

Exchangeable head drill

DRILL^{FORCE}**MEISTER**

Tungaloy Report No. 509S2-G

Expansion of **SMF flat-edged drill head** with new diameters





Optimized edge design for efficient drilling of flat-bottom holes

SMF DrillForce-Meister flat-edged drill head

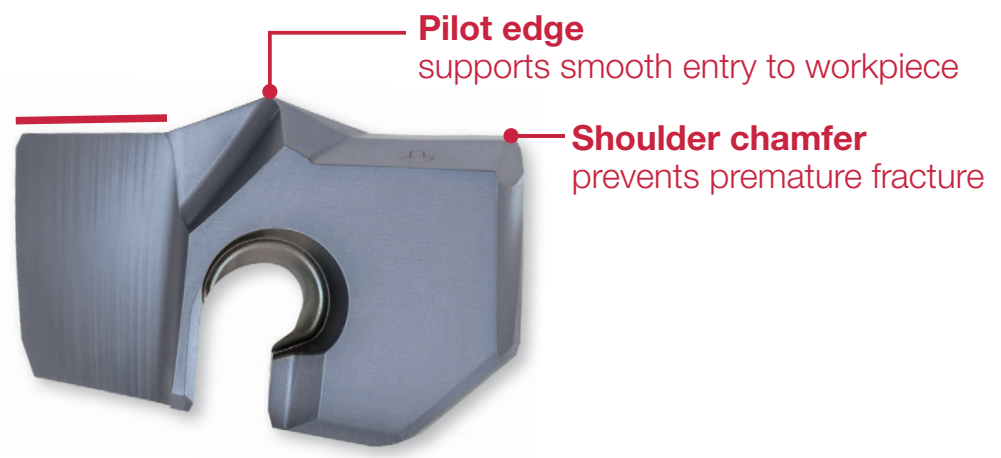
Tungaloy further expands the lineup of SMF flat-edged drill heads. All heads are coated with Tungaloy's top-notch wear resistant PVD grade, AH9130. The flat-edged drill head is ideal for counterboring bolt and screw heads + irregular surfaces.

Flat cutting edges produces holes with flat bottom. Ideal for counterboring bolt heads.

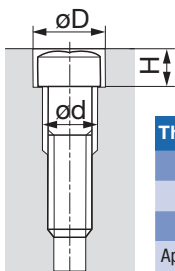
Hole bottom profile



SMF creates a slightly conical profile and not completely flat bottom.



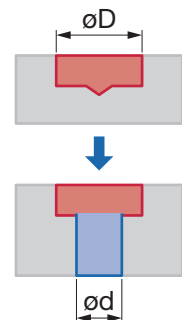
Counterbore dimensions for bolt holes



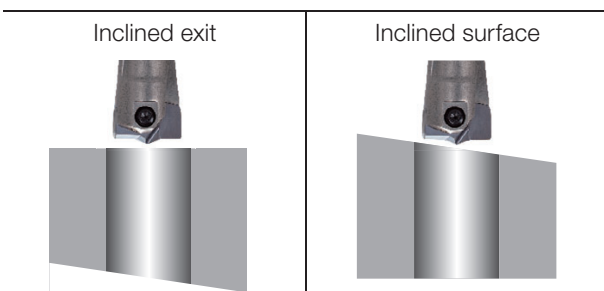
Thread size	M16	M20	M22	M24
øD (mm)	26	32	35	39
H (mm)	17.5	21.5	23.5	25.5
ød (mm)	18	22	24	26
Applicable tool	SMF260	SMF320	SMF350	SMF390

Recommended counterboring method

- 1 Use SMF to make a counterbore for the bolt head.
- 2 Drill a smaller diameter hole for threads.



