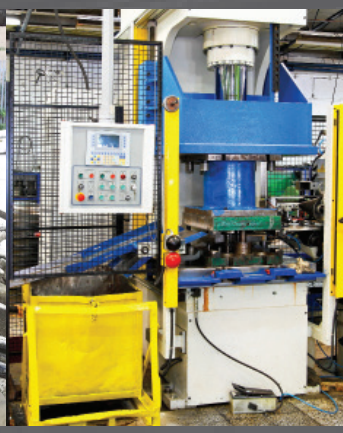
Castell

# Making the Aggregates Industry Safe

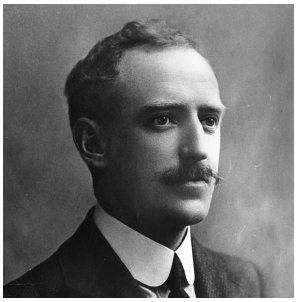


## Industry Guide

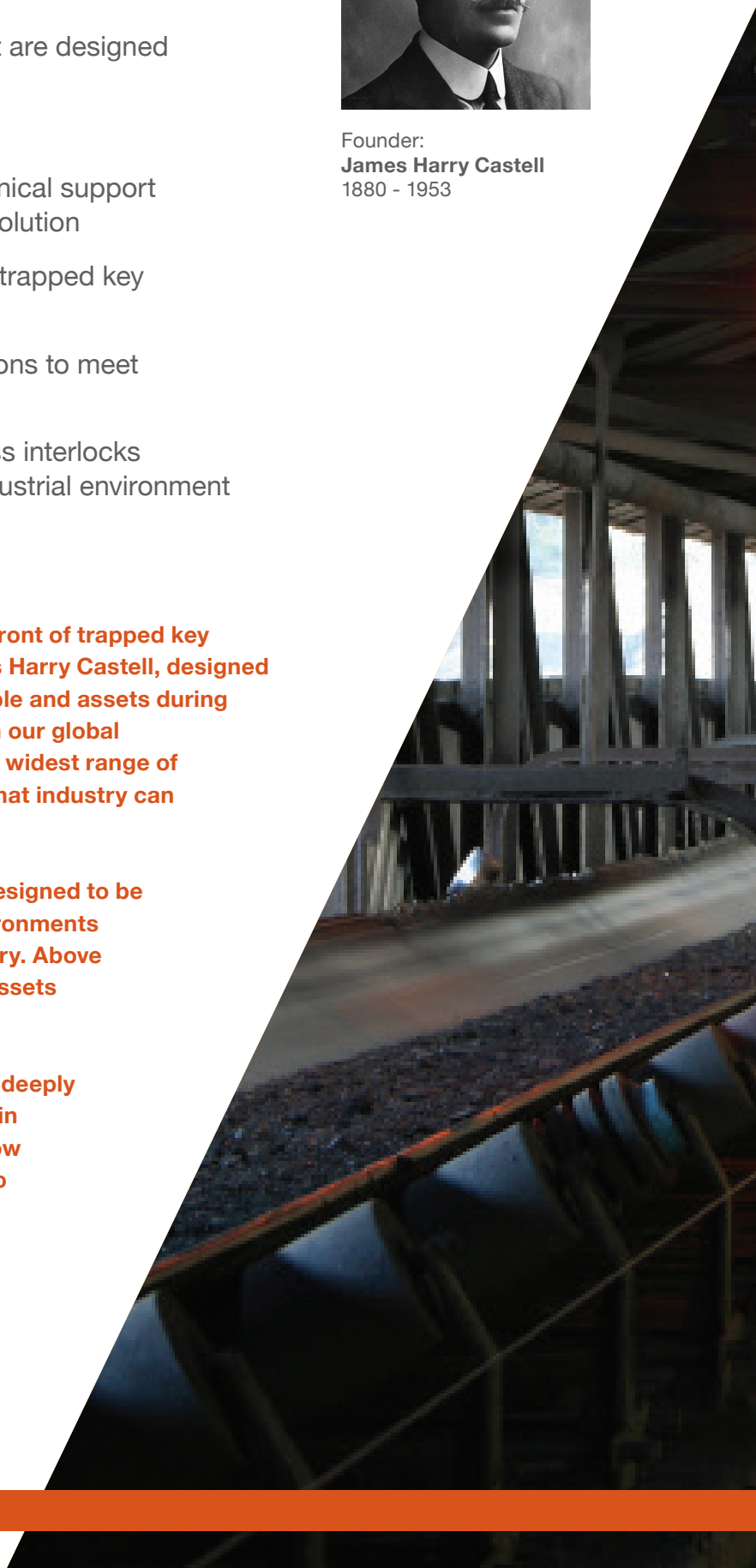
www.castell.com

# Why choose Castell for the aggregates industry?

- Expertise in ensuring safety in the aggregates industry for over half a century
- 90 years of experience protecting people and assets in industry
- High quality stainless steel products that are designed for harsh wash down environments
- ISO 9001: 2008 accreditation
- Global team dedicated to providing technical support and assistance in selecting the correct solution
- The widest range of rugged and reliable trapped key interlock products globally
- The ability to produce customised solutions to meet the demands of your specific application
- Specifically developed heavy duty access interlocks designed for regular use in the harsh industrial environment



Founder:
**James Harry Castell**
1880 - 1953



**Castell Safety International has been at the forefront of trapped key interlocking since 1922 when our founder, James Harry Castell, designed the first interlocking systems to protect the people and assets during the electrification of London. Today Castell, from our global locations, designs and manufactures the world's widest range of industrial safety interlocking systems ensuring that industry can operate safely around the world.**

**Our interlocking systems in stainless steel are designed to be robust, durable and are proven in the harsh environments faced by our customers in the aggregates industry. Above all, they are designed to protect personnel and assets where the risk of injury and damage are high.**

**Castell's approach to working with customers is deeply rooted in understanding the safety issues found in the modern aggregates industry. Recognising how safety impacts operations is an important step to designing systems that deliver fast safe access ensuring that efficiency is maintained and output rates are secured.**

## Factors driving the aggregates industry today

Despite large advances in technology and safety procedures in recent years, the aggregates and quarrying industry remains a dangerous environment with 12 times the fatality rate of the UK all industry figure. This is mainly caused by contact with heavy machinery. Therefore, health and safety is a key driver in the industry, highlighted by a number of high profile schemes currently being rolled out by the HSE.

