

**Bison Concrete Products Ltd**

**IPHA Technical Seminar**

**7-8th November 2005**

**Chip Technology with Hollowcore  
Slabs**

# **Electronic tagging of product**

**The use of electronic tagging technology at  
Bison's new plant at Swadlincote, England.**

**Alan D Clucas**

**Group Managing Director**







# Problem:

- To know where individual units are throughout process.
- Up to station 1 controlled by bed planning system.
- Upon de-moulding production sequence broken up.

# Requirements:

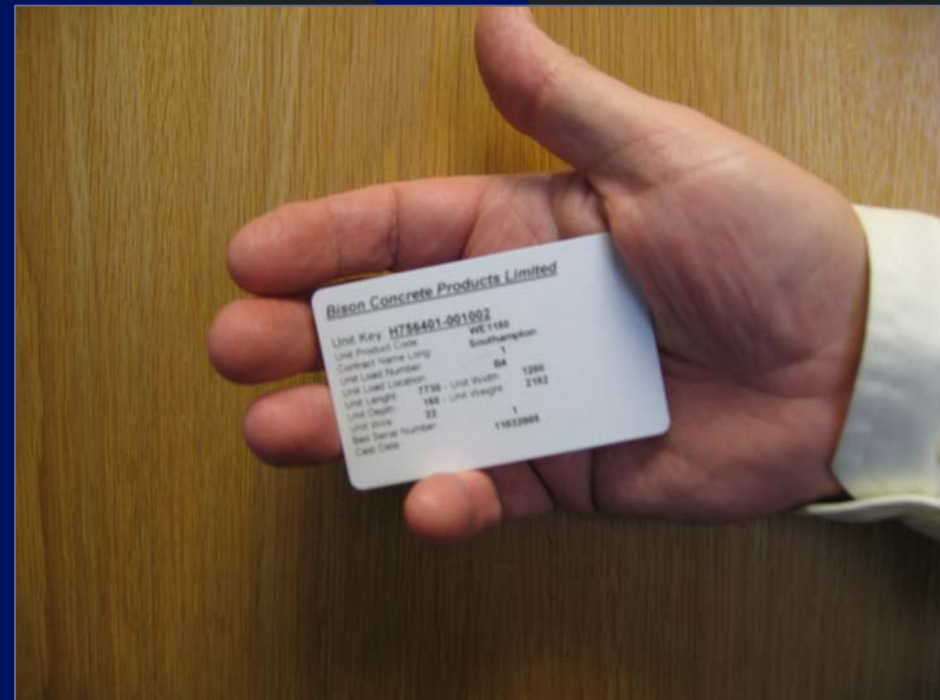
- Need to track units.
- Need to link unit information between:
  - Plant
  - Unit
  - Information database
- Data useful for product loading.

# Options:

- Labels printed with bar-coding.
- Embedded data chip.
- Transponder card.

# Solution:

- Transponder card





# Why?

- All options required development of application technology.
- Transponder offered future benefits.
- Only downside, initial capital cost of equipment and ongoing card cost.

# Development process.

- Commenced project in 1st Quarter 2004
- Agreed solution in 3rd Quarter 2004
- System manufactured, installed and commissioned in 2nd Quarter 2005

The solution was jointly developed by Bison production and IT staff with Nordimpianti and their IT partner ICIE

## The system comprises:

- 4 card printer stations and card magazines.
- 4 Feed belt conveyors from printers to card applicators.
- 4 Electronic data transfer stations.
- 4 glue applicators
- 4 card applicators



# TRANSPONDER STATION



# TRANSPONDER STATION

- The Transponder Station is just prior to Cutting Station 1
- As the line has been cast to a pre-agreed sequence, the transponder site is pre-determined to avoid future cut-outs, narrow widths etc.
- 4 applicators accommodate narrow width units, side by side, simultaneously



# The Process:

Priv: Plant Operator 09:56:00

## Transponder Machine

### Belt Conveyors


**BELT MAINT.**

**DEPTH Maint.**

### Line 1 Belt Conveyors

#### Enable Card A

0 1



Belt A


Reset

Start

- L3. Printer:
- Card Present SLC:
- Glue Injection:
- L3. Place:
- Belt START:
- Belt RUN:
- ...
- Alarm:

#### Enable Card C

0 1



Belt C

Reset


Start

- L3. Printer:
- Card Present SLC:
- Glue Injection:
- L3. Place:
- Belt START:
- Belt RUN:
- ...
- Alarm:

### Line 2 Belt Conveyors

#### Enable Card B

0 1



Belt B


Reset

Start

- L3. Printer:
- Card Present SLC:
- Glue Injection:
- L3. Place:
- Belt START:
- Belt RUN:
- ...
- Alarm:

#### Enable Card D

0 1



Belt D

Reset

Start

- L3. Printer:
- Card Present SLC:
- Glue Injection:
- L3. Place:
- Belt START:
- Belt RUN:
- ...
- Alarm:

#### Last Card Printed on Printer A

Unit Key:	H756466-013036	BED Serial #:	470
Load Number:	35	Casting Date:	20102005
Load Location:	G2		
Length:	6220	Product Code:	200
Width:	1200	Contact Name:	BURGESS HILL
Depth:	200		
Wire:	33		
Weight:	2123		

#### Transponder

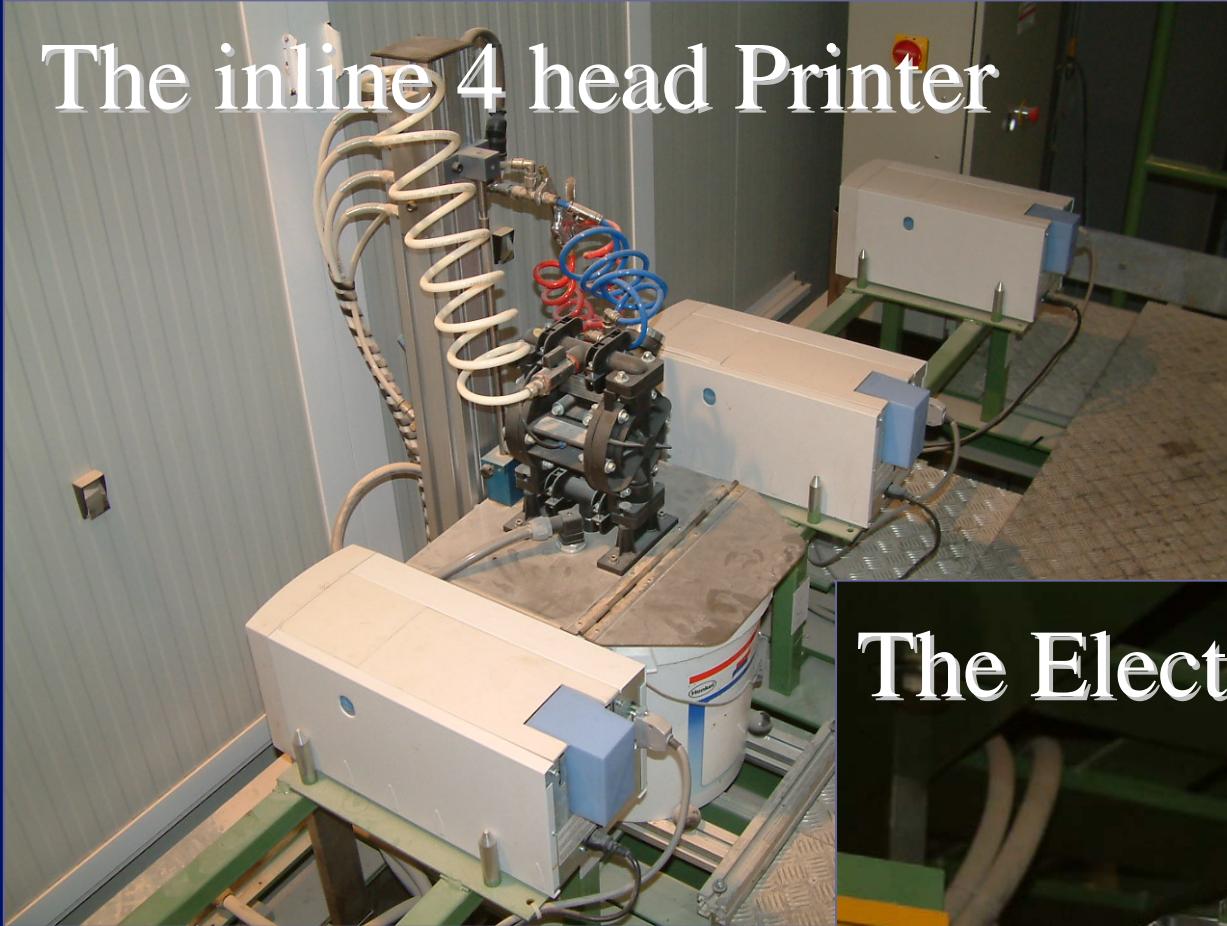
BED Serial #:	0
DB Table:	tbl_TR_D
DB Field:	Cast_Date
DB TR:	0
Offset CARD:	152490

# The Process

- In the control room the carousel operatives can monitor the status of the transponder machine.
- The blank transponder cards are loaded into an integral feeder and a 4 head inline printer, prints the visible date on the cards
- The printed card travels on a belt conveyor to an electronic head that inputs the data for the individual product into the transponder card.



