

LIQUID INJECTION MOLDING
FULL SYSTEM SUPPLIER

E L M E T

ELASTOMER IS OUR BUSINESS



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Development and manufacture of high-quality equipment for the production of silicone and rubber components has been the focus of activities of the founders of ELMET from the very outset. Constant advancement of the range of products and of technologies has now turned ELMET into the FULL SYSTEM SUPPLIER.

As a small and committed team with a lot of experience in the areas of tool-making and the automation of the LIM (liquid injection molding) process, the founders' dreams of being one day independent have come true. ELMET customers were thrilled from the beginning by their open and direct communication, extensive know-how, and the tireless drive to expand the existing knowledge and try out new things.

The knowledge that could be gained on striking an increasing number of new paths has currently materialized in the form of sophisticated and high-quality products that are implemented on a daily basis by very well trained and motivated staff. Due to the permanent development cycle that is constantly applied to products, production processes, and staff, ELMET assures its global customers now and in the future to meet the highest demands of full system solutions in the production of silicone and rubber components.

EXAMPLE

HOUSING COVER WITH SEALING – The ELMET solution:

- Multi component application
- 4 + 4 cavities
- Automated handling of inserts
- 2 independent silicone sealings



In 1996 already, the year of its foundation, ELMET applied for patents of its first technological developments. The name ELMET was then very quickly associated with high-quality tools, and the success and resultant growth necessitated the construction of the new building at today's location in Oftering, as early as 2000 already.

In 2003, ELMET followed customers' needs for high-precision dosing systems to ensure stable and cost-effective LIM processes by introducing the TOP 3000. One year later already, standardized cold runner valve gate technology and ELMET LIM peripheral components completed the FULL SYSTEM offer.

"The Key to our success is the success of our customers. Therefore we are the right partner from development to serial production."

Kurt Manigatter
Chief Executive Officer

"ELMET stands for outstanding quality, latest technologies, creative and committed staff, and optimal infrastructure."

Christian Reslhuber
Chief Technical Officer

"Open communication and total commitment for each project. This is why we are appreciated by our customers worldwide."

Paul Fattinger
Sales Manager Asia

"Our goal is to meet the demands and requirements of our customers in the best possible way. Each project is important to us."

Karl Adlesgruber
Manager Electrical Engineering

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LIQUID INJECTION MOLDING AT A GLANCE

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The challenges of the LIM process, on the hand, lies in controlling the metering technology, ...

► The handling of a liquid compressible material with changing viscosity affected by temperature, shearing strain and additives.

... and, on the other hand, in the interaction between high-quality tools, the injection molding machine, and peripheral equipment:

► Injection of the right amount of cooled material into a hot evacuated cavity with exact pressure and speed ratios. In a stable automatic process, this will ensure the production of components with the right degree of filling and the requisite surface quality.

LIM PERIPHERAL COMPONENTS FOR OPTIMAL FUNCTION IN NEURALGIC POINTS

Whether water filters for the cooling system, valve gate diving nozzles, non-return valves, or vacuum systems: ELMET closes the gaps during the relevant process.

PROCESSING UNIT AS GUARANTOR FOR CONSISTENT MATERIAL QUALITY

The unit comprising a mixing block, static mixer, pressure regulator, shut-off valve, and filter ensures that the material is processed correctly and is ready for metering.

ACCURACY UP TO A TENTH OF ONE PERCENT

Color pigments and additives influence greatly the quality of the raw material and are mostly very expensive. Due to integration into the control system of the dosing system, the injection is performed with maximum precision.

EVERYTHING FROM ONE SOURCE

A stable and cost-effective production process depends to a large extent on the components' quality. However, matching individual components between themselves is equally important and often undervalued.

In its capacity as FULL SYSTEM supplier, ELMET develops and manufactures all relevant elements for a LIM production cell in Austria while adhering to the strictest quality guidelines. Backed by its long-standing experience, ELMET specializes in integrating its own range of products together with an appropriate injection molding machine into an complete system.



EXAMPLE

O-RING – THE ELMET SOLUTION:

- Up to 256 cavities
- Film gate
- Automated demolding of part and sprue



AUTOMATED TOOLS AND MATCHING DEMOLDING SYSTEM

Whether sensitive medical components, cost-optimized mass-produced articles, or complex multi-component application, customer demands always decide on the number of cavities, tool design, handling solution and cold runner technology, with or without electronic control.

PNEUMATICALLY DRIVEN DOSING SYSTEM WITH PATENTED CONTROL LOOP

The raw material of most elastomer components that are manufactured fully automated, is Liquid Silicone Rubber (LSR). ELMET dosing systems stand for the perfect mixing ratio of A and B components and for minimum residual quantities in the drum. Along with a stable production process, this saves real money.



