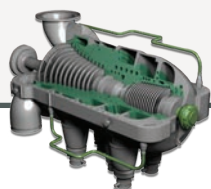


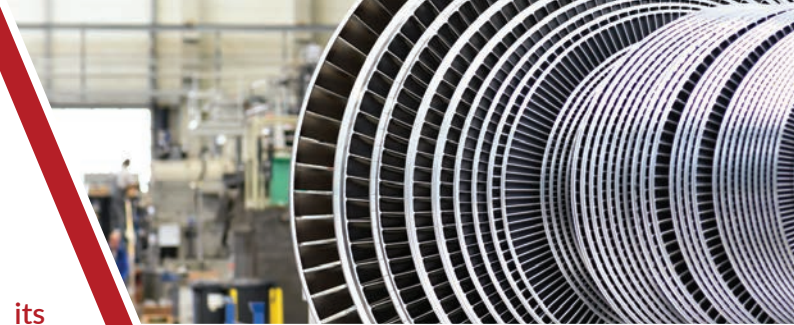
CONTROLS & CONTROL SYSTEMS

Industrial Engines and Turbines



Briuel & Kjaer Vibro

The optimal performance of your industrial applications



As a Woodward Expert since 1998, AWF offers its expertise in controls and control systems through a range of specific products and services.

AWF provides parts and equipment from the following brands: Woodward, Amot, and BK Vibro:

- Woodward speed control systems and Woodward HRT servo valves,
- Amot thermostatic valves,
- Brüel & Kjaer Vibro vibration control systems and associated sensors.



Our equipment is designed for the following industrial sectors:

- Energy/Nuclear
- Petrochemicals
- Industry/Engineering (paper mills, cement plants, waste disposal facilities, sugar refineries, etc.)
- Panel builders
- Maritime/Naval
- Automotive/Robotics/Specialized Machinery
- Pharmaceuticals.

AWF provides solutions and services for your turbomachinery:

- new equipment and spare parts, guaranteed by the manufacturer,
- modernization services for industrial engines and turbines,
- maintenance services on site or in our workshop,
- audits, on-site interventions and training in speed control and Woodward products.

In general, we operate wherever installations involve systems driven by industrial engines and turbines, generator sets, turbopumps, turbo-generators, turbo-compressors, etc. – and we are specialists in I&C (Instrumentation & Control).

Equipment and spare parts

Our team is at your disposal for all your requests for supplies of equipment and spare parts.

Our strengths

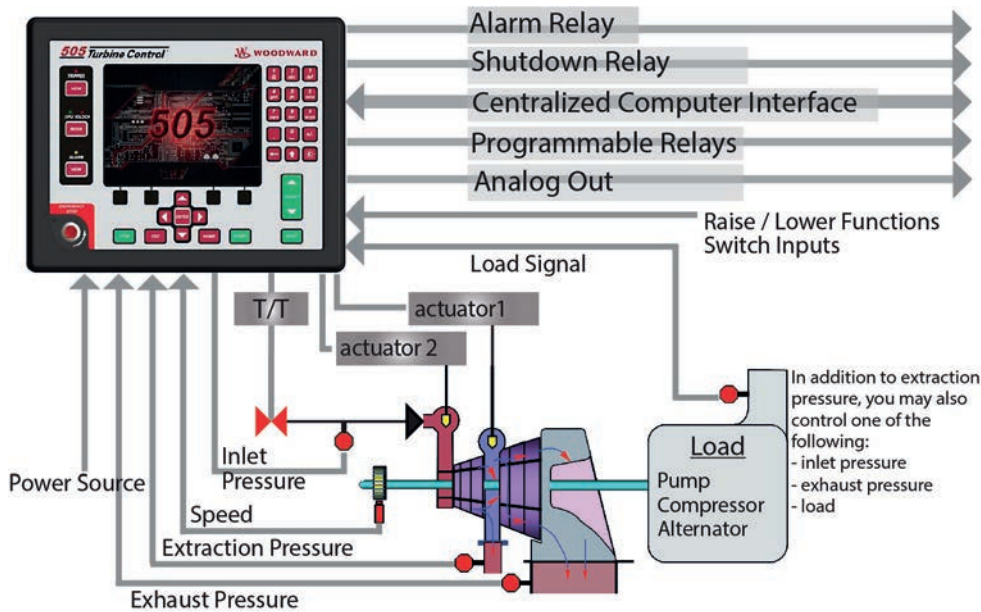
- ✓ 24/24h Assistance
- ✓ Expert advice
- ✓ Traceability - history of customer settings





Engine & turbine modernization

Through its design department, AWF meets all your existing systems optimization needs and provides you with a global result-driven offer.



