

# EFFICIENCY WITHOUT COMPROMISE

## KOREA FILTER ENGINEERING PROTECTS WORKERS WITH ROBOTIQ PE20





## INTRODUCING KOREA FILTER ENGINEERING

Korea Filter Engineering, founded in 1996, specializes in manufacturing **industrial filters** used in electrical discharge machining. With a commitment to quality and precision, the company has grown steadily while maintaining **a lean team of 15 employees**.

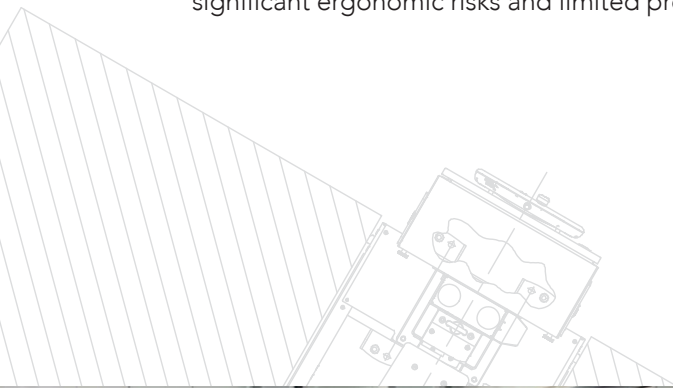
Before automation, the business relied heavily on manual labor for palletizing heavy filter **boxes weighing between 10-20 kg**. This created significant ergonomic risks and limited productivity.



**Woo-Seok, Kim**  
Director of Business



**Young-Hun, Yoo**  
Assistant Manager,  
Production Dept.





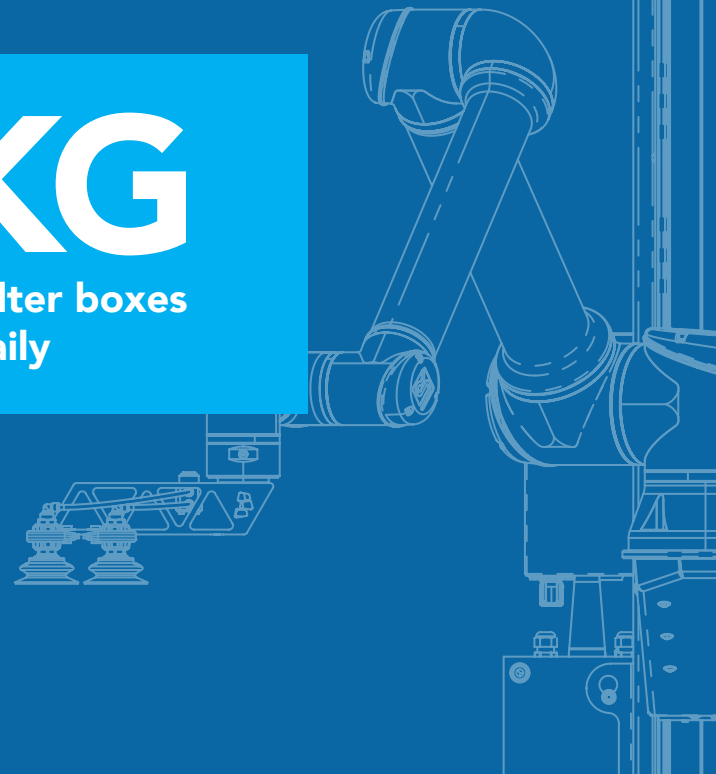
## CHALLENGES BEFORE AUTOMATION

Korea Filter Engineering's main challenges stemmed from the weight and volume of its operations, which involved manually lifting around **4 tons of heavy industrial filter boxes each day**. Workers **frequently experienced back, shoulder, and muscle strain**, and the **aging workforce** further increased the risk of **injury and absenteeism**. Although different lifting methods were tried in the past, operations ultimately always reverted to **fully manual palletizing**. This physically demanding process **decreased operational efficiency, lowered morale**, and made it increasingly difficult to maintain consistent productivity — even **causing delivery delays**.



