

THETA PRECISION Co.,Ltd

Built-In spindle
Multi-Axis Turning & Milling Spindle

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Ø62mm~Ø80mm High Frequency Spindles for automatic tool change



Type		THZ-62.03 (220V)		THZ-62.05 (220V)	THZ-62.06 (170V)	THZ-80.01(220V) THZ-80.02(380V)
Spindle Ø		61.91mm	61.91mm	61.91mm	61.91mm	80mm
Maximum Speed		60,000rpm Grease	70,000rpm Grease	70,000rpm Grease	60,000rpm Grease	50,000rpm Oil-Air
Bore diameter of front bearings		17mm	17mm	20mm	17mm	25mm
Rigidity	Axial (N/µm)	28N/µm	28N/µm	38N/µm	28N/µm	40N/µm
	Radial (N/µm)	35N/µm	35N/µm	40N/µm	35N/µm	42N/µm
Frequency Max. (Hz)		1,000Hz	1,167Hz	1,167Hz	1,000Hz	833Hz
at speed		60,000RPM	70,000RPM	70,000RPM	60,000RPM	30,000RPM
S1 kW		1.3kW	1.5kW	1.5kW	1.2kW	2.2kW
S6-40% kW		1.6kW	1.8kW	1.8kW	1.4kW	2.6kW
S1 Torque (Nm)		0.20Nm	0.20Nm	0.2Nm	0.2Nm	0.7Nm
S6-40% Torque (Nm)		0.25Nm	0.24Nm	0.24Nm	0.22Nm	0.8Nm
Tool Interface		WT-5 (Collet 1~6mm)	WT-5 (Collet 1~6mm)	HSK-E20	Collet 3.175~6mm	HSK-E25 ISO-15
Spindle Cooling		Water cooling /Oil cooling				
Spindle Weight		3.5kg	3.5kg	4.5kg	3.5kg	6.2kg
Integral Encoder For Closed-Loop Control		N/A	N/A	N/A	N/A	Option
Coolant Through Shaft (CTS)		N/A	N/A	N/A	N/A	N/A
Tool Position Sensor		N/A	N/A	N/A	N/A	Proximity switches
Front Bearing Temperature Sensor		N/A	N/A	N/A	N/A	N/A



THZ-62.03



THZ-62.05



THZ-62.06



THZ-80.01

THZ-80.02

Ø80mm~Ø120mm High Frequency Spindles for automatic tool change



Type		TH-80.01(220V) TH-80.02(380V)	TH-100.03(400V) TH-100.04(230V)		TH-120.03(400V) TH-120.04(230V)	
Spindle Ø		80mm	100mm	100mm	120mm	120mm
Maximum Speed		40,000rpm Grease	30,000rpm Oil-Air	40,000rpm Oil-Air	30,000rpm Oil-Air	36,000rpm Oil-Air
Bore diameter of front bearings		25mm	35mm	35mm	40mm	40mm
Rigidity	Axial (N/µm)	40N/µm	90N/µm	90N/µm	90N/µm	90N/µm
	Radial (N/µm)	50N/µm	90N/µm	90N/µm	120N/µm	120N/µm
Frequency Max. (Hz)		1,334Hz	1,000Hz	1,334Hz	1,000Hz	1,200Hz
at speed		32,100RPM	11,700RPM	11,700RPM	9,700RPM	9,700RPM
S1 kW		2.5kW	3kW	3kW	4.6kW	4.6kW
S6-40% kW		3.3kW	3.9kW	3.9kW	6kW	6kW
kW (Peak Power)		5.8kW	8kW	8kW	14kW	14kW
S1 Torque (Nm)		0.7Nm	2.4Nm	2.4Nm	4.5Nm	4.5Nm
S6-40% Torque (Nm)		1Nm	3.2Nm	3.2Nm	5.9Nm	5.9Nm
Tool Interface		ISO-20	ISO-25	HSK-E32	BT-30 BBT-30	HSK-E40 HSK-F50
Spindle Cooling		Water cooling /Oil cooling				
Spindle Weight		8kg	15kg	15kg	27kg	27kg
Integral Encoder For Closed-Loop Control		N/A	Option	Option	Option	Option
Coolant Through Shaft (CTS)		N/A	N/A	N/A	Option	Option
Tool Position Sensors		Proximity switches / Analog sensor				
Front Bearing Temperature Sensor		N/A	N/A	N/A	Standard	Standard



