

- Quality Control

Using our 2013 FARO Edge touch probe/laser scanner coupled with CAM2 10 inspection and gaging software and with RapidForm XOV verification software F.H. Ayer's engineering department can quickly perform quality assurance checks on one-off or multiple CNC run parts including checking all Geometric, Tolerance, and Dimensional checks with temperature compensation. From these checks a full color report can be generated showing all in tolerance, out of tolerance and geometrical checks. Using micrometers and hand measuring tools, only size checks were able to be checked in the past, now we are accurately able to check concentricity between bores, flatness checks, cylindricity, parallelism, or any other geometric requirements ANYWHERE, anytime. This delivers not only a higher quality product it saves our customers money. By checking parts before they are repaired we can accurately determine if certain areas even require an expensive repair.



From inspections to complete computer generated reports.



- Material and Surface Analysis

Our Company currently utilizes the fully portable "Bruker" Positive Material Identification handheld XRF analyzer for "non-destructive testing" and material identification. This PMI gun is capable of generating complete reports down to the elemental makeup of the material. We use either our fixed "Wilson" Rockwell hardness tester or our portable "Newage" tester for hardness testing in both the Rockwell and Brinell scales. We also are capable of testing plastic/rubber durometers using a "PTC" instruments durometer tester. Coating thickness is checked using an "Elektro Physik" surface tester. Our surface roughness tester is a "Mitutoyo" model SJ-201P digital profilometer with tape printout.



Not only can we identify original material and ensure the products we use in the manufacturing of your parts are correct we also continually search out new and improved metals and space age materials to reduce your failures and increase the life of components.

- Software and Libraries

F.H. Ayer's engineering department has created and maintained an extensive library of over 15,200 part drawings and assemblies that are broken down by original manufacture, part name, part number, item number, and customer use. The library also contains such information such as repair and operational manuals, parts lists, pump curves and drawings, and other pertinent information.

