

Petrotec

MAGAZINE

THE NEWS THAT MATTERS

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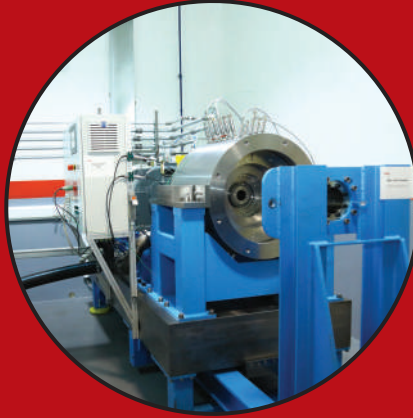
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M E S S A G E

FROM OUR MANAGING DIRECTOR

2019 has been a special year for us as it marked the 30th anniversary of Petrotec. We have experienced another year with a challenging business environment due to the circumstances in the region in general and the energy sector in particular, with fluctuating oil prices in addition to logistical difficulties. We have managed to overcome these difficulties and maintain our ranking as one of the top suppliers of engineered products and specialized services in Qatar and the region. Invariably, tough times do deliver opportunities. Petrotec has been able to gain some of these as you will read later.

This past year, we continued our success in exporting our specialist services to Kuwait and Oman, where we executed a number of chemical cleaning and oil flushing projects through Solarca Qatar and Ocean Team Qatar respectively. Due to our outstanding performance in projects executed previously, our clients in these countries have learned to trust our expertise which made Solarca and Ocean Team the go-to service providers when it comes to pre-commissioning decontamination requirements.

I am pleased to announce the opening of Q-Fab's branch in Kuwait, Al-Mahhar. This subsidiary will cater to the construction and infrastructure market. We have invested in a new facility and a permanent specialised workforce to service the brands we represent. Al-Mahhar has been appointed as the exclusive representative of Wirtgen brand, Himinsa generators and CompAir compressors. I invite you to learn more about our operations in Kuwait by reading this edition's feature article.

In Qatar, we have witnessed in September 2019, the inauguration of our dry gas seal repair and testing facility in collaboration with our partner Flowserve. This newly opened facility, which is located in Salwa industrial area, serves as a testament to our commitment to localize key services in the country. This aligns with our vision to becoming the lead service provider to the energy sector and to maintain a higher In-Country-Value. 2019 has also witnessed adding the final touches on our soon-to-be-opened Service Centre in MANATEQ Al Wukair, which will also serve as the new headquarters for our subsidiary Q-Fab.

This past year has been a year full of new partnerships, new facilities and new successes. We have celebrated our 30th anniversary by achieving growth both locally and across the region. I would like to extend my thanks to all our employees for their dedication and to our customers for their continuous trust. I would also like to thank our long term partners for their continuous support.

Clifford W. Lagrado

Managing Director



QHSE department conducts “customer focus” training to management and staff

In today's market-oriented business environment, customer satisfaction has become the ultimate KPI for most of the companies in any kind of business. Therefore, understanding customer satisfaction dimensions, measuring it and taking actions based on this is crucial. Petrotec's QHSE department recently conducted four customer focused trainings which were curated by Petrotec's QHSE advisor G. Muthu. All managers and staff who have direct contact with customers from various divisions such as Q-Fab, STC and sales groups were invited to attend.

During the training, G. Muthu discussed how to measure levels of customer satisfaction, key elements to achieve that, and how to handle customer complaints.

A detailed discussion covered some key points such as:

- Delivery time
- Documentation
- Information integrity
- Timeliness
- Service quality
- Communication
- Pro-active action
- Business competitiveness
- Multi-criteria satisfaction analysis
- Accountability
- Continual improvement
- Commitment and etc.



Safety Tips

Electricity has been recognized as a serious workplace hazard, exposing employees to such dangers as electric shocks, electrocutions, fires and explosions. Most often, the lack of proper maintenance is the cause of these incidents.

The below safety precautions should be adopted to prevent possible electrocution / shocks:

- Test and tag electrical leads, tools and equipment regularly.
- Visually inspect electrical leads, tools and equipment for damage before each use.
- Use flameproof electrical tools and equipment in areas where there is a potential for flammable and explosive atmospheres.
- Make sure all generators are properly grounded.
- Use competent, skilled people to repair damaged electrical leads, tools and equipment.



An overview of Petrotec services restructuring

Petrotec's Service and Technology Center (STC) has undergone some changes at the beginning of 2019. Petrotec's management decided to centralise various business lines under three core divisions – Static, Mechanical, Electrical and Instrumentation (E&I).

Some of our static division's accomplishments this year were:

Valves services: Petrotec STC's static division provides services including refurbishment, testing and certification of all kinds of valves (control valves, manual valves and safety relief valves) irrespective of size and rating. First quarter of 2019 was packed with some exciting projects. The department has worked on three separate shutdown campaigns from three different clients in parallel, where over 600 valves were serviced, tested, painted and certified in a span of 40 days. The credit for smooth and flawless execution and successful completion goes to our specialised team for their meticulous planning and effective execution.



Onsite services: Providing field solutions for some of the most critical equipment such as heat exchangers, pig launchers, hydro-cyclones, online leak sealing, spark erosion and electronic valve testing (EVT). First half of the year, our team was based at a client's site performing tube replacement for a number of heat exchangers. With countless challenges, our team has successfully completed the project. In addition to this, the STC team was involved in various assignments for one of our off-shore clients wherein we had to repair and certify a pig launcher. This activity also involved certifying our welders to specialised cladding procedures.



