



OIL FILTRATION SYSTEMS

CJC™ Application Study

Gear Oil - Steel Strip Rolling Mill



INDUSTRY

*Application Study
written by:
Joe Downes
C.C.Jensen Ltd
United Kingdom*

*In cooperation with:
Peter Skates
Senior Engineer
British Steel plc.*

2002



CUSTOMER

CORUS, Shotton Works, United Kingdom. (Formerly known as British Steel plc.)

THE SYSTEM

The 5 Stand Tandem Mill has 5 stands, each driven by Davy gearboxes coordinated to produce steel strip by cold reduction process. Oil system capacity 28,000 litres. Shell Omala 460, ISO VG 460.

THE PROBLEM

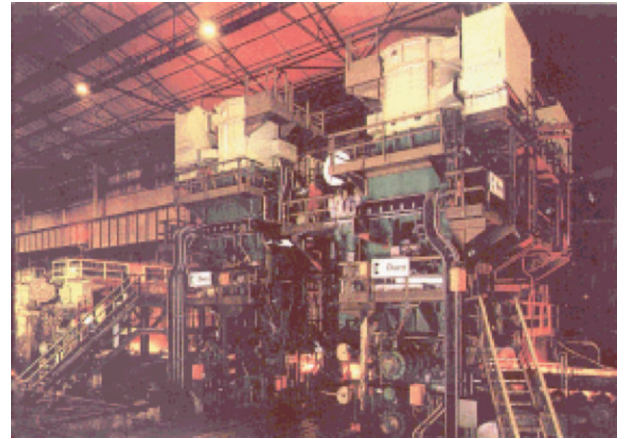
The costs incurred with a recent replacement gearbox led to a full inspection of the other gearboxes by the Engineering Dept. as part of their predictive maintenance program. There was evidence of gear tooth wear and blocked lubricating jets - resulting from contamination. Further damage had to be avoided by improving oil quality and oil cleanliness, which led to upgrading filtration. A replacement gearbox was estimated to cost around £200,000.

THE SOLUTION

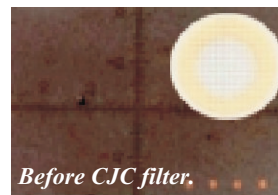
A CJC™ HDU FineFilter 427/108 GP was installed tempo-rarily for trial purposes. After achieving a positive result, the trial unit was replaced by the CJC™ HDU Fine Filter 5*27/108 GP as a permanent solution.

THE RESULT

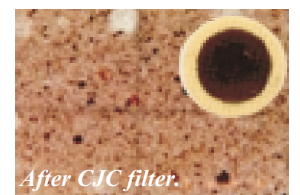
A target cleanliness was set at ISO 18/16/14 (new oil). Starting with a high figure ISO 22/19/16, the target was reached in less than 7 weeks. With continuous filtration the contamination fell to 17/15/11. The first set of filter inserts lasted 14 months. System cleanliness had improved and confidence in the equipment was secure following another gearbox inspection.



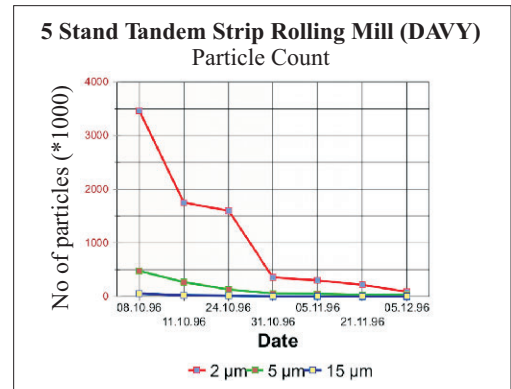
The 5 Stand Tandem Mill.



Before CJC filter.



After CJC filter.



THE RESULT

Date	2 µm	5 µm	15 µm	ISO
08.10.96:	3,462,830	473,380	52,320	22/19/16
11.10.96:	1,750,385	265,896	17,548	21/19/15
24.10.96:	1,598,443	131,088	10,774	21/18/14
31.10.96:	355,795	54,821	4,607	19/16/13
05.11.96:	298,753	48,317	3,812	19/16/12
21.11.96:	216,888	24,627	1,667	18/15/11
05.12.96:	86,960	30,784	1,443	17/15/11

Particle content per 100 ml oil.

