

## Productivity Contracting

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## 1. What is Productivity Contracting?

The recent price increases of raw materials and energies like gas, fuel oil and electricity as well as reduced profit margins due to the competitive marketplace forces companies to optimize their internal cost situation. Most companies do not have the required expertise and manpower on their own payroll to accomplish the wide variety of different tasks. This gap can be closed by forming an alliance with an external contractor, who joins his interest with the customers to create a win-win situation, as both partners participate from the saving potential.

Schloms + partner has a 20 year experience in all relevant fields of the particle foam moulding industry required to realize these potentials in a sustainable matter.

### 1.1 Productivity Contracting for the particle foam industry

Improvement of the productivity figures in regards to raw material type + process, scrap rates, cycle times as well as possible avoidance of secondary processes like Pre-pressurization (EPP) or oven drying after moulding (EPS).

Improvement areas:

- Cycle time reduction due to better programming and/or parameter setting of the moulding machines
- Fine tuning of moulding tools/moulds
- Coordination of raw material types, processes, tools and settings for optimum performance for new projects
- New tooling concepts for large series production

This type of production optimization should always be the first step to find solid consumption figures before the energy supply systems can be properly examined and possibly downsized.

## 2 How does Productivity Contracting work in reality?

### 2.1 Productivity Contracting - Phase I

The first step is a thorough analysis of the existing situation in the moulding plant:

All productivity related facts + figures of the production (moulding machines and other equipment like pre-expanders, ovens, silos, P-tanks etc.) are categorized for a preliminary status analysis.

Existing production data from the customer like cycle times, scrap rates, density variations, etc. form the basis for a customer specific productivity definition in the production fields (EPS/EPP). This takes about 2-3 working days depending on plant size and information available.

### 2.2 Productivity Contracting - Phase II

Customer and Contractor define the possible improvement potential and evaluate the monetary potential (Contract).

A time frame for the contracting work is defined (usually a minimum of 12 months) as well as a payment schedule based on the success. The total savings are usually shared equally

between customer and contractor in the first year; if the production performance allows further improvement or other potentials are to be realized, a new contract has to be defined.

### **2.3 Productivity Contracting - Phase III**

The Contractor will now start to realize the defined potentials by optimizing the production by himself and with the aid of the customers employees.

The customer will inform his employees of the contractor's objectives as well as the common saving targets and will bind them to the actions suggested for improvement.

The employees will be trained by the contractor based on his findings in order to in realize and maintain the improvements.

Suggestions of the contractor requiring financial investment by the customer (i.e. exchange of defective components, new improved cooling coils or other small mould modifications) must be made or will be evaluated as a possible potential reduction.

The contractor is visiting the customer's plant after prior arrangement with customer and gets access to those data relevant for the improvement. Usually this data can be transferred electronically once per week as a decision basis for further action.

The payment schedule to the contractor is monthly based on the monetary difference of the particular improvement, i.e. natural gas cost before and after.

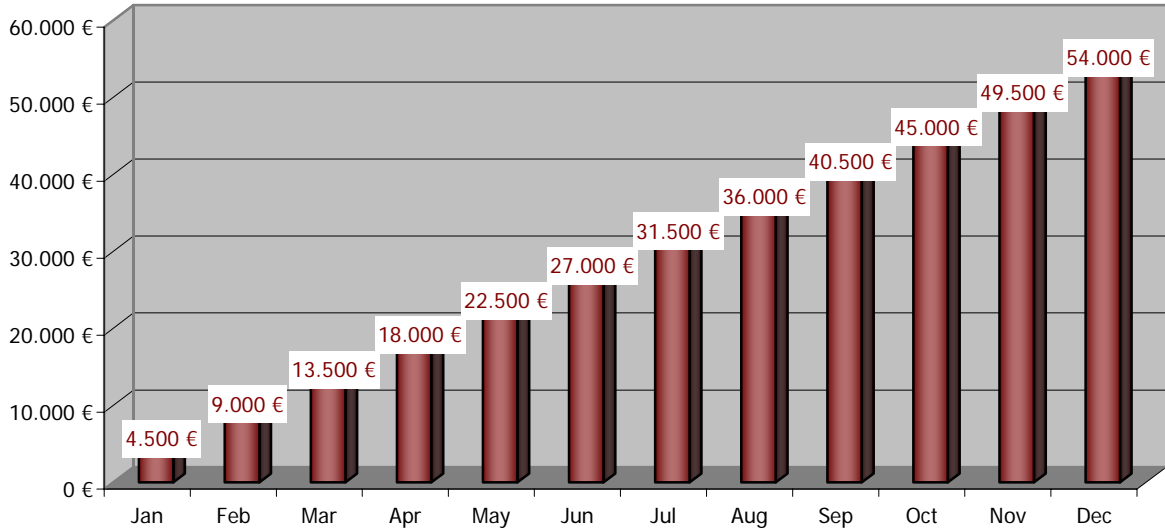
## **3 Saving potential productivity**

The example shows a fictitious EPP moulder with a turnover of 450 tons/year.