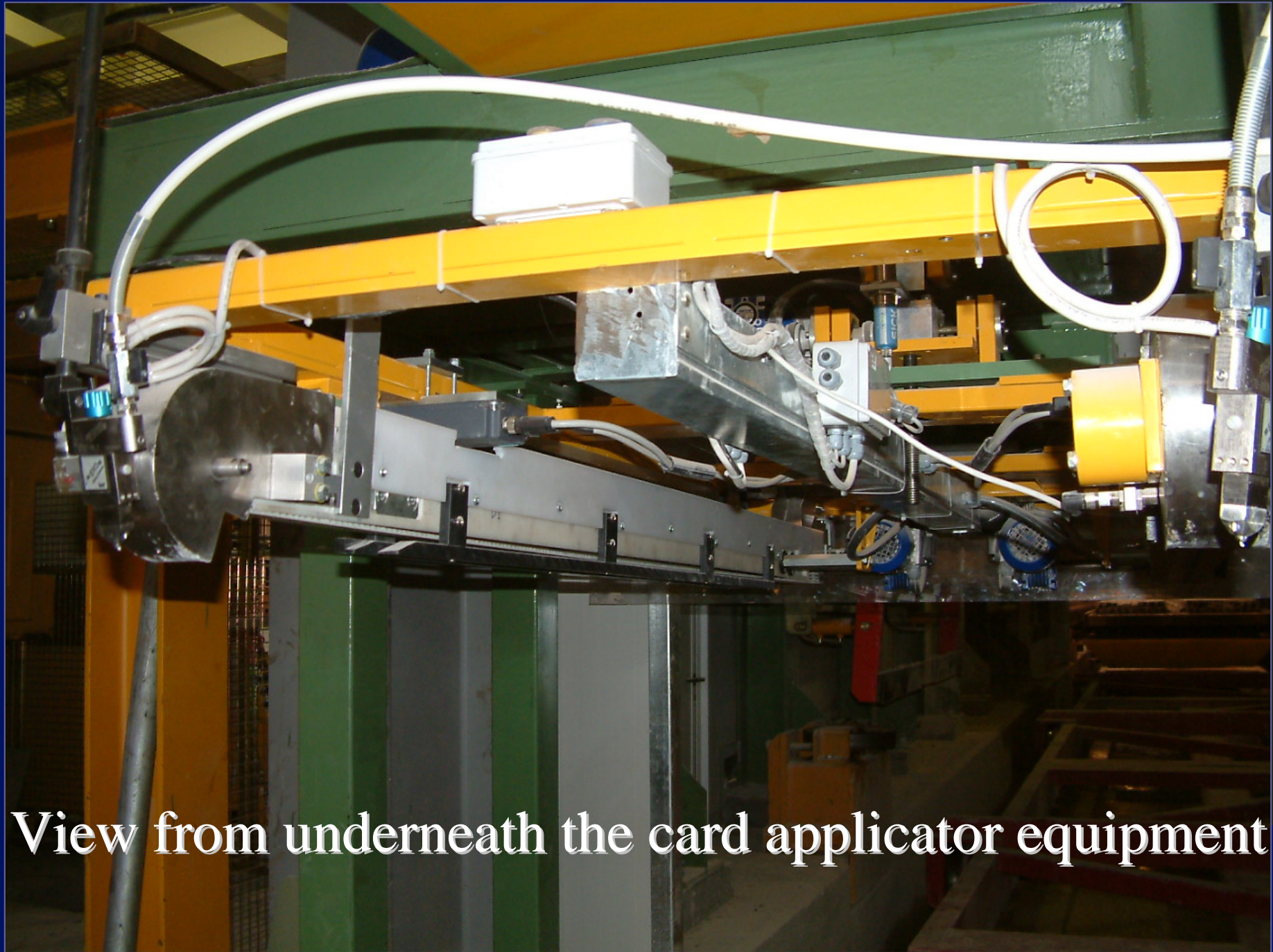
The inline 4 head Printer



The Electronic Head







View from underneath the card applicator equipment





Close-up of the card feed chute and glue nozzle



Close positioning of the applicator station to cutting station 1





Card Applicator station with product passing underneath



Glue sprayed onto product



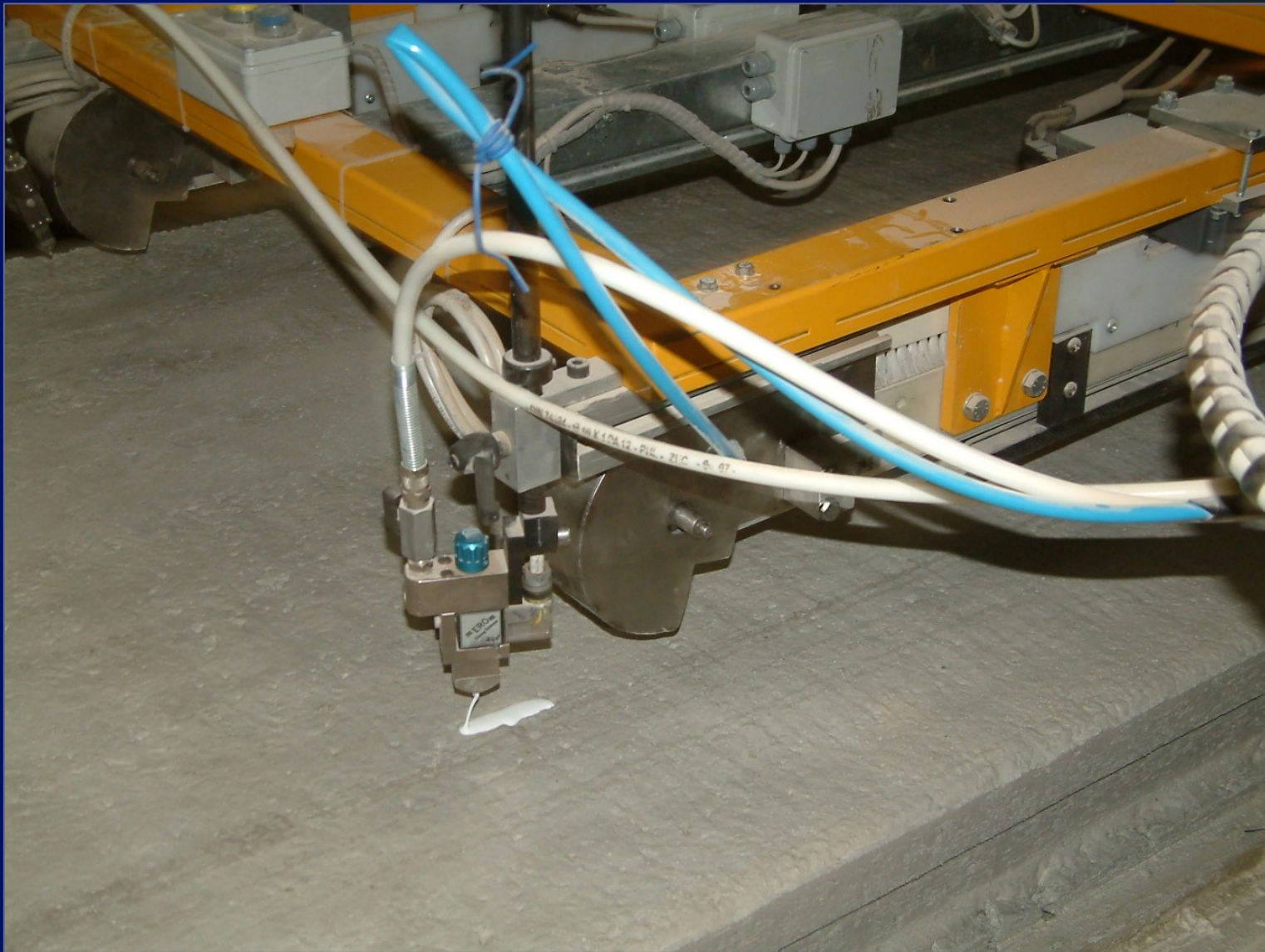


