Solid carbide drills and end mills

Innovations 2019

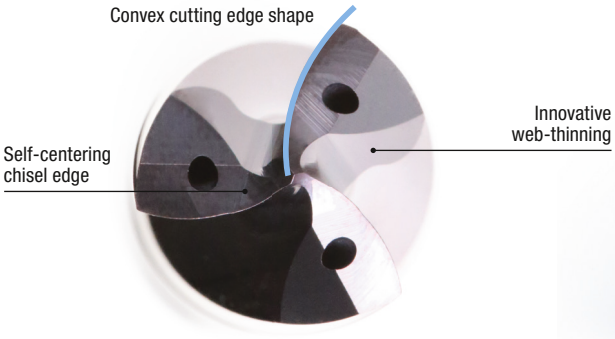
MILLER
MAPAL GROUP

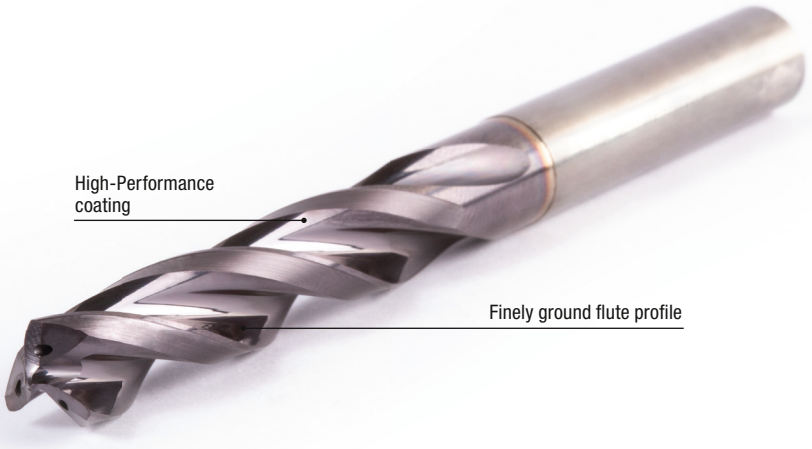
“Spike” becomes “Tritan”“

With the publishing of the supplementary volume 2019, Miller’s drilling programme with three cutting edges can be found under its new name “Tritan-Drill”.

Tritan-Drill-Steel and Tritan-Spot-Drill-Steel

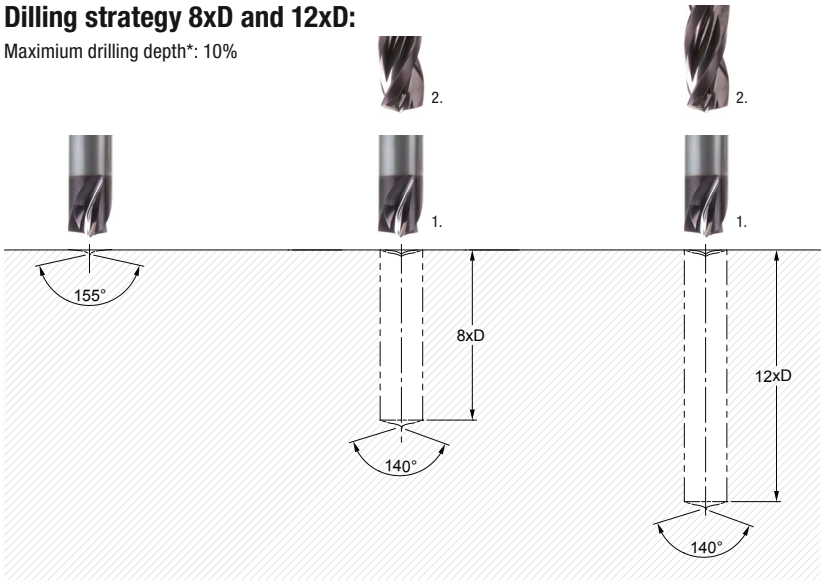
Cost-effective drilling of steel





Dilling strategy 8xD and 12xD:

Maximium drilling depth*: 10%



* in % of diameter

AT A GLANCE

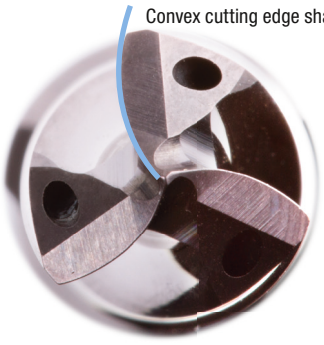
- Expansion:
  - Tritan-Drill-Steel 8xD (M9938)
  - Tritan-Drill-Steel 12xD (M9942)
  - Tritan-Spot-Drill-Steel (M9930)
- Perfectly matched spot drill to the Tritan-Drill-Steel: Tritan-Spot-Drill-Steel
- Also suitable for difficult drilling tasks
- Diameter range of 4.00 to 20.00 mm

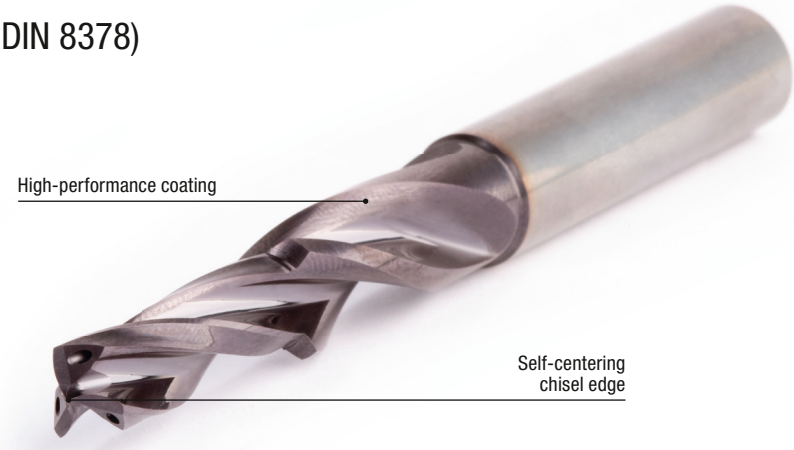
ADVANTAGES

- Robust tool with stable cutting edges
- No oscillations when machining
- Long tool life
- Considerably increased feed rate
- Fast chip removal

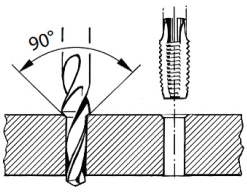
Tritan-Step-Drill-Steel

Economical core hole tapping (according to DIN 8378)

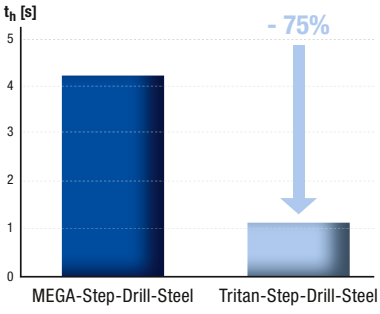




Economical core hole tapping



Core hole M10
42CrMoS4
l_B: 25,50 mm



MEGA-Step-Drill-Steel ø 8,5
v_c: 70 m/min
f_u: 0,16 mm/rev.
t_h: 4,3 s

Tritan-Step-Drill-Steel ø 8,5
v_c: 115 m/min
f_u: 0,4 mm/rev.
t_h: 1,1 s

AT A GLANCE

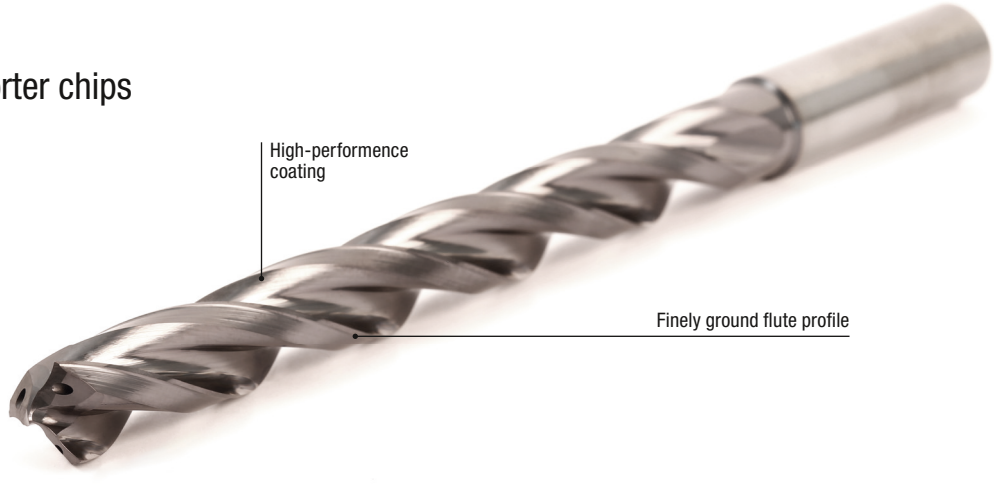
- Tritan-Drill triple cutting edge technology now as step drill (M9913)
- Specially designed for machining steel
- For thread sizes M5 to M16

