

# SEALS

TECHNOLOGY



0311

客户杂志 Magazine for customers and partners



*Keep on top  
of the game! 2012*

Winner of Innovation 2011

CNC Professionals

Contact Fluids



# Editorial



亲爱的读者，

每当一个年度能像2011年那样如此令人欣喜地接近尾声，那么，我们除了感激之外，还有别的吗？我们感谢每位为这份硕果立下功劳的人，他们就是我们的客户、工作人员和合作伙伴们。

在一个企业，究竟以什么标准来衡量成功与否？依我个人之见，单单以销售量、利润或资金流动量作为准则未免过于表面化。当然，无可置疑这些因素对年终业绩的重要性和影响力。但只有在把其他全面因素考虑在内，方能评定结果。

譬如说，公司贯彻决策的模式如何？走的路线和方针都正确的吗？采纳这些措施后，我们还能继续保持车削密封系统首选供应商的地位吗？整体服务水准都跟进了吗？能顺利完成拟定的发展计划吗？我们员工在公司感觉都好吗？最后一个问题就是：客户对我们的工作满意吗？以上问题都应在下结论之前先做解答。

纯从经济角度出发，绝对可以说，对于我们，这是一个非常出色的年度。同时，我也坚信，我们走对了这条正确的路线，为迎接和战胜今后的挑战奠下了基础。员工人数在销售、服务、技术及生产部门不断地扩增，这使我们在生产管理流程中一贯高品质的特征再次得以保障。此外，我们在研发领域也有了很大的进展。

在与客户多次的交谈中，我得到了许多非常积极的反馈。最让我受到鼓舞的事是，我们 Seal Maker 客户通过我们的产品事业上取得了成就。

我们所有的产品、密封方案和服务项目的背后都有我们 Seal Maker 员工的支持。继续加强和促进彼此沟通、注重人才培养、提高就业保障及人文环境等，仍然是我们当前最重要的目标。

对于 Seal Maker 来说，2012年将会如同2011年结束时那样地开始：伴随着良好的业务形势和大量切实的项目。为进一步提升当前服务和产品质量等级，前不久我们已采取了相应的措施。尤其是在橡胶生产及密封件制作领域，提高生产能力已在计划之内。缩短交货周期以便我们的客户更迅速更有效地经营管理。

最后，我要感谢您在2011年曾给予的信任和支持，并祝您节日快乐，2012年万事如意！

您的

Johann Glocknitzer

Dear Readers,

when a year as positive as 2011 draws to its end, the only thing that remains to be said is THANK YOU to all our clients, employees and business partners, who play a part in this success.

But how can business success be measured? In my opinion merely observing turnover, profit and cash flow would be too simple. These factors naturally are important and influence the annual result. However, in order to be able to talk about a successful year there are many other factors to take into account.

What about the sustainability of the decisions made, for example? Have the right steps been implemented? Will these measures also lead to being preferred system supplier for lathe-cut seals in the future? Is the general level of service acceptable? Could the planned developments be successfully completed? Are our company employees happy? And finally: are our clients satisfied with what we do? All these questions should be posed before making a final decision.

From a purely economic perspective we can definitely talk of a very good year for us. I am also convinced that we have made the right steps to accept and overcome future challenges. By increasing sales, service, technical and production staff, we have again managed to offer the customary high standard of project processes. We have also achieved great things in the area of development.

I have had the pleasure of receiving very positive feedback in many meetings with clients. It is always very motivating to experience just what successful business Seal Maker can realize for clients with its products.

Behind all our products, solutions and services are Seal Maker's employees. Promoting open communication, good training, secure jobs and a human environment continue to be our most important goals.

2012 will begin similarly to the way 2011 ended for Seal Maker: with a good order situation and a large number of realistic projects. Accordingly, we have already implemented some measures to further improve the existing level of quality and service. Expansions in capacity for elastomer and seal production are already being planned. Optimized delivery times will allow even quicker and more successful operations for clients.

