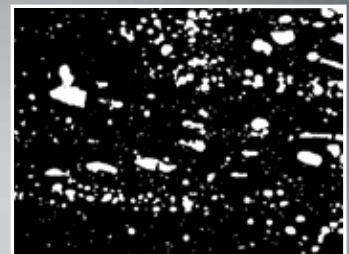


M4PM™



Conventional Tool Steel

M4PM™ Tool Steel

SUPERIOR PERFORMANCE AND LONGEVITY

MATE® TOOLING LASTS LONGER WITH M4PM™ STEEL

Mate has long offered the most comprehensive range of tooling for all major punch press manufacturers. Mate's tooling is even better with the **superior performance and longevity of Mate's M4PM™ tool steel**, standard on the following products:

THIN TURRET STYLE

- Xcel™ 3-1/2" station slitting inserts

THICK TURRET STYLE

- All Thick Turret C, D and E station slitting inserts
- Thick Turret cluster inserts from 2mm-20mm
- QCT™ A & B station inserts

TRUMPF STYLE

- All conventional Trumpf-style Size 0 and Size 1 punches
- All QuickLock™ Size 1 punches
- All NEXT™ Size 40 and 76 punches
- All Trumpf-style Size 5 and Size 10 Multi Tool punches
- All Trumpf-style Size 5 and Size 10 Multi Tool dies
- All LongLife™ slitting punch and die inserts
- Trumpf style cluster inserts from 2mm-20mm

Mate M4PM tool steel is available as an option on the following products:

- UltraTEC® A and B station punches
- MXC™ A and B station punches

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.

M4PM offers superior resistance to adhesive and abrasive-wear to maximize the interval between regrinds. The increased alloy content results in higher effective hardness for better wear resistance. A more uniform distribution of smaller carbides results in significantly reduced tool breakage and edge chipping.

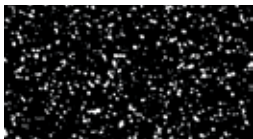
Longer Lasting Tooling

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 Trumpf-style tooling with M4PM has at least 50% or greater wear resistance.*

What does long-lasting tooling mean to you?

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

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



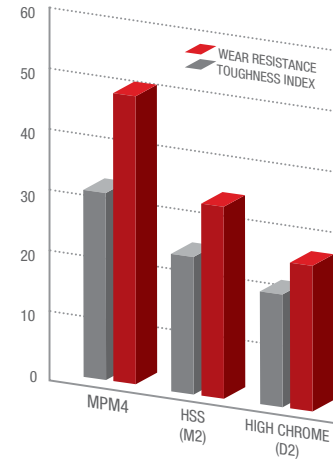
M4PM™



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WEAR RESISTANCE INDEX COMPARISONS

THICK TURRET STYLE M4PM PERFORMANCE



Toughness: Charpy C-Notch impact strength test.

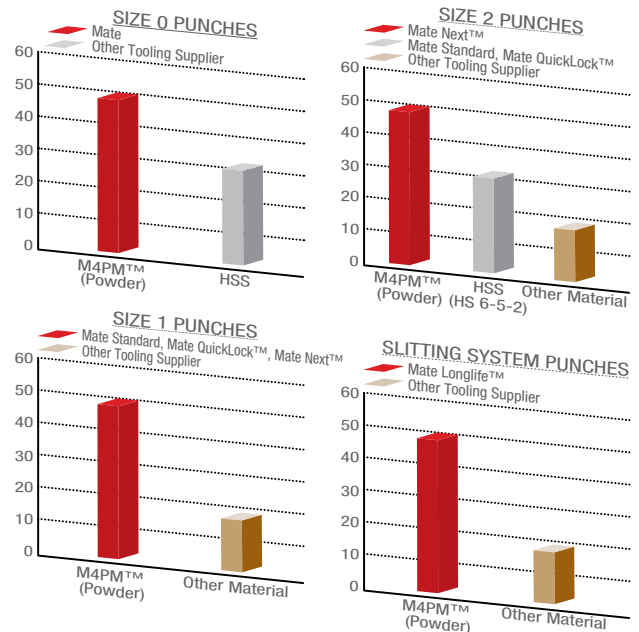
INTERNATIONAL MATERIAL STANDARDS			
	D2	M2	M4PM
JIS	SKD 11	SKH 51	SKH 54
WNR	1.2379	1.3343	none
DIN	X155 CrVMo 12-1	HS 6-5-2	none

JIS: Japanese Industrial Standard

WNR: Werkstoffnummer

DIN: Deutsches Institut für Normung e.V.

TRUMPF STYLE M4PM PERFORMANCE



*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.