

DYNAMIC DIAGNOSIS OF UNITS IN HYDRO POWER PLANTS

In the field of the dynamic state testing of hydrounits the Szewalski Institute of Fluid-Flow Machinery offers:

- measurements of active power fluctuations
- measurements of the pressure course changes in the flow system of hydraulic machines during steady and transient state conditions
- measurements of pressure in the auxiliary systems (oil-pressure system, compressed air system, cooling water systems, etc.)
- vibration measurements of rotating parts of hydrounit (vibrations of shaft in bearing nodes, etc.)
- absolute vibration measurements of non-rotating parts of the hydrounits (bearing housings, turbine cover, etc.)
- vibration measurements of guide vane pivots
- noise level measurements in the vicinity of the hydrounit

All mentioned tests and measurements are carried out in the accordance with current standards and norms applicable in this field. That gives the possibility to use them for commissioning tests of the new or upgraded machines. Measurements of all quantities mentioned above are performed using the latest technology and the results are subjected to analysis which allows to specify the dynamic state machine in details.

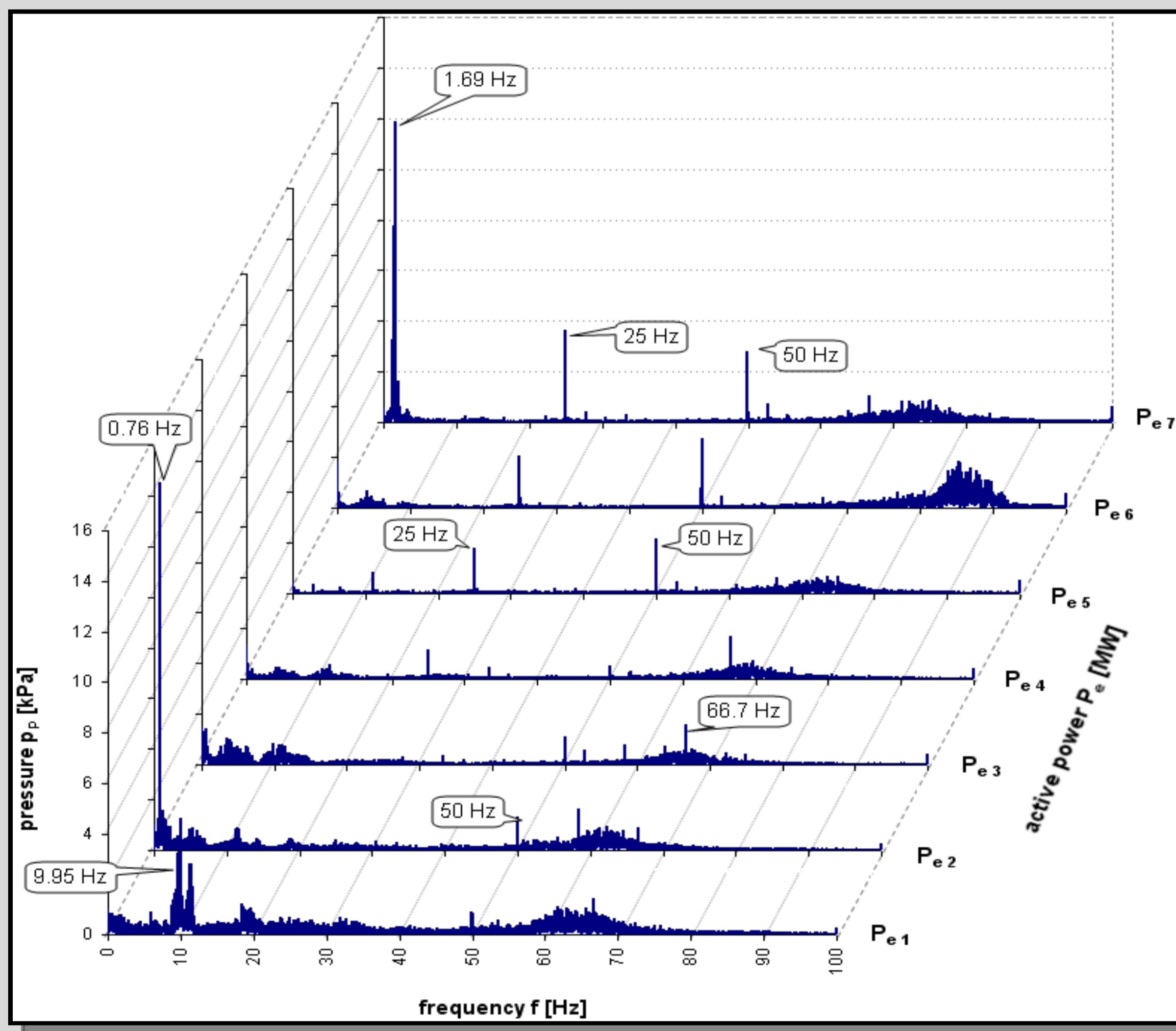


Fig. 1. Sample spectrum of pressure under turbine cover in hydro-unit.

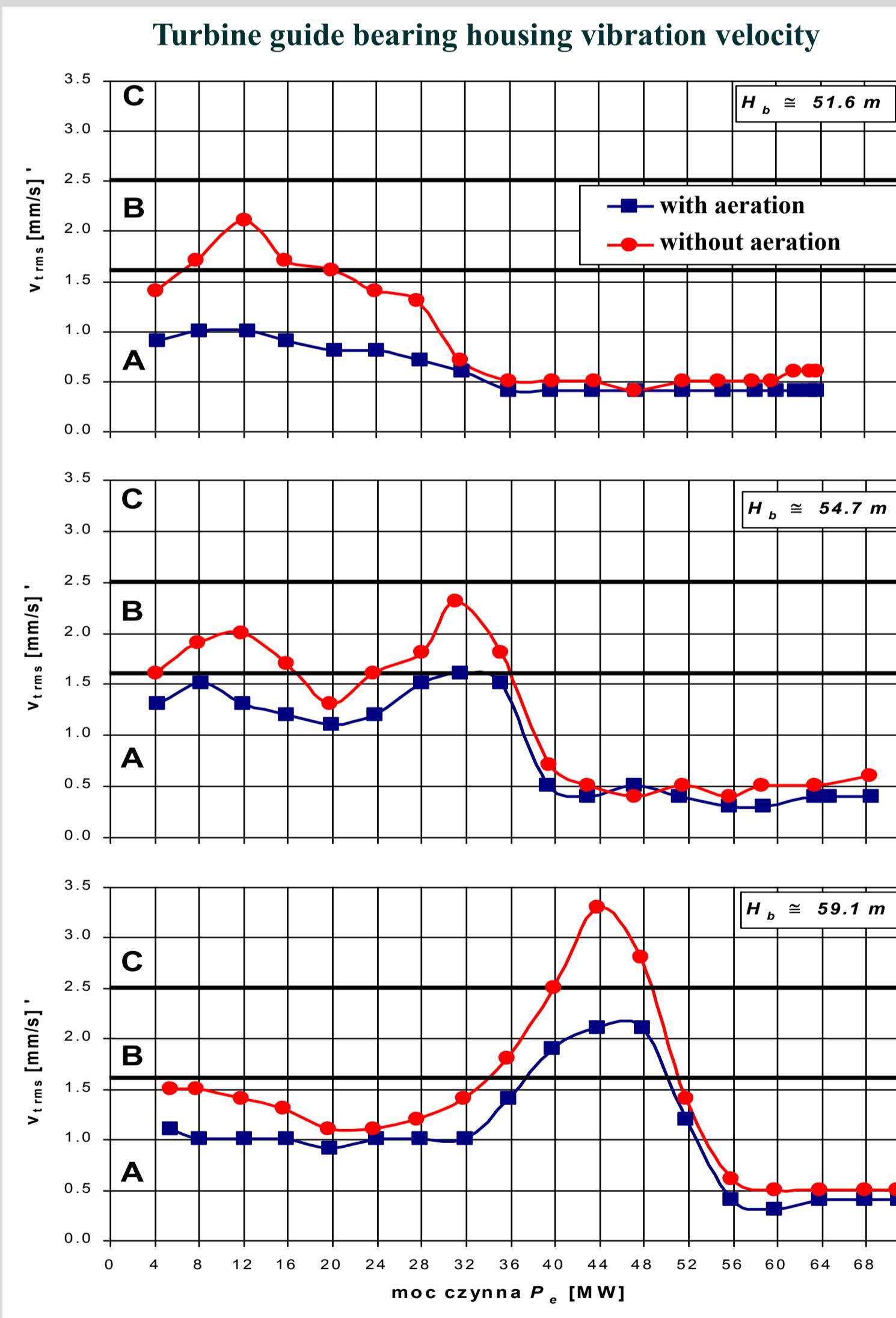


Fig. 2. Sample vibrations of guide bearing housing vs. active power of hydro-unit for different head.

