Movement of project cargo from Germany to China in terms of eco-friendliness

Dissertation for the Young International Freight Forwarder of the Year Award 2010
I received a lot of support while writing this dissertation. I would like to take this opportunity to thank everyone who supported me. Sincere thanks to Frauke Seeliger, Pavel Kusserow, Steffen Fulst and Claas Reiners (Karl Gross Internationale Spedition GmbH) and Elke Schneider (Deutscher Speditions- und Logistikverband e.V.) for the organizational support. Also special thanks to my family, my girlfriend and my friends for their support and encouragement.
# Table of contents

**Introduction** .................................................................................................................. 2

**Shipment details** ........................................................................................................... 3
- Description of goods ......................................................................................................... 3
- Details of the shipper and the consignee ........................................................................... 3
- Nominated freight forwarder ............................................................................................. 4

**Handling of the carriage by sea** ...................................................................................... 6
- Sketch of transport concept ............................................................................................... 6
- Precarriage ......................................................................................................................... 7
  - Road transport from Freising-Attaching to inlandport of Deggendorf ......................... 7
  - Barge transport from inland port of Deggendorf to seaport of Antwerp ...................... 8
- Shipping from Antwerp to Hong Kong .............................................................................. 9
- Oncarriage and customs regulations in Hong Kong ......................................................... 12
- Schedule of the sea carriage ............................................................................................. 14

**Handling of the carriage by air** ...................................................................................... 15
- Sketch of transport concept ............................................................................................... 15
- Precarriage from Freising-Attaching to Frankfurt/Main .................................................. 16
- Flight from Frankfurt-Hahn airport to Guangzhou airport .............................................. 17
- Oncarriage and customs regulations in Guangzhou ......................................................... 20
- Schedule of the air carriage .............................................................................................. 21

**Documentation** ............................................................................................................ 22
- Needed documents for the export from Germany ............................................................. 22
- Needed documents for the import to China ...................................................................... 23
- Bill of Lading ..................................................................................................................... 24
- Air Waybill ....................................................................................................................... 25

**Insurance** ....................................................................................................................... 26

**Transport-surveyor** ....................................................................................................... 27

**Overview of costs** .......................................................................................................... 28

**Conclusion** ..................................................................................................................... 29

**Bibliography** .................................................................................................................... 31

**Appendices** ..................................................................................................................... 32
Introduction

The forwarding business has changed during the last years. The technological progress allows transporting nearly every kind of goods. Also the possibilities in transporting overweight and oversized cargo are improving. In the past it was linked with high costs. But nowadays, also caused by globalization and the range of freight forwarders, carriers etc., the freight costs decrease. Year after year the demand of transporting out-of gauge cargo increases.

Because of climate warming saving energy becomes more and more important and companies have to pay attention for their energy consumption. So the industry of renewable and energy saving products increased during the last years. Especially companies, like Better Products Ltd., the consignee in this thesis, which have to deal with high energy consumption, are interested in these kinds of products.

This thesis describes the progress of a project cargo which has to be transported from Germany to China on DDU basis. The project cargo consists of a crank shaft weight 100 tons, measurements 10.5 x 8 x 6 meters (l x w x h) transported by sea and an alternator weight 45 tons, measurements 4 x 3 x 3 meters (l x w x h) transported by air. Given delivery terms DDU, the shipper is to receive full-range service including precarriage, shipping, oncarriage and additional services like cargo survey and documentation. Nominated forwarder is the Karl Gross Internationale Spedition GmbH (Karl Gross), a medium sized company with head office in Bremen, Germany.

The shipper Clean World AG, a manufacturer of renewable energy products, instructed Karl Gross that the whole transport has to be done in terms of eco-friendliness.
Shipment details

Description of goods

The project shipment consists of two pieces. There is a crank shaft (see appendix 1) weight 100 tons, measurements 10.5 x 8 x 6 meters (l x w x h). The second piece is an alternator (see appendix 2) weight 45 tons, measurements 4 x 3 x 3 meters (l x w x h). The total value of the both shipments is EUR 4,000,000 (crank shaft: EUR 2,500,000; alternator: EUR 1,500,000).

Both pieces are harmless cargo so that dangerous goods regulations can be disregarded during the transport. The mass centre of the crank shaft and the alternator is concentric so the use of a truss during the transloadings is possible.

Details of the shipper and the consignee

The shipper, Clean World AG, is seated in Freising-Attaching, Germany (see appendix 3). Freising-Attaching is at a distance of 110 km from the inland port of Deggendorf and 780 km from the international seaport of Antwerp. The international airport Munich is 60 km away. Frankfurt-Hahn airport is about 500 km away.

Clean World AG produces parts for environmental power stations. Their company philosophy is to show the advantages of their energy saving products and to promote the ecological sensitivity of their customers. Thus, Clean World AG instructed the freight forwarder to handle the shipments as eco-friendly as possible.
The consignee, Better Products Ltd., is located in Foshan City in the People’s Republic of China (see appendix 4). Foshan is at a distance of 120 km from the international seaport of Hong Kong and 45 km from Guangzhou Baiyun International Airport. Better Products Ltd. is operating in the metal-industry sector. Because of their development of a new product line, Better Products Ltd. needs a new power station to supply their factory with energy. With their new power station they aim to save up to 30% of energy during production. The crank shaft and the alternator delivered by Clean World AG are part of their new power station.

Nominated freight forwarder

Clean World AG nominated the international freight forwarder Karl Gross Internationale Spedition GmbH (Karl Gross) to handle this shipment. Karl Gross is a medium-sized, privately owned international freight forwarder, founded in 1876. Its head office is located in Bremen, Germany. Further office locations include e.g. Hamburg and Frankfurt/Main (Germany) and Shanghai, Jiangyin, Qingdao and Shenzhen (China).

Karl Gross’s product range includes international ocean freight and air freight services (worldwide imports, exports and cross trades), project cargo services (worldwide imports and exports of out-of-gauge and project cargo via ocean freight and air freight), procurement logistics, distribution logistics, warehousing and customs handling.
Due to the “A” license of the Chinese office, Karl Gross can also handle the transport in China. The class "A" license allows freight forwarders to prepare air and ocean bills of lading, consolidate air and ocean shipments, charter aircrafts and ocean vessels for cargo deliveries, provide air courier services, conduct customs clearances, schedule inland bonded truck deliveries and issue transportation insurances.
Handling of the carriage by sea

Sketch of transport concept

The delivery deadline is 60 days from Freising-Attaching to the factory in Foshan. This is rather tight and time will be a major factor in choosing modes of transportation for this shipment and in pre-planning the cargo’s routes and handling. Arrangement of customs clearance is also crucial under this aspect as an unprepared customs clearance could cause delay. Secondly, the transport concepts need to take into account the eco-friendliness of the single modes of transportation. Hence, I plan the precarriage from Freising-Attaching to the seaport of Antwerp via a road/barge transport. Reasons for this are the oversize and overweight of the crank shaft and the eco-friendliness of a barge vessel in terms of CO2 compared to transportation via truck.

