FINANCIAL BENEFITS

In order to estimate the financial benefits, we conducted a 16-day test comparing the operation of two G-42E generators, one with automatic regulation and the other with nominal capacity. At the end of the test, we compared the consumption of natural gas for both cases.



G-42E – no variable capacity \rightarrow 3 085m³ of natural gas G-42EA – variable capacity \rightarrow 2 084m³ of natural gas

TEST RESULTS

The test results showed that generator with variable regulation saved 1001m³ of natural gas. Converting this over a one-year period, installing an auto-regulating generator can bring you the following savings: 1001 m³ / 16 days * 365 days = 22 835 m³ of natural gas 22 835 m³ x 0,44 EUR/m³ = 10 047 EUR

SECO/WARWICK is a technological leader in innovative heat treatment furnaces. Expertise includes end-to-end solutions in 5 categories: vacuum heat treatment, atmosphere, and aluminum thermal processing, controlled atmosphere brazing of aluminum heat exchangers and vacuum metallurgy. SECO/WARWICK Group with 9 companies located on 3 continents with customers in nearly 70 countries, has its production facilities in Poland and China. In addition, the Group operates a number of service and sales offices in countries such as Germany or Russia. The company provides standard or customized state-of-the-art heat processing equipment and technologies to leading companies in the following industries: automotive, aerospace, electronics, tooling, medical, recycling, energy including nuclear, wind, oil, gas, solar and production of steel, titanium and aluminum.





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SECO/WARWICK GROUP a leading global manufacturer of heat treatment furnaces and equipment



Surface protection for hardening, brazing, sintering & gas carburizing

GENERATORS Endothermic atmosphere

The endothermic atmosphere is widely used in heat and heat-chemical treatment processes as a protective atmosphere and support atmosphere for processes such as gas carburizing and gas carbonitriding. Therefore, endothermic atmosphere generators are a perfect complement to a number of products in the atmospheric furnace group portfolio supplied by the SECO/WARWICK, though not necessarily as the primary source of protective atmosphere. SECO/WARWICK generators are characterized by high reliability, which, in combination with the automatic capacity adjustment feature, perfectly fits into our tagline Invention Meets Reliability.

PROCESSES



Carburizing, Carbonitriding Bright hardening of carbon and alloy steels Normalizing, Steel brazing

ADVANTAGES

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- Stability of finished Atmosphere parameters
- Fully automatic as an option
- Minimal number of technological mediums required for generator operation
- Easy service and Maintenance
- No need for excess atmosphere burn off
- Weekend mode for energy savings
- The cooling system utilizes an air or water heat exchanger
- Remote service and notification alerts
- All executive & measurement data

VERSION AVAILABLE

- Gas used for the process
- propane supplied
- natural gas supplied
- Heating system:
- electrically heated type G-ET

KEY CONSTRUCTION FEATURES OF ENDOTHERMIC GENERATORS

- Working temperature: 105°C
- Optimal regulation range of dewpoint of the produced atmosphere: -5 to +5°C
- Atmosphere water cooling system
- Automatic control of a dewpoint
- Suitable to work with a gas analyzer
- Spiral heating elements of a high durability and easy removal
- Automatic regeneration cycle of the catalyst
- Sectional casing with easy access to heating elements

AUTOMATIC CONTROL OF ATMOSPHERE PARAMETERS

The atmosphere control system produces consistent parameters utilizing these three main elements:

- digital dewpoint controller,
- Lambda probe with supply system,
- air control valve for the retort.





During the operation of an endothermic atmosphere generator, the dewpoint controller, which receives a signal from the Lambda probe, increases or reduces the amount of supplied air and controls the gas-air ratio at the retort entrance. This system provides precise regulation of the atmosphere parameters and continuous operation of the generator.

Automatic control and protection systems ensure that an accurate temperature inside the retort is kept at a constant level and the generator is operating safely.

As a standard feature, the generator control system includes the catalyst regeneration program.



GENERATED ATMOSPHERE COMPOSITION (%)





