

A close-up photograph of a metal component, possibly a valve or a part of a compressor, showing a significant crack and a yellow marker. The image is split vertically, with the left side showing a clean, polished surface and the right side showing a dark, worn, and cracked surface. The text 'Root Cause Analysis' is overlaid on the left side in a large, blue, sans-serif font.

# Root Cause Analysis

Maintenance consultancy  
Failure analysis  
Field measurements  
Field service



[www.cstfirenze.com](http://www.cstfirenze.com)



# Solutions for Maintenance Providers & End Users

Compressors are generally reliable devices until the functional boundary conditions remain unchanged or within their limits. Variable process conditions, liquid, dirt or poor maintenance are often the cause of component failures.

It is not easy to prevent and repair occurring failures because usually they are not manifested clearly by the machine behavior. A Root Cause Analysis can highlight the failure source, in order to avoid future similar events. The Tool Box of CST to make a successful RCA includes the following means:



## Vibrations measurement

Machinery vibration is one of the main causes of damage and failures in industrial plants. An accurate vibration measurement campaign can highlight abnormal vibrations and it is an important step to detect and prevent failures.



## Troubleshooting

Leveraging on our multi-disciplinary technical expertise is the key factor to diagnose and solve (recurring) problems.



## Diagnostic and monitoring system for reciprocating compressors

CST developed the PAD (Predictive Asset Diagnostic), a cost effective diagnostic system for reciprocating compressors, which is a necessary step to pass from a preventive to a predictive maintenance philosophy. The PAD is based on a CST proprietary software Reciperf and it compares real-time operating data, with the theoretical calculated values, pointing out deviations and giving alerts about the health status of the equipment.



## Failure Analysis

The CST failure analysis starts from the damaged parts inspection (visual and metallographic analysis) goes through the investigation of the real operating conditions up to the FEM analysis. Its goal is to determine the root causes of the failure and reconstruct the process that finally led to the occurred damage.



## Problem solution capabilities

CST experts can support the client to implement the necessary modifications to solve the problem and avoid its recurrence, leveraging on its multi-decade experience and worldwide capability of intervention.





# CST PLUS



## Long experience

Technology senior leaders whose knowledge is indisputably recognized worldwide.



## High tech tools

We are always at the cutting edge of technology.



## Quick reaction time

On the contrary of large, heavy organizations, CST can mobilize its specialists to the farthest place in the world with a very short advance.



## Multidisciplinary approach

CST service experts are compression system and machinery specialists too. This is the key for providing effective preventive suggestions, recommendations and solutions.

# CST SERVICE PORTFOLIO

- Pulsation and Vibration Analysis
- Rotor-dynamic Analysis
- Torsional Analysis
- Field measurements
- Machinery upgrades
- Lubrication system
- Trainings
- Troubleshooting

# Not only service

Thanks to its multi-decade experience in compression system design and service, CST can provide to its customer, not only on site service with RCA for compressor but also the solution to overcome the encountered problem.

C.S.T. is a high technology design and maintenance engineering company, established by a group of experienced engineers to support OEMs, Packagers, Main Contractors and End Users in designing, assembling and servicing of compression equipment



### **Compression Service Technology**

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C.S.T. Proprietary information

The images contained in this document are only intended to illustrate the service:  
the actual supply is defined in the proposal, which will be customized for each application.