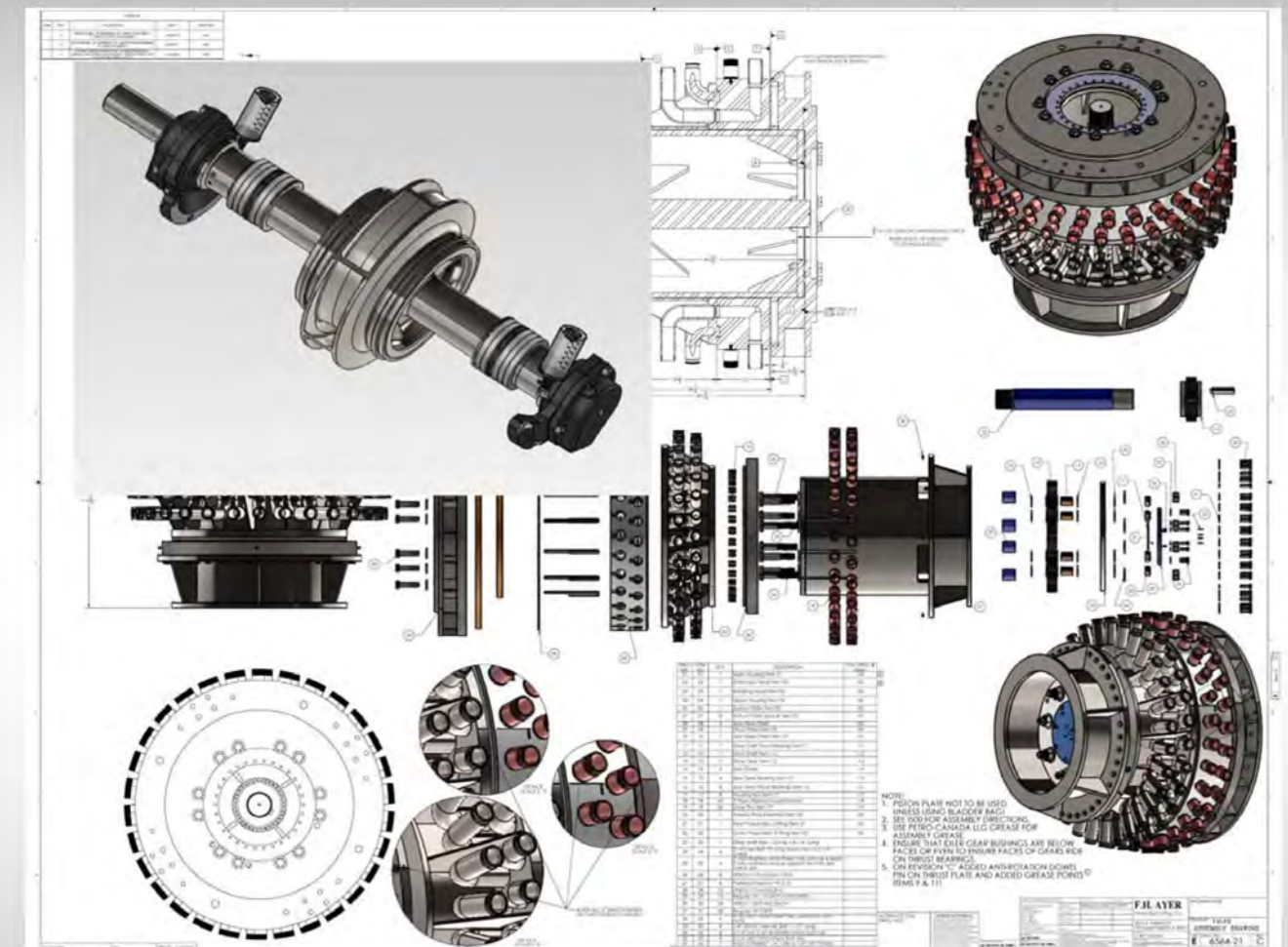


F. H. Ayer Manufacturing Company

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CHICAGO HEIGHTS, ILLINOIS 60411

ENGINEERING SERVICES



Reliability and Quality through Advanced Engineering Techniques

- Forward engineering
- Reverse & Reliability Engineering
- Electrical Design and PLC Programming
- Material, Surface & Failure Analysis
- Quality Control and Reporting
- 24 Service



