

MILDEF CRETE

Corporate Newsletter



Introduction

By Rita Hsu – Procurement Department Manager

Since its establishment in 1990, MilDef Crete has thrived in a dynamic and highly competitive market by focusing on meeting customized demands as the core of its business operations. The Procurement Department has been an indispensable key player in this process. By adapting flexibly to external environmental changes and deeply understanding internal needs, the Procurement Department provides robust support to MilDef Crete.

Driven by customized requirements, the procurement tasks encompass multiple aspects, including material purchasing, supplier evaluation, price and cost analysis, and contract negotiations. These activities must be carried out comprehensively and continuously to ensure smooth and efficient processes. In terms of supply chain management, it is crucial to consider outsourcing versus internal production decisions, with an emphasis on precise delivery schedules to meet production needs and fulfill customer orders.

Introduction

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Cost control is one of the most critical challenges in the procurement process aimed at meeting customized needs. Additionally, to achieve long-term supply goals, we must continuously improve our supply chain. Rigorous procurement strategies, including risk management, help select the most appropriate methods for procuring high-quality materials and services. Cross-departmental collaboration to identify and manage suppliers, leading to the establishment of confirmed partnerships, are key steps in stabilizing the supply chain and meeting customized demands.

For an efficient and adaptive procurement organization, having the above capabilities is essential. Aligning procurement goals with MilDef Crete's objectives and customer needs is central to maximizing operational efficiency and meeting customized requirements. It is our hope that everyone's efforts will lead MilDef Crete to new heights of success.

Experiencing the Premium External Rugged Keyboard, RBK10

By Annabelle Wu

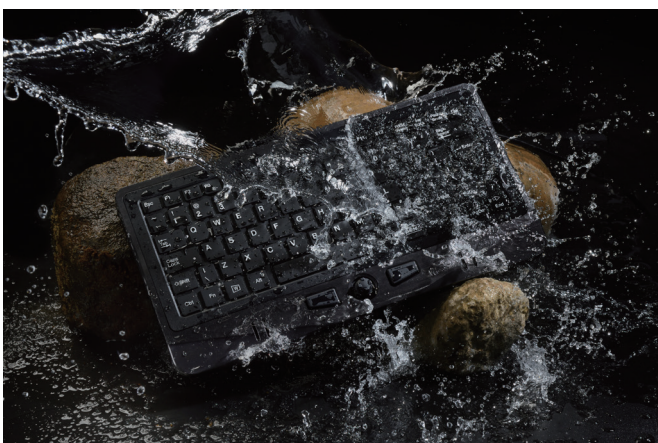
The rugged backlight keyboard, RBK10, is indeed a perfect combination of durability, stability, and ergonomic style. The RBK10 is the ultimate solution for professionals working in demanding environments. Whether you're in the field, on a factory floor, or at a construction site, this keyboard's robust build and reliable performance will keep you productive.

This rugged keyboard boasts an impressive array of features designed for efficiency in demanding environments. With an 83-key design, including function keys, the keyboard simulates standard keyboards while providing near-standard spaced keys, a track pointer, and mouse buttons for enhanced navigation. Furthermore, the backlight illumination allows work to be done in low-light or dark conditions. As well, its positive tactile keys offer a full travel of 1.5mm and can sustain over 1 million keystrokes, delivering a comfortable typing experience. You can enjoy the superior tactile feedback and rapid response with high-grade and meticulously tested for consistent performance. For security and functionality, an optional Smart Card Reader is also available.

The RBK10 is certified with IP66 for extreme environmental resistance and complies with military standards of MIL-STD-461G and MIL-STD-810H. This keyboard combines robust construction of metal and engineering plastic, as well as the sealed silicon rubber keypad, which ensures outstanding reliability and resistance to dust and water.

With an impressive operating temperature range from -20°C to +60°C, RBK10 is able to withstand the harshest environmental conditions, ensuring excellent performance whether it's a freezing cold or scorching hot. Built with high-quality materials, the keyboard is fully functional and responsive even in challenging circumstances.

RBK10 is desirable for a variety of applications, from arctic expeditions to desert deployments. Equip yourself with the RBK10 today and discover the ideal combo of robustness and functionality. Don't let harsh conditions hold you back—stay ahead with the RBK10.



The Latest 2024 3D Printing SLS Process for Small-Batch Production

By roGER Lu



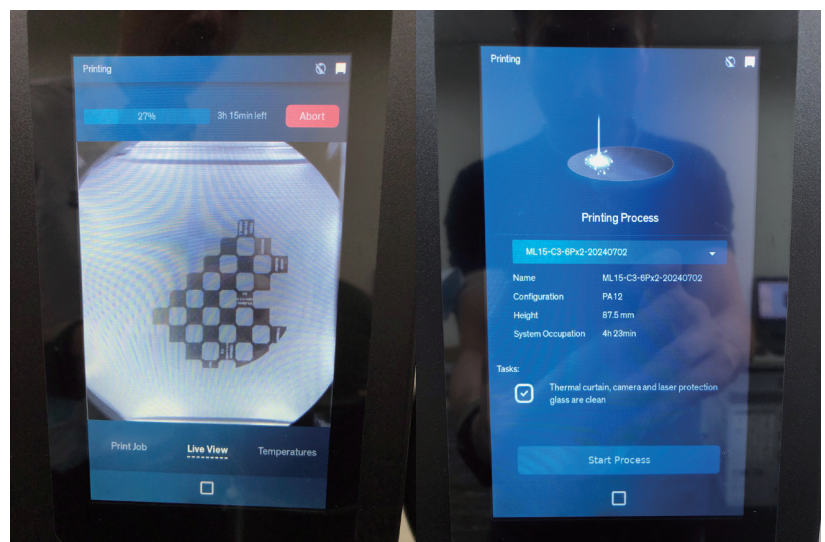
Crete started exploring and acquiring next-generation 3D printing production equipment in early 2024.

Selective Laser Sintering (SLS) is a 3D printing technology that melts the powder materials layer by layer to create complex-shaped parts. Crete's new generation 3D printing system is well-suited for fast, small-batch production of such complex parts.

