Member IMC Group Tungaloy

ToolLine

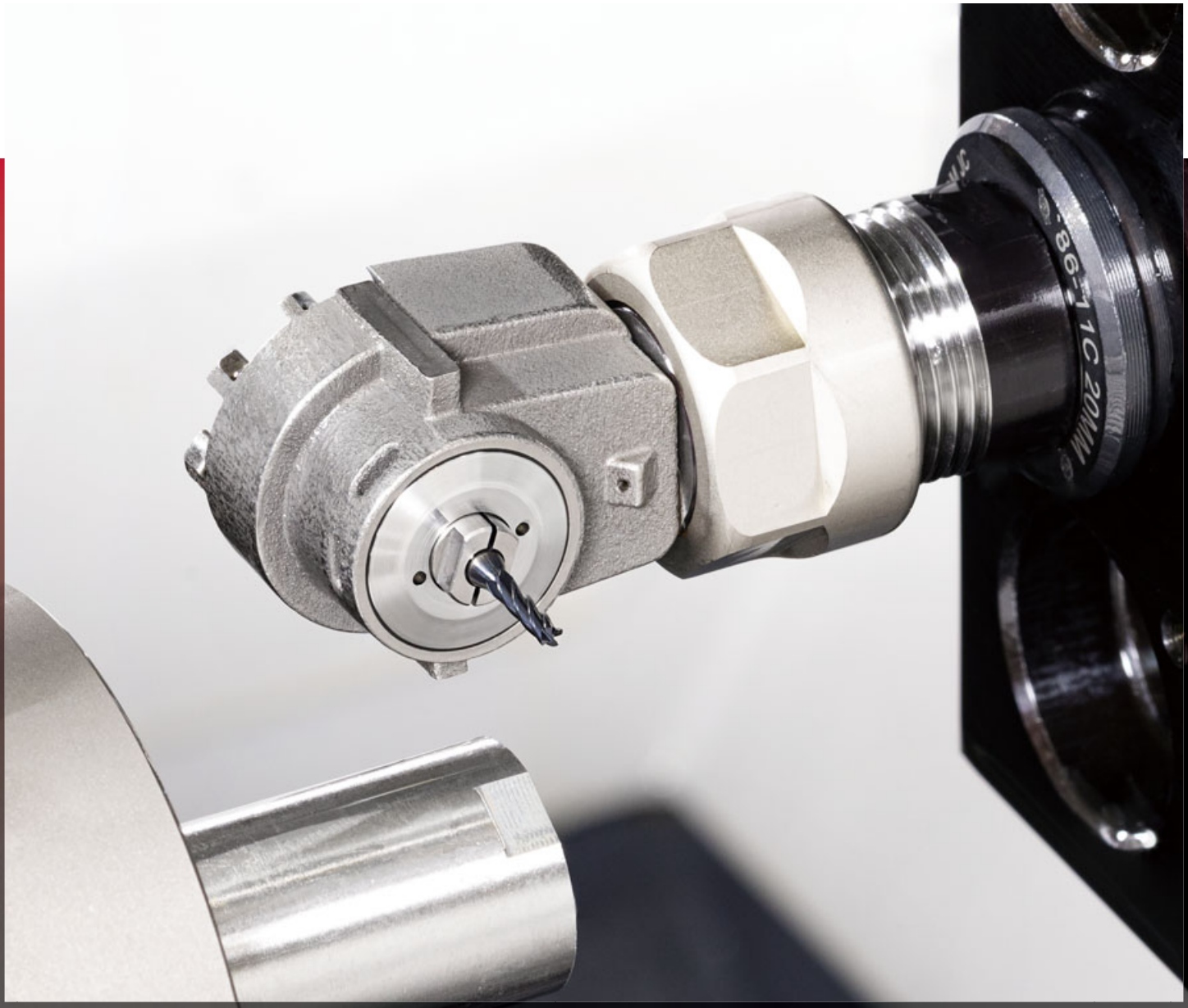
For more information

Tooling system

SPINJET

Tungaloy Report No. 428S2-G

High productivity of Drilling and Milling in difficult to reach spaces



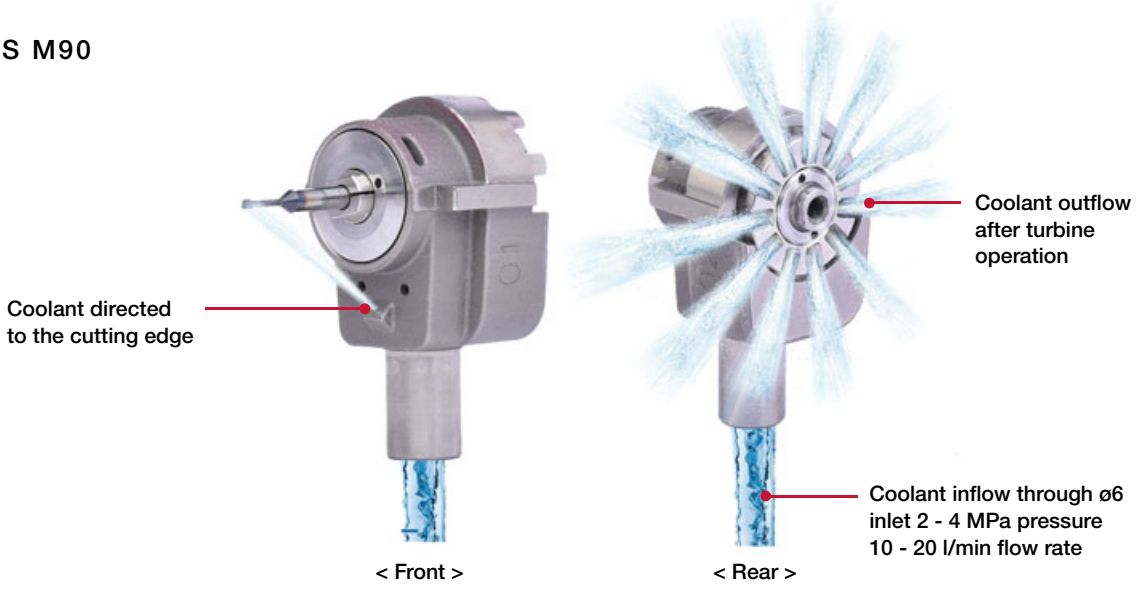
TUNGALOY ADDFORCE ACCELERATED LINES

SPINJET

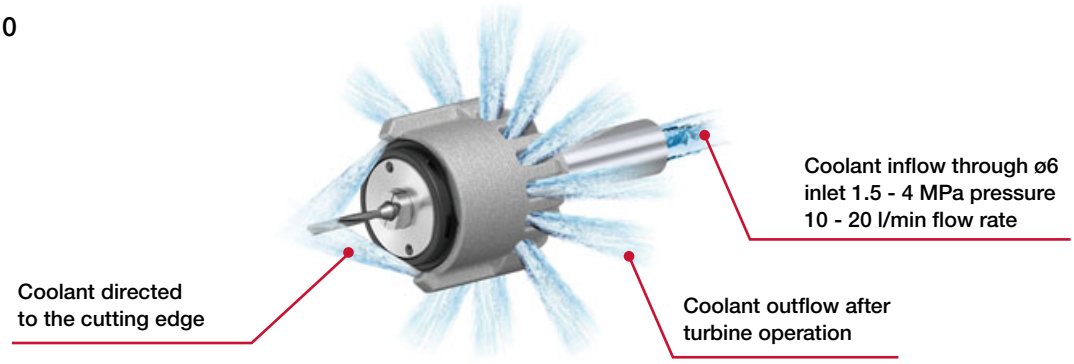
Spindle for high-speed machining in tight space

- Rigid and compact, ideal for machining operations in difficult-to-reach areas
- Powered by the machine's internal coolant driver system
- Suitable for small diameter semi-finishing and finishing applications
- Powerful internal coolant system

TJS M90



TJS M00



Prerequisites for CNC Machine

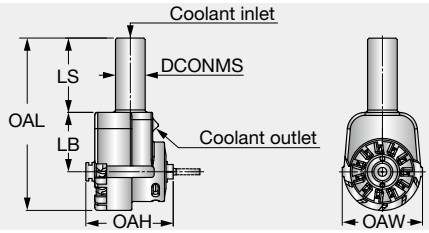
Prerequisites	SPINJET TJS M90	SPINJET TJS M00
Coolant pressure: P (MPa)	2 - 4	1.5 - 4
Flow rate: Q (l/min)	10 - 20	10 - 20
No. of revolutions: n (min^{-1})	35,000 - 53,000	18,000 - 40,000
Tool diameter: DC (mm)	Drilling: 0.5 - 2	Drilling: 0.1 - 2
	Milling: 1.5 - 3.5	Milling: 0.3 - 3
Max. shank diameter: DCONMS (mm)	3.175	3.175

These are approximate revolution values, depending on coolant pressure, flow rate, and type.