Swire rentals: Managing a fleet of over 1800 DNV certified CCU (cargo carrying units) for a client is a very challenging assignment. With thorough planning and excellent support from the operations team, every challenge was faced headon. Our latest additions to the fleet is LFA units to transport over dimension equipment and pressurised office containers.



About Petrotec STC

Petrotec's Service and Technology Centre (STC) was established to support the aftersales services for the broad range of products being sold to the oil and gas sector by Petrotec. Since then, we have grown to become a leader in maintenance, repair and overhaul (MRO) services in Qatar. With more than 125 OEM trained service technicians, STC currently operates from its state-of-the-art Service Centre in Ras Laffan West Support Area, and Street 39 Salwa Industrial Area. We are the approved repair centre for a key selection of leading global manufacturers.

Petrotec and Flowserve inaugurate a dry gas seal repair facility in Qatar

In the presence of many executives from the oil and gas sector in Qatar, Petrotec and Flowserve inaugurated on Thursday, the 26th September 2019, a dry gas seal repair and testing facility located in the Petrotec Service and Technology Centre (STC), Street 39 - Salwa Industrial Area. The event was held in the presence of Misfer Albidaiwi, Vice President of Qatar Shell, Jacques Azibert, CEO of North Oil Company, Abdulaziz Al Ansari, Head of Tawteen/ ICV program at Qatar Petroleum, in addition to many senior management staff from Flowserve, Petrotec and other major oil and gas companies in Qatar. Dry gas seals are an integral part of compressors used in the oil, gas and petrochemical industries in Qatar. This new facility expands Petrotec's existing wet seal repair and testing facility in Qatar and brings local compressor seal commissioning, inspection and repair capabilities to Qatar.



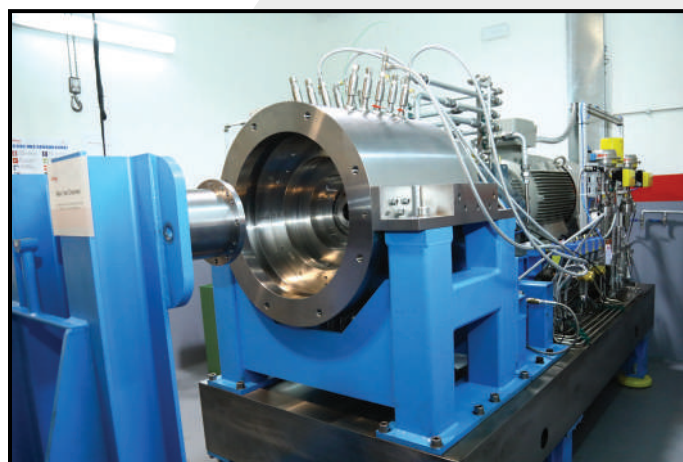
Flowserve Corporation is an American multinational corporation and one of the largest suppliers of industrial and environmental machinery including pumps, valves, mechanical seals and services to the oil, gas, power, chemical and other industries.

Headquartered in Irving, Texas, a suburb of Dallas, Flowserve has over 18,000 employees in more than 55 countries. Flowserve sells products and offers aftermarket services to engineering and construction firms, original equipment manufacturers, distributors and end users. Petrotec has been an authorized distributor of Flowserve pumps and mechanical seals in Qatar since 2003, providing customers with a full range of products and aftermarket services.

This new facility will give Qatar's oil and gas companies access to faster seal delivery, local inventory, on-site inspection and testing services, and immediate repair capabilities. Previously, companies had to send compressor seals outside Qatar for testing and servicing, which led to increased downtime and shipping expenses. Now, Flowserve and Petrotec can bring these services directly to customer's doorstep which will reduce turnaround time.



Established in 1989, Petrotec, a 100% Qatari-owned company, is one of the largest providers of products and services to the energy sector in Qatar. With approximately 600 employees representing 31 nationalities, Petrotec represents a key selection of world leading manufacturers and service companies in Qatar. Petrotec has strengthened its position in the maintenance, repair and overhaul (MRO) market in Qatar by adding this new dry gas seal repair facility to its long list of service workshops. The new facility has been built in partnership with Flowserve.



P.K. Viswanath, General Manager - Sales at Petrotec said: *"I would specifically like to thank Qatar Shell. It was their initiative much before the localisation program (Tawteen) started. Qatar Shell had the vision to look at localising activities in Qatar and I would like to thank Qatar Shell for giving Petrotec the opportunity to localise this activity."*



Misfer Albidaiwi, Vice President of Qatar Shell said: *"I am so proud that we are now one step on our way to Tawteen. Tawteen (Localisation) is extremely important for us as Qatar Shell and for us as Qataris and for the industry. I am also proud that we have such a service of Flowserve and Petrotec in Qatar. I would really like to thank Petrotec and Flowserve for the service they have provided all these years to the oil and gas industry here in Qatar."*

"From Qatar Shell's perspective, this makes a big difference" Mr. Albidaiwi added. He also said, in relation to repairing a dry gas seal in the case of an emergency compressor shutdown, the repair will now take *"not weeks, not months, but days"*.

Tom Diez, Vice President Global Distribution at Flowserve said: *"Petrotec is a pioneer in the relationship between Flowserve and its distributors because Petrotec had the first wet seals repair and testing facility for a third party company outside of Flowserve's extensive network of facilities. Once again, this new facility is the first time Flowserve has ever partnered with a distribution channel for a dry gas seal repair facility in the world."*

Fred Meeke, Vice President Sales EMEA at Flowserve added: *"I would like to thank Petrotec for supporting Flowserve in additional things such as training in addition to their commitment to "Internet of Things" and our wireless data capture system. These are signs of a fantastic and progressive relationship that we have with Petrotec"*.

