

## Health & Safety

## Red Stripe

### LONG PRODUCTS BUSINESS – THRYBERGH BAR MILL

#### Failure of 20mm wire rope sling

#### (General Engineering Ropes – Flemish Eye design)



#### What happened

On the 15<sup>th</sup> June three bundles of round bar material weighing 13.360 tonnes, were in the process of being lifted. The bundles were correctly slung by two steel spiral wound wire ropes manufactured and supplied by Certex using the basket method and attached to a specific lifting beam. The lift was well within the Safe Working Load of 20.00 tonnes. When the lift had reached a height of approximately 10 feet the loop on one end of the rope unwound and pulled free from the ferrule causing the bundles to fall to the floor.

This is the second incident of an identical nature, with the first one occurring on the 27<sup>th</sup> May 2010. On that occasion all lifting operations using 20mm wire ropes were suspended immediately, the batch taken out of service and the supplier contacted. Joint investigations were carried out between Certex and Thrybergh Bar Mill with full proof testing carried out on all slings, this was completed successfully and the slings were reinstated into use. The investigations into the first incident are still ongoing to establish root causes.

#### Findings

- There have been two significant failures of the 20mm wire rope sling
- Both slings were manufactured by the same company, Certex
- Both slings were from the same batch number (35485 – 1701)
- Both slings failed whilst carrying out the same task
- Both slings failed after carrying out less than 200 lifts
- The second sling failed even though it had been proof tested as part of the first investigation
- No injuries were sustained - safe by position

- No other diameter of this type of sling has failed
- All slings in use have the correct certification

#### **IMMEDIATE ACTIONS**

- All 20mm slings removed from service – pending tests
- Interim size upgrade of slings to 22mm

#### **SUBSEQUENT FINDINGS**

- Extensive testing by Certex identified situations in which the loop of the Flemish eye can pull out when the following criteria occur during the manufacturing process:
  - The loop is formed with short tails which do not fully insert into the ferrule
  - The rope diameter is at the bottom of its manufactured tolerance, 20mm +5% -0%
- Certex proved that with full length tails and the core inserted that this type of failure cannot be replicated independent of the rope diameter, (within tolerance)
- Certex are in the process of modifying their manufacturing and quality assurance systems to ensure these new procedures are adopted.
- Certex have also identified this issue may be prevalent in sizes, 12, 20, 24, 30 and 36mm diameter Flemish eye slings all of which are manufactured in an identical way

#### **SUBSEQUENT ACTIONS**

- Thybergh Bar Mill will be carrying out a full systems audit at the Certex Site
- Thybergh Bar Mill will be reviewing whether any of the other affected sizes of Flemish eye sling are in use here and if found will be removed from service

#### **RECOMMENDATIONS**

- All business units should, with immediate effect, remove from service all Certex manufactured 20mm Flemish eye slings
- All business units should review the use of all Certex manufactured Flemish eye slings in the following sizes, 12, 24, 30 and 36mm diameter and contact Certex immediately for further advice
- Anyone using Flemish eye slings from sources other than Certex should contact their respective supplier to ensure that these manufacturing issues are not in existence.
- Once again re - iterate safe by position for all lifting operations