



## CORROSION TECHNOLOGY SERVICES

Asia | Caspian | Europe | Middle East | North Africa | United Kingdom



**INDUSTRIAL**



**CONCRETE**



**OFFSHORE**

## COMPANY PROFILE



## Who We Are

The CTS Group has over four decades of experience in some of the world's most aggressive environments. With offices in nine countries and four geographic regions CTS is recognized as one of the world's leading cathodic protection companies.

CTS' strength lies in its engineering and production facilities. CTS employ approximately 140 staff across our offices; with over 70 NACE or ICORR qualified engineers, nobody is better positioned to assist with your cathodic protection and corrosion needs.

The CTS Group is a market leader in the provision of corrosion prevention solutions particularly focused on cathodic protection in the following industries:

- Oil & Gas
- Utilities
- Civil Infrastructure including building and basements

CTS can provide consultancy services, design surveys, specialised site / field surveys, material supply, design services, installation supervision,

interaction testing and commissioning, monitoring and fault finding activities of cathodic protection systems. We also specialise in condition assessment for civil structures, buildings and basements and design of remote monitoring and control system and networks.

CTS manufacture a wide range of equipment in-house including power supplies and remote monitoring and control systems. We have manufacturing or distribution centers in the following countries:

- Bahrain
- Kingdom of Saudi Arabia
- United Arab Emirates
- United Kingdom

The CTS Group is known for its contribution to the Corrosion Community, having been featured in industry journals and regularly supporting international trade shows, exhibitions and regional NACE events.



## Our Mission Statement

CTS aspires for a leading global market position by delivering world-class engineering services, and upholding top-tier quality and ethical standards.

## Our Quality

CTS provides high-quality engineering services to its global portfolio of clients. We are committed to a policy of quality assurance complying with ISO-9001, ISO-14001 and OHSAS-18001 and ensure that these policies are understood, implemented, and maintained throughout the Group.

Our scope of certification includes Site Surveys, Feasibility Studies, Audit, Design & Engineering, Material Supplies, Installation Supervision, Testing & Commissioning, Maintenance & Monitoring related to Cathodic Protection and Corrosion Prevention Systems.

## Our Vision

To deliver excellence and to be recognised internationally through:

- Building Robust Client Loyalty.
- Adopting Optimal Engineering Methodologies. Deliver superior value, flexible, cost-effective, and integrated engineering solutions in compliance with the latest design/construction international and local codes and standards across our complete range of services.
- Empowering Our Staff: Continually train and develop our staff to ensure they reach their full potential and deliver the best service for all our clients.

## Accreditations

CTS support the following organisations.







## Industrial Cathodic Protection

The CTS Group is actively engaged in design and consultancy services, installation, supervision and maintenance surveys, temporary cathodic protection / sacrificial cathodic protection and permanent cathodic protection / impressed current cathodic protection. Our experience covers a wide range of structures.



### Industrial Complexes

- Underground Piping
- Storage Tanks and Vessels
- Reinforced Concrete Structures and Foundations
- Water Screening Equipment
- Internal Corrosion
- Coating Inspection



### Pipelines

- Transmission Pipelines
- Distribution & Gathering Networks
- Pre-Stressed Concrete Cylinder Pipe



### Oil & Gas Production

- Refineries
- Bulk Handling Plants
- Well Casings
- Gathering Networks
- GOSPS



### Power Plants

- Underground Piping Networks
- Condensers & Water Boxes
- Cooling Water & Pipelines Internal
- Storage Tanks
- Intake Pumps and Screens
- Reinforced Concrete Structures and Foundations



## Specialist Pipeline Surveys

CTS Group has surveyed thousands of kilometres of pipeline across hundreds of sites from deserts to mountains. We can conduct pipeline condition surveys using a range of techniques including:

- Close Interval Potential Surveys (CIPS)
- Direct Current Voltage Gradient survey (DCVG)
- Coating Evaluation by Pipeline Current Mapping (PCM)
- Soil Analysis and Sulphate Reducing Bacteria Testing
- Stress Concentration Tomography (SCT) pipeline inspection

## Design & Consultancy Services

CTS engineers have carried out FEED studies and consultancy services on major projects, including:

- Pipelines
- Well Casings
- Tank Farms
- Corrosion Assessment of Reinforced Concrete Structures
- AC Mitigation Studies
- Corrosion and Condition Assessment for Reinforced Concrete Structures.
- Specifications for the Cathodic Protection of Reinforced Concrete Structures

CTS are licensees of Safe Engineering Systems (SES) Right of Way Pro™ software which is used for modelling induced AC voltages on pipelines close to high voltage power lines.

CTS work closely with UK Computer modelling specialists BEASY who can provide predictions on current and potential distribution as well as predicting interference with impressed current cathodic protection systems.





## Cathodic Protection of Steel in Concrete

The corrosion engineers of CTS are amongst the world's leading experts in the field of Cathodic Protection to both new and existing steel reinforced concrete structures. CTS also possess unrivalled expertise in the field of condition surveys, potential mapping and corrosion rate studies, design and specification services, materials supply, installation supervision, commissioning and maintenance of cathodic protection systems for all types of steel reinforced concrete structures.

