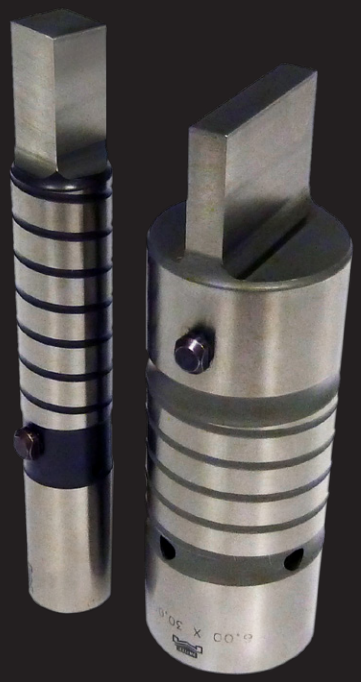
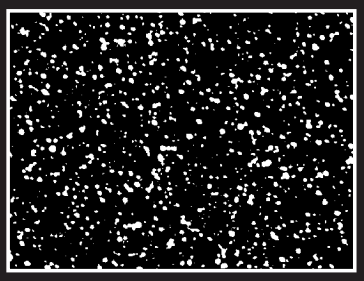
Superior Solutions for Sheet Metal Fabricators

ULTRA TEC® A & B STYLE PUNCHES

With M4PM™ Tool Steel





M4PM™

Conventional Tool Steel

PN 2013

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MATE® PRECISION TOOLING

TRUSTED / QUALITY / SERVICE / SOLUTIONS

MATE® ULTRA TEC® STYLE TOOLING LASTS EVEN LONGER WITH M4PM™ STEEL

Mate's Ultra TEC® tooling system has long offered fabricators flexibility, high performance and extended tool life. Mate's Ultra TEC punches are even better with the ***superior performance and longevity of Mate's M4PM™ tool steel,*** available as an option on Mate Ultra TEC A & B station punches. Ultra TEC punches with M4PM's superior wear resistance are perfect for punching stainless steel or higher carbon steels.

M4PM™ STEEL

Designed for use in high performance tooling systems, M4PM is a high speed, particle metallurgy steel that combines the chemical composition of M4, particle metallurgy manufacturing and a triple temper heat treatment process.

SUPERIOR WEAR RESISTANCE

100% better wearing than conventional tool steels, M4PM offers superior resistance to adhesive- and abrasive-wear to maximize the interval between regrinds. (See chart)

- **More uniform distribution of smaller carbides** — results in improved ductility (adhesive-wear) while still providing abrasive-wear resistant carbides over the entire surface of the material.
- **100% more Vanadium carbides** — harder wearing for greater resistance to abrasive-wear.
- **Increased Tungsten carbides** — harder wearing and offers better red hardness; increased resistance to high temperatures that may anneal or damage the material.
- **Higher hardenability** — increased alloy content results in higher effective hardness for better wear resistance.

LONGER LASTING TOOLING

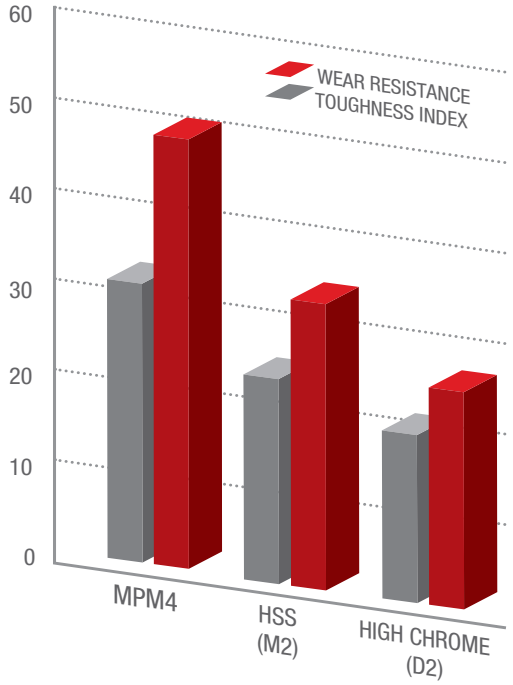
With the clear advantage of M4PM steel, Mate's superior accuracy and precision, and you have a winning combination: reliable, consistent, long-lasting tooling. Compared to conventional high speed steel used by other manufacturers, Mate's Ultra TEC A & B punches with M4PM have 100% better wear resistance. (See chart)

What does long-lasting tooling mean to you?

- *Increased* machine uptime.
- *Improved* sheet metal products.
- *Reduced* overall tooling costs.
- *Lower* overall production costs.

Put Mate Ultra TEC Tooling to the Test

Like all Mate products, Mate Ultra TEC tooling is backed by our 100% customer satisfaction guarantee. You have nothing to lose. If you are not satisfied, we'll take the tooling back...no questions asked.

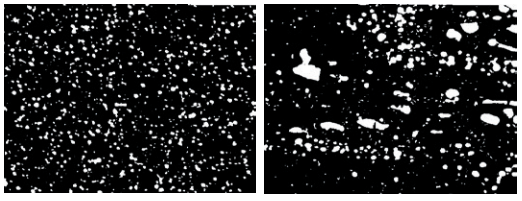


Toughness: Charpy C-Notch impact strength test.
Wear Resistance index values were developed by an independent metallurgical expert, evaluating both adhesive and abrasive wear characteristics of tool steels at typical levels of hardening.

INTERNATIONAL MATERIAL STANDARDS			
	D2	**M2**	**M4PM**
JIS	SKD 11	SKH 51	SKH 54
WNr	1.2379	1.3343	none
DIN	X155 CrVMo 12-1	HS 6-5-2	none

JIS: Japanese Industrial Standard
WNr: Werkstoffnummer
DIN: Deutsches Institut für Normung e.V.

Micrograph shows that the particle metallurgy process produces a very homogeneous, high quality tool steel with superior wear resistance, toughness and dimensional stability.



M4PM™ Conventional Tool Steel

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