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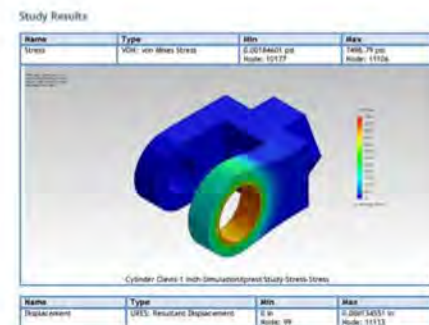
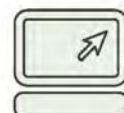
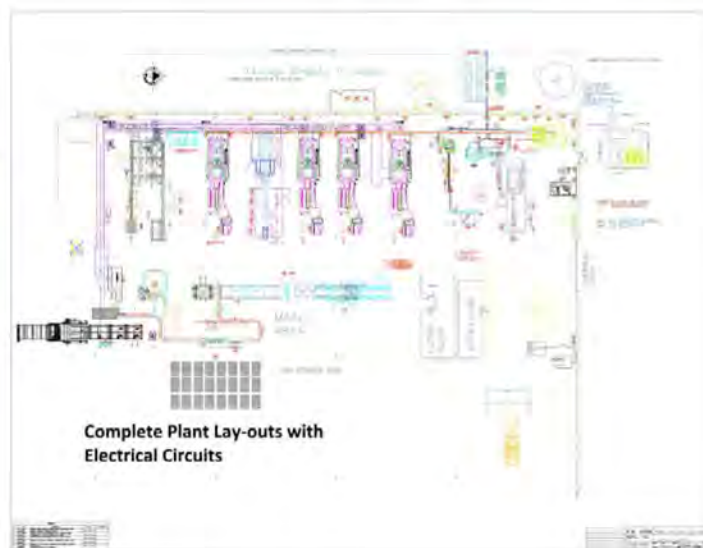
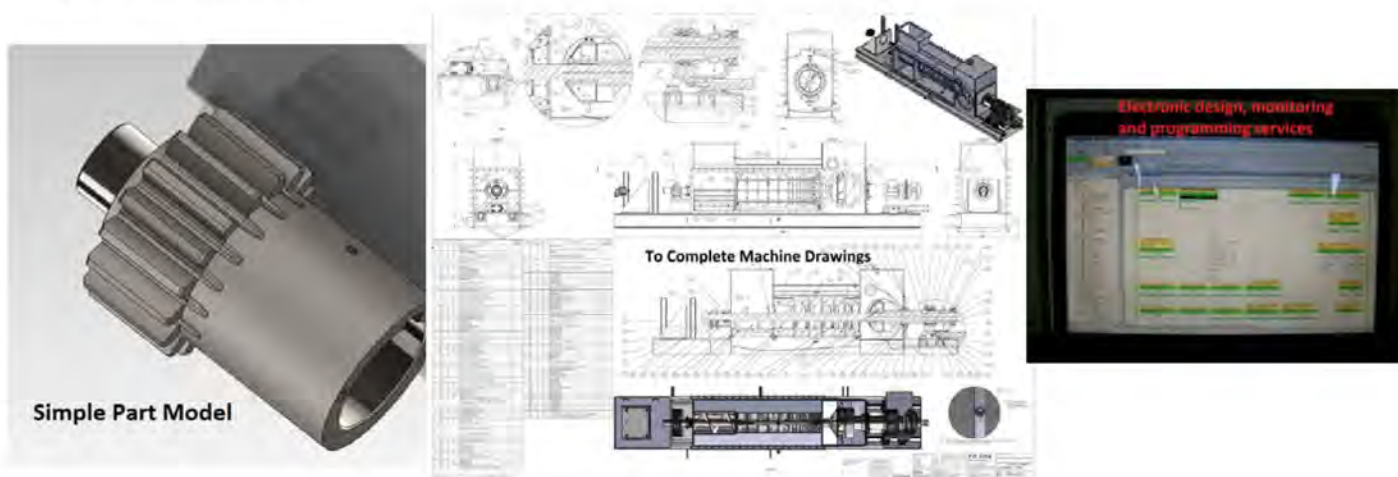
Technology at work for you

F.H. Ayer Manufacturing's Engineering Department relies on the most current "state of the art" engineering technologies, software and materials to design, reverse engineer, conduct failure analysis, reliability engineer and control quality to deliver a superior product or repair service to our expansive customer base. Our department not only works with all of our valued customers in and out of the field they are also required to spend an equal amount of time working with our service technicians to continually improve the understanding, newest technologies, manufacturing and repair procedures which leads to better quality and longer life to our serviced products.

Connecting your business to the engineering resources you need!

• Forward Engineering

Let us take your thoughts, ideas, needs or even "napkin" sketches from concept to a finished product. From part to complete machine design including all electrical, electronics and monitoring integration. Component design, project engineering to complete plant lay-outs, let us help you improve your business!



