Automatic roll-fed thermoformer for forming/punching tools
IC-RDKP 72

The next dimension of production reliability

ILLIG Intelligent Control Concept®
Welcome to the world of ILLIG. Here it's all about high-performance machines and tools for thermoforming plastics, as well as technical solutions for the packaging industry.

As one of the world's leading providers in this area we are in demand everywhere where the efficient production of sophisticated formed parts with excellent quality is required. Benefit from over six decades of experience, unique know-how and the complete range of products and services of ILLIG – just like countless satisfied customers in more than 80 countries.

We combine experience and competence, as well as specific technical solutions, under one solid roof. We offer everything you need to reliably handle even the toughest of challenges in the area of thermoforming and packing. Systems for success – with ILLIG
ILLIG – a synonym for the most efficient production of first-class cups, trays and other formed parts. Worldwide.

for you!

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ILLIG – complete spectrum for

Thanks to innovative power, high quality standards and a complete orientation to our customer’s needs and requirements, ILLIG has become the market and technology leader in the area of thermoforming and packaging technology.

Here we are leaders in driving progress and today offer you the most extensive range of state-of-the-art machines and the appropriate tools. At ILLIG you really do receive everything from the one source: innovative complete solutions for the most diverse industries and applications, exactly coordinated to your individual tasks.

Everything that you need – for sustainable and successful production and a permanent competitive edge.
Excellent service – you can rely on us

The ILLIG range of services comprises development, design, manufacture, assembly and commissioning of complex production lines and individual components. As an owner-operated company with approximately 750 employees, subsidiaries and representative offices in over 80 countries we are present in all markets. We are your competent and reliable partner – the concept for excellent technology at the best quality and a comprehensive global service.

Whatever you want – you’ll find it at ILLIG

ILLIG offers you not only machines for the most diverse tasks, but also the respective accessories and tools. This way you can obtain maximum potential from our machines and high availability and productivity over the long term are guaranteed. Synergies that pay off – for certain!

Our offer is complemented with a comprehensive range of tools that are specially coordinated to our machines and designed and manufactured in the ILLIG mould and tool construction.

### Our product and competence areas

#### Thermoforming

- Sheet processing machines
- Automatic roll-fed thermoformers for forming/punching tools
- Automatic roll-fed thermoformers, separate forming and punching

#### Packaging technology

- Skin and blister packaging machines
- Form, fill and seal lines

#### Tool and die shop
ILLIG – the evolution of thermo

ILLIG stands for ground-breaking inventions and innovations. We actively invest in the development and design and in the process work with leading research institutes.

In our design department highly qualified employees develop future-oriented solutions with the help of hardware and software. Solutions with decisive product advantages which make it possible to produce even higher quality products in short time frames and at reduced costs – innovative products and services that make our customers even more successful.

Today:
Customers all over the world manufacture sophisticated and precise formed parts and packaging from thermoplastic materials for brand articles.

Before:
The know-how from the repair workshop and dryer plants was able to be optimally used for the manufacture of the first ILLIG vacuum forming machine type UA 100.
ILLIG has been setting technological milestones – for decades

1946
On 27 May Adolf Illig set up a repair workshop in the garage of his parent's home.

1956
Type UA 100: Construction of the first ILLIG vacuum forming machine.

1960
Introduction of the R 650: A global innovation from the role of the working vacuum forming machine to processing pre-printed material for manufacturing lids.

1963
Construction of the first compressed air fast forming machine for forming/punching. Start of the successful RDM series.

1964
Further RDM machine types are developed. Construction of a tool and mould construction plant to be able to manufacture complete production units for cups and lids.

1968
First packaging plant in which forming, filling and wearing are integrated. Development of the first piston metering machine for paste-like products.

1983
For the continuous heating of PP materials pre-heaters are developed which are equipped with heated aluminium rollers.

1984
The RDM 50K is the first large thermoforming machine with tilting technology. It sets a new standard for hygiene conditions in the manufacture of packaging containers.

