

ALE



SMARTER, SAFER, STRONGER

CAPABILITIES

WORLDWIDE HEAVY TRANSPORTATION AND LIFTING

Together, we are...

Smarter

At the heart of ALE's business are our people: dedicated professionals who work with our clients to achieve the very best results. We employ imaginative people at all levels within the company, who focus on developing innovative solutions for the most complex projects. We challenge conventional thinking, aspire beyond accepted limitations, and don't stop until we have the smartest, most effective solution to each and every challenge. Our Innovation Series is just one example of our insistence on pushing the boundaries to create solutions that work best for our clients.

Safer

ALE is a responsible business with a strong moral core, so the safety and well-being of the individuals we work with and the clients we work for is our single most important consideration. Minimising risk to our staff, our clients and members of the local community is a priority at the highest level of the company, and an ethos that permeates every aspect of our business.

Stronger

We haven't become one of the world's foremost experts in heavy transportation and lifting by thinking small. By investing in the latest technologies and employing the best people in the business, we've grown over more than 30 years into a global leader with a presence across a breadth of sectors and markets. Our flexible approach suits any project, whatever its size or scale, and our clients know they can rely on us for commitment, innovation, delivery, service and an agile, proactive approach that gets results.



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INTRODUCTION

Combining exceptional project management with engineering intelligence, ALE offers worldwide heavy transportation and lifting services to all industry sectors. The company was founded in 1983 and has expanded steadily through a balanced strategy of organic growth and acquiring key companies whose experience enhances our specialist capabilities.

We're one of the world's major international heavy transport and installation contractors with a **global** network of operating centres and a large fleet of heavy cranes, specialist transport and installation equipment. As a complete **solution provider** for lifting, transporting, installing, ballasting, jacking and weighing large, heavy loads, organisations all over the world turn to us to push the boundaries of what's possible with their high profile projects. **Investment in technology**, systems and equipment ensures we stay ahead: for example, our dedicated R&D facility is responsible for the Innovation Series, including equipment such as the AL.SK crane fleet and the Mega Jack system.

By investing as much in **our people** as we do in equipment, we have a **world-class** management structure to support our technical potential. So as well as having the best project managers and engineers available today, we'll have the best tomorrow, too. By achieving **maximum value** from our next-generation equipment, we can effectively meet your requirements, building long-term strategic partnerships for an ever-improving service.

"The success of our business is down to our people, with shared values and innovation at our core. We are constantly pushing the boundaries of what is possible within the industry to enable our clients to succeed."

Mark Harries, Global Managing Director



HEALTH, SAFETY, QUALITY & ENVIRONMENT

ALE is committed to responsible working practices and places the highest importance on health, safety, quality and the environment. We comply fully with the most stringent local and international regulations, with a team of professionally qualified personnel who are dedicated to **developing, implementing** and **evaluating** our online Integrated HSQE Management System. All employees, in every country and at every level, are responsible for adhering to its guidelines.

Achieving a safe and healthy working environment is our priority. We take full responsibility for the quality of our processes, keeping risk to an absolute minimum while **adapting** to changing conditions and new challenges with **competence** and **agility**. Health, safety, quality and environmental considerations are reflected in all our activities, from the purchase, maintenance and improvement of plant and equipment through to the provision of HSQE advisors onsite.

Our global HSQE objectives include prioritising customer satisfaction,

continually improving competence, eliminating health and safety incidents and reducing waste and pollutants. We work with our clients and stakeholders to achieve **high-quality, safe, efficient** and **environmentally-friendly** working practices. We expect our subcontractors and suppliers to operate to the same standards, and **rigorously evaluate** them, encouraging them to implement their own HSQE policies and effective management systems.

Furthermore, we have established **Centres of Excellence** in each of our service areas to enable experienced members of staff to pass on their invaluable knowledge. This practical initiative complements comprehensive classroom-based study and external training.

Our Integrated Management System has been assessed and certified by an accredited external organisation to Environmental standard ISO **14001:2004** since 2008 and to Quality standard ISO **9001:2008** since 1994.



SECTORS



CIVIL

ALE has a long and proud history working closely with major civil engineering companies all over the world. With experience in high-profile infrastructure projects such as the removal and installation of innovative road, rail, river and canal bridges, lock gates, stadium roofs and airport architecture, we fulfil our role accurately, safely and with minimal disruption.

We have an in-depth understanding of the highly specialised equipment required for the safe and accurate execution of such projects. An appreciation of the control of loads and their distribution, as well as a fleet of Self Propelled Modular Transporters (SPMTs) and proven expertise in lifting, skidding and jacking techniques means we're well equipped to move enormous structures with minute precision. Our strategically located equipment and full project management service means we can meticulously plan and execute complex projects despite the time-critical nature of much of this work. If necessary, we'll design purpose-built tools to ensure a project is completed to your total satisfaction.



CASE STUDY

Two 7,100t bridge launches, Canada

- Key Features**
- » Reduced costs
 - » Reduced schedule
 - » Bespoke solution
 - » Multi-service application
 - » ALE branch collaboration

ALE successfully launched two parallel bridges spanning the 1500m width of the Beauharnais canal and forming part of the new Highway 30 in Quebec, Canada.

The 7100t steel bridges were each launched using ALE's skid system, chosen because of its effectiveness and accuracy when moving such big pieces.

The bridges were skidded out using 300t jacks, and ALE also installed a recovery deflection system consisting of a mast linked by steel wires to the structure using two 850t capacity strand jacks.

Each bridge had an auxiliary launching nose of 20m in order to minimise the cantilever and provide a stable operation. Each bridge was launched across the 19 bridge piles which were mostly 82m apart, with the exception of the commercial crossing section of the canal which was 160m between piles. In addition to this, the incline from one side to the other was up to 3%, which needed to be taken into account.

The equipment used for the project included strand jacks ranging from 70t to 850t capacity, 35m high mast, 640m hydraulic skid system and hydraulic sliding supports.

Due to the harsh winter climate ALE took special measures to ensure the safety of employees and the performance of the equipment, including the use of special steel for higher impact (charpy) resistance, which is usually compromised by cold temperatures. In addition we ensured that all existing equipment was strenuously tested for working in such cold conditions.

MINERALS & METALS

Whether it's relocating heavy mining equipment on existing sites or supporting modularisation in new plant construction, ALE provides essential support to the mining industry on a global scale.

Since advances in the industry have enabled mines to be built in increasingly remote locations, we've worked closely with leading contractors to transport modules across the most inhospitable of terrains.

For existing mines, our SPMTs and lifting, jacking and skidding capabilities enable us to move fully assembled equipment – a much more cost-effective method than dismantling machinery to move it piece by piece. We can also deliver equipment to site from ports, again transporting items whole and positioning them exactly where they're required. Our seamless logistics service and modularisation abilities mean mine operators can have their heavy components moved safely and efficiently – whenever and wherever necessary.



