Hotrunner innovations
for the injection moulding industry

For more than 30 years EWIKON has been a synonym for innovative, reliable and practical hotrunner technology at the highest technical level. Our system solutions are designed to perfectly meet the demands of our customers and offer various options to improve the quality of the manufactured parts and to reduce costs at the same time. This has resulted in thousands of successfully realised applications for all sectors of the injection moulding industry.

Advantages of hotrunner technology

- No or considerably reduced sprue waste, reduced production costs
- Decreased cycle times, increased productivity
- Improved part quality
- High functional and production reliability
- More flexibility in mould design
The latest manufacturing technology and a quality management system according to DIN EN ISO 9001:2008 guarantees a consistently high product quality. Each EWIKON hotrunner system has to pass strict functional tests. A well-equipped technical centre is available for material or pre-production tests.

Content

Sales and service network................................................................................................................................................4 - 5
Manifold range .................................................................................................................................................................6 - 7
Nozzle range | standard nozzles | single tips | multi-tip nozzles...........................................................................................................................................8 - 13
Valve gate systems | versions | electric drive unit...........................................................................................................................................14 - 17
L2X Drop-In system..........................................................................................................................................................18
Combined systems | externally heated / internally heated.......................................................................................................19
Hotrunner systems for large parts................................................................................................................................20
Hotrunner controllers........................................................................................................................................................21
Hot halves.........................................................................................................................................................................22
Specials | special hotrunner solutions..................................................................................................................................23
System overview | technical data ...................................................................................................................................................24 - 25
An efficient sales and service network ensures fast and reliable customer support from mould design to system start-up. The EWIKON headquarters in Frankenberg incorporate the R&D, production and sales departments and employ a total of 200 people. Together with subsidiaries in the United Kingdom, Japan and China as well as sales partners all over Europe, America and Asia, EWIKON is able to provide a comprehensive customer service worldwide.

<table>
<thead>
<tr>
<th>Headquarters</th>
<th>Direct customer service with own employees for</th>
</tr>
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<tbody>
<tr>
<td>• Germany</td>
<td>• Austria  • Switzerland  • France  • Italy</td>
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<table>
<thead>
<tr>
<th>Subsidiaries</th>
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<tbody>
<tr>
<td>• United Kingdom</td>
<td>• USA / Canada  • Sweden  • Czech Republic  • Israel</td>
</tr>
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<td>• Japan</td>
<td>• Mexico  • Finland  • Slovak Republic  • Singapore</td>
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<tr>
<td>• Hong Kong</td>
<td>• Spain  • Russia  • Hungary  • Malaysia</td>
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<td>• Portugal  • Lithuania  • Indonesia  • Taiwan</td>
</tr>
<tr>
<td></td>
<td>• Benelux  • Poland  • Thailand  • China</td>
</tr>
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</table>
Additional services

EWIKON offers extensive support to customers – from design aid for hotrunner systems to customer-specific hotrunner seminars for all areas of practical application:

- 2D/3D database available on the internet with direct interfaces to most CAD Systems
- Calculation software CostCompare
  For economic efficiency calculation of runner 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
- Pressure drop calculations
  For rheological design of EWIKON hotrunner systems
- Customer-specific hotrunner seminars
  For machine operators and mould designers
Superior manifold technology –
the heart of your EWIKON system

EWIKON manifolds guarantee full natural balance even in case of most demanding multi-cavity applications. This is possible due to special direction and distribution elements. Even in critical areas of the flow channel - changes of flow direction or distribution of the melt flow - dead spots are avoided.

**Product features + Benefits**

- Full natural balance
- Even filling of cavities in multi-cavity applications
- Streamlined direction elements without sharp corners or dead spots
- Smooth melt flow for sensitive materials
- Excellent colour change behaviour

The streamlined direction and distribution elements of the HPS III-T manifold systems enable a smooth melt flow and quick colour changes.
**HPS III-T**

For thermally demanding applications

- Full natural balance for even filling of cavities
- Streamlined direction elements without sharp corners or dead spots
- Smooth melt flow for sensitive materials
- Very quick colour changes

**HPS III-TE**

The economical solution for standard applications

- Full natural balance for even filling of cavities
- Cost-saving combination of element and drilling technology

2-component system

Valve gate system with bridge manifold
The comprehensive range of HPS III nozzles offers utmost flexibility for mould designers and provides tailored solutions even for the most complex requirements regarding gate position, vestige quality, shot weight or cavity distance.

