

# ValueFlex

## Basic Engineering I

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Additional information  
OPEX



## Estimated Electrical energy consumption

Electrical energy						
	Installed power	Factor	Input	Operation time	Consumption <sup>3</sup>	
<b>Sorting unit</b> (2 sorting lines)	2986 kW	0,65	50.000 t/a	6440 h/a	250	kWh / t Input
<b>Washing unit</b> (4 washing lines, all tier 1)	8313 kW	0,65	32.854 t/a	6800 h/a	1118	kWh / t Input
w/o heating hot wash <sup>1</sup>	6073 kW	0,65			817	
w/o heating thermal dryer <sup>2</sup>	4953 kW	0,65			666	
<b>Extrusion unit</b> (3 extrusion lines, all incl. refresher)	4224 kW	0,56	23.655 t/a	6800 h/a	682	kWh / t Input

<sup>1</sup> reduced installed power, when heat generation for hot wash is not done electrically

<sup>2</sup> reduced installed power, when heat generation for hot wash and thermal drying is not done electrically

<sup>3</sup> The consumption for the respective units is calculated based on the annual input per unit and the operation time as shown in the table

## Estimated process water and chemicals consumption

Process water		
	Range (dependent on input contamination)	
Fresh water	1 - 2,5	$\text{m}^3 / t_{\text{input}} * \text{h}$
Discharge water	1 - 2,5	$\text{m}^3 / t_{\text{input}} * \text{h}$
Total	5 - 13	$\text{m}^3 / \text{h}$

Chemicals*		
	Average consumption	
Caustic Soda	15	l/t Input
Detergent	1	l/t Input
Defoamer	16	l/t Input
Flocculant /Polymer	11	kg/ $t_{\text{input}}$
Acid	6	kg/ $t_{\text{input}}$

\* The consumption data reflects only a snapshot within a certain operation scheme (input quality, supplier of chemicals, etc.). To check whether significant lower or higher consumption data has an serious impact on OPEX.

### Update on staff requirements

Valueflex 50kt, Sorting and washing line in 24/7 operation (5 shift pattern chosen)

#### General / Administration

	Employees per shift	shifts per day	Working hours	Total employees
Plant manager*	1	1	8:00am - 4:00pm	1
Purchasing and marketing*	1	1	8:00am - 4:00pm	1
Administration*	2	1	8:00am - 4:00pm	2
Fitter (planned maintenance)	4	2	6:00am - 10:00pm	8
Electrician (planned maintenance)	2	2	6:00am - 10:00pm	4
Laboratory	3	1,5	6:00am - 6:00pm	4,5
Logistical personnel	1	1,5	6:00am - 6:00pm	1,5

Reserve shortfall/holiday/etc.			25%	5,5
<b>TOTAL</b>	<b>14</b>			<b>27,5</b>

\* staff requirements when Valueflex will be part of a site with existing management and administration structure (not self-sufficient)

#### Operational

		Employees per shift	shifts per day	Working hours	Total employees for 24/7
					5 shift pattern
Sorting line	Shift leader	1	3	24/7	5
	Output bale handling + Truck loading (PO new / residues)	1	3	24/7	5
	Truck deloading + Input handling	1	3	24/7	5
	Plant supervision and cleaning	3	3	24/7	15
Washing line	Shift leader	1	3	24/7	5
	Driver	1	3	24/7	5
	Plant supervision and cleaning	2	3	24/7	10
	Water treatment	1	3	24/7	5
Extrusion	operator extruder	2	3	24/7	10
	Bigbag handling	1	3	24/7	5
	Quality control / Lab	1	3	24/7	5

Reserve shortfall/holiday/etc.			10%	7,5
<b>TOTAL</b>	<b>15</b>			<b>82,5</b>