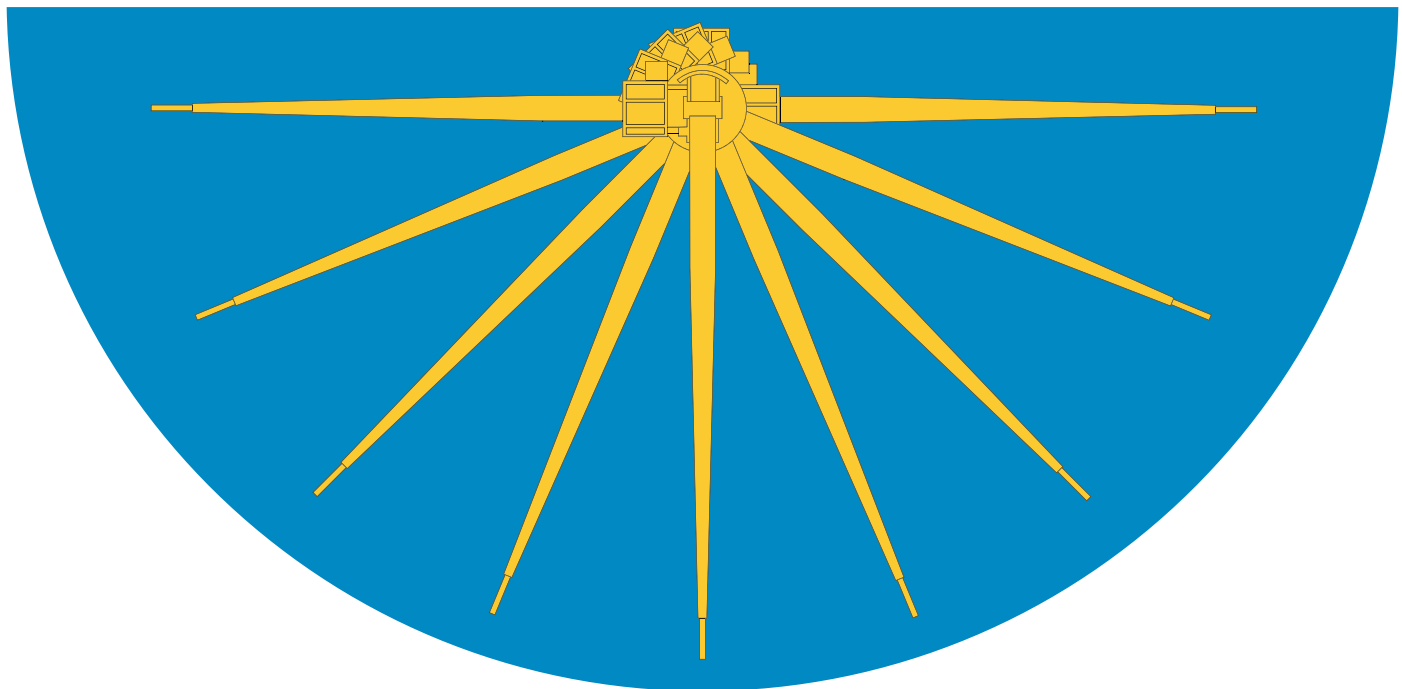
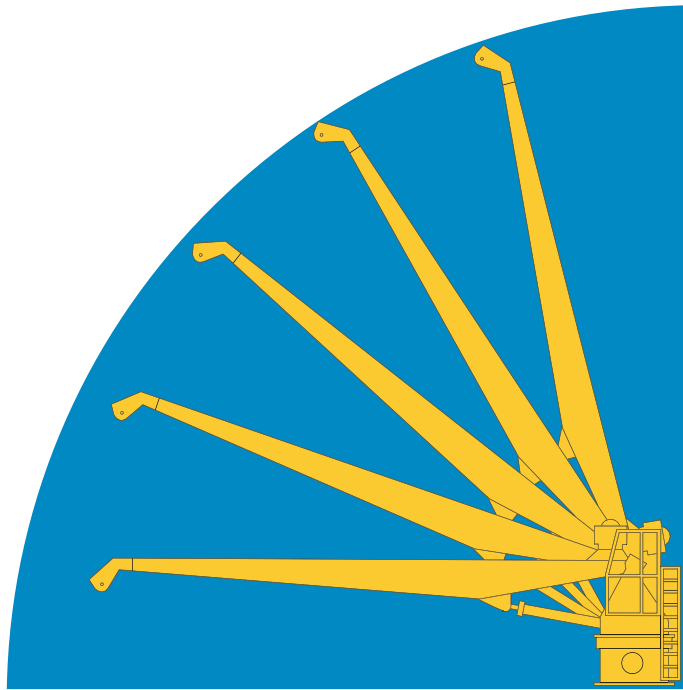


