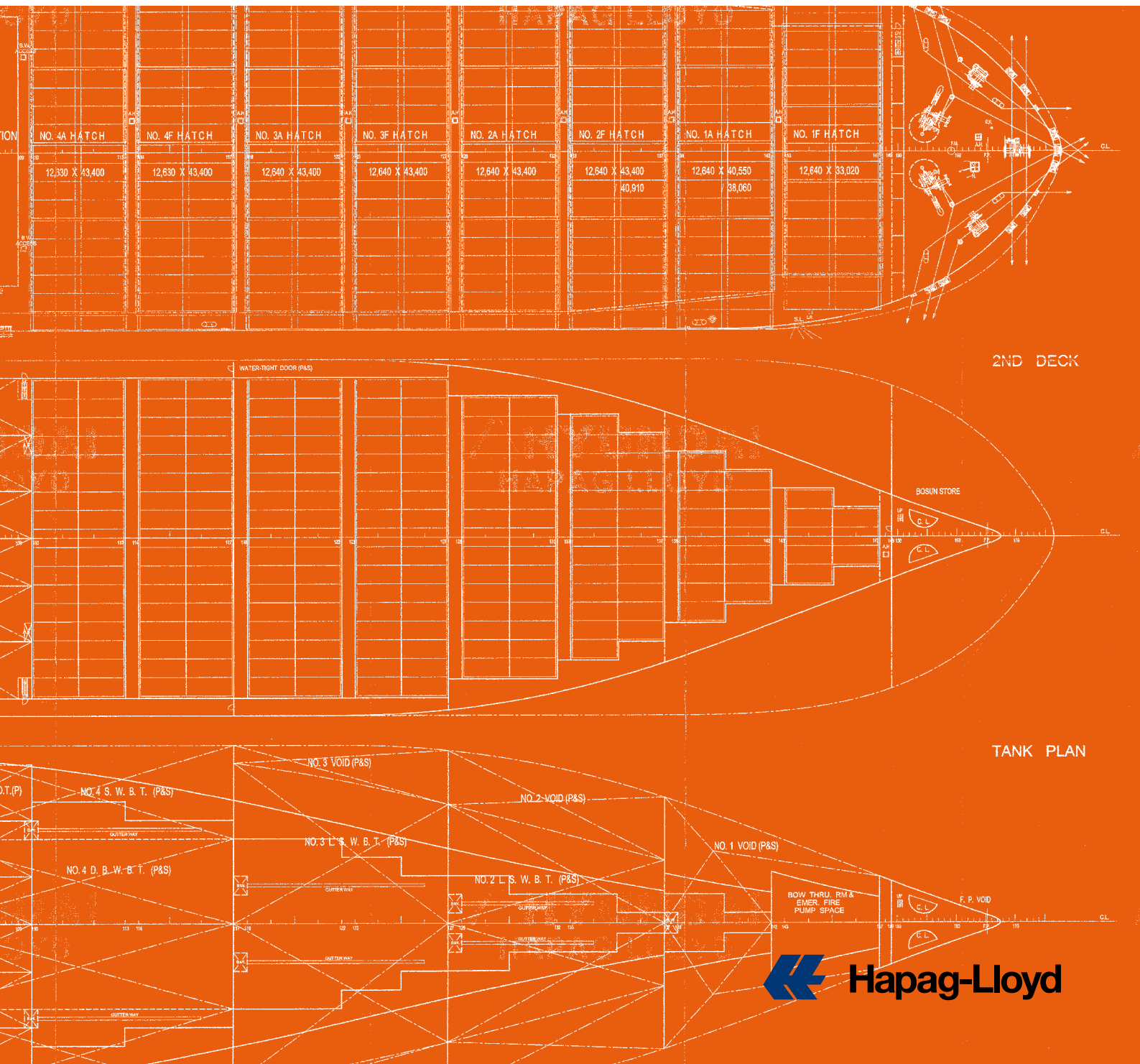




FROM THE DRAWING BOARD  
TO A FINISHED FLAGSHIP

# HAMBURG EXPRESS



# GLOBAL

CARRIER WITH TOP-SERVICE

Hapag-Lloyd is one of the leading container shipping companies and sets standards in terms of customer orientation and productivity. The Hamburg based company employs 7,000 people worldwide and operates 300 sales offices in over 114 countries. About 150 containerships feature a total carrying capacity of more than 700,000 standard containers (TEU). Our container stock of more than one million TEU fulfills all needs of our customers. In addition, Hapag-Lloyd is one of the leading reefer carriers worldwide with long standing experience and know-how in handling OOG and DG cargo. In 2012, the company reported revenues of more than 6.8 billion Euro and transported 5.3 million TEU worldwide. Hapag-Lloyd offers more than 90 services calling all important ports worldwide, including feeder network these are more than 430 ports in 112 countries. Hapag-Lloyd is a member of the Grand Alliance and the new G6 Alliance.