Example of a modernized application with the 505 control system

“Congratulations on a successful installation of the new controls.”

A beautiful demonstration of professionalism and competence.”

(NAVAL GROUP - SPEED CONTROL MODERNIZATION ON DIESEL ENGINES OF FRIGATES)



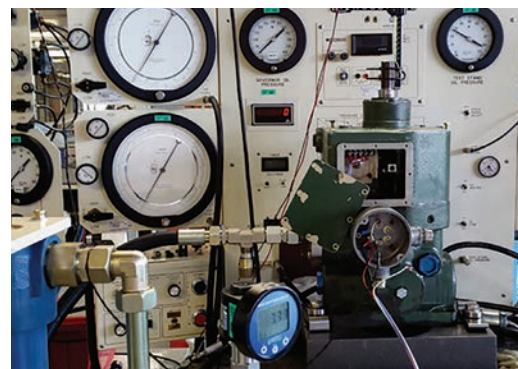
Why modernize

- Protection from obsolescence risk
- Improved performance
- Reduction in number and duration of technical shutdowns
- Upgrade to safety standards
- Automation
- Integration of a centralized control

Maintenance of your systems

Our team of specialized technicians is trained to carry out maintenance operations in the strict compliance with the manufacturers' procedures and recommendations.

- Your equipment benefits from technological advances arising from manufacturers' experience.
- The AWF workshop is equipped with Woodward test benches for all repair, overhaul and adjustment services.
- All interventions, whether on site or in our workshop, are guaranteed.
- AWF has portable measuring equipment to test different sensors on a turbine.



On-site maintenance

- Interventions in compliance with your security procedures, and with the security (N2, ATEX, ...) and nuclear (CSQ, SCN2, ...) authorizations.
- Troubleshooting interventions worldwide.
- Maintenance contracts with technical stand-by.

Maintenance in our workshop

- Workshop equipped with Woodward test benches in Le Havre for the repair of governors, actuators, etc..
- Original manufacturer spare parts only.



Intervention for the marine sector and on oil platforms

- Recovery of your equipment for repair in case of spare parts on board. Then, shipping your equipment to the home port of your convenience.
- In case of damage, intervention in a very short time with recovery of your equipment to be repaired in our workshop and re-installation at the dock depending on your port of call.





Training in speed control systems

AWF offers training on its premises or on your site to help your staff master the use of your equipment.

Operating simulators

AWF has developed specific educational tools and has a complete simulator that can simulate all operating situations for steam turbines.



the test case is used to test speed control platforms of engines or turbines

This dynamic tool allows:

- the simulation of all the dynamics,
- the process optimization.



AWF's case-mounted 505 simulator allows on-site training

This dynamic tool allows the simulation of:

- speed up,
- circuit breakers,
- networks,
- coupling and paralleling,
- power management,
- connection with the human machine interface.

