



Exchangeable head drill

**DRILLMEISTER**

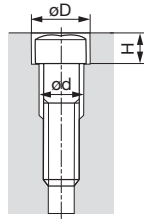
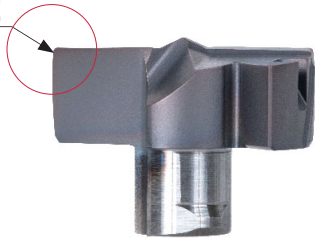
Tungaloy Report No. 412S14-G

# Introducing DMF with corner radius for bolt cap holes



## Flat drill with corner radius ideal for bolt cap holes

R0.2

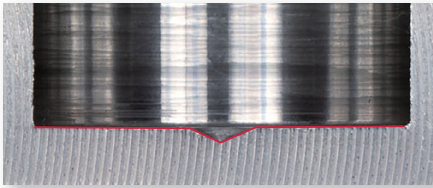


Counter boring dimensions of bolt hole

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



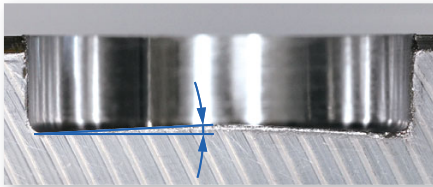
Concave bottom

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.

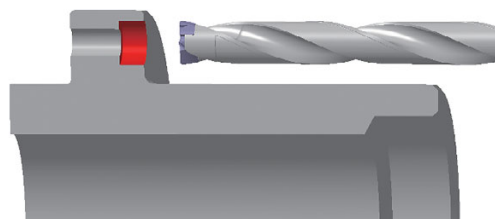
Competitor (insert type end mill)



Convex bottom

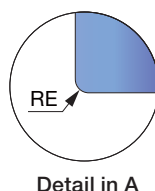
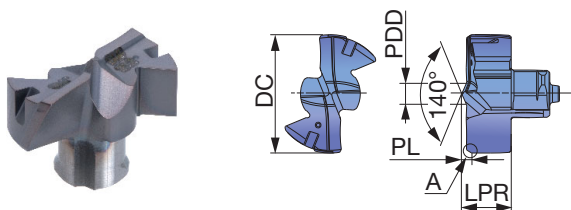
### Machining improvement using DMF drill head

- 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	0.88	1.54	TID*065...
DMF080-R0.2	8	4.39	●		0.2	1.59	2.44	TID*080...
DMF095-R0.2	9.5	4.61	●		0.2	1.61	2.55	TID*095...
DMF110-R0.2	11	4.9	●		0.2	1.75	2.98	TID*110...

Designation	DC	LPR	Coated		RE	PL	PDD	Body
			AH9130					
DMF140-R0.2	14	5.96	●		0.2	1.81	3.81	TID*140...
DMF175-R0.2	17.5	7.15	●		0.2	1.9	4.14	TID*175...
DMF200-R0.2	20	9.12	●		0.2	2.27	6.56	TID*200...
DMF240-R0.2	24	10.71	●		0.2	2.36	7.45	TID*240...

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

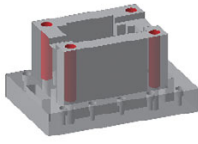
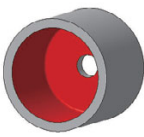
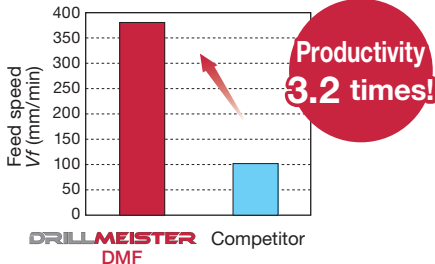
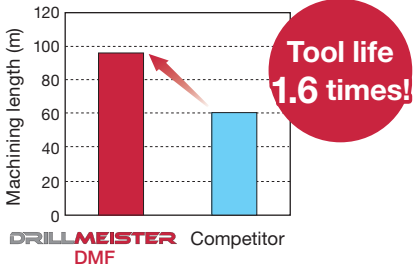
● : New product

## 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%
		 <b>P</b>	 <b>P</b>
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><b>Productivity 3.2 times!</b></p>	 <p><b>Tool life 1.6 times!</b></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>DrillMeister DMF excels in tool life, achieving 1.6 times the tool life compared to existing head-exchangeable drills.</p>



**tungaloy.com**

follow us at:

facebook.com/tungaloyjapan

twitter.com/tungaloyjapan

www.youtube.com/tungaloycorporation

Distributed by:



Tungaloy APP & SNS

FIND US ON THE CLOUD!  
machiningcloud.com



AS9100 Certified  
78006  
2015.11.04  
ISO 14001 Certified  
EC97J1123  
1997.11.26