



Qualitative & Quantitative Benefits of Steam Profiler

COMPANY OVERVIEW

Naini Papers Ltd, an Integrated Pulp and Paper Mill, started in 1995 and has been accredited with ISO 9001:2000,ISO-14001:2004,OHSAS-18001:2007 certifications. The company has integrated Pulp and Paper plant with agro based pulp mill equipped with modern wet washing system, Continuous digester, oxygen de-lignification plant, Multi stage bleach plant and Fluidised Bed Reactor for Soda Recovery.

Machine Overview

Naini paper machine is arguably worlds fastest ground floor machine (With out basement) & is totally upgraded with latest technology & producing Writing & Printing Paper.

The machine is equipped with dilution control head box, I-table, Dandy roll, Duo shake, Steam profiler, Shoe-press, Speed Seizer & Rope Less paper feeding system.

Naini papers Ltd. Finishing & Converting section comprises of Winder, Syncro-cutter,Auto Reel wrapping machine, Auto Ream wrapping machine and Shrink bundling machine with Bar Coding system .

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ABOUT STEAM PROFILER



Reduce
"Two sigma
values" of
Moisture



Reduce
Roughness
of paper



Reduce the
chances of
creasing in
Printing



Increase
off-press
Dryness



Reduce
Steam
consumption



Increase avg.
moisture
level in
paper



Improve
"Two sigma
values" of
Basis wt.



ABOUT STEAM PROFILER

Steam Profiler is a steam box with applications for wire and press sections. Unique profiling accuracy combined with advanced steam injection technology improves moisture profile, increases production capacity, lowers production costs and delivers better sheet quality.

All steam actuators are connected with scanner & all controlled through DCS system and delivers improved sheet quality.

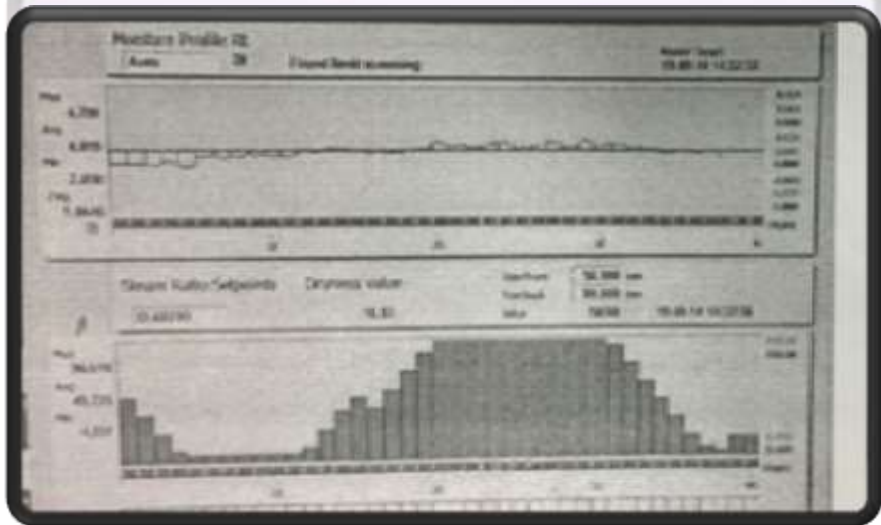
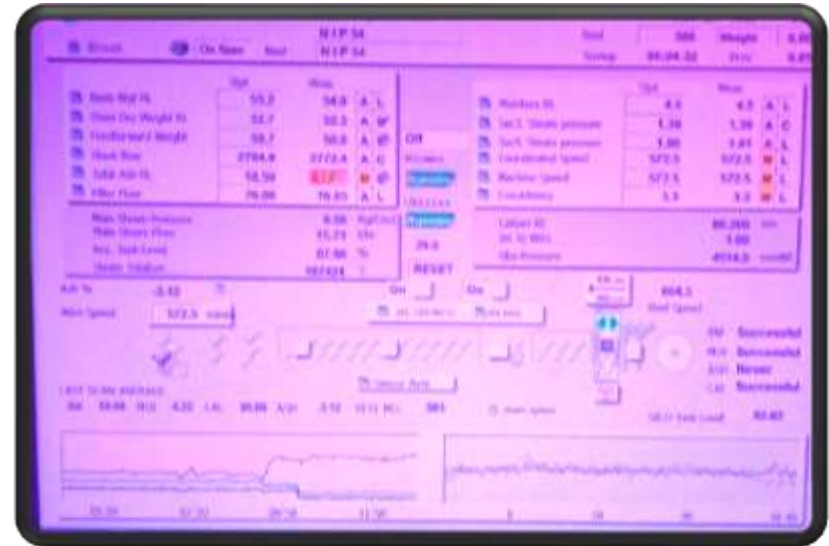
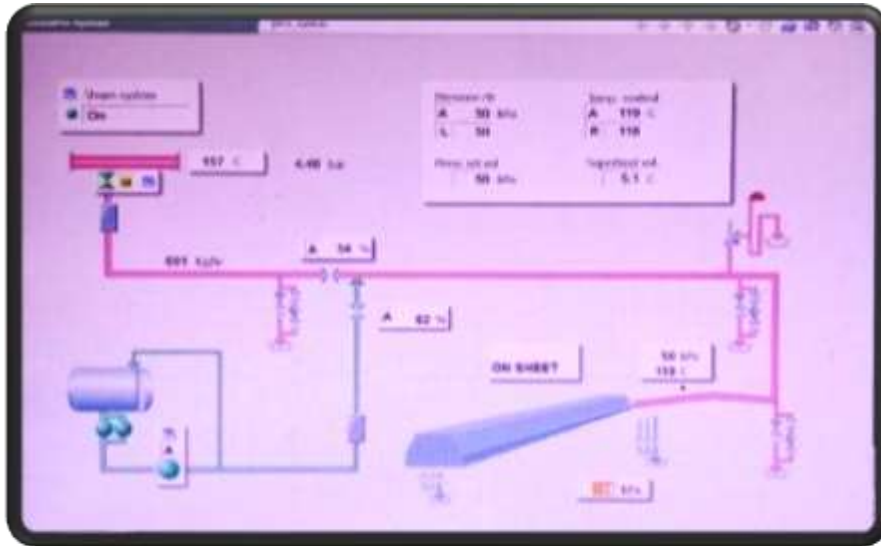


