

# Reci-CoDe

Diagnostics  
Remote monitoring  
Field measurements  
Maintenance consulting



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



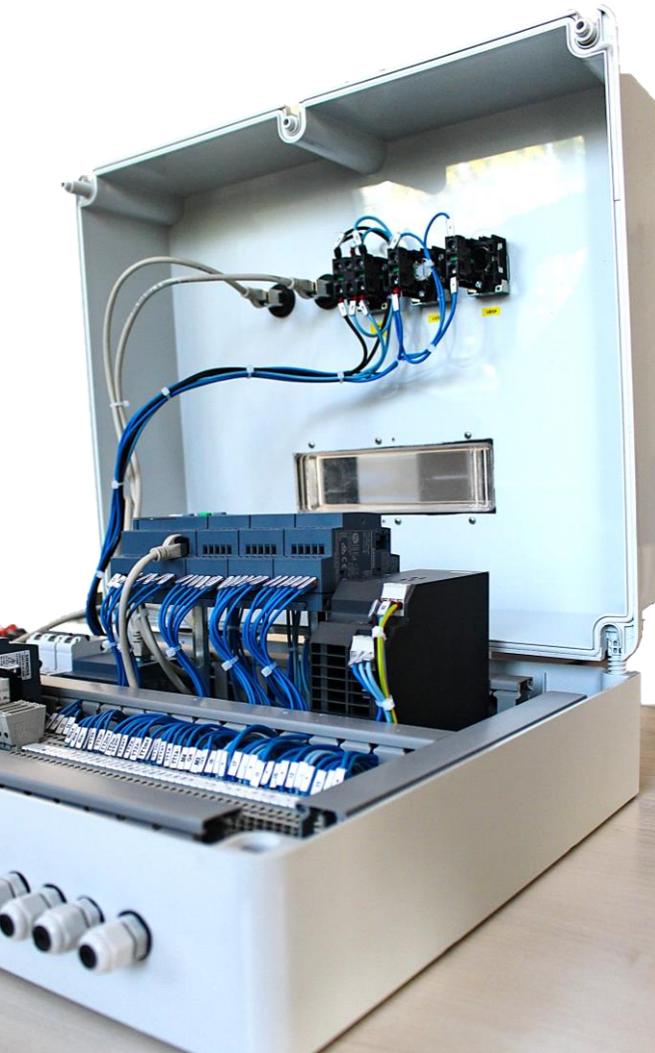
# All in one code

Continuous monitoring and in-time diagnostics are the key to improving the safety, reliability and efficiency of an industrial machine. Every machine has its own code for reporting its state of health to who knows how to read it.

Reci-CoDe (Reciprocating Compressor Detection) is a diagnostic system specifically for reciprocating compressors, as well as a necessary tool for switching from preventive to predictive maintenance. Based on ReciPerf software (by CST), a virtual simulator of reciprocating compressors, Reci-CoDe compares parameters measured in the field with calculated theoretical parameters in real time, processing any deviations and providing information on the state of health of the machine. Beyond simple monitoring.

## Simple to install

*Reci-CoDe* is a *plug & play* device consisting of a small cabinet that can use the instrumentation already fitted on the machine, reading it directly from the compressor control panel, without any interference on the control logic. The simplicity of the hardware, due to choosing to use highly reliable industrial electronic devices, combined with the limited number of sensors and additional components, means that costs and installation time can be drastically reduced.



