



DESIGN AND INSPECTION

Custom Tool & Design's climate controlled inspection room is located off of the shop floor in the Quality Assurance Department.

The Quality Assurance Department has generated a quality manual, which fully documents CTD's design and production procedures. The development and implementation of this quality manual is a major step toward ISO 9001 certification. CTD expects to be registered within the next year and a half.

DESIGN EQUIPMENT

- 4 - LICENSES PRO ENGINEER WILDFIRE 3 – SOLID MODELING / MOLD DESIGN SOFTWARE
- 2 - LICENSES MOLDFLOW PART ADVISOR – FILL ANALYSIS SOFTWARE
- 3 - LICENSES MASTERCAM – CAD/CAM SOFTWARE
- 2 - LICENSES AUTOCAD LT – 2D DESIGN SOFTWARE
- 1 - HEWLETT-PACKARD DESIGNJET 500 PLUS PLOTTER
- 1 - RICOH ENGINEERING COPIER

WIP INSPECTION EQUIPMENT

- 1 - NIKKON 10X STEREO MICROSCOPE WITH FIBEROPTIC LIGHTING
- 3 - "AEI" NORTH AMERICAN 10X TO 20X STEREO MICROSCOPES WITH POLARIZING LENS AND FIBEROPTIC LIGHTING
- 1 - "SCHERR-TUMICO" OPTICAL COMPARATOR WITH GLASS SCALE DIGITAL READOUTS
- 1 - X-Y-Z AXIS POSITION LOCATOR WITH GLASS SCALE DIGITAL READOUTS
- 1 - "MITUTOYO" TOOLMAKERS MICROSCOPE WITH DIGITAL HEAD
- 1 - ROCKWELL HARDNESS TESTER AND A TRADITIONAL ASSORTMENT OF ANNUALLY CERTIFIED GAGE BLOCKS, GRANITE SURFACE PLATES, SINE BARS, ETC.

FINAL INSPECTION EQUIPMENT

- 1 - IMS C.N.C./C.M.M. WITH VIRTUAL DMIS, 3D SOFTWARE, TRAVELS X=19.7" Y=23.6" Z=17.7"
- 1 - TF-510 "MITUTOYO" TOOLMAKERS MICROSCOPE WITH QUADRACHECK 2000 GEOMETRIC MICROPROCESSOR/DIGITAL READOUT AND 12" SONY HIGH RESOLUTION MONITOR
- 1 - "MITUTOYO" MU-CHECKER ELECTRONIC INDICATOR
- 1 - "MITUTOYO" DIGITAL DROP INDICATOR (WITH 2" TRAVEL)

MANUFACTURING EQUIPMENT

ELECTRICAL DISCHARGE EQUIPMENT

- 1 - "CHARMILLES"-ROBOFIL 4030SI TW WIRE E.D.M. WITH TWIN WIRE AUTO THREADER (WIRE DIAMETER .002" – .012" – 55 LB. SPOOL); TRAVEL LIMITS X=17.64" Y=12.52" Z=14.00" AND UV AXES TRAVEL +/- 1.89"; WIRE FEEDRATE 0 - 317.5 IPM
- 1 - "FANUC" MODEL 1iA WIRE E.D.M. WITH AUTO THREADER (WIRE DIAMETER .004" – .013"); TRAVEL LIMITS X=15.0" Y=11.0" Z=11.8" AND UV AXES TRAVEL +/- 2.364; FEEDRATE 0-590 IPM
- 1 - "DRILL MATE" E.D.M. DRILL .015 DIAMETER TO .060 DIAMETER, TRAVEL LIMITS – X=13.75" Y=10.4" Z=9.5"
- 2 - "CHARMILLES"-ROBOFORM 20 C.N.C. E.D.M. WITH PROGRAMMABLE MOVEMENT AND CUTTING ABILITY IN THE X-Y-Z AXIS (WHICH HAS 20 SECOND INCREMENTAL ROTATION); TRAVEL LIMITS - X=11.8" Y=9.8" Z=9.8"; TANK SIZE 7.1" X 25.2" X 17.7" WITH 3R 16 POSITION MACRO TOOL CHANGER
- 2 - "CHARMILLES"-ROBOFORM 2400 RAM E.D.M. WITH PROGRAMMABLE MOVEMENT, CUTTING ABILITY IN THE X-Y-Z AXIS AND A WORKMASTER II 3R ROBOT WITH ROTARY MAGAZINE CAPACITY OF 192 ELECTRODES/12 DYNAFIX; TRAVEL LIMITS – X=12.59" Y=8.66" Z=12.59"
- 1 - "CHARMILLES"-ROBOFORM 350 RAM E.D.M. WITH PROGRAMMABLE MOVEMENT, WORKMASTER II 3R ROBOT WITH BOOKSHELF CAPACITY OF 72 ELECTRODES; TRAVEL LIMITS – X=12.59" Y=8.66" Z=12.59"