No of control Zones	40 (Steam Profiler)
No of Measurement Zones	40 (Steam Profiler)
Location	Wire Part (TRIVAC)

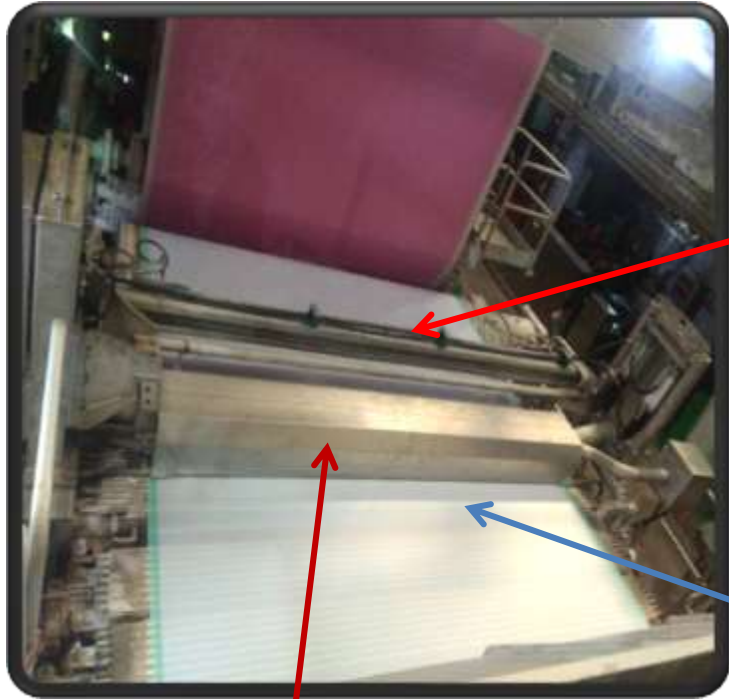
FEATURES OF STEAM PROFILER AT NAINI

- Steam flow rate is controlled by actuators / control valves inside the steam box.
- Pressure level is between 20 to 60 kPa and is controlled by steam converting valve
- Main principle is that the actuators are controlling steam flow and pressure is kept constant.
- Operating window can be changed by changing operating pressure
- Steam temperature is also controlled in steam converting valve by spraying condensate into steam
- Recommended operating values:
 - Steam temperature 110 to 125 °C (Max)
 - Steam box pressure 20 to 60 kPa

OPERATING PARAMETERS



Steam Flow : 650 kg/hr
Final moisture : 4.5%
Moisture 2 sigma : 0.52%
Basis weight 2 sigma : 0.67%



Sheet temp
After the
profiler
63 deg. C

Sheet
temp
Before the
profiler
43 deg. C

Location of Steam
Profiler
(At Trivac)