Finally, I would like to thank you for the confidence you have placed in us and for your support in 2011. I wish you happy holidays and all the best for 2012!

Yours,

Johann Glocknitzer

# SML 500e Winner of Innovation 2011

思维超前的策划家往往从一些想法开始造就了令人震惊的产品。不言而喻也创造了新的就业机会。本国最具创意的企业最新荣获了布尔根兰州创新奖。总冠军 - 由此跻身于奥地利最先进企业之一的行列 - 正是 Seal Maker.

2011年11月15日，布尔根兰州最具创新性的企业被授予了“2011创新奖”。Seal Maker 凭借全球闻名的SML 500e机器网在30家被提名的企业中脱颖而出，夺取了冠军的桂冠。奥地利商会和布尔根兰州经济体系公司主持这次颁奖仪式。其中，Seal Maker凭借促进生产力标准成为模范企业和成功打入国际市场这两点为竞争依据，稳坐冠军宝座。在3个竞赛项目中取得总冠军的 Seal Maker 也因此获得了2012年奥地利创新国家奖竞赛的参赛资格。



这一切是如何开始的 ...

Seal Maker 的故事源于1998年，在艾森斯塔特市，— 在一个带有几个办公空间旧仓库。这家已成立一年时间的小公司由经理 Johann Glocknitzer 工程师和4人团队组成。一步一步地，把启动运作推向下一个发展阶段，在短短7年间，员工人数就增至十倍。

必然的结果：需要更多的空间。2004年这支40人马的队伍带着行李包袱迁入了位于Pöttelsdorf的新建总部。接着，下一个雄心勃勃的目标被瞄准了。具体的理念是：建造一架全新的车削密封数控车床。该机床除了应该具有专门为塑性材料加工而设计的特征之外，更需要具备无与伦比的性价比。

在孟买的世界首展

经过了多年的市场观察和周密的发展方案，车削密封工艺随着 Seal Maker 最新一代车床的问世，进入新纪元。这革命性的数控车削全套系统有一个名字：SML 500e.

在这场革新之前，全球市场上还没出现有这样性价比的类似产品。从样机到可销售的机器 - 该机床完全由我们公司内部研制。2009年12月，SML 500e在印度孟买MDA展上向世界展现，并收到了巨大的反响。

通过毅力、创新、开拓精神和意志，Seal Maker 实现了到达世界顶峰跳跃。通过自己研发及制作设备系统，我们同时也创造了额外的工作岗位。目前公司共雇用了120名员工。一个创新的动力，不仅能掀起全球性的波浪，同时也能在布尔根兰州的劳动市场领域立下一个强大的经济标志。

Astonishing products often develop from the ideas of visionary masterminds. These in turn create new jobs. The most creative companies in the Austrian federal state of Burgenland have recently been awarded the Innovation Prize. The overall winner - and thus one of the most progressive companies in Austria - was Seal Maker.

On 15.11.2011 the most creative companies in Burgenland were awarded the "Innovation Prize 2011". Seal Maker emerged as the overall winner from among 30 nominees with its SML 500e machine concept, which has achieved international success. The Innovation Prize was awarded by the Austrian Chamber of Commerce and Wirtschaftsservice Burgenland AG. The reasons for awarding this the prize highlighted that Seal Maker has developed into an exemplary company and successfully established itself on the world market through new productivity standards. As the overall winner in all three advertised categories, Seal Maker also qualified for participation in the Austrian State Award for Innovation 2012.

How it all began ...

The story of Seal Maker began in Eisenstadt in 1998 - in an old warehouse with connecting offices. The small company had been established a year before and comprised a team of only 4 people around the CEO, Johann Glocknitzer. Step by step the start-up company pushed on towards each subsequent level of development. Within just seven years, the number of employees had increased by ten times.

