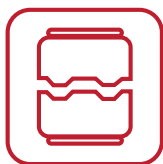




Member IMC Group
Ingersoll
Cutting Tools

HIGH-SPEED MACHINING



Ultra precision high-speed Typhoon Spindles for a variety of milling and drilling processes with small tools. Cuts machining time up to 70%.

GJET

The GJET Typhoon spindle is more compact than the HPC model and is ideal for customers looking for maximum spindle speed from 290psi. The GJET Typhoon spindle focuses on providing accuracy and speed for high-speed machining using micro-diameter cutting tools or small diameter cutting tools in engraving applications.

GJET Typhoon spindles come fully integrated in a variety of spindle adaptations, including: ER32 Modular, HSKA40, HSKA63, BT30, BT40, SK30, SK40, C5, C6, CAT40, and 20 mm Straight Shank.



HPC

The HPC Typhoon spindle line offers the most powerful and versatile high-speed machining solution. The HPC Typhoon spindle comfortably powers micro to small diameter cutting tools from 217psi, small diameter cutting tools on hardened steels machining from 290psi, and machining of soft materials such as aluminum, copper, and bronze using medium diameter cutting tools. HPC Typhoon spindles are active in world leading applications, addressing the most demanding high-speed machining tasks in non-stop production environments.

HPC Typhoon spindles come fully integrated in a variety of spindle adaptations, including: ER32 Modular, HSKA40, HSKA63, BT40, SK30, SK40, CAT40, C5, C6, and 20 mm Straight Shank.



MICRO **NEW**

The MICRO Typhoon spindle product range supports milling and turning machines, with the biggest advantages found in turning holders, due to the massive speed increase and conversion of static holders to live holders; angular holders; and smaller machines where optimizing space provides an advantage. All MICRO Typhoon spindle products have identical integration options and dimensions, allowing for efficient management of inventory and service. The MICRO Typhoon spindle product line is offered with a 10 mm shanks which can easily be mounted to any standard ER32 Collet Chuck using an ER sealed collet.

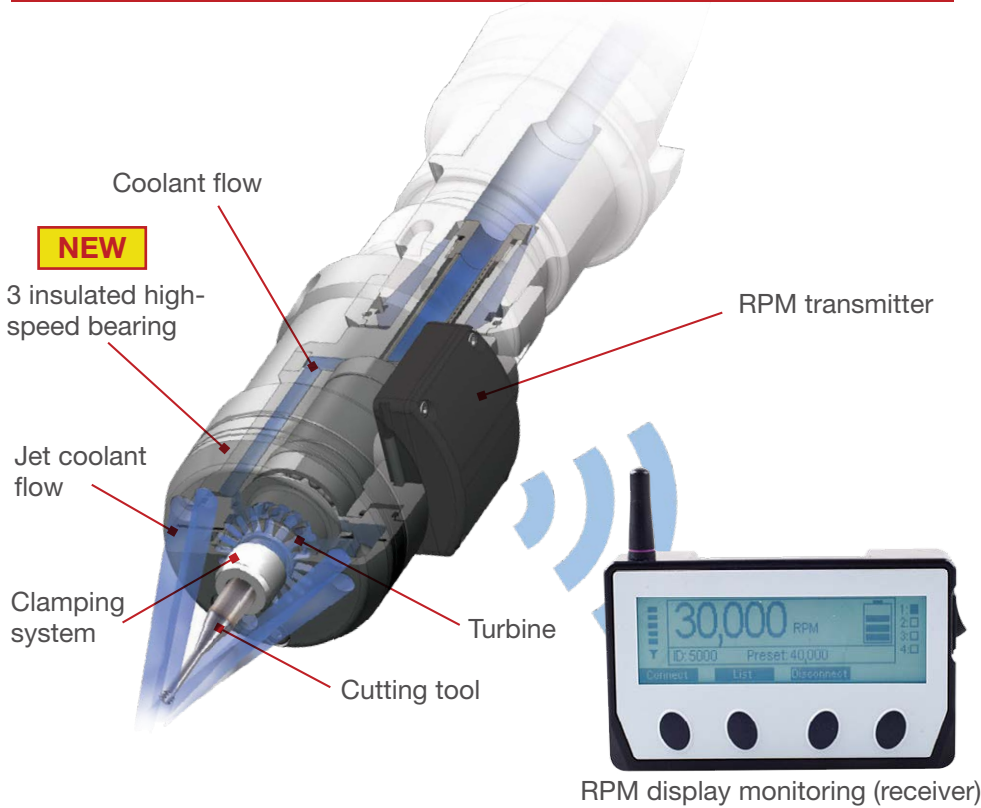


TR

The TR Typhoon spindle line is a generic interface for implementation into new assemblies, giving machine tool builders and tool holder manufacturers a straightforward geometry to allow for direct integration of the GJET and HPC Typhoon spindle. The TR integration profile is perfectly cylindrical, including both flange and rear clamping options and is identical for both the GJET and HPC models.