CASE STUDY

Receiving, storage & land transportation, Australia

Key Features

- » Reduced costs
- » Reduced schedule
- » Bespoke solution
- » ALE branch collaboration
- » Record breaking
- » Minimised disruption
- » Short notice mobilisation
- » Flexible delivery

ALE successfully received, stored and transported 230 oversized and over-mass modules used to construct the RGP6 Jimblebar Iron Ore project.

Made in China, the items, weighing between 5t and 227t, were shipped from Tianjin to Port Hedland, Western Australia and on to the Jimblebar Mine. A total of 221 modules were received and transported, with nine shipments made over an eight month period.

The modules were received on SPMTs at Port Hedland Port Authority before being transported by ALE using a combination of SPMTs and modular trailers. Transport was at night with a rolling road block, as Western Australian law prevents cargo more than 8.5 metres wide from travelling during daylight hours.

The modules were transported for the 450km journey to the Jimblebar Mine in four segments, using trailer combinations of up to one hundred and sixty axle lines of modular trailers and forty axle lines of compatible spacer decks to complete the convoys.

NUCLEAR

ALE's reputation for safety, precision and responsibility carries a great deal of weight in the nuclear power sector, and we are well equipped to support the increase in nuclear power generation.

Over the last 20 years, we have developed strong working relationships with key providers, supporting projects ranging from the replacement of steam generators and reactor heads to the design of systems for dismantling turbines and electrical generators. We provide engineering resource early in the planning process to produce necessary HSQE and nuclear safety documentation ahead of critical plant outages, minimising operational impact.

Although we prioritise risk and safety, we also champion innovative engineering. Manoeuvres can combine lifting, tilting, skidding and hydraulic turning, and this demands careful planning and faultless execution, with activity scheduled to coincide with planned stoppages to reduce disruption and downtime.

We can design bespoke lifting systems to fit within existing station designs – a skill which has won us recognition for our flexibility and multiple project awards. In addition, one AL.SK crane can be positioned in the centre of the site to install multiple pieces up to 5,000t, replacing individual cranes lifting smaller pieces at each reactor building. With a small footprint and extended radius, AL.SK cranes cause minimal impact and can be located inside the plant with no amends to infrastructure, or outside where they can operate offsite. With a capacity as high as this, clients can produce larger modules to minimise onsite construction.



CASE STUDY

Replacement of MSRs at Ascó Nuclear Power Plant, Spain

Key Features

- » Reduced costs
- » Reduced schedule
- » Bespoke solution
- » Multi-service application
- » ALE branch collaboration
- » Minimised disruption

ALE has successfully performed the unloading and internal movements of four MSRs at Ascó Nuclear Power Plant in Spain.

The new 105t MSRs were received at the temporary storage area where ALE unloaded them from the road trailers they'd been transported on using a 4 x 60t capacity climbing system and jacked them up onto temporary supports and transport beams. The four old MSRs, each weighing 90t, were removed from inside the turbine building of Unit 1 of the plant using 2 x 10 SPTs and transported to the scrap depot. The new MSRs were then moved from the storage area up to the turbine building using the same SPTs.

OFFSHORE

ALE has a long and distinguished history supporting the offshore industry and today, we're the market leaders on a global scale.

ALE has designed and developed systems to safely load-out structures using integrated skid systems, SPMTs and high capacity ballasting.

ALE has succeeded in staying ahead of the industry by developing the Mega Jack: a unique system capable of lifting complete topsides and platforms. We are world leaders in floatover installations, having the largest integrated ballasting systems supported by a dedicated marine engineering division with years of experience.



CASE STUDY

**33,000t jacket
load-out, China**

Key Features

- » ALE branch collaboration
- » Record breaking
- » Short notice mobilisation
- » Flexible delivery

ALE was contracted to load-out the 33,000t jacket for the LIWAN project in China. Services included strand jack pulling system, barge ballasting/de-ballasting, ballast monitoring and 3D barge level monitoring system.

One of the biggest jackets ever to be loaded-out to date, we used 8 strand jacks to pull the LIWAN jacket on to the barge, a total pulling distance of 250m.

The first stage of the operation was to pull the jacket 50m to the quay edge then 200m along the barge to its final position. As the jacket was loaded out, the ballast systems were used to compensate for load transfer and tidal compensation. The HYSY 229 barge was kept level throughout the operation using the ballast monitoring system feeding the information back to a central point. The ballast system included high capacity hydraulic submersible 24PS ring main system with each individual pump providing 2,400 Cu M/hr. The de-ballast system included the 10PS 1,000 Cu M/hr pumps.

OIL, GAS & PETROCHEMICAL

With a presence in all the major oil and gas centres in the world, ALE works closely with blue-chip oil and EPC contractors to provide a fully engineered, efficient and cost-effective transportation and installation solution for the handling of critical items of process plant and equipment.

Given our intelligent engineering skills and reputation for fastidious project management, we are well-equipped to meet the demands of long-term operations and high-pressure work carried out during revamps and shutdowns.

Our engineering skills enable us to transport, lift and position reactors, process columns, furnaces and other large elements, manoeuvring these items with precision and safety often in very restricted spaces and within tight time frames. Using combinations of advanced heavy lift cranes, trailers and gantry lift systems, we replace and install items including columns, boilers and fractioning towers, working towards an outcome that exceeds all expectations.

Indeed our comprehensive fleet of heavy cranes – including the world’s largest land based crane – allows us to engineer previously impossible schemes, such as lifting ‘off plot’.



CASE STUDY

Transportation & installation of 1,315t De-ethaniser tower, Kuwait

Key Features

- » Reduced costs
- » Reduced schedule
- » Multi-service application
- » ALE branch collaboration
- » Short notice mobilisation
- » Flexible delivery

ALE undertook the transportation and installation of a de-ethaniser tower weighing 1,315t for a refinery in Kuwait. We were chosen for the project because of the AL.SK’s ability to independently install the structure.

Planning for the tower’s installation began almost a year prior to the operation. Transportation presented the biggest challenge with route surveys and route modifications required for the tower to be transported by SPMTs. On site, the lift and installation was carried out by an AL.SK190 crane, taking twelve hours to complete.

PORTS

ALE works in ports across the world providing an extensive range of services including the transportation, erection and vertical extension of harbour cranes.

We also have the experience, the skills and the global sourcing contacts to relocate heavy port cranes and cargo handling equipment worldwide, and to jack-up heavy cranes using state-of-the-art equipment so they're ready for new sections to be added. Our schemes for recovering cranes after collision or storm damage are designed to address the unique requirements of the circumstances.

As well as using our varied fleet of trailers and skidding capabilities to relocate cranes within ports, we also deliver new cranes from suppliers and ship cranes from port to port with all the marine engineering, barging and sea-fastening that entails.

We've transported a variety of types of crane on five continents, with the result that both global and local manufacturers return to us again and again to execute their projects quickly, efficiently and safely. Our continual investment in new design and engineering methods enables us to maintain our position as leaders in this field.



CASE STUDY

Transportation of container cranes, France

Key Features

- » Reduced costs
- » Reduced schedule
- » Bespoke solution
- » Minimised disruption
- » Short notice mobilisation
- » Flexible delivery

ALE completed the manoeuvre of three container cranes at the Port of Marseille, France.