The resurgence in the construction industry and strong outlook due to planned infrastructure spending, coupled with continued UK economic recovery mean production demand on the industry is increasing rapidly. Delivering process efficiency, better maintenance management and achieving production targets are vital to companies in the sector.

## The industrial environment

The pressure to achieve high levels of production while maintaining a spotless H&S record can lead to a challenging workplace. Added to this is the practical reality of a harsh working environment, making maintenance difficult and machine failure a regular occurrence. Process control is the focal point, so factories, quarries and production plants must consider this very carefully. Modern day processes must incorporate data handling, a high level of automation, strict scheduling and rigorous safety controls.

### Trapped Key Interlocking

- **Durable, long-lasting stainless steel**
  Withstands harsh operating environments common in the aggregates industry.
- **Prevents shortcuts & enforces procedure**
  Trapped Key Interlocks force workers to follow a strict process which prevents them from deliberately skipping or inadvertently missing steps.
- **Heavy duty access in harsh conditions**
  Uniquely developed heavy duty stainless steel support mechanism designed to meet demands of persistent use in the harshest of conditions. NEW *see page 7*
- **Can be washed down**
  High grade stainless steel and robust design capable of surviving regular, high pressure wash-down.

### Salvo Drive Away Prevention

- **Prevents accidental driveaways**
  Accident rates in loading and unloading vehicles can reach rates as high as 25% of all work place accidents.
- **Removes need for traditional verbal communication**
  Traditional communications often used in procedural based systems which can be misheard or misinterpreted and can take more time are no longer essential.