Handling oversize and overweight cargo the transloadings need special attention. Thus, to safe costs at the different transloadings the shipper organized a truss (see appendix 5). Using a truss means that only one crane is needed because of a better weight distribution. The truss will be transported with the crank shaft so it can be used at every transloading.

The transit time of the ocean vessel from Antwerp to China is one of the most important factors. To meet the schedule the transit time has to be as short as possible. Also the choice of the Chinese seaport is crucial, as not every seaport is able to handle the crank shaft. I focus Hong Kong as international seaport, as suitable carriers have no direct service to Foshan. The advantage of Hong Kong to other Chinese seaports is that the customs clearance does not
Handling of the carriage by sea

have to be done there. A later customs clearance in Foshan is possible as Hong Kong´s port area is a free trade zone. This means a time saving of approx. two days. To declare customs in China an import license is needed. The consignee requested this import license at the Ministry of Commerce (MofCom) in China.

The oncarriage from Hong Kong to Foshan will also be arranged as a road/barge transport because of eco-friendliness reasons.

Precarriage

Road transport from Freising-Attaching to inlandport of Deggendorf

In Germany the weight limit of a truck without a special heavy lift transport permission is 40 tons. For the road transport from the shipper´s factory to the inlandport of Deggendorf I have to request a special heavy lift transport permission. Before I request the permission at the regional authority, the road transport from Freising Attaching to Deggendorf has to be accurately planned. I have to search for a suitable flatbed truck. Also the transport route has to be surveyed. Possible infrastructural bottlenecks like street signs or crash barriers have to be recorded and removed before the transport. In Germany a trucking of heavy lift cargo is allowed between 10:00 pm – 06:00 am and with additional escort-vehicles, e. g. police vehicles, only. Due to the distance of 110 km from the shipper to the inland port of Deggendorf trucking is possible in one night.
Handling of the carriage by sea

After the planning of the road haulage is finished, I request the permission at the regional authority two weeks before the transport at the latest. The following information is required for the application of the heavy lift cargo permission:

- Address of the applicant
- Validity (single day or a certain period)
- Place of departure and final destination
- Description of goods
- Description and registration of the truck
- Load per axle and axial distance
- Dimensions, weight and a technical drawing of the cargo
- Binding route-recommendation

After the heavy lift cargo permission is confirmed, trucking can take place. According to § 22 of the road traffic act (see appendix 6) the shipper is responsible for the safe loading and stowing of the cargo on the truck. To avoid possible dangers, caused by the unsecured crank shaft, I assist the shipper while loading.

Barge transport from inland port of Deggendorf to seaport of Antwerp

Before the trucking from Freising-Attaching to Deggendorf will be accomplished, a barge and mobile crane have to be hired. When hiring the barge, the draught of the barge and bridges which have to be passed during the shipment from Deggendorf to Antwerp need to be considered. The lifting capacity of the mobile crane has to be min. 100 tons. For a safe fixing on board of the barge a heavy-load-platform is needed. I agree with the shipper that he
Handling of the carriage by sea

produces the heavy-load-platform, as he knows the exact details of the crank shaft. To avoid demurrage of the barge it is important to work out a schedule with a direct transloading at the inland port of Deggendorf.

After the truck arrived at the inland port, the mobile crane transloads the heavy-lift-platform and the crank shaft from the truck into the barge. For safety reasons the crank shaft has to be secured on the heavy-lift-platform at the floor of the barge. After the crank shaft is secured, the truss will also be loaded on board. For cargo protection the crank shaft will be covered by a tarpaulin.

Shipping from Antwerp to Hong Kong

The most common way to ship oversize and overweight cargo like the crank shaft is via a conventional vessel (see appendix 7). Generally, conventional vessels have their own crane for loading and unloading the goods. Depending on the kind of goods to be loaded, goods are secured by belts or welded at the hull of the vessel.

Most conventional vessels do not have a fixed routing. Thus, they are flexible in terms of port rotation. Yet, caused by the flexible routing, conventional vessels have no reliable schedule. Contrasting the costs of shipping the crank shaft via a conventional vessel with other transport possibilities, conventional vessels are cost-effective. But the transit time of a conventional vessel from Antwerp to Hong Kong is approx. 45 days. So I have to consider other modes of transportation.
Another possibility to ship the crank shaft from Antwerp to Hong Kong is via a container vessel (see appendix 8). Container vessels are designed in a manner that optimizes space occupation. Due to the twistlock system, container vessels are a save mode of transportation. This system allows carrying up to 14,000 TEU. Therefore, container vessels are one of the most efficient alternatives for transportation. Because of the high demand of shipping cargo by container, the range of carriers is widespread. Container vessels have a fixed port rotation, so they have a comparatively reliable schedule and a short transit time from Antwerp to Hong Kong of approx. 30 days.

The table below gives an overview of the advantages and disadvantages of the mentioned types of transport:

<table>
<thead>
<tr>
<th></th>
<th>Conventional vessel</th>
<th>Container vessel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost-effective</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Short transit time</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>High frequency</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Possibilities in choosing ports</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Range of carriers</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Reliable schedule</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

After balancing the positive and negative aspects of both transport modes, I decide to ship via container vessel because a) the shipper requests, to ship as most eco-friendly as possible and b) the short transit time.

Shipping oversize and overweight cargo on a container vessel is possible but not as common as transportation via conventional vessel. Not every container carrier accepts break bulk cargo. After consulting different carriers, I choose Hajin Shipping.
my decision are the direct service from Antwerp to Hong Kong, the favourable rates and their experience in handling of out-of-gauge cargo.

Shipping out-of-gauge cargo on a container vessel is possible via platforms. Due to weight and measurements of the crank shaft, it has to be loaded onto 5 x 40’ platforms, stowed next to each other (see appendix 9). If the equipment of platforms is not available, collapsible flat racks are also possible (see appendix 10). The flat racks have to be collapsible, otherwise the stowing of the crank shaft is not possible because of the container walls. I will inform the carrier that the platforms or collapsible flat racks have to be loaded at the first three sites directly below deck. As the crank shaft is highly sensitive to meteorological effects and salt water, a loading under deck is crucial. If there are no special instructions while booking, the carrier has the choice to load the cargo aloft or below deck. Because of the height of the crank shaft it has to be loaded on the first three sites below the deck (see appendix 11).

