Promatrix 106 CS
Welcome Heidelberg’s new die cutter and embossing system in the 70 x 100 size – The Promatrix 106 CS
What’s In a Name?
• “Promatrix” is the name of the new die cutter product line
• “106” shows the maximum sheet size of 760 x 1,060 mm (29.92 x 41.73”)
• “CS” means cutting and stripping

Product Benefits
• Systematically reduced set-up times and consistent production
• Heidelberg Service, Support and Parts for installation, training and production

Key Product Features
• Machine speed: 8,000 sheets/hour with non-stop operation
• Format: 29.9 x 41.7” – compatible with all Heidelberg 40” Speedmaster presses, including the Speedmaster XL 106
• Suction belts at infeed table with individually adjustable front lays
• Integrated fine adjustment for the cutting plate
• Motorized cutting pressure adjustment
• All frames in the stripping station are equipped with fine adjustment systems
• Quick lock systems for the tools in the cutting and stripping station
• Elevation kit and small format attachment included in machine standard

Figure 1. Promatrix machine stations.

1. Non Stop Feeder with suction head quick adjustment
2. Suction Belt Table with central quick adjustment for rollers & brushes, ultrasonic double sheet detection and gripper opening in case of misaligned sheets
3. Pneumatic Clamping of cutting plate with fine adjustment
4. Pneumatic Locking of quick lock chase
5. Cassette for stripping board with fine adjustment; test sheet removal
6. Upper Stripping Frame with quick lock and fine adjustment; frame lift
7. Register System in each station up to the stripping station
8. Motorized Adjustment of brake brush power
9. Non-Stop Delivery with rolling carpet
The Promatrix Feeder
The Feeder separates the sheets and transports them to the Feed Table. The Promatrix feeder is capable of converting paper from approximately 60 lb. text up to 78 pt. carton board and corrugated board with a maximum thickness of 4mm (0.15”).

The machine is equipped with a nonstop-feeder. By using the nonstop swords, a pile change can be done while the machine is in full production.

The running direction sheet size adjustment can be done by a quick adjustment (1, Figure 3) at the suction head. This allows a quick change from large to small sheet sizes and back. If required, a fine adjustment can be done via hand wheel (2, Figure 3).

The feeder pile tray is motorized and can be moved +/- 20mm (0.787”). The feeder pile tray is on top of a carrier plate; this carrier plate is not movable. In addition, the feeder pile tray is automatically centered when it reaches the floor.

Additional Feeder Features:

- Electro-mechanical double sheet detection
- Pallet size: max. 760 x 1,075 mm (29.92” x 42.3”)
- To use the nonstop function, an appropriate one-way pallet or a system pallet is required; Heidelberg USA has suitable pallets available
- The machine is equipped with a ramp ahead the feeder for an easy pallet feeding
- The governor foot and the separating blowers are supplied with air from a compressor
The Promatrix Feed Table

Figure 5. Feed Table with suction belts and hand wheel for central adjustment of the rollers and brushes
The Feed Table is equipped with two central suction belts for stable and secure sheet transport. The rollers and brushes ensure the sheets stay flat. Additionally, there is a standard transport belt on the operator and on the drive side. All belts can be laterally adjusted +/- 4mm (0.157’’); thus, preventing friction between sheet edge and belt edge.

The sheet is aligned at the Feed station with front and side lays and has four active front lays. They can be individually selected, so you can use 1 to 4 at the same time. In general, these active front lays can also be used for special surfaces, e.g., black or transparent material. Where necessary, a test with customer material is recommended. If required, the front lays can be adjusted at an angle.

The lateral sheet adjustment uses the mechanical side lay. The Promatrix provides one on the operator side and one on the drive side. Both side lays can easily be changed from pull to push operation without any use of tools.

**Additional Feed Table Features:**
- Central size adjustment for the rollers and brushes via a hand wheel (see Figure 5)
- Ultra-sonic double sheet detection
- Sheet arrival, which can adjusted via hand wheel
- Permanent active sheet slow down device
- Cover guide adjustable in height
- Gripper finger opening device (in case of misaligned and double sheets)
- Removable front lay arrester, helpful if the front sheet edge is concave or convex
- Fold-out step for a better Feed Table accessibility
- Register system
The Promatrix Cutting Station
The Cutting Station is the heart of the machine where cutting, creasing and embossing are done. It has a maximum cutting pressure of 260t and the adjustment of the pressure is motorized. At the push of a button, the lower cutting plate and the cutting chase are released or locked – this reduces the make-ready time.

