



The Young International Freight Forwarder of the Year Award 2019

**“Forwarding of oversized
and overweight cargoes”**

Table of Contents

Introduction	4
Acknowledgements.....	4
Import project: From South Korea to Russia.....	5
About the project	5
Cargo description	6
Preparatory stage.....	6
Sea stage	7
Customs clearance stage.....	9
Transshipment to barges and inland navigation stage	10
Discharging stage.....	12
Ground transportation stage	13
Summary.....	14
Export project: From Russia to Belarus.....	14
About the project	14
Cargo description	15
Preparatory stage.....	15
Transportation of general cargo	16
First ground transportation stage	17
River navigation stage.....	18
Second ground transportation stage	19

Summary.....	21
Conclusion.....	21
Bibliography and References.....	22
Appendices.....	23
Appendix A.....	23
Appendix B.....	24
Appendix C.....	24
Appendix D.....	25
Appendix E.....	26
Appendix F.....	27
Appendix G.....	27
Appendix H.....	28
Appendix I.....	28
Appendix J.....	29
Appendix K.....	29
Appendix L.....	30
Appendix M.....	30
Appendix N.....	31
Appendix O.....	31

Introduction

"No one can whistle a symphony.

It takes a whole orchestra to play it."

– H.E. Luccock

The art of freight forwarding involves solving of any problem. It means good forwarder must offer a unique end-to-end and cost-effective solution for any challenge and perform it perfectly.

My aim is not only to show how difficult and interesting is the work of freight forwarder, but also emphasise the significance of teamwork. Skills and experience of one are important, but you can achieve great results only through collaboration.

In the dissertation, I describe two very challenging and exciting projects, which are simultaneous typical but unique for Russia. Both of them are multimodal transportation of overweight and oversized cargoes.

The first, import case, was the delivery of oil-refining equipment from South Korea to Russian Siberia employing sea, river and road transport. The second, export case, was the transportation of specialised equipment for the new nuclear power plant from Russia to Belarus, whose dimensions make it virtually impossible to transfer it by ground.

Within the projects, we faced a multitude of challenges, but our expertise and teamwork allowed us to overcome all of them.

Acknowledgements

I would like to thank all my dear colleagues, who supported me. Special thanks to Maxim Blank and Maxim Volchkov, whose assistance and support allowed me to write this dissertation.

I would like to thank FIATA, TT club and all people involved in “The Young International Freight Forwarder of the Year” contest for such unique opportunity and experience.

Finally, I would like to thank the Russian Association of Freight Forwarding and Logistic Organizations for believing in me. It is a great honour and pleasure for me to participate in the contest.

Import project: From South Korea to Russia

About the project

Today Russia is one of the world leaders of oil and gas extraction and refining. Tightening of environmental regulations, aspiring to increase refining capabilities and expand the range of products motivates oil refinery plants constantly modernise their equipment.

Nevertheless, an industry of designing and manufacturing of oil-refining equipment is weakly developed in Russia, so most of the refineries are forced to import new technologies and equipment.

Russia is an extremely large country, and as usual, oil-refineries are situated in the heart of the country – in Siberia. The issue of transportation of heavy and oversize process equipment from Europe, Asia, and America to remote areas in Russia is urgent for such companies. A vast territory surrounded by 12 seas, with a large river system, but with a shortage of transport infrastructure, forces freight forwarders to look for nonstandard approaches to goods transportation and different combinations of modes of transport. Therefore, there is a strong demand for good-quality freight forwarding services, because such transportations require solid knowledge and expertise in the field.

In the paper, I would like to describe one challenging and exciting project of delivery of oil-refining equipment from manufacturing plant in South Korea to refining company in

the Kemerovo Oblast of Russia. The new equipment will allow our client to increase conversion capabilities and manufacture products, which meet modern environmental standards.

Cargo description

The cargo: reactor and modules of continuous catalyst regeneration¹.

In total 38 pieces of freight:

- 11 units of heavy and oversize process equipment,
- 23 40'ft standard containers,
- One 40'ft flat-rack container,
- Three wooden crates.

Total weight: 1.020 ton.

Total volume: 10.966,94 m³.

Preparatory stage

The first and most important part of transportation was preparatory work. First and foremost we had to develop a transportation route and select transport modes for each stage. It was a complex challenge, but teamwork made it possible to come up with a perfect solution. Our team of freight forwarders and engineers designed the following scheme:

- loading on a sea vessel in ports Masan and Onsan (South Korea),
- freight to the Northern Sea Route (NSR),
- customs clearance,
- transshipment to sea-river barges,
- navigation on the Ob River,
- discharge to a temporary berth,

¹ See Appendix A for CCR Modules technical drawings

- auto transportation to the final destination.

After the development of a preliminary scheme, we needed to determine some crucial points: a place of transshipment, a place of customs clearance, and a place of discharge. The most appropriate place for transshipment was Novy Port, and the nearest place for customs clearance was port Sabetta. Besides, we needed to choose which way the vessel would come to the NSR, from the west or east. We decided to go through an east route, which was shorter but expensive since on-time delivery was a key point for our client, and the transportation should be made as quickly as possible. The duration of navigation in the NSR is limited, so we made a request to the Northern Sea Route Administration for a forecast of ice conditions and possible entry time.

In addition to transportation, we had to provide some extra services: insurance and customs clearance. We fully insured the cargo against all risks for 110% of its value. Also, of course, we used FIATA Multimodal Transport Bill of Lading for this difficult multimodal transportation.

The total distance of transportation was estimated at more than 11 000 km. A number of our subcontractors in the project was 18, and control and coordination of all of them was a real challenge.

Sea stage

A few months before the start of shipping, our engineers went to the factory to determine exact dimensions of the cargo. It allowed us to choose the most suitable vessel and design a scheme of cargo securing.

For this heavy and oversize cargo, we found a special ship, which was equipped with three deck cranes with gross loading capacity more than 1400 ton. Another key feature

of the vessel was its high ice class – Arc4² (by Russian classification standards), which allowed it independent ice navigation.

