

Nipscan Technical Specifications

Equipment: Nipscan V3.0 series

Function:

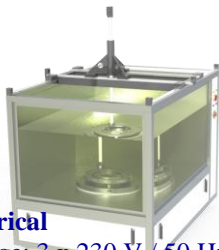
Ultrasonic / eddy current test system for non contact and contact contour following of surface profiles of critical (aircraft engine) components.

This system provides for clamping, rotation, contour following and data registration of critical components. Purpose of this scanning equipment together with the applied NDT-discipline is to detect material imperfections that have been introduced during the production process as well as in case of intensive use.

Delivery description of a standard NIPSCAN

- Stainless steel frame with two safety-glass windows; equipped with a 6-axis X-, Y-, Z-, A-, B- and C-axis manipulation system and safety sensors.
- A 700mm diameter turntable optional equipped with a computer controlled 3 jaw chuck. (option Dia 900mm)
- 4 leveling legs with vibration dampers and a 3-legged turntable system to be placed directly on the shop floor.
- Integrated electrical cabinet with relays, switches, circuit breakers, power supplies, motor drivers and motion controller.
- A pneumatic distribution unit with valves, air pressure regulator, sensor and filter system.
- A water treatment system with pressure gauge, a coarse- and fine filter unit, skimmer, drain- and supply pipes with water circulation pump, water level detectors and a water heater.(option)
- Desk with a high resolution monitor, color laser printer, built in industrial PC according to the latest standards.
- UT instrument.(depends on customers demands)
- Eddy current inspection instrument.(depends on customers demands, optional)
- Remote control with emergency stop.
- Xpscan UT software package for programming, system control and data acquisition.
- Front panel of the immersion tank is equipped with main switch, emergency stop and turntable seal leakage alarm indicators.
- Ultrasonic and eddy current sensors, mirrors including the required cables. (optional)
- Machine protection panels all around the system.
- Documentation of the system in English, user manual, software manual and technical manual.





Specifications of applicable supplies

Electrical

Voltage: 3 x 230 V / 50 Hz / 25A with neutral and ground (PE)

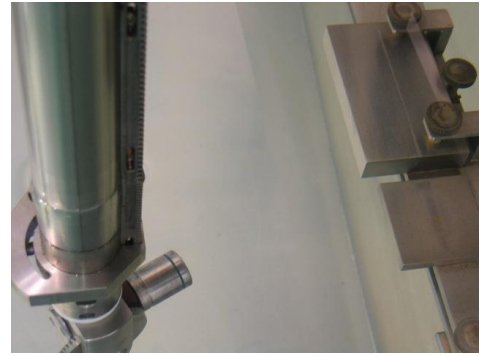
Consumption: max. 6 kVA

Pneumatics

Pressure: min. 6 bar required for good system operation.

Consumption: max. 300 l/min (peak value)

Medium : filtered, dry, oil free compressed air (This is only a recommendation, the pneumatic system has its own filter/reduction unit with condensate tap).



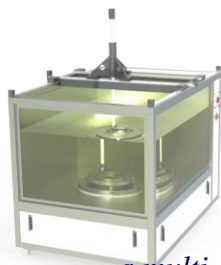
Water

Normal (drinking) tap water 1", for the supply. 2-3" drain diameter for the waste water.

Foundation requirements:

The machine must be placed on a concrete floor with a load of at least 1000 kg/m². The machine must be placed on its isolated 4 + 3 feet.





NIPSCAN

a multi axes computer controlled ultrasonic immersion scanning system

NIPSCAN HARDWARE SPECIFICATIONS (standard with 700mm chuck jaw)

IMMERSION TANK AND WATER SYSTEM

Inner tank dimensions LxWxH	1800 x 1400 x 1000 mm
Outer tank dimensions LxWxH	2250 x 1600 x upto 3000 mm
Desk dimensions LxWxH	1800 x 900 x 750 mm
Bottom and two side walls	Stainless steel
Two side walls	Safety glass, 30 mm
Water filter pump capacity	2000 l/hr.
Water filter grain	25 micron, 2 filters
Water level pilot	adjustable to any level
Weight of the machine	± 1400 Kg
When filled with water (90%)	± 3200 Kg

GANTRY-SYSTEM X, Y-AXES

Travel distance <u>X-axis</u>	1400 mm
Motors 4	Air beared, linear μ stepper
Position accuracy	0,1 mm/m
Resolution	0,004 mm (open loop)
Repeatability	0,002 mm
Backlash	0,004 mm
X-axis	
Position accuracy	0,1 mm/m
Resolution	0,01 mm (open loop)
Repeatability	<0,01 mm
Backlash	0,01 mm
Velocity	150 mm/sec max.
Acceleration	150 mm/sec ² max.
Calibration switch repeatability	<0,005 mm
Limit switches	both ends minus 40 mm

Travel distance <u>Y-axis</u>	1100 mm
Motors 3	Air beared, linear μ stepper
Position accuracy	0,1 mm/m
Resolution	0,004 mm (open loop)
Repeatability	0,002 mm
Backlash	0,004 mm

Y-axis	
Position accuracy	0,1 mm/m
Resolution	0,01 mm (open loop)
Repeatability	<0,01 mm
Backlash	0,01 mm
Velocity	150 mm/sec max.
Acceleration	250 mm/sec ² max.
Calibration switch repeatability	<0,005 mm
Limit switches	both ends minus 40 mm

Z-AXIS

Travel distance <u>Z-axis</u>	900 mm
Motor	Stepper with gearbox
Z-axis	
Position accuracy	0,1 mm/m
Resolution	0,01 mm (open loop)
Repeatability	<0,01 mm
Backlash	0,02 mm
Velocity	150 mm/sec max.
Acceleration	250 mm/sec ² max.
Calibration switch repeatability	<0,01 mm
Limit switches	both ends

TRANSDUCER ANGULATION UNIT

Range Primary <u>(B) axis</u>	270°
Motor	Stepper with gearbox 1:80
B-axis	
Position accuracy	0,05°
Resolution	0,01°
Repeatability	0,02°
Backlash	0,10°
Velocity	45°/sec
Acceleration	45°/sec ²
Range Secondary <u>(A) axis</u>	380° (Gimble/Swivel)
Motor	Stepper with gearbox 1:100
A-axis	
Position accuracy	0,05°
Resolution	0,01°
Repeatability	0,02°
Backlash	0,05°
Velocity	45°/sec
Acceleration	45°/sec ²

TURNTABLE

Diameter	700-1250 mm
Weight (excl. adaptor)	200 kg
Max. axial load	850 kg
Wobble (fixture)	0,04 mm
Concentricity (fixture)	0,04 mm
Chuck accuracy	0,1mm
Parallelism to X and Y axis	0,1 mm/m
Perpendicular to Z-axis	0,05°
Motor	Direct drive, 3 phase
Speed max.	1 RPS
Resolver resolution	614.400 p/rev
Resolver accuracy	± 30 ARC-sec
Repeatability	0,005°
Backlash	<0,002°

AIR SUPPLY

Maximum pressure	10 bar
Minimum pressure	6 bar

ELECTRICAL POWER

Nom.	4 kW
Max	6 kW
	3 phase 380/220V 50Hz

SYSTEM CONTROLLER

Pentium IV, 4GB RAM, 500 GB Hard disk
24" LCD monitor
Interface board for UT instrument (Socomate USPC7100/RPR50 vAmsterdam or optional)
7 axis Ethernet motion controller
Remote control with LED display, Joystick, & position wheel