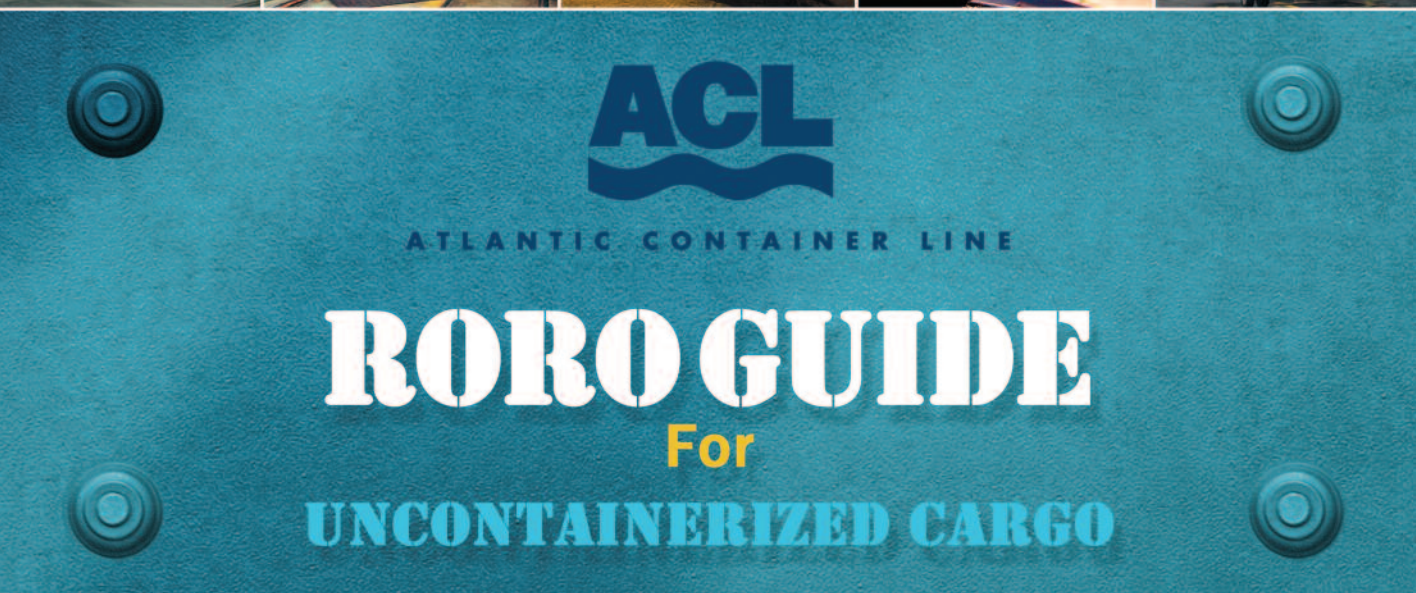




# Welcome to Atlantic Container Line

a Grimaldi Group Company



*Bienvenue*

*Welkom*

*Wilkommen*

*Benvenuto*

*Yo koso*

*Bruchim habaim*

*Willkommen*

*Sànnu dá zuwá*

*Néih hóu*

*Konníchi wa*

*Salam*

*Annyong  
hashimnikka*

Since 1967, ACL has been a specialized carrier in the Trans-Atlantic trade of containers, project and oversized cargo, heavy equipment and vehicles with the world's largest combination RORO/Containerships. Our middle name may be container but no other carrier is better suited to provide unique alternatives to shipping products that cannot be containerized due to size, weight or configuration.

Atlantic Container Line's RORO professionals are at your service to choose the right equipment, stowage and routing for your cargo to ensure fast and safe delivery. Your products are subject to less physical handling and the need for costly dismantling and reassembly can be virtually eliminated.

We hope that this guide can be a helpful tool in understanding the transport of breakbulk and uncontainerized cargo. Let ACL show you how to safely and efficiently accommodate all of your transportation requirements.





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INTRODUCTION

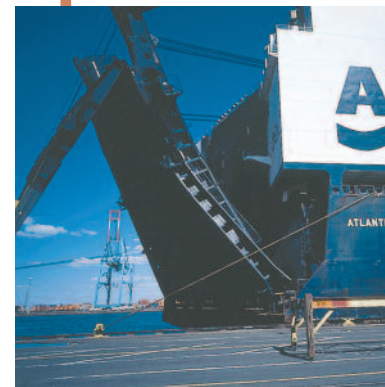
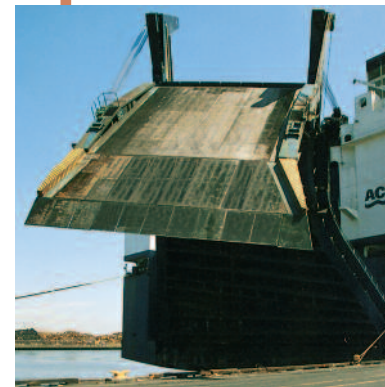
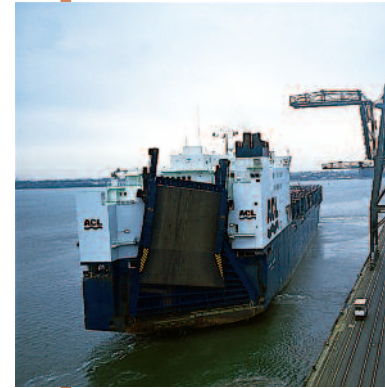
RORO is short for roll-on/roll-off. It is a term used to describe how cargo is loaded and discharged from a vessel.

The concept first originated with ferry boats. The traditional method of handling and transporting cargo was to lift it on and off a vessel by cranes. Ferries allowed automobiles, trucks and trains to be driven or towed directly on and off the ship for delivery to final destination. Because of their size and speed, ferries could only cover short distances and handle cargo of limited size, shape and weight. Yet the idea was an innovative one that evolved into the roll-on/roll-off vessels that are now used worldwide.

Most liner vessels around the world today are cellular, full container vessels. These vessels are perfect for cargo that fits neatly into a standard 20' (6.096 m) or 40' (12.192 m) container. However, most things do not fit into standard packages. When shipping an oversized piece of machinery or equipment by container, the manufacturer is forced to dismantle the product into numerous pieces and then reassemble them at the final destination. This is a costly and time-consuming proposition.

In addition to the costs and time required for dismantling and reassembly, container transport also brings the risk of damage. All containers are lifted numerous times between origin and destination: from truck to rail, from rail to truck, from truck to ground at the ocean terminal, from ground to the vessel, and then the same handling process in reverse at destination's end. Furthermore, when the cargo moves in a standard container or a flatrack, there is also the danger of exposure to the elements if stowed above deck. Anyone who has seen the fury of a transatlantic gale in winter can understand that waves crash on the decks of the largest container-ships hundreds of times during a single crossing, sometimes with a force that can dent the walls of the strongest container.

The RORO operation completely eliminates most of these costs and risks. Cargo can generally avoid all dismantling and reassembly because it can often move as one piece on a specialized trailer from port-to-port and in some cases on flatbed trailers or lowboys from origin to destination. There is less handling because the cargo is not lifted on and off the vessel, but driven on, parked, and then driven off. There is no danger of water damage because the cargo is always secured in the vessel's garage decks for the entire voyage. In general, the RORO mode is the safest and cheapest way to handle oversized cargo. Nothing else comes close.



Atlantic Container Line operates the world's most versatile RORO/Containerships in the North Atlantic trade. With their unique design, ACL's G-3 vessels have the ease and flexibility to handle a variety of cargo types. They carry a combination of 1,850 TEUs of containers, secured in cell guides both below and above the weather deck, up to 1,000 TEU equivalents of various types of vehicles, construction equipment, agricultural equipment, boats, trailers and other breakbulk cargo in its numerous RORO decks, and up to 2,000 automobiles.

ACL's G-3 vessels have an angled two-lane stern quarter ramp which permits the simultaneous loading and discharging of both RORO cargo and containers. Separate internal ramp systems within the vessels segregate automobiles from the other vehicles, trailers and breakbulk cargo. For added flexibility and to facilitate fast cargo handling, several of the garage decks are hoistable, and therefore can be raised or lowered according to market demand at the time of each voyage. Even in the lowered position, the space underneath the garage decks can accommodate a wide range of vehicles and other breakbulk cargo.

Our modern vessel fleet is operated by highly trained crews. Most of the captains and officers have served on these vessels for many years. Average crew size is twenty members. Virtually every crew member, including those responsible for navigation, reefer monitoring, stowage and engine performance, is assisted by the vessel's sophisticated computer system.





The vessels have three fixed RORO decks for long, wide, high and heavy cargo. In addition to the fixed decks, there are hoistable car decks in Decks 1 and 3 which can be lowered so that a combination of RORO and cars can be carried. In the aft superstructure, there are five permanent decks for high sided vehicles (like minivans and sport utility vehicles) and cars. These decks are all served by internal ramps so that the loading of cars can be handled separately from the other RORO cargo.

