



Exchangeable head drill

DRILLMEISTER

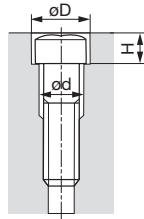
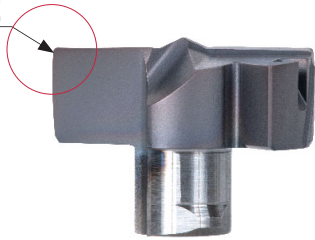
Tungaloy Report No. 412S14-G

Introducing DMF with corner radius for bolt cap holes



Flat drill with corner radius ideal for bolt cap holes

R0.2

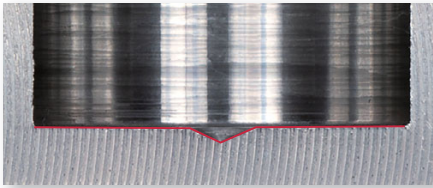


Counter boring dimensions of bolt hole

Thread size	M3	M4	M5	M6	M8	M10	M12
øD (mm)	6.5	8	9.5	11	14	17.5	20
Applicable tool	DMF065	DMF080	DMF095	DMF110	DMF140	DMF175	DMF200

Flat hole bottom

DRILLMEISTER DMF



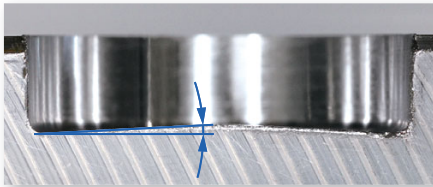
Concave bottom

Drill : TID140F20-3
 Head : DMF140-R0.2 AH9130
 Cutting speed : $V_c = 100$ m/min
 Feed per tooth : $f_z = 0.15$ mm/t
 Hole depth : 10 mm
 Coolant : Wet



Excellent hole bottom flatness and centering edge geometry prevent tool breakage in the next drilling process.

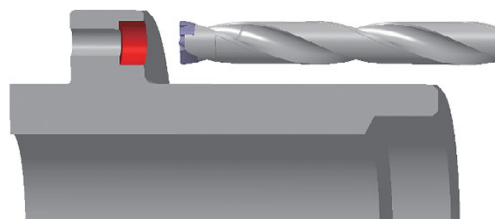
Competitor (insert type end mill)



Convex bottom

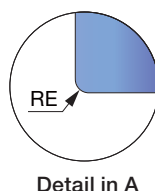
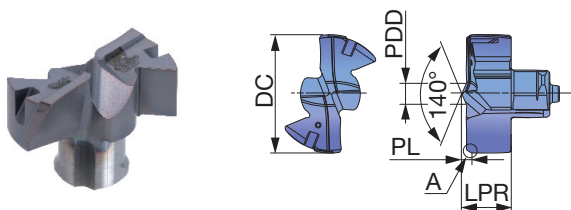
Machining improvement using DMF drill head

- DMF head ensures stable machining **even at 8xD due to centering edge geometry.**
- **It improves machining efficiency** by enabling single-pass processing without spot drilling or pilot hole drilling.



DRILL HEADS

DMF-R Flat geometry head with corner radius



Tool diameter	Head diameter tolerance
ø6.5 - ø17.5	+0.018 / 0
ø20 - ø24	+0.021 / 0

P	Steel	★		
M	Stainless	★		
K	Cast iron	★		
N	Non-ferrous	☆		
S	Superalloys	★		
H	Hard materials	★		

P	Steel	★		
M	Stainless	★		
K	Cast iron	★		
N	Non-ferrous	☆		
S	Superalloys	★		
H	Hard materials	★		

★ : First choice
☆ : Second choice

Designation	DC	LPR	Coated		RE	PL	PDD	Body
			AH9130					
DMF065-R0.2	6.5	3.28	●		0.2	0.48	1.54	TID*065...
DMF080-R0.2	8	4.39	●		0.2	0.59	2.44	TID*080...
DMF095-R0.2	9.5	4.61	●		0.2	0.61	2.55	TID*095...
DMF110-R0.2	11	4.9	●		0.2	0.75	2.98	TID*110...

Designation	DC	LPR	Coated		RE	PL	PDD	Body
			AH9130					
DMF140-R0.2	14	5.96	●		0.2	0.81	3.81	TID*140...
DMF175-R0.2	17.5	7.15	●		0.2	0.9	4.14	TID*175...
DMF200-R0.2	20	9.12	●		0.2	1.27	6.56	TID*200...
DMF240-R0.2	24	10.71	●		0.2	1.36	7.45	TID*240...

