victory US
Machine system with freedom to move
Use the freedom to fulfill all your needs

The tie-bar-less ENGEL victory is a proven all-rounder among injection molding machines. Its flexible modular system makes it extremely well suited for producing many different technically complex and thick-walled parts of the highest quality. Its tie-bar-less technology, which has proven itself for over 25 years, enables you to use a relatively small injection molding machine even for large molds. You therefore only need to invest in the clamping force you actually require – and have more room for new ideas.

Machine system with space

Less production space and lower investment costs, especially for:
- molds with multiple-cavities
- large cavities with small projected area
- ENGEL foammelt applications
- multi-component applications

25 years tie-bar-less
10,000 satisfied customers
60,000 machines on the market
The ENGEL victory is the ideal basic machine for many different applications and a wide range of technologies, because with no tie-bars, it offers advantages in precisely those areas many would never think of. Its excellent platen parallelism provides particularly even distribution of the clamping force and the best possible protection for the mold. This also guarantees consistent part quality even in multiple-cavity applications. In addition, the ENGEL victory impresses with very low energy consumption levels which are due to its efficient drive technology. This is not only good for the environment, but also for your budget.

**ENGEL victory clamping unit**

- innovative tie-bar-less design
- more room and flexibility for molds
- easy and space-saving robot integration
- outstanding operating ergonomics
- quick and easy mold set-up
- perfect platen parallelism
- even clamping force distribution
- high energy efficiency
- low maintenance costs

**Automation**

- barrier-free access
- smaller footprint
- fits under low ceilings

**ENGEL victory injection unit**

- compact design
- precise injection process
- high plastification performance levels
- extensive range of plasticising units

**Energy efficiency**

- low energy consumption
- "no" oil cooling

**CC300**

- ergonomic design
- individually configurable
- modern control logic
**ENGEL victory advantages**

**Large mold area**
The advantages of the barrier-free mold area are particularly noticeable when large molds or bulky core pulls are being used. The generous dimensions of the mold mounting platen can be used right up to the edges – and often beyond.

**Excellent energy efficiency**
The low friction levels, closing pressure lock-in and ENGEL ecodrive system make it possible to match the energy efficiency levels achieved by all-electric machines in the production of technically complex parts.

**Outstanding availability**
More productivity thanks to short set-up times; the lack of tie bars means molds can be changed quickly even when they are large and bulky. The low-friction robust design also keeps the maintenance costs for the machine extremely low.

**Ideal for automation**
Integration made easy: benefit from faster part removal, a smaller machine footprint and the lower machine height made possible by horizontal access to the mold area.

**Optimal mold protection**
The central Flex-Link element enables the moving mold mounting platen to follow the mold precisely while the clamping force is building up: the platen lifts itself from the linear bearings, automatically aligns the platen parallelism to the current mold parallelism and thus distributes the clamping force evenly across the entire mold cross section. As a result, transverse forces are prevented, prolonging the service life of the mold.

**Consistent part quality**
The hydraulic ENGEL injection units boast outstanding injection process control – the standard clamped injection piston responds extremely quickly and sensitively to any changes to the control parameters. In addition, the patented force divider provides optimal distribution of the clamping force and therefore uniform compression across the entire mold cross section. Regardless of whether a part is molded at the centre or the edge of the mold, the ENGEL victory ensures consistent quality, especially when the mold contains a high number of cavities.

**Perfect clean room compatibility**
The tie-bar-less mold area reduces air turbulence and the low-emission drive technology without fans making the ENGEL victory perfectly suited to clean room production.
Precise clamp system
Each tie-bar-less clamping unit is aligned precisely prior to delivery using the highly sensitive platen parallelism adjustment mechanism. This guarantees a long service life for both the machine and the molds used. As the clamping force increases, the platen parallelism of the ENGEL victory automatically adapts to the mold parallelism. This unique advantage is realised through the innovative Flex-Link system.

Heavy molds
Heavy molds are no problem for the tie-bar-less clamping unit. The high-precision platen parallelism is adequately ensured by the preloaded tension of the Flex-Link system and support provided by the solid C frame. And thanks to the use of additional bearings to support the moving mold half, the mold weight can be increased almost without limits.

Ergonomic operation
The tie-bar-less technology makes working in the mold area easy and comfortable – the operator can carry out all important tasks such as cleaning and spraying without having to stoop down and reach between tie-bars. And this is possible from any angle.