**Product features + Benefits**

- Various gating options, high flexibility in mould design
- Exchangeable tip inserts, heaters and thermocouples
- Homogeneous temperature profile
- Front installation for easy access and replacement
**HPS III-S nozzle**

The EWIKON standard nozzle for all materials and shot weights. For direct gating with tip or open gating.

**HPS III-SXE single tip**

The single tip solution for utmost process reliability for all materials including high-temperature thermoplastics. At least two separate heaters guarantee a most homogeneous temperature profile.

**Gating options**

- Direct gating with tip
- Open gating
- Various versions of gate bushes and screw-on gate bushes including over-dimensioned versions to adapt to free form contours
Solutions for close cavity spacing and multi-gating

Several versions of slim nozzles and multi-tip nozzles are available for demanding hotrunner applications.

**Product features + Benefits**

- Extremely close distances between cavities in multi-cavity moulds
- For internal gating of slim parts
- For complex part geometries with gating points in hard-to-reach areas
- Multi-gating
HPS III-S3 nozzle

For direct gating of parts in multi-cavity packaging and medical applications. Suitable for internal gating, external gating or gating in hard-to-reach areas.

HPS III-S3 multi-tip nozzle module

Up to four HPS III-S3 nozzles can be integrated into a multi-tip nozzle module which allows extremely close distances between cavities. The temperature of each nozzle can be controlled separately.

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.
With the patent pending HPS III-MH multi tip concept EWIKON offers tailored solutions for all applications where side gating or gating in difficult-to-access areas is required. All nozzles are available as system nozzles for use with a manifold or as single tips.

### Product features + Benefits

- Direct gating with tip or open gating
- For standard mould inserts
- Side gating on visible surfaces
- Good gate quality through shear action
HPS III-MH nozzle for standard side gating

HPS III-MH nozzles are the standard side gating solution for use in standard mould inserts. Due to the open flow channel layout quick colour changes are possible.

HPS III-MH nozzle for direct side gating

The solution for linear or radial direct side gating of parts in compact multi-cavity moulds. Since only standard mould inserts are required a cost-efficient mould design can be realised. The tip inserts are installed from the parting line of the mould in the last assembly step after the nozzle body has been installed. Thus, they can be exchanged easily if required without having to dismantle the mould. The use of angled tips with any required angle allows unique gating positions in difficult-to-access areas.

Easy replacement of tip insert: After removing the end cover flange the tip insert is easily accessible and can be pulled out of the mould insert for replacement.
More process reliability and part quality

Valve gating offers excellent surface quality of parts as well as considerably increased process reliability. EWIKON valve gate systems are available in various designs with multiple drive options. Thus, it is possible to perfectly adapt the valve gate system to your specific application requirements and mould layout.

### Product features + Benefits

- Different drive versions, integrated into the clamping plate or the nozzle housing
- Electric, pneumatic or hydraulic valve pin actuation
- Excellent part quality with barely visible gate marks
- No stringing
- Reduced cycle times
- Permanent valve pin guide placed in the front area of the nozzle. The valve pin remains guided during the whole operation cycle. This ensures maximum operational reliability and reduces valve pin wear

![Valve gate technology image](image-url)
### HPS III-NVE

The valve gate system for standard applications with different drive options:

1. **Drive unit integrated into the clamping plate,**
   electric, pneumatic and hydraulic valve pin actuation

2. **Drive unit fixed on the manifold,**
   pneumatic valve pin actuation, simplified mould layout

3. **Joint valve pin actuation with synchronous plate,**
   electric, pneumatic and hydraulic actuation. Valve pins open simultaneously, particularly suitable for multi-cavity moulds with close cavity spacing

### HPS III-NVI

Compact valve gate nozzle with drive unit integrated into the nozzle housing.

- Easy to integrate into the mould, as there is no need to place actuator components behind the manifold. Particularly advantageous for use in single applications, stack moulds and tandem moulds.

### HPS III-MH

Valve gate nozzle with lateral melt feed* and valve pin actuation with synchronous plate. 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 electronical 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)
Electric drive valve gate technology - the new dimension of valve gate precision

The electric drive unit for valve gate systems offers valve pin actuation with high precision as well as particularly easy installation into the mould. When used with electric injection moulding machines, fully electric manufacturing cells can be realised. Furthermore, this clean drive version is perfectly suitable for cleanroom applications.

