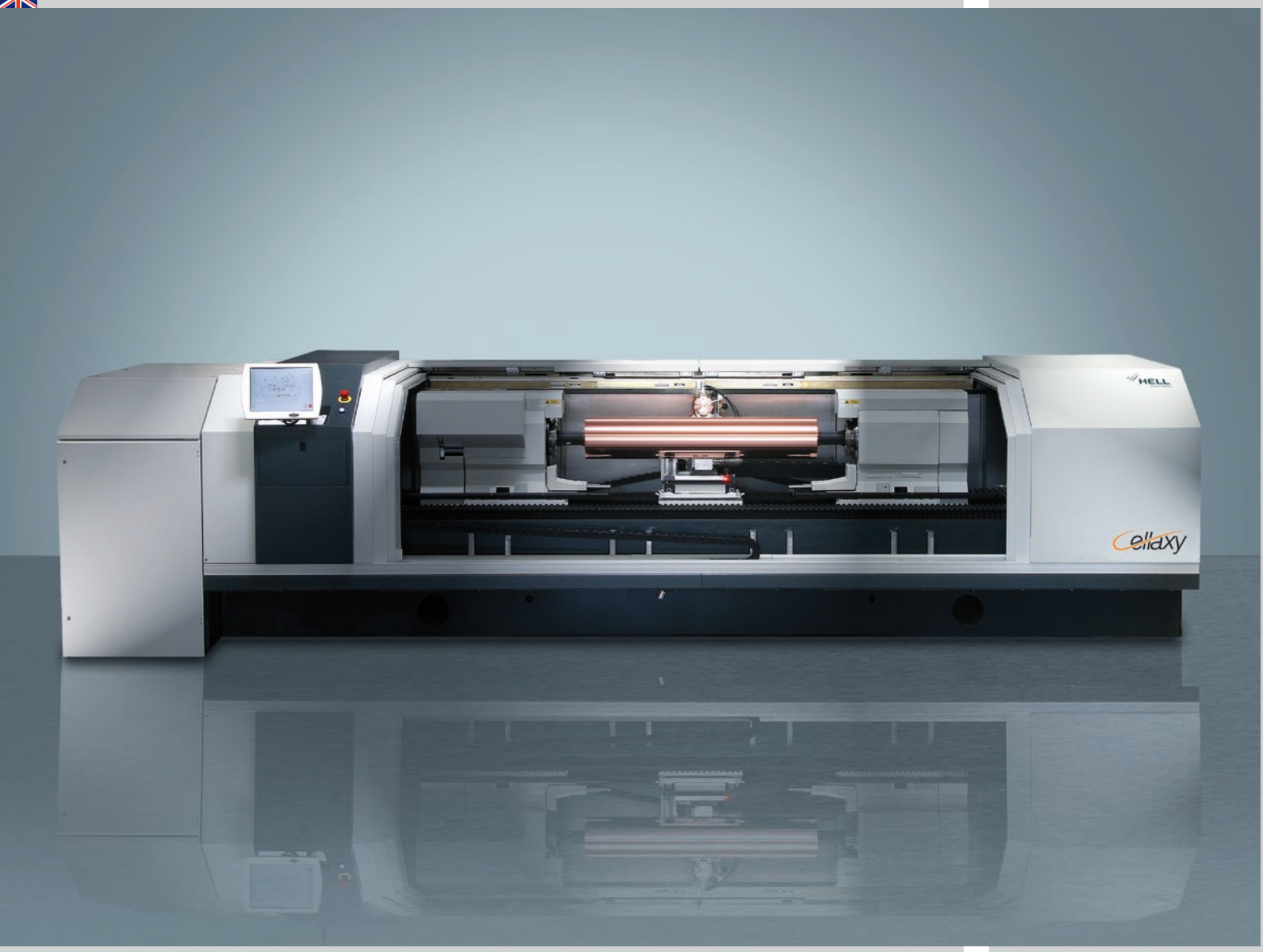
HELL
Gravure Systems

Cellaxy

2nd GENERATION LASER ENGRAVER



Based on Innovation.