Smaller machines
The smaller machine size allows up to 10% more parts to be produced on the same floor space: the large and freely accessible mold area means that an ENGEL victory machine with a considerably lower maximum clamping force can be used than would normally be necessary to use a mold of the same size on a tie-bar machine. This is a significant advantage, especially in multiple-cavity applications, because then the required clamping force is usually very low compared to the mold size. The smaller dimensions also provide an extra bonus: there is more room for peripheral equipment or additional production cells.

Outstanding energy efficiency
The tie-bar-less principle provides significant advantages when it comes to resource-friendly production: in particular, the precise guide system with ball-bearings, the absence of tie-bar friction and the clamp pressure lock-in significantly increase energy efficiency. With the ENGEL ecodrive you will save the maximum amount of energy possible with your ENGEL victory.
The **tie-bar-less** principle - best conditions for your mold

**Optimal support for mold weight**
One special feature of tie-bar-less ENGEL injection molding machines is their solid frame. The clamping unit is given optimal support and suffers no deflection even with very heavy molds. Thanks to additional linear bearings available for the moving mold half, the mold weight can be increased almost without limit.

**Exact platen parallelism**
Each tie-bar-less clamping unit is aligned precisely prior to delivery using the highly sensitive platen parallelism adjustment mechanism. ENGEL’s parallelism tolerances are significantly lower than those of the EUROMAP norm. As the patented force dividers are preloaded, the platen parallelism remains constant even when the mold is mounted.

**Perfect guidance for the moving mold mounting platen**
No turning and no tilting: thanks to three-point guidance – two precise linear bearings and the central clamping piston – the moving mounting platen retains its alignment even while the mold is opening and closing.

**Dynamics of the stationary mold mounting platen**
In contrast to other machine designs, the stationary mold mounting platen is not connected with the frame at the bottom end, but at its back. This way it absorbs the machine’s vibrations in a symmetric manner and remains parallel to the moving platen even during acceleration and deceleration.

**Optimal mold protection**
The flexible central elements (Flex-Links) make it possible for the platen parallelism to adapt perfectly to the parallelism of the mold. In this process, the moving platen is lifted out of its bearings. In this way, when the mold is mounted correctly, a constant compression is achieved, completely preventing any transverse forces and thus increasing the life span of the mold.

**Even clamping force distribution**
No matter whether the cavities are centred or located on the edge of the mold mounting platen, they all are subject to exactly the same level of clamping force. The patented force dividers make sure that the clamping force is distributed evenly over the entire mold mounting platen. This guarantees a consistently high part quality even in multiple-cavity molds.

**Correct mounting matters!**
Whether your machine has tie-bars or not, please make sure that the two halves of the mold are aligned perfectly at all times. Even after they have been mounted, the alignment can still be changed by processes such as mold temperature changes. If a deviation in the alignment remains unnoticed, it can lead to parting line problems and/or increased mold wear.
**Excellent injection process control**

The hydraulic ENGEL injection units are distinguished by their excellent injection process control. Compared to conventional injection controllers, the ‘clamped system’ of injection pistons included in the standard version with the highly sensitive electronic controllers reacts extremely quickly to disturbing influences and any process-related changes. This guarantees injection molded parts of excellent quality and a high degree of reproduction accuracy.

**Flexible injection performance**

The ENGEL victory’s injection performance is designed for the production of complex technical parts. If a higher injection performance is needed, for example for very thin-walled parts, the performance can be increased using optional hydraulic accumulators. The injection process is then controlled by valves.

**Efficient plastification drive**

The plastification drive is powered by a hydraulic motor which is available in two sizes for each injection unit. Besides the standard hydraulic motor, a motor for higher torques is available as an option. Thus, the drive can be adapted to match the plastification unit and the injected material to be processed ensuring good energy efficiency. With the choice of an appropriate right hydraulic system, the plastification drive can be operated simultaneously with the mold movements.

**Plasticising units for any application**

A range of barrel and screw configurations is available to configure the plasticising unit specifically for the respective application. The plasticising unit is pressed torque-free against the mold, whereas the required force is set on the machine control unit.
ENGEL victory drive technology

Place your trust in more flexibility thanks to modular hydraulic variations. It does not matter whether it is for parts easy to demold, for complex molds with simultaneous movements or for applications requiring high injection performance: ENGEL has been relying on highly efficient hydraulic drive units to meet any requirement profile for many years. Thus we already set new standards in energy efficiency and process control more than 20 years ago when we replaced PQ hydraulics with EHV hydraulics. The servo-hydraulic system, ENGEL ecodrive, combines the advantages of hydraulics with the advantages of a servo drive. This increases control accuracy and energy efficiency considerably.