We utilised forty eight axles of SPMTs to complete the move of the 1,100t cranes, and load spreading beams were installed to the transportation to ensure the weight of the cranes was distributed across the trailers.

The total distance travelled was 2km from one dock to another taking careful consideration for the equipment and infrastructure in the dock, the cranes were being transported for repositioning and use at the new location. Teams conducted the transportation over three consecutive days loading, transporting and installing in this time.

POWER GENERATION

The energy sector has been one of ALE’s core sectors since the very beginning, and to date we’ve worked on energy projects in more than 100 countries. It’s this experience that makes us world leaders in global power plant lifting and transportation.

As the power industry has evolved over the last 3 decades, we’ve collaborated with all the major power equipment manufacturers to develop mutually beneficial technology and machinery. We have vast experience in transporting high-value components such as gas turbines, generators and transformers, providing delivery solutions for the power trains of Combined Cycle Gas Turbine (CCGT) equipment as well as moving and installing condensers, HRSGs and steam turbine equipment during the build process.

With a fully integrated ‘from source to site’ logistical service which combines technical excellence with rigorous safety standards, we work in partnership with our clients to solve your problems. Taking care of everything from investment and infrastructure to permits and programme, we also ensure health, safety and environmental factors are considered at every stage.



CASE STUDY

Generator site handling & installation, South Africa

Key Features

- » Reduced costs
- » Bespoke solution
- » Multi-service application
- » ALE branch collaboration
- » Minimised disruption
- » Short notice mobilisation
- » Flexible delivery

ALE was contracted to complete the site handling, discharge, transportation, storage, re-loading and installation of twelve 360t Stator Generators and the transportation of a 345.8t transformer unit over a thousand kilometres from Richards Bay to the Medupi Power Station in South Africa.

The first phase of the project saw the generators lifted with the 4-point lifting system, transported by SPMT and then offloaded using the 4-point lifting system. They were then skidded from the laydown yard into position in the turbine hall. For the second phase, we designed, manufactured and supplied the gantry system, with a 500t lifting capacity, to install the generators. The AL500 beam trailer, consisting of two sixteen axle, three file trailers and girder frame (with a capacity of 400t) and six ballast tractors were used to complete the transportation. Road works along the planned route in South Africa meant that we had to plan an alternative route via Swaziland, where the AL500 successfully negotiated mountainous terrain with inclines and declines of up to 14%.

RENEWABLES

ALE is playing a vital role in the renewable energy sector. Building on our experience in the power sector, we have used our knowledge and expertise to develop smarter solutions to the challenges created by the increasing size and weight of wind turbines and associated components.

ALE offers a bespoke Transport Crane and Installation (TCI) package for the renewables sector.

The transportation phases of projects include route assessments, liaising with local authorities, specialist transportation equipment, removal and replacement of any street furniture or structure that may obstruct the route.

We own a fleet of specialised equipment that is specifically used for projects in this sector such as wind turbines and have an experienced team to assist you throughout your project. Our qualified electrical installation teams have the knowledge and experience to provide the most efficient solution on a project by project basis.

We can also provide clients port handling services this includes equipment inspection, blade damage assessment, storage facilities and loading or reloading of equipment to specialist transport.



CASE STUDY

ALE transport wind turbine generators, South Africa

Key Features

- » Reduced costs
- » Reduced schedule
- » Multi-service application
- » ALE branch collaboration
- » Record breaking
- » Minimised disruption
- » Flexible delivery

ALE was awarded the contract for the port operations, transport to site, mechanical and electrical erection and installation of 37 V100 1.8 MW 95m HH wind turbine generators (WTGs) at a new wind farm in the Western Cape of South Africa.

This was no small undertaking and due to the scale, volume of cargo and time pressure, careful planning and scheduling was required. With the WTG components being grouped per tower, it was imperative that all components were handled, tracked and supplied correctly in order to ensure a smooth and continuous operation.

We were responsible for receiving all components at the Port of Saldanha where they were transported to an intermediate handling area (IHA) enabling quick vessel discharge. There were three shipments containing blades, towers, nacelles and hubs. From there, the components were re-loaded and transported to the wind farm which is situated approximately 60km from the port.

We ensured pre-population of the crane pads, so that tower 1 could be installed, grouted and cured ahead of the main erection using ALE's LG1750 crane with lattice boom and AC250 crane. Once tower section 3 was complete, the rest of the WTG - tower section 4, nacelle, hub and three blades were installed.

SHIPYARDS

ALE provides a number of services to the marine and shipbuilding industry, including the lengthening of vessels and the enlargement or complete revamping of hulls.

In addition, we can handle vessels which can't be constructed on the slipway for launch, and transport ship sections from fabrication to installation yards. We can offer a complete service for whole block transportation for major ship and submarine building projects, including load-out, marine engineering, barging, transportation and lifting services.

We're also regularly called on to expedite key repairs by removing engines or parts from engine rooms or suspending complete engines while work is carried out.

We play a vital role in these processes, designing and implementing the movements of huge sections and positioning them for welding with complete accuracy. Our extensive experience enables us to complete these tasks under extremely strict time constraints, keeping vessels productive until the very last minute for optimum commercial efficiency.



CASE STUDY

**10,000t topside
gantry lift, Dubai**

Key Features

- » Bespoke solution
- » Multi-service application
- » ALE branch collaboration
- » Record breaking
- » Minimised disruption

Teams from multiple ALE branches collaborated to design a unique gantry system for the lifting and mating of a 10,000t topside at Drydocks World for the world's first semisubmersible platform which was constructed at the shipyard.

The joining of specialist skills from across the ALE group allows us to design unrivalled systems and solutions to meet our clients needs. Specialist equipment and personnel were mobilised from across the group to build and operate the gantry system. We lifted the topside to a final height of 52.8m.

Once at full height, the semi-submersible hull structure was manoeuvred between the gantry system underneath the suspended topside, a process facilitated by an innovative fendering system designed by Drydocks World. We then lowered the topside to the precisely positioned substructure, releasing weight in a controlled fashion. Welding and lowering operations of the two structures was carried out simultaneously.

SERVICES



BALLASTING

Using a range of hydraulic submersible ballast and de-ballast pumps, ALE can undertake high capacity barge ballasting operations, frequently supplying ballast and de-ballast systems capable of over 60,000 Cu M/h. The system is fully computer monitored and can be used in conjunction with our innovative skidding equipment to perform sophisticated load-out operations.

Control of the ALE barge ballasting system can be offered at two levels: locally, via the mounted panel situated on each hydraulic power pack which allows the operator to control each pump or flow distribution butterfly valve individually; or remotely, using in-house designed software and accompanying PLC control interface panels mounted on each power pack.

We hold a variety of common barge configurations on our database to minimise set-up time on new operations.



CASE STUDY

21,800t topside load-out, Korea

Key Features

- » Bespoke solution
- » Multi-service application
- » Record breaking

ALE supplied and operated an external ballasting system for the load-out of the 21,800t LUN-A topside, as well as performing the load-out engineering and barge management.