TH-80.01
TH-80.02



TH-100.03
TH-100.04



TH-120.03
TH-120.04

Ø120mm~Ø170mm High Frequency Spindles for automatic tool change



Type		TH-120.01(400V) TH-120.02(230V)		TH-150.01(380V) TH-150.02(220V)		TH-170.05(400V) TH-170.02(230V)	
Spindle Ø		120mm	120mm	150mm	170mm	170mm	
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>		30,000rpm	42,000rpm	36,000rpm	20,000rpm	24,000rpm	
Bore diameter of front bearings		40mm	40mm	50mm	65mm	65mm	
Rigidity	Axial (N/µm)	90N/µm	90N/µm	130N/µm	150N/µm	150N/µm	
	Radial (N/µm)	120N/µm	120N/µm	150N/µm	200N/µm	200N/µm	
Frequency Max. (Hz)		1,200Hz	1,400Hz	1,200Hz	667Hz	800Hz	
at speed		17,600RPM	17,600RPM	13,500RPM	5,870RPM	5,870RPM	
S1 kW		10kW	10kW	15kW	18kW	18kW	
S6-40% kW		13kW	13kW	20kW	23.4kW	23.4kW	
kW (Peak Power)		25kW	25kW	50kW	58kW	58kW	
S1 Torque (Nm)		5.4Nm	5.4Nm	10.6Nm	29.3Nm	29.3Nm	
S6-40% Torque (Nm)		7.1Nm	7.1Nm	14.1Nm	38.1Nm	38.1Nm	
Tool Interface		BT-30 BBT-30	HSK-E40 HSK-F50	HSK-E50 HSK-F63	BT-40 BBT-40	HSK-A63 HSK-E63	
Spindle Cooling		Water cooling /Oil cooling					
Spindle Weight		27kg	27kg	46kg	63kg	63kg	
Integral Encoder For Closed-Loop Control		Option	Option	Option	Option	Option	
Coolant Through Shaft (CTS)		Option	Option	Option	Option	Option	
Tool Position Sensors		Proximity switches / Analog sensor					
Front Bearing Temperature Sensor		Standard	Standard	Standard	Standard	Standard	



TH-120.01
TH-120.02



TH-150.01
TH-150.02



TH-170.05
TH-170.02

Ø170mm~Ø210mm High Frequency Spindles for automatic tool change



Type	TH-170.03 (380V)		THN-170.02(230V) THN-170.03(400V)	TH-190.04 (400V)	TH-210.01 (400V)
Spindle Ø	170mm	170mm	170mm	190mm	210mm
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>	20,000rpm	30,000rpm	20,000rpm	12,000rpm	18,000rpm
Bore diameter of front bearings	65mm	65mm	70mm	70mm	70mm
Rigidity	Axial (N/µm)	150N/µm	150N/µm	180N/µm	180N/µm
	Radial (N/µm)	200N/µm	200N/µm	200N/µm	200N/µm
Frequency Max. (Hz)	667Hz	1,000Hz	667Hz	800Hz	1,200Hz
at speed	9,860RPM	9,860RPM	5,870RPM	3,200RPM	2,000RPM
S1 kW	30kW	30kW	18kW	16kW	15kW
S6-40% kW	39kW	39kW	23.4kW	20.8kW	19.5kW
kW (Peak Power)	106kW	106kW	58kW	63kW	83kW
S1 Torque (Nm)	29.1Nm	29.1Nm	29.3Nm	47.8Nm	71.6Nm
S6-40% Torque (Nm)	37.8Nm	37.8Nm	38.1Nm	62.1Nm	93.1Nm
Tool Interface	BT-40 BBT-40	HSK-A63 HSK-E63	BT-40 BBT-40	HSK-A63 HSK-C63	HSK-A63 BBT-40
Spindle Cooling	Water cooling /Oil cooling				
Spindle Weight	63kg	63kg	65kg	80kg	100kg
Integral Encoder For Closed-Loop Control	Option	Option	Option	Option	Option
Coolant Through Shaft (CTS)	Option	Option	Option	Option	Option
Tool Position Sensors	Proximity switches / Analog sensor				
Front Bearing Temperature Sensor	Standard	Standard	Standard	Standard	Standard



TH-170.03



THN-170.02
THN-170.03



TH-190.04



TH-210.01

Ø230mm High Frequency Spindles for automatic tool change



Type		TH-230.02 (400V)	TH-230.05 (400V)	TH-230.12 (400V)
Spindle Ø		230mm	230mm	230mm
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>		16,000rpm	12,000rpm	20,000rpm
Bore diameter of front bearings		70mm	100mm	70mm
Rigidity	Axial (N/µm)	Standardised or According to customer needs. It is available to increase the static rigidity, but the maximum speed will be reduced.		
	Radial (N/µm)			
Frequency Max. (Hz)		533Hz	400Hz	667Hz
at speed		1,980RPM	1,980RPM	1,980RPM
S1 kW		20kW	20kW	20kW
S6-40% kW		25kW	25kW	25kW
kW (Peak Power)		171kW	171kW	171kW
S1 Torque (Nm)		96.5Nm	96.5Nm	96.5Nm
S6-40% Torque (Nm)		121Nm	121Nm	121Nm
Tool Interface		HSK-A63 BBT-40	HSK-A100 BBT-50	HSK-A63 BBT-40
Spindle Cooling		Water cooling /Oil cooling		
Spindle Weight		180kg	210kg	145kg
Integral Encoder For Closed-Loop Control		Option	Option	Option
Coolant Through Shaft (CTS)		Option	Option	Option
Tool Position Sensors		Proximity switches / Analog sensor		
Front Bearing Temperature Sensor		Standard	Standard	Standard



TH-230

Ø230mm High Frequency Spindles for automatic tool change



Type		TH-230.23 (400V)	TH-230.24 (400V)
Spindle Ø		230mm	230mm
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>		12,000rpm	15,000rpm
Bore diameter of front bearings		100mm	70mm
Rigidity	Axial (N/µm)	Standardised or According to customer needs. It is available to increase the static rigidity, but the maximum speed will be reduced.	
	Radial (N/µm)		
Frequency Max. (Hz)		800Hz	1,000Hz
Low winding	S1 kW	18.5kW	15kW
	S1 Torque (Nm)	177Nm	136Nm
	S6-40% kW	26kW	21.1kW
	S6-40% Torque (Nm)	248Nm	196Nm
	at speed	1,000rpm	1,050rpm
High winding	S1 kW	22kW	18.5kW
	S1 Torque (Nm)	70Nm	55Nm
	S6-40% kW	30.8kW	26kW
	S6-40% Torque (Nm)	98Nm	77.6Nm
	at speed	3,000rpm	3,200rpm
kW (Peak Power)		40kW	32kW
Tool Interface		HSK-A100 BBT-50	HSK-A80
Spindle Cooling		Water cooling /Oil cooling	
Spindle Weight		210kg	170kg
Integral Encoder For Closed-Loop Control		Option	Option
Coolant Through Shaft(CTS)		Option	Option
Tool Position Sensors		Proximity switches / Analog sensor	
Front Bearing Temperature Sensor		Standard	Standard



