Lifecycle OEM Service & Support

Air Cooled Heat Exchangers

Chart Lifecycle provides a range of services that can be accessed individually or combined for a complete turn-key solution. We work with you to define the scope and deliver a project that is professionally and meticulously engineered, planned, organized, staffed, mobilized and managed ensuring your operations resume on time and within budget.

Combined Services

- Start-Up Operations & Commissioning Support
  - Fan Drive Assemblies & General Inspection
    - Sonic belt tensioning (per drive design program)
    - Motor sheaves & bushings
    - Fan bearings
    - Motor / fan sheave alignments
    - Fan blade angle (verification & adjustment)
    - Fan tip clearances (verification & adjustment)
    - Motor & fan bearing lubrication service
    - Run testing, vibration testing with verification of motor FLA
    - Insulation resistance testing of electric induction motors
  - Louvers (manual, automatic & recirculation)
    - Connections and synchronization
    - Failure operation verification
  - Operation
  - ACHX General Inspection
    - Air flow obstructions
    - Fan area, foreign object
    - Removal of shipping restraints
    - Check list & test certifications

- Testing
  - Coil Sections
    - Face velocity (FV) air flow measurements
    - Infrared thermal imaging (identification of unintended heat sources)
  - Plenum & Fan Drive
    - Fan speed & pitch verification
    - Motor full load amperage
    - Motor insulation resistance / phase imbalance testing (Meggar testing)
    - Air velocity (AV) airflow measurement (fan inlet)
    - Fan inlet air temperature (Synchronized Data Log)
    - Perimeter recirculation air temperature measurements
    - Identification of fan proximity air flow obstruction
    - Wind speed, direction & ambient air temperature (Synchronized Data Log)
  - Synchronized Interval Data & Event Logging
    - Wind speed, direction & ambient temperature
    - Fan inlet temperature, four (4) places / fan
    - Gas, or liquid process flow rate
    - Inlet / outlet process pressure
    - Inlet / outlet process temperature

- Maintenance, Parts, Repair & Testing Services

- Lifecycle OEM Service & Support
  - Brazed Aluminum Heat Exchangers
  - Air Cooled Heat Exchangers
  - Cryogenic Plant Services
  - Safety & Rescue

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Chart Lifecycle can provide immediate field assistance, inspections and technical support no matter the severity of the issue.

Combined Services
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Lifecycle OEM Service & Support
• Brazed Aluminum Heat Exchangers
• Air Cooled Heat Exchangers
• Cryogenic Plant Services
• Safety & Rescue

Testing
Cool Sections
• Face velocity (FV) air flow measurements
• Infrared thermal imaging (identification of unintended heat sources)
Plenum & Fan Drive
• Fan speed & pitch verification
• Motor full load amperage
• Motor insulation resistance / phase imbalance testing (Megger testing)
• Plenum static pressure measurements
• Fan inlet air temperature (Synchronized Data Log)
• Perimeter recirculation air temperature measurements
• Identification of fan proximity air flow
• Obstruction
• Wind speed, direction & ambient air temperature (Synchronized Data Log)
Synchronized Interval Data & Event Logging
• Wind speed, direction & ambient temperature
• Fan inlet temperature, four (4) places / fan
• Gas, or liquid process flow rate
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Lifecycle OEM Service and Support
Air Cooled Heat Exchangers

Maintenance, Parts, Repair & Testing Services

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Our trained engineers provide a full service scope, from helping you keep your coolers in perfect working order to tailored engineered solutions that upgrade their performance.

**Maintenance & Repair**

- **Coil Sections**
  - Hydroskimming
  - Soap air testing
  - Individual mid span tube leak detection
  - Shoulder access, NPT plug & gasket replacement
  - Re-tubing (shop & field)
- **Tube to tube sheet expansion**
- **Weld repair (ASME & AWS)**
- **Fan repair & replacement**
- **Motor replacement**
- **Repair of machined surfaces & threading**
- **Finning repair**
- **Weld repair (ASME & AWS)**
- **Tube to tube sheet plugging**
- **Shoulder access, NPT plug & gasket replacement**
- **Individual mid span tube leak detection**