We used computer modelling to analyse and design a pumping system capable of delivering the high flow rates necessary. The systems were based around our stock of standard 250mm, 400mm and 600mm bore lightweight galvanised pipe lengths and elements. Additional branches were designed and fabricated using 700mm bore pipework to allow for the high flow. The PC-based ballast monitoring system provides real-time feedback from depth transducers fitted into each tank of the barge, and can be pre-programmed with the necessary steps of load-out versus tide and load transfer to target each critical stage of the load-out.

CRANE LIFTING

We offer a variety of cranes to suit projects both large and small. Our fleet ranges from the worlds highest capacity land based crane through to crawler cranes, mobile cranes and smaller hire cranes.

HEAVY CRANE LIFTING

ALE operates a comprehensive fleet of heavy cranes with our crawler fleet, ranging from 100t to 1600t and our specialist AL.SK fleet with capacities of up to 5,000t. The fleet includes some of the largest equipment and latest technology available today, providing the range, sizes and capabilities to meet the demands of modern day projects.

The cranes are based in strategic locations worldwide to provide an efficient and cost-effective solution, minimising mobilisation and maximising use.

Our crane engineering and rigging teams provide innovative and client-focused solutions to your rigging and lifting requirements, and produce technically sound, well-thought-out schemes.



CASE STUDY

RRE2, Ruwais, UAE

- Key Features**
- » Bespoke solution
 - » Multi-service application
 - » ALE branch collaboration
 - » Record breaking
 - » Minimised disruption
 - » Short notice mobilisation
 - » Flexible delivery

ALE's CC8800-1 and AL.SK190 were required on site at a refinery expansion project within the Ruwais area, UAE for a new build residual fluidised catalytic cracker unit (RFCC).

This project saw a number of heavy lifts carried out at separate locations within the plant. During these lifts the 1600t capacity CC8800-1 was used as the tailing crane for the AL.SK190. The first of the seven pieces included an 1,100t reactor, a 1,200t main fractionator column, and a 1,900t regenerator. In addition to serving as the tailing crane the CC8800-1 crane also completed 92 lifts independently to complete the scope of work on this project.

CRANE HIRE

Our mobile crane fleet bridges the gap in crane lifting and has been introduced to provide a top-to-bottom array of capacities that together, act as complete project fleets. Ranging from 7 to 750t, we can offer an alternative lifting solution for projects of all sizes.

We offer an extensive fleet of cranes, lifting tackle, fork lifts and man lifts to suit the needs of projects with smaller, less complex lifts.



CASE STUDY

Lift, transportation & installation, Iraq

Key Features

- » Reduced schedule
- » Bespoke solution
- » Multi-service application

ALE was contracted to complete the loading, transportation and installation of three compressor trains, each weighing 90t.

Due to extremely narrow manoeuvring space, we utilised our SPMTs to transport the pieces to their installation point. To complete the lifting phases of the project, we used our AC250 crane and two LTM1250 cranes.

ENGINEERING

With highly qualified engineers, an R&D facility capable of designing record-breaking equipment and a pedigree in delivering innovative solutions for some of the world's largest organisations, ALE's engineering skills are well established. Ingenuity is one of our core values, and a trait which is evident in every scheme we design and every problem we solve.

As a result, we've kept abreast of developments in all the industries we serve, often devising, testing and implementing technologies before they're even needed. The Mega Jack system and our AL.SK190 and AL.SK350 cranes are recent examples of this commitment to progress. We apply our knowledge and skills to provide proactive risk management, engineering and planning surveys, getting to the bottom of the complex technical and logistical issues facing each project at an early stage and collating our investigative efforts in a detailed technical report.

Over the years we've supplemented our world-class engineering skills base with the acquisition of specialist companies, and now have highly qualified engineers working across the globe. Our experience means ALE is well-equipped to support the full FEED process, from conceptual design stage to the production of cost estimates.



FEED services include:

- Special heavy lift equipment implementation
- Conceptual offshore installation techniques
- FPSO construction studies
- Tension leg platform (TLP) topside and hull mating systems
- Equipment lifting and installation studies to determine the most cost and schedule effective methods of sizing and placing equipment
- Design of rigging and lifting equipment
- Outline design of new build site construction jetties
- Selection of optimum shipping methods and identification of suitable vessels or barges

JACKING

Jacking systems including strand jacks provide a cost-effective lifting and pulling solution for the fabrication and load-out of offshore jackets, platforms and modules. Our jacking capacity ranges from 15t to 6,000t.

Our team of specialist engineers saw a gap in the market for a super heavylift jack; and the Mega Jack was designed to assist with the onshore fabrication of increasingly large and heavy topside platforms for the offshore industry, although its versatility means there is great potential for its use in other market sectors as well.

The Mega Jack has both heavy and light jacking modes, and its modular set-up makes it suitable for a wide range of applications. By adding jacking towers, the capacity can be increased or the ground bearing loads per position reduced. A key difference between it and traditional jacking systems is that during normal jacking operations, the jacks remain at ground level and the steel jacking beams rise by each jacking step. This way all operations are performed at ground level and working at height is kept to an absolute minimum.

ALE also operates a large inventory of hydraulic climbing jacks up to 1,000t capacity which can be operated in multiple hydraulic circuits for load equalisation.



CASE STUDY

Bridge exchange, The Netherlands

Key Features

- » Bespoke solution
- » Multi-service application
- » Minimised disruption

ALE completed the jacking, load-out, sea transport and exchange of a bridge in Amsterdam, The Netherlands.

To complete the exchange of the previous 832t bridge with the new 954t bridge ALE used climbing jacks to weigh and jack-up the bridge to install 48 axles of SPMT below. The bridge was then transported from the fabrication yard in Gorinchem and loaded-out to the barge. After load-out the bridge weight was transferred to four climbing jacks with a capacity of 285t each and the SPMTs were removed from the barge. The bridge was jacked down and secured for transport to Amsterdam.

On arrival in Amsterdam the bridge was jacked up to the final installation height leaving the distance between the water level and the underside of the bridge at 9m.

The road over the bridge was closed over a weekend with only a 12 hour timeframe for the removal of the old bridge and installation of the new one. To remove the previous bridge a barge equipped with towers and long beams was mobilised to receive the bridge after jacking down and transported for demolition in Amsterdam.

LIFTING SYSTEMS

With a strong heritage in engineering and innovation, ALE is perfectly placed to undertake the most complex and intricate lifting projects. Our team of experienced multidisciplinary engineers investigate and prepare lifting schemes and tailor-make solutions for complex lifting operations. Our range of lifting equipment includes bespoke gantry systems, modular tower systems, hydraulic lift systems and strand jack systems.

We believe that technology, design and ingenuity are essential for customer-focused solutions that address the very specific challenges each project brings. The exclusive lifting equipment we've developed is the result of many years' experience and detailed research carried out by our Research and Development facility.



