

## CASE STUDY

# Smarter cask monitoring unlocks multi-million-pound savings for global spirits producer

Specialist automation business KIGTEK, part of the Actemium UK network, partnered with an international spirits manufacturer to enhance operations at its largest maturation and disgorging site in Scotland. The project saw the deployment of its high-impact CaskTEK modular software solution alongside an innovative cask monitoring system. With a client relationship spanning more than 30 years, KIGTEK was selected to deliver an industry-first solution designed to directly reduce maturation loss while improving operational efficiency and long-term cask performance.

**Sector:** Food & Beverage – Spirits Manufacture

**Location:** Scotland

**Expertise:** Electrical design and panel build, Software integration, System design and delivery

**Scope:** Design, Build, Test, Install & Commission



# 01

## Client & Requirements

The client's site is Europe's largest whisky maturation and cask disgorging facility. Located in Scotland, it is central to the storage, handling and processing of some of its world-leading whisky brands.

During maturation, spirit stored in casks is gradually lost through evaporation or leakage - commonly known as the "Angel's Share". With HMRC allowing for losses of up to 2% per year, minimising liquid loss is critical to maintaining production volumes and protecting financial performance. It is also essential to accurately measure colour transfer from the cask into the spirit to fully assess cask performance.

The client was facing the following challenges:

- Significant **financial loss over time**
- Limited visibility of **individual cask performance**
- Lack of data to support **informed operational decisions**

Critically, **no existing solution on the market** could provide this level of granular, real-time insight.



# 02

## The Solution

KIGTEK engineered and deployed an **industry-first, data-led solution**, combining advanced field instrumentation with its proprietary CaskTEK platform.

At the core of the system was the integration within the **Trough Disgorging Process**, transforming it into a fully data-enabled operation.

At the client's facility, individual casks are brought to the Trough where whisky is disgorged, pumped into vats and transferred for bottling. Each cask has a Scottish Whiskey Association (SWA) barcode as well as its own unique QR code which is retained throughout its lifecycle.

The process includes the following steps:

### 1. Cask identification and weighing

- Prior to disgorging, the full cask is weighed to record the **full cask weight**.
- A high-performance camera system scans the existing SWA barcode, automatically linking it to the **new Cask ID** to ensure traceability.
- CaskTEK also interfaces to 3rd party systems to verify the **correct cask is being disgorged**.

### 2. Disgorging and sampling

- During the disgorging process, a sample of whisky from each cask is analysed at a newly installed **sample station**.
- Key quality parameters including **Alcohol by Volume (ABV) and tint** are recorded and assigned to the corresponding cask within the system.

### 3. Post-disgorging weight comparison

- Once empty, the cask is weighed again to determine the **empty cask weight**.
- The difference between full and empty weights, combined with the measured ABV, provides an accurate calculation of the **volume of whisky disgorged** per cask.

### 4. Data analysis via CaskTEK

- All raw data is then analysed within CaskTEK, converting measurements into usable performance metrics.
- By comparing fill and disgorge data, through CaskTEK the customer can evaluate each cask's performance and determine whether it should be reused, repaired, or removed from service.
- Because each cask carries a permanent unique ID, performance can also be compared across multiple fill and disgorge cycles, providing insight into long term maturation behaviour.



## 03

### Key Operational Improvements

Delivered as a **bespoke retrofit engineering solution built around the customer's operations**, the system integrates seamlessly into live production with minimal disruption. It provides the following operational advantages:

- **End-to-end traceability enables full lifecycle tracking** of every cask through automated identification.
- **Accurate loss and yield measurement provides reliable volume insight** for each disgorged cask.
- **Real-time quality capture links ABV and tint directly to performance.**
- **Actionable insights enable data-driven optimisation** of cask reuse, repair and replacement.

## 04

### Commercial Impact

By turning operational data into actionable insight, the solution delivers meaningful commercial value to the customer, such as:

- Independent analysis indicates **potential savings in the tens of millions of pounds annually** through:
  - Reduced product loss
  - Optimised cask reuse strategies
  - Improved operational efficiency
- Creation of a **data-driven operating model**, set to deliver value at present and across future maturation cycles.
- Can be **added retrospectively** to most traditional disgorging systems.

## Technology

- CaskTEK – modern web-based application & real time reporting
- Latest industrial camera solutions
- Robust weighing stations, optimised for manual handling
- High-accuracy flowmeter and densitometer instrumentation

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