TRM PILING SYSTEMS FACTSHEET

Tall structures

Wind farm Poysdorf, Österreich

+ Pile type TRM 170, wall thickness 9.0 with grouted pile shoe TRM 250
+ Foundation depths between 12 and 20 m
+ Maximum loads 900 kN compression and 320 kN tension
+ 14 „Vestas V90“ turbines with 2 MW each (total 28 MW)
+ Plant produces 67 million kilowatt hours of electricity per year
  – annual consumption of 17,000 households
+ Implementation in 2005 and 2007

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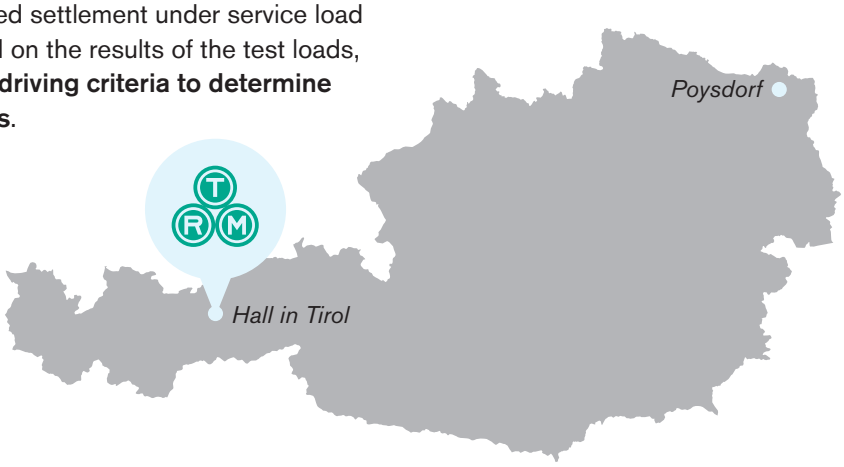
Initial Situation

The foundation stone for the **Poysdorf wind farm** was laid in 2005 when 9 wind turbines were built. The first expansion stage took place in 2007 with 5 more turbines of the same type. Since then, the plant has been steadily expanded and is now the **largest wind farm in Lower Austria**. The Green Electricity Act 2012 was the decisive **basis for this positive development of wind energy in Austria.** By the end of 2022, 1,371 wind turbines with a total capacity of 3,573 MW were generating **clean and environmentally friendly electricity** for around 2.3 million households; that is **more than 50 percent of all Austrian households**.

Wind turbines are founded on TRM ductile iron piles.

Prior to the driving work, 3 pile test loads were carried out. The evaluations showed an **average load capacity of 1,700 kN with very consistant results despite varying pile lengths**. The expected settlement under service load is approx. 6.0 mm. Based on the results of the test loads, the soil expert **specified driving criteria to determine the required pile lengths**.



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Deep foundation

The **Vesta V90 wind turbine** with 2 MW has a total weight of 328 tonnes and a hub height of 105m. The 3 rotor blades have a diameter of 90m. In order to erect these **large structures**, a **foundation is needed that can absorb compressive and tensile forces and adapts precisely to the ground conditions**.

The three-layer soil structure of locally very heterogeneous subsoils required, according to the expert, a **driven pile system with variable lengths**, which also allows a conclusion to be drawn about the load-bearing capacity of the piles.

For this reason, the **TRM Piling System** was chosen. The foundation was built with **TRM 170/9.0 grouted ductile driven piles** with a **TRM 250 pile shoe**. In accordance with the tender, the piles were installed in **lengths between 12 and 20 m**.

Granular subbase with connection of the tensile reinforcement to the foundation

Driving of the grouted ductile iron piles

Reinforcement of the foundation

Do you have any questions? Our experts will be happy to advise you.