

be the first.



**Machines**

- ENGEL VICTORY
- ENGEL DUO
- ENGEL CLASSIC
- ENGEL E-MOTION
- ENGEL INSERT
- ENGEL ELAST
- ENGEL LIM

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

**Integrative technology**

- ENGEL ROBOTS
- ENGEL CONTROL SYSTEMS
- ENGEL PRECISION MOLDS

**Technology**

- ENGEL COMBIMELT
- ENGEL FOAMMELT
- ENGEL GASMELT / WATERMELT
- ENGEL TECOMELT
- ENGEL FIBERMELT
- ENGEL X-MELT

**Services**

- CUSTOMER SERVICE DIVISION

**Language**

- german
- english
- french
- italian
- spanish

<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

**ENGEL**

ENGEL NORTH AMERICA: [www.engelmachinery.com](http://www.engelmachinery.com)

**Canada:** Engel Canada Inc.  
Guelph N1K 1C2, Ontario  
Phone: (519) 836-0220,  
Fax: (519) 836-3714  
e-mail: [sales@engel-ec.com](mailto:sales@engel-ec.com)

**USA:** Engel Machinery Inc.  
York 17402, PA  
Phone: (717) 764-6818,  
Fax: (717) 764-0314  
e-mail: [usasales@engel-ec.com](mailto:usasales@engel-ec.com)

**Mexico:** Engel de Mexico S.A. de C.V.  
Mexico City 11230, Mexico  
Phone: (52-555) 399-8999,  
Fax: (52-555) 399-2649  
e-mail: [engel@prodigy.net.mx](mailto:engel@prodigy.net.mx)

>> Freedom of imagination is no escape into fantasy.  
It is boldness and invention. << Eugène Ionesco (french novelist)

be **the first.**



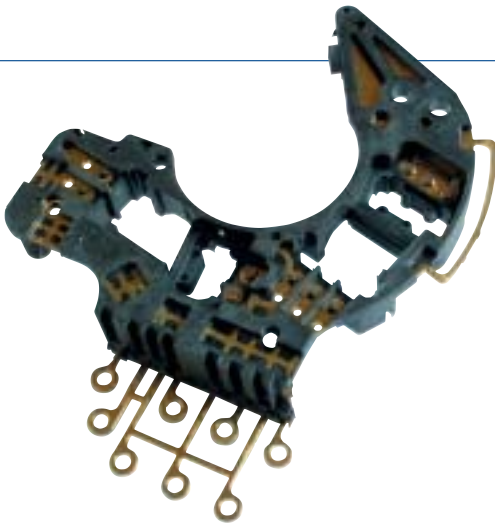
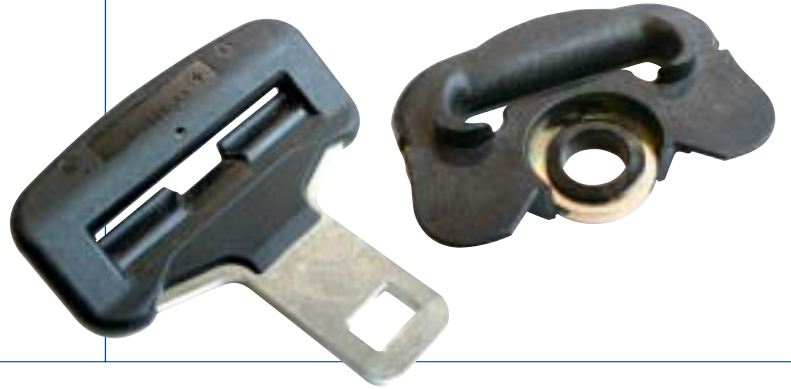
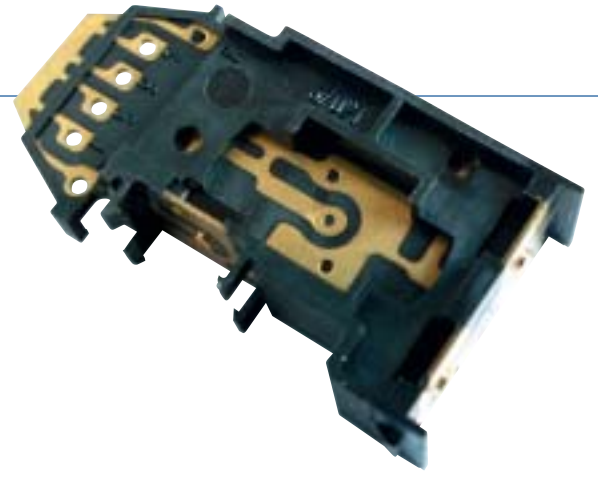
Innovative injection molding technology

**ENGEL**  
insert

ENGEL INSERT.

