

Who We Are...

- ❖ **Systems Integrators with 3 core competencies**
 - **1. Electro-Mechanical Assembly & Test of top level products**
 - Turnkey and consignment builds
 - **2. Machining of complex, precision components**
 - Prototypes to volume manufacturing
 - **3. Engineering Design Assistance**

Who We Are...

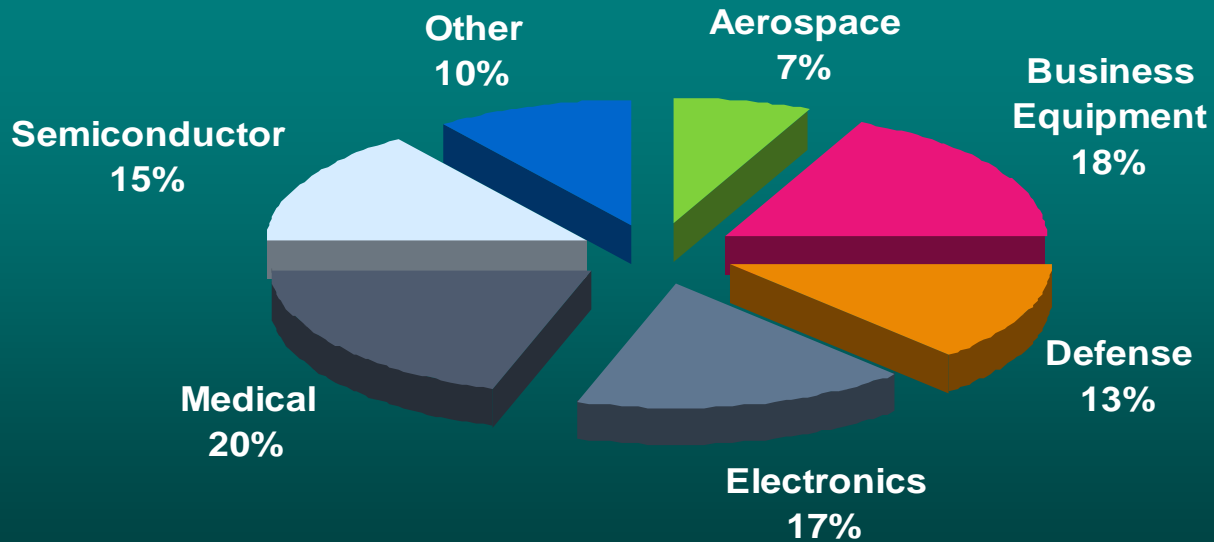
- Established in 1969
- State of the art facility on 23 acres
- 240,000 square feet of manufacturing space
- Two additional buildings with 80,000 square feet combined
- ISO 9001:2008 Certified
- ITAR Registered
- Providing single source solutions to many Fortune 100 and 500 customers



DFF's Policy / Commitment

- **Service** - "Whatever it takes" attitude
- **Quality** - "Defect Free" mentality
- **Pricing** - "Cost Reduction" culture
- **Resources** - "Add" to meet customer requirements

Primary Markets Serviced



Some of our Valued Partners



Customer	Code
Analogic	1307458000
BAE	4262
Brooks Automation	21768
Corning	
General Dynamics	PH6100
IBM	
ITT Power	44047
Lockheed Martin	LM0067250
Kiva Systems	
Perkin Elmer	700346
Siemens	00109245
Sparton Medical Systems	DFE
Speedline Technologies	113171
T.A. Instruments	46519
Varian Semiconductor Equipment	1107843

➤ Machining Capabilities

❖ 85 CNC Machine Centers

- Flexible Manufacturing System (FMS), 422 Tools per Machining Center (2centers), 24 Pallet Rail System.
 - Capable of holding tolerances of +/- 0.0002".
 - Operates 24 hours per day with minimal touch labor.
- Five Axis CNC Machine Centers
- Large Vertical up to 10'x6.75'x2.5' and Horizontal CNC Machine Centers to 6'x6'x5'
- CNC Lathes up to 36" Diameter
- Extensive Tool Room for Prototyping, Test Fixtures , etc.

❖ **DFF offers assistance in:**

- Design For Assembly (DFA)
- Design For Manufacturability (DFM)
- Engineering Design Assistance
- Supply Chain Management
- Outsourcing any commodity through DFF's Purchasing staff
- Make/Buy Analysis for purchase components

❖ **DFF offers cost-effective engineering solutions in:**

- Design and drafting assistance
- Geometric dimensioning and tolerancing (GD&T)
- Statistical Process Control (SPC)
- Continuous Improvement Practices (6 Sigma)

Customized Delivery Systems that meet your needs:

- Just-in-time
- Point of Use
- Supply chain management
- Vendor managed inventory
- Consigned inventory programs
- Drop or international shipments
- Order, Kanban, or forecasts with releases
- Kitting

❖ DFF will assist in providing processes that:

- Shorten cycle times,
- Reduce costs,
- Help improve your product, and
- Your bottom line.

❖ Speed of Business

- Enterprise Resource Planning (ERP) System
- Electronic Data Interchange (EDI)
- Electronic File Transfer (EFT)
- Bar-coding
- Optimized electronic handling of your requirements

DFE can import and/or receive files in various formats:

- Engineering data files (IGES, DXF, solid models)
 - Pro-E
 - Catia
 - Solid Works
 - Unigraphics
 - MasterCam

Quality Control

Temperature and Humidity controlled environment (6500 Square Feet)



Quality Control Equipment

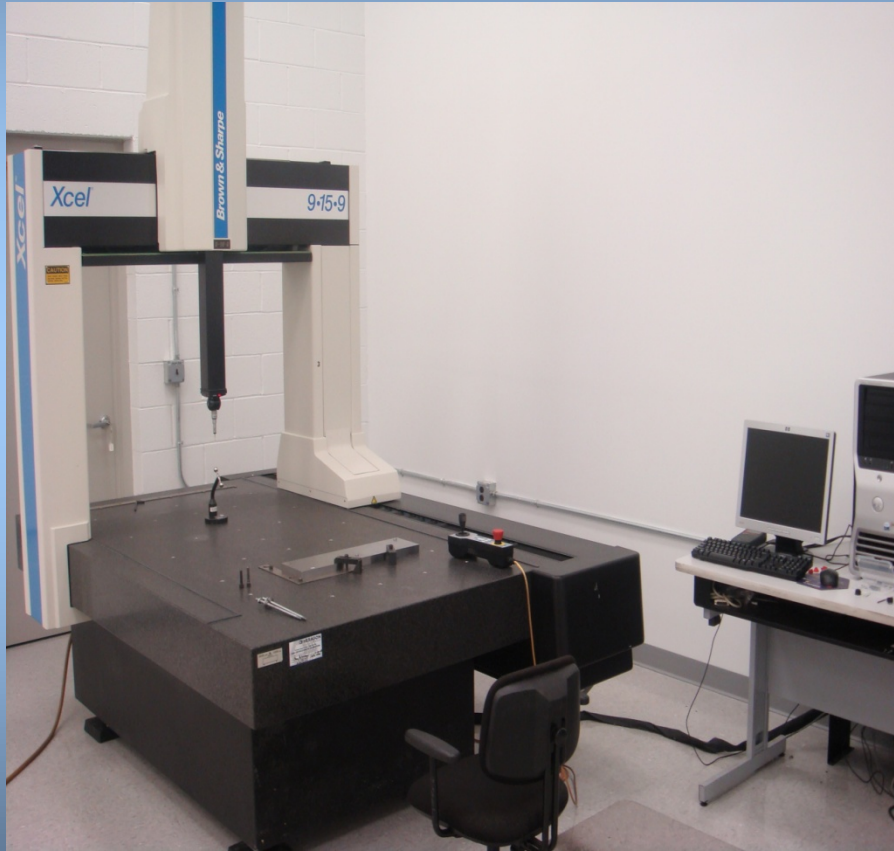
- 150 and 300MM TropeL.
 - Flatness Accuracy Within 2 Nanometers
- Precitech Concentricity and Roundness Gauge
- RoHS XRF Analyzer
- 6 Automated Coordinate Measuring Machines
- 7 Manual Coordinate Measuring Machines
- Stereo and “Z” Microscopes
- Minitab and Measurlink SPC Software



Large Capacity CMM

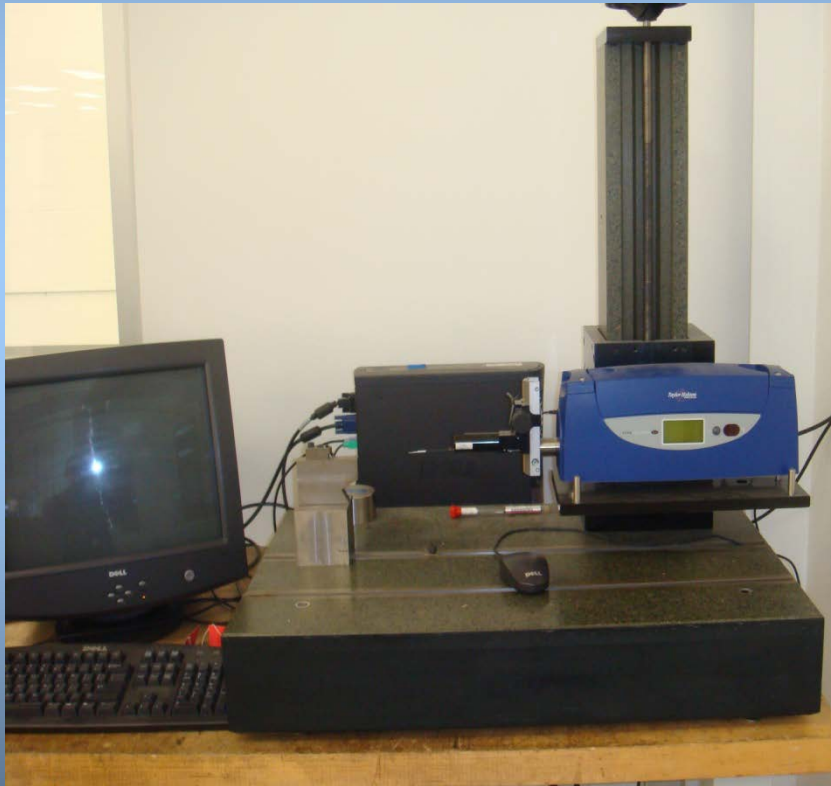
Inspection part size capability - 122"x 90"