# 20 KG

heavy industrial filter boxes  
handled daily





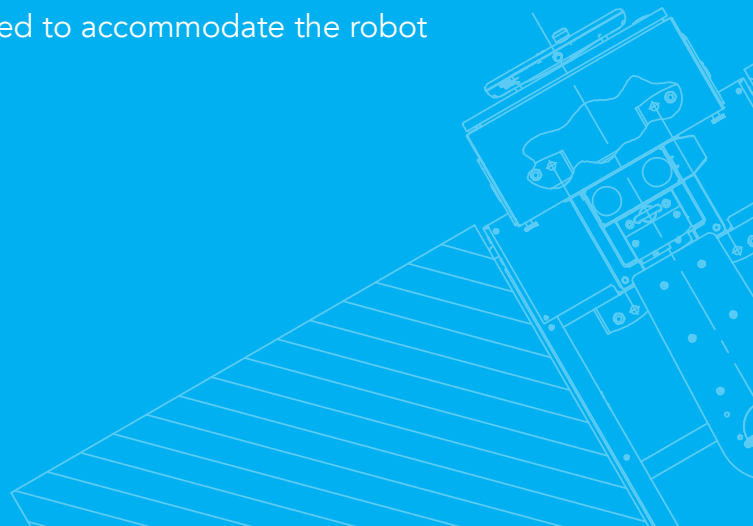
## THE SOLUTION

To address these challenges, Korea Filter Engineering adopted the **Robotiq PE20 Palletizing Solution** with the **UR20 cobot**. This **compact and stable system** optimized their palletizing process by efficiently handling heavy filter boxes, significantly **reducing the physical strain** on employees and **minimizing the risk of injury**. The **intuitive interface** allowed operators to quickly learn and manage operations, enabling even less-experienced staff to operate the system confidently within minutes. With its **clean, functional design and seamless integration** with the existing conveyor system, the PE20 cobot could safely work alongside human workers without requiring extensive safety barriers, improving **workflow efficiency, operational flexibility**, and overall **productivity**.

## PROJECT TIMELINE

- › Early 2025 — Initial discussions and evaluation.
- › March 2025 — Quotation.
- › May 2025 — Installation and launch.

**Minimal layout changes** were required to accommodate the robot despite space limitations.







## IMPROVEMENTS AND BENEFITS

**Robotiq's PE20 palletizer** delivered immediate and tangible benefits for Korea Filter Engineering:

- › **Increased Productivity:** Production speed rose by 30%, with daily output increasing from 200 to 250 boxes.
- › **Worker Safety & Wellbeing:** Injury-related absences were nearly halved, and worker fatigue dropped by over 50%, reducing physical strain on the team.
- › **Operational Flexibility:** One full-time employee was reassigned to higher-value tasks.
- › **Rapid ROI:** With measurable improvements in efficiency and safety, the expected return on investment is within 2 years.
- › **Zero Incidents:** Since installation, there have been no workplace accidents, highlighting the solution's safety and reliability.
- › **Adaptable & Scalable:** The PE20 handles up to 20 SKUs with a maximum pallet height of 2130 mm (~84 in), providing flexibility for diverse product lines.

### Production Team Lead feedback:

*“ After using the robot, our bodies are healthier, and we feel less tired—less than half compared to before.*

*We have more energy left for our families after work. ”*

—Young-Hun, Yoo, Assistant Manager, Production Dept.

## TRANSFORMATION AND SUCCESS

The implementation of Robotiq's PE20 at Korea Filter Engineering has transformed traditional manual palletizing processes, setting a new standard for industrial filter manufacturing.

Not only has this solution increased operational efficiency, it has also significantly improved worker safety and morale. Employees no longer strain to lift heavy boxes, and the team collaborates more smoothly with less physical pressure.

This automation project demonstrates the successful integration of advanced robotics into a traditional manufacturing environment, showcasing how automation can enhance productivity, protect workers, and foster a more positive workplace both on the shop floor and beyond.

*“ Partnering with Robotiq turned our vision of a safer and smarter workspace into reality. ”*

— Woo-Seok Kim, Director of Business





## RECOMMENDATION TO OTHER MANUFACTURERS

Korea Filter Engineering acknowledges that automation may seem expensive at first. However, the long-term benefits in worker protection, productivity, and operational stability far outweigh the initial cost.

*"We checked many robot systems, but the PE20 was the most stable. Protecting our workers is the most important thing, and the PE20 allows us to do that. That is why it is worth the investment."*



**Unlock greater potential with Robotiq Palletizing Solution  
and find out how it can transform your business operations.**

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