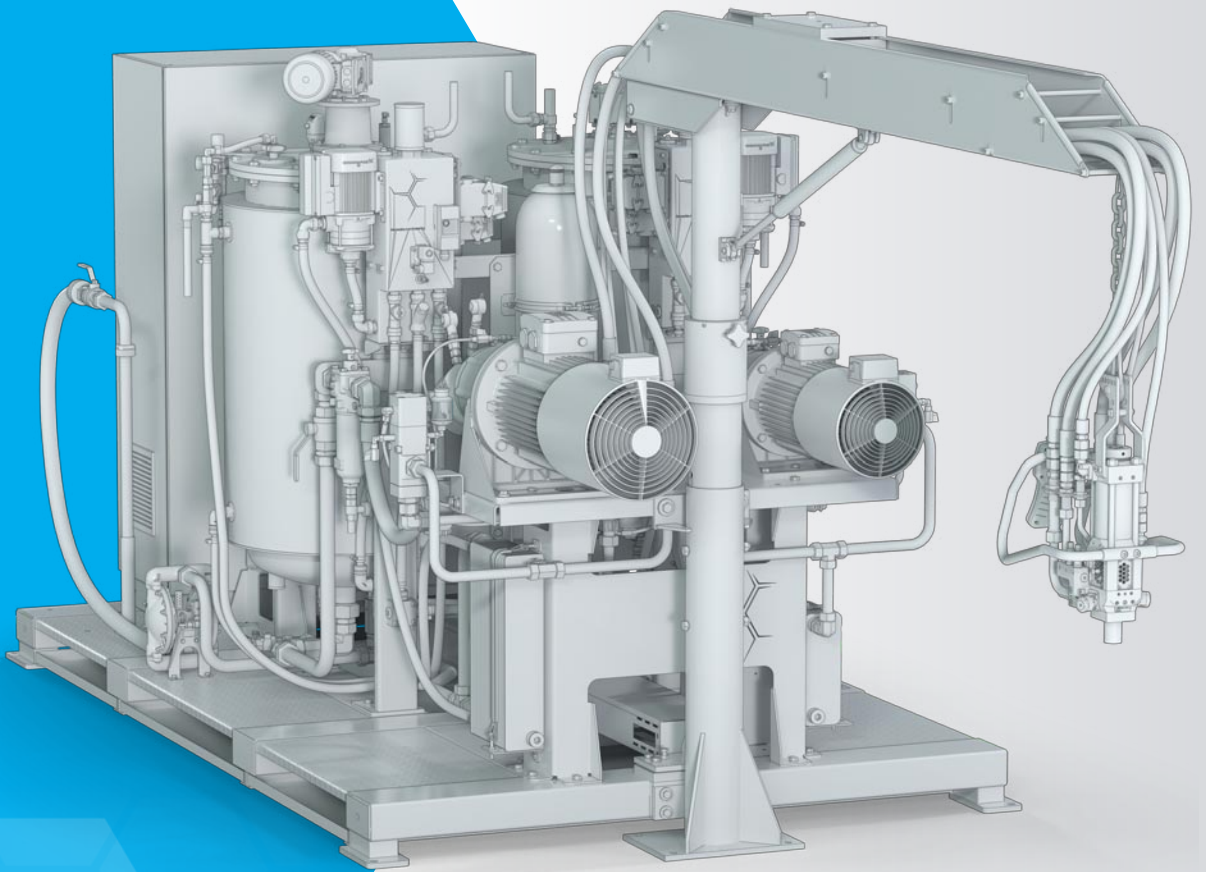


HIGHLINE MK2 ^{NEXT GEN} METERING MACHINE



» The next generation of high-pressure metering machines for diverse areas of application in both manual and automated production

» 下一代高压发泡机，适用于手动和自动化生产的不同领域

THE COST-EFFICIENT ALL-ROUNDER FOR A BROAD RANGE OF APPLICATIONS AND NUMEROUS RAW MATERIAL SYSTEMS

The new, multi-functional model generation in the HIGHLINE series, the HIGHLINE MK2, offers users distinct advantages and sustainable innovation for the long term. The cost-efficient all-rounder in Hennecke's 'NEXT-GEN' lineup makes no compromise on mixing quality, resource efficiency, or digitalization, offering the highest standards in all its decisive elements. The HIGHLINE MK2 provides a seamless transition to a high-performance metering machine, and can be used for processing virtually all raw material systems. The compact machine can be adapted to a variety of applications thanks to a wide range of standard options. World-leading mixhead technology, digitalization, and connectivity to the Internet of Things (IoT) via an advanced control platform offer the user significant benefits in terms of energy and resource efficiency, predictive maintenance, and production monitoring. Welcome to the new, uncompromising, multi-talented machine in Hennecke's high-pressure class - making a noticeable difference every day.

