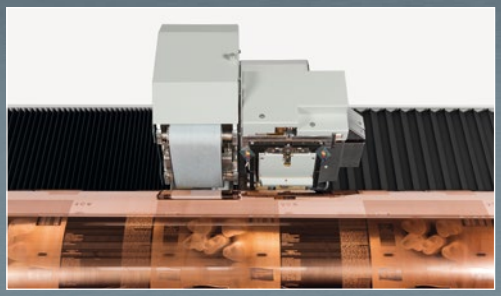
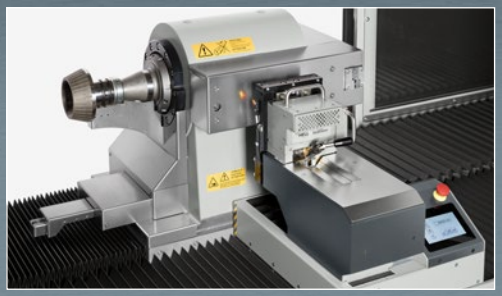
HelioKlischograph K500

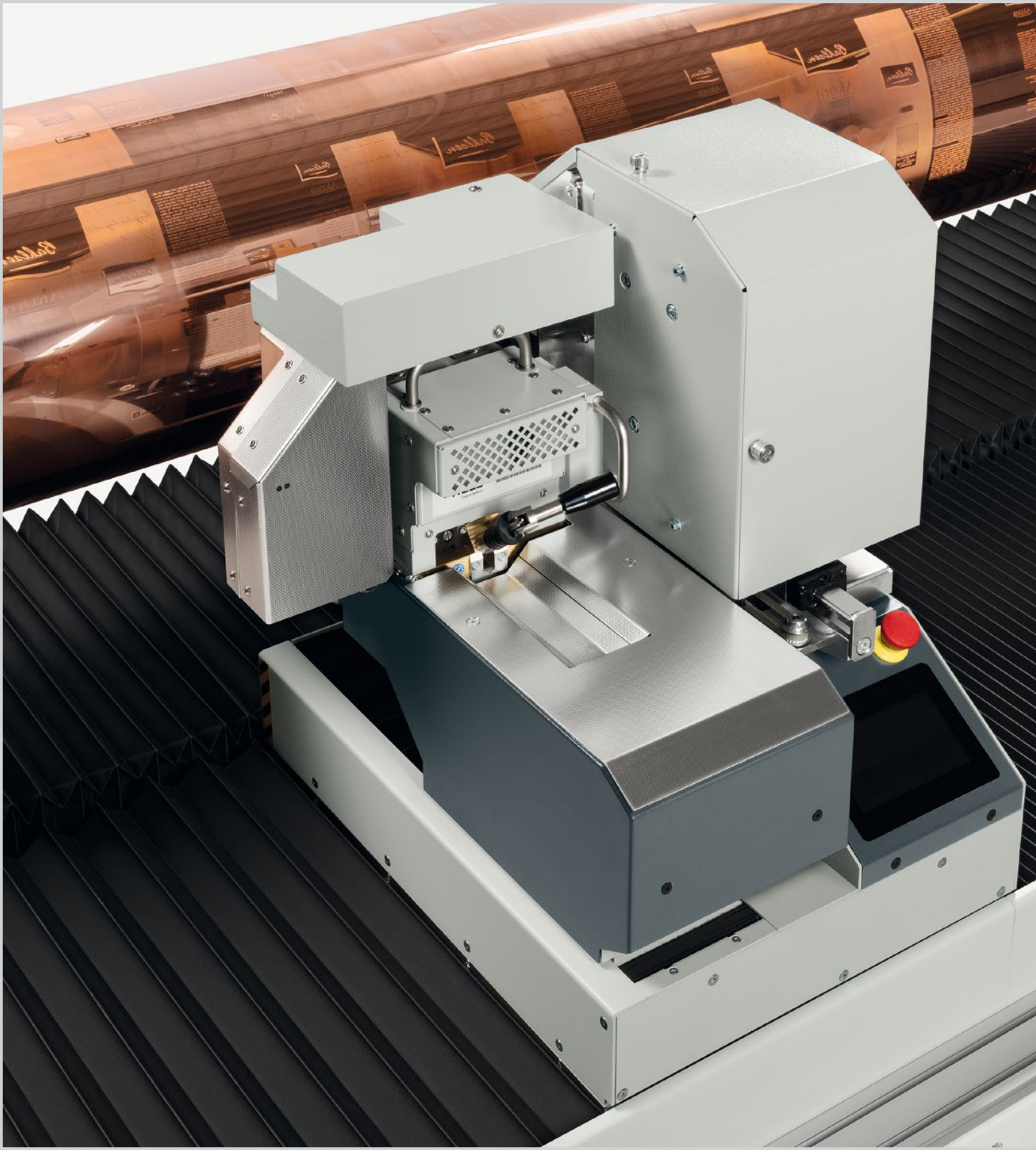
THE BENCHMARK IN ENGRAVING





BASED ON INNOVATION.