Glue applied



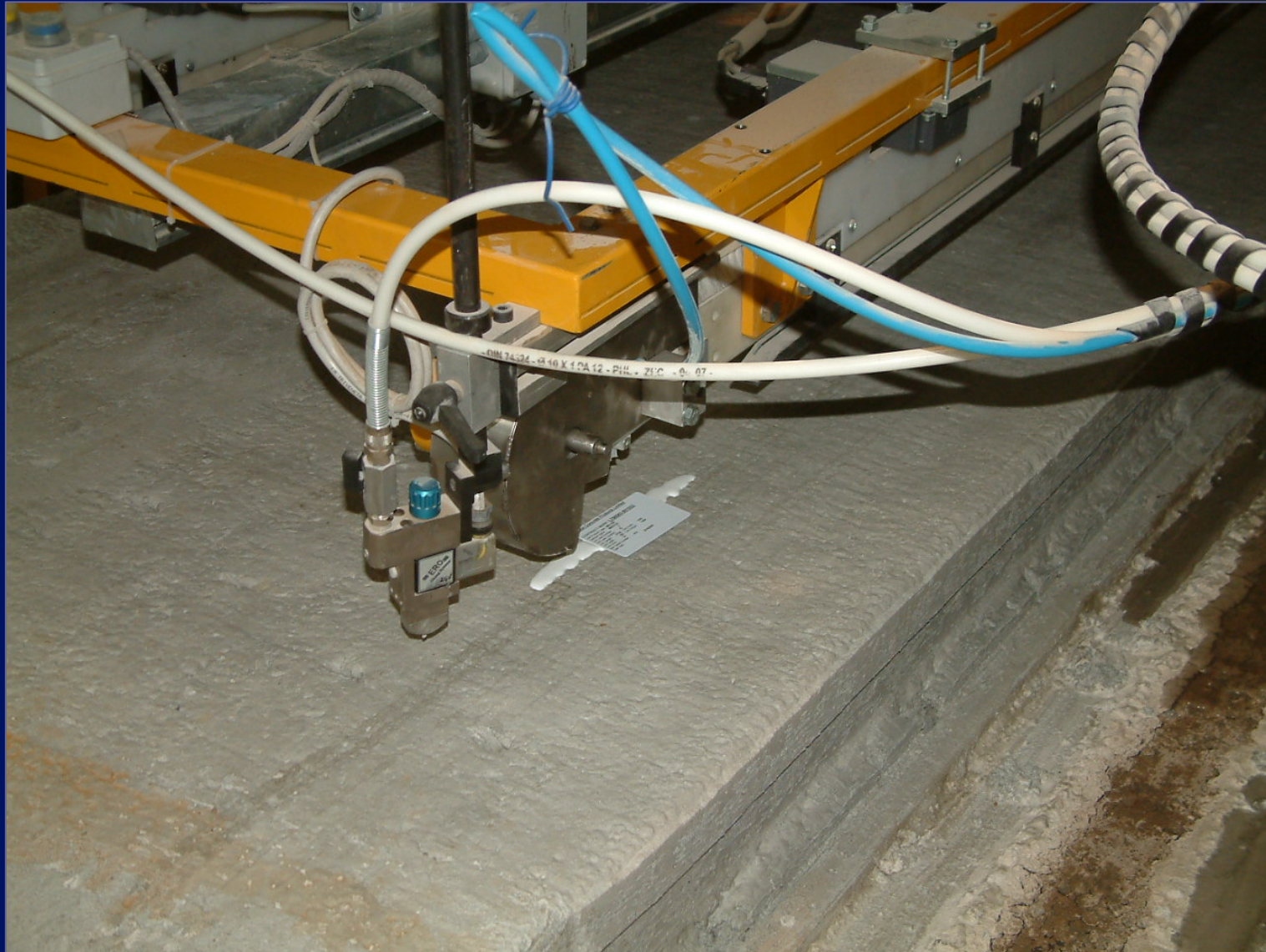
Card applied





Alternative view of glue application





Card applied

*Bison Concrete Products Limited*

CONTRACT-MARK: L783303-001003

Unit Product Code: 200

Contract Name: EXETER

Unit Load Number: 4

Unit Load Location: J2

Unit Length: 3640 - Unit Width: 1200

Unit Depth: 200 - Unit Weight: 1183

Unit Wire: 33

Bed Serial Number: 469

Cast Date: 20102005

View of card after it has passed through  
Cutting Station 1





Reader at transfer station which reads the data on the card before drilling weepholes if required.



Reader at secondary cutting station reads the card to cut unit down to required width

# Future Developments







THANK YOU

Alan Clucas

Group Managing Director

Bison Concrete Products Limited