

VENTURI RAPORT

OPERATION TEST

PROJECT:

PRESS FELTS CONDITIONING

OY Eltete Ab, Finland

Mill: Packprofil, Poland

(contract dated May, 2020)

KOLONOWSKIE, OCTOBER 2020

- I. On October 22-26, 2020, an operation test of the newly commissioned vacuum pump and Venturi conditioning installation was carried out.
- II. The purpose of the test was the practical (result) verification of the performance of the contract between PP Kolonowskie and Venturi Paper of May 20, 2020.

III. Methodology:

1. **On October 22, 20, a new vacuum pump was switched on to the press felts suction system. Around 13.30 a set of Venturi boxes on the same press felts was put into operation. The initial speed of the machine was 58 m / min. The steam flow to the ejectors of the conditioning boxes was adjusted to 50 % of their efficiency. Until 6 p.m. on that day, the machine was accelerated to a speed of 63 m/ min; basis weight 477.5; moisture 4% .**
2. About 6 p.m. Venturi boxes were shut down. The felts were thoroughly conditioned, they regained their drying abilities in this permeability and space for water absorption. The operator of the machine noticed contamination separated from the felt in tarry form and the limitation of the amount of water on the press rollers.
The vacuum pump remains on.
3. Machine speed was maintained over the next 48 hours without the use of Venturi boxes.
4. On the night of 24/25 (third shift), press felts began to close. In effect the produced cardboard was wet at a constant speed of 63 m / min. In day On 25.10.20 the operator was forced to reduce the speed of the machine to 60 m / min in order to reduce the moisture of the cardboard.
By 26/10/20 in the morning, the machine slowed down to 59 m / min with a basis weight of 442 gr / m² and moisture 4.2% .
5. The figures above are documented in the registers laboratory at the paper machine.

IV. CONCLUSIONS:

1. **The operation test confirmed the fulfilment of the terms of the contract of 20/05/2020. Even old press felts conditioned by Venturi boxes regain their full water absorption and transport capacity from the NIP pressing zone to the suction boxes. The test also confirmed the right decision to start an additional vacuum pump.**

2. Machine acceleration balance:

- production in the Venturi box (SV) + vacuum pump (VP) system:
 $0.478 \text{ kg / m}^2 \times 63 \text{ m / min} \times 2 \text{ m} \times 60 \text{ min / hr} = 3.614 \text{ kg / hr}$
- production without SV with VP included:
 $0.442 \text{ gr / m}^2 \times 59 \text{ m / min} \times 2 \text{ m} \times 60 \text{ min / hr} = 3.129 \text{ kg / h}$

Production Increase:

$$(3614-3129) / 3129 \times 100\% = 15.5\% .$$

3. Steam consumption to supply Venturi boxes:

The boxes were turned on on October 22, 2020 at 13.30.

In ATT#3 (gas consumption for powering the machine) it is difficult to notice an increase in gas consumption. The water vapor absorbed by the boxes in the amount of up to 200 kg / hr is compensated by the improvement of web dryness after the presses and reducing the steam requirement for the dryer. Of course, the demand for gas increases with the increase in machine speed and production volume if the boxes are put aside (visible in Annexes # 3 and 4 after 6 p.m.).

Lucjan Raubic

Venturi Paper - Lucjan Raubic
Kolonowskie, October 26, 2020



VENTURI BLOW BOX, PACKPROFIL , PRESS SECTION



ATT #3. GAS FLOW TO THE BOILER ROOM OF PAPER MACHINE:

2020-10-22	8	359,35	131	36288153,53	3133385	290,5	13,4
2020-10-22	9	355,48	130	36288512,88	3133516	289,8	13,6
2020-10-22	10	357,94	131	36288868,36	3133646	290,1	14,1
2020-10-22	11	362,91	133	36289226,3	3133777	290,1	14,4
2020-10-22	12	363,3	133	36289589,21	3133910	290,4	14,4
2020-10-22	13	360,86	132	36289952,51	3134043	290,6	14,4
2020-10-22	14	353,15	129	36290313,37	3134175	291	14,4
2020-10-22	15	363,84	133	36290666,52	3134304	290,6	14,2
2020-10-22	16	364,04	133	36291030,36	3134437	290,5	14
2020-10-22	17	371,58	136	36291394,4	3134570	290,1	13,8
2020-10-22	18	383,07	140	36291765,98	3134706	290,1	13,6
2020-10-22	19	377,94	138	36292149,05	3134846	290,3	13,6
2020-10-22	20	385,98	141	36292526,99	3134984	290,1	13,5
2020-10-22	21	384,14	140	36292912,97	3135125	290,6	13,4
2020-10-22	22	384,31	140	36293297,11	3135265	290,7	13,3
2020-10-22	23	381,67	139	36293681,42	3135405	290,7	13,3
2020-10-23	0	381,56	139	36294063,09	3135544	290,5	13,2
2020-10-23	1	381,63	139	36294444,65	3135683	290,5	13,1
2020-10-23	2	371,27	135	36294826,28	3135822	290,9	13
2020-10-23	3	379,14	138	36295197,55	3135957	290,6	13
2020-10-23	4	377,4	138	36295576,69	3136095	289,3	13
2020-10-23	5	381,26	139	36295954,09	3136233	290,1	13
2020-10-23	6	378,69	139	36296335,35	3136372	288,2	13
2020-10-23	7	122,66	45	36296714,04	3136511	288,4	13,1