

# TECHNOtalk

Vol. I Blades & Holders

2003

JNJ INDUSTRIES

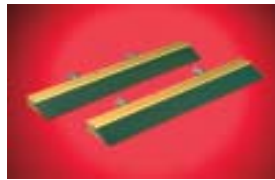
## SQUEEGEE BLADES AND HOLDERS

JNJ's **POLYURETHANE SQUEEGEE BLADES** are machined, not molded, from cast sheets of high quality polyurethane and



### DEK Bonded Blades

Our precision machined polyurethane blades are bonded onto gold anodized aluminum holders, and come complete with mounting studs and knobs. Polyurethane bonded blades are available in 60-120 durometer with lengths ranging from 170mm to 535mm. Side solder paste deflectors are also available.



### Cleaning Polyurethane

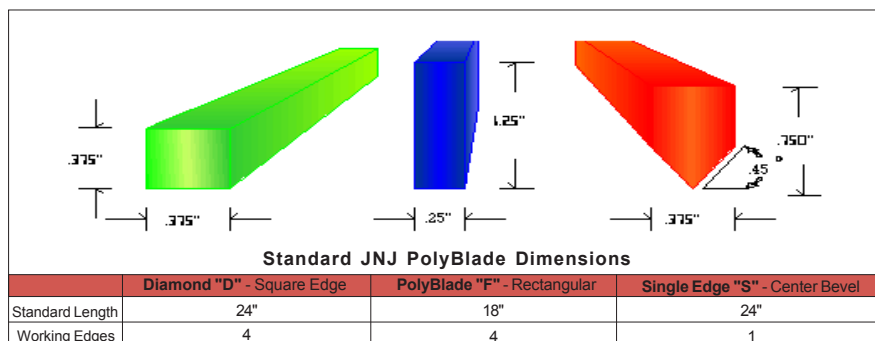
Research has shown that cleaning chemicals can breakdown polyurethane. In order to maintain the integrity of the blade, caution must be taken when choosing a cleaner. The following information will provide you with an awareness of what is recommended and what is not suitable for cleaning polyurethane blades.

#### Chemical & Solvent Resistance

Hydrocarbons	1
Ether	2
Glycols	2
Isopropyl Alcohol (IPA)	2-3
Acetone	4
Toluene	4
MEK	4
Butyl Acetate	4

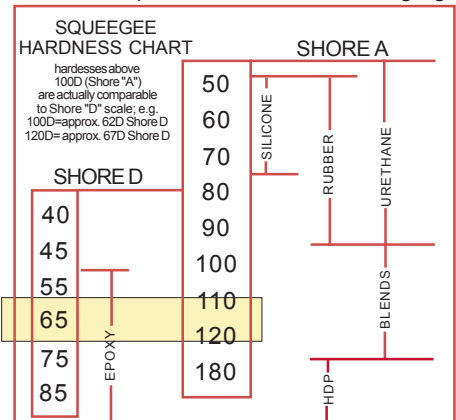
1 - excellent, 2 - good, 3 - fair, 4 - poor

high density polymer (HDP). Machined blades not only offer increased operational performance but are available in durometers ranging from 50 through 120 and 180. Precision machined blades resist solvents, have sharper edges, and maintain tighter tolerances than molded blades and can be machined to your specifications to fit any printer ever made. Check out our hand-held holders with blades for manual printing.



### Harder Polyurethane Blends

JNJ has turned to harder polyurethane blends to provide better performance for fine and ultra-fine pitch printing of solder paste and other high viscosity materials. Our machine-sharpened edges provide uniform deposition without scavenging.



The advantages of using harder polyurethane blades versus non-coated metal blades include: lower cost, no retooling, and little or no stencil wear or damage. Measured on the Shore A scale, polyurethane hardnesses are expressed in terms of durometers. Because higher durometer polyurethane blades have better resistance to distortion, they have gained considerable popularity for fine and ultra-fine pitch printing.

### Applications

Duro	Color	Applications
50	Black	Inks
60	Brown	Inks
70	Yellow	Thick Film, Epoxies, Step Stencil
80	Red	Thick Film, Solder, Epoxies, SMT
90	Shiny Green	SMT, Solder, Epoxies
100	Blue	Fine Pitch, Solder, Epoxies
110	Orange	Ultra-Fine Pitch, Solder, Epoxies
120	Flat Green	Ultra-Fine Pitch, Solder, Epoxies
180	White	Ultra-Fine Pitch, Solder, Epoxies

### CUSTOM PolyBlades

JNJ offers custom polyblades manufactured to your company's specifications. We can cut the length to size, change the angles, make them in metric sizes, make them thicker or thinner, and even make Monopoly® house game pieces for your kids.

**WE CAN DO IT ALL!**

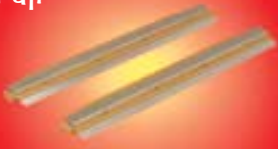
# Metal Blades & Holders

Achieve or exceed Original Equipment Manufacturer's (OEM) specifications with JNJ's drop-in replacement metal squeegee blades and holders. Our OEM line includes flat metal blades, adjustable angle metal blades, combination plastic and metal blades and squeegee blade holders for leading manufacturers such as MPM/Speedline, Fuji, DEK, deHaart, Panasonic, EKRA, Juki and SMTech.