A GIANT OF THE OCEANS

# 283 DAYS

It is the flagship of Hapag-Lloyd's modern fleet. With its capacity of 13,200 TEU, the "Hamburg Express" is one of the largest container ships in the world. Hapag-Lloyd's new frontrunner is 366 metres long and more than 48 metres wide, making it around 21 metres longer and seven metres wider than the famous "Queen Mary 2". The steel of the "Hamburg Express" measures more than eight centimetres at its thickest point, allowing Hapag-Lloyd's workhorse to reliably transport important cargo between Asia and Europe, even in poor weather. Loads of up to 140,000 tonnes can put an enormous amount of stress on the material when the ship is at sea. The highest standards of quality during construction as well as IT-supported stowage planning systems ensure that the load limit of the Hapag-Lloyd ship is never exceeded. Hapag-Lloyd will take delivery of ten ships in the new "Hamburg Express" class by spring 2014. The ships are built by Hyundai Heavy Industries in Ulsan, South Korea, at the largest shipyard in the world. The new vessels are extremely fuel-efficient,

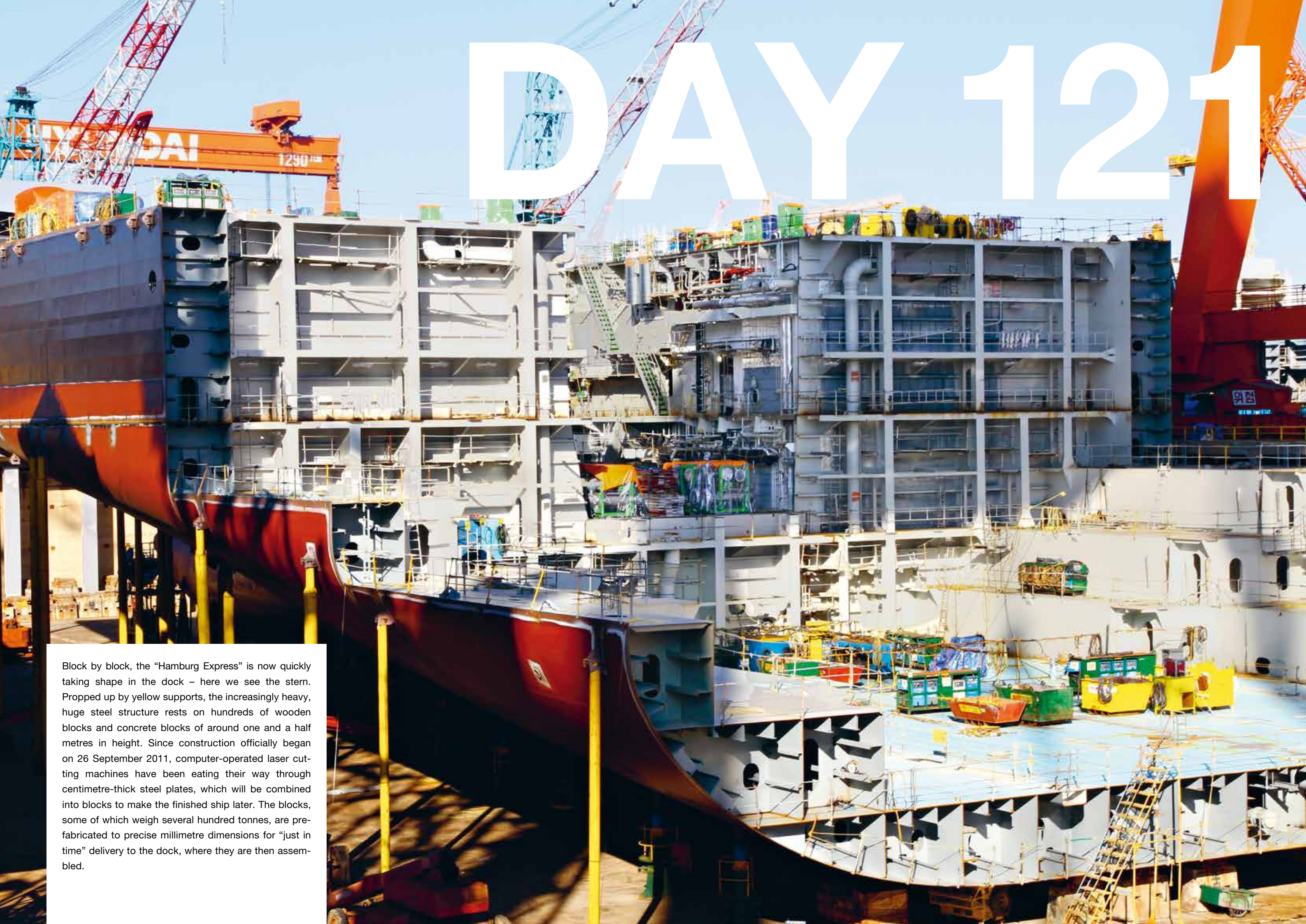
and therefore considerably more environmentally friendly in terms of emissions than older container ships. The "Hamburg Express" class also sets new standards in environmental protection, reflecting Hapag-Lloyd's long-standing commitment to always using cutting-edge technology in its newbuilds – which, by the way, also sail under the German flag. Anyone who spots these giants at sea or in port would have no idea of the precision involved in their construction, or just how quick the process is. It took just 283 days from the first steel cut to the delivery of the "Hamburg Express", from the drawing board to the finished ship. In just a little over nine months, more than 42,000 tonnes of steel, cabling, machines, instruments and high-tech equipment were precisely put together. The journal of the construction of ship #2241, the "Hamburg Express".

