

DrillLine

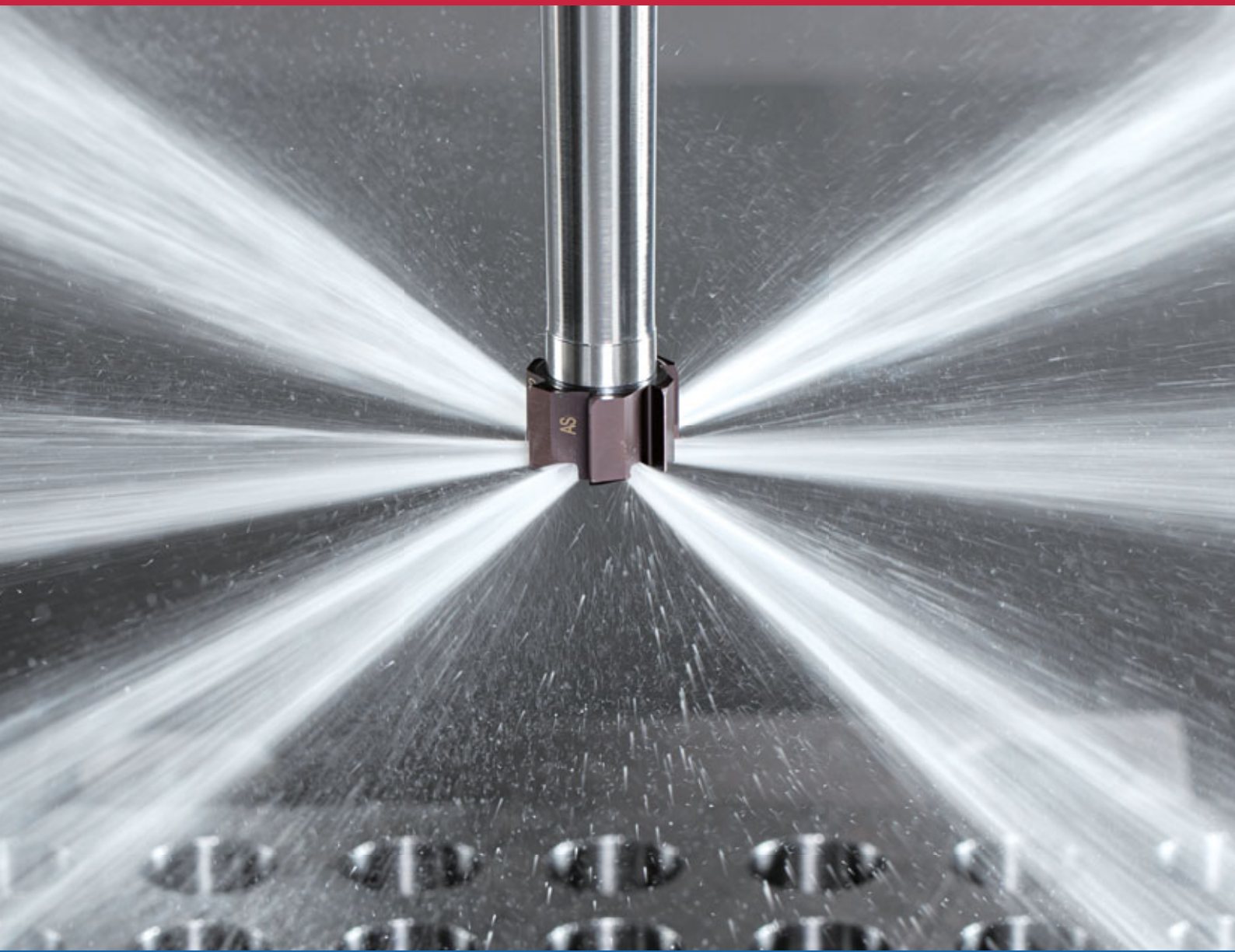
REAMMEISTER



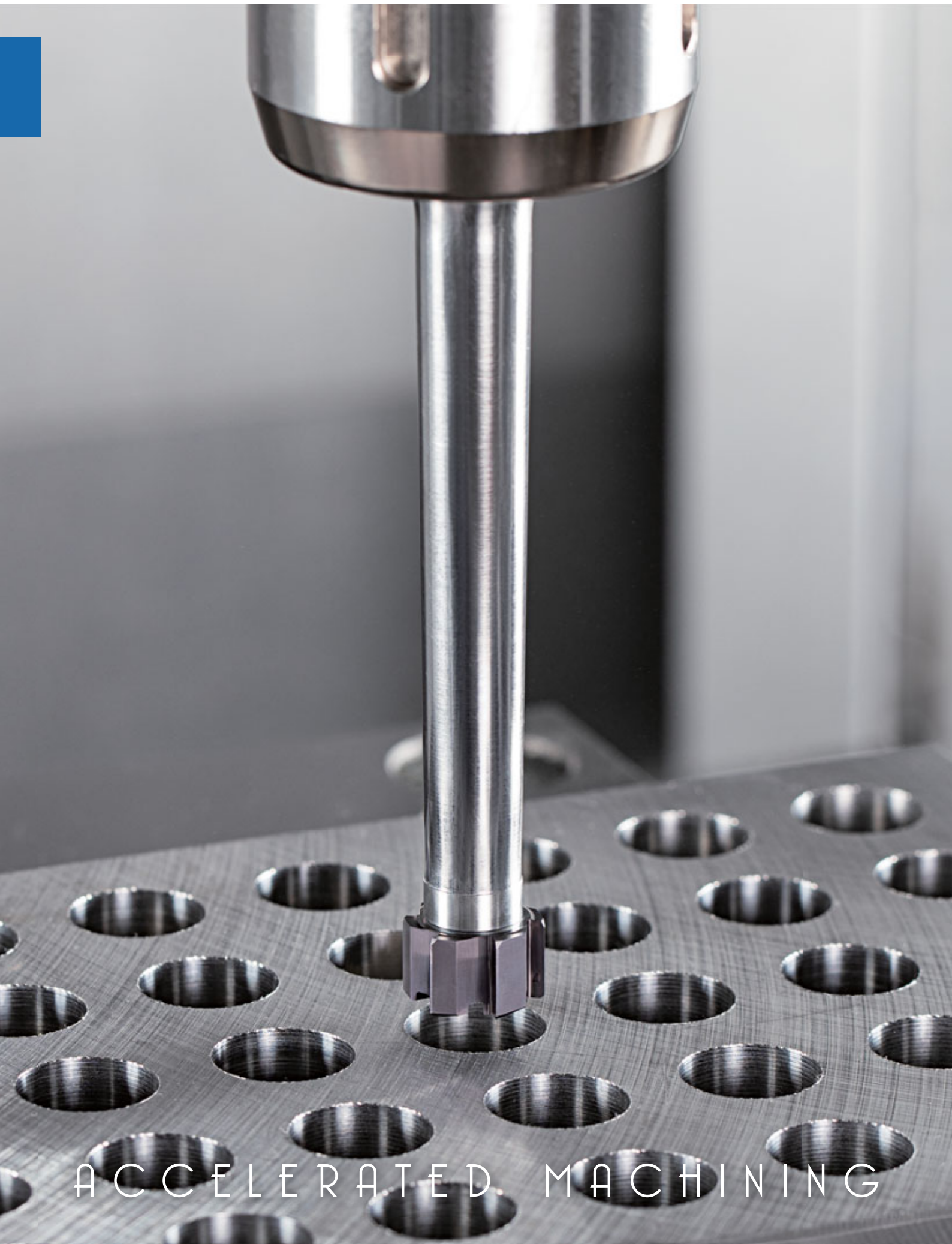
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Tungaloy Report No. 530-US

High precision and productivity solution for finishing hole operations



INDUSTRY 4.0
FEED the SPEED!



