

# 650

## Planoform® 650 High Performance Flycutting System

Heavy-duty machine platform designed for single point diamond flycutting of plano surfaces in non-ferrous materials requiring optical quality surface and flatness characteristics.

 **precitech**



### Overview

Slide Travel: X-650mm (26") Z-300mm (12")  
Max: Feedrate: 1000mm/min. (39"/min.)  
Tool Sweep: 300mm (12")  
Spindle Speed: ≤ 5000 RPM  
Heel Angle Adjustment: -5 to 25 degrees

### Process Capabilities

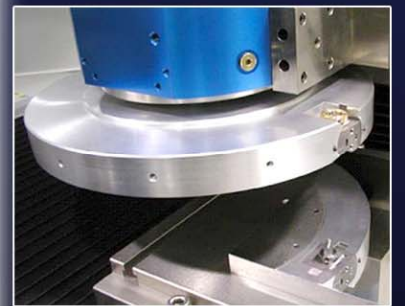
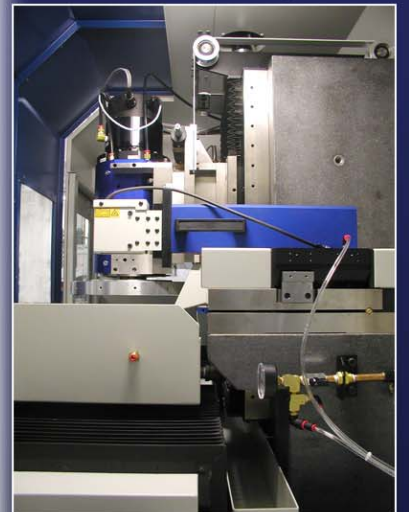
Diamond Flycutting X, Z  
Cylindrical Machining X, Z

### Machine Options

Air temperature control system  
Custom designed flycutting wheels  
Chip extraction  
Digital readout of heel angle  
Electronic gage amplifier  
General purpose vacuum chucks  
On machine metrology system  
On machine gage & amplifier  
Thermal enclosure  
Tip/Tilt work holding table  
Spray mist coolant system

### Design Features

QNX® real time Operating System for advanced programming capability  
Sealed natural granite base provides exceptional long term machine tool stability  
Self leveling dual chamber isolation system  
Traversing axis is a linear motor driven, hydrostatic oil bearing slideway with optimized stiffness characteristics  
Positioning axis is ball screw driven with a mechanical roller bearing design  
Standard tilt-head adjustment feature allows for manufacturing cylindrical CO<sub>2</sub> laser optics  
High Performance SP151 spindle with industry leading thermal stability characteristics



| Machine Base        | Description   |
|---------------------|---|
| Type                | Natural, high-stability, sealed granite               |
| Vibration Isolation | Self leveling dual chamber vibration isolation system |

| Machine Linear Slideways | Description   |
|--------------------------|---|
| Type                     | <b>X</b> Hydrostatic oil bearing box-type slideway <b>Z</b> Needle Roller Slideway                        |
| Material                 | DuraBar cast iron   |
| Travel                   | <b>X</b> (horizontal) 650mm (26") <b>Z</b> (vertical) 300mm (12")   |
| Maximum Feedrate         | 1000mm/min.   |
| Drive System             | <b>X</b> Linear Motor <b>Z</b> Preloaded ball screw assembly w/brushless DC motor, brake & counterbalance |
| Position Feedback        | 100nm (4μ") scales  |
| X-axis Straightness      | <b>Horizontal:</b> 0.50μm/460mm <b>Vertical:</b> 0.1μm/100mm over central 460 mm                          |
| Z-axis Pitch, Yaw        | <b>Pitch:</b> 12 arc-sec/300mm <b>Yaw:</b> 12 arc-sec/300mm   |

| Flycutting spindle    | Heavy Duty 151 spindle                             |
|-----------------------|--|
| Type                  | Slot-type thrust bearing                           |
| Material              | Steel shaft/Bronze journal                         |
| Tool Swing Capacity   | 305mm (12") diameter Optional: 152mm (6") diameter |
| Motor                 | Integral DC brushless motor                        |
| Axial Stiffness       | 261 N/μm (1,500,000 lbs./in.)                      |
| Radial Stiffness      | 105 N/μm (600,000 lbs./in.)                        |
| Motion Accuracy       | Axial/Radial ≤ 50nm (2μ") through dynamic range.   |
| Thermal Control       | Liquid cooled motor housing and Journal bearing    |
| Spindle Max Speed     | 5000 RPM   |
| Heel Angle Adjustment | -5 to 25 degrees                                   |

| Flycutting Toolholder | Description  |
|-----------------------|--|
| Wheel Diameter        | 355mm (14") diameter   |
| Tool Location         | Approx. at 305mm (12") diameter of rotation                    |
| Tool Capacity         | 2 available  |
| Tool Adjustment       | Rake, roll, azimuth, depth of cut (4 total adjustment options) |

| Control System         | UPx™ Control System                                |
|------------------------|--|
| Operating System       | QNX-real time operating system                     |
| Programming Resolution | 1.0nm  |
| Axis Interface Cards   | PMDI   |
| Storage                | 256MB/CD-R/40GB/10/100 ethernet No modem necessary |

| Optional Equipment                                      |
|---|
| Electronic Gage Head and Amplifier                      |
| Digital Readout of Heel Angle                           |
| Thermal Enclosure - Doors provide access to four sides. |
| Air Shower Temperature Control +/- 0.1 degree C         |
| Tip/Tilt Work Holding Table                             |

| Facility Requirements | Planoform® 650                             |
|-----------------------|--|
| Power                 | 208 or 230VAC -1 phase - 50/60Hz           |
| Air supply            | Typical: 10 SCFM @100 PSIG                 |
| Floor space           | 1829mm x 1143mm x 2032mm (72" x 45" x 80") |