

A photograph of a laboratory setting. A hand in a blue nitrile glove holds a glass petri dish containing a clear blue liquid. A glass pipette is positioned over the dish, with a drop of liquid about to fall. In the background, there are other laboratory items like a petri dish and a rack of test tubes, all slightly out of focus. The overall color palette is dominated by blues and greys, with a dark gradient at the bottom.

ENGINEERED CHEMICALS

PROCESS DECARBONIZATION SOLUTIONS

ELIMINATE ON SITE SCOPE 1 EMISSIONS

**ELIMINATE SCOPE 2 EMISSIONS WHEN
COUPLED WITH RENEWABLE POWER**

**VIRTUALLY 100% EFFICIENT CONVERSION
OF ENERGY TO USEABLE HEAT**

**SUPERIOR PERFORMANCE FOR
DYNAMIC AND HIGH TURNDOWN
APPLICATIONS**

**REMOVES THE COMPLEXITY AND
COST OF COMBUSTION SOURCES**

**DRASTICALLY REDUCES
MAINTENANCE
COSTS AND DOWNTIME**

The Chromalox Difference

The chemical processing industries contribute almost 1,000 Mt of CO2 emissions per year around the globe. The transition towards net zero carbon standards is happening rapidly and reducing carbon emissions from heat energy sources is a critical part of achieving net zero. Decarbonization of processes is one of the main ways to help chemical manufacturing facilities meeting their emission reduction goals. At Chromalox, we engineer advanced thermal solutions that empower our customer's transition towards sustainability and net zero.

PIONEERS IN ELECTRIC HEAT & CONTROL

We invented electric heating technology with the introduction of the first metal-sheathed heating element 100 years ago. Since that first innovation, we've created an industry and evolved from technologies of just a few kilowatts to those that meet the highly specialized requirements of virtually any industrial process and application.

It is our mission to find tailored solutions to the most demanding and complex challenges. These solutions help our customers improve their operating processes and enhance productivity. This mission, and our investment in research and development in new technologies, will shape the future of industrial process heating as we continue to pioneer a new century of innovation.