高性价比的多面手，适用于广泛的应用和丰富的原材料系统

亨内基系列中的新一代多功能机型HIGHLINE MK2，为用户提供了独特的优势和长期的可持续创新。作为亨内基的“NEXT-GEN”系列中，具有成本效益的多面手，提供了高标准的混合质量、资源效率和数字化应用，处处体现着高标准。HIGHLINE MK2是向高性能发泡机的无缝过渡，可用于处理几乎所有原材料系统。得益于广泛的标准设备选配项，即使机型紧凑，该发泡机仍可以适应各种应用环境。领先的混合头技术、数字化以及通过先进的控制平台连接到物联网（IoT）的连通性，在能源和资源效率、预测性维护和生产监控方面为用户提供了显著的益处。欢迎使用质量有保证的亨内基高压系列新型多功能机器，为您每日的生产带来新的改变。

ONE-FRAME DESIGN:

optimum access to all the machine's component parts

一体式设计：
方便维护机器的所有零部件

TOTAL OUTPUT

总输出

18 - 2,800 cm³/s

MACHINE FOOTPRINT

机器占地面积

7.2 m²

3800 mm x 1900 mm

8.7 m²

4150 mm x 2100 mm

DAY TANKS

工作料罐

60, 250, 500 l

CONNECTED LOAD

装机功率

20 - 65 kw

MACHINE VERSIONS

机器版本

1:1

55/55

155/155

320/320

770/770

1400/1400

2:1

320/155

770/320

1400/770

AVAILABLE MIXHEADS

可用混合头

MT-A

MT-A 8-2

MT-A 12-2

MT-A 18-2

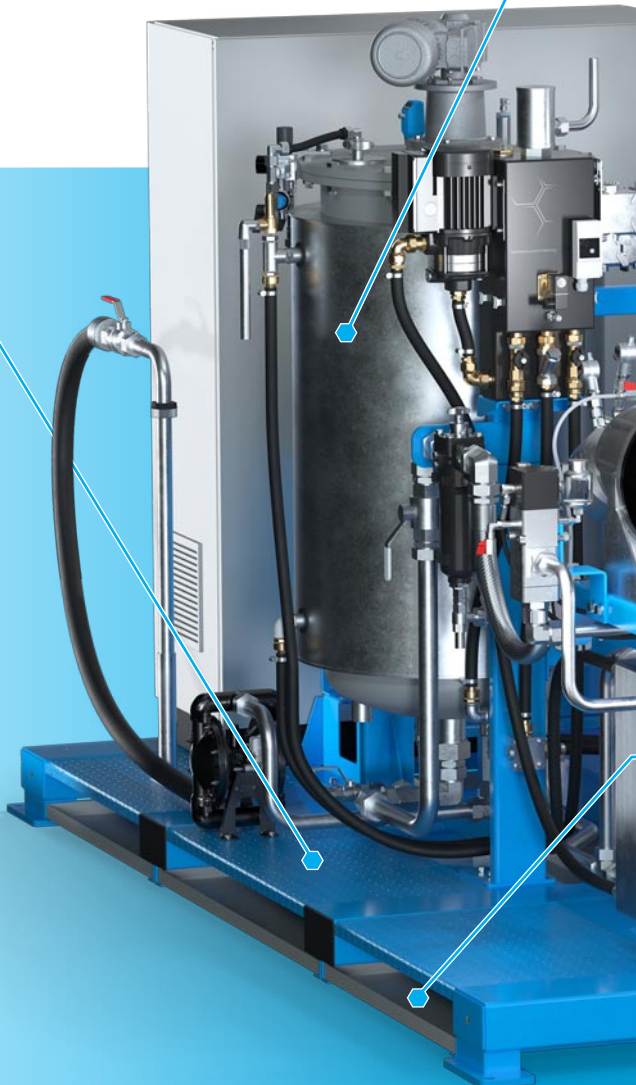
MT-A 22-2

MT-A 26-2

MXL

MXL 14-2

MXL 25-2



FEATURES

PLENTY OF SCOPE FOR YOUR IDEAS:

