

EQUIPMENT LIST



 **PENN UNITED**[®]
TECHNOLOGIES INC.



Moore G18 Jig Grinders

Internal Grinding

- 1 Overbeck IRC-400 CNC ID/OD Grinder
- 1 Hauser S35-400 CNC Jig Grinder
- 1 Moore G18 CNC Jig Grinder
- 1 Moore 1050 CNC Jig Grinder
- 2 Moore CP450 Jig Grinder
- 1 Moore CPZ450 Jig Grinder
- 1 Moore G48 Jig Grinder
- 17 Moore manual Jig Grinders
- 2 Dual Station CNC ID Grinders
- 3 Sunnen Hones
- 1 Heald ID Grinder

OD Grinding

- 5 Myford Cylindrical Grinders
- 1 Parker Majestic Cylindrical Grinder
- 1 Reid Ded Tru
- 1 Cincinnati Centerless Grinder
- 2 Rossi Monza Centerless Grinder
- 2 Royal Master Centerless Grinder
- 2 Rollomatic CNC 148P4
- 1 Cincinnati OD Grinder 60"
- 1 Landis OD Grinder

Contour Grinding

- 1 Cincinnati Contour Grinders
- 1 Form Grinding Chart Machine



*Parker Majestic
#2Z Surface Grinder*

Surface Grinding

- 5 Parker Majestic Automatics
- 7 Parker Majestic CNC Freedoms
- 26 Parker Majestic #2Z Surface Grinders
- 1 Parker Majestic #2 Surface Grinders
- 10 Penn United CNC Surface Grinders
- 1 Blanchard #11 Grinder
- 1 Sansei Rotary Grinder 20"
- 1 Blanchard Rotary Grinder 36"
- 3 G&L Hydraulic Wet Grinders



SIP 8 Jig Bore

Machining

- 1 Mori Seiki NV5000 5 axis VMC
- 1 Makino V55 VMC
- 6 Sharpe CNC Mills
- 8 Bridgeport Knee Mills
- 2 Moore Jig Bores
- 1 SIP Hydroptic 7A
- 1 Herbert Devlieg Jig Mill
- 1 Fosdick Radial Arm Drill Press

Turning

- 1 Doosan Lynx 220 LM CNC lathe with C axis
- 1 Doosan Puma SYL 2500 CNC lathe with C axis
- 1 Mazak Quick Turn 18 N CNC lathe
- 3 Leblond Engine lathes

Heat Treat

- 1 Abar Ipsen Inc. Vacuum Furnace
- 1 Johnson Blue M Gas Furnace
- 1 L&L High Temp Furnace
- 1 Blue M Tempering Oven
- 1 Vulcan Tempering Oven
- 1 So-Low Ultra Low (-80 F) Freezer



Wire EDM Area

EDM

- 1 Agiecut 220 WEDM Machine
- 1 Agiecut 250 SF HSS CE WEDM Machine
- 1 Agiecut 250 SF HSS WEDM Machine
- 1 Agiecut 250 SF CE WEDM Machine
- 2 Agiecut 250 SF+F HSS CE WEDM Machine
- 1 Agiecut Vertex WEDM Machine
- 1 Agiecut 250 SF+F WEDM Machine
- 3 Leblond Makino Edge CNC Sink EDM Machine
- 2 Sodik K1CN Hole Burner
- 1 Xermac XP-12 manual Sink EDM Machine
- 1 Makino EDNC 43 CNC Sink EDM Machine
- 3 Agiecut Progress WEDM Machine
- 1 Makine Edge 3 Sink EDM Machine

Miscellaneous

- 4 Do-All Band Saw
- 1 Empire Glass Bearer
- 2 Induction Brazers
- 2 Leco-Cut off machine
- 1 Automatic Cut off saw
- 1 Lazer Marking system
- 1 Bal-Tec Prototype Machine
- 1 Ex-cell-D Center Lap
- 1 Omax 55100 Waterjet Machine



