Member IMC Group Tungaloy

ToolLine

For more information

Deep hole drilling system

FINE-BEAM JET

Tungaloy Report No. 575-G

New Revolutionary BTA head for superior productivity and performance



TUNGALOY ADDFORCE ACCELERATED LINES

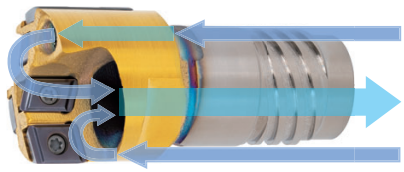
Optimized Coolant Flow and a High-Hardness Body Deliver Superior Stability, Reliability, and Productivity



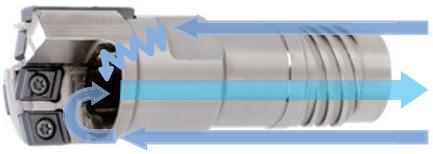
1 Additive Manufacturing for optimized coolant flow design

Tip-mounted coolant holes deliver approximately 20% more high-pressure coolant to the cutting edges, improving chip formation and evacuation, extending tool life by approximately 1.25 to 2 times, and achieving an excellent surface finish.

FINE-BEAMJET



Conventional



2 Increased body hardness

Improves the durability of the head mounting section and further extending body's tool life.

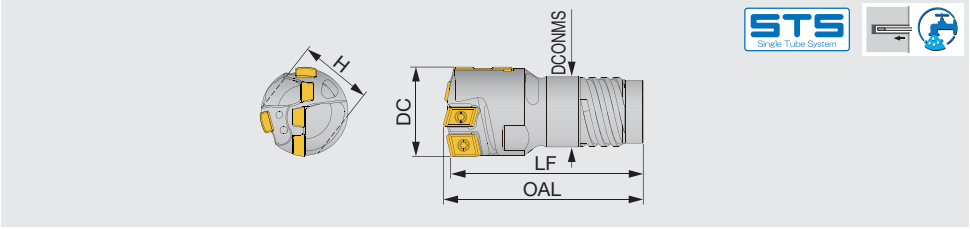
*Same inserts, guide pads and spare parts as current Fine-Beam series.

FINE-BEAMJET STS

FJBM STS-EX

Indexable head with external 4-start thread for single tube system (STS)





Standard products

Designation	DC	Drill tube		OAL	LF	DCONMS	H
		Designation	Dia. (mm)				
FJBM-02S-25.00	25	ST02	22	62.7	60.4	19.5	22
FJBM-02S-25.40	25.4	ST02	22	62.7	60.4	19.5	22
FJBM-04S-30.00	30	ST04	26	66.8	64	23.5	27
FJBM-05S-31.75	31.75	ST05	28	66.8	64	25.5	27
FJBM-05S-32.00	32	ST05	28	66.8	64	25.5	29
FJBM-05S-33.00	33	ST05	28	66.8	64	25.5	29

Non-standard products (to be supplied on request)

When ordering

FJBM-**S	xx.xx
Drill head	Diameter (mm)

e.g. Designation for tool diameter ø26.2 mm: **FJBM-02S-26.20**

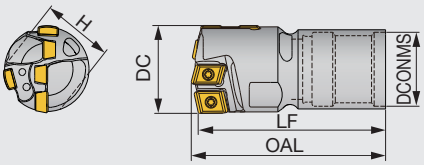
Designation	DCN	DCX	Drill tube		OAL	LF	DCONMS	H
			Designation	Dia. (mm)				
FJBM-02S-XX.XX	25	25.6	ST02	22	62.7	60.4	19.5	22
FJBM-02S-XX.XX	25.61	26.4	ST02	22	63.2	60.9	19.5	22
FJBM-03S-XX.XX	26.41	27.25	ST03	24	63.2	60.9	21	22
FJBM-03S-XX.XX	27.26	28	ST03	24	64.2	61.9	21	22
FJBM-03S-XX.XX	28.01	28.7	ST03	24	64.2	62.9	21	24
FJBM-04S-XX.XX	28.71	29.99	ST04	26	65.7	63.4	23.5	24
FJBM-04S-XX.XX	30	31	ST04	26	66.8	64	23.5	27
FJBM-05S-XX.XX	31.01	31.99	ST05	28	66.8	64	25.5	27
FJBM-05S-XX.XX	32	33	ST05	28	66.8	64	25.5	29

