



# THôT Technologies, Inc.

## Model 42000 General Specifications

The following specifications apply to all Model 420XX tools. These specifications are intended as a general guideline and are subject to change. Consult the factory for exact and current information.

### **Physical Size and Weight:**

Model 42000 Equipment Rack:	155 lbs (70.5 kg)* 22"W x 33"D x 41"H (56 x 84 x 105cm)
Model 42010 Compact Spin Stand:	60 lbs (27.3 kg)* 12"W x 23"D x 15"H (31 x 59 x 38cm)
Model 42020 Engineering Spin Stand:	85 lbs (36.7 kg)* 16"W x 25"D x 15"H (41 x 64 x 38cm)
Model 42030 Integrated Spin Stand: (Note: Equipment rack included)	190 lbs (132 kg)* 22"W x 39"D x 51"H (56 x 100 x 130cm)
Model 42040 Defect Analysis Station:	145 lbs (66 kg)* 25"W x 25"D x 25"H (64 x 64 x 64cm)

\* Weights are approximate and may vary with optional features.

### **Power Requirements:**

110 to 120 VAC, 50/60 Hz, 10 A, single phase.

### **Air Requirements:**

CDA (Clean Dry Air), 85 to 120 psig @ 13.5 scf/hour\*\*  
(6.0 to 8.5 kg/cm<sup>2</sup> (0.6 to 0.85 MPa) @ 385 liters/hour)

\*\* Elastomer chuck, vacuum chuck will require approximately 1.5X higher volume.

### **Disk Sizes and Materials:**

All common disk sizes. Maximum OD (Outer Diameter) = 8".  
ID sizes include: 40mm, 25mm, 20mm, 15mm, 12mm, 10mm, 8mm, 7mm & 5mm.  
Materials include any reflective surface including but not limited to:  
Aluminum, carbon, ceramic, glass, plastic, nickel, composites, etc.

### **Operating Principle:**

Laser Doppler Vibrometry

### **Measurement Capabilities:**

The following specifications are highly dependent on disk conditions of surface finish and ID mounting surface morphology:

### **Defects:**

Optical Glide and Optical Certification:

Defect detection:	15% of beam size
Defect measurement:	0.1 to 1000Å depending on selected range. Within accuracy for defects $\geq$ beam size. Defects $<$ beam size proportional to beam size.
Measurement accuracy:	+/- 2 Angstrom (track dependent).

Nano-Scan

Defect detection:	2.5% of beam size
Defect measurement:	Nano-asperities, nano-pits down to 0.1µm spatial size.
Measurement accuracy:	+/- 4 Angstrom (track dependent).

### **Morphology:**

Runout (flatness):	Maximum = 100 µm Minimum = 5 Angstroms
Macro-waviness:	2 to 5 mm wavelength = $\pm$ 25 Angstroms
Waviness:	400 µm to 2 mm wavelength = $\pm$ 5 Angstroms
Micro-waviness:	100 to 400 µm wavelength = $\pm$ 0.5 Angstroms
Nano-waviness:	50 to 100 µm wavelength = $\pm$ 0.25 Angstroms
Macro-roughness:	25 to 50 µm wavelength = $\pm$ 0.1 Angstroms
Roughness:	15 to 25 µm wavelength = $\pm$ 0.075 Angstroms
Micro-roughness:	5 to 15 µm wavelength = $\pm$ 0.05 Angstroms
Nano-roughness:	0.5 to 5 µm wavelength = $\pm$ 0.03 Angstroms
Ra, Rq & Rp:	10 µm <sup>2</sup> equivalent = $\pm$ 0.05 Angstroms

### **Test Times:**

Test times are dependent on user parameters including skip track, lens selection, rotation speed, etc. Standard program for Micro-Waviness is 10µm track spacing with a 2µm lens and requires approximately 15 seconds.

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