TH-230

Ø210mm~Ø255mm Multi-axis spindle Turning and Milling Spindles



Type	THS-210.01(400V) Asynchronous Motor	THS-255.01(400V) Multi-Axis Mill Turn Spindle Asynchronous Motor	TTS-255.01(504V) Multi-Axis Mill Turn Spindle Synchronous Motor
Spindle Ø	210mm	255mm	255mm
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>	15,000rpm	12,000rpm	12,000rpm
Bore diameter of front bearings	70mm	70mm	70mm
Rigidity	Axial (N/µm)	Standardised or According to customer needs. It is available to increase the static rigidity, but the maximum speed will be reduced.	
	Radial (N/µm)		
Frequency Max. (Hz)	1,000Hz	800Hz	800Hz
at speed	2,000RPM	3,200RPM	3,000RPM
S1 kW	15kW	16kW	25.1kW
S6-40% kW	19.5kW	20.8kW	33.9kW
kW (Peak Power)	83kW	63kW	52.8kW
S1 Torque (Nm)	71.6Nm	47.8Nm	79.9Nm
S6-40% Torque (Nm)	93.1Nm	62.1Nm	107.9Nm
Tool Interface	HSK-A63 BBT-40	HSK-T63 Capto C6	HSK-T63 Capto C6
Spindle Cooling	Water cooling /Oil cooling		
Spindle Weight	120kg	195kg	195kg
Integral Encoder For Closed-Loop Control	Option	Option	Option
Coolant Through Shaft (CTS)	Option	Option	Option
Tool Position Sensors	Proximity switches / Analog sensor		
Front Bearing Temperature Sensor	Standard	Standard	Standard



THS-210.01



THS-255.01



TTS-255.01

Ø120mm High Frequency Spindles for automatic tool change



Type		TH-120.08	TH-120.11	TH-120.15		TT-120.04
FANUC BUILT-IN SPINDLE MOTOR		B₁I 40M/70000	B₁I 50L/30000	B₁I 56L/40000		B₁I 56L2/15000-B
Spindle Ø		120mm	120mm	120mm	120mm	120mm
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>		40,000rpm	30,000rpm	30,000rpm	40,000rpm	12,000rpm
Bore diameter of front bearings		40mm	40mm	40mm	40mm	40mm
Rigidity	Axial (N/µm)	90N/µm	90N/µm	90N/µm	90N/µm	90N/µm
	Radial (N/µm)	120N/µm	120N/µm	120N/µm	120N/µm	120N/µm
at speed		30,000RPM	15,000RPM	12,000RPM	12,000RPM	7,500RPM
S1 kW		3.0kW	7.5kW	7.5kW	7.5kW	10kW
S2/S3 kW		3.5kW(S2-10min)	9kW(S3-25%)	9kW(S3-25%)	9kW(S3-25%)	11kW(S6-15%)
S1 Torque (Nm)		0.95Nm	4.77Nm	5.97Nm	5.97Nm	12.7Nm
S2/S3 Torque (Nm)		1.1Nm(S2-10min)	6.14Nm(S3-25%)	7.16Nm(S3-25%)	7.16Nm(S3-25%)	15Nm(S6-15%)
Tool Interface		HSK-E32	HSK-E40 BBT-30	BT-30 BBT-30	HSK-E40 HSK-F50	HSK-E40 HSK-F50
Spindle Cooling		Water cooling <small>Also available with Oil cooling. This cooling leads to motor power reduction.</small>				
Spindle Weight		27kg	27kg	27kg	27kg	27kg
Integral Encoder For Closed-Loop Control		Option	Standard	Standard	Standard	Standard
Coolant Through Shaft (CTS)		N/A	Option	Option	Option	Option
Tool Position Sensors		Proximity switches / Analog sensor				
Front Bearing Temperature Sensor		N/A	Standard	Standard	Standard	Standard