Deck 1 can either be a combination of all RORO with a height of 4.5 m (14' 9") or with Deck 1A lowered, be two decks for the carriage of cars or a combination of cars and RORO. Deck 2 is a permanent RORO deck with no floating car decks and has a height of 4.5 m (14' 9"). Deck 3 has two hoistable car decks. Deck 3B runs the whole length of Deck 3 and Deck 3A, the first six sections. With Decks 3A and 3B lowered, only cars can be stowed. When raised, static RORO cargo up to a height of 5.8 m (19'), rollable cargo, 6.2 m (20' 4") respectively, can be accommodated. In Decks 1 and 3, there is a possibility of having many combinations with sections raised and lowered, therefore making the vessels very flexible.

The height of the stern door is 6.8 m (22' 4") which extends into the vessel and then tails off to a height of 6.2 m (20' 4") before entering main RORO Deck 3.

The stern ramp is 46.1 m (151' 3") long with a minimum roadway width of 12.5 m (41') and a maximum load capacity of 420 metric tons at a maximum axle load capacity of 81.5 metric tons per square meter.

The main engine is a direct reversible two stroke, single acting, turbo-charged diesel coupled to a fixed pitch propeller. The engine produces 27,450 horsepower, turning the propeller at 97 RPM and consuming 76 metric tons of fuel per day. In addition to the main propeller, the vessels have both bow and stern thrusters for maneuvering.



### Cell Guides

The ACL G-3 vessels were designed with cell guides for all of its containers. Cell guides are a fixed racking system for securing all containers stowed above deck. The advantages of cell guides are the substantial savings in load/discharge time and the significant improvement in cargo security. Cell guides make it virtually impossible to lose a container overboard during a storm.

The vessels have two permanent 20' sections and four portable sections which can be converted to 20' (6.096 m) or 40' (12.192 m) depending on the mix of containers. Cell guides over the hatches have hydraulic folding arms which move inward when the sliding hatch covers are opened. They move back to a fore and aft position so that there are continuous cell guides from the top of the deck to the bottom of the hatch.



When the ACL G-3 vessels were designed, National or International Damage Stability Rules did not exist for cargo vessels. Nevertheless, ACL insisted on a design that would give the vessel a reasonable chance to survive a hull penetration under the most typical load conditions as well as endurance against instant sinking or capsizing.

As a result, bulkheads with watertight doors were installed on the RORO decks. Permanent bulkheads were installed in the container holds as required, to give the vessel a one compartment standard. The vessels also have a double skin feature along all the RORO decks and partly in the LOLO holds.

Several years after the introduction of the ACL G-3, the IMO standards for damage stability on cargo vessels were implemented. ACL's vessels far exceeded those standards.

The effect of possible free water on the freeboard RORO deck is minimized by an arrangement of remotely operated freeing valves located in the ship's side. Drain wells in this deck are connected to a drain tank/bilge pump below with a level alarm. The system gives an immediate early warning in case of water ingress.

Extensive analyses calculations of numerous damage cases have been condensed into a manual enabling the ship's officers to judge the effects of damage and to take suitable counteractions.

Furthermore, the stern door at the ship's entrance is protected by, and not combined with, the stern ramp. The pilot and oil bunker doors do not give direct access to the ship's holds. The ventilation openings are all provided with quick-acting, watertight covers, remotely operated from the bridge. All doors in the hull and the emergency escapes have open/close indicators on the bridge.





### ACL G-3 SPECIFICATIONS

Length Overall	958'	292 m
Breadth Moulded (Panamax)	105' 10"	32.26 m
Depth Moulded	66' 5"	20.24 m
Draft Maximum	38' 2"	11.64 m
Corresponding Dead Weight	51,648 metric tons	
Engine	27,450 BHP	
Speed	18 knots	
Maximum Capacity	3,100 TEUs	
Containers in Cells	1,850 TEUs	
RORO Maximum Capacity	1,000 TEU equivalents	
Automobiles Maximum Capacity	2,000 automobiles	
Stern Ramp Internal Dimensions	151' 3" l x 41' w	46.10 m x 12.50 m
Stern Ramp Axle Load	81.5 metric tons	
Stern Ramp Maximum Load	420 metric tons	
Stern Door	84' 8" w x 22' 4" h	25.80 m x 6.80
Maximum Trailer Deck Height	22' 3"	6.78 m
Normal Trailer Deck Height	14' 9" to 20' 4"	4.50m x 6.20 m



ACL is the leading transatlantic carrier of breakbulk cargo, construction equipment, agricultural equipment, trailers, yachts, boats, automobiles and containers. Since 1967, we have safely carried millions of tons of both containers and uncontainerized cargo between

North America and Europe. Our track record of transporting the most complicated projects quickly and damage-free for almost half a century has earned ACL the reputation of being the premier RORO Specialist on the North Atlantic.

ACL operates its transatlantic RORO service on a weekly, fixed-day basis with a fleet of the world's largest combination RORO/Containerships. In North America, our ships make direct calls at the ports of Halifax, New York, Baltimore and Norfolk, Virginia. In Europe, our direct call ports are Liverpool, Antwerp, Hamburg and Göteborg. On both sides of the Atlantic, ACL's extensive network of barge, feeder and specialized trucking services enables us to pick up and deliver cargo to the most remote locations.

In addition to our weekly RORO service, ACL provides sailings each week between Europe and North America for containerized cargo.

ACL also offers worldwide service capability from North America through our network of regional RORO/breakbulk carriers

Each week, ACL calls directly at eight RORO ports in Europe and North America – the most of any other carrier in the trade. ACL is the only carrier in this trade which offers shippers the flexibility of both cellular container service and RORO service for uncontainerized cargo.







What gives ACL the advantage over other carriers? It begins with our vessels. Each ship is the length of three football fields. However, they were designed not only to carry a large amount of cargo but also have the flexibility to carry a wide variety of cargo types. With its unique intermodal RORO capabilities, ACL's vessels offer 100% underdeck stowage, allowing the ultimate protection for RORO cargo. From massive turbines and heavy machinery to aircraft fuselages and giant cranes, ACL has the ship to carry it all.

Hardware is of little use however, without the experience to complement it. Since 1967, ACL's expertise in the field of complex cargo transportation has been unsurpassed. We continue to give shippers the most innovative service at competitive prices, along with an unequaled range of expertise, handling techniques and resources. ACL provides fast price quotations on all oversized cargo and the containerized component parts that are transported along with these projects. For intermodal transport to and from inland points, shippers are given their choice of carrier options, ensuring that the optimum, most cost-effective solution is found.

For intermodal door-to-door transport, ACL has a wide range of equipment available to handle every shipment: flatbed trailers, racks, stretch trailers and special project trailers capable of handling up to 350 metric tons. ACL is the only carrier in the world that owns and operates a fleet of flatbed trailers as standard equipment.

Atlantic Container Line is among the first transportation companies to make structured Quality Improvement, with a focus on the customer, the cornerstone of its business. In North America, ACL's Quality Process has been working effectively for almost a decade and in Europe, every ACL office is ISO 9001:2008 Certified.

## Worldwide Market Coverage

Each week, an ACL RORO vessel sails in both directions

across the Atlantic, carrying cargo between Europe and North America and physically calling at eight ports on each voyage. ACL's geographic scope of operation extends far beyond those ports, however, thanks to a network of truck, barge and feeder carriers.

No matter where your shipment is destined, ACL can handle your most challenging cargo requirements. Vehicles, heavy equipment and over-sized project shipments are managed by ACL every step of the way, from origin to destination. Each aspect of your shipment is carefully planned by ACL's project staff. Every drawing and calculation is reviewed with the selected inland options and relayed with the carrier's operations department to ensure the safest possible loading, transport and delivery of your cargo.