The sea route was the following: port Onsan (South Korea) – port Masan (South Korea) – port Sabetta (Russia) – Novy port (Russia)³. Primary, sea part of the transportation seemed as the easiest, but it went with many complexities. So, initially, a delivery basis was FOB – Free On Board⁴, which means that production plant by own efforts must bring the equipment to the loading ports and perform all loading operations. Nevertheless, a week before the shipment, our client informed us about changing of delivery terms to FAS – Free Alongside Ship. Therefore, we had to organise all loading works in Korean ports in the shortest possible time.

No sooner had we solved a problem with loading operations than the weather almost disrupted our plans. In spite of favourable weather forecast, four days before the due date of loading, typhoon warning was announced. All vessels in the typhoon zone were urgently sent to Japan's ports of refuge. Thankfully, after a few days, the typhoon was over, and our ship was able to arrive at the first port of loading.

Loading operations in ports Onsan and Masan were completed in record-breaking two days⁵. Vessel cargo-carrying capacities were fully involved: cargo was situated in all holds, tweendecks, and even hatch covers.

We arranged surveying inspection in both ports to ensure the safe transportation of the cargo. Survey agent examined the cargo for damage before loading, checked the separation and fastening material for compliance and certificates, controlled all loading, lashing and securing works.

² Russian Maritime Register of Shipping. (2019). Rules for the classification and construction of sea-going ships. Part I. Page 14

³ See Appendix B for transportation route image

⁴ International Chamber of Commerce. (2019). Incoterms rules 2010. [Online]. Available at: <https://iccwbo.org/resources-for-business/incoterms-rules/incoterms-rules-2010/> [Accessed 20 February 2019].

⁵ See Appendix C for loading works image

As the chartered ship had a foreign flag and should navigate between two Russian ports - Novy port and Sabetta, it was necessary to arrange in advance two special permissions: "Permission for navigation in the water area of the Northern sea route" and "Permission for cabotage". It was not so easy because of strong Russian bureaucracy; we prepared all documents with great attention to details, as any mistake was fraught with a denial of permissions. Fortunately, all documents were correct, and we obtained the permissions⁶.

So, the voyage began, and the ship went from South Korea past the eastern part of Russia to the North. Despite high ice class of the vessel, a part of the way from Pevek to the Vilkitsky Strait it had to go with the support of nuclear icebreaker "Vaygach", as the ice conditions were extremely hard.

Despite all the difficulties that have arisen in the sea part of transportation, the deadlines were not disrupted, and the transit time of the vessel was 30 days.

Customs clearance stage

Since it was export cargo, all customs clearance formalities had to be settled. The customs clearance of the cargo took place on board the sea vessel on the roads of port Sabetta, without berthing.

During the customs procedures, the following stages of cargo clearance were completed:

- Preparation of all necessary documents (were made in advance);
- Calculation of duties and the choice of the customs regime (were made in advance);
- Verification of certificates, codes, and licenses (were made in advance);
- Consultation with customs authorities (were made in advance);
- Completion of customs declaration (after the arrival of the goods in Russia);

⁶ See Appendix D for permission for ship to navigate in the water of the NSR

- Transfer of documents to the customs authority (after the arrival of the goods in Russia);
- Inspection of products (after the arrival of the goods in Russia);
- Control of payment of duties (after the arrival of the goods in Russia);
- The release of cargo.

In total, the time of preparatory and consulting works for customs clearance of the cargo amounted to three months, the time of the customs clearance operations on the roads of the port Sabetta amounted to two working days.

Transshipment to barges and inland navigation stage

After performing of all customs formalities, the vessel went to the Novy Port for transshipment to river barges. All transshipping operations were organised on the roads of the port. Water depth in the point of transshipment was more than 8.5 meters while the draft of sea vessel was 7.5 meters.

For further transportation, we employed five sea-river flat top barges of 16801 type and five appropriate tugs.

For successful transshipment and river navigation, it was necessary to carry out some preparatory works. Three months before expected transshipment date, we modified and prepared barges to enable discharging by RO-RO method, which was the most appropriate for such characteristics of cargo (each module was 8.5 meters wide). According to the agreement with the contractor, we had to bring the barges to their original form after completion of transportation. In addition to barges modification, we needed to buy and modify loading ramps for successful RO-RO discharging.

Additionally, we ordered production of 70 special bearing beams for allocation of cargo on the decks and arranged their delivery to the point of transshipment.

Besides, we chartered a special supporting vessel, which provided a power supply for welding operations, kept cargo securing equipment, bearing beams and all lashing materials and also provided accommodation and food for all personnel. The ship was equipped with a deck crane, which installed bearing beams on barges.

Loading and lashing scheme should be worked and approved by state authorities, so we appealed to the Central Marine Research and Design Institute (CNIIMF) for the development of all engineering schemes and documentation⁷. The result of their successful work was a variety of engineering plans such as: a loading plan for barges, a plan of offshore transshipment from sea vessel to river barges, a plan of fastening and unfastening of the cargo on barges, a plan of discharging by RO-RO method on a berth, a project of barges ballasting. Moreover, their staff exercised supervision of all norms and standards at every stage of the work.

The offshore transshipping works for each of the five barges were organised as follows:

- feeding of a sea-river barge to the left side of the sea vessel,
- mooring of barge and departure of a tug,
- the supply vessel getting alongside to the sea vessel,
- switching on electrical equipment for welding and installing bearing beams by the supply vessel;
- unsecuring and lifting of cargo on the sea vessel,
- transferring of cargo from the vessel to a barge,
- lashing and securing of the cargo on a barge,
- arriving of a tug and unmooring^{8,9}.

⁷ See Appendix E for cargo plan

⁸ See Appendix F for mooring scheme

⁹ See Appendix G for module loaded on a barge image

All transshipping operations were performed using deck cranes of the sea vessel. All works were also controlled by surveyor agent, who also issued a surveyor report based on the results of work.

Unfortunately, that stage of our multimodal transportation has not been without its challenges too.

Terrible weather conditions complicated transshipping works: wave height was about 1.5-2 meters; the wind speed was 8-10 m/s per second with gusts of about 12-14 m/s. The work of the personnel was organised in two shifts (day and night) with breaks only for shift change in order to reduce the time of transshipment and avoid possible demurrage of the sea vessel and barges. However, night work was significantly limited due to weather constraints.