The Cellaxy is a laser engraver for the direct engraving of gravure cylinders in copper and chrome.

Cellaxy

Dawn of a new era in gravure form manufacture

The Cellaxy laser engraver represents the second generation of direct engraving for gravure cylinders. It engraves directly in copper and chrome and achieves unsurpassed quality.

The centerpiece of the Cellaxy is a state-of-the-art high-performance fiber laser which, for the first time, provides the high power density required for direct laser engraving of copper and chrome surfaces.

A class of its own

Images in gravure quality

The various possibilities for controlling the laser support the creation of gravure cells whose profiles can, to a large extent, be freely selected. This fully exploits the contone properties of gravure printing, with results that are simply brilliant.

Texts in offset quality

The write resolution of the laser is not dependent on the gravure screen selected. This produces high contour definition that is otherwise the preserve of offset printing. For example, texts can be reproduced with a resolution of 2540 dpi and images in a 60 l/cm screen. As well as the excellent text and line quality, large volumes of ink can be transferred and high print densities produced. The Cellaxy is thus ideal for high-quality applications such as cigarette packaging, labeling, pharmaceutical product packaging, and security printing.

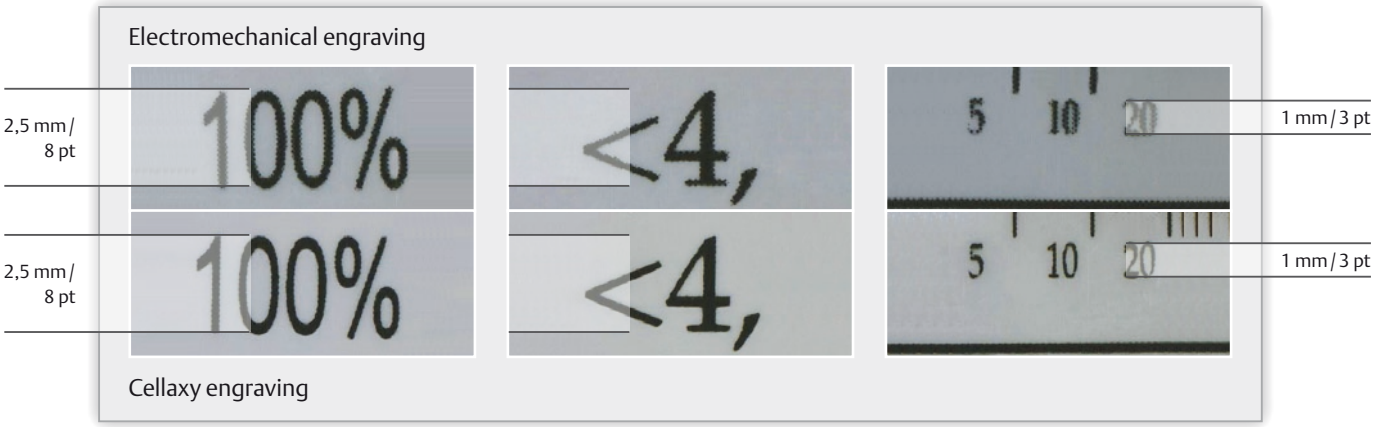
Compatibility makes the difference

An unbeatable benefit of the 2nd generation is the fact that direct-lasered cylinders and electromechanically engraved cylinders can be combined. And this applies to contone cylinders, too. The Cellaxy also engraves chrome and copper cylinders. The machine can therefore be seamlessly integrated into existing production configurations, since the electroplating requirements remain the same as for electromechanically engraved cylinders.

As easy as ever

With HelioCom, the Cellaxy can be integrated easily into the digital workflow. HelioCom performs the data processing and generates color-separated TIFF complete forms. The HelioDisk job ticket editor is used to record engraving parameters and these are transferred to the laser engraver by means of a job ticket.

