



CR CATALYST RESOURCES™
PVT LIMITED

**PLANT
MAINTENANCE
& CATALYST
HANDLING
SERVICES**

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who we are

Established in 2018, we provide comprehensive maintenance services to customers all across Asia & Middle East and have permanent facilities in U.A.E and India. We receive strong technical and operational support from our sister companies and technical partners, who assist us in providing a complete range of competitive and effective solutions. We have strong onshore and offshore capabilities, a proven track record of successful project delivery and continually invest in new technology to improve safety and generate more value for customers.

OUR OBJECTIVE

Our main objective is to become the 'partner-of-choice' for delivering comprehensive maintenance solutions to the Oil, Gas, Refining, Petrochemical, Power and other heavy industries in Asia & Middle east.

To accomplish this, you can count on us to provide a multi-skilled, competent and motivated team, supported by high quality systems, procedures and equipment to meet your ever-evolving requirements. Our commitment to service excellence is underpinned by our integrated approach to safety, quality and the environment as well as our continual investment in developing our people and securing the latest technology available.

We pride ourselves on delivering safer, faster and more efficient results. With each operational success, the experience and knowledge gained is channeled into the next generation of solutions.



Catalyst Handling Services

Catalyst handling services is a specialized type of service within the petrochemical industry. Catalyst Resources PVT Limited offer safe, reliable and highly skilled catalysts services to ensure optimal outcomes for our customers. We have the expertise and equipment to deliver efficient catalyst handling in the petrochemical and processing industries.

With our dedication and expertise, we are focused on safety, quality, progress, costs and most important customer satisfaction. We offer our services as a complete package to unburden our customers with their catalyst handling jobs and implement the newest innovations. We supply refineries



of services for both onshore and offshore purposes. This includes the commissioning and maintaining of catalytic reactors, columns, and vessels; by one integrated team.

Our services are including

- ◆ Catalyst Unloading (Inert/Non-Inert) – Vacuum or Dump
- ◆ Catalyst Loading (Inert/Non-Inert) – Sock or Dense Loading
- ◆ Catalyst vacuuming and screening
- ◆ Unload/ Reload Ceramic Ball Catalyst
- ◆ Dense Loading Services (Inert/Non- Inert) – Reformer Tubes
- ◆ Video Inspection Services
- ◆ Reactor cleaning and internal repairs
- ◆ Loading and unloading of fixed bed reactors
- ◆ Loading and unloading of tubular reactors
- ◆ Working under nitrogen conditions
- ◆ Vacuum unloading with closed loop nitrogen re-circulation
- ◆ Wet unloading and reloading
- ◆ Pneumatic loading
- ◆ Mechanical work and maintenance
- ◆ Catalyst transportation, storage, and containment
- ◆ Shutdown planning, coordination and execution

Industrial Services

- ◆ Bundle Pulling
- ◆ High Pressure Hydro Blasting Solutions
- ◆ Hydrocarbon Tank cleaning
- ◆ Heat Exchanger Services
- ◆ Tank cleaning & inspection
- ◆ Bolt Torquing & Tensioning services
- ◆ Hydro milling
- ◆ Decoking and pigging



Bundle Pulling



Catalyst Resources PVT Limited aerial bundle puller system is a self-contained unit, "combi unit" which is easily lifted in position by one crane. It is equipped with an air-cooled diesel engine, which drives the hydraulic system and is operated via remote control. With a powerful hydraulic winch, ranging from up to 60 ton pulling

easy to pull the exchanger out of the Shell without putting any stress on the foundation. The pulling winch is equipped with a vertical lifting pull hook system which can hydraulically raise and lower to make sure the bundle is always in line with the Shell while pulling. Once the exchanger is pulled out, the operator balances the extractor by moving the lifting frame forward or backward with his remote control.

Catalyst Resources PVT Limited provides safe, efficient and cost-effective hydro blasting services to remove the toughest residues in vessels, tanks, heat exchangers, columns, piping, slabs, barges and more.

Remote Bundle Blasting System

Catalyst Resources PVT Limited Remote Bundle Blasting system was designed to eliminate the need for personnel in blast zones during heat exchanger cleaning. The Remote Bundle Blasting system mechanically feeds flex lances into the tubes using a snorkel to prevent blow-back and captures the residues being removed. The entire process is controlled from a safe distance using a remotely-operated HD infrared camera system.



