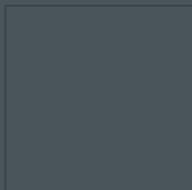
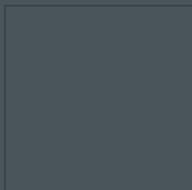
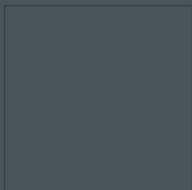




Paper mills

Progress is built on ideas.



Partnership

Quality

Reliability

Shortest construction periods

Problem solutions

Security

Highest complexity

Highest demand on precision

All services from a single source



Public authorities are too slow, clients' handling times are allocated far too short, construction companies do not have the right personnel ... and actually, everything could have been done in a completely different way: This is an impression that many of us share when we talk about how difficult construction in Germany has become. Therefore, we are glad to show you that this does not necessarily have to be the case.

In a time marked by company closures and lower construction volume our plants producing prefabricated units managed to quadruple our market presence since the year 2000. We are firmly convinced that this development stems from our philosophy.

Construction for us does not start with a job contract, but with the processes taking place in your buildings as well as with the people who spend a considerable amount of time in your plants wanting to work efficiently and contentedly.

Therefore, we pay so much attention to understanding a client's processes, motivation and challenges.

The construction industry often experiences that the planning and scheduling do not meet the construction requirements or that the construction requirements do not meet the wishes of fitters. A lack of communication as well as other reasons lead to tensions that we all know well enough.

Thus, let us use our knowledge in order to define the tasks and integrate us in your processes. Then, we can find the right solution for you.

The following projects show that a successful execution of construction work can become a standard when the points mentioned afore are taken into account. In all these cases, an active partnership started early in the planning stage. Everyone involved was able to exhaust their full potential.

The ability to rely on others and the openness in view of problems create new solutions and a new security. All of this is reflected in the construction quality, the strict adherence to deadlines and the reliability in regards to cost.

The complex processes in the planning, construction, fitting and start-up stages of a paper manufacturing plant are surely some of the most demanding tasks. In cooperation with our partners we mastered these challenges. We are looking forward to tackling more such tasks successfully in cooperation with our customers.

Klaus-Jürgen Malcher
Managing Director Prefabricated Plant Units



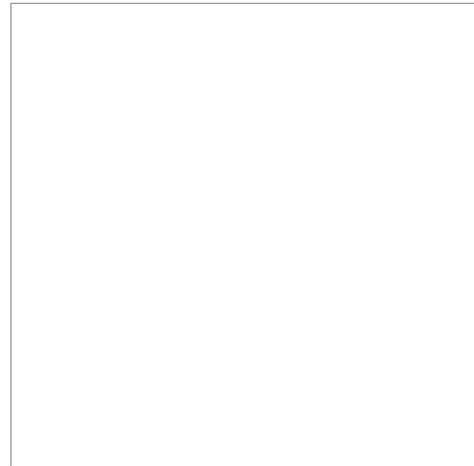
A precision puzzle consisting of 5,000 concrete components: the shell construction of the PM7 fabrication hall



The PM7 is one of the biggest and most efficient paper machines in the world.



far left: the new manufacturing hall of the PM7
left: the two Alpha 2 halls for the processing of recycled paper



Perlen Paper Factory

Since the Perlen paper factory has started operations in October 2010, one of the biggest and highest performing paper machines in the world went into use in the Swiss Canton of Lucerne. With an annual output of 360,000 tonnes of newspaper at the highest level of quality, the PM7 has three times the capacity of its predecessor, the PM5 from the 1970s. Perlen Papier AG, one of the best producers of newsprint in Europe invested 360 million euros in the ultra modern system for the preparation of recycled paper.

The investments at the 50,000 m² site near Perlen resulted in four new buildings. With its 224 m length, 62 m width and 28 m height, the new production hall is the biggest building. To the north of PM7, with ALPA 2, two bigger halls for recycling old paper were built. To the south, a new storage building was constructed directly over a river for the paper rolls. The Max Bögl Group in cooperation

with a partner was contracted for the prefabricated construction of the buildings.