High Accuracy CMM



Precision Measuring Equipment

Taylor Hobson Form Talysurf

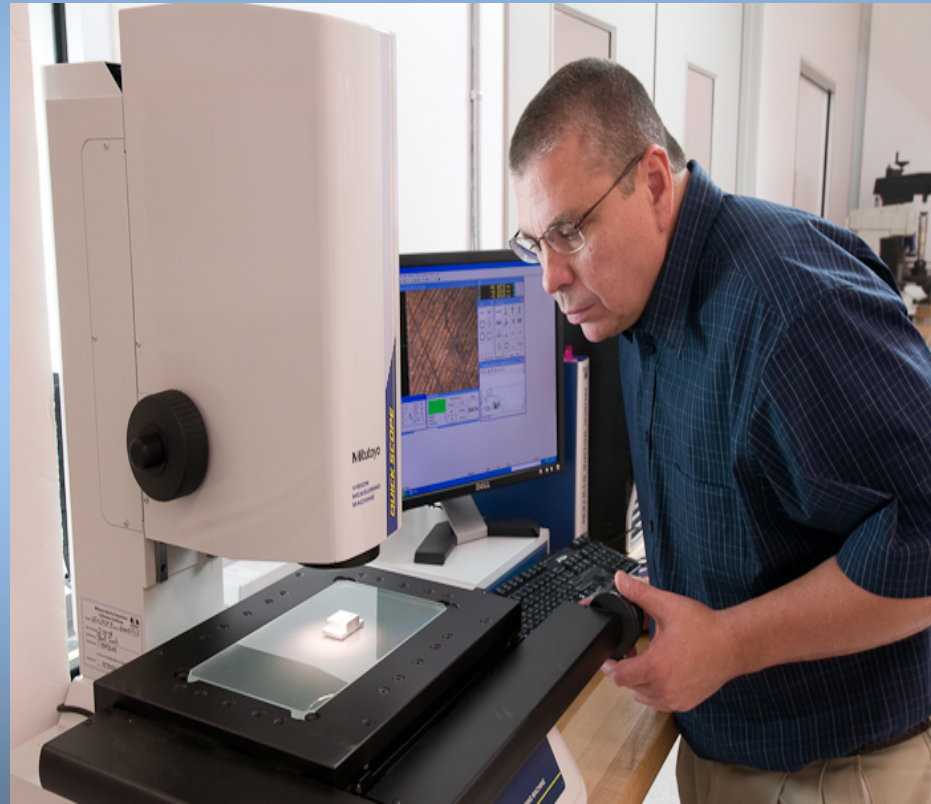


High Accuracy Roundness Gauge



Z Microscope
147X Magnification

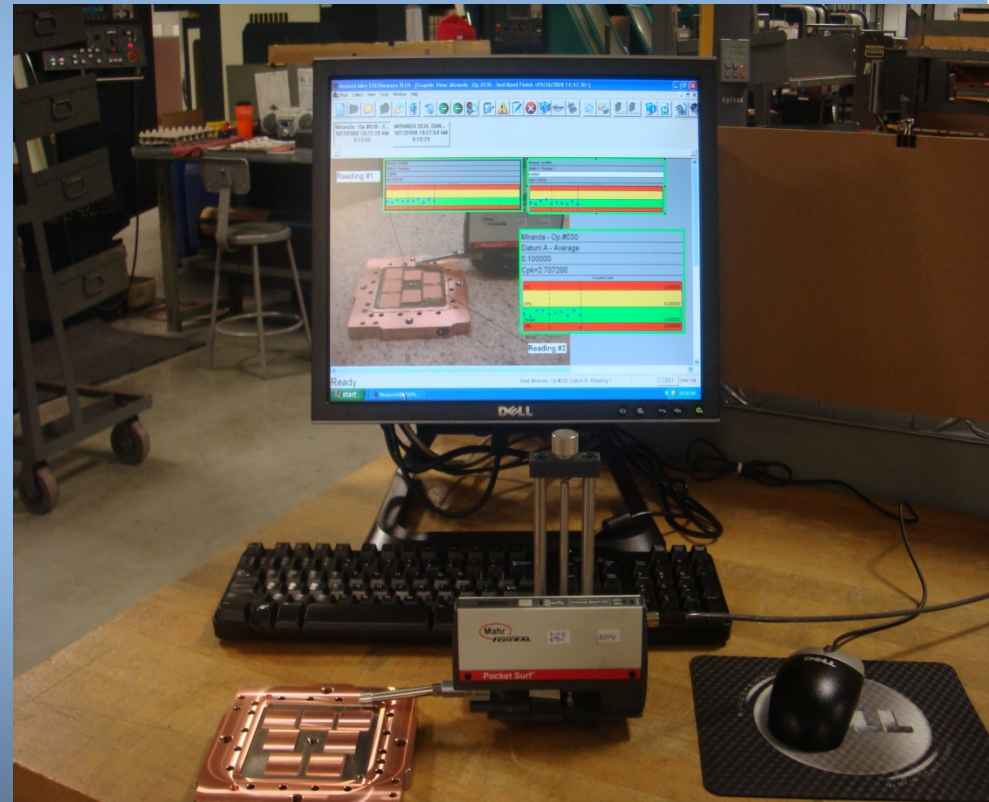
Environmentally Controlled
CMM Room



Data Analysis Equipment

XRF Material Analysis

Measurlink Real Time SPC Data Collection



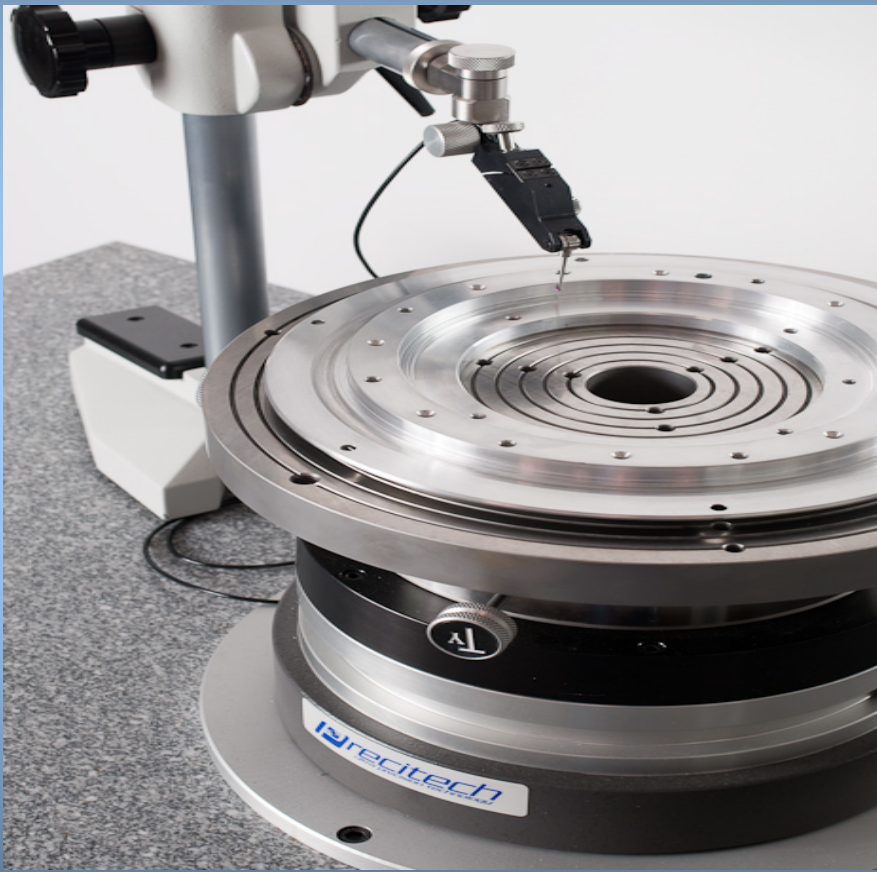
Supply Chain Management

- **Approved Supplier List**
- **PPM Report Cards**
- **On Site Process/Product Audits**
- **Supplier Surveys**
- **First Article Inspection/Corrective/Preventive Action**
- **Receiving Inspection (No skip lots)**

Manufacturing Process Controls

- **PPAP's (Levels 1-5)**
- **PFMEA's, Control Plans**
- **Gauge R&R's, Linearity Studies**
- **Process Capability Studies**
- **Run, Control and Individual Moving Range Charts**

Inspection - Intricate Machined Components



Extensive Machining Capability (Core Competency)



59 Gen Creighton W. Abrams Drive
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Telephone: 413-786-8880

Fax: 413-789-1432

Website: www.dffccorp.com

DDF In-House Testing Capabilities

- Hi-pot / Ground Continuity
- Hydrostatic Pressure (Pressurized vessels with water up to 5,000 psig)
- Air pressure testing to 500 psig
- Helium Leak Detection
- E.S.D. compliant
- Testing to customer supplied specifications (Mechanical or electro-mechanical)
- All test parameters documented through detailed work instructions
- Analytical / RoHs material XRF Analyzer

5 Axis Machining Centers



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Horizontal Machining Centers



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Large Part Capabilities
122" x 80" x 31"

Large Vertical Machining Centers



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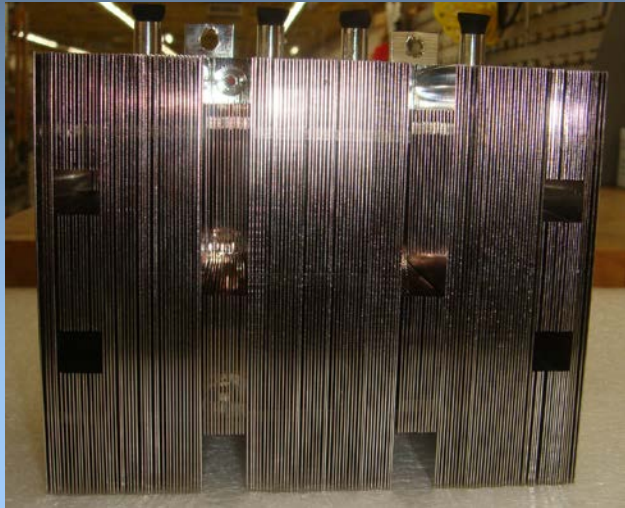
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Website: www.dffcorp.com