The new equipment is organized into three modules: the "Fusion Module (3D Laser Printer)", the "Dynamic Module (Powder Container)", and the "Material Handling Workstation". The modular design enables parallel processing of polymers and metal parts, which reduces replacement time as there is no cross-contamination and lengthy cleaning procedures. As a modular group, these parts can be combined to form compact units appropriate for prototype design or large-scale manufacturing.

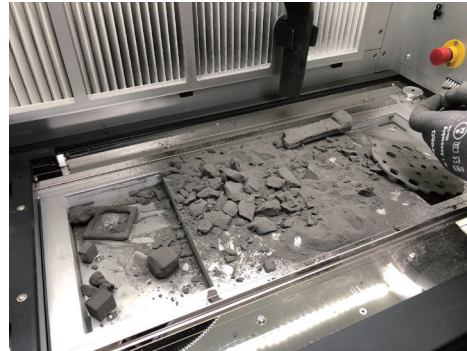
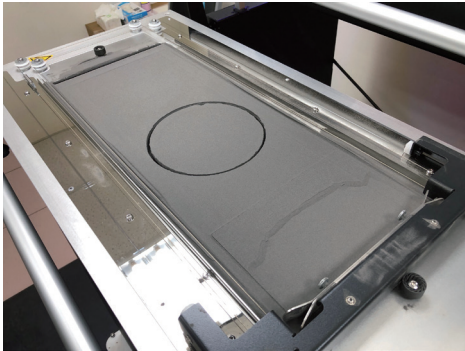
Fusion Module [1]

S2 is an excellent entry point into the field of industrial 3D printing. It is ideal for small-batch production, prototype design, and research applications. Its 10-watt fiber laser precisely and rapidly fuses powder particles to produce high-precision industrial-grade objects.



Movable Build Module [2]

The movable module is designed for carrying all printing materials efficiently. This portable module features an integrated powder mixing and sieving function. Its cylindrical build volume (diameter 160mm x height 400mm) and multi-zone heating ensure uniform heat distribution and consistent results.



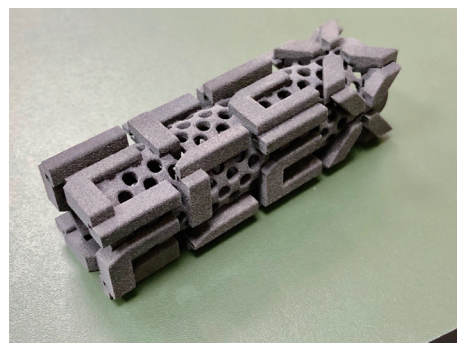
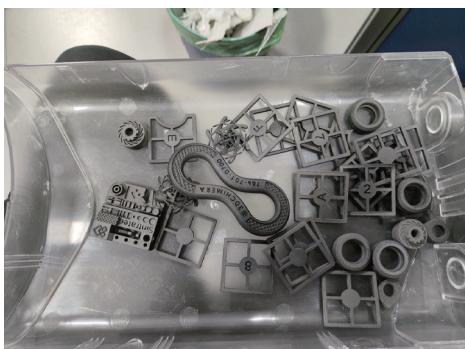
Material Handling Workstation [3]

The workstation is used for part preparation and powder removal. It enables further processing of the printing output. Simply move the build module to the dedicated material handling station for additional treatment. The accessible work area, equipped with an air filtration system, enables clear visibility during powder removal. Additionally, it facilitates the easy collection, sieving, and recycling of unused powder for future prints.



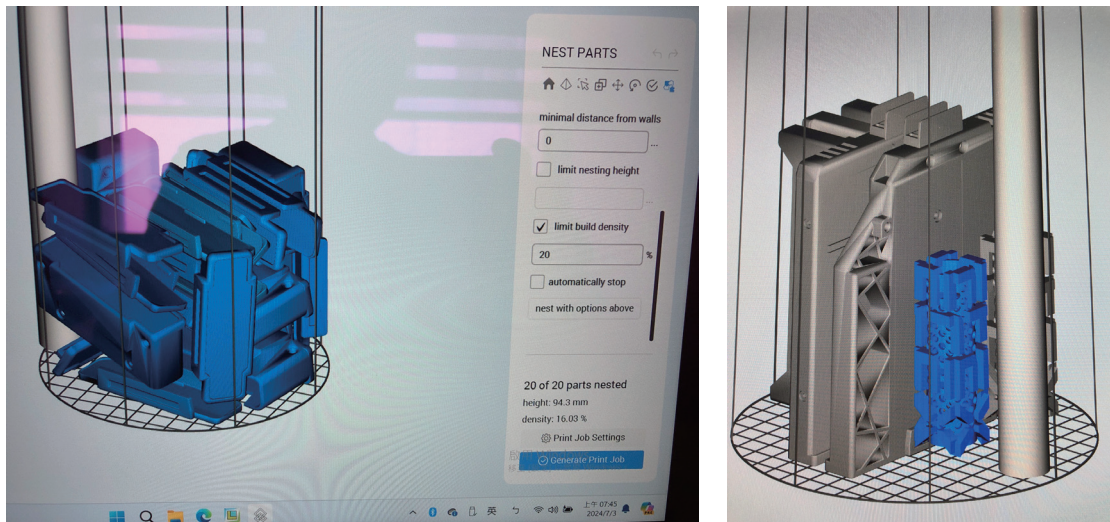
Materials [4]

The printing material is engineering-grade polymer PA12, which is a variant of Nylon Polyamide 12 known for manufacturing parts with very high stiffness and excellent impact strength. This powder is an ideal choice for mechanical applications requiring dimensional stability.



Software [5]

The software is a crucial tool for converting 3D designs into print data for the SLS system. The basic software functions include importing, production layout, automatic placement and slicing, as well as time and cost estimation. With a single click, the imported 3D objects are automatically positioned in the build volume. This enables optimal print job density and saves up to 40% in material and time.