Keel laying for the “Hamburg Express” on 15 January 2012. The first construction blocks are welded together in the dock. Workers at the shipyard in the South Korean coastal town of Ulsan constantly work on more than a dozen of these giant vessels at the same time. The work is planned down to the last detail and is highly efficient – but there’s still room for a little superstition. For example, a German cent and a Korean won coin are placed in a hole in one of the wooden blocks that the ship’s hull is resting on, to serve as lucky charms. They were put there during the keel laying ceremony and will be removed before the ship’s initial launching, to be kept as mementoes.



# DAY 112

# DAY 121



Block by block, the “Hamburg Express” is now quickly taking shape in the dock – here we see the stern. Propped up by yellow supports, the increasingly heavy, huge steel structure rests on hundreds of wooden blocks and concrete blocks of around one and a half metres in height. Since construction officially began on 26 September 2011, computer-operated laser cutting machines have been eating their way through centimetre-thick steel plates, which will be combined into blocks to make the finished ship later. The blocks, some of which weigh several hundred tonnes, are pre-fabricated to precise millimetre dimensions for “just in time” delivery to the dock, where they are then assembled.

A large ship propeller is being manufactured in a shipyard. The propeller is a complex, multi-bladed structure, currently in a partially finished state. It is mounted on a large, green industrial machine, likely a lathe or mill, which is used for precision machining. The propeller's blades are a light tan color, while the hub and some of the blade surfaces are painted a vibrant red. The shipyard environment is visible in the background, with high ceilings, structural steel, and other industrial equipment. A banner with Korean text is visible on the right side of the background.

Six blades, 105 tonnes in weight and more than nine metres in diameter: the propeller for the “Hamburg Express” is made at Hyundai’s South Korean shipyard, which is one of the largest manufacturers of propellers in the world. The aluminium/bronze/nickel alloy looks simple, but it’s actually a high-tech component – one of the most sophisticated on the entire ship – and it takes weeks to make. The production process calls for the utmost precision every step of the way, from constructing the casting mould and casting the alloy to milling, grinding and polishing the propeller. The ship will only move through the water efficiently and without any vibration if the shape of the propeller is exactly right.

# DAY 140



A cross section of the hull: below deck alone, there will soon be eleven layers of containers stacked on top of one another. The length of the hull is increasing at such a rate that the “Hamburg Express” now looks different every day. Hapag-Lloyd newbuilding supervisors check the quality of the weld seams, including by analysing ultrasonic sounds. In a good six weeks, the ship is due to float out of the 600-metre-long building dock to make way for the next newbuild. Up to four ships are under construction in each of the docks at any one time. When one of them is finished and ready to leave the dock, the other semi-finished hulls simply float along with it.