Typical applications for irregular surfaces



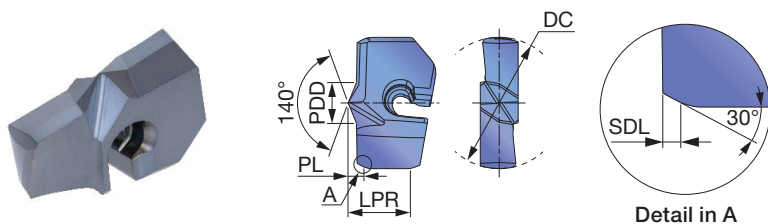
For holes $\leq 3 \times D$, up to 10°

Compared with a 140° drill tip, the SMF head provides greater resistance to radial forces, improving machining stability during the drilling of irregular surfaces or workpieces with low rigidity. In addition, the drill head and holder interface is designed to provide tool reliability during demanding operations.



* Standard DrillForce-Meister body can be used

SMF Flat geometry head



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

Tool diameter	Head diameter tolerance
ø20 - ø29.9	+0.014 / -0.015
ø30 - ø41	+0.014 / -0.02

★ : First choice
☆ : Second choice

Designation	DC	LPR	Coated		SDL	PL	PDD	Pocket size	Body
			AH9130						
SMF200	20	9.82	●		0.7	2.18	8.3	20	TIS200F25-*
SMF205	20.5	9.61	●		0.7	2.18	8.3	20	TIS200F25-*
SMF210	21	9.4	●		0.7	2.18	8.3	21	TIS210F25-*
SMF215	21.5	9.19	●		0.7	2.18	8.3	21	TIS210F25-*
SMF220	22	10.56	●		0.7	2.38	9	22	TIS220F25-*
SMF225	22.5	10.35	●		0.7	2.38	9	22	TIS220F25-*
SMF227	22.7	10.27	●		0.7	2.38	9	22	TIS220F25-*
SMF230	23	10.14	●		0.7	2.38	9	23	TIS230F25-*
SMF235	23.5	9.93	●		0.7	2.38	9	23	TIS230F25-*
SMF238	23.8	9.8	●		0.7	2.38	9	23	TIS230F25-*
SMF240	24	10.63	●		0.7	2.52	10	24	TIS240F32-*
SMF242	24.2	10.55	★		0.7	2.52	10	24	TIS240F32-*
SMF245	24.5	10.42	●		0.7	2.52	10	24	TIS240F32-*
SMF250	25	10.21	●		0.7	2.52	10	25	TIS250F32-*
SMF255	25.5	10	●		0.7	2.52	10	25	TIS250F32-*
SMF260	26	12.32	●		0.7	2.48	10.5	26	TIS260F32-*
SMF265	26.5	12.11	●		0.7	2.48	10.5	26	TIS260F32-*
SMF270	27	11.9	●		0.7	2.48	10.5	27	TIS270F32-*
SMF275	27.5	11.69	●		0.7	2.48	10.5	27	TIS270F32-*
SMF280	28	12.28	●		0.7	2.72	11.6	28	TIS280F32-*
SMF290	29	11.86	●		0.7	2.72	11.6	29	TIS290F32-*
SMF295	29.5	11.65	★		0.7	2.72	11.6	29	TIS290F32-*
SMF296	29.6	11.61	★		0.7	2.72	11.6	29	TIS290F32-*
SMF300	30	14.46	●		0.7	2.8	12.4	30	TIS300F32-*
SMF310	31	14.04	★		0.7	2.8	12.4	31	TIS310F32-*
SMF315	31.5	13.83	●		0.7	2.8	12.4	31	TIS310F32-*
SMF320	32	14.76	●		0.7	3.13	13.6	32	TIS320F40-*
SMF325	32.5	14.55	●		0.7	3.13	13.6	32	TIS320F40-*
SMF330	33	14.34	●		0.7	3.13	13.6	33	TIS330F40-*
SMF340	34	13.92	●		0.7	3.13	13.6	34	TIS340F40-*
SMF345	34.5	13.71	●		0.7	3.13	13.6	34	TIS340F40-*
SMF350	35	16.54	●		0.7	3.31	14.6	35	TIS350F40-*
SMF355	35.5	16.33	★		0.7	3.31	14.6	35	TIS350F40-*
SMF360	36	16.12	●		0.7	3.31	14.6	36	TIS360F40-*
SMF365	36.5	15.91	★		0.7	3.31	14.6	36	TIS360F40-*
SMF370	37	15.7	★		0.7	3.31	14.6	37	TIS370F40-*
SMF380	38	16.85	★		0.7	3.49	15.9	38	TIS380F40-*
SMF390	39	16.43	●		0.7	3.49	15.9	39	TIS390F40-*
SMF400	40	16.01	●		0.7	3.49	15.9	40	TIS400F40-*
SMF402	40.2	15.93	★		0.7	3.49	15.9	40	TIS400F40-*
SMF410	41	15.59	★		0.7	3.49	15.9	40	TIS400F40-*