Salah Al-Jaidah, co-founder and co-owner of Petrotec Group said: *"This newly established dry gas seal facility demonstrates Petrotec's willingness to localise key services in Qatar, which previously were sourced from other countries in the GCC or other parts of the world."*





Ocean Team Qatar (OTQ) wins a contract for confined space entry for vessel cleaning

Over the years, OTQ has become the market leader for vessel cleaning services, developing procedures with appropriate risk assessments for safe confined space entry, and cleaning of pressure vessels such as inlet separators, test separators, hazardous and non-hazardous drain tanks etc.

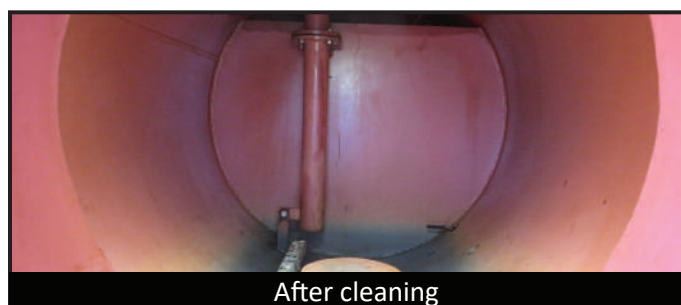
Backed with a well trained workforce having an extensive experience offshore, OTQ was selected in July 2019 by one of the major oil companies in Qatar to sign a long-term contract for provision of pressure vessel cleaning services at their offshore facilities.

The project, which kicked off in October 2019, comprised of cleaning three different closed drain drums with capacities ranging from 5m³ to 20m³. The presence of highly toxic contaminants and limited deck space presented a unique challenge for our team, in addition to the prevalent weather conditions at the time. Special compact sludge and slurry pumps capable of pumping up to 10,000 liters per hour were deployed on this project. Specialized equipment in conjunction with highly trained technicians, well versed in safely executing the complex tasks enabled Ocean Team to complete the scope well ahead of the allocated schedule.

The end user was really satisfied with the performance of OTQ. As per the customer satisfaction survey, the general opinion from the inspection supervisor was: *"Equipment, materials and products were received on time and in perfect condition at site. All the vessel cleaning was completed within the scheduled time period. Excellent work."*



Before cleaning



After cleaning

Recognizing that each project presents its own set of challenges, requiring effective optimization to execute activities as per client requirements in the safest manner possible. Post completion of the first campaign, OTQ engaged in a discussion with counterparts from the client raising various learnings/ areas of improvement from the recently concluded campaign and measures to be considered for the next campaign.



Before cleaning

After cleaning



About Ocean Team Qatar

Ocean Team Qatar (OTQ) is a leading provider of oil flushing / hot oil flushing / high velocity flushing for turbomachinery, both as a pre-commissioning cleaning activity or as part of reliability improvement requirements. OTQ has a large fleet of specialist flushing equipment and a highly trained flushing team. OTQ is also a leading provider of specialist chemical cleaning services for the offshore oil and gas industry, heat exchanger cleaning, acid injection in producer water wells etc. OTQ has over the years become the leading company for confined space entry for vessel cleaning.



Q-Fab is moving to the new facility in MANATEQ Al Wukair

Petrotec Group has always been leading expansion in its infrastructure in accordance with the growth that it witnessed in the past 30 years in Qatar.

Q-Fab has been operating from its facility in Street 35, Salwa Industrial Area for the past 15 years. Due to its significant service portfolio expansion, Q-Fab is moving into a new facility in MANATEQ Al Wukair in early 2020. This is one of the ambitious projects of Q-Fab and is another reflection on Q-Fab's commitment towards Qatar's construction equipment industry.

This new world class facility is unmatched for many reasons in the region. The facility has 1200m² of workshop equipped with a 10 Ton overhead crane, 1450m² of warehouse, 100m² of air conditioned warehouse, 500m² of office space, in addition to a paint booth and 8000m² of open yard.



With this facility, Q-Fab and KOOP water management will integrate sales, services, warehousing and yard in one location, bringing in synergy and efficiency in all of their operations.

Q-Fab, a Petrotec Group subsidiary, has grown significantly since its inception in 1996, not only in size, but also in product and service portfolio. Q-Fab currently represents a wide range of worldwide leading manufacturers of road, heavy and light construction equipment, in addition to earth moving, mining, civil construction and industrial welding equipment.

In the service side, Q-Fab has a trained workforce catering to equipment repair and maintenance, and also provides specialised services such as foam filling, hydraulic hose services, hydraulic cylinder assembly and disassembly, etc. Furthermore, Q-Fab offers a large rental fleet of access platforms, scissor and boom lifts, tower cranes, etc.





In-Situ calibration of flow meters using Compact Prover and master meter method

Q-Cal has launched an onsite calibration service for custody transfer and allocation liquid flow meters, using Compact Prover and a reference master meter.

Ultrasonic and Coriolis flow meters are the most reliable instruments for flow measurement and have become increasingly commonplace in oil and gas flow measurement systems. However, they must be calibrated periodically to ensure they are performing as accurately as possible. As part of a new service, Q-Cal has invested in a highly specialized mobile Compact Prover / master meter skid unit to conduct in-situ flow meter calibration. The unit performs to a greater level of precision than widely encountered in the market, with better than 0.1% accuracy. In an industry handling a high-value product such as oil and gas, the accuracy of measurement equipment is crucial for correctness and profitability.