The logical consequence was that more space was needed. In 2004 the team, which had already grown to 40, moved its entire operations to the newly established company headquarters in Pöttelsdorf. The next ambitious goal had already been envisaged at this time. The concrete idea was to construct a completely new lathe for producing seals. This was intended not only to be specially conceived for processing plastics, but also unbeatable cost-effectiveness.

World première in Mumbai

After many years of market observation and an intensive development program, a new era in the production of lathe-cut seals began with Seal Maker's latest machine generation. The name of the revolutionary CNC complete system: SML 500e.

Until this innovation there was no product in this price class and of this quality on the international market. The machine was developed in its entirety in house - from the prototype to the marketable product. In December 2009 the SML 500e was presented to the international public at the MDA India and was received very well.

Seal Maker managed the leap to world leader through inertia, strong innovation, a spirit of research and the will to change. Additional jobs were created through its own development and construction of the machine system. The company currently employs 120 people. This is an innovation that not only makes waves worldwide, but also sends a strong signal to Burgenland's job market.

# CNC Professionals

## 灵活、迅速地量身制作密封件

车削加工的密封件不仅在维修和保养工作中被需求，它在原设备制造领域也占有重要的地位。这种生产系统模式，软件和车床都是根据材料进行了最完美的调制。实现了低成本高效益，并日益备受青睐。由Seal Maker研制，匹配Fanuc控制和驱动技术装备的SML系列车床为车削密封提供了最理想的先决条件。

相对于传统注塑成型的制作密封件方式，在加工中小型批量工件时，SML车床体现了经济生产这项优点。此外，它也可用于车削非标尺寸和特殊截面的工件。

SealMaker研发的SML系列车床加工系统注入了近些年来我们所有累积的经验，它是专门为加工塑性材料而设计的。CNC专家Fanuc开发商作为我们合作伙伴在数控和驱动技术领域给予支持。自从购入第一架CNC数控车床之后，Seal Maker 就和Fanuc开始携手合作。这架机床就是配置了Fanuc操作系统，并成为了我们后续研发自己软件的基础。因顾客需求，Seal Maker 在 2004年至2007年期间，曾给机床配置一些其他的控制系统。但 Johann Glocknitzer 先生对这最后的结果不太满意，原因是：“虽然它们基本上是可用的，但是实际操作的简易性和工作程序的明晰度却受到了影响。此外，地方服务工作也出现了困难。鉴于这些因素，我们作为密封行业专家，选择了依靠控制系统开发商Fanuc支持的方案。而在这方面我们也得到了最佳的协助，所以，目前我们的控制系统几乎都是匹配Fanuc”。

在研发过程中，我们考虑到了机床的精确度必须符合当前的技术标准这项要求。通过一个高精度的管理系统，精确度能达到微米的范围，此外每台机床都通过了特殊的测量仪来检测它的精确度。

一套完整的SML系统还应包括一个由 Seal Maker 开发的CAD/CAM软件，该软件已预先安装在随机床附带的PC机上。它储存了150个标准的密封截面，用户可从中挑选。在短短几秒中内软件自动生成的CNC程序包括选择刀具，同时显示不同的工作表及推荐误差以使用户制作完美的密封件。而无需再动手编程，免去了准备工序，保证了时间上的优势。

除了Seal Maker那些可依据个人需求来调整的标准截面之外，密封件制造商也可以通过可选配的软件Fanuc Manual Guide i 的车间编程界面快速简易地在计算机上编程。

### 高性能的标准CNC

新型CNC控制系统0i系列D款不但操作简易，而且增添了之前在控制区域被保留的附加功能。此外，该款所有的控制系统都配置了嵌入式以太网(Embedded Ethernet)，为基于PC机的系统网络通信工作做好了准备。另外，该操作系统还配置了PCMCIA-插槽以备快闪存储卡之用。Fanuc操作指南-Manual Guide i是一可选软件，提供详细使用讯息。该软件集两种编程方法于一体。操作员可根据要求和需要在对话框编程和传统的国际标准DIN ISO编程方式做选择。现有的程序可以以后再使用，甚至也可以扩展。同时，还有Fanuc程序传输工具可供使用，是一个用以管理部分程序和刀具补偿的软件。通过以太网连接实现CNC的数据传输。

