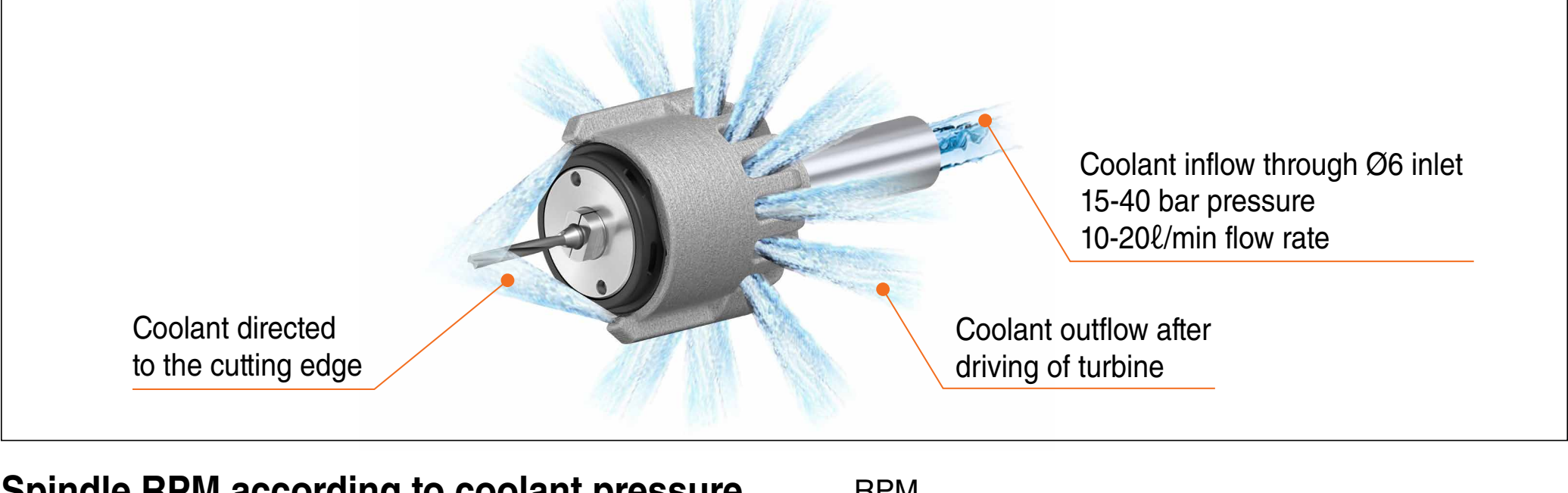


Features

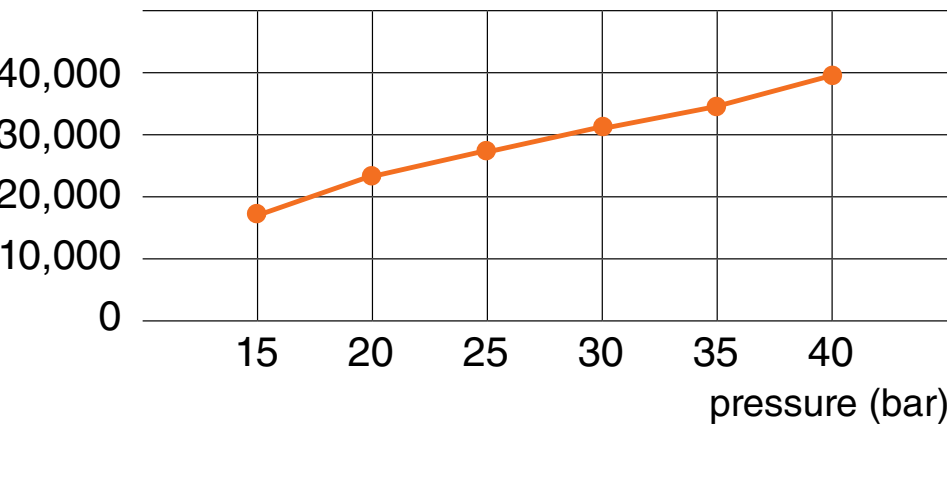
- Minimum 15 bar high-pressure coolant capable spindle
- Powerful internal coolant system (18,000-40,000 rpm)
- Rigid and compact for excellent machining in difficult-to-reach space machining operations
- Suitable for small diameter semi-finishing and finishing applications (Ø3 mm or less)

TYPHOON Micro 00 Coolant Flow



Spindle RPM according to coolant pressure

Pressure (bar)	RPM
15	18,000
20	23,000
25	27,000
30	31,000
35	34,000
40	40,000



Cutting speed (Vc) by tool diameter

*For general cutting speeds while using small diameter tools, higher RPMs are required. (unit: m/min)

Tool diameter (mm)	RPM					
	18,000	23,000	27,000	31,000	34,000	40,000
1.0	57	72	85	97	107	126
2.0	113	145	170	195	214	251
3.0	170	217	254	292	320	377

B.O.M.

