



Product Guide

Hot runner systems and hot runner controllers



Hot runner innovations – tailored to your application

In the world of plastic processing EWIKON is a synonym for innovative, reliable and practical hot runner solutions. With a full range of products on the highest technical level and a worldwide sales and service network EWIKON is one of the global leading suppliers of hot runner technology. Our system solutions are designed to perfectly meet the demands of our customers. They offer various options to improve the injection moulding process, the quality of the manufactured parts and reduce costs at the same time. This has resulted in thousands of successfully realised applications for all sectors of the injection moulding industry.


Hot Runner Technology
Made In Germany





We offer ***MORE***



MORE performance

As a global leader in innovation and technology EWIKON offers maximum performance in all aspects. With application-oriented product design, automated precision manufacturing and final assembly carried out by highly qualified professionals we ensure that our products set the benchmark in terms of manufacturing quality, reliability, durability and precision. All our systems are solely developed and manufactured at our headquarters in Germany. No matter if your application requires a single component or a ready-to-install complete system solution – each EWIKON product has been designed and built to deliver maximum performance.

MORE partnership

We are convinced that honesty and mutual trust are the basic principles for establishing a constructive cooperation. Customer satisfaction is our top priority. EWIKON is a reliable partner for both global players in the plastic processing industry and small and medium-sized companies, offering each customer individual and extensive assistance in every stage of a mould project. This includes pre-production tests in our modern technical centre, support from mould design to system start-up as well as a quick and worldwide on-site service in case of maintenance.

MORE know how

Our core competence is the development of individual customer-specific hot runner solutions. Each customer benefits from our vast experience from thousands of successfully realised applications, from the high innovative capacity and technical competence of our internal research and development department as well as from our broad range of products. All these factors result in customised hot runner systems which can be perfectly adapted even to the most complex application requirements. For our customers this means more freedom in mould design. Therefore, decisive competitive advantages by successful implementation of trendsetting technologies or new approaches to optimisation of present concepts become possible in many cases.

Powerful and variable – Our hot runner nozzle range

EWIKON hot runner nozzles come with a multitude of available flow channel diameters, nozzle lengths and gating options offering utmost flexibility for mould designers. No matter how complex the requirements regarding gate position, gating point quality, shot weight or cavity distance are – our nozzle range offers flexible solutions for every application. The powerful direct heating for all nozzle sizes guarantees a reliable processing of all thermoplastics including reinforced resins.



EWIKON nozzle technology – Temperature-stable, robust and easy to maintain

1 Process-reliable through direct heating
Coil heaters and thermocouples directly integrated into precision-machined cutouts in the melt bearing pressure tube. Very stable heating with minimised loss resulting in an even temperature profile along the whole length of the nozzle. The even heating of all nozzles guarantees a high process reliability and an excellent system balance.

2 Hardened pressure tubes
For melt pressures up to 2000 bar.
Wear-resistant threads for problem-free repeated disassembly of tip insert.

3 Easy maintenance and replacement
Front installation for easy access and replacement of nozzle after dismantling of cavity plate.
Exchangeable tip inserts, heaters and thermocouples.

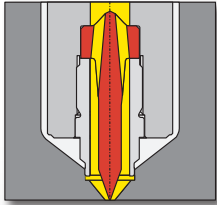
4 Stainless steel protective tube
Prevents damage to the heater.

5 Quick colour changes
Melt seal directly at the gate. Only a minimum melt volume needs to be exchanged.

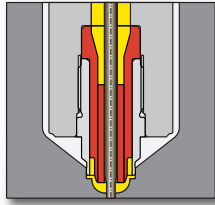


Gating options

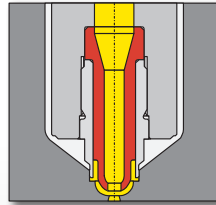
Various gating options allow utmost flexibility in gating point position and design.



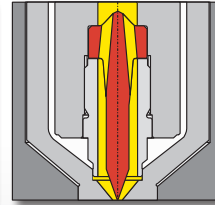
Gating with heat
conductive tip



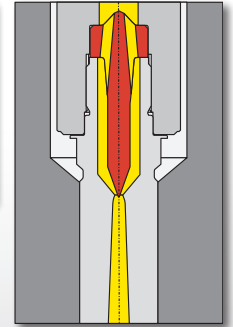
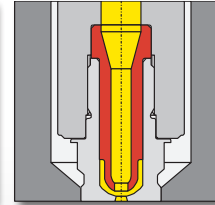
Valve gating



Gating with open
flow channel



Various versions of gate bushes and
screw-on gate bushes including
overdimensioned versions to adapt
to free form contours



HPS III-S nozzle

The EWIKON standard nozzle for all materials and shot weights. Available with flow channel diameters from 3 mm to 18 mm. Even the most compact version with 3 mm flow channel diameter features a powerful direct heating and allows distances between cavities as small as 12 mm.



HPS III-SXE single nozzle

The single nozzle solution for reliable processing of all materials including high-temperature thermoplastics. Two separate heaters guarantee a most homogeneous temperature profile.



HPS III-MV multi-tip nozzle

For vertical multi-gating of parts. Small parts can be gated simultaneously with close distances between cavities. Multi-point gating of single parts is possible as well.

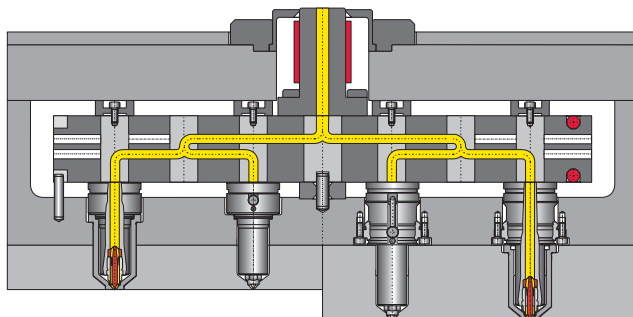
Superior manifold technology – the heart of your EWIKON system

The EWIKON element technology allows the easy realization of most complex manifold layouts on several levels. Streamlined flow channels without sharp corners and dead spots guarantee a smooth melt flow even for sensitive materials.



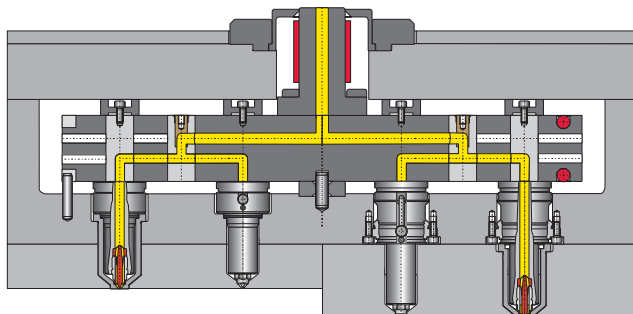
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Manifold versions



