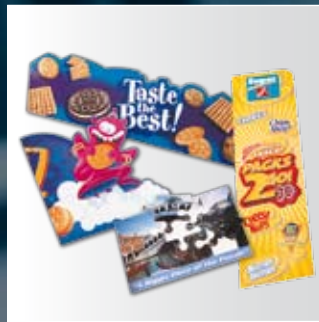


www.esko.com

APR07 - G2558256_US



Esko nv

Kortrijksesteenweg 1095
9051 Gent
Belgium
Tel. +32 9 216 92 11
info.eur@esko.com

Esko-Graphics

1955 Vaughn Road, Suite 101
Kennesaw, GA 30144
USA
Tel. +1 937 454 1721
info.usa@esko.com

Esko-Graphics Pte Ltd

Block 750C Chai Chee Road
#01-07/08 Technopark @ Chai Chee
Singapore 469003
Tel. +65 6241 21 26
info.asp@esko.com

Esko-Graphics

Y-M Shinjuku Bldg. 2F
4-1 Yotsuya 4-Chome, Shinjuku-ku
Tokyo, Japan 160-004
Tel. +81 3 5363 0971
info.japan@esko.com

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MGE

mikkelsen graphic engineering, inc.

ESKO

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Automated digital finishing systems for signs and displays

The Esko Kongsberg *i*-XL-Series



Esko Kongsberg *i*-XL-Series: unmatched performance, versatility and durability

Based on the Kongsberg XL-Series of short-run production tables, *i*-XL, a new series of finishing tables, integrates the Mikkelsen Graphic Engineering (MGE) *i*-cut® vision system. The Kongsberg *i*-XL complements digital printing of sign and displays with a unique finishing solution for the widest range of materials, providing automation, high productivity and outstanding precision.

The industry's most cost-effective finishing machine, loaded with unique features that save time and boost productivity.



*Thanks to its rock-solid construction with virtually unlimited vacuum grip, the Esko Kongsberg *i*-XL table is the ideal platform for handling the most demanding materials, delivering record-breaking productivity and versatility.*

Since they were introduced in 1984, well over 2,000 Kongsberg cutting tables have been installed in more than 70 countries worldwide, and the number is increasing rapidly. Almost all of those are still in daily production. This remarkable track record is your guarantee that the Kongsberg *i*-XL will be a valuable asset for many years to come.

Widest range of materials

Kongsberg tables are successful because of the wide variety of materials they can process. With the *i*-XL series of tables, you can choose between the FlexiHead and MultiCUT toolheads for high performance finishing.

From an extensive selection, different tools can be inserted simultaneously into the configurable tool stations of the **FlexiHead** and **MultiCUT**:

- Tangential knife tools
- Micro- and Kisscut tools
- Oscillating knife tools
- Creasing tools
- Pen plotting tools

FlexiHead

The FlexiHead, with its collection of tool inserts, provides excellent functionality for finishing a wide variety of materials ranging from paper, pressure sensitive film or vinyl, to cartons, plastics, corrugated, foam board and more.



MultiCUT

All the FlexiHead tools can be combined with a high-power router in the MultiCUT toolhead in two customer configurable stations. Operators who need an extra tool to process rigid materials such as Dibond, Forex, Sintra, PVC, wood and acrylics up to 25mm (1") thick, now have the most productive and versatile solution.

The MultiCUT router spindle features a true 1kW of milling power, and adjustable spindle speeds up to 60,000 RPM. It allows for milling, contour cutting, routing, drilling and engraving directly from CAD/graphics designs. Matched with heavy-duty construction and the sophisticated Z-axis control of the *i*-XL tables, the router delivers high quality output at an impressive throughput rate – making the MultiCUT a great tool for real production work.



Perfect registration: *i-cut*[®] vision



Kongsberg tables are successful because of the wide variety of materials they can process. With the *i-XL* series of tables, you can choose between the FlexiHead and MultiCUT tool-heads for high performance finishing.

Printed signs and displays can get custom-shaped right on the finishing table. The shaping itself, like contour cutting, follows the graphics exactly as created by the printer.

Often with other methods, slight distortions between printed graphics and contour cut may cause unacceptable results. With the MGE *i-cut*[®] vision system, you can guarantee a cut contour that perfectly matches the printed graphics.