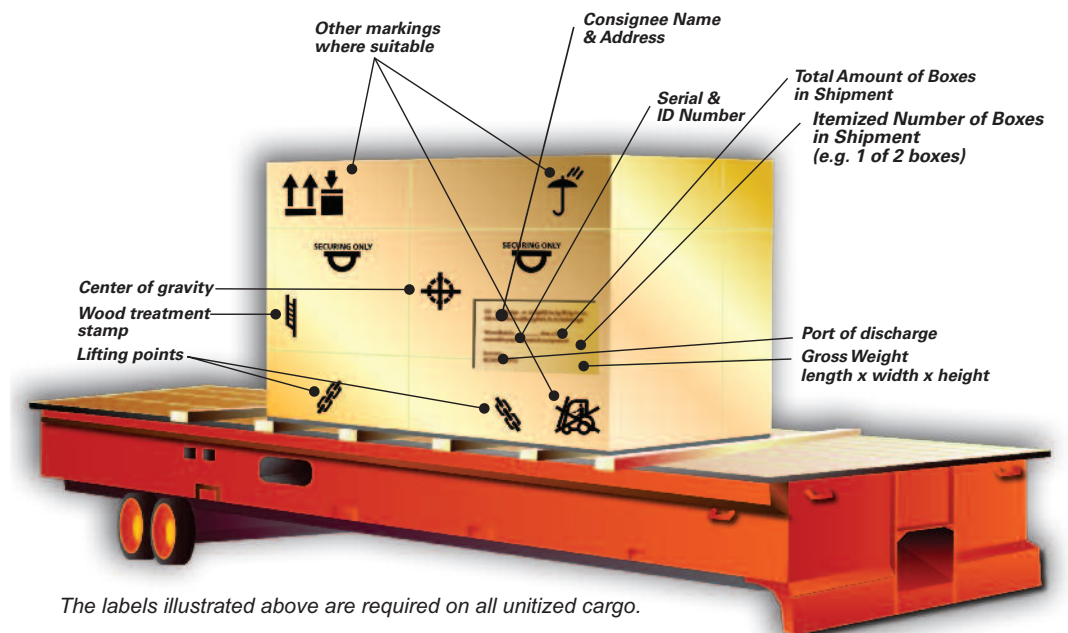
ACL has expanded its service scope for cargo originating in North America with a direct RORO/Container service under its Parent Company, Grimaldi Lines, between North America and West Africa. The company also offers through service for non-containerizable cargo to the Mediterranean, Middle East, South Africa, Australia and the Far East and just about any other place in the world.





## SAFE CARGO HANDLING

**SAFETY IS ALWAYS ACL'S FIRST PRIORITY WHEN TRANSPORTING PACKED STATIC AND ROLLABLE CARGO SECURELY.**



All cargo must be properly prepared for transport. Packed cargo must be safely secured within its packaging to prevent damage from any reasonably foreseen circumstances during the whole of its transit – from origin to destination. The cargo must be securely restrained. Under no circumstance, should cargo become loose or unsecured in transit. As a general rule, all static cargo should be safely bolted to the bottom support beams of its packaging. This packaging should have sufficient strength and dimensions to provide full protection of the cargo and to withstand all the forces that it might have to encounter in transit to and from ports, while being handled at ports and during the ocean passage.

### **SHIPPERS MUST PROVIDE THE FOLLOWING INFORMATION WHEN TRANSPORTING PACKED STATIC CARGO:**

- A drawing, photo or written statement must be provided, explaining how the case/package has been arranged and secured inside.
- Explanations must be attached and easily accessible on the unit.
- Alternatively, the case/package should have inspection openings to verify the securing of the contents visually.
- Units weighing 10 metric tons or more must have securing points directly connected to the unit itself and accessible for securing the unit to the vessel. The securing points must be clearly marked.



**A QUICK REFERENCE CHECK LIST:**

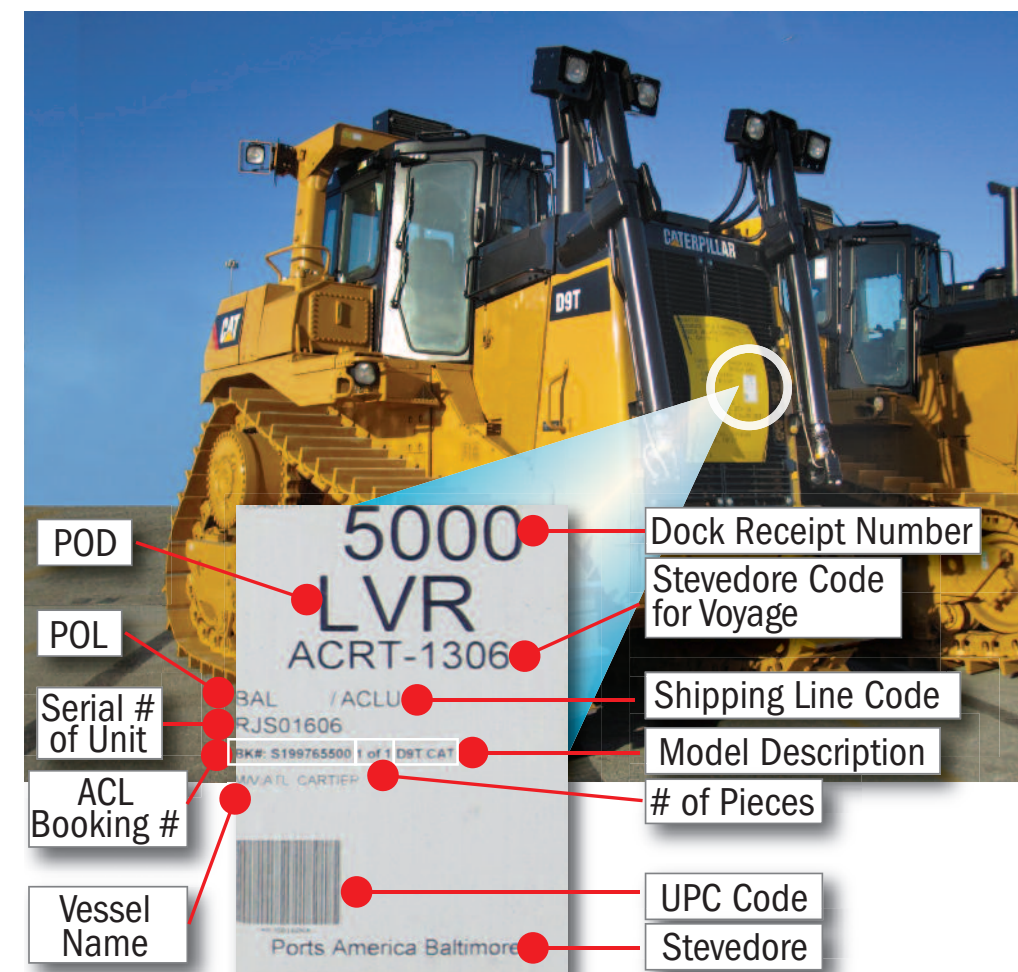
- Plan your shipment to arrive at the departure port as early as possible. Have the packed cargo delivered well in advance of the loading date in order for ACL to ensure that the shipment has been properly secured and packaged.
- Package, label and prepare your cargo according to correct packing guidelines. Clearly mark/label with the name of the consignee, an identification/serial number and the port of discharge. If it is a shipment with multiple packages, each piece must have total amount of boxes in the consignment and be marked to reflect the total shipment: 1 of 3 boxes, 2 of 3 boxes, 3 of 3 boxes, etc.
- Crated cargo must be clearly marked with dimensions, weight and the position of the center of gravity so that when the package is handled, it can be safely lifted.
- Cargo over 10 metric tons in weight must have access for lashing directly from the cargo to the deck of the vessel, on all four sides. The securing points must be clearly marked.
- Packed static cargo must be secured inside its packaging. Under no circumstances, can it have any internal movement. The packing must have the ability to withstand all forces that it may be exposed to during its complete transit from shipper to consignee. This includes transport by road, rail, barge or any other means as well as the handling at the port and during the ocean passage, in ports and by lashing.
- The vessel's master will have complete authority to load or reject the cargo.

**KEY FACTORS OF SAFE STATIC CARGO HANDLING:**

- Securing points are clearly visible and properly marked for "lashing only". Attach securing points directly to the unit inside the box/crate. This may be completed in the following ways in order that:
- Whatever type of securing method is used, it has the strength to safely secure the cargo on board the vessel.
- Securing point(s) is (are) easily accessible and of sufficient size to fit the hooks on the lashing chains.
- Cargo must be clearly marked if securing points are not also designated for lifting.

**SPECIAL NOTE REGARDING ROLL TRAILERS**

Roll trailers are used for a variety of cargo types. Packed static cargoes are usually unitized on roll trailers for ease of loading and discharging from the vessel. ACL may also handle the package with forklift(s) if the cargo's size, weight, shape or requirements permit. If a forklift is used, a position should be indicated on the package as to where to place the forks. Please note that the height of the cargo (and therefore its center of gravity) increases with the additional height of the roll trailer – which is approximately one meter.

**SHIPPERS MUST PROVIDE THE FOLLOWING INFORMATION WHEN TRANSPORTING ROLLABLE CARGO:**

- A clear copy of dock receipt which shows the shipment number, vessel, POL/POD, commodity type, weight, dimensions, marks and numbers.
- Instructions for starting and operation of vehicle safely.
- If vehicle is used or not manufactured new, one of the following will be required: original title, copy of the bill of sale or certificate of origin.



## KEY FACTORS OF SAFE ROLLABLE CARGO HANDLING

- Vehicles are normally lashed to the deck floor with chains and levers with the exception of tractors. A thick nylon strap is attached to the tractor and connected to the floor.
- Vehicles over 35 MT have double lashings applied.
- Lashings must meet approval of chief officer, port captain and lashing foreman. They are checked twice a day by the ship's crew.



## A QUICK REFERENCE CHECK LIST FOR ROLLABLE CARGO:

- Plan your shipment to arrive at the departure port as early as possible. Have the cargo delivered well in advance of the loading date in order for ACL to ensure that the shipment has been received.
- Clearly mark/label with the name of the consignee, an identification/serial number and the port of discharge.
- The vessel's master will have complete authority to load or reject the cargo.