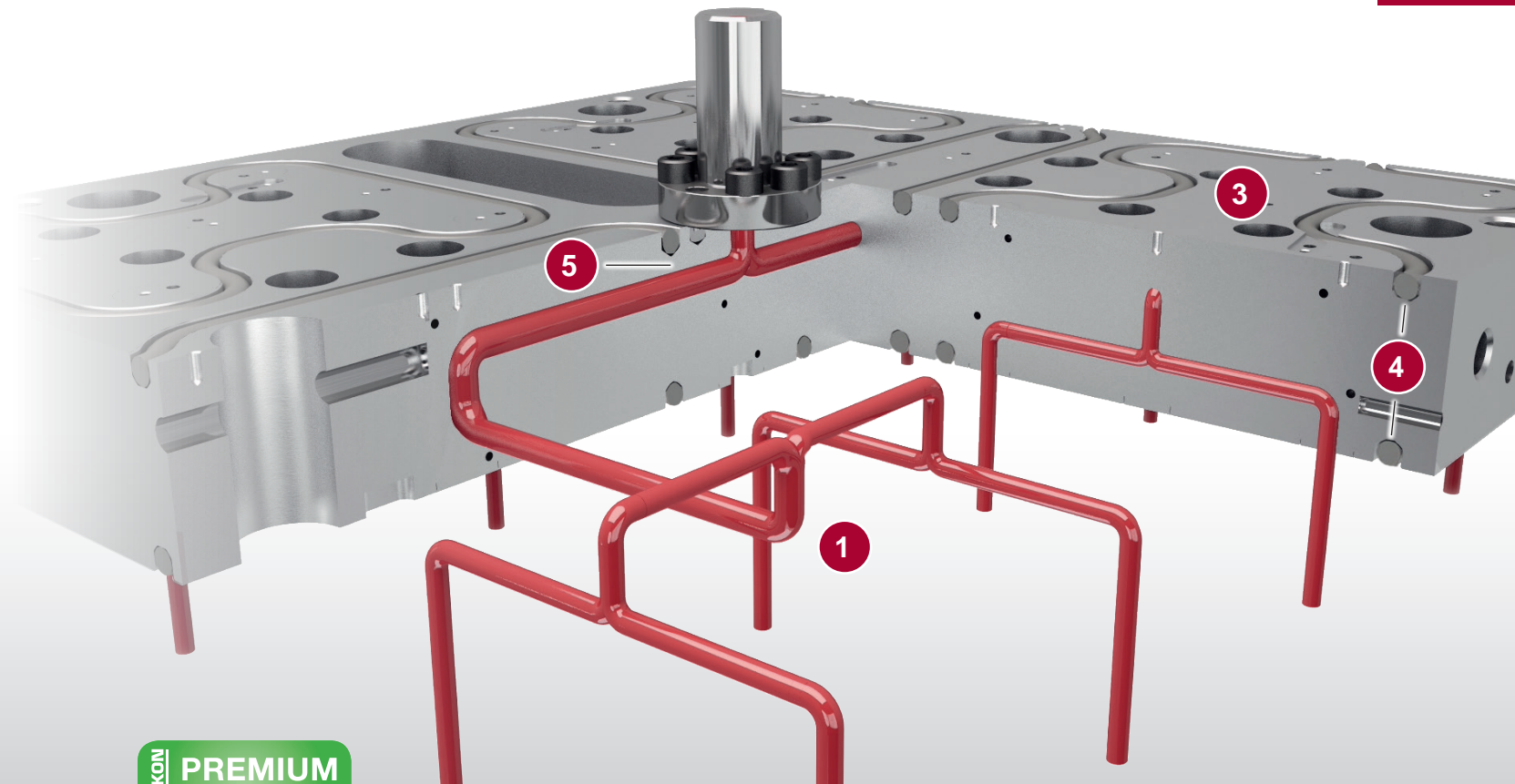
HPS III-T

Full element technology for demanding applications and maximum protection of the melt.



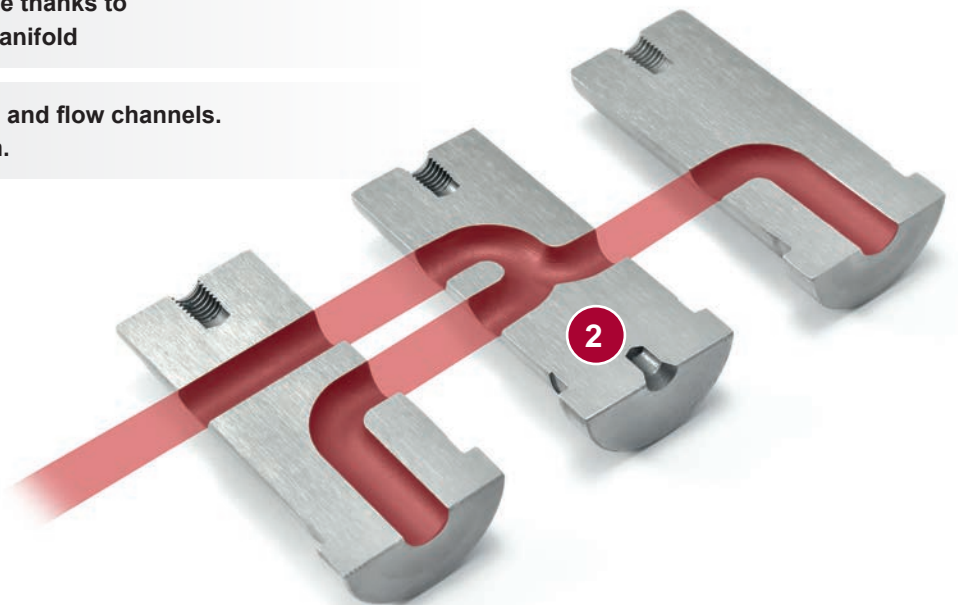
HPS III-TE

Economic standard solution with a cost-saving combination of element and drilling technology.



Optimum system balance and temperature control

- 1 Element technology for full natural system balance on several levels
- 2 Flow channel layout without sharp corners or dead spots with streamlined direction elements
Smooth melt flow for sensitive materials and particularly quick colour changes.
- 3 Precise temperature control by several heating zones adjusted to the manifold size
- 4 Particularly even temperature profile thanks to heaters on top and bottom of the manifold
- 5 Optimum distance between heaters and flow channels. No hotspots in the manifold system.



Valve gate technology – perfect gating points and highest process reliability

By using EWIKON valve gate systems an excellent surface quality of parts with barely visible gating points as well as a considerably increased process reliability is achieved. Various designs, tip insert versions and drive options are available. Thus, it is possible to perfectly adapt the valve gate system to your specific application requirements and mould layout.



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Your advantages when using EWIKON valve gate technology



Highest efficiency and process reliability

Proper sealing of the gate after injection guarantees highest optical part quality. No stringing. Reduced shear rates and orientations in the part due to larger possible gate diameters. In many cases considerably reduced cycle times.



Precise valve pin guiding and sealing technology for reduced amount of maintenance

Cylindrical valve pin with various tip insert versions: Precise positioning of valve pin in the gate and minimum gate wear. Special valve pin sealing elements in the manifold. Gapless sealing at the flow channel.



