

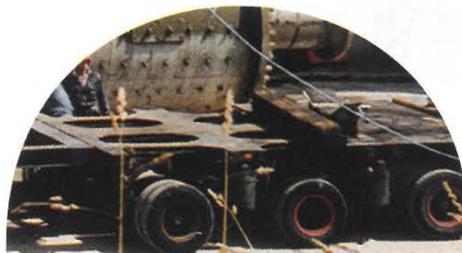
A 35 YEAR SUCCESS STORY

BASED BETWEEN BOLTON AND PRESTON IN THE NORTHWEST OF ENGLAND, FAIRPORT ENGINEERING MARKS ITS 35TH ANNIVERSARY IN 2017. WORLD CEMENT SPOKE TO COMPANY DIRECTOR, PAUL FITTON, ABOUT ITS HISTORY, INVOLVEMENT IN THE CEMENT INDUSTRY, AND ITS VIEW OF THE FUTURE.



Q. This year sees Fairport Engineering celebrating 35 years of business. Over this time you must have seen some significant changes to the business and the industries that you operate in. What would you say have been the most significant changes?

A. While the company was first registered as Fairport Engineering in 1982, it began life before then as a diversification by Fairclough Civil Engineering into steel structures. Fairclough were heavily involved in civil engineering works all over the UK and a large part of this was the construction of the national road and motorway network; Fairclough's speciality was bridges. Over time these were increasingly made from steel and not concrete, so in the 1970s Fairclough established its own structural steel business and started a small material handling division to service and support its cement and coal clients. In 1982, Fairclough





Paul Fitton in front of a portrait of John Alan Porter, the founder of Fairport Engineering.



View of Stancombe quarry in southwest England.

merged with William Press to form AMEC and, at this time, John Porter headed up a management team that bought out the steelwork business. The new company name took 'Fair' from Fairclough and 'Port' from Porter.

Those of us of 'a certain age' will remember the UK National Coal Board's (NCB) 1974 Ten Year Plan for Coal, which envisaged the UK coal industry replacing 40 million t of obsolete capacity and ageing pits, while maintaining its output and investing £3 billion to develop new collieries. Fairport recognised this as an attractive opportunity and capitalised on activities, such as shaft headgear, surface handling, and processing plants. This material handling division became Fairport Engineering. Apart from providing much needed business, this gave us our entry into the technology

sector and industries that are, today, our bread and butter. But Fairport's journey from then was not all plain sailing.

The 1984-85 miners' strike caused the privatisation of the NCB in 1987; the coal industry was run down further after the privatisation of the electricity industry in the late 1980s, which resulted in the increase in imports of cheaper coal. Just 51 collieries remained in 1992, 31 of which were earmarked for closure. While opencast coal mining still survives today, Kellingley colliery, the last deep coal mine in the UK, closed at the end of 2015. The demand for shaft headgear was non-existent in the UK by the late 1990s. Even the Cornish tin mining industry had come to an end during the 1990s.

Fortunately, Fairport Engineering did not suffer unduly over this period. Bulk materials handling and processing continued to provide valuable markets for Fairport, particularly in the cement, aggregate, and building products (such as autoclaves for aircrete blocks, paviors, and railway sleepers) industries that, at the time, were investing in better technologies and new capital projects.

Fairport's first major turnkey quarry crushing and screening plant was built in 1995 at Stancombe, near Bristol. This heralded a 'golden age' of similar projects that lasted for the next 12 years or so. These included significant plants at Cornelly, South Wales (1996 and 2003); Shap, Cumbria (1998); Hindlow, Derbyshire (1999); Swinden, North Yorkshire (2000); Hope, Derbyshire (2001); Holme Hall, Yorkshire (2004); and Ballidon, Derbyshire (2007). In parallel, the cement sector provided many successful projects for Fairport over this period, although in a different context.

Cement works by their very nature are major, stand-alone businesses in their own rights. Quarries are generally many and varied, while cement works tend to be few and specialised. Today, only 11 cement (kiln) works are operational in the UK, compared to hundreds of quarries. Not many new cement works have been built since the late 1990s and so Fairport's involvement over the years has been more aligned to plant improvements to meet changing production demands. These smaller projects included improved technology (wet to dry processes), legislation requirements (chrome reduction, sack size and weight, environmental emissions), and alternative fuel (AF) usage. Fairport also had a major part in the design and build of the new Rugby cement works in 1998 and was the Client's Engineer for the new Tilbury grinding plant in 2007. This period was very successful for Fairport but, with one eye on the future, we were actively seeking other opportunities to take the company forward, recognising that industry sectors are cyclical, particularly the mining and quarrying industries.