A training to master speed control



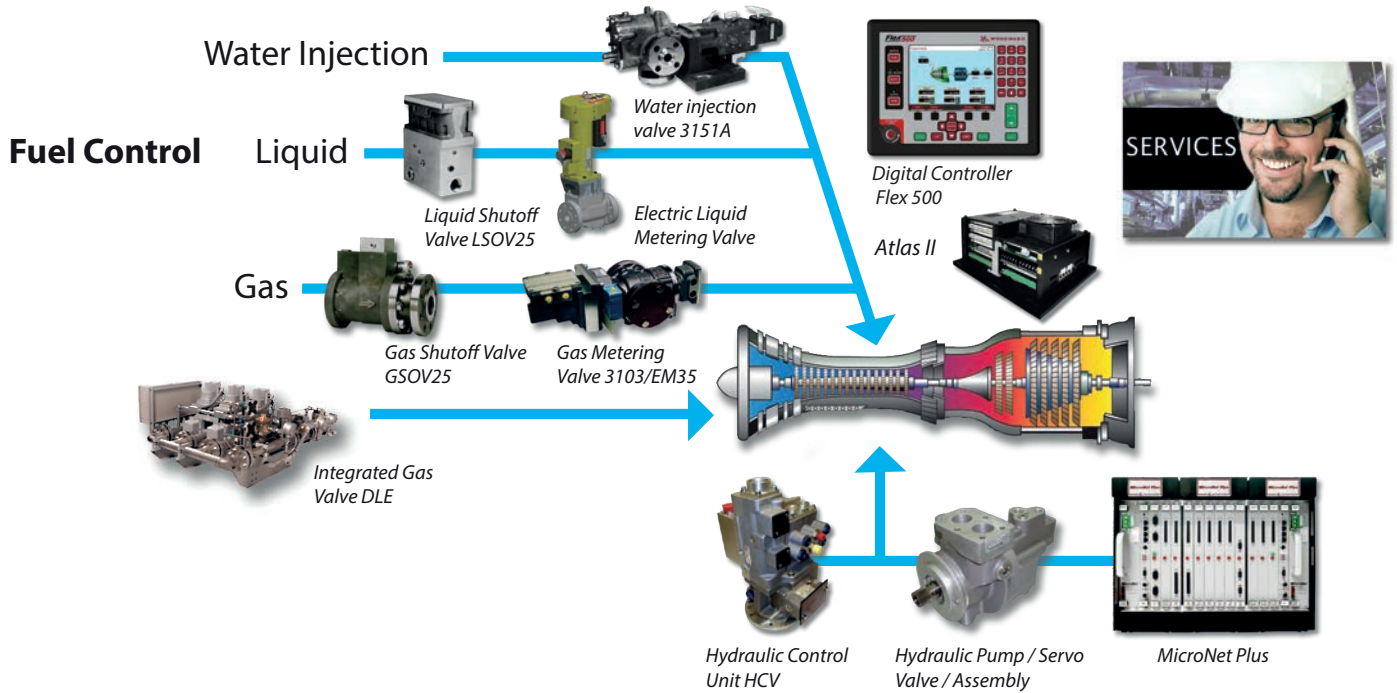
Our training department is at your disposal to offer you training sessions on the whole range of Woodward products (505, CPC, mechanical governors, actuators, etc.).

The objectives:

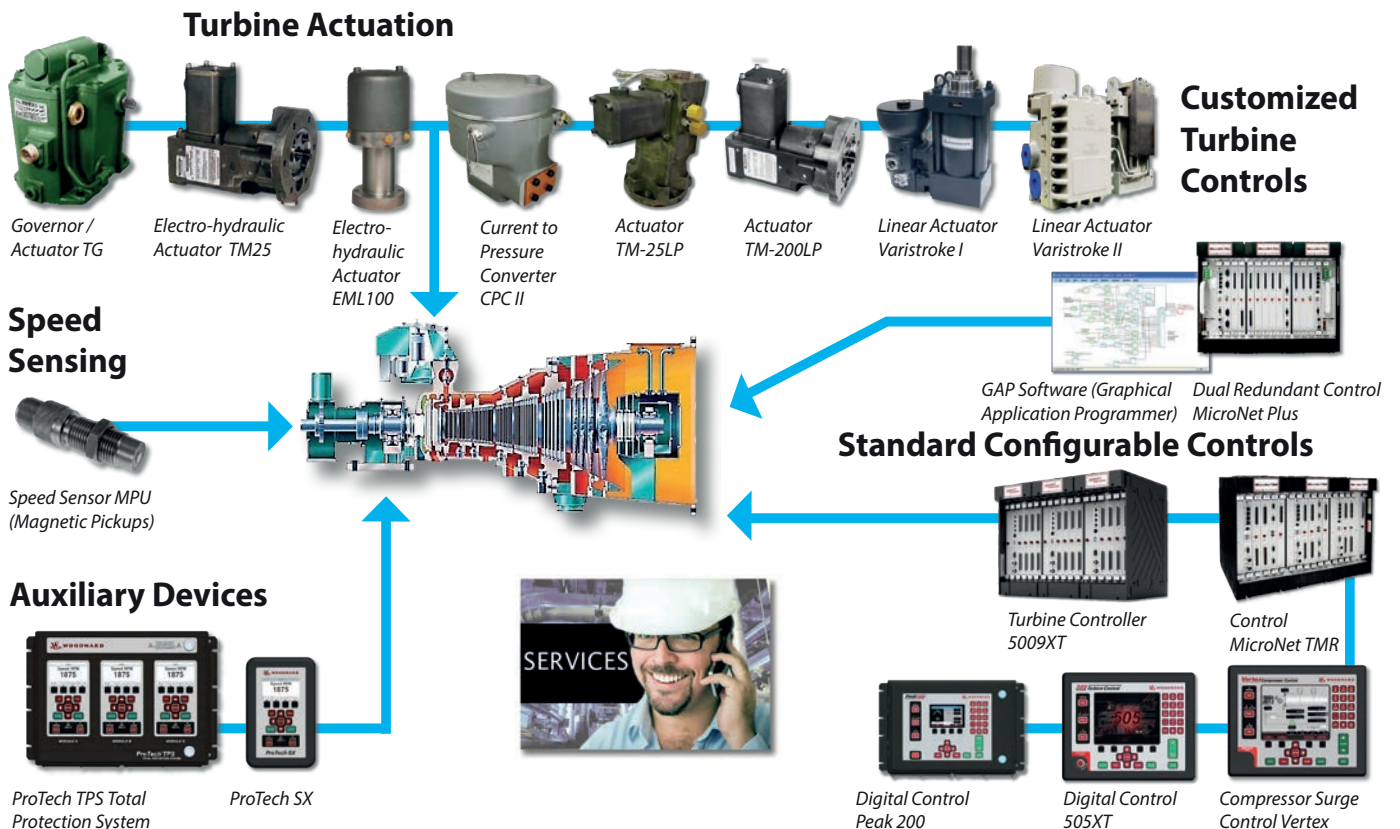
- Better understand the smooth running of speed control (basic principles, settings, setpoints, programming, ...) and the role of the auxiliaries.
- Know how to detect a breakdown and learn troubleshooting skills.
- Make technicians more autonomous in their equipment maintenance tasks.
- Increase your equipment efficiency by achieving optimal control and reducing maintenance operations.

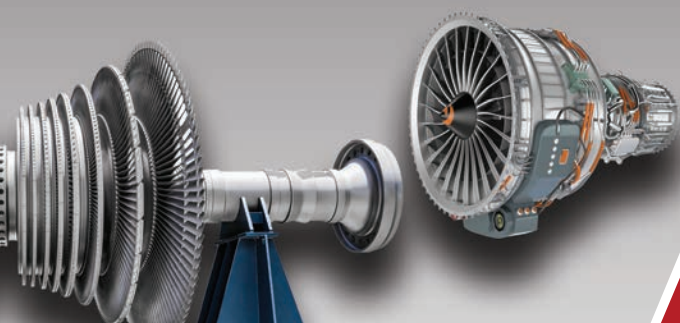


Technologies for gas turbines



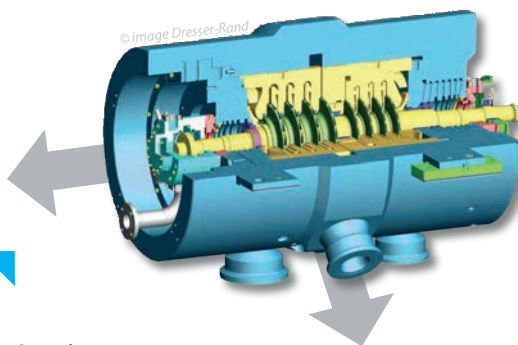
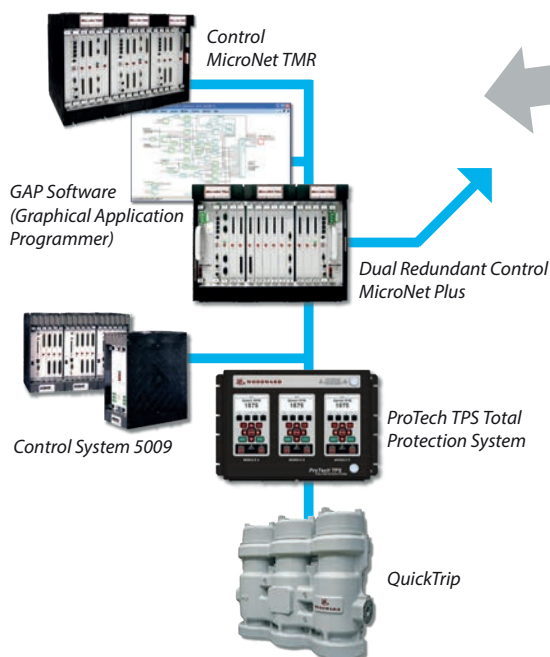
Technologies for steam turbines