TH-120

TT-120

Ø170~Ø190mm High Frequency Spindles for automatic tool change



Type		TH-170.07	THN-170.04	TH-170.09		TH-190.05
FANUC BUILT-IN SPINDLE MOTOR		B_{II} 80M/30000	B_{II} 90L/25000	B_{II} 90L/25000 TYPE M		B_{II} 112S/20000-B
Spindle Ø		170mm	170mm	170mm	170mm	190mm
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>		30,000rpm	20,000RPM	20,000RPM	24,000rpm	20,000rpm
Bore diameter of front bearings		55mm	70mm	65mm	65mm	70mm
Rigidity	Axial (N/µm)	140N/µm	180N/µm	150N/µm	150N/µm	180N/µm
	Radial (N/µm)	150N/µm	200N/µm	200N/µm	200N/µm	200N/µm
at speed		7,000RPM	6,000RPM	6,000RPM	6,000RPM	3,200RPM
S1 kW		11kW	18.5kW	18.5kW	18.5kW	15kW
S2/S3 kW		15kW(S2-15min) 18.5kW(S3-25%)	26kW(S3-25%)	26kW(S3-25%)	26kW(S3-25%)	18.5kW (S2/S3-10mim)
S1 Torque (Nm)		15Nm	29.5Nm	29.5Nm	29.5Nm	44.8Nm
S2/S3 Torque (Nm)		20.5/23Nm (S2/S3)	43Nm(S3-25%)	43Nm(S3-25%)	43Nm(S3-25%)	55.2Nm(S2-10mim) 63.1Nm(S3-10mim)
Tool Interface		HSK-E50 HSK-F63	HSK-A63 BBT-40	BT-40 BBT-40	HSK-A63 HSK-E63	HSK-A63 / BBT-40 HSK-C63
Spindle Cooling		Water cooling <small>Also available with Oil cooling. This cooling leads to motor power reduction.</small>				
Spindle Weight		58kg	65kg	63kg	63kg	80kg
Integral Encoder For Closed-Loop Control		Standard	Standard	Standard	Standard	Standard
Coolant Through Shaft (CTS)		Option	Option	Option	Option	Option
Tool Position Sensors		Proximity switches / Analog sensor				
Front Bearing Temperature Sensor		Standard	Standard	Standard	Standard	Standard



TH-170.07



THN-170.04



TH-170.09



TH-190.05

Ø190~Ø230mm High Frequency Spindles for automatic tool change



Type		TH-190.01	TH-230.01	TH-230.04	TH-230.08	TH-230.13
FANUC BUILT-IN SPINDLE MOTOR		B_{II} 112S/20000i	B_{II} 112L/15000i	B_{II} 112L/15000i	B_{II} 112L/20000i	B_{II} 112L/20000i
Spindle Ø		190mm	230mm	230mm	230mm	230mm
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>		20,000rpm	15,000rpm	10,000rpm	20,000rpm	12,000rpm
Bore diameter of front bearings		70mm	70mm	100mm	70mm	70mm
Rigidity	Axial (N/µm)	180N/µm	Standardised or According to customer needs. It is available to increase the static rigidity, but the maximum speed will be reduced.			
	Radial (N/µm)	200N/µm				
Low winding	S1 kW	7kW	15kW	15kW	15kW	15kW
	S1 Torque (Nm)	31Nm	95Nm	95Nm	80Nm	80Nm
	S2/S3 kW	11kW(S3-15%)	18.5kW(S3-15%)	18.5kW(S3-15%)	18.5kW(S3-25%)	18.5kW(S3-25%)
	S2/S3 Torque (Nm)	60Nm(S3-15%)	167Nm(S3-15%)	167Nm(S3-15%)	118Nm(S3-25%)	118Nm(S3-25%)
High winding	S1 kW	11kW	18.5kW	18.5kW	18.5kW	18.5kW
	S1 Torque (Nm)	18Nm	35Nm	35Nm	22Nm	22Nm
	S2/S3 kW	18.5kW(S2-10min)	22kW(S2-15min)	22kW(S2-15min)	22kW(S2-15min)	22kW(S2-15min)
	S2/S3 Torque (Nm)	29Nm(S2-10min)	42Nm(S2-15min)	42Nm(S2-15min)	42Nm(S2-15min)	42Nm(S2-15min)
Tool Interface		HSK-A63 BBT-40	HSK-A63 BBT-40	HSK-A100 BBT-50	HSK-A63 BBT-40	HSK-A63 BBT-40
Spindle Cooling		Water cooling <small>Also available with Oil cooling. This cooling leads to motor power reduction.</small>				
Spindle Weight		87kg	210kg	230kg	180kg	230kg
Integral Encoder For Closed-Loop Control		Option	Standard	Standard	Standard	Standard
Coolant Through Shaft (CTS)		Option	Option	Option	Option	Option
Tool Position Sensors		Proximity switches / Analog sensor				
Front Bearing Temperature Sensor		Standard	Standard	Standard	Standard	Standard



TH-190.01



TH-230

Ø230~Ø310mm High Frequency Spindles for automatic tool change



Type		TH-230.17	TH-230.20	TH-310.01	TH-310.02	TH-310.03
FANUC BUILT-IN SPINDLE MOTOR		B_II 112M/15000-B	B_II 112L/20000i	B_II 160LL/13000i	B_II 160LL/13000i typeM	B_II 160LL/13000-B
Spindle Ø		230mm	230mm	310mm	310mm	310mm
Maximum Speed (Oil-Air) <small>Also available with grease lubrication. This lubrication leads to speed reduction.</small>		15,000rpm	10,000rpm	10,000rpm	10,000rpm	10,000rpm
Bore diameter of front bearings		70mm	100mm	100mm	100mm	100mm
Rigidity	Axial (N/µm)	Standardised or According to customer needs. It is available to increase the static rigidity, but the maximum speed will be reduced.				
	Radial (N/µm)					
Low winding	S1 kW	15kW	18.5kW	15kW	15kW	18.5kW
	S1 Torque (Nm)	69.9Nm	86.2Nm	238Nm	318Nm	305Nm
	S2/S3 kW	22kW(S3-10%)	25kW(S6-40%)	22kW(S3-25%)	22kW(S3-25%)	37kW(S3-15%)
	S2/S3 Torque (Nm)	195Nm(S3-10%)	116Nm(S6-40%)	420Nm(S3-25%)	525Nm(S3-25%)	609(S3-15%)
High winding	S1 kW	18.5kW	N/A	25kW	25kW	37kW
	S1 Torque (Nm)	29.4Nm	N/A	95Nm	115Nm	196Nm
	S2/S3 kW	30kW(S3-25%)	N/A	30kW(S2-15min)	30kW(S2-15min)	55kW(S3-25%)
	S2/S3 Torque (Nm)	47.7Nm(S3-25%)	N/A	115Nm(S2-15min)	135Nm(S2-15min)	292Nm(S3-25%)
Tool Interface		HSK-A63 BBT-40	HSK-A100 BBT-50	HSK-A100 BBT-50	HSK-A100 BBT-50	HSK-A100 BBT-50
Spindle Cooling		Water cooling <small>Also available with Oil cooling. This cooling leads to motor power reduction.</small>				
Spindle Weight		230kg	230kg	320kg	320kg	320kg
Integral Encoder For Closed-Loop Control		Standard	Standard	Standard	Standard	Standard
Coolant Through Shaft (CTS)		Option	Option	Option	Option	Option
Tool Position Sensors		Proximity switches / Analog sensor				
Front Bearing Temperature Sensor		Standard	Standard	Standard	Standard	Standard