ACCELERATED MACHINING



DrillLine

REAMMEISTER
TUNGALOY

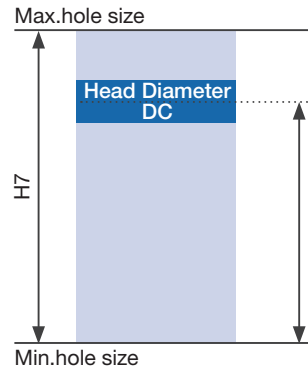
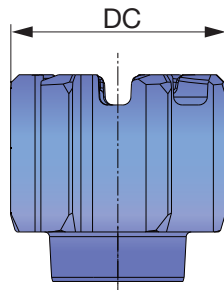


New generation reamer for finishing hole operations

www.tungaloy.com/us

Innovative head clamping system ensures **high quality and productive reaming operations**

High precision reamer heads for applications of H7 hole tolerance range

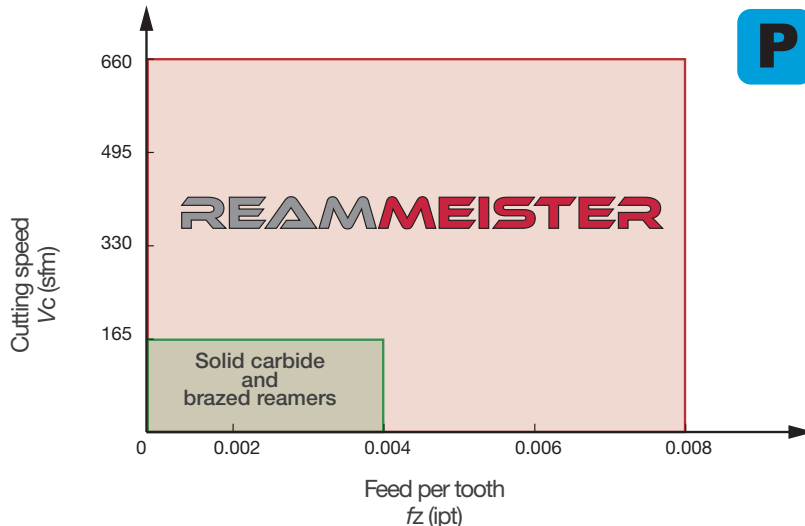


| Nominal hole diameter (inch) | | Hole diameter tolerance (μm) | ReamMeister head tolerance DC (μm) |
|------------------------------|-------------------|---|---|
| Above | Up to & including | H7 | H7 |
| 0.45280 | 0.70866 | +18 / 0 | +15 / +11 |
| 0.70870 | 1.18110 | +21 / 0 | +17 / +13 |
| 1.18114 | 1.25984 | +25 / 0 | +21 / +16 |

• Head diameters are produced so that the hole diameter achieved is close to the max tolerance limit.

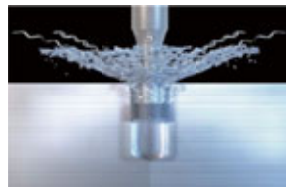
Allows applications of higher cutting speeds and feed rates over solid carbide or brazed reamers, ensuring high productivity

Applicable machining area



2 types of reamer heads are available depending on the hole types

Diameters: $\varnothing 0.45276''$ - $\varnothing 1.25984''$



Chip evacuation in rear

AS Type
Straight flute
For blind holes

*Can be used for through holes

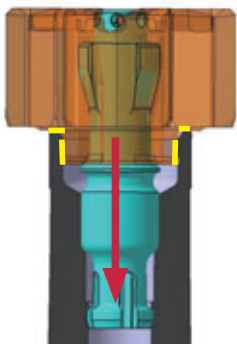


Chip evacuation in front

BL Type
Left hand flute
For through holes

Innovative head clamping system ensures a runout accuracy and repeatability

Clamping mechanism



Parts



Coolant supply

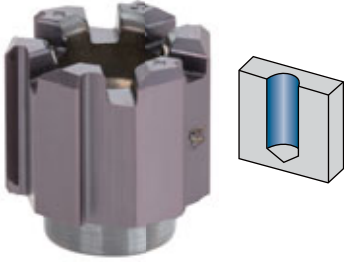


- Dedicated screw pulls the head towards the shank when tightened, **clamping the reamer head securely** in place, allowing **easy head indexing** with **no need for clamping screws** as in the case with indexable reamers
- Face and taper contact provides secure clamping of the head to **ensure high repeatability with minimal runout**
- **Internal coolant bores are arranged in radial directions** on the reamer head so the cutting edges are **effectively cooled and lubricated during machining**, ensuring long tool life

* Can be used also for external coolant supply

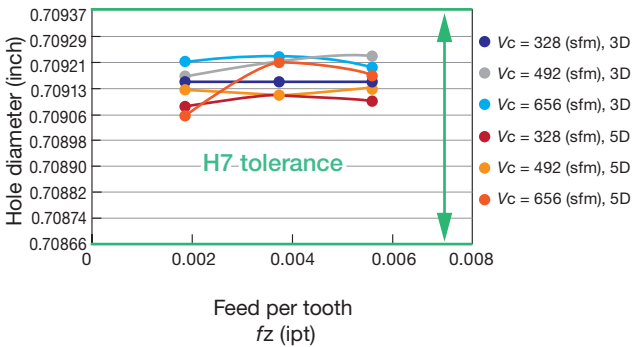
CUTTING PERFORMANCE

P

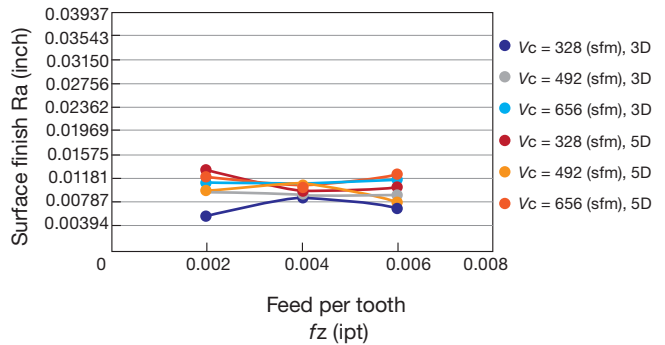


Tool : TRM-T7-R20-3, TRM-T7-R20-5
 Head : HRM-0.7087-AS-T7 AH725
 Workpiece material : 1055
 Hole type : Blind
 Pre hole diameter : $\phi 0.7008''$
 Hole depth : $H = 1.18''$ (L/D = 1.7)
 Coolant : Internal

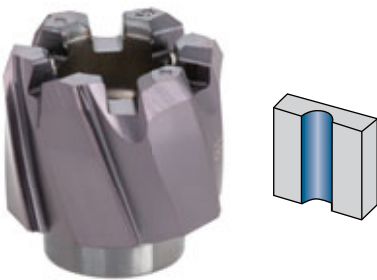
Hole diameter accuracy



Surface finish

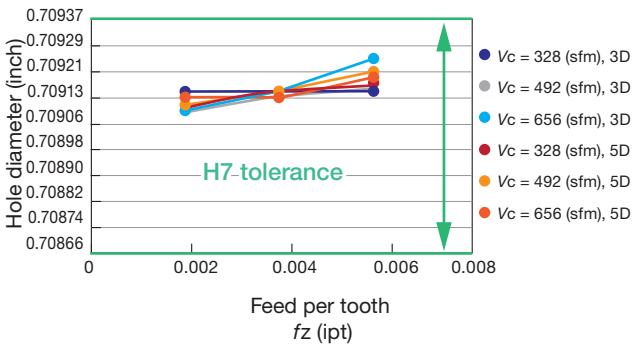


P

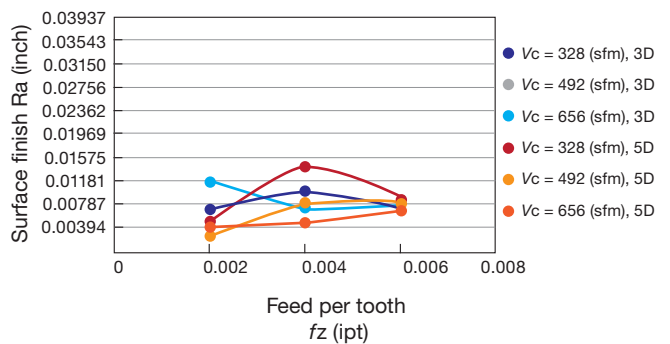


Tool : TRM-T7-R20-3, TRM-T7-R20-5
 Head : HRM-0.7087-AS-T7 AH725
 Workpiece material : 1055
 Hole type : Through
 Pre hole diameter : $\phi 0.7008''$
 Hole depth : $H = 1.18''$ (L/D = 1.7)
 Coolant : Internal