MAXIMUM PRECISION FOR YOUR SUCCESS

Today's demands on elastomer components and their production processes are at a level which could hardly even be thought of a few years ago. Customers' expectations regarding contour complexity, surface quality, burr formation, and dimensional accuracy in tool-making require a level of precision within a thousandth of a millimeter. In conjunction with elaborate automation, however, production processes with maximum stability, controllability, and production volume have become possible.

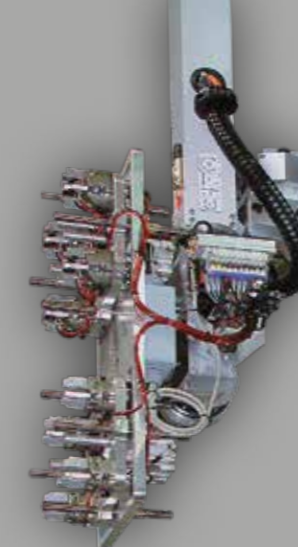
Backed by long-standing experience and a wide range of standard components, ELMET is in a position to perfectly meet customers' requirements and to use exactly that technology which represents the best solution for the respective technical and cost-effective challenge. Only an elaborate combination of precisely matching components will lead to the desired result of increasing customers' competitiveness in respect of cost-effectiveness and quality.



EXAMPLE

BELLOW – The ELMET solution:

- EPDM 70 Shore A
- 2 cavities
- Film gate
- Shot weight 34g



HANDLING COMES FROM HAND!

Elastic components with complex surfaces are best handled manually. If ever this is not possible for safety-related or economic reasons, ELMET uses such handlings which match exactly the requirements of the components and the tools.

Regardless of whether this be simple demolding of components with dropping in a collection container, targeted depositing at a predefined point, or feeding to the next production step, such as visual inspection or a slitting device...

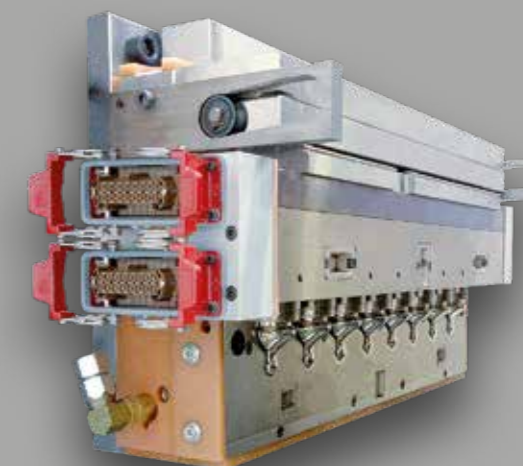
Almost everything is possible.

EACH TOOL A PROTOTYPE?

At first glance: Yes! Viewed in detail, however, to implement customers' requirements, well-proven components and assemblies are always newly composed over and over again, and in this way create a very solid basis. Should there then still be missing something for a perfect solution, this will be tailor-made.

Regardless of whether this be single or 256 cavities molds, slide or multi plate structures, pure elastomer or multi-component parts ...

Almost everything is possible.

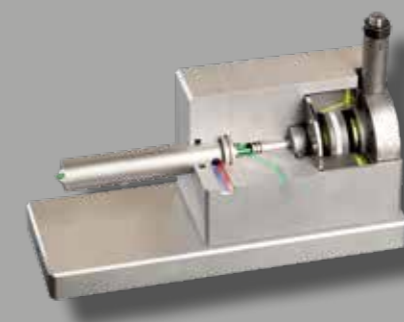


OBJECTIVE DECISIONS

Which cold runner and nozzle technology is employed for customers application, will solely depend on the respective product and process requirements, and this is where ELMET will propose exactly the right standardized and well-proven solution.

Regardless of whether this be open or valve gate technologies, high or low shot weights, self-balancing or electronically controlled, LSR or rubber ...

Almost everything is possible.



ELMET DOSING SYSTEMS

When robust mechanics gets together with control systems, a dosing system is generated that satisfies the highest demands on metering accuracy and material utilization.

ADAPTED TO CUSTOMERS REQUIREMENTS

The more different the silicone components, the more diversified the raw materials and production processes. ELMET dosing systems can adapt to the resulting requirements – just like that.