250 liter day tanks with liquid temperature control, refilling control system, and stirrer, conforming to international pressure equipment directives

满足客户需求：
250升的工作料罐，配有液体温度控制、补料控制系统和搅拌机，符合国际压力设备指令

HIGH-PERFORMANCE, HIGH-DEFINITION 12" HMI:

with a brand-new, intuitive visualization system and IoT functionality

“高性能、高清晰度”的
12英寸HMI：
具有全新、直观的可视化
系统和物联网功能



APPLICATION RANGE*

应用范围*

Flexible and rigid foam
软泡和硬泡

Compact systems
紧凑型系统

Integral and filling foams
自结皮和填充泡沫

Energy-absorbing foams
吸能泡沫

Pentane or HFO-blown rigid foams
戊烷或HFO发泡的硬泡

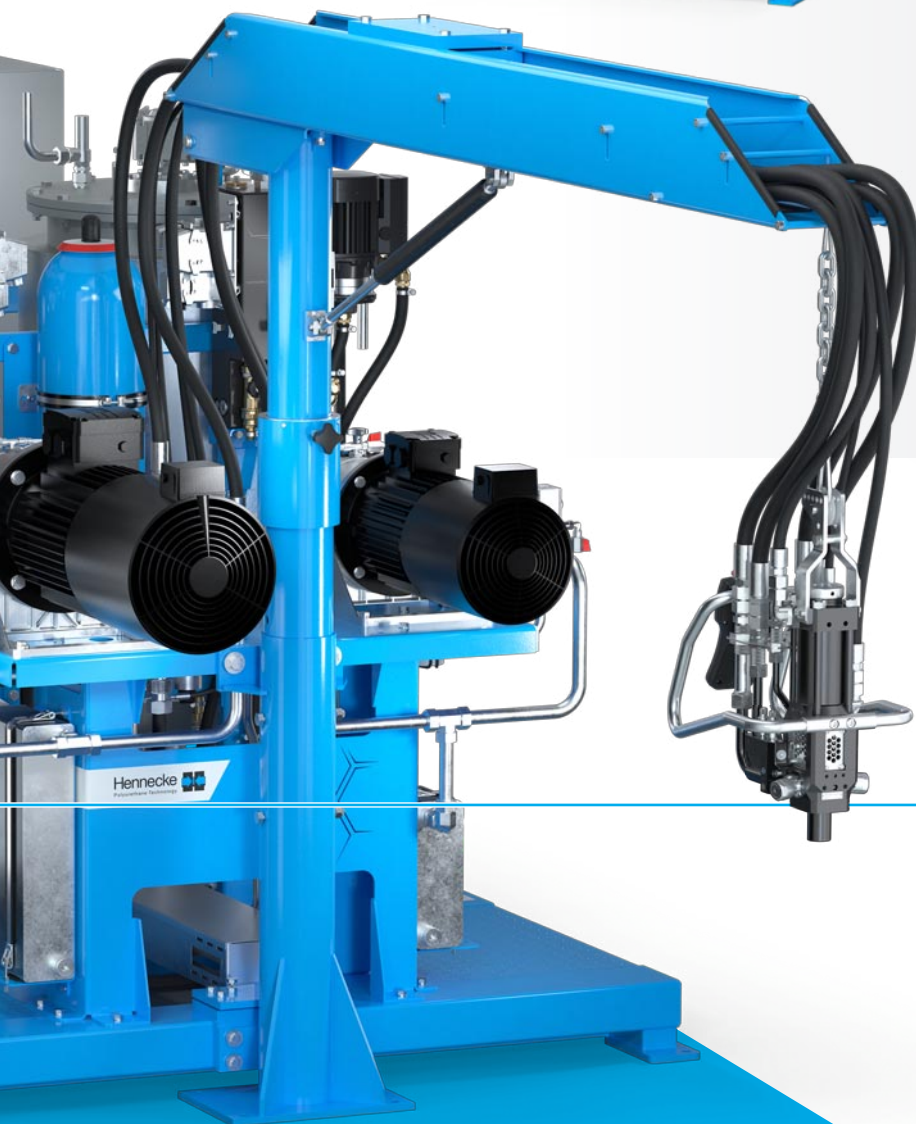
* Commercially available PUR raw material systems (non-abrasive, non-corrosive).

