

FLEXIBILITY AND INNOVATION FOR TOP PRINTING QUALITY

Decentralization by Kollmorgen: efficiency in a compact, modular design



OMET XFlex X5 flexographic printing machine: "Created to amaze".

AKD-N decentralized drives and CDDR motors by Kollmorgen are the core of the innovative OMET Xflex X5, a printing solution with the best returns on investment in terms of market result of narrow web printing of labels and flexible packaging. High quality, and on any materials.

More than 50 years of "passion for innovation", curiosity, a desire to learn and explore the world to understand market trends and customer demands, just as it did back in 1963, building its first machines for tissue and labels. OMET is today a group of five companies mainly involved in the design and construction of machines for printing and converting of labels and flexible packaging, and design and construction of machines used to make paper napkins.

OMET Printing Division is the group's company specialized in producing printing machines using combined narrow and medium web technologies, characterized by their operative flexibility, production efficiency on all types of runs, versatility in the use of different materials to be printed and in offering customized configurations to satisfy every customer's need. After decades of experience and innovation in the printing market, OMET machines combine simplicity of use with low rejection rates, rapid work changes efficiency and reliability over time. But what exactly do OMET machines produce? Labels of all types, plastic films, folding cardboards and special applications.

The Lecco-based company has won a leading role on the world market over time, and today boasts more than 1,600 installations all over the world. Customers range from small printers to labellers and major multinationals producing and printing flexible packaging.



“OMET is a multinational company that fits conveniently in your pocket”. This is how the Lecco management defines its company, which is able to grow while maintaining the typical features of a small business: familiar faces, a clear social dimension in dealings with customers and suppliers alike, optimizing human resources and a dynamic approach.

How have the paths of OMET and Kollmorgen crossed to mark the start of a highly successful collaboration?

In 2014, OMET visualized the need to design and produce second generation machines. Thus began the search for the most appropriate partner, which became an extremely competitive benchmark, involving various potential suppliers.

At the end of the selection, the Lecco-based company opted for Kollmorgen as its solution provider, not only as being best able to fulfil all requests but also the one able to implement technological innovations: the first development was to be a new machine whose quality of print and flexibility lay somewhere between the mechanical solution of the model X4 and the fully servo-driven X6 series.



“OMET is a global company and it has chosen a global partner in the form of Kollmorgen”, says Fabio Massari, Senior Sales & Key Account Manager of Kollmorgen Italy.

Other important targets included the reduction in the size of the electric cabinet and the volume of cables, modular production of the machines, standardization of the field bus, reduction of components, not to mention important matters like energy saving and print precision.

Another challenge to be overcome in the development of the new machinery came in the form of the maintenance of existing automation software and, if absolutely necessary, a minimum impact of changes in respect of time to market and the safeguarding of R&D costs. Essential characteristics those are fundamental to the

project's success and meeting the demands of customers are ever more meticulous and challenging.

“In addition to offering OMET the guarantee of being able to fully satisfy all needs, Kollmorgen has also introduced a new Direct Drive motor that can eliminate the Gear Marks effect,” - Fabio Massari, Senior Sales & Key Account Manager of Kollmorgen Italy, explains - “and allows for the development of an innovative hybrid/semi-motorized machine. OMET has also considerably improved use of components relative to drives and safety, eliminating most of the electric cabinet and reducing cable length by around 70%”.

The Motion Control specialist has responded to the need for efficiency, a compact, modular design and safety, by using AKD-N servo drives, Direct Drive Cartridge DDR motors and [KSM safety modules](#).

Efficient and compact:

Direct Drive Cartridge CDDR Servomotors and AKD-N Drives

In order to reduce or eliminate the mechanical kinematics, [Direct Drive Cartridge CDDR servomotors](#) have been used, together with AKD-N decentralized drives. The CDDR motors enable a direct control of movement, without using mechanical transmissions, which resulted in reduction of maintenance, need for spare parts, and safeguards the precision level of the entire machine over time. Motor assembly is fast, involving reduced cogging, with a built-in high-resolution sinusoidal encoder and continuous torque up to 510Nm.



KOLLMORGEN CDDR direct drive servomotor: high performance in a compact space.