MPM - AP Series



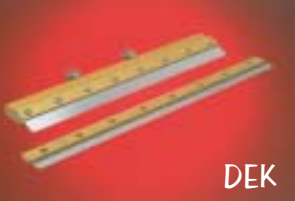
Fuji



MPM - UP Series



DEK



## Why JNJ Metal Blades...

- ⇒ Custom lengths up to 30"
- ⇒ Electroplating Rc 70/72 Surface Hardness
- ⇒ **Absolutely Will NOT Chip, Flake or Peel**
- ⇒ Remarkable Wear Resistance
- ⇒ Superior Corrosion Protection
- ⇒ Extraordinarily Low Coefficient of Friction
- ⇒ Delivers Crisp Print Deposits Time After Time
- ⇒ Smooth Sliding Properties
- ⇒ Electroplating is Conductive
- ⇒ Eliminates Electrostatic Buildup & Discharge
- ⇒ Masking & Outgassing are Not an Issue
- ⇒ Satin Gray Appearance
- ⇒ Precision & Uniformed Plating
- ⇒ Absolute Adhesion - Entire Surface is Coated
- ⇒ Stain Resistant

# JNJ METAL BLADES

JNJ's metal blades are a stainless steel base metal with our exceptional Electroplated coating.

The coating consists of a proprietary blend of chromium and other elements, making available a hard surface of Rc 70/72 Rockwell.

Electroplating offers consistent and reliable performance for today's SMT printing needs and future applications. The Electroplated surface treatment is a technology that addresses an engineer's **five** most critical needs:

### Hardness • Adhesion • Lubricity Conductivity • Precision

The combination of these five design-in features provide an unsurpassed, consistent, reliable technology for applying solder paste, conductive and nonconductive adhesives to stencils for the printed circuit board industry.

#### Hardness

Electroplating provides the metal with a surface hardness of Rc 70/72 Rockwell. A combination of factors enable the coating to achieve a tough and extremely hard surface. Electroplating combines appropriate engineering of proprietary alloys and pure chromium, with a consistent, controlled and unique deposition processing procedure. The density of the coating provides a surface which is non porous and has fewer inclusions, voids and other surface irregularities as compared to conventional nickel plating.

The combination of hardness and density results in reduced wear rates and material fragmentation.

#### Adhesion

Electroplating is applied directly on the base metal being treated, with bend testing to 180° without showing signs of chipping, spalling off or separation.

The Electroplating technology also focuses on the cohesive properties of the molecular elements being applied, and assures that these molecules form an absolute cohesive bond to themselves. This application does not allow Electroplating to "peel-off" in layers or shed loose particles as seen in other types of plating.

#### Lubricity

The primary cause of blade wear is frictional force. Electroplated coating covers with a hard surface with low coefficient of friction and will increase the blade life. The Rc 70/72 hard surface coating will also resist abrasion and prevent the interlocking of mating surfaces, either sliding or stationary. The coefficient of friction of Electroplated stainless steel, oiled, with a very high finish, has been tested as low as .10.

### ELECTROPLATED COATING REVIEW

Coating Thickness	.0005"
Hardness, Rc	70/72
Corrosion	Excellent
Wear	Excellent
Lubricity	Excellent
Conductive	Yes
Operating Temp	1600°F
Masking	As Required
Color	Satin Gray

## Q&A

*Does JNJ manufacture OEM specific blades in custom lengths, widths and configurations?*

YES WE DO...JNJ can help you customize your applications and save you time & money.

SMTech



SMTech



SCS

Single Component Squeegees are made to fit single component stencils for printing micro BGA, ultra fine pitch and difficult devices on populated or bare boards.

with  
our

# Electrolizing Coating

## Conductivity

Unlike anodized and hard-coat, Electrolizing is a conductive coating. Combined with increased wear resistance, the conductivity property eliminates electrostatic buildup and discharge.



*How long do JNJ metal blades last?*

More than twice\* as long as OEM or other manufacturers' nickel plated and/or teflon coated blades.

\*variables in the printing process affect blade life

## Precision

Electrolized coating was developed and designed to be precise, thin, uniform depositions to a .0005" thickness. Our coating thickness was engineered expressly for the screen and stencil printing process with high performance and wear resistance criteria our main objective.

## Blade Edges are a Vital Part of Printing

We machine a radius on the edge of our blades and run angles off both sides of the radius. This construction prevents scratching and surface damage to stencils. It also makes the paste roll off the surface of the blade in a smooth sliding action that delivers crisp print deposits time after time.

This design along with the Electrolized coating identifies the unique blade properties that we offer to provide better performance for fine and ultra-fine pitch printing.

## Electrolizing vs Nickel Plating

The Electrolizing process is an alternative to nickel plating that significantly reduces or eliminates wear due to galling, abrasion, and nonadhesion. It gives a lower friction coefficient, extending blade life and providing good release properties.