UNCOMPROMISING QUALITY

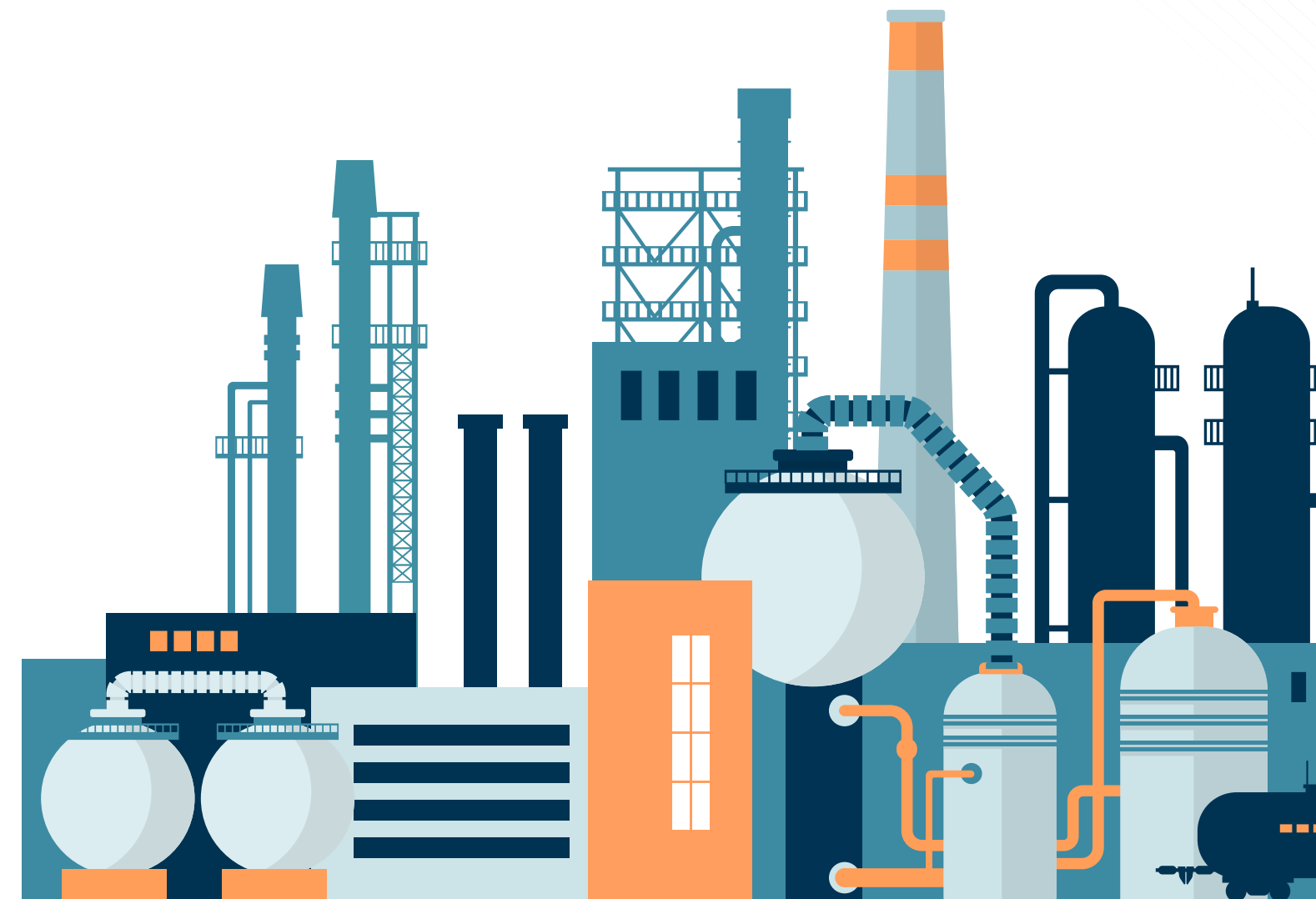
Our constant focus on quality improvement provides our customers with a competitive advantage. Implemented statistical process control, investment in manufacturing automation, ISO 9001:2008 certification, and compliance to stringent third-party approvals demonstrate our world-class commitment.

YOUR TRUSTED PARTNER

Our approach is to be a partner dedicated to providing you with the best electric heat and control solution for your process or application

Chromalox zero emission electric heating and power control designs can improve plant efficiencies vs traditional fuel fired equipment

We are responsive, with a sense of urgency and a bias for action. From the moment a customer need is identified, Chromalox acts quickly to deliver the best solution while giving thorough, thoughtful, careful attention to detail. By limiting design iterations, meeting project timelines, and automating our manufacturing process, we deliver a satisfying customer experience and an efficient heating solution.



Solutions for Chemical Process Heating

Discover where our thermal technology solutions can support heating and cooling in your chemical applications by using our interactive process map. From distillation column heating and catalyst regeneration to chemical feeds and product transfer lines, we have an industrial process heating solution for your application.

1 VAPORIZERS FOR PROCESS STREAMS

Vaporizers for process streams including ammonia and carbon dioxide for export and ship loading.

2 DIRECTCONNECT™ MEDIUM VOLTAGE SYSTEMS

Chromalox DirectConnect™ medium voltage electric heating systems (up to 7,200V) are ideal for large load heating applications. DirectConnect™ can be utilized across our portfolio to minimize installation maintenance costs and improve efficiencies to >99%.

3 WASTEWATER TANKS

Large tank immersion heaters provide freeze protection on chemical wastewater storage tanks. Heat trace systems provide freeze protection for wastewater piping.

4 DISTILLATION COLUMN HEATING

Heat transfer systems, circulation heaters, reboilers, and packaged electric steam generators can be used to directly or indirectly heat condensate for distillation columns. Chromalox systems can achieve high temperature at very low pressure drop.

5 CATALYST REGENERATION PROCESS HEATERS

Chromalox process heating systems provide pre-charge, intermittent, and continuous catalyst heating for various reactions that require tight temperature control.

