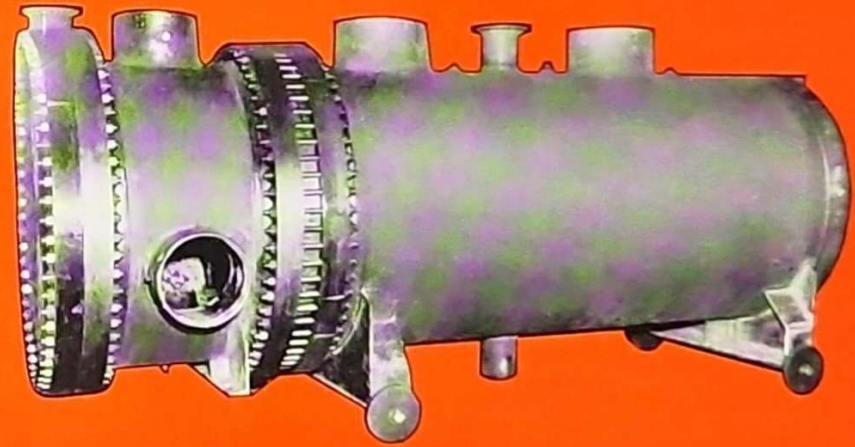
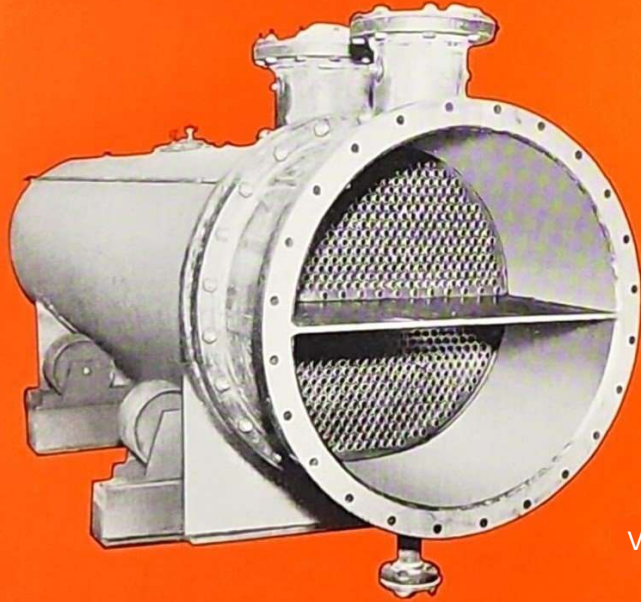
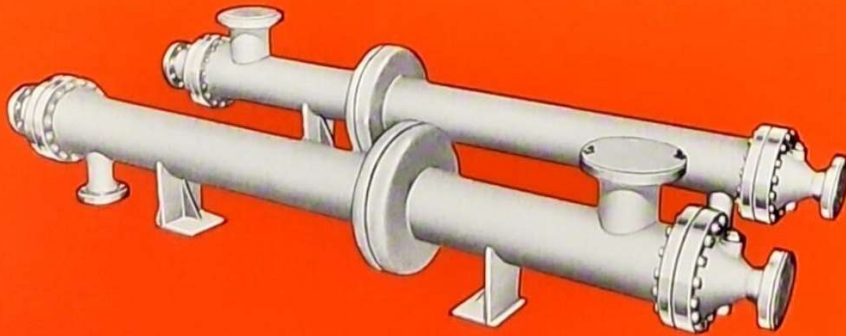