Hole diameter accuracy



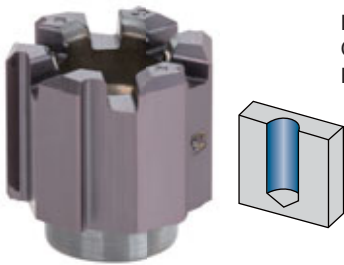
Surface finish



Hole diameters machined with ReamMeister have exhibited minimum deviations at all cutting conditions, providing consistency in hole accuracy

TOOL LIFE

P



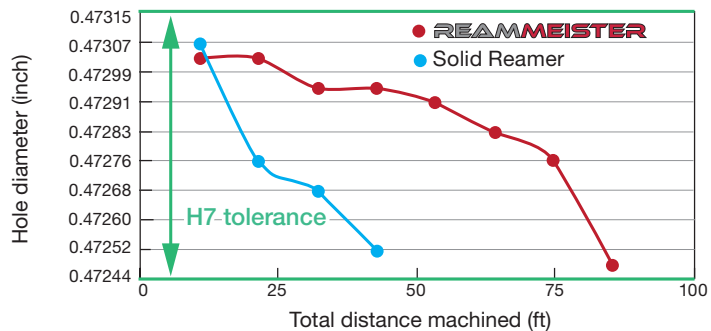
REAMMEISTER

Tool : TRM-T5-R16-3
 Head : HRM-0.4725-AS-T5 AH725
 Cutting speed : $V_c = 492$ sfm
 Feed per tooth : $f_z = 0.004$ ipt

Solid Reamer

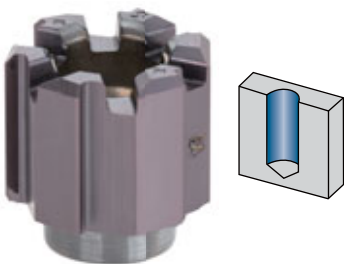
Tool : $\phi 0.4725$ " Solid Reamer (Uncoated)
 Cutting speed : $V_c = 164$ sfm
 Feed per tooth : $f_z = 0.004$ ipt

Workpiece material : 1055
 Hole type : Blind
 Pre hole diameter : $\phi 0.4646$ "
 Hole depth : $H = 1.18$ " (L/D = 2.5)
 Coolant : Internal

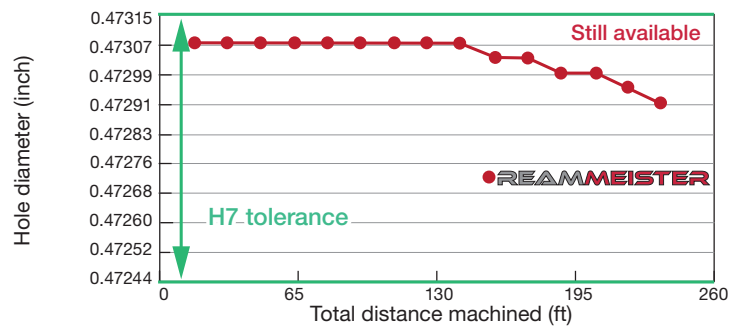


The tool life of ReamMeister is tripled even in high speed machining

K



Workpiece material : 80-55-06
 Hole type : Blind
 Pre hole diameter : $\phi 0.4646$ "
 Hole depth : $H = 1.18$ " (L/D = 2.5)
 Coolant : Internal



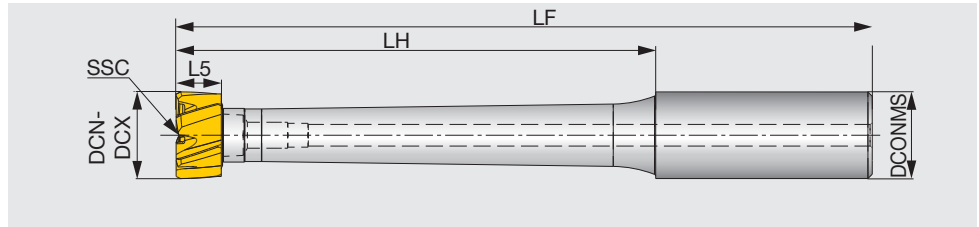
REAMMEISTER

Tool : TRM-T5-R16-3
 Head : HRM-0.4725-AS-T5 AH725
 Cutting speed : $V_c = 492$ sfm
 Feed per tooth : $f_z = 0.004$ ipt

Hole diameter reduction was small with ReamMeister even after machining 260 feet

TRM

Reamer tool



| Designation | DCN | DCX | SSC | L/D | DCONMS | L5 | LF | LH |
|--------------------|---------|---------|-----|-----|--------|-------|--------|--------|
| TRM-T5-R16-1.5 | 0.45276 | 0.5315 | T5 | 1.5 | 0.63 | 0.366 | 3.063 | 1.173 |
| TRM-T6-R16-1.5 | 0.53154 | 0.62993 | T6 | 1.5 | 0.63 | 0.37 | 3.209 | 1.319 |
| TRM-T7-R20-1.5 | 0.62996 | 0.7874 | T7 | 1.5 | 0.787 | 0.417 | 3.571 | 1.602 |
| TRM-T8-R20-1.5 | 0.78744 | 1.02358 | T8 | 1.5 | 0.787 | 0.504 | 3.976 | 2.008 |
| TRM-T9-R32-1.5 | 1.02362 | 1.25984 | T9 | 1.5 | 1.26 | 0.504 | 4.76 | 2.398 |
| TRM-T5-R16-3 | 0.45276 | 0.5315 | T5 | 3 | 0.63 | 0.366 | 3.85 | 1.961 |
| TRM-T6-R16-3 | 0.53154 | 0.62993 | T6 | 3 | 0.63 | 0.37 | 4.15 | 2.26 |
| TRM-T7-R20-3 | 0.62996 | 0.7874 | T7 | 3 | 0.787 | 0.417 | 4.748 | 2.78 |
| TRM-T8-R20-3 | 0.78744 | 1.02358 | T8 | 3 | 0.787 | 0.504 | 5.425 | 3.457 |
| TRM-T9-R32-3 | 1.02362 | 1.25984 | T9 | 3 | 1.26 | 0.504 | 6.579 | 4.217 |
| TRM-T5-R16-5 | 0.45276 | 0.5315 | T5 | 5 | 0.63 | 0.366 | 4.921 | 3.031 |
| TRM-T6-R16-5 | 0.53154 | 0.62993 | T6 | 5 | 0.63 | 0.37 | 5.409 | 3.52 |
| TRM-T7-R20-5 | 0.62996 | 0.7874 | T7 | 5 | 0.787 | 0.417 | 6.323 | 4.354 |
| TRM-T8-R20-5 | 0.78744 | 1.02358 | T8 | 5 | 0.787 | 0.504 | 7.394 | 5.425 |
| TRM-T9-R32-5 | 1.02362 | 1.25984 | T9 | 5 | 1.26 | 0.504 | 9.098 | 6.736 |
| TRM-T5-R16-8 | 0.45276 | 0.5315 | T5 | 8 | 0.63 | 0.366 | 6.516 | 4.626 |
| TRM-T6-R16-8 | 0.53154 | 0.62993 | T6 | 8 | 0.63 | 0.37 | 7.299 | 5.409 |
| TRM-T7-R20-8 | 0.62996 | 0.7874 | T7 | 8 | 0.787 | 0.417 | 8.685 | 6.717 |
| TRM-T8-R20-8 | 0.78744 | 1.02358 | T8 | 8 | 0.787 | 0.504 | 10.346 | 8.378 |
| TRM-T9-R32-8 | 1.02362 | 1.25984 | T9 | 8 | 1.26 | 0.504 | 12.878 | 10.516 |
| TRMU-T5-R0.625-1.5 | 0.45276 | 0.5315 | T5 | 1.5 | 0.625 | 0.366 | 3.06 | 1.17 |
| TRMU-T6-R0.625-1.5 | 0.53154 | 0.62993 | T6 | 1.5 | 0.625 | 0.37 | 3.21 | 1.32 |
| TRMU-T7-R0.75-1.5 | 0.62996 | 0.7874 | T7 | 1.5 | 0.75 | 0.417 | 3.57 | 1.6 |
| TRMU-T8-R0.75-1.5 | 0.78744 | 1.02358 | T8 | 1.5 | 0.75 | 0.504 | 3.98 | 2.01 |
| TRMU-T9-R1.25-1.5 | 1.02362 | 1.25984 | T9 | 1.5 | 1.25 | 0.504 | 4.76 | 2.4 |
| TRMU-T5-R0.625-3 | 0.45276 | 0.5315 | T5 | 3 | 0.625 | 0.366 | 3.85 | 1.96 |
| TRMU-T6-R0.625-3 | 0.53154 | 0.62993 | T6 | 3 | 0.625 | 0.37 | 4.15 | 2.26 |
| TRMU-T7-R0.75-3 | 0.62996 | 0.7874 | T7 | 3 | 0.75 | 0.417 | 4.74 | 2.78 |
| TRMU-T8-R0.75-3 | 0.78744 | 1.02358 | T8 | 3 | 0.75 | 0.504 | 5.42 | 3.45 |
| TRMU-T9-R1.25-3 | 1.02362 | 1.25984 | T9 | 3 | 1.25 | 0.504 | 6.58 | 4.21 |
| TRMU-T5-R0.625-5 | 0.45276 | 0.5315 | T5 | 5 | 0.625 | 0.366 | 4.92 | 3.03 |
| TRMU-T6-R0.625-5 | 0.53154 | 0.62993 | T6 | 5 | 0.625 | 0.37 | 5.41 | 3.52 |
| TRMU-T7-R0.75-5 | 0.62996 | 0.7874 | T7 | 5 | 0.75 | 0.417 | 6.32 | 4.35 |
| TRMU-T8-R0.75-5 | 0.78744 | 1.02358 | T8 | 5 | 0.75 | 0.504 | 7.39 | 5.42 |
| TRMU-T9-R1.25-5 | 1.02362 | 1.25984 | T9 | 5 | 1.25 | 0.504 | 9.1 | 6.74 |
| TRMU-T5-R0.625-8 | 0.45276 | 0.5315 | T5 | 8 | 0.625 | 0.366 | 6.51 | 4.62 |
| TRMU-T6-R0.625-8 | 0.53154 | 0.62993 | T6 | 8 | 0.625 | 0.37 | 7.3 | 5.41 |
| TRMU-T7-R0.75-8 | 0.62996 | 0.7874 | T7 | 8 | 0.75 | 0.417 | 8.68 | 6.72 |
| TRMU-T8-R0.75-8 | 0.78744 | 1.02358 | T8 | 8 | 0.75 | 0.504 | 10.35 | 8.38 |
| TRMU-T9-R1.25-8 | 1.02362 | 1.25984 | T9 | 8 | 1.25 | 0.504 | 12.88 | 10.51 |