COOLANT DRIVEN HIGH-SPEED SPINDLES



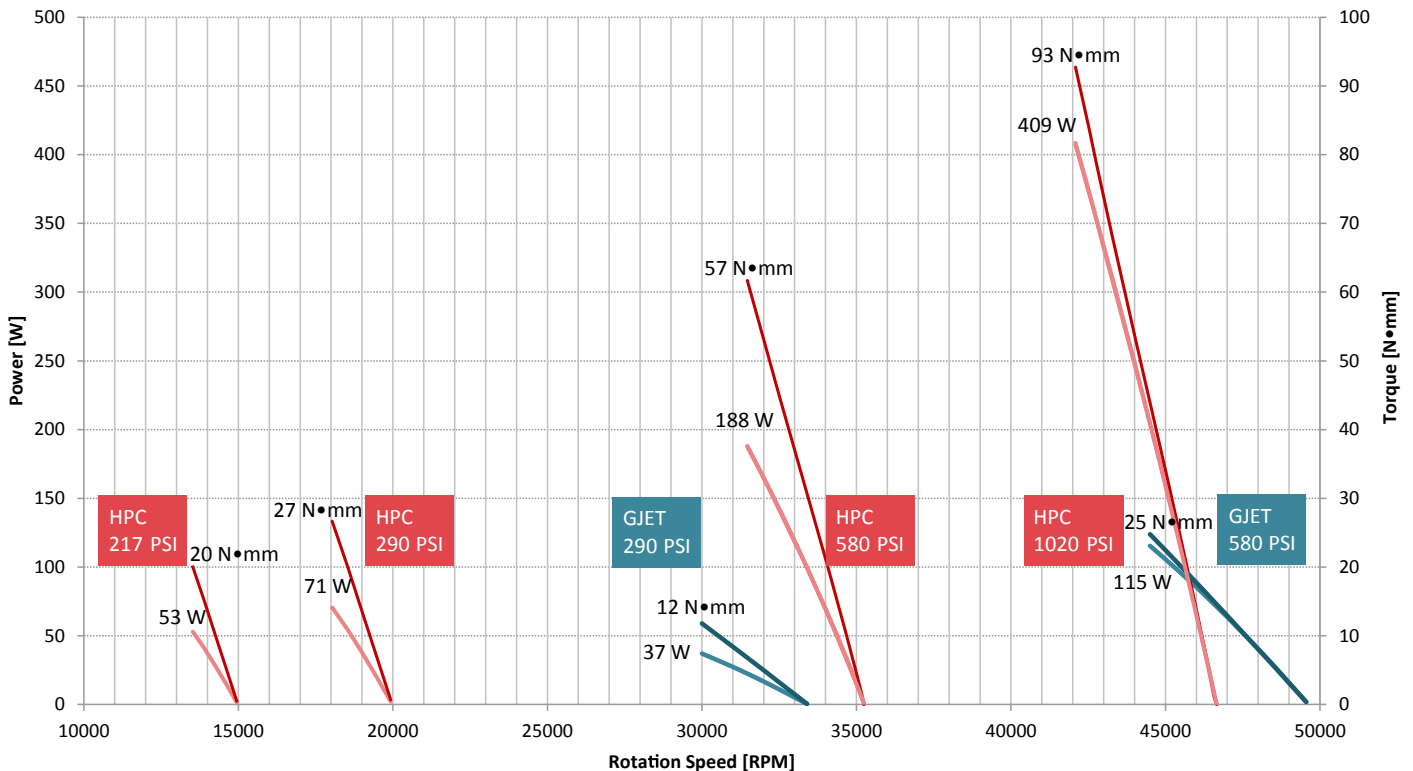
FEATURES

The revolutionary modular high-speed Typhoon Spindle, meticulously designed, engineered, manufactured and assembled with ultra precision industry collets and nuts, offers maximum flexibility for a wide range of small tool applications.

BENEFITS

- ✓ Quick and easy installation
- ✓ Free energy source
- ✓ Fast & efficient chip evacuation
- ✓ Coolant at the cutting edge
- ✓ ATC and turret compatible
- ✓ Compact design

Recommended Working Zone for TJS HPC vs GJET



HPC JET - ideal for all small tools, both versatile and powerful and as accurate as the GJET.

