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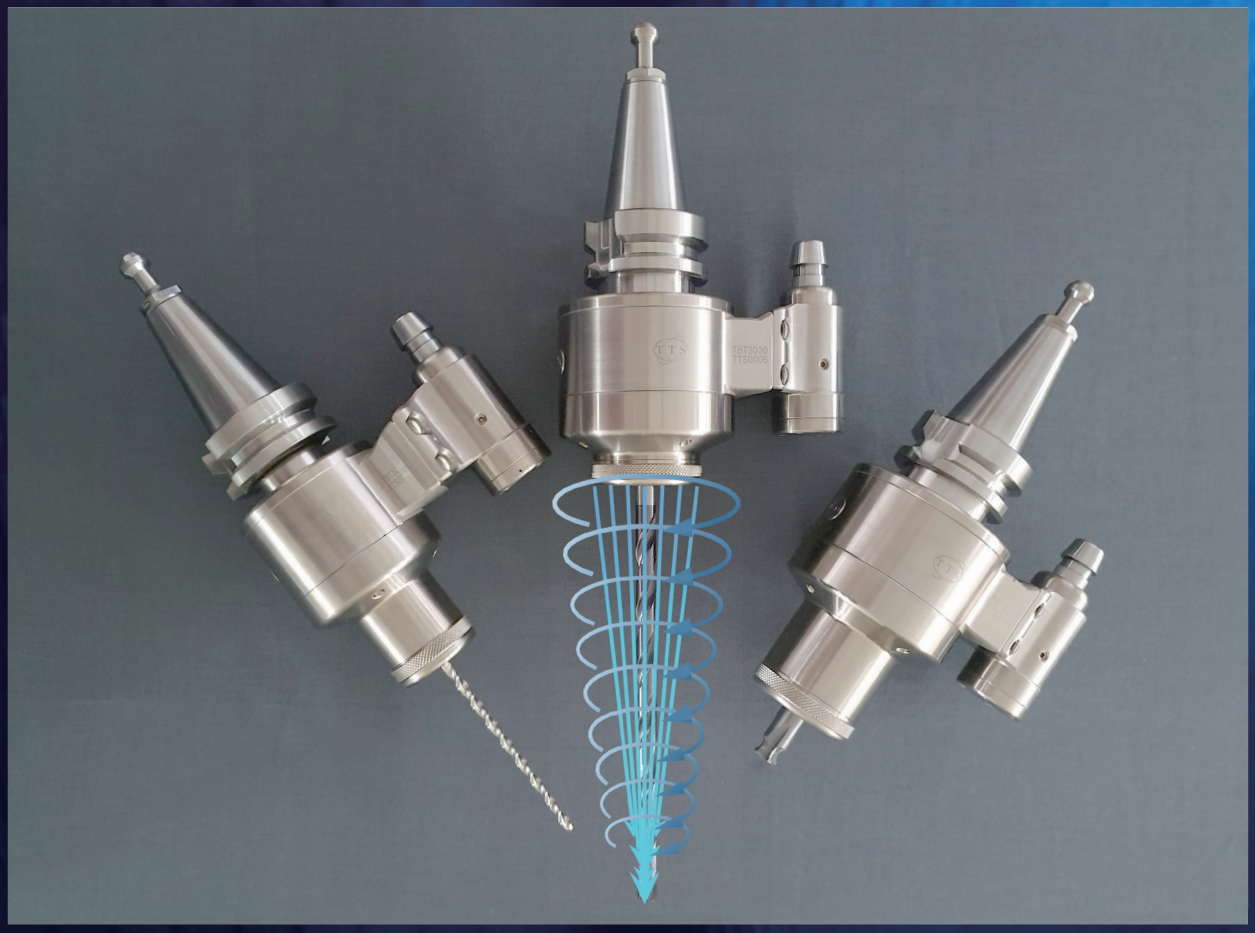
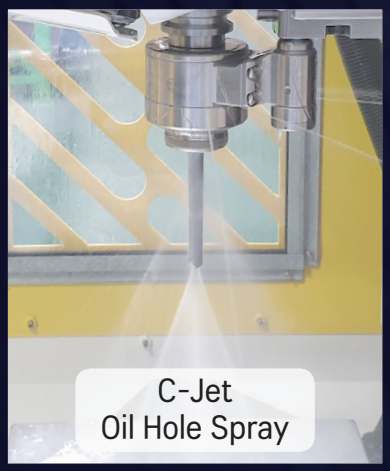
탑툴링시스템즈
Top Tooling Systems

