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NPN

New Product News

new

HPC Typhoon

Maximum 70 bar High-pressure Coolant Type Spindles for Small Diameter Tools

ADVANCEMACHINING
TaeguTec Industry 4.0

INDUSTRY4.0 TaeguTec Member IMC Group

KEY POINT

TaeguTec has launched the new maximum 70 bar high-pressure coolant type TYPHOON-HPC.

TYPHOON-HPC high performance spindles for small diameter tools, driven by the machine's internal coolant system, have been added to the TYPHOON family.
This high-speed spindle line operates through rotating turbines inside the **TYPHOON-HPC** with high-pressure internal coolant while keeping the machine spindle stationary.
What sets it apart from the existing family is its coolant pressure operating range. The new spindles are operated in the 40-70 bar range for machines with limited rotational speeds but are high-pressure internal coolant capable. The higher flow rate capable **TYPHOON-HPC** expands the range of the current TYPHOON product line.

Features

- Strong and compact high-speed spindle operated by high-pressure coolant
- Suitable for small diameter tools' semi-finishing and finishing applications

Operating data	Model: TYPHOON-HPC
Coolant pressure [bar] operating range	40-70
Coolant flow rate [ℓ/min] operating range	16-22
Rotational spindle speed [rpm]*	25,000-45,000
High power output	up to 1.5 kW
Optimum cutting tool diameter [mm]	Drilling: 0.5 – 3.0
	Milling: 1.0 - 4.0
Maximum tool shank diameter [mm]	7

Notes

– Rotational spindle speed is based on coolant pressure and flow rate
– Coolant pressure operating range is measured from the TYPHOON-HPC spindle inlet

Application requirements: High-pressure + High-speed

- TYPHOON-HPC spindles achieve high-speed machining either with high-pressure internal coolant or additional high-pressure coolant pumps on existing machines.

Fig. 1 TYPHOON-HPC in operation

Rotational speed monitoring and display

- Warning/alarm alerts during spindle operation
- 2.4 GHz radio frequency transmission
- Speed monitoring range of up to 10 meters
- Externally powered display can read multiple TYPHOON-HPC LINE spindles mounted on the machine

Fig. 2 Rotational speed monitoring display

TYPHOON-HPC ER32 LINE -Adaptation Options

Fig. 3 TYPHOON-HPC adaptation types

TYPHOON-HPC LINE Spindles - Tool Holding & Mounting

- Required: Pull stud with coolant- through hole

Fig. 4 Pull stud

Fig. 5 Mounting tool holder

Keeping the main spindle stationary at all times

If the TYPHOON-HPC is mounted on the machine, the machine spindle must be stationary unless it is in use. To avoid machine spindle rotation when the TYPHOON-HPC is in operation, input the correct M code to lock spindle orientation, e.g. “M19” code locks the spindle in a defined angle position.

TYPHOON-HPC machine tool requirements

1. Coolant flow through the machine spindle
2. Coolant pressure at main machine spindle outlet: Minimum 40 bar, Maximum 70 bar
3. Average flow rate of 16-22 ℓ/min
4. Utilize water-based emulsion or cutting oil: viscosity up to 20 (cP)
5. Minimum coolant filtration level: 100 µm
6. Activate mist collector
7. With emulsion coolant, use an anti-foaming agent additive to prevent foaming
8. With oil coolant, high-pressure increases the amount of oil fumes:
   a. Use appropriate means of fire protection and extinguishant
   b. Use anti-dissolution additive suitable for oil

TYPHOON-HPC Spindle - Tool Installation

First, assemble the ER 11 collet and tool.

1. Insert nut for tightening. Align flat sides of the shaft lock key with the positioning slot on the spindle cover.
2. Position shaft lock key over the nut.
3. Slide shaft lock key to the left to secure it in place (see image below).
4. Insert ER11 wrench into the grooves on the nut.
5. Turn ER11 wrench clockwise to tighten.

Fig. 6 Tool Installation

How to remove the tool

1. Slide the shaft lock key to the right to unlock.
2. Insert the wrench and turn counter-clockwise to loosen the nut (this may take a few turns).
3. Keep the shaft lock in the secure position if you wish to insert a new tool.

NOTE: TaeguTec's solid carbide endmills, threading endmills and drills are recommended for use on the TYPHOON-HPC spindles.