ADVANTAGES

- Robust tool with stable cutting edges
- No oscillation when machining
- Long tool life
- Considerably increased feed rate
- Fast chip removal

Tritan-Drill-Uni-Plus

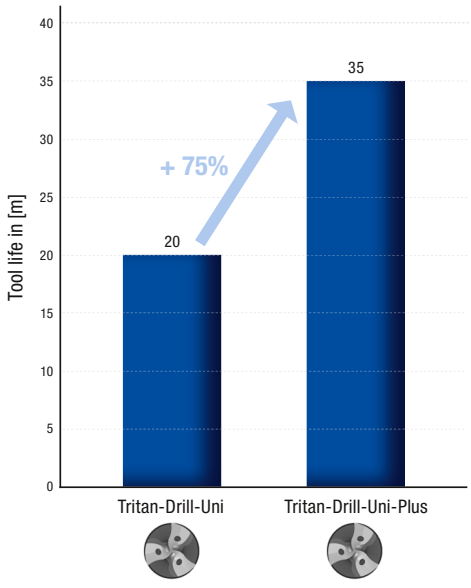
Safe chip evacuation thanks to shorter chips



Benchmark - V4A

(X5CrNiMo 17 12 2)

ø: 8,50 mm
v_c: 60 m/min
f: 0,30 mm/rev.



Chip forming in V4A

Tritan-Drill-Uni-Plus

+ Shorter chips
+ Safe chip evacuation

AT A GLANCE

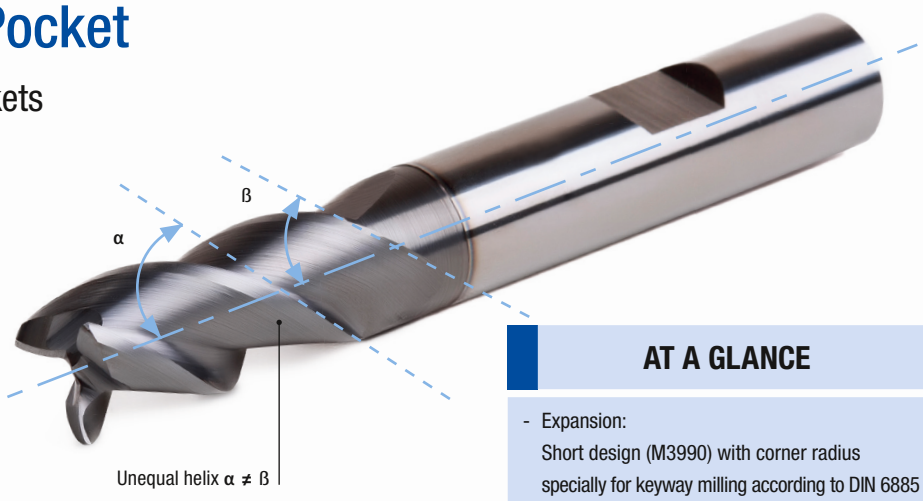
- Upgrade of the MEGA-Spike-Drill-Uni drills
- Higher wear resistance through innovative coating (MxP)
- Optimized flute profile for 8xD
- Finely ground flute profile
- Diameter range of 4.00 to 20.00 mm
- Designs:
  - Tritan-Drill-Uni-Plus 5xD(M9535P)
  - Tritan-Drill-Uni-Plus 8xD (M9538P)

ADVANTAGES

- Safe chip evacuation
- Efficient machining
- Higher feed rates
- Maximum tool life

