VDL ETG

VDL Enabling Technologies Group (VDL ETG) is a contract manufacturing partner operating worldwide in many high-tech markets like semiconductors, thin-film photovoltaics, analytical instruments, medical systems, aerospace and defense. VDL ETG manufacturers parts, modules and fully integrated systems in five volume factories located in The Netherlands, Switzerland, Suzhou (China) and Singapore, and has strong design and engineering capabilities to support its customers throughout the entire lifetime of their products. Two dedicated business lines, VDL ETG Research and VDL ETG Projects, have a recognized track record in the series manufacturing of ‘high-mix low-volume’ products and in the design and realization of prototypes and first-of-a-kind complex tools and production lines.

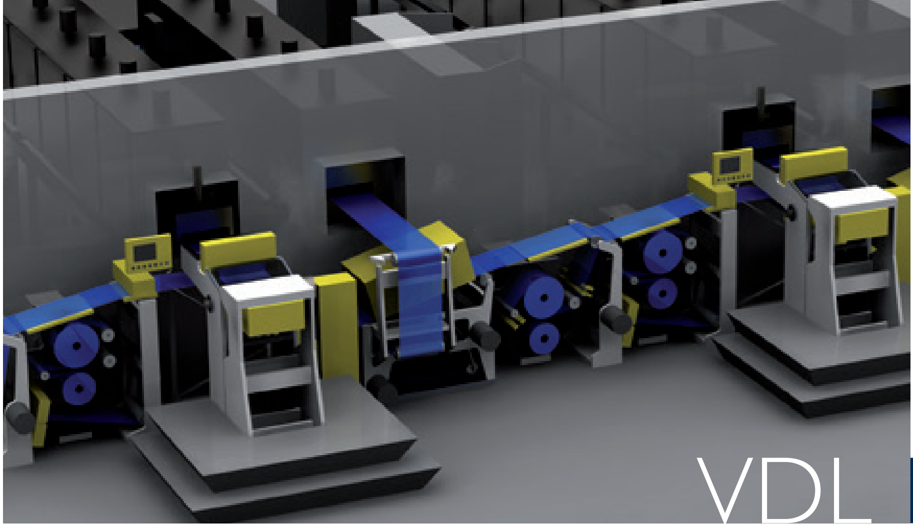
WEB HANDLING AND POSITIONING

VDL ETG has more than 80 years of expertise in handling and positioning of rigid and flexible substrates and an equally long track record in designing and building novel research, pilot and production machines operating with plastic and metallic foils. This technical heritage has promoted VDL ETG continuously as a leading global supplier of integrated mechatronic solutions in industries where the accurate and uniform deposition of thin-film layers has become of paramount importance.

VDL ETG’S UNIQUE EXPERTISE

As a system integrator, VDL ETG makes use of its unique expertise in precision machining, extremely accurate positioning of all types of substrates down to micrometer and nanometer levels, cleanroom assembly, vacuum technologies, and final integration and qualification of highly complex systems.

Strength through cooperation



VDL ETG

Global leadership in R2R and S2S equipment for mass manufacturing of flexible electronics

Apart from the volume production of parts, modules and fully-integrated systems for OEM customers, VDL ETG designs and builds customized R&D prototypes, complex pilot tools, and novel production lines. During the past years, VDL ETG has also been involved in the development and realization of high-performance roll-to-roll (R2R) and sheet-to-sheet (S2S) production equipment for flexible electronics applications, such as flexible OPV, CIGS and perovskite solar cells, flexible OLED displays and large-area OLED light sources, thin-film sensors and batteries, and flexible integrated circuits.

COOPERATION OPPORTUNITIES

VDL ETG is open to cooperation opportunities with technology suppliers and companies interested in flexible electronics in order to create and build together unique R2R and S2S solutions and business models for specific applications. The generic, modular R2R production platforms designed for high production yield and low cost of ownership offer rich cooperation opportunities in:

- Printing and coating technologies capable of handling functional materials, such as conductive inks, and deposit them onto a broad range of webs
- Flexible substrates for printed and flexible electronics, including the front- and back-end manufacturing processes needed to realize such electronic devices
- Thermal processing for drying and curing functional layers
- Barrier, buffer and encapsulation layers by fast atomic layer deposition (ALD) and the associated R2R process stages in vacuum or in controlled atmosphere
- Drives and control technologies with extreme precision for web handling and positioning, including extreme high-accuracy web registration
- Cleaning, ionization, and plasma technologies for thin substrates
- Sensors, inspection systems and software for in-line data acquisition, analysis and quality assurance
- R&D dedicated to specific thin-film electronics that still need important breakthroughs toward realizing first functional concepts (rechargeable thin-film batteries, nano-imprinting, deposition of nanomaterials)

The cooperation opportunities and possible business partnerships are not limited to the technology domains listed above. These are considered at present as essential for the basic operation of an R2R or S2S production line for flexible electronics. It is anticipated that a certain degree of standardization will also become instrumental toward the implementation of cost-effective manufacturing of flexible electronics in the near future.

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