Operating Tips

1. When operating TYPHOON-HPC spindles, monitoring rotational speed is critical.
2. Cutting speed depends on the workpiece material, its hardness and cutting tool geometry.
3. Dramatic fluctuations of the rotational speed (rpm) operation can indicate problems such as incorrect coolant pressure or a broken cutting tool.

Using Precision ER11 Collets

It is recommended to use only high quality, precision ER11 collets that are engineered for maximum accuracy and tool life.

Maximum collet runout (TIR) – 5 µm

To maximize TYPHOON-HPC spindle tool life, TaeguTec recommends following the ten percent rule.

10% rule: The working rotational speed (rpm) should drop by up to 10% of the rotational speed (rpm), which is registered at idle speed.
Keeping this rule ensures reducing axial and radial load on the internal mechanism.

To register idle rotational speed:

1. Install the TYPHOON-HPC spindle mounted with a cutting tool into the machine.
2. Start the spindle rotation by turning on the fluid supply at the required pressure and find the idle RPM speed by reading the spindle's display monitor.

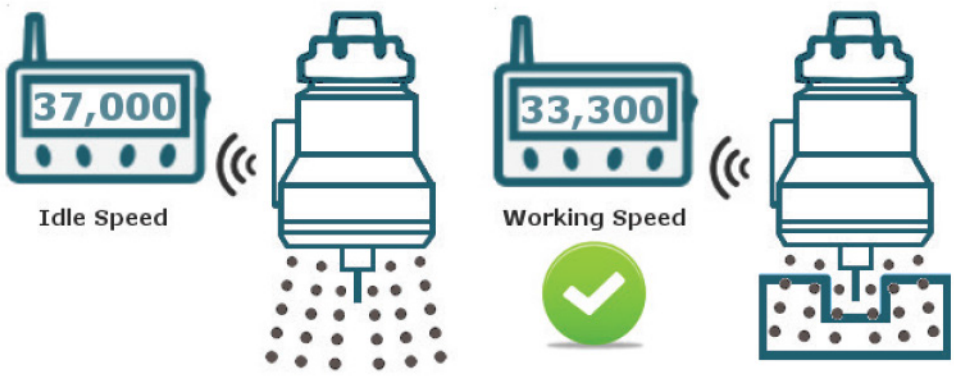


Fig. 7 Example illustrating "10% rule"

TYPHOON-HPC Spindle Applications

Fig. 8 Applications

General storage instructions:

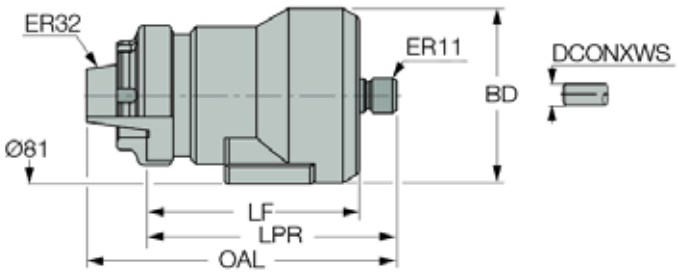
The TYPHOON-HPC spindles do not require specific periodic maintenance, however, the following instructions should be followed before storage:

1. Clean the spindle by air blowing for 10-15 seconds.
2. Maximum air pressure for cleaning is 2 bar (30 psi).
   The rotational speed during cleaning must not exceed 60,000 rpm.
3. After cleaning, disconnect the spindle from the display device.
4. Place the spindle in its original packaging box and store it in an appropriate place.

TJS HPC ER

High-Pressure Coolant Driven Spindle with ER32 Shank for Small Diameter Cutting Tools

G2.5
60,000 RPM
U<1.0 gmm



Designation	Dimension (mm)					Kg
	DCONXWS	LF	LPR	OAL	BD	
TJS HPC ER32	7.0	99.0	116.0	144.0	80	2.0

- Coolant pressure: 40 - 70 bar and flow rate: 16 - 22ℓ/min
- Rotational spindle speed [rpm]: 25,000 - 45,000 (rev/min)
- The spindle provides only external strong coolant jet around the tool
- DCONXWS: Maximum diameter of tools

