15th International Research/Expert Conference
”Trends in the Development of Machinery and Associated Technology”
TMT 2011, Prague, Czech Republic, 12-18 September 2011

THEORETICAL CONSIDERATION ABOUT THE FRICTION LAW

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ABSTRACT
In the paper we are present some theoretical consideration about the effect of the friction in the sonic installation. To begin to the sonic pressure and the sonic flow we can demonstrate the effects of the friction.
Keywords: sonic pressure, sonic flow, sonic circuits.

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”
The mathematical calculus used by the technicians of the last generation is strong and enable to once understand and the tackle creative the sonicity. This approaching by the actual technical calculus of the hydraulic system and the theory of the sonic transmissions are big, when we can affirmed the sonicity by power transmission through harmonic oscillations to the liquid colons represent a new modality by compression of the energies through the hydraulic system in the permanent regime harmonic.

2. THE FRICTION EFFECTS IN THE SONIC FLOW
We proposed to study the effects of the friction in the parallel installation (figure 1). We also see the developed of the effect of this friction causes by the variation of the components establish in the calculus of the friction resistance.

Figure 1. The sonic installation about one friction resistance

In the first time, we proposed the variation of the volume to the capacity noted in the figure 1, by C_{s1} respective in the table (C_{s2}) and the angle speed ω are constant.
We are obtained the values present in the table 1.

Table 1.

V_2	C_{s1}	C_{s2}	ω	C_f
1462,41	0,171806	0,104458	146,6	1,718185
1562,41	0,171806	0,111601	146,6	1,718203
1662,41	0,171806	0,118744	146,6	1,718222
1762,41	0,171806	0,125886	146,6	1,718243
1862,41	0,171806	0,133029	146,6	1,718265
1962,41	0,171806	0,140172	146,6	1,718287
2062,41	0,171806	0,147315	146,6	1,718311
2162,41	0,171806	0,154458	146,6	1,718337
2262,41	0,171806	0,161601	146,6	1,718363
2362,41	0,171806	0,168744	146,6	1,718391
2462,41	0,171806	0,175886	146,6	1,71842
2562,41	0,171806	0,183029	146,6	1,71845
2662,41	0,171806	0,190172	146,6	1,718481
2762,41	0,171806	0,197315	146,6	1,718513
2862,41	0,171806	0,204458	146,6	1,718547
2962,41	0,171806	0,211601	146,6	1,718582

The variation in this situation is present in the figure 2.
In this case we observe, if the variation of the volume by cylinder capacity 1, C_s (C_{s1} in figure1), the

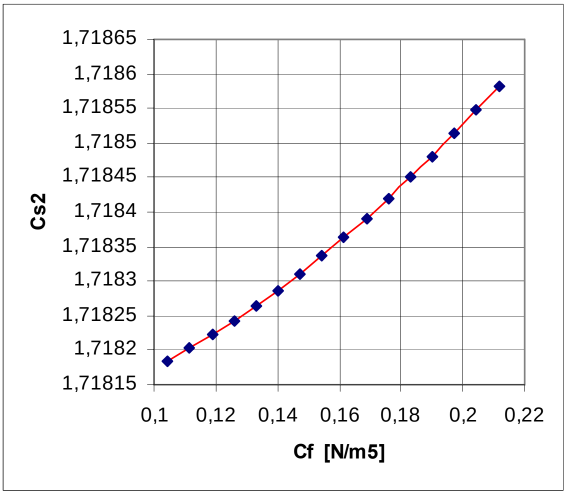

Figure 2. The variation of the friction resistance and C_{s2}

friction resistance C_f are approximately constant value.
The same situation we can realised the variation of the volume by the cylinder 2. The variation by the C_{s2} respective C_{s1} is present in the table 2. The variation of the friction resistance in this case is present in the figure 3.

Table 2.

