

Energy-/Efficiency Contracting

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1 What is Energy-/Efficiency Contracting?

The recent price increases of energies like gas, fuel oil and electricity as well as reduced profit margins due the competitive marketplace forces companies to optimize their internal energy cost situation. These efforts are usually split into 2 segments:

1.1 Energy Contracting - general business (scope of local power suppliers/ external improvement of the energy supply systems for steam and compressed air)

This is usually done through outsourcing of the complete energy supply system to external contracting companies (mainly large electrical power suppliers), which invest into the new systems on the site of the end-user and sell the steam and compressed air back to the end-user at a profit.

1.2 Efficiency Contracting - specific business (scope of schloms + partner/ external improvement of the energy consumption)

Efficient improvement of all energy consuming elements of a foam moulding plant in the area of steam, compressed air, water and electrical energy.

These are typical methods to reduce energy costs:

- Steam consumption reduction through better programming and parameter settings of the 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 efficiency contracting work should always be the first step to find solid figures before the energy supply systems are optimized and possibly downsized.

2 How does Efficiency Contracting work in reality?

2.1 Efficiency Contracting - Phase I:

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

Technical data of the energy supply systems and the energy consumers are documented and categorized for a preliminary status analysis.

The next step is the definition of a customer specific energy usage based on production/ consumption figures supplied by the customer; this is the benchmark for further actions and takes about 2-3 working days depending on plant size and information available.

2.2 Efficiency 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 Efficiency 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.

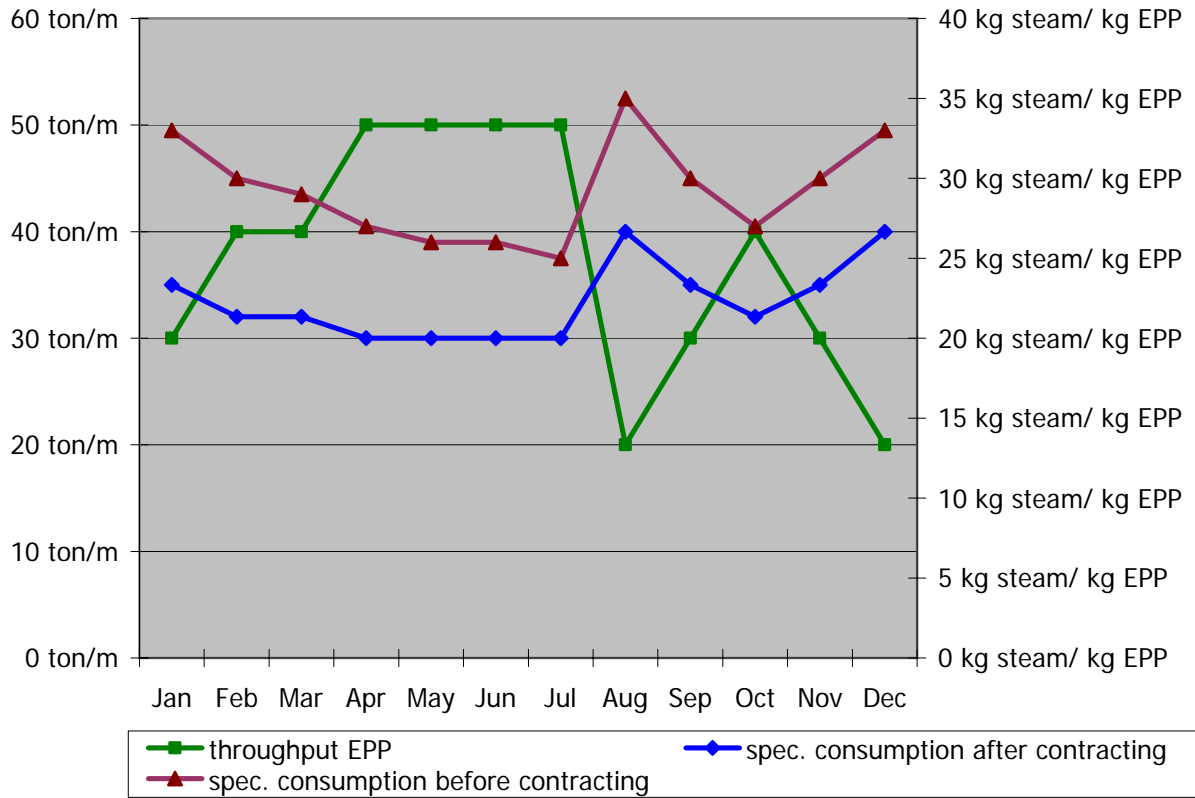
The contractor is visiting the customer's plant after prior arrangement with customer and gets access to those data relevant for the improvement. Usually this data can be transferred electronically once per week as a decision basis for further action.