This thin, uniform coating is applied without buildup on edges or corners; it does not need any polishing or removal of edge buildup, nor does it flake, chip or peel, as happens with nickel plating.

Nickel plating requires a heavy coat (a minimum of .003" thickness has to be used) that makes it brittle. Therefore in applications that require bending or flexing, the coating will break and peel, reducing blade life.

Nickel plating impregnated with Teflon® or with a Teflon (plastic) coating will add smooth sliding properties but will not increase the wear resistance. After multiple passes the Teflon wears off and again the nickel will break and peel off.

Our Electrolized coating extends the life of the blades with three inherent characteristics: 70/72 Rc hardness, lubricity to enhance release and eliminate sticky surfaces and staining, and total adherence to the base metal with **absolutely no chipping, flaking or peeling.**

The alloy used in the Electrolizing process provides an unusual combination of bearing properties, remarkable wear resistance, and extremely low coefficient of friction, smooth sliding properties, superior corrosion protection, and an excellent sealant when applied to our stainless steel blades.

**JNJ blades are acknowledged in the printed circuit board industry worldwide for their wear resistance and high performance.**

DeHaart



DEK



DeHaart

## SMartTek™ Universal Metal Squeegee Assembly

Our patented MSA adjustable angle of attack metal squeegee blade assembly fits directly into most standard 3/8" x 3/8" diamond blade holders or 3/8" x 3/4" single edge blade holders eliminating the need to buy special metal blade holders for existing machines. JNJ's adjustable angle squeegee blades have been tested and approved by DEK Printing Machine Ltd. and by both MPM & DEK users worldwide. Our SMartTek blades allow MPM, DEK and other OEM users to adjust the angle of their squeegee blades from 45° to 60° in a matter of seconds. The unique design holds the metal blade in such a way that there is no distortion, which is commonly found on clamped or screw mount blades.

The metal blade adjusts easily to any desired angle and is then locked into place with the use of an Allen wrench. The design includes: the aluminium housing

lock, lock collars, and SMartTek™ MSI metal squeegee blade insert. Angle is adjustable from 20° to 70° degrees. MSI replacement blades are also sold separately.



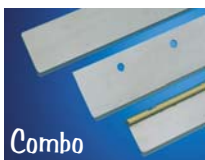
SMartTek™

custom sizes available

## Combo Blade

Metal & Plastic Squeegee Blade  
ALL-IN-ONE

Our Combo Blade was specifically designed to print conductive and chip bonder epoxies through plastic stencils on to PC boards. They allow the operator to use both plastic and metal blades while using the same squeegee holder. The plastic edged blade will not scratch or damage plastic stencils while providing parallel printing performance as metal blades.



Combo



*What makes JNJ a unique manufacturer of production assembly products?*

JUST ABOUT EVERYTHING...we're the only company on the planet who does it all!  
"IT'S ALL ABOUT YOU" our customers.

We've put the **CUSTOM** back in customer by designing and developing products with you to suit your specifications.

# JNJ INDUSTRIES

290 Beaver Street  
Franklin, MA 02038  
800-554-9994 or 508-553-0529  
Fax: 508-553-9973 \* e-mail: sales@jnj-industries.com  
www.jnj-industries.com

## ***The Industry Standard in Quality and Performance***

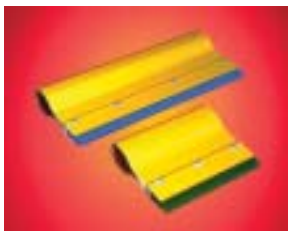
JNJ's commitment is not only to provide the highest quality products possible, but to make them available to you for fast delivery through a network of local, national and international distributors.

## **SMT PRODUCTION SUPPLIES & EQUIPMENT CUSTOM & PRODUCTION MACHINING**

# Accessories are EVERYTHING!!




## **Squeegee Blades**

### Universal Hand Held Squeegee Holders



JNJ's rugged hand held squeegee holders are made from gold anodized extruded aluminum. They are capable of holding metal and polyurethane blades for all your screen printing requirements. Offered in standard lengths ranging from 4" through 18". Custom sizes are also available.

#### **Blade Selection for Holders**

Type	Description	Visual
HRB Poly Blade	3/8" x 1.25" x * 60-120 durometer	
UHMBA-*	Metal Blade Assembly	
UHFMI-*	Metal Blades using a PolyBlade as the Take-up Blade	

\*insert blade length

### Poly Squeegee Blade Cutters

Our **Hand Held Squeegee Blade Cutter** cuts 50 to 100 durometer squeegee blades cleanly and safely. For diamond and single edge polyurethane squeegee blades, this ergonomically designed tool comes with a precision steel blade. Made from black anodized aluminum.



The **Benchtop Squeegee Blade Cutter** is rugged and can be bolted to the top of a workbench. Model 640 quickly and easily lets you accurately measure and cut diamond, single edge and rectangular blades ranging from 50 to 100 durometer. Made from gold anodized aluminum, the unit comes with a set of five replacement blades, a scale and a fine adjustment rod for setting blade lengths for repeat cuts.