HELL
Gravure Systems



The HelioKlischograph K500 is the fastest and most successful engraving machine in packaging gravure.

HelioKlischograph K500
Premium technology in every machine generation

When the very first HelioKlischograph introduced mechanical engraving over five decades ago, it revolutionized gravure cylinder production. This engraver has been the perfect example of innovative HELL quality and the revolution in printing form manufacture ever since, with every new machine generation providing renewed proof of these credentials.

It's no coincidence that virtually every cylinder manufacturer the world over uses a HelioKlischograph for engraving. Since the market launch of the K500 in 2000, well over 800 machines of this model alone have been installed, making this output device the industry standard in packaging gravure.

Multi-head engraving, HelioSprint III, and many other innovative components make the K500 many times faster and more accurate than any other engraving machine on the market.

Top-quality, high-performance engraving

In conjunction with multi-head engraving and a linear drive, the HelioSprint high-performance system achieves by far the highest production speed on the market. In addition, the K500 continues to boast unbeatable engraving quality thanks to the ongoing further development of innovations such as CellEye, SprintEasy, XtremeEngraving, and High Quality Hinting. However good or poor the cylinder's rotational accuracy, the K500 ensures users remain that vital step ahead of the competition.

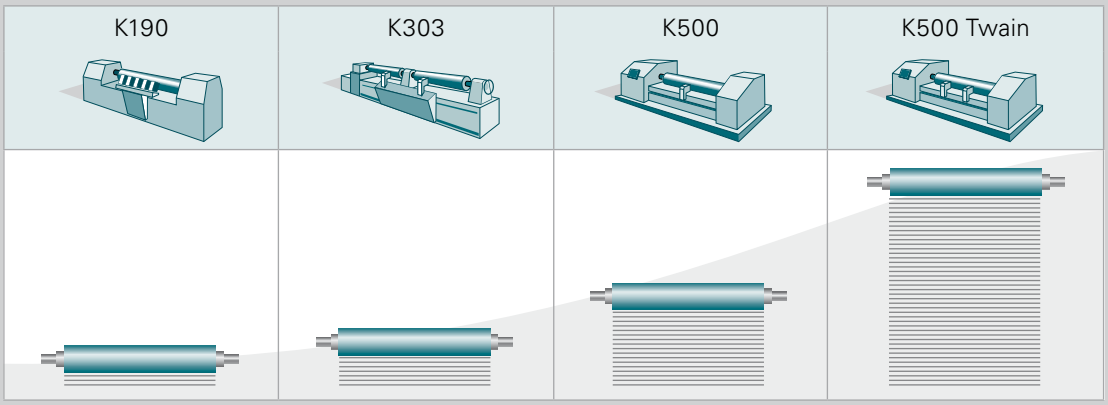
Straightforward operation and flexibility

Thanks to one-button operation, TIFF direct engraving, and job ticket control, the K500 couldn't be more reliable or user-friendly. That still holds true even if full advantage is taken of its modular design to transform it from a stand-alone entry-level machine into a high-end system integrated into a fully automated production line.

Ultra-short makeready times

The numerous innovative, tried-and-tested functions reflect the HELL engineers' great wealth of practical experience. It is this very know-how that enables high productivity to be combined with extremely straightforward operation. Automation modules together with efficient work preparation using job tickets minimize makeready times, while the MIS connection supports the networking that companies around the world now expect.