FINE-BEAMJET STS

FJBM STS-IN

Indexable head with internal single-start thread for single tube system (STS)





Non-standard products (to be supplied on request)

When ordering

FJBM-**N	xx.xx
Drill head	Diameter (mm)

e.g. Designation for tool diameter ø26.2 mm: **FJBM-22N-26.20**

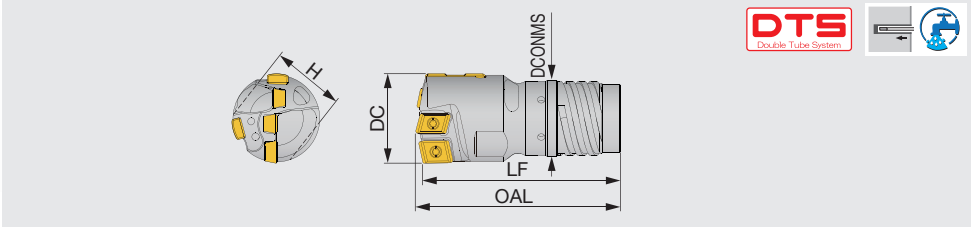
Designation	DCN	DCX	Drill tube		OAL	LF	DCONMS	H
			Designation	Dia. (mm)				
FJBM-22N-XX.XX	25	25.6	UB22	22	59.7	57.4	20	22
FJBM-22N-XX.XX	25.61	26.4	UB22	22	61.7	59.4	20	22
FJBM-22N-XX.XX	26.41	26.99	UB22	22	62.2	59.9	20	22
FJBM-24N-XX.XX	27	28	UB24	24	64.7	62.4	22	22
FJBM-24N-XX.XX	28.01	28.7	UB24	24	64.7	62.4	22	24
FJBM-24N-XX.XX	28.71	29.99	UB24	24	65.7	63.4	22	24
FJBM-26N-XX.XX	30	31	UB26	26	66.3	63.5	24	27
FJBM-26N-XX.XX	31.01	31.99	UB26	26	66.9	64	24	27
FJBM-28N-XX.XX	32	33	UB28	28	67	64	26	29

FINE-BEAMJET DTS

FJBM DTS-EX

Indexable head with external 4-start thread for double tube system (DTS)





Non-standard products (to be supplied on request)

When ordering

FJBM-**D	-	xx.xx
Drill head		Diameter (mm)

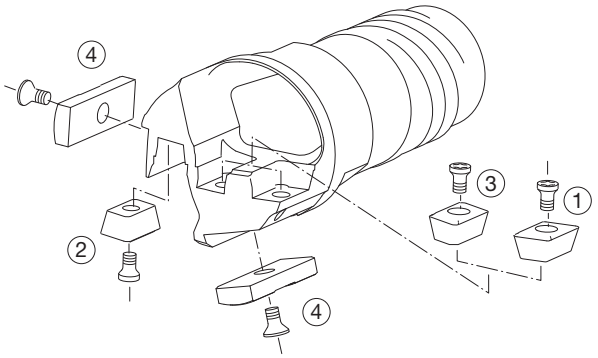
e.g. Designation for tool diameter ø26.2mm: **FJBM-03D-26.20**