## Customizable

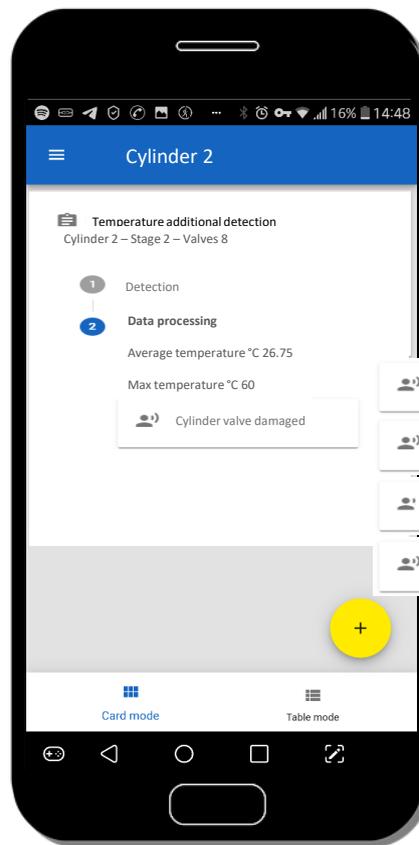
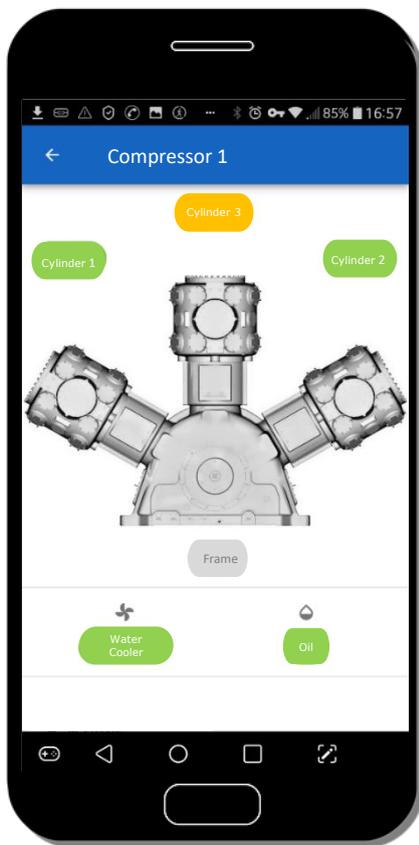
*Reci-CoDe*'s characteristic flexibility allows the SW to be tailored to the specific machine. It is optimized for reciprocating compressors, but its modular design makes it adaptable also to other applications, such as screw-type or lobe centrifugal compressors, reciprocating and centrifugal pumps, etc.

To complete the parameters normally recorded (pressure and temperature), missing sensors and/or supplementary specific monitoring modules can be added, such as:

- Reci-Drop: piston rod position
- Reci-Lube: cylinder lubrication
- Reci-Plus: vibration and/or leakage measurement

## Predictive

*Reci-CoDe* is based on proprietary algorithms that continuously analyse input data; the data is processed and compared with the corresponding calculated theoretical values using mathematical models developed by CST. It gives the operator clear instructions on the maintenance required on parts subject to wear, providing an early diagnosis of any failures, before they can progress to potentially catastrophic events. Early diagnosis of failures forms the basis of predictive maintenance, aimed at cutting costs and waste. Actual machine conditions establish what maintenance should be provided.



### Easy to use

*Reci-CoDe* provides clear and simple diagnostic messages. It can be used by anyone who works on the machine, without requiring specific training. The sophisticated algorithms on which it is based process identified anomalies, comparing them with a detailed cause and effect matrix based on CST's experience in technical support.

The results can be displayed in real time on a PC, tablet or smartphone with a clear interface that reports the possible causes of an anomaly and their position on the machine.

### User-friendliness of data

The information gathered with *Reci-CoDe* is always available and stored in a memory card. Continuous data recording makes it possible to easily examine the cause of an alarm or of a shutdown, enabling the machine to be restarted quickly and safely, thus reducing machine downtime and maintenance costs. Information management can be stand-alone or via remote-assistance.

# Reci-CoDe Advantages

-  Machine health available in real time
-  Maintenance dependent on actual machine conditions
-  Early identification of failures
-  Reduction of maintenance costs and machine shutdowns
-  Flexible modular design
-  Easy-to-use
-  Entry into service 2 months from order
-  Rapid return on investment, plus the benefits of Industry 4.0

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 compression equipment.



#### **Compression Service Technology**

50127 FIRENZE – ITALY – Via Panciatichi, 40

Tel. +39 055 431062

Fax. +39 055 4476278

E-mail: [cst@cstfirenze.com](mailto:cst@cstfirenze.com)

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

**For more information please contact:**

**Cosimo Carcasi**

*Consultative Service Leader*

E-mail: [cosimo.Carcasi@cstfirenze.com](mailto:cosimo.Carcasi@cstfirenze.com)

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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.