商用聚氨酯原材料系统
(无磨蚀性、无腐蚀性)

PLUG AND PLAY THOUGHT THROUGH:

integrated forklift slots and attachment points for cranes

即插即用：
集成叉车槽和起重机吊点



MIXHEAD PORTFOLIO

混合头产品组合

THE UNCOMPROMISING REFERENCE FOR PUR PROCESSING: STATE-OF-THE-ART HENNECKE MIXHEADS

The HIGHLINE MK2 capitalizes on the mixheads from the top MT-A series, available in five sizes, and suitable for open shot as well as docked processing. Further optimized materials and surface coatings make the MT-A impressive, and provide for high durability, even under difficult production conditions and when using demanding chemical systems. Smart sensors are a further optional feature for process monitoring. Additional user benefits include an ergonomic operating panel, an integrated connection plate and much simpler cleaning and lubrication. For special rigid foam applications, the user can also rely on the air-cleaned MXL mixhead series.

In combination with the FIXJET and FLEXJET SL series from the latest Hennecke injector generation, the HIGHLINE MK2 mixhead portfolio outperforms in fulfilling all the requirements of modern polyurethane systems in terms of metering accuracy, mixing quality and service life of the components. And regardless of the mixhead type: the HIGHLINE MK2 features an enhanced hose line system that allows full flexibility for positioning the mixhead, for example when using an optional, standard boom.

聚氨酯加工的坚定参考：先进的亨内基混合头

HIGHLINE MK2使用顶级MT-A系列的混合头，有五种尺寸可供选择，适用于开模和闭模浇注。进一步优化材料和表面涂层后的MT-A混合头表现更加出色，具有高耐久性，即使在困难的生产条件下和使用要求苛刻的化学系统时也能保持优秀性能。过程监控可选智能传感器。该机器的其他用户优势包括符合人体工程学的操作面板、集成连接板，以及更易清洁和润滑。对于特殊的硬泡应用，用户也可以使用空气清洁的MXL混合头系列。结合新一代亨内基喷嘴FIXJET和FLEXJETSL系列，HIGHLINE MK2混合头产品组合充分满足现代聚氨酯系统在发泡精度、混合质量和部件使用寿命方面的各项要求。无论选择怎样的混合头，HIGHLINE MK2的改善软管管路系统都可以灵活地定位混合头，例如使用可选的标准悬臂吊杆。



MT-A MIXHEADS:
smart, high-pressure
deflection mixheads with
state-of-the-art features