To save costs, I arrange a direct transloading from the barge to the container vessel. For the transloading a floating crane is needed. I will book this directly in Antwerp. As container vessels are usually on time, a direct transloading is more favourable than an indirect one, although there could be demurrage for the barge. A direct transloading means that the crank shaft will be loaded directly from the barge onto the container vessel. So there is only one handling. One handling instead of two means saving costs and a lower risk of cargo damage. I have to stay in close contact to the captain of the barge and the carrier to coordinate the direct transloading. After the crank shaft and the truss were loaded and secured on the container vessel it takes approx. 30 days until the vessel reaches the port of Hong Kong.
Oncarriage and customs regulations in Hong Kong

To prevent inconveniences caused by communication problems, I stay in close contact with my German colleagues in China. This avoids any misunderstandings caused by language barriers.

Like the transloading in Antwerp I arrange a direct transloading at Hong Kong port onto a barge for an oncarriage via inland water navigation to the inlandport of Foshan. The floating crane needed for transloading the cargo is available at Hong Kong port and was booked by my colleagues in China during the voyage of the container vessel.

As Hong Kong port is a free trade area the customs clearance does not have to be done directly there. This is an advantage because delays in delivery to Better Products Ltd., caused by customs regulations, can thus be avoided. Hong Kong is the only seaport in China with a free trade area. At every other Chinese seaport a direct customs-clearance is stipulated. Besides the saving of time there is another advantage. Better Products Ltd. can carry out the customs clearance directly at the customs office in Foshan. As Better Products Ltd. is also located in Foshan they could know each other from business in the past. This could be a reason for a fast and smooth customs clearance. So customs clearance in Foshan is benefical.

It is necessary that the trucker in China requests permission for the trucking from inland port of Foshan up to the consignee as the weight limit of a truck without permission is 50 tons. In China only native trucking-companies are allowed to handle road transports. So my colleagues have to book with a Chinese trucking-company out of their portfolio of reliable and out-of-gauge experienced truckers.
I instruct my colleagues in China to check the planned barge and trucking routes to the consignee for possible bottlenecks like bridges and road signs while the ocean vessel is sailing. Like in Germany it takes about two weeks until the responsible authority confirms the exact route which was pre-examined.

I use the tracking and tracing system of the carrier to check if the vessel is on time. To avoid delays my colleagues in China inform the barge carrier in Hong Kong about the ETA and organize a floating crane, which is available at the port of Hong Kong, to arrange direct transloading from the container vessel to the barge. To make a direct transhipment possible a good coordination between the different parties involved is necessary. These are the ocean carrier, the barge carrier and the operator of the floating crane. Therefore I stay in constant contact with my colleagues in China, who assist me, especially with their knowledge about particularities in China. After the direct transloading, the barge can sail to the inland port of Foshan.

After the barge arrived the inland port of Foshan I inform the consignee to clarify the details of the delivery. This is crucial as the engineers of the consignee will assist with the exact location where the crank shaft needs to be unloaded.

Although the delivery term is DDU my colleagues in China assist to declare customs for the crank shaft. They request all needed documents from the consignee (Bill of Lading, commercial invoice, packing list and import license) before the barge arrives in Foshan for checking purposes. After the crank shaft was unloaded at inland port of Foshan, the customs clearance can be done. As everything was prepared for the customs clearance and the consignee is in close contact with the customs office, this will take approx. 3 days. After the crank shaft was declared, trucking to Better Products Ltd. can be carried out.
Handling of the carriage by sea

To realise a smooth unloading I instruct my colleagues in China to meet the engineers of the consignee to survey the exact location where the crank shaft needs to be unloaded. After the truck arrives at the unloading location, the crank shaft will be unloaded outside of the factory by the mobile crane, hired by my colleagues in China.

Schedule of the sea carriage

The table below shows the complete schedule of the sea carriage.

<table>
<thead>
<tr>
<th>Application of the permission (in advance)</th>
<th>14 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road transport from Freising-Attaching to Deggendorf</td>
<td>1 day/night</td>
</tr>
<tr>
<td>Transloading in Deggendorf</td>
<td>1 day</td>
</tr>
<tr>
<td>Barge transport from Deggendorf to Antwerp</td>
<td>4 days</td>
</tr>
<tr>
<td>Transloading in Antwerp</td>
<td>1 day</td>
</tr>
<tr>
<td>Shipping from Antwerp to Hong Kong</td>
<td>30 days</td>
</tr>
<tr>
<td>Transloading in Hong Kong</td>
<td>1 day</td>
</tr>
<tr>
<td>Barge transport from Hong Kong to Foshan</td>
<td>2 days</td>
</tr>
<tr>
<td>Transloading and custom clearance in Foshan</td>
<td>4 days</td>
</tr>
<tr>
<td>Trucking from Foshan to unloading point</td>
<td>1 day/night</td>
</tr>
</tbody>
</table>
Handling of the carriage by air

Sketch of transport concept

Because of the measurements and the weight of the alternator for the road transport a special heavy lift transport permission has to be requested. This has to be done at first because it takes two weeks until the regional authority confirmed the permission (see road transport of the crank shaft).

The shipper’s location is at a distance of approx. 50 km from the airport Munich. But Munich is not well qualified for handling cargo like the alternator. Frankfurt-Hahn, approx. 450 km away from Freising-Attaching, is specialized for handling oversize and overweight cargo. In 2009 Frankfurt-Hahn airport handled the heaviest airfreight shipment ever. The weight of the consignment was about 186 tons. Another reason for choosing Frankfurt-Hahn is the difference between the price for the flight from Munich or Frankfurt. The airline offered a more favourable price from Frankfurt-Hahn airport. Reasons for this are the better possibilities to get cargo for the flight to Frankfurt-Hahn. So the airline has better possibilities in calculation of the costs.

Caused by the distance of approx. 450 km from Freising-Attaching to Frankfurt-Hahn the road transport has to check in terms of eco-friendliness. Therefore I choose a trucker who has vehicles with the EEV (Enhanced Environmental Friendly Vehicle) class. This class has the least CO2 emission.
To ensure a safe flight, I ask the shipper for an engineering drawing of the alternator. This is crucial for the airline to plan the exact drop point in the aircraft. A loading at the wrong point could cause troubles with the mass centre of the aircraft.

The nearest airport to Better Products Ltd. is Guangzhou Baiyun International Airport. Another advantage are the low handling charges in Guangzhou comparing to other Chinese airports. The airport in Guangzhou is the 13th biggest airport of the world and has experience in handling oversized and overweight cargo. According to the staff of the airport, equipment for handling the alternator is available. For the oncarriage from Guangzhou to Foshan City the route has to be pre-examined and a special heavy lift cargo permission has to be requested at the regional authority.