Item	Designation	Q'ty
Spindle	TJS M00-3.0	1
Collet	TJS-COLLET 3.0	1
Lock key	TJS MJ-SHAFT-LOCK	1
Wrench	TJS MJ-WRENCH-COLLET	1
Nozzle	TJS MJ-PLUG COOLANT	1

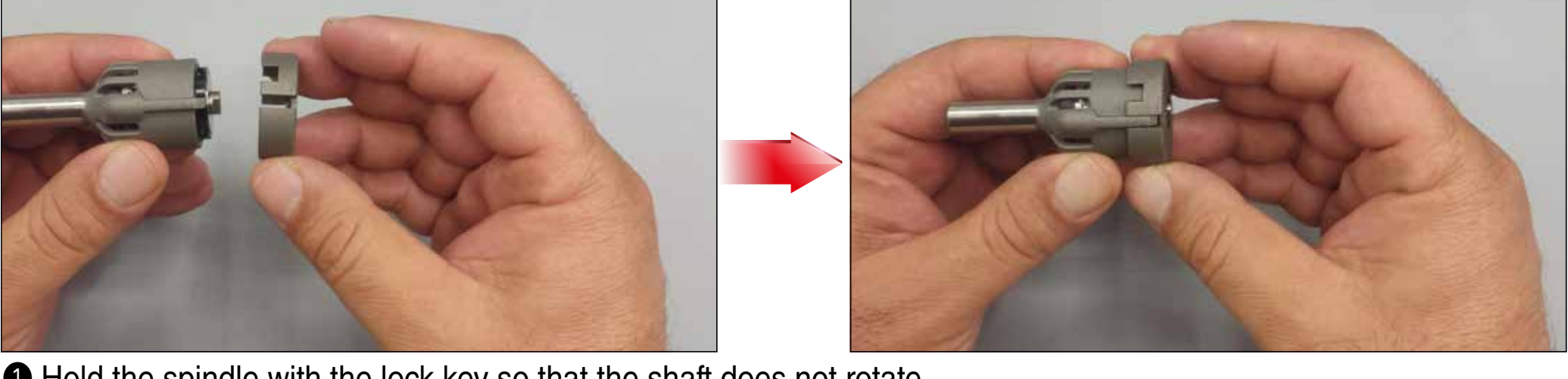


Micro 00 Collets

Designation	Tool diameter
TJS-COLLET 1.6	Ø1.6
TJS-COLLET 2.0	Ø2.0
TJS-COLLET 3.0	Ø3.0

Collets except Ø3.0 are purchased separately.