After several trials of production and verification, this process has been successfully introduced into small-batch production for some ML15 components. To more effectively leverage the advantages of 3D printing technology, the next phase will involve comprehensive planning from both the design and application perspectives.

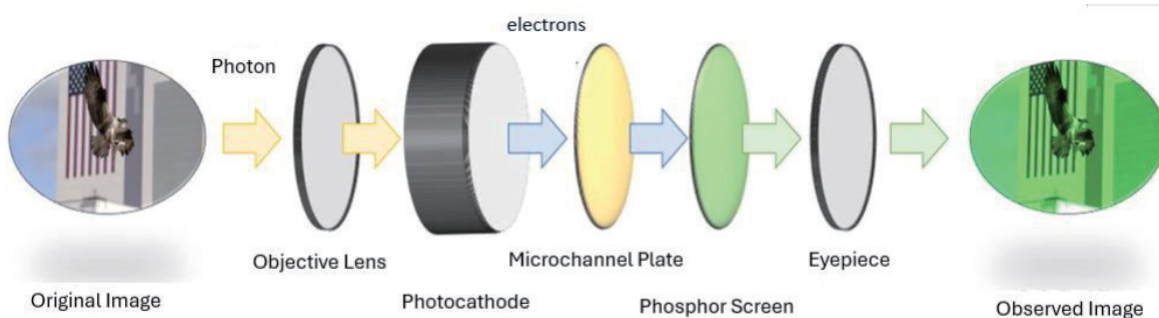
NVIS-Compatible Display Technology for Night Vision Imaging Systems

By EMERGING DISPLAY TECHNOLOGIES CORP.

The "Night Vision Imaging System" (NVIS) is a set of equipment that uses image intensifier tubes to generate enhanced scene images under lighting conditions that are too dark for normal navigation and piloting. These systems enhance and convert near-infrared light wavelengths (610nm~930nm), which are invisible or less visible to the human eye into visible images. They can amplify electronic signals thousands or even tens of thousands of times, allowing users to achieve clear vision even in dark environments. Traditional white LED displays emit high radiation energy in the near-infrared wavelength, causing NVIS equipment to automatically activate its gain control system. This results in the display content being too bright and may cause temporary blindness for the user, thereby leading to a loss of night vision capability and affecting night observation, searching, and aiming activities. Hence, NVIS-compatible displays are essential components for night vision.



Figure 1: Night Vision Imaging System Structure



Common practices for NVIS-compatible display technologies include:

- (1) Attaching a detachable NVIS filter lens (Figure 2). The drawback is that manually switching between day and night modes is time-consuming, which is not conducive to the high response rates required in military and navigation applications. Additionally, there is a risk of losing or damaging the lens.
- (2) Using NVIS OCA (Optical Clear Adhesive) for full adhesion between the protective cover lens and the display (Figure 3). The drawback is that the display remains in a permanent NVIS mode, showing only green images without other colors during the daytime when NVGs (Night Vision Goggles) are not needed.

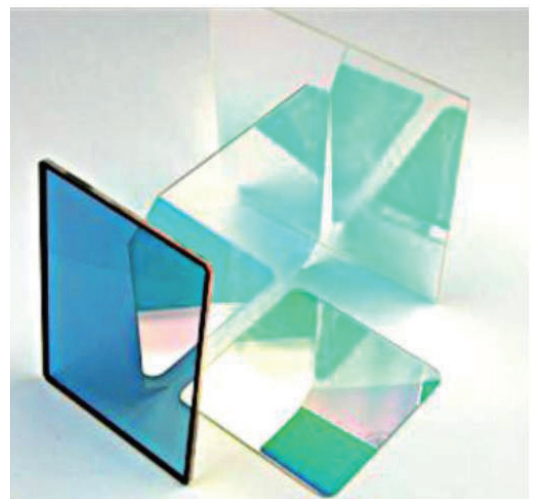


Figure 2: NVIS Filter Lens

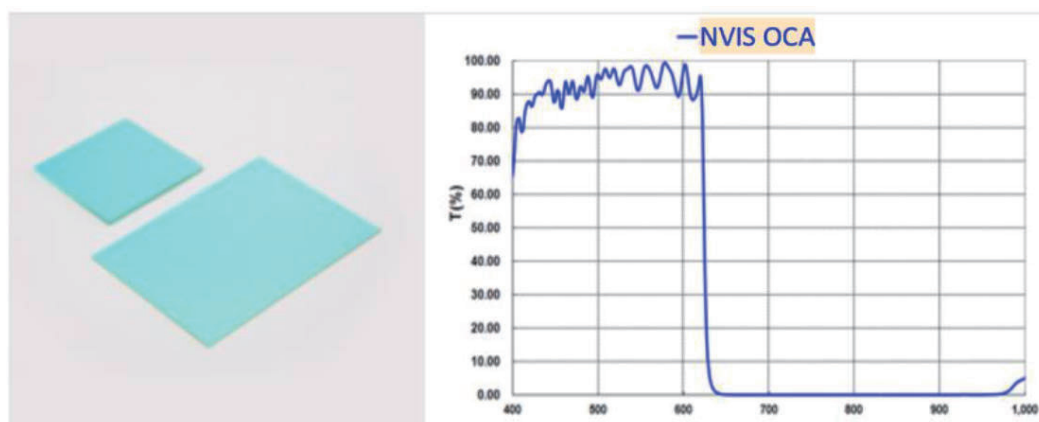


Figure 3: NVIS OCA

EDT proposes a new patented backlight structure for displays compatible with NVIS standards. Unlike the aforementioned passive approaches, this design can actively switch the corresponding LED light source based on day/night modes, i.e., a dual-mode backlight system (Figure 4). During the day, it can switch to the traditional white LED color display mode, and at night, to the NVIS-compatible mode (Figures 5 and 6), allowing NVG wearers to perfectly read display information even at night. EDT's NVIS dual-mode display technology meets the international MIL-STD-3009 NVIS standard (Figure 7), almost eliminating the emission of red and near-infrared radiation, ensuring the display does not interfere with NVG performance.