Mismeasurement of oil and gas quantities can be extremely costly and can affect an operators' overall profit margin.



Sajid Rehman, Senior Sales Manager for calibration services at Q-Cal, said: *"Historically, calibrating custody transfer and allocation flow meters has proved challenging to operators. It usually involves the movement of large units between offshore and on-shore sites, which causes downtime and can be costly. The mobile Compact Prover / master meter skid unit will now allow us to offer this service onsite, saving our clients time, money and the inconvenience and risk of moving their equipment."*

The skid unit's relatively compact size means it can be easily transported to offshore environments with restricted deck space, or to sites in very remote locations.

An additional benefit is that calibration can be conducted under normal operating conditions, rather than within the artificial environment of a laboratory. Water draw tests on Compact Prover (onsite) using a dedicated NMO certified test measure ensures complete traceability for the measurements.



About Q-Cal

Q-Cal was established in Qatar in 1998 to provide process equipment calibration, repair, rental and management services. Q-Cal is a joint venture company of Petrotec. The company has grown and developed and now offers a full Inventory management service and also equipment rental.

Q-Cal holds ISO 17025 accreditation through the International Accreditation Service (IAS) and ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 from LRQA. Q-Cal can ensure your products meet quality, health, environmental, safety, and social accountability standards.



Solarca Qatar awarded a major contract for Oxygen piping and equipment cleaning

Solarca Qatar, a Petrotec joint venture company, has been awarded a contract for performing Oxygen service cleaning on 98% pure liquid Oxygen piping and other plant equipment. Oxygen service cleaning involves the utmost cleanliness criteria, due to the fact that a single contaminant can cause a harmful or fatal accident upon start-up. Solarca Qatar has been carefully selected from a list of suppliers, depending upon the capability to achieve the highest degree of cleanliness, while performing the cleaning.

Solarca Qatar has the capability to inspect long length piping, while maintaining the highest level of purity.



About Solarca Qatar

Solarca Qatar was formed in 2009, a joint venture between Petrotec and Grupo Solarca. Solarca has its roots deeply embedded in the field of chemical cleaning and air and steam blowing, offering its expertise to clients around the world including Conoco Philips, Exxon, BP, Royal Dutch Shell and Repsol.

Solarca Qatar possesses the expertise of Grupo Solarca in terms of chemical cleaning and air and steam blowing and has managed to establish itself in Qatar as one of the leading companies that offers in-depth and thorough solution for chemical cleaning and decontamination.



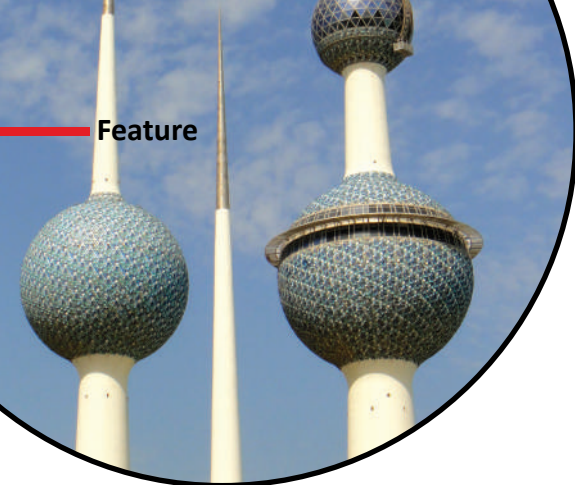
KOOP ME successfully completes dewatering of utilities connectivity project at Um Alhoul

Highly fractured strata and corrosive ground water of Um Alhoul area has always been a nightmare for most of the dewatering companies in the region, as it does not only require highly skilled, resourceful and dedicated teams, but all the equipment have to be of very high-grade materials to tackle all sort of challenges it may cause for dewatering service providers. KOOP Water management middle east (KOOP ME) has repeatedly proved its capability and capacity to manage all challenging conditions successfully.

CP-22 project did not only have challenges with its strata and water quality, but it also had one of the shortest timeframes. Due to some delays, the scheduled work was escalated by 100% and KOOP had to install and commission a discharge system of 70 km instead of 26km as per the initial plan and the number of shafts was increased from 20 to 38.



With shaft depth of 22m and flow rate of up to 500m³/h/shaft, massive installation and commissioning effort was put in order to help the client to recover all possible time lost. To pump the enormous quantity of water produced by this large dewatering system, an extensive booster system along with HDPE pipes were installed. A contingency plan was also put in place to respond to the predictable surprises of the sudden eruption of cavities, all necessary equipment and experienced staff were present 24/7 on site to take control of all additional flows. At the end, the entire project team was able to recover most of the lost time and have successfully completed the project on time.

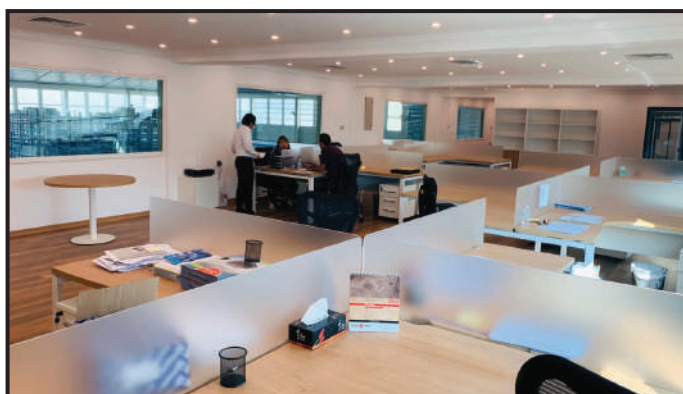


Feature

After becoming a leader in the oil and gas specialist services industry in Qatar, Petrotec had the ambition to export some of these services to the other countries in the region. Our efforts were rewarded by a first project executed during the first quarter of 2018, it was a lube oil flushing project executed by Petrotec's subsidiary – Ocean Team Qatar in Oman. This successfully executed job has encouraged us to intensify our efforts in Oman as well as in Kuwait.