### **3.1 Density improvement**

The data is based on an annual bead cost of EURO 1.800.000,00 (Price basis: bead 4,00 €/kg EPP). It is possible to save a certain percentage of the raw material by reduction of the process fluctuations. An improved production avoids producing parts with densities above specification; this potential is usually between 2,5 and 5%.

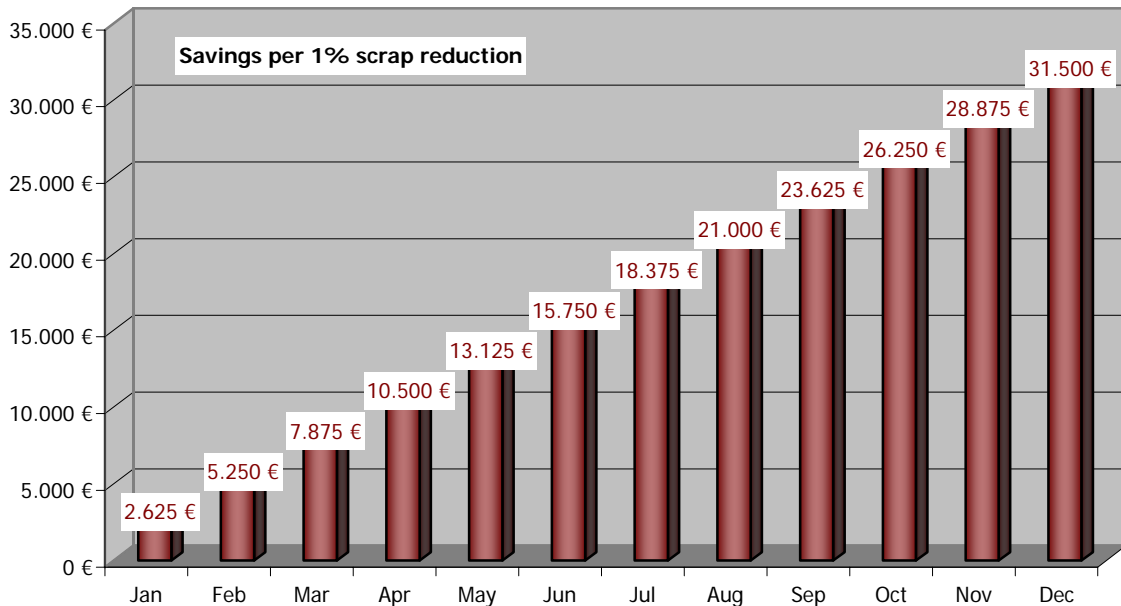
Moulded density is optimized resulting in a 3% annual reduction in EPP raw material costs. Savings based on a total annual material cost of EURO 1.800.000,00



### 3.2 Scrap rate reduction

The data is based on an annual throughput of 450 tons and a cost for processed bead of 7,00 €/ kg EPP. (Please note that this is a theoretical value for explanation only; the real costs have a very wide variation from product to product!)

Certain measures and improvements can produce a reduction in the scrap rate accounting for the following savings in the chart (example shows 1% reduction):