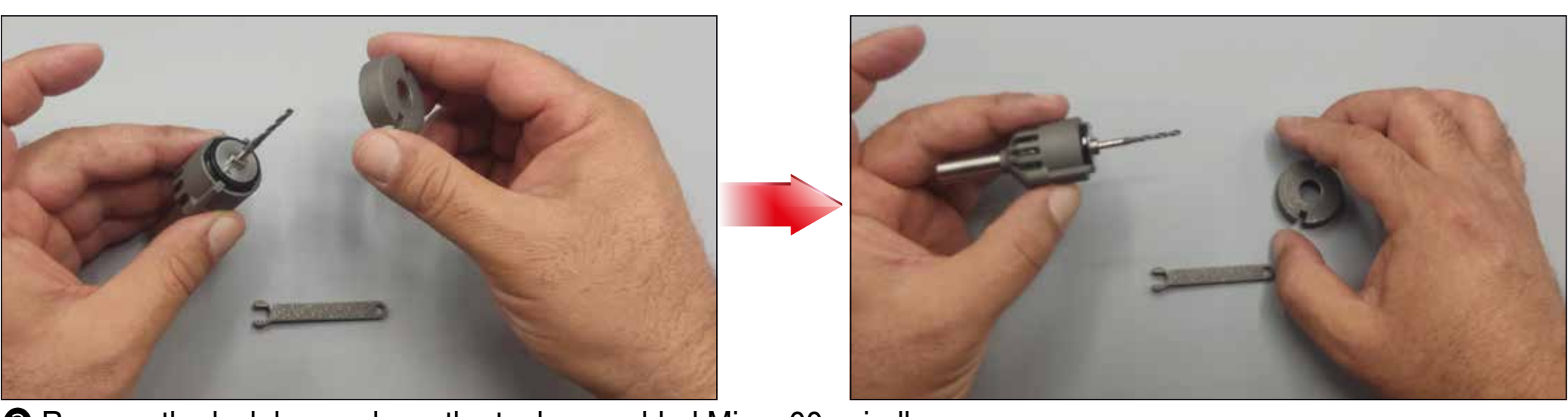
Instructions



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



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



3 Remove the lock key and use the tool assembled Micro 00 spindle

TYPHOON operating instructions

The TYPHOON must be stationary when not in use. To avoid machine spindle rotation when the TYPHOON is in operation, input the correct M code to lock the spindle's orientation.

e.g., “M19” code locks the spindle in a defined angular position.

Machine requirements

1. Machine spindle coolant flow through (pressure range: 15-40 bar)
2. Minimum coolant flow rate: 10 l/min
3. Minimum coolant filtration level: 100 µm
4. Active mist collector
5. With emulsion coolant, use an anti-foaming agent additive to prevent foaming
6. With oil-based coolant, use anti-dissolution additive suitable for oil

Permissible cutting conditions

Tool	Application	Permissible cutting conditions
End mill	Slotting	Max Ø3 / Ap : 0.05xD
	Shouldering	Max Ø3 / Ap : 0.1xD / Ae : 0.1xD
Ball type end mill	Profiling	Max Ø3 / Ap : 0.25mm
Drill	Drilling	Max Ø2
Thread mill	Threading	Max M3

Recommended Cutting Conditions

ISO	Material	Tool	Application	Tool diameter (mm)	Coolant pressure (bar)	Spindle speed (rev/min)	Cutting width (mm)	Depth of cut (mm)	Feed (mm/teeth)
M	Stainless steel HB 180-250	Drill	Drilling	0.5	15	18000	-	-	0.015
					20	23000	-	-	0.015
					30	31000	-	-	0.015
					40	40000	-	-	0.015
				1.0	15	18000	-	-	0.015
					20	23000	-	-	0.015
					30	31000	-	-	0.015
					40	40000	-	-	0.015
				2.0	15	18000	-	-	0.015
					20	23000	-	-	0.015
					30	31000	-	-	0.015
					40	40000	-	-	0.015
		End mill	Slotting	1.0	15	18000	1.00	0.10	0.015
					20	23000	1.00	0.10	0.015
					30	31000	1.00	0.15	0.015
					40	40000	1.00	0.15	0.015
				2.0	15	18000	2.00	0.15	0.015
					20	23000	2.00	0.15	0.015
					30	31000	2.00	0.15	0.015
					40	40000	2.00	0.20	0.015
		Shouldering	2.0	2.0	15	18000	0.35	0.15	0.020
					20	23000	0.35	0.15	0.020
					30	31000	0.40	0.15	0.020
					40	40000	0.50	0.18	0.025
N	Aluminium alloy HB 80-160	Drill	Drilling	0.5	15	18000	-	-	0.010
					20	23000	-	-	0.010
					30	31000	-	-	0.010
					40	40000	-	-	0.010
				1.0	15	18000	-	-	0.010
					20	23000	-	-	0.010
					30	31000	-	-	0.010
					40	40000	-	-	0.010
				2.0	15	18000	-	-	0.015
					20	23000	-	-	0.015
					30	31000	-	-	0.017
					40	40000	-	-	0.018
		Ball type end mill	Profiling	1.0	15	18000	-	0.05	0.003
					20	23000	-	0.05	0.003
					30	31000	-	0.05	0.003
					40	40000	-	0.05	0.003
				2.0	15	18000	-	0.08	0.004
					20	23000	-	0.08	0.004
					30	31000	-	0.08	0.004
					40	40000	-	0.08	0.004
				3.0	15	18000	-	0.10	0.006
					20	23000	-	0.10	0.006
					30	31000	-	0.09	0.006
					40	40000	-	0.15	0.006
H	Alloy steel HRC 35	Drill	Drilling	0.5	15	18000	-	-	0.007
					20	23000	-	-	0.010
					30	31000	-	-	0.010
					40	40000	-	-	0.010
				1.0	15	18000	-	-	0.010
					20	23000	-	-	0.010
					30	31000	-	-	0.010
					40	40000	-	-	0.010
				2.0	15	18000	-	-	0.010
					20	23000	-	-	0.010
					30	31000	-	-	0.010
					40	40000	-	-	0.010
		Ball type end mill	Profiling	1.0	15	18000	-	0.05	0.003
					20	23000	-	0.05	0.003
					30	31000	-	0.05	0.003
					40	40000	-	0.05	0.003
				2.0	15	18000	-	0.08	0.004
					20	23000	-	0.08	0.004
					30	31000	-	0.08	0.004
					40	40000	-	0.08	0.004
				3.0	15	18000	-	0.10	0.006
					20	23000	-	0.10	0.006
					30	31000	-	0.10	0.006
					40	40000	-	0.10	0.006
		End mill	Slotting	1.0	15	18000	1.00	0.10	0.006
					20	23000	1.00	0.10	0.006
					30	31000	1.00	0.10	0.006
					40	40000	1.00	0.15	0.006
				2.0	15	18000	2.00	0.12	0.010
					20	23000	2.00	0.12	0.010
					30	31000	2.00	0.14	0.010
					40	40000	2.00	0.14	0.010
				3.0	15	18000	3.00	0.12	0.010
					20	23000	3.00	0.12	0.010
					30	31000	3.00	0.12	0.010
					40	40000	3.00	0.15	0.010
		Shouldering	2.0	2.0	15	18000	0.50	0.50	0.002
					20	23000	0.50	0.50	0.014
					30	31000	0.50	0.50	0.017
					40	40000	0.50	0.50	0.018

