N (through hole) or Z (counterbore hole), for Thread Insert Type, select M (thread insert) or L (insertion length).

**Part Number Alterations**

Part Number - A - B - T - F - G - Bolt Nominal Diameter - (XC / YC)

BLA2H - 50 - 40 - 5 - F10 - G20 - N3 - XC10

T Dimension	Pre-Drilled Hole Nominal Diameter			
	N (Through Hole)	Z (Counterbore Hole)	M (Thread Insert)	L (Insert Length)
2-4	3	—	—	—
5	4	—	3 4	—
6-7	5	3	3 4 5 6	—
8-9	6	3 4 5	3 4 5 6 8	—
10-14	8	4 5 6	3 4 5 6 8 10	—
15-20	10	4 5 6 8	3 4 5 6 8 10	—

Select from Table 1

**Part Number Example**

**Pre-Drilled Type**

Part Number	A	B	T	F	G	Bolt Nominal Diameter	L
BLA4H	- 400	- 325	- 15	- F300	- G200	- Z6	-
BLA4H	- 500	- 300	- 10	- F300	- G200	- M5	- L7.5

**Part Number Alterations**

Part Number - A - B - T - F - G - Bolt Nominal Diameter - (XC / YC)

BLA2H - 50 - 40 - 5 - F10 - G20 - N3 - XC10

Alterations	Hole Position from Left	Hole Position from Bottom
Code	XC	YC
Spec.	XC = 0.5 mm Increment (2H, 4H Type) $d(d_i)/2+2.5 \leq XC \leq A-F-d(d_i)/2-2.5$ (6H Type) $d(d_i)/2+2.5 \leq XC \leq A-2F-d(d_i)/2-2.5$	YC = 0.5 mm Increment $d(d_i)/2+2.5 \leq YC \leq B-G-d(d_i)/2-2.5$ Not available for 2H