



## Cold Cutting



### YOUR CHALLENGES

It is frequently necessary to make precise cuts through structures, equipment and pipelines to facilitate projects such as adding new facilities, improving or repairing existing ones or even decommissioning redundant installations.

Often, due to the presence of residual hydrocarbons or to avoid hazardous emissions, we understand the need to use cold cutting techniques for these incisions to eliminate safety concerns and improve quality and cost control.

### OUR COLD CUTTING

CR3 has extensive experience of performing precise and controlled cuts, using a variety of methods, at all stages of the project life-cycle from construction through to final demolishing of retired equipment. We provide several specialist cutting techniques to suit every situation.

### HOW WE SUPPORT YOUR BUSINESS

We have portable clamshell cutting equipment to cut pipework both offshore and onshore. This technique is particularly useful for existing facilities where residual hydrocarbons are likely to be present in the item to be cut.

Our hydro-abrasive cutting is a perfect cutting medium for large and small objects. This combination of ultra-high pressure water and garnets is mostly used for cutting vessel heads, tank bottoms, man-ways as well as access doors and will cut cleanly through refractory lined structures.

While our diamond wire cutting is mostly used in confined spaces and for slicing through contaminated objects to minimise harmful emissions. Hence, it is commonly deployed for the controlled demolition of buildings, structures and equipment.

## THE CR3 DIFFERENCE

CR3's large in-house team of highly trained technicians is subject to regular audits and a stringent safety passport scheme. We invest heavily in the latest equipment and SMART systems to maintain our reputation as the region's leading one-stop provider of specialised maintenance services.

### Innovative equipment and techniques

Our patented track system for hydro-abrasive cutting guarantees a sharp, clean and precise cut each and every time. The track can be fabricated and rolled in any shape or length to ensure a quality cut is achieved, with or without in-situ weld preparation, in a single pass.

Our diamond wire cuts through all materials including rock, steel and concrete and even a combination of all three and is cooled by water to increase the life span of the wire.

The clamshell method can cut and bevel at the same time in a single pass, which increases the surface area of the cut or bevelled edge resulting in a stronger and more secure welded joint.

### Exceptional service

Our aim is to always deliver the best quality, whilst ensuring the project is completed within schedule, within budget and without incident. With our network of offices across Asia, we have the ability to respond quickly to planned and unplanned events.

### Outstanding QHSE performance

All of our cold cutting specialists are highly trained, hold a valid certificate and have significant field experience. Our quality and safety track record is maintained through structured training programmes, knowledge sharing, new processes and automated equipment that increases productivity while minimising the risk of injury.

## YOUR BUSINESS BENEFITS

**A variety of methods** – to suit every situation. We have extensive experience of performing precise and controlled cuts using a variety of methods at all stages of the project life-cycle.

**Save time and money** – by working as one team to ensure optimal safety, quality and schedule efficiency, we support you with detailed planning, coordination and execution for various cold cutting scopes.

**Improved safety and quality** – by ensuring single-source control through our multi-disciplinary approach and project management capability.

CR3 is a leading provider of energy engineering solutions. Established in 1991, we provide specialised maintenance, plant upgrade, revamp and engineering services with a sharp focus on **Energy Efficiency, Engineering Excellence, and Sustainable Solutions.**

**To learn more, visit CR3.Group**

## Unrivalled experience

We deliver your projects safely, on time and on budget by ensuring single-source control through our multi-disciplinary approach and project management capability. We provide several specialist cutting techniques to suit every situation and have completed some of the most challenging projects in Asia.



## OUR SOLUTIONS

- Cold cutting
- Clamshell cutting
- Pipe cutting and bevelling
- Hydro-abrasive cutting
- Ultra-high pressure water jet cutting
- Diamond wire cutting

## CR3 IN ACTION

### The challenge

A mercury recovery operator needed to demolish old and redundant heat exchangers without inadvertently releasing mercury during the cutting process.

### The solution

CR3 used diamond wire to cut the metal with a specially fabricated rig with a remotely operated winch system and pulleys to move the heat exchanger into position for each cut preventing contact with equipment.

### The outcome

The diamond wire cold cutting technique made light work of the demolition and prevented inadvertent release of any mercury.

## Leading one-stop provider of specialised maintenance services

CR3 supports your business with extensive contracting experience in the delivery of catered service packages, 'blind to blind' jobs and turnkey maintenance services during major shutdowns and turnarounds. Our business upholds a culture and track record of integrated management systems that are certified to multiple international standards.

## Our Solutions

We offer a comprehensive portfolio of maintenance services that are grouped into six business lines. Our experts deliver these services – onshore and offshore – on time and on budget.

Our complete 'blind to blind' solution ensures more streamlined and efficient projects, as we maintain direct, single-source control of all critical path elements. We cater to projects of widely varying scope and complexity, and can deliver multiple shutdowns concurrently.

