DrillLine

DRILLFORCEMEISTER

www.tungaloy.com/us

Tungaloy Report No. 509S1-US

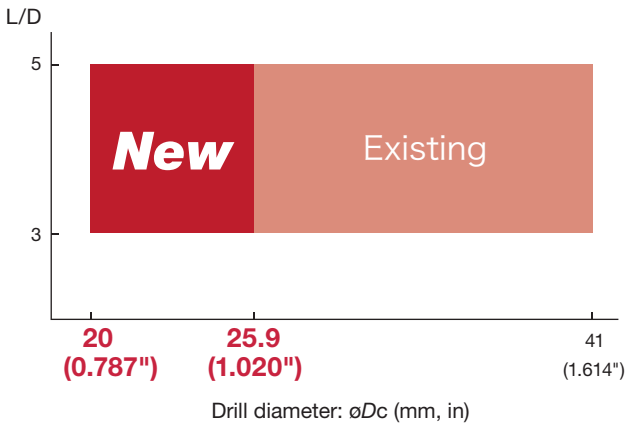
Expansion of the DrillForceMeister line with **a wider range of diameters - ø20 - 25.9 mm**

INDUSTRY 4.0

FEED the SPEED!

Line-up expansion of ø20 - ø25.9 mm (0.787" - 1.020")

Based on the big success of the existing range of DrillForceMeister and following market demand, Tungaloy has expanded the range of diameters. All heads are coated with our excellent wear resistant PVD coating, AH725.

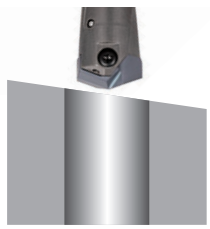
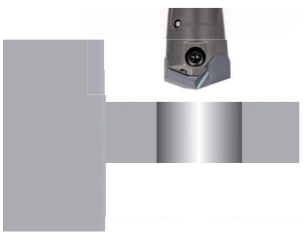
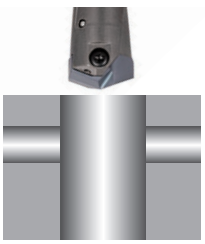


Unique clamping system

Easy and quick yet rigid and reliable clamping method for excellent hole quality and long tool life

DrillForceMeister has a large contact area, thus it strongly withstands radical forces and low rigidity workpiece clamping.

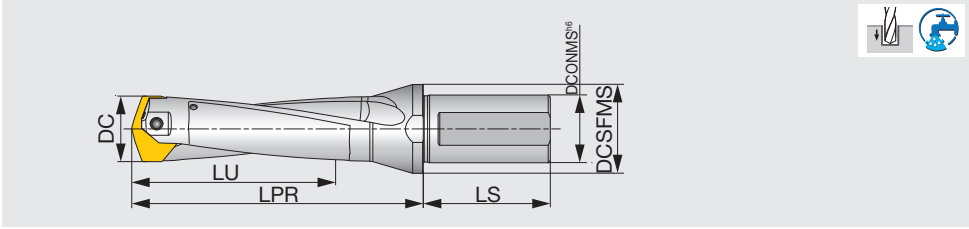
Typical examples of unbalanced machining

Inclined exit	Inclined surface	Thin metal machining	Jump hole machining
			

TIS L/D=3

Head indexable drill

New



Metric	DC	DCONMS	DCSFMS	LU	LPR	LS	Pocket size	Head
TIS200F25-3	20 - 20.9	25	32	63.1	92.1	56	20	SMP20*
TIS210F25-3	21 - 21.9	25	32	66.3	95.1	56	21	SMP21*
TIS220F25-3	22 - 22.9	25	32	69.4	98.4	56	22	SMP22*
TIS230F25-3	23 - 23.9	25	32	72.6	101.4	56	23	SMP23*
TIS240F32-3	24 - 24.9	32	40	75.7	110.7	60	24	SMP24*
TIS250F32-3	25 - 25.9	32	40	78.9	113.7	60	25	SMP25*

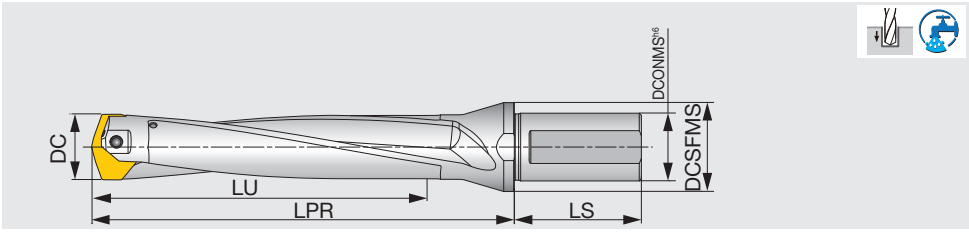
Tool diameter	Hole diameter tolerance*
ø20 - ø25.9	+0.05 / 0

* Just for reference.