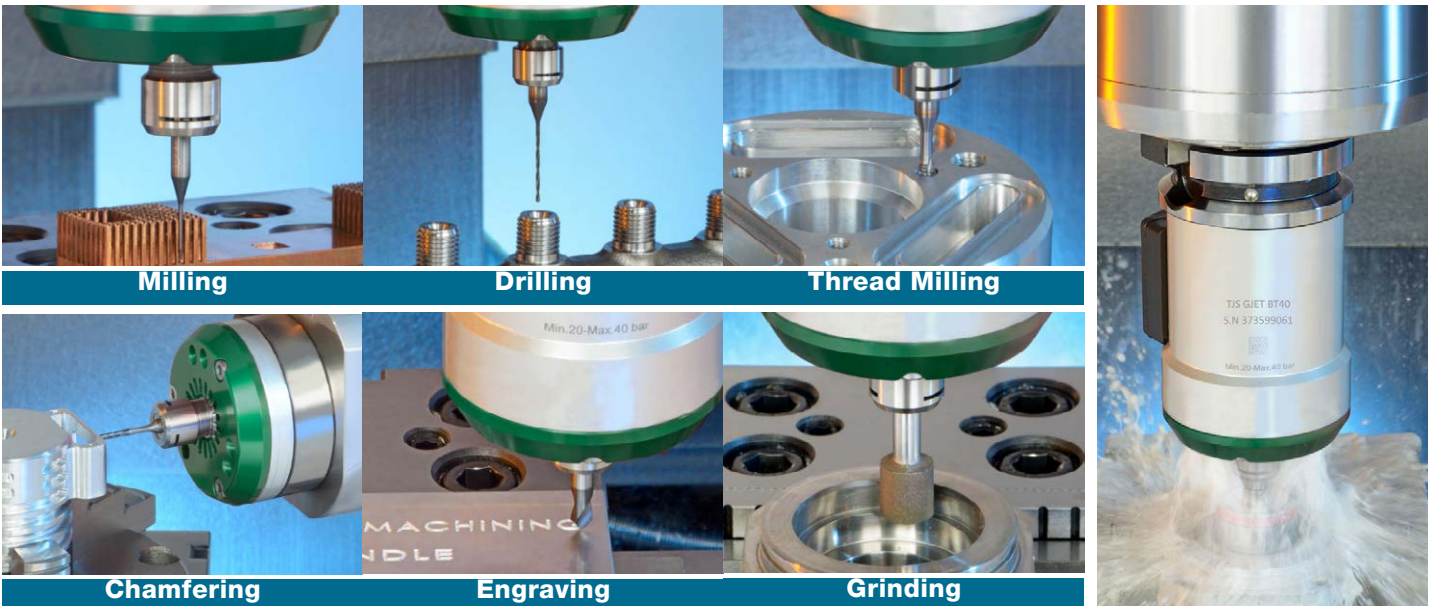
GJET - ideal for applications requiring micro tools and very high speeds at 290-580 PSI.



SPEED FOR MICRO TOOLS

TYPHOON SPINDLE OPERATING PARAMETERS				GJET		
High Pressure Coolant (PSI)	290 (20 Bar)	580 (40 Bar)	Terms of Use			
Min Coolant Inlet Diameter	.236" (6 mm)		Collet	ER11	AA/UP	
Min Flow Rate (Gal/min)	2.6	5.3	Runout	3 micron	At length of 3D	
Idle Speed (RPM)	33,000	55,000				
Max Power (W) / Torque (N•mm)	37 / 12	115 / 25	SMALL TOOL EXPERTISE REQUIRED			
Application	Cutting tool	P	M	N	S	
Drilling		.0039 - .0394 (0.1 - 1.0mm)		.0039 - .0787 (0.1 - 2.0mm)		
Milling	Single / 2 / 4 Flute Helical, Corner Radii	.0039 - .0787 (0.1 - 2.0mm)		.0039 - .1250 (0.1 - 3.0mm)		
Profiling	Ball-Nose [1]	.0039 - .0787 (0.1 - 2.0mm)		.0039 - .1250 (0.1 - 3.0mm)		
Chamfering		.0039 - .0787 (0.1 - 2.0mm)		.0039 - .1250 (0.1 - 3.0mm)		
Lollipop	Lollipop [1]	.0079 - .0787 (0.2 - 2.0mm)		.0079 - .1250 (0.2 - 3.0mm)		
Profiling	Barrel	.0197 - .0787 (0.5 - 2.0mm)		.0197 - .1250 (0.5 - 3.0mm)		
Engraving		.0079 - .0787 (0.2 - 2.0mm)		.0079 - .1250 (0.2 - 3.0mm)		
MAXIMUM TOOL SHANK DIAMETER 0.278" (7MM)						
SPINDLE ADAPPTIONS	C5/6	CAT40	SK30/40	ER32/ST20	HSK-A40/A63	BT30/40

[1] Effective DC (DCap) - Cutting diameter at cutting depth ap



See website for additional information and resources: <https://www.ingersoll-imc.com/product/category/typhoon-gjet-spindles>



