



Equipment List

We Are With You.



AMS GROUP

The AMS Group strategic alliance between CL Hann Industries, Tapemation and Next Intent includes some of the finest machine tools, CAD/CAM Software, welding equipment and metrology in the world.



CNC MACHINING CENTERS	X	Y	Z
2009 OKK VM7 III, 50 taper, 13k rpm, ø12" Kitagawa 4th axis rotary table	60	29	26
2009 OKK VM7 III, 50 taper, 6k rpm, ø12" Kitagawa 4th axis rotary table	60	29	26
2007 & 2006 OKK VP400, 40 taper, 12k rpm, ø8" Kitagawa 4th axis rotary table	23	16	18
2004 OKK PG8-2APC, 40 taper, 12k rpm, dual pallet, ø6" Kitagawa 4th axis rotary table	20	16	16
2005 Haas VM-3, 5 Axis, 40 taper, 10k rpm	40	26	25
2000 Haas VF-5, 4 Axis, 40 taper, 7k rpm, ø12" Haas 4th axis rotary table	50	24	24
2005 Haas TM-2, 4 Axis, 40 taper, 7k rpm tool room mill	40	16	16
1999 Hitachi Seiki VM40 III, 12k rpm	22	18	18
2007 Bridgeport, 3 axis knee mill	30	12	16
1996 Chevalier Knee Mill, 2 Axis with Anilam Control	48	16	16

LATHES	SWING	DIA.	LENGTH
2009 Mori Seiki NL2500 SY Mill / Turn center, ø10" main chuck, ø6" sub-spindle, 12 station live tool turret	ø18"	ø10"	20
2001 Hitachi Seiki HT20J, 4k rpm, 12 tools	ø17"	ø13"	15
1998 Hitachi Seiki TF25, 4k rpm, 10 tools	ø24"	ø17"	24
1996 Hitachi Seiki HT20S III, 4k rpm, 12 tools	ø17"	ø13"	15
1998 Whacheon WL-580 with SONY DRO	ø23"	ø18"	60
1997 Whacheon WL-435 with SONY DRO	ø18"	ø13"	40

EDM MACHINING CENTERS	X	Y	Z
2007 Sodick AQ300L-MDC 5 axis Wire EDM, with rotary indexer, \varnothing .006-.012" wire, linear drive motors & glass scales	12	8	8
2004 Sodick AQ325L 4 axis Wire EDM, \varnothing .006-.012" wire, linear drive motors & glass scales	14	10	9
2003 Sodick AQ750L 4 axis Wire EDM, \varnothing .006-.012" wire, linear drive motors & glass scales	29	19	15
2004 Sodick K1C EDM Hole Drilling, \varnothing .006-.120 Electrode	8	12	12

SUPPORT EQUIPMENT
2003 Sunnen Hone, MBB1660K, \varnothing .062 to 6.50" ID, 16" max length
2001 Acer Surface Grinder, 10" x 20" 3 axis, automatic with SONY DRO, \pm .00005" accuracy
Tschudin Cylindrical Grinder with SONY DRO, \varnothing 8" Swing x 18.9" between centers, \pm .00005" accuracy
Strasbaugh 6BK Lapping machine, \varnothing 5" part capacity internally

QUALITY ASSURANCE KEY INSPECTION EQUIPMENT
Brown & Sharpe Global Image CNC Scanning CMM, 28 x 40 x 24 XYZ measuring range, Accuracy = 0.00010" (0.0025 mm) Repeatability= 0.00006" (0.00152 mm) Renishaw Probe, PC-DMIS software imports solid CAD models
Renishaw QC10 ballbar system, to validate machine tool accuracy. Resolution: 0.1 μ m (4 μ in) Ballbar Sensor Accuracy: \pm 0.5 μ m (at 20 °C) \pm 20 μ in (at 68 °F)
Tesa-Hite Magna 400 Height Gage, 16", .0001" resolution, .0001" repeatability
Mitutoyo Height Master, 12", .0001" resolution
Standridge Granite Surface Plates, Inspection Grade A
Federal / Mahr Air Gage system for gaging tight tolerance ID's
Federal Surf-Test surface roughness tester
Filemaker database for calibration tracking of all QA inspection equipment

CNC MACHINING CENTERS	X	Y	Z
Toshiba BT11 CNC Horizontal Boring Mill, 4 axis	90	68	48
YCM Supermax CNC vertical mill, 4 axis	40	20	25
Bridgeport EZ Trak CNC Knee mills, 4 ea.	48	12	16
G&L Horizontal Boring Mill, 3 axis readouts	100	68	48
Lucas Horizontal Boring Mill, 3 axis readouts	40	20	25
BRidgeport Manual Knee mills, 2 ea.	48	12	16

CNC & MANUAL TURNING CENTERS	SWING	Z
Bridgeport EZ Path CNC Lathe	24	60
Bridgeport EZ Path CNC Lathe	21	60
Bridgeport / Romi CNC Lathe	22	40
Whacheon CNC Lathe	32	60
Whacheon Manual Engine Lathes w/ DRO, 3 ea.	16	40
Poreba Engine Lathe	70	120
Tecino Engine Lathe	48	96

Additional Equipment

- Saw capacities: vertical 20" ht x 36" wide, horizontal 24" sq.
- Presses to 100 tons
- Cranes: overhead to 5 tons, jib cranes to 2 tons (6 ea.)
- Tube & pipe forming to 6"
- Forklifts to 20,000 lbs.

