

Aufgabe QR-9.15: Process Costing (Process Costing)

GRASDORFER (Pty) Ltd is a production firm for surfboards. The production process contains 3 steps: forming, shaping, and painting. The sequence for production is forming – shaping – painting. Only in case the work on the surfboard has been finished in a cost center completely the board is transferred to the next department (=cost center). Establish for each production step one cost center. At the beginning of fiscal year 20X4 there is an opening value in the raw material account: 20,000.00 EUR, in the cost center forming 24,000.00 EUR, and in the finish goods inventory account 7,500.00 EUR. At the beginning of fiscal year 20X4 GRASDORFER bought raw materials 120,000.00 EUR. The company uses 50 % of all raw materials for forming and 20 % of raw materials for painting. Direct labour for 20X4 was 108,000.00 EUR which is split up at a ratio 1 : 1 : 3 to the cost centers forming : shaping : painting. Depreciation is the only overheads which are relevant for GRASDORFER's production. It amounts to 41,600.00 EUR. $\frac{1}{4}$ of this amount is for forming, $\frac{1}{2}$ for shaping, and $\frac{1}{4}$ for painting. The overheads are completely applied – no over- nor under applied overheads. The opening value for the forming department is 100 % completed in terms of materials, and 50 % completed with regard to cost of conversion. Raw material for one surfboard is 100.00 EUR. In fiscal year 20X4 GRASDORFER started to produce 700 surfboards. Each surfboard is seen as a separate order which means once it has been completed it gets transferred directly to the next cost center or the finished goods storage. At the end of fiscal year all surfboards were completed.

Half of the surfboards completed during fiscal year 20X4 were sold for 300 % of cost of manufacturing. Expenses for administration were 56,000.00 EUR.

Required: Determine the amounts of surfboards and their value in the WIP accounts and in the FG-Inventory account. Prepare a profit and loss account. In order to determine the solution run a process costing system along the weighted average method. No VAT to be considered. Assume the cost situation with regard to unit costs is the same as in the previous accounting period.

Lösung (Solution)

The bookkeeping entries are as follows:

- (1) Purchase of materials
- (2) Transfer of raw materials to inventory account
- (3) Allocate materials to WIP forming account
- (4) Allocate materials to WIP painting account
- (5) Posting labour
- (6) Transfer labour to WIP account
- (7) Transfer labour to WIP account
- (8) Transfer labour to WIP account
- (9) Posting depreciation
- (10) Allocate depreciation to WIP account
- (11) Allocate depreciation to WIP account
- (12) Allocate depreciation to WIP account

(13) Posting sales

(14) Posting admin expenses

In order to determine the amount of surfboards in the opening stock of the forming department you should set up 2 equations: (a) $24,000 = 100 \cdot x + (x/2) \text{ OHu}$, with x being the amount of surfboards in the cost center and OHu the unit overheads. (b) $32,000 = \text{OHu} \cdot (700 + (x/2))$. The two equations lead to an equation $x^2 + 1,480 \cdot x - 336,000 = 0$. The solution is $x = 200$ which is the only positive solution. Accordingly, $\text{OHu} = 40.00 \text{ EUR}$.

See the accounts for further details:

D Raw Materials C				D Labour C				D Depr C			
OV	20.000,00	(3)	70.000,00	(5)	108.000,00	(6)	21.600,00	(9)	41.600,00	(10)	10.400,00
(2)	120.000,00	(4)	28.000,00			(7)	21.600,00			(11)	20.800,00
		c/d	42.000,00			(8)	64.800,00			(12)	10.400,00
	<u>140.000,00</u>		<u>140.000,00</u>		<u>108.000,00</u>		<u>108.000,00</u>		<u>41.600,00</u>		<u>41.600,00</u>
b/d	42.000,00										
700+200											
D WIP-Forming C				D WIP-Shaping C				D WIP-Painting C			
OV	24.000,00	shape	126.000,00	(7)	21.600,00	paint	168.400,00	(4)	28.000,00	FG	271.600,00
(3)	70.000,00			(11)	20.800,00			(8)	64.800,00		
(6)	21.600,00			form	<u>126.000,00</u>			(12)	10.400,00		
(10)	10.400,00				<u>168.400,00</u>		<u>168.400,00</u>	shape	<u>168.400,00</u>		
	<u>126.000,00</u>		<u>126.000,00</u>						<u>271.600,00</u>		<u>271.600,00</u>
D FG-Inventory C				D Purchase C				D Bank C			
OV	7.500,00	COS	135.800,00	(1)	<u>120.000,00</u>	(2)	<u>120.000,00</u>	
paint	271.600,00	c/d	143.300,00					(13)	407.400,00	(1)	120.000,00
	<u>279.100,00</u>		<u>279.100,00</u>							(5)	108.000,00
b/d	143.300,00									(14)	56.000,00
D Acc Depr C				D Sales C				D Admin C			
c/d	<u>41.600,00</u>	(9)	<u>41.600,00</u>	P&L	407.400,00	(13)	407.400,00	(14)	56.000,00	P&L	56.000,00
		b/d	41.600,00								
D P&L-Account C				D COS C							
COS	135.800,00	Sales	407.400,00	FG	135.800,00	P&L	135.800,00				
Admin	56.000,00										
EBT	<u>215.600,00</u>										
	<u>407.400,00</u>		<u>407.400,00</u>								

Exhibit 1: Accounts

The amount of surfboards in the finished goods account is 450 boards plus the opening amount. The unit costs of produced surfboards are $270,000 / 900 = 300.00 \text{ EUR}$. GRASDORFER's net operating profit is 215,600.00 EUR.