

# BRIGHTHAWK NT100 and HV160

## X-ray Tube and High Voltage Power Supply Unit

### Microfocus 160 kV sealed X-ray source

#### Features and Benefits

- **High brightness**
- **High magnification**
- **100 nm feature recognition**
- **Wide angle exposure**
- **Zero maintenance**
- **Sealed transmission tube technology**

General	
Target technology	Tungsten transmission target
Electron source	LaB <sub>6</sub>
Tube kVp range	30kV (min) to 160 kV (max)
Tube current range	0 to 400 $\mu$ A
Maximum tube power	20 W (125 $\mu$ A target current)
kVp stability	+/-0.1 kV
Target material	+/-0.2 $\mu$ A
Duty cycle	1
Filter material	0.2 mm carbon
Radiation glancing width	From point source
Radiation irradiation time	From a few seconds up to 20 hours
Radiation regulating method	Nordson HVPSU and associated control systems
Tube Collimation	None
Operating temperature range	10° C to 30° C
Beam movement	Internal magnetic beam shift
Beam characteristics	
Beam orientation	Uniform cone
Cone beam angle	175°
Min. feature recognition	0.1 $\mu$ m in POWER mode
JIMA chart resolution	See page 2
Min. focus to object distance	0.5 mm
Focal spot drift (maximal distance)	4 $\mu$ m (after thermal stabilisation)
Connections & cables	
Tube supply voltage	24 V <sub>dc</sub> at 8 A
HVPSU mains supply voltage	240 V <sub>ac</sub> single phase
HVPSU power	345 W (max)
HVPSU to tube: control & data	Optical (digital)
HVPSU to tube: HV power	Ø32 mm HV cable
Safety interlock	Switched mains
Mechanical	
Tube external dimensions	362 × 233 × 417 mm (see page 2)
Tube weight	33 kg
HVPSU external dimensions	230 × 448 × 538 mm (see page 2)
HVPSU weight	50 kg



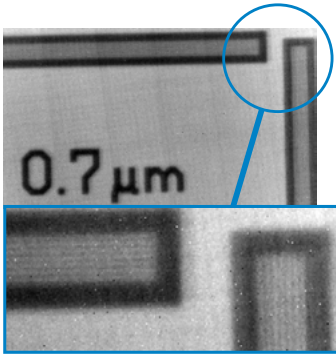
The BRIGHTHAWK NT100 is a performance-leading microfocus X-ray tube comprising proprietary technology to achieve a high brightness output. The tube consists of a LaB<sub>6</sub> crystal source for generation of the electron beam, a magnetic beam steering system, and a tungsten target for X-ray photon emission. The components are mounted in a precision-engineering housing and held at ultra-low vacuum levels for long-life performance.

Following on from the successful 3<sup>rd</sup> generation tube, this 4<sup>th</sup> generation of tube across a wide energy range from 30 kV to 160 kV is highly configurable through a software interface to the internal control board, which is connected via an optical interface (through an Ethernet converter).

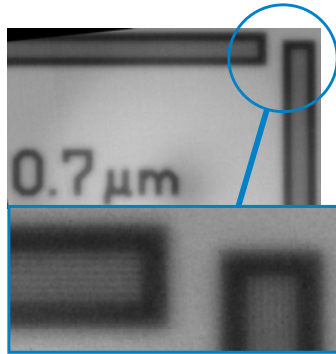
To complement the X-ray tube, the BRIGHTHAWK HV160 is a high voltage power supply unit which has been developed to maximise tube performance and lifetime by optimizing the current draw from the source according to the requested kV and W. It offers a unique level of stability to the tube, ensuring long runs at a consistent brightness level and low spot drift. The tube and power supply are connected using a High Voltage cable and digital control interface.

# BRIGHTHAWK NT100 and HV160

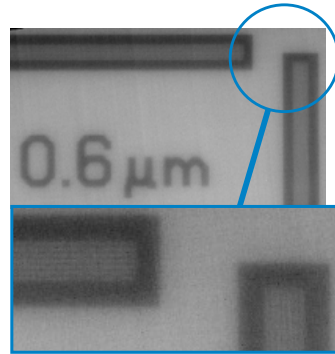
JIMA Resolution. Operating voltage	Typical @min.power	Typical @max.power	Best achieved
40kV	0.7	0.7	0.6
70kV	0.7	0.7	0.7
100kV	0.7	0.7	0.7
130kV	0.6	0.6	0.6
160kV	0.6	0.6	0.5



40kV, 2.0W. Onyx detector. Unfiltered. POWER mode.



