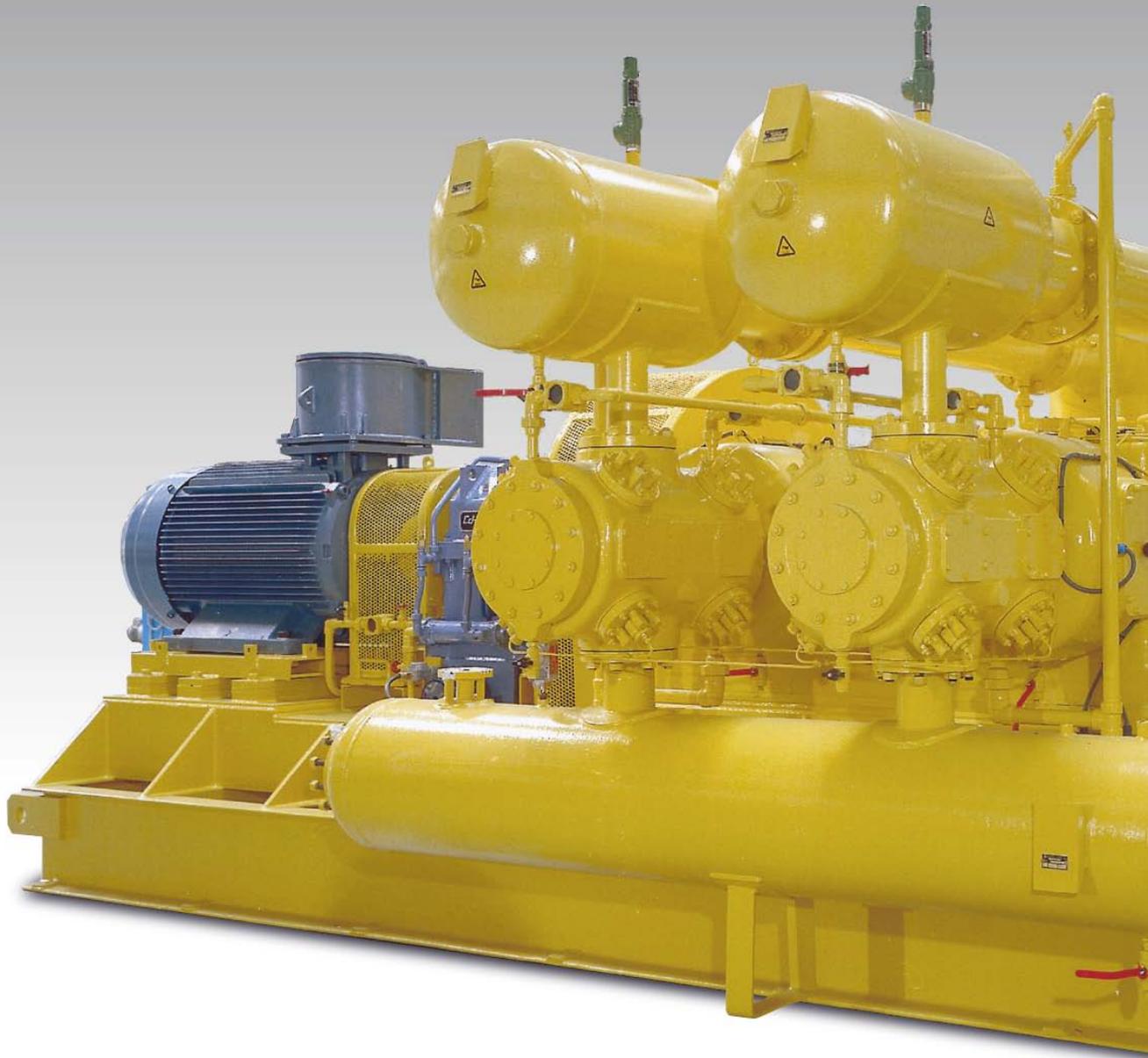


NATURAL GAS



RELIABLE BEYOND LIMITS



ABOUT ABC COMPRESSORS

Since its **foundation in 1943**, ABC has focused on providing **the most reliable compressors for different sectors and applications**. Its **global orientation** and the commitment for growth was shown from its early exports in the 50's to its latest geographical expansion, having delivered compressors in more than 120 countries.