As for the sea freight shipment an import license is needed to clear customs for the alternator in China. So the consignee requested this import license at the Ministry of Commerce (MofCom) in China.

Precarriage from Freising-Attaching to Frankfurt/Main

Caused by the dimensions (4 x 3 x 3 meters) and the weight (45 tons) of the consignment a trucking without a special permission is not allowed. So I have to plan the road transport and request the heavy lift transport permission for the transport from Freising-Attaching to Frankfurt-Hahn similar to the precarriage to the seaport of Antwerp. After the permission is confirmed, the precarriage to Frankfurt-Hahn airport will take place. From the operator of
Frankfurt-Hahn airport, I received the information that the equipment for loading the alternator from the truck into the aircraft is available.

**Flight from Frankufrt-Hahn airport to Guangzhou airport**

Caused by the measurements (36 cbm) and weight (45 tons) a comparison between a scheduled flight and a charter flight is necessary.

A scheduled flight is the most cost effective possibility to transport the alternator via airfreight, as per the rates of the airlines. Yet, scheduled flights have fixed time tables. So there is no flexibility in departure. Another negative aspect of scheduled flights is the risk of damages, caused by other cargo. There is also an endangerment of overbooking which means that the airline has to rebook cargo onto the next possible flight.

By comparison, a charter flight is rather cost-intensive, because a whole aircraft has to be booked. An advantage is the better flexibility in terms of departure date. If there are delays in handling the alternator at the airport also the time of departure can be shifted. In case of a full-charter there is no risk of damages caused by other cargo loaded at the aircraft.

<table>
<thead>
<tr>
<th></th>
<th>Scheduled flight</th>
<th>Charter flight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost-effective</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Risk of damages caused by other cargo</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Endangement of overbooking</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Flexibility in modifying the time table</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
After comparing the positive and negative aspects of a scheduled and charter flight I decide to arrange a charter flight mainly for the following reasons:

1. The timetable for the aircraft shipment is 10 days, so a charter flight is the more expedient choice
2. As the alternator is a highly sensitive consignment, any risk of damages caused by other cargo has to be avoided

After deciding for a charter flight, I have to choose a qualified aircraft. Due to the measurements and the weight of the alternator not every aircraft is suitable. To avoid a special base plate for transporting the alternator in the aircraft, it has to have a high maximal floor loading. Therefore the most qualified aircrafts are the Antonov AN 124-100 (see appendix 12) and the Ilyushin IL-76TD-90 (see appendix 13).

**Technical data of the Antonov AN 124-100**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>69.10 m</td>
</tr>
<tr>
<td>Wing span</td>
<td>73.30 m</td>
</tr>
<tr>
<td>Height</td>
<td>20.78 m</td>
</tr>
<tr>
<td>Cargo hold</td>
<td>36.50 x 6.40 x 4.40 m</td>
</tr>
<tr>
<td>Cruising speed</td>
<td>800 – 850 km/h at a height of 10,000 m</td>
</tr>
<tr>
<td>Maximum reach</td>
<td>12,000 km with 40 t, 4,800 km with 120 t</td>
</tr>
<tr>
<td>Maximum payload</td>
<td>120 t</td>
</tr>
<tr>
<td>Maximum take-off weight</td>
<td>392 t</td>
</tr>
</tbody>
</table>
Handling of the carriage by air

Technical data of the Ilyushin IL-76TD-90

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
<td>46.60 m</td>
</tr>
<tr>
<td><strong>Wing span</strong></td>
<td>50.50 m</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>14.76 m</td>
</tr>
<tr>
<td><strong>Cargo hold</strong></td>
<td>24.54 x 3.45 x 3.4 m</td>
</tr>
<tr>
<td><strong>Cruising speed</strong></td>
<td>830 km/h at a height of 10,000 m</td>
</tr>
<tr>
<td><strong>Maximum reach</strong></td>
<td>4,300 km (maximum payload)</td>
</tr>
<tr>
<td><strong>Maximum payload</strong></td>
<td>50 t</td>
</tr>
<tr>
<td><strong>Maximum take-off weight</strong></td>
<td>195 t</td>
</tr>
</tbody>
</table>

After checking the data of both aircrafts I would actually choose the Ilyushin IL-76TD-90 for the transport. Mainly because it is the aircraft with the least fuel consumption comparing with other cargo aircrafts. However, as the alternator is packed in only one package and according to Clean World AG transportation like this is crucial, the force of the mass centre is too heavy for a transport with the IL-76TD-90. So transportation with the Antonov AN 124-100 is indispensable, although the other data like the fuel consumption do not militate for that.

As the distance from Frankfurt to Guangzhou is approx. 8,900 km, a non-stop flight is possible. I book a full charter flight with the Antonov simultaneously with the request of the heavy lift transport permission, so the airline can organize the flight time table and plan the dealings in Frankfurt-Hahn airport and Guangzhou airport.
Oncarriage and customs regulations in Guangzhou

I instruct my colleagues in China to inform the trucker about the estimated arrival of the aircraft to avoid any delays.

Similar to the precarriage in Germany the oncarriage to Foshan is not possible without heavy lift transport permission. I send the cargo details to my colleagues in China and ask them to request the heavy lift transport permission at the responsible authority.

After the aircraft touched down in Guangzhou I inform the consignee about the current schedule. This is crucial because the consignee has to inform his engineers. To avoid delays customs clearance will be done in Foshan. A customs clearance in Foshan means, that the consignee has to deposit a bond at the customs office. The bond amount is min. 100 % of the customs and VAT.

Like with the sea freight shipment, my colleagues in China check the documents needed for customs clearance, although the delivery term is DDU. After the alternator is declared at the customs office in Foshan, it will be unloaded outside at the exact unloading point at Better Products Ltd.


Schedule of the air carriage

The table below shows the complete schedule of the carriage by air.

<table>
<thead>
<tr>
<th>Description</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application of the permission (in advance)</td>
<td>14 days</td>
</tr>
<tr>
<td>Trucking from Freising-Attaching to Frankfurt-Hahn airport</td>
<td>1 day/night</td>
</tr>
<tr>
<td>Transloading at Franfurt-Hahn</td>
<td>1 day</td>
</tr>
<tr>
<td>Flight from Frankfurt to Guangzhou</td>
<td>1 day</td>
</tr>
<tr>
<td>Transloading in Guangzhou</td>
<td>2 days</td>
</tr>
<tr>
<td>Trucking from Guangzhou to the unloading point and customs clearance</td>
<td>1 day</td>
</tr>
</tbody>
</table>
Documentation

Needed documents for the export from Germany

Every good which is exported from Germany must be declared at the German customs. Since April 2009 export declaration is only allowed via AES (Automated Export System). This system simplifies export customs declarations and saves time because the original customs papers do not have to be sent to the export customs office anymore.