Shell Side Cleaning for Exchangers

Catalyst Resources PVT Limited uses automated equipment to safely and efficiently hydro blast the exterior of heat exchangers.

The ATL-5000 bundle cleaning system allows a single operator to hydro blast the OD of exchanger tube bundles from the comfort of a climate-controlled station. A powerful hydraulic drive system allows the operator to control all movements of the system, making bundle cleaning fast and efficient

High-Pressure Hydro Blasting Pumps

A properly specified and highly reliable pump is essential for optimal results in any industrial hydro blasting project. Catalyst Resources PVT Limited offers a full range of pumps to support a full range of hydro blasting operations.

605 HP PUMP: A high-horsepower pump that has revolutionized high-volume hydro blasting. It provides the pressures necessary to create greater impact forces, decrease cleaning time and return operating units to service faster. This pump is often used for Shell Side cleaning, 3D work, Multi Lancing and Specialty line cleaning.

Heat Exchanger Services

Catalyst Resources PVT Limited provides a 'one-stop-shop' for engineering, repair and overhaul of all heat exchanger types including shell and tube, plate, extended surface and regenerative.

We can undertake the maintenance or overhaul of all types and makes of heat exchangers, with services from in-house engineering and re-design through to

mechanical, welding and boiler-making, cleaning, tube or plate replacement, re-gasketing and testing.



Bolt Torquing and Tensioning

Catalyst Resources PVT Limited provides a total solution for all of your bolting requirements, including torquing, tensioning, stress analysis, flange management, and more.

Utilizing the latest technology Catalyst Resources PVT Limited has inhouse capability to provide: Major shutdown support

services project planning, design, engineering, equipment, trained technicians, IT systems support, onsite & offsite support services. Complete project management of all bolting requirements from start to finish. We provide engineering support to our field technicians as required, providing design, review and innovative new solutions to problems as they arise.



Hydro Milling

Catalyst Resources PVT Limited Rotating Hose system is the safest, most efficient way to clean piping. It provides 100% cleaning of the pipe ID, removing the product and scale deposits that build up on interior walls. The system operates by rotating 360 degrees and continuously hugging the ID of the piping.



A specially engineered hydro blasting nozzle remains forced against the wall and cuts the deposits while rotating. As the hose rotates, wheels propel the rotating hose into the line and around multiple 90s. For maximum effectiveness, Catalyst Resources Private Limited selects hose sizes and pressures to suit individual job. The rotary action and nozzle design are not only effective in removing debris, but also greatly reduce the amount of streaking that occurs with conventional hydro blasting.

Decoking and Pigging

Catalyst Resources Private Limited provides pigging and decoking services for furnace coils in refining and chemical processing operations.

This mechanical cleaning service removes hydrocarbon coke and inorganic contamination that accumulates on the inner walls of furnace coils, increasing flow, restoring heat exchange efficiency and reducing differential pressure. The service allows customers to avoid costly outages, decrease production costs and enhance profitability while minimizing safety risks.



Mechanical Services

Catalyst Resources Private Limited has a comprehensive range of mechanical services for the installation, revamp and repair of reactors, columns, vessels and also provides internal column refurbishment to the oil and gas industry.



- ◆ Vessel blinding and isolation
- ◆ Vessel repairs, de-bottlenecking, and internal modifications
- ◆ Cold cutting using Ultra High Pressure water
- ◆ On site store for supply of internals, spares, and componentry
- ◆ Specialized welding and repairs
- ◆ Ultra-thermic and plasma cutting
- ◆ Preparation for weld inspection
- ◆ Bolt tensioning, bolt torqueing, and nut splitting
- ◆ Plant preservation and demolition
- ◆ Chemical cleaning and decontamination

Pipeline Services

- ◆ Commissioning of New Pipelines
- ◆ Online Pigging
- ◆ Pipeline Caliper Survey
- ◆ Base line Survey-MFL /UT
- ◆ Pre-commissioning of New Pipelines
- ◆ Decommissioning of Pipelines



Pigging Services

Optimizing heat transfer and improving thermal efficiency on your process heaters is critical to improving your bottom line by reducing operating costs and extending run lengths. Aligning your facility with a trusted, experienced pigging and decoking company will improve reliability and eliminate expensive premature pipe wear due to inexperienced service providers.

Catalyst Resources PVT Limited provides a full range of pigging and decoking service. We use the most advanced pigging techniques to safely remove coke and other mineral deposits from piping and serpentine coils.