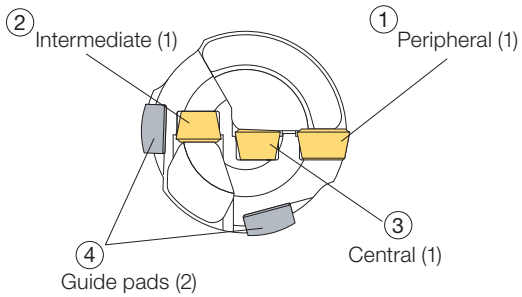
Designation	DCN	DCX	Out. tube		Int. tube		OAL	LF	DCONMS	H
			Designation	Dia. (mm)	Designation	Dia. (mm)				
FJBM-03D-XX.XX	25	25.6	OT03	23.5	IT03	16	62.7	60.4	21	22
FJBM-03D-XX.XX	25.61	26.4	OT03	23.5	IT03	16	63.2	60.9	21	22
FJBM-04D-XX.XX	26.41	27.25	OT04	26	IT04	18	66.2	63.9	23.5	22
FJBM-04D-XX.XX	27.26	28	OT04	26	IT04	18	67.2	64.9	23.5	22
FJBM-04D-XX.XX	28.01	28.7	OT04	26	IT04	18	67.2	64.9	23.5	24
FJBM-05D-XX.XX	28.71	29.99	OT05	28	IT05	20	67.2	64.9	25.5	24
FJBM-05D-XX.XX	30	31	OT05	28	IT05	20	67.8	65	25.5	27
FJBM-06D-XX.XX	31.01	31.99	OT06	30.5	IT06	22	67.8	65	28	27
FJBM-06D-XX.XX	32	33	OT06	30.5	IT06	22	67.8	65	28	29

SPARE PARTS

Tool diameter DCN - DCX (mm)	Insert									Guide pad		
	① Peripheral			② Intermediate			③ Central			④		
	Insert	Screw*	Wrench	Insert	Screw*	Wrench	Insert	Screw*	Wrench	Guide pad	Screw	Wrench
25 - 28	FBH0603**R-**-P	CSTB-2.2	T-7F	FBM060304R-**-I	CSTB-2.2	T-7F	FBM060308L-**-C	CSTB-2.2	T-7F	GP06	CSTB-2.2S	T-7F
28.01 - 29.99	FBH0603**R-**-P	CSTB-2.2	T-7F	FBM060304R-**-I	CSTB-2.2	T-7F	FBM070408L-**-C	SR14-560-HG	T-8F	GP06	CSTB-2.2S	T-7F
30 - 33	FBH0804**R-**-P	SR14-560-HG	T-8F	FBM070404R-**-I	SR14-560-HG	T-8F	FBM070408L-**-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F

Drill heads come with clamping screws and wrenches but do not include inserts and guide pads. Please purchase inserts and guide pads separately.
Recommended clamping torque: CSTB-2.2/CSTB-2.2S = 1 N·m, SR14-560-HG = 1.2 N·m, CSTB-3S = 2.3 N·m

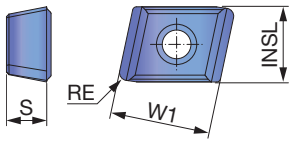




INSERT

FBM-C (Central insert)





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

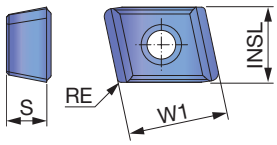
★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated AH9130	Coated AH725	Coated AH8015	S	DCN	DCX	RE
FBM060308L-G-C	5.5	8	●		●	3	25	28	0.8
FBM060308L-HF-C	5.5	8	●	●	●	3	25	28	0.8
FBM070408L-G-C	6.5	10	●	●	●	4	28.1	33	0.8
FBM070408L-HF-C	6.5	10	●	●	●	4	28.1	33	0.8

●: Line up

FBH-P (Peripheral insert)





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

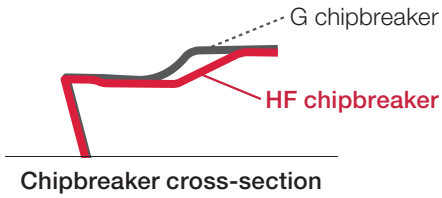
★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated AH9130	Coated AH725	Coated AH8015	S	DCN	DCX	RE
FBH060304R-G-P	6	8		●		3	25	29.99	0.4
FBH060308R-G-P	6	8	●	●	●	3	25	29.99	0.8
FBH060308R-HF-P	6	8	●	●	●	3	25	29.99	0.8
FBH080404R-G-P	7.5	10		●		4	30	33	0.4
FBH080408R-G-P	7.5	10	●	●	●	4	30	33	0.8
FBH080408R-HF-P	7.5	10	●	●	●	4	30	33	0.8