Product quality Before



Product Quality After



UNIFORM REEL BUILD UP

QUALITATIVE BENEFITS

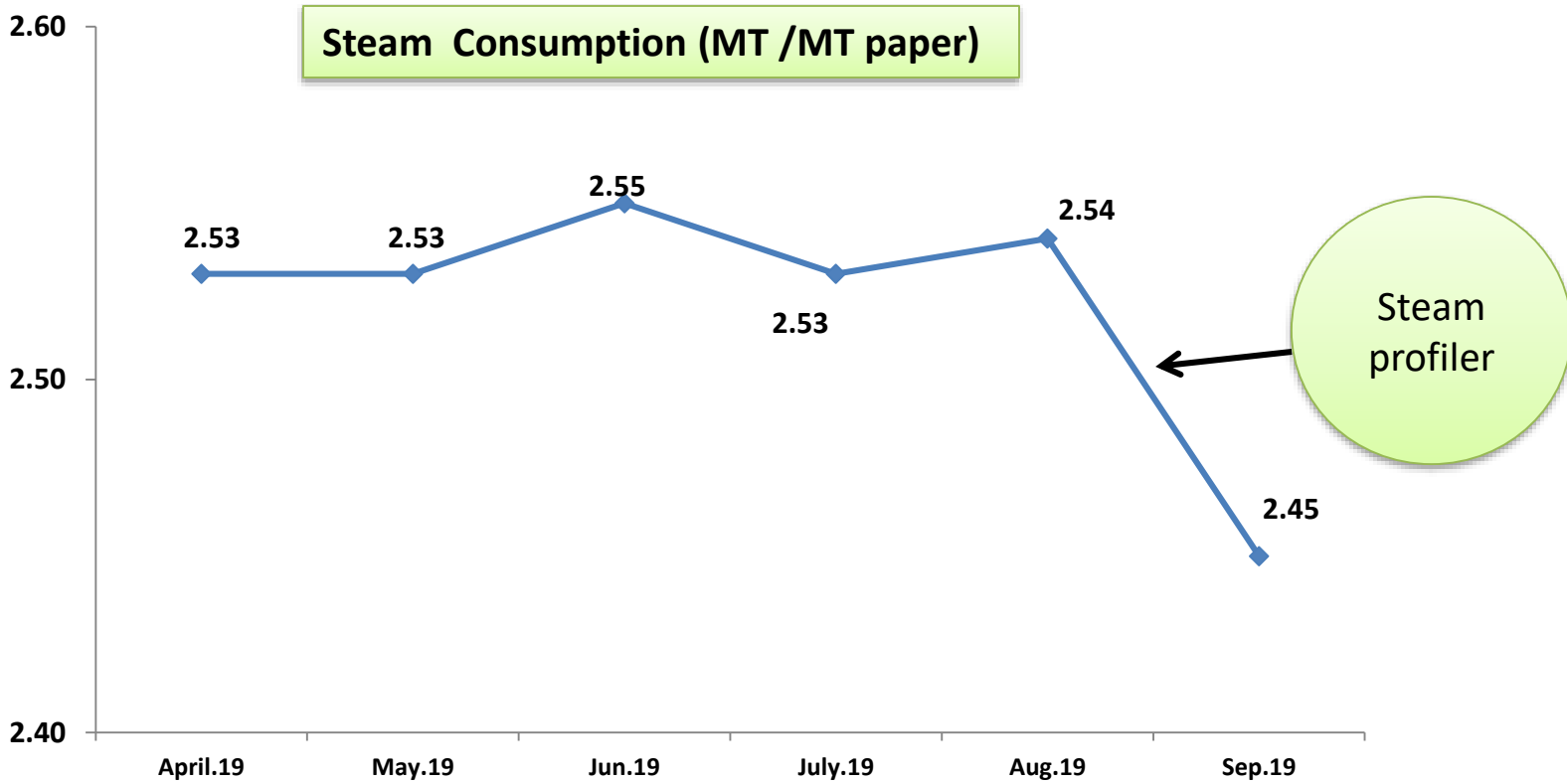
Steam Profiler Results

S. No	Project Targets	Before	After
1	Dryness after Couch	17%	18%
2	Moisture at pope reel	3.60%	4.50%
4	"Two sigma values" of moisture	0.9 to 1.2 (@ 3.6 % moisture)	0.6 to 0.9 (@ 4.5 % moisture)
6	Smoothness (NSS grade)	198/230 ml/min	172/200 ml/min
7	Smoothness (SS grade)	195/225 ml/min	175/200 ml/min
8	Two sidedness	30-32 ml/min	25-27 ml/min
9	Overall Product quality		Improved