# DAY 148

# DAY 152

Installing the main engine. Three workers help the crane operator lower the cylinder cover weighing several tonnes into position, installing it in the ship's hull, which is still open. This is the only way to fit the ship's main engine, which is equal to a good five decks in height and weighs 1,900 tonnes. Before being installed into the belly of a ship, every main engine is first fully assembled in an assembly shop at the shipyard and put to the test to make sure it works perfectly. It is then dismantled again so that it can be installed in the ship. The eleven MAN engine cylinders generate more than 70,000 hp. The pistons of the cylinders alone measure almost a metre in diameter.



# DAY 163

Sections weighing up to 2,000 tonnes can be attached to the hull in one piece. Sometimes, it takes several gantry cranes working together to be able to lift these huge blocks into position. It might be the entire top stern section of the ship's hull, which is 48 metres wide and several metres high. With the hold still exposed, you can clearly see what are known as the cell guides on the light-coloured partition walls between the individual holds. Later, the containers will move up and down these guidance rails below deck when being loaded and unloaded. Before the ship is delivered, the newbuilding supervisors test all of the cell guides using a crane and a standardised container to make sure no containers can become jammed in the rails later on.



The “Hamburg Express” now already weighs more than 25,000 tonnes. When it is finished, its light displacement tonnage will be 42,000 tonnes. It will be capable of taking on an additional 140,000 tonnes as cargo. This is the view from the fore deck superstructure. Here we see the cargo holds that will be in front of the fore superstructure. What runs alongside the top edges of the loading hatches on both external sides is known as hatch coaming. This is the backbone of the ship’s body, giving the vessel the necessary strength, while also lending it elasticity when at sea. At 86 millimetres, this is where the steel plates are at their thickest.



# DAY 171

The name of the ship has already been outlined on the side of the ship using welding beads. A worker in a cherry picker then paints the letters white. On board, workers armed with rollers and pots of paint also apply the last coat of paint to the lashing bridges, in the typical reddish brown used for decks. The front deck-house with the bridge is now also in place. Half a dozen technicians are installing, connecting and measuring the steering, navigation and radio systems. Not many switches and screens are operational yet. In the crew's accommodation, the protective covers are already being taken off the furnishings.



# MURG EXPRESS

# DAY 189

A large red ship hull is the central focus, with a massive white propeller in front of it. The propeller has five curved blades and a central hub. The ship is in a shipyard, with a concrete dock and various industrial structures in the background. Several workers in hard hats are visible on the dock. The scene is brightly lit, suggesting a sunny day.

The state-of-the-art Becker rudder hanging in front of the propeller is as big as a three-bedroom apartment. The last pieces of equipment are removed from the building dock and the “Hamburg Express” will then be ready to float of its own accord for the first time – just 82 days after the keel laying. The ship is hauled from the building dock to an outfitting quay. It’s now only two months until the vessel’s sea trial. Around 150 to 200 shipyard workers therefore install, weld and paint at full speed every day.

# DAY 193

Nowadays, environmental protection in the shipping industry means high technology. One example is the new ballast water treatment plant of the “Hamburg Express”, which is just one of the many ways in which Hapag-Lloyd’s fleet actively protects the environment. With its 560 UV tubes, the system is more reminiscent of a laboratory than of daily operations in the belly of a container ship. The UV light kills minute organisms in the seawater which the “Hamburg Express” pumps into its ballast water tanks to compensate for imbalances due to the cargo. Filters remove mussels and sediment. This chemical-free treatment prevents organisms from migrating into foreign ecosystems when ballast water is pumped out – like more than one hundred years ago the Chinese mitten crab as the best known example.



# DAY 216

# DAY 248



What could be mistaken for a factory building on dry land is actually one of the ship's ten cargo holds. Each one is big enough and tall enough for a decent game of football. These holds will house up to 17 containers placed next to one another in two rows. Then more containers are stacked on top of the hatch covers above, in up to nine layers. The day after tomorrow, the vessel will embark on a four-day sea trial. All of the berths will then be occupied, with a large number of engineers and building inspectors on board for the trial. This includes Hapag-Lloyd's captain and chief engineer, who monitor the ship's construction at the shipyard in the three months up to its delivery in order to familiarise themselves with the ship as best they can before taking charge of it along with the first crew.