Total time of offshore transshipment was six days. After that, five tug and barge towing arrangements started their navigation from the Gulf of Ob (Kara Sea) on the Ob River and later on the Tom River to the berth in Samus (a village in Tomsk Oblast). The overall time of navigation was 20 days.

Discharging stage

Although it was one of the last stages of transportation, its preparation began at the planning stage of shipment. For the organisation of discharge from barges by RO-RO method, it was necessary to construct a temporary berth in Samus and a temporary storage area for consolidation of cargo.

The process of unloading cargo from barges was as follows:

- a barge approached the berth,
- loading ramp was installed,
- a piece of cargo was unlashd,

- a vehicle arrived under the cargo on the bearing beams,
- a vehicle left a barge¹⁰,
- cleaning of a deck,
- removing of a ramp,
- a barge left the berth.

All discharge operations were completed in three days.

Ground transportation stage

As at the previous stage, preparatory works started long before the beginning of direct auto transportation. Primarily our team went on a journey to choose the most appropriate route and find its potential problems. As a result, our engineers developed a special traffic management project, which was approved by state authorities. The distance from a storage site to the client's oil-refinery plant amounted to 175 kilometres.

Furthermore, we carried several construction activities:

- Construction of transport infrastructure for haulage of cargo from the temporary storage area,
- Preparation of radii of turn along the whole route,
- Strengthening of bridges on transportation route,
- Filling of temporary roads with crushed stone.

For discharging and ground transportation, we employed two special road trains, which consisted of two truck-tractors and heavy-duty modular trailer¹¹.

We organised five trips from a storage area to the refinery. Our convoy included two road trains and four police cars for an escort. After the ground transportation, vehicles

¹⁰ See Appendix H for unloading of CCR module image

¹¹ See Appendix I for road train configuration drawing

installed the cargo on bearing beams in the territory of the refinery for further installation works.

Total ground transportation time amounted to 15 days.

Summary

It was a great challenge for me and team to undertake a project of delivery of oil-refining equipment from South Korea to Russia. The transportation itself was very complex and was complicated by a variety of unexpected problems. Nevertheless, we completed all works proficiently and on time. Although the actual time of transportation was 103 days, the time of the preparatory works amounted to the whole year.

I can confidently say that the success of the project was achieved only through the coordinated work of our team of professionals.

Export project: From Russia to Belarus

About the project

Technologies in the field of nuclear energy as well as heavy machinery are highly developed in Russia. Today the State Atomic Energy Corporation ROSATOM has many foreign construction projects, where Russian equipment is delivered¹². Therefore, there is a strong demand for freight forwarding services for delivery of equipment from Russian mechanical engineering plants to construction sites all over the world.

Last autumn we carried out the transportation of specific equipment for The Belarusian nuclear power plant, which was under construction. The route was the following: from heavy machinery plant “Tyazhmash” situated in Syzran, Samara region to the Belarusian nuclear power plant located in the Astravyets District, Grodno Region. Considering the route, it seemed that delivery should be simple - ground transportation

¹² Rosatom State Atomic Energy Corporation. (2019). Projects. [Online]. Available at: <https://www.rosatom.ru/en/investors/projects/> [Accessed 5 April 2019].

with a length not exceeding 2000 kilometres. However, large dimensions of cargo make this approach almost impossible.

Cargo description

The main cargo was a transport lock and its components¹³. It is special equipment designed for transportation of containers with spent nuclear fuel, cases with new fuel, radioactive wastes in containers, transport and handling equipment necessary for operation, maintenance, and repair of reactor unit equipment¹⁴.

The cargo: transport lock's body, two guard nets and two frames and additional components.

Dimensions of transport lock's body¹⁵: length - 8420 mm, width - 7360 mm, height - 7420 mm, weight - 92508 kg.

Dimensions of each guard net: length - 6820 mm, width - 5500 mm, height - 830 mm, weight - 21298 kg.

Dimensions of each frame: length - 6740 mm, width - 5230 mm, height - 1400 mm, weight - 16513 kg.

Additional components were 55 wooden boxes, metal structures, electrical equipment and mounting tools with a total weight of 112369 kg and volume 218.19 m³.

Preparatory stage

First of all, we decided to divide the transportation into two parts: overweight and oversized equipment and general cargo.

Our team had plenty of lengthy discussions about different ways and combinations of transportation and finally developed the following route for oversized cargo:

¹³ See Appendix J for transport lock image

¹⁴ Tyazhmash. (2019). Transport lock. [Online]. Available at: <https://tyazhmash.com/en/products/atomic/transport-gateway/> [Accessed 5 April 2019].

¹⁵ See Appendix K for transport lock's body drawing

- ground transportation from the manufacturing plant to one of the nearest berths on the Volga river,
- transshipment to a river barge,
- river navigation to any berth Nizhny Novgorod Oblast,
- discharging on a berth,
- ground transportation to the final destination.

Such a method of transportation was not the fastest one but the most cost-effective one. There was enough time before installation of equipment on the power plant, so delivery time was less important than price for our client.

For such type of transportation, we had to choose two key places: place of loading to a barge and place of discharging from it. Both berths should be appropriate for loading by RO-RO method, which allowed us to avoid the employment of cranes. After examination of several berths near the manufacturing plant, we chose a berth of the Syzran Refinery as the most satisfying to our requirements. Fortunately, owners of the berth permit us to use it for free without restrictions.

Nevertheless, we could not find a suitable berth for the discharging, what forced us to explore kilometres of coastline in order to find the most convenient place and construct there a temporary berth appropriate for RO-RO discharging.

Transportation of general cargo

Since most of the transport lock's components had standard dimensions and weights, they could be delivered from the manufacturer to the Belarusian nuclear power plant by heavy goods vehicles. Considering the amount of cargo, its weight and volume, we employed eight vehicles. Delivery was like clockwork, and it took only three days to go from door to door for each vehicle.