**Machines for metal and plastic composites.**

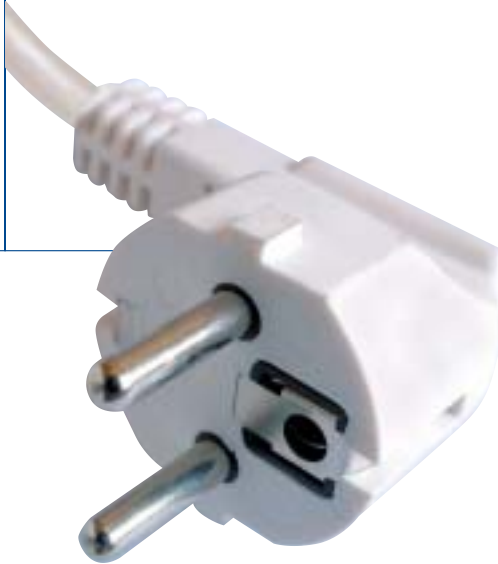
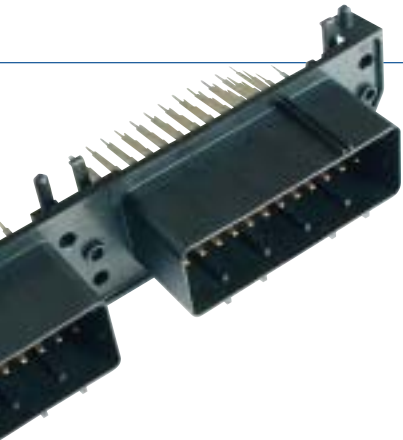
2





### Putting material synergies to optimum use.

Team work is so often the key to success where problems at first seem totally insurmountable. This applies not just to co-operation between human beings but also to the interaction of different materials. Metal and plastic composites are often of decisive importance for the optimum performance of technical components and equipment. The trend towards miniaturization – i.e. smaller things with more functions – offers enormous growth potential for such parts. With its series of ENGEL INSERT machines, Engel can supply the right combination for every imaginable application.



# ENGEL INSERT.

## Any application – any configuration.

Injection units / Horizontal*	200 H / ...	330 H / ...	500 H / ...	600 H / ...	700 H / ...	1300 H / ...	Rotary table
Clamp unit	Available screw diameter in mm per injection unit						Dia. in mm / inch
INSERT ... / 55 US	25/30/35	30/35/40					975 / 38.39
INSERT ... / 85 US	25/30/35	30/35/40	35/40/45				975 / 38.39
INSERT ... / 125 US		30/35/40	35/40/45	40/45/50			1180 / 46.46
INSERT ... / 125 WP US		30/35/40	35/40/45	40/45/50			1575 / 62.01
INSERT ... / 150 US		30/35/40	35/40/45	40/45/50			1180 / 46.46
INSERT ... / 150 WP US		30/35/40	35/40/45	40/45/50			1575 / 62.01
INSERT ... / 200 US			35/40/45	40/45/50	45/50/55		1180 / 46.46
INSERT ... / 200 WP US			35/40/45	40/45/50	45/50/55		1575 / 62.01
INSERT ... / 300 US					45/50/55	55/60/70	1575 / 62.01

4

### ENGEL INSERT 330H / 125 US

\* international type-size designation, calculated from:  
max. swept volume [cm<sup>3</sup>] x max. injection pressure in [bar] / 1000



