Consulting
Ready for more productivity
Nanotechnology, lightweight construction, functional plastics, composite materials: The challenges in plastics technology are just as diverse as the material itself. For you this means that you do not simply have to keep up in this dynamic market, but to increase your productivity, in order to be truly successful. We at ENGEL are your competent partner with more than 60 years of experience in injection moulding technology. We support leading companies worldwide in continuing the success story: plastics. About 40 international trainers improve the qualification of more than 3,000 training participants every year. In addition our ENGEL service staff is available for advice and support at all times.
Optimise processes, cut costs, increase efficiency!

In this contested market, where the demands on product, price and quality are growing, your challenge is to increase productivity while reducing production costs! This challenge of your everyday production life is illustrated by these questions:

**Production is running**
- Can you imagine reducing your cycle times by 5% through process optimisation and training?
- Do all machine settings match perfectly?
- Can the interaction process of machine / robot be optimised?
- Are you managing your parts data sets safely and efficiently?
- Does your mould-changing strategy match your production portfolio?

**Potential revealed by ENGEL test series**

<table>
<thead>
<tr>
<th>Production cost categories</th>
<th>Potential 1</th>
<th>Potential 2</th>
<th>Potential 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrel insulation</td>
<td>-2%</td>
<td>-10%</td>
<td>-38%</td>
</tr>
<tr>
<td>Through process optimisation</td>
<td>-2%</td>
<td>-10%</td>
<td>-27%</td>
</tr>
<tr>
<td>Other costs</td>
<td>-3%</td>
<td>-25%</td>
<td>-10%</td>
</tr>
</tbody>
</table>

**Potential identified at a European automotive supplier**

<table>
<thead>
<tr>
<th>Actual</th>
<th>Potential 1</th>
<th>Potential 2</th>
<th>Potential 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle time</td>
<td>-5%</td>
<td>up to -5%</td>
<td></td>
</tr>
<tr>
<td>Set-up time</td>
<td>-10%</td>
<td>up to -90%</td>
<td></td>
</tr>
<tr>
<td>Energy costs</td>
<td>-25%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Production has stopped**
- Can you imagine saving 10, 40, even up to 90 percent in set-up time using various measures?
- Are the service intervals timed for optimum production?
- Does the ratio of up-time vs. down-time meet your production needs?
- Preventive vs. reactive maintenance – is there a perfect balance?
- Can you set-up within two minutes?
- Are there difficulties in the mould changing process?

**Potential identified at a European automotive supplier with a machine set-up time of 75 minutes**

- Training – very low costs
- Minor adjustments – low costs
- New system – high costs
Consulting – tailored to your needs.

You have experience with your products, technologies and production processes. Together with our injection moulding expertise, you will be able to make even better use of this know-how in order to rise to any future challenges.

Discover your hidden potential. We will help you launch an individual and perfectly targeted process of change. On the one hand, a Quick Check may suffice in order to analyse machine settings, processing parameters, robot programming or processes. On the other hand, a process for the longer term is required in order to structure the entire production more efficiently or to transfer ‘best practices’ from one plant to another.

Our 3 steps towards your success

1. Quick Check

Between one and three people will come to your plant for a couple of days in order to gain insight into your injection moulding production and to take samples from selected injection moulding machines.

After this visit to your plant, an ENGEL-internal analysis and evaluation is carried out, and the results are then presented. This presentation — optionally done at your plant — contains specific improvement potentials documented by facts and figures as well as impressions and observations obtained during our visit. Depending on their implementation effort, we cluster these quantified potentials in three categories: Inhouse, Expert, and Formula 1!

2. Analysis

Together with you, we select topics from the potentials shown by the conducted Quick Checks to discuss in detail as to their plausibility. We will then assess the selected optimisation topics with figures and calculations on-site at your plant. The necessary steps for making use of the potentials are summarized in a catalogue of measures. This catalogue will list the time frame, means and costs of utilizing the optimisation potentials.

3. Implementation

Your implementation expertise is required. In this step, you and your employees will make the decisive contribution. The objective here is to effectively implement the defined measures in your plant.

Of course we will help you with implementing the steps and will be actively involved in the change process within your plant — at specific points in time (“milestones”) and with accompanying measures.

Note: The Quick Check will in no way affect your ongoing production. We only collect data and information. For the detailed analysis and catalogue of measures, we will inspect your ongoing production and organisation on-site more frequently in order to carry out the quantification. We will neither impede nor modify your existing production.
Optimise cycle time
- Reduction of cycle times
- Material efficiency
- Production cell sequence programming
- Part quality and process capability (constant)
- Infrastructure (humidity and temperature)
- Machine settings
  - Shot volume
  - Injection pressure
  - Injection speed
  - Holding pressure
  - Cooling time / temperatures

Cut costs
- Energy consumption
- Production planning
- Logistics
- Hourly rates
- Costing analysis
- Organisation of maintenance
- Spare parts management
- Portfolio optimisation (adjusting to technical capacities, strategy)
- Reduction of working capital (incl. spare parts stock)

Reduce idle times
- Set-up time optimization
- Machine downtime
- Production cockpit
- Parts data set management
- Utilising all machine functions
  - Auto-protect, automatic mold warming
- Preventive maintenance (service intervals)
- Staff knowledge
- Organisation of production

In addition to the competencies offered by the ENGEL company, depending on your requirements we can draw on the experience and abilities of external service providers with the corresponding expertise, for example: regional plastic institutes, the technical colleges of our automation specialist partners at STAUBLI, HSTHERM for questions regarding mould temperature control, SATTLER Energie Consulting in the area of energy optimisation, or MCP® with their focus on classical management consulting.

Call us! Talk to us!

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ENGEL services
always there where you need us

560 of the best equipped service technicians
55 support hotline technicians
  9 production plants
  29 sales subsidiaries
  60 representatives

Your concern is our challenge

It is important to always keep your injection moulding equipment in top shape and constantly available. The wide range of services offered by ENGEL ensures that you can produce competitively at any time. It does not matter whether your production cell is a single machine or a complex integrated system solution. ENGEL makes it possible for you to utilise all options for optimisation at any time, and therefore consistently get the most out of your machine over the long term. In addition, we offer professional training for machine operators as well as fast worldwide delivery of spare parts and their professional replacement. Diverse maintenance contracts also guarantee top-level machine availability. Our goal is the best possible performance of your ENGEL machinery.

Support – we assist you on-site
- save costs incurred by downtime
- immediate support 24/7, worldwide
- knowledgeable help from the ENGEL service team
- for ENGEL injection moulding machines of any generation
- for all ENGEL technologies and any control unit version

Upgrade – install reliable added value
- for all ENGEL injection moulding machines
- professional upgrade solutions
- to supplement and optimise
- equip machines for use with completely new applications
- utilise machines with greater cost-effectiveness

Know-how – increase your competence
- thorough training with a comprehensive transfer of know-how
- make optimal use of machine potential
- individual seminars and training programs for you and your staff
- informative events on industry-specific topics
- take advantage of efficient, targeted and practical information, instruction and training
- either at your own facility or at one of the worldwide ENGEL training centres