●: Line up

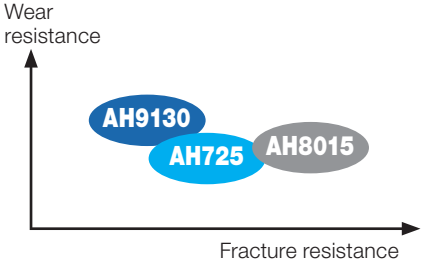
Chipbreaker comparison

HF - Provides drilling stability at high feed rates



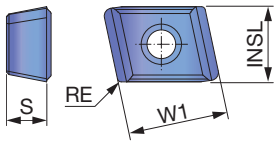
Chipbreaker cross-section

Insert grade



FBM-I (Intermediate insert)





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

★ : First choice
☆ : Second choice

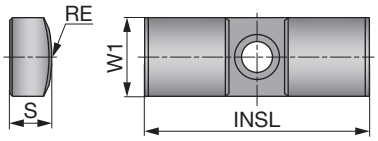
Designation	INSL	W1	Coated			S	DCN	DCX	RE
			AH9130	AH725	AH8015				
FBM060304R-DL-I	5.5	8	●	●		3	25	29.99	0.4
FBM060304R-G-I	5.5	8	●	●	●	3	25	29.99	0.4
FBM060304R-HF-I	5.5	8	●	●	●	3	25	29.99	0.4
FBM070404R-DL-I	6.5	10	●	●		4	30	33	0.4
FBM070404R-G-I	6.5	10	●	●	●	4	30	33	0.4
FBM070404R-HF-I	6.5	10	●	●	●	4	30	33	0.4

●: Line up

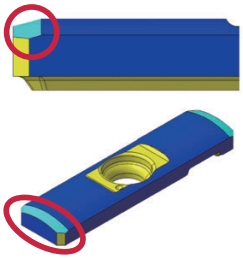
GUIDE PAD

GP06, 07

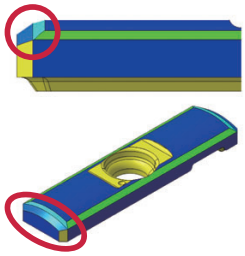




Single chamfer



Double chamfer (-DC)



Designation	DCN	DCX	Coated			W1	INSL	S	RE	Chamfer
			F1122	FH3125	FH3135					
GP06	25	29.99	●			6	20	3	12	Single
GP06-20-120-DC	25	29.99		●	●	6	20	3	12	Double
GP07	30	33	●			7	20	3.5	12	Single
GP07-20-120-DC	30	33		●	●	7	20	3.5	12	Double

●: Line up
Package quantity = 5 pcs.

Grade recommendations

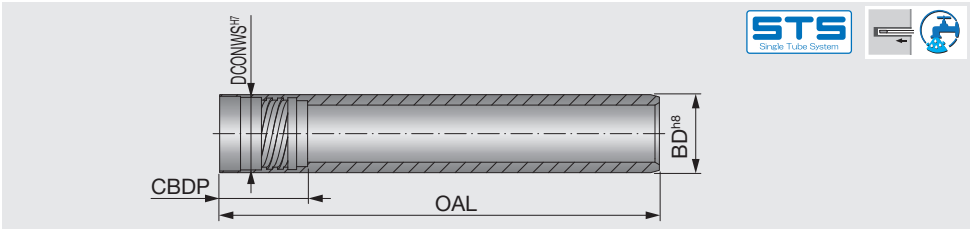
ISO	Oil coolant			Water based coolant		
	First choice	Second choice	Third choice	First choice	Second choice	Third choice
P	FH3125	F1122	FH3135	FH3135	FH3125	-
M	FH3135	FH3125	F1122	FH3135	FH3125	-
K	FH3125	F1122	FH3135	FH3135	FH3125	-
N	FH3125	F1122	FH3135	FH3135	FH3125	-
S	FH3135	FH3125	F1122	FH3135	FH3125	-
H	FH3135	FH3125	F1122	FH3135	FH3125	-