## Suitable seals quickly and flexibly

*Lathe-cut seals are not only necessary for repair and maintenance work, they are also important for original equipment. Production systems whose software and lathes are cost-effective and perfectly adjusted to the materials pave the way for rising demand. The e-series SML lathes developed by Seal Maker and equipped with Fanuc CNC and drive engineering provide ideal conditions.*

In contrast to classic seal production via injection molding, the SML lathes allow economical production of small to medium-sized numbers of units. The production of custom sizes and profiles is also possible using lathe cutting.

With the SML e-series, Seal Maker has developed a production system that is specially designed for plastics processing and merges with all the experience of the past few years. CNC specialist Fanuc assisted the developers as a partner on the control and drive side. Seal Maker has been cooperating with Fanuc ever since the first CNC lathe was purchased. This was equipped with Fanuc controls and served as the basis for our own software development. In the years 2004 and 2007 Seal Maker also implemented other controls into the machines upon client request. Johann Glocknitzer was not entirely happy with this: "Although it basically functioned, users had to put up with disadvantages in terms of user-friendliness and the clear arrangement of the programs. There were also problems with the on-site service. As specialists in the field of seal technology, we are dependent upon the manufacturer of the controls in this regard. Fanuc assisted us perfectly in this case; we now equip our machines almost exclusively with Fanuc."