We also undertook an initiative driven by climate change initiatives into the processing of municipal

solid waste (MSW), developing and patenting a process, with associated equipment, that processed household and commercial wastes into recyclable and biodegradable products. This was marketed via Orchid Environmental Ltd.

A fully operational plant was commissioned in Merseyside in 2008 and operated as a demonstrator and development plant until 2012, in association with the UK government, to demonstrate its targets were achievable. A valuable spin-off from this exposure to MSW processing was the design and build of two high-end recycling plants for MBA and EMR (2010 and 2014), where the feedstock was not MSW but waste streams from end-of-life vehicle (ELV) processing.

Our more recent projects have been mainly concerned with environmental issues, specifically with the power generation industry. Currently, we are heavily involved with the Hinkley Point nuclear power plant construction materials delivery systems, and are also instrumental in providing the new materials handling and storage systems that will allow Lynemouth power plant to achieve a full conversion from coal to biomass wood pellets.

As you can see many things have changed over the last 35 years – mostly for the good. However, it is apparent to me, over the nearly 30 years or so that I have been with the company, that the high quality and expertise of the staff has not changed. Fairport has

always been client-led and process focused. In fact, two of my current co-directors are professionally qualified in coal preparation and minerals engineering, two of our process engineers have doctorates, and we also employ two others who, apart from being minerals processing engineers in their own rights, can also design and configure advanced plant control systems.

Q. The cement industry has obviously been a major part of Fairport Engineering's business over the years. It would be interesting to learn what you believe are Fairport's key milestones in this period.

A. As you rightly say, Fairport Engineering's involvement with the UK cement industry now spans over three decades of providing materials handling and processing systems that have allowed this nationally vital industry to keep pace with legislative, environmental, and economic challenges and opportunities. The decade from the early 1980s to 1990s included projects such as:

- Clinker mill relocation at Caulden.
- Blending plant at Dunbar.
- Clinker storage facilities at Plymstock.
- Cement packing plant at Uddingston.
- Clinker mill relocation at Ribblesdale.
- Cement packing plant at Ketton.
- Cement packing plant at Newport.