A comparison: Electromechanical engraving and Cellaxy engraving



The Cellaxy produces far better contour definition and a significantly higher print density than optimum electromechanical engraving with a 70 l/cm screen and angle 4.

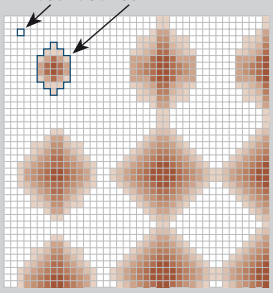
Components and characteristics

Quality for successful production

Laser

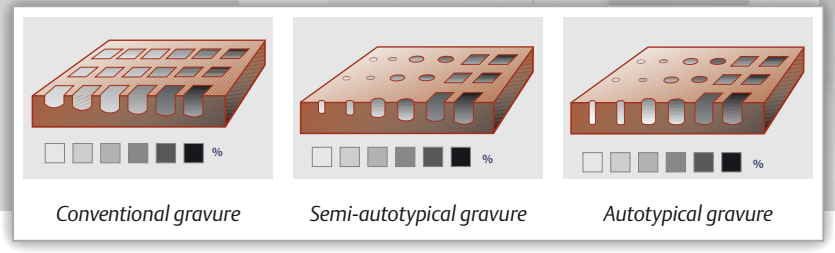
The Cellaxy uses a diode-pumped fiber laser that works at a consistently high power level. The laser's superb beam quality delivers the power densities needed to process chrome and copper. At the same time, the extremely high depth of focus supports a higher tolerance of concentricity inaccuracies than is possible with conventional lasers. The rotational speed is adapted to suit the cylinder circumference and extends over the range 600 and 1,600 rpm.

The intensity of the laser beam itself is controlled by a modulator on the basis of the input data. The write resolution is 1000 l/cm and depends on the engraving screen selected. The Cellaxy's productivity thus only depends on the engraving depth selected. Productivity averages 0.8 m^2/h for chrome cylinders and 0.6 m^2/h for copper cylinders.

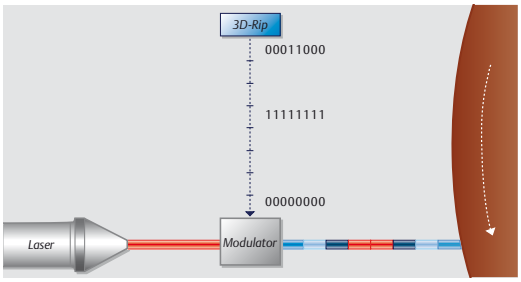


Three-dimensional screening

The profiles of the lasered cells can, to a large extent, be freely selected.