The “Hamburg Express” at sea: the newbuild is finished and has left the shipyard. Hyundai Heavy Industries has handed the newbuild over to Hapag-Lloyd in a brief, formal ceremony. From now on, this giant container ship will rarely be as empty as it is here – this will only happen every five years when it comes into the dry dock for its obligatory class renewal. According to the timetable, the crew’s first port of loading will be Ningbo in China. This will be followed by Shanghai, Yantian and Singapore, before the ship navigates the Suez Canal on its way to Southampton. From England’s south coast, it is then only a 36-hour journey until this new flagship arrives at its home port of Hamburg for the first time.



# DAY 283



Good morning, Hamburg! In the early hours of 15 August 2012, the “Hamburg Express” sails into its home port with 6,000 containers or more than 10,000 TEU on board. In two days’ time, the new flagship of the Hapag-Lloyd fleet will be ceremoniously named at the Container Terminal Altenwerder. It will then head off on another long journey: the first of ten newbuilds will sail out of Hamburg and head for Asia the next day – back to where it was built in just 283 days.



HAPAG-LLOYD CONTAINER

# TYPES

GENERAL PURPOSE CONTAINER

20'  
40'



HIGH CUBE  
GENERAL PURPOSE CONTAINER

40'



HIGH CUBE  
GENERAL PURPOSE CONTAINER

45'



HARDTOP CONTAINER

20'  
40'



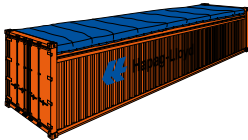
HIGH CUBE  
HARDTOP CONTAINER

40'



OPEN TOP CONTAINER

20'  
40'



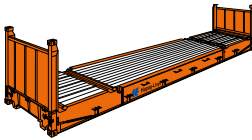
FLAT

20'



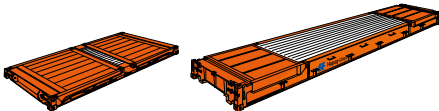
HIGH CUBE FLAT

40'



PLATFORM

20'  
40'



VENTILATED CONTAINER

20'



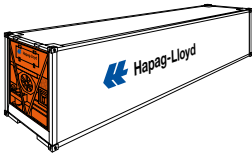
REFRIGERATED CONTAINER

20'



HIGH CUBE  
REFRIGERATED CONTAINER

40'



THE HAMBURG EXPRESS AT A

# GLANCE

|                              |                                                                                                                                      |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| FLAG:                        | German                                                                                                                               |
| PORT OF REGISTRY:            | Hamburg                                                                                                                              |
| CREW:                        | 24                                                                                                                                   |
| CAPACITY:                    | 13,169 TEU                                                                                                                           |
| SIDE BY SIDE:                | up to 19 rows of containers next to each other on deck (17 below deck)                                                               |
| STACKED:                     | up to 20 containers (maximum 11 below and 9 above deck)                                                                              |
| REEFER PLUGS:                | 800                                                                                                                                  |
| LENGTH OVER ALL:             | 366m                                                                                                                                 |
| BEAM:                        | 48m                                                                                                                                  |
| HEIGHT:                      | 66m                                                                                                                                  |
| LIGHT SHIP WEIGHT:           | 42,637mt                                                                                                                             |
| DEADWEIGHT:                  | 142,092mt                                                                                                                            |
| MAX. DRAFT:                  | 15.5m                                                                                                                                |
| MAIN ENGINE:                 | 11K98ME7 MAN Diesel & Turbo (an economical 11-cylinder diesel engine with electronic control to reduce emissions)                    |
| MAIN ENGINE OUTPUT:          | 52,447KW                                                                                                                             |
| OUTPUT OF AUXILIARY ENGINES: | 4 units with total output of approx. 13,700KW                                                                                        |
| SHAFT GENERATOR:             | 4,500KW (the shaft generator provides eco-friendly electricity at sea with reduced emissions since it is powered by the main engine) |
| MAX. SPEED:                  | 23.6 knots (actual scheduled speed is well below 20 knots due to slow steaming)                                                      |
| RANGE:                       | 30,400 nautical miles (about 56,000km or nearly 1.5 times around the Equator)                                                        |
| YARD:                        | Hyundai Heavy Industries, Ulsan, South Korea                                                                                         |
| CLASS:                       | Germanischer Lloyd                                                                                                                   |