- single pump system for sequential movements
- dual pump systems for simultaneous movements  
  (ejector, core pull, nozzle or plastification movements)
- more powerful drives for increased injection and plasticising performance
- accumulators for extremely high injection performance
- ENGEL ecodrive for maximum energy efficiency

Closing pressure lock-in

All movements and pressures for the individual machine movements are, of course, regulated hydraulically. But where it makes sense – when holding the clamping force and nozzle contact force – the required pressure is maintained hydraulically, which reduces the holding energy to zero. As the cycle time increases, the energy savings grow to a substantial level.
ENGEL ecdrive the revolutionary hydraulic concept

- low energy consumption
  Matches the level achieved by all-electric machines when complex technical parts are being produced

- "no" oil cooling
  Reduced investment costs and less energy consumed for cooling water

- hydraulics on board
  High energy efficiency levels even in the case of molds with hydraulic core pulls

- ideal for clean room applications
  No air turbulence and low thermal emissions

- "silent" machine
  Pleasant working conditions and extremely low noise levels

- low maintenance costs
  Robust fixed displacement pumps with very long lifespans

efficient, clean, durable

- Uses up to 70% less energy compared to conventional hydraulic machines
- Uses up to 100% less cooling water to cool the oil
Smaller footprint
Opting for a tie-bar-less injection molding machine often means a smaller machine can be used. As a result, molds frequently use the whole platen surface. The automation can therefore be installed closer to the mold, which saves space.

Lower ceiling height
Production can take place without problems and risk of collision in low halls or beneath crane runways because the robot does not need to move out of the mold in an upward direction.

Shorter production cycles
The cycle time can be shortened by the direct horizontal movements of the robot in and out of the mold area, particularly in the case of complex automation.

Smart robot operation
The new wizard for the robot and integration into the machine control unit make this possible.

Integrated automation
The tie-bar-less design provides ideal conditions for integrating automation into the machine. The robot movements remain within a slightly widened machine safety gate. After a short horizontal movement, it places the parts on a conveyor belt placed near the mold mounting platen. Smaller footprints, lower system heights, smaller robot sizes and the elimination of additional safety guarding for each robot secure lower investment costs and better utilisation of the production floor space.

Fast sprue removal
The ENGEL victory offers optimum conditions for fast and reliable sprue take-off by the sprue picker. Sprue drop chutes are available as an option for the rear safety gate.

Comprehensive system competence
ENGEL designs and delivers complete system solutions in which all the components interact in perfect harmony with each other, from the injection molding machine and robot to other automation peripheral units. This is a guarantee for excellent part quality, stable processes and maximum productivity, regardless of whether the production task is simple or highly complex.

The injection molding machine is in many cases only one element of the whole production cell, which is often complex. Robots and automation components perform a wide spectrum of tasks. They range from placing inserts in and removing parts from the mold to mounting and checking operations and to packaging finished products. The key to cost-effectiveness usually lies in the efficiency of the concept as a whole and not of the individual components by themselves. And it is precisely here that the ENGEL victory offers decisive advantages in the overall solution thanks to its tie-bar-less benefits.
ENGEL victory series
ENGEL victory **hy-spex**
The versatile tie-bar-less machine that meets every need
- selected models
- practical pool of options
- smart ENGEL CC300 machine control unit
- efficient hydraulic ENGEL ecodrive system
- excellent price/performance ratio

ENGEL victory **hy-tech**
The versatile tie-bar-less machine that meets every need
- extensive range of models
- extensive pool of options
- perfect for customized solutions
- smart ENGEL CC300 machine control unit
- efficient hydraulic ENGEL ecodrive system
  (available in several variations)

ENGEL victory **combi**
The compact tie-bar-less machine for multiple-colour applications
- additional injection units (W, V and L positions)
- plenty of room for a rotary table or index plate
- increased mold installation height
- optional rotary table (hydraulic or servo-electric)
- extensive pool of options
- perfect for customized solutions
- smart ENGEL CC300 machine control unit
- efficient hydraulic ENGEL ecodrive system
  (standard for clamping forces of 2,600 kN and upwards)
ENGEL CC300

Ready for smart operation of machine and robot
The ENGEL CC300 relies on a simple operating concept and future-oriented process integration. This smart control unit allows to navigate both the machine and the robot of a fully integrated production unit as easily as your smartphone: the two combined directly via the injection molding machine’s innovative operating panel or each separately via the light C70 hand-held touch terminal. The ergonomic design, individual configurability and modern control logic make controlling and monitoring highly integrated automated production cells significantly simpler, safer and more user-friendly.