Conventional gravure | Semi-autotypical gravure | Autotypical gravure

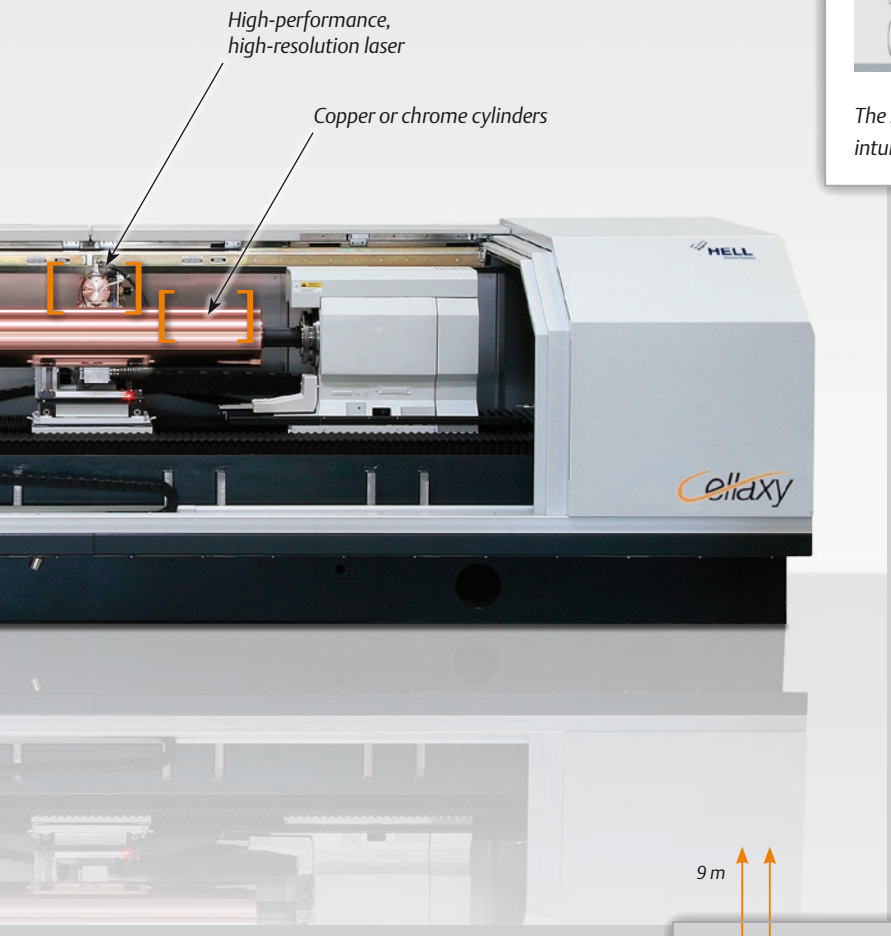


Lasers with a modulator

Adjustable profiles and 3D screening

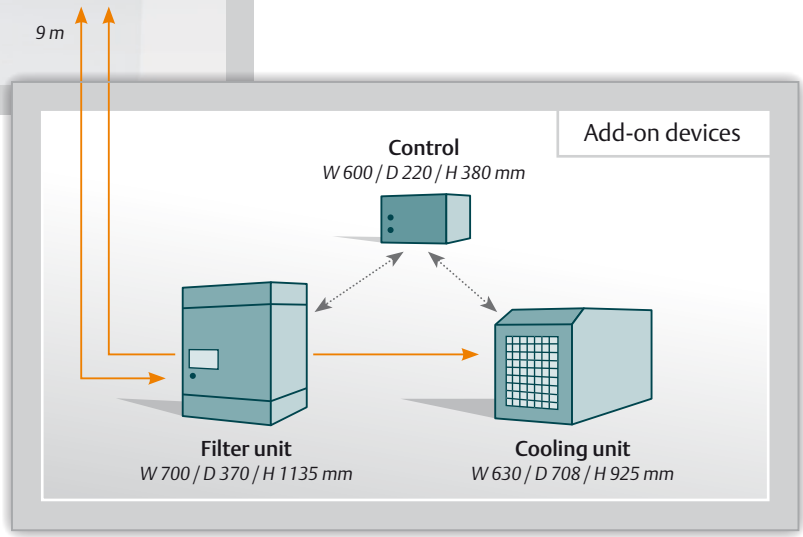
The flexible control of the Cellaxy laser allows cells to be created with semi-autotypical, autotypical, conventional or mixed characteristics, as required. This range of options enables customized adjustment to the specific printing conditions. The Cellaxy operates along the same lines as every offset CtP platesetter. In a matrix of 16 x 16 laser dots, for example, an engraving cell is described that can theoretically assume 256 different sizes. However, at the same time, each laser dot can also be modulated in depth, thereby enabling the creation of not just two-dimensional but also three-dimensional screen cells.

The state-of-the-art user interface enables straightforward, intuitive control via touchscreen and keyboard.



Simple, ground-breaking operation
The Cellaxy is extremely easy to operate thanks to its intuitive navigation and ergonomic user interface. The operating and control program runs on a Windows operating system. The machine can be operated using either the touchscreen or the fold-out keyboard. During laser engraving, a display keeps the operator informed of the time remaining.