Becoming a worldwide **benchmark in the piston compressor industry** has always been ABC's goal, and today it has turned into reality. The company is continuously expanding and consolidating as a global solution supplier, with more robust and efficient compressors. New assembly plants in China and Brazil, and the endless opening of new service outlets worldwide are the **best proof of such growth**.



ABC HEADQUARTERS SPAIN
EIBAR



ABC CHINA
WUJIANG



ABC BRAZIL
ITUPEVA

AIR AND GAS COMPRESSORS

ABC offers a **wide range** of reciprocating compressors and provides **tailored solutions** covering air and numerous industrial gases.



**PET BLOWING
CO₂ RECOVERY**



PETROCHEMICAL



**WASTE TREATMENT
BIOGAS**



**COGENERATION
NATURAL GAS**



INDUSTRIAL GASES



OTHER APPLICATIONS

CONFIGURATION

Piston compressors with up to 3 pairs of double-acting cylinders, with or without lubrication. Up to 6 stages of compression, mounted on a structural steel skid.

GASES

Air, Hydrogen, Nitrogen, Methane, Carbon dioxide, Freon, Natural Gas, Vinyl chloride, Methyl chloride, Ethylene, Propylene, Sulphur dioxide, Butadiene, Isobutene, Isobutane, Butane, Propane, Carbon monoxide, Synthesis gas, Biogas and Syngas... except for Oxygen and Acetylene.

POWER

Up to 1.200 kW

PRESSURE

Up to 150 bar

NATURAL GAS APPLICATIONS

Since the 1980s ABC has satisfied customers in numerous sectors: energy, petrochemical, ceramics, food, paper, pneumatics tyres... including the development of natural gas compression solutions on the 5 continents for electrically driven turbines and gas network pumping, among other applications.

Our technical and commercial departments study each project to ascertain the working requirements of the compressor and prepare a customized solution that meets each customer's needs.

ABC's technical department consists of experienced professionals, specialized in compression systems, working with the latest design technologies. Each ABC project manager supports the customer by working closely with the plant technicians and engineering contractors in the:

- Analysis and study of the specifications.
- Design of electrical and control schematics.
- Cooling system design.
- Design of the layout and location of the compressor and auxiliary equipment.

PRESSURE	Up to 70 bar
GAS TURBINE	<ul style="list-style-type: none"> · Up to 100 MW · We work with the world's top turbine manufacturers
COMPRESSION IN 1 or 2 STAGES	Compressing in one stage provides energy savings by taking advantage of the pressure of the gas in the supply pipeline. If the supply pressure is very low and constant, compression is possible in two stages, with intercooling.
LEGISLATION	The ABC compressor is designed to be located in classified areas, where all electrical components (motor, transmitters, solenoid valves, etc) meet ATEX certification providing Ex (d / e / i / n) protection. The power, command and control panels are typically offered with IP-55 protection for installation in safe areas.



CUSTOMISED CONFIGURATION

ABC designs each and every compressor and installation according to customer requirements and may involve configurations of one or more compressors.



RELIABILITY

- Horizontal configuration with opposing cylinders.
- Entire unit on a structural steel skid.
- Compressor with non-lubricated cylinders.
- Multi-step regulations for energy efficiency.