TIS L/D=5

Head indexable drill

New



Metric	DC	DCONMS	DCSFMS	LU	LPR	LS	Pocket size	Head
TIS200F25-5	20 - 20.9	25	32	103.1	132.1	56	20	SMP20*
TIS210F25-5	21 - 21.9	25	32	108.3	137.1	56	21	SMP21*
TIS220F25-5	22 - 22.9	25	32	113.4	142.4	56	22	SMP22*
TIS230F25-5	23 - 23.9	25	32	118.6	147.4	56	23	SMP23*
TIS240F32-5	24 - 24.9	32	40	123.7	158.7	60	24	SMP24*
TIS250F32-5	25 - 25.9	32	40	128.9	163.7	60	25	SMP25*

Tool diameter	Hole diameter tolerance*
ø20 - ø25.9	+0.08 / 0

* Just for reference.

SPARE PARTS



Designation	Clamping screw	Wrench	
		Torx Bit	Grip
TIS200F25-*	TS40178D25	BLDT20/S7	H-TB2W
TIS210F25-*	TS40178D25	BLDT20/S7	H-TB2W
TIS220F25-*	TS40198D28	BLDT20/S7	H-TB2W
TIS230F25-*	TS40198D28	BLDT20/S7	H-TB2W
TIS240F32-*	TS40210D3	BLDT20/S7	H-TB2W
TIS250F32-*	TS40210D3	BLDT20/S7	H-TB2W

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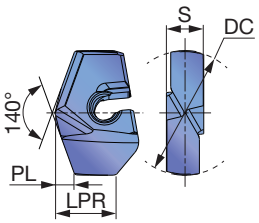
SMP

New



Tool diameter	Head diameter tolerance
ø20 - ø25.9	-0.006 / -0.026

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

★ : First choice
☆ : Second choice

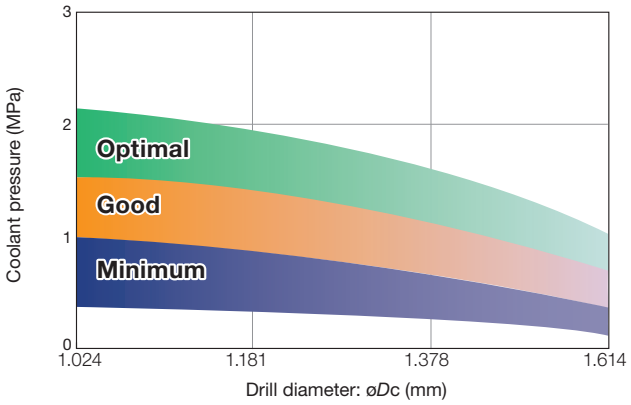
Designation	DC (in)	DC (mm)	S	Coated	LPR (mm)	PL (mm)	Pocket Size	Body
				AH725				
SMP200	0.787	20	5.7	●	9.7	3.11	20	TIS200F25-*
SMP205	0.807	20.5	5.7	●	9.7	3.2	20	TIS200F25-*
SMP210	0.827	21	5.7	●	9.7	3.29	21	TIS210F25-*
SMP215	0.846	21.5	5.7	●	9.7	3.38	21	TIS210F25-*
SMP220	0.866	22	6.2	●	10.5	3.42	22	TIS220F25-*
SMP223	0.878	22.3	6.2	●	10.5	3.47	22	TIS220F25-*
SMP225	0.886	22.5	6.2	●	10.5	3.51	22	TIS220F25-*
SMP230	0.906	23	6.2	●	10.5	3.6	23	TIS230F25-*
SMP235	0.925	23.5	6.2	●	10.5	3.69	23	TIS230F25-*
SMP240	0.945	24	6.7	●	10.8	3.73	24	TIS240F32-*
SMP245	0.965	24.5	6.7	●	10.8	3.82	24	TIS240F32-*
SMP247	0.972	24.7	6.7	●	10.8	3.86	24	TIS240F32-*
SMP250	0.984	25	6.7	●	10.8	3.91	25	TIS250F32-*
SMP255	1.004	25.5	6.7	●	10.8	4	25	TIS250F32-*