6 PROCESS HEAT TRANSFER SYSTEMS

Heat transfer systems and packaged boilers provide the heat source for process heat exchangers.

7 PUMP HOUSE

Fan-forced and convection air heaters ensure that temperatures stay above freezing in the pump houses. For hazardous areas, ATEX/IECex/CSA certification are available.

8 PRODUCT TRANSFER LINES

Electric heat trace and control systems provide pipe temperature maintenance for temperature sensitive materials. Chromalox offers self-regulating cable and control systems for general purpose and hazardous locations. Mineral insulated cable is available for pipe temperatures up to 1,100°F (595°C).

9 SCR EMISSION REDUCTION AIR DILUTION SYSTEMS

Chromalox electric duct and circulation heaters can be used to heat air streams to mix with ammonia which is injected into the selective catalytic reduction process to reduce plant emissions.

10 PERSONNEL COMFORT HEATING

Comfort and radiant heaters provide personnel warming for shops, warehouses, loading docks and offices.

11 GAS DRYING/PURIFICATION

Process circulation heaters or heat transfer systems can be used for direct or indirect heating of gas streams.

12 CAUSTIC, SOLVENT, & CLEANING SOLUTION TANKS

Storage tanks containing chemical cleaning agents are heated with tank immersion heaters and circulation heaters.

13 STEAM GENERATION

DirectConnect™ steam generators can be used for supplemental steam, point of use, or centralized steam for various processes. Immersion heaters and circulation heaters preheat incoming water supply to reduce cycling of boilers, increasing efficiency.

14 TEMPERATURE MAINTENANCE

Electric circulation heaters can be used to boost or regulate process media to critical temperatures.

15 CHEMICAL FEED TANKS

Immersion heaters with low watt densities preheat chemical additives. Heat trace provides temperature maintenance for associated piping.

16 SERVICE & MAINTENANCE

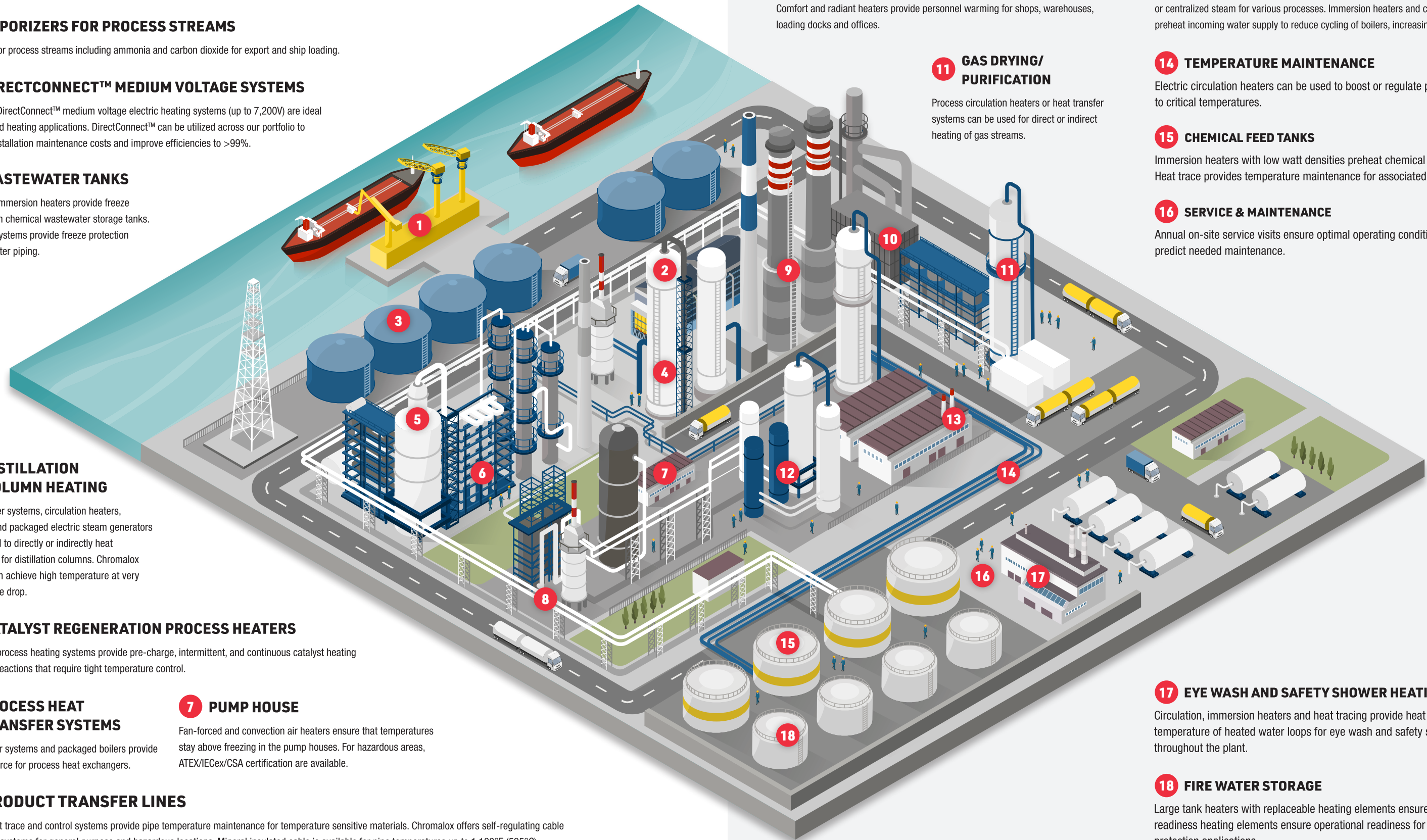
Annual on-site service visits ensure optimal operating conditions and help predict needed maintenance.