# Allied Systems

COMPANY

## MARINE CRANE DIVISION



Leaders in the design and manufacture of hydraulic marine cranes

Allied Systems Company's Marine Crane Division designs and manufactures severe duty hydraulic and electric pedestal cranes and boat davits. Allied's Cranes are used primarily in shipping, oil and gas processing, nuclear power generation, oceanographic research and military applications. Models include fixed length, telescopic and knuckle boom cranes in capacities from 2 to 125 tons with boom lengths up to 125 feet.

Allied's crane designs offer many significant performance and space-saving advantages over cable and lattice-type cranes and are custom engineered to fit within a variety of envelope constraints. A wide range of options and accessories are available to satisfy the needs of each particular installation. All cranes undergo stringent performance and overload testing and are delivered ready for installation with material and test certificates.

#### MANUFACTURING CERTIFICATION AND QUALITY ASSURANCE PROGRAM

Allied Systems Company is licensed by the American Petroleum Institute to manufacture offshore cranes to API 2C specification and to apply the API monogram. As an API licensed manufacturer, Allied adheres to the API Q1 Specification for Quality Assurance Programs for all products. This annually audited program requires strict adherence to a wide variety of quality assurance/quality control criteria and requires control documentation relative to personnel qualification, design, drawings, manufacturing processes, procurement, material identification, traceability, inspection, handling, storage and document retention.

#### STATE-OF-THE-ART HYDRAULICS FOR SMOOTH PERFORMANCE

The superior characteristics of Allied's hydraulics provide a performance advantage over competitors. Allied selects the finest hydraulic components available and designs these into each crane package. Hydraulic boom luffing cylinders provide positive power up and down with infinitely variable control. Compared to cable hoist/boom systems, hydraulic cylinders offer smoother performance and controllability for safer operation. The positive cylinder stops prevent the boom from experiencing unwanted over-travel in either direction.

#### ALLIED'S OVERLOAD SAFETY SYSTEM PROTECTS EQUIPMENT AND PERSONNEL

The Allied Hydraulic Overload Safety System is a standard feature on all Allied cranes—unless special electronic systems are requested. As boom lowering or lifting creates load shifting which can cause an overload condition, the

hydraulic system automatically locks the boom in place and puts the winch in a locked position. The operator then has the ability to raise the boom to decrease radius or to lower the load, either of which returns the crane to a safe condition. Visual and audible alarms can be incorporated into the system as an additional safety feature.

Hydraulic counterbalance valves on winches, boom luffing and telescopic cylinders are another standard safety feature on all Allied cranes. These valves stop the crane's movement in the event of hose failure or sudden loss of hydraulic pressure.

#### SIMPLE AND LOW COST MAINTENANCE

Allied Cranes benefit from numerous strategies to reduce maintenance and lifecycle costs. To simplify inspection and recoating, Allied fixed and telescopic box boom cranes have cleaner lines than traditional lattice boom designs. The broad, flat surfaces of the box design also make it less susceptible to the joint corrosion that frequently plagues lattice-boom cranes. For easy installation and removal of boom and foot pin, most Allied foot pin mounting brackets are a split-cap trunnion design. To decrease the number of lubrication points, Allied employs "lifetime" lubed bushings in the boom base and tip of all cranes. Allied Cranes also undergo stringent testing programs that meet and exceed the highest industry standards. In addition, all Allied cranes are abrasive blasted