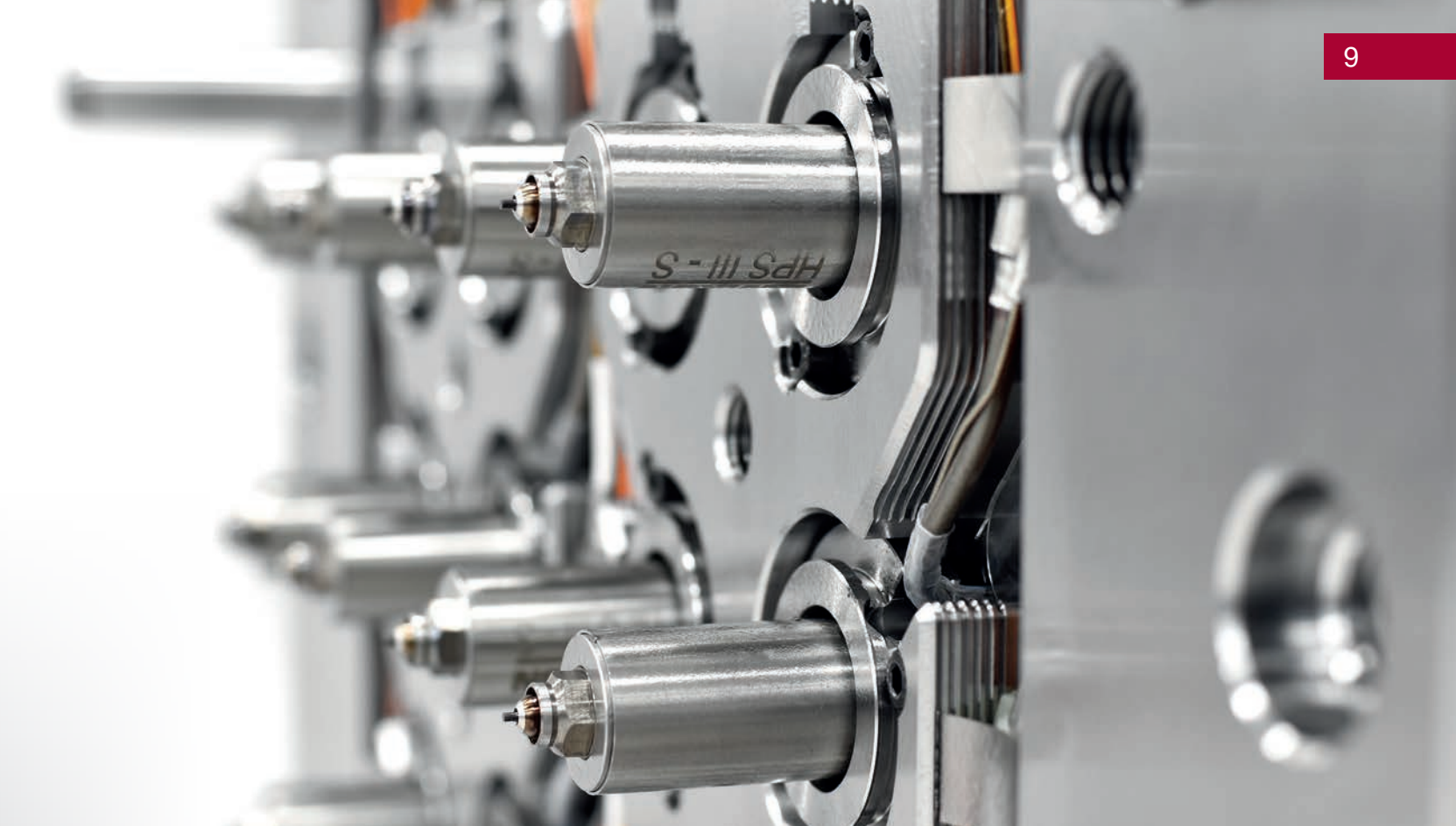
Constantly high gating point quality

High-precision manufacturing for valve pin guides and valve pins allows accurate centering of the valve pin in the gate.

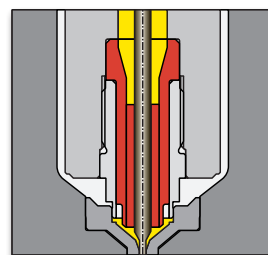
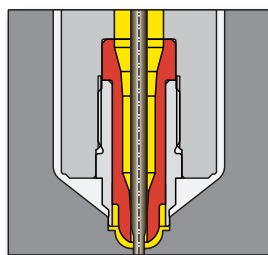
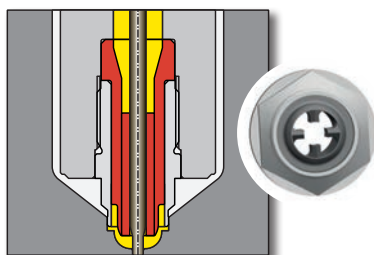


Leading in drive technology

Broad range of drive unit options including several versions of synchronous plate systems for small distances between cavities as well as electric drive units with high-precision step motor technology.



**Tip insert versions –
Options for all applications and materials**



**Permanent
valve pin guide**

Valve pin guide in the front area of the nozzle for maximum operational safety and minimum gate wear. The valve pin remains guided during the whole cycle.

Ideally suitable for high-volume production moulds in the packaging and medical industry.

**Valve pin guide
with pre-centering**

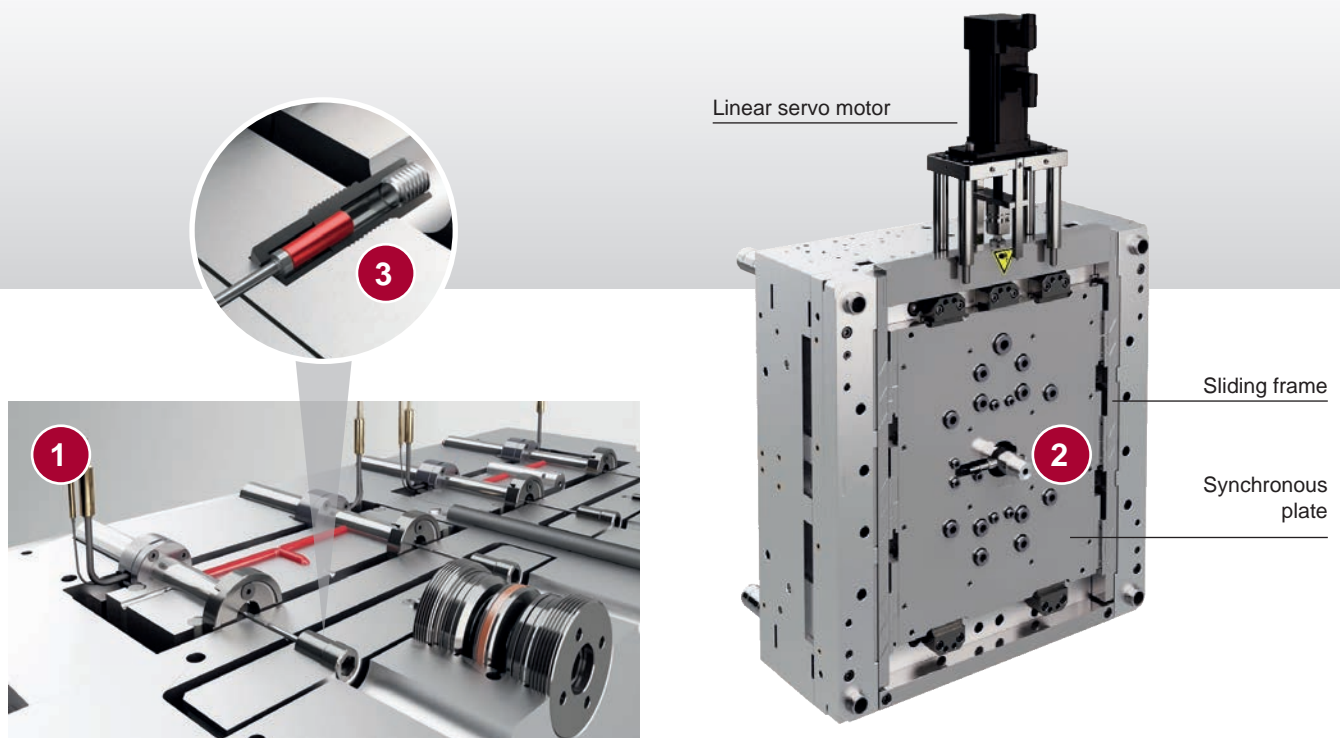
Pre-centering of valve pin for precise immersion into the gate. For technical resins and optical parts.