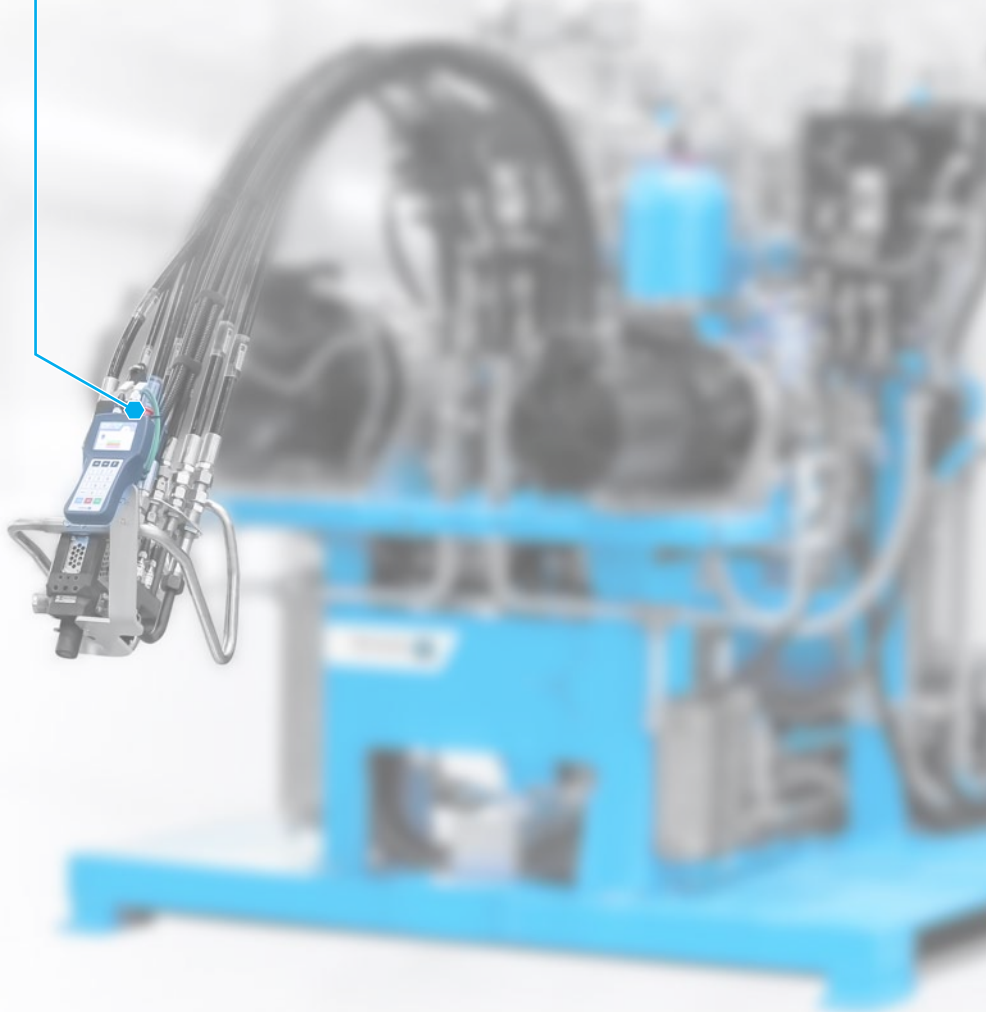
MT-A混合头：
具有先进功能的智能高压偏转混合头



TRACKING PROCESS DATA AND METERING OPERATIONS:

new, ergonomic operating panel with optional fully graphic display

工艺数据和发泡操作可回溯：
符合人体工程学且具有可选全图形显示功能的新型操作面板



LATEST INJECTOR GENERATION INCLUDED:

first-class metering accuracy, mixing quality and efficiency

新一代喷嘴：
一流的发泡精度、混合质量和效率

MACHINE CONTROL SYSTEM

机器控制系统

INTELLIGENT PRODUCTION MONITORING:

remote HMI functionality for connecting up to three network-compatible end devices at the same time

智能生产监控：

远程HMI功能，可同时连接多达三个网络兼容的终端设备

FOAMATIC: COMPLETELY NEW, INTUITIVE VISUALIZATION SYSTEM

The HIGHLINE MK2 is controlled using the latest SIMATIC platform components. The high-resolution, 12-inch premium HMI with powerful CPU is home to a completely new and intuitive visualization system: the FOAMATIC. The operator can be sure of maximum performance and control, along with fast access for the widest range of applications in many common languages. Remote HMI allows the FOAMATIC to mirror the user interface on almost any network-compatible device with a display. This includes smartphones and tablets, as well as large monitors for overseeing production. This not only makes control more convenient, but – depending on the production scenario – also more efficient and safe. As standard, the HIGHLINE MK2's advanced control system already contains all the hardware features for enabling integrated IoT functionalities.

FOAMATIC: 全新直观的可视化系统

HIGHLINE MK2采用新型SIMATIC平台部件作为控制件。FOAMATIC成为直观的可视化系统，主要得益于具有强大CPU的高分辨率12英寸高级HMI。操作员可以在确保性能和控制的同时，可以快速访问包含多种通用语言的广泛应用程序。远程HMI使FOAMATIC可以在各种具有显示器的网络兼容设备上显示用户界面，包括智能手机和平板电脑以及用于监督生产的大型显示器。这不仅使控制更加方便，而且根据生产场景的不同，也更加高效和安全。HIGHLINE MK2的高级控制系统作为标准配置，已经包含了实现集成物联网功能的所有硬件功能。



FOAMATIC IoT



FOAMATIC IoT

Welcome to PUR processing of the future: on request, the HIGHLINE MK2 provides access to extensive machine data and analysis tools. The intuitive, browser-based web application can be used any time, any place, and on all common operating systems. For instance, you can analyze your machine data and production parameters over longer periods of time to sustainably increase production efficiency and allow for predictive maintenance scenarios. Or simply receive push notifications on your smartphone, for example to find out when the tank needs refilling.