POWER & EFFICIENCY

TYPHOON SPINDLE OPERATING PARAMETERS					HPC	
High Pressure Coolant (PSI)	217 (15 Bar)	290 (20 Bar)	580 (40 Bar)	1020 (70 Bar)	Terms of Use	
Min Coolant Inlet Diameter	.236 (6mm)				Collet	ER11 AA/UP
Min Flow Rate (Gal/min)	2.6	3.17	4.23	5.81	Runout	3 micron
Idle Speed (RPM)	20,000	25,000	35,000	45,000		
Max Power (W) / Torque (N•mm)	196 / 100	261 / 134	460 / 293	694 / 444	SMALL TOOL EXPERTISE REQ'D	
Application	Cutting Tool		P	M	N	S
Drilling			.0197 - .0787 (0.5 - 2.0mm)		.0197 - .1250 (0.5 - 3.0mm)	
Milling	Single / 2 / 4 Flute Helical, Corner Radii		.0118 - .1575 (0.3 - 4.0mm)		.0118 - .2360 (0.3 - 6.0mm)	
Profiling	Ball-Nose [1]		.0118 - .2360 (0.3 - 6.0mm)		.0118 - .2360 (0.3 - 6.0mm)	
Chamfering			.0039 - .1575 (0.1 - 4.0mm)		.0394 - .2360 (1.0 - 6.0mm)	
Deburring	Lollipop [1]		.0039 - .1575 (0.1 - 4.0mm)		.0394 - .2360 (1.0 - 6.0mm)	
Profiling	Barrel		.0197 - .1575 (0.5 - 4.0mm)		.0197 - .2360 (0.5 - 6.0mm)	
Engraving (45-60°)			.0079 - .1968 (0.2 - 5.0mm)		.0079 - .2360 (0.2 - 6.0mm)	
MAXIMUM TOOL SHANK DIAMETER 0.278 (7MM)						
SPINDLE ADAPTIONS	C5/6	CAT 40/50	SK30/40	BT30/40	HSK-A40/A63	ER32/ST20

[1] Effective DC (DCap) - Cutting diameter at cutting depth ap

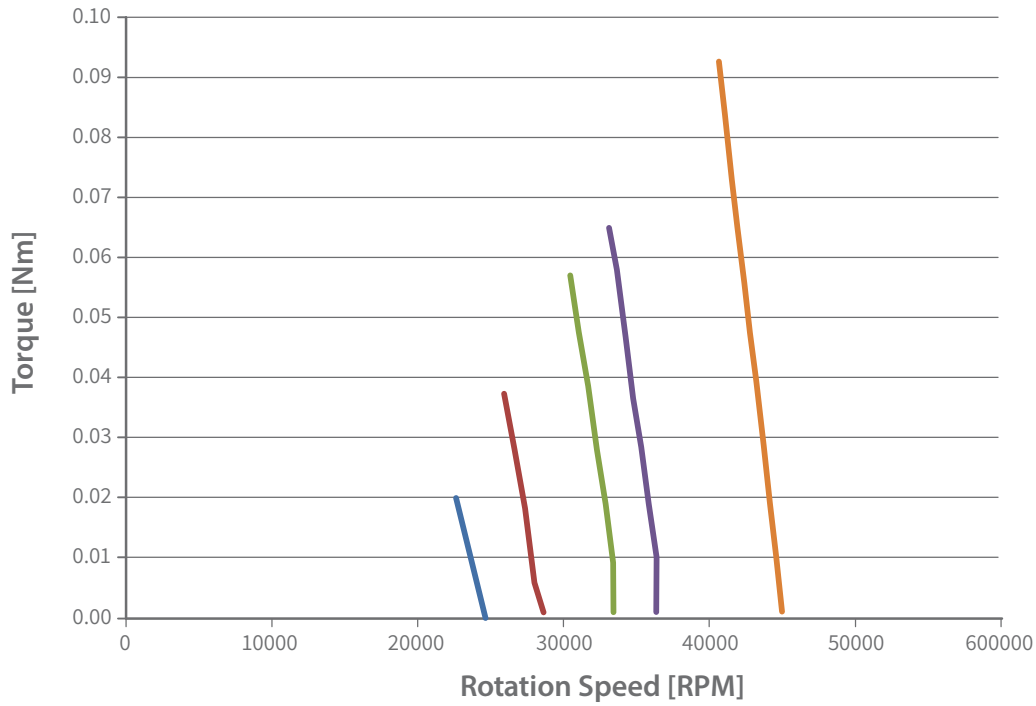
MORE SPEED / MORE TORQUE / MORE FLEXIBILITY



See website for additional information and resources: <https://www.ingersoll-imc.com/product/category/typhoon-hpc-spindles>