Export customs declaration contains the following data:

- Address of the shipper
- Address of the consignee
- Description of goods
- Value of goods
- Customs tariff number
- Customs number of the shipper (see appendix 14)

As an inspection of the crank shaft and the alternator by the German customs is possible at any time and will of the customs authority, I arrange the export customs clearance on behalf of the shipper 24 hours before the two consignments will be picked up at the latest. After completing the export customs document, the AES automatically generates a Movement Reverence Number (MRN). With this MRN the consignment is declared at Antwerp seaport and at Frankfurt-Hahn airport, respectively.
After the crank shaft and the alternator are exported, I establish an export declaration.

For the German shipper Clean Word AG it is necessary to receive the export declaration to demonstrate the export of the specific goods to China towards the German tax office (see appendix 15). With the presentation of this document, the VAT will be refunded for foreign buyers from non-EU countries. This means cost saving for the shipper. The export declaration is issued by the nominated forwarder Karl Gross, who confirms the export of the goods.

**Needed documents for the import to China**

To declare customs for the crank shaft and the alternator in China a commercial invoice is required. The commercial invoice is issued by the shipper before the transport takes place.

Information contained:

- Name and address of the contractual partner
- Description of goods
- Quantity of packages
- Value of goods
- Agreed terms of delivery

Another document needed is the packing list. A packing list commonly includes itemized details of the package contents and does not include customer pricing. It serves to inform all parties, including transport agencies, government authorities and customers, about the contents of the package. It helps them deal with the package accordingly. It is crucial that the shipper establishes one commercial invoice and packing list for the crank shaft and another
one for the alternator. Otherwise an import to China is not possible, as the two consignments are not shipped with the same mode of transport.

Another compulsory document is the import license. An import license is a document issued by a national government authorizing to import certain goods into its territory. Each license specifies the volume of imports allowed. Licenses can be sold to importing companies at a competitive price or simply a fee.

For machinery products, which are ecofriendly and imported to China, China offers a zero-license. Thus, the consignee does not have to pay customs. As the crank shaft and the alternator are eco-friendly machinery parts, the consignee can request the zero-license at the Ministry of Commerce (MofCom) in China. This means cost saving for the consignee.

Bill of Lading

The Bill of Lading (B/L) is the basis of a contract for a carriage by sea (see appendix 16). The issuing of a B/L for every maritime transport is regulated by the government. An original B/L is a commercial paper, which can be sold during the sea voyage. The owner of the B/L is also the owner of the goods mentioned in the B/L. Furthermore it is an evidence that a valid contract of a sea carriage exists.

The shipper Clean World AG advised to issue 3/3 original Bs/L. Before I send the B/L instructions to the carrier, I have transmitted a draft-B/L to the shipper asking for
confirmation. As changes after issuing the original Bs/L would cause extra costs, a final confirmation by the shipper is beneficial.

After receiving the confirmation of the departure of the vessel, I demand the original B/L with three originals and copies from the carrier. To avoid mistakes I double-check the B/L and send it to the shipper via courier service for safety and tracking reasons.

Air Waybill

The Air Waybill (AWB) serves as a receipt for the goods and an evidence for the contract of air carriage, but it is not a document of title to the goods (see appendix 17). Therefore the AWB is non-negotiable. The first three copies are classified as originals. The first copy is retained by the issuing carrier or their appointed agent. The second copy is kept by the receiving carrier or their agent. The third copy is used as a proof of delivery.
Insurance

The shipper has instructed me to cover transport insurance. For this order insurance is beneficial because of the high value of the goods (crank shaft EUR 2,500,000 and alternator EUR 1,500,000). The legal liability of a freight forwarder would not cover the whole value. The legal liability of a freight forwarder for seafreight and airfreight shipment is different. According to the Hague-Visby Rules the usual liability for the seafreight shipment is 2 special drawing right (SDR; 1 SDR = 1.1046 EUR) per kg gross weight or 666.67 SDR per package. In case of liability the maximum amount the responsible forwarder has to pay is about EUR 220,920. Therefore, transport insurance is useful for this shipment.

According to the Montreal Convention, regulating the legal liability of a freight forwarder for airfreight shipments, the liability is 17 SDR per kg gross weight. This means a limit of EUR 845,019 for the alternator.

The insurance is calculated on per mille basis of the value of the goods. Depending on the country the goods are shipped to and the mode of transportation, the per mille amount can vary in value. There are different possibilities for the coverage of the insurance, e.g. limited coverage, full coverage, war and miens coverage. To cover all possible risks, I instruct the insurance company to insure a full coverage including war/miens risk.
To cover insurance has numerous advantages for Clean World AG. Some of the advantages are as follows:

- The whole value of goods is covered
- Different risks are covered which are not without an insurance, e.g. piracy risk
- The owner of the goods does not have to enforce his claims for himself
- The owner of the goods can set the value of goods including additional costs
- The liability is continuously guaranteed

As proof of the insurance contract the insurance company issues a certificate for both shipments (see appendix 18). In this certificate, the cargo details, the value and the insurance coverage are mentioned. I transmit the insurance certificates together with the Bill of Lading and the export declaration directly to the shipper.

**Transport-surveyor**

To provide good service I hire a transport-surveyor. Hiring a transport surveyor means a complete attendance during the transport, excluded the sea carriage from Antwerp to Hong Kong. The nominated surveyor is a specialist in handling the oversize and overweight cargo and also a link between the several responsible persons like the trucker, barge captain and the port staff. At every transloading the surveyor produces a report of the cargo condition and notes possible damages. Furthermore, I instruct the surveyor to record a video documentation. This video is interesting for the shipper and the consignee as they have the possibility to check on the transportation of the crank shaft and the alternator.
Overview of costs

Transport of the crank shaft

<table>
<thead>
<tr>
<th>Description</th>
<th>Currency</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXW Freising-Attaching to FOB Antwerp</td>
<td>EUR</td>
<td>49,500</td>
</tr>
<tr>
<td>FOB Antwerp to CIF Hong Kong</td>
<td>USD</td>
<td>76,500</td>
</tr>
<tr>
<td>CIF Hong Kong to DDU Foshan</td>
<td>USD</td>
<td>65,400</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td><strong>EUR</strong></td>
<td><strong>153,838</strong>* (convert. rate 1 EUR = 1.36 USD)</td>
</tr>
</tbody>
</table>