1989
Development of the first computer program for the automatic basic setting of vacuum forming machines.

1993
Construction of the first in-mould labelling production plant for attaching PP labels onto PP margarine containers.

1994
Aseptic forming, filling and wearing machines with a daily capacity of 700,000 yoghurt containers.

1995
Development of innovative tools for forming/punching technology – setting new standards in precision, tempering technology and service life.

2001
With numerous patent registrations ILLIG makes it into the top ten of the official patent statistic office in Baden-Württemberg. Conversion of all machines to SIEMENS control technology.

2004
With the RDM 78K the first thermoforming machines of the 3rd generation were put into operation at customers.

2005
Premiere von In-Mold-Labeling für Form-, Füll- und Verschließanlagen.

2006
High-performance thermoforming machines are converted to the 3rd generation.

2008
With the BF 70 the world's first bottle forming machine of this type, which is ready to go into mass production, is presented.

Today
The first automatic roll-fed „IC machines“ are already placed in the market. All other ILLIG machines will be adapted step by step with this „Intelligence“.
Thermoforming stands for the cost-effective, efficient manufacture of drinking and yoghurt containers, food packaging, trays, cups or flower pots, but also larger plastic parts such as fridge inserts, plastic shells, etc.

Our tried-and-tested compressed air forming machines RDKP are used for the manufacture of the most diverse forming parts. The focus is clearly on the production of cups of various shapes and sizes in large quantities.

With the development of the „IC – ILLIG Intelligent Control Concept“ the ILLIG engineers have achieved a technological quantum leap in thermoforming.
The Intelligent Control Concept includes several compatible modules.

- ThermoLineControl®
- Dynamic process optimization
- Compensation of ambient influences during process
- Faster mold change
- sas-up® (self-adaptive start-up phase)
- ILLIG NetService (troubleshooting and remote diagnosis)
IC-Thermoformer – a new machine generation which thinks and controls

„IC – ILLIG Intelligent Control Concept“ helps the user to utilize the combination of high productivity, reproducibility and machine availability to the full extent by providing considerable simplification of machine operation at the same time.

The Intelligent Control Concept includes several compatible modules.

Machines equipped with the „ILLIG Intelligent Control Concept“ are marked with the addition „IC“.

The IC concept raises thermoforming to a new, higher level.
Your IC®-benefits

1. **ThermoLine-Control®.** Operation, control and storage of all individual machines which are connected by Profibus in one line. All data is storable and repeatable. All other machines can be operated and controlled from the operating panel of the thermoforming machine. Error display / error analysis for all individual machines on one screen.

2. **Dynamic process optimization.** Automatic optimization of the possible number of cycles not subject to the professional knowledge of the operator. All optimization parameters are automatically adapted. Highest production performance, absolutely safe.

3. **Compensation of ambient influences during process.** Automatic adaption of the heater setting values with changed ambient influences. (Initial temperature of material roll, ambient temperature and temperature of machine stand)

4. **Faster mold change.** Guided and safe tool change with different technical levels. For faster perfect tool change not subject to operation.

5. **Self-adaptive start-up (sas-up®).** Start-up operation with reduced number of cycles (Forming time, speeds of tables and switching of valves like in production). Especially with new tools or after tool change with reduced material consumption right up to optimal product quality.

The best way to get a higher production efficiency

The automatic pressure forming machines IC-RDKP are the result of consequent optimization of the forming process. Sophisticated shapes can be produced by pressure air and/or vacuum forming due to innovative forming programs and optimized arrangement of all elements involved in the forming process.

High productivity as well as reproducibility of all process parameters are achieved by short cycle times and high automation level (thanks to interlinkage of hole punch unit, steel rule punch press and stacking unit) as well as tried and tested quick-change tool technology.

Forming can be carried out alternatively on the upper and lower table using vacuum and/or pressure air. By selecting the desired forming program on the IC-operating panel, all required settings are carried out automatically.