HEAT EXCHANGERS

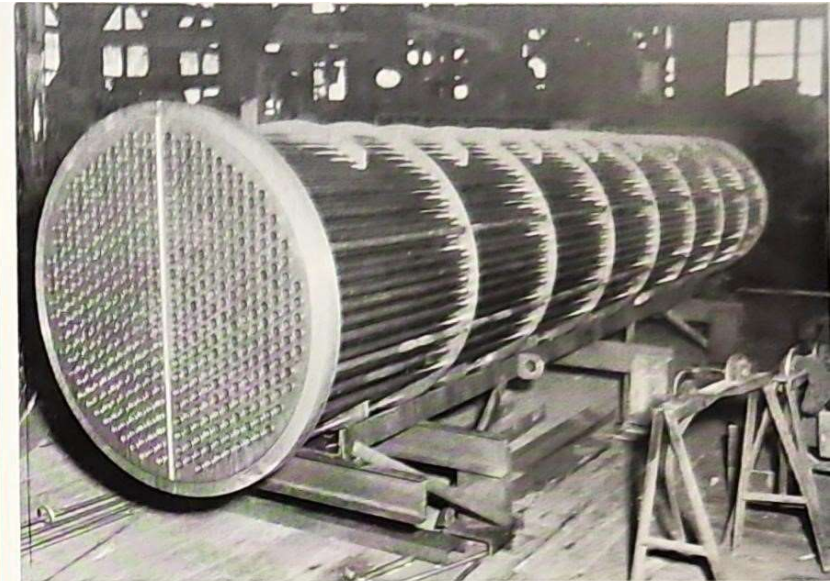
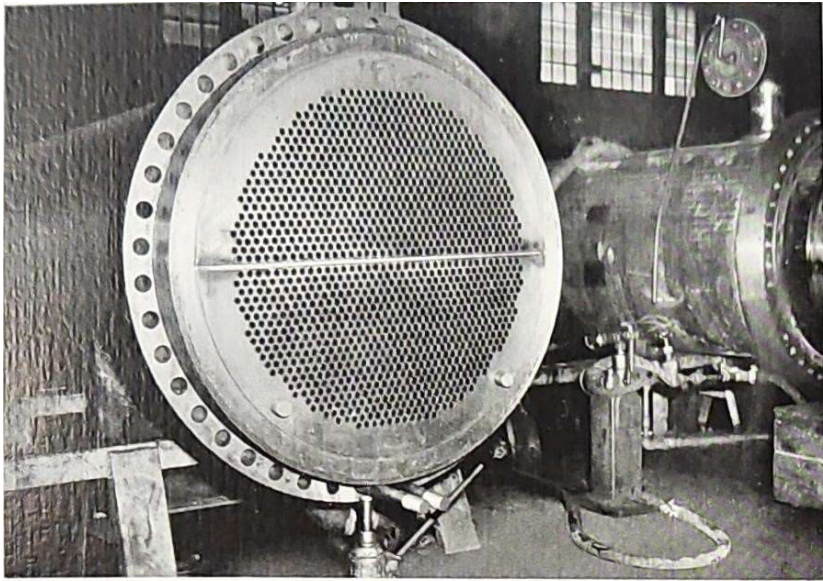


Views of high-pressure U tube vapor Condenser.

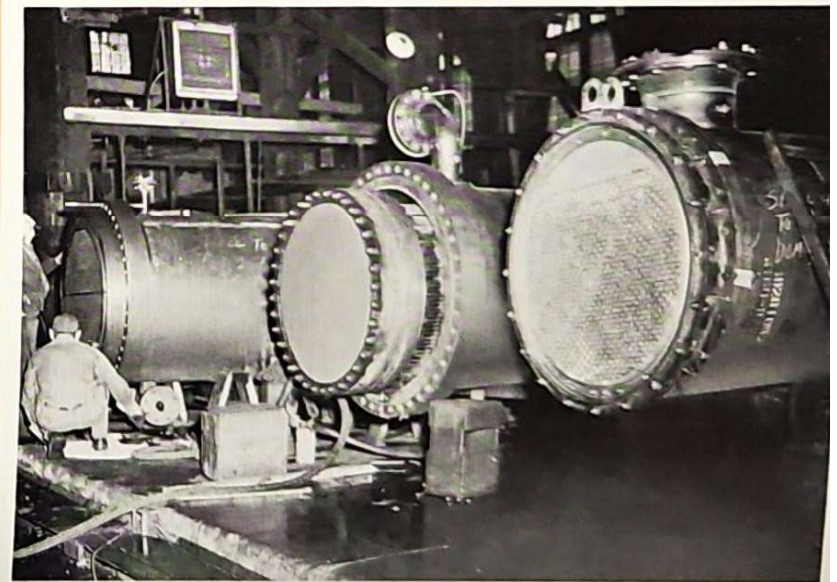
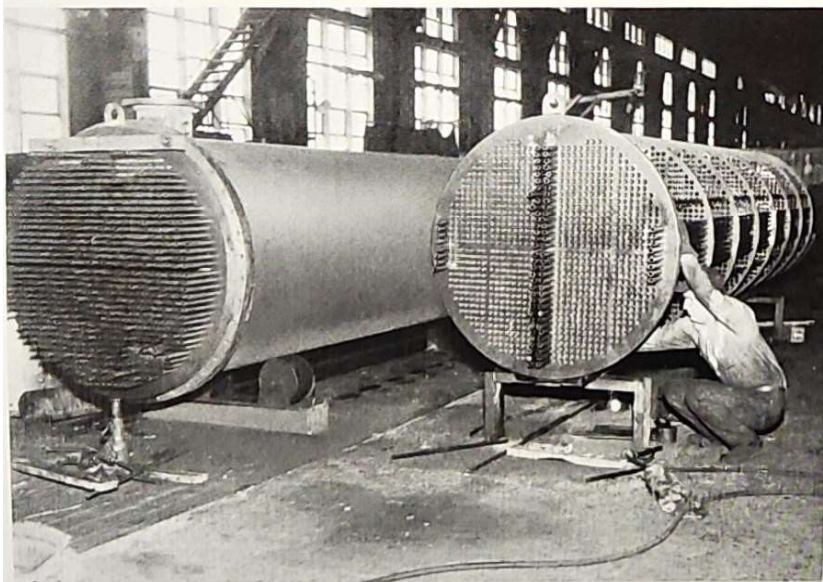


