

Exchangeable head drill

DRILL^{FORCE}**MEISTER**

Tungaloy Report No. 509S2-US

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.

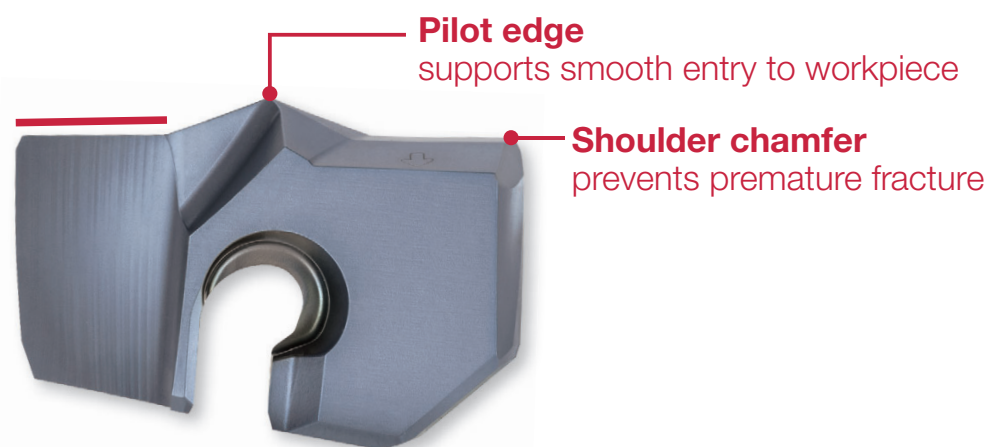
The flat-edged drill head is ideal for counterboring bolt and screw heads + irregular surfaces.

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

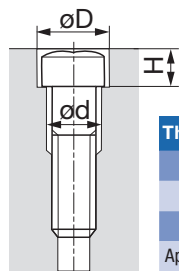
Hole bottom profile



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



Counterbore dimensions for bolt holes

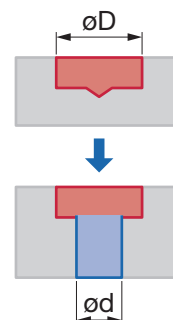


Thread size	M16	M20	M22	M24
øD (mm)	26	32	35	39
H (mm)	17.5	21.5	23.5	25.5
ød (mm)	18	22	24	26
Applicable tool	SMF260	SMF320	SMF350	SMF390

Recommended counterboring method

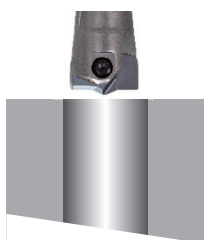
1 Use SMF to make a counterbore for the bolt head.

2 Drill a smaller diameter hole for threads.

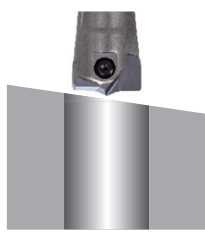


Typical applications for irregular surfaces

Inclined exit



Inclined surface



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

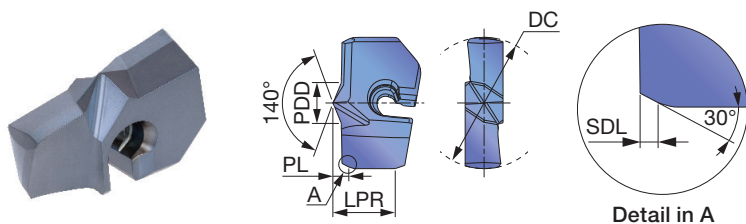
Compared with a 140° drill tip, the SMF head provides greater resistance to radial forces, improving machining stability during the drilling of irregular surfaces or workpieces with low rigidity. In addition, the drill head and holder interface is designed to provide tool reliability during demanding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



Wide contact area

* 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	★		

★ : First choice
☆ : Second choice

Tool diameter (in)	Head diameter tolerance
ø0.787" - ø1.177"	+0.0006" / -0.0006"
ø1.181" - ø1.614"	+0.0006" / -0.0008"

