



## FULLY-EQUIPPED PUMP SHAFTS FOR A NORTH GERMAN PUMPING STATION

**REFERENCE** PUMPWERK DORUM | GERMANY

Two completely-equipped pump wells as a dual pumping station

Challenge:

**Renovation of existing pumping stations**

place of execution:

**Dorum, Germany**

Built-in components:

**Two fully equipped pump shafts as double pump station with vortex impeller pumps type VX2440-T54EX**

**The complete equipment for a concrete shaft on site with channel impeller pumps type MX3462-P94/CEX**

Pumping medium:

**waste water**

Field of business:

**Industrial and waste water technology**

### PROJECT DESCRIPTION

Within the context of a comprehensive renovation initiative in Dorum, in Cuxhaven District, three old pumping stations were replaced by new constructions. According to the town of Dorum, these measures were necessary in order to ensure reliable disposal of the waste water from the community in future. This construction project could be implemented thanks to the use of suitable pumping equipment. The contracting authority is the Wasser- und Abwasserverband Wesermünde-Nord. [Water and Waste Water Association] Here, HOMA is supplying two completely-equipped pump wells as a dual pumping station using Type VX2440-T54EX vortex impeller pumps, together with the complete fitting out of a concrete shaft within the site with channel impeller pumps Type MX3462-P94/CEX.

### THE TECHNICAL CHALLENGE

Because of the difficult ground conditions, the works began with the installation of sheet piles over 7 metres long, which would later form the shoring for digging the pit. On completion of the pile-driving activities, the earth removal for the pits was commenced. The premanufactured shafts were installed into the pits using a truck-mounted crane. For both the pumping stations, two completely-equipped, pre-manufactured well units were supplied, each in a single piece, including the pipework and delivered to the building site. For one of the pumping stations the switchboard was also supplied inside a free-standing cabin with remote monitoring.

## OPERATING CHARACTERISTICS OF THE NEW CONSTRUCTION

Dual pumping station  
Diameter DN2000  
Shaft depths 4540mm/4630 mm  
Material Glass fibre reinforced plastic/high-density polyethylene  
Tubing DN100 Stainless steel V4A

## PUMP SHAFT WITHOUT AN EXCAVATED PIT OR SPECIAL SUPPORT

In parallel with the works in the centre of Dorum, the Sieltrift pumping station in Cappel-Neufeld was also replaced with a new installation. Here, a sink shaft was used for technical reasons. This consists of pre-manufactured components in polymer concrete. The particular feature of this procedure is that the shaft within an internal diameter of 2.6 metres is produced without digging out a trench or

using special supports. After the bottom section of the shaft has been inserted into a previously-dug hole, 1 metre deep, the earth is then only removed from the inside of the shaft. Because of the weight of the shaft component itself, it slowly sinks down into the ground.

When the bottom section of the shaft has sunk down far enough, a second shaft component is positioned onto it. In order to protect the shaft from danger from ground seepage, the earth that had been removed was replaced with water. Once the target depth had been reached, concrete was pumped into the shaft using a special pump. The concrete serves to seal it against ingress of groundwater, and also provides buoyancy control. The empty shaft was completely fitted out by HOMA as a dual pumping station DN50 with stainless steel V4A.

## PROJECT PICTURES

