ADVANCE MACHINING
INGERSOLL INDUSTRY 4.0

TYPHOON™

TYPHOON SPINDLE PROCESS REVIEW

#1 PREREQUISITES

✓ High pressure coolant available
Minimum 217psi (15 BAR) with 10L/Min flow rate

✓ Small diameter cutting tools
Max Cutting Tool ø 4mm; Max Shank ø 7mm

#2 LIMITATIONS

✓ Finishing and semi-finishing operations
Drilling, Engraving, Chamfering, Slot, Profile, and Shoulder Milling

✓ Minimum Typhoon Spindle operating RPM
10% less than registered Idle Speed RPM

#3 CHECKLIST

1. Ensure minimum tool overhang
2. Check Z-axis limitations
3. Ensure water based emulsion or cutting oil, viscosity up to 20[Cp]
4. Minimum coolant filtration level = 100 microns
5. With emulsion coolant, use an anti foaming additive suitable for emulsion to prevent foaming

#4 FIRST RUN

- Review Typhoon recommended cutting conditions table
- Insert 10% Rule target conditions - Ae, Ap, Feed - into program
- Start with 30% of F (Table Feed), review speed display values
- Increase until you reach 100% target values
- Complete Process Review Form and send for technical support

#5 COMPLETE FORM

1. All required parameter field must be completed
2. Fill in all parameters for the original machine spindle
3. Leave the Typhoon Spindle parameters and comment sections open for Technical Support Team use
4. Email form to : tae@ingersoll-imc.com

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All required parameter fields must be completed.
Completed forms should be returned to TAE@ingersoll-imc.com for review/approval.

TYPHOON SPINDLE PROCESS REVIEW FORM

PROCESS FEEDBACK DATA		IMAGES
Ingersoll Field Sales Rep.[AT]	[Required]	Insert workpiece, cutting tool, machine, and any other images here.
Name of End User[AT]	[Required]	
Date of Test[AT]	[Required]	
MACHINE CENTER DATA		
Machine Brand/Model[AT]	[Required]	
Controller[AT]	[Required]	
Max. RPM[AT]	[Required]	
Coolant Type[AT]	[Required]	
Coolant Pump Pressure[AT]	[Required]	
Adjustable Coolant?[AT]	○Yes ○No [Required]	
WORKPIECE		
Material[AT]	[Required]	
Hardness[AT]	[Required]	
Size (LxWxH)[AT]	[Required]	
MACHINING PROCESS		
Application Type[AT] (Drilling, Profiling, Engraving, Grinding, Slot Milling, Shoulder Milling, etc)	[Required]	
Operation / Tool Type[AT] (Ball Nose, Drill, Thread Mill, End Mill, etc.)	[Required]	

TEST DATA	ORIGINAL MACHINING	TYPHOON	COMMENTS
Cutting Tool Part Number[AT]	[Required]		
Spindle Adaption			
ER11 Collet			
Tool Overhang[T]	[Required]		
Run-Out			
Cutting Tool Diameter - D[AT]	[Required]		
Cutting Tool Shank Dia.[AT]	[Required]		
Number of Teeth - Z[AT]	[Required]		
Depth of Cut - Ap[T]	[Required]		
Total Depth - TAP			
Cutting Width - Ae[T]	[Required]		
Pump Pressure[T]	[Required]		
Spindle RPM - n (IDLE)[T]	[Required]		
Speed Drop[T]	[Required]		
Cutting Speed - Vc[T]	[Required]		
Feed per Tooth - Fz			
Feed - F[T]	[Required]		
Operation - Semi / Finish			

RESULTS

PERFORMANCE	ORIGINAL MACHINING	TYPHOON	COMMENTS
Tool Life			
Cutting Time			
Surface Finish			
Cycle Time Improvement			

[A]Required for application qualification review (ORIGINAL MACHINING column)
[T]Required for Typhoon process review (TYPHOON column)