Oil and Gas activities

Kuwait with its new 2035 vision, has awarded a multitude of projects to develop its economy specifically in the oil and gas industry. After many challenges faced in the past, Petrotec has strengthened its efforts in Kuwait by opening an office in Kuwait city in 2018. This entity serves as the local agent for Ocean Team Qatar and Solarca Qatar who provide specialist services to the energy sector, in addition to KOOP Watermanagement ME, a specialist in dewatering services.



After only few months from establishing Petrotec Kuwait, our joint venture Solarca Qatar was able to get the KNPC approval for chemical cleaning services, KNPC is the main operator for all refineries in Kuwait. This achievement has opened doors for Solarca Qatar to win its first chemical cleaning job in a major refinery project currently under commissioning.

Petrotec Kuwait

After an outstanding performance in executing the Amine degreasing of a few systems in a record schedule, our client has learned to trust Solarca Qatar's expertise and has awarded us with a multitude of contracts to perform chemical cleaning of many compressor suction lines, in addition to another Amine degreasing job and a project for hydraulic oil flushing executed by Petrotec's subsidiary – Ocean Team Qatar.



We have also been awarded with other projects from different clients in other plants which will be executed in 2020, to perform the passivation of cooling water systems, Alkali boil-out of boilers in addition to an integrated project where we will perform the chemical cleaning and lube oil flushing for the compressor systems as well as the hydraulic oil flushing for LNG loading arms. We believe that by combining Solarca Qatar's and Ocean Team Qatar's expertise, we can be a one-stop-shop solution provider for the pre-commissioning cleaning activities.



In 2019, Petrotec Kuwait has established a state-of-the-art office and service centre in Ahmadi industrial area which is the main hub of Kuwait's oil and gas companies, 40 Km south of Kuwait City. With an overall size of 3250m² and more than 1000m² of purpose built Workshop to cater customer service needs, the workshop is mainly utilised by our newly established subsidiary – Al-Mahhar Alkuwaitiyya for light and heavy equipment and machines.

Al-Mahhar Kuwait



Established in 2019, Q-Fab expands operation to Kuwait through Al-Mahhar Alkuwaitiyya for light and heavy equipment and machines (Al-Mahhar). Al-Mahhar supplies engineering products and service to all major industries in Kuwait with main focus on the construction industry. Being the sole agent of Wirtgen Group, Himinsa generators, and CompAir compressors, Al-Mahhar have quickly positioned itself as one of the main players in the Kuwaiti light and heavy equipment market. With many new brands to join in the coming few months to be our customers' one-stop-shop for all their industrial needs.

Al-Mahhar, beside equipment's supply, specialises in supplying rental solutions with focus to material handling and man lifts, with a fleet of over 50 machines being moved to Kuwait and with the capability of moving machines on demand from the Qatar operations, Al-Mahhar enhances its strength with a wide offering of rental solutions.



Looking Ahead

We believe that with focus to customer satisfaction and aftermarket service excellence, Al-Mahhar aspires to flip the service standards in Kuwait's construction industry by offering OEM trained service technicians, prompt service response and immediate spare part availability.



As for the oil and gas sector, with an excellent track record in the pre-commissioning activities of the new oil and gas projects that we executed in Kuwait, Petrotec Kuwait intends in 2020, to approach the asset owners to offer our maintenance solutions related to the oil care services for rotating equipment, in addition to chemical cleaning services. These solutions will help asset owners to address most of the contamination challenges as we did for many clients in Qatar.

We believe that we can bring an added value to our clients in Kuwait by introducing some of the missing services in the maintenance market.



Is your air inlet filtration system for gas turbines appropriate for your environment?

Air filtration has a critical role in many applications such as air, wind, thermal, nuclear, or biogas and they are also critical for the safety and efficiency of the process. As a leading manufacturer of premium clean air solutions, Camfil provides systems for air filtration and air pollution control that improve worker and equipment productivity, minimise energy use and benefit human health and the environment. We firmly believe that the best solutions for customers are the best solutions for our planet, too.



Air in every location site is different due to weather patterns, the dust concentration levels, temperature, pollutant sources, etc. Filtration systems should therefore be optimized to local site conditions. However, most systems are standardised, or in other words, optimised for CAPEX (capital investment) reduction over OPEX (direct and indirect filters cost) optimisation.

In the oil and gas industry, turbines need protection against the particulates, excessive temperatures and contaminants during the combustion process. The surroundings also need protection from the hot exhaust gases. Camfil strives to understand local conditions better than anyone else. Using Camfil's robust and high-efficiency air inlet filter solutions will prolong engine life, maintain its design performance, and reduce CO₂ emissions. This will ultimately lead to higher availability and increased profitability.

In oil and gas industry, it's important to make smart purchases with a long life and have a positive impact to bottom line.

