



PEPS II-VX installed on a Nanoform® X

PEPS II-VX installed on a Freeform® L

PEPS® II-VX

Active on machine vibration cancellation and precision leveling system

PEPS® II-VX is a digital non-contacting, height control and active vibration cancellation system. A version ideally suited for ultra precision machining, was jointly developed by Precitech and the vibration experts at TMC. It is exclusively available as a retrofit on Precitech machines in the field and as an option on all new machines.

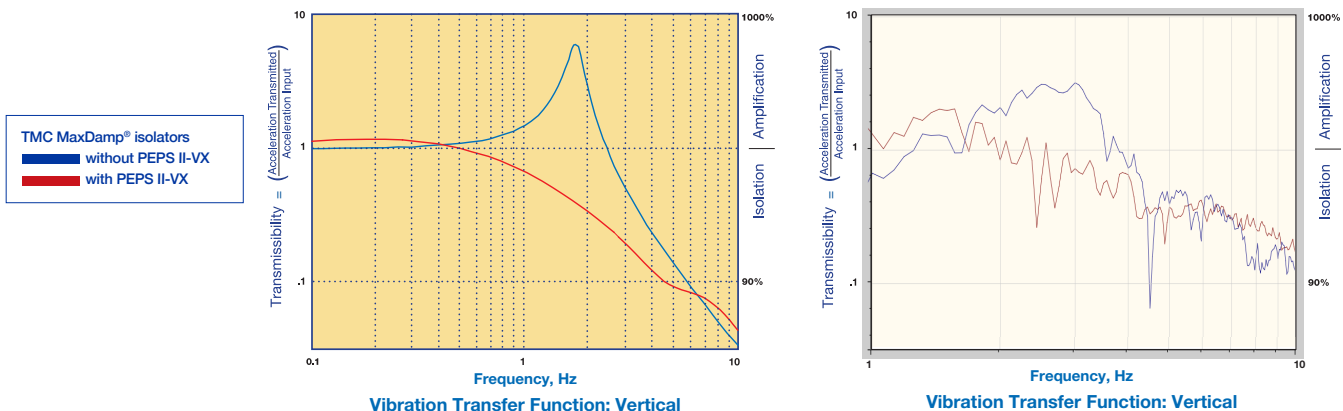
PEPS® II-VX works with the existing pneumatic vibration isolation system eliminating the mechanical height control valve and height sensing linkage. The result is a first-of-its-kind active on-machine vibration isolation and precision leveling system.

All vibration isolators have a first fundamental resonant frequency. Isolators actually amplify instead of attenuate vibrations that are near to this frequency as is shown in the graphs below. The lower the value for this resonant frequency generally the better the isolator. TMC MaxDamp isolators are excellent in this regard with a resonant frequency of < 2 Hz. PEPS II-VX provides the first low cost solution for this universal condition by providing active vibration cancellation in the critical frequency range of 0.7 to 5 Hz.

Since 1962, Precitech has delivered complete ultra precision solutions and maintains an installed base of over 1,500 systems worldwide. We continue to define the state-of-the-art, enhancing accuracy, productivity, and ease of use.

Precitech is ultra precision machining solutions.

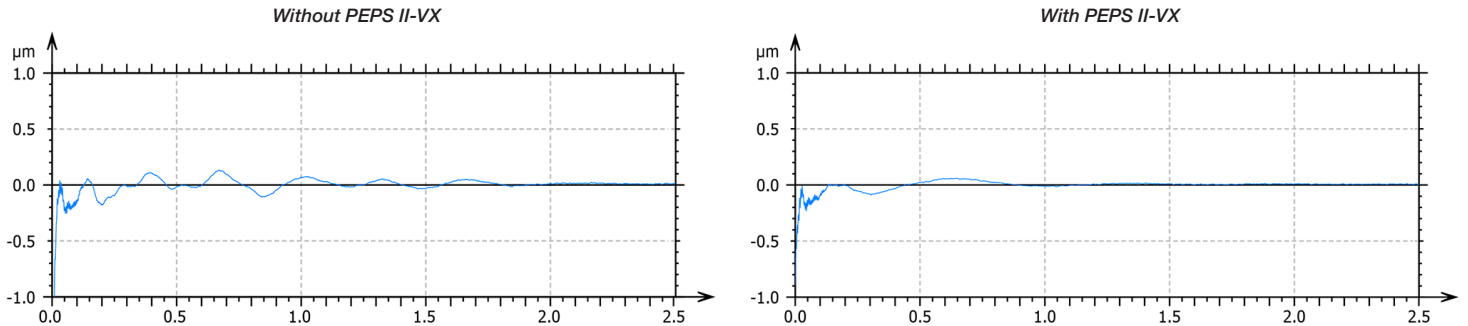
PEPS® II-VX theoretical vs. actual field data from a Nanoform® X