## WHEELED & TRACKED VEHICLES

Vehicles are towed or driven onto the ACL RORO decks on their own wheels or tracks. This cargo is often delivered to the port of loading by the shipper and picked up at the port of discharge by the consignee.

The deciding factors in accommodating vehicles and other rollable cargo are the height of the stern door and the width of the access to Deck 3. The clear height of the stern door is 6.8 m (22' 4") and the maximum width of ramp is 12.5 m (41'). In the entrance from stern door to Deck 3, the maximum width is 9.0 m (29' 5").

Due to the complexity of some of the rollable vehicles that we carry, it is prudent to have an expert, either from the company itself or its agent, to provide instructions on how to operate the vehicle. This ensures that no delays occur and that the vehicle is handled according to the customer's specifications.

Vehicles are normally lashed to the deck floor with chains and levers. The exception to this is tractors. In order to safeguard the hydraulic pipes, etc., we attach a thick nylon strap to the tractor and then connect it to the floor with chains and levers. Vehicles over 35 metric tons have double lashings. The RORO decks are designed with a wide variety of lashing fittings that are flush welded to the decks. The multiple lashing points are strategically located to allow the optimum number of lashings and chain angles required to accommodate all types of vehicles and equipment.

All RORO cargo lashings must meet the approval of the port captain and lashing foreman. The final approval must be obtained from the chief officer and vessel captain before the vessel is permitted to sail. At sea, the lashings are normally checked twice a day by the ship's crew in order to make sure that none of the lashings have worked loose. Of course, these checks happen more frequently if there is bad weather.





### CONSTRUCTION EQUIPMENT

Bulldozers, mobile cranes, excavators, wheel loaders, motorgraders, pipe laying equipment

### AGRICULTURAL EQUIPMENT

Farm tractors, turf equipment, combines, hay balers

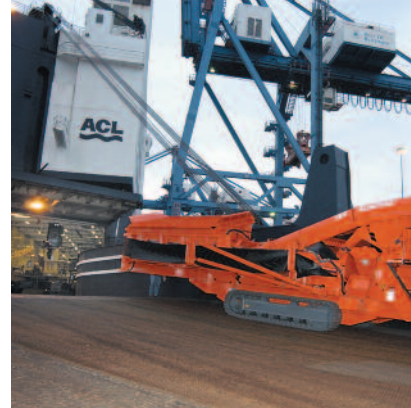
### UTILITY EQUIPMENT

Forklifts, lift platforms, portable generators, air compressors

### BOATS ON TRAILERS

### OTHER VEHICLES

Trucks, buses, mobile homes, house trailers, tanks and other military equipment



### CARGO IS CLASSIFIED AS SPECIAL PROJECT IF IT FITS INTO ONE OF THE FOLLOWING CATEGORIES:

#### ACL LEASED OR SHIPPER OWNED/LEASED TRAILERS

Certain cargoes that are out of gauge, yet not excessive in weight and are not compatible with ACL's own flatbed fleet, can move on road trailers. These trailers can be owned or leased by the shipper or leased by ACL. A prime benefit of this method of shipment is that the cargo remains intact from origin to destination, avoiding multiple handling. The most common types of trailers are drop decks, low boys and stretch trailers.



#### ROLLABLE CARGO (EXCEEDING 60 METRIC TONS)

Large, wheeled truck cranes, tracked excavators and cranes, and dump trucks partially comprise this category. Such large vehicles can be difficult to handle and therefore advance notice of shipment is essential. Careful planning is necessary for proper stowage space allocation especially in cases where cargo height is critical.





CARGO ON SHIPPER PROVIDED TRANSPORTER:

- Hydraulic Crawler Trailer
- Remote Control Walkers



When it comes to maneuverability and efficient handling, there is a choice.

Shipper Provided Transporters (SPTs) often carry the world's heaviest loads on wheeled vehicles. They are very slow, often moving at under one mile per hour while fully loaded. Some SPTs are controlled by a worker with a hand-held control panel while other SPTs have a driver cabin. In addition, multiple SPTs can be combined to transport massive heavy and oversized objects.

ACL's full view of transportation and our focus on continuous improvements can optimize and adjust transport methods to meet and exceed all of your prerequisites. What this means for you is absolute visibility and control. Your cargo arrives at its destination safely, securely, at the right time and in the right condition.

CHECKLIST FOR ROLLABLE CARGO

- Supply VIN, model & type
- Type of commodity
- Measurements of cargo
- Weight of cargo
- Self-propelled, wheeled or tracked
- Port of loading/Port of discharge
- Will ACL handle the inland transportation?
- Is a tow bar required?
- Location of lashing points
- Instructions for starting/operating vehicle/equipment

If Wheeled:

- Number of wheels per axle
- Number of axles
- Distance between axles
- Distance between front and rear axles

If Tracked:

- Ground contact area of tracks (i.e. length and width actually on ground)
- Internal distance between tracks





TRAILERS

Atlantic Container Line is the only ocean carrier in the world that owns and operates the 42' and the 48-80' extendible flatbed trailers as a standard part of its equipment fleet. These unique trailers can be used for loads of up to 20 metric tons, moving on a door-to-door, pick-up and delivery basis.

FLATBED TRAILER		EXTENDIBLE TRAILER	
LENGTH 42' (12.800 m)	WIDTH 8' (2.438 m)	LENGTH 48' - 80' * (14.630 m - 24.384 m)	WIDTH 8' (2.438 m)
TARE 11,000 lbs. (4,990 kg.)	CARGO 44,000 lbs. (19,958 kg.)	TARE 16,160 lbs. (7,330 kg.)	CARGO 44,000 lbs. (19,958 kg.)

\*For specific weight payloads, contact your local ACL representative.

The 42' flatbed trailer has a full 1.40 m (55") bed height and accommodates cargo with a height of 2.7 m (8' 10"), allowing shippers to transport cargo with higher top clearances without the need for special permits. The 48-80' extendible flatbed trailer has a 1.51 m (59.6") bed height and accommodates a cargo height of 2.61 m (8'7").



All ACL flatbeds are equipped with converter boxes that run on dual voltage; 12 volts in North America, 24 volts in Europe with no modifications necessary by the tractor driver.

A unique advantage of these flatbed trailers is the ability to keep all house/house moves on the trailers from origin to destination. Smaller crates and/or parts that must be delivered along with the larger units in a conventional fashion to the ACL ocean terminal are perfectly suited for loading on flatbeds. All pieces remain on the flatbed from origin to final destination and the risk of damage is lessened due to the elimination of handling at the discharge port.



The flatbed trailer is driven onto and safely parked and secured inside the vessel on ACL's RORO decks, guaranteeing product protection from the elements during the ocean crossing. This adds up to a cost-saving, efficient alternative to traditional container packing or flatrack methods.



### THREE TYPES OF CARGO ARE UTILIZED FOR THE FLATBED TRAILER:

#### UNCONTAINERIZED CARGO

**PORTABILITY** – With the proper permits, the ACL flatbed trailer can be used to move oversized, uncontainerized cargo from your factory or shipping location directly to the final destination. The flatbed is driven onto the ship, parked and secured for the ocean voyage, and then driven off the ship directly to your customer. Your product remains untouched until it is delivered, reducing the risk of damage and eliminating costly dismantling.



#### CONTAINERIZED CARGO LOADED OUT OF PROFILE

**SPACE UTILIZATION** – Now there is a reliable option if you are running out of container space. If the overall width of your cargo is 2.6 m (8'6") or less, the flatbed can be loaded directly at your facility and transported to the port terminal. If your cargo exceeds 2.6 m (8'6") wide or 4.1 m (13' 6") high, ACL can make arrangements with the transload facilities available at the port terminal. Your cargo can be transported to the port in larger, domestic equipment and transloaded onto ACL flatbeds for safe passage on the RORO decks.



#### CONTAINERIZED CARGO LOADED IN PROFILE

**FLEXIBILITY** – The 42' flatbed trailer is equipped with eight sets of chains and binders and the 48-80' extendible flatbed has twelve fixed winches and nylon straps. It slides in 5' increments without disconnecting air and electrical lines. Our flatbeds give you the same loading flexibility that you have with your domestic traffic. They can easily accommodate hard-to-handle cargo with minimal packaging and labor cost.



These roll trailers/mafis are mounted on wheels with solid tires (not pneumatic). They are designed for cargoes that move pier-to-pier. For exceptionally large and/or heavy loads, we have an extensive fleet of special trailers for pier-to-pier cargo with capacities from 20 metric tons to 220 metric tons and from 6-19 m (20' to 62') in length. These trailers (referred to as roll trailers or mafi trailers) are used for all types of machinery such as pressing rolls, rotors, boilers, generators, transformers, injection molding machines, locomotives and railcars.