Injection units / Vertical*	200 V / ...	330 V / ...	500 V / ...	Rotary table
Clamp unit	Available screw diameter in mm per injection unit			Dia. in mm / inch
INSERT ... / 60 US	25/30/35	30/35/40		975 / 38.39
INSERT ... / 60 WP US	25/30/35	30/35/40		1180 / 46.46
INSERT ... / 90 US	25/30/35	30/35/40	35/40/45	975 / 38.39
INSERT ... / 90 WP US	25/30/35	30/35/40	35/40/45	1180 / 46.46
INSERT ... / 125 US	25/30/35	30/35/40	35/40/45	1575 / 62.01
INSERT ... / 150 US	25/30/35	30/35/40	35/40/45	1575 / 62.01

### The basis of success

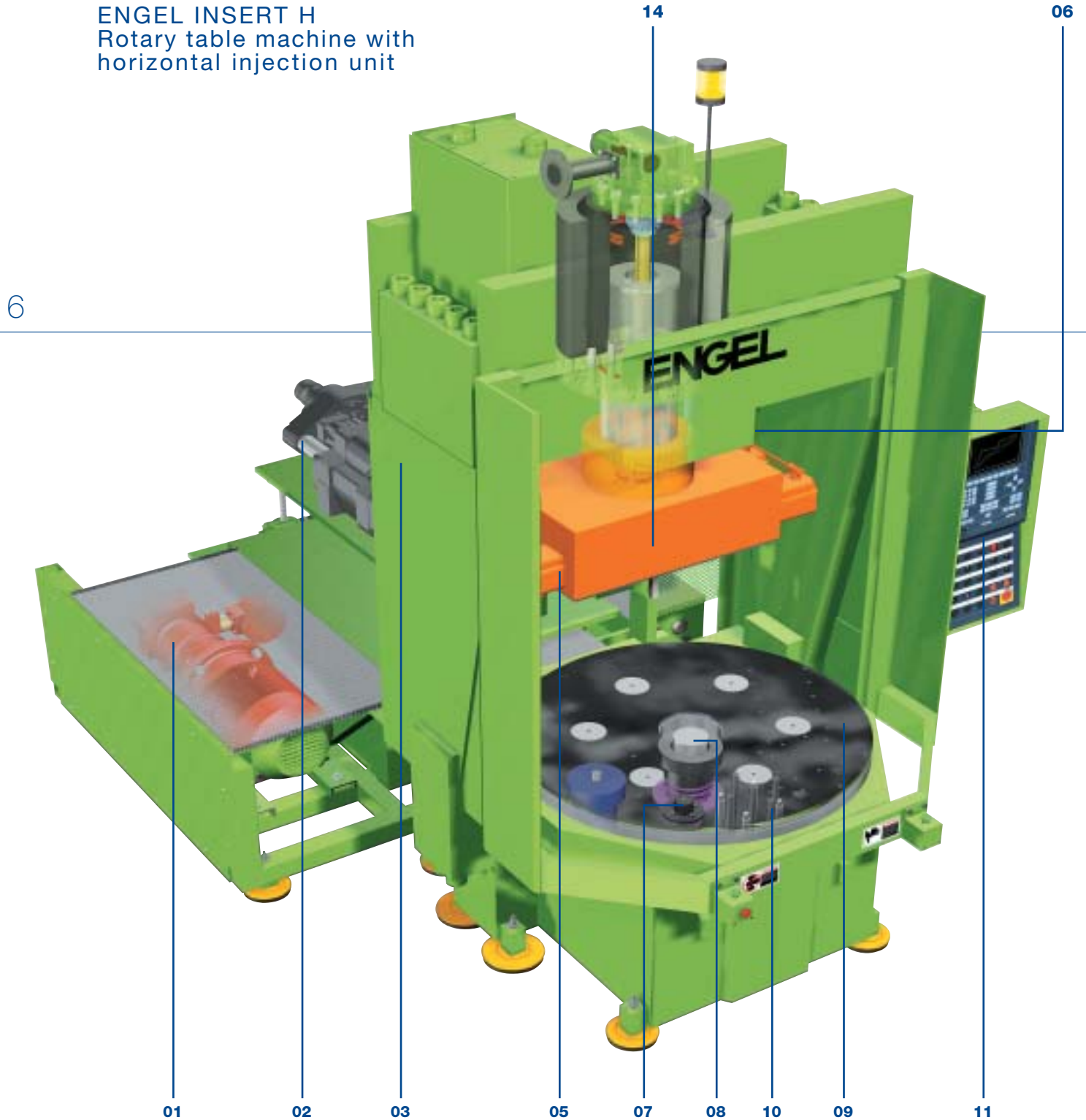
Through the use of standard structural units for the injection unit and drive, ENGEL INSERT machines offer the same high degree of quality and reliability as the standard range of Engel injection molding machines. These basic types are only the starting point for a wide spectrum of machine variants which can be specifically adapted to every conceivable application.