17 EYE WASH AND SAFETY SHOWER HEATING

Circulation, immersion heaters and heat tracing provide heat to maintain the temperature of heated water loops for eye wash and safety shower stations throughout the plant.

18 FIRE WATER STORAGE

Large tank heaters with replaceable heating elements ensure operational readiness heating elements ensure operational readiness for freeze protection applications.



Products for Engineered Chemicals

Enable precise thermal control and system reliability in demanding chemical processing environments. CHSI Steam Generators provide high-capacity steam for demanding chemical processing. Oil Circulation Heaters deliver precise, uniform heating for thermal fluids in closed-loop systems. Removable Element Immersion Heaters offer easy maintenance and efficient heat transfer for tanks and vessels.

HIGH CAPACITY STEAM GENERATOR CHSI

The CHSI Steam Boilers are designed to meet sustainability demands with industry-leading features as standard. A carefully calculated heat-to-water ratio achieves operating pressures quickly and with nearly 100% efficiency. By eliminating the use of fossil fuels and combustion processes, these boilers provide a clean and green alternative for a variety of industrial and commercial applications.



OIL CIRCULATION HEATERS

Chromalox Oil Circulation heaters are ideal for temperature maintenance and for improving flow characteristics of light, medium, and heavy weight oils. They can also be used for heat transfer oils or the preheating of fuel oils. Which provides better atomization at the burners allowing the use of lower grade fuel oils.