▲ 1EHP-2-GT

- Inlet Pressure: 30 bar
- Discharge Pressure: 47 bar
- Maximum Flow: 13.000 Nm³/h

TECHNICAL ATTRIBUTES

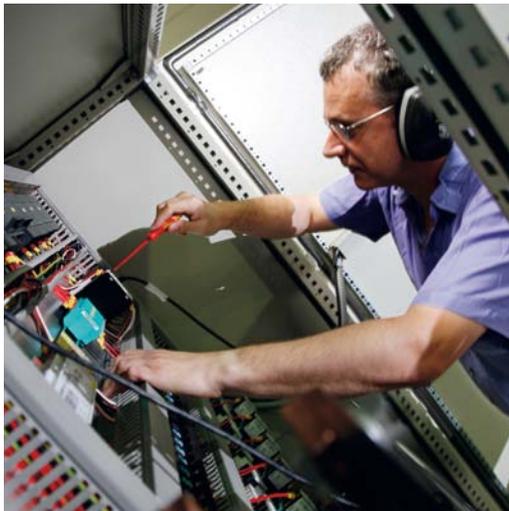
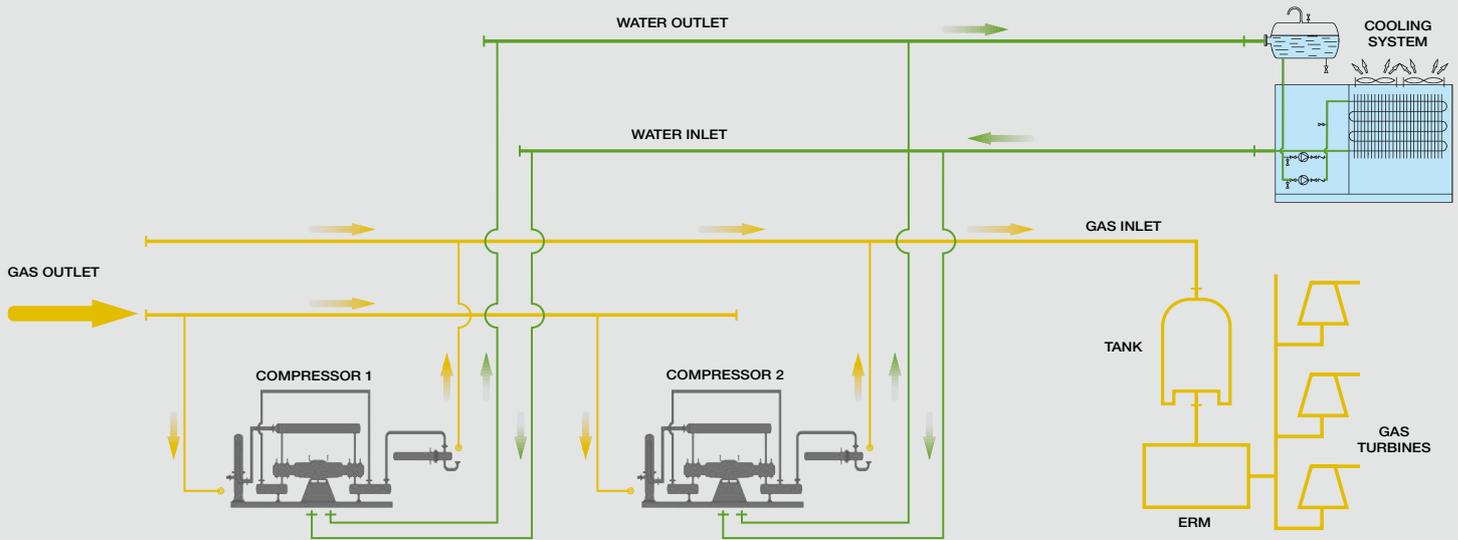
CUSTOMISED CONFIGURATION

In order to guarantee optimal performance, ABC analyzes each project and offers a **customized solution, for both the compressor and the entire installation.** Configurations of one or more compressors are available, depending on the minimum guaranteed pressure and that being supplied by the gas pipeline.

- **Single compressor.** Standard configuration where a single machine increases the pressure and produces the flow required by the turbine.

- **In series.** Installation where compressors are different from each other, the pressure is increased in stages from the minimum guaranteed to that required by the turbine.
- **In parallel.** Installation of multiple identical compressors, where each one is designed to increase the pressure to the guaranteed pressure range while providing additional flow. One or more compressors can be run supplying the required turbine or pipeline pressure, with others started only as needed should the flow requirements increase.