SPINDLES

TJS M90

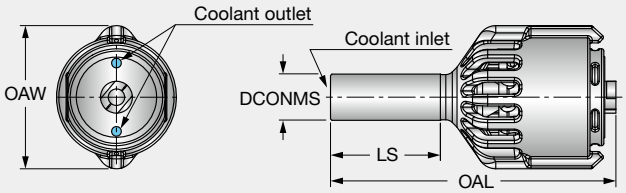
High-pressure coolant driven HSM spindle with a straight shank for small diameter cutting tools, angular head type



Designation	LS	LB	OAL	OAH	OAW	DCONMS
TJS M90-3.0	25	20	58	29	27	10

TJS M00

High-pressure coolant driven HSM spindle with a straight shank for small diameter cutting tools

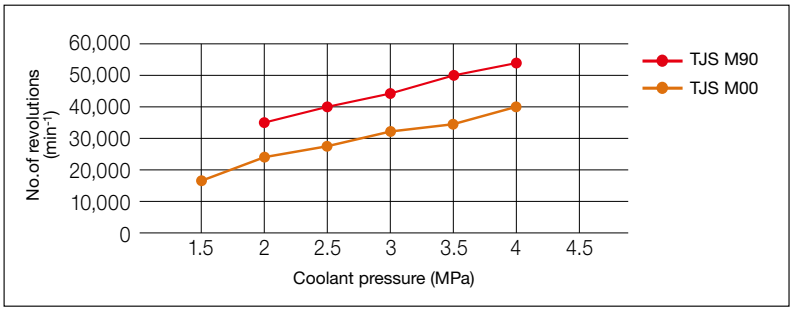


Designation	LS	OAL	OAW	DCONMS
TJS M00-3.0	23.8	61.8	31	10

SPARE PARTS

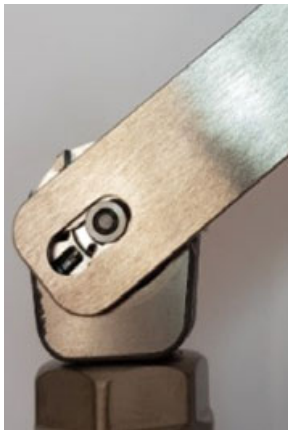
Designation	TJS collet 1	TJS collet 2 (Optional)	TJS collet 3 (Optional)	TJS collet 4 (Optional)	TJS MJ wrench	TJS MJ lock
TJS M90-3.0	TJS-COLLET 3.0	(TJS-COLLET 1.6)	(TJS-COLLET 2.0)	(TJS-COLLET 1/8)	TJS MJ90 WRENCH-2430	-
TJS M00-3.0	TJS-COLLET 3.0	(TJS-COLLET 1.6)	(TJS-COLLET 2.0)	(TJS-COLLET 1/8)	TJS MJ-WRENCH-COLLET	TJS MJ-SHAFT-LOCK

MPa	Idle Speed min^{-1}	
	M90	M00
1.5	-	18,000
2	35,000	23,000
2.5	40,000	27,000
3	44,000	31,000
3.5	50,000	34,000
4	53,000	40,000

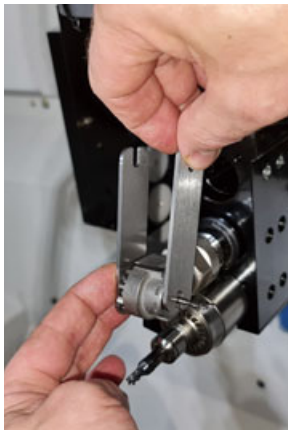


INSTRUCTIONS

■ TJS M90



❶ Hold the rear spindle with a wrench so that the shaft does not rotate

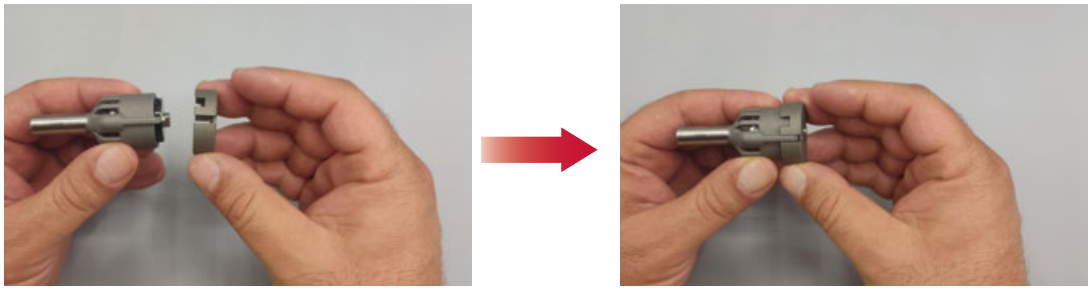


❷ After inserting the collet and tool into the spindle, tighten the collet to secure it