These services have been successfully implemented on a wide range of structures, including:

- Power Plants
- Seawater Cooling Structures
- Pre-stressed Cylinder Concrete Pipelines
- Bridges
- Docks & Jetties
- Piling
- Prestigious Buildings
- Foundations
- Caissons
- Seawater Canals

## Condition Assessment of Reinforced Concrete Structures

CTS have conducted Condition Assessment of many types of Reinforced Concrete Structures. We are able to report current condition and determine future corrosion risks. We are usually able to determine the root cause of corrosion and are able to support structure owners and contractors in durability disputes.

Example of the structures investigated are:

- Leaking basements for building and towers
- Concrete cooling towers
- Intake and Discharge Structures
- Car Parks
- Bridges and Civil Infrastructure
- Concrete canals
- Jetties and Berths

In order to undertake the condition assessment we employ the following techniques.

- Crack and delamination mapping
- Potential mapping
- Chloride content analysis and profiling
- Petrographic analysis
- Corrosion Rate measurement using Linear Polarisation Resistance
- Concrete Resistivity

We have expertise in analysing the data as a whole and do not simply report results.

	TR Cabinet	Channel	Zone	Design Current A	Anode Capacity A	Channel Setpoints			Channel Output			RE Potentials mV								Date/Time
						Current A	Voltage V	Control Mode	Current A	Voltage V	Operating Current Density mA/m <sup>2</sup>	RE1	RE2	RE3	RE4	RE5	RE6	RE7	RE8	
<input type="checkbox"/>	F1-1	F1-1-Z1	F1-1-Z1	3.00	4.00	1.00	10.00	I	1.00	0.75	3.33	-216	-251	-272	na	na	na	na	na	2015-04-19 12:27:53
<input type="checkbox"/>	F1-1	F1-1-Z3	F1-1-Z3	3.00	4.00	1.00	12.00	I	0.99	5.04	3.30	-449	-308	-247	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-1	F1-1-Z9	F1-1-Z9	3.00	4.00	0.05	12.00	I	0.05	7.14	0.17	-368	-365	-259	na	na	na	na	na	2015-04-19 12:28:27
<input type="checkbox"/>	F1-2	F1-2-Z2	F1-2-Z2	4.00	5.00	1.00	12.00	I	2.00	3.56	5.00	-201	-212	-285	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-2	F1-2-Z4	F1-2-Z4	4.00	5.00	1.00	12.00	I	2.00	2.92	5.00	-102	-107	-170	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-2	F1-2-Z10	F1-2-Z10	4.00	5.00	1.00	12.00	I	2.00	4.97	5.00	-202	-174	1	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-3	F1-3-Z8	F1-3-Z8	3.00	4.00	1.00	12.00	I	2.00	1.61	6.67	-181	-81	-145	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-3	F1-3-Z7	F1-3-Z7	3.00	4.00	1.00	12.00	I	2.00	1.97	6.67	-214	-237	-100	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-3	F1-3-Z11	F1-3-Z11	3.00	4.00	1.00	12.00	I	2.00	9.15	6.67	-229	-166	-222	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-4	F1-4-Z6	F1-4-Z6	4.00	5.00	1.00	12.00	I	2.00	1.64	5.00	-169	-92	-92	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-4	F1-4-Z8	F1-4-Z8	4.00	5.00	1.00	12.00	I	2.00	2.33	5.00	-97	-186	-128	na	na	na	na	na	2015-04-19 12:28:00
<input type="checkbox"/>	F1-4	F1-4-Z12	F1-4-Z12	3.00	4.00	1.00	12.00	I	2.00	3.74	4.00	-184	-165	-126	na	na	na	na	na	2015-04-19 12:28:00

## Remote Monitoring and Control

Remote Monitoring and Control have become an important aspect of cathodic protection systems offering advantages such as the ability to centrally monitor multiple power supplies. There are also important advantages for:

**Safety** – Less miles travelled by technicians often in inhospitable environments.

**Digital Data Handling** – collected data not subject to technician abilities and can be graphed, trends spotted and reports easily prepared.

**Detect Problems and Reduced Protection levels** – Real time notification of power supply faults and loss of protection.

**Reduce Costs** of engineering, support staff and vehicles.

Remote Control can be offered using a 4-20mA output from transducers. Digital Monitoring using a RS485 or Wi-Fi network requires a master control unit. Alarms can be offered using potential-free contacts. The Aegis Remote Monitoring System (ARMS) offers state of the art hardware and software that is specifically designed and tailored for Cathodic Protection applications. The Master Control Unit (MCU) can be accessed using any web browser meaning any standard protocol network can be used and no additional or ongoing software licenses are required.

Through partnership with Abriox, CTS are able to offer web-based monitoring systems for power supplies and test posts using satellite communications.

These systems are useful for remote areas where RS485/Fiber optic networks and Wi-Fi signals are not available.