Easy and space-saving
An extraction device on the laser head removes chrome and copper residues. Feeding in of compressed air and protective gas supports this process. The waste air is purified in a filter downstream and in TÜV reports is stated as being sufficiently pure that it can be released into the atmosphere. The fiber laser is actively cooled using a closed water circuit. The cooling assembly and the filter unit can be installed in a separate room the machine.

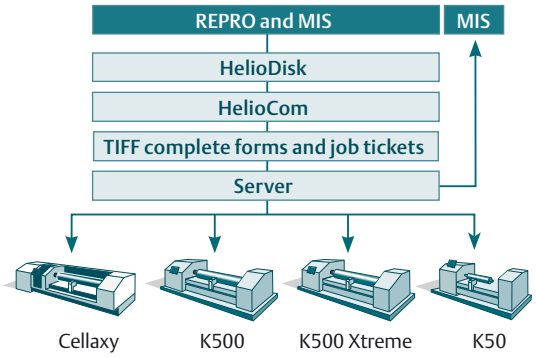


Smooth workflows

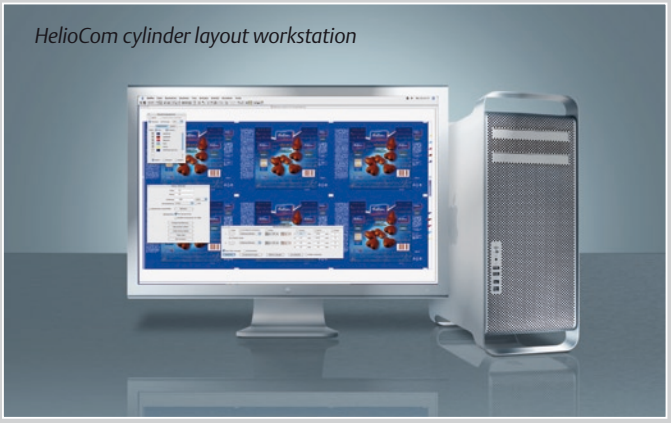
Digital workflow and automation

TIFF direct engraving and job tickets
Cellaxy engraves directly from TIFF data that is supplied, for example, by the professional HelioCom cylinder layout workstation. During job preparation with HelioDisk, the operator establishes whether a cylinder should be produced conventionally, using XtremeEngraving, or with direct laser engraving using the Cellaxy. The specific laser production parameters are then added and a job ticket created for each cylinder. All subsequent steps such as creating layouts and generating TIFF engraving data using HelioCom, layout proofing with HelioFormproof, and optimizing quality with High Quality Hinting proceed as usual, irrespective of the output process.

Joint workflow for different output processes



HelioCom cylinder layout workstation



Full automation with AutoCon
The Cellaxy is ideal for integration into the fully automated AutoCon production line. AutoCon is a joint project between HELL Gravure Systems, Bauer-Logistik-Systeme, and K. Walter.

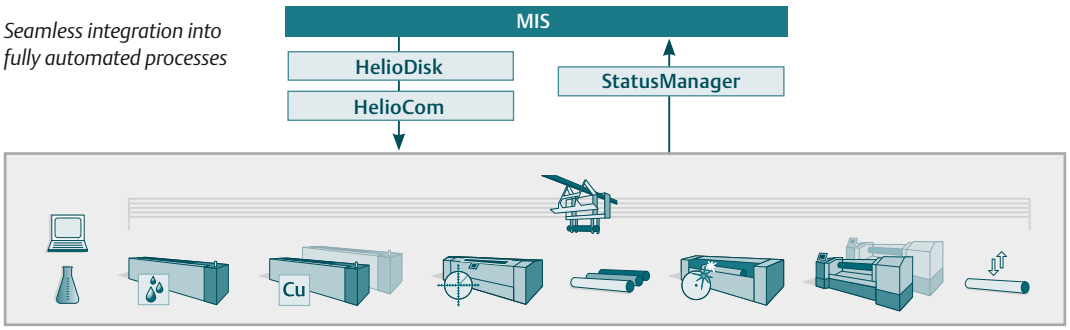
Management Information Systems (MIS)
JDF job data from MIS systems can be adopted into engraving job preparation with HelioDisk and used to create job tickets. This avoids duplicated entries and leads to greater reliability in production.