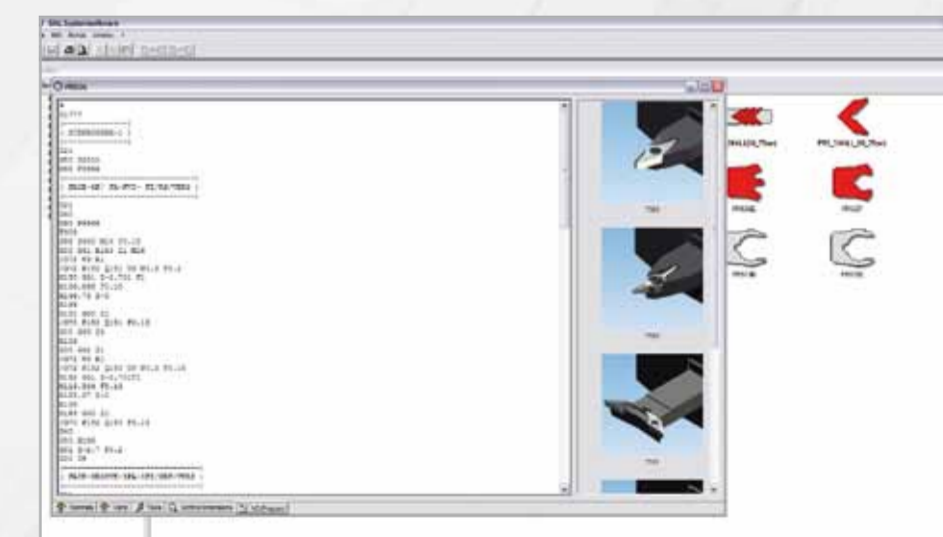
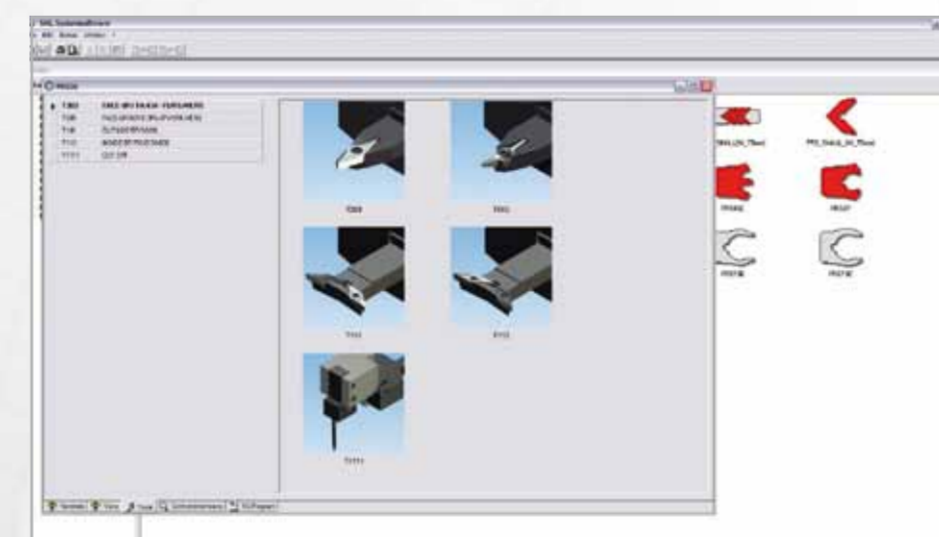
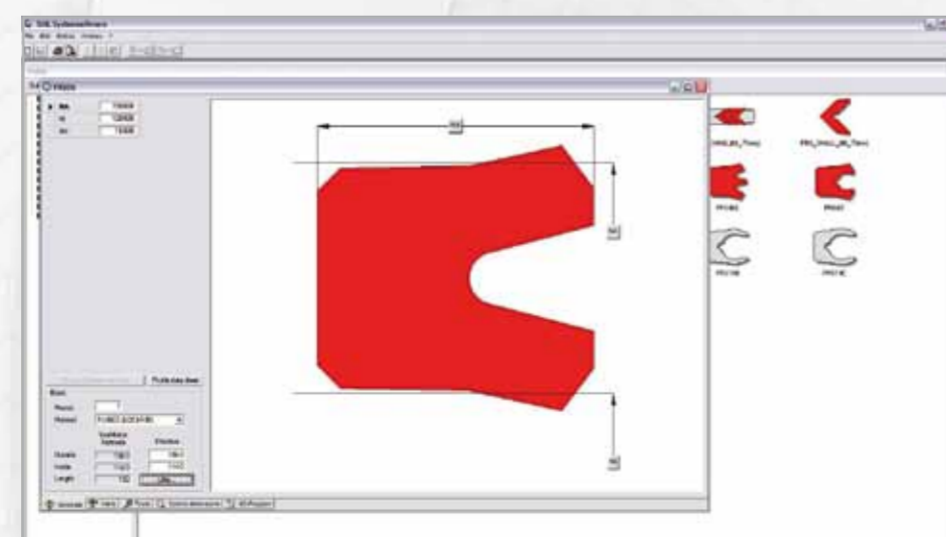
During development, care was taken that the precision of the machine was state-of-the-art. With a highly precise control system, precision to a thousandth of a millimeter can be guaranteed; this is also monitored on every machine with a special measuring device.

CAD/CAM software installed on a PC delivered with it and developed by Seal Maker, is also part of an SML complete system. Users can choose from one of 150 standardized seal profiles. The software fully automatically generates the finished CNC program including tool choice. At the same time, various worksheets and tolerance recommendations are developed to create technically impeccable seals. This guarantees a time advantage in equipping the machines as there is no need to program the machines.

As well as the standard profiles of the Seal Maker software, which are individually adjustable, Fanuc's optional workshop programming interface Manual Guide i is useful. It offers the opportunity to program custom profiles quickly and simply on the machine.

### High-performance standard CNC

The new CNC control series 0i model D distinguishes itself by its user-friendliness and additional functions that have until now been the preserve of the upper control unit sector. Furthermore, all 0i-model D-control units are equipped with embedded ethernet and thus perfectly prepared for networked communication with PC-based systems. The control units also have a PCMCIA slot for a flash storage card. The optional Fanuc operator software Manual Guide i provides added value. It combines two programming methods in a single piece of software. Dependent on demands and requirements, the operator can choose between a dialog program or the classic DIN ISO programming. Existing programs can also be used in future and even expanded. Fanuc's Transfer Tool program is also available. This PC-software is for administrating part programs and tool offsets. Data exchange with the CNC takes place via an ethernet connection.