FOAMATIC IOT

欢迎来到未来的聚氨酯加工：根据要求，HIGHLINE MK2提供广泛的机器数据和分析工具。这个直观的、基于浏览器的web应用程序可以随时随地在各种常见的操作系统上使用。例如，您可以以更久的时间范围分析机器数据和生产参数，从而可以可持续地提高生产效率，并且可以使用预测性维护方案。或者只是在智能手机上接收推送通知，例如了解料罐何时需要补料。

METERING LINE

发泡线

CUTTING-EDGE PUMP TECHNOLOGY AND INNOVATIVE COMPONENTS

The HIGHLINE MK2 combines new, innovative machine components with well-known, tried-and-tested modules. This brings a host of user benefits. The HX metering pumps used with the HIGHLINE MK2 are a prime example of how Hennecke has drawn on its longstanding experience in polyurethane processing to develop a specialized pump series, the first in the industry to be designed exclusively for polyurethane applications. The groundbreaking HX is significantly more pressure-resistant, quieter, and more energy-efficient than other common pump models. In addition, integrated sensor technology gives the user extensive information when required, and supports improved machine availability through predictive maintenance. The robust and reliable HP pump series can be used for both tiny and large outputs. The HIGHLINE MK2 makes use of fully digital frequency control, regardless of the selected pump.

领先的泵技术和创新部件

HIGHLINE MK2将新型创新机器部件与知名的、久经考验的模块相结合，为用户带来了诸多益处。亨内基利用其在聚氨酯加工方面的长期经验开发系列专业泵，其中一个典型例子就是HIGHLINE MK2使用的HX计量泵，这是行业中首个专门为聚氨酯应用设计的泵。突破性的HX泵明显比其他型号和普通泵更耐压、更安静、更节能。此外，集成传感器技术可根据用户需要提供广泛的信息，并通过预测性维护提高机器可用性。强大可靠的HP泵系列可用于小型和大型输出。无论选择什么泵，HIGHLINE MK2均采用全数字变频控制。

THE NEW HX PUMP GENERATION:

precise, highly efficient, and fit for the future thanks to its built-in sensor technology

新一代HX泵：
内置传感器技术使其精确、高效，
适应未来

COMES AS STANDARD:

metering-line with frequency-controlled output and edge filter for low maintenance operation

标准配置：
具有流量变频控制和刃式过滤器的发泡单元，实现
低维护操作

TANKS & TEMPERATURE CONTROL

料罐和温度控制

KEY FACTOR IN ENSURING CONSTANT RAW MATERIAL TEMPERATURES

In its standard configuration, the HIGHLINE MK2 comes with high-quality, double-walled day tanks, available in 60, 250 or 500 liter sizes. The component return line contains generously sized, stainless steel heat exchangers. Sensors monitor the component temperature and transfer the information to the plant's control system. The newly developed TS5evo temperature control unit (optional) and specially adapted control software play a key role in ensuring a constant raw material temperature, even with the most adverse production conditions. The desired raw material temperature is easy to set on the HMI, whilst the plant's control system works autonomously on everything else. The component tanks comply with the European Pressure Equipment Directive (PED) as standard, and are also available in versions for other pressure directives. A reliable stirrer with an optional magnetic coupling ensures a homogenous temperature distribution inside the tank even without running the metering pumps. In addition, the isocyanate tank can also be equipped with an equivalent stirrer.

确保原材料温度恒定的关键因素

在HIGHLINE MK2的标准配置中，配备了高质量的双壁工作料罐，有60升、250升或500升的尺寸可供选择。原料回流管路包含尺寸较大的不锈钢热交换器。传感器用于监测原料温度，并将信息传输到设备的控制系统。新开发的TS5evo温度控制单元（可选）和专门适配的控制软件在确保原材料温度恒定方面发挥着关键作用，即使在非常恶劣的生产条件下也可确保原材料温度恒定。可以轻松在HMI上设置所需的原材料温度，而设备的控制系统能自主工作。料罐符合欧洲压力设备指令（PED）的标准，也适用于其他版本压力指令。搅拌器可靠，配有可选磁性联轴器，可确保即使计量泵不运行，罐内的温度也分布均匀。此外，异氰酸酯料罐也可以配备同型号的搅拌器。



TS5EVO TEMPERATURE CONTROL UNIT:
ensuring a constant raw material temperature,
even with the most adverse production conditions