V [cm³]	Cs [cm/N]	ω [rad/s]	Cf [Ns/cm]
2405,28	0,0171806	146,66	1,049622724
2544,17	0,0181726	146,66	1,027956882
2666,6	0,0190471	146,66	1,010730257
2799,18	0,0199941	146,66	0,99377495
2929,84	0,0209274	146,66	0,978566523
3060,253	0,021859	146,66	0,964681839
3190,666	0,0227905	146,66	0,95193218
3321,079	0,023722	146,66	0,940183835
3451,492	0,0246535	146,66	0,929323302
3581,905	0,025585	146,66	0,919253607
3712,318	0,0265166	146,66	0,909891405
3842,731	0,0274481	146,66	0,901164664
3973,144	0,0283796	146,66	0,89301081
4103,557	0,0293111	146,66	0,885375222
4233,97	0,0302426	146,66	0,878210011
4364,383	0,0311742	146,66	0,87147301

In this case we observe, if the variation of the volume by cylinder capacity 2, C_s in figure 1, the friction resistance C_f are decrease value.
These variations influence just the capacity the C_s and C_{s1}, who depended by the volume, rela-tion 1:

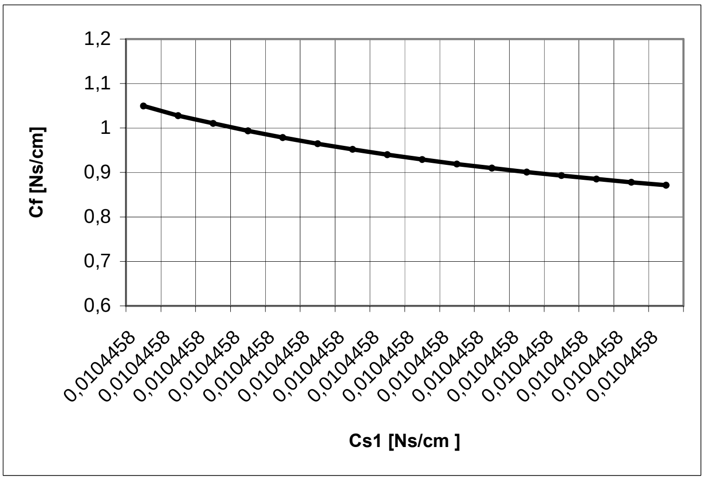

Figure 3. The variation of the friction resistance and C_{s1}

$$C_{S1} = \frac{V_1}{E} \tag{1}$$

$$C_f = \frac{C_S + C_{S1}}{\omega \cdot C_S \cdot C_{S1}} \tag{2}$$

Other case is thought that if the friction resistance are influence by the angle speed variation. We see in the relation 2 the influence of the angle speed by the friction resistance. In the table 3 are present the variation of the speed and the variation of the friction resistance, than is thought that capacity of cylinder C_s and C_{s1} are constant.

Table 3.

n [rot/min]	ω [rad/s]	C_f [N/m^5]
400	41,886667	3,675E+10
450	47,1225	3,267E+10
500	52,358333	2,94E+10
550	57,594167	2,673E+10
600	62,83	2,45E+10
650	68,065833	2,262E+10
700	73,301667	2,1E+10
750	78,5375	1,96E+10
800	83,773333	1,838E+10
850	89,009167	1,73E+10
900	94,245	1,633E+10
950	99,480833	1,548E+10
1000	104,71667	1,47E+10
1050	109,9525	1,4E+10
1100	115,18833	1,336E+10
1150	120,42417	1,278E+10
1200	125,66	1,225E+10

We observe by graphic present in the figure 4, as when the angle speed is big value the friction resistance decrease and too little value of the angle speed we have the big value of the friction résistance. In this case the friction is the inverse proportional increase by the angle speed and direct proportional by the revolution of the motor.

In this case we are found the growth of the friction resistance by the growth by the static sonic pressure.

This growth are not liner, it is a parabolic growth.

3. CONCLUSION

The variation of the friction resistance depended by the following factors:

- the angle speed are influence to the friction resistance;
- the static pressure influence to growth the friction resistance;
- the volume of the cylinder capacity were are the fluid in the installation.

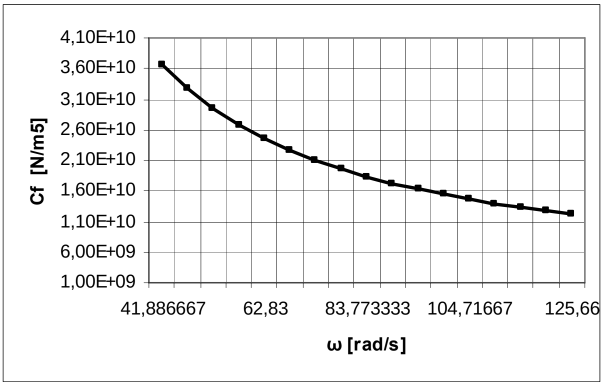

Figure 4. The variation of the angle speed and the value of the friction resistance

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