First ground transportation stage

After the selection of loading berth, we needed to choose an appropriate route of ground transportation to it. Location of the manufacturing plant was very inconvenient for auto transportation as it was cut off from the Volga River by many railway tracks, which forced us to detour around the city and significantly increased our route. Furthermore, more than 20 power transmission lines with a height of 8 to 12 meters were found on the way, that appeared a big problem as a height of transportation lock was 7420 mm excluding cradle and vehicle height.

We employed the following vehicles for delivery of cargo to the berth:

- one road train consisted of truck-tractor and 9-axle modular trailer with a load capacity of 120 ton for the transport lock's body,
- four 4-axle semi-trailer trucks for guard nets and frames.

Such compact road trains with ease could overcome all turns and narrow passages. The vehicle with a body of transport lock was escorted by two police cars, while road trains with other cargo were escorted by special follow cars.

The chosen route to the berth was only 60 kilometres long¹⁶, but there were several road obstructions:

- more than 20 power lines,
- frames of Platon Electronic Toll Collection system¹⁷.

During transportation, almost all power lines encountered on the way were disconnected. It was a great challenge to agree on a schedule of power lines disconnection with their city and regional owners. It also required switching off the "Platon" system and the dismantling of its frame. Another problem was a descent to the

¹⁶ See appendix L for ground transportation route image

¹⁷ Platon Electronic Toll Collection system. (2019). About the ETC system. [Online]. Available at: <http://platon.ru/en/about/> [Accessed 13 April 2019].

berth, where a road had many turns, and its gradient was rather large. Nonetheless, all vehicles successfully crossed this stretch of road at minimum speed, carefully carrying out all manoeuvres. Despite the obstacles, we completed the first part of transportation in four days.

River navigation stage

For the river navigation, we employed barge-platform “Shelby” of 81109 type with a load capacity of 900 ton and a tug. This barge fitted perfectly for our cargo and allowed to carry out loading and unloading of cargo using the RO-RO method.

The loading works were made from early morning until late at night. All this time parts of cargo were loaded, lashed and secured. Besides the main cargo, we also loaded bearing beams for the location of transport lock and its components in the territory of the Belarusian nuclear power plant.

The next morning the tug and the barge with five units of cargo started navigation¹⁸. It was mid-autumn - a difficult time for navigation on the Volga, the weather conditions were bad, and transit time increased continuously due to several emergency stops caused by storms.

Moreover, in 20 days of our route, we were informed about the critically low water level on the Shelon River. It meant that we need to use an alternative berth in Veliky Novgorod. Employment of another berth would lead to many difficulties: it was necessary to negotiate with its owners, dismantle power lines of tramways and frame of “Platon” system. Execution of these works would lead to a significant increase in the cost and time of transportation. However, a miracle happened: strong autumn wind moved water from Lake Ilmen to the Shelon River, and the level of water increased quickly. In several days our barge reached the discharging berth, where a team of

¹⁸ See appendix M for river transportation route image

professionals and new road trains already waited for it. All discharging works should be done as quickly as possible because the barge had to return to its homeport before new lowering of the water level in rivers. Such urgency forced personnel to work all day and even night in spotlights. Discharging was organised the following way:

- the barge moored to the berth,
- automobile crane installed a ramp to enable RO-RO discharging,
- bearing beams were located on the shore,
- two vehicles, in turn, took parts of cargo from the barge and placed them on the beams.

Total time of river transportation amounted to 26 days including loading and discharging.

Second ground transportation stage

The final stage of delivery of the transportation lock and its components was the most difficult. Preparatory works started four months before direct transportation. Initially, we explored all possible routes and chose the most convenient one¹⁹. After confirmation of the route, we organised the following works:

- Obtaining authorities' approvals for switching off and dismantling of power lines and gas lines,
- Strengthening of bridges (most of the bridges on the route were in precarious condition) and partial repair of roads on a transportation route.

We took two 4-axle semi-trailer trucks for the guard nets and frames as in a previous ground transportation stage. They made two trips, and in ten days the nets and frames were on the construction site of the power plant. As in the first stage, all our vehicles were escorted by police and special follow cars, but police cars were changed on the

¹⁹ See appendix N for ground transportation route image

state border. Since Russia and Belarus are members of Eurasian Customs Union²⁰, there was no necessity for cargo customs clearance that makes the process of moving goods across the border much easier.

Due to the characteristic of the road on our route, we needed to minimise load per axle during transport lock's body delivery. For this purpose we employed the following configuration of road train: truck-tractor – three 6-axle 1.5 wide modular trailers – truck-tractor²¹, its length was about 50 meters.

Despite all preparatory works, we had to wait for special authorities' permission for the ground transportation of oversized and overweight cargo almost a week.

Last part of the route in the territory of Russia (450 km) took 20 days due to switching off and dismantling of gas and power lines. Moreover, bad weather conditions including ice rain forced the road train to stop for two days. After the border crossing our way was clear: there were minimum power lines, and the weather conditions were close to perfect. All this has allowed us to travel last 300 kilometres on the territory of Belarus in just five days. The final stage of transport lock delivery was transportation through the territory of the Belarusian nuclear power plant to reactor area. It took half a day, but in the last 50 meters, we found that there is not enough space for the vehicle to manoeuvre. Plant administration decided to remove interfering construction at night and continue transportation the next day. Unfortunately, in the morning the truck-tractor's engine did not start due to frozen fuel. Several hours we warmed the engine with fan heaters before it started. After that, within hours, plant's crane located the transport lock's body on bearing beams in the reactor area, where it would wait for final installation in the power plant.

²⁰ The Eurasian Economic Union. (2019). About the union. [Online]. Available at: <http://www.eaeunion.org/?lang=en#about> [Accessed 14 April 2019].

²¹ See appendix O for road train configuration drawing

Summary

At first glance, the transportation from the European part of the Russian Federation to Belarus seemed easy to arrange. However, we faced many challenges: adverse weather conditions, strong Russian bureaucracy, poor pavement conditions, etc.

The main difficulty and at the same time the most expensive part of the transportation was obtaining authorities' permissions and disconnection and dismantling of road infrastructure elements. The development of numerous projects, searching for the owners of each engineering construction and coordination with them of travel, shutdown and dismantling of power lines - all this amounted to 50-60% of the total delivery costs and took three times more time than the transportation itself.