- Key and screw are included.
- Maximum effective reaming depth = Head diameter x L/D ratio.
Ex. For a reamer with $\phi 0.5''$: $0.5'' \times 3D = 1.5''$

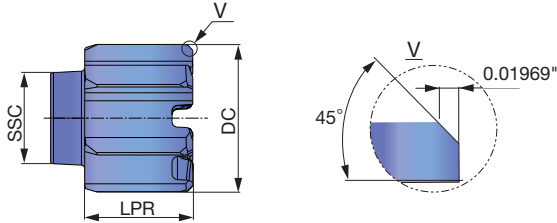
SPARE PARTS



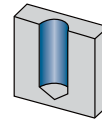
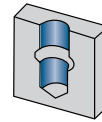
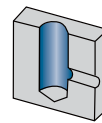
| Designation | Screw | Key |
|--------------------|------------|----------|
| TRM-T5-R16-1.5 | SCR-TRM-T5 | K-TRM-T5 |
| TRM-T6-R16-1.5 | SCR-TRM-T6 | K-TRM-T6 |
| TRM-T7-R20-1.5 | SCR-TRM-T7 | K-TRM-T7 |
| TRM-T8-R20-1.5 | SCR-TRM-T8 | K-TRM-T8 |
| TRM-T9-R32-1.5 | SCR-TRM-T9 | K-TRM-T9 |
| TRM-T5-R16-3 | SCR-TRM-T5 | K-TRM-T5 |
| TRM-T6-R16-3 | SCR-TRM-T6 | K-TRM-T6 |
| TRM-T7-R20-3 | SCR-TRM-T7 | K-TRM-T7 |
| TRM-T8-R20-3 | SCR-TRM-T8 | K-TRM-T8 |
| TRM-T9-R32-3 | SCR-TRM-T9 | K-TRM-T9 |
| TRM-T5-R16-5 | SCR-TRM-T5 | K-TRM-T5 |
| TRM-T6-R16-5 | SCR-TRM-T6 | K-TRM-T6 |
| TRM-T7-R20-5 | SCR-TRM-T7 | K-TRM-T7 |
| TRM-T8-R20-5 | SCR-TRM-T8 | K-TRM-T8 |
| TRM-T9-R32-5 | SCR-TRM-T9 | K-TRM-T9 |
| TRM-T5-R16-8 | SCR-TRM-T5 | K-TRM-T5 |
| TRM-T6-R16-8 | SCR-TRM-T6 | K-TRM-T6 |
| TRM-T7-R20-8 | SCR-TRM-T7 | K-TRM-T7 |
| TRM-T8-R20-8 | SCR-TRM-T8 | K-TRM-T8 |
| TRM-T9-R32-8 | SCR-TRM-T9 | K-TRM-T9 |
| TRMU-T5-R0.625-1.5 | SCR-TRM-T5 | K-TRM-T5 |
| TRMU-T6-R0.625-1.5 | SCR-TRM-T6 | K-TRM-T6 |
| TRMU-T7-R0.75-1.5 | SCR-TRM-T7 | K-TRM-T7 |
| TRMU-T8-R0.75-1.5 | SCR-TRM-T8 | K-TRM-T8 |
| TRMU-T9-R1.25-1.5 | SCR-TRM-T9 | K-TRM-T9 |
| TRMU-T5-R0.625-3 | SCR-TRM-T5 | K-TRM-T5 |
| TRMU-T6-R0.625-3 | SCR-TRM-T6 | K-TRM-T6 |
| TRMU-T7-R0.75-3 | SCR-TRM-T7 | K-TRM-T7 |
| TRMU-T8-R0.75-3 | SCR-TRM-T8 | K-TRM-T8 |
| TRMU-T9-R1.25-3 | SCR-TRM-T9 | K-TRM-T9 |
| TRMU-T5-R0.625-5 | SCR-TRM-T5 | K-TRM-T5 |
| TRMU-T6-R0.625-5 | SCR-TRM-T6 | K-TRM-T6 |
| TRMU-T7-R0.75-5 | SCR-TRM-T7 | K-TRM-T7 |
| TRMU-T8-R0.75-5 | SCR-TRM-T8 | K-TRM-T8 |
| TRMU-T9-R1.25-5 | SCR-TRM-T9 | K-TRM-T9 |
| TRMU-T5-R0.625-8 | SCR-TRM-T5 | K-TRM-T5 |
| TRMU-T6-R0.625-8 | SCR-TRM-T6 | K-TRM-T6 |
| TRMU-T7-R0.75-8 | SCR-TRM-T7 | K-TRM-T7 |
| TRMU-T8-R0.75-8 | SCR-TRM-T8 | K-TRM-T8 |
| TRMU-T9-R1.25-8 | SCR-TRM-T9 | K-TRM-T9 |