**Particularly easy to maintain –
gate exchange insert**

Gate exchange inserts facilitate the maintenance of the gate area which is particularly liable to wear. The inserts are made of wear-resistant material. They contain the already machined inner gate contour and are installed directly in the cavity insert. In case of gate wear the gate exchange insert can be replaced easily and there is no need to machine a new cavity insert.

Drive versions

The broad range of available drive versions contains standard single drive units in the clamping plate, synchronous plate solutions as well as electric high-precision systems and allows the easy selection of a tailored solution for every mould design.



Joint valve pin actuation with synchronous plate systems

All valve pins are fixed in a synchronous plate and thus open and close simultaneously. This guarantees an even cavity filling with high repeatable accuracy. This drive version is ideally suitable for multi-cavity moulds with close cavity spacing where the installation space is not sufficient for single drive units or for the gating of parts with small shot weights. Synchronous plate systems are available with two options for actuation.

1 Synchronous plate actuation by pistons in the clamping plate
Hydraulic or pneumatic.

2 Synchronous plate actuation by pull & rail mechanism

An external linear servo motor actuates a sliding frame in a 90° angle to the gating direction. Inclined slide plates are used to change the vertical movement into the horizontal movement of the synchronous plate.

3 Option: Overload safety device

Prevents valve pin damage, e.g. when a single gate is blocked by impurities in the melt.

Controllers for valve gate systems



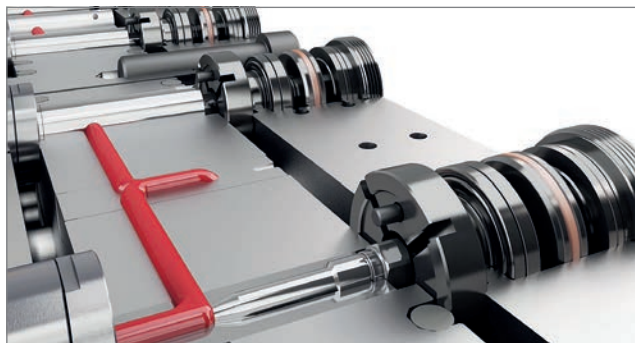
SDC-PRO – touch screen controller for linear servo motor

For synchronous plate systems the **SDC-PRO** (Servo Drive Control) controller is available. It features a permanent monitoring of the valve pin position and can be individually adapted to different applications. The 7" touch screen display allows a comfortable operation. Remote control access by using a tablet PC with VNC viewer is possible as well.



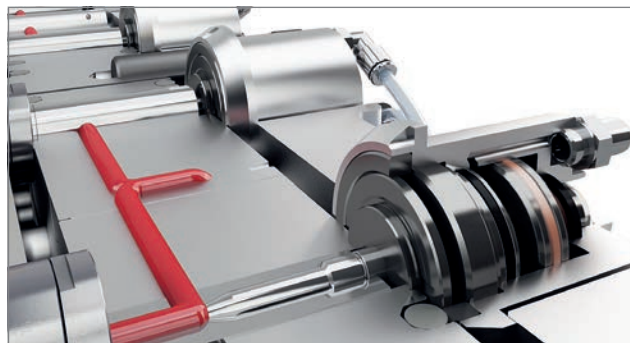
VDC – touch screen controller for sequential gating with hydraulic or pneumatic drive units

When using systems with hydraulic or pneumatic actuation **VDC** (Valve Drive Control) in combination with electromagnetic valves allows the precise control of the valve pin opening when gating parts sequentially. Up to 12 drive units can be operated at the same time, extensions are possible.



Single drive unit with piston in the clamping plate

The compact standard solution. Hydraulic or pneumatic actuation.



Single drive unit placed on the manifold (coupled)

Pneumatic actuation. Simplified mould layout, no supply bores in the clamping plate required.



Single drive unit placed on the manifold (screwed-on)

Hydraulic or pneumatic actuation.



Single nozzle with integrated drive unit

Hydraulic or pneumatic actuation.

Electric valve gate technology – Full process control for precision moulding applications

Precise, process-reliable, emission-free – EWIKON electric valve gate technology is the ideal solution for demanding technical applications or cleanroom applications in the medical industry. All relevant process parameters can be set individually according to the specific application requirements and offer infinite adjustment even during production. Thus, the injection moulder gains full control of the valve pin movements. Additionally, the powerful control technology enables sequential gating as well as several valve pin positions within one moulding cycle.



+ Linear step motor for valve pin positioning with high precision

Valve pin positioning in 0.01 mm steps, individual adjustment for each valve pin.

+ Full cleanroom compatibility

Emission-free drive concept, ideally suitable for medical applications.

+ Full control of the valve pin movement

Individual setting of process parameters such as valve pin stroke, valve pin speed, opening and closing time and closing position (optimisation of gating point quality).

+ Permanent monitoring of valve pin position by encoder

Enhanced process reliability by automatic valve pin position monitoring and readjustment.

+ Easy integration into the mould

Only simple recesses in the clamping plate are required.



Step motor with encoder



EDC-PRO – The leading solution for control of linear step motors

To fully utilise the advantages of electric valve gate technology the capability of the control technology is a decisive factor. The external **EDC-PRO (E Drive Control)** touch screen control unit is the technically leading solution for electric valve gate systems. Up to 32 linear step motors can be operated in automatic mode or manual mode (setup mode). The device allows the individual setting of all relevant process parameters. In demanding applications sequential opening of the valve pins is possible as well as various valve pin positions within one moulding cycle.



Comfortable and clear operation via touch screen display

Comfortable and easy-to-learn operation via 7" touch screen display with high contrast. Clear visualisation of valve pin positions, operating modes and process. Remote control access by using a tablet PC and VNC viewer.



Various functions

Different valve pin operation modes: normal operation (open / close), function for sequential gating (delayed opening), easy realisation of complex movement profiles of the valve pin with function to approach up to 6 valve pin positions within one moulding cycle (e.g. demoulding aid).



Variable triggering of valve pin actuation

Time-dependent or path-dependent actuation via screw position of the injection moulding machine or by other input signals, e.g. cavity pressure measurement. Combination of signal types possible. Connection to injection moulding machine control via digital signals (+24 V DC) or analogue signal (0 - 10 V DC).



The benchmark for direct side gating

Continuous innovation and development make the EWIKON HPS III-MH multi-tip concept the most advanced and easy-to-maintain solution for direct side gating. A variety of nozzle versions, sizes and gating options allows a perfect adaption to different mould layouts and facilitates the design of compact multi-cavity moulds for the medical industry, the packaging industry or for the production of technical parts.



