

NATSTEEL

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CORPORATE BROCHURE





Building *from* scrap

Steel making facilities in Singapore are among the most modern and ecologically sound to be found anywhere, as Alan Swaby learns



There's no doubt that Singapore punches well above its weight. Barely 40 kilometres at its widest, the island is so developed that buildings can only go skywards. And despite decades of development, work continues at a rapid rate, with the construction industry consuming over 1.25 million tons of reinforcing steelwork each year.

Half of this comes from NatSteel—a fully integrated steel plant set up in the 1960s as the National Iron and Steel Mills, exclusively using scrap metal as its raw material. As long ago as 1985, the business was privatised and since 2005 it has been part of the Indian giant Tata.

“In a way,” says Vivek Kamra, president and chief executive officer, “we act as Singapore’s recycling centre, taking the island’s scrap and turning it, in a very sustainable way, back into the building materials needed.”

In terms of performance, Kamra believes there isn’t another similar plant anywhere in Asia—and possibly much further afield—that can match its operational efficiency and lack of environmental impact. “With the frighteningly high cost of electricity in Singapore,” he says, “minimising usage is a must; but beyond commercial considerations, the Singapore people expect us to take our environmental responsibilities seriously and to be as sustainable as possible.”

Melting steel in an arc furnace is extremely energy-intensive; but NatSteel minimises consumption from the distribution grid by using waste gas emissions from one batch to pre-heat

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the next load of scrap to around 300°C. “As a result,” says Kamra, “our energy consumption per ton is the lowest we are aware of, saving us 150kWhr compared to a non-preheated load.”

Two other forms of bi-product waste are also put to good use. The zinc-rich dust that goes with the process is collected and treated by a specialist third party to re-claim the zinc while the slag from the top of the melted steel goes into road making agglomerates. On the other hand, none of the vast amount of water needed on the rolling lines is wasted. Instead, it is collected, filtered and re-used, time and again. The company’s carbon footprint is among the best in the global steel industry, with CO2 emissions capped to less than 0.5 tonnes per tonne of liquid steel.

The one commodity that is in short supply in Singapore is space. “This has all sorts of

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ramifications,” says Kamra. “In the city centre in particular, there is precious little room on a building site for anything but the building itself. Couple this with the high cost of labour and it’s not difficult to see how the trend of doing as much preparation work as possible off-site has developed.”

As a result, NatSteel has complemented its 720,000 tonnes per annum meltshop and rolling mill with the addition of a downstream fabrication plant. Two high speed rolling mills produce a range of 35 to 40 different deformed bars, round

bars and wire rods on the basis of a simple buffer reserve system, with the level pitched on weekly analysis of sales being made. Once stock runs down to minimum holdings, that particular SKU is then scheduled for production.

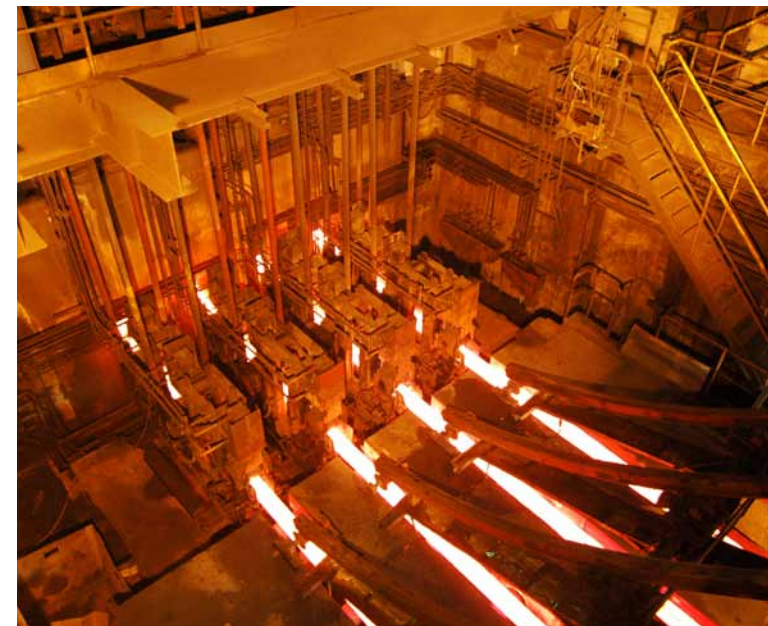
NatSteel boasts one of the largest single cut-and-bend operations in the region. Here, wire rods and reinforcement bars are fabricated into customised shapes and forms tailored to the specific needs of each job-site customer. “We are taking our standard output and adding value to it,” says Kamra, “in a way which saves



construction contractors enormous amounts of site time. Bends and mesh have been around for years but the pre-formed three-dimensional cages used for foundations and columns are an innovation of the last five years.”

The system is so slick that NatSteel has got production down to just three days with the objective of these fabricated units never touching the ground but going straight out to site on a just-in-time basis. “Construction schedules are always subject to change,” says Kamra, “and we endeavour to fit in with progress on site as much as possible but it will invariably be construction that is late rather than our components.”

As if three days wasn’t good enough, NatSteel is working hard to reduce the lead time even



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further and through the use of more sophisticated IT systems, aims to get production cycles down to just one-and-a-half days. In the process, the company has already been able to slash stock holdings drastically from 120,000 tonnes in 2009 to 60,000 tonnes or less currently, thereby bolstering the balance sheet through the reduction of working capital.

Although developments already in the pipeline mean that demand from Singapore should remain strong for at least the next five years (NatSteel already has around half a million tonnes of forward orders on its books), managers are ever mindful that things can change rapidly in such a relatively small market. Over its entire lifetime, NatSteel has been keen to play a role within the wider South East Asian zone, where it can spread its expertise in using recycled scrap in a region obliged to import the essential iron ore it needs.

The vagaries of widely differing national laws

and other protective barriers don’t always make it easy to invest outright in neighbouring countries but NatSteel has established working partnerships in China, Vietnam, the Philippines and Thailand. It also has a distribution outlet in Australia which consistently takes around 20 per cent of NatSteel’s output.

Kamra has found that within the Tata Group, managers have a large degree of commercial autonomy but are encouraged to share the Tata family ideals of supporting those less fortunate within the community. “Singapore is quite affluent,” he says, “but there are always some members of society who need assistance. We fund a number of NGOs who help us to fulfil our corporate social responsibilities by building better lives for both underprivileged elderly and needy young people by helping to give them an education.”

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