Considering the impact of filtration in terms of power output, availability and total value added to operation, it is suitable to adapt as per location's conditions and operational criteria. It will help to increase power output from reduced fouling, lower and more stable pressure drop and offline water washing downtime. During the design stage of a new system or simply looking to improve current performance, Camfil uses life cycle cost software, air sampling solutions and CamLab test – mobile testing equipment at customer's site.



Camfil has six R&D centers with test rigs that mimic extreme conditions, from salt and water spray to high air flows and high burst pressure, the R&D group focuses on ensuring reliability. Camfil's patented solutions like the CamGT 3V-600 have pushed the industry limits when it comes to water handling capability, salt removal efficiency and lower operating pressure drop. When reliability is critical, air filters should be just as dependable.

In short, upgrading to the right filtration based on site is not only cheap insurance to make sure that your engine doesn't corrode, but it is also a big benefit to the bottom line.

Camfil recommends a multistage filtration system for wet, dry and humid areas. Inlet filter systems which have horizontal filter cartridges, or a "Cross Flow" configuration, however, having an extra challenge in that water can accumulate in the media pleats on top of the filters. In this case, water and contaminants could penetrate through standard media. If a cartridge filtration system already exists at your site, Camfil offers a robust design and hydrophobic media options that will prevent water penetration and keep the engine clean.

Why partial discharge testing makes good sense

The constant availability of medium and high-voltage electrical assets used in the generation, transmission and distribution is important for reliable supply at both utilities and industrial plants. These assets include generators, motors, instrument and power transformers, switchgear cables. Insulation breakdown can lead to dangerous situations, severe damage and ultimately high economic costs. Therefore, it is crucial that insulation condition be verified throughout an asset's lifecycle.

Partial discharges (PD), as defined by IEC 60270, are localised dielectric discharges in a partial area of an electrical insulation system under high electric field intensity. PD phenomena are in many cases the preliminary stage of a complete breakdown of the insulation. For this reason, generators, transformers, switchgear and cable systems are checked for partial discharge.



Petrotec can provide monitoring solutions through Omicron for all network assets for permanent and temporary monitoring systems.

Petrotec has a locally dedicated expert team that is certified by our partner Omicron to perform PD measurements. Omicron has extensive experience in Qatar, having provided particle discharge monitoring services to many power plants in Qatar.

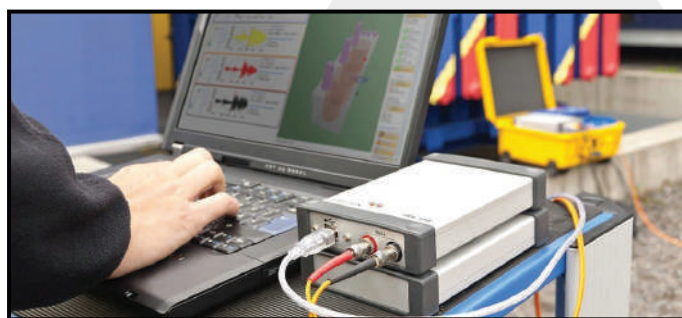
How is PD measured

The tests and test set-ups are determined by the type of asset being measured and by the standard to which the PD measurements are performed. For example, the IEC 60270 standard specifies how to perform an offline PD measurement on electrical equipment using a separate voltage source, the PD measurement device, a coupling capacitor and measuring impedances.

For three-phase assets, PD measurements can either be performed offline, by energising each phase successively during standstill, or online during regular load service operation. Users can perform single-phase measurements with the other phases grounded, or three-phase measurements to identify phase-to-phase activity.

PD pulses are of short duration and have rise times in the nanosecond range. The most important criteria for evaluating PD are:

- Charge level expressed in picocoulombs (pC) or nanocoulombs (nC). In RIV measurements, the charge level is expressed in millivolts (mV)
- PD inception and PD extinction voltage
- PD pulse repetition rate
- Phase-Resolved Partial Discharge (PRPD) diagrams



Should any of these criteria increase, so does the risk of insulation breakdown. PD limit values for electrical assets are defined in various international standards.

PD intensity is often displayed versus phase angle of the applied test voltage in a Phase-Resolved Partial Discharge (PRPD) Diagram. In environments with high levels of interference, modern noise suppression techniques may also be used to separate PD from noise.

Digital Intelligent Artificial Lift (DIAL) from Silverwell Energy

The world's gas lifted oil wells are under-optimised. Optimising gas lift systems with legacy technology is time consuming, costly and risky. Frequent well interventions are required with associated loss and/or deferred production. It was not possible to make on-demand in-well adjustments to gas lift injection depth and rate to address these challenges. This incomplete production optimisation, coupled with excessive intervention costs and risks, presented an opportunity to re-imagine gas lift well design and operating principles.

Silverwell has developed an enhanced approach to gas lift well design and operation that overcomes the production constraining limitations of existing gas lift technology with a digital, in-well, integrated gas lift optimisation system. Addressing this problem delivers a production uplift approaching 20% for E&P operating companies.



It is now possible to easily make data-driven decisions when adjusting gas lift rate and depth to assure continuously maximised and stable production. Silverwell's ongoing development program will ultimately automate gas lift production optimisation completely.

Petrotec's drilling department has signed a partnership agreement with Silverwell and is the local distributor of all Silverwell equipment.

Petrotec signs partnership agreement with inspection specialists AMOSCO

AMOSCO was established in 1978 to provide the major companies with quality inspection services. Initially, the company's main activity was the inspection of drill pipe, casing and tubing; however in 1987, the service range was expanded to include radiographic and ultrasonic inspection services. In addition to inspection services, AMOSCO provides lifting equipment inspection, manpower services, corrosion surveys, maintenance and repair services on pipe, and abrasive wheels training with certification.