An air cushion can be switched on to support the removal of the cutting plate to make it easy to remove. The Promatrix works with a 4+1mm cutting plate system (4mm thick cutting plate plus 1mm thin cutting plate). This system is fixed on a supporting plate. The supporting plate includes a fine adjustment system that allows an adjustment of the cutting plate of +/- 1.0mm, this allows fine tuning of the 1mm plate during repeat jobs.

The standard cutting chase is a quick lock chase. This chase is characterized by easy locking and releasing of the cutting die through a spring system. To protect the patching sheet, the machine is also equipped with a synthetic cover plate.

Additional Cutting Station Features:
- The Quick Lock Chase with fixed make ready plate has the European hole pattern (diagonal). Other hole patterns are available on request.
- To use smaller cutting dies an optional cutting chase with adapter bars is available.
- Register system
- Tool compatibility: see p. 19
The Promatrix Stripping Station
In the Stripping Station, the inner waste pieces are removed from the sheet and, depending on the layout, the side and rear trim can be removed as well.

There are three frames integrated in this station: one for the upper stripping tool, one for the middle stripping board and one for the lower frame. All three frames are equipped with fine adjustment systems and indicators. The adjusting range is +/- 2.0 mm (0.787"), which is useful to make small adjustments for repeat jobs and for fine tuning the position of dynamic stripping tools.

The upper frame can be lifted to create a gap of 130 mm between the stripping board, and the upper pins to allow easy access for the operator. The upper frame has a quick lock system with pneumatic clamping to fasten the built-in upper stripping tool. This system and clamping can be used either for dedicated tools or for universal tools, which are set in a frame.

The benefit is that regardless of using a dedicated tool or a universal tool, both can be fine adjusted. The stripping board is mounted into a pull out frame and uses quick lock tooling clamps for quick and easy set up. Fine adjustment of the stripping board is possible.

A test sheet for quality control can be taken in the Stripping Station. The gripper fingers are opened pneumatically with the push of a button. Then, the operator can remove the sheet from the Stripping Station. Alternatively, the stripping board with the test sheet on top can be extricated from the Stripping Station (see figure 11).

If required, the lower frame can be set with lower stripping pins. This frame is also equipped with the fine adjustment system and the indicators.

**Additional Cutting Station Features:**
- Illuminated from inside
The Promatrix Delivery
The cut and stripped sheet is transported to the Delivery Station. Typically the sheet is delivered with the front edge; a front edge removal system is available as an option.

The Delivery features an automatic non-stop apron instead of a non-stop rack, which guarantees a mark-free, non-stop operation.

A tape inserter is option available for the Promatrix; this allows batches of product to be counted.

During production, the operator can take out a test sheet, for quality control, from the delivery sheet pile.

The Delivery is equipped with several different devices to help create a neat pile. The rear edge of the sheet is controlled via a sheet braking brush that is adjustable from outside the machine.

Two air blowers help ensure the sheets drop on the pile quickly and smoothly. A bar blowing air against the direction of sheet travel helps keep the sheet flat. The air pressure is adjustable and the blower position can be changed. Lateral joggers ensure a straight line pile edge. The length size adjustment can be positioned with a hand wheel that includes position indicators for easy set-up of repeat jobs.
The Promatrix Delivery (cntd)

Figure 17. Sheet braking brush

Figure 18. Lateral jogger (Operator Side)

Figure 19. Sheet length set-up via hand wheel
**The Gripper Bar.** The Promatrix works with seven gripper bars. Every gripper bar has nine gripper fingers. If required, the three outer gripper fingers, on the operator and drive side, can be repositioned. The other three inner fingers are fixed.

The gripper fingers are in bottom position which means that the central stripping board remains stationary; this improves the stability of the sheet keeping it flatter in the machine.

**Register System and Sheet Detection.** For precise cutting and stripping, the Promatrix is equipped with a Register System in the Feed Table, the Cutting Station, and in the Stripping Station. There are two sensors to check the sheet after the Cutting Station and another one (which is moveable) after the Stripping Station to ensure the sheet stays intact as it travels through the machine. Additionally, there is a sensor after the Delivery Station to identify overshooting sheets.