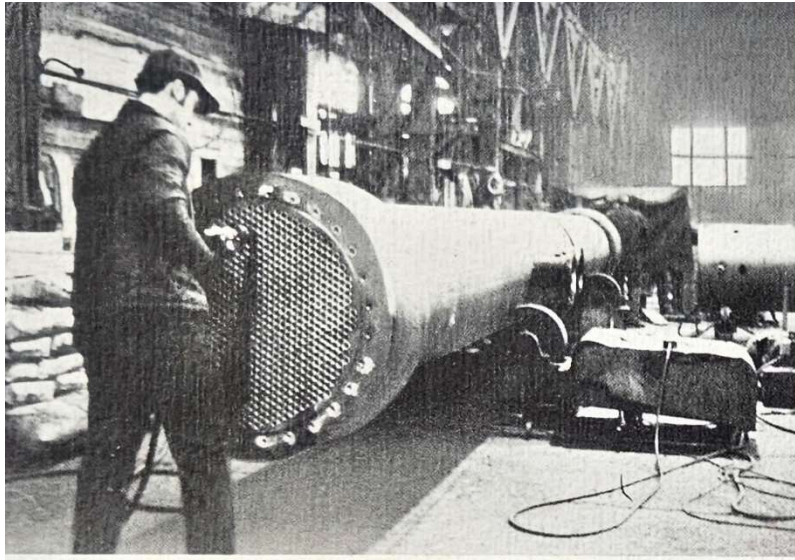
Typical small all stainless Condensers. These Are specially designed for each application Similar units can be used for sulfuric acid cooling.



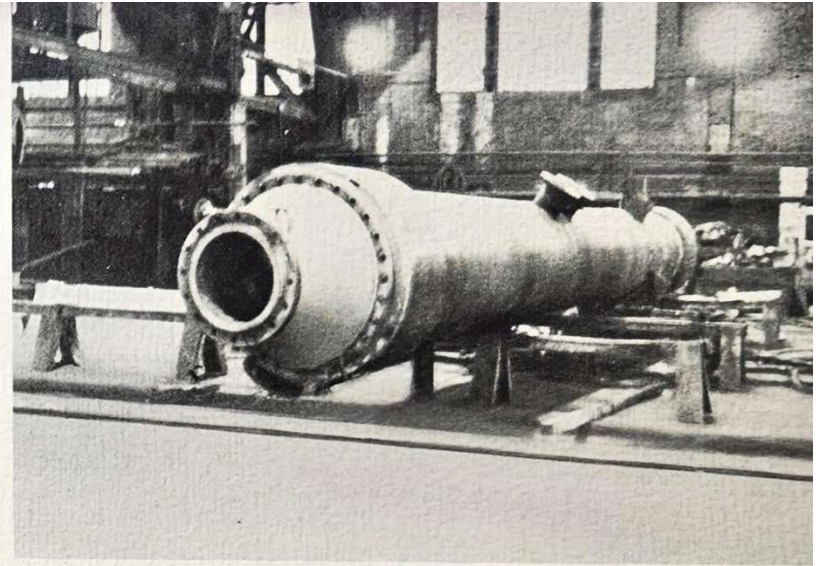


Views of assembling and testing of internal floating head (refinery type) heat exchangers. These vary in size from the smallest to the largest shippable units, in operating pressure ranges from atmospheric to several hundred pounds.