100kV, 6.0W. Onyx detector. Unfiltered.



160kV, 20W. Onyx detector. Unfiltered.

For more information, speak with your Nordson representative or contact your Nordson regional office

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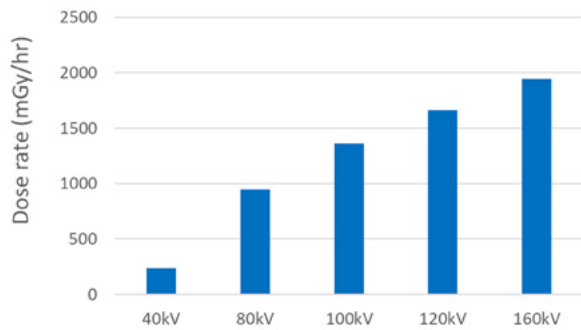
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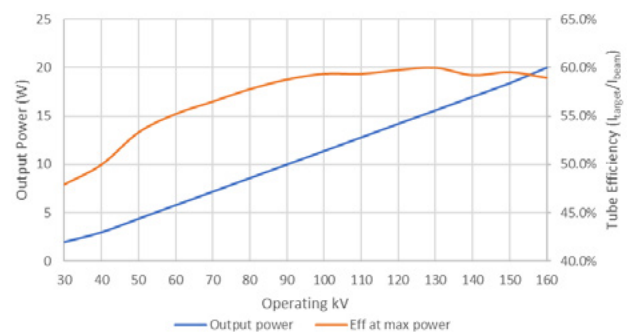
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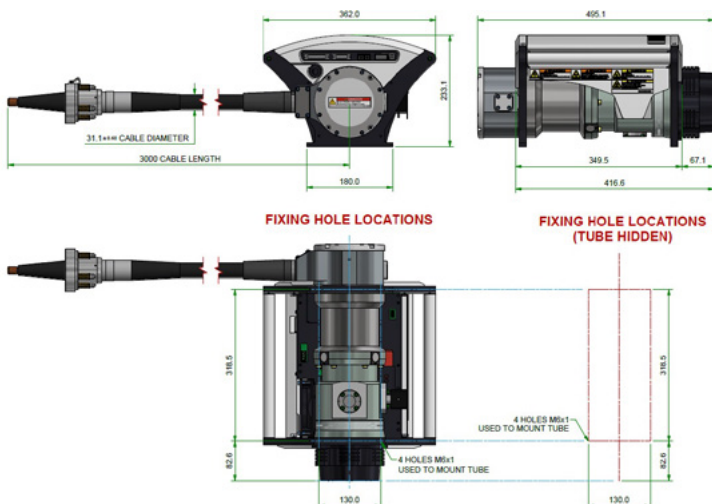
## Typical X-ray dose rate at FDD 450mm 75uA target current



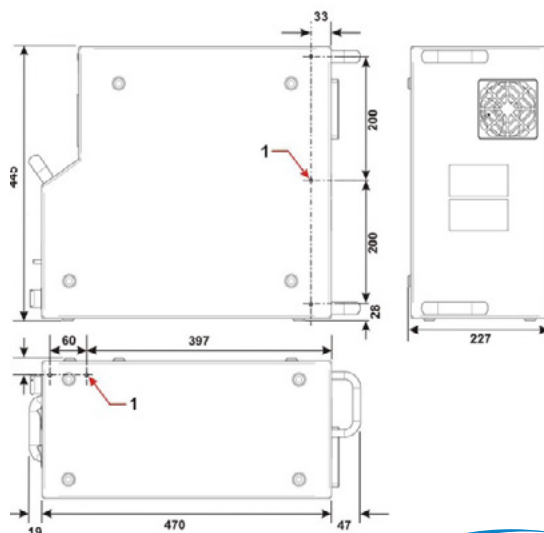
## Output power and tube Efficiency



## BrightHawk NT100 dimensional specifications



## HV160 HVPSU dimensional specifications



1: M5x0.8 threaded bushes for mounting bracket (5 off) 10mm maximum penetration. All dimensions in mm.

[www.nordson.com/TestInspect](http://www.nordson.com/TestInspect)

Specifications subject to change without notice

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TEST & INSPECTION