

AIR TURBINE SPINDLE

HTS Series



Max.

150,000 min⁻¹ (0.5MPa)

Max. Power

25W

High Speed 150,000min⁻¹ Suitable for Small Diameter Milling



Large Variety of Tapers Available

SHANK
M2040 (Straight), BT30 / 40 / 50
HSK E25 / 32 / 40 / 50
HSK A63 / F63

Air Turbine

Air Turbine mechanism has extremely low heat generation. Only a minimal warm up time is required ex.1-2min.

Collet Chuck
Max. ϕ 4.0mm



▼ AIR TURBINE SPINDLE

HTS Series



Max. 150,000min⁻¹ (0.5MPa)

Max. Power 25W

Negligible spindle expansion

- Air Turbine mechanism has extremely low heat generation.
- Only a minimal warm up time is required ex. 1-2 min.
- Up to cutting tool R x 0.1 depth of cut is possible.

Highly stable milling conditions are possible even with very small diameter cutting tools

- Usable max. cutting tool diameter :
Ball End Mill R0.5, Square End Mill ø1

Dramatically shorten mold cavity machining time

Spindle Runout : Within 1 μm

Collet Chuck : Max. ø4.0mm

Air Turbine Spindle HTS1501S-BT40

Collet Chuck CHA-4.0

Air Line Kit AL-0304


OPTION → Refer to P.13

OPTION → Refer to P.13

*Other collet sizes are available.

HTS Series Connection Drawing

Clean, lubricated, and regulated air is required for HTS Series spindles. Please refer to the diagram to the right for proper connections. AL-0304 incorporates a filter, regulator and lubricator to provide the appropriate air.



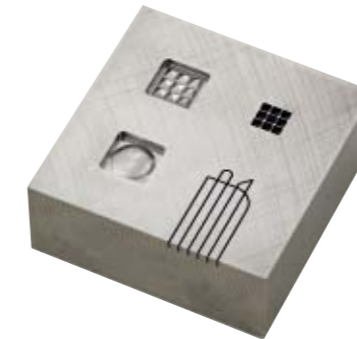
HTS Series ← Air Line Kit AL-0304 ← Compressor

Caution

- Do not rotate the machining center's main spindle with the HTS1501 spindle installed.

HTS1501 Series

Case Studies <Rough mill for deep cutting, High-speed feeding> F=2,000mm/min (Rough cutting)



Material	NAK80 (HRC 40)
Motor Speed	150,000min ⁻¹
Usable Tool	R 0.2 x 2L Ball End Mill
Rough Cutting	Ad 0.03 x Rd 0.04mm
Work Feed	2,000mm/min
Finishing Cutting	Ad 0.01 x Rd 0.01mm
Work Feed	1,500mm/min
Total Time	4h 31min

HTS1501 Series

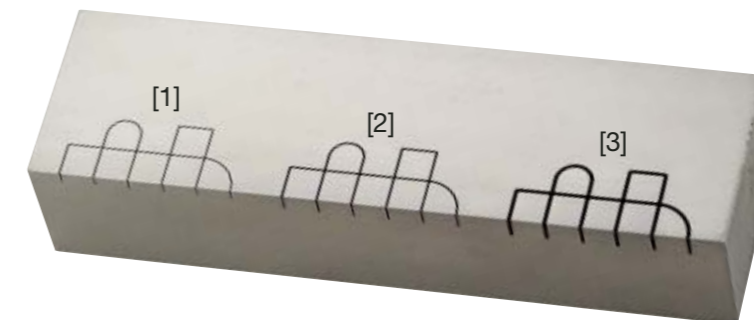
Case Studies <High-speed rotation and feeding> F=2,250mm/min



Material	DC53 (HRC 60)
Usable Tool	R 0.1 x 0.5 cBN
Motor Speed	150,000min ⁻¹
Work Feed	2,250mm/min
Cutting Depth	Ad 0.005 x Rd 0.01mm
Total Time	3h 30min (42min / 1pc.)