## Vol. 3 流体介质

成功制作一件完美的密封件始于正确选材。其中，关键要知道该密封件与何种材料接触。应防止介质如：液压媒介、油、润滑剂、燃料、烟尘、清洁剂或外部的液体等侵入工作区。除此之外，还要考虑到那些在应用过程中有可能形成的化学物质污染的可能性。采用的密封材料必须能抵抗所有现有的介质的侵蚀。流体对密封材料的侵蚀可以通过两种机制发生。

膨胀时，介质的分子可附着于高分子链之间。化学交联的材料如（橡胶）较物理交联的材料如（聚氨酯）更容易受膨胀影响。在一定的膨胀程度内，这变化过程是可逆性的，因为链接点没有被分解，其分子特征依然存在。材料在液体中的膨化与这两种成分的极性有关。相同极性物质的膨胀度比不同极性的要大。比方说，聚氨酯是极性材料，在遇非极性介质时如（碳氢化合物，矿物油）较遇极性成分的如（溶剂）要稳定。

膨胀作用有可能导致高分子链的化学降解。这会致使材料失去机械性能。举个典型的例子：聚酯型聚氨酯受水解攻击时，其中水分子扩散入材料，引起了聚合物结构模块的分解。但是 Seal Maker 的聚氨酯材料是基于聚醚型的，因此抗水解。

密封件和流体在高温、高浓度或极端pH值的应用环境下交互作用会加强。化学降解反应的速度也会加快。这会导致密封件使用寿命的缩短。我们可以在实验室里模拟测试材料的变化，根据质量和体积的改变情况来评估效应。此外，在个别案例下，继续实施其他的机械测试如（硬度，拉伸强度，断裂伸长率）等，也是很有意义的。

在考虑介质对密封材料产生作用的同时，也应该思考到相反情况的作用。对于一些特殊应用，例如食品和制药工业，就要绝对防止密封件自身物质传入介质中。通过筛选和迁移测试法可确保原材料在此类特殊应用的安全性。针对这些特殊应用，Seal Maker 推出了符合FDA标准的材料，其生产规范均符合相关的欧盟指令。

您若在选择材料上还存在其他疑问，敬请咨询我们的应用工程师  
» a.haspel@seal-maker.com

## Vol. 3 - Contact fluids

Manufacturing perfect seals begins with the choice of the correct seal materials. To do this it is vitally important to know what substances the seal will come into contact with: hydraulic media, oils, lubricants, fuels, steam, cleaning agents or external fluids that are to be prevented from entering the working space. Furthermore, possible impurities and chemicals that can form during use must also be taken into account. The seal material must resist all substances present. The aggression of the fluid on the seal material can take place via two mechanisms.

In the case of moisture expansion, individual molecules of the medium can accumulate between the polymer chains. Chemically cross-linked materials (rubber) are more prone to moisture expansion than physical cross-linked materials (PU). Up to a certain level of moisture expansion this process is reversible, as the connection points do not dissolve and the molecular properties are retained. Moisture expansion of materials in a fluid is dependent on the polarities of the two components. Moisture expansion is thereby greater for equal than for unequal polarity. PU, for example, is a polar material. It is thus more resistant than non-polar components of the medium (hydrocarbons, mineral oils), but more prone to polar components (solvents).

As well as the swelling effect, it can cause chemical degradation of the polymer chains. This leads to a loss of mechanical characteristics. A typical case of this is hydrolytic attack on polyester-polyurethane, during which water molecules diffuse in the material and cause degradation of polymer building blocks. As Seal Maker's PU materials are based on polyether, these are hydrolytically stable.