## ENGEL INSERT 330V / 90 US

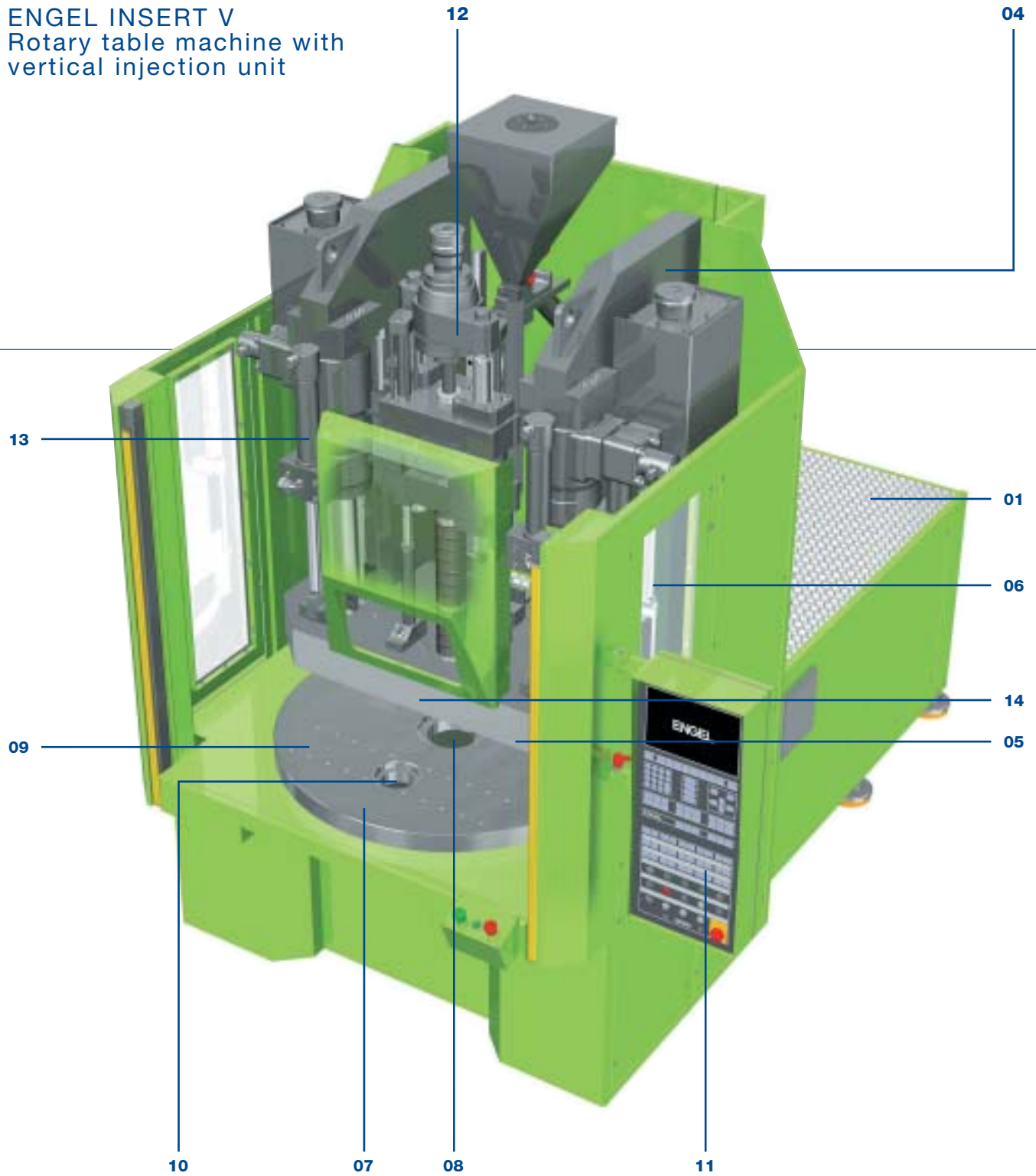


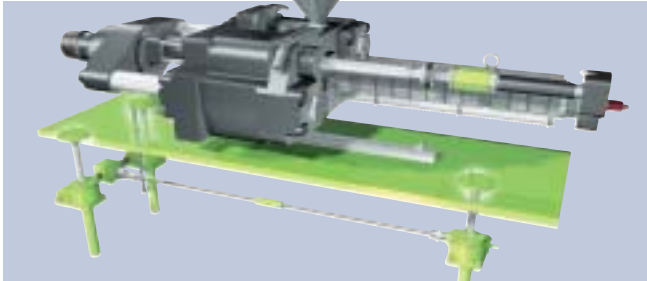
ENGEL INSERT.  
**Modularity and flexibility for every application.**

ENGEL INSERT H  
Rotary table machine with  
horizontal injection unit

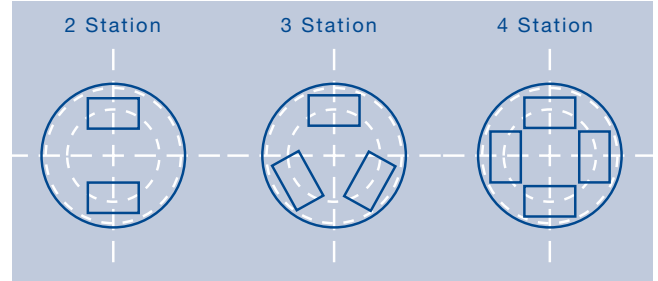


ENGEL INSERT V  
Rotary table machine with  
vertical injection unit





**02** Single-point adjustable nozzle centerline allows for fast and easy changeover from mold to mold. Swiveling injection unit and quick barrel change system makes material or color changeover quick and easy



**09** Table configurations with variable mold pitch circle diameters for operator ergonomics. Standard reciprocating or optional indexing table motion. 2-, 3- and 4-station tables available. Optional "wide platen" version with larger rotary table for mounting larger molds



**12** Vertical injection unit with "in-line" injection through the moving platen permits the use of standard injection molds and hot runners. Cycle time is also reduced by eliminating the sprue break step



**11** Ergonomically arranged control panel and control keys



**13** The moving platen and injection unit are driven by twin hydraulic cylinders which allows for lower machine height