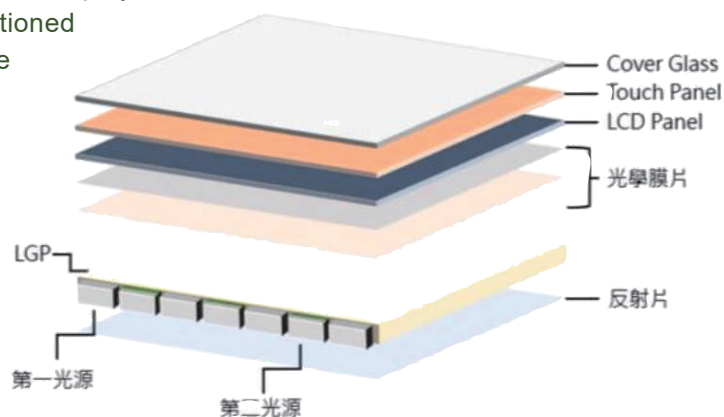


Figure 4: NVIS Dual-mode Backlight System Display (by EDT)

Additionally, during military night missions, traditional white LED

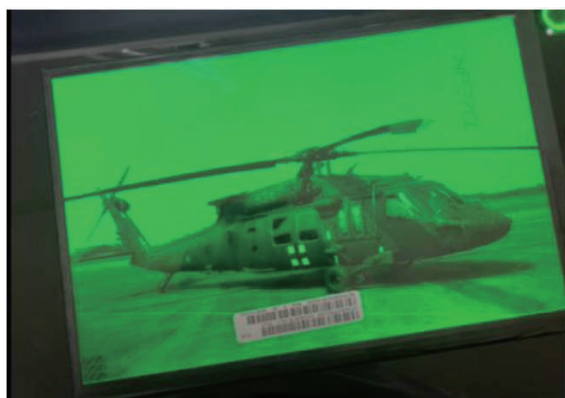


Figure 5: NVIS Mode (by EDT)



Figure 6: NVIS Mode (Helicopter Instrument Panel)

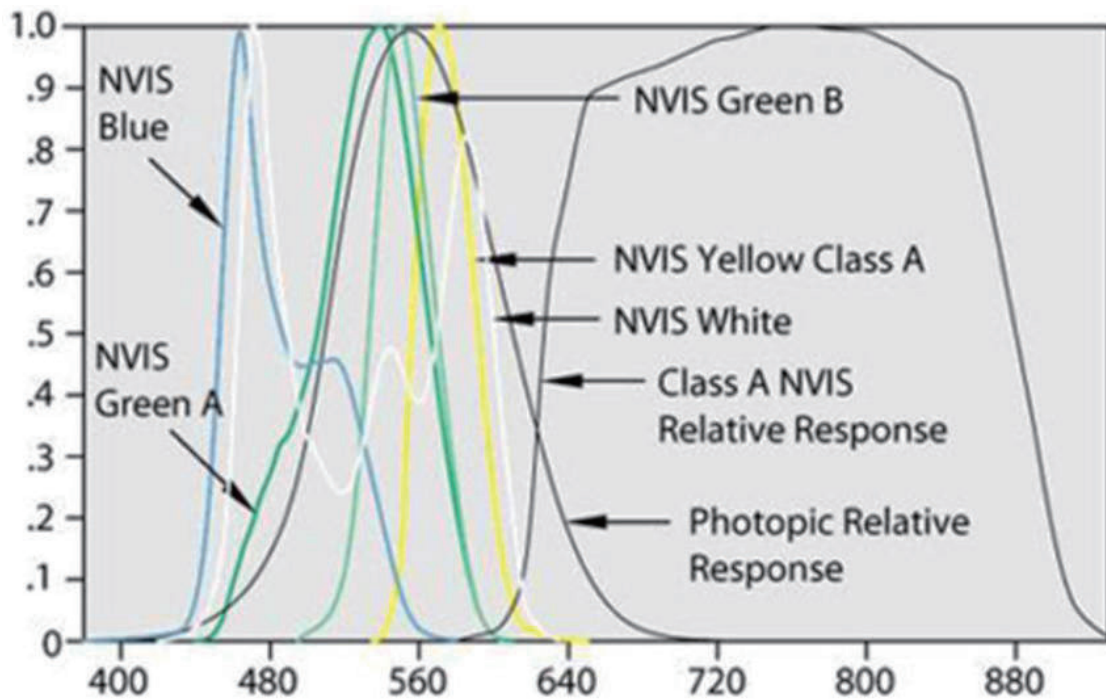


Figure 7: NVIS LED Compliance with MIL-STD-3009

displays without NVIS mode design will be too bright and reflective (Figure 8), allowing enemies to easily locate users' positions, and posing further safety risks. EDT can provide customized services with NVIS Green-A, NVIS Green-B, and NVIS White to meet international color standards based on different customer needs.

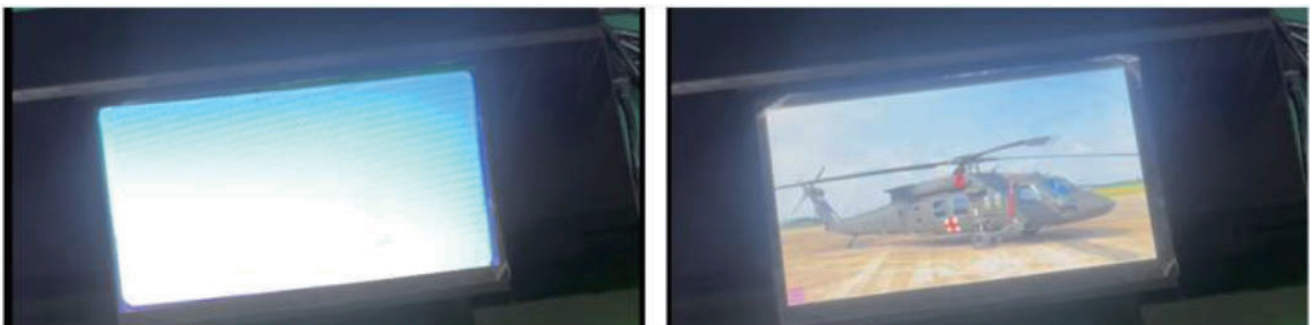


Figure 8: Over-bright reflection phenomenon of traditional white LED display under NVGs

Nowadays, NVIS display technologies are mainly used in aircraft, helicopters, navigation, military soldier communications, military vehicles, search and rescue operations, etc.