EXAMPLE

FACE MASK – The ELMET Solution

- Shot weight 131g
- Open gate – Maxi nozzle



TOP 5000 P - DOSING SYSTEM

REVOLUTIONARY DOSING TECHNOLOGY

ELMET follows its modular production philosophy, even with the dosing systems: The use of standardized components and assemblies creates a reliable basis and allows for maximum flexibility in adapting to customers' requirements. The control technology employed has been developed further and now, in the second generation, is even more adapted to the needs of operating staff.

Demands on dosing systems in the LSR production process are highly individual at first glance but, on closer examination, they can always be divided into three categories:

TECHNICAL CHALLENGE

Precise metering, mixing the A and B components, and adding additives, so that the material quality remains reliably stable over the entire production process.

COMMERCIAL CHALLENGE

Optimum utilization of the material employed and minimized incidental costs due to ease of maintenance, reduced power requirement, and durable components.

PRODUCTION-RELATED CHALLENGE

Sparing use of the available space, and possibility to react flexibly to changes of material and the size of its package. Documentation of the process and integration of the dosing system into the existing IT landscape. Any use of the available dosing systems in simplex or tandem operation, and mixing of different materials so as to achieve the desired Shore hardness of the respective production part.

ELMET dosing systems will master these challenges.

DON'T WASTE YOUR MONEY

In the long term, for each business activity only the commercial success is relevant. Only those businesses will endure that have their cost structure under control and are therefore competitive to operate on the market. The ELMET dosing system of the TOP 5000 P series is a tessera to reducing direct production costs.

With its patented twostage control, ELMET guarantees less than 1% of residual quantity in the 200 liter drums. This will save up to 4% against conventional dosing pumps. The saving that can thus be achieved depends directly on material consumption and the cost of material:

EXAMPLE

Isolators

parts weight: 370 g
parts per shot: 2



SAVING:
€ 17.520,-

Bottle Nipple

parts weight: 4,5 g
parts per shot: 8



SAVING:
€ 13.140,-

Single Wire Sealing

parts weight: 0,1 g
parts per shot: 256



SAVING:
€ 7.500,-

Cake Baking Pans

parts weight: 190 g
parts per shot: 1



SAVING:
€ 35.040,-

Annual saving based on year-round three-shift operation.

TURN KEY SAFETY FROM A TO Z

A chain is only as strong as its weakest link. This equally applies to the process chain in a production cell. Many customers find that the production process does not work satisfactorily all the time even if high-quality primary components are employed, such as injection molding machines, dosing systems, and tools, but if the associated and supplementary components and the integration of units then do not show the required quality. This was reason enough for ELMET to develop itself the components for the perfect FULL SYSTEM.

This is how the holistic approach pursued by ELMET in turnkey projects offers holistic safety to customers as well:

COMPONENT SAFETY

The best components only are used for the respective application and are perfectly matched between themselves.

COST SECURITY

The bundling of responsibility with ELMET guarantees a fixed price for the entire production cell. Unexpected additional costs due to gaps at the interfaces are a thing of the past.

PRODUCTION RELIABILITY

Given that all components have worked jointly at ELMET under production conditions already, customers are guaranteed the shortest possible production start-up phase at their end.

PILOT RUN, BOTTLENECK SERVICE

The through-put time from development up to serial production of elastomer parts is a long one. Still, it is exactly towards the end of a project that time usually becomes scarce or is running away altogether. ELMET therefore offers a service to start a pilot run production with the tools and production cells supplied straight away. With transportation and start-up being dispensed with at the customer's end, valuable days and weeks can thus be saved.

Also, if ever customers of ELMET were to find themselves in a bottleneck situation during production, they will be provided with a special service. ELMET will then take over production in the short term and will thus secure the delivery capacity of its customers.



VAKUUM SYSTEM
generates underpressure in the cavity during the injection process.



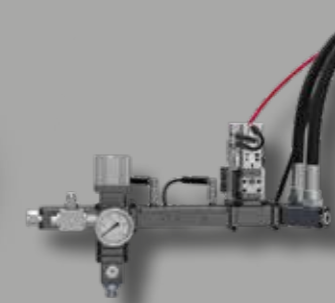
CHECK VALVE
ensures a low-shear flow rate during metering.



COLOR SYSTEM
injects color additives with a 0.1% quantity tolerance in conjunction with dosing system TOP 5000 P.



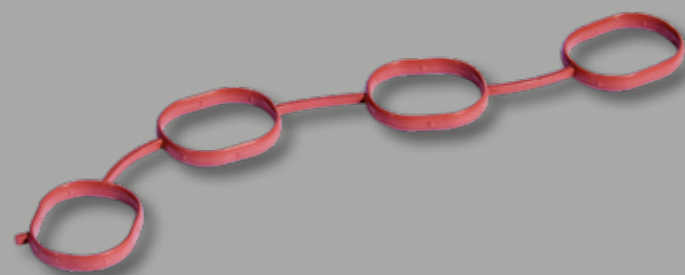
DIVING NOZZLE
decouples the cold runner and the cylinder during metering by means of a valve gate.