Due to the immense size of the 130 m long and 10,000 tonne heavy production machine PM7 up to 800 employees were working at the building site and assembling the machine at the peak times over the 18-month construction period. During the production and assembly of the approximately 5,000 concrete components, which were made in the company group's prefab production sites, highest precision right down to the last millimetre was required. The transport to the construction site over a distance of 500 km and the precise installation of the 80 tonne reinforced concrete girders for the roof of the paper warehouse represented a logistical and construction-related challenge.

All in all, 20 concrete girders, each with a length of 45 m were delivered to the timber

yard of the paper factory by rail. A special construction was used for the further transport to the new storage warehouse in order to give the 2.70 m high and 60 cm wide girders the required stability during the trip. Clamped in a specially constructed harness, each girder was then carried roughly 1 km by lorry to their place of construction. On arrival, the reinforced concrete girders were removed from the lorry by crane and then fitted precisely to the concrete supports.

Technical data:

Space constructed:

approx. 920,000 m³

Construction period:

03/08–04/09

Shell construction amount:

approx. 31.5 million EUR

Client:

Palm Paper Limited



With an annual capacity of 400,000 tonnes of newspaper, Europe's biggest paper machine primarily serves the British market.



Over eight months, 10,560 concrete components used in building the paper factory were transported to the site via ship and canal.





King's Lynn Paper Factory

The Palm Group, one of the leading manufacturers of graphic paper on a recycled basis, invested roughly 500 million euros in the construction of a modern paper factory in the English town of King's Lynn, approximately 150 km north east of London. Since autumn 2009, at a site that was once home to a sugar beet factory, 400,000 tonnes of high quality newsprint are annually produced from 100 percent recycled paper for the English paper market. In addition to the largest de-inking system in the world, the site is also home to Europe's biggest paper machine, the PM7, with a working width of 10.60 m.

The 580 x 115 m sized hall complex, with a total area of over 45,000 m², is divided into the areas of raw materials storage, stock preparation, paper machine and roll warehouse. Due to the poor quality of the ground, the new paper factory was constructed with foundations that included over 12,000 stakes. Approximately 10,500 finished components were used in the building, of which 5,050 were pre-finished, with a total weight of 52,000 tonnes.

In addition to this, 24,750 m² of hollow ceilings, 20,250 m² of filigree ceilings, and 5,500 m² of hollow walls with a total weight of 11,000 tonnes were also built. The order for the supply and assembly of all the finished concrete components was won by the Max Bögl Group.

The prefab components were made in the company's own prefab production sites in Liebenau and Hamminkeln. The delivery of the 10,560 prefab components in total was completed in eight months between August 2008 and March 2009 by ship and lorry. The construction components that were produced in Hamminkeln were transported with the help of 19 seagoing vessels in Emmelsum (Wesel). The journey of the individual ships, each with 1,400 tonnes of freight, averaged three days. The components manufactured in Liebenau were initially transported to Bremen with inland vessels. They were then transferred onto eight seagoing vessels, each with a 2,300-tonne load, and also shipped to the port town of King's Lynn via the canal.

The subsequent transport from a rented berth in the harbour to the construction site, that was approximately 15 km away, was completed via lorry. At the site, six mounting teams and up to eight concrete teams, working in shifts, constructed up to 100 prefab concrete components each day, six days per week. Among the biggest components were the enormous machine foundation stands, each weighing up to 78 tonnes, and the concrete girders that were 40 m in length. The coordination of the individual deliveries of the prefab components via ship, ferry and lorry and the interim storage at King's Lynn harbour proved to be an especially big logistical challenge.

Technical data:

Space constructed:

approx. 920,000 m³

Construction period:

03/08–04/09

Shell construction amount:

approx. 31.5 million EUR

Client:

Palm Paper Limited



Multi-functional production plants, experienced engineers and technicians as well as thought-out logistics assure high quality and adherence to deadlines for the client.



Within only six months of shell construction time, around 7,000 high-quality, prefabricated concrete units were assembled quickly and precisely.