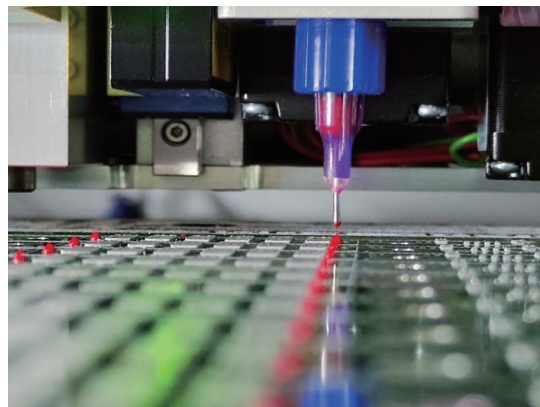
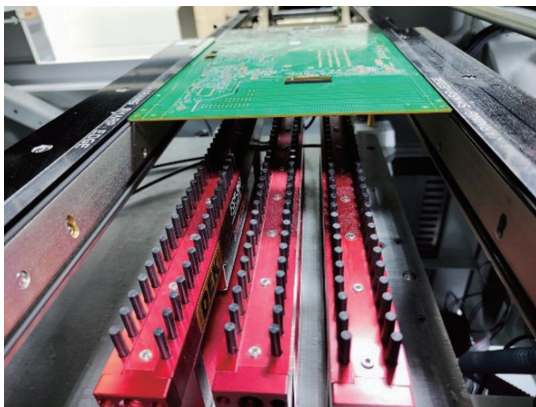
SMT Productivity Expansion

By Wolf Lin

Crete has established a brand-new SMT (Surface Mount Technology) production line employing a comprehensive system. To ensure functional safety and reliability, Crete has elevated the production line to higher standards that can even surpass the ISO 26262 applied in the automotive electronic sector. To meet the expanding demand, the SMT production line has invested in some new and advanced equipment, including a DEX printer, a FUJI pick-and-place machine, a TRI optical inspection machine, and a nitrogen reflow oven. With an efficient production management system, we are committed to providing exceptional electronic product solutions for our customers.

The DEX Printer

The DEX printer is a leading SMT equipment used for accurately printing solder paste or other conductive materials onto PCBs (Printed Circuit Boards). This equipment features highly automated functions that ensure consistency and precision throughout the printing process, reducing printing errors and enhancing productivity.



The FUJI Pick-and-Place Machine

The FUJI pick-and-place machine is used for precise component placement. This equipment features a high-speed head and a precise positioning system, achieving accuracy of $\pm 0.025\text{mm}$ with a CPK (Process Capability Index) of ≥ 1.00 . While placing up to 35,000 components per hour, high-volume production demands can be satisfied. Additionally, the machine has a modular platform design, allowing for the easy interchange of high-speed or multifunctional heads to accommodate different placement requirements for various products.

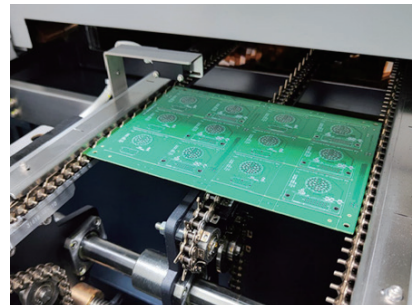




The Nitrogen Reflow Oven

The main purpose of the nitrogen reflow oven is to reduce oxidation on the soldering surface, improve wettability and flow, and enhance soldering strength. By injecting nitrogen (N₂) during the SMT reflow process, this equipment significantly reduces oxidation and ensures the reliability of the solder joints. This is particularly important for products with stringent reliability requirements, such as automotive electronics, as it effectively improves the product's lifespan and stability.

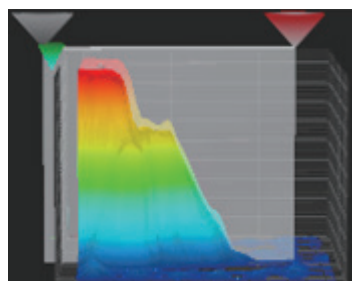
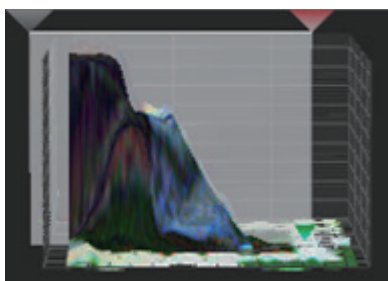
鏈條信息		
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0.80m/min	158.4mm	
爐內環境信息		
N ₂ /Air模式	腔室氧含量	
	0.47%	
N ₂	0.50%	



The TRI Optical Inspection Machine

The TRI 7700 Q SII is a device designed specifically for quality inspection in SMT production lines. Utilizing advanced optical imaging technology, it can precisely detect various parameters such as component placement, solder paste coverage, solder joint shape, and height, ensuring accuracy in every manufacturing step.

In SMT production, the TRI 7700 Q SII offers a speedy and efficient fully automated inspection solution that effectively identifies soldering defects such as pin defects, voids, and bridging. This provides timely responses to minimize the production of defective items. Furthermore, its high-resolution camera and multi-angle lighting combination enable it to easily detect minor anomalies, thereby ensuring high product reliability.