#### ROLL TRAILERS/MAFIS

MAX.	LENGTH/WIDTH (FEET)		LENGTH/WIDTH (METRIC)	
20 tons	20'	x 8'	6.096 M	x 2.438 M
30 tons	40'	x 8'	12.192 M	x 2.438 M
40 tons	30'	x 8'	9.144 M	x 2.438 M
40 tons	40'	x 8'	12.192 M	x 2.438 M
40 tons	60'	x 8'	18.288 M	x 2.438 M
45 tons	40'	x 8'	12.192 M	x 2.438 M
60 tons	40'	x 8'	12.192 M	x 2.438 M
60 tons	63'4"	x 8'	19.304 M	x 2.438 M
65 tons	30'	x 8'	9.144 M	x 2.438 M
65 tons	40'	x 8'	12.192 M	x 2.438 M
80 tons	40'	x 8'	12.192 M	x 2.438 M
100 tons	40'	x 10'	12.192 M	x 3.048 M
100 tons	60'	x 9'	18.500 M	x 2.800 M
120 tons	40'	x 8'6"	12.304 M	x 2.600 M
170 tons	26'	x 9'10"	8.000 M	x 3.000 M
220 tons	42'6"	x 11'6"	12.954 M	x 3.505 M





## ROLL TRAILERS/MAFIS

Units with capacities of up to 220 metric tons are available for pier-to-pier movements. Operational advantages include low height, timber or steel surfaced cargo platforms, multi-wheel bogies for extreme maneuverability, separate lashing points for cargo and trailer, and high degree of stability even when carrying oversized units.

### A QUICK REFERENCE SAFETY CHECK LIST FOR LOADING ROLL TRAILERS/MAFIS:

- Refer to ACL's Specification Chart in this guide for the correct weight and length requirements and to determine which roll trailer/mafi is suitable to fit your cargo.
- Always check position of the cargo in compliance with ACL's Safe Loading Guidelines.
- Consider minimum length as well as the width of the cargo load. Will the load need to be spread out to the load bearing beams?
- Review these important questions for cargo compliance:
  - Load too concentrated? If so, will it bend the trailer?
  - Are the wheels and axles overloaded?
  - Too much load on the gooseneck preventing it from being lifted?
  - Too little load on the gooseneck?
 

There must be a load on the gooseneck to prevent the roll trailer from tipping backwards. This is generally caused by too much load past the wheel cluster.

For more information or other technical questions concerning the correct stowage of cargo on ACL Roll Trailers/Mafis, please contact your local ACL representative.



These devices can be used to accommodate loads of up to 275 metric tons and move on a pier-to-pier basis only.

### ONE BRIDGE CONSISTS OF:

- Two parallel steel load bearing beams
- Two steel pedestals with a footprint of 2 m x 1 m (6' 7" x 3' 4")
- Two timber beams, bolted together

The load bearing beams are bolted to the top of the pedestals, front and end, parallel to the width of the pedestal. The distance between the beams is adjustable. Clearance between the ground (terminal/deck) and bottom side of the load bearing beams required to drive the trailer under the bridge is approximately 1.5 m (4' 10").

Each cargo bridge has 36 D-Rings (lashing eyes) welded to top and sides of the load bearing beams. The horizontal clearance between the pedestals is 4 m (13' 1"), allowing handling and movement by hydraulic trailers between the terminal and vessel's cargo deck.





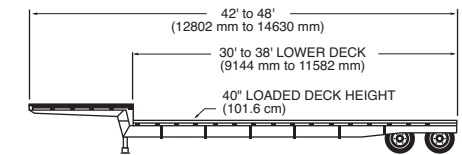
## A TYPICAL OPERATION USING ACL'S CARGO BRIDGE FOR LONGER, HEAVY, SELF-SUSTAINING PIECES:

- Position two cargo bridges at appropriate distance on terminal.
- Lift cargo from delivering craft or vehicle onto bridge by means of floating or mobile crane(s).
- Secure cargo to bridges.
- Drive hydraulic trailer underneath bridges.
- Raise trailer deck hydraulically, lifting bridges and cargo from the ground.
- Drive bridges and cargo up the stern ramp to predetermined position on RORO deck aboard the vessel.
- Lower bridges with load onto vessel's deck.
- Remove hydraulic trailer.
- Secure bridges and cargo to vessel's deck for the ocean voyage.
- Position hydraulic trailer underneath cargo bridges on vessel.
- Discharge from vessel.
- Lift off to barge.

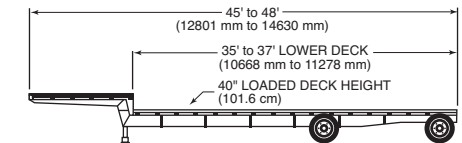


## Intermodal RORO Equipment

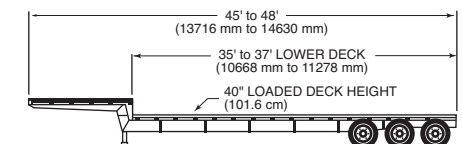
### SINGLE DROP DECK



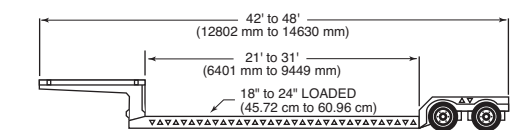
### SPREAD-AXLE SINGLE DROP



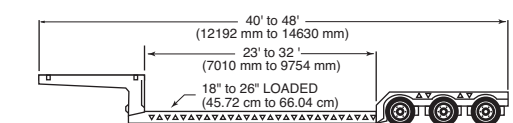
### TRI-AXLE SINGLE DROP



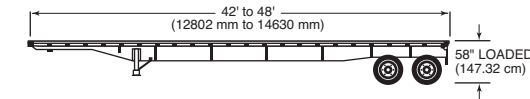
### DOUBLE DROP LOWBOY



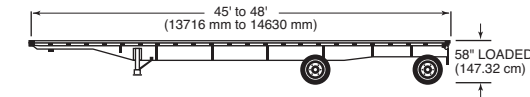
### TRI-AXLE DOUBLE DROP LOWBOY



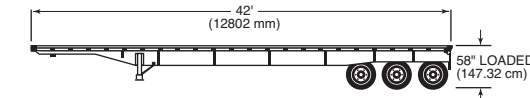
### FLATBED



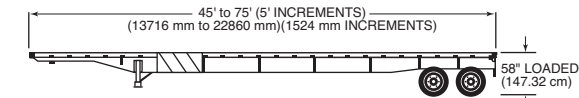
### SPREAD-AXLE FLATBED



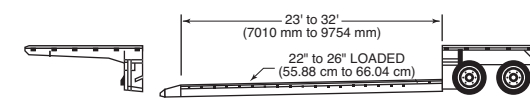
### TRI-AXLE FLATBED



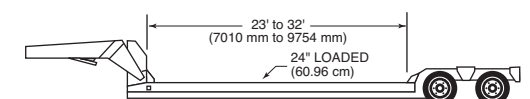
### STRETCH FLATBED



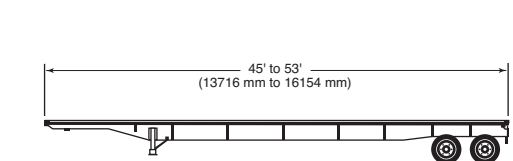
### DETACHABLE GOOSENECK LOWBOY (LOADABLE FRONT & REAR DECKS)



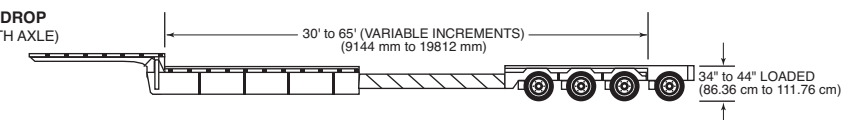
### DETACHABLE GOOSENECK LOWBOY W/OPEN BOLSTERS (OPTIONAL 3RD & 4TH AXLE AVAILABLE)



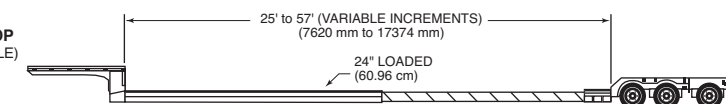
### STRETCH FLATBED



### STRETCH SINGLE DROP (OPTIONAL 3RD & 4TH AXLE)



### STRETCH DOUBLE DROP (OPTIONAL 3RD & 4TH AXLE)



### STRETCH TANK BED LOWBOY

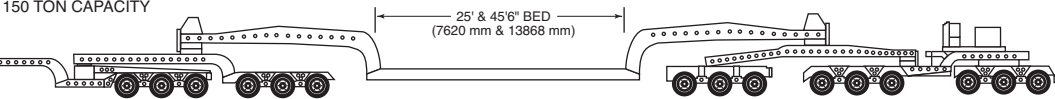


## BEAM & PEDESTAL OPERATION



# Intermodal RORO Equipment

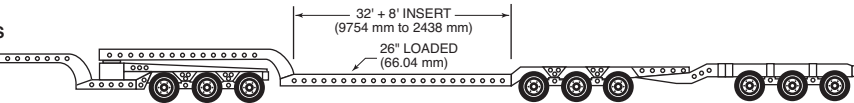
19 AXLE LOWBOY COMBINATION (4 AXLE TRACTOR WITH 15 AXLE TRAILER)  
150 TON CAPACITY