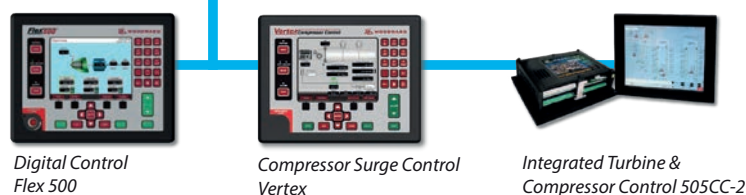
Technologies for compressors and pumps

Customized Control and Protection



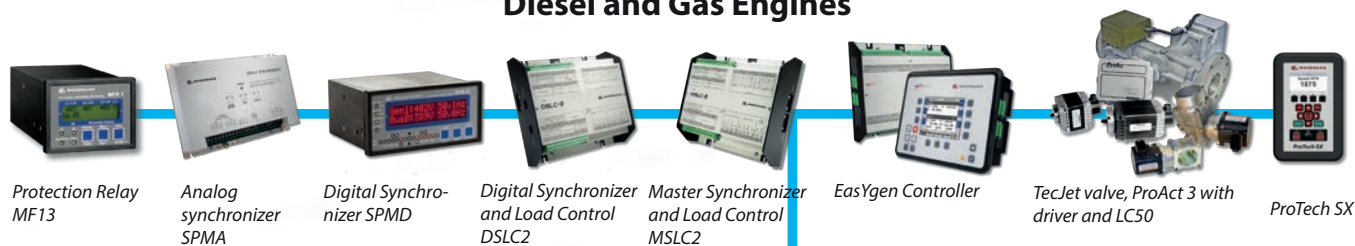
SERVICES

Standard Configurable Controls

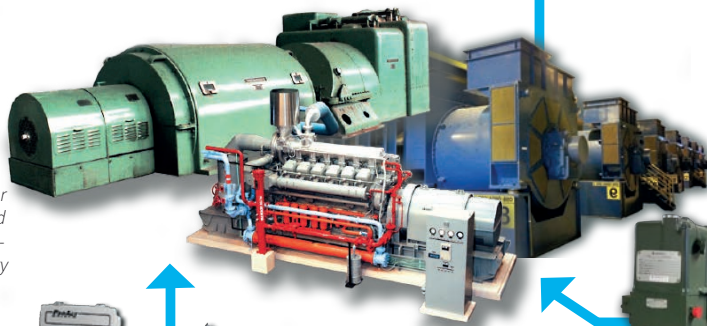


Technologies for diesel and gas engines

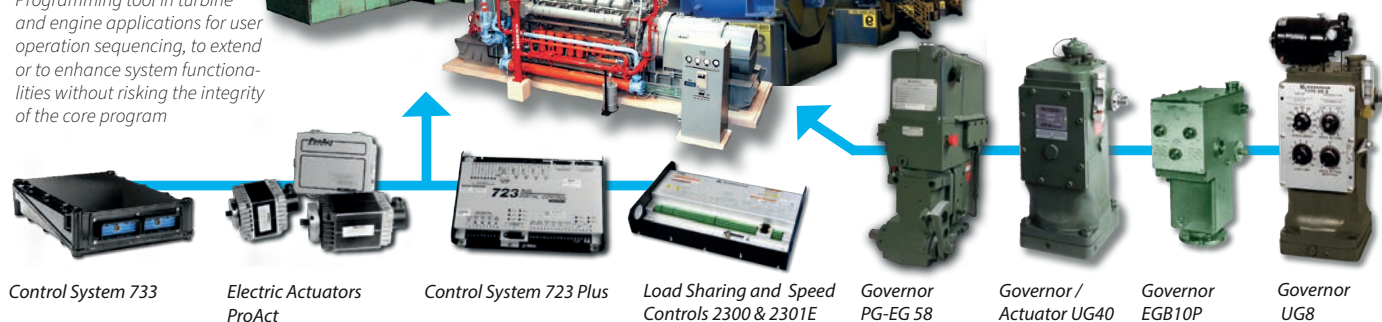
Diesel and Gas Engines



(Graphical Application Programmer) GAP Software Programming tool in turbine and engine applications for user operation sequencing, to extend or to enhance system functionalities without risking the integrity of the core program