Simple process adjustment
Operators can quickly and easily carry out simple adjustment tasks themselves with the ENGEL wizard.

Variable handling
Direct, safe and continuously variable control of all movements with the e-move on the panel or via the ergonomic and light C70 hand-held touch terminal

Higher productivity levels
Get started straight away with guaranteed perfectly synchronised movements and no previous reference run necessary.

More safety
Perfectly optimised joint data management for both the machine and ENGEL robots

Ergonomic design
Individually configurable, functional, attractive and robust hardware with a modified user interface

Optimum readability
Displays with excellent contrast for all lighting conditions and at all angles
Wherever plastics are used nowadays, the right ENGEL technology refines any raw material and adds special characteristics for the desired application. The ENGEL victory tech and ENGEL victory combi provide the perfect basis for the many options available here. Utilise our expertise as the world market leader in injection molding and form PU, polyester, silicone & Co to fit your innovative ideas. You can count on efficient and clean manufacturing, perfect surface finishes, and smart material combinations, therefore saving weight and costs in a sensible way.

ENGEL victory Technologies

- **combimelt** – combine different materials with competence
- **coinjection** – optimise costs & quality with proficiency
- **foammelt (MuCell®)** – fabricate precise lightweight parts with a micro-foam inner structure
- **foilmelt** – smart surfaces & additional functionality thanks to foils
- **clearmelt** – scratch-resistant premium surface finishes with visual depth effects
- **gasmelt/watermelt** – specific hollow spaces & reduced material use
- **optimelt** – top-quality optical molded parts
- **organomelt** – lightweight plastic components as strong as steel
- **LIM** – flexible processing of liquid silicone
- **PVC** – economic production with reliable quality
- **duroplast BMC** – thermoset processing of the highest standard
- **HP-RTM** – fibre composite technology with thermosetting systems
- **variomelt** – optimised surfaces thanks to controlled temperature variation
- **clean room technology** – perfect compliance with cleanliness standards in production
**Freely combine colours, designs and functional improvements**

Combine different materials with competence on the ENGEL victory: having implemented more than 5,000 combimelt machine solutions, ENGEL is the leader in multiple-component injection molding. With ENGEL combimelt you can use injection molding to manufacture innovative parts molded from different materials in a single step. The standard clamping unit is complemented by a modular injection unit system. Up to six injection units can be operated simultaneously or sequentially, offering you a machine solution that saves both space and energy.

**The right combination of units for each application**

When large shot weights, a small footprint, low system heights or full freedom for automation are called for, ENGEL combimelt is the right solution for every application.

**The right technology for every part**

The ENGEL victory optimally supports all multi-colour mold concepts: rotary tables, index plates, slide technology, coinjection or transfer of parts by robot.
The versatile ENGEL victory machine series from 30 to 560 US tons

The proven tie-bar-less technology of the ENGEL victory, that is, its large mold mounting platens and wide ejection chute, enable the use of a relatively small machine even for large molds. This means that you only invest in the clamping force you actually require.

<table>
<thead>
<tr>
<th>ENGEL victory US</th>
<th>60</th>
<th>200</th>
<th>330</th>
<th>500</th>
<th>660</th>
<th>760</th>
<th>1050</th>
<th>1350</th>
<th>1800</th>
<th>2050</th>
<th>2550</th>
<th>3550</th>
<th>4550</th>
<th>5550</th>
<th>7050</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGEL victory 30</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 45</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 65</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 85</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 100</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 120</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 150</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 180</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 200</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 220</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 240</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 260</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 340</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 400</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 500</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>ENGEL victory 600</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>85</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

ENGEL victory – flexible, energy-efficient, reliable

ENGEL victory – hy-tech

ENGEL victory hy-spex & tech

Subject to change!