

MACROACE II

MULTIPURPOSE DICING
AND GRINDING SYSTEM
WITH 55MM CUT DEPTH

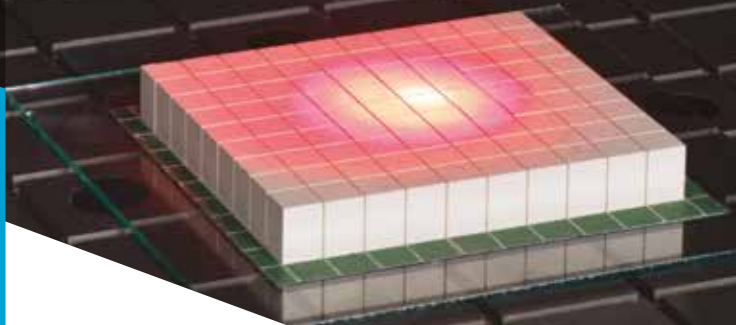
HEAVY DUTY CUTTING
FROM A SMALL FOOTPRINT

DIVERSE WORKLOADS ARE
EASILY HANDLED WITH EASY
WORK-LOADING, QUICK TOOL
CHANGES AND FAST PROGRAM ENTRY

HIGH POSITIONAL STABILITY, ACCURACY,
CONTROL AND REPEATABILITY

TOTAL FLEXIBILITY,
TOTAL CONTROL

**UNRIVALLED
IN HEAVY DUTY
CUTTING**



LOADPOINT
MICRO-MACHINING SOLUTIONS



- MULTI-PURPOSE DICING AND SURFACE GRINDING SYSTEM WITH UP TO 55MM CUT DEPTH
- ULTRA HIGH PRECISION CUTTING OF HARD MATERIALS
- HIGH POWER SPINDLE ENABLING HIGH CUTTING SPEEDS
- HIGHLY FLEXIBLE VISION ALIGNMENT AND USER INTERFACE (INCLUDING AUTOMATIC MODE)

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OPERATIONAL SPECIFICATION

Control System	Loadpoint NanoControl 2.0
Work Holding	Ceramic or Metal Vacuum Chuck, mechanical vice, magnetic chuck
Work Capacity (XYZ)	305 x 305 x 55mm
Blade Capacity (Diameter)	100 - 200mm
Spindle Power	3.0 KW @ 10,000 rpm
Spindle Speed	1,000 - 10,000 rpm
X Axis Cutting Range	500mm
X Axis Resolution	0.1 μ m
X Axis Feed Rate	0.1 - 300 mm/s
Y Axis Index Range	0.001 - 360 mm
Y Axis Resolution	0.1 μ m
Y Axis Index Accuracy	$\pm 3 \mu$ m / 300mm < $\pm 1 \mu$ m / 10mm
Z Axis Index Range	0.001 - 200 mm
Z Axis Resolution	0.1 μ m
Z Axis Index Accuracy	< $\pm 2 \mu$ m / 10mm
Theta Axis Drive	Direct Drive Torque motor
Theta Axis Range	360°(continuous)
Theta Axis Resolution	4 arc sec
Camera Type	Monochromatic or full Colour
Camera Alignment	Manual or fully automatic
Camera Resolution	2 MegaPixels
Camera Magnification	x150 - x200 - x300
Camera Illumination	Coaxial and ring with dark field
Footprint (WDH) (height includes status light)	1400 x 1440 x 2350 mm

Micromachining solutions for:

SEMICONDUCTORS	OPTICAL
ELECTRONICS	MEDICAL
FERRO-ELECTRONICS	SOLAR
OPTO-ELECTRONICS	SONAR

STANDARD PACKAGE

The MacroAce II is offered in a standard package, however, bespoke packages are available with various options to suit a particular customer application.

Loadpoint Air Bearing Spindle

- Very low vibration improves the cut quality and reduces chipping
- DC brushless drive 4kW giving full power profile across the entire speed range 1,000 to 10,000rpm
- Theta (θ) axis bearing rotary table with high resolution direct drive

Vision and alignment system

- Manual and automatic alignment modes:
- Monocular video alignment system with pattern recognition
- Automatic Pattern Recognition System (PRS)
- 2 point alignment with programmable off-set for off-cut alignment
- Manual and automatic (option) kerf and chipping measurement on machine
- Full 17inch monitor for alignment, data entry and machine monitoring
- Continuous live display of X, Y, Z and theta co-ordinates
- Z autofocus set up of alignment image, with offset option for depth of cut

SERVICE REQUIREMENTS

Electricity	415/440v AC three phase 16A, 50/60Hz
Air supply	5.5 Bar (80 PSI)
	0.17m ³ /min (6 CFM)
	Dewpoint 5°C, Oil 0.005 PPM
Water supply	
Blade coolant	3 - 5 Bar (43 - 73 PSI)
	5 - 8 Litres/min (1.3-2.1 US gal/min)
Workpiece wash	3 - 5 Bar (43 - 73 PSI)
	5 - 8 Litres/min (01.3-2.1 US gal/min)
Spindle coolant	3 - 5 Bar (43 - 73 PSI)
	18 - 20°C Recirculating Coolant Temp
	1 Litres/min (0.26 US gal/min)
Vacuum supply	Not required, internally generate
Mist extraction	Mandatory 4m ³ /min
Drain	42 mm ID drain, free flow to waste
	Drain height < 600 mm (24") from base of m/c
Recommended Environment	Ambient temp of 20°C, humidity level < 40%
Weight	3,000KG on 6 adjustable feet (up to 10mm)
Floor Level	< 6mm across m/c footprint

PIPE SIZES

Port	Pipe Diameter
Cutting Wheel Blade Coolant In	10mm
Wafer Wash Water In	10mm
Spindle Coolant Water In	10mm
Spindle Coolant Water Out	10mm
Air In	10mm
Vacuum Venturi Exhaust	10mm
Mist Extraction Port	100mm
Drain Port	40mm

Tooling

- Standard wheel carrier with 101.6 to 200mm diameter blade capacity
- Main blade coolant jet adjustable to suit all blade diameters
- Work holding manufactured bespoke for application
- Accelerometer based Z datum set, off-chuck height sensing system

NanoControl

- Windows operating system with user-friendly, spreadsheet style data entry screens
- Password-controlled user access to all key machine functions and a 12 month rolling log of machine actions provide full process traceability
- Fitted with remote link to enable fast remote diagnostic access

Work holding

There is flexibility in the work-holding options to suit any customer requirements. These include; a standard ceramic vacuum chuck or metal chuck, mechanical vice or magnetic chucks. A bespoke work-holding option can be developed alongside customers to suit their specific requirements.

Z height sensing

Off-chuck height sensing system ensures constant depth of cut without having to use conductive blades, providing a wider choice of blade diameters and suppliers.