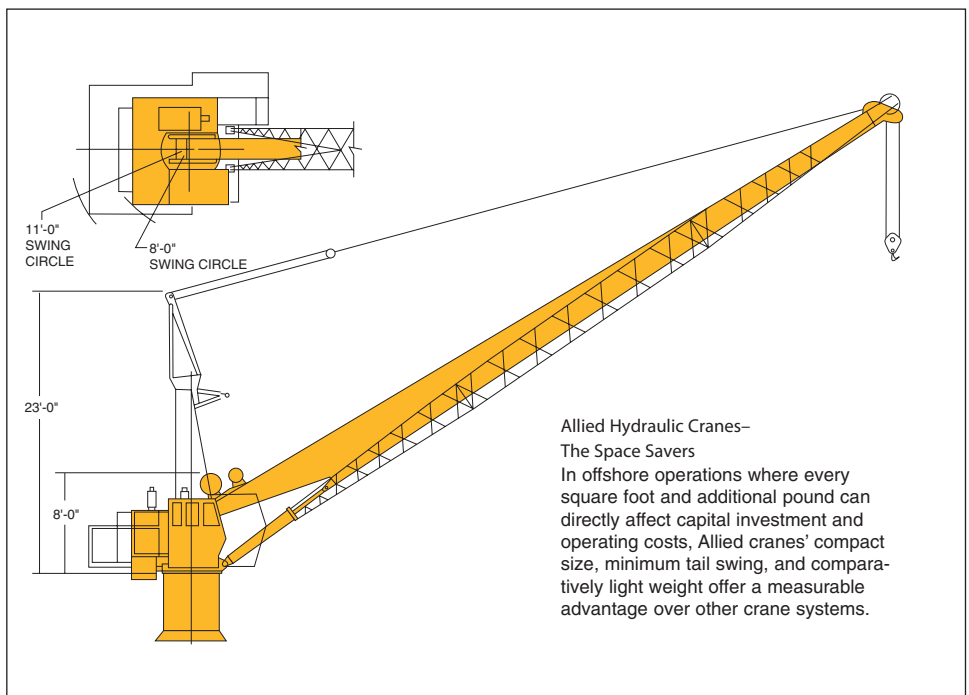
to near white metal and coated with multiple layers of the toughest marine coating materials available.



#### CUSTOM ENGINEERING FOR ALL APPLICATIONS

Allied has extensive experience in engineering and manufacturing cranes, boat davits and winches for a variety of applications. Specialized equipment for all types of power generation facilities, truck, rail or gantry mounting, dock and shipboard applications is available. Allied also supplies several Mil-Spec cranes and boat davits for US and foreign military use. In addition, Allied offers fully electrically actuated hoisting, slewing, luffing and telescoping pedestal cranes for special applications where hydraulics are not permitted. Engineering capability, experience and use of advanced computer modeling allow Allied to meet the most complex engineering challenges.

Allied representatives will be happy to discuss the technical specifications of our equipment and your specific application, as well as available options and our custom engineering capabilities to develop the most cost-effective solution to your operating requirements.



# FIXED BOOM CRANES

Series DT and DTH

Allied's DT Series cranes offer fixed length, double taper, sealed box boom construction for durability and toughness in ranges from 2 to 125 tons with boom lengths up to 125 ft. This unique double taper, sealed box boom design absorbs shocks caused by impact from the lifted loads. DT Series cranes require minimal maintenance. They are built for minimum weight, maximum cost efficiency and excellent durability. They are assembled and tested to a minimum of 125% and up to 220% of the rated load prior to delivery. A DTH model is also available with "pinned" boom joints for easy storage and transportation.





# TELESCOPIC BOOM CRANES

Series TB

TB Series telescopic boom cranes are configured with two, three or four box boom sections. Extension and retraction is accomplished with internal double acting hydraulic cylinders, cable system or manual pull out "pinned" sections. All telescopic sections ride on high-strength glide pads for smooth extension and retraction. Telescopic boom models allow for a variety of working radii with a compact (retracted boom) stowed radius. TB models range in capacities from 2 to 125 tons with extended lengths of up to 125 ft. TB Series cranes are assembled and tested to a minimum of 125% and up to 220% of the rated load prior to delivery.





# KNUCKLE BOOM CRANES

Series K

K Series knuckle boom cranes use hinged box section booms, optionally equipped with telescopic jib extensions. As special purpose cranes, they are custom designed for applications requiring a very short working radius, low overhead clearances, and/or other special operating requirements. By keeping the load near the tip of the jib, Allied K Series cranes can minimize involuntary swinging of the load. These models use one, two or three main lift cylinders and jib cylinders and can be stowed horizontally to save valuable space. K Series cranes offer tremendous flexibility and precision in operation due to their state-of-the-art hydraulic and electronic systems. All K Series cranes are assembled and tested to a minimum of 125% and up to 220% of the rated load prior to delivery.