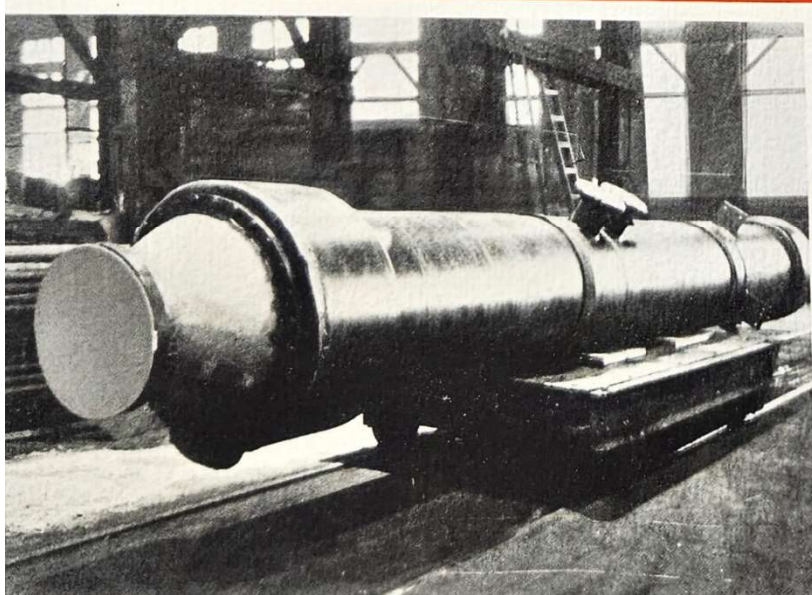


Seal rolling of tubes after TIG welding to tube sheets



Hydrostatic testing area

SULFURIC ACID COOLERS



Shop views of typical medium size stainless steel H_2SO_4 coolers for contact plant absorber tower and drying tower service. Note single pass tube side construction to handle acid under optimum velocity and metal temperature conditions. This avoids the necessity of sophisticated electronic passivation and monitoring apparatus.

Water flows through shell in a divided flow configuration for maintaining tube side metal temperatures using abnormally warm water from a closed water to air cooling system. This type of installation is particularly suited for use in scarce water areas.

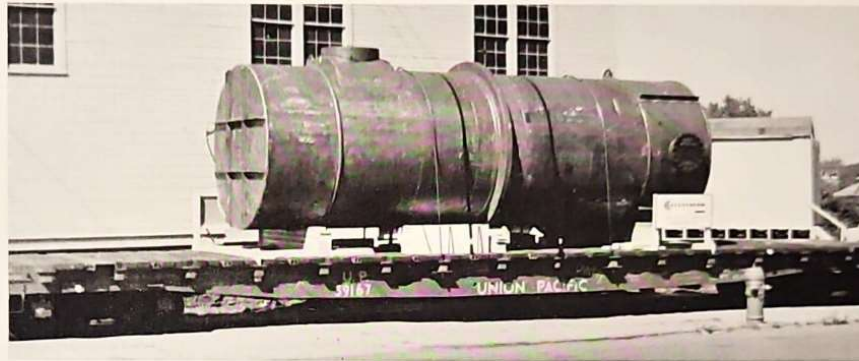
Note the oversized inlet distribution belts combined with shell expansion joints.

SULFURIC ACID PLANT HEAT EXCHANGERS

Strong Acid Coolers, as shown inside this flier, reflect the simplicity of design and ruggedness of construction that Cyclotherm builds into their heat exchangers.

Acid Passes through the tubes by means of simple cone type channel headers for inlet and outlet connections. Heavy wall (14ga) 316L tubes are TIG welded to the tube sheets for strength, positive seal and fair entry. Seal rolling to eliminate backside crevice is performed after welding. Design criteria for acid flow calls for 3 ft/sec. max velocity and 80°C max metal temperature which allows inlet acid temperature of up to 230°F. The shell side containing cooling water, is segmentally baffled and designed to limit water velocity to approximately 4 ft/sec. Cooling water should be cleaned and treated for scale prevention containing minimum chlorides or other halides which are deleterious to stainless steel. Inlets are installed on distribution belts which act as expansion joints and provision is made for cooling the tube sheets at inlet and exit. This cooler design can be utilized either vertically or horizontally.

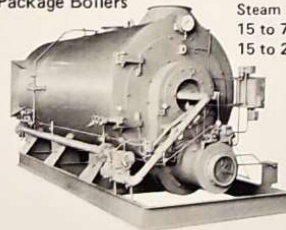
Cyclotherm has a wealth of experience in the design and fabrication of gas exchangers for acid plants in any required material. The unit pictured below for SO₂ exchanger service, is a typical example.



Please contact us for answers to your problems in this field. Cyclotherm Division has over 30 years experience designing and manufacturing sulfuric acid coolers.

OTHER CYCLOTHERM PRODUCTS

Package Boilers

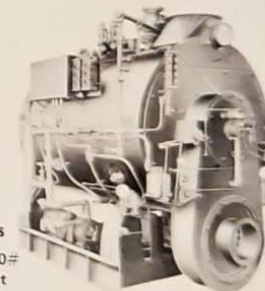


Steam Generators
15 to 750 HP
15 to 200# Steam & Hot Water



Waste Heat Boilers

3 Pass – 300 # W.P. Hydrogen Sulfide Boilers with Acid Gas Burner –
20,000# Steam per hour – 100 tons/day Sulfur Recovery.



Marine Boilers

Model "MC" – From 800 - 7500#
Steam per Hour – Meets Coast
Guard and A.B.S. Requirements.