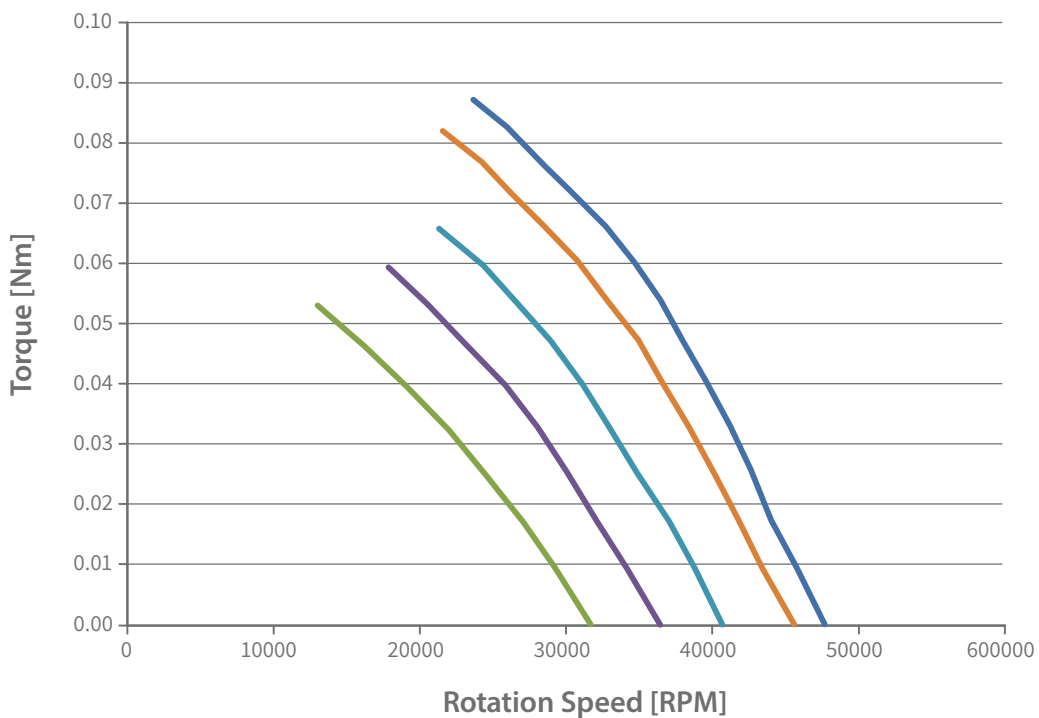
TORQUE VS. SPEED - HPC

■ 290 psi (20 Bar)
 ■ 406 psi (28 Bar)
 ■ 535 psi (37 Bar)
 ■ 625 psi (43 Bar)
 ■ 965 psi (66 Bar)



TORQUE VS. SPEED - GJET

■ 290 psi (20 Bar)
 ■ 365 psi (25 Bar)
 ■ 435 psi (30 Bar)
 ■ 508 psi (35 Bar)
 ■ 580 psi (40 Bar)





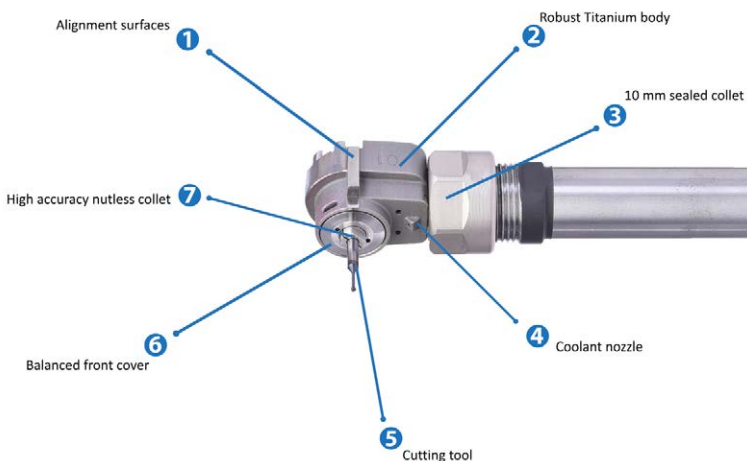
SWISS-TYPE MICRO TYPHOON SPINDLE

TYPHOON SPINDLE OPERATING PARAMETERS				MICRO90
High Pressure Coolant (PSI)	290 (20 Bar)	580 (40 Bar)	Terms of Use	
Min Tube Diameter	.1575 (4mm)		Collet	1.6, 2.0, 3.0, 3.175mm
Min Flow Rate (Gal/min)	2.6	5.3	Accessories	ERxx SEAL 10 AA
Idle Speed (RPM)	35,000	53,000		
				SMALL TOOL EXPERTISE REQ'D
Cutter [mm]	P	M	N	S
Drilling		.0039 - .0787 (0.1 - 2.0mm)		
Ball-Nose		.0039 - .1250 (0.1 - 3.0mm)		
Chamfering		.0039 - .1250 (0.1 - 3.0mm)		
Lollipop		.0039 - .1250 (0.1 - 3.0mm)		
Barrel		.0197 - .1250 (0.5 - 3.0mm)		
Helical		.0039 - .0787 (0.1 - 2.0mm)		
Engraving		.0039 - .1250 (0.1 - 3.0mm)		

APPLICATIONS

- Finishing & semi-finishing processes
- Small tools in drilling and milling processes
- Special emphasis on the internal machining of parts
- Ideal for hard to reach places