**Coil Sections**

- **Plenum, Fan Drive & Sub-Structural**
  - Motor horsepower
  - Fan speed
  - Fan design
  - Vibrations, switch / transmitters
  - Perimeter bug screen design & installation
  - Maintenance walkway, platform design & installation
  - Air recirculation design & installation
  - Automatic lubrication installation (motor & fan bearings)
  - Fan anti-reverse wind-milling design & installation

**Long Term Storage Maintenance & Restorations**

- **Inspection**
  - Extended preservation
  - Storage maintenance
  - Restoration

*Lifestyle Service and Support*

Chart Lifecycle is an OEM service provider for all Chart owned air cooled heat exchanger (ACHX) brands, including Hudson Products, Air-X-Changers, Cooler Service Company, Smithco, Hamcomo and associated legacy brands Happy, Amercool, Tri-Thermal, Essex, Conrad, Godfellow and Western.

**Industries Served**

- Natural gas
- Processing
- Compression & transmission
- LNG
- Refining
- Petrochemicals
- Power
- Bitumen extraction & upgrading
- Industrial process applications

Our technical and field service teams boast unrivaled experience, so you can be certain that your enquiry will be dealt with by an experienced individual who understands your business and your needs.

**Q: Do you need commissioning support?**

- **A:** Our commissioning support is extremely thorough. Our technicians will inspect and service your ACHX before you start up your equipment. Our commissioning services conclude with in-field testing to witness昕eration and test reports provided to the customer upon completion. This service is particularly beneficial following long term storage durations where operational reliability may be in question.

**Q: Do you need a scheduled maintenance program?**

- **A:** CLI offers long term storage, preservation and periodic inspection and maintenance services (monthly, bi-annual, annual). Our seasonal maintenance program involves all of the inspection and testing provided in our start up services in support commissioning. Inspection and test reports are provided with all of our scheduled maintenance programs.

**Q: Do you need shop restoration, or complete refurbishment for off-line, or new equipment following long term dormancy, or unstorage?**

- **A:** Whether routing old equipment to a new location, or finally pulling new equipment out of storage, CLI probably has a shop en-route or nearby to your final destination. You can resume operations on time knowing your equipment has been expertly repaired, serviced and tested.

**Q: Do you need parts for air-cooled heat exchangers?**

- **A:** CLI is a one stop shop for parts and service for all ACHX regardless of OEM. Most common parts are available for same day shipment. Not sure what you need? We can build a data base by item identifying what you need? We can build a data base by item identifying the parts you might need in the future.

**Q: Do you need technical assistance regarding an issue with your air-cooled heat exchanger?**

- **A:** Call us 24/7/365. In our many years of experience in manufacturing, repairing and maintaining ACHX there is little we have not encountered, so if you need a little advice, just give us a call. You will find us always eager to assist.

We service our competitor’s products.
Our trained engineers provide a full service scope, from helping you keep your coolers in perfect working order to tailored engineered solutions that upgrade their performance.

Maintenance & Repair

- Vibration analysis & repair
- Structural weld repair & replacement (AWS)
- Drive alignment repair & replacement (shaft, motor replacement)
- Fining repair
- Repair of machined surfaces & threading
- Plenum & Fan Drive Assemblies
- Finning repair
- Tube to tube sheet plugging
- Weld repair (ASME & AWS)
- Shoulder access, NPT plug & gasket
- Individual mid span tube leak detection
- Soap air testing

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Modifications

- Coil Sections
  - Improved counterflow surface – coil replacement
  - Louver design & installation
  - Hall guard design & installation
  - Manual to auto, or auto to manual louver operation
- Hot air recirculation systems
- Magnetic shoulder access plugs for lubrication oil coolers
- Valve, gauge & thermowell installation
- Section re-cape
- Plenum, Fan Drive & Sub-Structural
  - Motor horsepower
  - Fan speed
  - Fan design
  - Vibration switch / transmitters
  - Perimeter bug screen design & installation
  - Maintenance walkway, platform design & installation
- Air recirculation design & installation
- Automatic lubrication installation (motor & fan bearings)
- Fan anti-reverse wind-milling design & installation

Long Term Storage Maintenance & Restorations

- Inspection
- Extended preservation
- Storage maintenance
- Restoration

Lifestyle Service and Support

Chart Lifecycle is an OEM service provider for all Chart owned air cooled heat exchanger (ACHX) brands, including Hudson Products, Air-X-Changes, Cooler Service Company, Smithco, Hammco and associated legacy brands Happy, Amercool, Tri-Thermal, Esex, Conrad, Godfellow and Western.