Inspection and maintenance of tubulars

Using purpose designed inspection equipment and proven techniques, AMOSCO's inspectors work to API specifications, recommended practices and to customer specifications, to separate acceptable tubulars from those needing repair or complete rejection.

Lifting equipment inspection

Safe operating practices call for care and vigilance when operating heavy lift and heavy pulling equipment. Cranes, hoists, slings and shackles require regular inspection and certification to ensure the equipment in use meets the minimum requirement and standards for the industry. Personnel who operate the equipment also need proper training to ensure they understand the importance of safe operating practices.

AMOSCO can inspect and certify lifting equipment fit for use in accordance to North Sea British standards, or other international standards of your choice. AMOSCO also offers training, instruction and certification for the personnel who operate lifting equipment.

Petrotec have partnered with service provider AMOSCO and is the local partner in Qatar.



silverwell

AMOSCO

Petrotec signs agency agreement with well integrity monitoring experts ScanWell



ScanWell is a Norwegian technology and service company offering unique solutions within Well Integrity monitoring, reservoir monitoring and production/process monitoring.

ScanWell's track record counts over 10,000 surveys for major oil and gas companies worldwide.

ScanWell, in collaboration with Petrotec's drilling department offer a wide range of well integrity services such as:

- Well barrier surveillance
- Leak metering wellbore components
- Identification of wellbore anomalies
- Liquid level movements in tubing and annuli
- Annuli hydrocarbon storage volumes
- Leak depth investigations
- Determination of leak source and leak path in the wellbore
- Monitor shut-in and flowing in reservoir pressures
- Production monitoring using real-time tracer technology
- Wireless monitoring of pressure, temperature, flow rate and fluid properties
- Troubleshooting and optimising gas-lifted wells
- Realtime process monitoring (H₂S, CO₂, pH, scale, wax etc.)

Petrotec is the local partner for ScanWell in Qatar.

ScanWell

Drilling department signs partnership agreement with Vanguard

Vanguard Engineering and Oilfield Services Co. (VEOS) is a leading provider of high quality and cost-effective engineered solutions to oil and gas companies; assists to extract, treat and transport crude oil to produce high grade oil and gas.

Established in 2006, VEOS has experienced rapid growth based on superior customer service, strong reputation for quality workmanship and experienced staff. Vanguard's ability to provide superior products and service to their customers has resulted in a diverse, top-tier customer base.



Vanguard assists oil and gas companies to extract, treat and transport crude oil to produce high grade oil and gas.

Vanguard offers world class ISO and API certified CNC machine shop and fabrication services for:

- Well drilling accessories
- Well completion parts and accessories
- Work over equipment and accessories
- Well services equipment and accessories



Vanguard

Petrotec signs a new agency agreement with The Sniffers

Petrotec have partnered with The Sniffers, who are committed to develop and execute best-in-class emission reduction, energy savings and pipeline integrity programs with meaningful impact on safety compliance, environmental footprint and business profitability.

Their passionate team of experts assist customers with advisory services as well as high quality site surveys. These advisory services are underpinned by their broad service portfolio, innovative solutions and feet on the ground. Through global and credible VOC or methane reduction programs, effective audits, benchmarking, remediation advice, risk assessment, regulation support, training and knowledge transfer, The Sniffers drives the results of customer's environmental, health and safety programs.

Their comprehensive reporting and corporate business application platforms provide a transparent and multi-site dashboard of emissions and leaks to the atmosphere. Additionally, customers can rely on their high quality site surveys.

The Sniffers support HSE and plant managers in reaching their environmental, health and safety objectives. Their team of experienced technicians and inspectors prepare and execute quality on-site measurements and inspections to measure emissions or detect leaks, quantify energy losses and assess pipeline integrity risks. They provide accurate data and actionable insights on how to reduce emissions, limit energy losses and maintain pipeline network integrity.

An expert team of 90 technical specialists have realised more than 8,000 emission reduction projects in more than 35 countries across the globe. The Sniffers' customers value their in-depth knowledge, dedicated people, innovative approach and accredited processes.



Emission reduction programs:

- LDAR
- OGI
- Storage tank emission monitoring
- Methane emissions reduction

Energy saving programs:

- Flare and steam loss monitoring

Pipeline integrity programs:

- Pipeline localisation and digitalisation
- Leak detection
- Corrosion protection



Bently Nevada sends new flagship platform into orbit

Bently Nevada has spent 60 years developing condition monitoring technology, and its latest offering has an attribute designed to protect customers as they fully embrace digital space.

Bently Nevada introduced a new condition monitoring platform, the Orbit 60 Series, on September 10th at the turbomachinery and pump symposia in Houston, Texas. The Orbit 60 Series serves a system that collects and processes data, allowing customers to monitor and optimise their machines.

The system uses data sensors to collect data from a machine. That data is then stored in the Orbit 60 Series, allowing operators to access it for the purpose of condition monitoring.

The additional attribute with the Orbit 60 Series is cybersecurity protection, which the system ensures through a built-in data diode. The data diode provides secure one-way data transfer to Bently Nevada's machinery management software System 1 – for monitoring and diagnostics. Another layer of protection is in the configuration of the Orbit 60 Series system. The condition monitoring portion of the system is enabled through a module, which is installed in the system's rack.

The condition monitoring module can view collected data, but it can't issue commands or affect machine operation.



