

CONDITIONING OF DYED YARNS



Significant numbers of spinning plants already use the conditioning of bobbins to compensate the weight losses during the spinning process. In the dyeing plants, however, conditioning is even more important as in spinning because the moisture losses are more significant.

Moisture regain is essential in the textile industry. The chart at the right shows an example based on a rather modest volume of 500 Pounds/ Hour. Due to the higher sales price of dyed and/or twisted yarns, the financial impact of conditioning is significant.

The quality demands of customers are the same as in spinning, notably in circular knitting and in weaving. Therefore, all advantages in strength, elongation and dust reduction are also relevant for dyed yarns. The following table compares the relevant differences between Spinning and Dyeing:

Item	Spinning	Dyeing
Quality	+	+
Moisture properties	+	++
Financials (weight)	+	+++

PROFIT CALCULATION		
Type of Yarn (examples)	Blend %	Conditioning at 65°C, 45 minutes
Wool	100	2,4
Viscose	100	2,8
Cotton	100	2,0
Acrylic	100	0,5
Polyester/ Viscose	50/ 50	1,5
Polyester/ Viscose	65/ 35	1,3
Polyester/ Cotton	50/ 50	1,1
Polyester/ Cotton	65/ 35	1,3
Energy consumption per Ton of yarn produced in kW, at 65°C conditioning		18,00
Item	Cost	
Local currency		
		EUR
Total hours per year	8.000	
Planned production quantity Kg. per hour	400,0	
Total production processed in Tons/ year	2.133,3	
Weight increase in % acc. to above average example	2,0	
Weight increase in Kg/ hour	8,000	
Weight increase yearly in Kg	64.000,0	
Energy cost per kWh EUR	0,100	
Energy consumption per 1000,0 Kg of production in kWh	21,00	
Total consumption per year in kWh	101.587,30	
Total cost for electric energy per year	10.158,73	
Water cost per cbm EUR	6,50	
Water consumption per hour of production in liters	300,00	
Total water consumption per year in cbm	2.400,00	
Total cost for water per year	15.600,00	
Selling price per Kg of yarn	5,00	
Additional value obtained for the increased weight	320.000,00	
Less cost for electric energy	309.841,27	
Less cost for consumed water	294.241,27	
Net operating profit	294.241,27	
Price of the offered machine type	CONDIBOX	120.000,00
Amortisation period in years	10	
Yearly amortisation rate	12.000,00	
Average yearly interest rate in %	8,5	
Average yearly interest value	10.200,00	
Net profit after finance and amortisation cost	272.041,27	
Operational return of invested capital in years	0,41	