# DAVITS

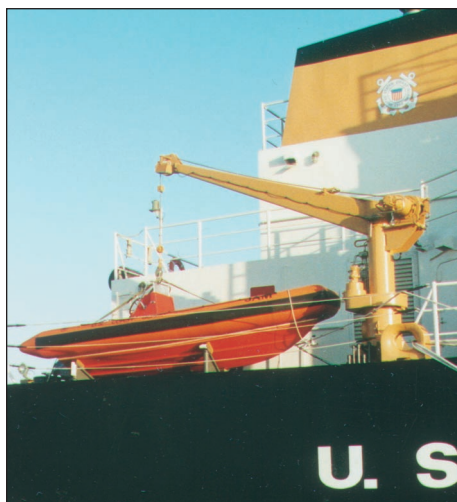
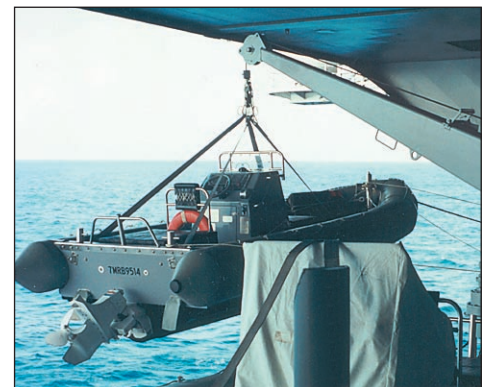
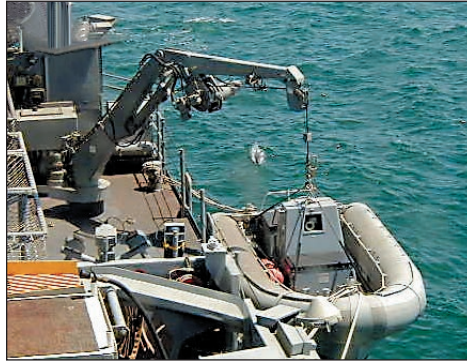
Allied is a recognized leader in the design and manufacture of rescue and workboat-handling davits for installation on vessels, platforms and other specialized areas. Davits are available to handle boats up to 22,000 lbs. and can be supplied with standard or Allied Constant Tension hoists. Allied's slewing arm davits are designed to launch and recover the smaller boat with the vessel underway at up to 12 knots and Sea State 5. Davit systems are designed and tested for severe duty operation and include emergency systems to launch or recover the boat in the event of power loss. Allied Davits are offered as turnkey packages requiring minimal setup and can be provided as either permanent mount or portable systems.

Allied's most popular models have been supplied to several US and foreign governmental agencies, including the US Navy and Coast Guard. Allied models have been evaluated and tested by the US Coast Guard and found to be in compliance with SOLAS guidelines. Davits are also available with ABS certification or other certifying body approval.

## CUSTOM HANDLING SYSTEMS

Allied also excels in the development of specialized handling systems. Allied handling systems have been developed for the deployment and retrieval of AUV, ROV, DOV and other towed bodies. Complete containerized packages are available.

Allied's Constant Tension winch can be included on most handling systems for safer handling of buoyant craft in rough seas. Employed by more than 200 satisfied customers, Allied's CT winch offers superior performance.





# CUSTOM REQUIREMENTS AND SPECIAL DESIGN FEATURES

## MAXIMUM FLEXIBILITY TO MEET SPECIAL REQUIREMENTS

Allied Systems Company designs and manufactures cranes to meet special requirements in unique applications, which cannot be satisfied by standard models.

Examples include:

- Low profile cranes with winches on boom underside
- Cranes with high capacity at horizontal positions for ship applications
- Cranes with self-storing jib booms for additional outreach
- Cranes with adjustable constant tension or motion compensation features
- Cranes with special reeving arrangements
- Cranes to handle severe sideload braking control
- Cranes with advanced load monitoring and collision avoidance systems
- Dual arm and single arm boat davits
- Special oceanographic hydrobooms for towed equipment
- Dual controls or dual powerpacks

Allied Systems Company can design and manufacture whatever is necessary to do your specific job.

## WINCHES

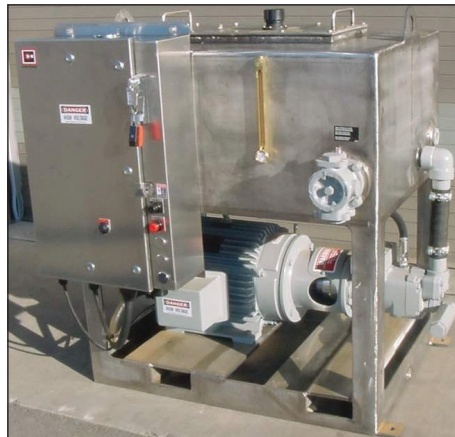
Allied also manufactures a complete line of electric, hydraulic and mechanical winches. Sizes range from 2 to 60 tons and are offered in a variety of configurations. Models are available with personnel ratings, USCG SOLAS approvals and other certifications. Varying drum sizes, rope capacities, line pulls and line speeds are available and can be supplied with vane, piston or gear motors.