**Product features + Benefits**

- Linear step motor. Valve pin positioning with high precision, increment: 0.01 mm, individual adjustment for each valve pin possible.
- Clean operating medium, no aerosols, unlimited suitability for cleanroom applications.
- Individual setting of process parameters such as valve pin stroke length, valve pin speed and opening and closing time.
- Increased process reliability by monitoring function for valve pin position and automatic re-adjustment in case of deviation.
Precise and comfortable control

The external touch screen control unit operates up to 32 drives in automatic or manual setting mode. The set-up software EDC (E-Drive Control) is already integrated and allows individual adjustment of process parameters according to the specific process requirements. In demanding applications sequential opening of the valve pins is possible as well as to approach various valve pin positions within one moulding cycle.

Option: Permanent monitoring of valve pin position

All electric drive unit sizes are available with optional encoders enabling a permanent monitoring of the valve pin position with an accuracy of 1/100 mm. If there are any deviations, the valve pin concerned is readjusted automatically. Should this not be possible for example due to a gate blocked by contamination, an error message appears after a definable number of failed attempts. If requested, the drive unit concerned is switched off completely.

The easy integration into the mould design is another advantage of the electric drive unit. The drives can be installed easily without the need for supply bores in the clamping plate. For example, it is very easy to realise applications with angled nozzles (on the right). For operation of synchronous plate systems linear servomotors in different sizes are available.
The hotrunner solution for easy integration into the mould and high production reliability. The nozzles are screwed into the manifold making the system absolutely leakproof and avoiding downtimes. The system is delivered completely assembled with nozzles, manifold and sprue bush and also includes the complete wiring and the connector box. Thus, it is particularly easy to integrate into the mould construction by simply inserting the complete unit into the matching pre-machined cutouts.

**Product features + Benefits**

- Delivered completely assembled and wired
- Leakproof system, nozzles screwed into the manifold, high production reliability
- Easy integration into the mould
- Available for direct gating with torpedo tip, open gating or as a valve gate version with pneumatic valve pin actuation

Valve gate version with cooled pneumatic drive units
Combined systems – the sum of advantages

If externally heated manifold systems are combined with internally heated nozzles, the advantages of both technologies can be used to full capacity. Perfect balance and streamlined flow channels of the manifold combined with nozzles with active tip heating result in excellent gate quality when gating parts directly. EWIKON combined systems are particularly suitable for high-temperature applications.

- **Info: Internally heated nozzles**

  Internally heated nozzles work with a heated torpedo in the centre of the melt channel transporting the heat into the nozzle tips. At the same time the system is sealed by a frozen plastic layer towards the outside and insulated thermally. Therefore, the mould temperature is hardly influenced.

- HPS I standard nozzle (left) and multi-tip nozzle
EWIKON hotrunner systems for large parts are designed and manufactured in close cooperation with the customer according to his specific application requirements. No matter whether a system for large-scale production, economic small-batch production or a prototype mould is required - EWIKON offers the tailored solution. The broad range of available nozzle lengths, gating options and flow channel diameters allows the perfect adjustment of the system to mould layout and shot weight. EWIKON hotrunner systems for large parts are delivered as pre-assembled Drop-In hotrunner modules.

**Product features + Benefits**

- Flexible system design with variable nozzle pitch, screwed-in nozzles, open gating or valve gating
- Easy to maintain, exchangeable manifold heater elements, nozzle heater bands and thermocouples. Easy valve pin replacement with no need to disassemble the system
- Delivered as Drop-In system with complete electric wiring and all connectors and supply lines for valve gate operation according to your requirements
- Complete documentation with assembly drawing, parts list, electrical wiring diagram and connecting diagram for hydraulic/pneumatic supply and cooling
Precise control technology for all systems

For reliable control of your hotrunner 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-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 96 zones and feature a touch screen control unit for comfortable operation.

- **HPS-C-MULTI 6**
  HPS-C-MULTI 6 controllers offer advanced support features and error detection functions. With an outstanding cost-benefit ratio they form the economic basic range for 230 V hotrunner systems. 6-, 12-, 24- and 36-zone versions are available.

- **HPS-C-SLOT**
  HPS-C-SLOT is the economic slot controller for low-cavity hotrunner systems with 2 - 6 zones complementing the EWIKON hotrunner controller range.
The complete hotrunner solution for easy installation

All EWIKON systems can be delivered as complete hot halves. The already integrated hotrunner system allows a fast and efficient installation and start-up and requires practically no on-site adjustments. A growing percentage of customers use hot halves to speed up their mould projects significantly.