Despite everything, we completed the delivery of the transportation lock and its components works successfully in two months plus several days. In total, that oversized and overweight cargo covered more than 2000 kilometres by water and 800 kilometres by land. Our team controlled, coordinated and quickly solved all problems at all stages of the delivery that allowed us to meet deadlines and not incur additional costs.

Conclusion

Two projects mentioned above are very typical for my country and company. There were quite typical cargoes – oversized and overweight equipment, which required difficult multimodal transportation. The Russian Federation is the biggest country in the world. Nevertheless, the quantity and quality of transport infrastructure may vary significantly in different regions of the country.

A Russian freight forwarder should always be ready for many challenges: harsh climate, poor pavement conditions, a short period of river and sea navigation, bureaucracy and corruption. In every project, you must think and do innovative, use unconventional approaches and be prepared for everything.

Despite all problems, difficult projects motivate you, and when you work for the benefit of society, you work with pride and passion. However, a freight forwarder cannot work alone, he or she should work in a team with his or her colleagues, contractors and even clients because only teamwork and synergy allow achieving great results.

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6. Tyazhmash. (2019). Transport lock. [Online]. Available at: <https://tyazhmash.com/en/products/atomic/transport-gateway/> [Accessed 5 April 2019].

Appendices

Appendix A

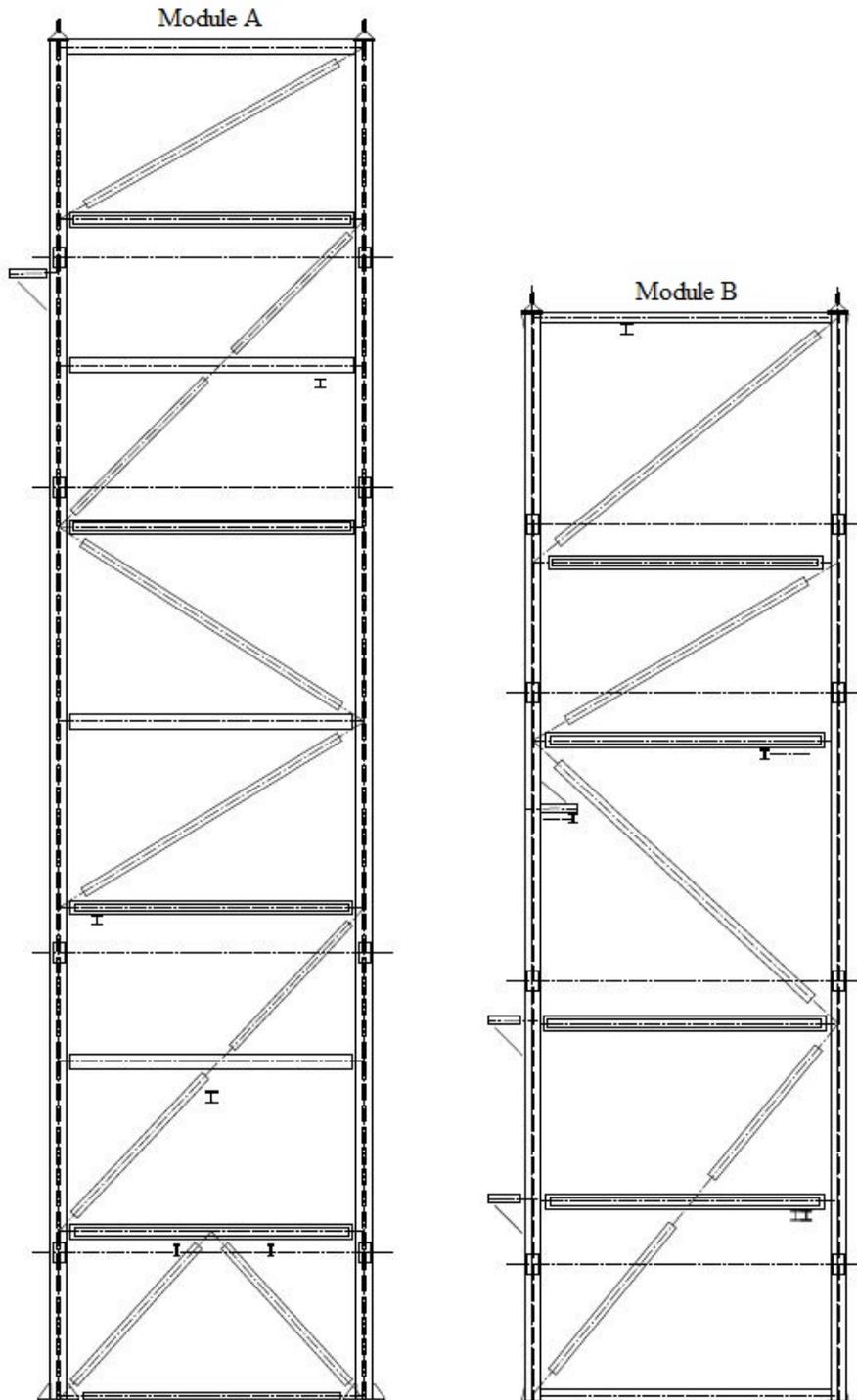