Materials such as PS, PVC, APET, PE and PP can be processed on IC-RDKP machines, thickness ranging from 0.18 mm to 2.5 mm.
production efficiency

Key benefits for our customers:
- Improved pneumatic chain tensioning system
- Reinforced heater carriage
- Enclosed return rails of material transport chains
- Water cooled heater cover can be moved into storage position and needs not to be removed
- Servo-driven adjustment of material spreading device, even during process sequencing. Values will be stored with recipe
- Servo-driven clamping frame. Absolutely smooth sequencing, exactly adjustable, storable and reproducible (in comparison to pneumatically operated frame)
- Tool change package
- Completely reinforced machine frame, ensuring quiet and reliable operation
- Automatic device for blowing the cooling water out of the tools. Transparent doors. Good overview of the complete machine. Better visual check for hygiene and cleanliness
Safe and flexible – **this is the**

In order to handle increased output, it was therefore necessary to develop the stacking unit.

The stacking solutions of the RDKP machine type ensure 100 % monitoring of the enormous output. Moreover, they allow individual adaptions to each production process.

Process optimization by different stacking system types

Last but not least the properties of the product are subject to quality and reliability of the different production steps. ILLIG therefore offers a reliable range of stacking systems and downstream equipment for RDKP 72g adjusted to:

- automation level
- output
- further processing

Safe and reliable product stacking is assured at any speed by employing the predominantly used servo drive technology suitable for synchronization and precision adjustment of the stacking movements.

Admissible depths of draw are considered in the layout of the stacking station. Positive or negative parts can be stacked.
modern way of stacking

A/B/C stacking is possible. Moreover, parts formed in W-configuration can be stacked. Change of format parts by means of the quick-change technology allows shortest conversion times. Conventional stacking format parts can be used.

Key benefits for our customers:

- Reinforced stacking system. Smoother operation ensures trouble-free stacking
- Better access to the stacking station for maintenance work and mold installation or removal
- Increased stacking stroke height
- Skeletal rewinding device with diameter control unit
- Rewinding device can be completely removed
IC- Automatic roll-fed thermoformer for forming/punching tool IC-RDKP 72

Higher Quality for more Availability

<table>
<thead>
<tr>
<th>Designed for forming and punching tools</th>
<th>IC-RDKP 72</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinged packages with eurohole</td>
<td>✔</td>
</tr>
<tr>
<td>Cups for gourmet food</td>
<td>✔</td>
</tr>
<tr>
<td>Lids for gourmet food</td>
<td>✔</td>
</tr>
<tr>
<td>Inserts for cookies</td>
<td>✔</td>
</tr>
<tr>
<td>Tray for plants</td>
<td>✔</td>
</tr>
<tr>
<td>Workpiece carrier</td>
<td>✔</td>
</tr>
<tr>
<td>Hinged package for chocolate marshmallows</td>
<td>✔</td>
</tr>
<tr>
<td>Blister</td>
<td>✔</td>
</tr>
<tr>
<td>Inserts for chocolate candies</td>
<td>✔</td>
</tr>
<tr>
<td>Hinged package for cookies</td>
<td>✔</td>
</tr>
<tr>
<td>Hinged packages for fruit salad</td>
<td>✔</td>
</tr>
<tr>
<td>Round tray with flat bottom</td>
<td>✔</td>
</tr>
<tr>
<td>Profiled lids</td>
<td>✔</td>
</tr>
<tr>
<td>Hinged packages with punched holes for fresh fruit</td>
<td>✔</td>
</tr>
</tbody>
</table>

