How do we work?

First we make a multidimensional diagnostic test in a plant which is under consideration.

We bring along up to 250 kg of cargo, depending on the problems we have to deal with. For cavitation only, we need less. We set up our ”test headquarters” in a corner of the machinery room.

There we install our equipment for signal and data acquisition and analysis. We mount our sensors and we look for the sources of operation parameters

We use sensors on the dry side or, occasionally, on the wet side of the turbine:

- **broad-band hydrophones**
- **fast pressure transducers**
- **fast accelerometers**
- **structure-born noise transducers**

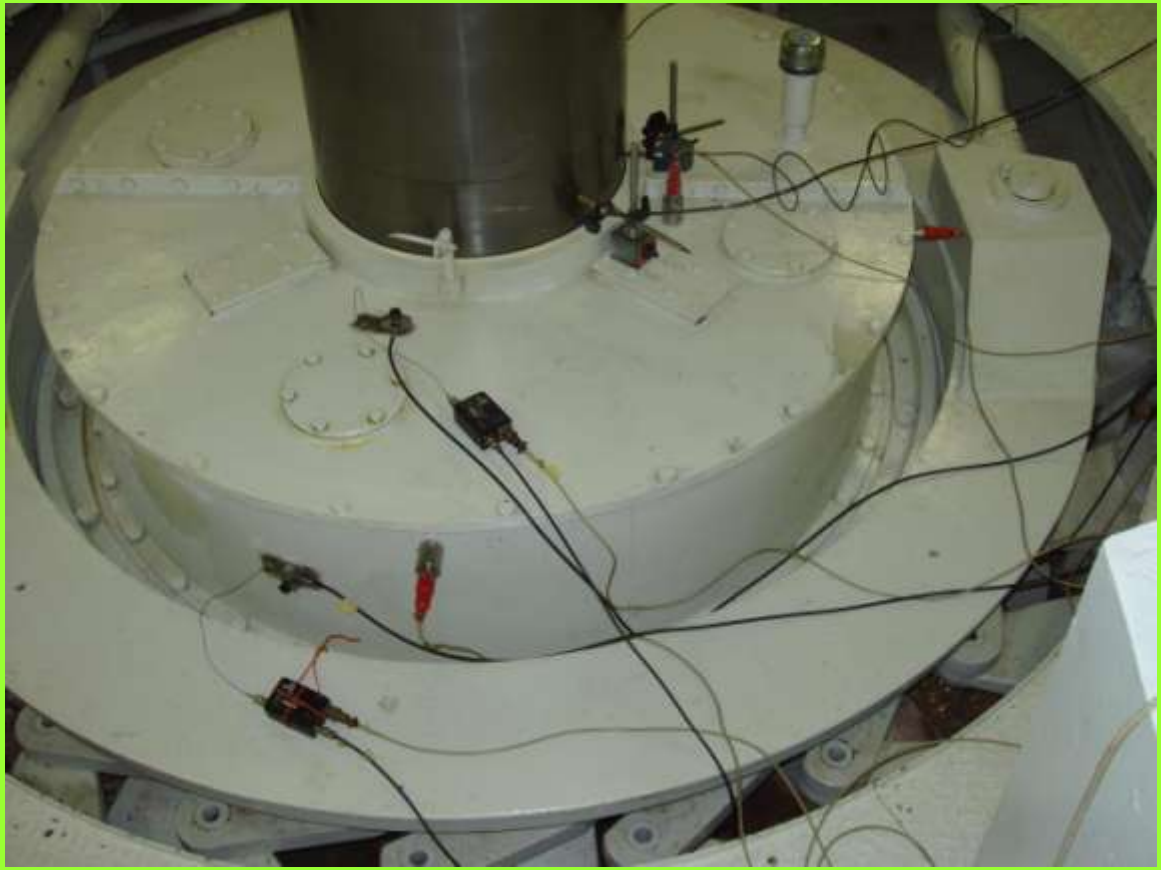
On the dry side, we install the sensors on:

the draft tube wall, if accessible

the guide-vane shaft

the man-hole wall

the turbine bearing



In a diagnostic test, which can last **from 1 to 7 days** per unit - depending on the problem - a large amount of data is collected.

100-300 GByte per unit is a normal quantity.

The multidimensional diagnostic tests are made in such a way that - once the data has been acquired and preliminarily checked - any further required off-line analysis can be performed.

This enables iterative procedures which clarify new findings without needing to repeat the test.

The analysis is made at home.
Its duration: **1-12 weeks**

By analysing 100-300 Gbyte of data
recorded at 20-30 power settings
in 8-30 sensor locations

(depending on the case), and processing this data in the multidimensional manner,

a detailed cavitation description in a form of a set of the multidimensional turbine cavitation characteristics is achieved.

If the test results show it to be necessary, or if a client requires it, a unit-specific multidimensional cavitation monitoring system is set up and installed.

Korto´s multidimensional technology for cavitation diagnostics and monitoring:

- identifies cavitation mechanisms,
- assesses the role of turbine parts in cavitation,
- yields data on the spatial distribution of cavitation in a turbine, and
- delivers detailed turbine cavitation characteristics.

Further...

Even for simple quantities, such as the total cavitation intensity in a turbine, the multi-dimensional approach is needed.
An estimate of the total intensity is derived through a spatial averaging.

Simpler monitoring algorithms use one or only a few sensors and deliver arbitrary data.