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THE EXPERIMENTAL EFFECTS OF THE FRICTION IN THE PARALLEL SONIC INSTALLATION

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ABSTRACT
In the paper we make the effect of the friction in the sonic system were the sonic flow are influence by the friction. This effect makes the growing of the temperature in the sonic resistance used in the sonic parallel circuit, same the caloric effect of the alternative current. This paper is the based by the research about the termic effects of the sonicity theory in the practice.
Keywords: sonic pressure, sonic flow, perditance, friction resistance, sonic circuit, sonic inductance, sonic capacity.

1. INTRODUCTION

In the last time, the development of the science and the technicians are realised the big progress and the level of the general knowledge of the persons implicated in this activity are advances and probable the knowledge of the sonicity are not brake by the wrong idea or disregarded by "incompressibility of flow"

Sonicity is the science of transmitting mechanical energy through vibrations. Starting from the theory of the musical accords, Gogu Constantinescu found the laws for transmitting the mechanical power to the distance through oscillations that propagate in continuous environments (liquid or solid) due to their elasticity.

It should be mentioned that this approach of the problem makes the sonicity theory a particular case of power transmission through „displacement", which means the fluid, instead of flowing continuously from generator to they actuator, evolves harmonically in time at various wavelengths and frequencies.

This concept enables obtaining thermal effects through fluid motion or/and synchronous, non-synchronous, single-phase actuation when using a small volume of non-polluting fluid, such as water. The effect of this solution is that one can eliminate the individual equipment for flow and pressure adjustment and control by transferring them in the modern domain of computerized electronic control.

2. THE EXPERIMENTAL EFFECTS OF THE FRICTION IN THE PARALLEL SONIC INSTALLATION

In the new system, energy is transmitted from one point to another by covering distances which can be large, by applying periodical compressions which generate longitudinal vibrations in columns of solids, liquids and gases. The energy transmitted through these periodical longitudinal pressure and volume vibrations is in fact power transmission through sonic waves.

We considered the sonic system formed by:

1- the electrical motor ;
2 - the proximity sensor,
3 – the electrical coupling,
4 - sonic pump;
9 and 11 - capacity cylinder;
6 – friction resistance;
5, 8, 10 – the pressure sensors
6 - the temperature sensor;
7 - the friction resistance;
12 , 14 - the ball cock,
13 – hydraulics pump;
15 - the oil reservoir.

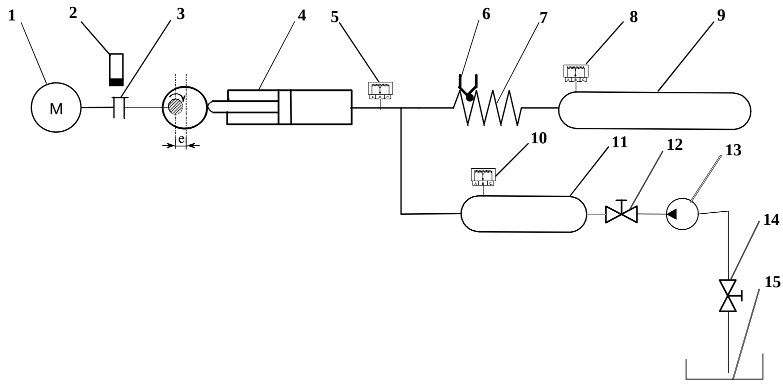

Figure 1. Parallel sonic installation

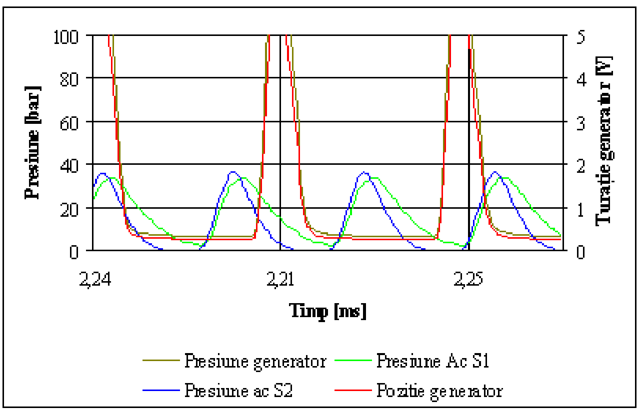

Figure 2. The evolution of the presure in time for the parallel instalation

Stand in Figure 1, the capacitor is mounted in parallel with small friction resistance.
After processing the experimental data files from the three sensors in the system resulting histograms illustrating the primary generator developments and pressures on the two capacitors, the shape of the histograms represented in Figure 2. You can also view the generator speed (position viewed the graph

generator). Evolutions of pressure curves reveal a phase shift between the pressure generator and pressure in the condenser.
The graphs representing in Figures 3 and 4 amounted to a static pressure of 0,25E+05 P starting a speed n = 600 rpm, which is stable at 560 rpm. Generator pressure is stabilized after one minute of starting the installation around 70E+05 Pa and the cylinder pressure has a value of 50E+05 Pa, pressure drop in the frictional resistance being 30E+05 Pa. The surface temperature of the frictional resistance increased after about 1 minute to 85 º C.

n = 600 rot/min **p_s = 0,25E+05 Pa**

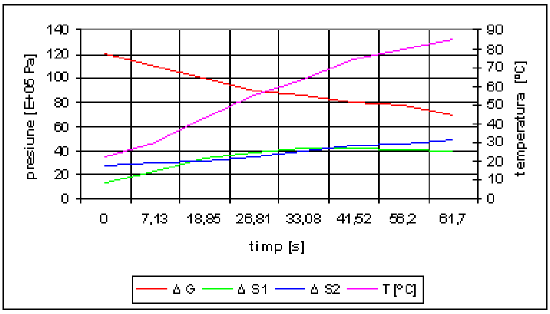

Figure 3. Diagram of the variation of pressure and temperature versus time at 0.25 + 05 Pa static pressure

The results noted with graphs:
ΔG - sonic pump pressure variation on the sensor 5;
ΔS1 - obtained by varying the pressure of pressure sensor 8;
ΔS2 - obtained by varying the pressure of pressure sensor 10,
T - temperature.

p_s = 0,25E+05 Pa

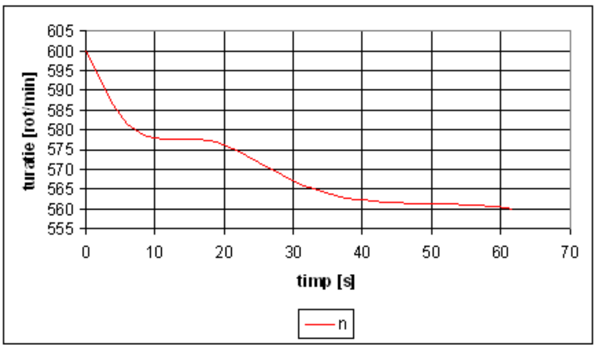

Figure 4. Diagram of pressures and temperature variation of speed according to the static pressure of 0,25E+05 Pa

3. CONCLUSION

The analysis of graphs for parallel assembly of Figure 1 can draw the following conclusions:
- the link in parallel after about a minute stabilized speed;
- pressure drop in the frictional resistance is around 30E+05 Pa to the computer 42,5 $\cdot 10^{-5}$ Pa. Deviation between the two pressure being 29% allowance for acceptable deviation taking place across the system;
- Seconds after the pressure is constant speed is constant;
- static pressure in the plant will not substantially affect the pressure drop;

- based on other measurements we concluded that the optimum speed frictional resistance of 3 mm diameter and length 1 m is in the range rot/min- 600 and 1000 rpm.

3. REFERENCES

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