

Heavy (Large) Wire Wedge (HWW) bonding tools Added Value Solution by MPP, 2021

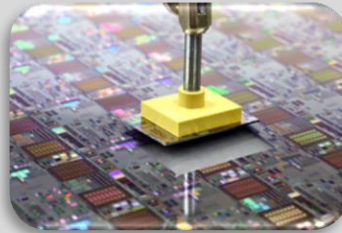
The Company

- **MPP** is a **leading customized solutions provider** for the semiconductors and micro-electronic devices assembly industry.
- Established in 2010 with **40 years of experience** and expertise
- Provides solutions to a wide array of market leaders & segments
- We master the whole production process:
raw material → end product
- **150 employees** → part of a large group of companies supported by ~ 600 employees



Product Lines

**Pick & Place &
Flip Chip tools**



**Dispensers &
SJB tools**



**Dispensers &
Nozzles for SMT**



Die-Collets tools



**Small & Large
wire Wedges**



**Customized
Ceramic & Hard
Metal Products**



**Manual Wire
Bonders**



**Thin Film
Coating**



**Probe Heads for
wafer resistivity
check**

Leading Customers

Western Digital

KLA+
Keep Looking Ahead

LUCID

TOSHIBA

Seagate

ROHM
SEMICONDUCTOR

NXP

infineon

TESLA

Continental

HITACHI
Inspire the Next

Sonics 超音波工業株式会社
ULTRASONIC ENGINEERING CO., LTD.

RENESAS

nexperia

HESSE
MECHATRONICS

SAMSUNG

Amkor
Technology

ASE GROUP

EXCELITAS
TECHNOLOGIES

QORVO

ON Semiconductor

Fuji Electric

psi technologies

THALES

IMI

Panasonic

FAIRCHILD
SEMICONDUCTOR

th TONG HSING
PHILIPPINES

ST

TDK

Micron

SEIKO

Abbott

SAIC

freescale
semiconductor

CREE

BYD

VISHAY

上汽集团
SAIC MOTOR

Agilent Technologies

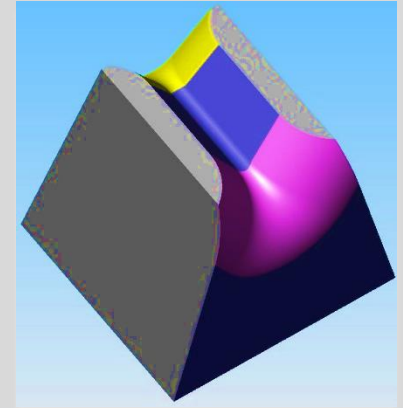
JDSU

KODENSHI

MP Micro Point Pro

Challenges

- Special geometry of the tip
- Back and Front Radii
- Tolerances $\pm 2^\circ$
- Repeatability $\pm 0.0002''$
- Surface condition

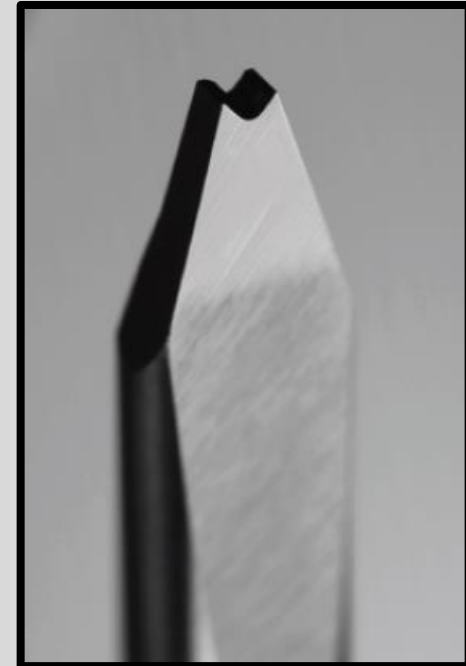


Area of Improvement

Build-up	Increase no' of bonds between cleaning cycles, especially on 1'st cleaning cycle
Wear-off	Increase total no' of bonds with top quality of bonding (life span)