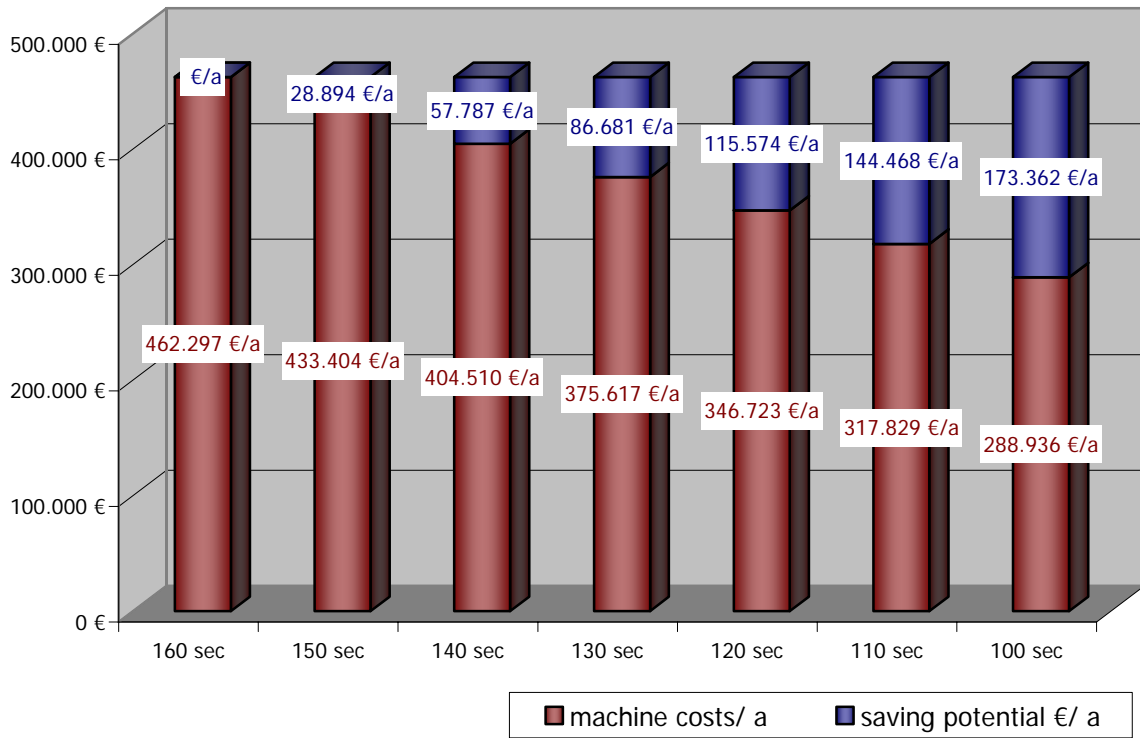
### 3.3 Cycle time improvement

Fine tuning of processes and programming by the contractor leads to faster cycle times, which is especially important in phases of maximum workload to avoid costly overtime or production outsourcing.

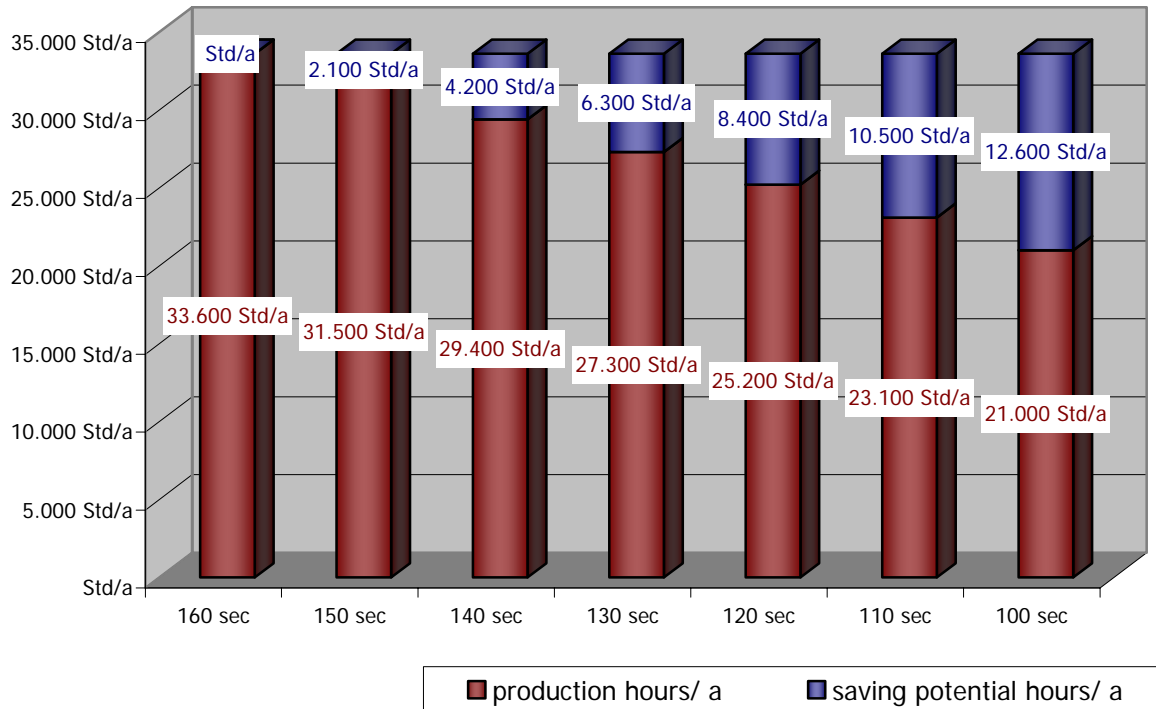
The chart is based on the following assumptions:

Cycle time	160 sec
No. machines	8
cycles/ a	756000
Machine costs/ h	13,76 €/h
Machine costs/ cycle	0,61 €/cycle
Machine costs/ a	462297,42 €/a
Production hours/ a	33600 h/a

Monetary potentials due to cycle time reduction:



Production hour potentials due to cycle time reduction:



This document is for general information only and based on hypothetical situations; all potentials have to be evaluated individually.