CASE STUDY

Gorgon Project, Australia

- Key Features**
- » Reduced costs
 - » Bespoke solution
 - » Multi-service application
 - » ALE branch collaboration
 - » Minimised disruption
 - » Flexible delivery

ALE, as part of a wider team, was integral to the construction of a 2.1km jetty on Barrow Island from which Liquefield Natural Gas (LNG) will be distributed worldwide.

The structural steel top platforms weighing between 150-490t each are delivered to the Henderson site by barge. The top platforms are off-loaded by ALE's SPMT and temporarily stored on site. ALE designed and installed an impressive 50m high lifting gantry which rotates these top platforms 180 degrees.

The jetty foundations, known as 'caissons', are constructed on site by the main contractor and weigh up to 2500t each. We elevated the caissons by jacking to allow the positioning of its SPMTs underneath with subsequent transportation to the gantry.

The caisson was carefully positioned under the gantry using survey control. The top platforms were lowered by our gantry into the pre-formed voids within the caissons resulting in a combined, single-structure weighing a maximum of 3760t.

We transported the combined structures post fit-out to the Henderson wharf where they were loaded on to a semi-submersible barge.

Ballast calculations performed by ALE, and close liaison between our SPMT crew and the barge crew, achieve safe, co-ordinated loading onto the barge prior to its extensive journey to Barrow Island. The services and equipment utilised for the project include:

- Six x 650t jacks complete with stroke meters facilitating computerised automatic jacking.
- SPMTs at various configurations up to 128 axles.
- Lifting gantry consisting of four No. A-frame support legs; two No. 46m span main beams; three No. skidded bridge beams of 19.5m span; four No. 200t strand jacks; and two No. 500t strand jacks.

LOAD-IN & LOAD-OUT

ALE is an authority on the design and development of load-out systems for platforms and jackets. Our speciality service allows modules to be transported hundreds of metres to the load-out quay, allowing several modules to be built at the fabrication facility without impeding access to the quay, and multiple load-outs to be executed from a single load-out point. The result is minimum site disruption and maximum efficiency.

The 360° computer controlled steering capability of our SPMTs provides a wide choice of build positions, and our trailer configurations are always designed to meet the specific parameters and constraints of each project.

Low ground bearing pressures minimise the need for site preparation or strengthening. Alternatively, if there is an existing skidway, we can help minimise costs by providing the strand jacking equipment required to pull equipment for load-out, where our high capacity ballast systems with manifold and integrated pipework can perform ballasting operations of up to 60,000t per hour.



LOAD-IN & LOAD-OUT BY SPMT

CASE STUDY

Load-out Process Platform Project, Indonesia

Key Features

- » Reduced schedule
- » Multi-service application
- » ALE branch collaboration
- » Short notice mobilisation

ALE successfully completed the transport and load-out of five modules for a process platform project in Jakarta, Indonesia.

As part of the redevelopment of the Mumbai High South offshore oilfield, the platform consists of a main structural frame, building module, process module, turbo generator and compressor module.

With modules weighing between 1,400t and 2,850t, and one piece standing 45m high, this project showcases our ability to provide innovative solutions in challenging situations. Due to its weight, the client initially specified for the heaviest piece, a 2,850t main structural frame, to be loaded-out using a skid system. However, after careful re-studying of the project, we were able to provide an engineering solution that would allow the frame to be shifted by SPMTs, achieving significant cost savings for the client and negating the requirement for additional equipment on site. The solution involved specially modified transverse beams that were imperative in spreading the load without overstressing the SPMTs due to the load concentration. This in turn led to the heaviest SPMT load-out performed by ALE in Indonesia.

The project also saw our record for the tallest vertical load-out in South East Asia broken, with the process generator compressor module measuring 45m high. However the height was not the only challenge, as it was critical to maintain the stability of the piece whilst accounting for tidal changes and open sea conditions.

To ensure the success of the project, a series of tailored engineering solutions had to be developed by our teams in Malaysia and our world renowned Offshore Services Division. The collaboration ensured full engineering support for transport, mooring design checks, barge ballasting and analysis throughout the project.

LOAD-IN & LOAD-OUT BY STRAND JACKS

Where there is an existing skidway, we can help minimise costs by providing the strand jacking equipment required to pull the modules for load-out.

Strand jacks provide a cost-effective lifting and pulling solution for the load-out of offshore jackets, platforms and modules. Using ALE's diesel driven power packs, they facilitate load-outs of up to 50 metres per hour. Our strand jacks range from 15t to 1,045t pulling capacity per unit.



CASE STUDY

Load-Out of Module M35 PRA1 Platform, Brazil

Key Features

- » Reduced costs
- » Reduced schedule
- » Bespoke solution
- » Minimised disruption
- » Flexible delivery

ALE successfully loaded-out the 5,000t M35 PRA1 platform in Salvador de Bahia, Brazil.

The load-out manoeuvre was carried out by means of four hydraulic strand pulling units each with a capacity of 500t in two pulling lines. Two units were placed parallel to each other in order to guarantee a secondary system.

The average advance speed was of 22m/h and the total load-out distance was 170m.

The equipment scope of our work on this project included the supply of the hydraulic system composed by vertical jacks for the load-out manoeuvre. We also supplied a total of eighteen jacks each with a capacity of 500t.

LOAD-IN & LOAD-OUT BY SKIDDING

ALE was the first company to design, develop and operate the hydraulic compensated skid-shoe system. It enables us to provide a skid track when there is no existing skid track available.

Our equipment includes hydraulic skid-shoes with stainless steel bases that move over low-friction blocks laid into steel skid-tracks. The systems we provide range from 25t to 1,250t capacity, with the option of combining a number of skid-shoes to create the most suitable solutions and perform skid load-outs in excess of 20,000t.



CASE STUDY

**19,400t Skidded
load-out, South Korea**

Key Features
» Record breaking

Using a hydraulic skid system, ALE successfully performed the skidded load-out of a 19,400t topside platform.

Using our pioneering self-propelled hydraulic skidding system we lifted the Gazflot topside from its fabrication supports and skidded it using 24,650t capacity and 24,500t capacity skid shoes, all integrated with hydraulic jacks to control the loadings and ground pressures. With all 48 skid shoes hydraulically connected, they provide a 3-point hydraulic supporting system.

The project required innovative engineering to accommodate the need for different loads at various support points. Once the topside was skidded across the quayside onto the semi-submersible transportation vessel it was positioned onto grillages using the hydraulic cylinders.

LOGISTICS

ALE has a wealth of experience in designing global logistical solutions for the multi-modal transportation of oversized and heavy cargos. A wide breadth of experience and large fleet of trailers and equipment means we can meet all client requirements, no matter how challenging the project.

We can tackle anything from the support of single import/export jobs to complete end-to-end projects involving the transportation of complex freight items across some of the world's harshest environments. ALE departments and offices across the world work together to plan bespoke, multi-modal packages incorporating all the necessary services to ensure every delivery is completed as quickly and cost-effectively as possible.

Our logistics projects include full 'blueprint to delivery' consultancy and all the necessary support services. We will handle, secure and supervise cargo, chartering marine vessels or aircraft and performing heavy lift engineering as necessary. We'll also manage domestic and international road and rail freight both in and out of gauge, and take care of import and export customs management as part of our worldwide door-to-door service.