### Iso-Lok Lock Out Tag Out

- Full stainless steel padlock versions available
- Comprehensive range of padlock sizes and clasps
- Tracked key differ codes
- Isolation of machinery
- Personalisation and customisation with engraving and painting

# Delivering safety across the aggregates industry

- Trapped Key Interlocking
- Iso-Lok Lock Out Tag Out
- Salvo Drive Away Prevention

## Cement Factory

## Concrete Factory

## Asphalt Factory

## Brick Factory

Extraction

Crushing (mobile)

Screening

Crushing (static)

Quarry (Stone)

Quarry (Clay)

Extraction

Mixing

Milling

Grinding

Pressing

Drying

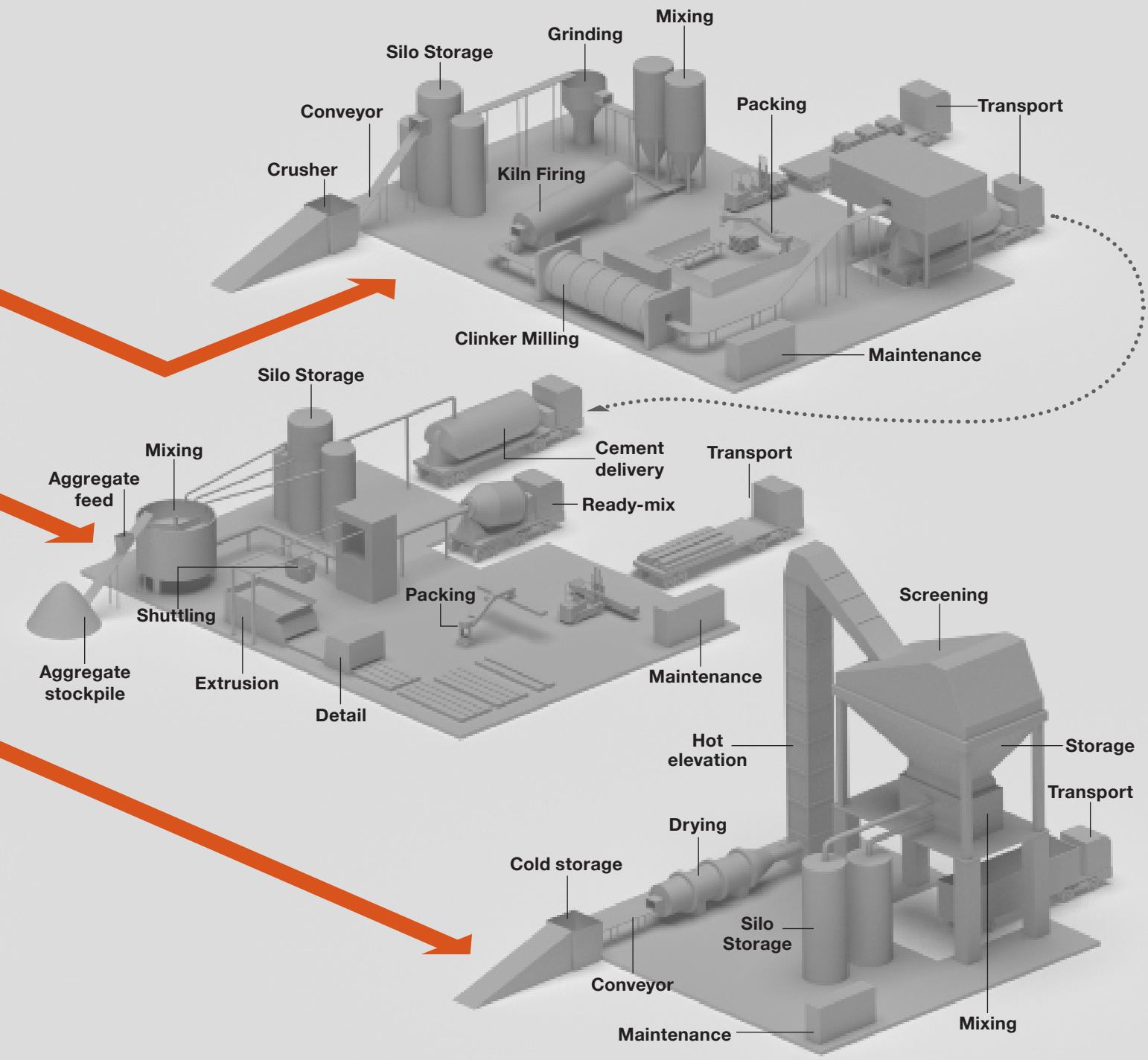
Detail

Packing

Maintenance

Firing

Transport


Mixing
Grinding
Silo Storage
Conveyor
Crusher
Kiln Firing
Packing
Transport
Clinker Milling
Maintenance
Silo Storage
Mixing
Aggregate feed
Cement delivery
Transport
Ready-mix
Shuttling
Packing
Screening
Aggregate stockpile
Extrusion
Detail
Maintenance
Hot elevation
Storage
Transport
Drying
Cold storage
Silo Storage
Conveyor
Maintenance
Mixing

# How to design a system

**1 Isolation** **2 Key Exchange** **3 Access Control**


**To design an interlock system there are a number of key questions that need to be addressed. These are:**

- What is the operational flow to start and stop equipment?
- What is being isolated?
- Is there more than one system that needs to be isolated to make access safe?
- Is there a time delay required for safe access?
- How many access points are there?
- What is the type of access? Full body or part body?
- Severity of the possible injuries?
- What is the possibility of avoiding the hazard?
- What is the nature of the hazard?
- What are the energy sources present?
