

PROVEN WT600/TM550 MAST

FOUNDATION PREPARATIONS



The main foundation consists of a large block of high-strength concrete. Four large 'j-bolts' are set into the concrete and are attached to the Foundation Base Plate. The Base Plate includes the hinge-pin attachment which is used to raise and lower the turbine (see diagrams). Preferably, the concrete should be prepared and the foundation prepared with one load of concrete. Where this is not possible, the top layer should be added before the bottom one has had time to set.

Important
Before setting the Base Plate and foundations into the concrete foundation consider which way your WT will be lowered/raised and position the hinge-pin accordingly

Don't Shutter & Backfill

When preparing house foundations a mould is prepared into which the concrete is poured. Earth/rocks are then filled around the foundation after the concrete has set.

For WT foundations it is better to have an irregular shaped foundation than to have a perfect cube and then surround it with loose earth - just dig a hole and then fill it! This will produce a foundation with good stability.

Preparing the Base Foundation

The base foundation consists of 1m³ of strong-mix concrete. Normally this is prepared as a rough 1 x 1 x 1m cube, but where ground conditions dictate, a shallower wider foundation of the same volume may be used.

Screw the 4 large (M20) bolts supplied with the base-plate it to their full extent (not transported this way to protect the end thread). The ends of the bolts are factory greased. These bolts will later be withdrawn and used to bolt the WT tower to the base plate. Inserting them at this stage makes sure there is the necessary clearance in the concrete.

Attach the J-bolts with nuts provided to the base plate before pouring concrete. Insert re-enforce bar into hole and jack up J-bolt/base plate assembly to approximately the right height. Insert conduit or soil pipe used for wind turbine power cable from edge of hole up through centre of base plate. Add concrete (Readimix supplier is usually easiest for this type of volume) and use vibrating concrete poker as necessary to remove air bubbles.

Use a spirit level and the nuts on the j-bolts to get the base plate flat. Leave the final tightening of the j-bolts until the hardening period is over.

Clean the base plate of any excess concrete.

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Winch Anchor Foundation

Refer to foundation diagrams for positioning. The anchor consists of a 1m cube or equivalent. It should be located on the opposite side of the base plate to the hinge pin attachment. Note, in some soil conditions one or more auger (screwed) anchors may be more appropriate. A large vehicle such as a tractor may be used as the anchor point. The pull on the anchor point for the WT600/TM550 during raising and lowering is approximately 600kg.

Concrete Specification

If using a Readimix supplier, ask for 35 Newton concrete. If mixing the concrete yourself, you should use the following proportions by volume

1:2:4
cement:sand:gravel

Approximate volumes and weights for a 1m³ foundation are

Cement:	310kg or 6.2 bags	(1 bag = 50kg)
Sand:	0.43m ³	(967 kg or approx 1.0 tonnes)
Gravel:	0.86m ³	(2150kg or approx 2.2 tonnes)

Hardening Time

You should allow plenty of time for the foundation to set and harden fully before erecting the turbine. We recommend a hardening period of approximately 2 weeks. For this reason, foundations are normally prepared in advance of the main installation. Note that the hardening time may be lengthened by poor weather conditions and shortened by the use of a quick-setting concrete additive.



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