PROCESSING UNIT 40D12
Maintenance optimized & modular. Additive control / Cost-efficient safety.



DRUM LIFTER
is the most ergonomic and safest way to change 200 liter material drums.



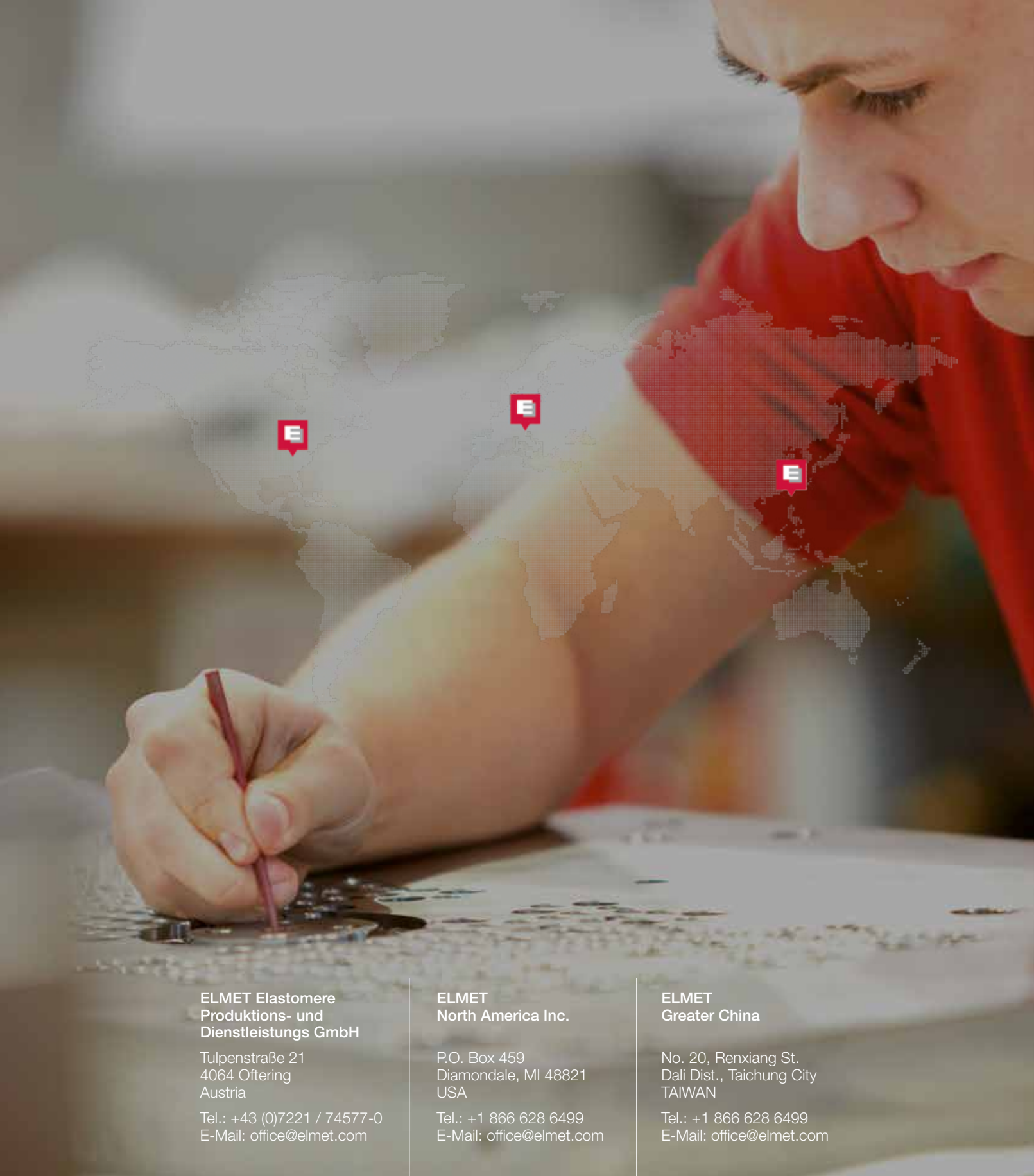
EXAMPLE

GASKET – The ELMET solution:

- HTV
- 4 cavities
- Valve gate nozzle

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