

TOOLING

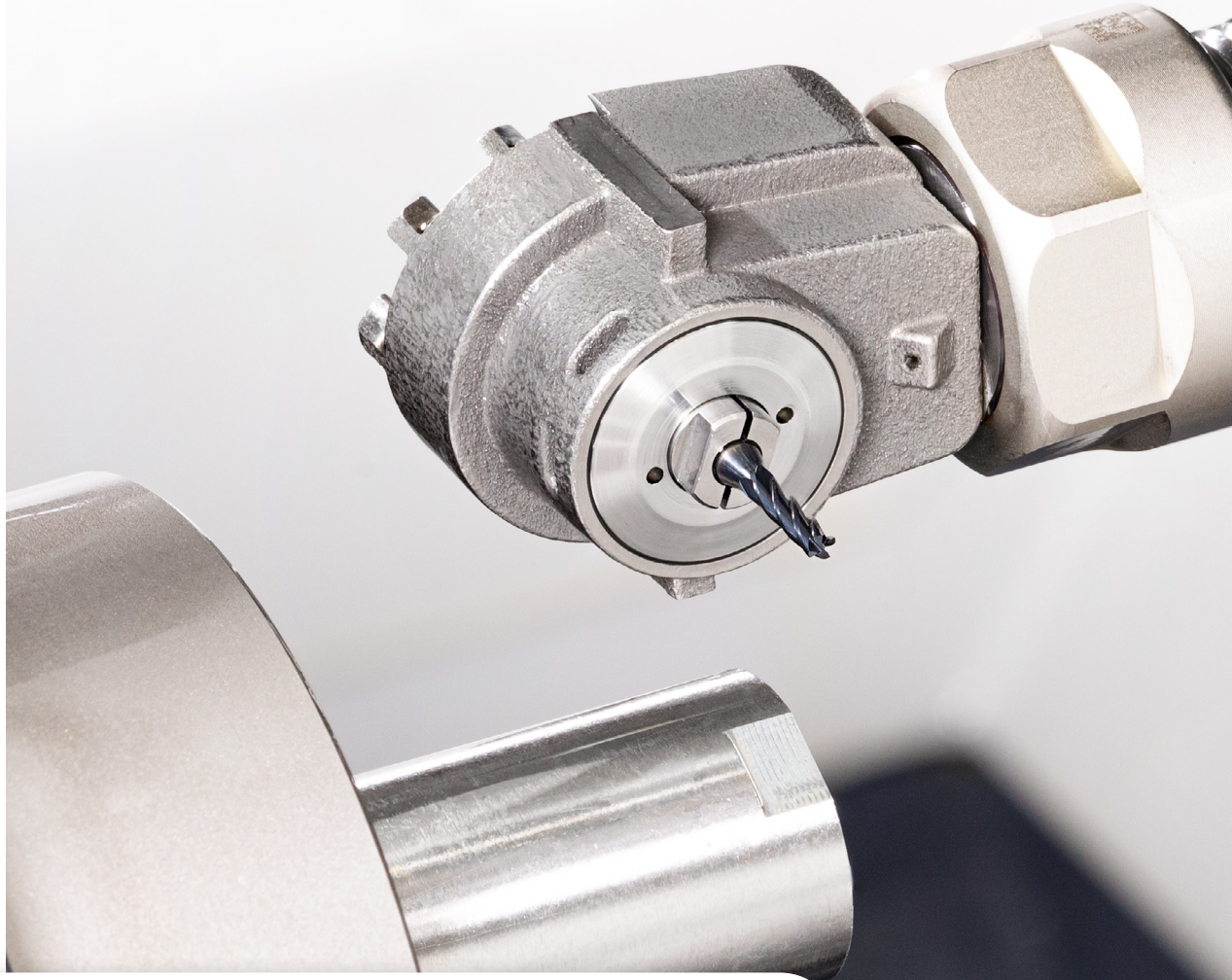
05-2022

MARCH 2022

METRIC

NPA

New Product Announcement



High Pressure
Coolant



Innovative



Accurate Work



SPINJET

HIGH PRESSURE COOLANT

SPINJET MICRO 90 Small, Fast Tool for Drilling and Milling in Difficult to Reach Spaces



High Pressure Coolant



Innovative



Accurate Work

NPA

New Product Announcement

SPINJET

HIGH PRESSURE COOLANT

Highlights

High Pressure Coolant Driven Micro 90 Jet Spindle with Coolant Jet Channles for SC Tools

The MICRO 90 Jet Spindle, with a solid shell of titanium and assembled from only six parts, is built for powerful, accurate work in small and difficult-to-reach spaces.