## Offshore Cathodic Protection

The CTS Group has successfully completed major offshore and shoreline projects. Some of the typical offshore structures which have been protected by CTS are:

- Submerged pipelines
- Drilling Rigs
- Marine Terminals
- Sheet and Tubular Piles
- Dock Structures and Jetties
- Single Buoy Moorings
- Offshore Wind Turbines

CTS also provide services for design and supply of retrofit cathodic protection for ageing structures.

### Marine Services

The CTS Group provides inspection and maintenance services to vessels docked at major ports and repair yards. In addition, we also provide spare parts for all types of impressed current and anti fouling systems and design and supply sacrificial anodes for vessels ranging from tugs to tankers.





## Materials Supply

Our global capabilities extend across the complete spectrum of Cathodic Protection products and materials, including:

- Cathodic protection power supply units (Transformer-rectifier, switch mode and solar)
- Junction Boxes, Cathodic Protection Cable and Power Distribution Equipment
- Impressed Current and Sacrificial Anodes
- Monobloc Isolation joints, Isolation Flange Kits
- Surge Arrestors, Polarisation Cell Replacement and induced AC mitigation materials
- Remote Monitoring and Remote Monitoring & Control Systems
- Instrumentation, Survey and Monitoring Products

## Cathodic Protection Power Supplies

CTS Power Supply Divisions are located in Saudi Arabia, Bahrain, the United Arab Emirates and the United Kingdom. We manufacture the different types of variable DC Power Supplies / Transformer Rectifiers & Switch-Mode Power Supplies under the CTS, Aegis and PML brands.

**Aegis Technical Systems**, Dubai was established in 1996 and is recognised as the premier supplier of Switch Mode Power Supplies and Remote Monitoring and Control Systems in the Middle East with hundreds of power supplies on prestigious projects such as Burj Khalifa, Dubai; Louvre, Abu Dhabi; Jeddah Tower, Saudi Arabia and many more. Through the merger with CTS, Aegis power supplies and Remote Monitoring Systems are now available world-wide. Aegis equipment can be supplied as a standalone system or integrated with CTS or third party supplier systems.

### CTS and PML Power Supplies -

CTS and PML power supplies are designed to give variable DC outputs using linear transformation of line frequency AC voltage and high frequency switched mode conversions.

Variable DC output voltage is obtained by Tappings, Variac Control, Thyristor Phase Control and

Micro Processor based phase control for a wide range of single and three phase AC input voltages.

## Enclosures –

CTS and Aegis Power Supplies are available in air-cooled and oil cooled versions housed in enclosures manufactured from a range of materials such as carbon steel, stainless steel, aluminium and GRP. Various coatings and finishes including hot dip galvanizing are available.

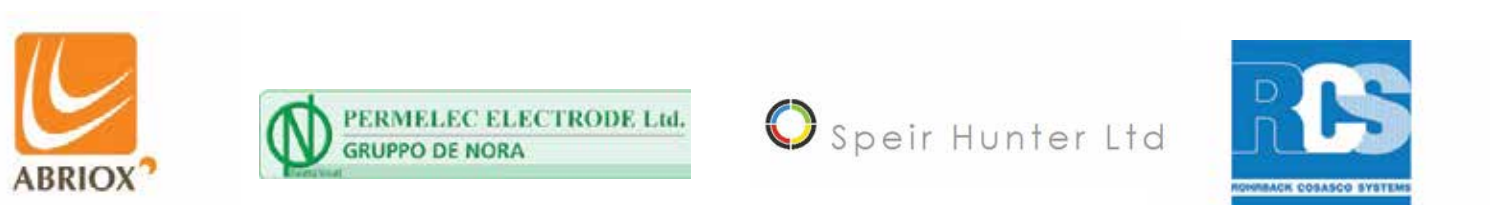
Enclosures can be IP and NEMA rated and we can supply ATEX certified power supplies suitable for hazardous areas.

CTS Power Supplies are produced under the Aegis  PML  and CTS  brands

## Maintenance

CTS offer engineering and support for long-term maintenance. Services we are providing include:

- Cathodic Protection Maintenance and Data Analysis
- Monitoring of cathodic protection for Buildings, Bridges and other Reinforced Concrete Structures
- Coating Inspection
- Internal Corrosion Monitoring



## Partners

CTS partner with various companies in different territories to offer 'Best of the Best' solutions. For specific information on which companies and product lines CTS represents in your territory, please contact your local office.

### Abriox Ltd

Rectifier Monitoring, CP Monitoring  
[www.abriox.com](http://www.abriox.com)

### Rohrback Cosasco Systems Inc.

Internal Corrosion Monitoring  
equipment and services  
[www.cosasco.com](http://www.cosasco.com)

### De Nora Permalec

MMO anodes for protection of steel  
in concrete  
[www.denora.it](http://www.denora.it)

### Speir Hunter Ltd

Non-Contact Stress Concentration  
Tomography (SCT) for Pipeline Inspection  
[www.speirhunter.com](http://www.speirhunter.com)

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Solution  
Providers**



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