Greater reliability in production thanks to online access

Integrated quality management
The StatusManager provides information on the production work currently in progress. The software collects operating, job, and record data in an SQL database. This information is evaluated and can, for example, be requested globally or locally by web browser.

Using a standardized web interface, MIS systems can also make StatusManager inquiries directly. The StatusManager thus provides valuable basic information for quality control and actual costing.

Seamless integration into fully automated processes



Technical and functional details

All the benefits at a glance

Basic data	Cellaxy	
Basic unit	L 5740 mm W 1960 mm H 1535 mm	
Space needed (incl. access area)	L 7340 mm W 3760 mm	
Weight	approx. 10 000 kg	
Laser		
Principle	Fiber laser	
Power	Multi-kW	
Wavelength	1064 nm	
Cooling	closed water circuit	
MTBF	5000 h	
Write resolution	1000 l/cm = 2540 dpi	
Dot size	15 µm	
Depth of focus	100 µm (Delta 10 %)	
Hollow cylinders		
Face width	400 - 2200 mm	
Circumference	400 - 1400 mm	
Weight	max. 800 kg	
Mount	Pivots	
Shaft cylinders		
Cylinder mount	Pivots with internal cone	Three-jaw chuck
Length incl. pins	700 - 2900 mm	110 - 2900 mm
Face width	400 - 2200 mm	400 - 2200 mm
Circumference	400 - 1400 mm	400 - 1400 mm
Weight	max. 800 kg	max. 300 kg
Power supply		
Basic unit	3N PE AC 400 V, 50 bis 60 Hz, 20 A	
Control	3N PE AC 400 V, 50 bis 60 Hz, 20 A	
Permissible operating range	+18 - +30 °C	
Recommended quality range	+20 - +24 °C	

Equipment / Functions	
Automatic fast crossfeed	White areas are automatically skipped in fast crossfeed mode
Automation	The Cellaxy can be engraved fully automatically in the AutoCon production line
Centric engraving	Engravings are automatically positioned centrically on the cylinder face
Cylinder measurement	The cylinder face width can be measured and verified
Combined operation	Engravings on the HelioKlischograph K5, K50, K500, K405, and Cellaxy can be combined
Concentricity requirements	Concentricity requirements for cylinders are not particularly demanding
Elevating platform	Separates the loading process from the crane
Engraving data	Engraving of TIFF complete forms and job tickets
Engraving speed	Chrome: 0,8 m^2/h, copper: 0,6 m^2/h
Filter and cooler	External filter and cooler unit
Helioscreens	Electromechanical engraving screens can be simulated
Imbalance detection	Sensor for measuring imbalance that interrupts cylinder run-up if irregularities occur
Job preparation	Standardization thanks to efficient job preparation with HelioDisk, flexibility due to last-minute changes being possible until immediately before engraving
Keyway alignment	Automatic keyway alignment for shaft and hollow cylinders
Localization	Country-specific language versions
Machine bed	Low-vibration machine bed, bearing blocks are all cast parts
Operation	The operating and control programs run on a Windows PC. The PC, touchscreen, and keyboard are integrated into the device
Screens	Conventional, autotypical or semi-autotypical
Shrink compensation	Compensation of web shrinking

Based on Innovation – HELL
HELL solutions satisfy the toughest demands in terms of print quality, cylinder service life and printing speeds. Printing forms engraved using HELL equipment benefit from simplified color matching, minimal start-up waste and optimum engraving results with high print densities, soft vignettes, brilliant contones and razor-sharp lines.

Your local HELL representative will be happy to provide further information and personal advice on our products and services at any time. For contact addresses and additional product information, see our website www.HELL-Gravure-Systems.com

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