

Press Information

PRODUCTION AND QUALITY IMPROVEMENTS FOLLOW METALOCK MILL REFURBISHMENT AT LLANWERN

New shift daily and weekly production records and an improvement in product quality followed a recent annual maintenance programme carried out at Corus Llanwern works. One of the projects undertaken during the shutdown was a major refurbishment of the five-stand roughing mill by Metalock Engineering UK. Extensive in-situ machining constituted the main element of the programme.

Metalock was asked to quote for the in-situ machining of the roughing mill stands, to restore them to the original manufacturing tolerances for squareness, straightness and dimensional accuracy. The company has a wealth of experience in this type of work and has developed equipment and expertise enabling it to undertake such projects effectively. Having successfully secured an order from Corus for the Llanwern repair, Metalock proceeded with preparation work to customise their machines to suit the particular requirement of this mill.

The programme of work agreed with Corus to be undertaken during the shutdown, was to machine the R2 and R3 mill housing bases flat and level with each other and square to the mill housings. Additionally, these two stands required the drilling and tapping of M36 holes to accept screwed inserts to refurbish damaged 1-inch BSW holes. Dowel holes, 70mm diameter, also had to be drilled and reamed and new wear plates fitted. This work was easily completed within the programme, to close machining tolerances using one of Metalock's special purpose machines designed specifically for mill stand base machining.

The major challenge in this project, was the requirement to machine the vertical wear plate faces and wrap around edges on R4 and R5 mill housings. The 1.7m wide x 6m high vertical wear plate faces and new wrap around edges on each of the four columns required machining to full height. Additionally, 224 holes were to be refurbished by drilling and tapping.

The reason that so many of the wear plate securing holes were damaged, was because during routine roll changes the 30-ton roll and chock assemblies would sometimes collide with the edges of the wear plate. Corus' solution to this problem, was to redesign the wear plates to incorporate wrap around edges to closely position the plates and prevent sideways movement in the event of a collision with the roll chocks.

For the vertical wear plate faces and wrap around edges machining operation special purpose milling machines, designed and built previously by Metalock were used. Two complete mill housing milling machines allowed work on R4 & R5 stands to progress in parallel. These machines were designed to reach the full height of mill housing windows on all four housing columns in one setting and were set to the predetermined datums, using optical measuring instruments.

Metalock recognised that drilling and tapping such the large number of holes needed, would be a time consuming task and could not be allowed to interfere with the machining of the wear plate faces and wrap around edges. To overcome this, Metalock engineers designed and manufactured two special-purpose drilling machines that would cover the full face and facilitate rapid access to every hole. This system proved very successful and all the holes were refurbished in this way without interfering with the machining operations which were progressing on the adjacent housing columns just a short distance away.

On completion of all machining and drilling operations, the new wear plates were fitted and final dimensions checked and shown to be within the tolerances required. The plant was restarted and during the first few weeks of operation a product quality improvement was achieved and a number of production records broken.



Using its specialised equipment, Metalock in-situ machined the 5-stand roughing mill at Llanwern to restore its original manufacturing tolerances for squareness, straightness and imensional accuracy.

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