Stainless steel Nonferrous

Recommended Cutting Conditions

ISO	Material	Tool	Application	diameter (mm)	pressure (bar)	speed (rev/min)	Cutting width (mm)	of cut (mm)	Feed (mm/teeth)	
N	Aluminium alloy HB 80-160	End mill	Slotting	1.0	15	18000	1.00	0.10	0.025	
					20	23000	1.00	0.10	0.025	
					30	31000	1.00	0.15	0.025	
					40	40000	1.00	0.15	0.025	
				2.0	15	18000	2.00	0.20	0.025	
					20	23000	2.00	0.20	0.025	
					30	31000	2.00	0.20	0.025	
					40	40000	2.00	0.20	0.025	
			Shouldering	2.0	15	18000	0.50	0.25	0.020	
					20	23000	0.50	0.25	0.020	
					30	31000	0.50	0.50	0.020	
					40	40000	0.50	0.50	0.025	
H	Alloy steel HRC 35	Drill	Drilling	0.5	15	18000	-	-	0.007	
					20	23000	-	-	0.010	
					30	31000	-	-	0.010	
					40	40000	-	-	0.010	
				1.0	15	18000	-	-	0.010	
					20	23000	-	-	0.010	
					30	31000	-	-	0.010	
					40	40000	-	-	0.010	
			2.0	15	18000	-	-	0.010		
				20	23000	-	-	0.010		
				30	31000	-	-	0.010		
				40	40000	-	-	0.010		
			Ball type end mill	Profiling	1.0	15	18000	-	0.05	0.003
						20	23000	-	0.05	0.003
						30	31000	-	0.05	0.003
						40	40000	-	0.05	0.003
		2.0			15	18000	-	0.08	0.004	
					20	23000	-	0.08	0.004	
					30	31000	-	0.08	0.004	
					40	40000	-	0.08	0.004	
		3.0	15	18000	-	0.10	0.006			
			20	23000	-	0.10	0.006			
			30	31000	-	0.10	0.006			
			40	40000	-	0.10	0.006			
End mill	Slotting		1.0	15	18000	1.00	0.10	0.006		
				20	23000	1.00	0.10	0.006		
				30	31000	1.00	0.10	0.006		
				40	40000	1.00	0.15	0.006		
		2.0	15	18000	2.00	0.12	0.010			
			20	23000	2.00	0.12	0.010			
			30	31000	2.00	0.14	0.010			
			40	40000	2.00	0.14	0.010			
		3.0	15	18000	3.00	0.12	0.010			
			20	23000	3.00	0.12	0.010			
			30	31000	3.00	0.12	0.010			
			40	40000	3.00	0.15	0.010			
	Shouldering	2.0	15	18000	0.50	0.50	0.002			
			20	23000	0.50	0.50	0.014			
			30	31000	0.50	0.50	0.017			
			40	40000	0.50	0.50	0.017			