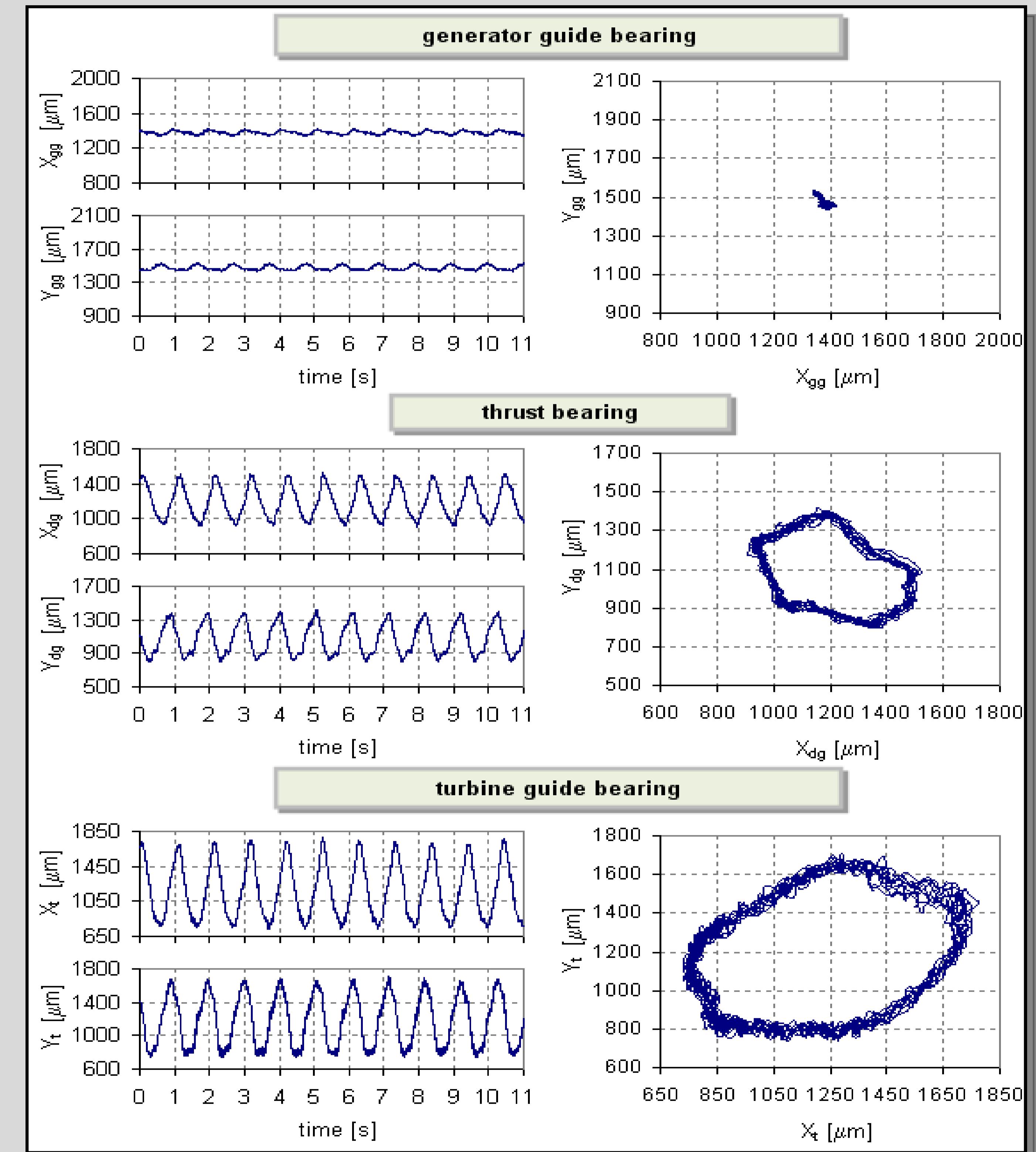


Fig. 3. Sample of shaft axis trajectory in bearing nodes of hydrounit.

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