**06** Low-friction, dual linear bearings, on moving platen, provide more accurate mold alignment and less mold wear

**01** Cycle-optimized hydraulic system featuring state-of-the-art, pressure compensated variable displacement pumps – parallel movement is featured as standard

**03** Heavy "bridge-type" frame provides structural integrity: our machines are some of the heaviest in their class, an indication of their lasting value

**04** Engel's unique tiebarless frame offers structural rigidity, open access to the rotary table

**05** Optional quick mold mounting system on moving platen reduces downtime when changing molds

**07** Rotary transducer and hydraulic shot pin ensure high-precision table alignment, resulting in superior part quality and longer mold life

**08** The supply of services to the mold is routed via a hollow shaft or optional rotary coupling – all connections are readily accessible

**10** Ejector position is easily relocated. Optional second ejector available

**14** Thick platen and rotary table with rigid base plate support. This stiff assembly provides extremely low deflection for increased mold life and improved part quality

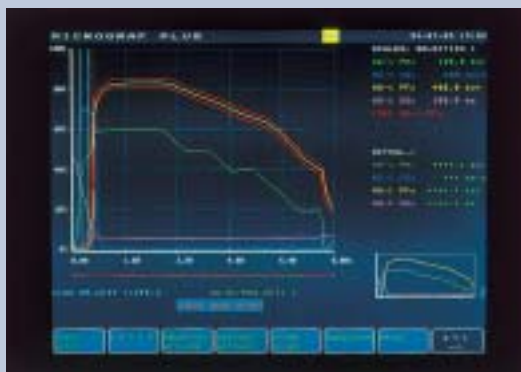
### The right machine combination for every application