Enables speeds from 35,000 to 53,000 rpm while the main machine spindle remains idle.

Ideal for a wide range of semi-finishg and finishing applications by use of small cutting tools intended for milling, drilling, thread milling, engraving, chamfering and deburring.



Prerequisites for CNC Machine

1. Coolant flows through the main CNC machine spindle
2. Min. coolant pressure, at main spindle outlet: 20 bar
3. Max. coolant pressure, at main spindle outlet: 40 bar
4. Minimum flow rate: 10 l/min
5. Filter element: Max. 100 µm
6. Active mist collector
7. When using emulsion coolant, use an anti-foaming agent additive suitable for emulsion
8. When using oil-based coolant, high-pressure increases the number of oil fumes:
 - a. Use appropriate means of fire protection
 - b. Use anti-dissolution additive suitable for oil



High Pressure Coolant



Innovative



Accurate Work

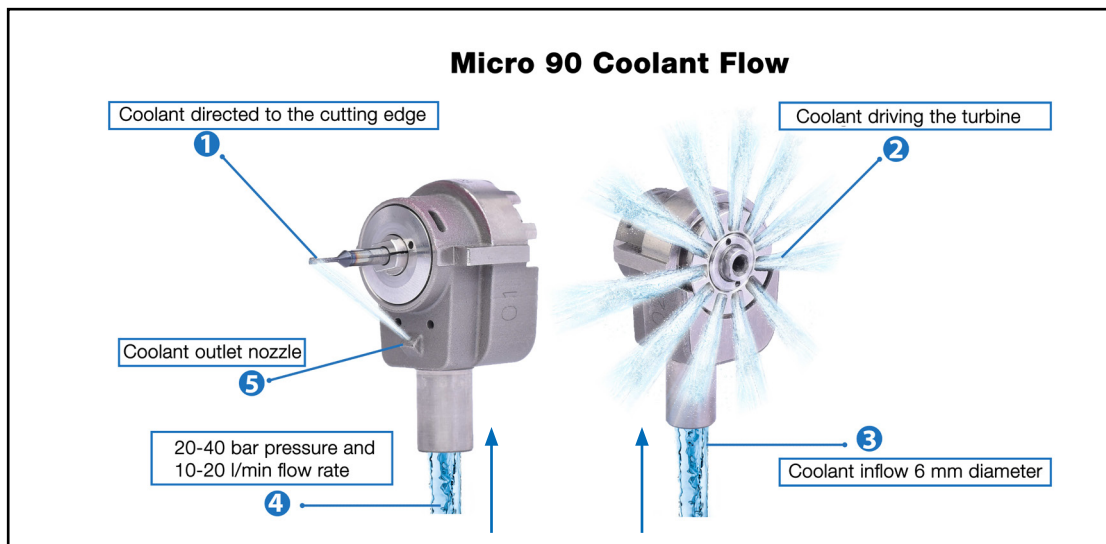
NPA

New Product Announcement

SPINJET

HIGH PRESSURE COOLANT

Clamping and Coolant

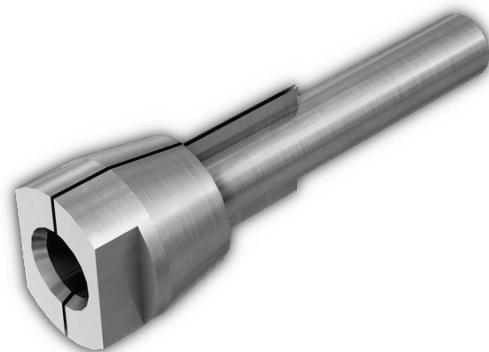


When machining at high speeds, use a nutless collet to improve dynamic balancing with pinpointed coolant to the cutting edge. Assures a simple tool change with no setup time and a low runout.

Coolant outlets from the turbine outlet and a nozzle point to the cutting edge.