Process Services

Our process services are a broad range of complementary services used on process facilities from offshore platforms to onshore terminals and downstream processing. We possess the expertise in field of chemical cleaning, flushing and leak testing. We provide reliable service with highly experienced personnel and modern equipment fleets to ensure the end customer receives a satisfactory and cost-effective service.

OUR PROCESS SERVICES INCLUDES:

- ◆ Nitrogen Purging
- ◆ Chemical Cleaning
- ◆ Lube Oil Flushing
- ◆ Nitrogen/Helium Leak Testing
- ◆ Air Blowing
- ◆ Steam Blowing
- ◆ Flange Management



Nitrogen/ Helium Leak test:

Leak testing provides verification that a manufactured product meets predetermined specifications that allow the part or system to operate as intended. Nitrogen-Helium Leak detection is the most accurate and appropriate method to test hydrocarbon-process pipework for mechanical integrity. Nitrogen and Helium are used to effectively locate any leaks in work packages, saving the client time and ensuring safety.

Hot Tapping

We offer hot tapping and line plugging solution to all the Oil, Gas and other product pipelines. Hot Taps or Hot Tapping is the ability to safely tie into a pressurized system, by drilling or cutting, while it is on stream and under pressure.

The range of services includes,

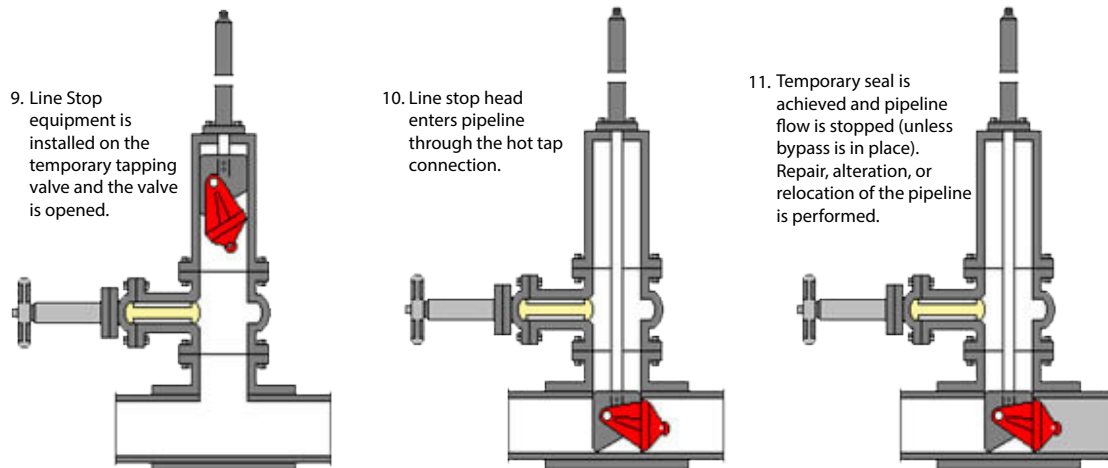
- ◆ In-service welding.
- ◆ Hot tapping from 1/2" to 48".
- ◆ Line plugging operations from 4" to 48".
- ◆ Line Plugging using Ballooning from DN150 to DN2000.

Typical connections consist:

- ◆ Tapping fittings like Weldolet, Reinforced Branch or Split Tee. Split Tees often to be used as branch and main pipe has the same diameters.
- ◆ Isolation valve like Gate or Ball valve.
- ◆ Hot tapping machine which includes the cutter, and housing.

Mechanical fittings may be used for making hot taps on pipelines and mains provided they are designed for the operating pressure of the pipeline or main, and are suitable for the purpose.

- ◆ Design: ASME B31.1, B31.3, ASME B31.4 and B31.8, ASME Sec. VIII Div.1 and 2.
- ◆ Fabrication: ASME Sec. VIII Div.1.
- ◆ Welding: ASME Sec. IX.
- ◆ NDT: ASME Sec. V.



The Line Stop solution can be offered in following ways:

- ◆ Line Stop using Separate by Pass for replacement of any damaged pipe/vales etc.
- ◆ Double Line Stop operations for connecting new HDD Section using existing HDD section as bypass.
- ◆ Line stop using Housing to Housing bypass.
- ◆ Line stop using inflatable balloons for water pipeline and low pressure applications.
- ◆ Customized solutions to the problems.
- ◆ Engineered Solutions as needed.

Plant Maintenance and Catalyst Handling Services



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