FLOW DIAGRAM - INSTALLATION





▲ 2EHP-4-GT

- Inlet Pressure: 10 bar
- Discharge Pressure: 50 bar
- Maximum Flow: 6.500 Nm³/h



**3 compressors 2EHP-4-GT
(1 compressor on stand-by)**

TYRE FACTORY

- Inlet Pressure: 10 bar
- Outlet Pressure: 50 bar
- Flow: 13.000 Nm³/h
- Turbine power: 50 MW

TECHNICAL ATTRIBUTES

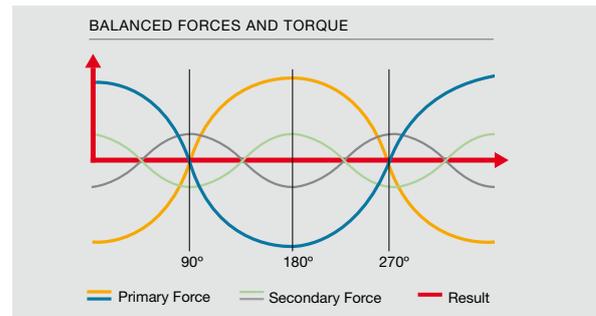
COMPRESSOR UNIT

CONFIGURATION

The ABC compressor assembly is based on a robust crankcase with force-feed lubrication to our dual-bearing crankshaft supports, and friction bearings on the power transmission side. The cylinders are arranged in lines, with the crankshaft-throws offset at 180 degrees so that the force and torque are perfectly balanced, virtually cancelling each other out. **Horizontal configuration with opposing cylinders allows:**

- Exceptionally long life for mechanical parts.
- Eliminates the need for anti-vibration devices and special foundations.

The compressor system is supplied **fully interconnected and mounted on a structural steel frame.**



NON-LUBRICATED WATER COOLED COMPRESSOR

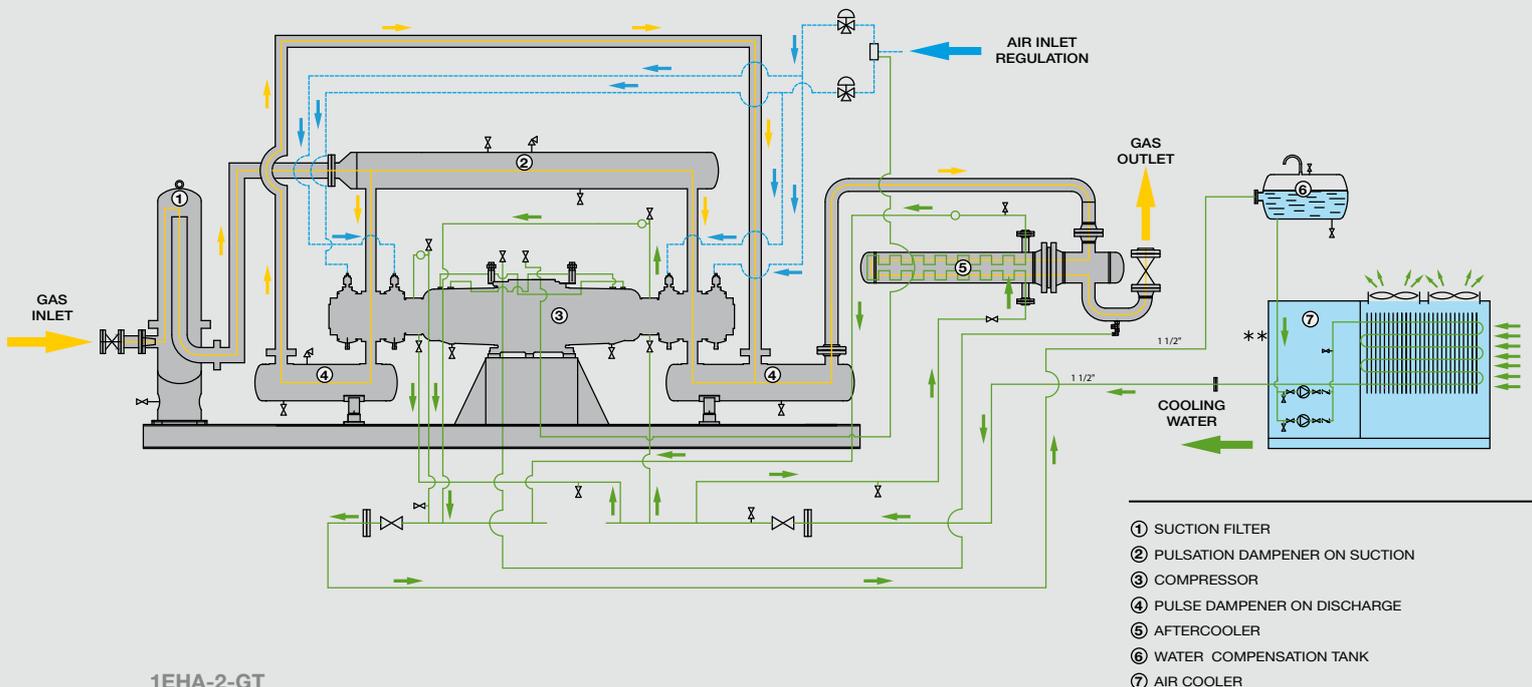
The “oil-free” version installed on all our natural gas compressors, with special PTFE segments (Teflon) or other suitable material, **ensures that the turbine operation will not be affected by oil ppm in the gas**, thus avoiding unwanted stoppages, shortening of the life of the turbine, and other inconveniences.