Micro 90 Collets

TJS M90 COLLET 1.6	D =1.6 mm
TJS M90 COLLET 2.0	D =2.0 mm
TJS M90 COLLET 3.0	D =3.0 mm
TJS M90 COLLET 3.175	D =3.175 mm



Note: The collet is purchased separately

Micro 90 Wrench

TJS M90 WRENCH-2430



METRIC



High Pressure
Coolant



Innovative



Accurate Work

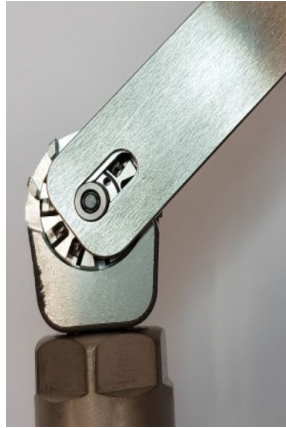
NPA

New Product Announcement

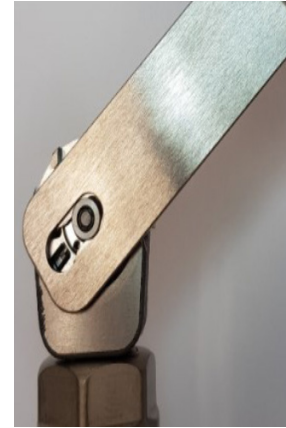
SPINJET

HIGH PRESSURE COOLANT

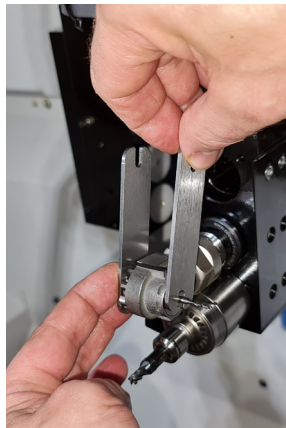
Tool installation



- 1 Insert the collet into the shaft



- 2 Lock the shaft using the dedicated key as shown in the picture, and screw the collet in position



- 3 Insert the cutting tool into the collet then tighten the collet using both keys as shown in the picture



- 4 Use a dial indicator to align the spindle housing on the ground edge



- 5 Use ER16 wrench to fasten the ER16 nut on the holder

METRIC



High Pressure
Coolant



Innovative



Accurate Work

NPA

New Product Announcement

SPINJET

HIGH PRESSURE COOLANT



APPLICATION LIMITS

MILLING

- Slot milling – $D=3.0$ mm and $a_p=0.05xD$
- Shoulder milling – $D=3.0$ mm, $a_e=0.1xD$ and $a_p=0.1xD$

THREAD MILLING

- Max. M3 thread

DRILLING

- Max drill dia. 2.0 mm

DEBURRING

- Max tool dia. 2.0 mm
- 45 to 60° endmills can be used for deburring as well

ENGRAVING

- Max tool dia. 3.0 mm
- Max a_p 0.25 mm

METRIC



High Pressure Coolant



Innovative



Accurate Work

NPA

New Product Announcement

SPINJET HIGH PRESSURE COOLANT

Operating Data

JET SPINDLE OPERATING PARAMETERS				MICRO90	
HIGH PRESSURE COOLANT (BAR)	20 BAR	40 BAR	Terms of Use		
Min Coolant Supply Diameter [mm]	4		Collet	1.6, 2.0, 3.0, 3.175	
Min flow rate (L/min)	12	20	Accessories	ST 20X100 ER16	
Rotational spindle speed [RPM]*	35,000	53,000		ER16 SEAL 10 AA	

Cutter [mm]	P	M	SST	N	S
Drilling			0.1 - 2.0		
Ball Nose			0.1 - 3.0		
Chamfering			0.1 - 3.0		
Lollipop			0.3 - 3.0		
Milling			0.5 - 3.0		
Deburring			0.1 - 2.0		
Engraving 45 / 60 Degree			0.1 - 3.0		

JET SPINDLE OPERATING PARAMETERS

MILLING

- Slotting - up to D=3.0mm & ap= 0.05D
- Shouldering - up to D=3.0mm, ae=0.1D & ap=0.1D

THREAD MILLING

- Max. M3 thread

DRILLING

- Max drill dia. 2.00mm

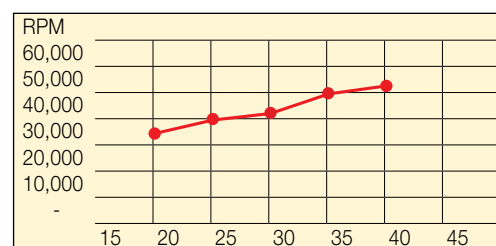
DEBURRING

- Max tool dia. 2.00mm
- Can use 45 to 60 degree end-mill

ENGRAVING

- Max tool dia. 3.00mm
- Max Ap 0.25mm

BAR	Idle Speed RPM
20	35,000
25	40,000
30	44,000
35	50,000
40	53,000



Features

The Micro product range supports milling and turning machines with the highest advantages found in (1) **turning machines** as a result of the massive speed increase and conversion of static holders to live holders. (2) **Angular holders** provide simple and cheap production of angle holders as they do not require gears; and (3) **smaller machines** where optimizing the use of space provides an advantage.