ø6.5 - ø17.5 = 2 pieces per package
ø20 - ø24 = 1 piece per package

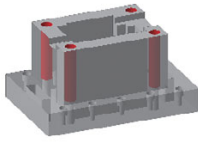
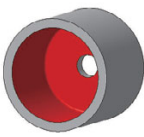
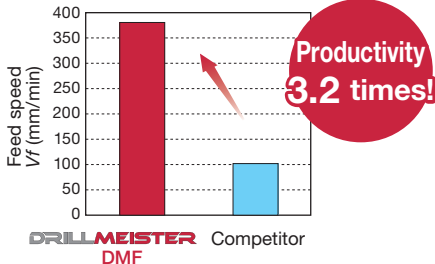
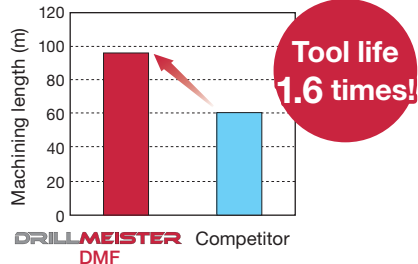
● : New product

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed Vc (m/min)	Feed: f (mm/rev)						
			Tool diameter: DC (mm)						
			ø6 - 7.9	ø8 - 9.9	ø10 - ø11.9	ø12 - ø13.9	ø14 - ø15.9	ø16 - ø19.9	ø20 - ø25.9
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. C15E4, E275A, E355D, etc.	80 - 140	0.09 - 0.13	0.12 - 0.25	0.15 - 0.28	0.18 - 0.3	0.20 - 0.35	0.25 - 0.45	0.25 - 0.45
	High carbon steels (C > 0.3) S45C, S55C, etc. C45, C55, etc.	70 - 120	0.09 - 0.13	0.12 - 0.25	0.15 - 0.28	0.18 - 0.3	0.2 - 0.35	0.25 - 0.45	0.25 - 0.45
	Low alloy steels SCM415, etc. 18CrMo4, etc.	70 - 120	0.08 - 0.13	0.11 - 0.25	0.14 - 0.28	0.16 - 0.32	0.18 - 0.35	0.23 - 0.4	0.25 - 0.45
	Alloy steels SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	40 - 90	0.08 - 0.13	0.11 - 0.25	0.14 - 0.28	0.16 - 0.32	0.18 - 0.35	0.23 - 0.4	0.25 - 0.45
M	Stainless steels SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-2, etc.	30 - 70	0.08 - 0.1	0.1 - 0.15	0.12 - 0.18	0.14 - 0.2	0.16 - 0.24	0.16 - 0.26	0.18 - 0.3
K	Grey cast irons FC250, etc. GG25, etc.	80 - 180	0.12 - 0.18	0.15 - 0.3	0.20 - 0.35	0.25 - 0.4	0.3 - 0.45	0.35 - 0.55	0.35 - 0.6
	Ductile cast irons FCD700, etc. GGG70, etc.	80 - 140	0.12 - 0.18	0.15 - 0.3	0.20 - 0.35	0.25 - 0.4	0.3 - 0.45	0.35 - 0.55	0.35 - 0.6
N	Aluminium alloys ADC12, etc. AlSi11Cu3, etc.	80 - 220	0.1 - 0.2	0.2 - 0.35	0.25 - 0.4	0.3 - 0.45	0.35 - 0.5	0.4 - 0.6	0.5 - 0.75
S	Titanium alloys Ti-6Al-4V, etc.	20 - 50	0.05 - 0.07	0.06 - 0.12	0.08 - 0.15	0.1 - 0.28	0.12 - 0.2	0.14 - 0.22	0.18 - 0.27
	Nickel-based alloys	20 - 50	0.05 - 0.07	0.06 - 0.11	0.08 - 0.13	0.1 - 0.15	0.12 - 0.18	0.12 - 0.22	0.14 - 0.22
H	Hardened steel	20 - 50	0.05 - 0.07	0.06 - 0.12	0.08 - 0.15	0.1 - 0.18	0.12 - 0.2	0.14 - 0.22	0.16 - 0.25

- Cutting conditions in the above table show standard cutting conditions
- Cutting conditions may change due to the rigidity and power of the machine and the workpiece material
- Machined hole diameter may change depending upon the rigidity of the machine tool or cutting conditions

PRACTICAL EXAMPLES

Workpiece type		Mold insert	Sleeve
Drill body		TID200F25-8	TID095F12-1.5
Head		DMF200-R0.2	DMF095-R0.2
Grade		AH9130	AH9130
Workpiece material		Tool steel before hardening	Low carbon steel C 0.13%
		 P	 P
Cutting conditions	Cutting speed : V_c (m/min)	100	90
	Feed : f (mm/rev)	0.25	0.1
	Feed speed : V_f (mm/min)	379	302
	Drill diameter : DC (mm)	20	9.5
	Hole depth : H (mm)	140	20
	Coolant	Wet (Internal coolant)	
Machine		Vertical M/C BT40	Swiss lathe
Results		 <p>Productivity 3.2 times!</p> <p>Thanks to the reduced chattering of the DrillMeister DMF, even at 8xD, high-feed machining is possible, resulting in a 3.2 times increase in machining efficiency.</p>	 <p>Tool life 1.6 times!</p> <p>DrillMeister DMF excels in tool life, achieving 1.6 times the tool life compared to existing head-exchangeable drills.</p>



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