ST STS

ST - for single tube system

Drill tube for single tube system (STS), internal thread type,4-start thread





Designation	DCN-DCX	OAL 1600	OAL 2600	OAL Special length	BD	DCONWS	CBDP
ST02	25 - 26.4		●	○	22	19.5	30
ST03	26.41 - 28.7		●	○	24	21	30
ST04	28.71 - 31		●	○	26	23.5	33
ST05	31.01 - 33		●	○	28	25.5	33

● : Line up
○ : Item to be customized

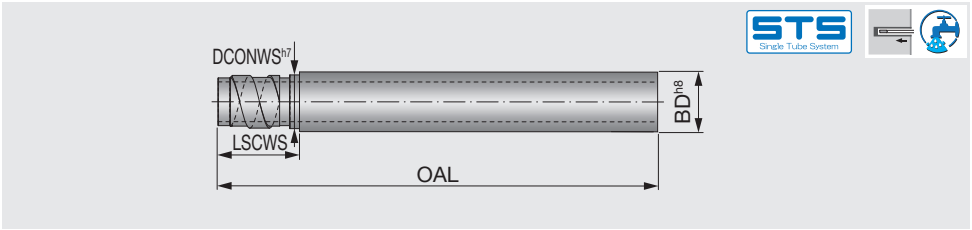
Please specify the length (OAL) when ordering.
e.g. For ø28 mm drill diameter / 2600 mm drill tube length: ST03X2600
The lengths that are not in the above will be available upon request.

UB STS

UB - for single tube system

Drill tube for single tube system (STS), external thread type, single-start thread





Designation	DCN-DCX	OAL Special length	BD	DCONWS	LSCWS
UB22	25 - 26.99	○	22	20	26
UB24	27 - 29.99	○	24	22	26
UB26	30 - 31.99	○	26	24	26
UB28	32 - 33.99	○	28	26	26

○ : Item to be customized

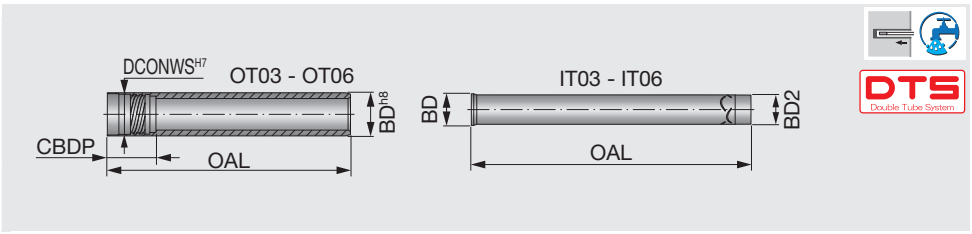
Please specify the length (OAL) when ordering.
e.g. For ø28 mm drill diameter / 2600 mm drill tube length: UB24X2600

OT & IT DTS

OT & IT - for double tube system

Outer tube and inner tube for double tube system (DTS)





Outer tube (OT)

Designation	DCN-DCX	OAL Special length	BD	DCONWS	CBDP
OT03	25 - 26.4	○	23.5	21	30
OT04	26.41 - 28.7	○	26	23.5	33
OT05	28.71 - 31	○	28	25.5	33
OT06	31.01 - 33	○	30.5	28	33

Inner tube (IT)

Designation	DCN-DCX	OAL Special length	BD	BD2
IT03	25 - 26.4	○	16	14
IT04	26.41 - 28.7	○	18	16
IT05	28.71 - 31	○	20	18
IT06	31.01 - 33	○	22	20

