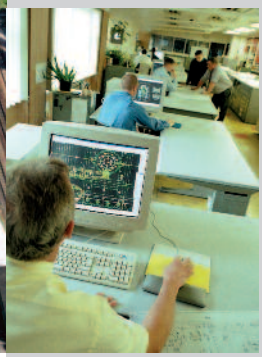
Special Purpose Machinery for the Construction Industry

Fielding
Concrete Division

Our Engineering Heritage

Founded in 1866 Fielding and Platt has established itself as one of the foremost manufacturers of hydraulic presses and associated material handling systems.



FIELDING AND PLATT - CONCRETE DIVISION

Fielding and Platt operates from an 8-acre site in Wakefield, England, with over 15,000 sq. metres of factory space under cranage. The Company's extensive production facility boasts excellent fabrication, machining and fitting departments, ensuring that all aspects of machine build are controlled to Fielding and Platts quality (ISO 9001:2008), environmental (ISO 14001:2004) and European safety (CE) accreditations.

A major part of the product portfolio is an extensive range of concrete presses, which are specifically designed for producing high quality concrete products by either the Semi-Dry Mix Process or Wet Mix Process. Ancillary products, such as Take-Off Edge Stacking Units and automatic Mould Filling systems are available to complement the full range of Fielding and Platt concrete presses.
Working closely with its sister company Craven Fawcett Limited (manufacturers of heavy clay working machinery), Fielding and Platt can now offer complete turnkey solutions and support services including: -

- Plant layout and design.
- Engineering procurement and installation.
- Batching, weighing and mixing plant.
- Press feed and stacking systems.
- Automatic racking, curing, washing, water re-cycling systems.
- Packing, strapping machinery.

Our design and manufacturing facilities enable us to offer a total service from initial concept through to site installation and commissioning. All major research and development work is conducted in-house and is supported by a well equipped Computer Aided Design department covering mechanical, electrical, hydraulic and software engineering disciplines.

Main (left): Aerial photograph of the Company's 8-acre Wakefield site

Top: Machining Facility

Bottom (left): Technical Design Department

Bottom (right): Fabrication Division

The Fielding and Platt range of concrete material handling equipment include:

- Presses for Wet Concrete
- Paver & Block Machines
- Volumetric Dosing Units
- Automatic Handling Systems

Quality Products

Products produced on Fielding and Platt presses are capable of meeting the requirements of British and European standards, as well as the Canadian standards for pre-cast concrete paving flags.

Main (right): Paving Slabs produced using a Fielding & Platt Wet-Mix Process

Above: An infinite range of paving slabs, road kerbs and concrete blocks can be produced on Fielding and Platt machines

presses, with associated product and

- Pallet Magazines
- PLC & PC Controls Systems
- Slab & Kerb Tooling
- Special Moulds

Typical Products manufactured on F&P Presses include but are not limited to: -

Paving Slabs - Plain, polished, non-slip surface slabs, fully and part exposed aggregate type slabs, coloured and patterned slabs. These products are manufactured in a wide variety of sizes and shapes, such as squares, rectangles and hexagons.

Road Kerbs - Straight, radius, dropper type, drainage channels and gutter kerbs.

Other Products - Concrete blocks, which can be split stone wall blocks – an effective and extremely durable substitute for natural stone, silo staves, building system panels, garage panels, tunnel segments, garden edgings, irrigation canal lining slabs, cable cover ducts, etc.

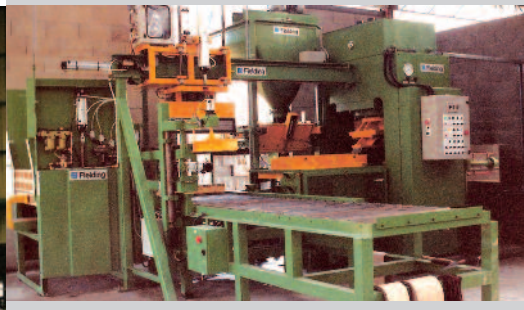
Production rates - The main variable affecting production rates is the type of fine material, i.e., sand and 3mm to dust crushed stone. This determines the pre-set timed pressure dwell, i.e. the time it takes to press excess water from the product and form a dense, transportable “green” product. The pressure dwell also varies with the thickness of the product.

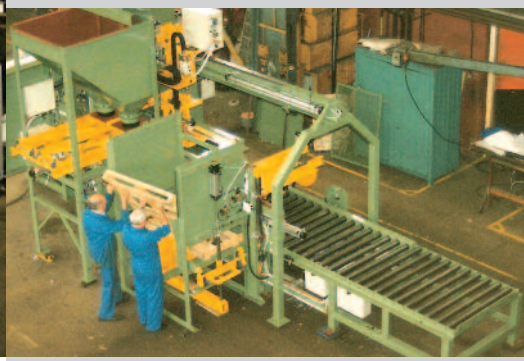
Fielding and Platt hydraulically pressed concrete products may be summarised as having the following features/benefits.