TH-230



TH-310

Ø80mm~Ø120mm High-speed grinding spindles Manual tool change



Type		THG-80.01(400V) THG-80.02(220V)	THGZ-80.03 (230V)	THG-100.01(380V) THG-100.03(230V)	THG-100.02(230V) THG-100.04(380V)	THG-120.02(400V) THG-120.15(230V)
Spindle Ø		80mm	80mm	100mm	100mm	120mm
Maximum Speed		120,000rpm	150,000rpm	60,000rpm	90,000rpm	36,000rpm
Bore diameter of front bearings		12mm	12mm	25mm	15mm	40mm
Rigidity	Axial (N/μm)	10N/μm	10N/μm	55N/μm	20N/μm	90N/μm
	Radial (N/μm)	20N/μm	20N/μm	55N/μm	30N/μm	120N/μm
Frequency Max. (Hz)		2,000Hz	2,500Hz	2,000Hz	1,500Hz	1,200Hz
at speed		117,500RPM	147,000RPM	35,500RPM	87,600RPM	9,700RPM
S1 kW		1kW	0.64kW	6.4kW	1.5kW	4.6kW
S6-40% kW		1.3kW	0.75kW	8.3kW	1.95kW	6kW
kW (Peak Power)		2.65kW	1.5kW	15kW	4.1kW	14kW
S1 Torque (Nm)		0.08Nm	0.04Nm	1.7Nm	0.16Nm	4.5Nm
S6-40% Torque (Nm)		0.1Nm	0.05Nm	2.2Nm	0.21Nm	5.9Nm
Tool Interface		D6/12	Collet 3~3.175mm	D14/23	D8/14	D22/38 HSK-C32
Spindle Cooling		Water cooling /Oil cooling				
Spindle Weight		4.5kg	4.1kg	15kg	12kg	25kg
Integral Encoder For Closed-Loop Control		N/A	N/A	N/A	N/A	Option
Coolant Through Shaft (CTS)		N/A	N/A	Option	Option	Option
Grease Lubrication.		Also available with grease lubrication. This lubrication leads to speed reduction.				
Flange Type		N/A	N/A	Option	N/A	Option



THG-80.01
THGZ-80.03
THG-100.01
THG-100.02
THG-120.02
THG-80.02
THG-100.03
THG-100.04
THG-120.15

Ø120mm High-speed grinding spindles Manual tool change



Type	THG-120.01(400V) THG-120.08(230V)	THG-120.14 (400V)	THG-120.17(400V) THG-120.18(230V)	THG-120.20(380V) THG-120.22(220V)	THG-120.21 (400V)	
Spindle Ø	120mm	120mm	120mm	120mm	120mm	
Maximum Speed (Oil-air lubrication)	42,000rpm	42,000rpm	36,000rpm	51,000rpm	45,000rpm	
Bore diameter of front bearings	40mm	40mm	45mm	30mm	45mm	
Rigidity	Axial (N/µm)	90N/µm	90N/µm	100N/µm	70N/µm	100N/µm
	Radial (N/µm)	120N/µm	120N/µm	130N/µm	100N/µm	130N/µm
Frequency Max. (Hz)	1,400Hz	1,400Hz	1,200Hz	1,700Hz	1,500Hz	
at speed	17,600RPM	35,700RPM	17,600RPM	29,700RPM	35,700RPM	
S1 kW	10kW	13kW	10kW	10kW	13kW	
S6-40% kW	13kW	16.9kW	13kW	12.5kW	16.9kW	
kW (Peak Power)	25kW	30.6kW	25kW	25kW	30.6kW	
S1 Torque (Nm)	5.4Nm	3.5Nm	5.4Nm	3.2Nm	3.5Nm	
S6-40% Torque (Nm)	7.1Nm	4.5Nm	7.1Nm	4.0Nm	4.5Nm	
Tool Interface	D22/38 HSK-C32	D22/38 HSK-C32	D28/43 HSK-C40	D16/28	D28/43 HSK-C40	
Spindle Cooling	Water cooling /Oil cooling					
Spindle Weight	25kg	25kg	25kg	25kg	25kg	
Integral Encoder For Closed-Loop Control	Option	Option	Option	Option	Option	
Coolant Through Shaft (CTS)	Option	Option	Option	Option	Option	
Grease Lubrication.	Also available with grease lubrication. . This lubrication leads to speed reduction.					
Flange Type	Option	Option	Option	Option	Option	