GRINDING EQUIPMENT

- 9 - "HARIG" 6.0" X 12.0" SURFACE GRINDERS WITH "POPE" ULTRA PRECISION SPINDLES AND .0001 RESOLUTION GLASS SCALE DIGITAL READOUTS ON THE CROSS FEEDS
- 7 - "HARIG" 6.0" X 18.0" SURFACE GRINDER WITH "POPE" ULTRA PRECISION SPINDLE AND .0001 RESOLUTION HEIDENHAIN GLASS SCALE DIGITAL READOUT ON THE CROSS FEED AND DOWN FEED
- 2 - "MITSUB" MSG200MH 6.0 X 12.0 SURFACE GRINDERS WITH GLASS SCALE READOUTS ON CROSS AND DOWN FEED -
- 1 - "JAKOBSEN" 12" X 24" AUTO FEED WET GRINDER WITH 11" GRIND HEIGHT
- 1 - "OKAMOTO" 20X60 ACC AUTO FEED/PROGRAMABLE WET GRINDER

MILLING EQUIPMENT

- 1 - "BOSTON DIGITAL" MODEL #32G MACHINING CENTER (GRAPHITE/STEEL) 22.05" X 16.14" TABLE TRAVEL; Z AXIS TRAVEL – 20.08" WITH 10 HP, 12,000 RPM MOTORIZED SPINDLE WITH 20 POSITION 40 TAPER TOOL CHANGER
- 1 - "BOSTON DIGITAL" MODEL 22 MACHINING CENTER (GRAPHITE/STEEL) TRAVELS X=22" Y=16" Z=20" WITH 10 HP, 12,000 RPM MOTORIZED SPINDLE WITH 20 POSITION 40 TAPER TOOL CHANGER
- 1 - "MORI SEIKI" SVD 503, HIGH SPEED MACHINING (GRAPHITE) WITH 20,000 RPM SPINDLE, 30 POSITION TOOL CHANGER, RENISHAW PROBING AND TOOL PICKUP; TRAVELS X=31.5" Y=20.1" Z=20.1"
- 1 - "3R" WORKMASTER II DUAL MACHINE FEEDING THE MORI SEIKI SVD 503 AND THE BOSTON DIGITAL - WITH A ROTARY MAGAZINE AND A CAPACITY OF 200 ELECTRODES/40 TOOLS.
- 1 - "MORI SEIKI" SV500 HIGH SPEED, SUPER PRECISION MACHINING CENTER WITH 6,000/25 HP SPINDLE, 30 POSITION 50 TAPER TOOL CHANGER (TOOL-TO-TOOL CHANGE SPEED OF 1 SECOND), RAPID FEED "1,260 IPM", CUTTING FEED "630 IPM", 2,000 PSI CHIP BLASTER; TRAVELS X=40.2" Y=20.1" Z=20.1
- 1 - "MORI SEIKI" MV-653/50, MACHINING CENTER WITH 6,000 RPM SPINDLE, 30 POSITION 50 TAPER TOOL CHANGER, RAPID FEED "945 IPM", CUTTING FEED "393 IPM", 2,000 PSI CHIP BLASTER; TRAVELS X=60.2" Y=26.0" Z=25.6"
- 5 - "BRIDGEPORT" MILLING MACHINES- 13.0" X 36.0" TABLE TRAVEL, WITH GLASS SCALE DIGITAL READOUTS

TURNING EQUIPMENT

- 1 - "CLAUSING" COLCHESTER 15.0" X 50.0" LATHE WITH TAPER ATTACHMENT COMPLETE WITH 3-JAW, 4-JAW, FACEPLATES, COLLETS, ETC.
- 1 - "MORI SEIKI" CNC LATHE SL-204, 4500RPM, 15 HP, 9" TURNING DIAMETER
- 1 - "MORI SEIKI" CNC LATHE NL2500, 12" TURNING DIAMETER, LIVE TOOLING