- Attractive and excellent surface finish.
- Good dimensional accuracy.
- High density.
- High compressive strength.
- Low water absorption.
- High resistance to corrosive elements e.g. freeze-thaw conditions, salt and or acid solutions.

Presses for wet concrete products

The superior quality inherent in concrete products manufactured by the unique **Fielding & Platt Wet-Mix Process** ensures a far longer life and retention of surface finish than can be obtained from counterpart products manufactured by other methods.





The high pressure exerted during the operation gives an extremely dense product with high strength and good wearing qualities. This high density, together with a fine surface finish reduces the water-absorption characteristics of the final product and gives a correspondingly high resistance to frost damage. Furthermore, the wet-mix process has the added advantage of ensuring that adequate moisture is available to provide complete hydration of the cement. This has proved particularly beneficial in countries where ambient temperatures are very high.

During the pressing operation the cement and fines in the mix are retained within the mould by the filter medium and only the excess water is expelled. The risk of voids is virtually eliminated and the retained fines on the surface produce a smooth and even finish. In addition, through the use of a specially contoured plate in the bottom of the mould, sharp patterned and contoured surface finishes can be obtained.

The mix ratio of cement to aggregate is an important factor in any concrete product and this ratio is the overriding factor in determining final component properties. It has been proven however that products produced by the wet-mix process utilising the Fielding & Platt Press require at least 10 to 15% less cement to achieve the same properties (better in some cases) than any other method. A typical mix proportion of aggregate to cement is 8:1.

The standard range of Fielding and Platt wet concrete presses comprises two basic press types, the single mould (suitable for lower quantity and special production runs requiring frequent mould changes) and the three mould press (where higher output is required), each capable of exerting a maximum force of 400 tonnes (4 MN)

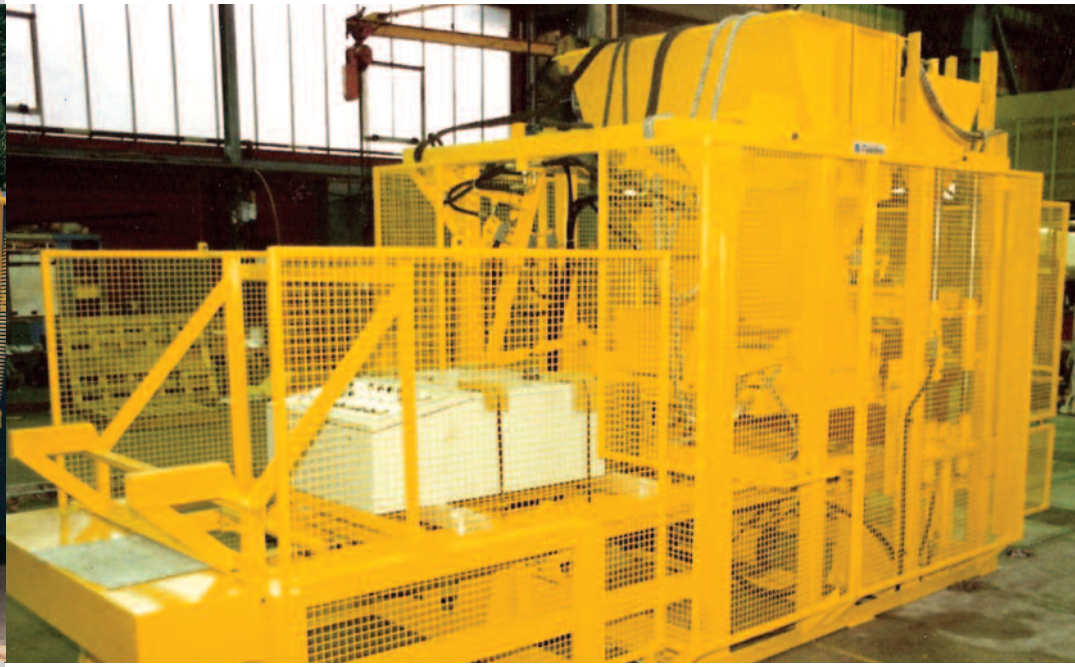
Main (left): Single mould concrete press with handling equipment

Top: Fielding and Platt single mould presses cater for easy mould change

Bottom: Triple mould concrete press with handling equipment

Presses For Semi-Dry Concrete

Block Making Machinery using the Semi-Dry Mix process ensures high production output with low unit costs, and is a process suitable for most aggregates. Compaction is by vibration combined with hydraulic pressure to give consistent results and optimum cement usage.



Main (right): MK20 Paver and Block machine

Above: MK4 Paver and Block Machine

The two standard ranges include the MK20 and MK4 Paver and Block Machines.