OptiMill-Uni-HPC-Pocket

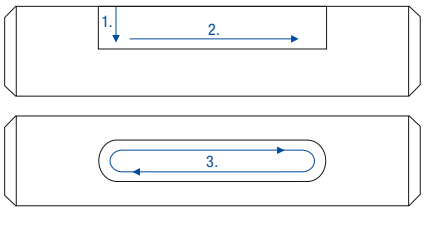
Economical production of pockets



Milling keyways according to DIN 6885*

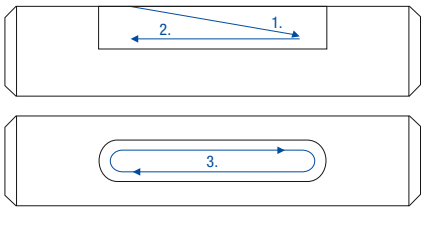
Machining strategy 1

1. Plunging on slot depth
2. Groove milling on slot length
3. Finishing of the slot



Machining strategy 2

1. Ramping on slot depth
2. Groove milling on slot length
3. Finishing of the slot



* Recommendation example: for slot width b=12,00 mm, use end mills with Ø=11,70 mm

AT A GLANCE

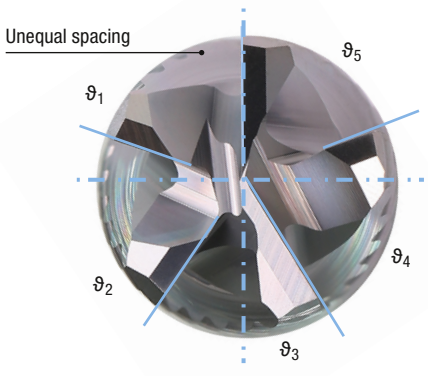
- Expansion:
  Short design (M3990) with corner radius specially for keyway milling according to DIN 6885
- Universal machining of steel, stainless steel and cast iron
- End mill point geometry with integrated drill point
- Suitable for ramping up to 45°
- For helix milling and for plunging
- Designs:
  - Short (M3990)
  - Long (M3993)
  - Overlong (M3991)
- Diameter range of 3.80 to 20.00 mm

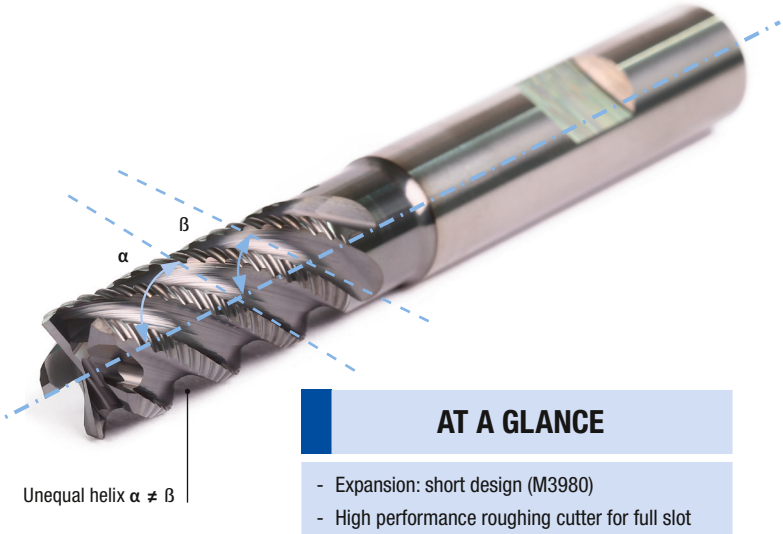
ADVANTAGES

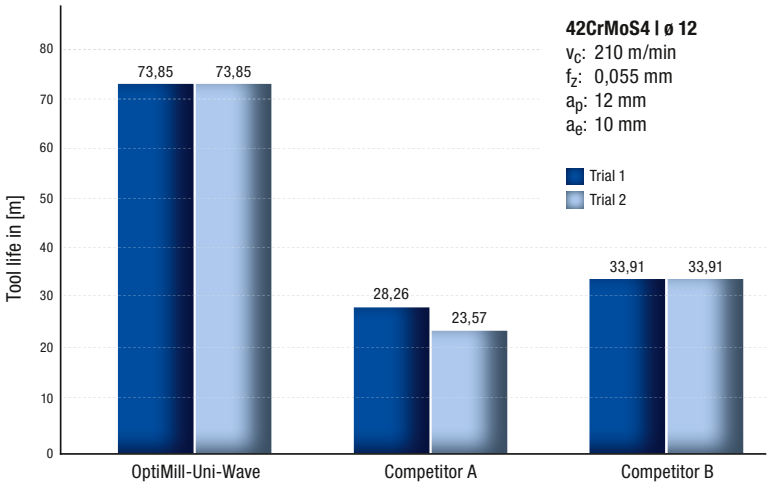
- Pilot bore and tool changes are no longer required
- Point thinning with three large chip flutes for optimum chip evacuation
- Long tool life thanks to special cutting edge preparation, wear resistant coating and ductile carbide substrate