- ▶ **Improved productivity leveling system (PEPS® II) improves stability enabling more rapid XZC machining**
- ▶ **Improved quality active vibration cancellation system (PEPS®) improves isolation in the 0.7 - 5 Hz range**
- ▶ **Upgrade installed machines in the field***
- ▶ **Optional on all new machines**

* TMC MaxDamp® passive isolators required for field retrofit

X axis following error with and without PEPS II-VX during XZC machining



Technical Product Specifications PEPS® II-VX

Physical Dimensions	PEPS® II Controller 1.72 in. (43.7mm) H x 8.0 in. (203mm) W x 9.4 in. (240 mm) D	PEPS® II Performance Specifications	Analog inputs (unipolar): 8x12 bit (16 bit using over sampling), 0...3.0 V full scale Analog inputs (feedforward, diag.I): 5x12 bit (16 bit using over sampling), ±9 V full scale Analog inputs (unipolar) protection: +5 Volts, -0.5 V clipping Analog input (feedforward, diag.I) protection: ±15 Volts clipping Analog outputs: 4x12 bit (16 bit with over sampling), 0...3.0 V full scale Analog outputs (OPTIONAL): 8x16 bit, 0...3.0 V full scale Analog output protection: indefinite short circuit protection, +5 Volts clipping Digital input voltage rating: 0...+3.3 V, +5 V tolerant (+5 Volts clipping) Digital output rating: 0...+3.3 V, 20 mA max. Digital I/O protection: +5 Volts, -0.5 Volts clipping External available power: +5 VDC, 2.0 A max; +15 VDC, 1.0 A max. (20 Watt max) Communication port: USB, appears as RS-232 on PC Processor: ARM7TDMI / 41.78 MHz Control loop rate: 100 Hz - 2.0 KHz Proximity sensors: 3x vertical, (3x horizontal optional) Eddy current NAMUR 0-20 mA output Velocity sensors - geophones ("VX" option): 3x vertical, current output
Weights	PEPS® II Controller: approximately 3.0 lb (1.2 kg)		
Environmental (refer to EN 61010-1: 1993, EN 61010-1/A2: 1995)	For indoor use only, up to an elevation of 2,000 m (6560 ft.) Maximum allowable temperature range: 5° C to 35° C Maximum allowable humidity: 80% up to 31° C, decreasing linearly to 50% relative humidity at 40° C Tolerance in main supply voltage: 85 VAC - 240 VAC Over voltage category: 2 Pollution degree (IEC 664): 2 Ventilation requirements: 25 mm clearance on sides, 0 mm top and bottom	Pneumatic Specifications	Long-term height stability: ±50 microns Long-term tilt stability: ±50 micro radians Servo valves: 4 x 2-way variable-orifice proportional servo valves Valving technique: pure class-A Maximum input pressure: 120 PSI or 8.3 Bar or 830 KPa Nominal air consumption: 60 slpm (2 scfm) Air requirements: clean, dry air, filtered to 20 microns or better Fail safe: isolators deflate on power failure or power off Pneumatic fittings: 'one-touch' quick fittings for 1/4 in. O.D. hose
Power Requirements	Power input voltage range: 90-230 VAC Input frequency range: 50-60 Hz		
PEPS® II User Interface (Front Panel)	Power switch 4 menu buttons LCD display 20x2 characters 2 diagnostic sockets (BNC-type) Three-color status LED USB port		
PEPS® II Interface (Rear Panel)	AC power entry with EMI filter 1 air INPUT snap-in port for 1/4 in. OD tubing 1 air OUTPUT (Exhaust) snap-in port for 1/4 in. OD tubing 4 air snap-in ports for 1/4 in. OD tubing (one per isolator) DB-25 male inputs-outputs and feedforward socket 1 Phoenix 0.2 in. pitch 6 pins GREEN header (vertical proximity sensors) 1 Phoenix 3.5 mm pitch 6 pins BLACK header (horizontal proximity sensors) Grounding threaded stud (#10-32 thread) DB-25 F socket: 1x digital input, 3x geophone sensors interface ("VX" option) DB-25 F socket: 1x digital input, 3x current output proximity sensors (optional)		