MK20 - PAVER & BLOCK MACHINES

The MK20 static concrete block making machine from Fielding and Platt offers complete flexibility in concrete product manufacture. Combining versatility with robust, simple construction and design to accept various mould types, it can manufacture a wide variety of products to the strength and quality that the market requires, using a semi-dry concrete mix. Where higher output and lower unit costs are the priorities, the Fielding & Platt MK20 block making machine is the ideal choice.
Fielding and Platt offer a variety of machine options ranging from manual operation to highly automated equipment. Our services range from the supply of the block making machine and auxiliary equipment to the design, supply and commissioning of complete turnkey installations.

MK4 - PAVER & BLOCK MACHINES

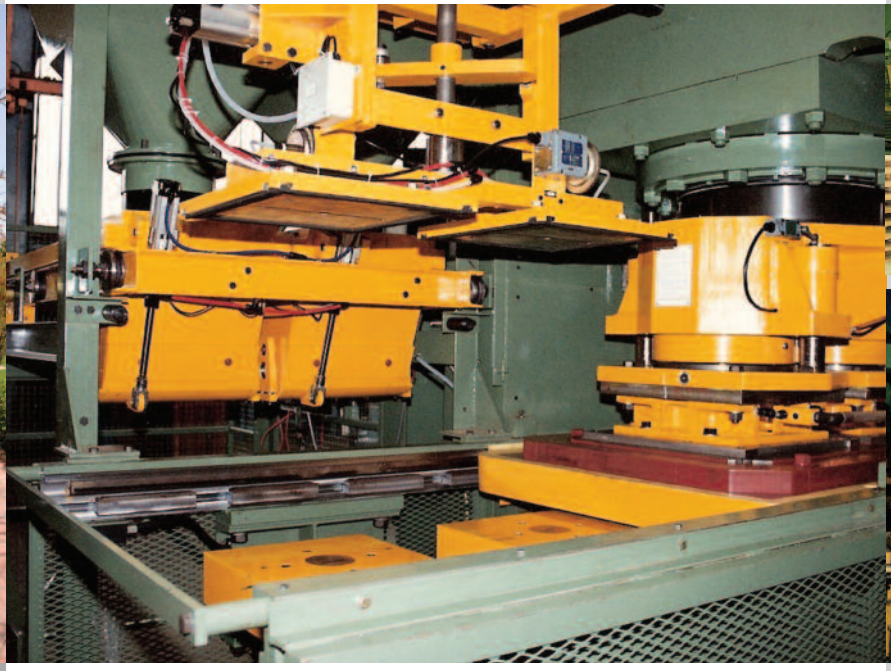
The MK4 machine is available in two options dependent on mould area. It is robust, simple yet comprehensive in design and of low capital cost. Manually operated, it has simple feeding and block handling arrangements.

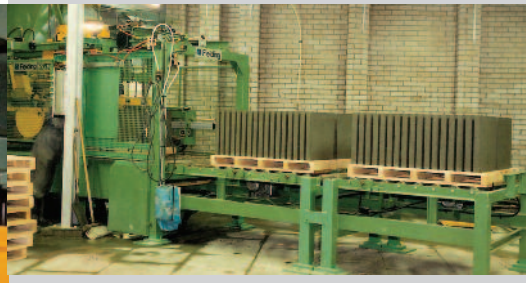
The range, because of its simplicity, is ideally suitable for operation by unskilled labour and requires little maintenance. The MK4 machine gives excellent compaction resulting in consistent, dense products. It is ideally suited for low volume output particularly where special blocks are required to support larger volume sales.

Furthermore, the machine can be supplied with a diesel engine for powering the vibrator for use in areas with no electrical supply.

Concrete Ancillary Equipment

A comprehensive range of ancillary equipment is available to ensure customers receive a complete turnkey solution





VOLUMETRIC DOSING SYSTEMS

These systems are used to accurately dispense the concrete mix into the mould to achieve a consistent product thickness and a cost saving in materials.

Generally two methods of dosing system are used comprising;

- Method 1 - Mechanical/pneumatic system attached to the bottom of the concrete holding hopper.
- Method 2 - Electro/mechanical system.

Method 1 is widely used when infrequent tool changing is required. Method 2 tends to be used where product changes are more frequent. Dosing is controlled automatically by weight, measured via a load cell.

PRODUCT HANDLING SYSTEMS

When the pressed product is ejected at the unload station, it has sufficient green strength for it to be handled by vacuum. Slabs are generally edge stacked onto pallets whilst kerbs can be stacked layer on layer.

There are a variety of handling systems available from Fielding and Platt ranging from manual to fully automatic units (including robotic take-off systems) complete with pallet magazines. All units are fully integrated and interlocked with the press cycle.