Spare parts

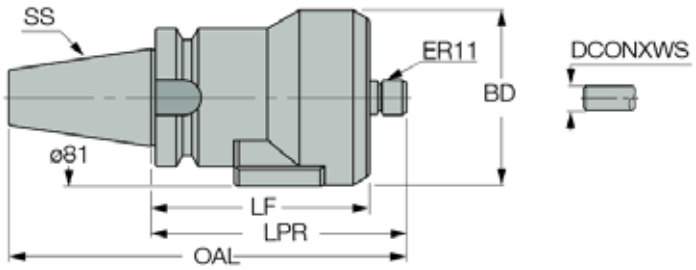
Designation	Mini ER Nut	ER Wrench	Key	Locking pin	*Display
TJS HPC ER32	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY

* Optional, should be ordered separately

TJS HPC BT

High-Pressure Coolant Driven Spindle with BT Shank for Small Diameter Cutting Tools

G2.5
60,000 RPM U<1.0 gmm



Designation	Dimension (mm)						Kg
	SS	DCONXWS	LF	LPR	BD	OAL	
TJS HPC BT40	40	7.0	100.0	117.0	80	183.0	2.0

- Coolant pressure: 40 - 70 bar and flow rate: 16 - 22ℓ/min
- Rotational spindle speed [rpm]: 25,000 - 45,000 (rev/min)
- The spindle provides only external strong coolant jet around the tool
- DCONXWS: Maximum diameter of tools

Spare parts

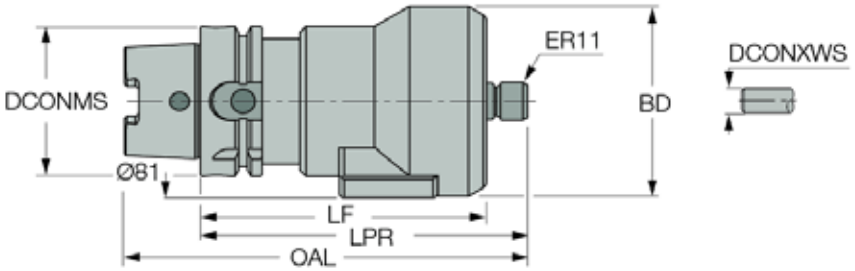
Designation	Mini ER Nut	ER Wrench	Key	Locking pin	*Display
TJS HPC BT40	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY

* Optional, should be ordered separately

TJS HPC HSK A

High-Pressure Coolant Driven Spindle with HSK Shank for Small Diameter Cutting Tools

G2.5
60,000 RPM U<1.0 gmm



Designation	Dimension (mm)						Kg
	DCONMS	DCONXWS	LF	LPR	OAL	BD	
TJS HPC HSK A63	63	7.0	121	138	170	80	2.0

- Coolant pressure: 40 - 70 bar and flow rate: 16 - 22ℓ/min
- Rotational spindle speed [rpm]: 25,000 - 45,000 (rev/min)
- The spindle provides only external strong coolant jet around the tool
- DCONXWS: Maximum diameter of tools

Spare parts

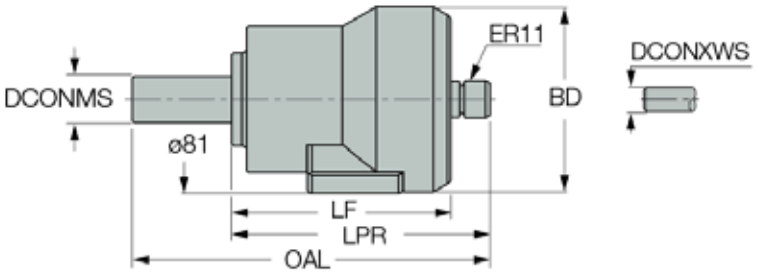
Designation	Mini ER Nut	ER Wrench	Key	Locking pin	*Display
TJS HPC HSK A63	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY

* Optional, should be ordered separately

TJS HPC ST

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

G2.5
60,000 RPM
U<1.0 gmm



Designation	Dimension (mm)						Kg
	DCONMS	DCONXWS	LPR	OAL	LF	BD	
TJS HPC ST20	20	7.0	112	155	95	80	1.5