○ : Item to be customized

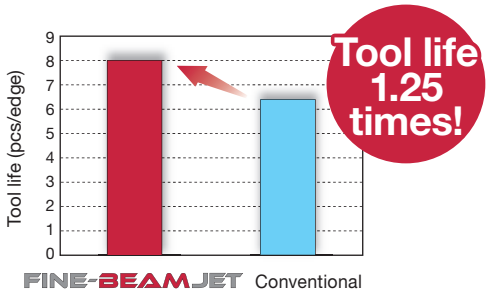
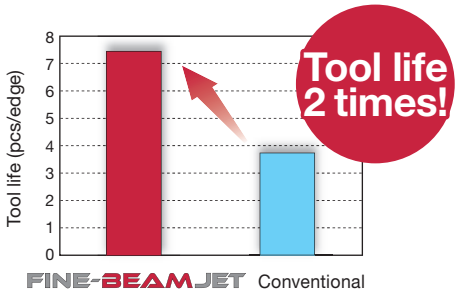
Please specify the length (OAL) when ordering.
e.g. For ø28 mm drill diameter / 1070 mm drill outer tube length: OT04X1070
Please choose the inner tube length according to the guide below:
▶ tool diameter: ø25 - ø33 mm (TO03 - OT06) ..... Inner tube length = Outer tube length + 30 mm

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials				Hardness (HB)	Chipbreaker	Cutting speed *Vc* (m/min)	Feed : *f* (mm/rev)
P	Carbon steel Casting steel High carbon steel Carbon tool steel	S10C - S25C, SS	0.10 - 0.25%C	Non-hardened	125	HF	70 - 130	0.11 - 0.41
					125	G	70 - 130	0.1 - 0.3
		S25C - S55C	0.25 - 0.25%C	Non-hardened	190	HF	70 - 130	0.11 - 0.41
					190	G	70 - 130	0.1 - 0.3
			0.25 - 0.25%C	Hardened and tempered	250	HF	70 - 130	0.11 - 0.41
					250	G	70 - 130	0.1 - 0.3
		SK	0.55 - 0.80%C	Non-hardened	220	HF	70 - 130	0.11 - 0.41
					220	G	70 - 130	0.1 - 0.3
			0.55 - 0.80%C	Hardened and tempered	300	HF	70 - 130	0.11 - 0.41
					300	G	70 - 130	0.1 - 0.3
	Low alloy steel Casting steel (alloying element < 5%)	SNC,DCr,SNCN SCM,SMn		Non-hardened	200	HF	70 - 120	0.11 - 0.41
					200	G	70 - 120	0.1 - 0.3
				Hardened and tempered	275	HF	55 - 110	0.11 - 0.41
					275	G	60 - 120	0.1 - 0.3
					300	HF	55 - 110	0.11 - 0.41
					300	G	60 - 120	0.1 - 0.3
					350	HF	55 - 110	0.11 - 0.41
					350	G	60 - 120	0.1 - 0.3
	High alloy steel Casting steel Tool steel	SNS,SKD,SKT SKH,SK		Non-hardened	200	HF	55 - 110	0.11 - 0.38
					200	G	70 - 130	0.1 - 0.3
				Hardened and tempered	325	HF	55 - 110	0.11 - 0.38
					325	G	70 - 130	0.1 - 0.3
M	Stainless steel	SUS430		Ferritic	200	HF	40 - 110	0.11 - 0.41
					200	G	70 - 130	0.1 - 0.3
		SUS410, 420J		Martensite	240	HF	40 - 110	0.11 - 0.41
					240	G	70 - 130	0.1 - 0.3
		SUS304, SUS316L		Austenite	180	HF	40 - 110	0.11 - 0.41
					180	G	70 - 130	0.1 - 0.3
K	Ductile cast iron	FCD400 - FCD450		Ferritic / Pearlitic	180	HF	50 - 110	0.11 - 0.38
					180	G	50 - 110	0.1 - 0.25
		FCD500 - FCD700		Pearlitic	260	HF	50 - 110	0.11 - 0.38
					260	G	50 - 110	0.1 - 0.25
	Grey cast iron	FC100 - FC200		Low tensile strength	160	HF	60 - 110	0.11 - 0.38
					160	G	60 - 110	0.1 - 0.25
		FC250 - FC350		High tensile strength	250	HF	60 - 110	0.11 - 0.38
					250	G	60 - 110	0.1 - 0.25
	Malleable cast iron	FCMB, FCMW		Ferritic	130	HF	80 - 120	0.11 - 0.38
					130	G	70 - 110	0.1 - 0.25
		FCMWP, FCMP		Pearlitic	230	HF	80 - 120	0.11 - 0.38
					230	G	70 - 110	0.1 - 0.25
N	Aluminium alloys Forging			Non-aged	60	HF	65 - 150	0.09 - 0.33
					60	G	65 - 130	0.1 - 0.25
				Solution heat-treated, Aged	100	HF	65 - 150	0.09 - 0.33
					100	G	65 - 130	0.08 - 0.23
	Aluminium alloys Casting		≤12% Si	Non-aged	75	HF	65 - 150	0.09 - 0.33
					75	G	65 - 130	0.08 - 0.23
				Solution heat-treated, Aged	90	HF	65 - 150	0.09 - 0.33
					90	G	65 - 130	0.08 - 0.23
			>12% Si	High silicon	130	HF	65 - 150	0.09 - 0.33
					130	G	65 - 130	0.08 - 0.23
	Copper alloys		>1% Pb	Free cutting copper	110	HF	65 - 150	0.09 - 0.33
					110	G	65 - 130	0.08 - 0.23
				Brass, Red brass	90	HF	65 - 150	0.09 - 0.33
					90	G	65 - 130	0.08 - 0.23
				Electrolytic copper	100	HF	65 - 150	0.09 - 0.33
					100	G	65 - 130	0.08 - 0.23
S	Nickel-based alloys		Fe base	Non-aged	200	HF	20 - 55	0.09 - 0.30
					200	G	20 - 50	0.08 - 0.23
				Solution heat-treated, Aged	280	HF	20 - 55	0.09 - 0.30
					280	G	20 - 50	0.08 - 0.23
			Ni / Co base	Non-aged	250	HF	20 - 55	0.09 - 0.30
					250	G	20 - 50	0.08 - 0.23
				Solution heat-treated, Aged	350	HF	20 - 55	0.09 - 0.30
					350	G	20 - 50	0.08 - 0.23
				Casted	320	HF	20 - 55	0.09 - 0.30
					320	G	20 - 50	0.08 - 0.23
	Titanium alloys		α		Rm400	HF	30 - 60	0.09 - 0.30
					Rm400	G	30 - 60	0.08 - 0.23
			α-β		Rm1050	HF	30 - 60	0.09 - 0.30
					Rm1050	G	30 - 60	0.08 - 0.23
H	Hardened steel	≥ 40HRC				HF	30 - 60	0.09 - 0.30
						G	30 - 60	0.08 - 0.23