## POWER UNITS

A full range of electro-hydraulic or diesel-hydraulic power units is available. These power units meet all lift capacity, hook speed, and other power requirements for Allied cranes.

Power units can be supplied either mounted on the crane's rotating upper works, in the pedestal or remote skid mounted. Diesel hydraulic power unit options range from 46.5 hp to 300 hp with hydraulic and diesel reservoirs. Electric hydraulic power unit options range from 15 to 300 hp, 440 vac, 3-phase 60hz (50hz options available) and include hydraulic reservoir, filters and motor controllers. Allied can handle any size or configuration needed. All power units can be supplied for hazardous rated areas or other severe environments.



## PROTECTIVE COATINGS AND CORROSION RESISTANT MATERIALS

Since Allied cranes are operated in the most severe conditions, we take protection against corrosion very seriously. Fabricated components are sandblasted to near white metal before they receive a prime coat of industrial grade marine primer. Primed components then receive a coat of industrial grade marine epoxy and are finished with a tough enamel topcoat. Stainless steel is often used to produce corrosion resistant tanks, control consoles, hydraulic power unit structures and other exposed assemblies. Stainless steel is also used in all pins and non-critical fasteners and is available in plumbing and fittings as well. Special coating systems and component materials are available upon request.

## HYDRAULICS AND CONTROL SYSTEMS

Hydraulics provided include the finest metering valves available for infinite speed controllability and operation of multiple functions simultaneously. Control valves provide precise, variable speed control of all crane functions, with one hand lever and control valve dedicated to each function: load line winch, boom raise/lower, crane swing, fastline winch and boom extension. Crane-mounted hydraulic or electric controls or remote electric, hydraulic or radio controls are available. Control levers are spring loaded for automatic return to neutral and positive lock of all crane functions when released or during power loss.

Other hydraulic system designs, such as closed loop systems, load sensing systems, variable displacement piston pumps and various control configurations, are available to meet your custom requirements. Optional controls include dual configurations, crane mounted, remote, walk-around and explosion-proof designs.



## SWING BEARING AND SWING DRIVE

To ensure smooth swing and precision operator control under all boom and load conditions, shear-type ball swing bearings with internal pinion gear are used in Allied cranes. Multiple swing drives are available for severe sideload braking control of load under list or trim conditions up to 20 degrees from horizontal. Each swing drive uses a hydraulic motor to power a drive pinion gear through a planetary gear reduction unit. Multi-disc swing brakes are hydraulically released when the swing drive is engaged. They automatically spring set as soon as the swing control lever is returned to neutral. Hydraulic flow to swing motors is adjustable. Hydraulic swivel and electric swivel sliprings are available for continuous rotation.

## CYLINDERS

The fact that Allied designs and manufactures its own hydraulic cylinders, offers several advantages to our customers. Cylinders can be engineered to the customer's strictest specifications—and the availability of cylinders is assured. Most important, quality control inspection and testing of each cylinder takes place at Allied's own facility, ensuring that each cylinder meets the most stringent regulatory agency requirements, including those of the U.S. Coast Guard.

## SERVICE AND PARTS SUPPORT

Allied maintains a service parts inventory valued in excess of \$2 million. Parts assistance is available 24 hours a day, 7 days a week. Allied also has a trained staff of product service personnel who are available for technical service assistance and training worldwide.



Allied Systems Company is a privately held Oregon corporation owned by Lew and Jefferson Rink, and by its employees under an Employee Stock Ownership Plan (ESOP). Current employee ownership exceeds 50 percent.

Allied Systems is located on a thirty seven-acre property in Sherwood, Oregon (south of Portland). The company occupies approximately 250,000 sq. ft. of fabrication and manufacturing space. Allied performs fabrication from steel plate in light gauge to a thickness of six inches. Allied offers complete machine shop capabilities, including gear cutting, shaping and induction hardening.

Through the pride of ownership of Allied's employees and the company's astute management, the operation has continued to grow over the years, providing the marketplace with high quality, highly engineered, specialized material handling equipment. This spirit has resulted in Allied Systems Company's acknowledgement as the safest manufacturing plant in the state of Oregon for the past several years.

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**Allied Systems**  
COMPANY  
**MARINE CRANE DIVISION**

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