- > Fifty years of experience in the design and construction of vertical machines are the firm foundation of Engel's innovative yet highly perfected technology.
- > Comprehensive modular system for every conceivable application.
- > Service-proven standard structural units are the mark of Engel quality.
- > Additional specifications and completely new machine combinations are also possible – please inquire.
- > All components of your automated cell – including up/downstream part-handling equipment – can be directly integrated into our powerful distributed intelligence machine control.

ENGEL INSERT.

## Comprehensive standards – modular options.

9 10



### EC 100 or CC 100: The interface between man and machine

- Ergonomically designed control panel located near the clamping unit
- Single user interface for machine and robot operation
- Toggle switches for main functions as standard
- Well-proven Engel control logic
- Predefined soft-keys
- Basic operation via function keys
- 10.4" color TFT monitor
- Display texts available in 25 languages

### High performance

- Same basic system for both EC 100 and CC 100
- Shielded electronic hardware
- Digital output sensors
- Linearization program for the measurement and calibration of valve characteristics
- Fully feedback controlled injection process
- Self-learning temperature control system
- ENGEL MICROGRAPH PLUS graphics package for the graphic display of up to 7 process data
- QDS (quality data statistics of up to 8 different process parameters)
- Statistical quality evaluation using QDS

### Modular accessories

- ENGEL MICROPLAST process software (for measuring and visualizing the energy required for the mold filling operation)
- ENGEL MICROFLOW process software (automatically corrects the change-over point from injection pressure to holding pressure as a function of the flow rate during the injection process)
- Comprehensive software packages for quality control (PD-Graphic, PD-Reports and ENGEL MICROGRAPH), for quality monitoring with graphics display.
- Quality assurance and error diagnostics also available via tele-maintenance service

## Automation made easy.



- 01** Engel's ERC full servo robot (capable of up to 6 axis) can be easily integrated into an ENGEL INSERT molding cell. The ENGEL ERC is very versatile, able to handle both up- and downstream equipment for the molding operation, from inserting components into the mold to the removal of molded parts and its transfer to other stations for further operations
- 02** Control for the operation of auxiliary equipment including box loading, hipot testing, gauging and runner removal, can all be programmed through our powerful ENGEL ERC robot control
- 03** Engel's ERV robot line is specially configured for vertical clamp, ENGEL INSERT molding machines with rotary tables. The ENGEL ERV is servo driven along its Z-axis for speed and absolute positioning. The ENGEL ERV also has two vertical Y-axis that can run simultaneously; one Y-axis for insert loading and the other for removing the finished molded parts. This robot is able to service both sides of the rotary table, for both up- and downstream equipment, i.e. bowl feeders and conveyors

ENGEL INSERT.

## The injection molding machine system for in-mold component ass

### ENGEL INSERT 200H / 55 US

Example of ENGEL INSERT machine used for the in-mold connection of two components made of different materials by means of a connecting ring. The insertion of the components and the removal of the finished composite are carried out by means of two Engel linear robots.



Linear robot  
ENGEL ERC 33 / 1-E

975 mm / 38.39 inches dia.  
rotary table with 3 stations  
(insertion, injection  
and parts removal)

12

### Drip chamber for infusion set

The production of medical or electronic parts necessitates, for reasons of hygiene or quality, complete automation of the insert-placing and parts-removal operations.





**ENGEL INSERT 200V / 60 US**  
Special vertical injection molding machine for the processing of rubber or TPE elastomer, eg. for corner molding of car window seals. The machine can be equipped either with a reciprocating screw unit or with the ENGEL FIFO rubber injection unit.

Tiebarless clamp unit affording optimum access for feeding elastomer profile sections into the mold

Two-hand anti tie-down

**Corner connector for car window seal**

All kinds of extruded profile seals for cars, household appliances and industrial machines must be provided with molded-on corners and other connecting elements in order to ensure a perfect continuous seal.