QUANTITATIVE BENEFITS

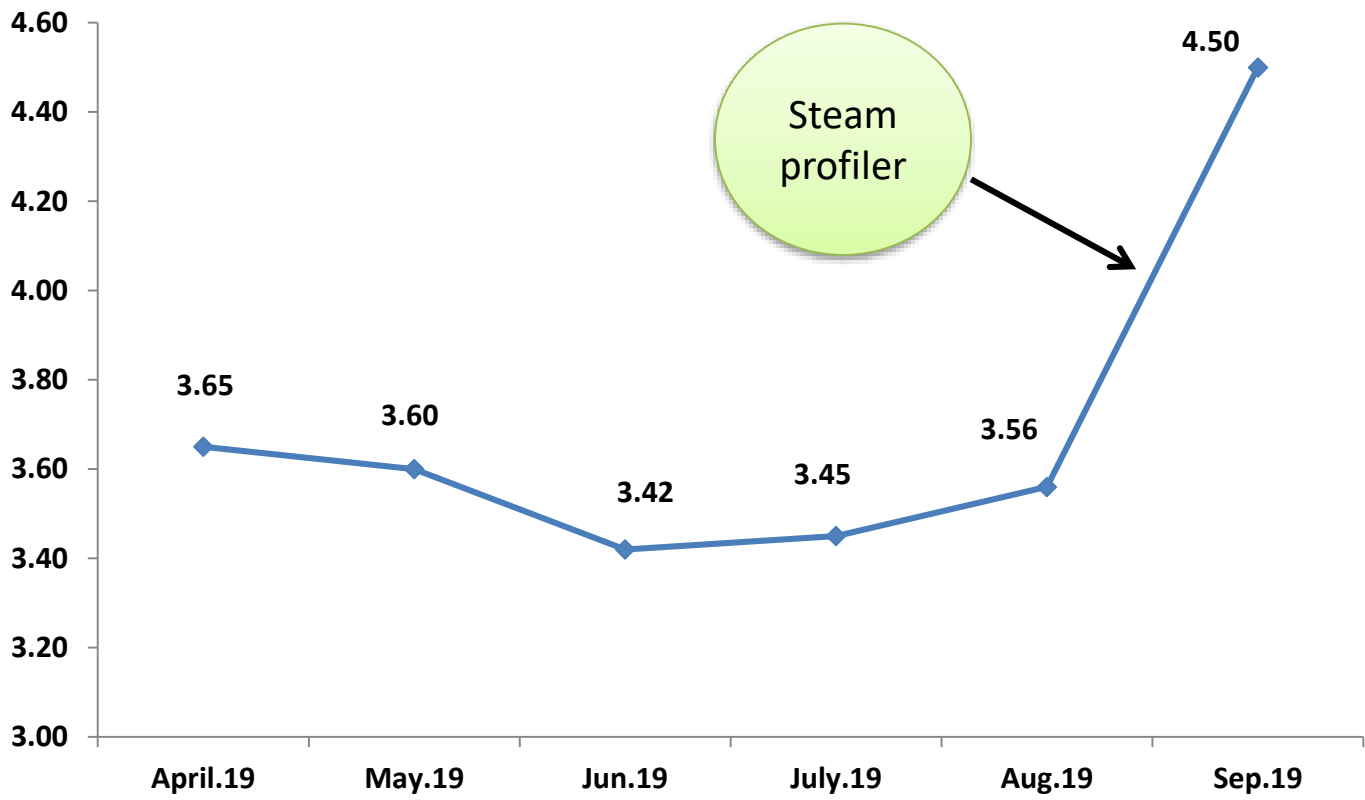
Steam Profiler Results

Sr. No	Project Target	
1	Reduction in Fibre Consumption due to higher moisture	1.4 MT/day
2	Increase in Production due to speed increase	1.1 MT/day (Machine speed increased from 670 to 675 mpm)
3	Reduction in Steam consumption	0.1 MT/MT paper



* Reduction in steam consumption by 0.1mt/mt after Steam profiler

Moisture Trend %



* 0.9% moisture increase in final product after Steam Profiler

SAVINGS

S.NO	Description	Saving Per Annum (in Rs lacs)
1	Steam	54.00
2	Fiber saving	105.00
3	Production	52.50
Total Savings (in Rs Lacs)		211.50

ROI CALCULATION

S.NO	Description	in Rs lacs
	Investment	
	Cost of steam Profiler installation	200.00
	Annual Savings	
1	Steam saving @1000 Rs /MT	54.00
2	Fiber Saving through Moisture increase @ Rs 30000/ MT	105.00
3	Gain in production by better runnability and speed increase	52.50
4	Total savings	211.50
	Pay Back period	11 months

ACKNOWLEDGEMENT

We sincerely thank our Management specifically our Managing Director Shri Pawan Agarwal for motivating us for such innovations and improvements and encouraging to share such achievements through this presentation.

Thank you

Thank you