SAWING EQUIPMENT

- 1 - "DoALL" TILT-CUT VERTICAL BAND SAW WITH 1.0" BLADE AND 14" X 21" CAPACITY
- 1 - "ROLL-IN" VERTICAL BAND SAW
- 1 - "DoALL" MODEL ML BAND SAW

MISCELLANEOUS SUPPORT EQUIPMENT

1	-	"DoALL" LAPPING MACHINE FOR LAPPING LAMINATES
1	-	"DoALL" 5' RADIAL ARM DRILL PRESS
1	-	"DELTA" DRILL PRESS WITH D.C. TAPPING MOTOR
1	-	"LASSY" TAPPING TABLE
1	-	"WESTHOFF" SENSITIVE HORIZONTAL DRILL PRESS (FOR GRAPHITE)
1	-	"APEX" 16" PEDESTAL DISK SANDER
1	-	"HAMMOND" PEDESTAL GRINDER
1	-	"TRINCO" SANDBLAST CABINET
1	-	"DAKE" 75 TON HYDRAULIC PRESS
1	-	5 TON P&H OVERHEAD BRIDGE CRANE
10	-	DIE CARTS - 1/2 TON - 1/2 TON - 1 TON - 2 TON
1	-	"KNOX-AIR" AIR COMPRESSOR - 5 H.P.
1	-	"JOY" AIR COMPRESSOR - 15 H.P.

A traditional assortment of parts washers, gas welder, deburr tumbler, electro-acid etch labeler, etc.

FULLY EQUIPPED POLISHING ROOM

With D.M.E. ultra-sonic polishing tools, die profilers, mini-belt sanders, rotary hand tools, etc., capable of achieving a SPI/A-1/#1 Finish.

PRECISION GRINDING ACCESSORIES

2	-	"DED-TRU" CENTERLESS GRINDER
1	-	"VARI-PITCH" THREAD GRINDER
2	-	"BROWN & SHARPE" HIGH SPEED HEAD
3	-	"NEWBOULD" INDEXING FIXTURE
1	-	"NEWBOULD" ANGLE DRESSER
2	-	"HARIG" GRIND ALL #1 SPIN FIXTURES
1	-	"HARIG" GRIND ALL #2 SPIN FIXTURE
1	-	"DUNHAM" CYLINDRICAL GRINDER
2	-	INDEXING AND CENTER ATTACHMENTS
1	-	"WELDON" AIR BEARING CUTTER GRINDER
1	-	"DECKEL" MULTI-FUNCTION CUTTER GRINDER
1	-	1:1 FORM TRACER WHEEL DRESSER
5	-	MAGNIFYING RADIUS TYPE DRESSERS
2	-	"NEWBOULD" FLAT SPIN JIGS
1	-	10:1 DIAFORM WHEEL FORMING ATTACHMENT

MILLING ACCESSORIES

1	-	"SERVO" - SENSITIVE, SMALL HOLE DRILLING UNIT
1	-	"VOLSTRO" ROTARY HEAD
1	-	"VOLSTRO" BROACHING HEAD
1	-	"BRIDGEPORT" 15.0" ROTARY TABLE
1	-	"U.V.T." - HEAVY DUTY HINGE LOCK ANGLE PLATE
2	-	"LYMAN" - POWER FEED UNITS

MOLDING EQUIPMENT

MOLDING PRESS

- 1 - "ENGLE" ES 1300/300 INJECTION MOLDING MACHINE, 300 TON TOGGLE WITH EJECT ON THE FLY AND UNATTENDED SHUT DOWN TRIGGERED BY PROCESS ERROR. 24.8 OZ. SHOT SIZE WITH 35.67 X 35.87 PLATEN, CLAMP STROKE 23.62. MOLD HEIGHT 7.87 – 25.98, DAYLIGHT 7.87 – 49.60, TIE BAR CLEARANCE 25.04 X 25.04, EJECTOR STROKE 7.87.

MATERIAL HANDLING

- 1 - "ENGLE" SPRUE PICKER AND 12' CONVEYOR TO ENSURE ADEQUATE PART COOL DOWN BEFORE PACKAGING
- 1 - "CONAIR" CHILLER AND DRYER WITH PROPORTIONATE LOADER, GRANULATOR, AND TWO THERMOLATORS.

AUXILIARY

- 1 - DEW POINT MONITOR, INFRARED TEMPERATURE SENSOR, AND A COMPLETE INSPECTION DEPARTMENT WITH AN IMS COORDINATE MEASURING MACHINE (REFER TO "FINAL INSPECTION EQUIPMENT")