Press release

Milling 8-Meter offshore flanges to precision

CNC Onsite introduces a solution at WindEurope to meet industry requirements for flatness tolerances below one millimeter

Vejle, Denmark, 1 April 2025 – At WindEurope, 8–10 April, CNC Onsite, a Danish mobile machining expert, will present its flange-facing services for transition pieces and tower flanges. The solution meets industry demands for a flatness tolerance of less than one millimeter, ensuring a precise flange fit.

The precision milling process developed by CNC Onsite helps reduce maintenance costs while improving reliability and service life. The service ensures an optimal contact surface in flange connections for both towers and transition pieces, achieving a global flatness tolerance of one millimeter.

CS WIND Offshore, a leading supplier of offshore wind turbine foundations, has already successfully used CNC Onsite's precision machine, "Goliath", to mill large-diameter flanges for transition pieces manufactured at its facility in Aalborg, Denmark.

"CNC Onsite's machine has been integrated into the manufacturing process of the large diameter transition piece flanges. This step supports the integrity of these flanges. We have been impressed that the tolerances have been even better than specified," says Ole Springby, Manager, Measurement & Handover, CS WIND Offshore.

Goliath will soon be implemented in the production of tower flanges for a tower manufacturer at a facility in Europe.

"Achieving a global flatness of a couple of millimeters on a four meter diameter flange can be challenging enough, but obtaining the same result on today's eight-plus meter flanges is simply not possible with previous methods," explains Kellenberger.

A critical mechanical joint within the wind turbine structure, large flanges are technically complex to mount. The paired surfaces must match precisely to fix reliably in place. Wind turbine flanges using bolted connections must be completely flat to achieve structural strength, fatigue resistance and maintain correct bolt tightening during operation.

As loose bolts can be associated with significant repair costs and downtime, precise flange connections for large diameter wind turbines will become more important in the future. Achieving the best possible fit between the wind turbine tower flange and its base during the manufacturing process reduces the requirement for routine retightening and associated downtime, also potentially leading to longer wind turbine service life.

In addition to Goliath, CNC Onsite offers a range of in-house flange-facing tools that cover diameters from 1.8 to 10 meters.

On stand E-E80, CNC Onsite will present its milling approach at WindEurope, Copenhagen, 8-10 April 2025.

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