Example of clamping with ER16 Collet Chuck



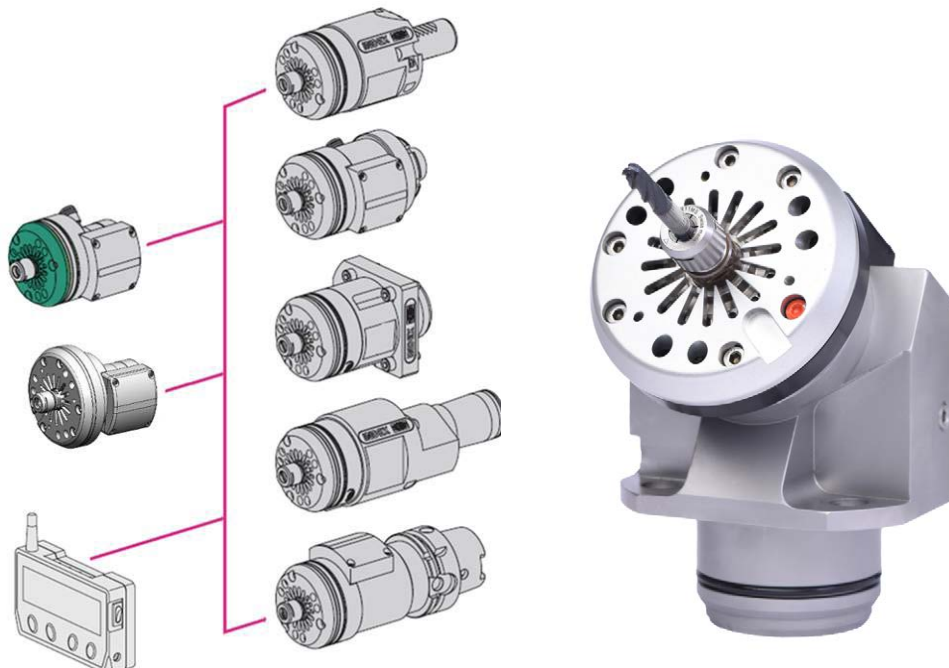
See website for additional information and resources: <https://www.ingersoll-imc.com/product/category/typhoon-micro-spindles>



TYPHOON TR GENERIC INTERFACE FOR NEW ASSEMBLIES

Spindle Operating Data	TR GJET	TR HPC
Operating range of coolant pressure (PSI)	290-580 (20 - 40 Bar)	217-1020 (15 - 70 Bar)
Minimum coolant flow rate [Gal/min]	2.6	2.6
Rotational spindle speed [Krpm]	35 - 55	21 - 45
Rotational direction	Right	
Optimum cutting tool diameter for Nonferrous Alloys	Drilling: .0039 - .0787 (0.1 - 2.0mm)	Drilling: .0197 - .1250 (0.5 - 3.0mm)
	Milling: .0039 - .1250 (0.1 - 3.0mm)	Milling: .0079 - .0236 (0.2 - 6.0mm)
Maximum tool shank diameter	.236 (6.0mm)	.236 (6.0mm)
Compatible adapter models	Rear and Front Clamping	

NEW

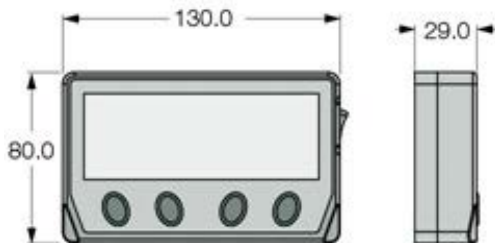




The wireless display monitor is required for use with the GJET and HPC model Typhoon spindles. The display monitor provides for real-time monitoring of spindle rotation speed during machining, allowing for the operator to optimize cutting conditions as needed for increased all-around machining efficiency.

The Typhoon spindle bodies are fitted with a wireless transmitter that sends the RPM data to the Display Monitor which is mounted to the outside of the CNC machine for easy viewing.

Accessory Description	Part Number
TJS TSD Display USA	3351181
2.4GHz Sensor Replacement Kit	4560250
TJS Disp PowerSupp USA	3351362
TJS PowerSupp USB USA	3382234
TJS USB Cable	3382235



The Typhoon Display Monitor is powered by a 5V DC universal AC/DC power adapter connected to a 220/110V AC power source. The wireless transmitter mounted to the Typhoon spindle is powered by a non-rechargeable 3V CR2 Lithium battery (not included with the Typhoon spindle and must be purchased separately). The Typhoon Display Monitor can be connected to up to 127 Typhoon spindles mounted in a single CNC machine. The RPM data for only the active spindle in use is displayed on the monitor while all other connected Typhoon spindles remain in stand-by mode.

Additional Display Monitor power supply accessories are available for alternate and replacement options. Please refer to the Typhoon Spindle User Manual for prerequisite Display Monitor installation and device pairing instructions.