All Micro products have identical integration options and dimensions which provide efficient inventory management.

Click for Short Video

METRIC



High Pressure
Coolant



Innovative



Accurate Work

NPA

New Product Announcement

SPINJET

HIGH PRESSURE COOLANT

Summary and next steps

The MICRO 90 Jet Spindle is a simple generic interface for easy integration with machine holders.

The MICRO 90 Jet Spindle products are **powered by the machine's high-pressure coolant** at rotation speeds above **53,000 rpm**. The use of machine coolant to drive the spindle provides a non-stop high-speed machining option. The MICRO 90 Jet Spindle is designed to ensure **easy and fast replacement of the units**.

The new products are ideal for turning and milling holders in limited space in Swiss-Type machines.



NPA

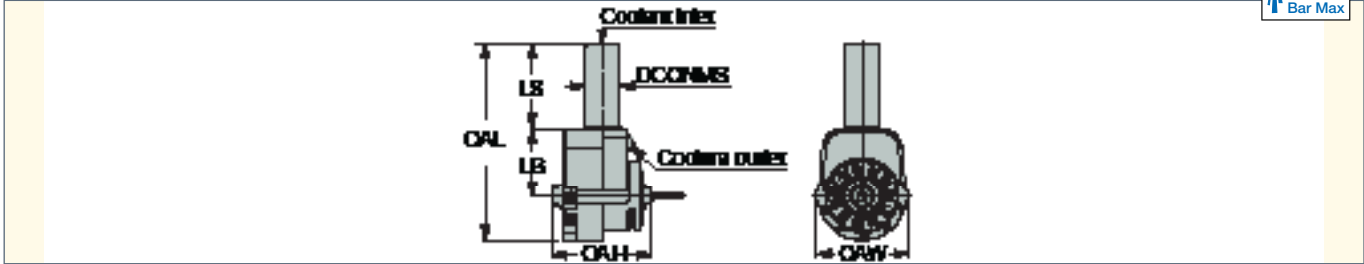
New Product Announcement

SPINJET

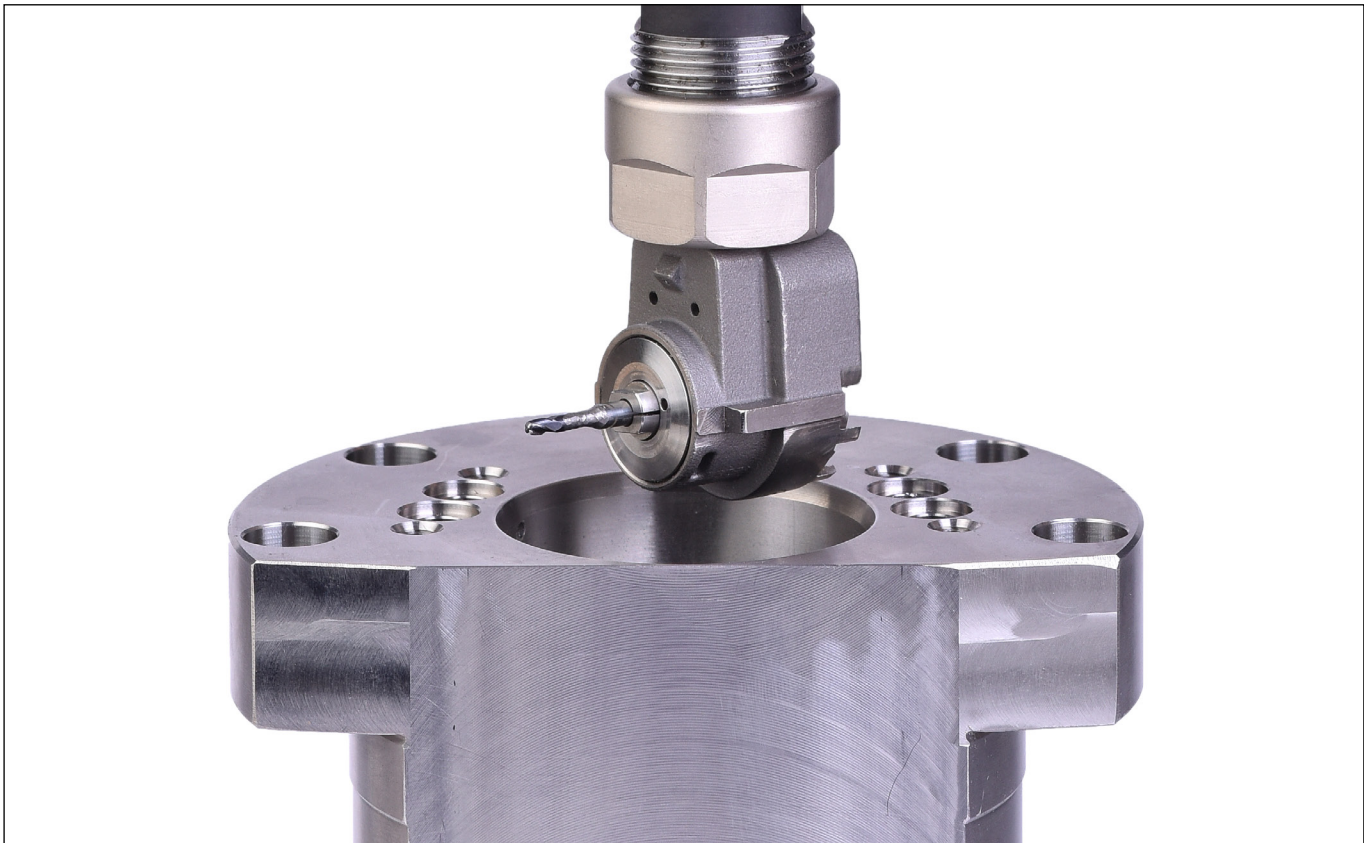
HIGH PRESSURE COOLANT

TJS M90 ST

High-Pressure Coolant Driven HSM Spindle with a Straight Shank for Small Diameter Cutting Tools



Designation	LS	LB	OAL	OAH	OAW	DCONMS
TJS M90 030	25.0	20.00	58.00	29.00	27.00	10.00