The interactions between seals and fluids are increased by high temperatures, high concentrations and extreme pH levels. The speed of chemical degradation reactions is increased. This considerably reduces the service life of the seals. It is possible to simulate this material behavior in the laboratory and estimate the effects based on changes in mass and volume. In individual cases it is also sensible to conduct further mechanical tests (hardness, tensile strength, elongation at break).

As well as the effects of the medium on the seal material, the reverse case must also be taken into account. In the case of special applications (e.g. in the foodstuffs and pharmaceuticals industries) no substances may be transferred from the seal to the medium. The suitability for such special applications can be determined by choosing suitable raw materials and conducting corresponding migration tests. To this end, Seal Maker offers suitable materials, which are FDA-compliant and manufactured according to the relevant EU directives.

If you have any further questions about the right choice of seal material, our application engineers will be happy to assist you » a.haspel@seal-maker.com

## Keep on top of the game!



Keep on top of the game! 2012



Keep on top of the game! 2012



Keep on top of the game! 2012

## 2012年的座右铭

勇气、投入和恰到好处的技艺，这些都是把竞技者推向巅峰的因素。奥林匹克精神是值得敬仰的。但如果仅仅追求参与资格，那还远远不够。Seal Maker不止仅仅要参加，我们还要遥遥领先冲刺在前方，那个空气稀薄，竞争激烈和能感觉到胜利气息的地方。总之，Seal Maker要名列前茅。

力量、活力和绩效不仅是体育健儿的特性，用它们来描述我们 Seal Maker 的密封件那是恰好不过了。手感结实，但在运动中却难以置信的柔软灵活，需要时，又能瞬间制成。

这就是胜利者！

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## The motto for 2012

Courage, commitment and the right technique. These are the factors that bring athletes top achievements. The Olympic spirit is admirable. But just being there is by no means all there is. Seal Maker does not just want to take part. We want to be right up there, where the air is thin, the competition intense and the scent of victory tangible. In short: Seal Maker's mission statement is to belong amongst the best.

Power, performance and dynamics are characteristics that not only distinguish top athletes. These also perfectly describe Seal Maker's seals. Tough, unbelievably smooth movement and lightning quick when it comes down to it.

These are the features of a champion!

## Order now!

The new poster series is available with immediate effect.  
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» marketing@seal-maker.com



## 2011/2012年 Seal Maker巡展 从拉斯韦加斯经莫斯科到上海

同样今年，我们为您再次出席了全球最具影响力的动力博览会。现场我们向无数名参展观众推出我们的机床系统，并提供所有关于密封技术的咨询。由于我们的参展深受广大客户和合作伙伴的欢迎，因此我们将在明年继续世界各地巡展。

具体展览日期将在下期的《密封工艺》里另行通知。在此，我们诚挚期待能在2012年我们的展位上再次问候您。



## Seal Maker on Tour 2011/2012 From Las Vegas via Moscow to Shanghai

This year too, we were at the world's most important trade fairs for you again. We presented our machine systems and were available to talk to the numerous visitors about any questions and requests regarding all aspects of seal technology in person. Because of how well our participation at trade fairs was received by clients and partners we will, of course, be all over the world again next year.

We will provide details of upcoming trade fairs dates in the next edition of SEALS Technology. We are already looking forward to welcoming you at one of our trade fairs stands in 2012.



## 火!

无论是作为一名密封专家还是消防员，我们 Seal Maker 的员工同样都会全身投入。这一点在年度的消防演习中，就屡次被证实了。我们的消防导师 Erwin Gütl 和安全管理员 Martin Knopf 已经灵活掌控了各种状况下的应对措施。还有我们的女士们也非常勇敢，用手提灭火器扑灭了每处火种。

## Fire!

Whether as seal experts or firemen - Seal Maker employees always give their all on the day. They were once again able to prove this during the annual fire drill. Head of Fire Prevention Erwin Gütl and Safety Representative Martin Knopf had every situation under control. The women also showed themselves to be very brave. They put out every fire with hand-held fire extinguishers.