HEAD

HRM-AS



| Designation | DC | AH725 | SSC | LPR | CICT | Edge type | Flute type |
|------------------|---------|-------|-----|-------|------|-----------|------------|
| HRM-0.4528-AS-T5 | 0.4528 | ● | T5 | 0.366 | 6 | A | S |
| HRM-0.4725-AS-T5 | 0.47244 | ● | T5 | 0.366 | 6 | A | S |
| HRM-0.5119-AS-T5 | 0.51181 | ● | T5 | 0.366 | 6 | A | S |
| HRM-0.5315-AS-T5 | 0.53149 | ● | T5 | 0.366 | 6 | A | S |
| HRM-0.5512-AS-T6 | 0.55118 | ● | T6 | 0.37 | 6 | A | S |
| HRM-0.5906-AS-T6 | 0.59055 | ● | T6 | 0.37 | 6 | A | S |
| HRM-0.6300-AS-T6 | 0.62992 | ● | T6 | 0.37 | 6 | A | S |
| HRM-0.6300-AS-T7 | 0.62996 | ● | T7 | 0.417 | 6 | A | S |
| HRM-0.6693-AS-T7 | 0.66929 | ● | T7 | 0.417 | 6 | A | S |
| HRM-0.7087-AS-T7 | 0.70866 | ● | T7 | 0.417 | 6 | A | S |
| HRM-0.7481-AS-T7 | 0.74803 | ● | T7 | 0.417 | 6 | A | S |
| HRM-0.7875-AS-T7 | 0.7874 | ● | T7 | 0.417 | 6 | A | S |
| HRM-0.7875-AS-T8 | 0.78744 | ● | T8 | 0.504 | 8 | A | S |
| HRM-0.8268-AS-T8 | 0.82677 | ● | T8 | 0.504 | 8 | A | S |
| HRM-0.8662-AS-T8 | 0.86614 | ● | T8 | 0.504 | 8 | A | S |
| HRM-0.9056-AS-T8 | 0.90551 | ● | T8 | 0.504 | 8 | A | S |
| HRM-0.9449-AS-T8 | 0.94488 | ● | T8 | 0.504 | 8 | A | S |
| HRM-0.9843-AS-T8 | 0.98425 | ● | T8 | 0.504 | 8 | A | S |
| HRM-1.0237-AS-T9 | 1.02362 | ● | T9 | 0.504 | 8 | A | S |
| HRM-1.063-AS-T9 | 1.06299 | ● | T9 | 0.504 | 8 | A | S |
| HRM-1.1024-AS-T9 | 1.10236 | ● | T9 | 0.504 | 8 | A | S |
| HRM-1.1418-AS-T9 | 1.14173 | ● | T9 | 0.504 | 8 | A | S |
| HRM-1.1812-AS-T9 | 1.1811 | ● | T9 | 0.504 | 8 | A | S |
| HRM-1.2205-AS-T9 | 1.22047 | ● | T9 | 0.504 | 8 | A | S |
| HRM-1.2599-AS-T9 | 1.25984 | ● | T9 | 0.504 | 8 | A | S |
| HRM-0.5000-AS-T5 | 0.5 | ● | T5 | 0.366 | 6 | A | S |
| HRM-0.6250-AS-T6 | 0.625 | ● | T6 | 0.37 | 6 | A | S |
| HRM-0.7500-AS-T7 | 0.75 | ● | T7 | 0.417 | 6 | A | S |
| HRM-1.0000-AS-T8 | 1 | ● | T8 | 0.504 | 8 | A | S |
| HRM-1.2500-AS-T9 | 1.25 | ● | T9 | 0.504 | 8 | A | S |

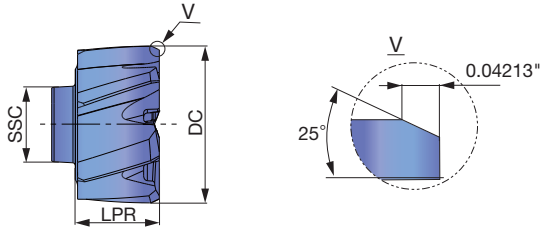


Package quantity = 1 pcs.
●: Line up

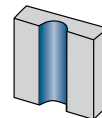
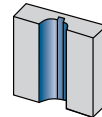
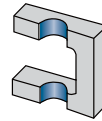
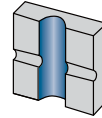
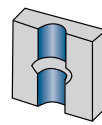
| Head diameter range | Tolerance range of the head | Hole diameter tolerance (H7) |
|---------------------|-----------------------------|------------------------------|
| ø0.45276 - ø0.70866 | +0.00059 / +0.00043 | +0.00071 / 0 |
| ø0.70870 - ø1.18110 | +0.00067 / +0.00051 | +0.00083 / 0 |
| ø1.18114 - ø1.25984 | +0.00083 / +0.00063 | +0.00098 / 0 |

- All standard heads are designed to achieve H7 hole tolerance.
- Head diameters are produced so that the hole diameter achieved is close to the max tolerance limit.
- CICT means number of cutting edges.

HRM-BL



| Designation | DC | AH725 | SSC | LPR | CICT | Edge type | Flute type |
|------------------|---------|-------|-----|-------|------|-----------|------------|
| HRM-0.4528-BL-T5 | 0.4528 | ● | T5 | 0.366 | 6 | B | L |
| HRM-0.4725-BL-T5 | 0.47244 | ● | T5 | 0.366 | 6 | B | L |
| HRM-0.5119-BL-T5 | 0.51181 | ● | T5 | 0.366 | 6 | B | L |
| HRM-0.5315-BL-T5 | 0.5315 | ● | T5 | 0.366 | 6 | B | L |
| HRM-0.5316-BL-T6 | 0.53154 | ● | T6 | 0.37 | 6 | B | L |
| HRM-0.5512-BL-T6 | 0.55118 | ● | T6 | 0.37 | 6 | B | L |
| HRM-0.5906-BL-T6 | 0.59055 | ● | T6 | 0.37 | 6 | B | L |
| HRM-0.6300-BL-T6 | 0.62992 | ● | T6 | 0.37 | 6 | B | L |
| HRM-0.6300-BL-T7 | 0.62996 | ● | T7 | 0.417 | 6 | B | L |
| HRM-0.6693-BL-T7 | 0.66929 | ● | T7 | 0.417 | 6 | B | L |
| HRM-0.7087-BL-T7 | 0.70866 | ● | T7 | 0.417 | 6 | B | L |
| HRM-0.7481-BL-T7 | 0.74803 | ● | T7 | 0.417 | 6 | B | L |
| HRM-0.7875-BL-T7 | 0.7874 | ● | T7 | 0.417 | 6 | B | L |
| HRM-0.7875-BL-T8 | 0.78744 | ● | T8 | 0.504 | 8 | B | L |
| HRM-0.8268-BL-T8 | 0.82677 | ● | T8 | 0.504 | 8 | B | L |
| HRM-0.8662-BL-T8 | 0.86614 | ● | T8 | 0.504 | 8 | B | L |
| HRM-0.9056-BL-T8 | 0.90551 | ● | T8 | 0.504 | 8 | B | L |
| HRM-0.9449-BL-T8 | 0.94488 | ● | T8 | 0.504 | 8 | B | L |
| HRM-0.9843-BL-T8 | 0.98425 | ● | T8 | 0.504 | 8 | B | L |
| HRM-1.0237-BL-T9 | 1.02362 | ● | T9 | 0.504 | 8 | B | L |
| HRM-1.0630-BL-T9 | 1.06299 | ● | T9 | 0.504 | 8 | B | L |
| HRM-1.1024-BL-T9 | 1.10236 | ● | T9 | 0.504 | 8 | B | L |
| HRM-1.1418-BL-T9 | 1.14173 | ● | T9 | 0.504 | 8 | B | L |
| HRM-1.1812-BL-T9 | 1.1811 | ● | T9 | 0.504 | 8 | B | L |
| HRM-1.2205-BL-T9 | 1.22047 | ● | T9 | 0.504 | 8 | B | L |
| HRM-1.2599-BL-T9 | 1.25984 | ● | T9 | 0.504 | 8 | B | L |
| HRM-0.5000-BL-T5 | 0.5 | ● | T5 | 0.366 | 6 | B | L |
| HRM-0.6250-BL-T6 | 0.625 | ● | T6 | 0.37 | 6 | B | L |
| HRM-0.7500-BL-T7 | 0.75 | ● | T7 | 0.417 | 6 | B | L |
| HRM-1.0000-BL-T8 | 1 | ● | T8 | 0.504 | 8 | B | L |



Package quantity = 1 pcs.
●: Line up

| Head diameter range | Tolerance range of the head | Hole diameter tolerance (H7) |
|---------------------|-----------------------------|------------------------------|
| ø0.45276 - ø0.70866 | +0.00059 / +0.00043 | +0.00071 / 0 |
| ø0.70870 - ø1.18110 | +0.00067 / +0.00051 | +0.00083 / 0 |
| ø1.18114 - ø1.25984 | +0.00083 / +0.00063 | +0.00098 / 0 |

- All standard heads are designed to achieve H7 hole tolerance.
- Head diameters are produced so that the hole diameter achieved is close to the max tolerance limit.
- CICT means number of cutting edges.