TS5EVO温度控制单元：
即使在非常恶劣的生产条件下，也能确保原料
温度恒定

RESOURCE EFFICIENCY

资源效率



A WEALTH OF MEASURES WITH ONE AIM: RESOURCE EFFICIENCY IS PART OF HENNECKE'S DNA

As a pioneer of high-pressure technology, Hennecke's machines are even more resource-efficient than ever and also enjoy a long service life. All NEXT-GEN metering machines are fitted with Hennecke's Blue Intelligence technology as standard, which means they save considerably more energy. For the HIGHLINE MK2, this has an affect for example on energy consumption when no shot is called. Optimized components in low-pressure circulation can result in an up to 80 percent reduction in pressure losses. The automatically determined pump lead time, an intelligent stand-by timer, and the highly efficient pumps - thanks to frequency control and improved temperature management - all make a noticeable difference to the energy footprint. The hydraulic unit runs entirely with high-efficiency gear pumps. This extreme level of efficiency is achieved through the use of high-grade materials, tight clearance fits, and the special dimensions of the gear wheel, all helping to reduce the noise level by up to 15dB (A). The optional add-on equipment also focuses heavily on efficiency: for example, composite magnetic couplings effectively eliminate losses during torque transfer. Based on the individual production scenario, savings of up to 50 percent can be made with the HIGHLINE MK2, even in its standard configuration.

PEAK EFFICIENCY WITH QUIET OPERATION:

redeveloped hydraulics with premium components

优秀效率、安静运行：
重新开发的配备优质部件的液压系统



竭尽全力，只为一个目的：将资源效率纳入亨内基基因

作为高压技术的先驱，亨内基的机器比以往任何时候都更节省资源，而且使用寿命更长。所有NEXT-GEN发泡机都标配了亨内基的蓝色智能"Blue-Intelligence"技术，这意味着它们可以节省更多的能源。例如HIGHLINE MK2，可降低设备在不浇注时的能耗。低压循环中的优化部件亦可使压力损失减少80%。由于频率控制和温度管理改善，自动确定的泵提前时间、智能待机计时器和高效泵都对能源效率产生了显著的影响。液压装置完全采用高效齿轮泵，通过使用高级材料、紧密的间隙配合和特殊尺寸来实现优秀的效率水平，还有助于将噪音水平最多降低15dB (A)。可选的附加设备也非常注重效率：例如，复合材料磁性联轴器可有效消除扭矩传递过程中的损耗。根据具体的生产场景，即使在标准配置条件下，HIGHLINE MK2也可以节省高达50%的能耗。

TECHNICAL INSULATION APPLICATIONS

保温隔热应用

THE PERFECT PARTNER FOR ENERGY EFFICIENCY ON A CONTINUOUS CONVEYOR

The multi-functional basis of the new HIGHLINE MK2 also shows its modularity, which comes to the fore in the automated production of extremely energy-efficient insulation with PUR rigid foam, used for example in all types of refrigerated appliances. Blowing agents such as pentane, or modern flammable and non-flammable HFO formulations can be safely and reliably processed for different specifications. To integrate the HIGHLINE MK2 into higher-level production systems, Hennecke now provides the option of operating two mixheads at once - a novelty for this machine class. Topped off with optional 500 liter day tanks and the corresponding automatic interfaces in the machine control system, the HIGHLINE MK2 can satisfy even the toughest production requirements. In addition to the usual broad range of PUR rigid foam applications, the special edition HIGHLINE MK2 provides the perfect solution for insulation applications in large-scale production.

连续输送系统的节能好搭档

新型HIGHLINE MK2的多功能基础还显示了其模块化功能，在使用聚氨酯硬泡的高效节能隔热材料的自动化生产中脱颖而出，例如用于各类冷藏家电产品。发泡剂如戊烷，或新型的易燃和不易燃的HFO组合，可以安全可靠地加工不同规格的产品。为了将HIGHLINE MK2集成到更高级别的生产系统中，亨内基现在提供了可同时操作两个混合头的选项，属于同类机器的创新。HIGHLINE MK2配备了可选的500升工作料罐和机器控制系统对应的自动接口，可以满足苛刻的生产要求。除了常见的广泛聚氨酯硬泡应用外，HIGHLINE MK2特别版还为大规模生产中的保温隔热应用提供了绝佳的解决方案。





Further information and expert contact.
更多信息和专家联系方式。

880.DIV.032A/REPLC