The MGE *i-cut*[®] vision registration system is integrated into the Esko Kongsberg *i-XL* table with the *i-cut* camera in the toolhead. This camera first measures actual dimensions and positions on the actual printed result. Then, finishing is adapted to the shape of the graphics.

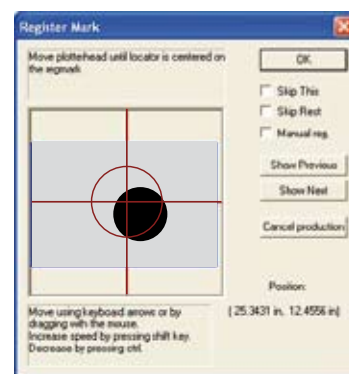
The system works with strategically placed registration marks – the dots – that are printed along with the graphics and that are used to align the cutting path.

During the finishing operation, the *i-cut* camera optically locates and analyzes the position of the registration marks. Not only is registration corrected, but also *i-cut* vision-pro is capable of automatic and dynamic compensation of any dimensional changes, distortions or material variations, like shrinkage or stretching.

The *i-cut* software runs on an attached workstation that is included with the *i-XL*. This software automatically fine-tunes each cut contour for perfect cut-to-print. The *i-cut* is a fail-safe, patented and proven registration method that guarantees the highest cut quality on runs from a few to thousands, and from small shapes to large sizes.



i-cut camera

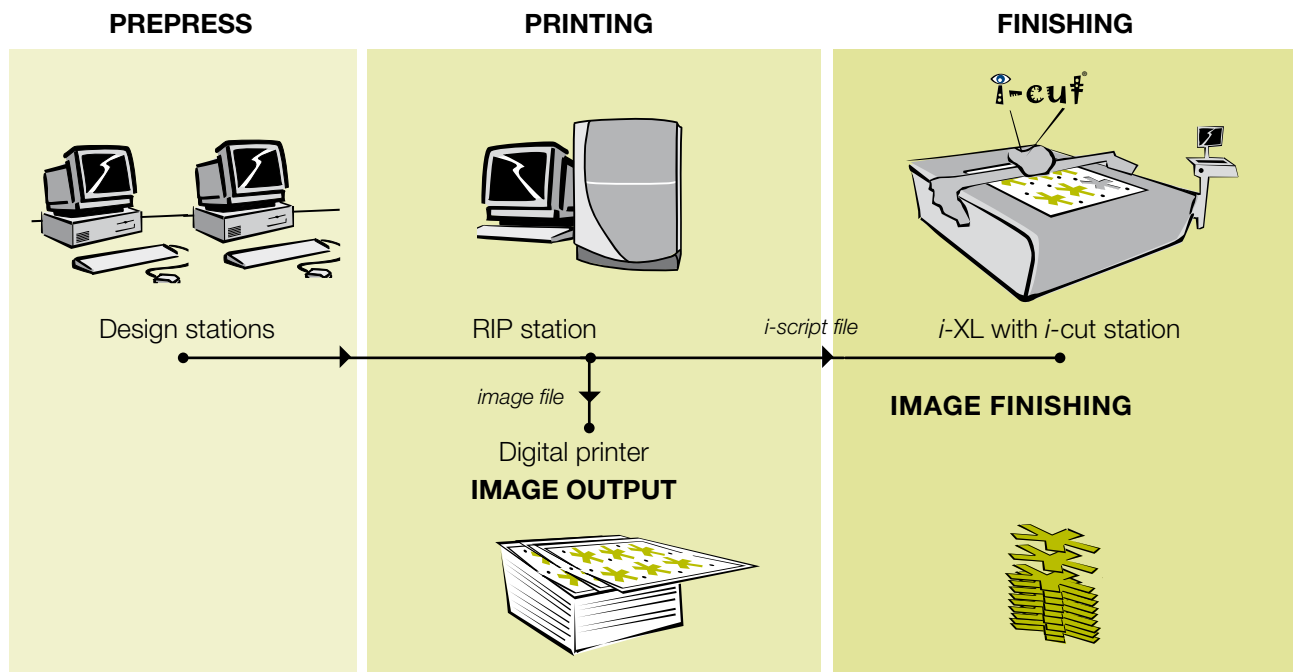


i-cut[®] registration mark optically checked and adjusted

Streamlined digital production workflow: *i-script*TM



The *i-script*TM software is an additional component enhancing finishing productivity. The software connects the separated routes of the graphic design and the finishing data. It is the interface between the digital print control and RIP software, and the *i-cut*[®] digital finishing system.