➤ **Cleaning & Test Capabilities**

- **Cleaning**
 - **Vacuum Solvent Degrease Systems**
 - **Ultrasonic, DI Water Rinse and BTA Flush System**
- **Vacuum and Refrigeration Charge Systems**
- **Hi-Pot Testing**
- **Compressed Air Hydrostatic Testing**
- **Helium Leak Detection**
- **Refrigerant Leak Detection**
- **Nitrogen Pressure Testing- Degrading and Under Water**

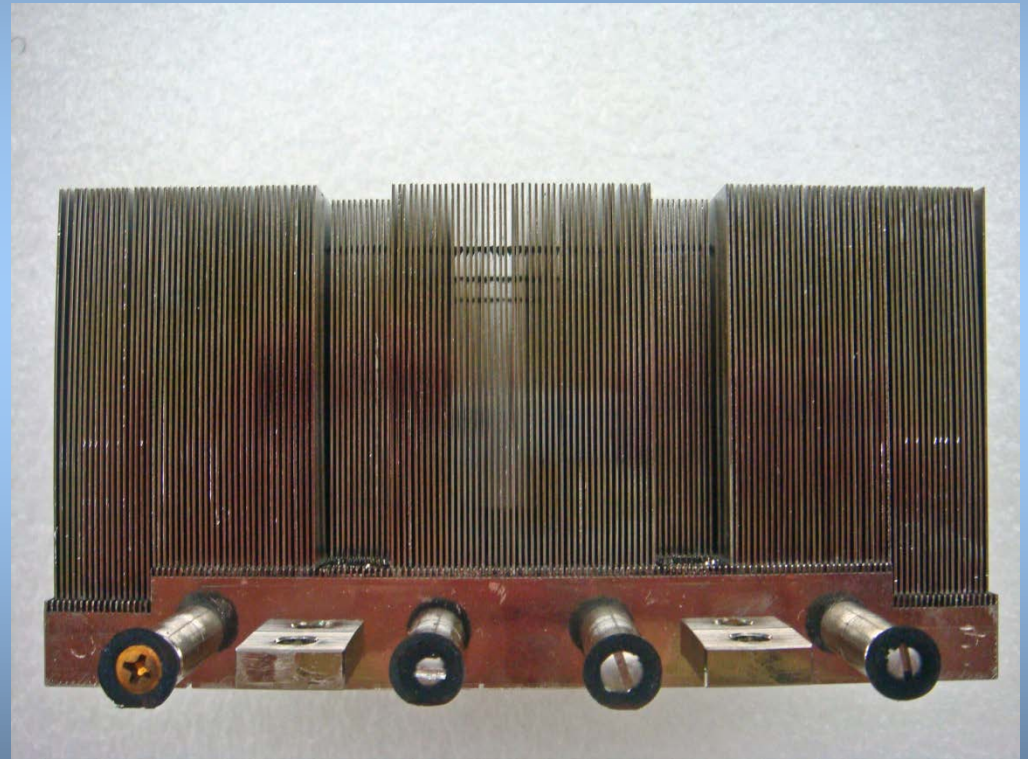
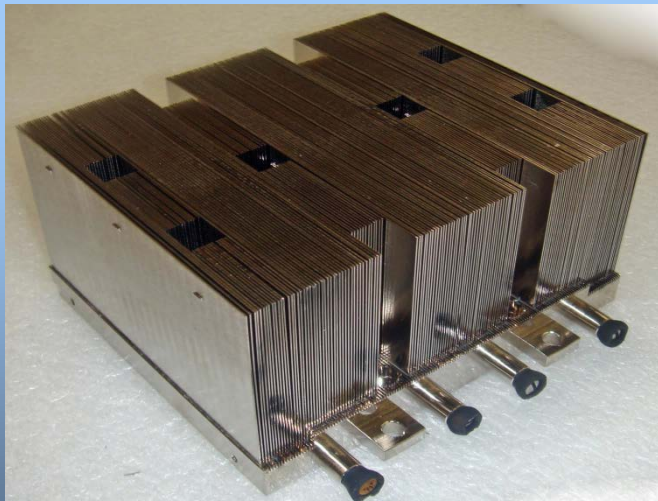


- 2 Airless, Vacuum Cleaning Systems Utilizing Heated Distillable Solvent
- Exceeds EPA/OSHA Regulations
- NVR & Anionic Contamination



Heat-sink Assembly

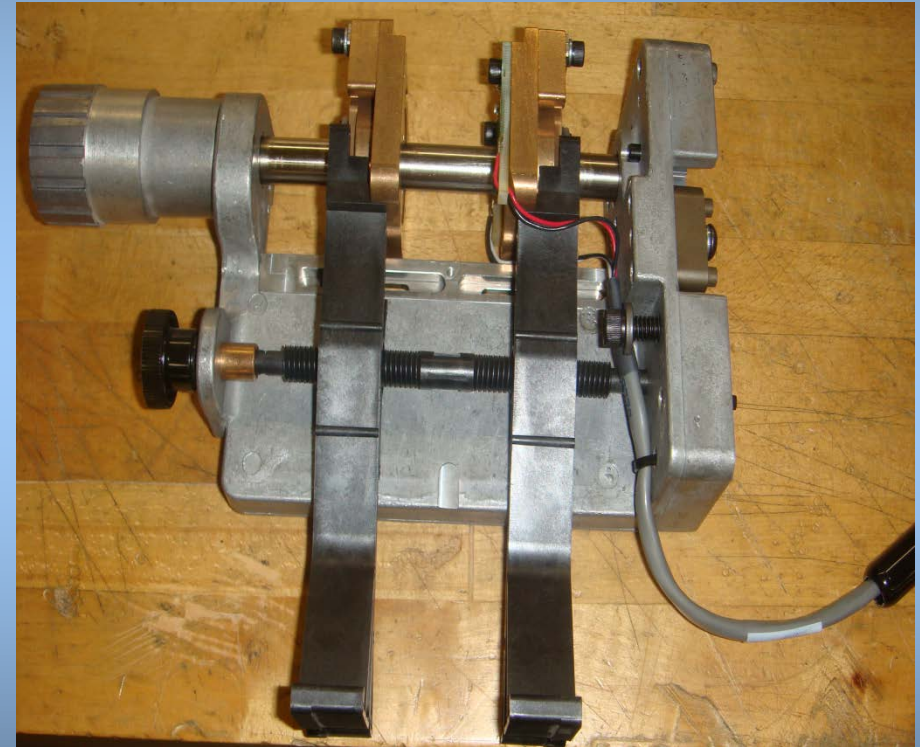
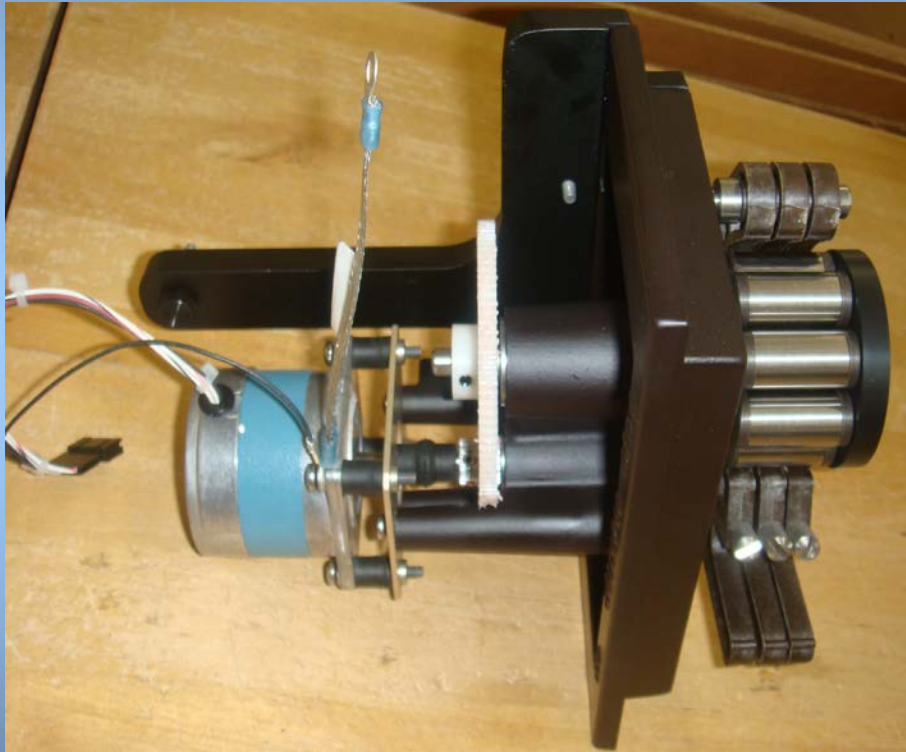
(Individual fins soldered in place)