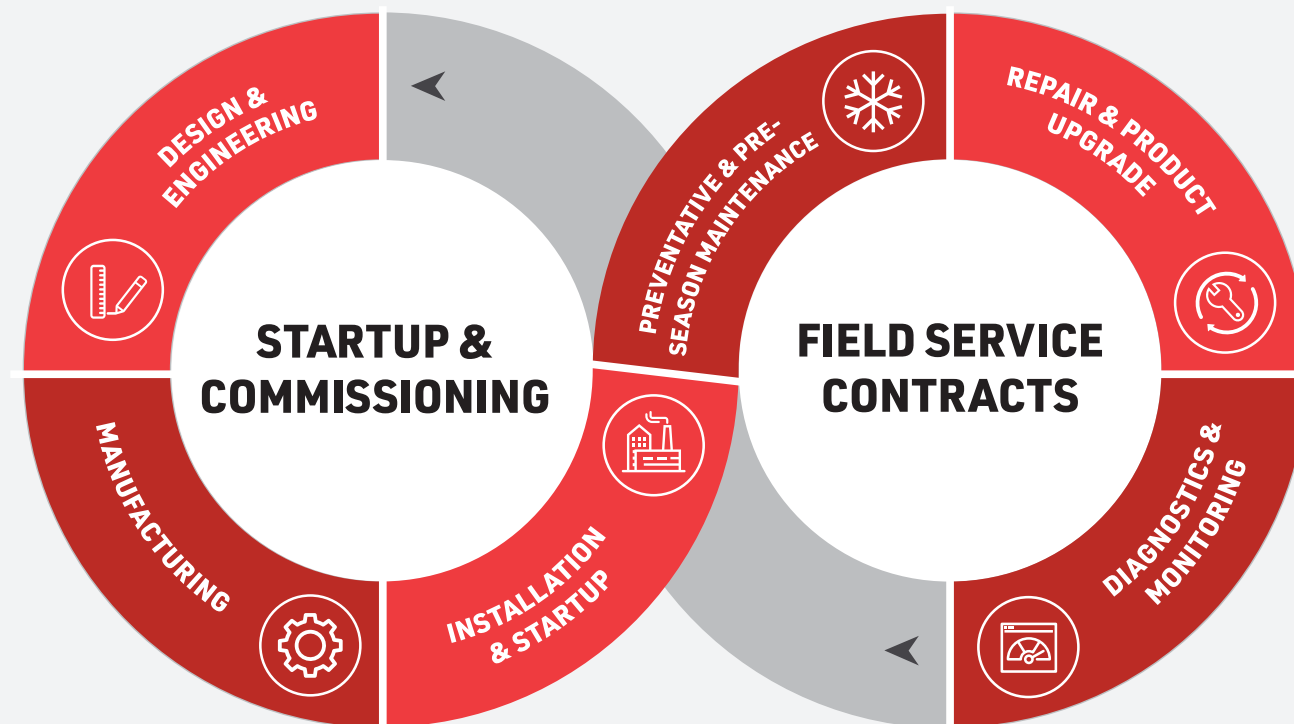
REMOVABLE ELEMENT STYLE IMMERSION HEATERS

The need to drain a tank prior to removal of an entire heating bundle results in the cost of disrupted operations, the additional storage of the drained material, and the loss of downtime. Chromalox Removable Element designs allow for easy removal and replacement of individual elements saving you time and money.



Comprehensive Service & Support

As the world's most comprehensive manufacturer of electric heat and control products, Chromalox offers customized service solutions ranging from startup and training, to ongoing maintenance diagnostics, to emergency response. No one can maximize your investment with proper maintenance and assessment strategies better than Chromalox.



STARTUP & COMMISSIONING

Minimize any chance for costly setbacks by having Chromalox qualified engineering on-site to startup and commission any system we have built, anywhere in the world. They will perform a complete review of the installed system to ensure optimized integration into your facility. You will save time and know your product was installed correctly.

PROFESSIONAL SERVICES

Chromalox comprehensive service solutions also include a selection of professional services to help integrate, operate, and service Chromalox heating and control equipment for your application.

- FEED Study and Process Evaluation services
- Training
- Diagnostics and Troubleshooting

CHROMALOX COLD WEATHER CONTRACTS

To help you avoid unplanned downtimes that can occur due to cold weather, Chromalox offers a package of preseason planning and preventive maintenance services to ensure proper equipment operation before that cold weather strikes.

EMERGENCY SERVICE

Emergency on-site service is also available when the situation demands it. That's why our service technicians are available 24x7 and will come to you anywhere in the world.

CHROMALOX SERVICE CONTRACTS

Chromalox Service Contracts deliver efficient emergency response and preventive maintenance, helping to eliminate problems before they arise.



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LOCATIONS AND FIND YOUR LOCAL SPECIALIST:**

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