Cutting parameters shown here are relating to the basic recommendations for cutting materials given.
Cutting conditions, material hardness and other relevant variables must be taken into considerations to determine the actual cutting parameters.

PRACTICAL EXAMPLES

Workpiece type		Billet	Oil & Gas
Drill		FJBM-05S-33.00	FJBM-05S-31.75
Insert		FBH080408R-G-P	GP07-20-120-DC
Grade		AH8015	FH3135
Workpiece material		Duplex Stainless Steel	SCM440 / 42CrMo4
		 M	 P
Cutting conditions	Cutting speed: *Vc* (m/min)	41	55
	Feed : *f* (mm/rev)	0.29	0.165
	Feed speed : *Vf* (mm/min)	116	90
	Drilling depth : *H* (mm)	33	31.75
	Machine	BTA machine	BTA machine
	Coolant	Wet	Wet
Results		 **Fine-BeamJet** increases tool life by 25% over the conventional tool.	 **Fine-BeamJet** increases guide pad life by 200% over the conventional tool.

Member IMC Group Tungaloy

tungaloy.com
follow us at:
facebook.com/tungaloyjapan
twitter.com/tungaloyjapan
www.youtube.com/tungaloycorporation

Distributed by:

Explore the Tungaloy world!
Tungaloy APP & SNS

FIND US ON THE CLOUD!
machiningcloud.com

QR Code is registered trademark of DENSO WAVE INCORPORATED.

Oct. 2026 (TJ)