

LIM

System of expertise



ENGEL
be the first



Experience and passion

ENGEL puts its heart and soul into developing system solutions for the processing of liquid silicone. The expertise acquired over the past 40 years is channelled into ENGEL machines which adapt to every application thanks to proactive, state-of-the-art technology.

Keeping targets in our sights

Precisely coordinated injection moulding system solutions by ENGEL address rising customer requirements down to the tiniest detail. The company is focused on efficiency and applicability in a whole spectrum of areas. As a full systems supplier, ENGEL ensures all components – machine, mould, robot, conveyor belts, peripherals and process technology as well as training and spare parts work together as a system: reliable and fully integrated.

The turnkey approach: thinking things through to the end

ENGEL supports customers throughout the project planning and implementation process, making sure all aspects are efficiently coordinated and synchronised; from start to finish, from the vision to the product.





LIM machine types,
series and components

Technology in motion

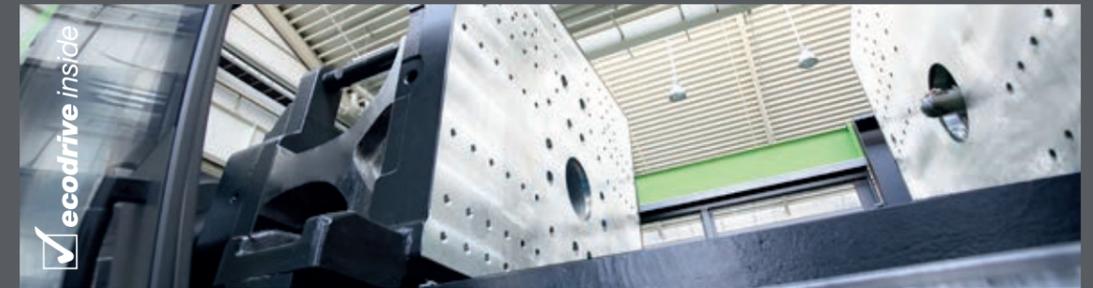
Hydraulic or all-electric, horizontal or vertical: LIM technology can link with any ENGEL machine series to form a flexible yet powerful production unit. The ENGEL victory for example, guarantees a perfectly even distribution of clamping force, thanks to its tie-bar-less clamping unit and patented force divider.

The right blend

The ENGEL product portfolio comprises flexible systems for the production of a very wide range of articles, from micro-silicone parts and multi-component applications (thermoplastic/LSR composites) to large-volume components (insulators). The ENGEL products offer a great number of combinations and configurations.

Typically ENGEL

ENGEL offers horizontal and vertical machine concepts with hydraulic, all-electric or hybrid drive technology. The machines are equipped with precise mixing and metering systems. LSR technology can therefore be applied to all types of ENGEL machines.



Tie-bar-less and flexible

At the heart of the modular ENGEL victory machines is the tie-bar-less clamping unit. With free access to the clamping unit, moulds can be exchanged in no time and robots can intervene quickly thanks to the absence of obstacles. This has a major impact on flexibility, efficiency and cost-effectiveness, as more than 60,000 productive tie-bar-less systems on the global market prove.

Automation

ENGEL supplies complex production cells, working with renowned experts to pool automation know-how for the benefit of customers. All manner of tasks are simplified by robots and automation components. Insertion and removal at the injection mould, assembly and testing procedures, packaging of finished products and many other complex tasks can be automated.

Energy efficiency: A step ahead

ENGEL leads the field in the production of energy-efficient machines and systems. The technological integration of the ENGEL ecodrive solution has had a major bearing on the entire sector. Now ecodrive servomotors deliver even greater energy savings – especially when cycle times are long, as they typically are in the case of LIM applications.

Perfect metering

Offering all popular brands of metering pumps and systems, ENGEL is fit for a wide range of applications.





LIM screw and plunger injection unit

ENGEL LIM

	.../30-50	.../60-80	.../90-120	.../140-160	.../180-220	.../260-300
Plunger injection ¹⁾						
ENGEL LIM 50/...	12/15/18	12/15/18				
ENGEL LIM 60/...	15/18/20	15/18/20				
ENGEL LIM 200/...	25/30/35	25/30/35				
ENGEL LIM 330/...		30/35/40	30/35/40			
ENGEL LIM 500/...			35/40/45	35/40/45	35/40/45	
ENGEL LIM 650/...			40/45/50	40/45/50	40/45/50	
ENGEL LIM 750/...				45/50/55	45/50/55	45/50/55
ENGEL LIM 1050/...					50/55/60	50/55/60

¹⁾ Available screw diameters in mm for each injection unit

LIM Plunger injection moulding machine

	.../28-45	.../60-80	.../90-120	.../130-150
Plunger injection ¹⁾				
ENGEL LIM 100 K /...	30	30	30	
ENGEL LIM 100 K /...		40	40	40
ENGEL LIM 100 K /...				45

¹⁾ Available plunger diameters in mm for each injection unit

LIM Double plunger injection moulding machine

	.../100	.../160	.../260	.../400	.../600
Plunger injection ¹⁾					
ENGEL LIM 1000 D /...	2 x 57	2 x 57			
ENGEL LIM 3000 D /...		2 x 70	2 x 70	2 x 70	2 x 70
ENGEL LIM 6000 D /...			2 x 100	2 x 100	2 x 100

¹⁾ Available plunger diameters in mm for each injection unit

Ideal for the application

Given the scope of LSR materials, ENGEL injection units come in different designs; depending on requirements, a screw or plunger injection unit may be the better choice.

In both systems, sophisticated non-return valves make for fast and accurately repeatable closing. Precise metering also serves to ensure exactly reproducible shot weights.

Thanks to their broad flexibility, screw injection units have proved particularly suitable for standard and high-viscosity LSR materials as well as (extremely) small shot weights.

Plunger injection units enable the careful processing of highly reactive and highly filled (heavy abrasion) LSR types, resulting in a significantly increased service life.



The sum of the parts

ENGEL components link up systems in simple fashion and effortlessly perform beyond the call of duty.

Quality control and monitoring

ENGEL provides a very wide range of optional modules to monitor the quality of injection moulded parts. Individual configurations of process sequences and graphical displays not only simplify operation of the machine; quality control also enables logging and statistical evaluation. An appropriate sensor (pressure transducer) ensures continual monitoring of the material feed.

For maximum productivity

Thanks to the tie-bar-less arrangement of the ENGEL victory, multi-axis robots can be used for loading and removal purposes, while several demoulding systems specific to brushing devices or moulds can be used simultaneously. Advantages include shorter cycle times and reduced energy consumption.

Results-oriented

ENGEL supplies solutions for large and small silicone parts. The company is also a pioneer in multi-colour injection moulding. Client-specific LIM systems have been developed for liquid silicone processing and multi-component technology.

A system of expertise and service

As a systems supplier, ENGEL provides handling robots, automation components, engineering and project management from a single source. The company upholds long-standing partnerships with numerous leading specialists and mould manufacturers.