### Related services:

- Static & Rotating Equipment Maintenance
- Industrial Scaffolding
- Mechanical Services
- Column Modifications & Repairs
- Total Heat Exchanger Maintenance
- Flare Tip Replacements & Repairs
- Cleaning & Decontamination Services
- Mercury Management Services
- Catalyst Handling Services
- Nitrogen Services
- Waste Handling
- Decommissioning Services
- Insulation Services
- Valve Maintenance
- Storage Tank Cleaning & Maintenance

Our experts meet your demands for shorter change-outs, leaner project teams and superior quality standards for all reactor types with end-to-end solutions that reduce downtime and increase profitability.

### Related services:

- Catalyst & Adsorbent Handling Services
- Tubular Reactor Services
- Dense Loading
- 'Blind to Blind' Mechanical Services
- Reactor Internals Replacement & Repairs
- Nitrogen Services
- Waste Handling

We clean and inspect virtually all plant vessels, columns, drums and piping systems, both onshore and offshore, with services that can be tailored to requirements.

### Related services:

- Pre-Commissioning & Commissioning Services
- Nitrogen Services
- Pipeline Cleaning (Chemical & Mechanical)
- Pipeline Flooding
- Pressure Testing
- Dewatering
- Drying
- Purging

Our investment in training, equipment and SMART systems combined with our focus on safety and rigorous planning, preparation and execution of work underpins our track record as a leading provider of mechanical & plant maintenance services.

### Related services:

- Static Equipment Maintenance
- Rotating Equipment Maintenance
- Specialist Cutting Services
- Online Leak Sealing
- Controlled Bolting
- Reactor Repairs & Maintenance
- Plant Change & Piping Modifications
- In-situ Flange Facing & Machining
- Industrial Scaffolding
- Insulation Services
- Valve Maintenance
- Continuous Plant Maintenance
- Storage Tank Cleaning & Maintenance

Our extensive portfolio of cleaning services sets the benchmark in terms of technical, environmental and safety standards.

### Related services:

- Chemical Cleaning Services
- Mercury Management Services
- Fin Fan Optimisation
- Hydro Jetting Services
- CR3 Decoking Technology (CDT)
- Decontamination Services
- Waste Handling

We deliver projects safely, on time and on budget by ensuring single-source control through our multi-disciplinary approach and project management capability.

### Related services:

- Process Revamps, Rejuvenations & Retrofits
- Construction & Constructability Reviews
- Engineering, Procurement & Commissioning Services
- Operations & Maintenance
- Dismantling, Demolishing & Removal of Equipment
- Fabrication of structural, Carbon Steels & Pipe Systems
- Fabrication of Stainless Steels & Special Alloys
- Installation of Large Equipment & Pipe Systems
- Welding
- Hot & Cold Cutting
- Scaffolding & Insulation



CR3 is a leading provider of energy engineering solutions. Established in 1991, we provide specialised maintenance, plant upgrade, revamp and engineering services with a sharp focus on **Energy** Efficiency, **Engineering** Excellence, and Sustainable **Solutions**.

### Contact us today to learn more

#### CR3 Group

17<sup>th</sup> Floor, Unit 1706  
Two Pacific Place Building  
142 Sukhumvit Road  
Klongtoey, Bangkok 10110, Thailand  
Tel: +66-2-653-3913-5  
Fax: +66-2-653-3916  
Email: cr3g@cr3.group

#### CR3 Thailand

15/1 Moo 3, Bankoh - Mabkha Road  
Mabkha, Nikompattana  
Rayong 21180, Thailand  
Tel: +66-38-698-399  
Fax: +66-38-698-398  
Email: cr3t@cr3.group

#### CR3 Malaysia

P.T. 6068, Teluk Kalong Industrial Area  
24000 Kemaman  
Terengganu Darul Iman, Malaysia  
Tel: +60-9-863-2325 to 26  
Fax: +60-9-863-2328  
Email: cr3m@cr3.group

#### CR3 Singapore

156 Gul Circle  
Singapore 629613  
Tel: +65-6268-0255  
Fax: +65-6268-3369  
Email: cr3s@cr3.group

#### CR3 (India) Private Limited

601, 6<sup>th</sup> Floor, Building No. 9, Gigaplex  
Plot No. IT-5, Airoli West, MIDC  
TTC Industrial Area  
Navi Mumbai 400708, India  
Tel: +91-22-6288-1000  
Email: cr3i@cr3.group

#### CR3 Middle East

Musaffah, M19  
Plot #1 DSV Solutions  
Abu Dhabi, UAE  
PO Box 132569  
Tel: +971-2-583-4228  
Email: cr3me@cr3.group

Or visit **CR3.Group**