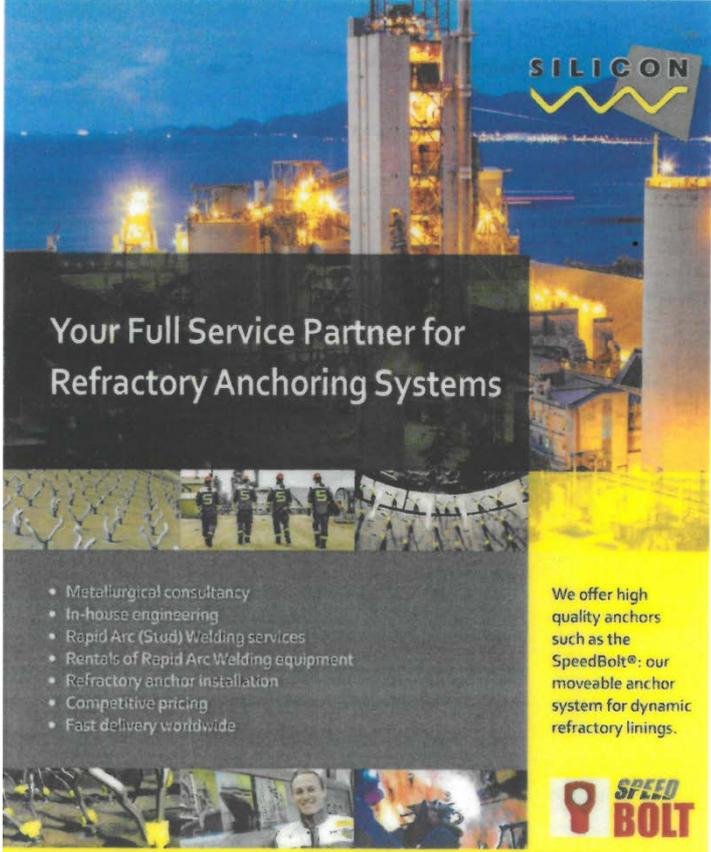


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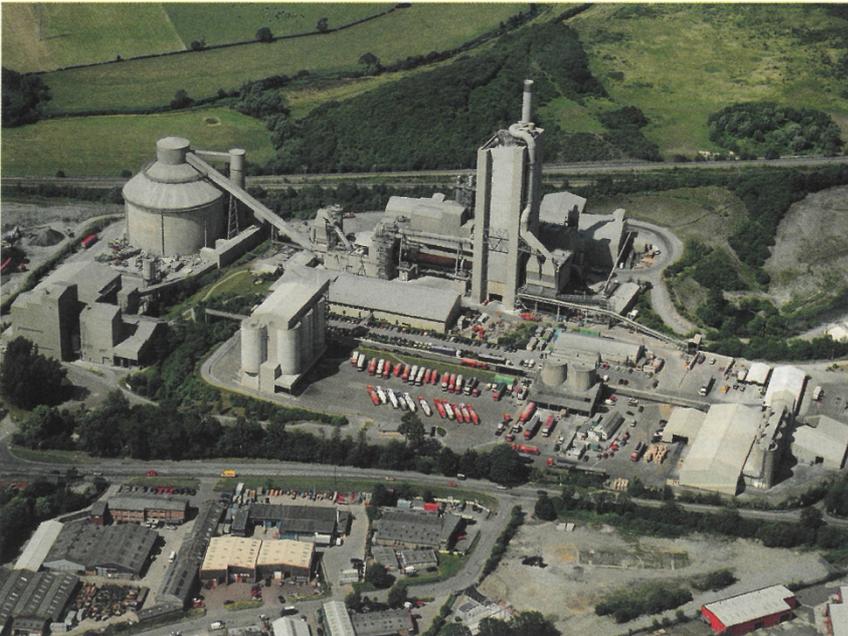
The packing projects were realised as a result of Fairport's own in-house engineering and construction expertise, but also due to our alliance with Ventomatic, the Italian packing and palletising specialist that addressed the change from 50 kg sacks to 25 kg sacks. The decade from the early 1990s towards the turn of the century included similar projects such as:

- Cement packing plant at Rugby.
- Cement packing plant at Avonmouth.
- New raw materials plant at Rugby.
- Cement packing plant II at Ketton.
- Silo discharge tanker filling at Rugby.

Moving into the first decade of the 21st Century continued this prominence in the UK cement industry,



Mill refurbishment at Caulden cement plant.



Aerial view of Rugby cement plant, showing work carried out by Fairport.

but with a marked emphasis on legislative and environmental issues:

- AF systems at Caulden.
- Preheater tower rebuild at Rugby.
- New clinker system at Ketton.
- New blending plant at Westbury.
- FeSO₄ dosing systems at Ketton, Ribblesdale, Padeswood, and Rugby.
- New plant at Westbury.
- New filter and fan at Rugby.
- Kiln gas bypass system at Ketton.

Using AFs provided a significant 'green dividend' and major economic benefits for cement producers. It comes at the price of having to improve and/or replace the existing emissions abatement systems, however, such as at Ketton and Rugby, as well as having to add to and/or modify the existing feed systems. Once again these two projects were realised both as a result of our own in-house design and management capabilities, and due to our engineering partnership with A TEC of Austria, a leader in cement pyroprocess technology. The second decade of this century has seen AFs become increasingly used throughout the UK cement sector and ambitious future targets set for years to come.

Equally, cement these days is not all about cement clinker itself, but also about additives that can be used as clinker substitutes, such as power station flyash (PFA) and steelworks slag (GGBS). This environmentally driven change led to many blending plants being required at kiln sites. Meanwhile, the global modern nature of clinker production prompted the establishment of many grinding plants that imported their raw materials from abroad, a case in point being the Tilbury grinding plant that CEMEX established with our assistance in 2009.

To bring us right up to date, two key factors seem to be occupying the UK cement industry at this time: environmental legislation and how to successfully come out of the recent recession, quickly. (Please note that isn't to say that Brexit isn't on their minds as well - I'm sure that it is!)

By way of example, we have just completed the installation of two replacement filters at Ketton that serve clinker mills. Accepting that PFA substitution is here to stay, it is also true to believe that coal-fired power generation is not. Ultimately this will reduce the availability of PFA from indigenous sources, even accepting that ash lagoons

hold massive stocks of PFA. Consequently, cement producers will face the dilemma of adding capacity at their current (kiln) locations, or exploring alternative sites that may be nearer to both their markets and sources of future raw material supplies.

Q. Looking ahead, what does Fairport Engineering believe to be the challenges and opportunities for the company to address in the future?

A. In considering your question, I think we have to recognize that nowadays, in our home market, we have gone from being a net exporter to becoming a net importer of cement, as the appetite for more cement has grown, while cement (kiln) works have largely decreased in number. This is an outcome of the globalization of the supply chain, as markets flex quickly in order to serve shifting demands, while optimising production costs on a worldwide basis.

Equally, our home market is dominated by a few major players: CEMEX Hanson Cement (Heidelberg Cement), Hope Cement (Breedon), Lafarge Cement (Aggregate Industries, part of LafargeHolcim), and Tarmac (CRH). All of these companies are vertically integrated, in a supply chain ownership sense - right through from aggregates, to cement, to building products. This business

'polarisation' - rationalisation if you will - is in and of itself a challenge. However, I believe that our track record over the years, which covers all three of these industry sectors, will provide a sound basis for future opportunities.