NPA

New Product Announcement

TOOLING

05-2022

MARCH 2022

METRIC

SPINJET

HIGH PRESSURE COOLANT

	Material	Process	Type	Cutting Tool dia.	Hardness	Pressure	Speed (n)	Ae (mm)	Ap (mm)	Fz (mm)			
N	Al-Si 9%	Drilling	Drill	0.50	28 HRC	20	35,000	0.50	0.10	0.01			
				0.50		30	44,000	0.50	0.10	0.01			
				0.50		40	53,000	0.50	0.10	0.01			
				1.00		20	35,000	1.00	0.20	0.01			
				1.00		30	44,000	1.00	0.20	0.01			
				1.00		40	53,000	1.00	0.20	0.01			
				2.00		20	35,000	2.00	0.30	0.015			
				2.00		30	44,000	2.00	0.30	0.017			
				2.00		40	53,000	2.00	0.30	0.018			
				1.00		20	35,000	0.06	0.05	0.003			
				1.00		30	44,000	0.06	0.05	0.003			
				1.00		40	53,000	0.07	0.13	0.003			
		2.00	20	35,000		0.07	0.08	0.004					
		2.00	30	44,000		0.07	0.08	0.004					
		2.00	40	53,000		0.08	0.15	0.004					
		3.00	20	35,000		0.08	0.08	0.006					
		3.00	30	44,000		0.09	0.09	0.006					
		3.00	40	53,000		0.10	0.15	0.006					
		0.50	20	35,000		0.50	0.10	0.02					
		0.50	30	44,000		0.50	0.12	0.02					
		0.50	40	53,000		0.50	0.15	0.02					
		1.00	20	35,000		1.00	0.10	0.025					
		1.00	30	44,000		1.00	0.15	0.025					
		1.00	40	53,000		1.00	0.15	0.025					
		2.00	20	35,000		2.00	0.20	0.025					
		2.00	30	44,000		2.00	0.20	0.025					
		2.00	40	53,000		2.00	0.20	0.025					
		2.00	20	35,000		0.50	0.25	0.02					
		2.00	30	44,000		0.50	0.50	0.02					
		2.00	40	53,000		0.50	0.50	0.025					
		2.00	20	35,000		0.20	0.10	0.015					
		2.00	30	44,000		0.20	0.10	0.015					
		2.00	40	53,000		0.20	0.10	0.015					
		H	H13	Profile Milling		Ball Nose	1.00	58 HRC	20	35,000	0.05	0.05	0.005
							1.00		30	44,000	0.05	0.05	0.005
							1.00		40	53,000	0.05	0.05	0.005
							2.00		20	35,000	0.07	0.07	0.006
							2.00		30	44,000	0.08	0.08	0.006
							2.00		40	53,000	0.08	0.08	0.006
							3.00		20	35,000	0.08	0.08	0.006
							3.00		30	44,000	0.09	0.10	0.006
							3.00		40	53,000	0.10	0.10	0.006
							0.50		20	35,000	0.50	0.05	0.01
							0.50		30	44,000	0.50	0.05	0.01
							0.50		40	53,000	0.50	0.05	0.01
			1.00	20		35,000	1.00		0.10	0.01			
			1.00	30		44,000	1.00		0.10	0.01			
			1.00	40		53,000	1.00		0.10	0.01			
2.00	20		35,000	2.00	0.10	0.01							
2.00	30		44,000	2.00	0.10	0.01							