**System Engineering**
- Motorized cutting pressure adjustment
- Pneumatic gripper fingers opener for test sheet removal in the Stripping Station
- 10.4" touch-screen for machine operation and indication of operating status
- Local control panels for convenient operation at all stations
- Central lubrication system
- Automatic chain lubrication
- Oil cooling device
- Mitsubishi PLC
- Overload protection
- Gallery
## Promatrix 106 CS

### Material

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Paper (min.)</td>
<td>90 g/m² (approx. 65 lb. text)</td>
</tr>
<tr>
<td>Carton Board (max.)</td>
<td>2,000 g/m² (approx. 78 pt.)</td>
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<tr>
<td>Corrugated Board (max.)</td>
<td>4.0 mm (0.157”)</td>
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### Performance

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<table>
<thead>
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<tbody>
<tr>
<td>Sheet Size (min.)</td>
<td>300 x 350 mm (11.82 x 13.78”)</td>
</tr>
<tr>
<td></td>
<td>760 x 1,060 mm (29.92 x 41.7”)</td>
</tr>
<tr>
<td>Cutting Pressure (max.)</td>
<td>2.6 MN/260 t (2.6 MN/286 tn)</td>
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<tr>
<td>Machine Speed (max.)</td>
<td>8,000 sph</td>
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### Pile Height (incl. pallet)

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<table>
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<tbody>
<tr>
<td>Feeder Pile:</td>
<td></td>
</tr>
<tr>
<td>w/o non-stop function (max. height)</td>
<td>1,500 mm (59.05”)</td>
</tr>
<tr>
<td>with non-stop function (max. height)</td>
<td>1,200 mm (47.24”)</td>
</tr>
<tr>
<td>with non-stop function (max. weight)</td>
<td>1,500 kg (3306 lbs.)</td>
</tr>
<tr>
<td>Delivery Pile:</td>
<td></td>
</tr>
<tr>
<td>Height (max.)</td>
<td>1,400 mm (55.11”)</td>
</tr>
<tr>
<td>Weight (max.)</td>
<td>1,350 kg (297 lbs.)</td>
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### Technical Details

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<table>
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<tr>
<td>Maximum Dimension of Cutting Die</td>
<td>754 x 1,070 mm (29.68 x 42.13”)</td>
</tr>
<tr>
<td>Net Cutting Area</td>
<td>734 x 1,060 mm (28.89 x 41.73”)</td>
</tr>
<tr>
<td>Gripper Edge Margin (13 mm wood in front of 1st knife)</td>
<td>9–17 mm (0.36–0.66”)</td>
</tr>
<tr>
<td>Weight of Machine</td>
<td>Approx. 19 t (20.94 tn)</td>
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**Tool Compatibility**

The dimensions mentioned below are only general indicators to check if existing tooling can be used on a Promatrix. To verify that existing tooling can be used on the Promatrix, please consult with Heidelberg and provide at least the tool dimensions to ensure compatibility.

<table>
<thead>
<tr>
<th>Station</th>
<th>Tool</th>
<th>Important Dimension</th>
<th>Compatibility</th>
</tr>
</thead>
</table>
| Cutting       | Cutting Die                 | • Cutting rule: 23.8 mm  
• Board thickness: 18 mm  
• Max. size: 754 x 1,070 mm  
• 13 mm wood in front of 1st knife | • Cutting Dies up to size 106, respectively up to a max. wood size of 754 x 1,070 mm  
• Smaller Dies can be used with an appropriate adapter frame |
|               | Thin Cutting Plate          | • Plate thickness: 1 mm  
• Max. size 761 x 1,090 mm  
• Position of first knife: 3 mm (from front edge) | • Cutting Plates up to size 106, respectively up to a max. plate size of 761 x 1,090 mm  
• For smaller sizes, the thick cutting plate of the Promatrix will be modified with the proper drill pattern  
• The position of the first knife must be <4mm |
|               | Upper Dedicated Tool        | • Board thickness: 15 mm  
• Max. size: 805 x 1,120 mm  
• Position of top fastening screw: 420 mm | Please meet the dimensions due to the Tool Specifications. |
|               | Stripping Board             | • Board thickness: 12 mm  
• Max. size: 750 x 1,060 mm | Please meet the dimensions due to the Tool Specifications. |
|               | Lower Stripping Pins        | • Pin height: 117 mm | Compatible: if you use similar pin heights. e.g., pin height: Varimatrix: 98mm (doesn't fit)  
Dymatrix: 116mm (fits)  
Bobst: 115mm (fits) |

**Technical Data**

**Additional Considerations**

- Please notice maximum pallet size of 760 x 1,075 mm (29.92” x 42.3”). Suitable pallets are available from Heidelberg USA.