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Your advantages when using EWIKON side gating systems

- + Exceptional gating point quality due to direct gating on part surface**
Demoulding in a 90° angle to the gating direction. Shear action used to achieve a good gating point quality. No cold slug.
- + Very even temperature profile**
Problem-free processing of technical resins and thermally sensitive materials (e.g. POM).
- + Reduced mould costs**
Since only standard mould inserts are required a higher mould stability is achieved and the cooling layout is simplified. The design of multi-cavity moulds is facilitated.
- + Unmatched ease of maintenance, minimised downtimes**
Easy replacement of tip inserts from the parting line. No dismantling of mould required.
- + Broad range of application**
Shot weights up to 40 g.
- + Reduced residence time and pressure loss**
Balanced melt distribution in the nozzle body requires minimum space and reduces the complexity of the main manifold system. Thus, minimised flow path lengths are achieved even for systems with an extremely high number of cavities.



Various versions

The HPS III-MH nozzle comes in two sizes and several versions for linear or radial **1** arrangement of parts. Large immersion depths are realised by using adapter nozzles **2**. Up to 8 parts can be gated simultaneously. The maximum shot weight is 40 g per gate. A special version for the production of medical parts like syringes or pipettes features a particularly slim nozzle body. Thus, the space available between the nozzle body and the part contour is considerably increased **3** and can be used by the mould maker to integrate an optimised cooling surrounding the cavity as well as an effective mould venting.



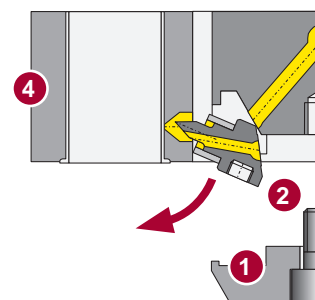
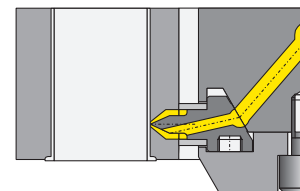
Unmatched ease of maintenance thanks to patented tip exchange technology

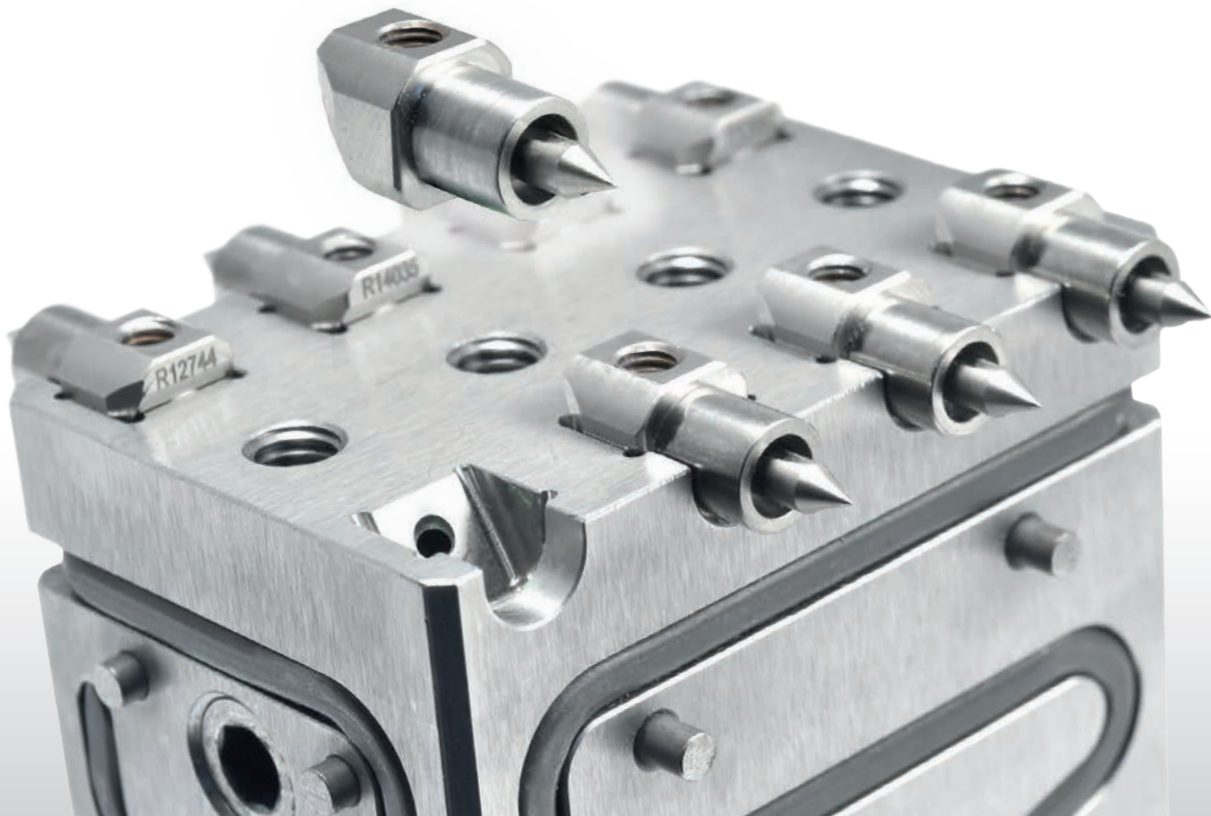
The HPS III-MH concept offers the most convenient tip exchange in the entire industry, thus decisively reducing the mould downtimes for maintenance.



Tip insert exchange made easy

Its innovative tip exchange technology makes the HPS III-MH nozzle the most maintenance-friendly solution for direct side gating. The tip inserts **2** are inserted from the parting line of the mould in the last assembly step after installing the nozzle body **3** and can be exchanged just as easily in case of maintenance without dismantling the mould. After removing the clamping cover **1** the tip insert lifts out of the mould insert **4** and is replaced.





Gating options



90° gating



60° gating

Advantage: The gating point can be positioned closer to the location of the inner core. Thus, a core deflection caused by the melt pressure can be avoided when moulding slim, thin-walled tubular parts.



0° gating

Advantage: The gating point can be placed in direct proximity to the part's vertical contours, for example on flanges.

L2X The clever Drop-In solution for easy installation

Easy to install, leakproof and powerful. EWIKON L2X systems with screwed-in nozzles come completely assembled and wired and can therefore be integrated into the mould with a minimum expenditure of time. All L2X systems feature superior thermal performance and an innovative connecting technology for absolutely leakproof operation.