Figure 1. CCR Modules technical drawings

Appendix B

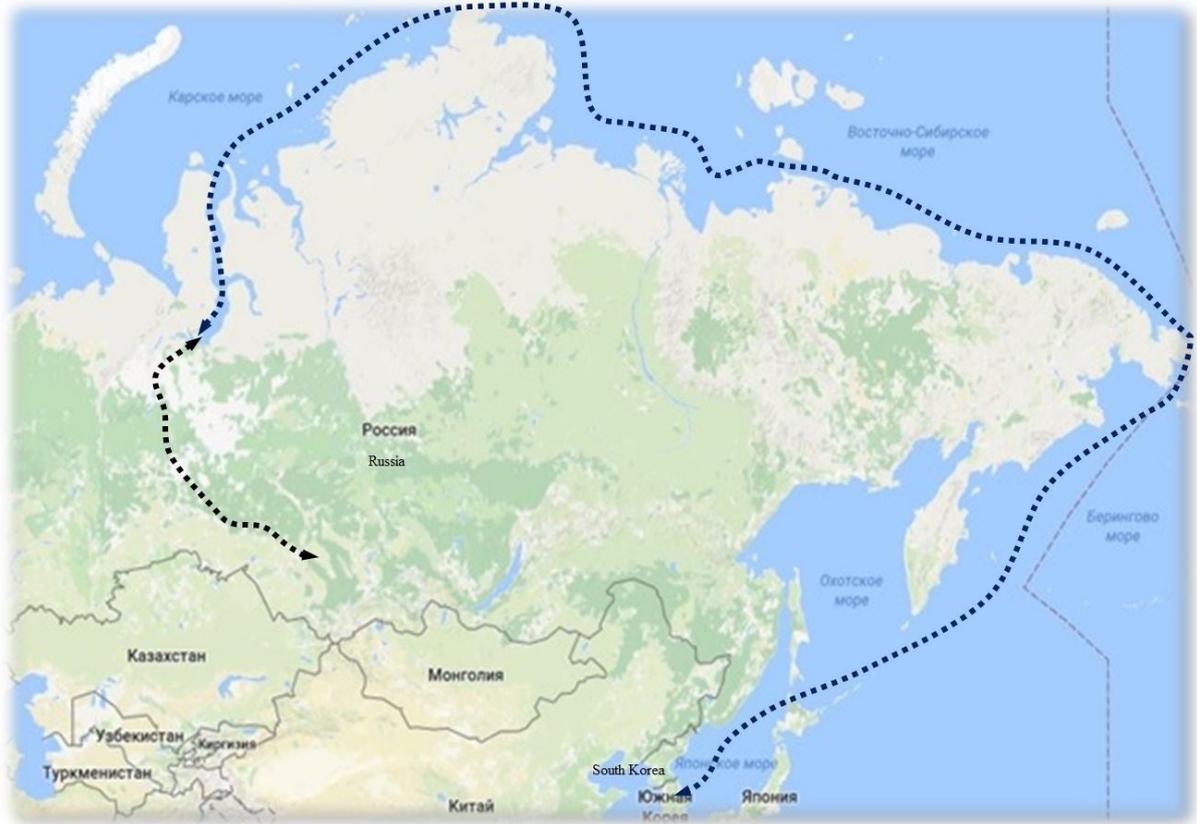


Figure 2. Transportation route

Appendix C



Figure 3. Loading of CCR modules on the sea vessel

Appendix D



МИНИСТЕРСТВО ТРАНСПОРТА РОССИЙСКОЙ ФЕДЕРАЦИИ
MINISTRY OF TRANSPORT OF THE RUSSIAN FEDERATION

ФЕДЕРАЛЬНОЕ АГЕНСТВО МОРСКОГО И РЕЧНОГО ТРАНСПОРТА
FEDERAL AGENCY OF MARITIME AND RIVER TRANSPORT

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ УЧРЕЖДЕНИЕ
FEDERAL STATE BUDGETARY INSTITUTION

Администрация Северного морского пути The Northern Sea Route Administration

РАЗРЕШЕНИЕ № 85 / 4 PERMISSION

на плавание в акватории Северного морского пути судна
ледового класса Arc 4
for the ice class Arc 4 ship to navigate in the water area of the Northern Sea Route

Выдано: в соответствии с Правилами плавания в акватории Северного морского пути, 2013 г.,
The permission is issued according to the Rules of the navigation in the water area of the Northern Sea
Route, 2013

на основании заявления от 24.04.2018 № [REDACTED]
(заявитель)

based on the application dated from April, 24 2018 No. [REDACTED]
(applicant)

Название судна (Name of the ship)	Номер ИМО (IMO number)	Флаг (Flag)	Ледовый класс (Ice class)	Валовая вместимость (Gross tonnage)
[REDACTED]	[REDACTED]	[REDACTED]	Arc 4	17 644

Маршрут плавания (район работ):
Route of navigation (area of works):

1. Восточная граница СМП – линия м. Каменный – м. Трехбугорный.
Eastern boundary of the NSR – line between cape Kamennyu and cape Trekhbugornyy.
2. Линия м. Каменный – м. Трехбугорный – западная граница СМП.
Line between cape Kamennyu and cape Trekhbugornyy – western boundary of the NSR.

АСЯ

Figure 4. Permission for ship to navigate in the water area of the Northern Sea Route