- Coolant pressure: 40 - 70 bar and flow rate: 16 - 22ℓ/min
- Rotational spindle speed [rpm]: 25,000 - 45,000 (rev/min)
- The spindle provides only external strong coolant jet around the tool
- DCONXWS: Maximum diameter of tools

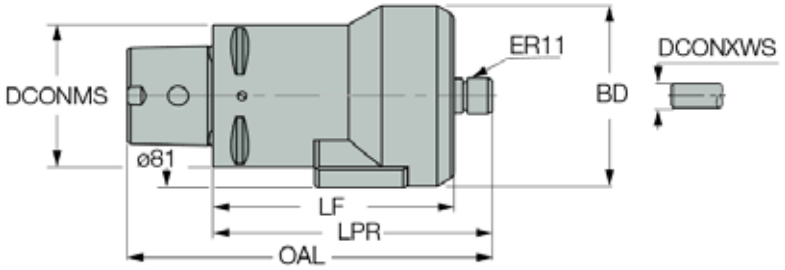
Spare parts

Designation	Mini ER Nut	ER Wrench	Key	Locking pin	*Display
TJS HPC ST20	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY

* Optional, should be ordered separately

TJS HPC C

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



G2.5
60,000 RPM U<1.0 gmm

Designation	Dimension (mm)						Kg
	DCONMS	DCONXWS	LF	LPR	OAL	BD	
TJS HPC C6	63	7.0	107	124	162	90	2.0

- Coolant pressure: 40 - 70 bar and flow rate: 16 - 22ℓ/min
- Rotational spindle speed [rpm]: 25,000 - 45,000 (rev/min)
- The spindle provides only external strong coolant jet around the tool
- DCONXWS: Maximum diameter of tools

Spindle Case Contents	Display Case Contents
	
 1. TJS SHAFT LOCK KEY 2. WRENCH ER11 SMS 3. BATTERY - LITHIUM METAL NON-RECHARGEABLE, CR2 TYPE 4. HW2.0: HEX (ALLEN) KEY	1. TJS TSD display 2. TJS DISP. power supply - AC/DC 5V

Activating Your Spindle Warranty

Registration:

Subsidiaries and distributors can activate the warranty by registering online via a product management system available at reg.colibri-jet.com. This enables the viewing and managing of registered products as well as obtaining technical and repair support services during the warranty period.

Product Management Interface Includes:

a. Number of units
b. Serial numbers
c. To whom the product was sold
d. Sale date
e. Warranty (active / not active)
f. Service history

Customer Registration:

1. Register online at reg.colibri-jet.com
2. Scan the QR code

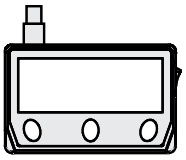
When the product is officially registered, it not only activates the warranty but entitles the customer to receive important product support features:

-Product ATP
-Online Training and Documentation
-Help and Technical Support Services
-Repair Service
-Product Management Interface

KIT COLLECTIONS

These kit products are available in the format listed below.

Cat. No.	Designation	Bill of materials	Qty.
6338259	**KIT TJS HPC ER32**	TJS HPC ER32	1
		TJS TSD DISPLAY	1
		ER11 SPR 2.5-3	1
		ER11 SPR 3.5-4	1
		ER11 SPR 5.5-6	1
6338261	**KIT TJS HPC BT40**	TJS HPC BT40	1
		TJS TSD DISPLAY	1
		ER11 SPR 2.5-3	1
		ER11 SPR 3.5-4	1
		ER11 SPR 5.5-6	1
6338257	**KIT TJS HPC HSK A63**	TJS HPC HSK A63	1
		TJS TSD DISPLAY	1
		ER11 SPR 2.5-3	1
		ER11 SPR 3.5-4	1
		ER11 SPR 5.5-6	1
6338255	**KIT TJS HPC ST20**	TJS HPC ST20	1
		TJS TSD DISPLAY	1
		ER11 SPR 2.5-3	1
		ER11 SPR 3.5-4	1
		ER11 SPR 5.5-6	1
6338262	**KIT TJS HPC C6**	TJS HPC C6	1
		TJS TSD DISPLAY	1
		ER11 SPR 2.5-3	1
		ER11 SPR 3.5-4	1
		ER11 SPR 5.5-6	1



DISPLAY	Cat. No.	Designation
	6330795	TJS TSD DISPLAY