Paper Manufacturing Plant Plattling

With the start-up of another paper manufacturing plant of Myllykoski Group in spring 2008, paper production in Plattling, Lower Bavaria, will rise to a total of 800,000 tonnes per annum. The Finnish paper manufacturing group, one of the biggest producers of printing papers worldwide, invested around 485 million euros in Plattling Papier and thus clearly underlined the appeal of this economic region.

The smooth implementation of building shell works between November 2006 and August 2007 was assured by perfect planning, manufacturing and installation of around 7,000 prefabricated units by the Max Bögl Group. Thus, in line with perfect construction site logistics, an entire hall section of

the 375 m paper plant could be completed at a very early stage and the installation of complex technical equipment could go ahead.

1,200 skilled workers were involved at the biggest construction site using prefabricated elements in Germany, around 7,000 prefabricated units like pillars, wall units and binders were installed. The largest binder, a diagonal element of the roof truss is 36 m long, 2.5 m wide and weighs almost 70 tonnes. Furthermore, a total of 75,000 m³ of in-situ concrete and 5,500 m³ of steel were used. Beforehand, we had to remove more than 240,000 m³ of earth material, half of which had to be removed for the foundation of the machine building.

Despite the architectural and technological complexity of the project and the high precision requirement, the short shell construction period of nine months was adhered to. Quality, economic efficiency and precision of prefabricated concrete units convinced the Finnish client of the high competence of our group in prefabricated constructions.

Technical data:
Space constructed: approx. 800,000 m³
Construction period: 11/06–08/07
Shell construction amount: approx. 54 million EUR
Client: Myllykoski Group



Special prefabricated elements made of steel fibre concrete were used for the construction of the two to four-aisle halls.





Detailed planning and a perfectly coordinated project process for all parties were decisive for the short construction period of only ten months.

Paper Factory Leuna

Since the end of 2004, Europe's most modern hygiene factory has produced up to 55,000 tonnes of hygiene paper a year made of pulp at their location in Leuna in Saxony-Anhalt. Kartogroup Deutschland GmbH, a subsidiary of the Italian hygiene paper group Kartogroup, invested around 95 million euros in the production plant. This project was completed on the premises of a former business location of the chemicals industry south-east of Halle in only ten months.

The Max Bögl Group was commissioned with the shell construction of the paper factory PM I. Detailed planning was crucial for a quick completion of the project; as was the concept for manufacturing, delivery and installation of prefab units including the integrated in-situ concrete services, which was all done in cooperation with a partner. The tested, quick construction method of building such factories by means of

load-bearing systems made of prefab elements enabled Max Bögl to start with the installation of extensive process technologies and factory equipment of the PM I at an early stage and partly even parallel to the shell construction.

The entire complex of almost 52,000 m² is divided into several buildings housing the paper machine, processing, pulp, roll and the distributing warehouse, workshop and spare part stock room as well as the office and reception. These complexes are generally 2 to 4-aisle halls made of prefab elements up to 135 m long and 27 m wide. The structure parts consist of the classic interplay of props, walers, binders and beams. Base plates made of reinforced concrete, solid interior, fire and dividing walls, sandwich walls on the ground floor, double walls as reinforcements as well as semi-prefab units and hollow-core slabs form the scaffolding for this method of construction.

The high demand on the precision, reliability of the precisely defined technical construction content and the expected visual appearance of the shell construction were all met accordingly in the prefab unit plants of Max Bögl in Neumarkt, Gera and Linthe. A total of 3,500 units were produced. Prefab units made of steel fibre concrete played an important role. 110 binders with lengths of 25 m and 1,100 roof beams made of pre-stressed concrete furnish proof for the practise-oriented research and development of heavy duty concrete types by our group of companies.

Technical data:

Space constructed:

approx. 610,000 m³

Construction period:

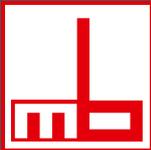
11/03–11/04

Shell construction amount:

approx. 16 million EUR

Client:

Kartogroup Deutschland GmbH



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