CASE STUDY

Barging, road transportation and installation of loads, Iraq

Key Features

- » Reduced schedule
- » Bespoke solution
- » Multi-service application
- » ALE branch collaboration
- » Record breaking

ALE completed a project for an oil processing plant in Iraq. ALE won the contract to complete the barging, transportation and installation of over 100 items weighing up to 150t.

The major focus of the project was the execution of the logistics which had been tailored for the challenging environment and terrain through Iraq, which includes crossing two rivers. To complete the scope of work we began by barging the modules from the UAE, through the gulf and the Shatt al Arab River from Al Faw to the MOF jetty in Iraq for consequent heavy haulage to site and the final lifting and installation to foundations. The services required for this project included feasibility studies, route surveys and engineering plans prior to the project, marine and river barging in the first phases followed by heavy haulage, and heavy lifting services.

MARINE ENGINEERING

In 2010 ALE's Marine Engineering Division was established to harness the talent from across the business into one centre of excellence, making the company's capabilities in this area accessible to our clients on a global scale. This allows us to have a dedicated team available to clients worldwide as an individual service or part of a bigger project.

The Marine Engineering Division is a team of naval architects and structural engineers who provide marine engineering services of engineering analysis, R&D and marine operational supervisory on land and at sea, to safely deliver the best solutions for the clients. Engineering analysis includes ship designing, 3D modelling, load-out / load-in analysis, ballasting analysis, mooring analysis, risk analysis, marine transportation analysis, float-off / float-in analysis, launching analysis, floatation and upending analysis, local and global strength check, fender design, jetty design, sea-fastening design and finite element analysis.

Marine operational services include supervision; coordination and conducting the transport operations from land to sea or from sea to sea. On site supervision involves internal / external ballasting system monitoring, load-out / load-in operation (i.e. skid pulling and ro-ro method) and float-off / float-on operation. Apart from the feasibility studies mentioned, our Marine Engineering division is also responsible in preparing for proposals, procedures, technical writing and engineering reports for our clients.



CASE STUDY

Load-out & float-off of Jack-Up Rig, Vietnam

Key Features

- » Reduced costs
- » Reduced schedule
- » Bespoke solution
- » Multi-service application
- » ALE branch collaboration
- » Record breaking
- » Flexible delivery

ALE was contracted to carry out the engineering, load-out and overall transport and float-off management of the first jack up rig fabricated in Vietnam. The scope of work also included the engineering and management of the float-off from the semi submersible vessel.

ALE successfully completed the skidded load-out and float-off of the 9,400t drilling rig. We designed the necessary temporary works for the jack up rig to be skidded from its fabrication location, over the quay and onto the semi submersible vessel; and supplied the strand jacks and an external barge ballast system to skid the 9,400t drilling rig during the load-out. ALE also chartered the semi submersible vessel and main tug to provide the load-out and float-off turnkey operations. This major milestone for Vietnamese fabrication was engineered through our Marine Engineering division and observed by Vietnamese government officials, including the Prime Minister.

OFFSHORE INSTALLATION

Technical advances in offshore installation and floatover capabilities have made the fabrication of complete topsides, weighing in excess of 60,000t possible.

With budget, location and oceanography constraints, alternative methods of offshore installation from the typical heavy lift vessel are often called upon. ALE's experience coupled with our innovative R&D division means that we are at the forefront of designing and performing alternative offshore installations such as high deck mating and eco mast installation.

Our ballasting systems are unique due to the modularisation feature that can satisfy the biggest projects. With an External Rapid Ballast (EBS) capacity over 72,000 Cu M/Hr, we have completed some of the most challenging offshore floatover Installations in the World; the EBS is used to transfer the weight onto installation structures. The computerised system allows full operation from a single control room, including flow and distribution, operation of HPU's, ballast and de-ballast pumps, barge level systems and ballast monitoring.



CASE STUDY

Installation of Riser Access Tower, North Sea

- Key Features**
- » Reduced costs
 - » Bespoke solution
 - » Multi-service application

ALE successfully installed a Riser Access Tower (RAT) weighing 800t using an innovative design for offshore installation.

We were contracted to install the RAT on the K15-FA-1 gas field. Built in sections, it was assembled by ALE using mobile cranes and on completion loaded-out onto a cargo barge using SPMT.

We designed, fabricated and supplied the heavy duty grillages for the skidding installation system on the barge. The grillage design also integrated the main rotation point of the upending frame and the upending strand jack connections.

Once the barge was moored on location adjacent to the existing gas platform, the upending frame complete with RAT was skidded to the stern of the barge using our skidshoe system and the strand jacks were used to rotate the RAT to vertical. Once the positioning was confirmed, the RAT was lowered to the seabed using two of our strand jacks.

SKIDDING

An innovator in hydraulic compensated skid-shoe systems, ALE is uniquely qualified to understand and respond to your precise requirements.

Skid systems are designed to make safe and precise horizontal movements, and as such are an effective means of moving plant and structures in confined or restricted environments. The movement equipment has hydraulic skid-shoes with stainless steel bases which move over low-friction blocks laid into steel skid-tracks in an extend/retract sequence.

We operate skid-shoe systems to suit a wide range of capacities, with the option of combining a number of skid-shoes to create the most suitable system for moving complex loads. The integral hydraulic cylinder of the skid-shoes can be interlinked to provide a hydraulically compensated suspension system.



CASE STUDY

Load-out of the MCR-A's Gravity Base Structure (GBS), Turkmenistan

- Key Features**
- » Bespoke solution
 - » Multi-service application

ALE was contracted to pick up the GBS, weigh, move and load it out onto the new build barge 'Dagbasy'. Weighing 7,690t, the GBS was lifted lowered and moved with our skid system.

The heavy skid system consisted of eight skid shoes with 500t capacity and ten skid shoes with 650t capacity – the largest of their kind in the industry – all with integrated hydraulic jacks.

The skid shoes were hydraulically coupled to provide a three-point supporting system.

Our teams were responsible for the complete project including the lift, move, load-out, ballasting, weighing, and float-over of the MCR-A's topside.

TRANSPORTATION

With years of experience and one of the largest fleets of heavy transportation axles and ancillary equipment in the world, ALE is a globally renowned authority in moving heavy loads.

Our substantial fleet of latest-generation equipment is operated by a team of highly trained personnel who maintain it to the highest standards. All trailers and ancillary equipment are strategically located around the world for maximum availability and to keep mobilisation costs to an absolute minimum.

Our SPMTs dominate the current generation of heavy transport equipment by combining state-of-the-art design with tried and tested components. They make the movement of large items efficient, cost-effective and safe, and, coupled with our expert project management, completely seamless.

In addition to our land transportation equipment we have a fleet of barges including the ALE250 and ALE300 which are equipped with winches, ballast pumps, integral load-out ramps and all machines and equipment required for sea-fastening heavy lift cargo.



SPMTs

CASE STUDY

Load-in and transportation of modules, Australia.