Omax 55100 Waterjet

PRESSES

Under 100 Tons

1	5 Ton Perkins LV5-10
1	10 Ton Perkins
1	10 Ton Bruderer LV10-9
3	18 Ton Bruderer BSTA 18
1	18 Ton Bruderer LV18-9
1	18 Ton Bruderer BSTA 18 (FM)
2	20 Ton Minster Str. Side
1	20 Ton Minster Pulsar
3	25 Ton Bruderer BSTA 25
3	25 Ton Bruderer BSTA 30 II
5	30 Ton Minster P-Minster
7	30 Ton Minster Pulsar
2	30 Ton Minster TR-3
11	30 Ton Bruderer BSTA 30 II
9	30 Ton Bruderer BSTA 30
1	30 Ton Bruderer BSTA 30 (Proto)
5	32 Ton Minster B-1
3	45 Ton Bruderer BSTA 40
1	50 Ton Bruderer BSTA 50 VL
3	60 Ton Minster Str. Side
5	60 Ton Minster Pulsar
2	90 Ton Minster Hummingbird

100 - 250 Tons

3	100 Ton Minster Str. Side
2	100 Ton Minster PM-3
2	100 Ton Minster Piece Maker
1	200 Ton Minster Piece Maker



300 Ton Minster

250 Tons and Above

1	250 Ton Bliss
2	250 Ton Minster
1	300 Ton Minster (One Press)

Miscellaneous

5	Vision Systems
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PLATING

Production Equipment

3	Dual Strand Duplex Plating Line
1	Single Strand Duplex Plating Line
1	Single Strand Gold Spot Plating Line

Processes / Finishes

Electro Cleaning
Electro Polishing
Nickel (Matte / Semi-bright)
Electro-less Nickel
Gold
Copper
Palladium
Palladium / Nickel
Tin 100%
Lead Free Tin (ROHS compliant)
Tin -Lead- Various alloys
Black Oxide
Passivation
Silver

Processes Techniques

Overall Plating
Selective (Controlled Depth) Plating
Selective Stripe (Single or Dual Sided)
Brush Plating
Spray Plating
Selective Spot Plating
Reflow



Plating Line

INSPECTION



Zeiss CMM

Quality/Inspection

- 2 B & S Gage 2000 CMM Inspection machines
- 1 Federal Air Bearing Table 14"
- 1 Federal Master Ring Comparator
- 1 Federal Surfanalyzer 15 System Controller Reader
- 1 Federal gage block comparator
- 1 Moore Measuring Machine
- 2 Rockwell Hardness Testers
- 1 Taylor Hobson Surface Finish Analyzer
- 3 Zeiss Prismo Vast CMM
- 1 Zeiss Numerex
- 1 Zeiss Spectrum CMM
- 1 Zeiss UMC CMM
- 29 J & L Optical Comparators
- 1 Nikon 6 C Comparitor
- 5 Nikon V-12 Comparitor
- 2 Kodak Model 14-2A Optical Comparitor
- 5 Kodak Model 2A Optical Comparitor
- 1 OGP Quest 450
- 1 OGP Quest 250
- 8 OGP smartscopes
- 14 OGP optical comparators
- 200 Starrett 81 piece carbide gage block sets
- 1 Rond Com 60
- 1 Mitutoyo SJ400 Profilometer

LIGHT

Learning Institute for the Growth of *High Technology*



LIGHT learning facility

Green Machining

10	Reid Surface Grinders
2	Mitsui Surface Grinders
4	Vertical CNC Lathes
15	Horizontal CNC Lathes
12	Vertical CNC Milling Machines
4	Manual Milling Machines
2	Bandsaws
2	Table Saws
3	Drill presses

Powder Processing

8	Attritors (mixers)
6	20 cu ft. Conical Vacuum Dryers
1	Niro Spray Dryer
4	Granulators
6	Vibratory Screens

Pressing

1	Autoclave 20" Ø Isostatic Press
1	Autoclave 12" Ø Isostatic Press
1	National Forge 12" Ø Isostatic Press
1	250 Ton Alpha Hydraulic Press
2	125 Ton Alpha Hydraulic Press
2	60 Ton Alpha Hydraulic Press
1	30 Ton Mohr Hydraulic Press
1	15 Ton Mohr Hydraulic Press
1	5 Ton Mohr Hydraulic Press

Furnaces

1	Sinterhip Pressure Furnace
2	Vacuum Sintering Furnaces (2300°C)
7	Vacuum Sintering Furnaces (1600°C)
2	Blue-M Furnaces
2	Heat Treating Furnaces
2	Induction Heating Units

Quality / Inspection

1	Corning Tropel Flatmaster
1	Federal Formscan 6200
7	J & L Comparitors
1	Brown & Sharpe CMM
2	Zeiss Surface Analyzers
2	Mititoyo Surface Analyzers