STANDARD CUTTING CONDITIONS

Conversion table for feed per tooth

| ISO | Workpiece materials | Cutting speed Vc (sfm) | Feed: fz (ipt) | | | |
|----------|--|---------------------------|--------------------------------------|---------------------|---|---------------------|
| | | | AS: Straight flute (for blind holes) | | BL: Left hand flute (for through holes) | |
| | | | ø0.45280 - ø0.62992 | ø0.62996 - ø1.25984 | ø0.45280 - ø0.62992 | ø0.62996 - ø1.25984 |
| P | Low carbon steel (C<0.3) 1018, 1020, 1026, E275A, etc. | 262 - 656 | 0.00197 - 0.00709 | 0.00197 - 0.00787 | 0.00197 - 0.00787 | 0.00197 - 0.01063 |
| | Carbon steel (C>0.3) 1045, 1055, etc. | 262 - 492 | 0.00197 - 0.00591 | 0.00197 - 0.00709 | 0.00197 - 0.00709 | 0.00197 - 0.00984 |
| | Low alloy steel (C<0.3) 5120, etc. | 262 - 656 | 0.00197 - 0.00709 | 0.00197 - 0.00787 | 0.00197 - 0.00787 | 0.00197 - 0.01063 |
| | Alloy steel (C>0.3) 4140, 8620, etc. | 164 - 492 | 0.00118 - 0.00394 | 0.00197 - 0.00512 | 0.00197 - 0.00512 | 0.00197 - 0.00669 |
| M | Stainless steel (Austenitic) 304, 316, etc. | 66 - 131 | 0.00118 - 0.00394 | 0.00118 - 0.00512 | 0.00197 - 0.00512 | 0.00197 - 0.00669 |
| | Stainless steel (Martensitic and ferritic) 410, 416, etc. | 66 - 131 | 0.00118 - 0.00394 | 0.00118 - 0.00512 | 0.00197 - 0.00512 | 0.00197 - 0.00669 |
| | Stainless steel (Precipitation hardening) S17400, etc. | 66 - 131 | 0.00118 - 0.00394 | 0.00118 - 0.00512 | 0.00197 - 0.00512 | 0.00197 - 0.00669 |
| K | Gray cast iron Class No.25, No.30, No.35, etc. | 328 - 820 | 0.00197 - 0.00709 | 0.00197 - 0.00787 | 0.00197 - 0.00787 | 0.00197 - 0.01063 |
| | Ductile cast iron 100-70-03, etc. | 262 - 656 | 0.00197 - 0.00591 | 0.00197 - 0.00709 | 0.00197 - 0.00709 | 0.00197 - 0.00984 |
| N | Aluminum alloy | 328 - 984 | 0.00197 - 0.00709 | 0.00197 - 0.00787 | 0.00197 - 0.00787 | 0.00197 - 0.01063 |
| S | High temp. alloy Inconel718 etc. | 49 - 164 | 0.00118 - 0.00236 | 0.00118 - 0.00315 | 0.00197 - 0.00394 | 0.00197 - 0.00512 |
| | Titanium alloy Ti-6Al-4V etc. | 98 - 197 | 0.00118 - 0.00394 | 0.00118 - 0.00512 | 0.00197 - 0.00512 | 0.00197 - 0.00669 |
| H | Hardened steel Over 40HRC etc. | 164 - 328 | 0.00118 - 0.00315 | 0.00118 - 0.00394 | 0.00197 - 0.00472 | 0.00197 - 0.00591 |

Conversion table for feed per revolution

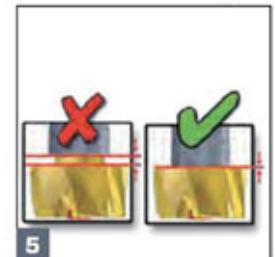
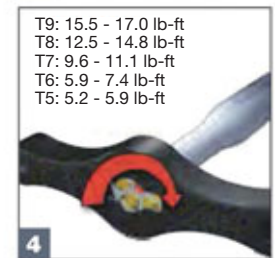
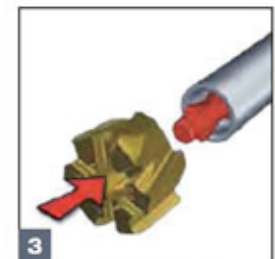
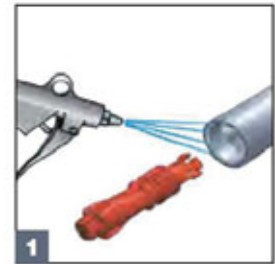
| ISO | Workpiece materials | Cutting speed Vc (sfm) | Feed: f (ipr) | | | | | |
|----------|--|---------------------------|--------------------------------------|----------------------|--------------------------|---|----------------------|----------------------|
| | | | AS: Straight flute (for blind holes) | | | BL: Left hand flute (for through holes) | | |
| | | | ø0.45280 - ø0.62992 | ø0.62996 - ø0.78740 | ø0.78744 - ø1.25984 | ø0.45280 - ø0.62992 | ø0.62996 - ø0.78740 | ø0.78744 - ø1.25984 |
| | | | 6 flutes | 6 flutes | 8 flutes | 6 flutes | 6 flutes | 8 flutes |
| P | Low carbon steel (C<0.3) 1018, 1020, 1026, E275A, etc. | 262 - 656 | 0.01181 - 0.04252 | 0.01181 - 0.04724 | 0.01575 - 0.06299 | 0.01181 - 0.04724 | 0.01181 - 0.06378 | 0.01575 - 0.08504 |
| | Carbon steel (C>0.3) 1045, 1055, etc. | 262 - 492 | 0.01181 - 0.03543 | 0.01181 - 0.04252 | 0.01575 - 0.05669 | 0.01181 - 0.04252 | 0.01181 - 0.05906 | 0.01575 - 0.07874 |
| | Low alloy steel (C<0.3) 5120, etc. | 262 - 656 | 0.01181 - 0.04252 | 0.01181 - 0.04724 | 0.01575 - 0.06299 | 0.01181 - 0.04724 | 0.01181 - 0.04724 | 0.01575 - 0.08504 |
| | Alloy steel (C>0.3) 4140, 8620, etc. | 164 - 492 | 0.00709 - 0.02362 | 0.00709 - 0.03071 | 0.01575 - 0.04094 | 0.01181 - 0.03071 | 0.01181 - 0.04016 | 0.01575 - 0.05354 |
| M | Stainless steel (Austenitic) 304, 316, etc. | 66 - 131 | 0.00709 - 0.02362 | 0.00709 - 0.03071 | 0.00945 - 0.04094 | 0.01181 - 0.03071 | 0.01181 - 0.04016 | 0.01575 - 0.05354 |
| | Stainless steel (Martensitic and ferritic) 410, 416, etc. | 66 - 131 | 0.00709 - 0.02362 | 0.00709 - 0.03071 | 0.00945 - 0.04094 | 0.01181 - 0.03071 | 0.01181 - 0.04016 | 0.01575 - 0.05354 |
| | Stainless steel (Precipitation hardening) S17400, etc. | 66 - 131 | 0.00709 - 0.02362 | 0.00709 - 0.03071 | 0.00945 - 0.04094 | 0.01181 - 0.03071 | 0.01181 - 0.04016 | 0.01575 - 0.05354 |
| K | Gray cast iron Class No.25, No.30, No.35, etc. | 328 - 820 | 0.01181 - 0.04252 | 0.01181 - 0.04724 | 0.01575 - 0.06299 | 0.01181 - 0.04724 | 0.01181 - 0.06378 | 0.01575 - 0.08504 |
| | Ductile cast iron 100-70-03, etc. | 262 - 656 | 0.01181 - 0.03543 | 0.01181 - 0.04252 | 0.01575 - 0.05669 | 0.01181 - 0.07087 | 0.01181 - 0.06378 | 0.01575 - 0.07874 |
| N | Aluminum alloy | 328 - 984 | 0.01181 - 0.04252 | 0.01181 - 0.04724 | 0.01575 - 0.06299 | 0.01181 - 0.04724 | 0.01181 - 0.06378 | 0.01575 - 0.08504 |
| S | High temp. alloy Inconel718 etc. | 49 - 164 | 0.00709 - 0.01417 | 0.00709 - 0.01890 | 0.00945 - 0.02520 | 0.01181 - 0.02362 | 0.01181 - 0.03071 | 0.01575 - 0.04094 |
| | Titanium alloy Ti-6Al-4V etc. | 98 - 197 | 0.00709 - 0.02362 | 0.00709 - 0.03071 | 0.00945 - 0.04094 | 0.01181 - 0.03071 | 0.01181 - 0.04016 | 0.01575 - 0.05354 |
| H | Hardened steel Over 40HRC etc. | 164 - 328 | 0.00709 - 0.01890 | 0.00709 - 0.02362 | 0.240.00945 - 0.03150 | 0.01181 - 0.02835 | 0.01181 - 0.03543 | 0.01575 - 0.04724 |