Transport of the alternator

<table>
<thead>
<tr>
<th>Description</th>
<th>Currency</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXW Freising-Attaching to FCA Frankfurt-Hahn</td>
<td>EUR</td>
<td>5,500</td>
</tr>
<tr>
<td>FCA Frankfurt-Hahn to CIP Guangzhou</td>
<td>USD</td>
<td>810,000</td>
</tr>
<tr>
<td>CIP Guangzhou to DDU Foshan</td>
<td>USD</td>
<td>5,400</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td><strong>EUR</strong></td>
<td><strong>605,058</strong>* (convert. rate 1 EUR = 1.36 USD)</td>
</tr>
</tbody>
</table>

Insurance

<table>
<thead>
<tr>
<th>Cargo</th>
<th>Calculation</th>
<th>Insurance premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crank shaft</td>
<td>2.75 per mille + 0.5 per mille war/miens additional of the value of the crank shaft (full coverage)</td>
<td>EUR 8,125</td>
</tr>
<tr>
<td>Alternator</td>
<td>2.00 per mille + 0.5 per mille war/miens additional of the value of the alternator (full coverage)</td>
<td>EUR 3,750</td>
</tr>
</tbody>
</table>

*This price is excl. police escort and traffic measures for the pre- and oncarriage. It is not possible to quote for this in advance as bottlenecks like day road works cannot be anticipate.
Conclusion

While organizing the whole transport regarding terms of eco-friendliness it comes to light, that the communication between the different persons involved is crucial. Caused by the tight calculated schedule for the sea and air shipment, an important aspect is to stay in close contact with all responsible persons, e.g. the carrier, the trucker, the customs office etc. to avoid delays. Also the choice of the mode of transport is a challenge.

Another important aspect is the preparatory work, e.g. the permissions for the pre- and oncarriage which have to be requested in advance and the routes which have to be planned accurately. Also the choice of the aircraft is one of the critical factors. Many aspects like the max. floor loading, the measurements of the hatchway and the mass centre of the aircraft have to be considered.

The issue eco-friendliness is current in the freight forwarding business. Thus, the German Association for Freight Forwarding and Logistics published a study about “green logistics”. In this study they analyzed the behavior of German freight forwarders in terms of eco-friendliness and possibilities for the future. Also most of the governments of the different countries started to deal more with the topic of eco-friendliness in the last years. Measures like the “zero-license” implemented by the Chinese government, as I already mentioned, shall support environmental business.
As this dissertation shows, the work of a freight forwarder includes different tasks to handle with. Every transport has its own demands and has to be planned separately. The freight forwarder always has to gauge between factors of eco-friendliness, costs and time exposure regarding the preferences of the customer to find the best possible solution.
Bibliography

Primary Reference Books:

Author : Peter Jones
Title : FIATA Legal Hand Book on Forwarding, Third Edition
Publisher / Date : FIATA, 2001

Author : Marta Anna Krajewska
Title : Potentials for Efficiency Increase in Modern Freight Forwarding
Publisher / Date : Gabler-Verlag, Wiesbaden, 2008

Author : Dietrich Kopp
Title : Fachwissen für Speditions- und Logistikkaufleute – Internationale Spedition
Publisher / Date : Berufsbildungswerk der Spedition, Hessen, 2007

Author : Thomas Wolfrum
Title : Fachwissen für Speditions- und Logistikkaufleute – Zollwesen
Publisher / Date : Berufsbildungswerk der Spedition, Hessen, 2007

Author : Michael Benz
Title : Fachwissen für Speditions- und Logistikkaufleute – Der Spediteur und die Logistik
Publisher / Date : Berufsbildungswerk der Spedition, Hessen, 2007

Author : Martin Voth
Title : Leistungsprozesse Spedition und Logistik
Publisher / Date : Bildungsverlag EINS, Troisdorf, 2007

Author : Hans Kujawski, Friedrich Sackmann, Dr Egon Trump
Title : Spedition und Logistik
Publisher / Date : Europa-Lehrmittel, Haan-Gruiten, 2006

Primary Internet Sources:

www.zoll.de www.mscgva.ch
www.wikipedia.de www.cargo-levant.de
www.fiata.com www.ilyushin.org
www.karlgross.de www.china-briefing.com
Appendices
Table of appendices

Appendix 1: Crank shaft........................................................................................................ 34
Appendix 2: Alternator ........................................................................................................ 34
Appendix 3: Location of the shipper................................................................................. 35
Appendix 4: Location of the consignee ............................................................................ 35
Appendix 5: The truss ......................................................................................................... 36
Appendix 6: § 22 of the German road traffic act................................................................. 36
Appendix 7: Conventional vessel........................................................................................ 37
Appendix 8: Container vessel.............................................................................................. 37
Appendix 9: 40’ platform .................................................................................................. 38
Appendix 10: 40’ collapsible flat rack .............................................................................. 38
Appendix 11: Loading of the crank shaft into a container vessel ................................. 39
Appendix 12: Antonov AN 124-100 .............................................................................. 40
Appendix 13: Ilyushin IL-76TD-90 ................................................................................ 41
Appendix 14: Customs number ....................................................................................... 41
Appendix 15: Export declaration ..................................................................................... 42
Appendix 16: Bill of Lading ............................................................................................. 43
Appendix 17: Air Waybill ................................................................................................. 44
Appendix 18: Insurance certificate ................................................................................... 45
Appendices

Appendix 1: Crank shaft

Crank shaft
weight: 100 tons
dimensions: 10.5 x 8 x 6 meters

Appendix 2: Alternator

Alternator
weight: 45 tons
dimension: 4 x 3 x 3 meters
Appendix 3: Location of the shipper

Clean World AG in Freising-Attaching, Germany

Appendix 4: Location of the consignee

Better Products Ltd. in Foshan City, China
Appendix 5: The truss

Appendix 6: § 22 of the German road traffic act

StVO (Straßenverkehrs-Ordnung)

§ 22 Ladung

(1) Die Ladung einschließlich Geräte zur Ladungssicherung sowie Ladeeinrichtungen sind so zu verstauen und zu sichern, dass sie selbst bei Vollbremsung oder plötzlicher Ausweichbewegung nicht verrutschen, umfallen, hin- und herrollen, herabfallen oder vermeidbaren Lärm erzeugen können. Dabei sind die anerkannten Regeln der Technik zu beachten.