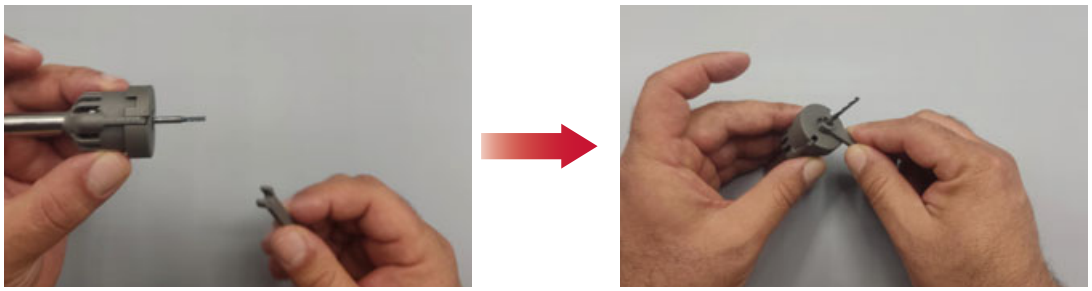
❸ Use the indicator to check the parallelism of the grinding face on the spindle housing and the machine

❹ Tighten the collet nut to secure the TJS M90 angular head to the holder

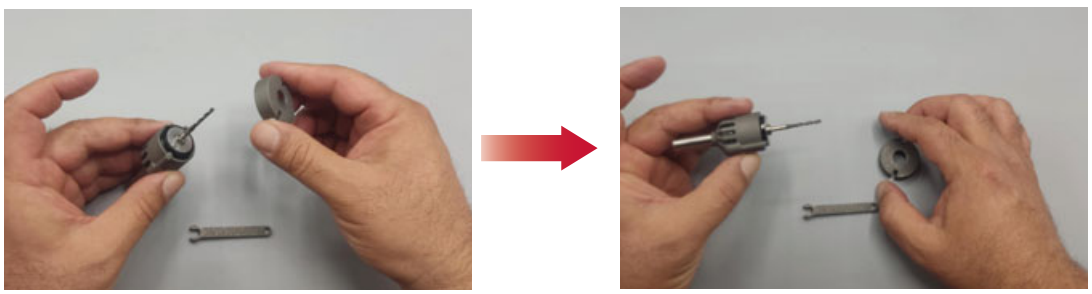
■ TJS M00



❶ Hold the spindle with the lock key so that the shaft does not rotate



❷ After inserting the tool into the collet, tighten the collet to secure it



❸ Remove the lock key and use the tool assembled TJS M00 spindle

STANDARD CUTTING CONDITIONS

TJS M90

ISO	Workpiece material	Tool	Application	Tool diameter DC (mm)	Coolant pressure (MPa)	Spindle speed *n* (min^{-1})	Width of cut *ae* (mm)	Depth of cut *ap* (mm)	Feed per tooth *fz* (mm/t)
P	Alloy steel 35 HRC	Drill	Drilling	0.5	1.5	18,000	-	-	0.007
					2	23,000	-	-	0.01
					3	31,000	-	-	0.01
					4	40,000	-	-	0.01
				1	1.5	18,000	-	-	0.01
					2	23,000	-	-	0.01
					3	31,000	-	-	0.01
					4	40,000	-	-	0.01
				2	1.5	18,000	-	-	0.01
					2	23,000	-	-	0.01
					3	31,000	-	-	0.01
					4	40,000	-	-	0.01
		Ball type endmill	Profiling	1	1.5	18,000	-	0.05	0.003
					2	23,000	-	0.05	0.003
					3	31,000	-	0.05	0.003
					4	40,000	-	0.05	0.003
				2	1.5	18,000	-	0.08	0.004
					2	23,000	-	0.08	0.004
					3	31,000	-	0.08	0.004
					4	40,000	-	0.08	0.004
				3	1.5	18,000	-	0.1	0.006
					2	23,000	-	0.1	0.006
					3	31,000	-	0.1	0.006
					4	40,000	-	0.1	0.006
		Endmill	Slotting	1	1.5	18,000	1	0.1	0.006
					2	23,000	1	0.1	0.006
					3	31,000	1	0.1	0.006
					4	40,000	1	0.15	0.006
				2	1.5	18,000	2	0.12	0.01
					2	23,000	2	0.12	0.01
					3	31,000	2	0.14	0.01
					4	40,000	2	0.14	0.01
				3	1.5	18,000	3	0.12	0.01
					2	23,000	3	0.12	0.01
					3	31,000	3	0.12	0.01
					4	40,000	3	0.15	0.01
			Shouldering	2	1.5	18,000	0.5	0.5	0.002
					2	23,000	0.5	0.5	0.014
					3	31,000	0.5	0.5	0.017
					4	40,000	0.5	0.5	0.018