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

Designation	DC (in)	DC (mm)	LPR (mm)	Coated		SDL (mm)	PL (mm)	PDD (mm)	Pocket size	Body
				AH9130						
SMF200	0.787	20	9.82	●		0.7	2.18	8.3	20	TIS200F25-*
SMF205	0.807	20.5	9.61	●		0.7	2.18	8.3	20	TIS200F25-*
SMF210	0.827	21	9.4	●		0.7	2.18	8.3	21	TIS210F25-*
SMF215	0.846	21.5	9.19	●		0.7	2.18	8.3	21	TIS210F25-*
SMF220	0.866	22	10.56	●		0.7	2.38	9	22	TIS220F25-*
SMF225	0.886	22.5	10.35	●		0.7	2.38	9	22	TIS220F25-*
SMF227	0.894	22.7	10.27	●		0.7	2.38	9	22	TIS220F25-*
SMF230	0.906	23	10.14	●		0.7	2.38	9	23	TIS230F25-*
SMF235	0.925	23.5	9.93	●		0.7	2.38	9	23	TIS230F25-*
SMF238	0.937	23.8	9.8	●		0.7	2.38	9	23	TIS230F25-*
SMF240	0.945	24	10.63	●		0.7	2.52	10	24	TIS240F32-*
SMF242	0.953	24.2	10.55	★		0.7	2.52	10	24	TIS240F32-*
SMF245	0.965	24.5	10.42	●		0.7	2.52	10	24	TIS240F32-*
SMF250	0.984	25	10.21	●		0.7	2.52	10	25	TIS250F32-*
SMF255	1.004	25.5	10	●		0.7	2.52	10	25	TIS250F32-*
SMF260	1.024	26	12.32	●		0.7	2.48	10.5	26	TIS260F32-*
SMF265	1.043	26.5	12.11	●		0.7	2.48	10.5	26	TIS260F32-*
SMF270	1.063	27	11.9	●		0.7	2.48	10.5	27	TIS270F32-*
SMF275	1.083	27.5	11.69	●		0.7	2.48	10.5	27	TIS270F32-*
SMF280	1.102	28	12.28	●		0.7	2.72	11.6	28	TIS280F32-*
SMF290	1.142	29	11.86	●		0.7	2.72	11.6	29	TIS290F32-*
SMF295	1.161	29.5	11.65	★		0.7	2.72	11.6	29	TIS290F32-*
SMF296	1.165	29.6	11.61	★		0.7	2.72	11.6	29	TIS290F32-*
SMF300	1.181	30	14.46	●		0.7	2.8	12.4	30	TIS300F32-*
SMF310	1.220	31	14.04	★		0.7	2.8	12.4	31	TIS310F32-*
SMF315	1.240	31.5	13.83	●		0.7	2.8	12.4	31	TIS310F32-*
SMF320	1.260	32	14.76	●		0.7	3.13	13.6	32	TIS320F40-*
SMF325	1.280	32.5	14.55	●		0.7	3.13	13.6	32	TIS320F40-*
SMF330	1.299	33	14.34	●		0.7	3.13	13.6	33	TIS330F40-*
SMF340	1.339	34	13.92	●		0.7	3.13	13.6	34	TIS340F40-*
SMF345	1.358	34.5	13.71	●		0.7	3.13	13.6	34	TIS340F40-*
SMF350	1.378	35	16.54	●		0.7	3.31	14.6	35	TIS350F40-*
SMF355	1.398	35.5	16.33	★		0.7	3.31	14.6	35	TIS350F40-*
SMF360	1.417	36	16.12	●		0.7	3.31	14.6	36	TIS360F40-*
SMF365	1.437	36.5	15.91	★		0.7	3.31	14.6	36	TIS360F40-*
SMF370	1.457	37	15.7	★		0.7	3.31	14.6	37	TIS370F40-*
SMF380	1.496	38	16.85	★		0.7	3.49	15.9	38	TIS380F40-*
SMF390	1.535	39	16.43	●		0.7	3.49	15.9	39	TIS390F40-*
SMF400	1.575	40	16.01	●		0.7	3.49	15.9	40	TIS400F40-*
SMF402	1.583	40.2	15.93	★		0.7	3.49	15.9	40	TIS400F40-*
SMF410	1.614	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

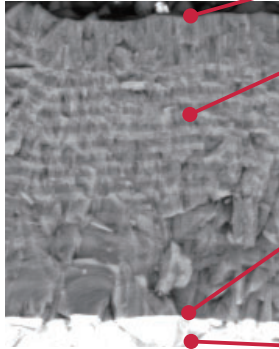
Related Items



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

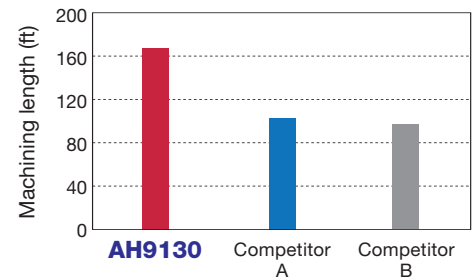
Strong coating-substrate adhesion

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 (1055)



Tool : $\phi 1.024''$
Cutting speed : $V_c = 328$ sfm
Feed : $f = 0.014$ ipr

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 (sfm)	Feed: f (ipr)		
			$\phi 0.787 - \phi 1.177$	$\phi 1.181 - \phi 1.413$	$\phi 1.417 - \phi 1.614$
P	Low carbon steel 1015, 1020, etc.	262 - 459	0.008 - 0.020	0.008 - 0.020	0.008 - 0.022
	Carbon steel and alloy steel 1055, 4140, etc.	262 - 427	0.008 - 0.020	0.008 - 0.020	0.008 - 0.022
	Prehardened steel NAK80, PX5, etc.	164 - 328	0.008 - 0.020	0.008 - 0.020	0.008 - 0.022
M	Stainless steel 304SS, 316SS, etc.	131 - 230	0.006 - 0.010	0.008 - 0.012	0.008 - 0.014
K	Gray cast iron Class 25, Class 30, etc.	262 - 591	0.010 - 0.022	0.010 - 0.022	0.012 - 0.024
	Ductile cast iron 60-40-18, 80-55-06, etc.	262 - 459	0.010 - 0.022	0.010 - 0.022	0.012 - 0.024
N	Non ferrous materials	328 - 656	0.016 - 0.024	0.016 - 0.024	0.020 - 0.028
S	Heat-resistant alloys Inconel718, etc.	66 - 164	0.004 - 0.008	0.004 - 0.008	0.004 - 0.010
	Titanium alloys Ti-6Al-4V, etc.	66 - 164	0.004 - 0.008	0.004 - 0.008	0.004 - 0.010
H	Hard materials	66 - 197	0.004 - 0.008	0.004 - 0.008	0.004 - 0.010



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