- The rolling apron in the Delivery Station cannot be lowered. This limits the capabilities for non-stop operation with thin material.
You have to keep your machines running to be successful in today's demanding business environment. You require the right combination of service, parts, and consumables to support your needs around the clock. Look no further:

With the largest service force coverage in the industry, Heidelberg's Systemservice Organization has what it takes to help you stay on top of your production capabilities – wherever you are, whatever your business demands.

At Heidelberg, service means more than just simple repair. From trouble-shooting to workflow optimization, and from maintenance to customized training, Heidelberg Systemservice is your trusted service partner.

With an industry leading fulfillment rate, we ensure you can have 97% of our Original Heidelberg Parts inventory to you within 24 hours. Our Americas Logistics Center in Indianapolis enables fast response times.

It's not just about servicing your machine, it is about improving your business.

We are ready to serve you!
First Installation of the Promatrix 106 CS

The world’s first Promatrix 106 CS from Heidelberg is up and running at Polish packaging print shop Arka-Druk. Other print shops found out more about the die cutter at an open house event.

Arthur Bach (center), owner of Arka-Druk, is delighted with the Promatrix 106 CS. Also at the event were Dr. Frank Schaum (right), head of Postpress, and Krzysztof Pindral, head of Heidelberg Poland.
Polish packaging printer puts world’s first Promatrix 106 CS die cutter from Heidelberg into production:

- Arka-Druk benefits from wide range of standard features and is impressed by high quality
- Further sales to European customers
- Joint development of die cutters with Masterwork Machinery continues and new products in pipeline

Polish packaging print shop Arka-Druk in Lapy near Bialystok has begun production with the world’s first Promatrix 106 CS die cutter. At an open house event at the end of March this year, other Polish printers witnessed this world premiere with practical demonstrations and were provided with comprehensive technical information. The Promatrix 106 CS is the first machine to result from the partnership concluded last fall between Chinese manufacturer Masterwork Machinery Co. Ltd. (MK) and Heidelberger Druckmaschinen AG (Heidelberg). The machine is being sold exclusively by Heidelberg.

Following lengthy and extensive testing, Arka-Druk is now benefiting from the comprehensive standard features of the Promatrix 106 CS and is delighted with the high quality. Arka-Druk was founded in 2000, has 70 employees, and supplies discerning customers in the packaging industry, including pharmaceutical and cosmetics companies. Its excellent experiences with the Varimatrix 105 CS die cutter and Easygluer 100 folding carton gluing machine, also installed by Heidelberg, underpinned its decision to purchase the Promatrix 106 CS. “We were looking for a die cutter for runs and lead times that are becoming ever shorter,” explains owner Arthur Bach. “The tests with the Promatrix 106 CS met all our expectations. The die cutter fits in well with our concept of industrial production with structured processes and delivers high quality with reliable production,” he adds.

Heidelberg unveiled the Promatrix 106 CS last fall at the Packaging Days held in Hall 11 at its Wiesloch-Waldorf site. The machine impresses with a wide range of standard features, extremely user-friendly operation, and an attractive price-performance ratio. The Promatrix 106 CS performs die cutting and embossing at a speed of 8,000 sheets per hour for a 760 × 1,060 millimeter (29.92 × 41.73 inch) format. Thanks to its short makeready times, users benefit from high productivity and excellent cost-efficiency. It can handle a wide range of materials – from 90 all the way up to 2,000 grams per square meter – and also processes corrugated board up to four millimeters (0.16 inches) thick.

“We’re delighted the Promatrix 106 CS has been so well received by the customer. Other machines sold to European customers are almost ready for delivery,” confirms Dr. Frank Schaum, head of Postpress at Heidelberg. The Heidelberg sales team works closely with product management at MK. This ensures new products meet customers’ technical and commercial requirements. “We will continue to develop the product portfolio with MK in the medium term. Our objective in doing so is to supply the right machines and solutions to ensure effective folding carton production, complete with the appropriate service activities,” explains Schaum. Customers also enjoy access to the Heidelberg global sales and service network.