FOR BEST PERFORMANCE

Note: Cutting tools may fracture during use. To avoid injury always use safety precautions such as gloves, shields, and eye protection.

First assembly

- Clean the tool holder pocket (Fig. 1)
 - Clean the reamer head clamping cone
 - Insert the clamping screw into the holder and rotate it 2-3 turns in the clockwise direction (Fig. 2)
 - Clamp the reaming head on the screw. Please note that T8 and T9 connections can be assembled only in a specific position relative to the screw (rotate the head until locating the correct position) (Fig. 3)
 - Manually rotate the head until feeling a slight torque
 - Tighten with the special key (Fig. 4)
 - Make sure there is no face gap between the tool holder and the reaming head (Fig. 5)
- * For recommended torque for T5 through T9 connections, see the chart on the right



T9: 15.5 - 17.0 lb-ft
 T8: 12.5 - 14.8 lb-ft
 T7: 9.6 - 11.1 lb-ft
 T6: 5.9 - 7.4 lb-ft
 T5: 5.2 - 5.9 lb-ft

Indexing

- Release the reaming head with the key, turning in the counterclockwise direction until it rotates freely
 - Rotate another one turn by hand
 - Remove the reamer head from the tool. The clamping screw should remain inside!!!
 - Clean the pocket of the tool holder (Fig. 1)
 - Clean the cone on the new reamer head
 - Clamp the reaming head on the screw. Please note that T8 and T9 connections can be assembled only in a specific position relative to the screw (rotate the head until locating the correct position) (Fig. 3)
 - Manually rotate the reaming head. In the beginning it should rotate without the screw and then (after 1/6 of a turn) it should engage with the screw. Rotate until it sits firmly in the pocket. If the screw rotates together with the reaming head from the beginning, remove the reaming head and open the screw another one turn
 - Manually rotate the head until feeling a slight torque
 - Tighten with the special key (Fig. 4)
 - Make sure that there is no face gap between the tool holder and the reaming head (Fig. 5)
- * For recommended torque for T5 through T9 connections, see the chart on the right

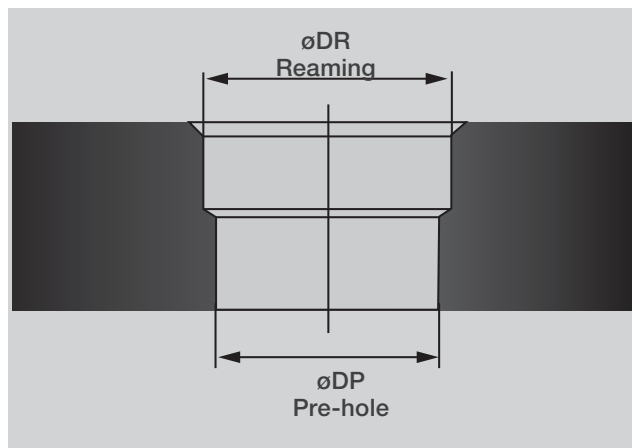
FOR BEST PERFORMANCE

Reaming allowance

- Reaming allowance Δ is the stock material to be removed in the reaming process. For a successful reaming operation, reaming allowance must be determined with proper considerations. Refer to the table below for appropriate reaming allowance for various hole diameters and materials. Standard reaming allowance, unless otherwise required, will be the target diameter +0.0079" for all hole diameter ranges and materials.
- Reaming quality largely depends on the quality of the pre-hole. Pre-holes must have no diameter fluctuation and good straightness.

Δ : Reaming allowance

$$\Delta = \phi DR - \phi DP$$



| Workpiece material | Hole diameter (inch) | | | |
|---------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| | 0.45276 - 0.53150 | 0.53154 - 0.62992 | 0.62996 - 1.02362 | 1.02366 - 1.25984 |
| Steel and cast Iron | $\Delta = 0.00394 - 0.00787$ | $\Delta = 0.00394 - 0.01181$ | $\Delta = 0.00394 - 0.01575$ | $\Delta = 0.00787 - 0.01969$ |
| Aluminum and brass | $\Delta = 0.00591 - 0.00984$ | $\Delta = 0.00787 - 0.01181$ | $\Delta = 0.00787 - 0.01969$ | $\Delta = 0.00787 - 0.02362$ |

Recommended runout control

Runout control is important to achieve proper reaming process.

Best: less than 5 μ

Acceptable: 5 - 15 μ

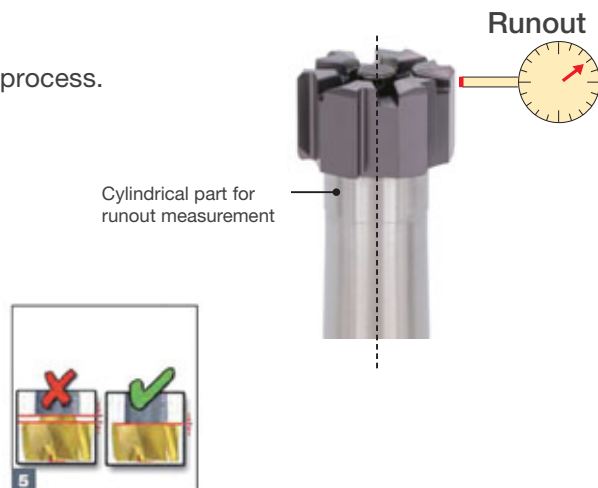
Not acceptable: over 15 μ

* If an acceptable runout is not achieved, adjust the runout as follows.

1. Make sure that there is no gap between the faces of the reaming head and the tool holder.

If there is a gap, use the key and tighten again until the gap disappears.

2. Measure the runout of the cylindrical part for runout measurement on the upper part of the tool to check the installation accuracy of the tool and the arbor. If the runout on the cylindrical surface of the tool is bad, remove the tool from the arbor, clean the tool and the arbor, then remount them and measure the runout.