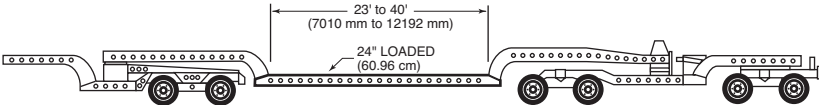
BOLSTER AND STEERABLE DOLLY ASSEMBLY 75 TON CAPACITY



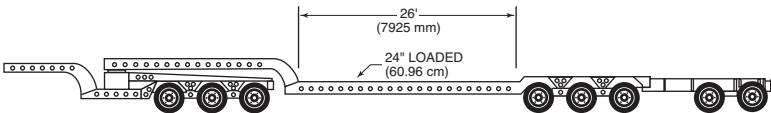
MULTI-AXLE LOWBOYS  
80-85 TON CAPACITY



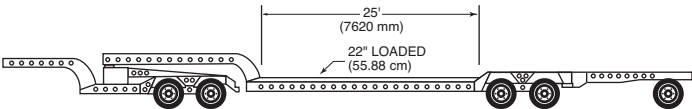
65-80 TON CAPACITY



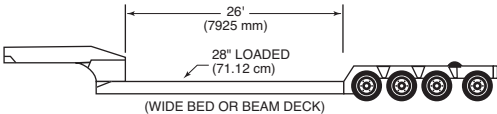
80 TON CAPACITY



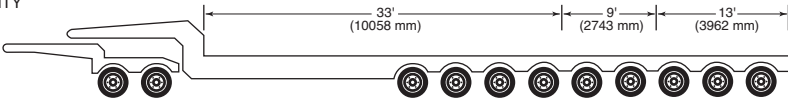
50 TON CAPACITY



100 TON CAPACITY (PIN-ON 4TH AXLE)



MULTI-AXLE LEVEL DECK LOWBOY  
150 TON CAPACITY





## SPECIAL PROJECT CARGO

ACL has all the prerequisites to handle the requirements of special project cargo. These are the largest combination RORO/Containerships in the world, the latest in specialized equipment, and highly qualified technical personnel located both in the United States and Europe. With almost fifty years of experience in handling special project cargo, ACL knows the best way to transport it, utilizing the right equipment, at the most cost effective price.

### A SPECIAL PROJECT IS ANYTHING THAT FALLS INTO ONE OF THE FOLLOWING CATEGORIES:

- Heavy lifts weighing in excess of 65 metric tons
- Mafi trailer cargo exceeding 12.2 m (40') in length, 3.1 m (10') in width and/or 3.1 m (10') in height
- Uncontainerized cargo requiring special equipment such as short mafi trailers or mafi lengthening
- Leased trailers and certain cargo shipped on shipper owned/leased trailers
- Helicopters
- Self-propelled/towable cargo weighing in excess of 60 metric tons
- Oversized, time-sensitive cargo
- Containers and breakbulk uncontainerized cargo moving together over a period of time



Throughout the years, ACL's special project department has worked with many different types of shippers, carrying a wide variety of complicated shipments. Each of those shipments were unique, requiring special handling equipment and multiple origins or destinations. The following scenarios illustrate some of the special projects handled by ACL.

- An entire 42' (12.802 m) long diner was hydraulically jacked intact onto a step-deck trailer and trucked from Iowa to New Jersey. The diner was lifted in tandem by two cranes and secured onto a 40 ton roll trailer and delivered to its new home in Paris. ACL arranged the through-road transport and secured all the necessary permits en route.
- Secured on a 60' (18.288 m) long, 60 ton, roll trailer, the 70' (21.336 m) long, 43 ton, *Orient Express* train car was lashed and stowed in one of the vessel's three fixed RORO decks. The train sailed from England to New York and back again. ACL arranged for the permits, trucking and event coordination into New York's busy financial district to coincide with the festivities.
- ACL obtained special clearances for helicopters and Harrier jet aircraft to permit the aircraft to land and take off at both North American and European terminal facilities.



- A fleet of LeMans Racecar Transporters, with stowed racecars, sailed from North America to England and were driven to France for the 24-Hour de LeMans. The 8 units each weighing 55,000 (24.95 ton) lbs., were driven directly into ACL's 420 ton capacity stern ramp, lashed and secured for their transatlantic voyage. The vehicles raced, were reloaded, and returned expeditiously to North America to their next challenge at the Sears Point Raceway in California.
- To move a 258 metric ton aluminum press from Bremerhaven, Germany to Norfolk, Virginia, ACL needed to use a special 12-axle heavy lift trailer to drive the unit on and off the ship. This freight was transferred onto ACL's special cargo bridges for the ocean transport.
- A 28.38 m (93') long, 95 metric ton rail track-cleaning machine moved from Bremerhaven to New York. ACL spanned this load over two, 65 metric ton mafis.



ACL has also moved such diverse cargo as modular homes, stainless steel diners, jetway passenger bridges, vintage WWII military pieces, yachts, power plant equipment, roller coaster tracks, hi-tech aviation equipment and wind-powered turbine components.

Since each project usually requires its own unique solution to move it from origin to destination, the experience and expertise of the carrier is essential to minimize problems along the way. There are very few things which ACL has not handled over the years. In most cases, we can give you several handling and routing options to choose from for your special project cargo.



# CARGO:

Aluminum Press

# OVERALL DIMENSIONS:

13.3 m (43") length x 2.5 m (8' 2") width x 2.7 m (8' 10") height

# WEIGHT:

258 metric tons

# TRANSPORT:

Germany to Virginia

# EQUIPMENT:

A special 12-axle heavy lift trailer to drive the unit on and off the ship. Transfer onto ACL's special cargo bridges for ocean transport.



Precarriage of cargo on a specialized railcar.



Skid on cargo bridges. The bridges are spaced 4.3 m (14' 1") for proper support of cargo skid and transfer of weight onto two transversals and longitudinals aboard the ship.



12-axle, 96 wheeled, hydraulic trailer negotiates the cargo bridges.



Transfer from rail to skid/cargo bridge combination by 4 mobile cranes.



Trailer on the RORO ramp (weight approximately 360 metric tons). One 35 metric ton capacity FLT pulling, one heavy ballasted, 4-axle truck pushing & steering.



Ramp prepared for excess loading cases: draft aft 9.4 m (30' 10"), wharf height 2.2 m (7' 3"), ramp completely stretched, wires under full tension. Sufficient pedestal clearance was maintained at all times.



Cargo bridges stowed, awaiting lashing and securing.



Cargo lashed down for its voyage. Lashing details: Roll to deck: 8 heavy duty lashings; skid to deck: 8 chains/binders; skid to cargo bridges: 8 heavy duty lashings, 28 chains/binders; cargo bridges to deck: 48 chains/binders.

# HELICOPTERS

Special care is paramount in the handling of helicopters. ACL offers shippers two transport options to set up a helicopter for shipping: the custom-designed heli-mafi or towable loading. In both cases, the helicopter may only be handled in the presence of the aircraft's crew member or qualified technician. The following illustrates the ease and flexibility of ACL's heli-mafi. It allows shippers the least amount of handling and maximum protection of their precious cargo.



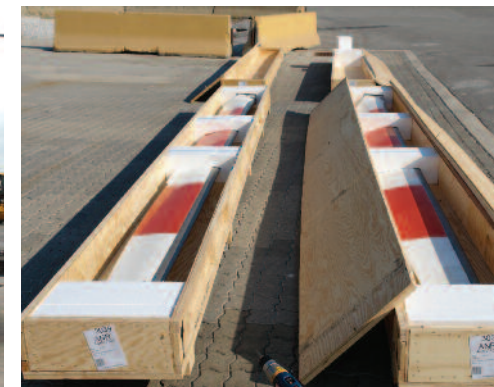
Aircraft flies directly into the port and lands directly onto ACL's custom designed heli-mafi.



Working with the helicopter's crew member, ACL's specialist carefully guides the craft onto the heli-mafi for a secure landing.



Once the helicopter has landed, it is inspected by crew member/technician and lashed down by ACL's transportation specialists for its ocean voyage.



The blades are removed and carefully placed into ACL's shipping boxes that have been designed to fit the aircraft's blade specifications.



ACL's specialists carefully inspect the craft and blades on the heli-mafi and ready it for loading onto ACL's RORO/Containership.



The helicopter is safe, secured and loaded onto ACL's 420 metric ton ramp, then carefully placed in our garage deck for the ocean voyage.



We take special care in the roll-on and roll-off of the craft with the use of custom-designed tow bars with small set of wheels that are shipper provided.