Continuous increase in production with HELL (daily cylinder output)



1962
Launch of electromechanical engraving

1985
4 kHz twin engravings, O/G conversion, HelioSet job preparation

2000
8 kHz HelioSprint, TIFF direct engraving, one-button engraving

2016
12 kHz HelioSprint III, Twain multi-head engraving, linear drive, AutoCon

Components and characteristics
Quality for successful production

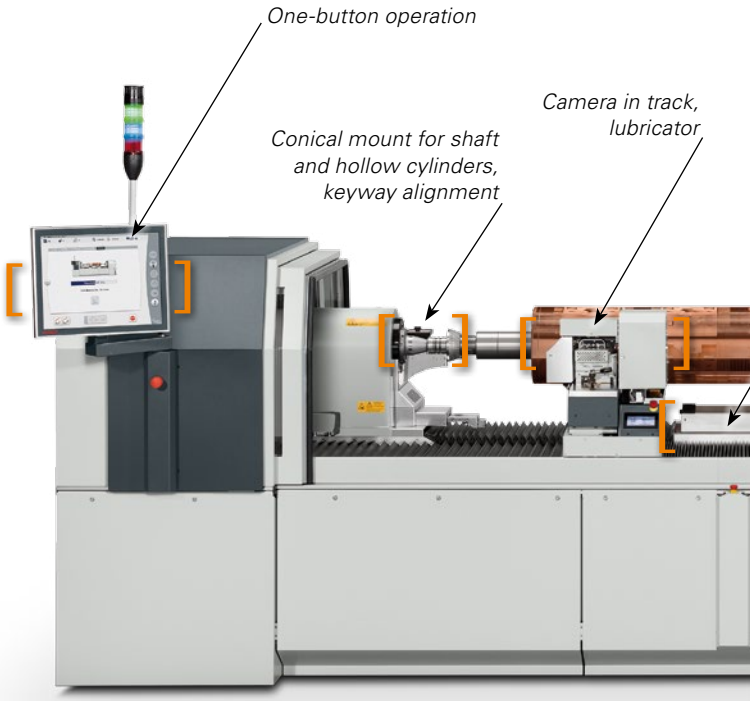
HelioSprint III – fast and precise
The HelioSprint III high-performance engraving system has an engraving frequency of 12 kHz, making the K500 "the world's fastest engraving machine." The K500 is also ready for further new high-performance engraving system developments.

Twain – for double the output
The K500 can optionally be equipped with a second engraving head. Both heads position and engrave automatically based on the cylinder layout. Ideally, the two heads share the engraving work, thereby doubling the engraving machine's output.

Linear drive – faster into position
A linear drive is used to position the engraving carriage in the K500. The extremely high travel speed means much shorter makeready times for the K500.

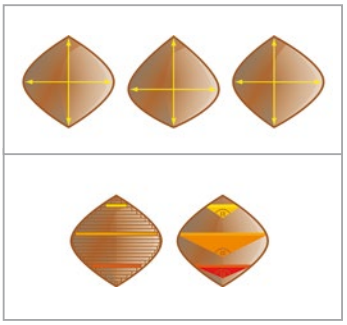
CellGuard camera – precision and speed
The K500 is equipped with the speedy CellGuard autofocus camera, which is fitted in a track with the engraving stylus. The camera measures while the cylinder is rotating.

Stainless steel – for value that lasts
Many of the K500's internal components are made of stainless steel, which protects them against aggressive cleaning agents.



CellEye

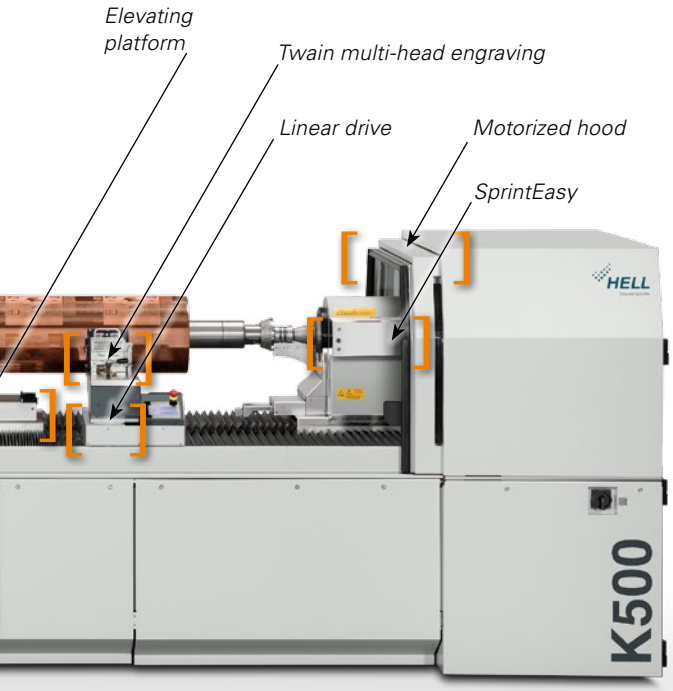
CellEye
The innovative CellEye cutting procedure is based on volume-oriented measurement of engraving cells and enables unique repeat accuracy for packaging gravure cylinders. Calculation of the cell volume factors in the actual stylus angle and stylus wear and compensates for fluctuations in the engraving copper. Using CellEye leads to a dramatic reduction in the amount of waste during startup.