HTS1501 Series

Case Studies <Rib processing> F=2,000mm/min



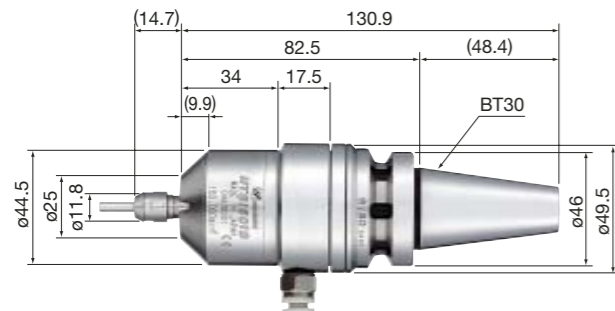
Material	NAK80 (HRC 40)		
Motor Speed	150,000min ⁻¹		
Sample No.	[1]	[2]	[3]
Usable Tool	ø0.2 x 2	ø0.3 x 3	ø0.4 x 4
Cutting Depth	Ad 0.003mm	Ad 0.005mm	Ad 0.007mm
Work Feed	2,000mm/min		
Total Time	29min. 50sec.	27min. 43sec.	26min. 22sec.

Caution : Do not rotate the machining center's main spindle with the HTS1501 spindle installed.

Air Turbine Spindle

HTS1501S-BT30

Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	1,030g



CAT. No. **8296** Model **HTS1501S-BT30**

< Standard Equipment · Accessories >

- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

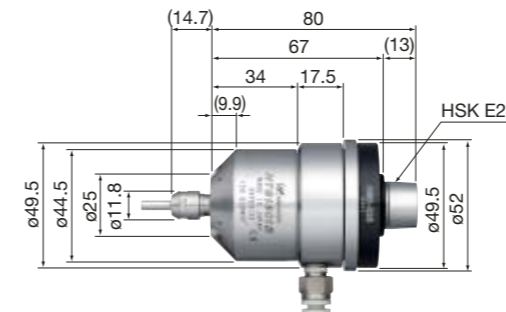
< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

Air Turbine Spindle

HTS1501S-HSK E25

Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	760g



CAT. No. **8300** Model **HTS1501S-HSK E25**

< Standard Equipment · Accessories >

- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

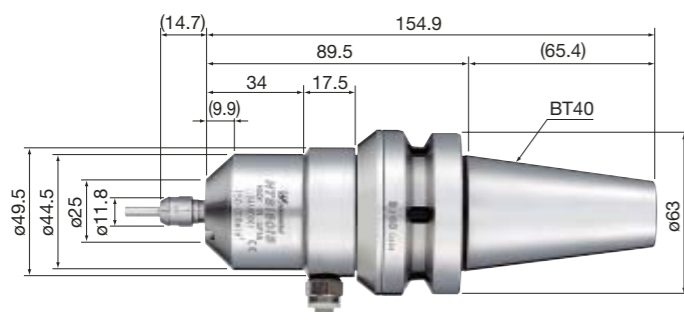
< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

Air Turbine Spindle

HTS1501S-BT40

Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	1,700g



CAT. No. **8297** Model **HTS1501S-BT40**

< Standard Equipment · Accessories >

- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

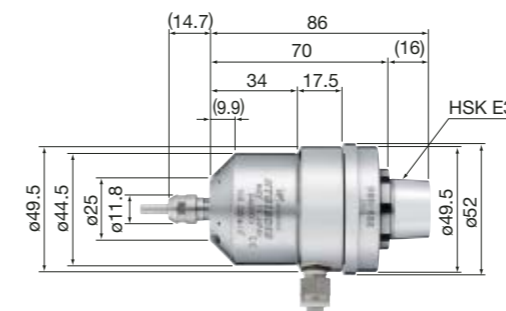
< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

Air Turbine Spindle

HTS1501S-HSK E32

Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	790g



CAT. No. **8283** Model **HTS1501S-HSK E32**

< Standard Equipment · Accessories >

- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

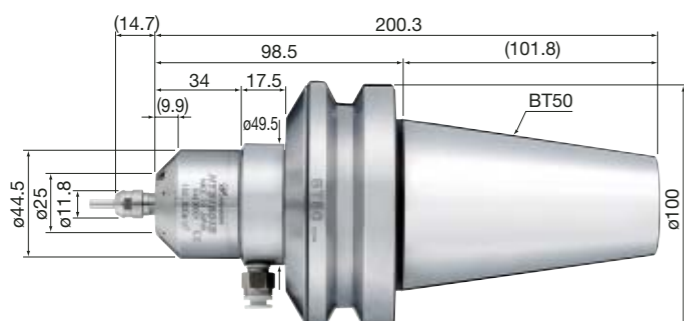
< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