As transportation specialists of special project cargo, ACL has everything it takes to move your hard-to-handle cargo – the largest combination RORO/Containerships in the world, a modern equipment fleet and highly trained technical personnel both in North America and Europe. No other carrier is better suited to transport those products which cannot be containerized due to size or weight. Helicopters as well as other special project cargo are subject to less physical handling and the need for costly dismantling and reassembly can be virtually eliminated.



**ACL suggests that shippers use the following transport guidelines for steel pipes, palletized lumber, logs and wood pulp which can be effectively transported as unitized breakbulk.**

Atlantic Container Line transports uncontainerized lumber of both construction and furniture grades. It is transported in two ways: 40' (12.192) mafi trailers or block stowed directly on the floor of the RORO decks. It is important to remember that bundled lumber traveling by sea experiences a variety of motion stimuli (many simultaneously) that are not present in land transport. You must apply the same general principles for packing lumber shipments as those that apply to breakbulk or to stowing containerized cargo for marine transport.

- Sort bundles of lumber according to sawn dimensions and lengths. Package using the same standard rules of thumb used for truck transport, i.e. bundled .76 m (2'6") high for three tier shipments and limited to a maximum of 1.1 m (3'9") high when loading two tiers. Stepped bundles are to be restricted to two lengths and all bundles should be flush or butted on at least one end. We discourage the surrendering of "half" bundles or bundles of mixed board sizings because of potential piece count discrepancies and handling difficulties that can arise during the loading and transfer on board the vessel and in the final delivery process.
- Stickers (a piece of wood used to separate layers within a bundle) should be used to add strength and stiffen bundles. Stickers are most effective when placed evenly and aligned vertically. When two rows of stickers are used, they should be placed at opposite ends of the bundle, approximately one foot from the ends.



- In packaging boards of 3.1 m (10') or less, two straps must be used for securing. We recommend that with bundles of 3.4 m (11') or longer, a minimum of three straps be in place. Use magnus type grade steel, not plastic strapping, with a minimum recommended sizing of .75 mm x .023 mm (.03" x .009"). Good tooling in the strapping process is essential. In order to avoid loosening or slanting, after subsequent numerous liftings, straps must be tightened while the bundle is under severe tension. Bundle breaking is a far too common occurrence with this product. Whenever possible, strapping should be placed over the stickers during securing. Corner protectors are suggested for higher grade lumber to reduce any possible board damage. The wrapping of lumber with plastic to protect it from the elements can cause bundles to become slippery when wet or covered with ice and snow. If employing this option, please secure boarding or other friction-generating materials to the outside of the wrap for safety in handling and stacking.
- For all overseas markets, export lumber should be grade stamped to purchase order/contract requirements. This allows ACL to quickly identify bill-of-lading content at the terminal and also ensures your product will arrive at its correct destination.
- Bundles and preferably boards should always show lot number and wherever possible, mill logo. This practice, along with painting the ends of a finished package, helps to identify the exporter should the lots be broken or separated in transit or in storage.
- Please note that all packaging wood such as dunnage, bolsters, bearers, blocks, stickers, skids etc., which is an integral part of a bundle of lumber, must fully conform to Plant Health requirements of the exporting and importing countries, without exception.
- In keeping with current market practices, Atlantic Container Line currently freights RORO lumber "per standard" or "per thousand board feet" basis. Construction grade lumber originating in Halifax is rated "per standard" while furniture grade lumber originating in the United States is rated "per thousand board feet." When evaluating construction grade lumber for shipment, the following conversion chart will assist you. Generally, the average is:



1,000 board feet	=	2.3604 cubic meters
423.6588 board feet	=	1.0000 cubic meters
35.3147 cubic feet	=	1.0000 cubic meters
1 standard	=	4.6723 cubic meters
1,980 board feet	=	1 standard
1 standard kiln dried	=	1,780 kilos
1 standard heat treated	=	2,550 kilos

Weight per standard varies.  
It is widely dependent on the moisture content of the wood.

Steel comes in various forms: slabs, bars, billets, coils, plates and sheet. Some are flat and some are coils. Atlantic Container Line can handle these steel products in two ways:

- Load to mafi trailers, transfer and secure to the RORO decks
- Block stow direct to the floor of the RORO decks

Steel products are generally categorized as containerized cargo. For practical purposes, however, it is the density of the steel that dictates whether or not these products can be efficiently containerized.

As a rule, the RORO system becomes increasingly efficient as the density of the product increases. Thus, there may be many types of coils that can be efficiently containerized but many slabs, plates and large coils will be much more efficiently handled in the RORO mode.





### COILS OF THIN PLATE STEEL

Either on the roll or top hat (standing up on end), both types are received and shipped on individual pallets and are of varying weights (4-10 metric tons). Both are received by road and transferred by the appropriate forklift trucks. They are loaded to 40' (12.192 m) mafi trailers and secured by chains and levers. Most coils are lashed securely to their own pallets at point of manufacture. Coils of black steel are often shipped without pallets and for these movements, ACL has developed a special handling method. Coils arrive by railcar or by road and are transferred to specially designed steel cradles. The cradles are then stowed to mafi trailers for transfer to and from the vessel.



### SLABS OF STEEL

Steel slabs vary in size and weight, from 1.5-6.0+ m (5-20+ ft.) long, weighing 4-19 metric tons. Slabs can be received at the port by either road or rail and are transferred from the truck/railcar to mafi trailers on minimum .08 m (3") timbers and secured by chains and levers.



Slabs of steel are loaded to mafi trailers with generally a 36-60 metric ton payload.

Mafi trailer loading entails the mixing and matching of various weights and sizes to obtain a maximum efficient payload, but is dependent on the weights of the slabs.

Safety requirements dictate additional lashings (usually six or eight) on each mafi trailer fitted from the deck over the cargo and back to deck on the other side of the unit. Slabs should be loaded no more than two high on each mafi.



Another handling option for slabs is to block-stow them direct to the RORO decks.

### STEEL RODS

These products move in small lot shipments usually in the region of 40+ metric tons. They cannot be loaded on one mafi trailer without having an overhang on each side with the various ends of the wire rods protruding. Therefore, in the interests of personnel safety, secure lashings, and protection of cargo, a shipment of 40+ metric tons would normally be loaded on two mafis.

### STEEL PIPES AND TUBES

Generally, movements occur in lots of 40+ metric tons, with lengths exceeding 40' (12.192 m). The cargo is received at the port by truck in bundles. It is transferred by the appropriate forklift truck or a crane slung with spreader beams. The pipes are loaded to "U beams" and then to mafi trailers with an overhang at the rear of the mafi trailer, secured with chains and levers. Pipes and tubes of longer lengths can be accommodated by loading them to 60' mafi trailers or extendible trailers secured by the same method.



### TIPS FOR EFFICIENTLY MOVING STEEL PRODUCTS VIA RORO

- Each bundle/unit must be clearly marked stating: port of discharge, weights and other markings in order to enable a crosscheck against cargo documentation for receipt and delivery at loading or discharging ports.
- Bundles should be strapped by steel bands and each bundle/unit should be equipped with skids to facilitate forklift handling. The skids should have a minimum height of .05 m (2"). Lengths of up to 12-14 m (40'-46') are handled by either overhead crane or two forklift trucks lifting in tandem.
- Steel in coils must be fitted with strong pallets or cradles. Pallets should be constructed of lumber with dimensions of .1 m x .1 m or .15 m x .15 m (4" x 4" or 6" x 6"). These pallets/cradles are needed because all handling/lifting is done by standard forklift trucks using the pallets/cradles as a base. The preferred weights are 5-10 metric tons per unit/bundle/pallet. This matches the standard forklift trucks available in each port.



- Cargo arrives at the loading terminal.
- Before unloading, cargo is inspected by staff at the terminal.
- Railtracks are available in our terminals so cargo can be transported to the transfer loading point at the terminal.
- A special area is designated for handling this type of cargo since space and sophisticated equipment are necessary to arrange the transfer operation.
- Underlays of .1 m x .1 m (4" x 4") lumber are placed on the mafi trailer to make it possible to handle by forklift truck. This is done only when insufficient underlays are available on the bundles.
- The steel is lifted by either heavy forklift trucks or overhead crane onto the mafi trailers in the terminal.
- Long units are lifted by two forklift trucks in tandem.
- The lift itself should not be more than 1.2 m (4') in height so it just will clear the height of the mafi trailer standard height of .80 m (2'7").
- Steel slabs and tubes are lashed by chains safely to the mafi trailers.
- Coils, depending on weights, are lashed either over the top of the coils or through the holes and protected by rubber pads, if necessary, in order not to damage the surface of the plate.
- The mafi trailer, fully loaded with a 40 metric ton load, is then towed onboard, down to deck 1 or 2.
- Lumber/timber is placed on the RORO deck in order to avoid the steel sliding during the ocean voyage.
- When the mafi trailer is down on the loading deck, forklift trucks lift the units from the trailers to blockstow under deck on board the vessel.
- All steel properly lashed by chains and levers to the side bulk heads of the vessel. The numbers of chains used depends on the weight and size of the units. Rubber pads are put between the chains and the steel in order keep the surface undamaged.
- These lashings are checked regularly by the crew during the ocean voyage in order to obtain maximum security for cargo and vessel.





