

CASE STUDY

Carbontech Case study 017
Wrapping over 2" Flange



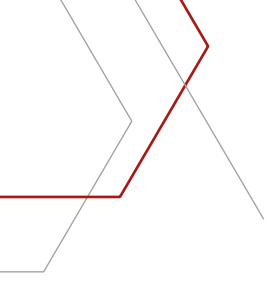


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PROJECT DETAILS



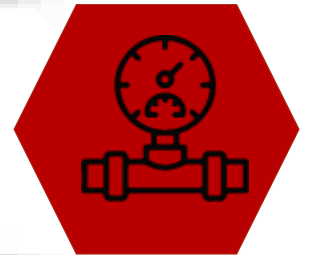
Case Study Number
CTCS:017

Design Pressure
14 Bar



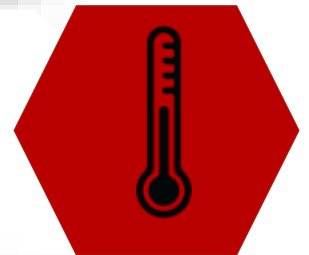
Repair Summary
12" Flange Repair

Operating Pressure
7 Bar



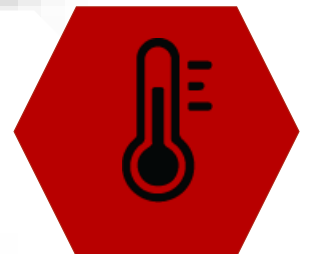
Client
ESKOM

Design Temperature
80°C



Service Type
Compressed air

Operating Temperature
22°C



Line Size
2"

Base Material
SA-106 Gr-B



Line Class
150#



ANOMALY DESCRIPTION

External Corrosion from deteriorated pipe coating of a 1.5" buried flange led to a through wall defect on the piping system. (See Fig 1&2)

Figure 1:



Figure 2:



INTEGRITY CONCERNS

Leaking piping will have negative effects on downstream processes. Further deterioration could lead to piping failure



THE CARBONTECH SOLUTION

Using a bristle blaster, the entire pipe and flange was cleaned to a bare metal finish (see *Figure 3 - 5* below). After pipe cleaning, a Quickset Epoxy was used to arrest the leaking pinhole, thereafter the surface profile was examined using Testex tape to ensure the surface finish falls within acceptable standard. The pipe was then cleaned with acetone to remove any undesirable contaminants from the metal surface. The flange was then profiled with a Revofill to create a smooth transition between the pipe and the flange. Four layers of Composite carbon fiber, engineered to ASME PCC-2 2015, was applied over the defected area by means of Axial strips due to the change in geometry from the flange to pipe. The straight areas and the edges off the axial strips were finished off with additional spiral wrap. (see *Figure 6&7*).

Surface Preparation achieved: SA2.5

Product used: Revowrap 185

Engineering calculations: ASME PCC2

Layers used: 4 layers

Post cured: Not Required - Line temperature provided sufficient heat to cure the wrap.

Figure 3: Surface Prepared



Figure 4: Flange profiled with Revoprep



Figure 5: Area Primed



Figure 6:
Axial strips of Revowrap
was applied to cover the
entire flange

CONCLUSION

A successful repair and full cure were achieved within 24Hours and the pipeline could be operated as per its original specifications.



CARBONTECH

The place chemistry, engineering and global expertise are brought together to drive progressive innovation in advanced composite technologies for the emergency repair of critical assets "There is nothing generic about us" we don't just sell pipe wraps; we provide accurate engineering backing to deliver tailored solutions

Sound and responsible engineering is the basis on which we build our company, products and services. It is the core to our success and it is the foundation on which we have engineered and manufactured our innovative and bespoke products

We strive by a zero-failure philosophy and warrant our engineered composite solutions are tested, proven and validated. We vow to provide dependable, responsible and accurate information regarding the capabilities of our systems

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PROGRESSIVE COMPOSITE ENGINEERING