Key Features

- » Reduced schedule
- » ALE branch collaboration
- » Minimised disruption
- » Short notice mobilisation

ALE was contracted to complete the engineering and project management for the specialist transportation required to complete 159 installations on a natural gas plant build in Australia.

The modules were produced in Indonesia where ALE teams from multiple branches assisted in the specialist procedures to load-out and transport the items to the site in Australia. Once at the port our teams transferred the load to SPMTs and transported it 500m to a quarantine area for inspection before being placed into storage or transported up to 1km across site to the installation point. A number of other tasks presented themselves on site and due to ALE's flexibility we were able to extend our scope of work to include additional tasks such as jack-up operations.

MODULAR TRAILERS

Our transportation capabilities are further augmented by our considerable fleet of modular trailers and specialist widening trailers, which we frequently use for long distance road movements.



CASE STUDY

Transportation of 15 Boilers, UK

Key Features

- » Reduced costs
- » Reduced schedule
- » Bespoke solution
- » Multi-service application
- » Record breaking
- » Minimised disruption
- » Short notice mobilisation
- » Flexible delivery

ALE has successfully jacked, skidded and loaded-out 15 redundant boilers from the UK's first built nuclear power station prior to onward transportation, in a project that saw the first heat exchangers from a UK site transported overseas for recycling.

We worked together with various contractors to ensure the successful transportation of the former steam boilers from their location in Berkeley power station to the recycling facility in Sweden. The boilers, weighing 300t each and measuring 22m long and 5m wide, were transported in three separate moves from the former power station, which ceased generation in 1989 and is now owned by the NDA. The first move ALE performed involved the use of an 18 axle conventional trailer, two push-pull heavy ballast tractors and various other support and escort vehicles. Utilising a further 36 axles of conventional drawbar trailers, connected to four push pull heavy ballast tractors, we completed the transport of the remaining four boilers two at a time. The boilers were transported four miles through Berkeley town centre to Sharpness docks, where they were rolled onto a specialist vessel which then transported them via the Severn to Avonmouth. From Avonmouth, the boilers were transported to a sea going vessel to make the final journey to Nyköping in Sweden where ALE loaded-out the boilers to the dock.

GIRDER FRAME TRAILERS

ALE has pioneered the use of girder frame trailers in power plant equipment transportation. Our versatile fleet – developed and built in-house – have capacities up to 500t and can be configured to transport all types of generating equipment. Our extra wide axle option enables us to overcome structural difficulties and route restrictions.



CASE STUDY

Staythorpe Power Station, UK

- Key Features**
- » Reduced costs
 - » Reduced schedule
 - » Bespoke solution
 - » Multi-service application
 - » Minimised disruption
 - » Short notice mobilisation
 - » Flexible delivery

ALE was asked to provide an innovative solution to the complex delivery of a four-unit CCGT power station. The project involved river transport, SPMTs and a 28-axle girder frame trailer.

Our gas turbines, four generators and four transformers – each weighing up to 370t – were received using SPMTs and stored prior to being transported down the River Trent by barge. ALE's Lift 'n' Lock system was used to trans-ship the cargo onto a girder frame trailer for a 30 mile road route.

It then trans-shipped to SPMTs for transportation on public roads using a second Lift 'n' Lock system. The final leg of the journey to site was undertaken using SPMTs for installation onto foundations using our modular gantry system.

TURNKEY OPERATIONS

ALE are specialists in large turnkey projects from both an operational and managerial perspective. Our dedicated global projects teams offer the very best solutions to our clients with multi-disciplinary requirements and provide the exceptional people and expertise necessary to address the unique challenges of major projects.

Team members are specifically trained to deal with the different management and business processes that are required to successfully navigate these assignments; specifically the top-level project management skills needed for high value, long-term transportation and installation contracts involving numerous teams working together to deliver optimum value and efficiency.

In addition to our market leading Innovation Series equipment and our ever increasing transportation and lifting fleet, we are accustomed to providing the significant human resource in HSQE, engineering, project management and supervision that is required to offer a full service solution to our clients.



CASE STUDY

**Transportation, barging,
load-in, load-out
& installation, Iraq**

Key Features

- » Reduced schedule
- » Bespoke solution
- » Multi-service application
- » ALE branch collaboration
- » Record breaking

The major focus of the project was the execution of the logistics which had been tailored for the challenging environment and terrain through Iraq, which includes crossing two rivers. To complete the scope of work ALE transported the modules by barge from the UAE, through the Gulf and the Shatt al Arab River from Al Faw to the MOF jetty in Iraq for consequent heavy haulage to site and the final lifting and installation to foundations.

We utilised a variety of equipment during the project including barges, crawler cranes such as CC2800-1 and CC2600, heavy duty prime movers and a number of hydraulic axle lines led by members of staff whom were protected by armed security teams during all operations. All marine operations carried out at the jetty were controlled and co-ordinated by our in-house marine engineering specialists.

WEIGHING

Accurate weighing is essential for establishing that lifting and transporting methods are totally appropriate, and ensuring that work is carried out as efficiently and cost-effectively as possible.

With the ability to weigh structures from 10t to in excess of 60,000t, ALE performs weighing operations all over the world to internationally recognised standards, fabricating custom equipment as required. Specific calibrations are carried out prior to each weighing operation, either at our main equipment base or onsite using portable calibration rigs. We are then able to guarantee accuracy to +/- 0.5% of the total weight of any structure, and can calculate with precision the centre of gravity.

From our extensive fleet of equipment we perform weighings in excess of 100 support points. Through our engineering calculations we can provide information on weight and centre of gravity with incredible accuracy to ensure the safest and most cost effective solution.



CASE STUDY

Takula weighing operation, Korea

- Key Features**
- » Bespoke solution
 - » Flexible delivery

ALE was contracted to perform the weighing of the Takula topside prior to a skidded load-out in South Korea.

The weighing of such platforms is critical to the transportation and installation of the piece. Our specialist Offshore Division used twenty four 600t capacity Weightor jacking units to complete the weighing, the team calculated the weight at 5,649.28t this result had an accuracy of 99.91% and gave a centre of gravity reading to within 10mm. These results are crucial for the ballasting calculations required to ensure the successful transfer from port to barge. The weight and centre of gravity is also critical to the calculations made for the lifting and installing of the topside to its foundations at sea ensuring that the correct equipment is used for the final installation.

INNOVATION SERIES

We're committed to helping our clients achieve what might once have been considered impossible. Nowhere is this better demonstrated than our Innovation Series, the label we give to some of our most advanced and cutting edge technologies and equipment.

The Innovation Series results from the collaborative approach we take with our clients to solving heavy transportation and lifting problems. If the ideal solution doesn't exist, we will design it. Our world-beating R&D department works with teams around the world to find the best response to existing challenges; but more than that, they apply their wealth of experience and skills to anticipating future issues and designing a solution before it's even needed. It's this approach that's behind remarkable feats of engineering: the award-winning AL.SK crane fleet with its record-breaking lifting capacity; the revolutionary Mega Jack system, which doubled the previous world-record lift; the Mega Jack 800, and the inventive Hydro Deck, a transition pontoon which can operate in almost all tidal conditions.