Especially in demanding multi-cavity valve gate applications the advantages of the hot half concept become particularly obvious. The package contains bores and connectors for the pneumatic, hydraulic or electric supply of the drive units, length-adjusted valve pins and the complete electric wiring.

**Product features + Benefits**

- Mould half with already integrated hotrunner system
- Complete wiring
- 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 hotrunner controllers and EWIKON connecting components

48-drop valve gate system with synchronous plate valve pin operation
Multi-component hotrunner systems and stack moulds

For multi-component hotrunner systems the EWIKON manifold technology with direction elements allows a complex and space-saving flow channel layout. Thus, very close gating points often required by these applications can be realised without any problem. Stack and tandem moulds can be realised in every possible configuration. EWIKON offers solutions with leakproof valve-to-valve melt transition as well as with standard sprue bar technology.

Hotrunner systems for micro injection moulding machines

EWIKON hotrunner systems for micro injection moulding machines enable the sprueless production of parts with even the smallest shot weights. Due to the simple design of tip inserts, manifold and sprue bush only one control zone is necessary to operate the unit, keeping the controller expenditure low. A version with separate temperature control for each gate is available as well. All systems are delivered as fully assembled hot halves for easy installation.

Coaxial valve gate system

The EWIKON coaxial valve gate 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.
# EWIKON nozzle range

<table>
<thead>
<tr>
<th></th>
<th>HPS III-S / HPS III-SXE</th>
<th>HPS III-S3</th>
<th>HPS III-MV</th>
<th>HPS III-MH open gating</th>
<th>HPS III-MH direct gating with tip</th>
<th>HPS I</th>
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<td>Direct gating with tip</td>
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<td>Multi-gating / angle / max. no. of gates</td>
<td>● / 0° / 4 (Multi-tip-module)</td>
<td>● / 0° / 4 (Multi-tip-module)</td>
<td>● / 0° / 6</td>
<td>● / 90° / 4</td>
<td>● / 0° - 90° / 8</td>
<td>● / 0°, 45°, 90° / 4</td>
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<td>Lengths [mm]</td>
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<td>60 - 168 (3)</td>
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<td>Flow channel diameters [mm]</td>
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<td>6 (2) / 10 (2)</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>

- ● suitable
- ○ please contact EWIKON
- -- not suitable
- (1) for large systems
- (2) inlet channel
- (3) longer nozzle lengths available on request
EWIKON manifold range

<table>
<thead>
<tr>
<th></th>
<th>HPS III-TE</th>
<th>HPS III-T</th>
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<tbody>
<tr>
<td>Fully balanced</td>
<td>•</td>
<td>•</td>
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<tr>
<td>Flow channel diameter [mm]</td>
<td>4 - 14 (16 - 30 (1))</td>
<td>4 - 14 (16 - 30 (1))</td>
</tr>
<tr>
<td>To be combined with HPS III standard nozzles</td>
<td>•</td>
<td>•</td>
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<tr>
<td>To be combined with HPS I standard nozzles</td>
<td>with adapter (combined system)</td>
<td>with adapter (combined system)</td>
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</table>

- suitable ○ please contact EWIKON -- not suitable
(1) for large systems

EWIKON valve gate systems

<table>
<thead>
<tr>
<th></th>
<th>HPS III-NVI</th>
<th>HPS III-NVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive unit for valve pin</td>
<td>integrated into the nozzle housing</td>
<td>in the clamping plate</td>
</tr>
<tr>
<td>Valve pin actuation</td>
<td>pneumatic / hydraulic</td>
<td>electric / pneumatic / hydraulic / mechanical (actuator plate)</td>
</tr>
<tr>
<td>Multi-gating / angle / max. no. of gates</td>
<td>• / 0° / 4</td>
<td>--</td>
</tr>
<tr>
<td>Available as single tip</td>
<td>•</td>
<td>--</td>
</tr>
<tr>
<td>Permissible nozzle types/flow channel diameters [mm]</td>
<td>HPS III-S / 6 - 12 (16-22 (1))</td>
<td>HPS III-S / 4,5 - 12 (16-22 (1))</td>
</tr>
</tbody>
</table>

- suitable ○ please contact EWIKON -- not suitable
(1) for large systems

Detailed technical data on our products are available in our main catalogues. Furthermore, please visit our website www.ewikon.com for latest information:
Select EWIKON hotrunner components fast and easily in our [2D/3D data base], configure and import them via direct interfaces into the most common CAD systems. The selected components including all negative geometries can be downloaded free of charge by our customers. These data as well as our main catalogues which are available in PDF format are updated at regular intervals.