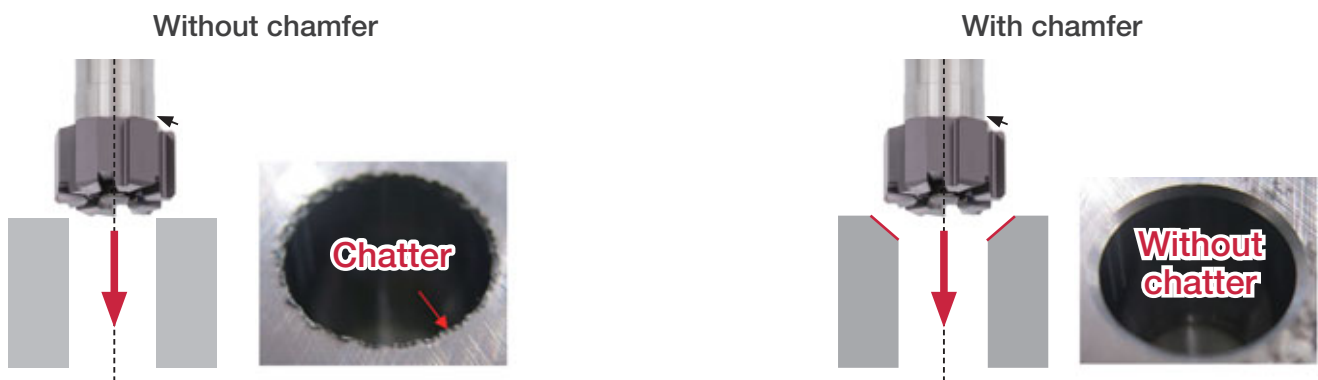
FOR BEST PERFORMANCE

Cautions when using 5D and 8D reamers

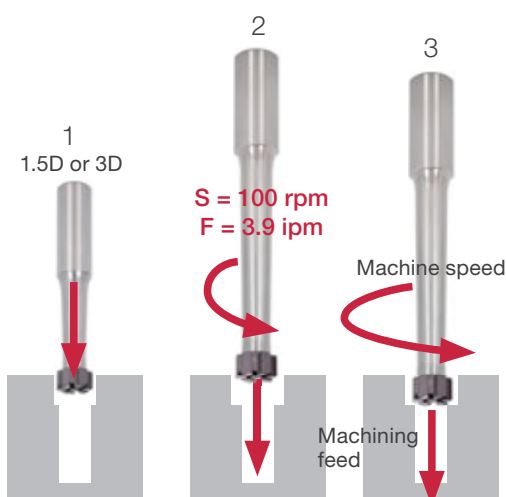
In long overhang applications with the length-to-diameter ratios of 5D to 8D, a reamer is prone to chatter due to low rigidity when entering the hole.

The following methods are recommended for process stability.

1. Provide internal chamfer (e.g. 45° x 0.0197") on the hole entrance for smooth reamer engagement. (Best option for using a 5D tool)





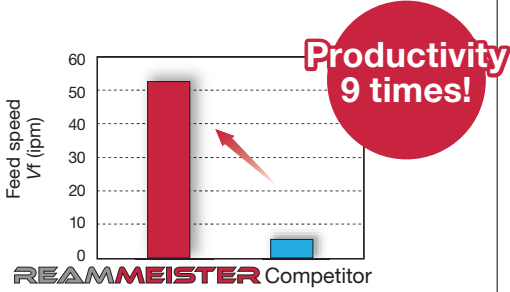
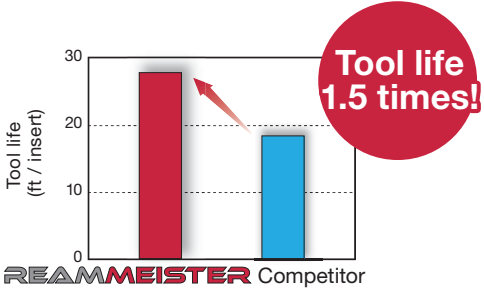
2. Make a guide hole with a shorter reamer (1.5D or 3D), then use a long overhang tool. (Best option for using an 8D tool)



1. Use a shorter reamer (1.5D or 3D) to make a guide hole with a depth of 0.5xD~1xD.
2. Insert the long reamer (8D) in the guide hole rotating at a low speed (<100 rpm) and feeding slowly (at F = 3.9 ipm) until the reamer reaches several millimeters from the bottom.
3. Rotate the reamer with the full machining speed and start feeding.

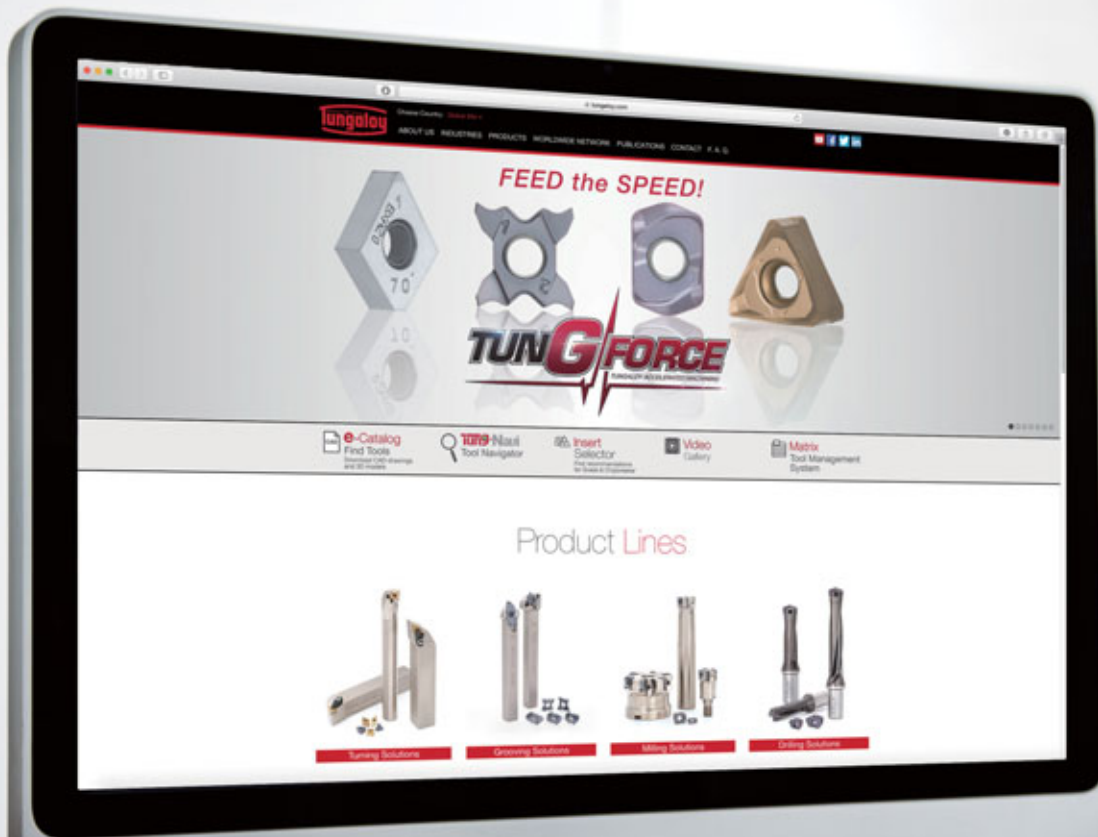
*Use the same diameter heads for both piloting and deep reaming processes

PRACTICAL EXAMPLES

| Workpiece type | Flange yoke | Flange yoke | |
|--------------------|---|--|----------------|
| Drill | TRM-T9-R32-5 | TRM-T9-R32-5 | |
| Insert | HRM-1.0630-BL-T9 | HRM-1.0630-BL-T9 | |
| Grade | AH725 | AH725 | |
| | 80-55-06 | 1045 | |
| Workpiece material |  |  | |
| Cutting conditions | Cutting speed : V_c (sfm) | 328 | 295 |
| | Feed : f (ipr) | 0.047 | 0.031 |
| | Feed speed : V_f (ipm) | 55.7 | 33.5 |
| | Drilling depth : H (inch) | 0.79 | 0.59 |
| | Machine | Horizontal M/C | Horizontal M/C |
| Coolant | Internal | Internal | |
| Results |  <p>Productivity 9 times!</p> <p>Higher cutting speed and feed rates are attainable with ReamMeister over current brazed reamer due to coated insert and optimal edge geometry. 9 times higher productivity is possible with ReamMeister.</p> |  <p>Tool life 1.5 times!</p> <p>Higher cutting speed and feed rates are attainable with ReamMeister over current brazed reamer due to coated insert and optimal edge geometry. 1.5 times longer tool life is possible with ReamMeister.</p> | |

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.

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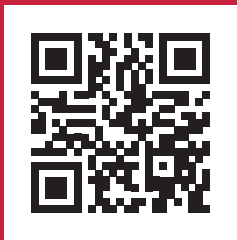
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