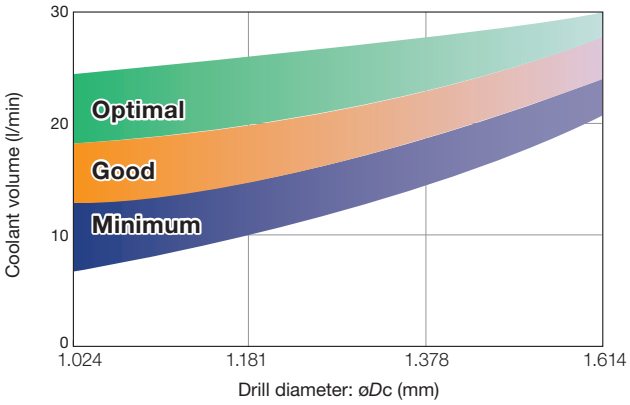
●: Line up

STANDARD CUTTING CONDITIONS

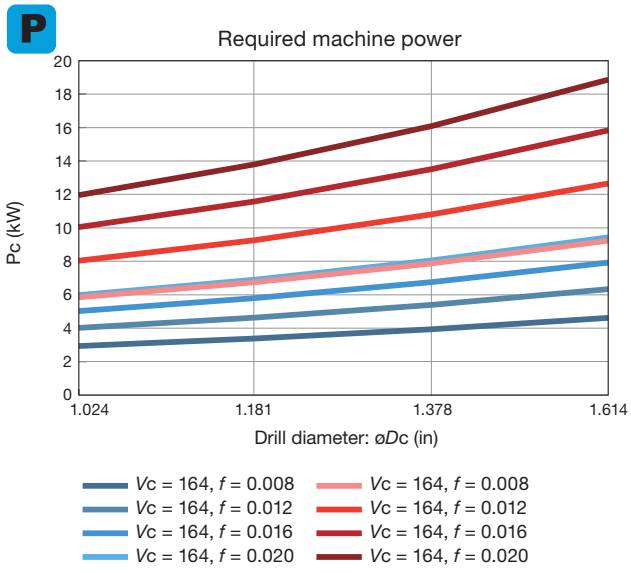
ISO	Workpiece materials	Cutting speed *Vc* (sfm)	Feed: *f* (ipr) ø*Dc* (in) 0.787 - 1.020
P	Low carbon steel 1015, 1020, etc.	262 - 459	0.008 - 0.020
P	Carbon steel and alloy steel 1055, 4140, etc.	262 - 427	0.008 - 0.020
P	Prehardend steel NAK80, PX5, etc.	164 - 328	0.008 - 0.020
M	Stainless steel 304SS, 316SS, etc.	131 - 262	0.006 - 0.012
K	Gray cast iron Class 25, Class 30, etc.	262 - 591	0.010 - 0.022
K	Ductile cast iron 80-55-06, etc.	262 - 459	0.010 - 0.022
N	Non ferrous materials	328 - 656	0.016 - 0.024
S	Heat-resistant alloys Inconel718, etc.	66 - 164	0.004 - 0.008
S	Titanium alloys Ti-6Al-4V, etc.	66 - 164	0.004 - 0.008
H	Hardened materials	66 - 197	0.004 - 0.008

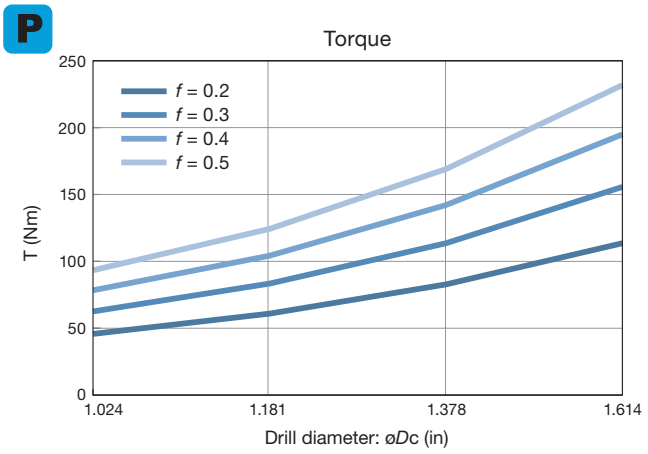
RECOMMENDED COOLANT PRESSURE AND VOLUME





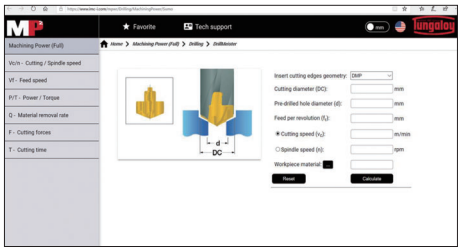
REQUIRED MACHINE POWER AND TORQUE





- **Please access to "Tungaloy machining power" to calculate more detailed cutting forces.**