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.

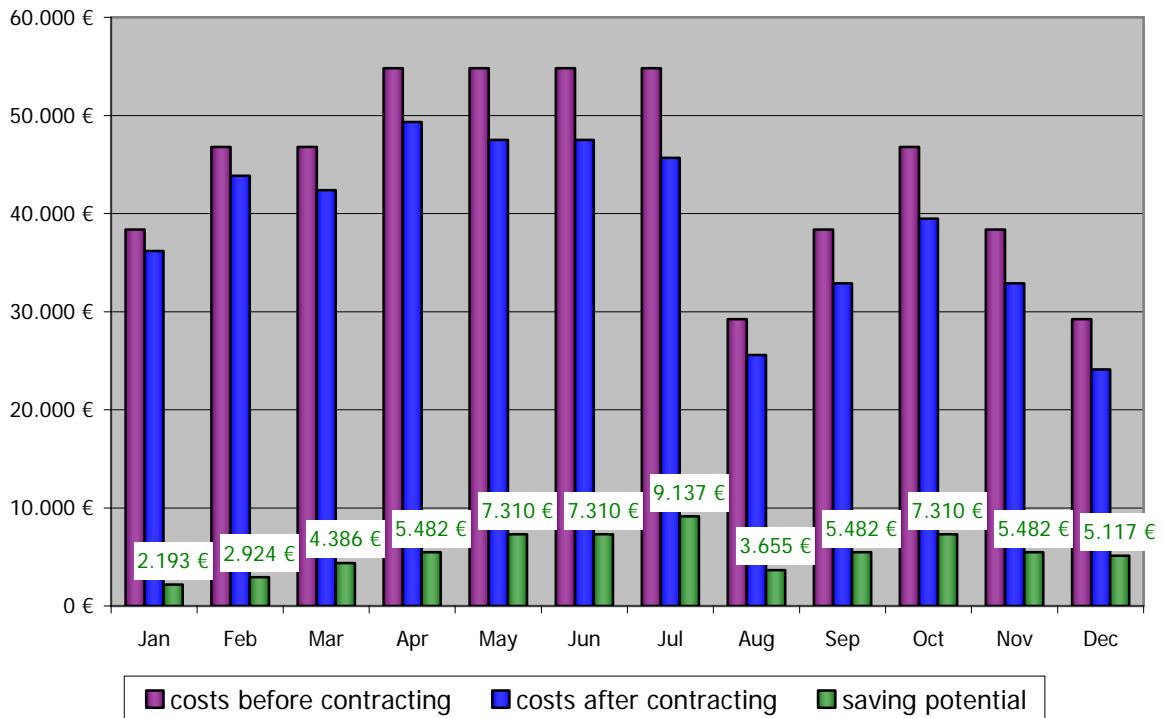
3 Saving Potential Steam Consumption

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

The basis for this example is a specific energy consumption of 32 kg steam per kg EPP, which has a great variation according to product portfolio and season workload. The usual bandwidth is between 10 and 50 kg steam/ kg EPP. The chart below shows the monthly variation of specific steam consumption before and after efficiency contracting with a gain of 10%:



Steam energy costs before and after contracting - saving potential shown in green:



The annual saving potential for a company of this size equals approximately EURO 65.000,00 based on a oil price of EURO 0,50/ litre and an improvement of 10%.

The saving potential is based on material throughput and combined energy and running costs of the energy supply systems (total cost).

Steam costs are based on fuel counters (gas/oil) in combination with water throughput meters. If there is no metering available, burner run hours in combination with water throughput is used to determine the specific consumption.

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