(2) Fahrzeug und Ladung dürfen zusammen nicht breiter als 2,55 m und nicht höher als 4 m sein. Fahrzeuge, die für land- oder forstwirtschaftliche Zwecke eingesetzt werden, dürfen, wenn sie mit land- oder forstwirtschaftlichen Erzeugnissen oder Arbeitsgeräten beladen sind, samt Ladung nicht breiter als 3 m sein. Sind sie mit land- oder forstwirtschaftlichen Erzeugnissen beladen, dürfen sie samt Ladung höher als 4 m sein. Kühlfahrzeuge dürfen nicht breiter als 2,6 m sein.

(3) Die Ladung darf bis zu einer Höhe von 2,5 m nicht nach vorn über das Fahrzeug, bei Zügen über das ziehende Fahrzeug hinausragen. Im Übrigen darf der Ladungsüberstand nach vorn bis zu 50 cm über das Fahrzeug, bei Zügen bis zu 50 cm über das ziehende Fahrzeug betragen.
Appendix 7: Conventional vessel

Conventional vessels have a traditional cargo operation with top opening hatches and cranes/derricks. On such ships, when facing wet weather, the hatches need to be closed to prevent heavy rain from flooding the holds. This ship type is well suited for the handling of palletized and loose cargo.

Appendix 8: Container vessel

Today, most small size general cargo will be on a containership, also known as "box" ships. The "boxes" they carry are containers that generally are found in twenty and forty foot lengths. Initial ISO external container dimensions, standardised in the early 1960's, are still for the most part intact today. The twenty-foot equivalent (TEU) is the standard by which container volume is measured.
Appendix 9: 40’ platform

Platform containers are designed to carry cargo in excess of the dimensions available in either general purpose, open top or flat rack containers. They consist of a flat bed with lashing points for securing cargo.

Appendix 10: 40’ collapsible flat rack

Although flat rack containers are primarily meant for overwidth (width greater than 2.35 m or 7’8”) and heavyweight cargo, both overwidth and overheight cargo can be loaded on flat rack containers due to its open construction. The specially reinforced bottom construction can sustain the high pressure of heavyweight cargo. Numerous high load capacity lashing rings are installed on the corner posts, top-side rails and bottom-side rails for lashing and bracing of the cargo.

Commodities commonly shipped in the flat rack container include machinery, industrial boilers, tractors, parts packed in cases, steel tubes, steel pipes, steel bars and cables.
Appendix 11: Loading of the crank shaft into a container vessel
Appendix 12: Antonov AN 124-100

The Antonov AN-124 was the largest airplane in production until the Antonov AN-225 was built. First flown in 1982, civil certification was issued by the CIS Interstate Aviation Committee on 30 December 1992. Over 30 aircrafts are currently in service (26 civilian models with airlines and 10 firm orders as of August 2006) and 20 were in commercial use in 1998 in Ukraine, Russia, the United Arab Emirates and Libya.
Appendix 13: Ilyushin IL-76TD-90

The IL-76TD-90 aircraft equipped with the PS-90A-76 engines is a further development of the IL-76TD aircraft.

The new engines allow substantial improvement of the aircraft effectiveness due to the following achievements:

- 12% reduction of the specific fuel consumption;
- 18% flight range increase;
- direct operational costs reduction;
- possibility to operate the aircraft from high-elevation aerodromes and in high-temperature environment;
- noise and emission levels compliance with the latest International Civil Aviation Organization standards.

Appendix 14: Customs number

Persons or companies exporting or importing more than three consignments per year have to apply for a customs number. The customs number enables the German customs to receive more detailed information from the companies. The customs number can be requested at the Information- und Wissensmanagement Zoll (IWM) in Dresden, Germany.
Appendix 15: Export declaration

Ausfuhrbescheinigung
für Umsatzsteuerzwecke

Karl Gross Internationale Spedition GmbH:

INTERNATIONAL FREIGHT FORWARDER

KARL GROSS
Better logistics for you

F.C. Box 15 55 92 - 28053 Bremen

Bremen Landesbank

Martinistrasse 14 - 28195 Bremen

BLZ: 285 50 000

IBAN: DE82 2805 0000 28195 0000 2

EUR: 28195 0000 002

USD: 149 000 000

VAT-Id/US-Tax#: DE18935466

18.04.2010

Empfänger:

FOSHAO CITY CHINA

Notify:

SAME AS CONSIGNEE

Notify:

KARL GROSS LOGISTICS (SHANGHAI) CO., LTD

1305, HUAISHENG BLDG, 399, JIUJUANG ROF

CN/200001 SHANGHAI, P.R. OF CHINA

Übermittler:

COSCO NINGBO

Lasthafen:

ANTWERPEN

Ladeflächen:

HONGKONG

Verladestadt:

19.04.2010

Verladetag:

17.05.2010

Markierung:

BETTER PRODUCTS LTD 1
HUIAN CHENG ROAD 8
CN-100222 FOSHAN CITY

Anzahl und Inhalt:

PACKAGE CRANK SHAFT LOADED ON FIVE PLATFORMS

Gewicht/Cube:

100,000.0 KGS 504,000


Wir versichern, dass wir die vorstehenden Angaben nach bestem Wissen und Gewissen auf Grundlage der im Bundesgebiet nachprüfbar Geschäftsunfähigkeiten gemacht haben.

Mit freundlichen Grüßen

Karl Gross Internationale Spedition GmbH


Unsere Referenz:
011100301404

Telefon:

E-mail:

SEITE 1/1

[Additional information: conditions, terms and information please turn over]
Appendix 16: Bill of Lading

![Image of Bill of Lading]

**Bill of Lading**

Shipped to:
CLEAN WORLD AG
RAFFEISENSTRASSSE 30
85356 FREISING-ATTACHING
GERMANY

Shippers ref:

Consignee
BETTER PRODUCTS LTD.
HUAN CHENG ROAD NO.9
CN-100022 FOSHAN CITY
CHINA

Notify party and address (carrier not liable for failure to notify):
SAME AS CONSIGNEE

---

**For particulars of delivery apply to:**
KARL GROSS LOGISTICS (SHANGHAI) CO., LTD.
1305, HUASHENG BLDG, 390, JIUJANG ROAD
CNY 200001 SHANGHAI, P.R. OF CHINA

---

**BILDER OF LADING (for combined transport or port to port shipment)**

Ports of departure:
BARGE/ROAD FREISING-ATTACHING
Ocean Vessel: COSCO NINGBO
Port of loading: ANTWERP
Port of discharge: HONG KONG
Place of delivery: FOSHAN

Marks and numbers:

<table>
<thead>
<tr>
<th>Number and kind of packages</th>
<th>Description of goods</th>
<th>Gross weight (kgs)</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>BETTER PRODUCTS LTD HUAN CHENG ROAD 9 CN-100022 FOSHAN CITY</td>
<td>CRANK SHAFT LOADED ON FIVE PLATFORMS</td>
<td>100,000.0 KGS</td>
<td>504,000</td>
</tr>
</tbody>
</table>

**According to the declaration of the shipper**

<table>
<thead>
<tr>
<th>Freight and charges payable at:</th>
<th>Freight and charges ex works up to toc</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREPAID</td>
<td></td>
</tr>
</tbody>
</table>

Handling charges and documentation:
Insurance
Oceanfreight
Collection fees

**Value declaration: US$/€ refer to clause 11-13 on reverse side**

The goods and instructions are accepted and dealt with subject to the Standard Conditions printed overleaf.