Heat-Sink Assembly



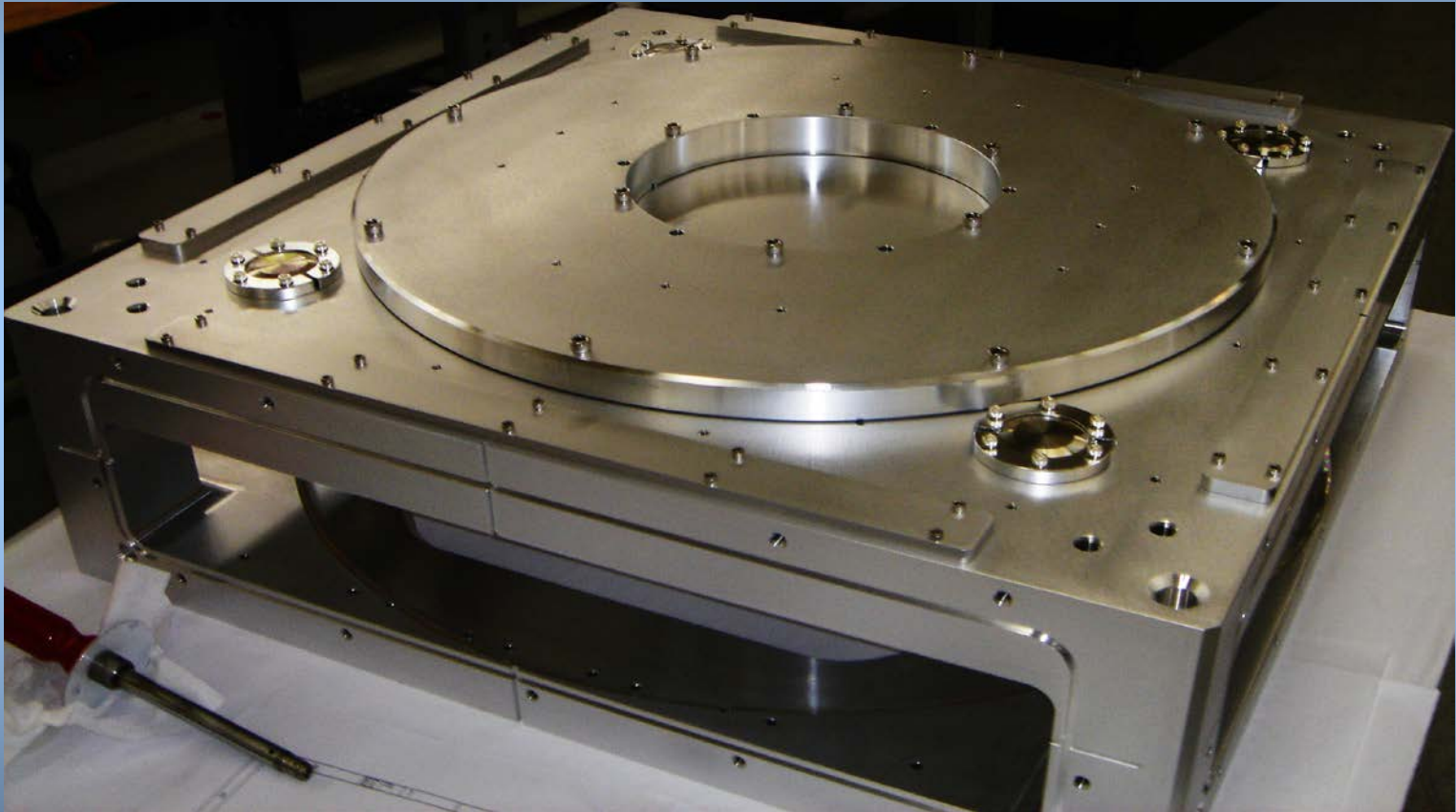
Electro-mechanical sub-assemblies



Chamber Housing Assembly (top view)



Chamber Housing Assembly (bottom view)



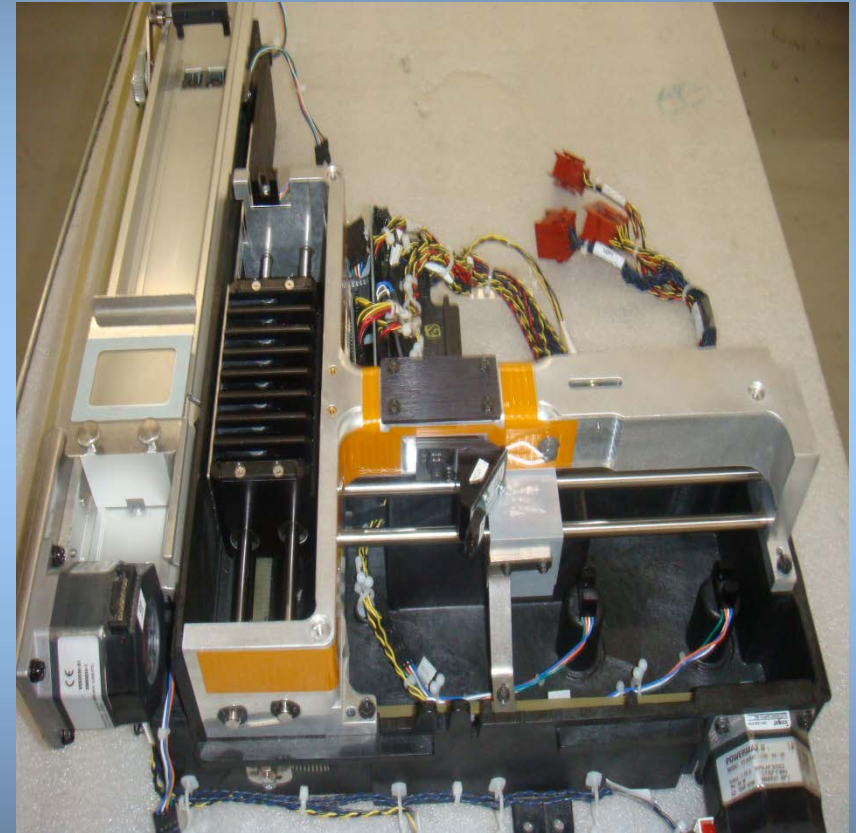
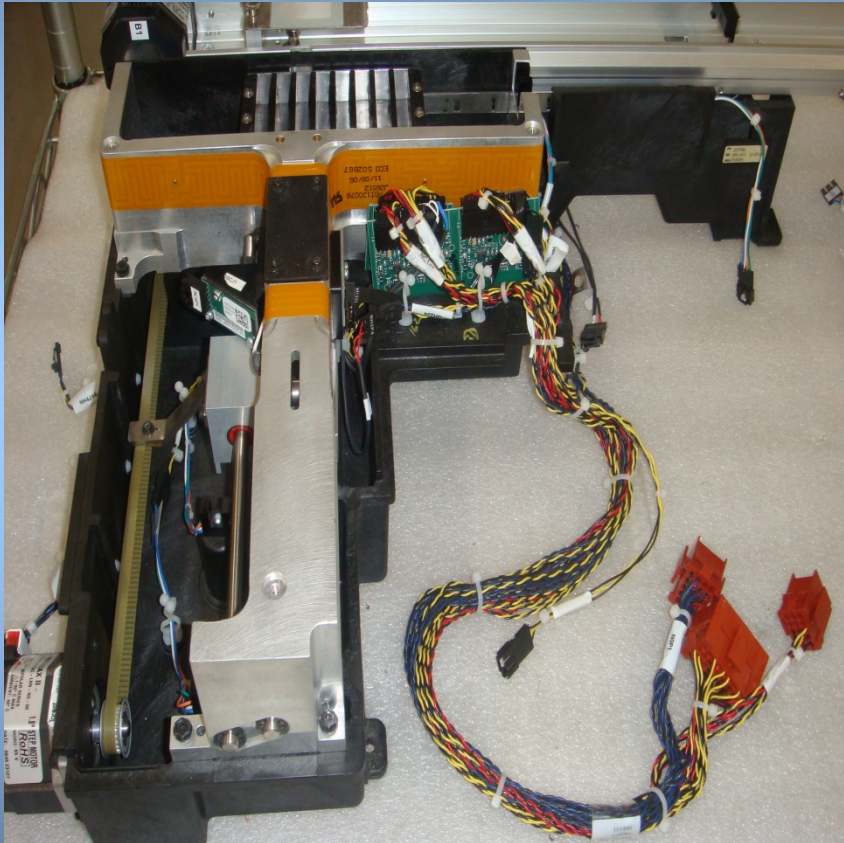
Electro-mechanical Assembly



Electro-mechanical Assembly



Electro-mechanical sub-assembly – Medical Industry



➤ **Master Refrigeration Unit (MRU) ASSEMBLY**

- 112 Different Components
- Multiple Braze Stations
- Charge and Vacuum Stations
- Testing:
 - Hi-Pot/Continuity
 - Helium Leak Detection
 - Functional Valve Tests
 - Functional MRU Testers (live results)