Industries Served

- Natural gas processing
- Compression & transmission
- LNG
- Refining
- Petrochemicals
- Power
- Bitumen extraction

We service our competitor’s products.

Our technical and field service teams boast unrivalled experience, so you can be certain that your enquiry will be dealt with by an experienced individual who understands your products and your needs.

Q: Do you need commissioning support?
   A: Yes, CLI offers short term storage, preservation and periodic inspection and maintenance services (monthly, bi-annual, annual). Our seasonal maintenance program involves all of the inspection and testing provided in our start up services in support commissioning. Inspection and test reports are provided with all of our scheduled maintenance programs.

Q: Do you need shop restoration, or complete refurbishment for off line, or new equipment following long term dormancy, or unprotected storage?
   A: Whether routing old equipment to a new location, or finally pulling new equipment out of storage, CLI probably has a shop-e-mule or ready to your final destination.

Q: Do you need parts for air-cooled heat exchangers?
   A: CLI offers long term storage, preservation and periodic inspection and maintenance services (monthly, bi-annual, annual). Our seasonal maintenance program involves all of the inspection and testing provided in our start up services in support commissioning. Inspection and test reports are provided with all of our scheduled maintenance programs.

Q: Do you need a scheduled maintenance program?
   A: CLI offers long term storage, preservation and periodic inspection and maintenance services (monthly, bi-annual, annual). Our seasonal maintenance program involves all of the inspection and testing provided in our start up services in support commissioning. Inspection and test reports are provided with all of our scheduled maintenance programs.

Q: Do you need parts for air-cooled heat exchangers?
   A: We provide operator and maintenance training that will help provide you with a more effective maintenance program. Training can be tailored to your specific equipment, processes, location and operating environment.

Q: Do you need technical assistance regarding an issue with an air-cooled heat exchanger?
   A: We provide operator and maintenance training that will help provide you with a more effective maintenance program. Training can be tailored to your specific equipment, processes, location and operating environment.

Q: Do you experience uncontrollably low outlet temperatures in the winter months?
   A: Whether routing old equipment to a new location, or finally pulling new equipment out of storage, CLI probably has a shop-e-mule or ready to your final destination.

Q: Do you have a well-trained maintenance staff, but still encounter premature outage and break downs?
   A: A well-trained maintenance staff, but still encounter premature outage and break downs?

Q: Do you need a scheduled maintenance program?
   A: Yes, CLI offers short term storage, preservation and periodic inspection and maintenance services (monthly, bi-annual, annual). Our seasonal maintenance program involves all of the inspection and testing provided in our start up services in support commissioning. Inspection and test reports are provided with all of our scheduled maintenance programs.

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Q: Do you need a scheduled maintenance program?
   A: Yes, CLI offers short term storage, preservation and periodic inspection and maintenance services (monthly, bi-annual, annual). Our seasonal maintenance program involves all of the inspection and testing provided in our start up services in support commissioning. Inspection and test reports are provided with all of our scheduled maintenance programs.
Lubrication service
• Vibration analysis & repair
Plenum & Fan Drive Assemblies
• Repair of machined surfaces & threading
• Finning repair
• Weld repair (ASME & AWS)
• Tube to tube sheet plugging
• Tube to tube sheet expansion
Replacement
• Shoulder access, NPT plug & gasket
• Individual mid span tube leak detection
• Soap air testing
• Hydrostatic testing

Coil Sections
Our trained engineers provide a full service scope, from helping you keep your coolers in perfect working order to tailored engineered solutions that upgrade their performance.