Optimizing Workflow: Implementing a BPM Electronic Signature System

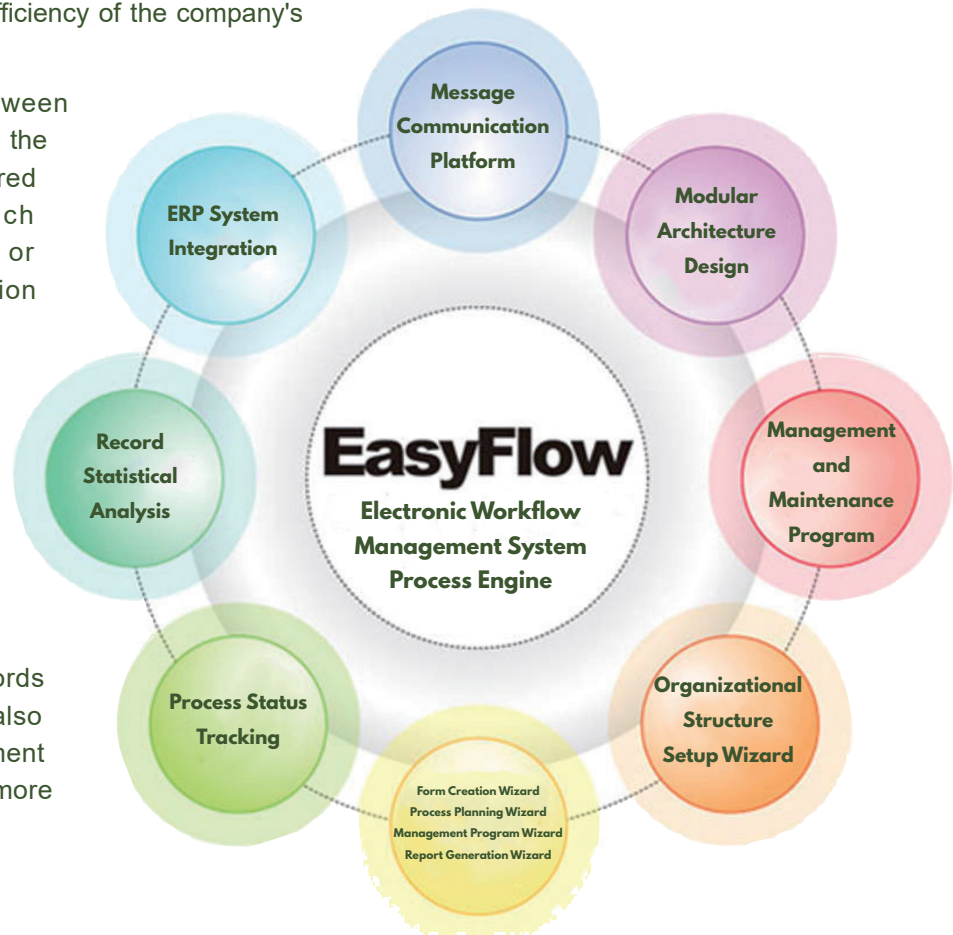
By Alyssa Lin

In today's information-rich era, information integration and technology application have become crucial for companies to enhance productivity. The integration between the employees and systems is a key way to boost efficiency, which leads to a critical thinking model for optimising the operating strategy.

Crete has previously upgraded the software and hardware tools. Currently, we are implementing the Electronic Signature System (BPM) to meet the growing demand. BPM enables a systematic workflow in document delivery, allowing all job scopes and responsibilities to be clearly defined, thereby improving the efficiency of the company's operations.

There are distinct differences between the ERP for inventory management and the BPM systems. In the past, ERP required a lot of complicated workflows, such as printing and manually remarking or signing processes. The implementation of BPM has substantially simplified these procedures, allowing quick response to the documents when modifications are needed.

Furthermore, through the BPM electronic signature system, large amounts of information can be quickly and efficiently retrieved. The issues of accumulating and managing of tons of paper-based records could be resolved. The BPM system also enables for instant review and adjustment of procedures, leading to clearer and more efficient workflows.

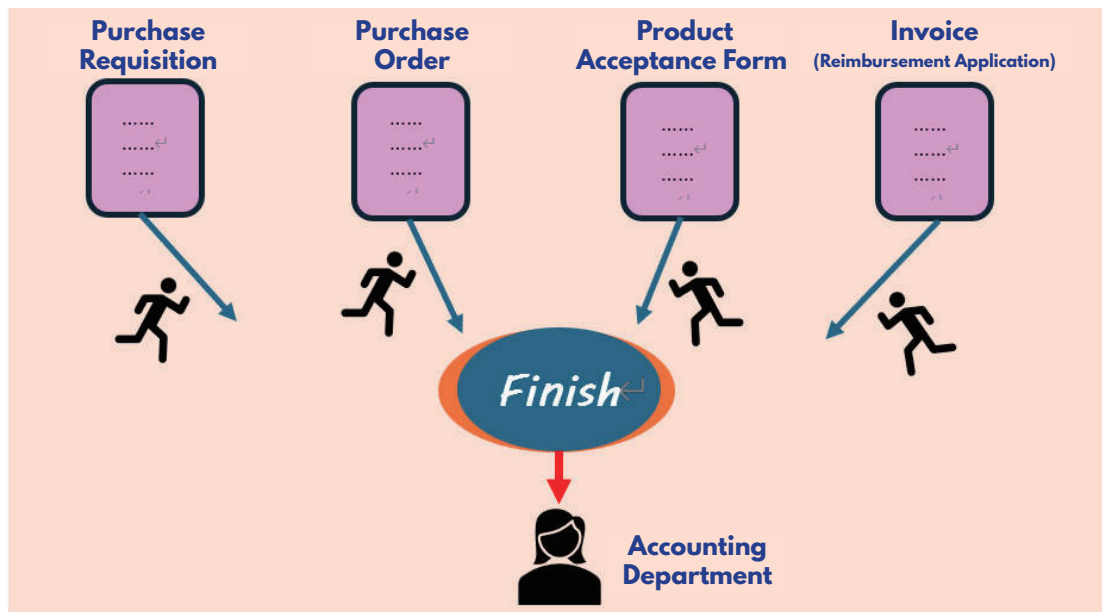


Advantages of Electronic Signature:

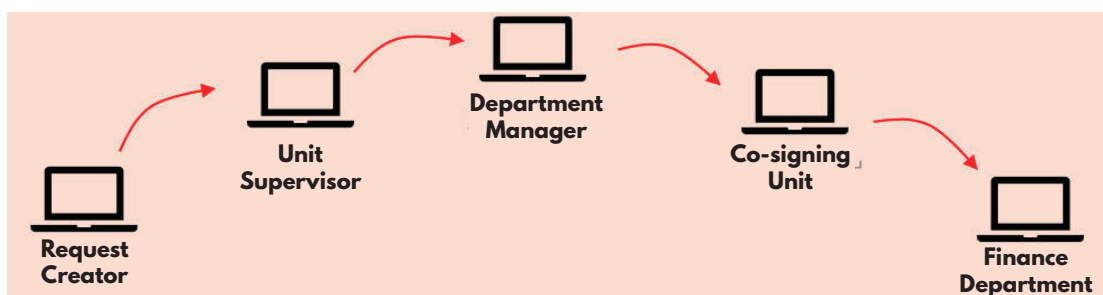
1. Efficiency Improvement: Enhances the efficiency and accuracy of the approval process.
2. Cost Reduction: Reduces paper usage and printing costs, promoting energy savings and carbon reduction. Saves on manpower delivery and time costs.
3. Record Integration: Integrates and simplifies ERP and existing paper-based processes, reducing operational costs.
4. Transparency and Tracking Capability: The record's handling process and related information are transparent due to standardized approval processes, enabling the company to track and control the progress.
5. ESG Corporate Sustainability Goals: Practicing an electronic signature system leading the company towards sustainable ESG practices and continuously enhancing market competitiveness.

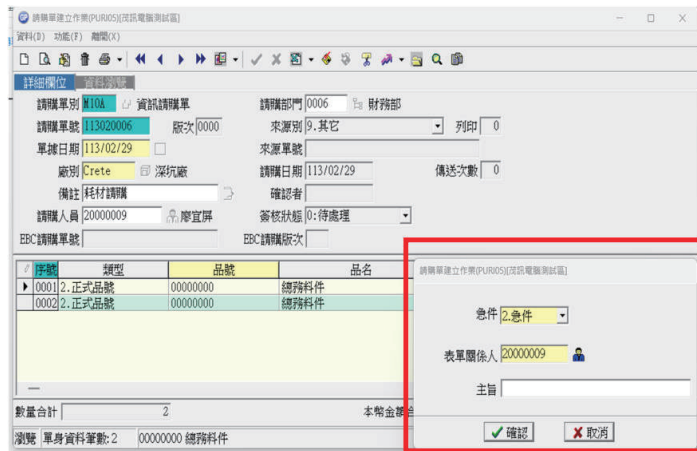
Example of a Procurement Process:

In the ERP (WorkFlow) system, each document needs to be printed and delivered manually for approval, which the processing time will vary depending on the complexity of the form requirement.



Although documents may go through different processes, the workflow structure effectively optimizing the processing time. BPM standardizes the cross-departmental operations, enabling speedy approval processes via the electronic signature platform.





請購單建立作業(PUR05)(跨系統測試區)

請購單別: M10A 資訊請購單 請購部門: 0006 財務部

請購單號: 113020006 原次: 0000 來源別: 9. 其它 列印: 0

單據日期: 113/02/29 來源單號: 請購日期: 113/02/29 傳送次數: 0

廠別: Create 深坑廠 備註: 耗材請購 審核狀態: 待處理

請購人員: 20000009 廖宜屏 EBC請購單號: EBC請購原次:

序號	類型	品號	品名
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0002	2. 正式品號	00000000	總務科件

數量合計: 2 本幣金額:

瀏覽 單身資料筆數: 2 00000000 總務科件

急件: 2. 急件

表單關係人: 20000009

主旨:

確認 取消

Figure 1: The approval process in BPM will be initiated after the request is established in the ERP system.



請輸入查詢條件(包含流程主首、流程序號、流程名稱、活)

關鍵流程 重要流程 全部 更多

未結案 已關閉 全部

流程狀態	流程名稱	流程主首 / 建立時間	發起者	執行中的活動
1 進行中	請購單建立作業(PUR05)	【資訊請購單】單別: M10A單號: 113020006 / 請購人員: 廖宜屏 15:48	林怡君	MIS確認

Figure 2: The approval progresses are clear at a glance.



鼎新 BPM System 請購單建立作業(PUR05)

發起流程 我的最愛 流程管理 流程處理 BPM文件 首頁模組

請購單建立作業

請購部門: 0006 財務部 來源別: 9. 其它 列印: 0

單據日期: 20240229 來源單號: 請購日期: 20240229 傳送次數: 0

廠別: Create 深坑廠 備註: 耗材請購 審核狀態: 待處理

請購人員: 20000009 廖宜屏 EBC請購單號: EBC請購原次:

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0002	2	00000000	總務科件	EPSON顯示	L	總務處	1	0

數量合計: 2 估價數量合計: 0 本幣金額合計: 1540

Figure 3: A simple, straightforward, and user-friendly interface.

Since December 2023, the MIS Department has been preparing with various departments. The MIS Department is currently working hard to expedite the integration of forms into the system and internal beta testing. Although it takes time to adapt to a new electronic signature system, the cooperation provided from all departments is truly appreciated so that optimal utilization of the system can be achieved.

AMA Visit 2024

By Owen Tung

We were honored to host our important clients, Applied Measurement, from Australia at our Taiwan headquarters. Their visit not only strengthened our cooperation but also provided us with the opportunity to showcase Taiwan's beauty and hospitality. During the five-day visit, we engaged in multiple in-depth work meetings and exchanges with the clients, gaining a clearer understanding of each other's needs and goals through face-to-face discussions.