MRU ASSEMBLY Line



MRU TEST AREA



RPU Test Machines



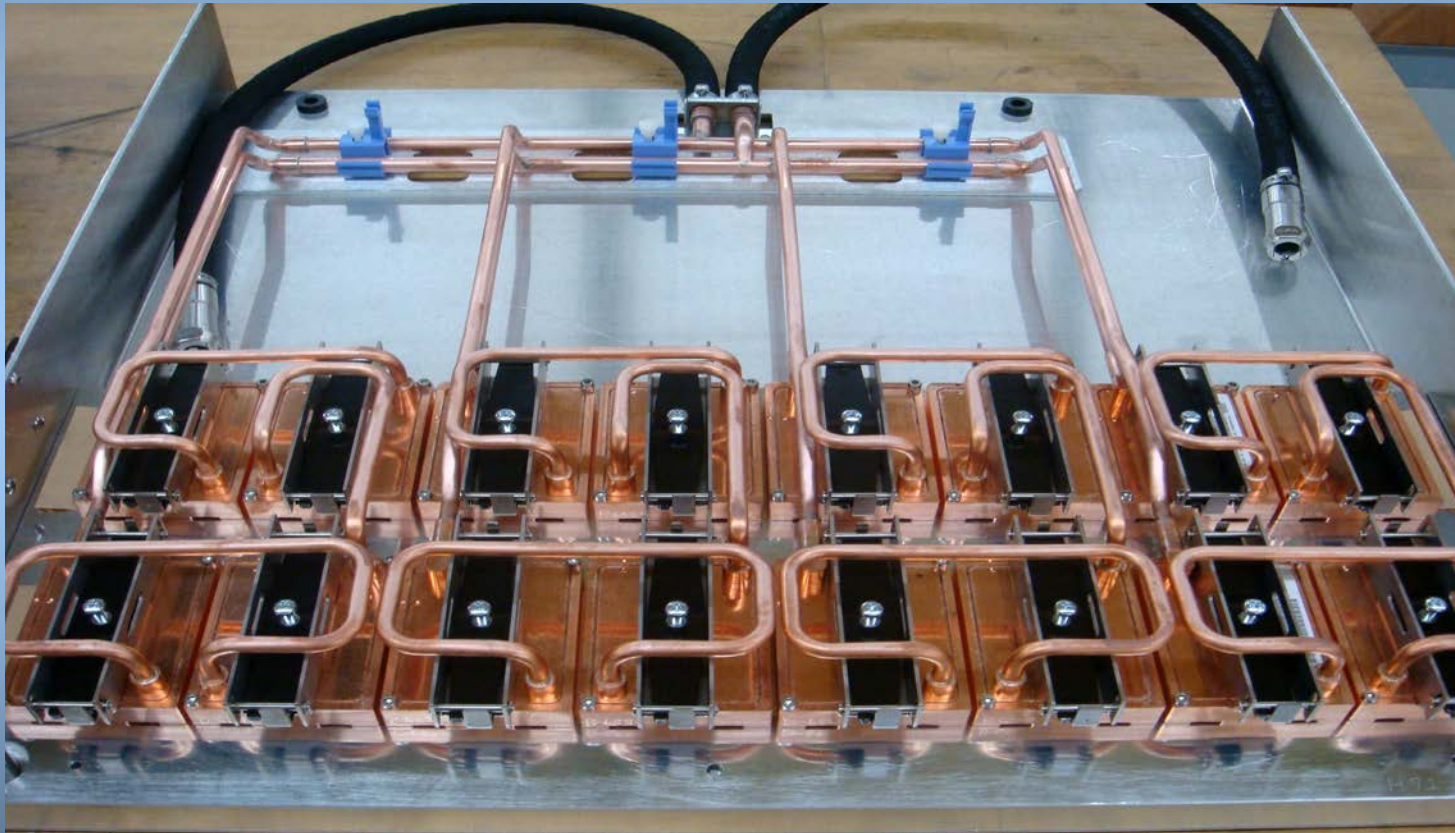
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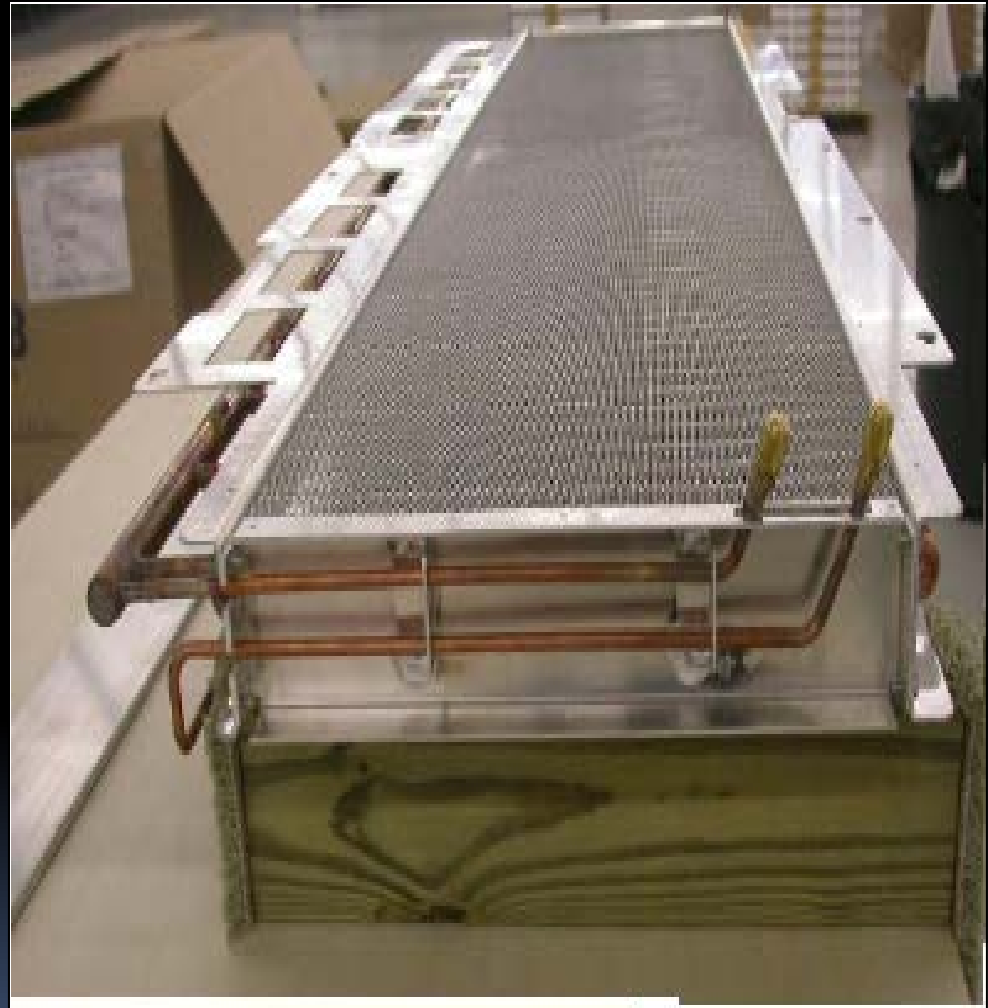
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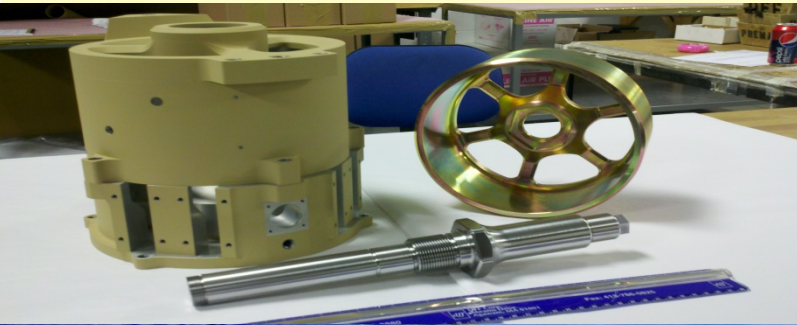
Heat Sink Assembly



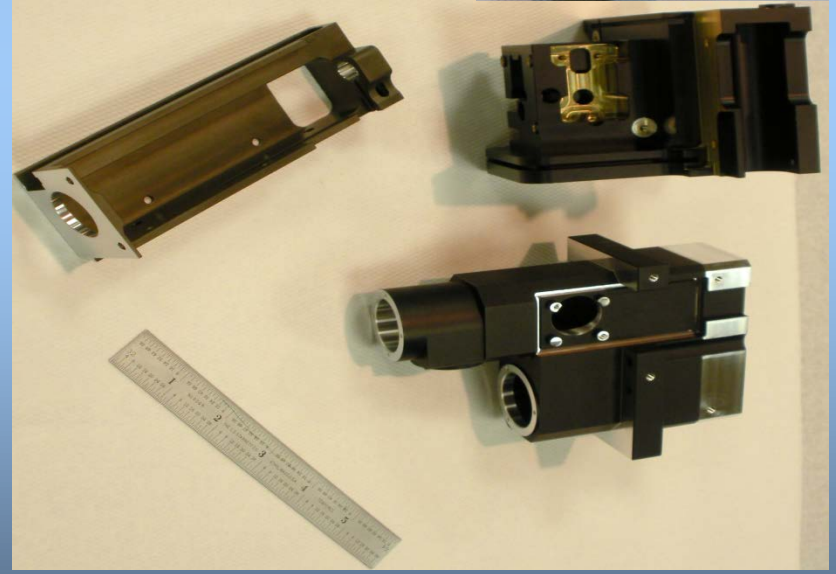
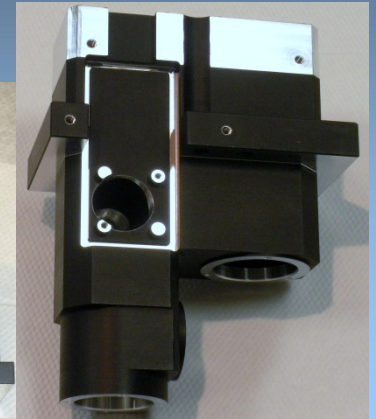
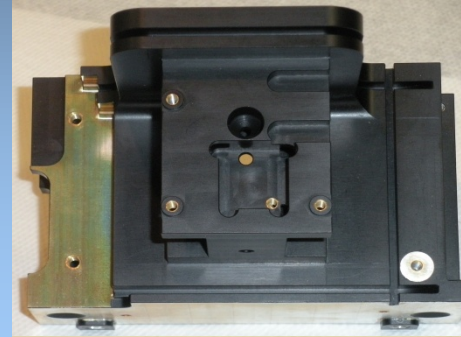
Rear Door Heat Exchanger

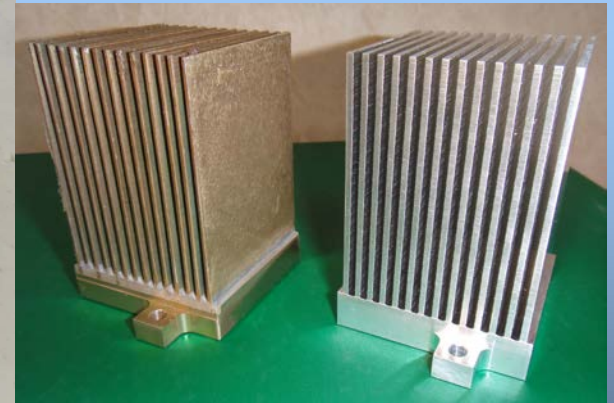
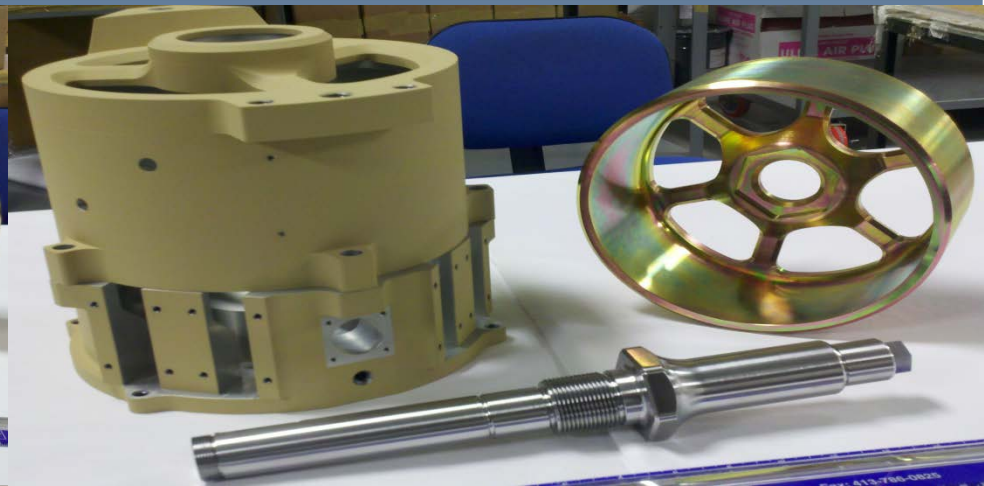
- Pressure/Temp Recorded
- Helium Leak Check All Braze Joints
- All connectors are fitted with mating connector and tested for leaks in the open position.
- Mating connectors are removed and connectors are checked again in closed position.
- Functional Gauges used to Verify Quick Connect Locations