OptiMill-Uni-Wave

Fast and cost-effective for full slots







AT A GLANCE

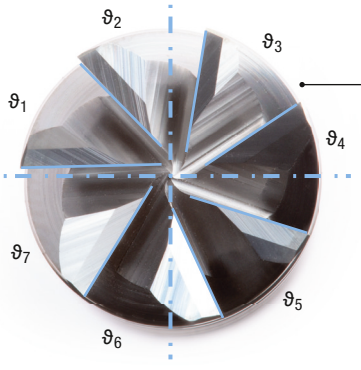
- Expansion: short design (M3980)
- High performance roughing cutter for full slot milling
- Suitable for many different materials
- New diamond knurl geometry
- Unequal spacing of the five cutting edges
- Design:
  - Short (M3980)
  - Long (M3985)
- Diameter range of 4.00 to 25.00 mm

ADVANTAGES

- Higher level of performance and less oscillation and vibration compared to existing HPC roughing milling cutters
- Extreme machining rates possible
- Long tool life
- Highly cost-effective machining

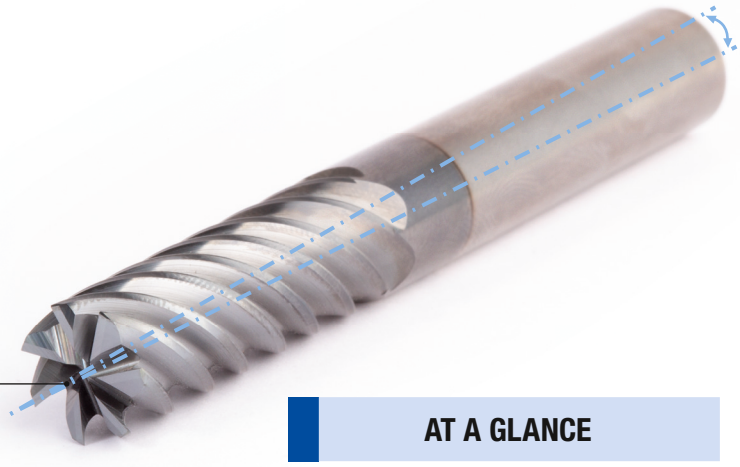
OptiMill-Uni-HPC-Finish

Highest surface quality at large cutting depths



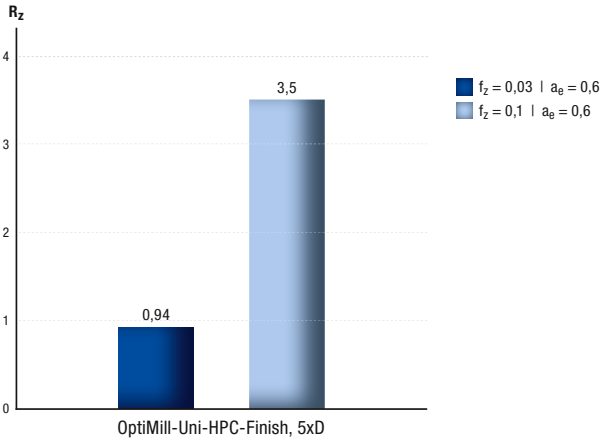
Unequal spacing

Core rise



Roughness at machining 42CrMoS4

v_c = 260 m/min



AT A GLANCE

- New High-Performance finishing end mills
- Adapted flute profile with 7 cutting edges
- New substrate, improved toughness and bending strength
- Feed rates up to ap = 5xD possible
- Design:
  - 2xD (M3917-2D)
  - 3xD (M3917-3D)
  - 4xD (M3917-4D)
  - 5xD (M3917-5D)
- Diameter range of 4.00 to 25.00 mm

ADVANTAGES

- Less vibrations
- Thus smooth running
- Maximum v_f and perfect chip removal
- Use of the complete cutting edge length
- Highest efficiency

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