The Orbit 60 Series also features scalable architecture, making it suitable for a range of applications, such as critical and basic machinery in the oil and gas, power generation and renewable industries. Additional features include 80 dynamic data channels, high signal processing power and compact physical footprint. The system which is SIL 2 and 3 certified and API 670 compliant, can be rack-based or distributed and extended through a modular remote I/O system.

The Orbit 60 Series does not replace the 3500 platform. Instead, it serves as an enhanced system that operators can upgrade to or simply stick with the 3500 platform.

Wireless – Ranger Pro: The ultimate wireless condition monitoring solution

Bently Nevada's efficient and rugged Ranger Pro wireless sensor system provides condition monitoring across a broad range of machinery in the power generation, oil and gas and other energy-producing industries. This compact yet powerful sensor greatly improves your ability to remotely monitor hard-to-reach and unsafe locations. An impressive battery life also means increased protection for all critical machinery. While the Ranger Pro is compatible with many third party software solutions, it is now fully integrated with Bently Nevada's flagship software: System 1, which allows for seamless, real-time, and fully customisable data.

Ranger Pro is simple, cost effective, fully integrated with System 1 software, easily and quickly expandable.

When you need real-time vibration monitoring combined with rapid, simple deployment of multiple sensors in a wireless network, encrypted data transmission, long battery life, and the ability to work in hazardous environments - the Ranger Pro vibration sensor from Bently Nevada is the solution to your wireless vibration detection problem.



Petrotec's electrical division and Omicron organise a technical seminar on partial discharge

In collaboration with Petrotec, Omicron organised a technical seminar on partial discharge monitoring systems, the event also marked the launch of Omicron's latest monitoring technology, Monesto 200.

This device is a portable, online partial discharge measurement and temporary monitoring system which is used for various electrical applications.

The event was attended by many engineers from energy, electricity and industrial sectors across Qatar.



Petrotec receives "Top Performer" award from General Electric

Petrotec has received the award of "Top Performer" in the entire Middle East, North Africa and Turkey (MENAT) region in 2018 for GE's multifunction relays, monitoring and diagnostic products during the MENAT channel partner event held on the 6th of September 2019 in Istanbul, Turkey.

The award was presented to Biswadeep Ghosh, Sales Manager of Petrotec's electrical department.

Petrotec conducts an electrical components technical seminar



Petrotec recently held a technical seminar on its range of electrical panel components for clients in various industries in Qatar. Petrotec also announced the new partnership with enclosure manufacturer TempaPano.



Petrotec receives performance award from Honeywell

Petrotec recently attended the Honeywell users group (HUG) and channel partners conference (CPC) in The Hague, Netherlands, where Petrotec's instrumentation systems department was awarded for its performance in the Modular Systems (ModSys) portfolio in the Qatar market.

Petrotec provides comprehensive turnkey solutions using Honeywell hardware for integrated PLC systems across oil, gas, petrochemical and infrastructure industries in Qatar.



Petrotec and TAM International conduct a Technical day

In collaboration with Petrotec's drilling department, TAM International has recently conducted a Technical day, showcasing their latest technology and the service tools available in the country.

The one day event took place at Petrotec's facility in street 39, Salwa industrial area and was attended by engineers from various oil and gas operators in Qatar.



Petrotec celebrates 30 years of success

Petrotec held its annual party celebrating the end of the year, which also marked our 30th year in business as one of the leading specialised service providers to the industrial sectors of Qatar.

All employees, including the company's top management were invited to attend a day full of activities along with their families. Entertainment such as dance and musical performances were performed by company employees, various activities for children, a photobooth and outdoor activities also took place throughout the day.

Petrotec's year-end party also serves as an opportunity to present our "Long Service" and "Stars of the Year" awards, which were handed to employees who have been working for Petrotec for over 10 years and individuals who have demonstrated outstanding performance throughout the year.

Our annual year-end party is also a way of thanking all employees for their hard work and dedication towards our clients and partners.





Samar Pal Bais

General Manager - Q-Fab and KOOP ME

My journey with Petrotec started in 2010, this has been an exciting journey that allowed me to evolve as a better engineer, manager and a human being over the years.

Coming from Czech Republic to Qatar was a bit challenging in the beginning, as I had never been to Middle East before, and all of my previous experience was with manufacturers.

Petrotec group has very strong and humane ethos, values and culture, this has helped me integrate into this new environment easily. Petrotec has an environment of encouraging new ideas and entrepreneurial approaches. This has helped me grow as a professional in the past years.

Q-Fab has expanded from being a fringe player in the construction segment ten years ago to being one of the top equipment suppliers in Qatar today. Our efforts have brought us to Kuwait in 2019 with Al-Mahhar. Al-Mahhar in Kuwait already represents some of the leading brands in construction works such as Wirtgen and has already succeeded like Q-Fab in Qatar.

KOOP Water Management Middle East is involved in dewatering projects, this was a new experience for me as the General Manager for KOOP and this involved a lot of learning and required a different approach than selling and servicing construction equipment. KOOP does dewatering for many major infrastructure and building projects in Qatar.

I find myself extremely proud of being part of this esteemed company and its growth.

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About Petrotec

Established in 1989, Petrotec is one of the largest providers of products and services to the energy industry in Qatar. With approximately 600 employees representing 31 nationalities, the company maximises every opportunity to promote its activities in the fastest-growing energy sector in the Middle East.

Petrotec represents a key selection of world leading manufacturers and service companies. Our clients in Qatar are provided with comprehensive specialised engineering support from our local team to supplement and enhance the links with our suppliers. This close support keeps both our partners and Petrotec ahead of the competition.

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