Complex Machined Components





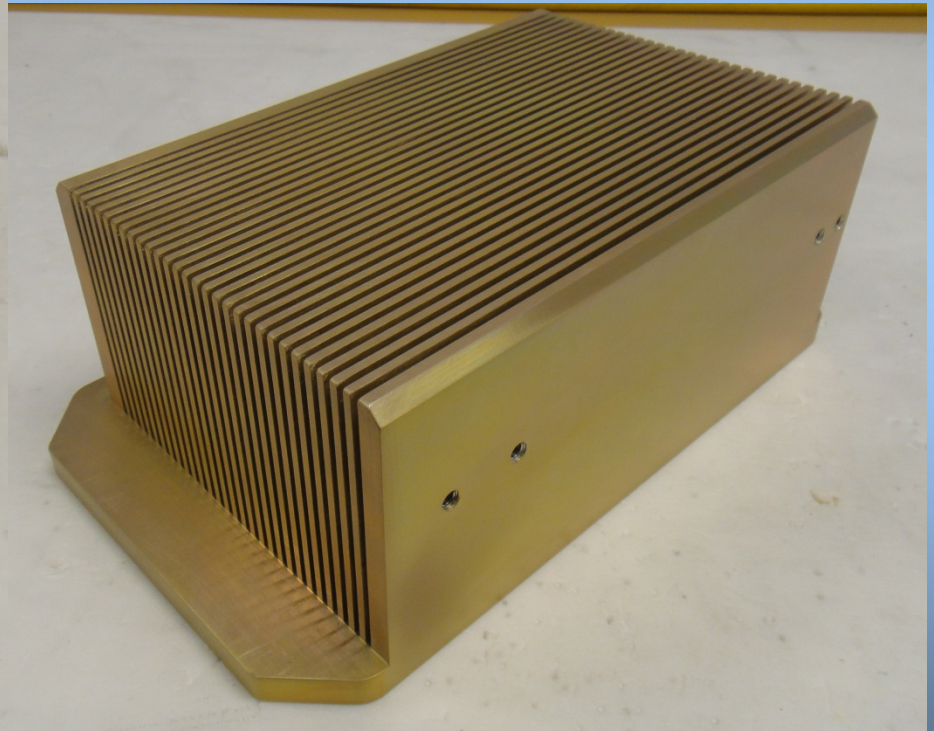
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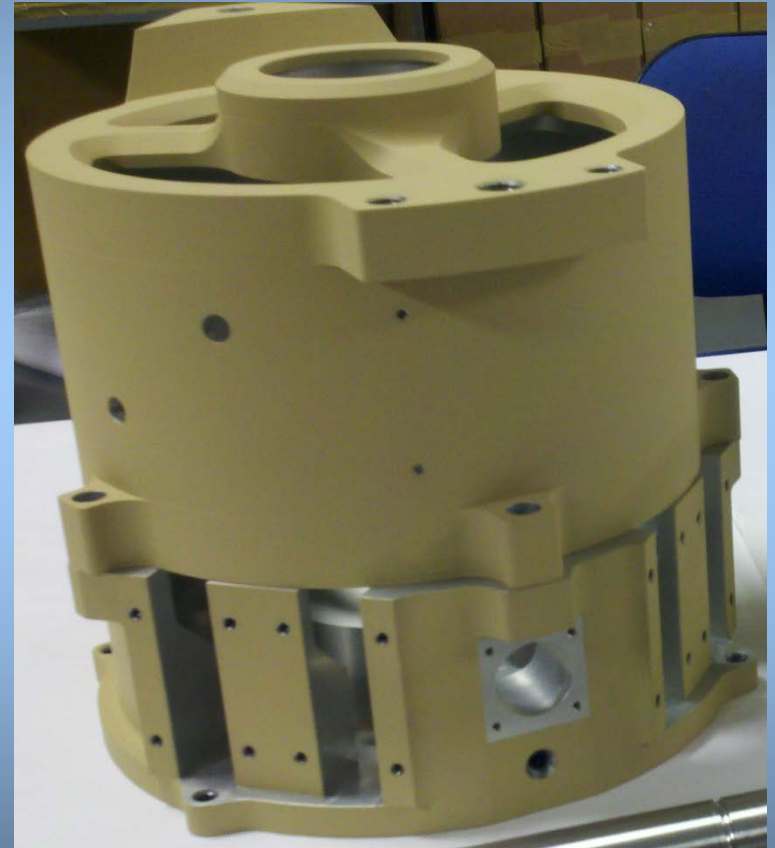


One Piece Heat-Sink

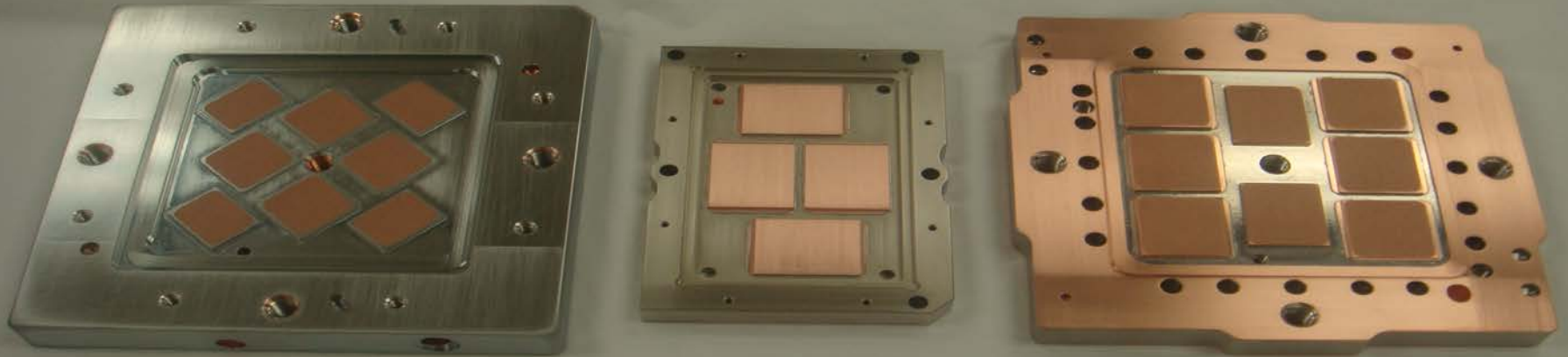
(Individual fins cut)



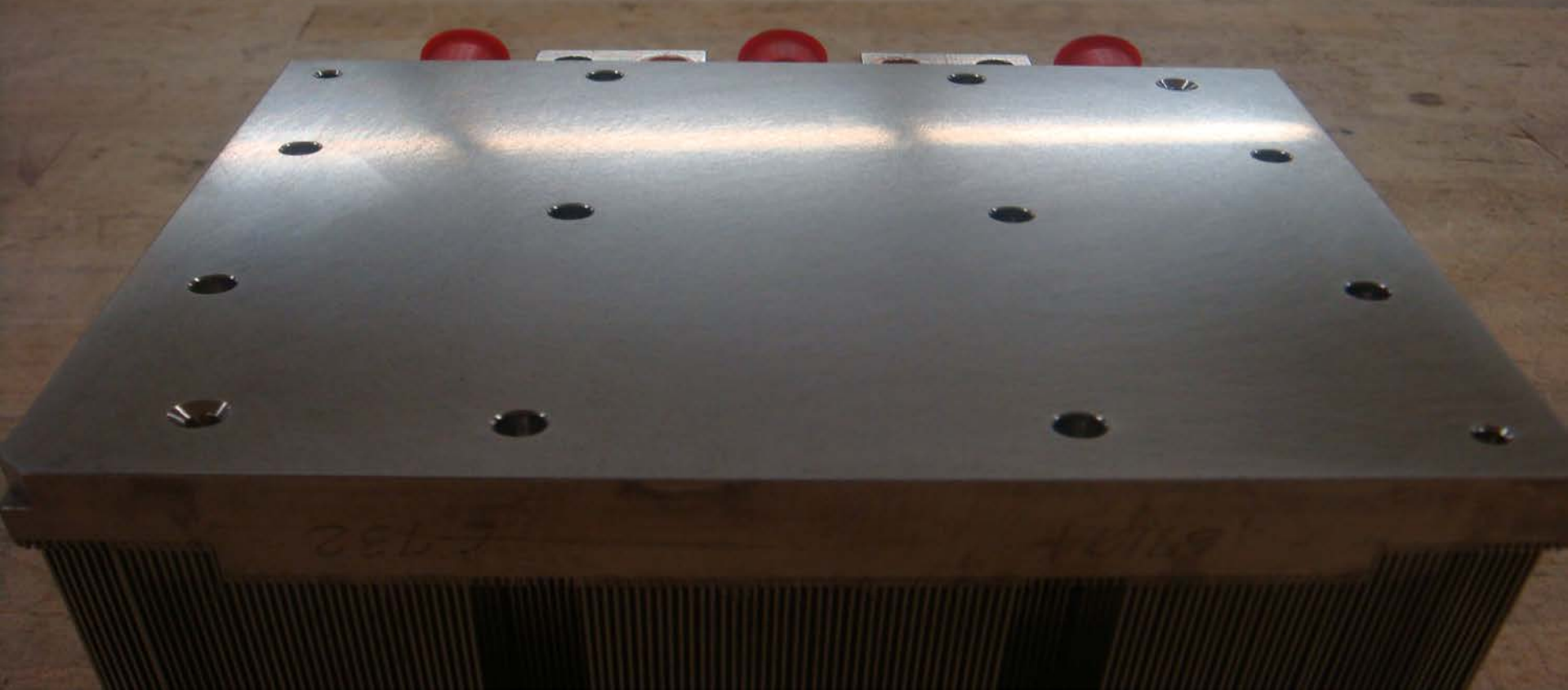
Complex components machined from solid aluminum, plated and painted