WATER COOLING

The compressor unit cooling can be accomplished by using an autonomous cooling system, or by taking advantage of the plant network if available. In the absence of a main water network or if you wish to have a standalone installation, ABC can supply its equipment with:

- **Air coolers.** Water cooling with ambient air in a closed-circuit without water injection.
- **Evaporation tower.** Water cooling with ambient air in a closed-circuit with water evaporation.

FLOW CHART - COMPRESSOR

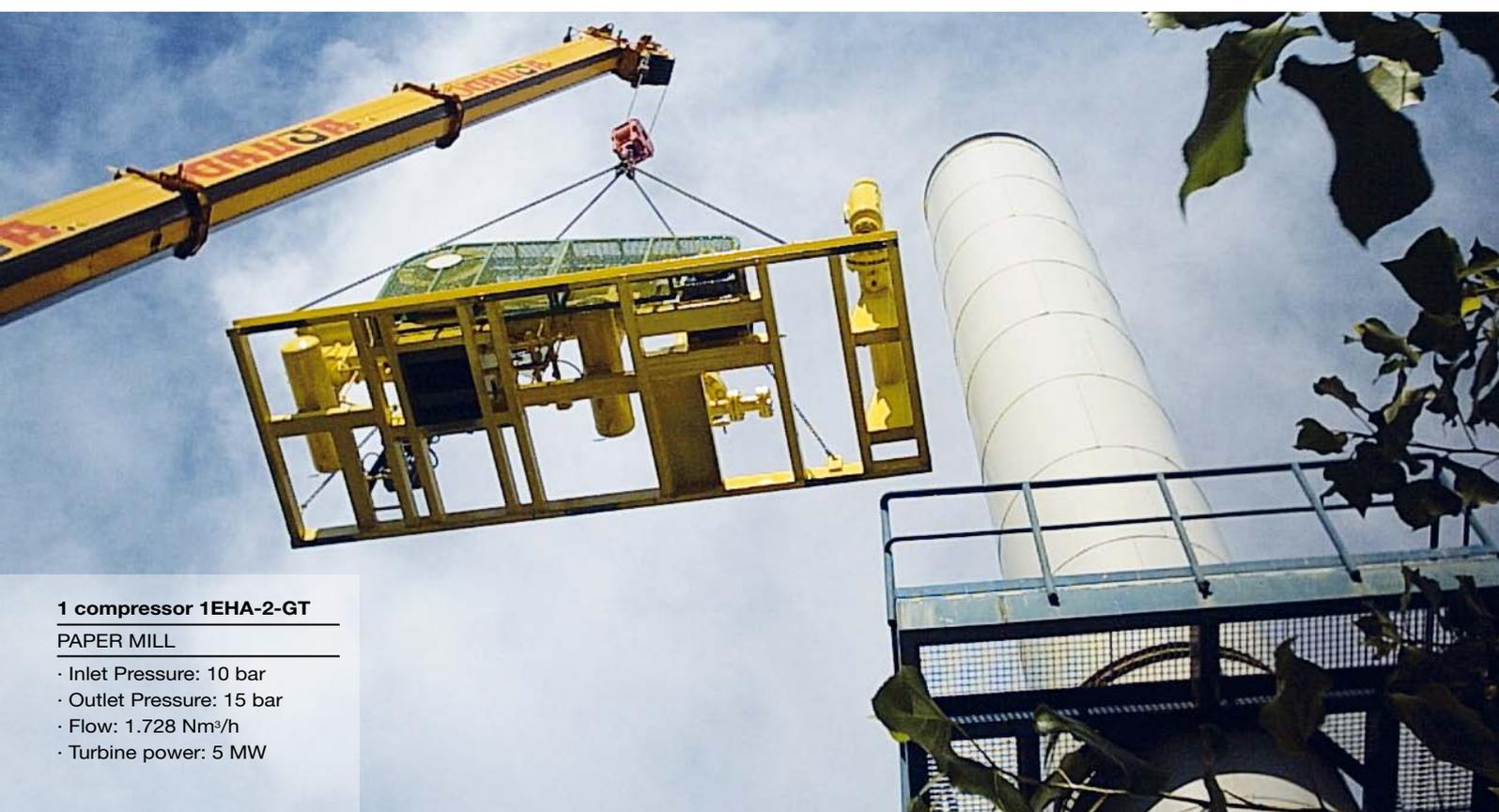


1EHA-2-GT



▲ 1EHA-2-GT

- Inlet Pressure: 11,8 bar
- Discharge Pressure: 15,5 bar
- Maximum Flow: 3.500 Nm³/h



1 compressor 1EHA-2-GT

PAPER MILL

- Inlet Pressure: 10 bar
- Outlet Pressure: 15 bar
- Flow: 1.728 Nm³/h
- Turbine power: 5 MW

TECHNICAL ATTRIBUTES

MULTI-STEP REGULATION

