

PROCESS SOLUTIONS

Partnerships in Cement

Plant Portal Loading

Optimizing Throughput Capacity and Customer Service

Plant Portal Loading from Process Solutions provides customers and contract carriers with convenient 24/7 access to loading of bulk materials in trucks, while optimizing the throughput capacity of loading facilities.

The Plant Automated Loading Process

Critical requirements for an effective automated bulk cement loading process are:

- ↗ **Flexibility and security**
- ↗ **Simplicity of operation**
- ↗ **Accuracy of data**
- ↗ **Effective problem handling**

Flexibility and Security

The Process Solutions *Plant Portal Loading* solution supports three modes of operation:

- ↗ **Unattended setup and completion with operator-managed loading**
- ↗ **Fully unattended operation**
- ↗ **Fully operator-managed**

The key to unattended operation is the use of encoded radio frequency identification (RFID) cards. Regular drivers are assigned cards to carry with them and use whenever they load at the plant. The card immediately identifies the holder, the carrier and/or ship to customers with which the driver is associated and the valid rigs (truck/trailer combinations) he/she may be driving.

A driver who wishes to use the unattended setup but does NOT have a pre-assigned RFID card requires a personal identification number or 'PIN' (a randomly generated number created by the system) to identify the shipment the driver wishes to load. The PIN will be provided by an operator who has created the request for shipment in the system. It may be obtained in advance by calling in the request, or may be assigned when the driver arrives. Alternatively a barcode can be generated and scanned at the kiosk instead of typing the PIN.

If there is an equipment failure, or if a driver is unwilling or unable to use the unattended system, it is still possible for an operator to manage the entire process in the traditional way.

Simplicity of Operation

Process Solutions' *Plant Portal Loading* solution 'walks' the user through a simple and intuitive set of process steps. At the setup stage the input device is a 'Plant Portal' kiosk, incorporating a touch-sensitive screen, located at a convenient entry point such as the safety stands where hatches are opened.



Plant Portal Kiosk

Once authorized through recognition of the RFID card ID or PIN, the user follows a simple and logical sequence to complete setup of an order. The next action to be taken is highlighted in **green**.

- ↗ Select the correct *truck/trailer combination* ('rig') from among the valid alternatives stored in the system
- ↗ Select the *ship to/product combination* to be loaded by touching the **up or down arrows** on either side of the display at the top of the screen.
- ↗ (As necessary), enter a *customer purchase order number* and/or select a *required certification* for the loaded product.
- ↗ (As necessary) *assign load requests to the loading hatches* in the rig and *modify the loading pattern*.

Once the request for shipment has been set up, the screen directs the driver to the correct loading alley and may display a map of the site or notices to drivers.

As the truck is driven onto the scale in the loading alley, the driver must 'swipe' the RFID card at a reader located at the entrance. This identifies the requested load to an operator, if one is in attendance, or to the 'AutoLoad' system.

- ↪ A large display in the loading alley informs the driver whether an operator is available. If so, the driver is directed to stay in the truck and the operator completes loading according to the specifications in the request for shipment.
- ↪ If the system is in 'Unattended' mode, the driver will be prompted to get out of the truck and use the *AutoLoad panel* installed in a convenient location beside the scale.



Driver AutoLoad Panel

- ↪ The two line display on the face of the panel provides directions to the driver for taking the tare weight, controlling the spout and initiating the loading process. The system automatically controls flow rates and loading cutoff points, so there is no further action required by the driver, although loading may be stopped temporarily by pressing the 'Stop' button. There is also an *Emergency Stop button*.
- ↪ Once the loading is complete, the spout will retract automatically. The driver may then move the truck off the scale and go to the exit platform.
- ↪ To obtain a bill of lading and any other required documentation, the driver will use another 'Portal' kiosk. By 'swiping' the RFID card at the reader located on this kiosk, the shipment is identified to the system, and the summary (including weights) will be displayed. The driver is required to sign for the shipment by signing directly on the touch screen.

- ↪ When the signature capture is completed, the *Bill of Lading and other required documents such as mill certificates* are automatically printed.

Accuracy of Data

Most data captured by the *Plant Portal Loading* system is either selected from options set up through the Self-Serve Administration application, or retrieved directly from instruments, such as the scale weight indicator. Very few manual entry options are available, so the risk of invalid or incorrect data is virtually eliminated.

All data relating to customers, ship-to locations, carriers and materials is derived directly from the 'master data' source, usually the cement producer's financial or ERP system. Site-specific data such as silo storage locations and the names of individuals authorized to use the system is entered through system maintenance screens, and controlled by a local administrator.

The format and content of Bills of Lading and of records of shipment to be submitted to the financial system are customized for the cement producer. Specific Bill of Lading requirements, such as state certification stamps, truck license plate pictures, or weighmaster certificates may be added through defined 'business rules'.

Effective Problem Handling

The *Plant Portal Loading* solution has been designed to identify and handle a wide variety of problem situations. When the system is unattended, the system can *page a designated attendant*, either automatically or at the initiation of the user. In a plant environment, the attendant may be located in the plant control room, able to intervene and provide assistance to drivers whenever the loadout itself is unattended. A *telephone with automatic connection* is located both at Portals and beside each AutoLoad panel.

For More Information

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