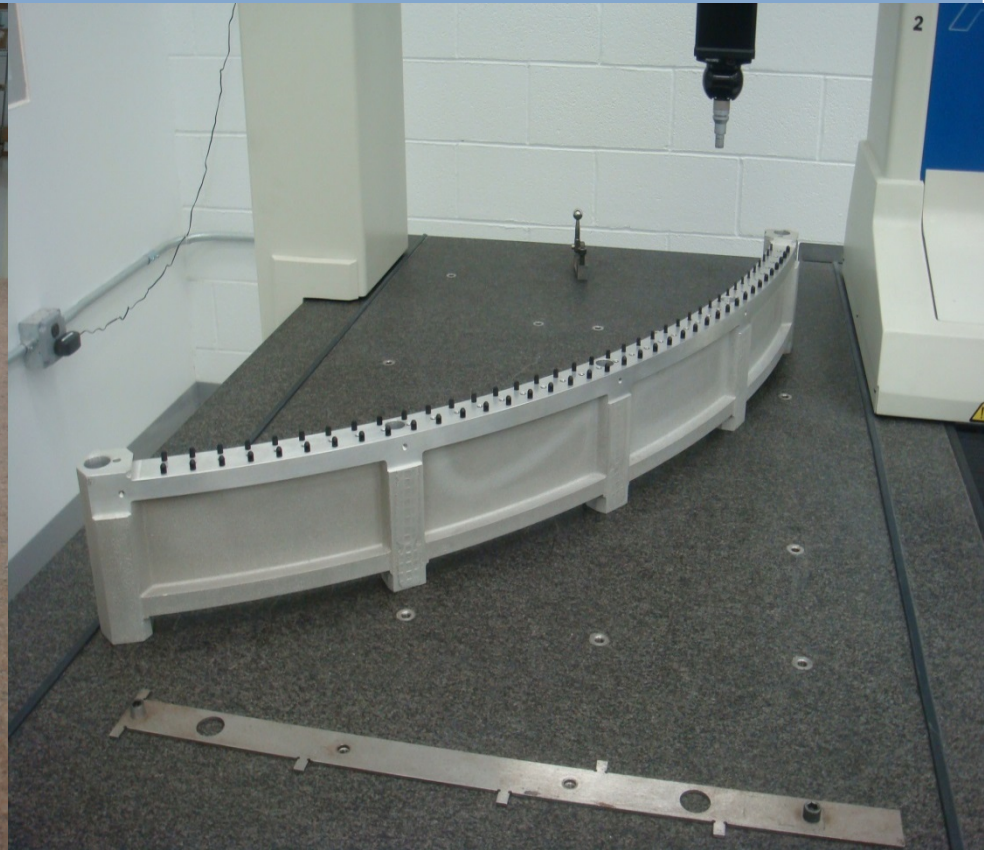
▪ Thermal Surfaces Machined Flat .0050 MM to .0127 MM



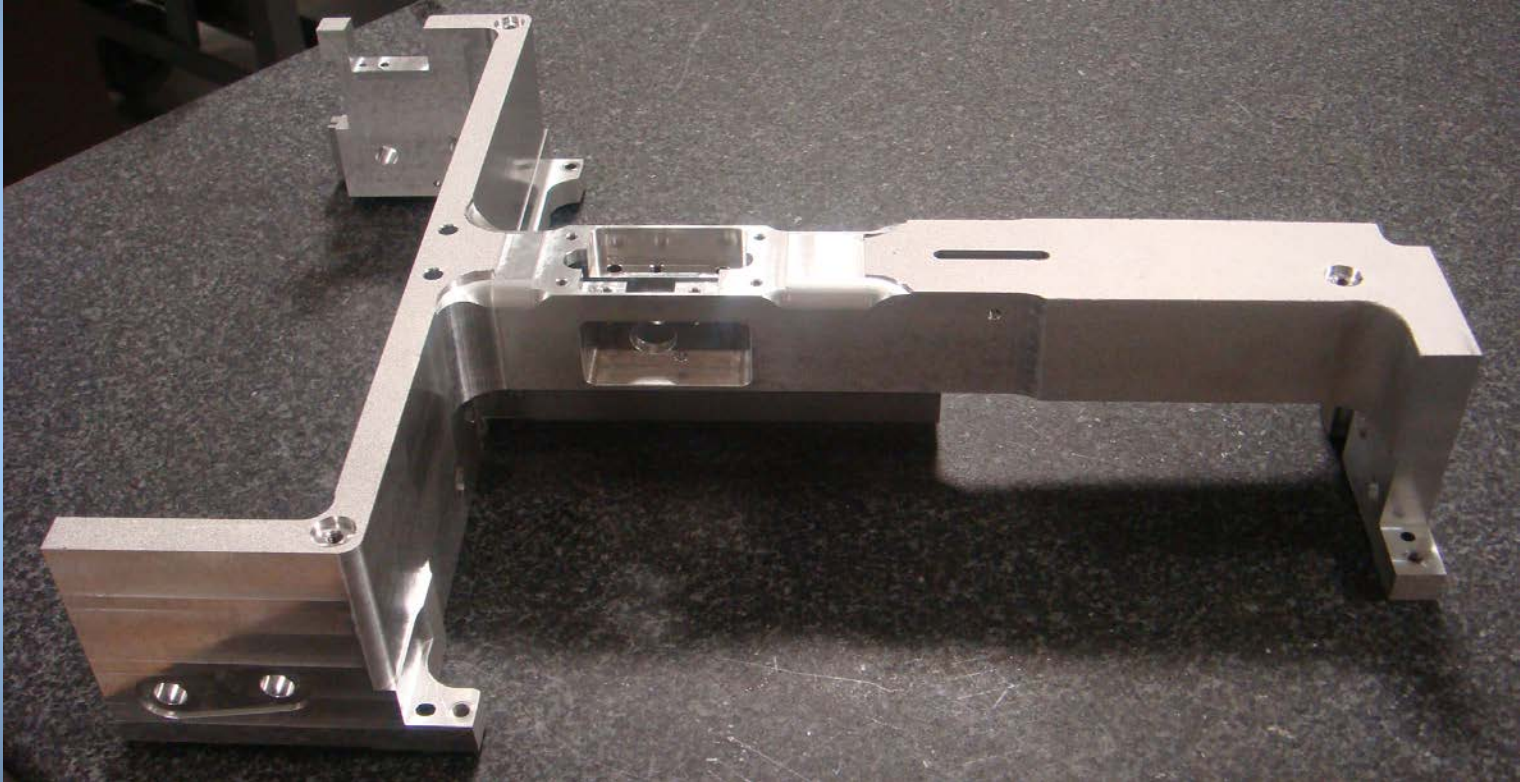
▪ Thermal Surfaces Machined Flat .0050 MM to .0127 MM



Machining/Assembly of Spines, Polygons, etc.



Originally manufactured from solid. Presently produced from a sand casting followed by post machining operations.