Appendix E

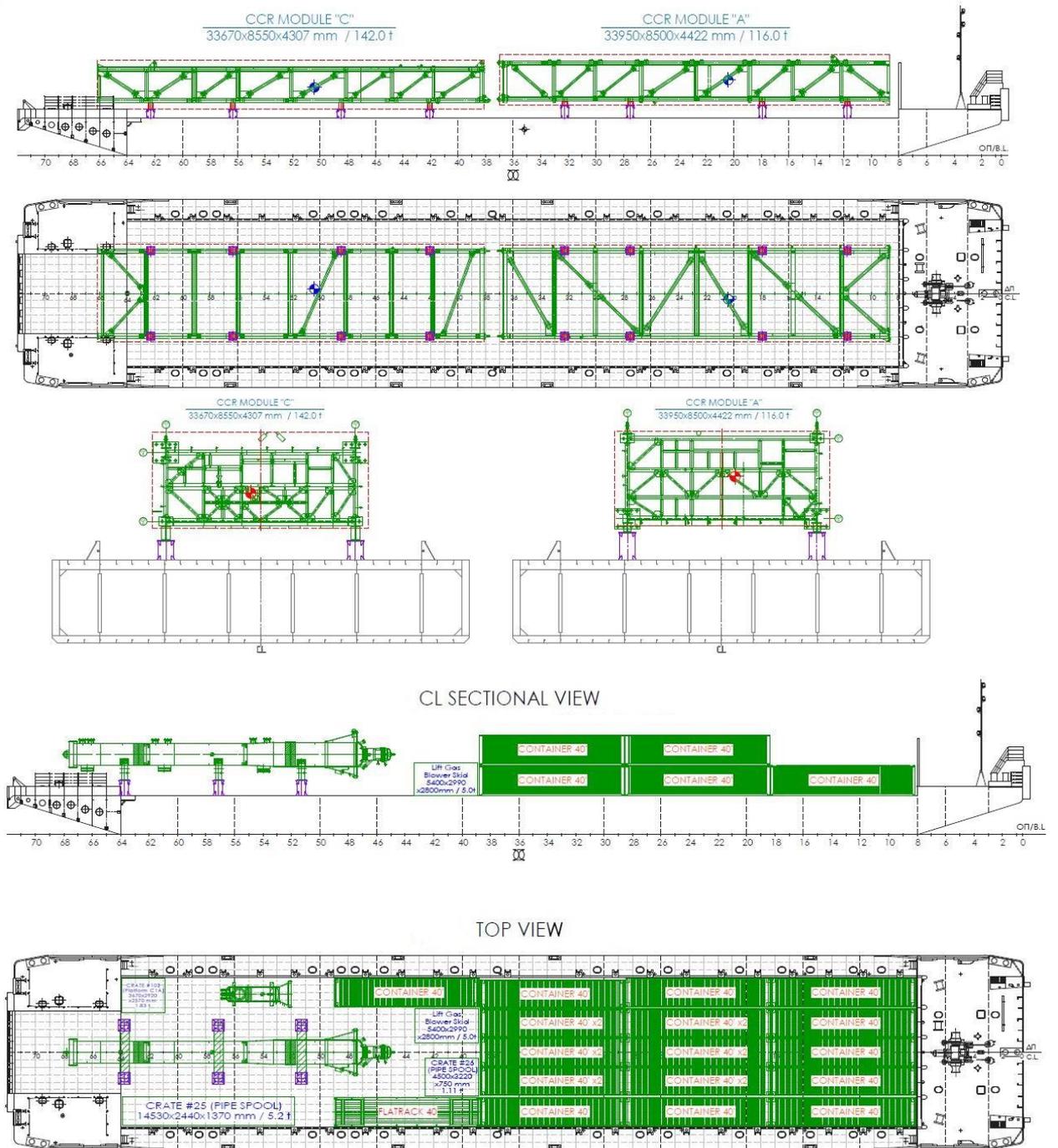


Figure 5. Cargo plan (barges)