https://www.imc-i.com/mpwr/MachiningPower



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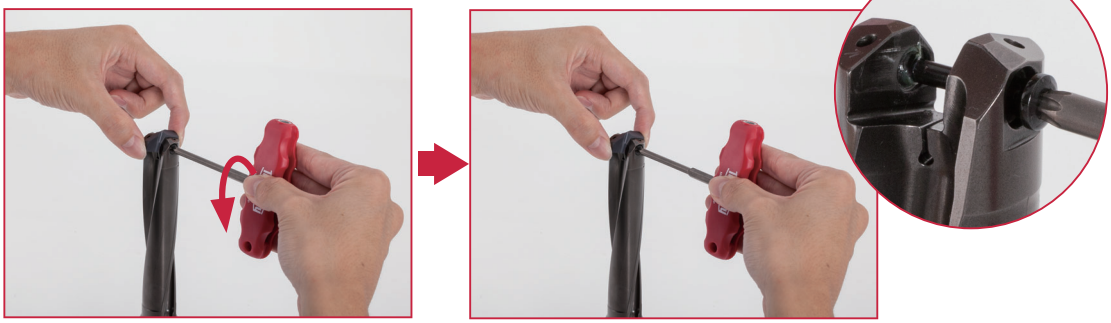
HOW TO CHANGE DRILL HEAD

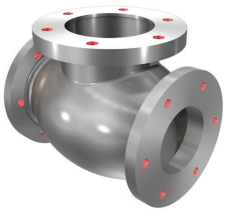
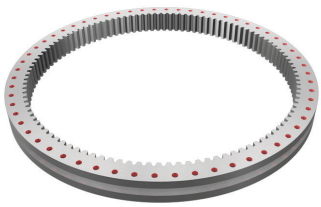
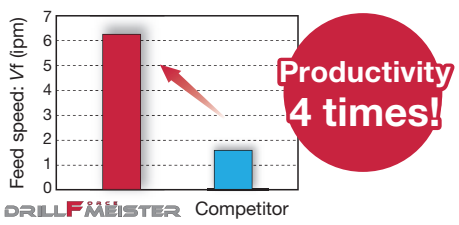
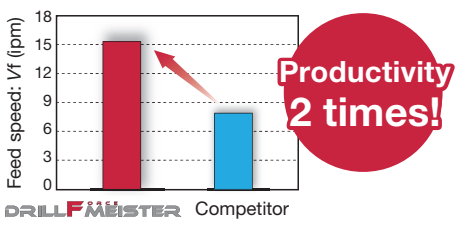
To unclamp rotate the screw 3-5 times counter-clockwise.

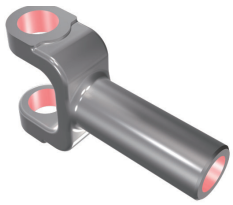
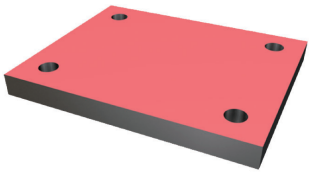
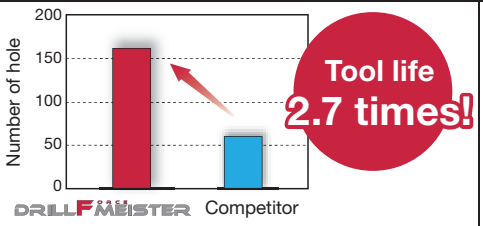
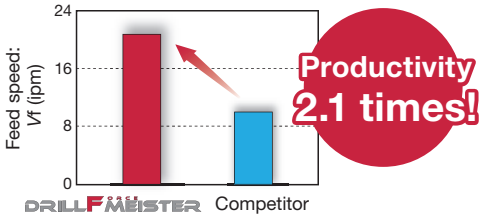
No need to remove the screw from the body.



- Please change the screw to new one when the screw does not rotate smoothly

PRACTICAL EXAMPLES

Workpiece type		Gate valve	Slewing ring
Drill		TISU1181F1250-5	TISU1299F1500-5
Head		SMP300	SMP331
Grade		AH725	AH725
Workpiece material		S30400	4140
		 M	 P
Cutting conditions	Cutting speed: *Vc* (sfm)	197	328
	Feed : *f* (ipr)	0.010	0.016
	Feed speed : *Vf* (in)	6.3	15
	Drilling depth : *H* (in)	4.73	5.9
	Machine	Horizontal M/C	Vertical M/C
Results		 DrillForceMeister provides 4 times productivity than HSD drill.	 DrillForceMeister provides 2 times productivity and more stable hole diameter compare with indexable drill.

Workpiece type		Link	Plate
Drill		TISU1260F1500-5	TISU1024F1250-3
Head		SMP321	SMP260
Grade		AH725	AH725
Workpiece material		4140	SN490B
		 M	 P
Cutting conditions	Cutting speed: *Vc* (sfm)	197	394
	Feed : *f* (ipr)	0.006	0.014
	Feed speed : *Vf* (in)	3.543	20.236
	Drilling depth : *H* (in)	1.693	0.866
	Machine	Horizontal M/C	Vertical M/C
Results		 DrillForceMeister provides 2.7 times tool life than head changeable drill.	 DrillForceMeister provides 2.1 times productivity than indexiable drill.

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