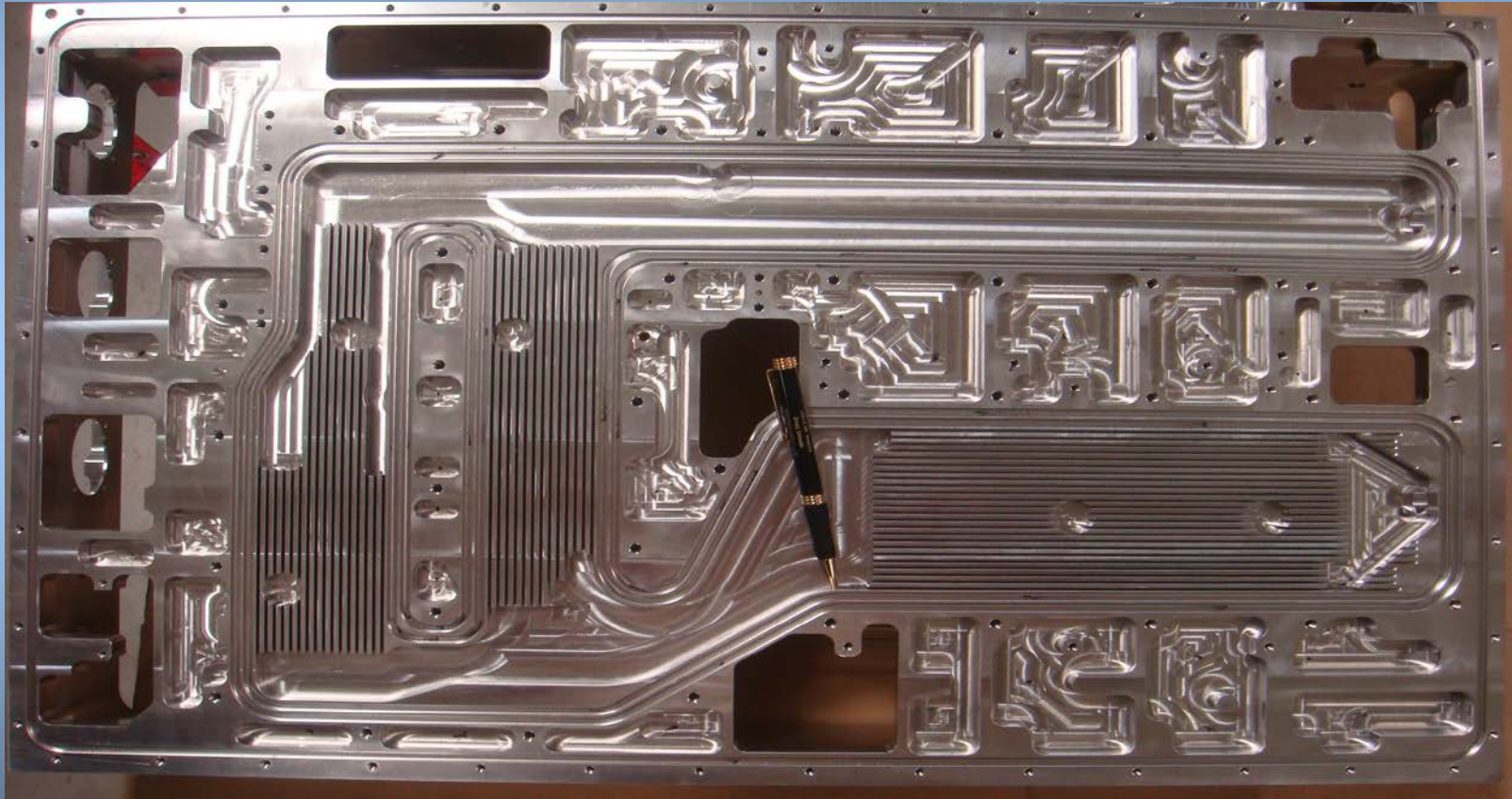


Castings

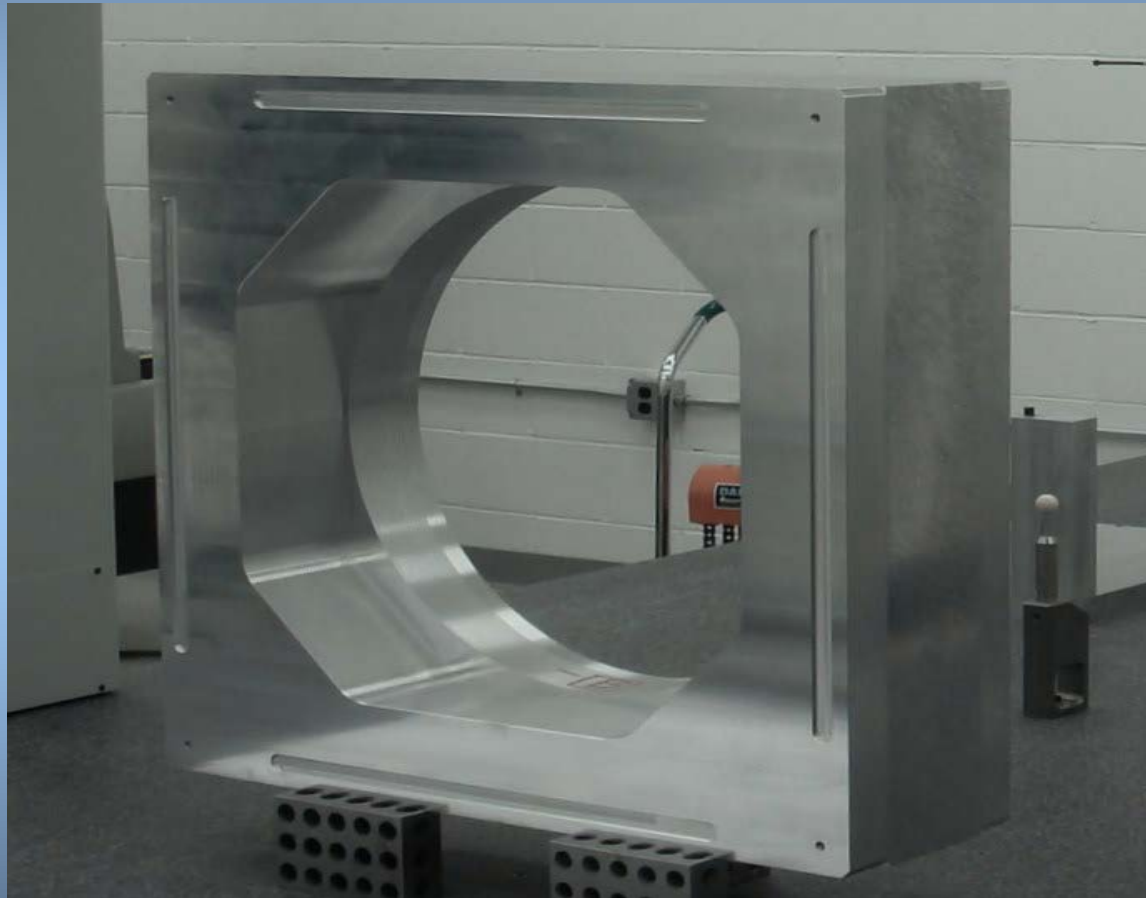
Sourced by DFF, machined, plated, painted and marked to our Customer's specifications.



Complex machined component produced from solid aluminum

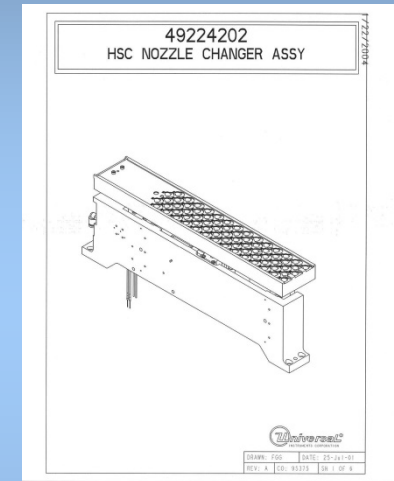
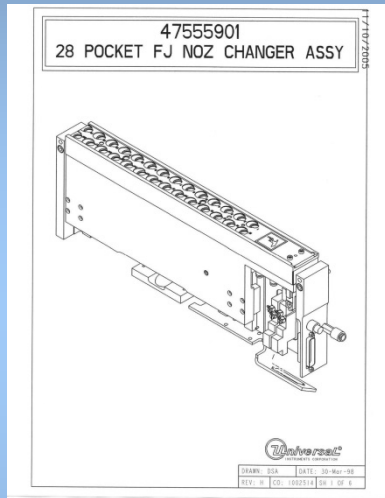


Chamber Housing



Universal Instruments Nozzle Changer Assembly

- 28 station assembly supplied by DFF
 - Components procured by DFF
 - Commodities include pneumatic, electrical, castings, machined parts, and sheet metal
 - Assembled and tested at DFF before shipment to end customer
- Universal Instruments engaged DFF to design 70 station version
 - New components designed in 3D solid model format
 - Complete detail drawings and solid models delivered to customer
 - New design tailored to take advantage of existing manufacturing processes and tooling



Siemens Medical Cuvette Unloader

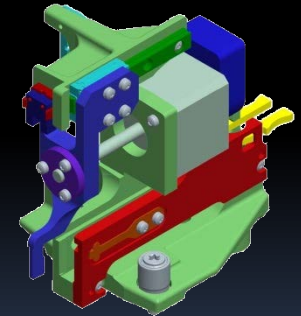
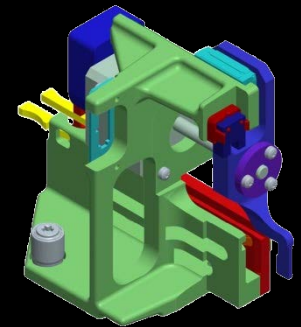


Original Design

- 47 Components
 - 4 machined from wrought stock
 - 25 fasteners
 - 5 dowel pins
- Back cover unscrewed for operator servicing

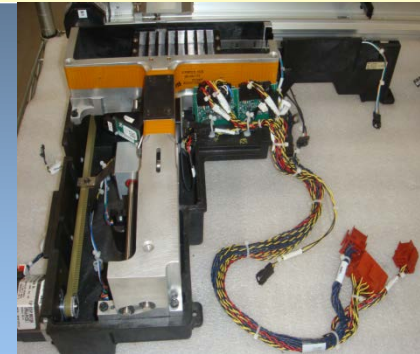


- DFF Design
- 36 Components
 - 3 machined parts, 1 from casting, significant material reductions in the other two
 - 22 fasteners
 - No dowel pins to assemble
- Quick-change snap-in component for operator servicing



➤ DFF Design Enhancements:

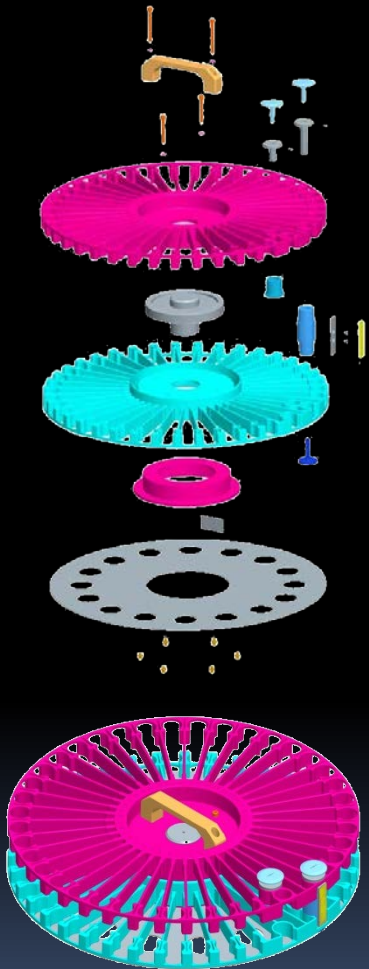
- Eliminated 26 components from original assembly
- Reduced total number of adjustments from 29 to 2
- Redesigned a critical component with alternative material and plating to reduce overall component cost by 75%
- Designed casting drawings
 - Sourced and qualified casting supplier
- Designed structural foam drawings
 - Sourced and qualified structural foam molder
- Reduced total overall cost by 27%
- Received “Innovation Award” from Customer



Ortho-Clinical Diagnostics Reagent Ring

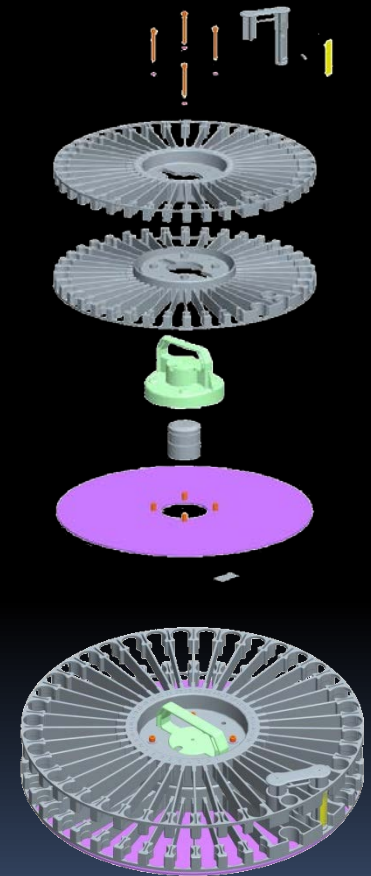
Original Design

- 34 Total components
 - 14 fasteners
 - 10 machined parts
 - No subassemblies
- Fasteners secured from two directions



DFE Design

- 21 Total components
 - 4 fasteners
 - 1 machined part
 - 2 subassemblies, 16 assembly components
- Top-down assembly
- 57% cost reduction





Contacts

Sales Contacts

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Lawrence Legg	540-774-4829	540-353-9031	866-868-2393		llegg@leggassociates.com	VA, NC, E-TN, SC
Johnnie Hull,	706-638-0558	423-718-1300	706-638-0668		handhsales@comcast.net	AL, FL, GA, MS, W-TN, TX, OK
Brad Shults	706-638-0558	423-605-4016	706-638-0668		handhsales@comcast.net	AL, FL, GA, MS, W-TN, TX, OK
John Taylor	330-460-0965	216-570-7786	330-273-9040		John.taylor@taylorcomponents.com	KY, OH, MI, Western PA



Thank you!

**Be sure to visit our website:
www.dffcorp.com**