Innovation of Machining
C-Jet Coolant Pressurizing Direct Spray Tool Holder



★★★ Three birds with one stone ★★★

Tool Holder 1 ➡ 3 Mode Spray Applicable



Side-Thru C-Jet Coolant Pressurizing Direct Spray Tool Holder System

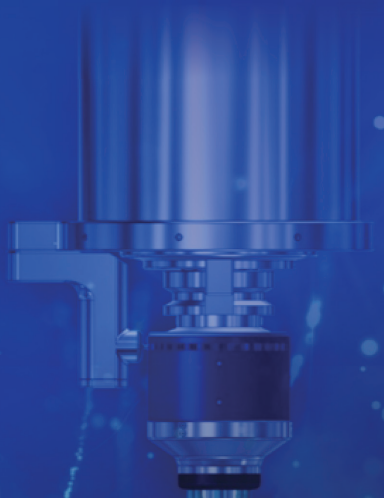
Without TSC option, Through Coolant Machining

C-Jet Tool Holder System
Coolant Pressurizing Direct Spray

◆ The unique technology source patented by TTS, which pressurizes coolant inside the tool holder convincing the centrifugal force of spindle rpm into the centripetal force to push the coolant.

◆ The strong points of pressurizing direct spray?

- The constant strong spray into the cutting points
- Removing the dispersing of coolant, almost no chipping by the strong chip evacuation
- The maximization of tool life extension by the utmost cooling effect at the rake face of tool
- The utmost machining speed increase and the quality improvement
- The maximized competitiveness by the total cost reduction



C-Jet Tool Holder System, the Core Functions and the effects

◆ C-Jet Oil Hole Spray, C-Jet Direct Spray and C-Jet Dual Mode Spray are the core functions, and the effects are;

- Without the Through Spindle Coolant (TSC) options, much better to use the Through Coolant tools
- The pressurized direct spray breaks and removes the micro vapor film at the rake face of cutting. The is enforced utmost.
- Contrary to the TSC option, the Dual Mode (= Oil Hole Spray + Tool Holder Nozzle Hole Spray) is the stronger and unique technology of TTS enabling hyper effect cutting.
- The centripetal forced spray without any dispersing empowers the machining work

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The C-Jet Coolant pressurizing Direct Spray Tool Holder System, for the Machining Optimization and Advancement

- ◆ has resolved the dispersing trouble of direct coolant spray from tool holder by means of the technology converting the centrifugal force of spindle rotation into the centripetal force.
- ◆ has fulfilled the optimization and the advancement of machining by the focused pressurized coolant spray towards the cutting point regardless of the length of cutting tool.
- ◆ improves the quality of machining with the maximized cooling effect at the cutting point.
- ◆ resolves the chipping trouble with the pressurized strong spray.
- ◆ extends tool lifetime by the cooling of cutting heat and chip evacuation.

C-Jet Pressurizing
Oil Hole Spray

Without Thru-Spindle Coolant (TSC) option, the mode of strong spray through tool pressurizing the coolant according to spindle rotation inside the tool holder

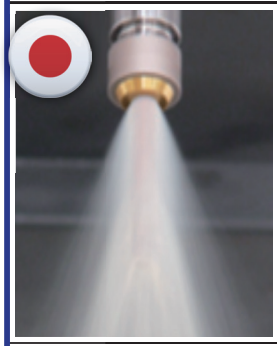
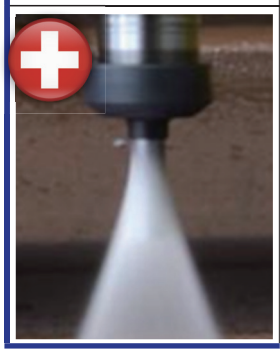
C-Jet Pressurizing
Direct Spray

This mode sprays coolant direct from the tool holder nozzles after coolant`s being pressurized inside the C-Jet Tool Holder body

C-Jet
Mist Spray

This mode sprays strong Mist from the C-Jet Lock Point Unit which enables to function the usual cutting tools of end-mill, face cutter and etc., evacuating chips strongly

Comparison to others

Description	Direct Spray Rate	Centri-petal force	Mist decrease	TSC option	Features
	98%	O	O	No need	• Technology pressurizes coolant according to the spindle rpm • Technology converting into centripetal force • Spray through tool • Spray direct from tool holder pressurizing
	Less than 50%	x	x	Required	• tool holder structure unable to control centrifugal force • Coolant dispersing trouble at spindle rotation • Weakening direct spray • Expensive TSC option for the machine • Able to function the oil hole spray only
	40%	x	x	Required	
	0%	x	x	Required	
	20%	x	x	Required	