THG-120

Ø150mm High-speed grinding spindles Manual tool change



Type		THG-150.01(380V) THG-150.03(220V)	THG-150.02 (400V)	THG-150.06 (350V)	THG-150.07 (350V)
Spindle Ø		150mm	150mm	150mm	150mm
Maximum Speed (Oil-air lubrication)		36,000rpm	24,000rpm	42,000rpm	30,000rpm
Bore diameter of front bearings		50mm	65mm	40mm	65mm
Rigidity	Axial (N/µm)	130N/µm	130N/µm	90N/µm	130N/µm
	Radial (N/µm)	150N/µm	200N/µm	120N/µm	200N/µm
Frequency Max. (Hz)		1,200Hz	800Hz	1,400Hz	1,000Hz
at speed		13,500RPM	13,500RPM	17,600RPM	14,700RPM
S1 kW		15kW	15kW	10kW	23kW
S6-40% kW		20kW	20kW	13kW	30kW
kW (Peak Power)		50kW	50kW	25kW	61.2kW
S1 Torque (Nm)		10.6Nm	10.6Nm	5.4Nm	15Nm
S6-40% Torque (Nm)		14.1Nm	14.1Nm	7.1Nm	19.5Nm
Tool Interface		D28/43 HSK-C40	D36/63 HSK-C50	D22/38 HSK-C32	D36/63 HSK-C50
Spindle Cooling		Water cooling /Oil cooling			
Spindle Weight		43kg	43kg	43kg	55kg
Integral Encoder For Closed-Loop Control		Option	Option	Option	Option
Coolant Through Shaft (CTS)		Option	Option	Option	Option
Grease Lubrication.		Also available with grease lubrication. This lubrication leads to speed reduction.			
Flange Type		Standard	Standard	Standard	Option



THG-150

Ø170mm~Ø190mm High-speed grinding spindles Manual tool change



Type		THG-170.01(400V) THG-170.02(230V)	THG-170.06(380V)	THGN-170.01(230V) THGN-170.02(400V)	THGN-170.03 (380V)	THG-190.01 (400V)
Spindle Ø		170mm	170mm	170mm	170mm	190mm
Maximum Speed (Oil-air lubrication)		24,000rpm	24,000rpm	20,000rpm	20,000rpm	10,000rpm
Bore diameter of front bearings		65mm	65mm	70mm	70mm	80mm
Rigidity	Axial (N/μm)	150N/μm	150N/μm	180N/μm	180N/μm	200N/μm
	Radial (N/μm)	200N/μm	200N/μm	200N/μm	200N/μm	250N/μm
Frequency Max. (Hz)		800Hz	800Hz	667Hz	667Hz	667Hz
at speed		5,870RPM	9,860RPM	5,870RPM	9,860RPM	3,200RPM
S1 kW		18kW	30kW	18kW	30kW	15kW
S6-40% kW		23.4kW	39kW	23.4kW	39kW	19.5kW
kW (Peak Power)		58kW	106kW	58kW	106kW	N/A
S1 Torque (Nm)		29.3Nm	29.1Nm	29.3Nm	29.1Nm	44.8Nm
S6-40% Torque (Nm)		38.1Nm	37.8Nm	38.1Nm	37.8Nm	58Nm
Tool Interface		D36/63 HSK-C50	D36/63 HSK-C50	D36/68 HSK-C63	D36/68 HSK-C63	D36/68 D36/78 HSK-C63
Spindle Cooling		Water cooling /Oil cooling				
Spindle Weight		63kg	63kg	65kg	65kg	75kg
Integral Encoder For Closed-Loop Control		Option	Option	Option	Option	Option
Coolant Through Shaft (CTS)		Option	Option	Option	Option	Option
Grease Lubrication.		Also available with grease lubrication. This lubrication leads to speed reduction.				
Flange Type		Standard	Standard	Standard	Standard	Standard



THG-170



THGN-170



THG-190

Ø120mm~Ø170mm High-speed grinding spindles Manual tool change



Type	THGA-H120.01 (160V)	THGA-H120.02 (200V)	THGA-H120.03 (200V)	THGA-H130.01 (200V)	THGA-H170.01 (200V)	
Spindle Ø	120mm	120mm	120mm	130mm	170mm	
Maximum Speed (Oil-air lubrication)	80,000rpm	60,000rpm	80,000rpm	50,000rpm	30,000rpm	
Bore diameter of front bearings	25mm	30mm	25mm	40mm	70mm	
Rigidity	Axial (N/μm)	40N/μm	50N/μm	40N/μm	80N/μm	110N/μm
	Radial (N/μm)	50N/μm	60N/μm	50N/μm	80N/μm	140N/μm
Frequency Max. (Hz)	1,334Hz	1,000Hz	1,334Hz	834Hz	500Hz	
at speed	78,500RPM	59,500RPM	79,100RPM	39,400RPM	19,800RPM	
S1 kW	1.5kW	3kW	2.6kW	3.9kW	7.5kW	
S6-40% kW	2kW	4kW	3.4kW	5.1kW	9.8kW	
kW (Peak Power)	2.7kW	9.2kW	7.9kW	8kW	17kW	
S1 Torque (Nm)	0.18Nm	0.48Nm	0.29Nm	0.95Nm	3.6Nm	
S6-40% Torque (Nm)	0.24Nm	0.64Nm	0.37Nm	1.24Nm	4.7Nm	
Tool Interface	D15/25	D18/30	D15/25	D22/40	D35/65	
Spindle Cooling	Water cooling /Oil cooling					
Spindle Weight	10kg	13kg	10kg	32kg	42kg	
Integral Encoder For Closed-Loop Control	N/A	N/A	N/A	N/A	N/A	
Coolant Through Shaft (CTS)	N/A	N/A	N/A	N/A	N/A	
Grease Lubrication.	Also available with grease lubrication. This lubrication leads to speed reduction.					
Flange Type	N/A	N/A	N/A	N/A	N/A	



