

[Press releases](#)[Newsletter](#)[Press archives](#)[Picturepool](#)[Customer magazine](#)[Search](#)[→ search](#)31.8.2004 | [Gelsenkirchen know-how for Brunei](#)**PeinigerRöRo corrosion proofs against tropical conditions ready-to-assemble steel in Germany for shipment to the South Seas**

In 1973, the BLNG-Company (Brunei Liquefied Natural Gas) company commissioned the nation's biggest natural gas liquefaction plant at Lumut. For meanwhile pending revamp of the heat-exchange columns, the company resorted to the services of PeinigerRöRo for corrosion proofing of the circular platforms.

Together with the large-scale galvanizing shop Wirtz, the Gelsenkirchen-based PeinigerRöRo jet-blasting shop prepared and coated ready for installation circular platforms weighing altogether 78.8 tonnes and stainless steel props of altogether 21.2 tonnes plus 330 m of railings, 165 m of ladders, and 404 m<sup>2</sup> of grating. Wirtz handled the hot-dip galvanizing of the crude steel which was then shipped ready for assembly to PeinigerRöRo where the metal was given a special coating in preparation for some of the world's most unsettled climates.

In readiness for the downstream coating, the steel surfaces were swept with GMA Garnet, a very special mineral abrasive. Reusable, this allowed the abrasive residues to be reduced to some 10 percent of the normal amount. What's more, the use of GMA Garnet meant much less dust accruing.

The primer consisted of a high-grade and substance-rich two-component coating based on epoxy resins and applied using an airless technique. As a consequence, it proved possible to apply a dry film of around 120 µm thickness to the entire steel surface. Again airless, this was followed by a high-gloss, abrasive-proof and highly resistant two-component polyurethane-based top coat.

This high-grade C51/M corrosion category coating system is being used because the natural gas liquefaction plant in Brunei is exposed to sea air and industrial pollution and hence severe corrosion attack. In combination with the coating applied by PeinigerRöRo, this makes the hot-dip galvanized steel especially resistant to salt, grease, and dust – enabling it to defy pollution and the scorching sun.

Finally and on completion of the drying and hardening phases, all of the steel was meticulously packed for its lengthy voyage under severe climatic conditions. And since the steel can be processed in the same sequence as it reaches its destination, without being sorted according to size and shape, the various structures arrive precisely in the order in which they will be assembled and put into place.

Once in Lumut, the circular platforms along with the railings and ladders are welded to the two heat-exchange columns used to liquefy and cool the gas, the stainless steel struts serving adaptors. The two new columns had been exchanged for the previous ones during a shutdown and integrated into the complex. Such an operational shutdown is something that needs to be carried out at regular intervals so that the various items of machinery may be maintained and inspected as required.

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Over the past years, PeinigerRöRo has earned for itself a solid reputation in such style project business and acquired for itself a stack of references. For the customer, the advantages of finish-coating carried out at the German plant of PeinigerRöRo is that, assuming careful transport and just as meticulous on-site assembly, only a few touch-up jobs are then necessary. This, in turn, economizes on costly on-site labor. What's more, at home in Germany, the coaters can work independently of the weather, thus averting troublesome delays plus extensive weather protection gear. Even just-in-time production presents no problems.

PeinigerRöRo's line-up of course also embraces on-site corrosion proofing and hence the related scaffolding work. Only recently and as part of a whole-scale overhaul, 200,000 square meters of corrosion protection and the erection of around 350,000 cubic meters of access scaffolding were carried out on the world's biggest LNG complex. Unlike Brunei, in this instance the customer insisted on on-site corrosion proofing.

The Lumut BLNG natural gas liquefaction complex is located on the coast to the South Chinese Sea, some 80 km from the capital Bandar Seri Begawan. The natural gas for the 130-hectar complex is channeled from four offshore drilling platforms operated by Brunei Shell Petroleum. On an average, some 25 million cubic meters of natural gas are pumped from the platforms and processed in Lumut, one of the world's oldest basic natural gas liquefaction complexes. The core elements of the plant are the heat-exchanger columns where the prepared natural gas is liquefied and then cooled. It may be assumed that on more recent versions of this plant, the columns here too will have to be replaced over the years ahead.

#### **Background info:**

Natural gas is of growing significance as a source of energy and input for petrochemical products. Its net calorific value is 32-38 MJ/m<sup>3</sup> (7,600-9,000 kcal/m<sup>3</sup>) – very high. It can be piped to consumers quickly and inexpensively. However, compared with mineral oil, the ways of transporting natural gas are much limited. Most of the gas is sent along pipelines in its gaseous condition. When the source of the gas and the location of the consumers are very far apart, pipeline transport proves uneconomical. Liquefied natural gas, on the other hand may be reduced to up to a six-hundredth of its original volume and hence shipped by tanker to the consuming countries where the stuff is discharged at terminals designed for this purpose and converted back to the gaseous state and sent out along pipelines. As a consequence of this process, natural gas liquefaction will gain in importance over the years ahead.



Brunei is situated on the northwestern coast of Borneo. It has a population of around 335,000. Since mineral oil was first discovered in the 1920s on the territory of this tiny sultanate, the economy has flourished. The liquid gold and, since the 60s, the exploitation of the natural gas resources – these are the factors that shape the nation's economy. Around 90 percent of the nation's revenues are sourced from these products. In recent years, moreover, there have been the first indications of manufacturing industries emerging.

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