Diesel Engines





AWF offers a range of Amot solutions for engines, turbines and compressors: thermostatic control valves, air start / shutoff valves, sensors (temperature, pressure, vibration, etc.) and control systems. Amot solutions are available in a wide variety of sizes, options, and materials. Contact us for an accurate quote and the exact reference number for your needs.

Technologies for Engine control

Liquid Temperature Control

self-contained / actuated



Valve B



Valve G

Electro-pneumatic Valves Controllers



SG80



8072D



8071D



8064C

Sensors & Switches

temperature / pressure / vibration / speed



4121



8060



4140



IP1

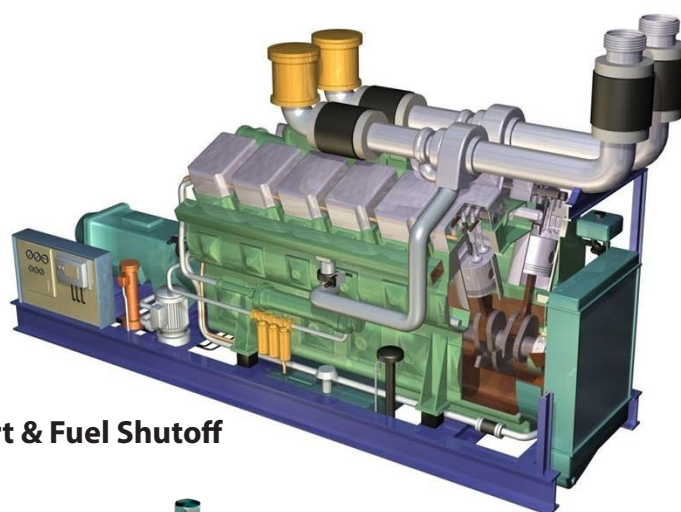


4250



4109

Air Start & Fuel Shutoff Valves



Valve
4418F



Oil Condition Monitoring

Metal particle
detector
MPD2



Technologies for Turbine control

Thermostatic Control Valves



Valve B



Valve E



Valve H



Valve G



Valve J



Valve R



Valve D

Sensors & Switches

temperature / pressure / vibration / vitesse



4121



8060



4140



IP1



4109

Electro-pneumatic Valves Controllers



SG80



8072D



8071D



8064C

Fuel Gas Control & Shut-off Valves

Valve 8402



Pneumatic Panel Components

4057 / 4457





Brüel & Kjær Vibro

AWF offers Brüel and Kjær Vibro vibration controllers and associated sensors: precise and efficient, they meet a variety of environments and applications for monitoring the condition and protection of machines (engines, pumps, fans, turbines, compressors, etc.). The Brüel and Kjær Vibro range consists of vibration sensors, a VC-8000 vibration controller - one of the most advanced on the market - and its SETPOINT software, as well as portable measuring devices and transmitters.