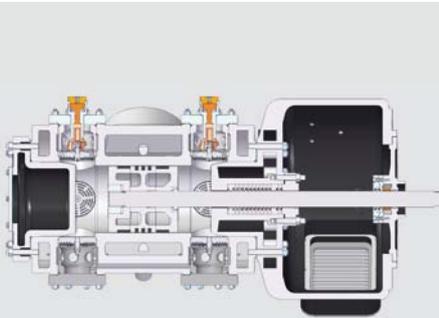
ABC fits the design of its compressors to **any turbine type, by using a multi-step regulation system** to meet variable flow requirements. In this way, **fractional adjustments** can be made by acting pneumatically on the suction valve plates.

Each double acting cylinder works automatically at 100%, 50% or 0% of its nominal capacity, with the compressor always perfectly balanced while producing **very significant energy savings**.

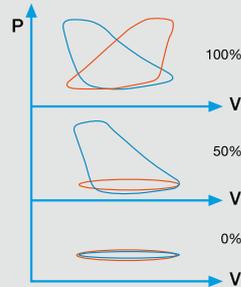
Additionally, the multi-step regulation can be complemented with:

- **Constant pressure outlet valves.** To stabilize the pressure required (with a tolerance of ± 0.1 bar).
- **Recycle bypass valves.** To stabilize the pressure required with 0 tolerance (re-circulating flow to the suction of the compressor).