Appendix F

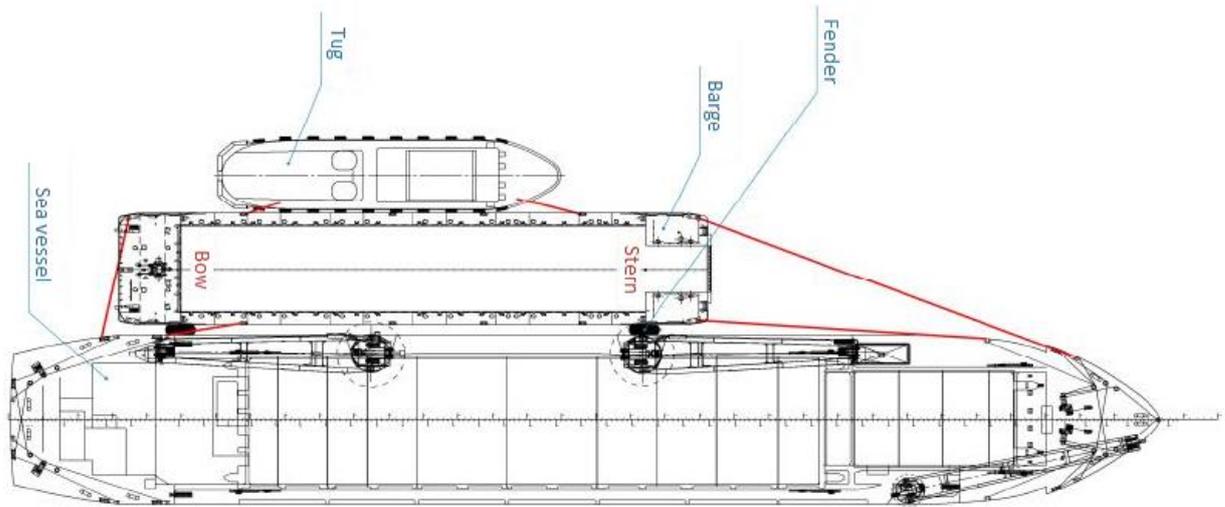


Figure 6. Mooring scheme

Appendix G



Figure 7. CCR module loaded on a barge

Appendix H



Figure 8. Unloading of CCR module

Appendix I

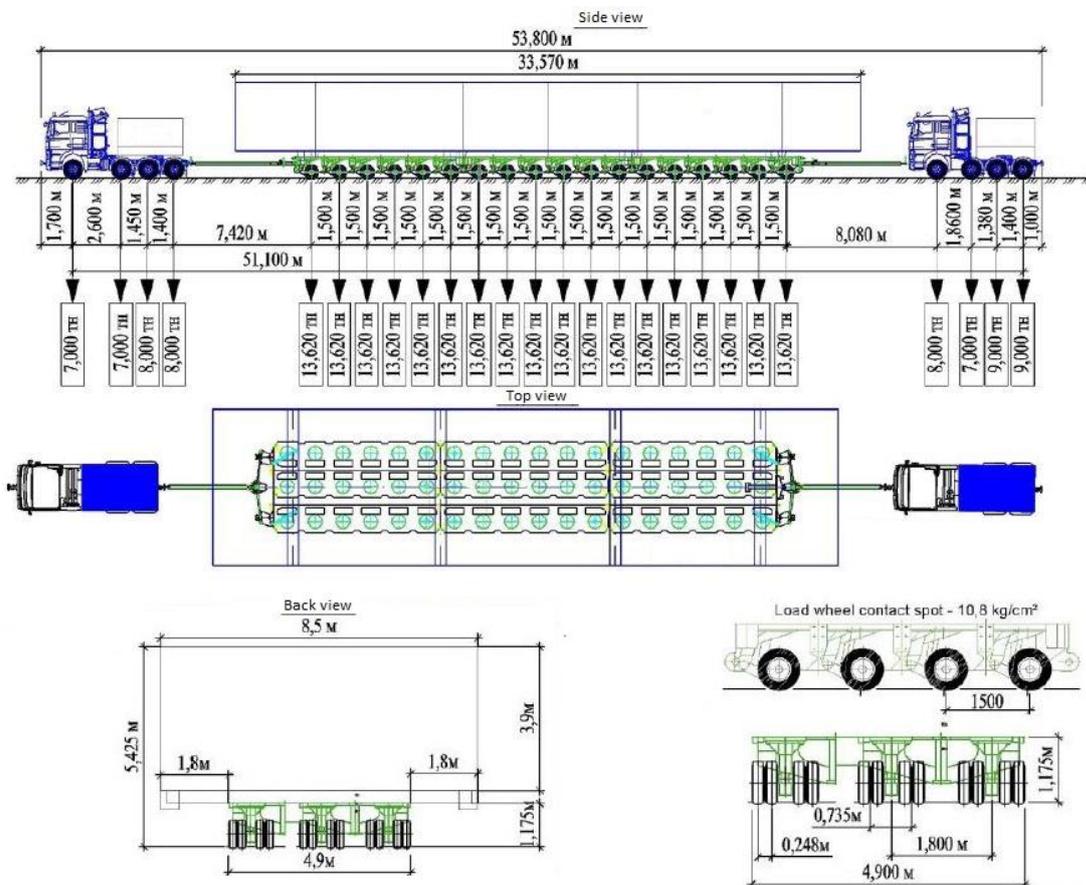


Figure 9. Road train configuration drawing

Appendix J

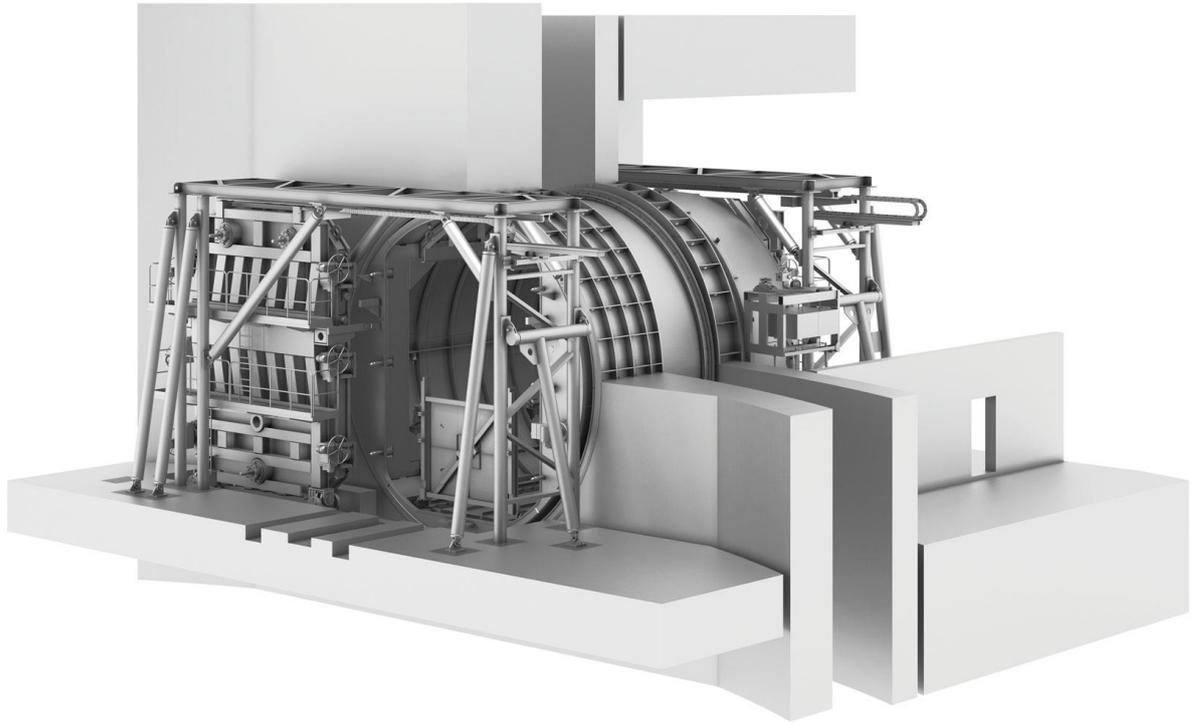


Figure 10. Transport lock

Appendix K

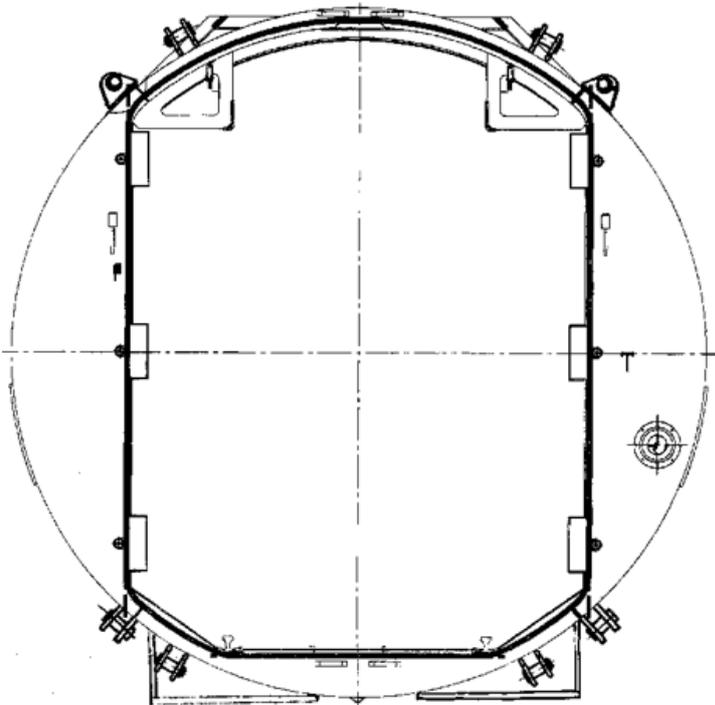


Figure 11. Transport lock's body technical drawing (front view)