Technologies for Vibration Control

Vibration Controller



Vibration Controller VC-8000



*Condition Monitoring Software (CMS)
Setpoint*

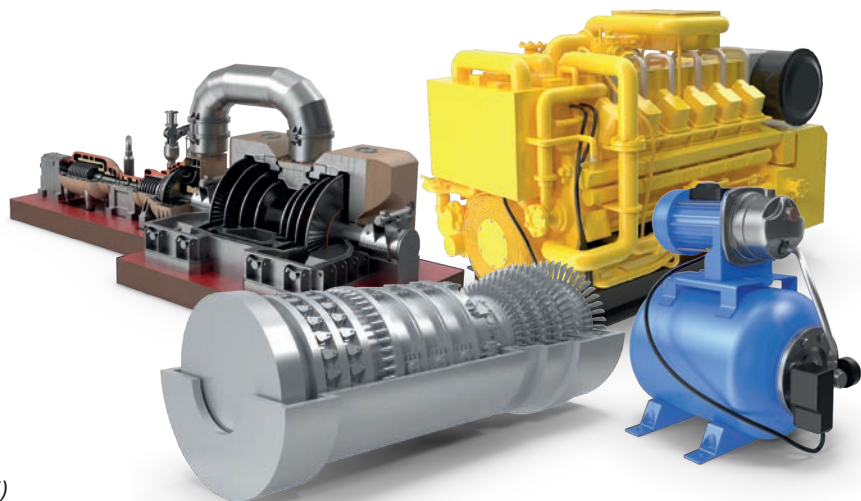
Portable Vibration Monitoring Device



Vibrostore 100-100E



Vibration Transmitters



Vibration Sensors



Acceleration Sensors



Velocity Sensors



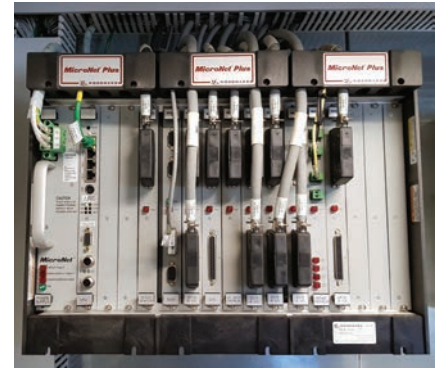
Displacement Sensors

Instrumentation & Control (I&C)

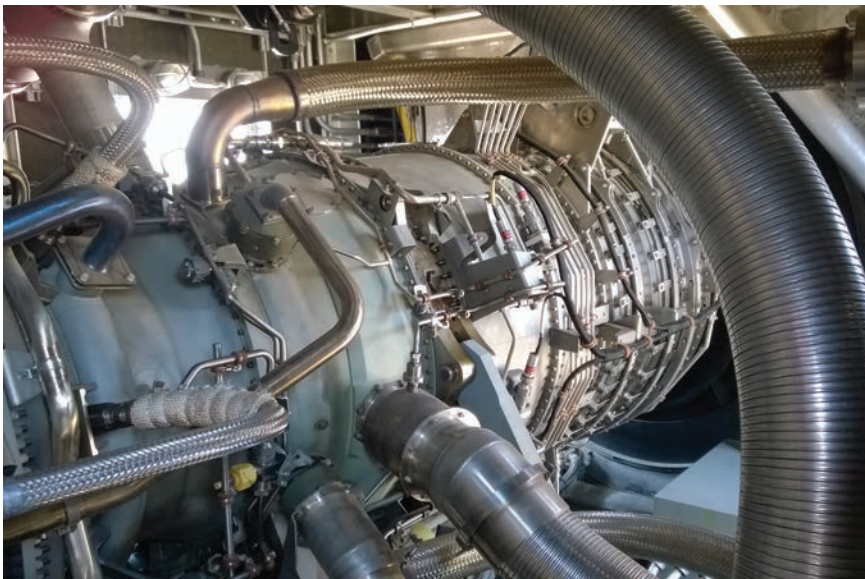
AWF's expertise in I&C provides through technical audits not only product solutions but also in-depth knowledge of digital control systems to better adapt to the specific needs of each installation.

I&C systems are the complete instrumentation and control loop of your turbogenerator set, monitoring all parameters, making adjustments and making more information available to maintenance staff to identify problems associated with a specific component.

