

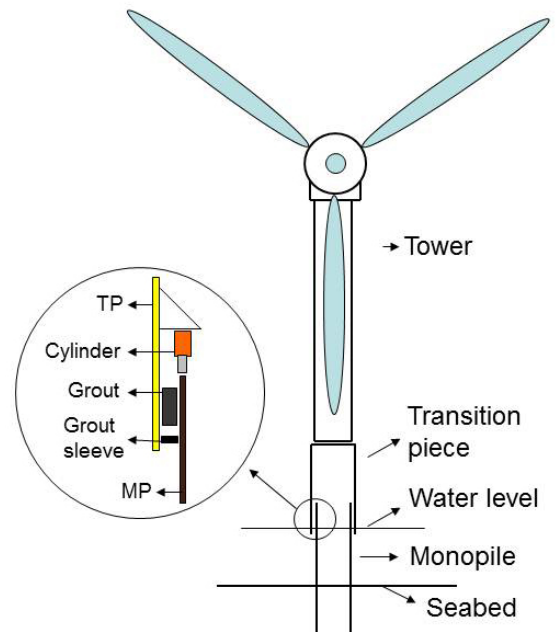
APPLICATION SHEET | Cylinders | Wind turbine levelling

Levelling wind turbines

Holmatro hydraulic cylinders, with a capacity of 50 - 100 tons, are used during the installation of offshore wind farms. The wind turbine foundation comes in two parts which need to be exactly aligned for the optimal effect.

The first pole is driven into the seabed (approximately 20 m) and rises a couple of metres above sea level. The so-called transition piece is placed over the first pole, together forming the foundation of the wind turbine. The second and last pole is then placed on top of the foundation holding the turbine which rises approximately 60 metres above the waves. The complete construction needs to be able to stand rough sea conditions. This makes the levelling of a wind turbine a very precise task.

A number of six cylinders are prefixed inside each transition piece by the builder of the offshore wind turbine foundations. During the installation of the turbine in the seabed, the final and very exact alignment is done by means of the cylinders. The structure is then fixed with a glue-like concrete called 'grout' after which the tower is completed. The cylinders remain inside the transition piece. The picture shows where exactly the cylinders are used inside the wind turbine structure.



Specifications Cylinders - steel				
model		HJ 50 S 15	HJ 75 S 15	HJ 100 S 15
tonnage	t	50	75	100
stroke length	mm	150	150	150
weight	kg	22	38	55

Specifications Cylinders - aluminium				
model		HAC 50 S 15	HAC 75 S 15	HAC 100 S 15
tonnage	t	50	75	100
stroke length	mm	150	150	150
weight	kg	11	18	25



Holmatro references in offshore wind



Offshore wind farm	Belwind Phase 1
Operator	Belwind NV
Location	Belgian coast
Number of homes powered	92.000
Number of turbines	55
Year of completion	2010
Holmatro cylinders used	HJ 75 G 10 (steel)



Offshore wind farm	Walney Phase 1 & 2
Operator	DONG Energy
Location	Walney Island
Number of homes powered	205.000
Number of turbines	102
Year of completion	2011
Holmatro cylinders used	HAC 75 S 10 (aluminium)



Offshore wind farm	London Array
Operator	DONG Energy
Location	Thames estuary
Number of homes powered	352.000
Number of turbines	175
Year of completion	1-1-2013 (expected)
Holmatro cylinders used	HAC 50 S 15 (aluminium)

TP levelling set:



ALUMINIUM OFFSHORE
CYLINDER



6-WAY MANIFOLD



REMOTE CONTROLLED
PUMP



DUMP TANK