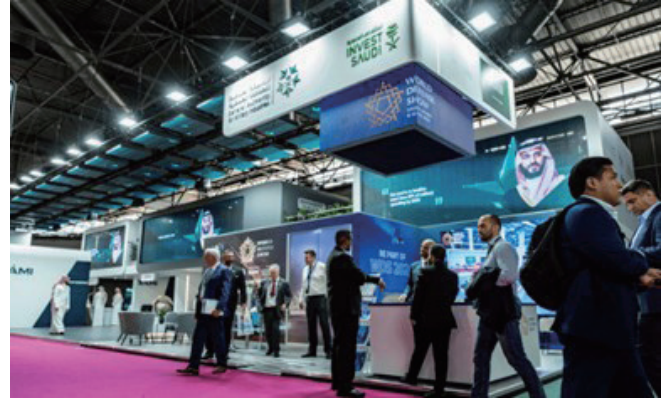
Beyond business discussions, we arranged various cultural experiences in Taiwan, including a day trip to Yilan, a visit to the National Palace Museum, a tour of Taipei 101, and a visit to Yangmingshan. These experiences provided our clients with a deeper understanding of Taiwan's culture and local customs.

Through hosting our Australian clients, we not only deepened our relationship with them but also gained a better understanding of their needs and expectations. We believe that this experience will establish a solid foundation for future collaboration and fill us with confidence and anticipation for international partnerships.



Arabian Exhibition Information Sharing

By Sonnie Liu



The WDS (World Defense Show) is jointly organized by the Ministry of Defense of Saudi Arabia, the General Authority for Military Industries (GAMI), and Saudi Arabian Military Industries (SAMI).

The global defense landscape is undergoing significant changes, leveraging cutting-edge technologies to enhance capabilities. With the world's focus on artificial intelligence, autonomous systems, machine learning, hybrid technologies, robotics, sustainability, military IoT, blockchain, and more, WDS examines the innovative advancements of these trends over the next decade. While showcasing advanced military equipment from around the globe, Saudi Arabia also aims to advance its own military industry through the exhibition and looks forward to increased global collaboration in the defense sector.

WDS 2024 features a 25% increase in exhibition space compared to the previous edition, with new exhibition halls and over 150 exhibitors. This year's theme is "Ready for Tomorrow," focusing on the future and rapid development of the defense industry, as well as the latest technologies and solutions in space technology for defense and security. MilDef Crete also aims to gain exposure in the Middle East through the WDS 2024 exhibition, hoping to generate more business opportunities.



What is ESG?

By Janice Liao

What is ESG? ESG stands for Environmental, Social, and Governance. It's a framework used to evaluate the sustainability and ethical impact of a company's operations. Next, let's look at what ESG represents.



Firstly, let's consider 'E', which stands for Environment. This includes climate risks, energy management, air pollution, product packaging, wastewater and waste management, or any other environmentally related aspects.

Secondly, the "S" stands for Social Responsibility, which includes safeguarding labor rights, employee health management, community relations, data privacy management, customer relations, compensation and benefits, stakeholder risk and interests, product responsibility, marketing management and other relevant areas.

Finally, let's look at "G", it stands for "Governance". It includes business ethics and morals, risk management, supply chain management, board effectiveness, systematic risks, and business competitive behavior...etc.

In summary, the benefits of ESG for companies include transparent financial report and relatively stable operational and risk profiles.

Reshaping Spaces: Creating the Optimal Work Environment Part 3: The Facade

By Andy Shi

In today's increasingly competitive business environment, the office as the company's facade is crucial for creating a strong first impression. To enhance the company image and improve the working environment for employees, office environment upgrades have become essential. This third phase of the renovation plan focuses on redesigning the reception area and undertaking floor waxing projects.

Reception Desk: Exquisite Design and Perfect Presentation

As the first point of contact between the company and the outside world, the design of the reception desk directly influences visitors' initial impressions of the company. To create a reception desk that is both modern and reflective of the company culture, MilDef Crete's Chief Designer, Roger, is in charge of the design. Roger integrates his years of expertise in product ID design and aesthetic craftsmanship into a practical design, with this reception desk being a testament to his innovative approach.



Floor Wax Removal Project: Creating a Clean and Comfortable Work Environment

In addition to the reception desk design, another key focus of this renovation plan is the floor wax removal project. Over time, the wax layer on office floors can wear down, affecting both aesthetics and safety. Therefore, conducting a floor wax removal is necessary.

For the floor wax removal project, we used advanced equipment and environmentally friendly cleaning agents to ensure effective wax removal without causing environmental pollution. Through the meticulous work of a professional team, the floors regained their shine, enhancing the overall appearance of the office and providing employees with a cleaner, more comfortable work environment.



Cycling Studio Reopening

By Kevin Wang



It's fantastic! We have opened a brand-new cycling studio on the third floor. This is a fun and challenging exercise experience. Since June, new colleagues have been joining the exercise routine, making it a great opportunity for everyone to enjoy the benefits of cycling classes together.

We offer one-hour cycling sessions every Tuesday and Thursday after work. This not only benefits physical health but also fosters communication among colleagues. I hope everyone has a great time at the cycling studio!



COMPANY INTRODUCTION

MilDef Crete was founded at 1990, we fulfill ISO 9001 and ISO14001. MilDef Crete focus on rugged computer market. We have complete product line including rugged laptop, tablet, mobile device and these products could be use in fields including military, public safety, public utility, on-site service, petroleum and natural gas, telecommunications, transportation, manufacturing, mobile commerce, etc.

MilDef Crete's products sold to the whole world by the brand MilDef. We have transnational team and several sites at Euro, North America and Australia. We provide our customer quicker and better service by co-work with our distributors and dealers. We keep focus on innovation and product development to provide best products for professional usage. We also have best R&D team for any customized demand. Our products pass various standards including MIL-STD-810 and International Protection Marking (IP54, IP65, IP67) and could fulfill special request such like MIL-STD-461, ANSI or ATEX directive.

TWELFTH EDITION 2024 / 8

Issuer | Nelson Chou
Editor-in-Chief | Nelson Chou
Chief Editor | Amanda Tsai
Art Editor | Amanda Tsai, Jackie Huang
Planning | Nelson Chou, Amanda Tsai
Translation | Nelson Chou, Kidd Cheng,
Annabelle Wu, Ken, Owen,
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