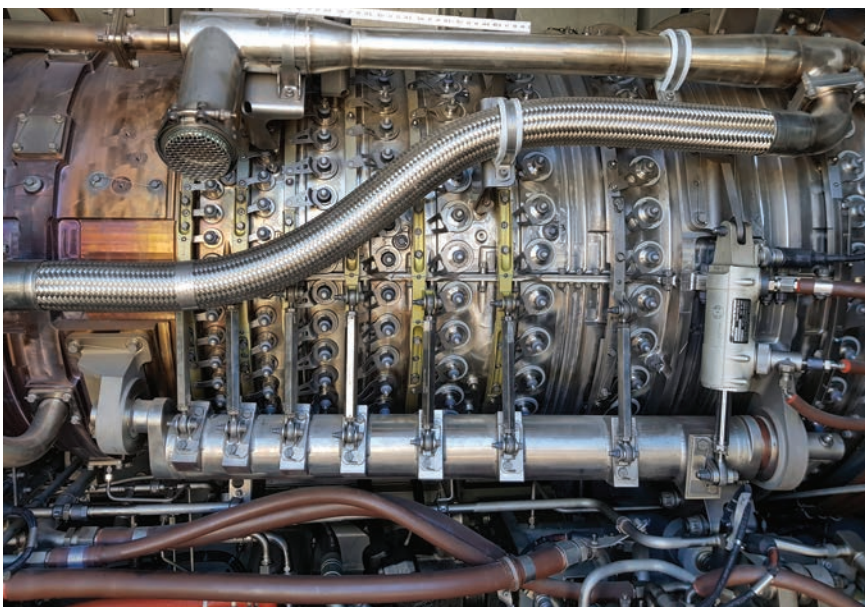
Compared to analog I&C systems, these digital systems automate and optimize monitoring activities. They help increase availability, safety, reliability, efficiency while reducing costs.



Example of an aeroderivative gas turbine control system



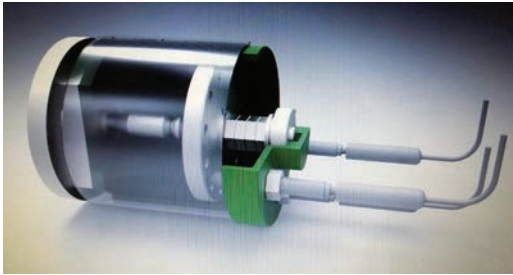
We carry out on-site services for the technical audit of aeroderivative gas turbines.





Expertise and major projects

In 2018, AWF achieved for a customer the first Woodward Steam Turbine test bench in Europe, including the complete 505 control system, ProTech TPS protection system, VariStroke, QuickTrip and CPC-II.



The design of
a tachometer system
for a steam turbine



The design of
a mechanical support
for the integration of
a new actuator on
a steam turbine



A complete offer for speed control and control systems of industrial engines and turbines

- ✓ *On-site maintenance or in our workshop*
- ✓ *Training in speed control and fault identification*
- ✓ *Supply of new equipment and manufacturer warranty parts*
- ✓ *Modernization of industrial engines and turbines*
- ✓ *Contract for inspection and / or maintenance of Instrumentation and Control (I&C) systems for gas turbines*
- ✓ *Brands: Woodward - Amot - Brüel & Kjaer Vibro*

Our response to Technical Directions

Your project commits us: our Engineering Team brings you the innovation and reliability of Woodward, Amot, Brüel & Kjaer Vibro solutions.

Continuous adaptation to the specific requirements of your installations.

International mobility: our teams can provide services wherever you need them.

Technological monitoring and combating obsolescence: we offer you the best solutions for your applications.

Our response to Site Managers

Our expert service available H24 offers you a maintenance solution adapted to your operating constraints.

A strong partnership with all engine and turbine manufacturers ensures the safety and the performance of your facilities.

The project management, if necessary, allows you to benefit from a «turnkey» service.

Our response to Purchasers

We distribute all speed control equipment and control systems: Governors, Actuators, Converters, Valves, Pumps, Control Platforms (drivers) ...

We provide repackaging, repairs and warranties.

Our Customer Service answers you in French and in English ; they provide you with technical and commercial documentation.

Our transit partner manages the customs duties withholding procedures for equipment repairs from abroad.

They trust us

SIEMENS | ALSTOM | DRESSER RAND | FIVES CAIL | WARTSILA | MITSUBISHI | CEGELEC | EDF | GDF-SUEZ | VEOLIA | TOTAL | GROUPE CHIMIQUE TUNISIEN | TEREOS | SAINT LOUIS SUCRE | CLAIREFONTAINE | TEMBEC | SONATRACH | FERTIAL | BRITISH GAZ TUNISIE | SENELEC | STX | NAVAL GROUP | CMA CGM ...



32, rue Marcel Paul - 76600 Le Havre - France
Tel. : +33 (0)2 32 92 70 65



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+33 (0)6 74 78 57 92



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