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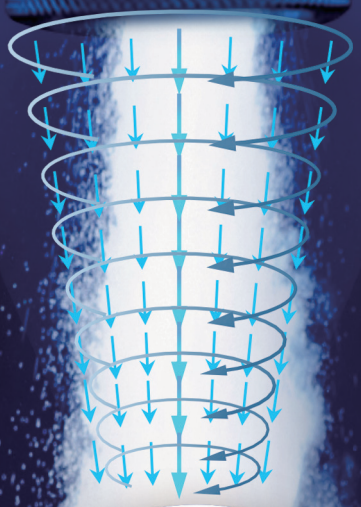
Differentiation of Technology

Penetrates pressurized coolant into the cutting clearance

Pressurizing Direct Spray Tool Holder Technology



Tool Lifetime

1.5~2.5 times Extension

Cutting Cycle Time

Less than 50% reducing

Machining speed

200%~300% increase

The tool holder system realizes pressurizing direct spray system that maximizes machinability

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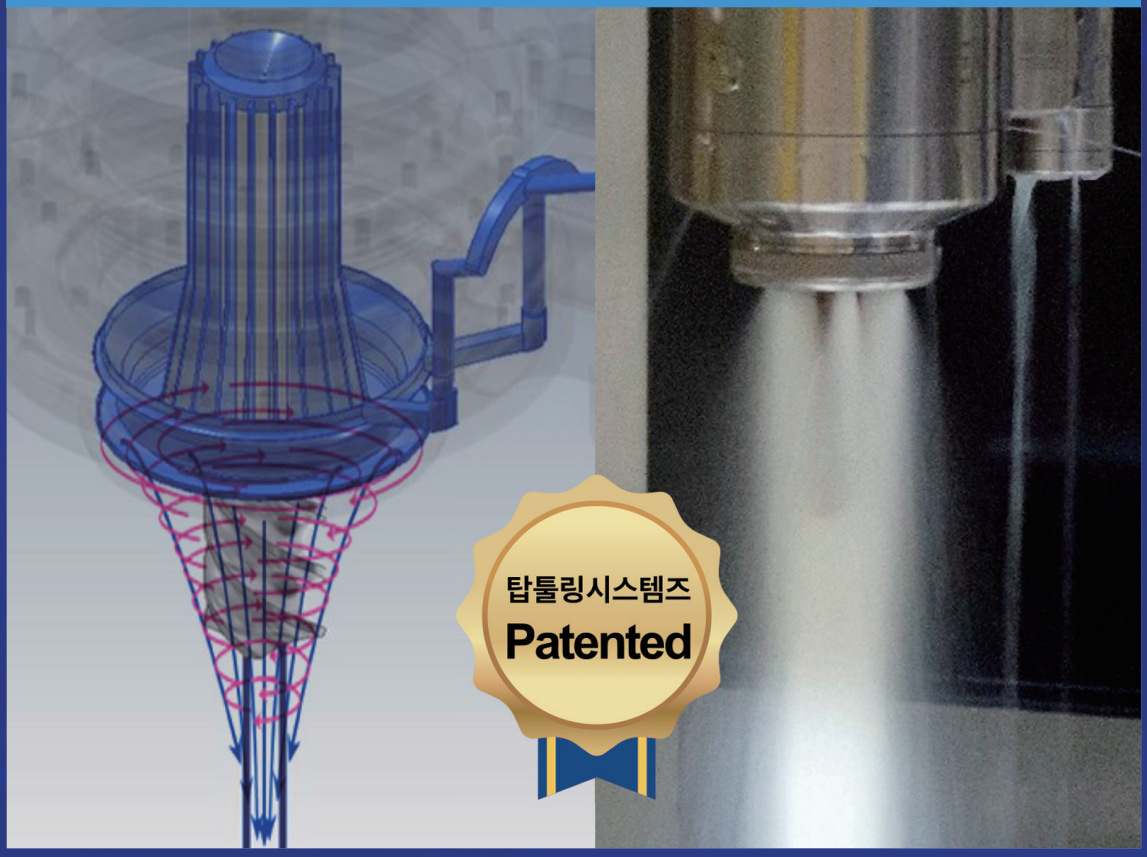
Core Technology