Quality Assurance Metrology

- **Faro CMM Inspection Arm** – CL Hann has chosen Faro Corporation as our supplier for our mobile CMM inspection system. As the size of our parts increase our choice for a mobile system allows us to not only inspect at our facility but transport to our vendors and customers facilities as well. Our Faro arm will support and inspect parts with a 10 ft diameter envelope. The Faro GEO software allows us to “Leap frog” inspect much larger parts and link the inspected segments together for complete inspection data. The wireless data connection on the Laptop allows CL Hann Inspection personnel to inspect, attach file forms & data transfer to all Customer contacts.

Welding Equipment

- All welders are certified per latest AWS Standards
- Arc Works AWS D1.1/D1.5 Weld Cad Procedure Software
- 5 ea. Miller Aerowave 350 Amp TIG Welders
- 5 ea. Miller Axxion 450 Pulse MIG Welders
- 2 ea. Aluminum MIG – MK Cobramatic 450 amps
- Rotary positioning to 10,000 Lbs.

Proof Load Testing with either static or Dyno loads to 30,000 lbs. Dynamometers are certified annually. Certified rigging training via The Crosby Group materials. Digital photography and video available of all tests supplied with documentation package.

NDT weld testing: Visual, dye penetrant, liquid penetrant & magnetic particle. Pre & Post Proof Load Testing. All equipment and chemicals are supplied by Magnaflux Corporation.

Assembly: Numerous test platens & work space for small to large assemblies. In house lift platforms, forklifts and personnel experienced in complex assembly procedures and torque training.

CL Hann offers in house sub harmonic vibratory stress relief.

Stop unwanted material distortion from unbalanced machining & weld stresses!!

The Technology – Sub harmonic vibrational stress relief solves the problem of reducing residual stress in materials. Mill produced products (hot or cold finished) have linear residual stresses forced into their products (roll pressure) that is balanced when the product is used in it's stock shape. Unbalanced metal removal begins to shift the balance causing unwanted distortion. In weld fabrication the thermal contraction of unbalanced welding causes unnatural tensioned stress forces that will release during final machining or natural aging of the fabrication.

Benefits and Results – Sub harmonic vibratory stress relief is able to affect dimensional stability and overall stress reduction. A benefit to the VSR process is that it doesn't alter the metallurgical tensile condition of the material (unlike thermal S/R which reduces the T condition of nonferrous metals, the softened metal slows machining times and has poor finishes. Also with VSR there is no material discoloration, process distortion or scaling. Near absolute stability can be achieved on billet plate material by a second VSR treatment after rough machining the material or on a finish machined component.

CNC MACHINING CENTERS	X	Y	Z
2003 SNK Model RB200F 6 Axis Bridge Mill, $\pm 95^\circ$ B axis, 360° C axis, Rotating & Tilt 40 H.P. 6000 RPM Cat 50 Spindle. 80 Tool ATC, High Speed Machining at 400 IPM, Fanuc 15i Control.	167	114	26
2002 Giddings & Lewis 5 Axis HMC 410 Horizontal Machining Center, W 32", B $360^\circ \times .001^\circ$, 60HP 5" Cat 50 Spindle, 4 Pallet Matrix with Shuttle, each pallet 63"x 49", 120 Tool ATC, Siemens 840 Control.	118	78	70
1997 Anayak 5 Axis HVM 7000 Universal Machining Center. $\varnothing 48"$ Tilting Rotary Table (360° with 90° tilt), All angle 30 HP head, 60 Tool ATC, Fanuc 16 Control.	244	60	48
1995 Mazak HV 800 5 Axis Machining Center. 360° B axis, 90° A axis, 30HP, 4000 RPM Cat 50 Spindle, 80 Tool ATC, Dual 32" Pallets. All angle head machines horizontal, vertical and all angles in between.	48	46	42
1990 SNK MDL FSP-120V Vertical 5 Axis Profiler, 25° A & B Axis. 20-4000 RPM, 30HP Cat 50 Spindle, Fanuc 11 Control.	120	50	25
1987 SNK MDL FSP-120V Vertical 5 Axis Profiler, 25° A & B Axis. 20-4000 RPM, 30HP Cat 50 Spindle, Fanuc 11 Control.	120	50	25
1988 Leblond-Makino MC100 5 Axis Horizontal & Boring Machine, 360° A & C Axis, $\varnothing 30"$ Horizontal Rotary Table x $\varnothing 24"$ Vertical Rotary Table, 4000 RPM, Electronic probe, 60 Tool ATC.	48	40	30
2007 Haas VF11/50 4 Axis Vertical Machining Center. $\varnothing 18"$ Rotary Table, 10,000 RPM, 30HP Cat 50 Spindle, 30 Tool ATC, Linear Scales, Work Piece Probing	120	40	30
2008 Haas VF9/50 4 Axis Vertical Machining Center. $\varnothing 18"$ Rotary Table, 10,000 RPM, 30HP Cat 50 Spindle, 30 Tool ATC, Linear Scales, Work Piece Probing	84	40	30
1997 Toshiba BTD 13R22 4 Axis Horizontal Boring Mill. 28" W, 70" x 86" Table, 4th Axis Rotary table, 40HP, 2500 RPM, 5.1" Spindle, 60 Tool ATC.	118	90	63
1985 Mazak V-20D Vertical Milling & Boring Machine. 20" W, 360° Rotary Table, 20HP, 3500 RPM, 40 Tool ATC, Electronic probe	80	32	30
1986 Mazak VQC 30-50 4 Axis Vertical Milling & Boring Machine. 20" W, 360° Rotary Table, 20HP, 3500 RPM, 24 Tool ATC, Electronic probe	60	30	20