No drill body modification is needed when mounting SMF drill head.
Do not regrind. SMF drill heads are not designed for re-use after regrind.

● : New product
★ : Will be released in October 2022
● : Line up
Package quantity = 1 pc

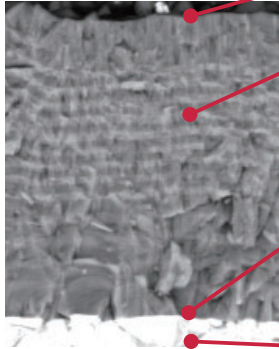
Related Items



GRADE

Latest coating optimized for extended tool life

New AH9130



Resistance to built-up edge

Coating layer to resist built-up edge

Resistance to wear, oxidation, and fracture

- 2 coating layers for wear and oxidation resistance
- Layered alternatively to prevent crack from propagating to fracture

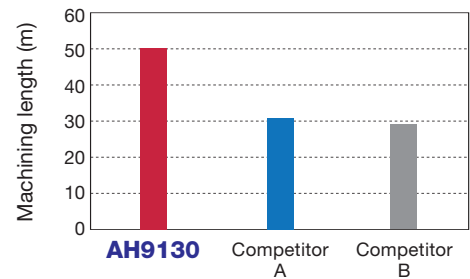
Strong coating-substrate adhesion

Coating is provided with strong adhesion between the coating layer and carbide substrate to prevent coating delamination

Substrate

Carbide substrate features wear and fracture resistance

Tool life machining carbon steel (S55C / C55)



Tool : $\phi 26$ mm
Cutting speed : $V_c = 100$ m/min
Feed : $f = 0.35$ mm/rev

AH9130 provided superior wear resistance, significantly increasing tool life. In addition, secure drill tip clamping system provided tool life stability.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Cutting speed V_c (m/min)	Feed: f (mm/rev)		
			$\phi 20 - \phi 29.9$	$\phi 30 - \phi 35.9$	$\phi 36 - \phi 41$
P	Low carbon steel S15C, S20C, etc. C15E4, etc.	80 - 140	0.2 - 0.5	0.2 - 0.5	0.2 - 0.55
	Carbon steel and alloy steel S55C, SCM440, etc. C55, 42CrMo4, etc.	80 - 130	0.2 - 0.5	0.2 - 0.5	0.2 - 0.55
	Prehardened steel NAK80, PX5, etc.	50 - 100	0.2 - 0.5	0.2 - 0.5	0.2 - 0.55
M	Stainless steel SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.	40 - 70	0.15 - 0.25	0.2 - 0.3	0.2 - 0.35
K	Grey cast iron FC250, FC300, etc. 250, 300, etc.	80 - 180	0.25 - 0.55	0.25 - 0.55	0.3 - 0.6
	Ductile cast iron FCD400, FCD600, etc. 400-15, 600-3, etc.	80 - 140	0.25 - 0.55	0.25 - 0.55	0.3 - 0.6
N	Non ferrous materials	100 - 200	0.4 - 0.6	0.4 - 0.6	0.5 - 0.7
S	Heat-resistant alloys Inconel718, etc.	20 - 50	0.1 - 0.2	0.1 - 0.2	0.1 - 0.25
	Titanium alloys Ti-6Al-4V, etc.	20 - 50	0.1 - 0.2	0.1 - 0.2	0.1 - 0.25
H	Hard materials	20 - 60	0.1 - 0.2	0.1 - 0.2	0.1 - 0.25



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