What they all have in common is the solutions-focused design and real world expertise that makes them not only amazing engineering achievements, but powerful tools enabling our clients to work harder, smarter and more efficiently than ever before.



MEGA JACK

The Mega Jack is an innovative and revolutionary ALE design engineered to push structures of staggering weights and sizes.

The system's capacity per tower with its four 1,300t hydraulic jacks is 5,200t, with multiple towers giving the jacking capacity required for the most challenging of projects. For example, a 10 tower system gives a net jacking capacity of 60,000t. The standard dimensions of the towers are 5m x 5m, 5m x 2.5m and 2.5m x 2.5m. This provides the system with enormous strength and stability.

The strength of the design is its simplicity. The concept behind the system revolves around 4 strong jacking bases; within each jacking base is a hydraulic jack which could extend to a stroke of 1,250mm. By an automated feed-in system, the Mega Jack will jack loads to their required height. The system is controlled remotely via a control room, reducing worker/equipment interface and working at height, the system also produces real-time data for accurate readings at any stage of the operation. This safer working is paramount on any project. The control of the system is operated by computer from the special designed control room. All data including deck height, weight, ground settlement etc. is collected from one location. This provides substantial levels of safety for the operation.



CASE STUDY

**43,475t jack up,
Korea**

- Benefits
- » Bespoke solution
 - » Multi-service application
 - » ALE branch collaboration
 - » Record breaking
 - » Minimised disruption

ALE successfully completed the worlds heaviest jack up using the Mega Jack system in Korea.

With a final jacking weight of 43,475t the topside was lifted for additional fabrication before loading out and eventual installation at the Arkutun Dagi field off the east coast of Russia. the development is expected to be the largest oil and gas production platform in Russia where the first oil is scheduled to be produced in 2014.

The topside was jacked to a total height of 24 metres which is the first project of this kind using its innovative Mega Jack System. To complete the project the Mega Jack was configured in four sets of towers each made of a combination of three singular towers; this gave each of the four towers capacity of 15,000te and an overall jacking capacity of 60,000te. The Mega Jack is a completely computerised and stroke controlled system operated via a control room; it took only 11 hours to complete the record breaking lift.



AL.SK CRANES

Our AL.SK190 and AL.SK350 cranes are designed for the lifting and installation of ultra-heavy loads. They can be equipped with a standard quick winch system for weights of up to 600t and a strand jack lifting system for loads of up to 5000t.

AL.SK190

The AL.SK190 – named to reflect the measurement of the load moment based around the point of rotation, which is the standard industry convention for measuring the lifting radius of cranes – has a lifting capacity of 4,300t, a maximum boom height of almost 200m, and a load moment of 196,000tm. It has two big advantages: it can perform lifts previously unachievable, and it can do this while occupying a very small footprint of just 35m x 55m.

AL.SK350

Due to the global demand for AL.SK cranes and the requirement for even greater capacity the AL.SK350, launched in 2013, has now taken its place as the largest land based crane in the world by some distance. With a lifting capacity of 5,000t and a load moment of 354,000tm, this crane will enable the development of new and groundbreaking construction methodologies and save our clients time and money on the construction site by reducing schedule, risk and cost.



CASE STUDY

**Valero Coker Interchange,
Port Arthur, USA**

- Benefits
- » Reduced costs
 - » Reduced schedule
 - » Bespoke solution
 - » Multi-service application
 - » ALE branch collaboration
 - » Record breaking
 - » Minimised disruption
 - » Flexible delivery

ALE successfully demonstrated the key benefits of an extended lifting radius with a series of record-breaking lifts at an oil refinery in Port Arthur, Texas, USA. Using our AL.SK190 crane – the first use of this award-winning crane in North America – we completed a two stage project that involved lifting 1338t at 54m outreach.

In the initial phase of the project, the AL.SK190 was used to exchange coker drums, removing six old drums and replacing with six new drums weighing up to 471t each. The crane first lifted a 1,400t derrick structure, which was positioned on top of the existing coker drums at a height of 100 metres, and set it on the ground. The coker drums were then exchanged, and the derrick structure replaced.

The derrick lift performed by the AL.SK190 was the first time a complete derrick assembly consisting of triple drill towers and cutting deck, had been removed and replaced in a single piece.

The lift required a complex tackle arrangement with a 12 point pick up, only possible with the AL.SK190 crane. To successfully complete the project without the need to shut down the coker the AL.SK190 was rigged outside the boundaries of the coker pit. This also enabled the completion of the project with no permanent equipment in the refinery having to be dismantled, and the coker pit wall did not have to be removed.

In addition to the AL.SK190, ALE utilised an 850t tailing gantry and 60 axle lines of SPMT to complete the HCU installation. ALE also supplied all of the engineering calculations and related support.

The 4,300t-capacity AL.SK190, which won the Innovation and Development Award for End Users at the 2010 ESTA Awards of Excellence, has a load moment of 190,000tm, a 141m main boom and a 32.1m ballast radius, and also features a 600t quick winch system for lifting smaller items quickly.

HYDRO DECK

The Hydro Deck is a transition pontoon which will work in conjunction with a modular offloading facility to form the gateway for on-shoring modules and other infrastructure needed for complex projects. Providing a stable load-in platform which is not reliant on tidal conditions, it enables load-in operations for combined loads of up to 17,000t to take place regardless of tidal conditions, ensuring considerable time and cost savings for clients.

The Hydro Deck measures 140m x 40m x 12m and consists of a catamaran-type hull, using an innovative and redundant water ballast and air tank system to provide buoyancy and accommodate for large and fast tidal variations. The ballasting system enables buoyancy control in specific areas of the pontoon and accommodates tidal levels allowing loads to be transported safely across the length of the Hydro Deck.

The Hydro Deck provides a stable load-in platform which is not reliant on tidal conditions. Conceived to operate in shallow or deep waters for long periods of time with strong, in-place systems to leave no impact on environmentally-sensitive areas. In addition, because it is a temporary structure, there is no need to disrupt such areas with infrastructure that is required only for a limited time.



MEGA JACK 800

The Mega Jack 800 is an innovative solution designed by ALE's renowned Research and Development team to bridge the gap in jacking capacities, as well as provide a system to integrate with current services for a complete solution on projects. ALE conceived the design through careful analysis of the current market and identifying areas for improvement in efficiency.

The strength of its design is in its simplicity, the Mega Jack 800 has a capacity of 800t per tower, is made up of a small number of components and is completely scalable to accommodate a variety of projects. The system can be built with minimal overhead space required and completely at ground level. For projects that require a multi-application solution the Mega Jack 800 can integrate with other services such as skidding systems to provide a complete solution and additional services such as bridge launching. For minimal on site disruption the automated feed-in system requires only one point of feed, this point can be on any side to adapt to restricted site space.

ALE



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INFO@ALE-HEAVYLIFT.COM

WWW.ALE-HEAVYLIFT.COM

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