TJS M90

ISO	Workpiece material	Tool	Application	Tool diameter DC (mm)	Coolant pressure (MPa)	Spindle speed *n* (min^{-1})	Width of cut *ae* (mm)	Depth of cut *ap* (mm)	Feed per tooth *fz* (mm/t)
M	Stainless steel 180 - 250 HB	Drill	Drilling	0.5	1.5	18,000	-	-	0.015
					2	23,000	-	-	0.015
					3	31,000	-	-	0.015
					4	40,000	-	-	0.015
				1	1.5	18,000	-	-	0.015
					2	23,000	-	-	0.015
					3	31,000	-	-	0.015
					4	40,000	-	-	0.015
				2	1.5	18,000	-	-	0.015
					2	23,000	-	-	0.015
					3	31,000	-	-	0.015
					4	40,000	-	-	0.015
		Endmill	Slotting	1	1.5	18,000	1	0.1	0.015
					2	23,000	1	0.1	0.015
					3	31,000	1	0.15	0.015
					4	40,000	1	0.15	0.015
				2	1.5	18,000	2	0.15	0.015
					2	23,000	2	0.15	0.015
					3	31,000	2	0.15	0.015
					4	40,000	2	0.2	0.015
			Shouldering	2	1.5	18,000	0.35	0.15	0.02
					2	23,000	0.35	0.15	0.02
					3	31,000	0.4	0.15	0.02
					4	40,000	0.5	0.18	0.025
N	Aluminium alloy 80 - 160 HB	Drill	Drilling	0.5	1.5	18,000	-	-	0.01
					2	23,000	-	-	0.01
					3	31,000	-	-	0.01
					4	40,000	-	-	0.01
				1	1.5	18,000	-	-	0.01
					2	23,000	-	-	0.01
					3	31,000	-	-	0.01
					4	40,000	-	-	0.01
				2	1.5	18,000	-	-	0.015
					2	23,000	-	-	0.015
					3	31,000	-	-	0.017
					4	40,000	-	-	0.018
		Ball type endmill	Profiling	1	1.5	18,000	-	0.05	0.003
					2	23,000	-	0.05	0.003
					3	31,000	-	0.05	0.003
					4	40,000	-	0.13	0.003
				2	1.5	18,000	-	0.08	0.004
					2	23,000	-	0.08	0.004
					3	31,000	-	0.08	0.004
					4	40,000	-	0.15	0.004
				3	1.5	18,000	-	0.08	0.006
					2	23,000	-	0.09	0.006
					3	31,000	-	0.09	0.006
					4	40,000	-	0.15	0.006
		Endmill	Slotting	1	1.5	18,000	1	0.1	0.025
					2	23,000	1	0.1	0.025
					3	31,000	1	0.15	0.025
					4	40,000	1	0.15	0.025
				2	1.5	18,000	2	0.2	0.025
					2	23,000	2	0.2	0.025
					3	31,000	2	0.2	0.025
					4	40,000	2	0.2	0.025
			Shouldering	2	1.5	18,000	0.5	0.25	0.02
					2	23,000	0.5	0.25	0.02
					3	31,000	0.5	0.5	0.02
					4	40,000	0.5	0.5	0.025