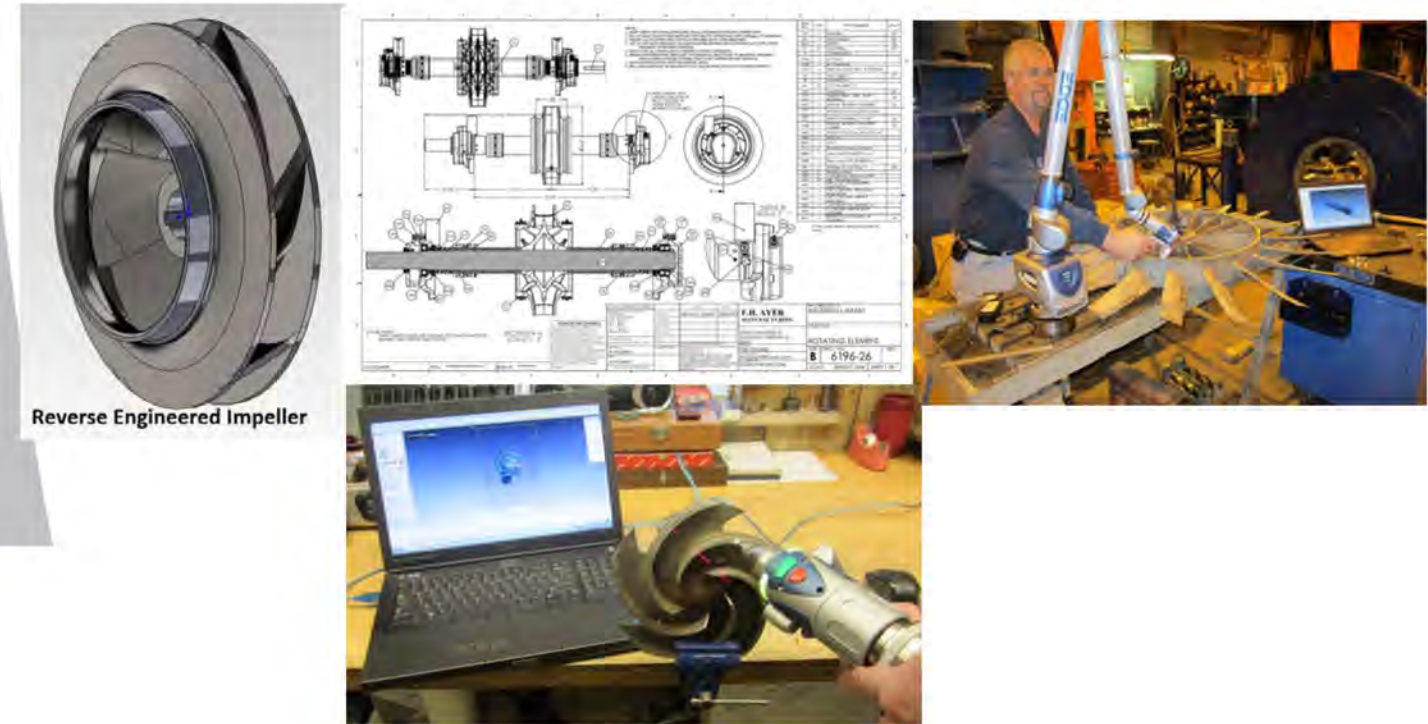
Design Studies

Technology consulting provides a total end to end solution



• Reverse Engineering

Using advanced machinery such as our portable FARO Edge touch probe/laser scanner coordinate measuring machine with infinite axis and 3D measuring and inspection capabilities while maintaining an accuracy of 0.0010" over 108" coupled with powerful RapidForm XOR reverse engineering and SolidWorks software we can completely disassemble your parts, reverse engineer each component and supply new cast or machined parts that are equal to or of higher quality than the original manufacturer's part. Being fully portable we can use our equipment in our engineering office, shop floor or IN YOUR PLANT.



Use our 110+ years of experience in the steel, refinery, food, pharmaceutical and heavy industries to manufacture your replacement parts for less than the cost of OEM parts, with the same or higher quality, in usually half the time of the original!

• Engineering Reports

Our engineering department routinely designs and distributes engineering check list and rebuild procedures to our technicians to ensure correct checks and repair procedures are consistently applied. Pump and systems flows are measured and verified using our "Micronics Portaflow 330" portable ultrasonic flow meter with pipe capacities from 13mm to 2000mm.