Grinding

6	Studer 3 axis CNC Grinders
3	Studer 4 axis CNC Grinders
8	Okamoto CNC Grinders
1	Overbeck CNC Grinder
1	Lizzini CNC Grinder
11	Parker Majestic CNC Grinders
8	Cubic CNC Grinders
1	Double Disc CNC Fine Grinders
2	Moore CNC Jig Grinders
1	Cincinnati CNC Centerless Grinder
8	Landis Cylindrical Grinders
2	Toyoda Cylindrical Grinders
8	Heald Internal grinders
8	Blanchard Grinders
3	Centerless grinders
2	Moore Jig Grinders
1	Okamoto Rotary Grinder
2	Agie Wire Cut Machines
3	Sunnen Hones
1	Optical Diamond Wheel Dresser
9	Lapping/polishing tables

Precision Machining

2	Hardinge Quest 5 axis CNC Lathes
7	Hardinge Conquest 10 axis CNC Lathes
4	Mori-Seiki CNC Lathes
2	Mazak CNC Lathes
1	Mazak 5 axis CNC Lathe
1	Puma 250L CNC Lathe
1	HAAS SL-40L CNC Lathe
3	Tree 3 axis Machining Centers
2	Arrow 750 3 axis Machining Centers
3	Cincinnati 4 axis Machining Centers
1	Mazak 4 axis Machining Center
1	Mazak 3 axis machining Center
1	Makino V-55 3 axis machining Center
1	Monarch V750 3 axis Machining Center
1	HAAS 4 axis machining Center
1	G & L HMC 4 axis Machining Center
2	Leblond Lathes
1	Mori-Seiki Lathe
1	Devlieg Jig Mill
1	K & T Horizontal Mill
1	Moore Jig Bore
3	Bridgeport Milling Machines
1	Sharpe CNC Mill
1	Hem Saw
1	Zeiss UMC 850 CNC CMM
1	Zeiss Spectrum CNC CMM
1	Brown & Sharpe Gagemaster



Costa Rica Facility

Machining

- 1 Haas TM-1P CNC Mill
- 1 Doosa MV6030 CNC Mill
- 1 Hem H130HA Saw
- 1 DoALL DBW-15 Band Saw
- 1 DoALL DBW-12B Band Saw
- 1 Bridgeport Mill 45x15x20
- 3 Bridgeport Mill 32x9x15
- 1 Colchester Lathe
- 1 JET Lathe GH-1440ZX
- 1 Hardinge Cobra 65 CNC Lathe
- 1 Monarch Dual Spindle CNC Lathe
- 1 LNS Quick Load Bar Feeder
- 1 Omax 2652 Waterjet
- 1 Baldor 6" Bench Grinder
- 1 Powermatic 30-combination Belt Sander
- 1 Darex XT3000 Drill Sharpener
- 2 Mac Blaster Sand Blaster
- 1 L&L Special Furnace Co. Heat Treat Oven 12x8x24
- 1 Grieve Corporation Heat Treat Oven 36x36x36
- 1 Electra Heat Treat Oven 24x18x24
- 1 Ipsen Vacuum Furnace VFC 321 Heat Treat Oven

Surface Grinding

- 9 Parker Majestic 6x18 Manual Surface Grinder
- 1 Parker Majestic 12 X 24 Automatic Grinder
- 1 Okamoto 20 X 40 Automatic Grinder
- 3 Parker Majestic 6x18 Auto Surface Grinder
- 1 Parker Majestic Freedom CNC Surface Grinder

WEDM

- 1 Chmer EDM Drill
- 1 Hansvedt MV-10 Conv. EDM W/tapping
- 1 Sodick AQ 35LR Conv. EDM W/tapping
- 2 Agie Evolution WEDM Machine

OD Grinding

- 1 Parker Majestic 14x30 Liberty CNC Cylindrical ID/OD
- 1 Ex-Cell-O 174 - 10 x 36 Center Lapping
- 2 Myford 6 Cylindrical
- 1 Royal Master TG 12 x 4 12 Centerless Grinder
- 1 Overbeck Speed Lathe

Contour Grinding

- 1 Wasino CNC GLS-125A Optical Grinder
- 1 Lowe Optical Grinder

Internal Grinding

- 1 Moore G-18 Jig Grinder

Presses

- 1 Bruderer 28 US Ton Press

Quality

- 1 OGP QL-20L Optical Comparator
- 5 OGP XL-14 Optical Comparator
- 1 Mahr 817 CLM Height Gage



Omax Waterjet Machine