DOUBLE-ACTING CYLINDER



CONTROL CHART



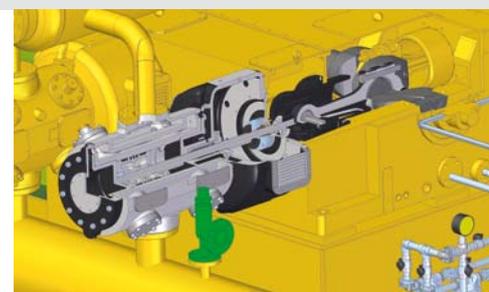
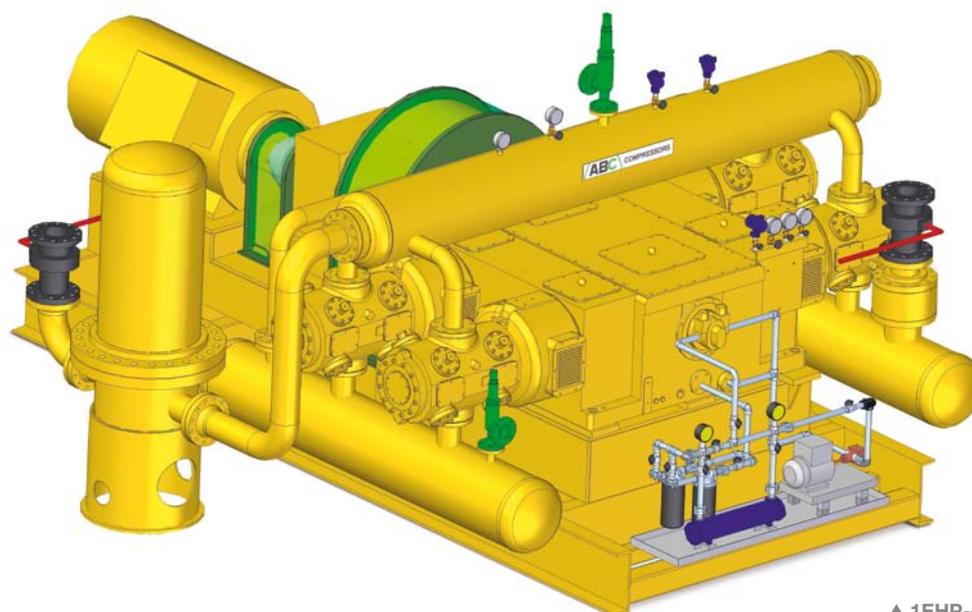
Depending on the number of cylinders of each machine, it can be regulated up to 5-steps (0-25-50-75-100%), fully automatically, with the compressor always perfectly balanced.

For intermediate values, such as when the demand is 60% nominal capacity of the compressor, the compressor regulates between 50% and 100% for varying periods of time, resulting in 60% of its nominal capacity, thus adjusting to the demand required.



▲ 1EHP-1-GT

- Inlet Pressure: 27,7 bar
- Outlet Pressure: 42 bar
- Maximum flow: 9.600 Nm³/h



▲ 1EHP-4-GT

- Inlet Pressure: 12 bar
- Outlet Pressure: 30 bar
- Maximum flow: 13.000 Nm³/h



2 compressors 1EHP-4-GT
(1 compressor on stand-by)
CHEMICAL PLANT

- Inlet Pressure: 15,5 bar
- Outlet Pressure: 29,3 bar
- Flow: 13.708 Nm³/h
- Turbine power: 40 MW



▲ 1EHA-4-GT

- Inlet Pressure: 7 bar
- Outlet Pressure: 14 bar
- Maximum flow: 4.280 Nm³/h



▲ 1EHA-6-GT

- Inlet Pressure: 35 bar
- Outlet Pressure: 50 bar
- Maximum flow: 10.800 Nm³/h



▲ 1EHA-1-GT

- Inlet Pressure: 18 bar
- Outlet Pressure: 23 bar
- Maximum flow: 2.300 Nm³/h

ABILITY

services

After more than 60 years in the market, ABC works to strengthen long-term relationships with clients, **supplying not only the best customized products, but also the complete service package for their whole life cycle.**

ABILITY NETWORK

Through a wide network of service offices in more than 20 countries, with more than **100 field technicians and stock of spares** strategically distributed throughout the world, ABC ensures the best technical support for the start-up, maintenance and monitoring of compressors.