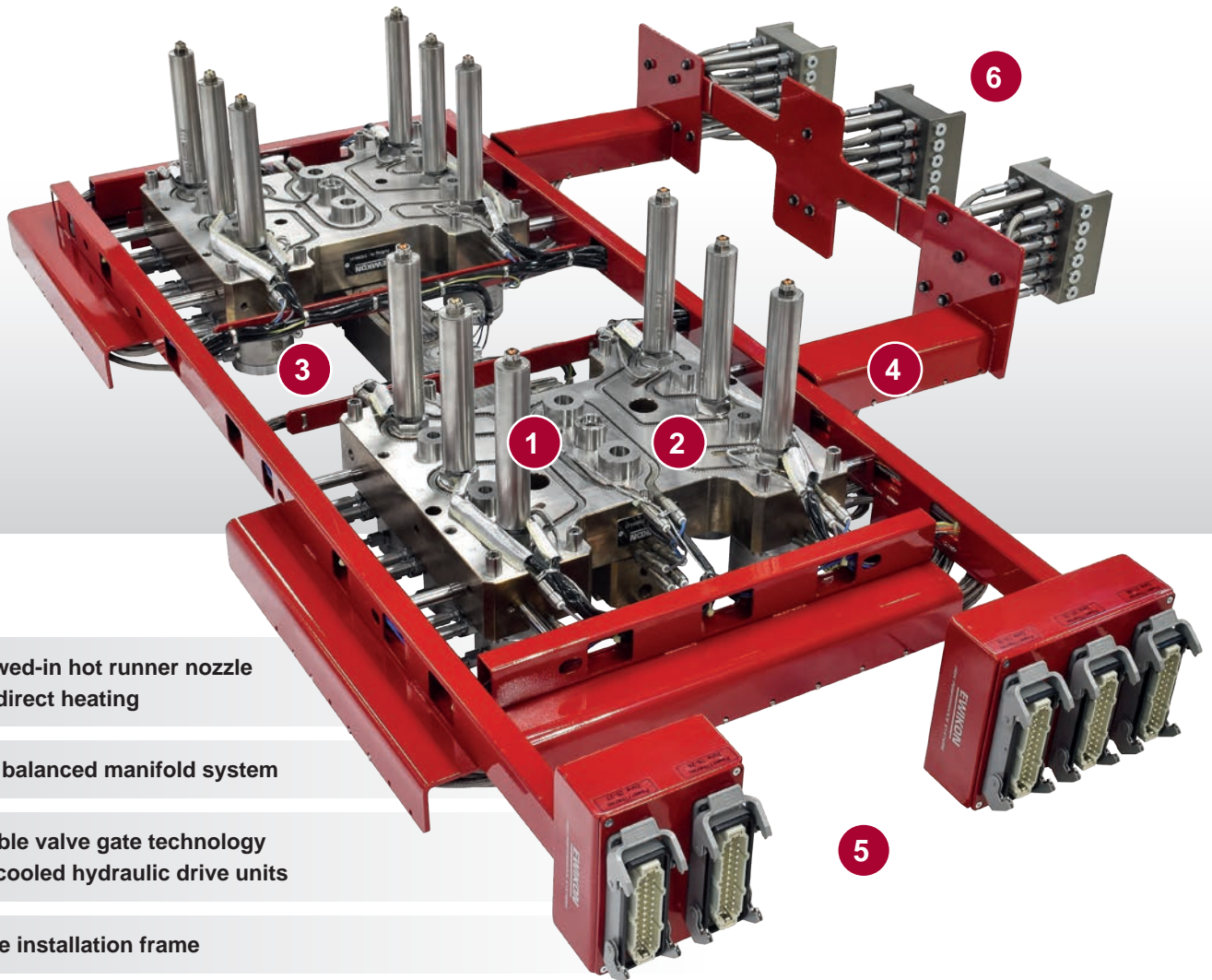
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Your advantages when using EWIKON L2X Drop-In systems

- +** **Easy integration into the mould**
Delivery as completely assembled and wired system. Simple Drop-In installation.
- +** **Powerful nozzle technology with direct heating**
Direct heating of the pressure tube with coil heaters. Suitable for processing of technical resins and filled materials.
- +** **Fully balanced manifolds with element technology**
- +** **Easy-to-maintain**
Innovative connecting technology allows precise positioning and – in case of maintenance – repositioning of nozzle and connection cables in the mould. This is ideal for applications where contoured screw-on gate bushes are used for example in the automotive industry.
- +** **Absolutely leakproof and durable screw connection**
Screw connection between nozzles and manifold. Hardened connecting nut with long durability allows repeated installation. When required the connecting nut can be exchanged to renew the connection thread.
- +** **Direct gating with heat conductive tip or valve gating**
Valve gate version with cooled pneumatic drive units screwed onto the manifold.



L2X Drop-In system as valve gate version



- 1 Screwed-in hot runner nozzle with direct heating
- 2 Fully balanced manifold system
- 3 Reliable valve gate technology with cooled hydraulic drive units
- 4 Stable installation frame
- 5 Connector boxes for electric wiring
- 6 Connector block for hydraulic supply lines and cooling



Flexible system design

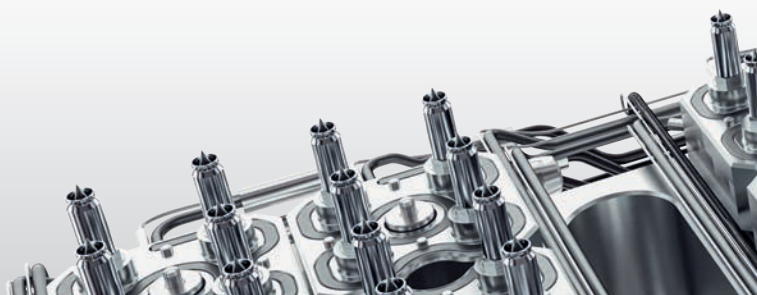
EWIKON L2X systems are available with multiple nozzle lengths, gating options and flow channel diameters. In addition, the direction element technology enhances the flexibility regarding manifold design and possible pitch distances. Therefore, the systems can be flexibly adapted to different mould layouts and shot weights.

Micro-manifold technology for high cavitation moulds and micro-injection moulding

EWIKON micro-manifold technology offers standardised solutions for the production of small polyolefine parts in high-cavitation moulds as well as for high-performance micro-injection moulding on small injection moulding machines. Various nozzle layouts and heating versions make this technology suitable for a multitude of applications.

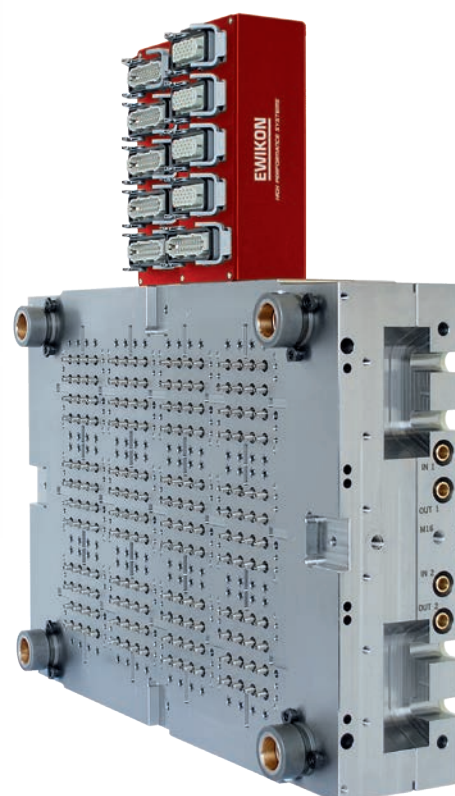
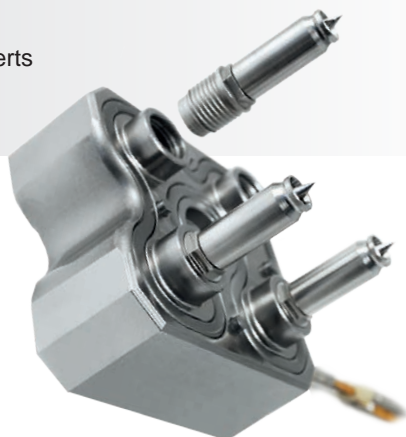