Without CellEye, measurements of the cell geometry are inadequate. Geometric distortions are not taken into account.

Left: CellEye divides the cell into numerous slices.
Right: Factoring in the actual stylus angle, CellEye calculates the volumes of the individual slices and adds these up to determine the cell volume.

SprintEasy
The K500 can be equipped with an integrated SprintEasy measuring system and offers optimum support for volume-oriented cutting with CellEye. SprintEasy automatically records the current stylus angle after every engraving operation and this is taken into account in the CellEye process. The repeat accuracy of cylinder engraving is therefore assured, even with a highly worn stylus.



XtremeEngraving

XtremeEngraving

XtremeEngraving is an engraving process developed by HELL to achieve excellent contour definition combined with high printing density. XtremeEngraving separates the write resolution of the engraving machine from the selected screen. In principle, the K500 works like a laser imagesetter. This means that ultrafine resolutions can be combined with high ink application volumes. XtremeEngraving is used very successfully to reproduce logos, bar codes, labels, drug packaging, micro lettering, security features, and cigarette packaging. Screen rollers with high pickup volumes that are required to apply coatings or adhesives are a further application.

High Quality Hinting (HQH)

HQH is used to optimize output quality in packaging gravure. Engraving data is examined for fine lines and texts and automatically optimized according to preset criteria. The intelligent character recognition function ensures that the characteristics of letters and symbols remain unchanged.

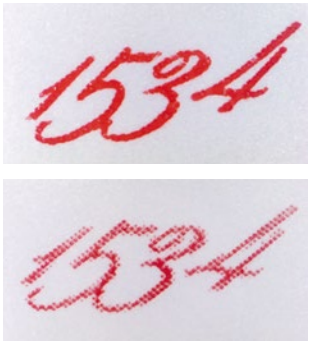
Built-in quality assurance

The K500 includes a whole host of quality assurance functions. All production-relevant data – such as engraving parameters, camera images, and the results of engraving checks – is saved in the job ticket and can be accessed online or, for example, transferred to an MIS system.

Integrated SprintEasy.

A comparison:
Output with HQH (top)
Output without HQH (bottom)

A comparison:
Engraving with XtremeEngraving (top)
Conventional engraving (bottom)



Technical and functional details
All the benefits at a glance

Options
A whole host of options are available for the K500, including HelioSprint III, Twain multi-head engraving, XtremeEngraving, HQH, cleaners and lubricators, keyway alignment, pivot alignment, special voltage transformer, UPS, and modem.

Basic data	K500 G4
Basic unit (L x W x H)	4585 x 1216 x 1474 mm
Space required incl. access area (L x W)	6363 x 2882 mm
Weight	Approx. 3800 kg
Power supply	Single phase, 230 V, 50/60 Hz
Current consumption	2.6 kVA mean, 3.8 kVA peak
Permissible operating range	+18 to +25° C
Recommended quality range	+20 to +24° C
Cylinder weight	Max. 600 kg
Cylinder mounting	Pivots with exchangeable inserts; three-jaw chuck on request*
Hollow cylinder	
Face width	400 - 2400 mm
Circumference	200 - 1400 mm
Shaft cylinder	
Face width	400 - 2500 mm
Incl. shafts	820 - 2700 mm
Circumference	300 - 1500 mm / optional 200 - 1400 mm

*Different cylinder dimensions apply

Engraving systems

HelioSprint BC

The HelioSprint BC 8 kHz broadband engraving system is used as standard on the K500. It supports a wide range of applications, features a high engraving speed, ensures uniform cell geometry, and perfectly meets the requirements of packaging and decorative gravure. HelioSprint BC covers the screen range from 54 - 100 l/cm, angles 0,2,3,4 (corresponding to an effective screen range of 44 - 144 l/cm). The engraving speed with a 70 l/cm screen is 0.55 m^2/h.

HelioXtreme 32

The K500 can optionally be equipped with the HelioXtreme 32 hybrid engraving system, which supports both conventional vibration engraving and high-resolution XtremeEngraving. In the case of conventional vibration engraving, HelioXtreme 32 offers the same performance features as HelioSprint BC. With a write resolution of up to 540 l/cm, high-resolution engraving with XtremeEngraving delivers a quality that is otherwise the preserve of laser engraving. XtremeEngraving can also be used to engrave anything from coarse screens for items such as full-tone cylinders down to 14 l/cm screens. Engraving takes place at a frequency of 12 kHz.