- What is the operating environment?

## Part Body Access

A part body access lock has only one lock and the isolation key is used to open this. Whilst the access lock is open the key cannot be removed and therefore the process can not be started. Only once the lock is closed can the isolation key be removed and the process restarted.

## Full Body Access

Full body access locks have two locking mechanisms; the first step in the process is to insert the isolation key. This will allow the personnel key to be removed and then access can be granted by opening the bolt. The isolation key can only be removed once the personnel key has been inserted. Therefore whilst the personnel key is removed and the lock is open the process can not be started. Only once the lock is closed and the personnel key returned can the isolation key be removed and the process restarted.

## Coding a System

Please refer to our Interlock and padlock integrity policy.

## Trapped Key Interlocking

### Isolation

BEMF

K

Salus20

DAE

MSI

KSS

KSE

TDI

MBV

KS20

KSSE

TDR

### Exchange

X

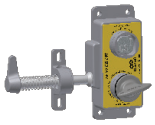
Y

Z

### Access

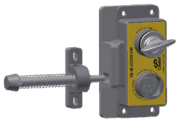
AI

AIE



NEW AI-HD

NEW AIE-HD

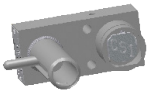


AIS/Hercules

AIES

D

KE



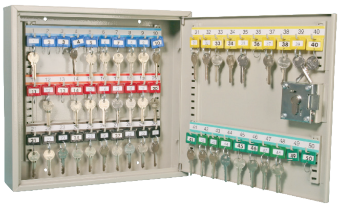
Olympus

## Iso-Lok Lock Out Tag Out

Padlocks

*Clasps

*Key/Padlock Cabinets

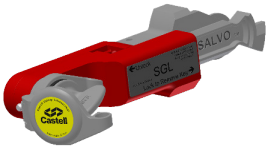


*Available in stainless steel and a variety of sizes upon request.

## Salvo Drive Away Prevention

Salvo Coupling

SGL Lock



Storage Box

CSI-MB-Aggregates-2020-EN Issue 4

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