Edwards’ market-leading vacuum solutions for steel degassing applications

100 YEARS OF VACUUM. 100 YEARS OF EDWARDS.
100 years of vacuum innovation can mean a lot. 2019 marks 100 years since F.D. Edwards first set up shop, importing vacuum equipment from his office in South London. Over the past century, Edwards’ people and technologies have enabled countless innovations that have improved life for millions of people around the world. Their innovations for industry have greatly benefitted the thousands of companies around the world who have leveraged Edwards’ vacuum technology to improve their own processes and end-products. The Edwards pioneering spirit sits at the heart of the promise they make to their customers – to engineer environments where innovation thrives. This commitment has led them to continually invest in R&D and their people.

A NEW VACUUM INNOVATION FOR THE STEEL INDUSTRY
A successful example of this continued innovation is the GMB40K high capacity Roots vacuum booster pump. Specifically developed for the tough requirements of steel degassing, the new GMB40K mechanical booster provides a nominal capacity of 40,000 m³/h and features an innovative modular rotor and compact design, which enables unrivalled performance and a faster pump down time on the smallest carbon footprint available in its class.

It is simpler to integrate into a system and with spare parts that are readily available, maintenance is virtually worry-free. The core piece of the booster’s innovation is the lightweight rotor design which is suitable to cope with dust. The machine around the rotor has been designed in close cooperation with Edwards’s service teams and is based on the experience of Edwards’ large installed base of mechanical vacuum pumps in the global steel industry. The result is an industrial pump with standard motor and an extremely compact design, which is easy to handle and maintain and features low energy consumption.

HELPING DEVELOP SUPERIOR QUALITY STEEL
A leading Mini Steel plant specialized in the manufacture of Alloy Steels, Stainless Steel and Special Steels in the shape of castings, forgings and rolled products had been using a four stage mechanical vacuum system. This consisted of a pump combination with locally supplied pre-inlet cooled booster pump with a total installed motor power of 435KW. Even with this high level of power requirement, the system was not able to achieve the process pressure and the required pump down time.

Edwards Vacuum was able to supply a customized version of the modular steel degassing system that offered additional backing capacity to meet the pump down requirements.
The latest version of the ESDM (Edwards Steel Degassing Module) incorporates the new mechanical booster pump – the GMB40K. With overall connected motor load of just 200KW, the system produced less noise and required far less quantity of water to be supplied for cooling.

The Edwards system solution offers:
- Improved process quality and productivity
- Significantly reduced energy consumption
- Decreased environmental impact

The simple pre-assembled installation and fast commissioning contributed to maximize efficiency. Edwards ESDM achieve a vacuum level of less than 0.5 mbar (a) within the required time-frame that has helped the steel plant to improve its productivity and efficiency. The operating costs also reduced as it demands less power and water.

Achieving a consistent and reliable quality of vacuum improves the overall quality of the end product.

**THE SUPERIOR BENEFITS OF DRY VACUUM TECHNOLOGY**

Edwards' dry vacuum pump technology systems provide huge economic and environmental benefits compared to traditional steam ejectors. Dry pumps are proven to reduce energy cost by as much as 97% compared to steam ejectors, achieve higher pumping speeds and lower ultimate with minimal maintenance, and lower environmental impact. The ESDM is simple to install; the pre-assembled installation and fast commissioning ensures the operations of the plant are not delayed.

To summarize the key benefits, the Edwards Steel Degassing Module equipped with the GMB40K high capacity Roots vacuum booster pump offers improved process quality and productivity, decreased environmental impact and lower energy consumption.

Edwards has a proven global track record in steel degassing systems, with over 200 installations since 1998. MS