## INLAND TRANSPORTATION

The inland transport of uncontainerized cargo is a critical area in which ACL has years of unique experience. We have developed a sophisticated network of specialized carriers in both North America and Europe. This service eliminates the need for you to make these complicated surface transports and leaves them in the hands of experienced professionals. ACL arranges the transfer between truck and terminal, employing any special cranes when necessary. We only utilize established, professional haulers that adhere to all regulatory requirements.

The inland movement of uncontainerized cargo requires specialized carriers who many times use non-standard equipment. Cargo must move through various countries, states and provinces, and a multitude of individual regulations must be complied with. In most cases, permits are necessary as well as route and bridge surveys in advance of the movement. Exact cargo dimensions and weights are of utmost importance and even a slight deviation can cause a delay to the shipment.

The following information will be helpful to you in planning the through movement of your uncontainerized cargo. Due to the complexities and numerous regulations, we are unable to advise definitive parameters. It is also virtually impossible to issue an exact statement on size and weight restrictions. On specific quotes, ACL will be able to research and advise any restrictions that may apply.



- Legal loads constitute cargo and trailer dimensions of up to 14.6 m (48') in length, 2.6 m (8'6") in width, 4.1 m (13'6") in overall height and up to 36.3 metric tons in total gross weight. As a rule 15.5 metric tons is the maximum allowable weight per tandem axle.
- Permits are required for each state/province along the route if the dimensions and/or weight exceed any of the aforementioned. One set of permits per state/province is required if one or more dimensions are oversized, whereas a separate set of permits is required if the weight restriction is surpassed. It is important to note that an oversized condition is not created by utilizing multiple pieces. At least one piece of cargo must be out of gauge for a permit to be required.
- The timing on permit approval can range from a few days up to a month. In certain cases, transport drawings must be obtained and/or a shipper certification may be required.
- In addition to permits, escorts are usually required for widths exceeding 3.7 m (12') or heights in excess of 4.3 m (14'). In some cases, double escorts and/or police escorts may be required.
- Extremely heavy loads may require structural engineering surveys which certify that the road surfaces can sustain the shipment weight. Road and bridge surveys along the routing for oversized cargo shipments may also be necessary.
- There may also be restricted travel on loads requiring permits and/or escorts. Night and weekend travel is often prohibited. In many instances, trucks may be prohibited from moving from dusk to dawn during weeknights and from Friday afternoon until Monday morning. Holidays may also extend the shutdown time. Transport may also be prohibited during inclement weather conditions such as snow, fog or heavy rain. Poor road conditions, such as ice or snow-packed roads, may also restrict the cargo movement.
- Spring thaw is another restriction that can affect the inland transport. Individual states and provinces determine if lower than normal gross weights must be adhered to as the ground thaws. This generally occurs between mid-March and mid-May. The time frame and allowable weights differ among the various states and provinces.



- The dimensions and weights below are the maximum for legal loads in the countries most commonly served by ACL. The stated figures are inclusive of the truck, trailer and cargo. In addition, the weight must be spread to ensure maximum axle weight allowances are not exceeded.
- Permits are required for each country along the route if the dimensions and/or weight exceed any of the aforementioned. Proper permits and conformance must be obtained for each country.

		LENGTH	WIDTH	HEIGHT	GROSS WEIGHT
Belgium	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.00 m 13'1"	44 tons 97,020 lbs.
Luxembourg	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.00 m 13'1"	44 tons 97,020 lbs.
Denmark	Meters Feet	22.00 m 72'2"	2.55 m 8'4"	4.00 m 13'1"	42 tons* 92,540 lbs.
Finland	Meters Feet	16.50 m 54'1"	2.60 m 8'6"	4.20 m 13'9"	42 tons* 92,540 lbs.
France	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.00 m 13'1"	40 tons 88,200 lbs.
Germany	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.00 m 13'1"	40 tons 88,200 lbs.
Great Britain	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.88 m 16'	40 tons 88,200 lbs.
Holland	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.00 m 13'1"	50 tons 110,180 lbs.
Ireland	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.25 m 13'11"	40 tons* 88,200 lbs.
Italy	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.00 m 13'11"	40 tons** 88,200 lbs.
Norway	Meters Feet	17.00 m 55'9"	2.50 m 8'2"	4.00 m 13'1"	40 tons 88,200 lbs.
Sweden	Meters Feet	24.00 m 78'8"	2.60 m 8'6"	4.50 m 14'9"	40 tons 88,200 lbs.
Switzerland	Meters Feet	16.50 m 54'1"	2.55 m 8'4"	4.00 m 13'1"	40 tons 88,200 lbs.

\*5-Axle chassis, 2/3; 2 on truck / 3 on trailer  
\*\* 4 -Axle Chassis

- The timing on permit approval can range from a few days up to a month. In certain cases, transport drawings must be obtained and/or a shipper certification may be required.



Escort required in addition to permits exceeding the following dimensions/gross weights:

	WIDTH	HEIGHT
Belgium	3.50 m (11'6")	upon request
Denmark	4.00 m (13'1")	4.40 m (14'5")
Finland	3.50 m (11'6")	4.50 m (14'9")
France	3.00 m (9'10")	upon request
Germany	3.50 m (11'6")	4.40 m (14'5")
Great Britain	3.50 m (11'6")	3.90 m (12'9")
Holland	4.00 m (13'1")	4.40 m (14'5")
Ireland	3.30 m (10'10")	4.25 m (14')
Italy	3.00 m (9'10")	4.00 m (13'1")
Norway	2.99 m (9'10")	4.50 m (14'9")
Sweden	3.10 m (10'2")	upon request
Switzerland	3.50 m (11'6")	4.00 m (13'1")

- Extremely heavy loads may require structural engineering surveys which certify that the road surfaces can sustain the shipment weight. Road and bridge surveys, along the routing for oversized cargo shipments, may also be necessary.
- There may also be restricted travel on loads requiring permits and/or escorts. Night and weekend travel is often prohibited. In many instances, trucks may be prohibited from moving from dusk to dawn during weeknights and from Friday 15.00 hrs. until Monday 09.00 hrs. Holidays may also extend the shutdown time. Transport may also be prohibited during inclement weather conditions such as snow, fog or heavy rain. Poor road conditions, such as ice or snow-packed roads, may also restrict the cargo movement.



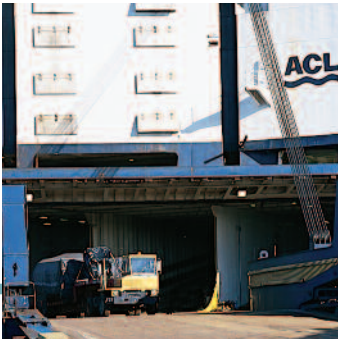
Commodity: Machine press, unboxed  
Origin: Buffalo, New York  
Dimensions: 6.7 m x 3.9 m x 2.5 m (22' x 12' 10" x 8' 2")  
Weight: 51 metric tons (112,000 lbs.)

One of the major complicating factors in dealing with the inland transport of oversized/overweight cargo is the fact that each U.S. state and each European country has different road restrictions.

The 112,000 lbs. weight of this particular machine press required a nine-axle trailer for legal transport through the states of New York and Pennsylvania, whereas the payload restrictions in New Jersey and the United Kingdom made a tri-axle trailer possible. Since the leasing costs for a nine-axle trailer are quite high, ACL arranged to transport the cargo from Buffalo to the trucker's New Jersey depot on a nine-axle trailer. Here the cargo was swung onto a tri-axle for transport through to the United Kingdom. This enabled the shipper to save the costs of export crating and disassembly while minimizing the trailer leasing costs for the shipment.

Due to the size and weight of the cargo, it was necessary to check on all the bridge capacities between Buffalo, New York and Port Elizabeth, New Jersey. We found that the direct route from Buffalo to Port Elizabeth was not possible. Instead, a routing was selected through Pennsylvania into New Jersey. Separate permits from the states of New York, New Jersey and Pennsylvania were required on this move. Night and weekend movement was prohibited. Escort vehicles were also required by each of the state highway authorities.

With close coordination, the machine press was delivered on the original nine-axle trailer to New Jersey. It was then swung to a tri-axle trailer under direct ACL supervision. The shipment sailed on the intended vessel and was delivered timely and efficiently to its destination in the U.K. The success of this shipment has resulted in additional orders for the manufacturer and has established a loyal customer for ACL.







ACL can take your cargo wherever it needs to go. Throughout this guide, you have seen many examples of how ACL can provide unique alternatives to transporting the most unusual types of cargo. For complex shipments, call the RORO experts. ACL can always offer easy solutions to difficult transport challenges.

