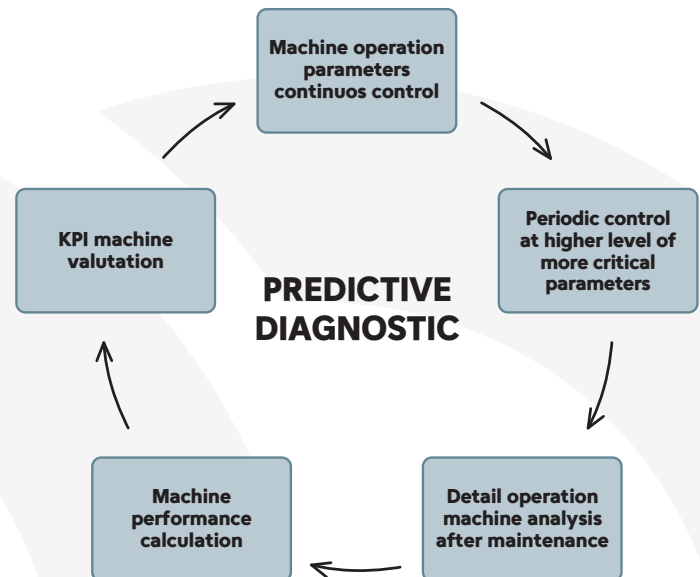## DIAGNOSTIC SERVICES

Opus automazione SpA provides solutions for Industrial IOT *(I4.0)*, to digitize factory processes and improve production plants control. Main experience has been carried out on the turbo-compressor and turbo-generator plants *(simple or combined cycle)*, on-shore and off-shore in the Oil&Gas sector.
These diagnostic activities have been extended to other industrial fields e.g. paper industry, plastic packaging production plants and the chemical industry.

opus automazione implements PREDICTIVE DIAGNOSTIC systems *(condition monitoring)* depending on machine/plant type and critical aspects, the final scope is to:

- Minimize the plant shut-down and enhance process plant reliability
- Improve the scheduled maintenance activities decreasing the relevant costs
- Improve the warehouse supplying management

Provided services to put into operation and execution, both at the customer than with remote monitoring, diagnostic systems are:

- **Design and implementation** of IT solutions for connection and transfer machine data, according with plant computer architecture and cyber security costumer needs.
- **On site installation** for configuration and putting in operation of acquisition systems.
- **Assistance IT** for data transfer control acquisition and monitoring

- **Specialist support**: for operating configuration and tunig of operating parameters of plants with monitoring service.
- **Front line**: specialist service in real time for analysis and management of process alarms.
- **Reporting**: periodic reports execution about plants analysis operation.

INNTEGRA

InnTegra software has been developed starting from the opus automazione know-how on the remote monitoring and diagnostic systems regarding Oil&Gas rotating machines. By this software it is possible to:

- Acquire data from production plant components and machine instruments
- Supervise real machine operating condition and performance over the time
- Create rule and algorithm to manage the acquired data in order to alarms generation in case of anomalous or potentially dangerous conditions for the plant
- Create and manage customized report issues regarding the plant operation over the time
- Interface management and maintenance software interfacing
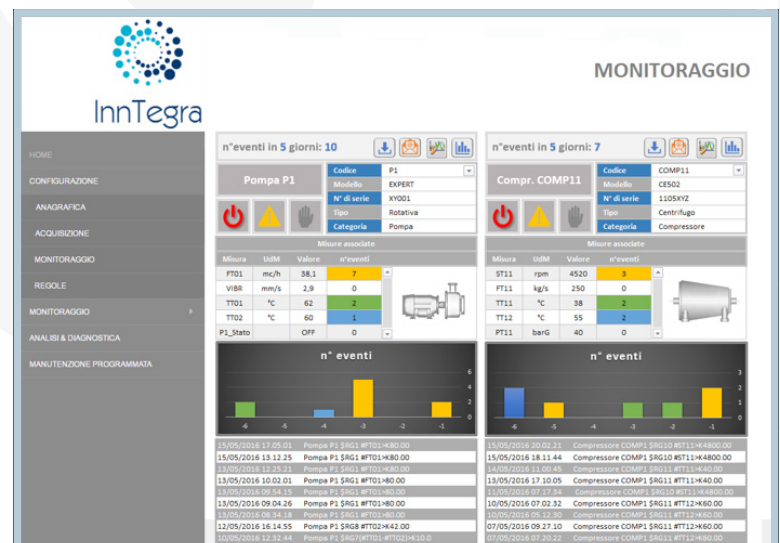
Diagnostic
services

Turbomachinery

FIELD TESTING

Opus automazione SpA provides thermodynamic tests and vibration analysis on gas and steam turbines, axial and centrifugal compressors, turbo-charger and turbo-generator groups, installed on-shore and off-shore, in power plants of gas compression, extraction, storage, LNG *(Liquefied Natural Gas)* plants, refinery, ethylene and derived plants, syngas and fertilizers production plants, energy production plants with simple or combined cycle.

Opus provides inspections and non destructive tests aimed to preserve the reliability and safety of industrial plants, with forefront technologies.

Employees are qualified on regulations EN 4179/NAS 410 and UNI EN ISO 9712.

THERMODYNAMIC TEST

- Performance tests on rotating machines and auxiliary systems, data processing by additional equipment and dedicated systems.
- Assessment or definition of compressor anti-surge control curve
- Flow rate, pressure and temperature measures for diagnostic and troubleshooting.

VIBRATION

- Acquisition and analysis of vibration signals by dedicated portable systems, linked to machine probes or to additional probes, such as no-contact probes, speedy and acceleration meters
- Trim balance
- Diagnostic services and troubleshooting

NON DESTRUCTIVE TESTS

-
- Direct and indirect Visual Testing
- Penetrant Liquid Testing
- Magnetic Testing
- Eddy Current Testing
- Ultrasonic Testing
- Hardness Testing
- Term-vision
- Metalgraphics copies