THGA-H120



**THGA-H130
THGA-H170**

Ø150mm High-speed grinding spindles Manual tool change



Type		THGD-M150.01 (155V)	THGD-M150.02 (220V)	THGD-M150.03 (230V)
Spindle Ø		150mm	150mm	150mm
Maximum Speed (Oil-air lubrication)		15,000rpm	24,000rpm	60,000rpm
Bore diameter of front bearings		35mm	25mm	25mm
Rigidity	Axial (N/µm)	70N/µm	40N/µm	55N/µm
	Radial (N/µm)	130N/µm	60N/µm	55N/µm
Frequency Max. (Hz)		200Hz	360Hz	2,000Hz
at speed		14,800RPM	20,900RPM	35,500RPM
S1 kW		3.2kW	4.5kW	6.4kW
S6-40% kW		4.2kW	5.9kW	8.3kW
kW (Peak Power)		11kW	11kW	15kW
S1 Torque (Nm)		2.1Nm	2.1Nm	1.7Nm
S6-40% Torque (Nm)		2.7Nm	2.7Nm	2.2Nm
Tool Interface		D22/34	D22/34	D14/23
Spindle Cooling		Water cooling /Oil cooling		
Spindle Weight		32kg	32kg	24kg
Integral Encoder For Closed-Loop Control		N/A	N/A	N/A
Coolant Through Shaft (CTS)		N/A	N/A	Option
Grease Lubrication.		N/A	N/A	N/A
Flange Type		N/A	N/A	N/A



THGD-M150

Ø220mm~240mm High-speed grinding spindles Manual tool change



Type		THGA-220.03 (380V)	THGA-220.05 (380V)	THGA-220.06 (380V)	THGS-240.02 (380V)
Spindle Ø		220mm	220mm	220mm	240mm
Maximum Speed (Oil-air lubrication)		6,000rpm	6,000rpm	6,000rpm	5,000rpm
Bore diameter of front bearings		90mm	90mm	90mm	110mm
Rigidity	Axial (N/μm)	230N/μm	230N/μm	230N/μm	400N/μm
	Radial (N/μm)	240N/μm	240N/μm	240N/μm	300N/μm
Frequency Max. (Hz)		200Hz	200Hz	200Hz	260Hz
at speed		3,000RPM	1,500RPM	3,000RPM	3,500RPM
S1 kW		24kW	16kW	24kW	23.6kW
S6-40% kW		31.2kW	21kW	31.2kW	30kW
kW (Peak Power)		55kW	N/A	55kW	N/A
S1 Torque (Nm)		76.4Nm	102Nm	76.4Nm	66Nm
S6-40% Torque (Nm)		99.3Nm	134Nm	99.3Nm	84Nm
Tool Interface		Standardised or according to customer's specifications.			
Spindle Cooling		Water cooling /Oil cooling			
Spindle Weight		160kg	165kg	150kg	218kg
Integral Encoder For Closed-Loop Control		Option	Option	Option	Option
Coolant Through Shaft (CTS)		Option	Option	Option	Option
Grease Lubrication.		Also available with grease lubrication. This lubrication leads to speed reduction.			
Flange Type / Square Type		Standard	Standard	Option	Square



THGA-220



THGS-240

Cutting speed for spindle speed (m/s)

Cutting speed for spindle speed (m/s)															
Type / Tool interface / Maximum Speed		Cutting speed for spindle speed (m/s)													
THGZ-80 180,000rpm		56													
THGZ-80.03 D4/8 150,000rpm		47													
THG-80 D6/12 120,000rpm		38													
THG-100.02 D8/14 90,000rpm			38	47	61										
THG-100.01/THG-100.03 D14/23 60,000rpm					41	50	63	79							
THG-120.22 D16/28 51,000rpm						43	53	67	85						
THG-120.01/THG-120.08/THG-120.14 D22/38 42,000rpm							44	55	70	88					
THG-120.21 D28/43 45,000rpm							47	59	75	94					
TH-120.17/THG-120.18 D28/43 36,000rpm								39	50	63	79				
THG-150.01/THG-150.03 D28/43 30,000rpm								39	50	63	79				
THG-150.01/THG-150.03 D36/63 24,000rpm									40	50	63	79			
THG-150.06/THG-150.07 D36/63 30,000rpm									50	63	79	99	125		
THG-170.01/THG-170.02/THG-170.06 D36/63 24,000rpm									40	50	63	79	101		
THGN-170.01/THGN-170.02/THGN-170.03 D36/68 20,000rpm										41	52	65	83	104	
THG-190.01 D36/68 10,000rpm											21	26	33	42	52
Grinding wheel dimensions (mm)	E (mm)	6	8	10	13	16	20	25	32	40	50	63	80	100	
	F (mm)	8	10	10	13	16	20	25	25	32	40	40	40	40	
	G (mm)	2	3	3	4	6	8	10	13	16	20	25	32	36	
Grinding mandrel diameter Ø (mm)	K	4	5	6	8	10	13	16	20	25	32	40	50	56	
Grinding quill		Cemented					Grinding quill with fitting bolt / For grinding wheels on threaded pin				Grinding quill with nut				