2.00	40		53,000	2.00	0.10	0.01							
1.00	20		35,000	0.05	0.05	0.003							
1.00	30		44,000	0.05	0.05	0.003							
1.00	40		53,000	0.05	0.05	0.003							
2.00	20		35,000	0.08	0.08	0.004							
2.00	30		44,000	0.08	0.08	0.004							
2.00	40		53,000	0.08	0.08	0.004							
3.00	20		35,000	0.10	0.10	0.006							
3.00	30		44,000	0.10	0.10	0.006							
3.00	40		53,000	0.10	0.10	0.006							
0.50	20		35,000	0.50	0.05	0.006							
0.50	30		44,000	0.50	0.05	0.006							
0.50	40		53,000	0.50	0.05	0.006							
1.00	20		35,000	1.00	0.10	0.006							
1.00	30		44,000	1.00	0.10	0.006							
1.00	40		53,000	1.00	0.10	0.006							
2.00	20		35,000	2.00	0.12	0.010							
2.00	30		44,000	2.00	0.14	0.010							
2.00	40		53,000	2.00	0.14	0.010							
3.00	20		35,000	3.00	0.12	0.010							
3.00	30		44,000	3.00	0.12	0.010							
3.00	40		53,000	3.00	0.15	0.010							
2.00	20		35,000	0.50	0.50	0.001							
2.00	30		44,000	0.50	0.50	0.017							
2.00	40		53,000	0.50	0.50	0.018							
2.00	20		35,000	4.00	0.08	0.009							
2.00	30		44,000	4.00	0.08	0.009							
2.00	40		53,000	4.00	0.09	0.009							

SPINJET HIGH PRESSURE COOLANT

	Material	Process	Type	Cutting Tool dia.	Hardness	Pressure	Speed (n)	Ae (mm)	Ap (mm)	Fz (mm)		
M	SS 316	Slot Milling	End-Mill	1.00	35 HRC	20	35,000	1.00	0.10	0.015		
				1.00		30	44,000	1.00	0.15	0.015		
				1.00		40	53,000	1.00	0.15	0.015		
				2.00		20	35,000	2.00	0.15	0.015		
				2.00		30	44,000	2.00	0.15	0.015		
				2.00		40	53,000	2.00	0.20	0.015		
		Drilling	Drill	0.50		20	35,000	0.50	0.05	0.015		
				0.50		30	44,000	0.50	0.05	0.015		
				0.50		40	53,000	0.50	0.05	0.015		
				1.00		20	35,000	1.00	0.10	0.015		
				1.00		30	44,000	1.00	0.10	0.015		
				1.00		40	53,000	1.00	0.10	0.015		
				2.00	20	35,000	2.00	0.05	0.015			
				2.00	30	44,000	2.00	0.05	0.015			
				2.00	40	53,000	2.00	0.05	0.015			
				Shoulder Mill	End-Mill	2.00	32 HRC	20	35,000	0.35	0.15	0.02
						2.00		30	44,000	0.40	0.15	0.02
						2.00		40	53,000	0.50	0.18	0.025
		2.00	20			35,000		4.00	0.07	0.015		
		2.00	30			44,000		4.00	0.07	0.015		
		2.00	40			53,000		4.00	0.08	0.015		

Each package contains:

- TJS M90 030 x1
- TJS M90 WRENCH x2
- TJS M90 COLLET 3.0 x1