The [AKD-N decentralized servo drive](#) is Kollmorgen's proposal to design more efficient machines, more simply, which can combine innovative technology and exceptional performance with an extremely compact design. Thanks to the robust structure and protection grade IP67, the AKD-N Kollmorgen decentralized servo drives can be positioned close to the motor, reducing cabling, and thereby reducing the dimensions of the electric cabinet. Plug-in connections, free choice of motor, assembly at the most appropriate point, as well as a wide range of functions: by using decentralized AKD-N servo drives, even complex Motion Control architectures can be developed, based on EtherCAT field buses. The system offers everything needed for the design of new generation machinery, without giving up on simplicity. The hybrid cable with a diameter of just eleven millimeters (patented system) integrates the power supply, safety (STO) and the EtherCAT field bus. The connection to the motor is also simplified with just a single cable for power, brake control and feedback. By Doing so, more than 80% of machine cables are saved.



Decentralized AKD-N servo drive perfectly compatible with all types of motor.

AKD-N decentralized servo drive: advantages



- More compact machines
- Smaller, lighter compatible electric cabinets
- Servo drives near the motor
- Thanks to the robust structure, with protection grade IP67, no protective casing is necessary
- Simple cleaning and maintenance for hygienic environments
- High operative safety, thanks to the robust structure
- Machine debugging and testing faster thanks to greatly reduced connections
- Greater flexibility in machine design (modular and scalable)

Safety in all stages of manufacture is an essential requirement nowadays. This aspect has been satisfied with the KSM safety modules. The safety of the axes has been interpreted by Kollmorgen with Motion Safety; Kollmorgen integrates the safety logic and monitoring directly into the KSM controller, available in a compact and modular version.

“Use of the technology developed by Kollmorgen has allowed us to achieve the target control performance while at the same time reducing cabling and the cost of automation”, explains Nicola Pezzolato, R&D Elect. Department of Omet”.



Xflex X5: compact, ergonomic, flexible with all printing materials

The result? XFlex X5, a machine that offers all the main characteristics of OMET flexo printing technology, in a compact, ergonomic solution. Thanks to the servo drive printing units, the user can perform sliding and doubleprint routing operations, which allow the machine to work on all types of materials (differently from other machines on the market), with high quality printing results.

The perfect blend of flexibility and innovation makes XFlex X5 the printing solution offering the best return on investment in terms of market result of the narrow web printing of labels and flexible packaging, thanks to this unique feature:

- **Short paper pass:** the innovative concept of the gearless flexographic printing unit with a UV lamp installed directly on the print cylinder, drastically reduces the level of rejects during the start-up phase.
- **Rapid ink change system:** in less than 30 seconds, the ink cassette can be replaced on a print unit, thanks to the innovative interchangeable cassettes.

- **Rock'n'Roll matrix stripping unit:** the exclusive OMET stripping system allows for the separation of reject adhesive material from die-cut labels, without slowing the machine's production down, even with complex label shapes.
- **Vision-1:** is the fully automatic system that enables the high-speed digital scan of print quality and the automatic correction of the print register without operator intervention, drastically reducing the quantity of rejects during print start times.



Technical data: XFlex X5

- *Printing widths available: 370 mm (14"4/8) and 440 mm (17"2/8)*
- *Print formats available: from 5"4/8 to 24" (version 370 mm); from 6" to 24" (version 440 mm)*
- *Maximum speed: 190 m/min*
- *Print cylinder flexo printing technology*
- *Automatic registration control and correction*

The design, which began in 2016, saw the development of Xflex X5 that same year and took three units to the market, installed and functioning in three different countries of the European market. Customers have expressed complete satisfaction with the machine and the targets set by OMET have been achieved in full.

Conclusion

The OMET mission is constantly finding new solutions to improve customer production methods, offer the very best technology to increase process efficiency and build machines using increasingly robust materials to improve their reliability and duration over time. To put it briefly: high quality and innovation that have found Kollmorgen as their ideal high-tech partner. And for the future, the next evolution is already being considered, with a new generation model and offset printing units on the custom Varyflex machines. The next challenge is already here!

Authors:

Fabio Massari, Senior Sales & Key Account Manager, KOLLMORGEN Italy

Elisabetta Redaelli, Marketing Communication, KOLLMORGEN Italy

About KOLLMORGEN

Since the company was first founded in 1916, Kollmorgen's innovative solutions have given rise to great ideas as well as improving global safety and people's lives. The competence acquired in components and movement systems, the excellent quality and consolidated experience in the combination and integration of standard and customized products enable Kollmorgen to supply unparalleled innovative solutions in terms of performance, reliability and ease of use. This guarantees an indisputable competitive advantage for machine builders across the globe and maximum reliability for customers. For further information please contact think@kollmorgen.com or visit our website www.kollmorgen.in