**Automatic roll-fed thermoformers for forming/punching tool IC-RDKP 72**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forming area with actuated clamping frame</td>
<td>mm max. 676 x 535</td>
</tr>
<tr>
<td>Forming area without/with spring-mounted clamping frame</td>
<td>mm max. 756 x 535</td>
</tr>
<tr>
<td>Tool width between material transport with actuated clamping frame</td>
<td>mm max. 700 min. 450</td>
</tr>
<tr>
<td>Tool width between material transport without/with actuated clamping frame</td>
<td>mm max. 780 min. 450</td>
</tr>
<tr>
<td>Tool length in indexing direction</td>
<td>mm max. 565 min. 270</td>
</tr>
<tr>
<td>Tool length in indexing direction (optional)</td>
<td>mm max. 565 min. 350</td>
</tr>
<tr>
<td>Tool height at upper table</td>
<td>mm max. 170</td>
</tr>
<tr>
<td>Tool height at lower table</td>
<td>mm max. 170</td>
</tr>
<tr>
<td>Material width with actuated clamping frame</td>
<td>mm max. 725 min. 475</td>
</tr>
</tbody>
</table>
Automatic roll-fed thermoformer for forming/punching tool – higher quality for more availability

Material width without/with actuated clamping frame

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Max.</th>
<th>Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index length</td>
<td>mm</td>
<td>553</td>
<td>258</td>
</tr>
<tr>
<td>Index length (optional)</td>
<td>mm</td>
<td>553</td>
<td>338</td>
</tr>
<tr>
<td>Height of formed part above material level</td>
<td>mm</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Height of formed part below material level</td>
<td>mm</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Mold closing force</td>
<td>kN</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Forming pressure</td>
<td>bar</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Number of cycles with process optimization</td>
<td>1/min.</td>
<td>55</td>
<td></td>
</tr>
</tbody>
</table>

Applications

IC-RD KP 72

- Lids for cheese ✔
- Tray for vegetables ✔
- Hinged package for croissants ✔
- Round lid with cross slot ✔
- Hinged package for felt pens ✔
- Inserts for cookies ✔
- Tray for sweets ✔
- Hinged package for salad ✔
- Tray for pharmaceutical products ✔
- Tray for electronic components ✔
- Corner protection ✔
- Menu tray with 3 compartments and sealable flat rim ✔
- Tray with punched holes for vegetables ✔
- Hinged package for cakes ✔

IC-Thermoformer – a new machine generation

The entire range of ILLIG tool and die shop
ILLIG mold technology – Your individual success system. All from a single source

The quality and efficiency requirements of formed parts will increase further in the future. Our compressed air forming machines are a central component for long-term competitive production. The second, also important, component is the tool. And also on this theme ILLIG offers future-oriented high-tech products: first-class, extremely productive tools, with which the potentials of our machines can be completely exhausted.

Because with the integrated development and perfect coordination of both components comes a production system that is scarcely unbeatable in terms of performance, productivity and reliability – and that's what we characterise as the ILLIG success system.

Innovative tool brand ILLIG: often copied – never equalled

Like ILLIG, whoever has the competence to realise revolutionary machine technology, also has the best conditions for developing corresponding tools. When we launch new machine concepts we also offer suitable forming and punching tools that have been tested on the original machines – tailor-made for your individual requirements, developed and manufactured at ILLIG.

The advantages:
- Optimal processing quality: through unique technical details
- Efficient and safe operation: through minimum downtimes, less time spent on maintenance and long service life
- Future-proof: through unique performance data
ILLIG – and everything fits as a system

Our system solutions guarantee simple and quick integration in the most diverse production lines. Even the inclusion in highly complex overall systems, which are linked from the material manufacture to the completed decorated cup, is a routine task for us which we successfully manage on a daily basis.

Exclusive to ILLIG: clever details with maximum customer benefits

IC-Thermoforming stands for the best possible product quality with high efficiency. From the point of view of tools this task has been fulfilled by the following innovative features:

- Controllable cooling cycles for constant mold temperature: guarantees consistently good results
- Reduced forming air consumption and symmetry of all media: makes possible short filling times and identical part quality in all cavities
- Quick-change technology: for minimum mold changing times during format change
- Finishing elements
- Minimum mold weight: requirement for use of all machine potentials
ILLIG systems for thermoforming and packaging technology

- Sheet processing machines
- Automatic roll-fed thermoformers for forming/punching tools
- Automatic roll-fed thermoformers, separate forming and punching
- Skin and blister packaging machines
- Form, fill and seal lines
- Tool and die shop