Air Turbine Spindle

HTS1501S-BT50

Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	4,500g



CAT. No. **8281** Model **HTS1501S-BT50**

< Standard Equipment · Accessories >

- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

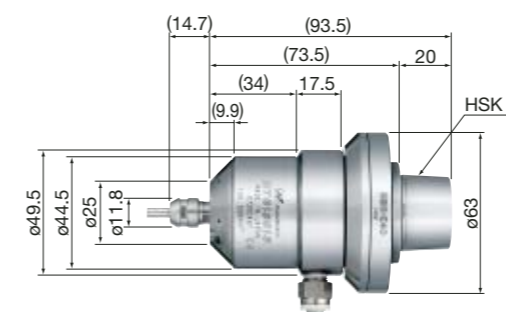
< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

Air Turbine Spindle

HTS1501S-HSK E40

Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	980g



CAT. No. **8279** Model **HTS1501S-HSK E40**

< Standard Equipment · Accessories >

- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

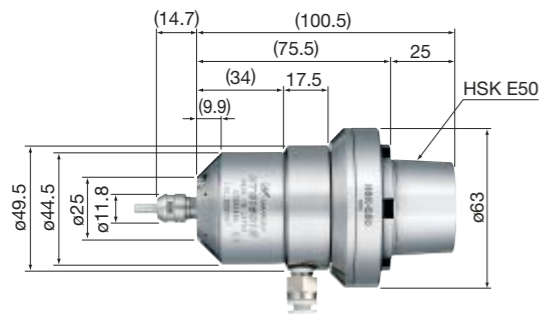
< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

⚠ Caution : Do not rotate the machining center's main spindle with the HTS1501 spindle installed.

Air Turbine Spindle

HTS1501S-HSK E50



Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	1,070g

CAT. No. **8280** Model HTS1501S-HSK E50

< Standard Equipment · Accessories >

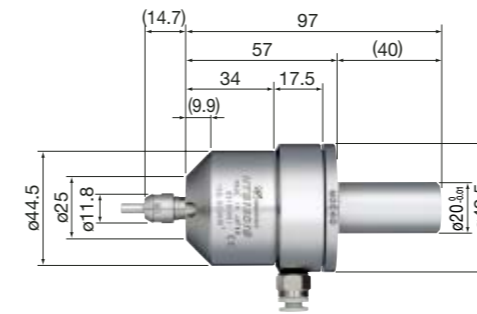
- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

Air Turbine Spindle

HTS1501S-M2040 (Straight Type)



Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	710g

CAT. No. **8299** Model HTS1501S-M2040

< Standard Equipment · Accessories >

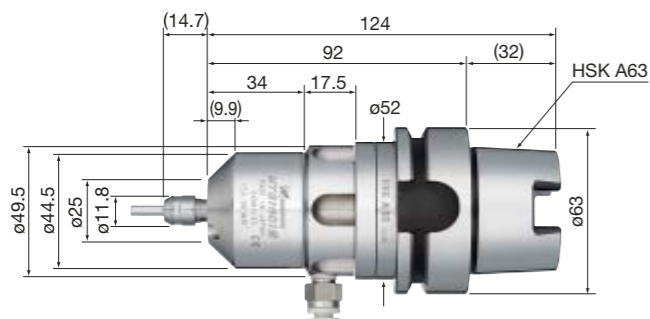
- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

Air Turbine Spindle

HTS1501S-HSK A63



Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	1,400g

CAT. No. **8298** Model HTS1501S-HSK A63

< Standard Equipment · Accessories >

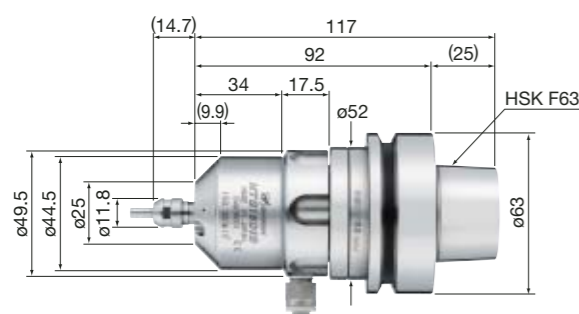
- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