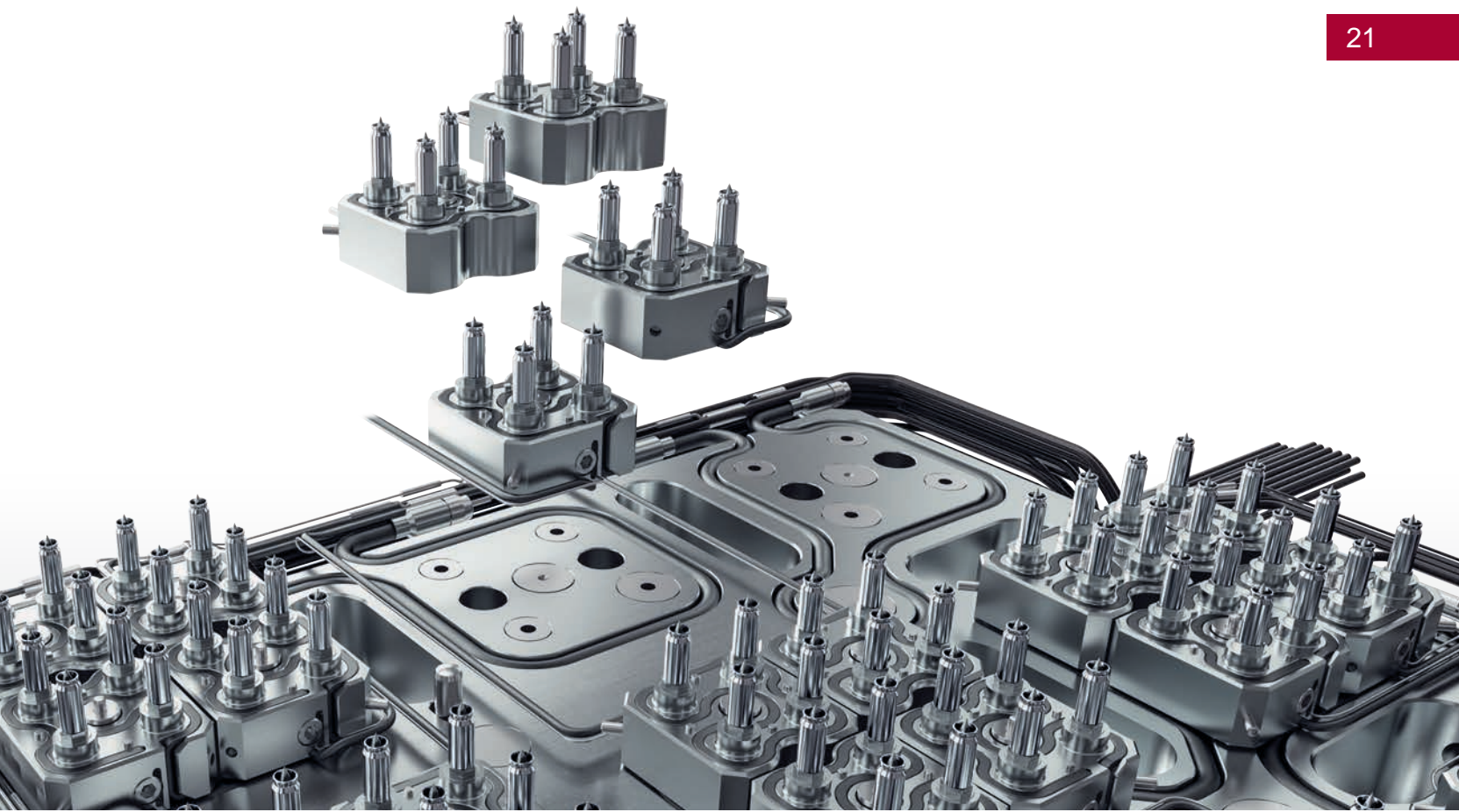
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Stable and compact hot halves with up to 192 cavities

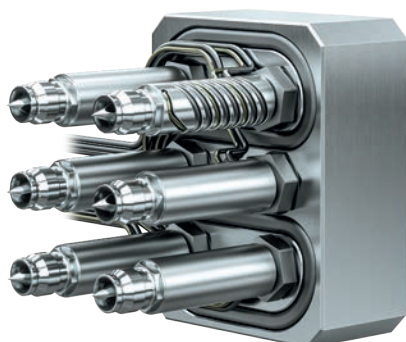
- + Efficient processing of polyolefines**
Designed for the large-scale production of parts with small shot weights especially in the medical and packaging industry.
- + Standardised design of high-cavitation moulds**
4 screwed-in heat conductive tip inserts per micro-manifold.
Easy design of moulds with up to 192 cavities based on standardised 16-drop clusters.
- + Significantly reduced control expenditure**
Only one control zone per micro-manifold.
- + Very compact and stable mould design**
Reduced space requirement for electric wiring allows very compact moulds with maximum stability.
- + High maintainability**
Easy exchange of tip inserts after removal of the cavity inserts.





Efficient production of parts from 0.05 gram on small machines

- + Reliable processing of technical resins**
Tip inserts with powerful direct heating and separate temperature control for reliable processing of technical resins.
- + Problem-free processing of thermally sensitive materials**
Small melt volume in the system due to short flow path.
- + Designed for use on BOY®, WITTMANN BATTENFELD or Babyplast® machines**
Easy to integrate with extremely compact system dimensions.
Available with different standardised nozzle layouts or as complete hot halves in standardised sizes.
- + L2X connecting technology for precise positioning of the connection cables**
Minimised space requirement for installation.

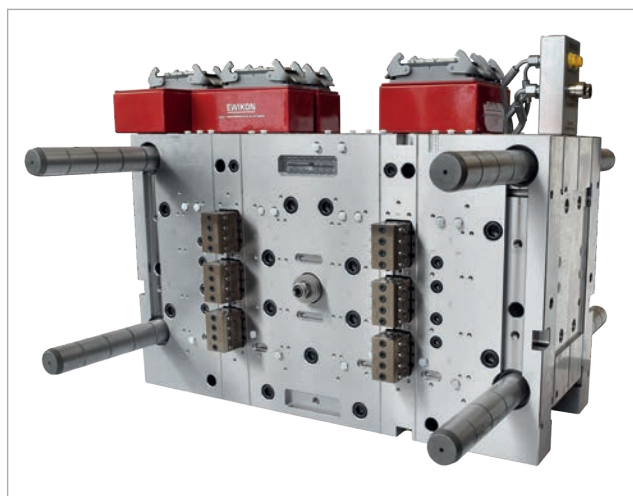




Valve gate system for special applications and small distances between cavities

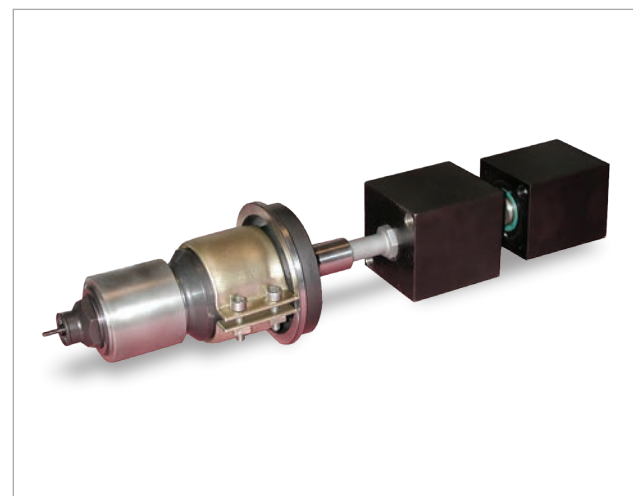
This new method for direct valve gating with small distances between cavities or gating in confined spaces uses the body of a HPS III-MH nozzle for side gating. The melt is fed laterally* but the gate is positioned in demoulding direction (0°). The technology allows a minimum distance between cavities of only 6 mm and is ideally suitable for the multi-point gating of medical parts or overmoulding applications in the electrical industry. Furthermore, applications which require a gating point on a horizontal surface close to vertical walls, e.g. onto flanges of syringes and analysis tubes, can be realised.

