



## THAI KRAFT PAPER INDUSTRY COMPANY LIMITED

### Installation of a More Effective and Energy Efficient Approach Flow Screen

#### SUMMARY OF THE OPTION

Thai Kraft Paper Industry Company Limited (TKIC) was founded in 1991, is located in Kanchanaburi in Thailand and produces more than 550,000 ton of paper per year.

Approach Flow Screen is used for filtering sticky pulp, which affects the quality of the paper. The original one consumed power of about 80 kWh and had a sticky removal rate 36%. This was not sufficiently efficient. The option is to replace it with a C-Bar Screen Cylinder with 27-blades Multi-Foil Rotor with a 40 kWh motor and a sticky removal rate of 66%.

This option was not been implemented at time of writing of this case study because of the high investment costs. Should it be implemented then the investment costs are US\$ 175,000, annual savings are US\$ 75,000 with a payback period of 2.3 years. Each year 3000 MW electricity would be saved resulting in 1854 tons CO2 emission reductions.

#### KEY WORDS

Pulp and paper, Thailand, Approach flow screen

#### OBSERVATIONS

Approach Flow Screen is used for filtering sticky pulp, which affects the quality of the paper. The original one consumed power of about 80 kWh and had a sticky removal rate 36%. This was not sufficiently efficient.

#### OPTIONS

After investigating new technologies and new designs of Approach Flow Screens, the C-Bar Screen Cylinder with 27-blades Multi-Foil Rotor was found, which consumed less power but increased the sticky removal rate.

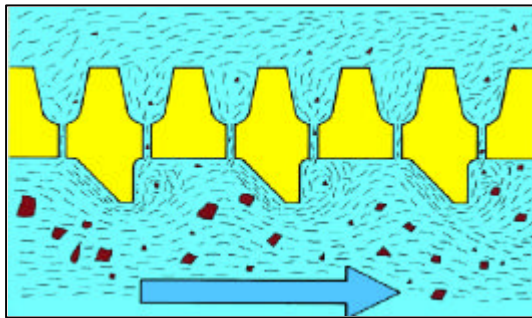


Milled Screen Cylinder, 0.35 mm.



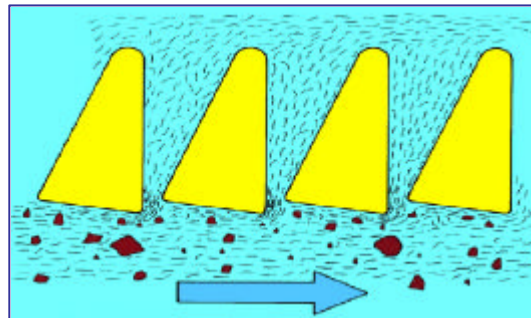
7-blades Rotor

Figure 1. Original Screen Design



**Milled Cylinder**

High turbulence  
Low efficiency



**C-Bar Cylinder**

Low turbulence  
High efficiency

**Figure 2. Modified Screen Design**

The table below shows the details of Approach Flow Screen compared before and after modification.

<b>Before modification</b>	<b>After modification</b>
Screen Type: Milled Slot Basket (0.35 mm Slot)	Screen Type: C-Bar Slot Basket (0.30 mm Slot)
Rotor : 7-blades at 480 RPM	Rotor: Multi-foil 27-blades at 330 RPM
Capacity per set: 100 BDT/day	Capacity per set: 105-110 BDT/day
Power Consumption: 80 kWh	Power Consumption: 40 kWh
Sticky Removal: 36%	Sticky Removal: 66%

## RESULTS

This option was not been implemented at time of writing of this case study because of the high investment costs. The table below shows the financial and environmental results if this option would be implemented.

### Financial Benefits:

- Investment: US\$ 175,000
- Annual operating costs: none
- Annual cost savings: US\$ 75,000
- Payback period: 2.3 years

### Environmental Benefits

- Annual electricity savings: 3000 MWh
- Annual GHG emission reductions: 1854 tons CO<sub>2</sub>



## **FOR MORE INFORMATION**

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