HIGH SPEED MACHINED PARTS



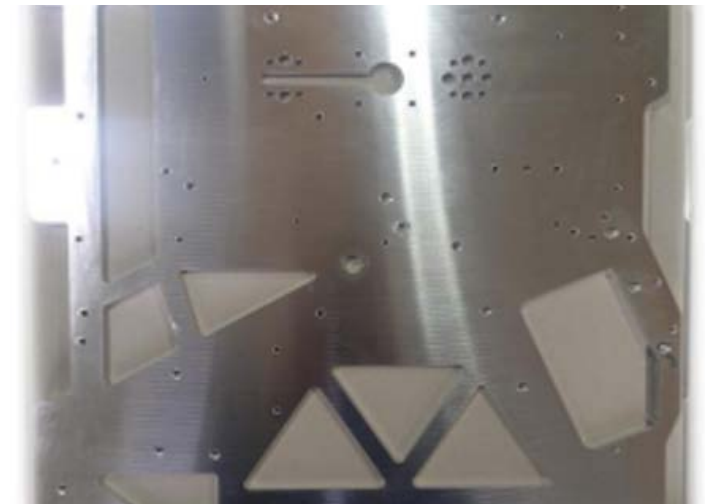
HPC Engraving & Chamfering



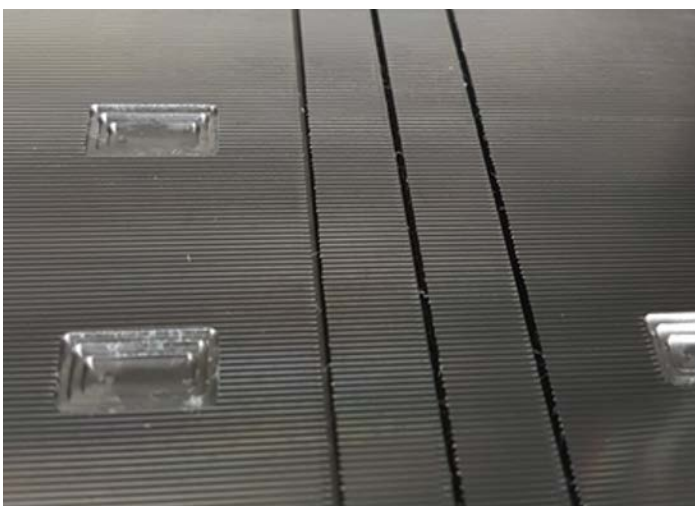
GJET Engraving



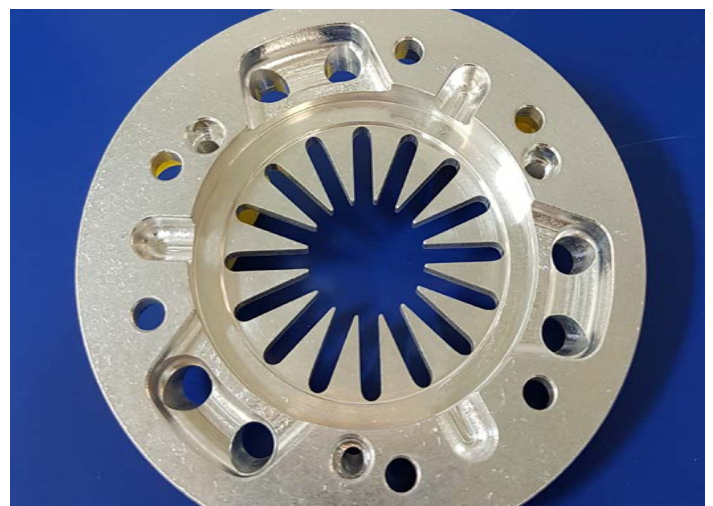
HPC Profiling



GJET Slot Milling & Drilling

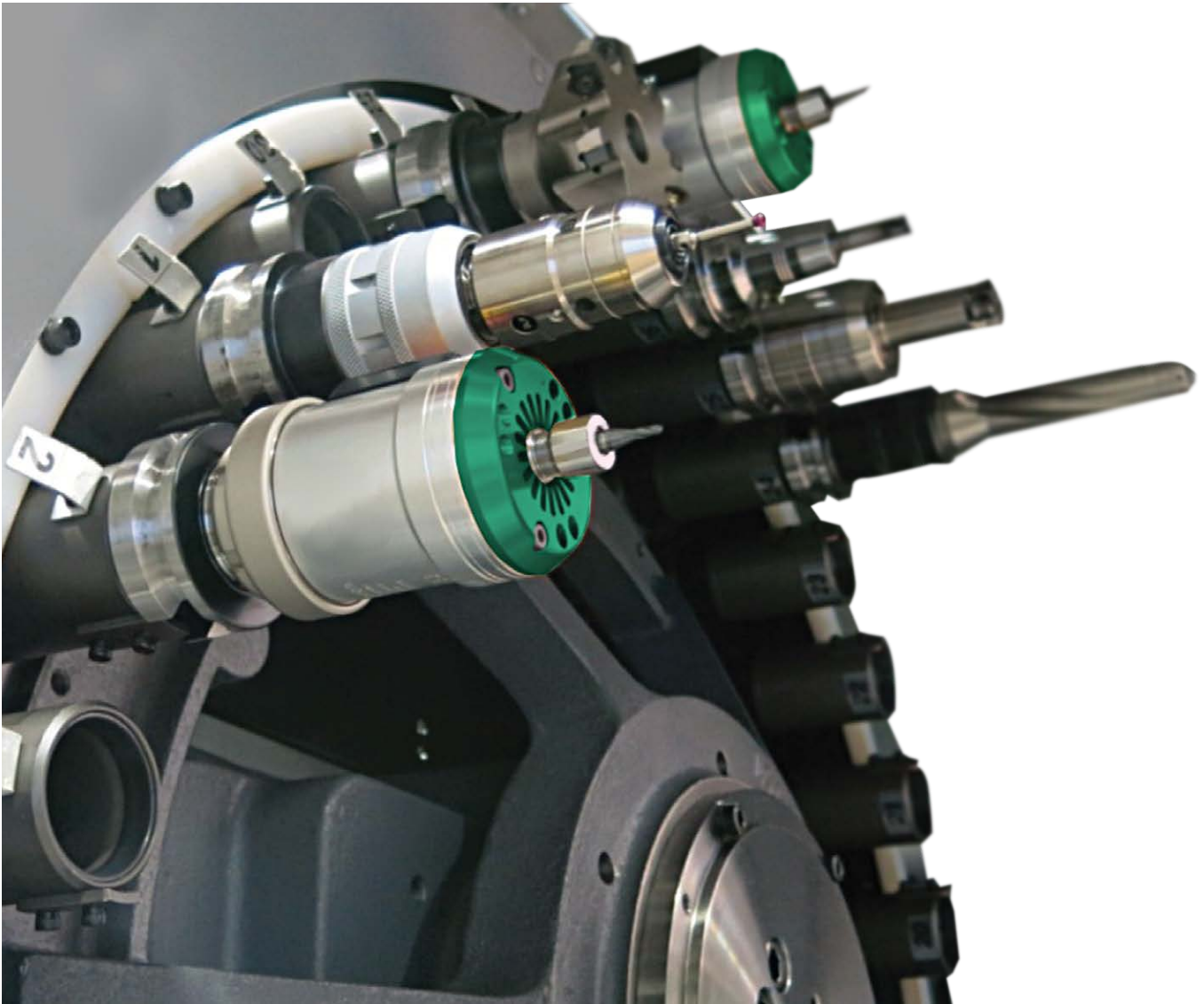