ABILITY CONTRACT

In order to grant the best long-term operating guidelines of the compressors and to keep the maintenance cost controlled from the very beginning, ABC offers **“FULL SERVICE”**, maintenance contracts, with extended **guarantee up to five years.**

ABILITY EYE

ABC considers it important to help clients monitor their international compressor network quickly and efficiently. Consequently, **the REMOTE CONTROLLER Ability Eye**, with its three levels of surveillance, becomes the perfect tool to keep the compressor room under control.

Ability Services cover the **services from the initial design of compressor, its start-up to its operation**, providing the following range of services, as well as technical solutions:

ABILITY IMPROVER

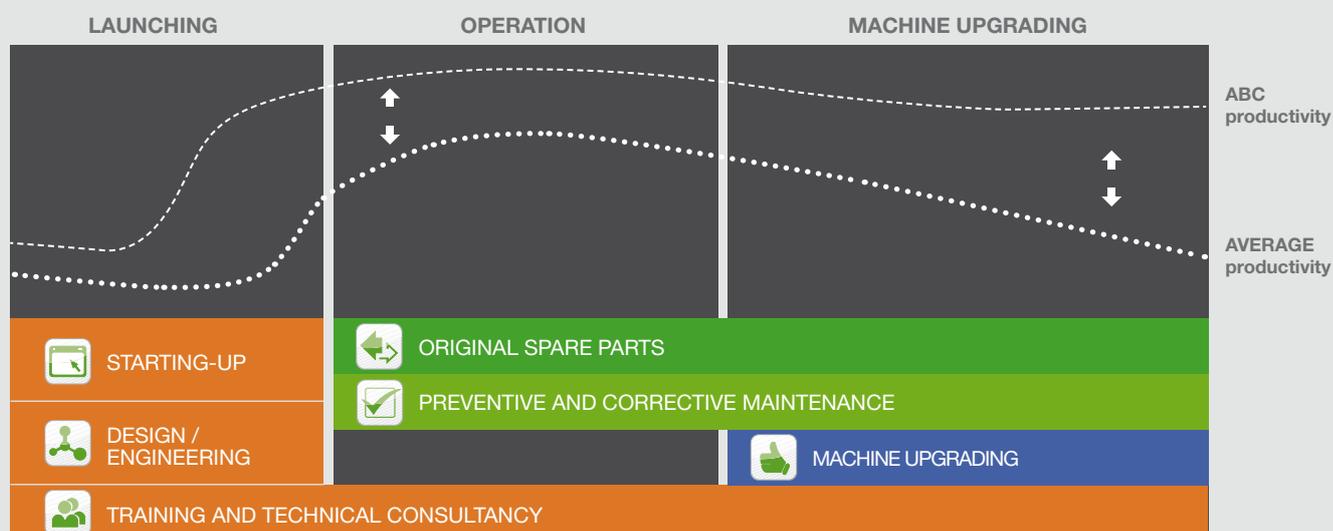
Its products and services are aimed at **optimizing clients’ air or gas compression system.** Improvement of regulation system, systems for coordination of batteries of machines, upgrading of compressors, energy saving methods, consultancy and plant audits.

ABILITY ACADEMY

ABC offers clients and field specialists **complete training programs**, to ensure that only the best technical guidelines are used when diagnosing and operating the compressors.



Energy audit



For additional information browse our Service Catalogue or visit our website
www.abc-compressors.com

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RELIABLE BEYOND LIMITS



02/2013



ARIZAGA, BASTARRICA Y CIA, S.A.

TOTAL QUALITY

ISO 9001

ISO 14001

OHSAS 18001