Received for shipment the above mentioned goods in apparent good order and condition as far as could be ascertained by exercising reasonable means of checking or as stated above.

One of these Bills of Lading must be surrendered duly endorsed in exchange for the goods. In witness whereof the original Bills of Lading all of this tenor and date have been signed in the number stated below, one of which being accomplished the other(s) to be void.

In Witness whereof 3/3 Bills of Lading have been signed all of this tenor and date, one of which being accomplished or returned the other to stand void.

BREMEM 19.04.2010

For BBC - LINE, as carrier

**KARL GROSS International Spedition GmbH**
Martinistraße 24 - 28195 Bremen

Use agent for the carrier
## Appendix 17: Air Waybill

![Air Waybill Image]

### Details
- **Shippers Name and Address:** CLEAN WORLD AG
- **Shipper's Account Number:** RAFFEISENSTRASSE 30
- **Consignees Name and Address:** BETTER PRODUCTS LTD.
- **Consignee's Account Number:** HIJIAN CHENG ROAD NO. 9
- **Issuing Carrier's Account Number:** CN-100033 FOSHAN CITY, CHINA
- **Freight Prepaid:**
- **Reference Number:** FRA - 6007 1557
- **Account No.:**
- **Declared Value for Carriage:**
- **Declared Value for Customs:**
- **Amount of Insurance:** N I L
- **No. of Pieces:** 1
- **Gross Weight:** 45.000 KG
- **Cargo:**
  - **Nature and Quantity of Goods:** 1* 400 X 300 X 300 CMS
- **Prepaid:**
  - **Weight Charge:**
  - **Other Charges:**
- **Total:** AS AGREED
- **Signature of Shippers or Its Agent:**
  - **Name:** KARL GROSS INTL SPED. GMBH
  - **Address:** CARGO CITY SUELD, GEB. 641
  - **City:** 60549 FRANKFURT
- **Signature of Issuing Carrier or its Agent:**
  - **Name:** KARL GROSS INTERNATIONALE SPEDITION GMBH
  - **Address:** FRANKFURT AIRPORT
  - **Date:** 20.04.2010
  - **Place:** FRANKFURT

---

**Note:** The image contains a sample Air Waybill form filled out with the details mentioned above.
Appendix 18: Insurance certificate

Certificate (Policy) of Marine Insurance

Sum Insured: EUR 2500000.00
Place and Date of Issue: Bremen 21.04.2010
Open Cover No.: 2
Certificate No.: 213436

This is to certify that insurance has been granted under the above Open Cover to:

BEARER OF THIS CERTIFICATE

for account of whom it may concern, on the following goods:

1 x KURBELWELLE 100 TO.

for the following voyage:

FREISINGEN - ANTWERPEN - HONG KONG - FOSHAN
par: BY TRUCK / MV and/or other vessel/conveyance
from warehouse to warehouse. In accordance with Clause Duration of Insurance printed overleaf.
Claims payable to the holder of this certificate. Settlement under one original shall render all other null and void.

Conditions:
2. Terms and conditions of the above Open Cover.
3. Type of cover (see overleaf):
4. Clause:

ALL RISKS

IN CASE OF USED MACHINERY EXCL. DAMAGES FROM RUST, OXIDATION, SCRATCHES AND TO PAINTWORK.
DTV-WAR CLAUSES,
DTV-STRIKES, RIOTS AND CIVIL COMMOTIONS CLAUSES

See overleaf for Instruction to be followed in case of loss or damage.

In case of loss or damage apply to:

By authority:

For and on behalf of insurance companies participating:

Carl Schröter GmbH & Co. KG, Bremen
Zurich Versicherungs-AG, Hamburg

claim documents to be sent to:
Wilhelm Reemtsen GmbH & Co. KG · P.O. Box 33 05 46 · D-28335 Bremen/Germany
Certificate (Policy) of Marine Insurance

1. ORIGINAL

<table>
<thead>
<tr>
<th>Sum Insured</th>
<th>Place and Date of issue</th>
<th>Originals</th>
<th>Open Cover No.</th>
<th>Certificate No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR 1500000.00</td>
<td>Bremen 21.04.2010</td>
<td>2</td>
<td>213437</td>
<td></td>
</tr>
</tbody>
</table>

This is to certify that insurance has been granted under the above Open Cover to:

BEARER OF THIS CERTIFICATE

for account of whom it may concern, on the following goods

GENERATOR 45 TO.

for the following voyage:

FREISINGEN - FRANKFURT - GUANGZHOU - FOSHAN

per: BY TRUCK / AIRFREIGHT and/or other vessel/conveyance

from warehouse to warehouse, in accordance with Clause Duration of Insurance printed overleaf.

Claims payable to the holder of this certificate. Settlement under one original shall render all other null and void.

Conditions:

2. Terms and conditions of the above Open Cover.
3. Type of cover (see overleaf): 4. Clauses:

1 ALL RISKS

IN CASE OF USED MACHINERY EXCL. DAMAGES FROM RUST, OXIDATION, SCRATCHES AND TO PAINTWORK.

DTV-WAR CLAUSES.

DTV-STRIKES, RIOTS AND CIVIL COMMOTIONS CLAUSES

If the cover is based on the Institute Cargo Clauses (ICC), then the Institute Radiactive Contamination, Chemical, Biological, Biochemical and Electromagnetic Weapons Exclusion Clause (CL 370/10/11/03), becomes part of this policy.

See overleaf for instruction to be followed in case of loss or damage.

In case of loss or damage apply to:

HUNTAI INSUR. AGENCY, FL. 902, JUN YUAN
MANSION, NO. 155 TIAN HE EAST ROAD
GUANGZHOU 510620 / PEOPLE'S REP. OF CHINA
PHONE +86 20 38816560 FAX 38812470

For and on behalf of all insurance companies participating:

Carl Schröter GmbH & Co. KG, Bremen
Zurich Versicherungs-AQ, Hamburg

Claim documents to be sent to:

Wilhelm Reemtsen GmbH & Co. KG - P.O. Box 33 06 46 - D-28335 Bremen/Germany