HPC Pocket, Slot & Plan Milling



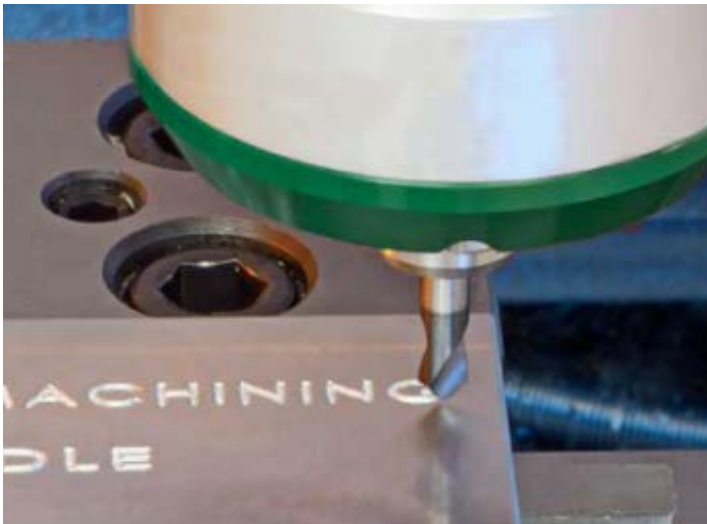
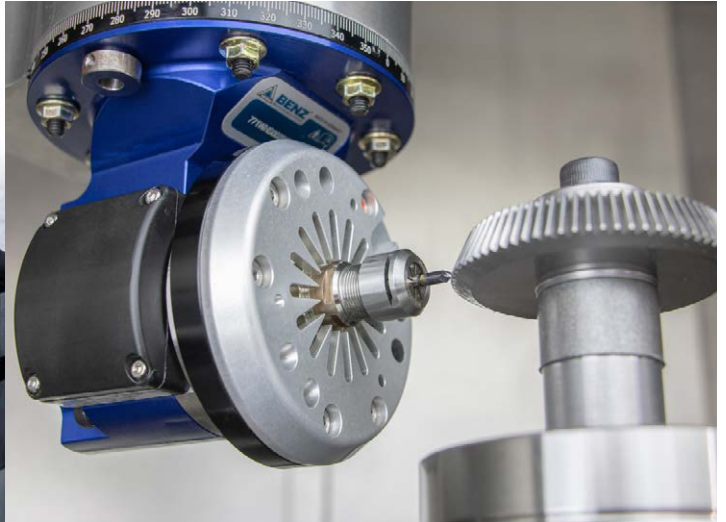
HPC Slot & Helical Milling

FULLY FUNCTIONAL WITH CNC MACHINE TOOL CHANGERS



INTEGRAL TYPHOON SPINDLE ADAPPTIONS





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