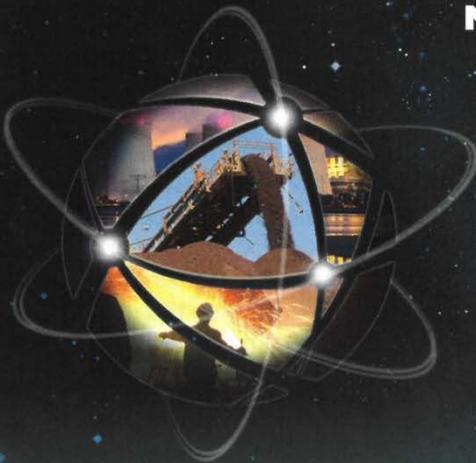
The size of primary production plants, together with the energy resources required to power them (and ideally their proximity to raw materials) means that, by their very nature, they are geographically inflexible. The necessary flexibility in capacity is provided by the rise in the numbers and manufacturing capability of secondary cement/clinker processing facilities, which seek to extend the fixed amount of clinker into additional tonnes of extended or blended cement grades to supply the construction industry. We are already involved in this quantum shift and believe that it will continue for the foreseeable future. In fact, over the last couple of years, we have been involved with others in ways and means of reducing energy demand, right through from clinker milling to the reduction of moisture in recovered PFA.

An additional level of tertiary flexibility is provided by a new generation of import/export cement facilities, which are relatively quick to implement: as a guide it took only 18 months to construct Tilbury, allowing CEMEX to take advantage of short-term booms in construction and/or currency fluctuation. It is equally important to take note that so-called pop-up rail terminals for cement, clinker, minerals, sand, AFs,

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and aggregates are also areas that have expanded and continue to grow much more rapidly than in times past in this increasingly dynamic market.

In a broader, business-focused sense, it would be remiss of me to not mention the looming prospect of Brexit. So perhaps it is appropriate to take a few moments to assess how all of this is seen from the workplace at Fairport Engineering. Last year we undertook a job at Kirby Thore for British Gypsum and are now undertaking a much bigger one at East Leake. British Gypsum is owned by French giant, Saint Gobain. In the middle of last year, we also finished a project for a company called Ballast Phoenix. This plant, at Runcorn, takes incinerator bottom ash and

turns it into a recycled aggregate. Ballast Phoenix now has over 10 operational plants in these Sceptre'd Isles – but is owned by a Dutch company. Meanwhile, a part of the plant at Runcorn was provided by a German/Dutch company that, coincidentally, was one of our main suppliers when we built our waste demonstrator project at Huyton.

Since 2014 we have also been working on a **Scheelite** mine in Spain with a company called Saloro, which is owned by Ormonde Mining, based in Dublin, in the Republic of Ireland. We are also currently developing a handling and storage system for EdF's Hinkley Point's construction materials, collaborating with Italian and German suppliers. We have joined forces with Sir Robert McAlpine to undertake the biomass conversion of a coal-fired power plant in Northeast England that will probably use the best of Anglo-American technology and know-how, with a good proportion of expertise and equipment sourced from Europe.

All of this will be completed by the end of next year, so the two-year timeline to exit the EU should not be an issue that affects the work that Fairport Engineering currently enjoys. So one would hope that any immediate fear of Brexit being calamitous for us is misplaced. But perhaps the most important Brexit related issue is: what comes next?

It is difficult to imagine during what is left of my working life-time that major cement and aggregate manufacturers are going to suddenly pull out of the UK. Yes, there may well be economic issues, and one of our concerns is related to labour and energy costs here, when compared to other parts of the world. There's not a lot we can do directly about labour costs, but I think we can be part of the energy solution. There is also a reverse side to the Brexit coin: how do European suppliers and service providers currently operating here see their future in the UK? Over the last couple of years, we have increasingly been in contact with these companies, who, for a variety of reasons, feel the need for a proven and accountable UK partner. This may well change and, in doing so, present opportunities for us.

In a wider, concluding, sense, as an organisation we have much proven and valuable expertise to offer to developing, rather than developed nations – certainly in bulk materials and minerals processing and handling. In fact, we have already successfully opened up a fruitful and continuing market for our food expertise and equipment in West Africa and hope to develop this into some bulk materials handling projects later in the year. Perhaps more surprisingly, we have some interesting enquiries for various metals projects, as well as coal projects, in Central Asia. They do say that what goes around comes around: in Fairport's case it seems to have taken only 35 years!



Kiln bypass at Ketton cement plant.



River view of cement grinding and blending terminal at Tilbury.