With *i-script*TM, the operator does not have to re-register the toolhead for each printed file on one sheet or roll of material. The *i-script*TM standard allows digital print control software to generate and communicate key finishing data to the *i-XL*. Setup time can be reduced to just placing the printed material on the *i-XL* table and pressing the 'Start' button.

The complete cutting file for an entire sheet or roll, including cutting contours, nesting coordinates and paneling dimensions, is automatically generated with *i-cut* registration marks and a unique barcode.

To begin the finishing process, the *i-cut* camera reads the job number barcode, retrieves the corresponding cutting and layout data, and automatically moves to the registration marks for measuring. It is then able to automatically align the cutting paths to the graphic objects of the entire layout.

Integrated into a digital production system, *i-script*TM completely automates cutting and trimming for a wide range of flexible as well as rigid materials. It is particularly capable of finishing materials from the rapidly emerging class of large format flatbed inkjet printers, as well as other high performance roll-fed digital output devices.

Major front end and printing manufacturers have integrated *i-script*TM into their digital print control software.

Automated material handling with the conveyer system

The Kongsberg *i*-XL can be equipped with the conveyer system for automated material processing. Production applications, requiring continuous loading of material by pushing material on the conveyer belt and moving the belt, are made easy.



Material can be continuously retrieved from a roll of material, or sheets can be automatically fed through the MGE sheet feeding system.

The MGE sheet feeding system features a 'Pick & Place' unit along with a loading table, on which sheets are stacked for finishing. The sheets are picked up with suction cups and placed on the *i*-XL conveyer belt for transport onto the finishing table. Finished material is then collected from the belt on an off-load table. The sheet feeding system handles thick or rigid materials as well as thin, flexible materials. Sheet sizes can range from 200 mm x 250 mm (8" x 10") up to 2130 mm x 3000 mm (84" x 118").

The conveyer system is designed for seamless integration with *i*-cut's continuous workflow operation. Non-stop production can be accomplished, virtually unattended.

Technical specifications

Model		<i>i</i> -XL20	<i>i</i> -XL24	<i>i</i> -XL44
Working area* with FlexiHead (W x L)	mm inch	1680 x 1270 66 x 50	1680 x 3050 66 x 120	2210 x 3050 87 x 120
Working area* with MultiCUT – tool stations	mm inch	1618 x 1270 63.7 x 50	1618 x 3050 63.7 x 120	2148 x 3050 84.6 x 120
Working area* with MultiCUT - router	mm inch	1680 x 1270 66 x 50	1680 x 3050 66 x 120	2210 x 3050 87 x 120
* X direction work area is reduced by 50mm (2") when the conveyor option is installed.				
Overall dimensions	mm inch	2250 x 1980 89 x 78	2250 x 3720 89 x 146	2780 x 3730 109 x 147
Max. material size	mm inch	1750 x 1620 69 x 64	1750 x 3420 69 x 135	2280 x 3420 90 x 135
Weight	kg lbs	405 890	580 1276	765 1683
Position accuracy		± 200µm ±.0078"	± 200µm ±.0078"	± 300µm ±.0118"
Repeatability		± 50µm ±.0019"	± 50µm ±.0019"	± 60µm ±.0023"
Max. speed		50m/min - 33lps		
Max. acceleration		5.6m/s ² - 0.56G		5.4m/s ² - 0.54G
FlexiHead		Three configurable tool stations + <i>i</i> -cut camera		
MultiCUT head		Two configurable tool stations + <i>i</i> -cut camera + router		
Material clearance		50 mm - 2" (without cutting underlay)		
Max. tool force		22 kg - 48lbs		
Registration and compensation		<i>i</i> -cut© vision PRO		
Workflow		<i>i</i> -script™		
Workstation		Custom operator console attached to <i>i</i> -XL frame with integrated PC workstation, screen, keyboard and operator panel		
Automation features		Conveyor system with roll and sheet/board material loading & unloading equipment		