(* patent pending; 10716535.9)



Stack and tandem moulds for enhanced productivity

EWIKON offers hot runner solutions for stack and tandem moulds in every possible configuration according to the customer's specification. The leakage-free melt transfer from the machine nozzle to the manifold system in the parting line of the mould is usually realised by using valve gate technology.



Two components, one gating point – coaxial valve gate system

The EWIKON coaxial valve gate system allows the injection of two components via one injection point. It consists of a centre valve pin and a second hollow valve pin surrounding it. Their working principle is that plastic melt can be injected either through the centre valve pin orifice or the ring gap formed by the hollow valve pin. Using the core-back method with moving mould core, two-component parts with front and rear layer can easily be produced. By appropriate coordination of valve pin positioning and movement during injection the production of parts with a completely separated core layer (sandwich method) is possible as well.



The complete solution for optimised project handling and easy start-up

All EWIKON hot runner systems are available as hot halves. The fixed half is pre-assembled with the hot runner system and just has to be completed with the cavity plate. Then it can be used with practically no on-site adjustments. A growing percentage of customers use hot halves to speed up their mould projects significantly and to simplify the start-up of the system.

Your advantages when using EWIKON hot halves

- + Mould half with already integrated hot runner system**
- + Easy start-up**
Complete electric wiring with all required connection sockets.
Valve gate moulds have bores and connectors for the pneumatic, hydraulic or electric supply of the drive units as well as length-adjusted valve pins integrated.
- + Delivered as thermally and electrically tested system with detailed documentation**
- + Practically no on-site adjustments required, thus speeding up of mould projects**
- + 3-year warranty**
if used with EWIKON hot runner controllers and EWIKON connecting components.



Everything at a glance

The comfortable touch screen display with intuitive and easy-to-learn operation and clear visualisation allows optimum process control. Additionally, comprehensive diagnosis, logging and error detection functions are available.

Precise and comfortable process control – tailored to your application

For reliable control of your hot runner system EWIKON offers a complete range of advanced control technology - from the economic, modular controller to the high-tech control system with touch screen to meet highest demands, for example for multi-cavity applications.



HPS-C-SLOT+

HPS-C-SLOT+ is the cost-efficient and fully featured slot controller for hot runner systems with 2 to 24 control zones.



HPS-C-PRO+

HPS-C-PRO+ high-tech controllers are designed to provide highest reliability and a most precise control behaviour combined with advanced intelligent support and monitoring features as well as error detection functions. The controllers are available in versions up to 192 control zones and feature a touch screen control unit for comfortable operation.



smart **CONTROL** – the digital future for your mould

smart CONTROL monitors and analyses your hot runner system performance over the entire life cycle of the mould and adds more transparency to the production process.

Your advantages when using smart CONTROL

- + Permanent system monitoring**
All relevant process and system parameters (e.g. running times, downtimes, temperature history) are permanently monitored, analysed and logged. When critical values are exceeded a warning signal is triggered.
- + Reduced downtimes**
In case of system errors the data can be transmitted to EWIKON. This allows a quick remote diagnosis and an early initiation of specific maintenance activities.
- + Clear visualization of the data**
Browser-based user interface. Easy integration into company networks via PC, tablet PC or smartphone.
- + Optionally available for new hot halves**
- + Compact design**
Easy and space-saving installation.





Service wherever you need it – worldwide

For EWIKON service starts at the beginning. Our hot runner professionals support every step of your mould project from the determination of the application specifications, the selection and design of the appropriate hot runner solution to system start-up and after sales support. Our global sales and service network with subsidiaries in the United Kingdom, Japan and China as well as sales partners all over Europe, America and Asia guarantees a comprehensive customer service worldwide.

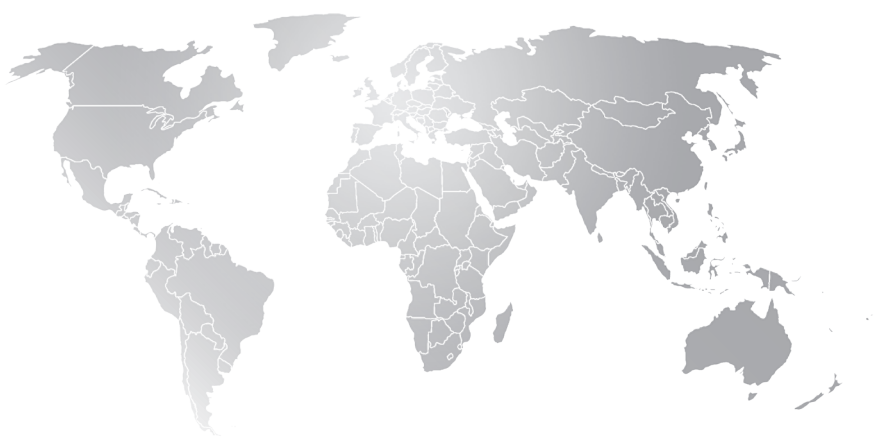
Our services

- + 3D CAD database available on the internet**
Direct interfaces to most CAD systems.
- + Moldflow analyses**
For optimised filling of parts considering melt flow profiles, flow lines, air entrapments and pressure requirement. Determination of gating points and calculation of system balance.
- + Rheological design of the hot runner system**
Calculation of pressure drop, shear rate and residence time.
- + Customer-specific hot runner seminars**
For machine operators and mould designers.



+ **Focused on perfect service – EWIKON application engineering**
 Technical centre with 5 injection moulding machines from 500 to 1600 Mpa for pre-production tests of customer moulds, material trials with EWIKON test moulds, assistance for system installation and mould start-up as well as troubleshooting and maintenance work.

EWIKON sales and service network



Global scope of services

	Technical sales and service support	Production of hot runner systems and components	Mould plate production and assembly of hot halves	CAD design	Material test centre	Maintenance and repair facilities	Regional technical centre
Headquarters Germany	●	●	●	●	●	●	●
EWIKON UK	●	--	--	--	--	●	●
EWIKON China	●	--	--	●	--	●	●
EWIKON Japan	●	--	●	●	--	●	●
USA / Canada	●	--	●	●	●	●	●
Mexico	●	--	--	--	--	●	--
Poland	●	--	--	--	--	●	--
	●	By further 23 sales and service partners worldwide. For a complete overview with all contact data please visit our website www.ewikon.com					

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Your EWIKON partner: