

TCM[®] RETROFIT KIT

TCM[®] Retrofit

TCM[®] Retrofit is a cost-effective turnkey solution for retrofitting turbines with a Condition Monitoring System (CMS).

Gram & Juhl's TCM[®] retrofit solution will optimize maintenance and minimize downtime. Using the latest state-of-the-art software and hardware innovations. The system is designed to detect and predict impending failures to ensure you low operational costs, maximum performance and avoidance of catastrophic and dangerous breakdowns.

The TCM[®] Retrofit kit

The TCM[®] Retrofit solution kit features Plug-and-Play installation with minimal downtime. It is a lightweight, easily mountable condition monitoring kit that can be customize to the individual wind turbine mark.

The TCM[®] Retrofit solution does not require up-tower maintenance or inspections.

Features

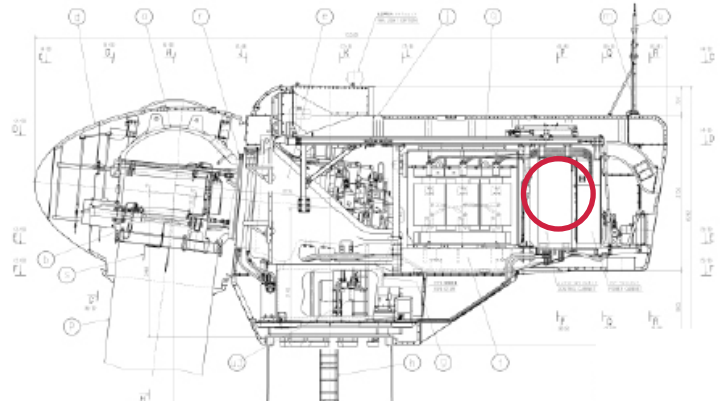
- One TCM[®] system for multiple turbine marks
- Automated analysis and online alarms
- Remotely operated
- Up to 18 software configurable synchronous channels
- Installation manual

TCM[®] Retrofit Kit

- 6 UNF Accelerometers
- 1 MI-8 STD
- 6 Cementing pads
- 6 ICP Cable 15.0m
- 1 RPM sensor
- 1 Rogowski Coil 400mm - 10m cable

TCM[®] Retrofit installation

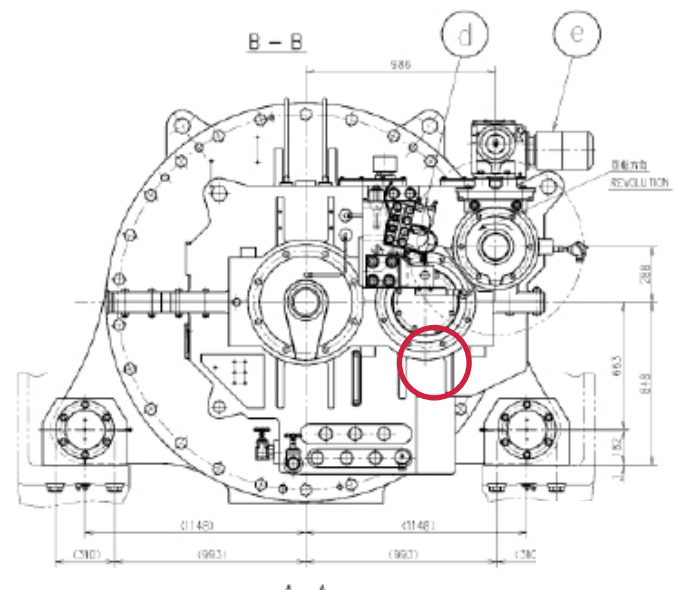
Once Gram & Juhl receive your retrofit request, we will confirm which drivetrain components you wish to monitor [e.g. typically bearing(s), gearbox, and generator] and adapt the Retrofit Kit for this, including full documentation.



The M-System MI-8 STD is placed inside control panel on the DIN rail and accelerometers are mounted on the drive train at vital spots.

To ensure optimal measurement quality it is very important that sensor mounting is as rigid as possible. The mounting base must fit the sensor i.e. be flat and be free from any paint, rust or other materials that can degenerate the stiffness of the connection.

The accelerometers is glued on to the structure. Below is an illustration of an accelerometer placed near the IMS stage.



TCM[®] RETROFIT KIT

TCM[®] Retrofit installation

The TCM[®] Retrofit unit is mounted through three easy steps:

1) Mounting the accelerometer:

Glue the cementing stud on to the prepared surface and mount the accelerometer. Use silicone grease on the assembling planes and Loctite for the thread. Secure the sensor using a torque wrench suitable for low torques, in order not to overwork the mounting stud of the sensor

2) Pulling the cables and connecting it to the M-System.

Avoid hot surfaces, walking path and long runs parallel to power cables.

3) Do the commissioning:

After the installation, the M-System MI 8 needs to be commissioned. The commissioning is done on line by entering in the turbine serial number, and enter the serial numbers for the sensors to be commissioned.

Gram & Juhl provide supervision for installation, IT integration and monitoring service.

Gram & Juhl can also assist you with tools and accessories for the installation such as torque wrenches, silicon grease and LOCTITE[®].

Tools & Accessories

Order No.	Items
2000-0020-0055	Cable tires [100 pieces]
7100-0075-0010	Stripping tool
7000-0004-0005	Power supply 24VDC
2000-0020-0017	USB null modem cable
7100-0075-0030	Loctite for the ICP sensors 50ml
7100-0075-0011	Torque wrench 3/8"
7100-0075-0012	Wrench Socket for ICP sensor 1/2"
7100-0075-0031	Silicon grease
1000-1200-0212	Dispention pistol for gluing

For more information about TCM[®] Retrofit please contact Gram & Juhl's sales department

Ordering Information

7100-0020-00XX	Retrofit Kit
----------------	--------------