HelioSprint III

The K500 can optionally be equipped with the HelioSprint III high-performance engraving system. This system performs vibration engraving with a frequency of 12 kHz across the entire 60 - 100 l/cm screen range, angles 0,2,3,4 (corresponding to an effective screen range of 49 - 144 l/cm). The engraving speed with a 70 l/cm screen is 0.82 m^2/h.

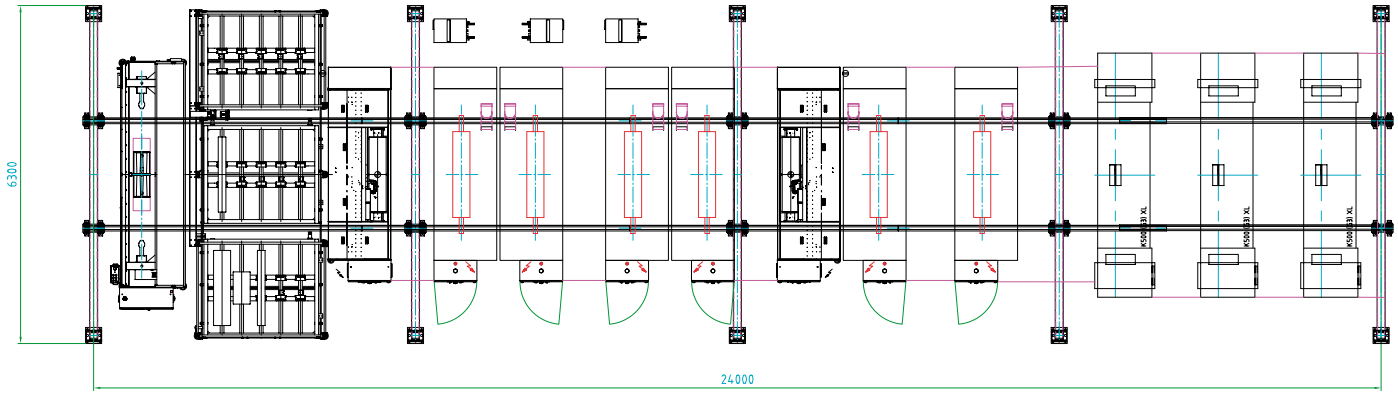
New developments

The K500 G4 offers a platform for future engraving system technologies from HELL.

Automation

The K500 can be upgraded in stages from an entry-level engraver to a high-end machine for integration into the AutoCon fully automated production line. AutoCon is a joint project between the Heliograph companies HELL Gravure Systems, K.Walter, Daetwyler Graphics, and Bauer Logistics. A master computer controls all stages of cylinder production, from electroplating – including central supply of chemicals – to surface treatment, engraving, and cylinder logistics. This is the only systematically integrated end-to-end solution of its kind. AutoCon comes equipped with the best components on the market and its cutting-edge technology sets new standards in cylinder production.

One example of the K500's high level of integration into the AutoCon line is that the HelioKlischograph reports its configuration (type of engraving system, number of channels, stylus angle) to the line's master computer, thereby enabling it to automatically assign the appropriate jobs.



The AutoCon 60 line is designed to produce 60 engraving cylinders per day.

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

Subject to design modifications. Errors excepted.

HelioKlischograph comparison

Basic engraving	**K5**	**K5 Smart**	**K500** G4
HelioSprint BC; 8 kHz broadband	•	•	•
XtremeEngraving	Optional	Optional	Optional
HQH	Optional	Optional	Optional
TIFF and job tickets	•	•	•
Job positioning using laser pointer	•	•	•
CellGuard algorithm	•	•	•
Automatic fast crossfeed	•	•	•
Helical and polar engraving	•	•	•
Fixed and free screen angles	•	•	•
Engraving certificate	•	•	•
Three-jaw chuck	Optional	Optional	Optional
Smart engraving			
CellGuard autofocus camera		•	•
Automatic test cut		•	•
CellEye		•	•
Automatic job positioning		•	•
Automatic sequential engraving		•	•
Engraving check		•	•
One-button operation		•	•
High-performance engraving			
Linear drive			•
CellGuard camera in track / measurement while cylinder rotating			•
Twain engraving			Optional
HelioSprint III 12 kHz			Optional
Automation package			Optional
AutoCon mode			Optional

Version: A5

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