Interface	K [mm]	H [mm]	Grinding wheel E x F [mm]	G[mm]	Grinding wheel fixation	Ho[mm]
D6/12	4	15	6 X 8	2	Cemented	4
D8/14	5	20	8 X 10	3	Cemented	6
	6	25	10 X 10	3	Quill with fitting bolt / Grinding wheels on threaded pin	6
	8	32	13 X 13	4		6
D14/23	6	20	10 X 10	4	Cemented	8
	10	25	16 X 16	6	Quill with fitting bolt / Grinding wheels on threaded pin	8
	16	32	25 X 25	10		10
D16/28	10	25	16 X 16	6	Quill with fitting bolt / Grinding wheels on threaded pin	10
	13	32	20 X 20	8		10
	16	40	25 X 25	10		10
D22/38	13	32	20 X 20	8	Quill with fitting bolt / Grinding wheels on threaded pin	12
	20	40	32 X 25	13		12
		25	50	40 X 32	16	Grinding quill with nut
D28/43	16	40	25 X 25	10	Quill with fitting bolt / Grinding wheels on threaded pin	12
	20	50	32 X 25	13		12
		32	63	50 X 40	20	Grinding quill with nut
D36/63	25	50	40 X 32	16	Grinding quill with nut	15
	32	63	50 X 40	20		15
	50	100	80 X 40	32		15
D36/68	32	63	50 X 40	20	Grinding quill with nut	15
	40	80	63 X 40	25		15
	56	125	100 X 40	36		15

Imbalance

A large tool imbalance leads to poor precision and accidents.

Correct imbalances in all tools

Critical Speed

Do not use inappropriate tools like those with critical speed in the vicinity of the number of rotations used. This is extremely dangerous.

Centrifugal Force Exerted on the Tools

The grindstone has a weak tensile strength. This will cause damage if the centrifugal force from high-speed rotation is too great.

Use a grindstone with a margin greater than the maximum circumferential speed specified by the grindstone manufacturer.

Ø49.5mm~Ø60mm Dressing Spindles Manual tool change



Type		THGA-V50.01 (200V)	THGA-60.01 (220V)	THGL-60.01 (130V)
Spindle Ø		49.5mm	60mm	60mm
Built-in Spindle Motor		Asynchronous motor		
Maximum Speed	Grease	N/A	N/A	12,000rpm
	Oil-Air	18,000rpm	24,000rpm	N/A
Frequency Max. (Hz)		334Hz	400Hz	200Hz
at speed		18,000rpm	19,600RPM	11,700RPM
S1 kW		0.1kW	0.45kW	0.26kW
S1 Torque (Nm)		0.05Nm	0.21Nm	0.21Nm
Tool Interface / Grinding Wheel Flange		M6 X P1.0	External Taper 1/5	
		N/A	Grinding Wheel Flange Contact Face Φ 56mm	
		Shaft Ø 12mm	Grinding Wheel Flange Centering Φ 40mm	
Rotational Direction		Left or Right		
Spindle Cooling		N/A	N/A	N/A
Spindle Weight		2.2kg	3kg	4kg
Integral Encoder For Closed-Loop Control		N/A	N/A	N/A
Built-In AE Sensor		N/A	N/A	N/A
Grease Lubricated		N/A	N/A	Standard
Flange Type		Standard	Standard	N/A



THGA-V50.01



THGA-60.01

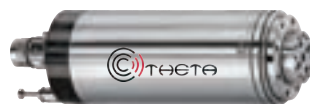


THGL-60.01

Ø72mm~Ø110mm Dressing Spindles Manual tool change



Type		THGZ-72 (170V)	TTGZ-72.01 (300V)	TTGZ-72.02 (110V)	TTGD-110.01 (200V)
Spindle Ø		72mm	72mm	72mm	110mm
Built-in Spindle Motor		Asynchronous motor	Synchronous motor		
Maximum Speed	Grease	12,000rpm	6,000rpm	12,000rpm	9,000rpm
	Oil-Air	N/A	N/A	N/A	N/A
Frequency Max. (Hz)		400Hz	200Hz	400Hz	300Hz
at speed		11,800RPM	6,000RPM	10,000RPM	6,000RPM
S1 kW		1.2kW	1.8kW	1kW	1.8kW
S1 Torque (Nm)		0.96Nm	3Nm	1Nm	2.9Nm
Tool Interface / Flat Contact Face Φ		Standardised or according to customer's specifications.			
Tool Interface / Centering Diameter		Standardised or according to customer's specifications.			
Rotational Direction		Left or Right or Left&Right			
Spindle Cooling		Compressed Air	Water cooling / Oil cooling	Compressed Air	Water cooling / Oil cooling
Spindle Weight		5kg	5kg	5kg	14kg
Integral Encoder For Closed-Loop Control		N/A	N/A	N/A	Option
Built-In AE Sensor		Option	Option	Option	Option
Grease Lubricated		Standard	Standard	Standard	Standard
Flange Type / Square Type		N/A	N/A	N/A	Square



THGZ-72
TTGZ-72

THOA-008 2.5 Oil-Air Lubrication System



THOA-008 3.0 Oil-Air Lubrication System





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