Added Value Solution by MPP

Material	Better wear and/or build-up resistivity
Geometry	Special tip design to reduce build-up
Surface Treatment	Optional types of coatings to <ol style="list-style-type: none">1. Resist Al "stick-up" → high bond count on 1'st cycle, And/or2. Increase resistivity to wear



Extending tool life span

- **Special HWW Material**

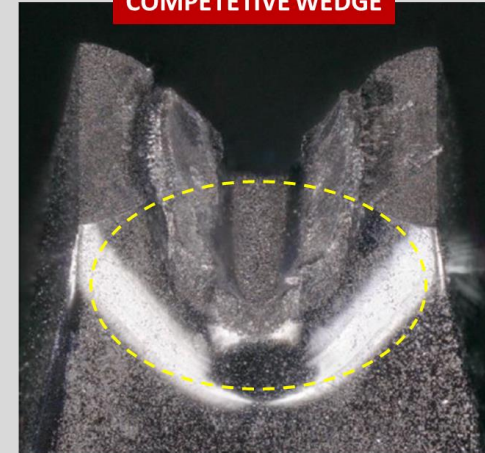
- Supported by:
 - The Israel Innovation authority (<https://innovationisrael.org.il/>)
 - The “Technion”, Israel’s top leading tech institute (<https://www.technion.ac.il/>)
 - One of the worldwide metal manufacturer
- Optimal composition of TC
- Reduced “build-up” and improved resistivity to wear
- Status: under qualification

- **Special Tip Design for HWW & Ribbon tools by MPP**

- Unique MPP own tip design → reduce build-up & wear while maintaining top quality bonding performances

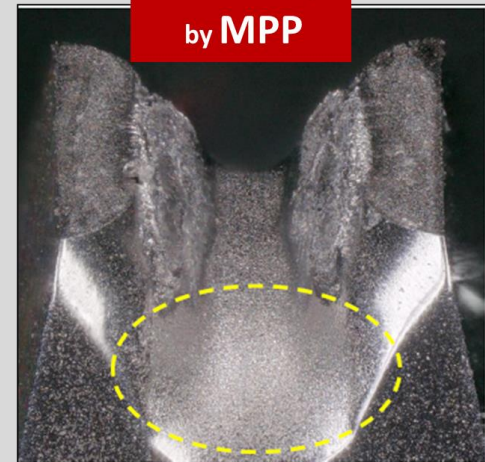
- **Special coatings options to reduce build-up / wear**

COMPETITIVE WEDGE



**Massive build-up on BR
After 100k bonding**

**NEW TIP DESIGN
by MPP**



**No build-up on BR
After 100k bonding**

Surface Treatment (Coating) by MPP

- **Reducing Build-up**
 - Extending bond count until 1'st cleaning cycle is applied
 - 2 major solutions:
 - **Carbon based** technology
 - **Silicon based** technology
 - Minimizing the interaction between the **Cobalt Binder** of the tool and the **Aluminum Wire**
 - → reducing build-up → reducing wear
 - Thin coating which doesn't affect the tool geometry / ultrasonic behavior ← no parameter's adjustment is required
- Other options are available
- In house capabilities

MPP Value Proposition

✓ Quality tools

- ✓ Strict QC & QA → High Accuracy & Repeatability
- ✓ Top Performances – bonding and life span
- ✓ Qualified by leading customers ← Automotive and other semiconductors/power devices manufacturer
- ✓ Compatible for all bonder's manufacturer – K&S, Cho-Onpa, Hesse, F&S and others

✓ Excellent product support

- ✓ Short lead time
- ✓ **Attractive prices**
- ✓ Supporting consignment and other “custom made” solutions

✓ Close and intimate engineering support

- ✓ Supporting customer's inquiries for new designs and applications
- ✓ Special tools options for longer life span
 - ✓ Material
 - ✓ Tip design
 - ✓ Surfacers treatment (coatings)
- ✓ Special marking options – s/n, QR code

Our Commitment
**Lowest Cost
Per
Bond**