■ TJS M00

ISO	Workpiece material	Tool	Application	Tool diameter DC (mm)	Coolant pressure (MPa)	Spindle speed *n* (min^{-1})	Width of cut *ae* (mm)	Depth of cut *ap* (mm)	Feed per tooth *fz* (mm/t)
P	Pre-hardened steel 35 HRC	Drill	Drilling	0.5	2	35,000	-	-	0.01
					3	44,000	-	-	0.01
					4	53,000	-	-	0.01
				1	2	35,000	-	-	0.01
					3	44,000	-	-	0.01
					4	53,000	-	-	0.01
				2	2	35,000	-	-	0.01
					3	44,000	-	-	0.01
					4	53,000	-	-	0.01
		Ball type endmill	Profiling	1	2	35,000	-	0.05	0.003
					3	44,000	-	0.05	0.003
					4	53,000	-	0.05	0.003
				2	2	35,000	-	0.08	0.004
					3	44,000	-	0.08	0.004
					4	53,000	-	0.08	0.004
				3	2	35,000	-	0.1	0.006
					3	44,000	-	0.1	0.006
					4	53,000	-	0.1	0.006
		Endmill	Slotting	0.5	2	35,000	0.5	0.05	0.006
					3	44,000	0.5	0.05	0.006
					4	53,000	0.5	0.05	0.006
				1	2	35,000	1	0.1	0.006
					3	44,000	1	0.1	0.006
					4	53,000	1	0.15	0.006
				2	2	35,000	2	0.12	0.01
					3	44,000	2	0.14	0.01
					4	53,000	2	0.14	0.01
				3	2	35,000	3	0.12	0.01
					3	44,000	3	0.12	0.01
					4	53,000	3	0.15	0.01
			Shouldering	2	2	35,000	0.5	0.5	0.001
					3	44,000	0.5	0.5	0.017
					4	53,000	0.5	0.5	0.018
M	Stainless steel SUS 316 35 HRC	Drill	Drilling	0.5	2	35,000	-	-	0.015
					3	44,000	-	-	0.015
					4	53,000	-	-	0.015
				1	2	35,000	-	-	0.015
					3	44,000	-	-	0.015
					4	53,000	-	-	0.015
				2	2	35,000	-	-	0.015
					3	44,000	-	-	0.015
					4	53,000	-	-	0.015
		Endmill	Slotting	1	2	35,000	1	0.1	0.015
					3	44,000	1	0.15	0.015
					4	53,000	1	0.15	0.015
				2	2	35,000	2	0.15	0.015
					3	44,000	2	0.15	0.015
					4	53,000	2	0.2	0.015
			Shouldering	2	2	35,000	0.35	0.15	0.02
					3	44,000	0.4	0.15	0.02
					4	53,000	0.5	0.18	0.025

■ TJS M00

ISO	Workpiece material	Tool	Application	Tool diameter DC (mm)	Coolant pressure (MPa)	Spindle speed *n* (min^{-1})	Width of cut *ae* (mm)	Depth of cut *ap* (mm)	Feed per tooth *fz* (mm/t)
N	Aluminium alloy ADC12 28 HRC	Drill	Drilling	0.5	2	35,000	-	-	0.01
					3	44,000	-	-	0.01
					4	53,000	-	-	0.01
				1	2	35,000	-	-	0.01
					3	44,000	-	-	0.01
					4	53,000	-	-	0.01
				2	2	35,000	-	-	0.015
					3	44,000	-	-	0.017
					4	53,000	-	-	0.018
		Ball type endmill	Profiling	1	2	35,000	-	0.05	0.003
					3	44,000	-	0.05	0.003
					4	53,000	-	0.13	0.003
				2	2	35,000	-	0.08	0.004
					3	44,000	-	0.08	0.004
					4	53,000	-	0.15	0.004
				3	2	35,000	-	0.08	0.006
					3	44,000	-	0.09	0.006
					4	53,000	-	0.15	0.006
		Endmill	Slotting	0.5	2	35,000	0.5	0.1	0.02
					3	44,000	0.5	0.12	0.02
					4	53,000	0.5	0.15	0.02
				1	2	35,000	1	0.1	0.025
					3	44,000	1	0.15	0.025
					4	53,000	1	0.15	0.025
				2	2	35,000	2	0.2	0.025
					3	44,000	2	0.2	0.025
					4	53,000	2	0.2	0.025
			Shouldering	2	2	35,000	0.5	0.25	0.02
					3	44,000	0.5	0.5	0.02
					4	53,000	0.5	0.5	0.025
H	Tool steel SKD61 58 HRC	Ball type endmill	Profiling	1	2	35,000	-	0.05	0.005
					3	44,000	-	0.05	0.005
					4	53,000	-	0.05	0.005
				2	2	35,000	-	0.07	0.006
					3	44,000	-	0.08	0.006
					4	53,000	-	0.08	0.006
				3	2	35,000	-	0.08	0.006
					3	44,000	-	0.1	0.006
					4	53,000	-	0.1	0.006

Jun. 2024 (TJ)