

# MICROACE 66

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FROM PROTOTYPE TO  
PRODUCTION AND  
EVERYTHING IN BETWEEN

FROM THE LATEST WAFER DESIGNS  
TO CERAMIC COMPONENTS AND  
EVERYTHING IN BETWEEN

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WITH CUT DEPTHS OF UP TO 16MM,  
THE MICROACE 66 HAS ALL DICING  
REQUIREMENTS COVERED

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TOTAL FLEXIBILITY,  
TOTAL CONTROL

## ALL DICING REQUIREMENTS COVERED

 **LOADPOINT**  
MICRO-MACHINING SOLUTIONS

- WIDEST RANGE OF OPTIONS FOR DIVERSE APPLICATIONS
  - IMPROVED CAPACITY, CAPABILITY AND POWER WITHIN A SMALLER FOOTPRINT
  - CUT DEPTHS OF UP TO 16MM
  - DIVERSE WORKLOADS ARE EASILY HANDLED WITH EASY WORK LOADING, QUICK TOOL CHANGES AND FAST PROGRAM ENTRY
  - THE ULTIMATE IN SYSTEM PRODUCTIVITY
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## OPERATIONAL SPECIFICATION

Control System	Loadpoint NanoControl 2.0
Work Holding	Ceramic or Metal Vacuum Chuck
Work Capacity (XYZ)	152 x 152 x 16mm (Custom configurations to work area & blade capacity are achievable)
Blade Capacity (Diameter)	50 - 76.2mm
Spindle Power	1.8 KW @ 60,000 rpm or 3.0 KW @ 10,000 rpm
Spindle Speed	3,000 - 60,000 rpm
X Axis Cutting Range	160 mm
X Axis Resolution	0.1 µm
X Axis Feed Rate	0.1 - 500 mm/s
Y Axis Index Range	0.001 - 152 mm
Y Axis Resolution	0.1 µm
Y Axis Index Accuracy	± 3 µm / 150mm < ± 1µm / 10mm
Z Axis Index Range	0.001 - 20 mm
Z Axis Resolution	0.1µm
Z Axis Index Accuracy	< ± 2 µm / 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
Footprint (WDH) (height includes status light)	570 x 1215 x 1555 mm

### Micromachining solutions for:

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

## SERVICE REQUIREMENTS

Electricity	220/240v AC single phase 10A, 50/60Hz
Air supply	5.5 Bar (80 PSI)
	0.11m³/min (4 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 4m³/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	570KG on 4 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	40mm
Drain Port	40mm

## STANDARD PACKAGE

### Loadpoint Air Bearing Spindle

- Very low vibration improves the cut quality and reduces chipping
- DC brushless drive, 1.8 kW 60,000 rev per min
- High power option 3.0 kW 10,000 rev per min
- 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
- Pattern Recognition System (PRS)
- Alignment system with programmable off-set for off-cut alignment
- Manual and automatic (option) kerf and chipping measurement on machine
- Full 17" / 430mm 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

### Tooling

- Standard wheel carrier with 50 to 76.2mm diameter blade capacity
- Three direction coolant delivery; main blade coolant jet, blade side wash bars and wafer flood jets
- Accelerometer based Z datum set, off-chuck height sensing system

### 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.

### Work holding

Standard packages include adaptable plain wafer vacuum chuck for use with wax and substrate mounting and tape rings. Loadpoint manufacture chucks for all tape rings and film frames, mechanical vices, and designs to customer requirements, including precision-ground ceramic inserts for improved vacuum and component support.

### Materials Processed

Ceramic, FR3/FR4, GaAs, Germanium, Glass, InP, LED's, Lithium Niobate and Tantalate, QFN, Piezo electrics, PZT, Quartz, Sapphire and Silicon amongst others.