AUTOMATIC TAKE-OFF & PALLET LOADING

Located above the ejector station, a vacuum plate picks the pressed product from the mould plate before it is transported by the take-off carriage to a waiting pallet on the roller table. The vacuum carriage is fitted with a tilting table designed to turn the kerbstone or paving slab edge before the product is placed on the pallet. The tilting table is fitted with changeable tooling to suit the profile of the Kerbstone or paving slab. The pallets are delivered from a 10 pallet capacity magazine mounted adjacent to the take off carriage. The PLC control loads a magazine into the conveyor roller, which in turn drives the pallet forward as it is filled. The pallet is run out onto rollers, from where the client's forklift removes it for transportation to the product curing area.

Main (left): Single mould press complete with duplex vacuum handling equipment.

Top: Paving slabs produced on a 3 mould wet-process concrete press

Bottom (left): Vacuum-lifting equipment

Bottom (right): Duplex dosing unit

Below: Robotic take off system

Concrete Ancillary Equipment

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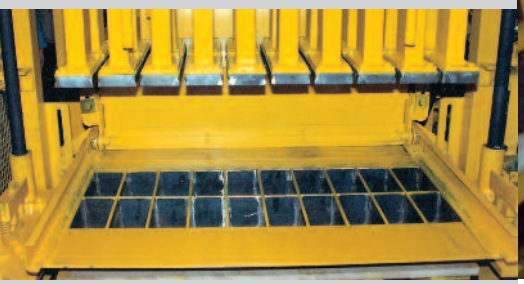


Main (right): Handling equipment with crane lift

Top (left): Single mould MK4 concrete block machine

Top (right): Hopper

Bottom: Tool mould for a semi-dry process concrete press.

PLC & PC CONTROL SYSTEM

The PLC Control System provides network capability, while remote access via modem link is also available as an optional extra enabling remote diagnosis of machine and progress faults from head office. HMI units (Human Machine Interface) on a pendent arm makes the system extremely user friendly and provides the system with the capability for full diagnostic packages, receipts, networking packages and SCADA systems.

SLAB & KERB TOOLING

In general the term "tooling" is used to describe the parts required to produce a particular component and comprises the following key components:

- The mould box assembly, which corresponds to the size and shape of the finished product
- The die head ram(s) assembly which is attached to the ram
- The ejector head assembly which is attached to the ejector ram
- The vacuum plate assembly which is attached to the take off carriage. (Following pressing the "green" product is then placed on a tilt table, rotated through 90º and edge stacked onto a pallet).

TYPICAL TOOLING

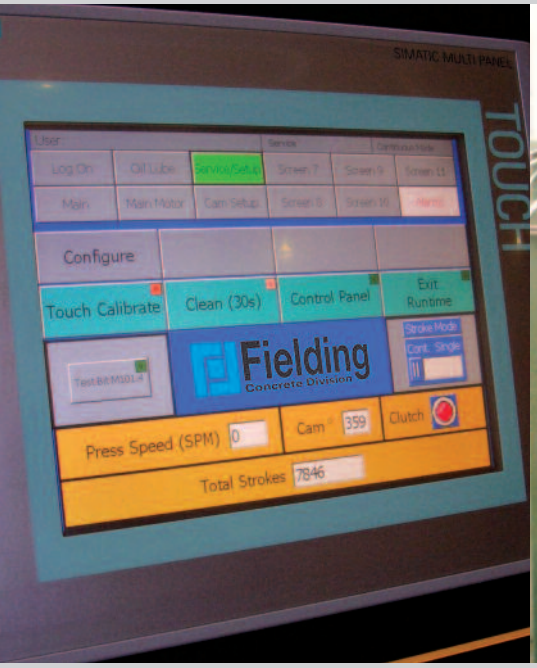
Tooling is available from Fielding and Platt for a wide range of standard products. Our extensive in-house design and manufacturing capability can also provide tooling to suit specific customer requirements. The tooling units are interchangeable between single mould and three mould presses. When a range of similar products is required, many of the tooling components are common to more than one product.

SPECIAL MOULDS

Fielding and Platt supply standard and special mould tooling for the production of oversize paving, including special radius kerbstone moulds, kerbstone corner pieces, grain silo liners and steps. Almost any product is possible within the mould area of 1000 mm x 610 mm x 200 mm high.

Step Moulds are used to produce L-Shaped pavement and drop-down curbs.

Quadrant moulds are used to simultaneously produce four small blocks, commonly used for decorative purposes and driveways



Left: PLC control system

Centre: 3 mould wet-process concrete press

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Fielding & Platt (Concrete Division)
Belle Vue, Wakefield, WF1 5EQ England
Tel: +44 (0)1924 371161 **Fax:** +44 (0)1924 370928
E-mail: sales@grouprhodes.co.uk
www.fieldingandplatt.co.uk