Air Turbine Spindle

HTS1501S-HSK F63



Max. Power	Speed	Spindle Runout	Weight
25W	150,000min ⁻¹ (0.5MPa)	Within 1 μm	1,380g

CAT. No. **8282** Model HTS1501S-HSK F63

< Standard Equipment · Accessories >

- Collet Chuck ø4.0mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6mm x 4m

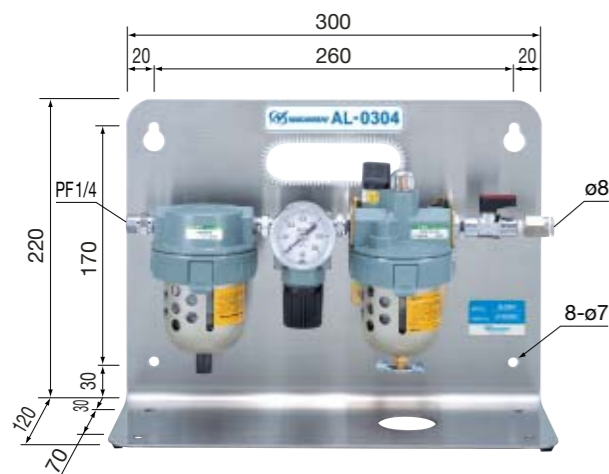
< Optional >

Collet Chuck (CHA Group) : ø0.5~ø4.0mm See Page 13 for details

► AIR LINE KIT, PARTS

Air Line Kit

AL-0304 (For ø6mm, ø8mm Hose)



■ The AL-0304 provides simple, automatic conditioning of the air supplied to NAKANISHI air motors. The filter removes water and other contaminants. The regulator maintains to proper air pressure and the lubricator ensures proper oil flow to the motor and spindle. In high humidity areas it is recommended to use an air dryer between the compressor and AL-0304.

Filter Mesh 0.3 μm

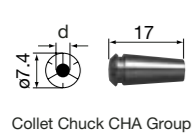
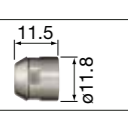
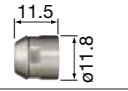
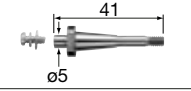
CAT. No.	1542	Model	AL-0304
----------	-------------	-------	----------------

< Standard Equipment · Accessories >

- Air Filter • Air Regulator • Air Pressure Gauge • Lubricator
- Air ON-OFF Valve • Hose for Piping (K-275) : 2m
- Lubricating Oil (K-211) : 1pc. • Reducer

*Reducer (ø8 - ø6mm Adaptor) is provided.

■ Parts

Product	CAT. No.	Model	Inside Diameter : ød	Fit to
 Collet Chuck CHA Group	91492	CHA-2.35	ø2.35	HTS series · SMS series *High precision type
	91430	CHA-3.0	ø3.0	
	91493	CHA-3.175	ø3.175	
	91440	CHA-4.0	ø4.0	
	—	CHA-□□	ø0.5, ø0.6, ø0.7, ø0.8, ø0.9	
			ø1.1, ø1.2, ø1.3, ø1.4, ø1.7, ø1.8, ø1.9 ø2.1, ø2.2, ø2.3, ø2.4, ø2.6, ø2.7, ø2.8, ø2.9 ø3.1, ø3.2, ø3.3, ø3.4, ø3.6, ø3.7, ø3.8, ø3.9	
			ø1.0, ø1.5, ø2.0, ø2.5, ø3.5	
			ø1.6	
			ø3.0AA*	
	91494	CHA-3.0AA	ø3.0AA*	
91496	CHA-3.175AA	ø3.175AA*		
91495	CHA-4.0AA	ø4.0AA*		
	2102	CHN-A	Chuck Nut for Collet Chuck (CHA)	SMS series
	2159	CHN-AA	Chuck Nut for Collet Chuck (CHA)	HTS series
	2137	AGM-01A	Grindstone Axis Run-out Accuracy : Within 0.02 mm For Grindstone with ø5.0 mm I.D.	SMS series

* : For right hand (cw) rotation only.