

Parkegate's success continues to roll on

This series of application studies reveals the breadth of the services offered to the aluminium rolling sector by UK-based Parkegate Engineering.

Parkegate Engineering, based in Poole, UK has been in business since April 1996. Originally set-up as a spin-off from the Davy Group to service the European OEM market (selling engineering services to the traditional line builders) the company has grown to offering its turnkey design and supply services directly to aluminium producers worldwide. This year alone Parkegate has supplied Alcan, Schoeller Bleckmann, Logan, Luxfer, Hydro, Dolgarrog, Elval, and Hulett. Projects vary from consultancy services to complete turnkey hot mill upgrades. The organisation offers a range of services including: Plant studies and consulting; basic design; detailed design; equipment supply; project management and turnkey installation; a spares and reconditioning service and an automatic surface inspection consultancy. This is all in addition to still servicing the OEM market.

Major projects

Some of the recent larger upgrade projects undertaken by Parkegate have included a major turnkey cold mill revamp, a tension levelling line upgrade, the supply of bespoke strip and rebuild de-chocking equipment, a hot mill upgrade, supply of remotely-controlled scrap handling equipment, a process flow study for a complete hot and cold rolling facility, basic designs for tandem and single-stand cold breakdown mills plus the sale of used plant from one country to another. The next few paragraphs will provide some insight into those individual projects.



A typical cold mill supplied by Parkegate as part of a recent project

The first major aluminium project that Parkegate were asked to solve came from a major aluminium producer who wanted to enhance an existing 4 Hi cold mill to produce a lucrative product, bright tread plate. The requirements were to improve surface finish, increase the strip width and enable the rolling of a harder and thicker material, whilst further enhancing the mill productivity/maintainability and enabling a faster work roll change. Within 12 months from order placement, the mill was fully commissioned and working to the

client's satisfaction. New equipment supply included a 5-roll entry bridle (including a colouring roll), hydraulic roll bending blocks, rapid work roll change rig, back-up wipers and a strip oil removal system, belt wrapper, spool handling equipment and all hydraulics and pneumatic control equipment. In addition, the entry shear, spindle supports and the coiler were modified. During the installation, the mill was completely stripped and rebuilt within two weeks by large teams of workers in shifts over 24-hour periods; all necessary technical coordination and supervision was also provided by Parkegate.

Another project for the same client was the upgrade of a tension levelling line, including the re-sizing of individual bridle roll drives, addition of roll cleaning units and upgrading the edge trimmer, scrap baller and recoiler, as well as the engineering and design of a new multi-stage cleaning section. The upgrade provided by Parkegate allowed the client to process high quality lithographic strip that was supplied directly off the line.

Another aluminium project was to review the chock strip and rebuild procedure at one of the Alcan facilities. The client was proposing to increase his plant output and had determined that 11,000 crane lifts and 4,000 man hours were required each year to strip and rebuild work rolls and scratch brush assemblies from one warm tandem mill alone. Parkegate have subsequently supplied two dedicated and semi-automatic de-chocking systems, serving two mills, including saddles for worn and new rolls and remotely controlled cars. This capability reduced the annual crane lifts by 84% and the man-hours by 75%. Additional benefits were the elimination of roll end damage and the improved health and safety of the operators.

Improvement in scrap handling

A further project for the same customer involved improving the handling of cropped ends from the hot line. The Parkegate supply included an extended run out table and bespoke grab and lift crane, which is controlled from a remote and safe location by the operators. The operators can now clear the cropped ends from a safe distance in a controlled environment and stack them for collection by the forklift truck.

One current contract involves the upgrading of a 2 high hot rolling mill. Having evaluated and engineered the enhancements for the upgrading, Parkegate are now in the process of supplying new rolls, chocks, scratch brushes, spindles and main drive gearbox. Following the upgrade, which is scheduled for completion

early 2005, the mill will have increased stiffness and rolling torque, allowing it to finish at lighter gauges, higher temperatures and in less passes than at present.

Parkegate is also involved in feasibility study work and is currently working on a complete plant study for one of the Hydro facilities, which involves recommendations regarding optimal process routes and end products from the hot mill through to finish cold rolling. Such studies can often lead to the recommendation of upgrading rolling mills to increase capacity or the possibility of complete new mills, both of which Parkegate can offer.



Parkegate designed and supplied this scrap handling system.

Another similar engineering study will provide the basic engineering for the Elval group covering a tandem mill and a cold strip mill. Parkegate have been contracted to develop a number of schemes that will allow easier handling of wider material and improve the threading of the mills. The result is a number of suitable schemes developed to a stage to enable the client to choose elements on a priority basis to be developed into full schemes, which Parkegate can then offer on a turnkey basis.

Used plant services

Traditionally, Parkegate has offered its services for new and upgraded plant. However there is also a significant market for used plant. In this respect, Parkegate has been involved in selling rolling mills and associated equipment to and from the following countries: Australia, Bahrain, People's Republic of China, Columbia, Croatia, Denmark, France, Germany, India, Indonesia, Italy, Japan, Kenya, Korea, Malaysia, Norway, Switzerland, UK and the USA. Parkegate is able to offer more than just the used plant and specialises also in the upgrading services to increase capacities, speeds, widths etc. Often, the end use of the equipment can be completely different. For example, one current project includes the relocation and rebuilding of a cold breakdown mill currently used of processing stainless-steel. This mill will form the basis of a new stand to be used for the warm rolling of aluminium at the end of an existing hot line.

The history of Parkegate may be short, but its experience is extensive. In eight short years of business, Parkegate has worked with all the majors in the aluminium world on projects of varying sizes and complexity. This year has been Parkegate's most successful so far – a challenge to be beaten in future years.