CNC TURNING CENTERS / VERTICAL BORING MILLS	SWING	Z
2002 New Century 2 Axis Vertical Boring Mill, \varnothing 64" 4 Jaw Chuck with \varnothing 80" Swing. 60" Under Rail, 50HP, 2-250 RPM, 12 Station ATC, Ram Head, Fanuc 18 Control	80	60
1997 O-M 2 Axis Vertical Boring Mill, \varnothing 68" Table, 250 RPM, 60 HP, 12 Station ATC, Ram Head, Fanuc 16 Control	79	60
1998 Giddings & Lewis 2 Axis VTL, \varnothing 48" Chuck, 5 Position Turret, 400 RPM, Fanuc 21 Control	53	40

Conventional Equipment

Engine Lathes:

- Poreba Tracer Lathe, \varnothing 53 Swing x 160" long, 40HP, DRO
- Cazeneuve HB725 Tracer Lathe, \varnothing 28" Swing x 120" long, 25HP, DRO
- Cazeneuve HB725 Tracer Lathe, \varnothing 36" Swing x 120" long, 25HP, DRO
- Cazeneuve HB725 Tracer Lathe, \varnothing 28" Swing x 72" long, 25HP, DRO
- Cazeneuve HB590 Tracer Lathe, \varnothing 24" Swing
- Graziano Tool Room Lathe with Tracer, \varnothing 12" Swing

Milling Machines / Boring Mills / Shapers:

- Monti HMB, 4" bar, 48" x 60" RT, 52" V, 72" Cross, DRO
- Bridgeport Knee Mill 12" x 42", DRO (2 ea.)
- Bridgeport Knee Mill SRZ 11, 12" x 48", DRO
- Pratt & Whitney 12B Vertical Shaper, 24" Rotary Table with 12" stroke

Support Equipment

- 2009 Surfcam Velocity III, 5 Axis plus system with Validation software (2 seats)
- 2009 Surfcam Velocity III, 3 Axis plus system with Validation software (1 seat)
- DoAll 36" vertical band saw with power feed tilting table
- Peerless 11" x 11" Automatic hacksaw
- Well WD9 Horizontal bandsaw
- Severence 12" Abrasive saw
- 10 ea. 1 Ton Boom Cranes
- 4 ea. 3 Ton Boom Cranes
- \varnothing 40" Vertical Rotary Table with DRO
- Drake Hydraulic Press, 75 Ton with 200 Ton frame

Quality Assurance Metrology

- Brown & Sharpe MDL 300 Validator Coordinate Measuring Machine, 157" long x 60" wide, 132" x 48" x 78" XYZ travel. Overall accuracy = .0004". Renishaw touch probe. PC-DMIS Software. Laser calibrated annually.
- Optodyne Volumetric Laser Calibration System
- Alcatel ASM 110 Turbo Vacuum Tester, Helium Mass Spectrometer
- 6' x 6' Granite Surface Plate
- Brown & Sharpe Intra Micrometers 1" thru 8"
- Outside Diameter micrometers 1" thru 36"
- Inside Diameter micrometer 1" thru 120"
- Digital Height Gages 12" thru 40"
- All instruments calibrated per MIL-STD-45662A & ISO 9002
- Inspection area is isolated and temperature controlled

Welding Equipment

- 10,000 Sq. Ft. with overhead cranes & fixture tables.
- All welders are certified per AWS
- 2 ea. Miller Dynasty 700 Amp Tig Welders
- 2 ea. Lincoln 375 Amp Tig Welders
- 1 ea. Miller Aerowave 300 Amp Welder
- 3 ea. Lincoln Powerwave 455 Amp Mig Welders
- 1 ea. Miller Invision 450 Amp Mig Welder
- 1 ea. Plasma Cutter
- 1 ea. Stud Welder