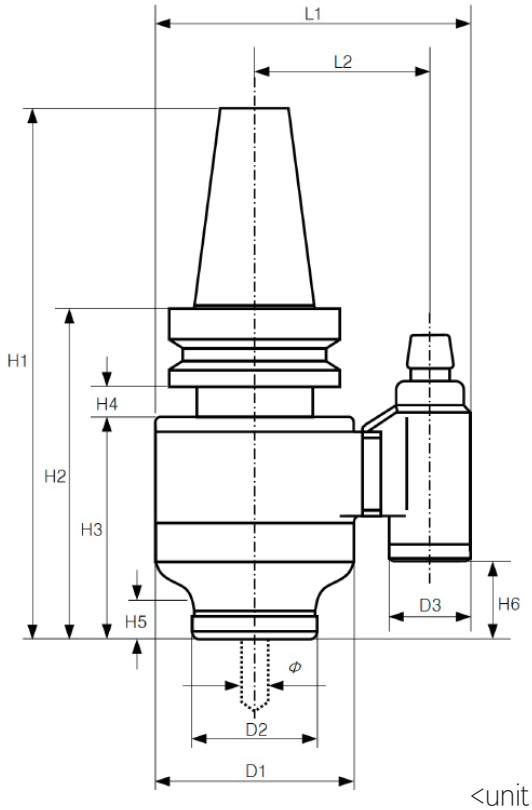
C-Jet Direct Spray Tool Holder



- This C-Jet technology enhances the level of machining technology; whilst the machining technology has been halted with the current technology level of the machinery and the cutting tools for decades.
- The C-Jet technology, i.e., Coolant Pressurizing Direct Spray maximizes the cooling of cutting and accomplishes the Smart
- Machining; ★This enables machining technology to have the advancement and the smart machining; ★This is the distinguishing source patented technology from the current similar looking tool holder products.

The World First Commercialization in Korea
Source Patented Global Technology

C-Jet Coolant Pressurizing Direct Spray Tool Holder



<unit: mm>

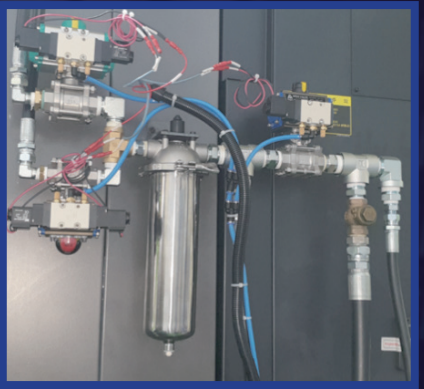
Specification	Model Number					
	TBT3020	TBT3035	TBT4035	TBT4045	TBT5045	TBT5060
H1	150.5	150.5	176.5	184	228.3	247.3
H2	103.1	103.1	110.1	117.6	123.5	103.1
H3	73	74	74	83.5	79.5	73
H4	9.1	8.1	10.1	8.1	9	9.1
H5	14	10	10	13	13	14
H6	26.5	26.5	26	33.5	29.5	26.5
D1	56	74	74	83	83	104
D2	33	46	46	54	50	73
D3	28	28	30	30	30	30
L1	97	106	117	121.5	131.5	142
L2	55	55	65	65	75	75
Weight (kg)	2.0	2.2	3.0	3.7	6.0	7.2
Maximum rpm	20,000	16,000	16,000	12,000	12,000	8,000
Collet Shank Size (ø)	2,3,4,5,6,8	3,4,5,6,8, 10,12,14	3,4,5,6,8, 10,12,14	3,4,5,6,8, 10,12,14,16	3,4,5,6,8, 10,12,14,16	3,4,5,6,8,10, 12,14,16,20,25
Base Pump(bar)	7	7	7	7	10	10
Max. Spray P.(bar)	10~70	10~58	10~58	10~46	10~46	10~34

C-Jet Coolant Pressurizing and Direct Spray Tool Holder System

C-Jet Tool Holder
TBT30

C-Jet Tool Holder
TBT40

C-Jet Coolant
Supply System



■ System Config.:「C-Jet Tool Holder」+「C-Jet Coolant Supply System」
☞ mandatory to maintain clean coolant for the C-Jet quality.

■ Replacing the TSC,
C-Jet provides with the far high and the multi-functions (drill, end-mill, tap and etc.)

■ C-Jet (Centripetal Jet) sprays over the pressure of installed pump, C-Jet is pressurizing the coolant according to the rpm of spindle which is the source patented technology of TTS, This is the effect of C-Jet, converts the centrifugal force of rotation into the centripetal force and yields 3 bar pressure increase at each 1,000 rpm increase of spindle.

※ Ex.: C-Jet Sprays by the pump pressure (7~10 bar) at zero rpm,
max. 70 bar at 20,000 rpm. (= 10 + 3 bar x 20).

Inventor/Manufacturer/Seller (patented in 16 countries)
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