Modifications
Coil Sections
• Increase convoluted surface - coil replacement
• Louver design & installation
• Hatch design & installation
• Manual to auto, or auto to manual louver operation
• Warm air recirculation
• Magnetic shoulder access plugs for lubrication oil coolers.
• Valve, gauge & thermowell installation
• Section re-sale
Plenum, Fan Drive & Sub-Structural
• Motor horsepower
• Fan speed
• Fan design
• Vibration switch / transmitters
• Perimeter bug screen design & installation
• Maintenance walkway, platform design & installation
• Air recirculation design & installation
• Automatic lubrication installation (motor & fan bearings)
• Fan anti-reverse wind-milling design & installation
Long Term Storage Maintenance & Restorations
• Inspection
• Extended preservation
• Storage maintenance
• Restoration

Industries Served
• Natural gas processing
• Compression & transmission
• LPG
• Refrigeration
• Petrochemicals
• Power
• Bitumen extraction & upgrading
• Industrial process applications

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Q: Do you experience seasonal thermal performance issues with your air-cooled heat exchangers?
A: Most every CLU client offers reports and recommendations based on engineer check ratings to existing field and operating conditions and a full range of mechanical and thermal performance, leading to accurate performance data. In addition to manual testing, we employ synchronized intermittent testing of up to thirty channels of performance data over hours of recording.

Q: Do you have an experienced replacement service?
A: CLU offers long term storage, preservation and periodic inspection and maintenance services (monthly, bi-annual, annually). Our annual maintenance program involves all of the inspection and testing provided in our start-up services in support commissioning. Inspection and test reports are provided with all of our scheduled maintenance programs.

Q: Do you need shop restoration, or complete refurbishment for off-line, or non-operation following long term dormancy, or unprotected storage?
A: Whether routing old equipment to a new location, or finally pulling new equipment out of storage, CLU probably has a shop en-route or nearby to your final destination.

Q: Do you need parts for air-cooled heat exchangers?
A: CLU is a one stop shop for parts and service for all Hudson, ACHX regardless of OEM. Most common parts are available for daily shipment. Not sure what you need? This can build a data base by item identifying the parts you might need in the future.

Q: Do you have a well-trained maintenance staff, but still encounter premature outages and break downs?
A: We provide operator and maintenance training that will help provide you with a more effective maintenance program. Training can be tailored to your specific equipment, processes, location and operating environment.

Q: Do you need technical assistance regarding an issue with an air-cooled heat exchanger?
A: Call us 24/7/365. In our many years of experience in manufacturing, repairing and maintaining ACHX there is little we have not encountered, so if you need a little advice, just give us a call. You will find us always eager to assist.

With shops and bases of operation in Tulsa, OK, Houston, TX and Franklin, IN, we are prepared for rapid deployment, domestically and internationally.
Combined Services

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Lifecycle OEM Service & Support
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• Air Cooled Heat Exchangers
• Cryogenic Plant Services
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Lifecycle OEM Service and Support
Air Cooled Heat Exchangers

Chart Lifecycle can provide immediate field assistance, inspections and technical support no matter the severity of the issue.

Start-Up Operations & Commissioning Support

Fan Drive Assemblies & General Inspection
• Sonic belt tensioning (per drive design program)
• Fan hubs & bushings
• Motor sheaves & bushings
• Fan bearings
• Motor / fan sheave alignments
• Fan shaft alignments
• Fan blade angle (verification & adjustment)
• Fan tip clearances (verification & adjustment)
• Motor & fan bearing lubrication service
• Run testing, vibration testing with verification of motor FLA
• Insulation resistance testing of electric induction motors

Louvers (manual, automatic & recirculation)
• Connections and synchronization
• Failure operation verification
• Operation

ACHX General Inspection
• Air flow obstructions
• Fan area, foreign object
• Removal of shipping restraints
• Check list & test certifications

Testing

Coil Sections
• Face velocity (FV) air flow measurements
• Infrared thermal imaging (identification of unintended heat sources)

Plenum & Fan Drive
• Fan speed & pitch verification
• Motor full load amperage
• Motor insulation resistance / phase imbalance testing (Meggar testing)
• Plenum static pressure measurements
• Air velocity (AV) airflow measurement (fan inlet)
• Fan inlet air temperature (Synchronized Data Log)
• Perimeter recirculation air temperature measurements
• Identification of fan proximity air flow
• Obstruction
• Wind speed, direction & ambient air temperature (Synchronized Data Log)

Synchronized Interval Data & Event Logging
• Wind speed, direction & ambient temperature
• Fan inlet temperature, four (4) places / fan
• Gas, or liquid process flow rate
• Inlet / outlet process pressure
• Inlet / outlet process temperature

Testing

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