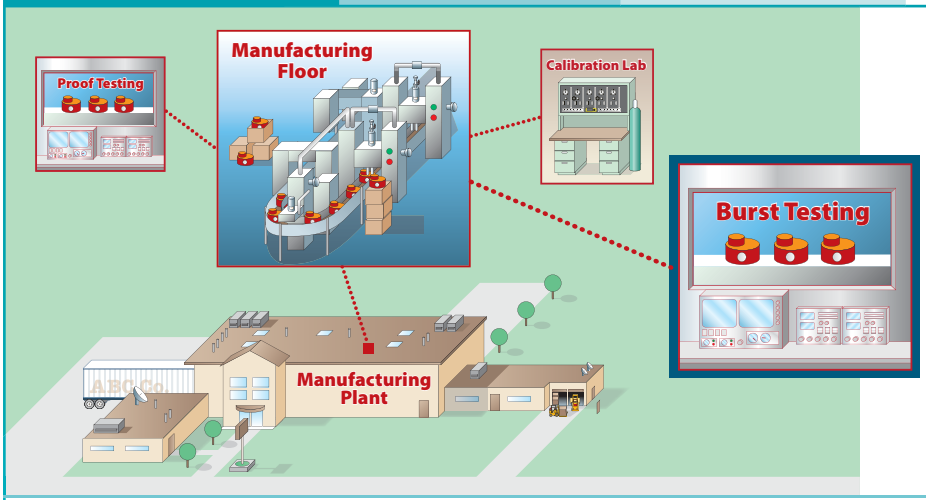
Product Testing & Calibration

Application Overview

Industrial Manufacturing & Testing

Burst Testing | Proof Testing | Calibration



Key Objectives

- Pressurize device under test (DUT) at a controlled rate until it bursts
- Capture and record the exact pressure at which the burst occurs and have repeatable performance from one test to the next
- Maintain a safe environment for the test operator

Burst Testing

In the design and manufacture of pressure components such as hoses, fittings and tubing, as well as pressure regulators and valves, it's critical to determine the exact pressure at which the component fails. Known as 'Burst Pressure,' this number is used to determine the maximum strength of a pressure vessel, which in turn determines the safe working range of the component. Generally a component's burst pressure needs to be three or more times the maximum operating pressure. A critical factor in testing is the precise control of the pressure, especially the pressurization rate which dramatically affects the point at which the burst occurs. If the pressure is increased too quickly, the component may burst prematurely. If the pressurization rate is inconsistent, the detected burst pressure may again be misrepresented. Burst testing has typically been performed by an operator monitoring a gauge while manually increasing pressure until the burst occurs. Due to the inevitable human error and the subjectivity of the detection of the burst, this method is not very accurate or reliable. Manually recording data contributes to these inaccuracies. Operators are required to take the pressure up and down manually which results in different rates of pressurization. Repetitive motion of the operator's process may result in Repetitive Strain Injury (RSI).

How TESCOM addresses the inefficiencies of Burst Testing using manual operation

- Operators are required to take the pressure up and down manually which results in different rates of pressurization. Manually controlling pressures takes more investment in time for set up and introduces variables, resulting in unreliable test results. The ER5000 reads and compares the setpoint and feedback signals every 25 milliseconds, then adjusts its output pressure to correct error between the two signals. This fast response, combined with the 0.1% full scale accuracy, provides precise and consistent results every time.
- Data acquisition that is done manually, can result in inaccuracies in testing results due to human error. Knowing exactly when the burst occurs provides the data needed to optimize production processes and quality. Using a closed loop system along with the ERTune software, provides extensive data acquisition, removes inaccuracies and provides repeatable performance for subsequent tests.
- Operators inside the process or test area could get injured either by risks taken inside the testing environment or by the constant manual control of pressures in the line. Pressure control that is automated and/or controlled remotely removes operators from inside the testing environment, reducing risk or injury due to pressure related dangers as well as RSI.

TESCOM™

EMERSON™
Process Management

Product Testing & Calibration

TESCOM

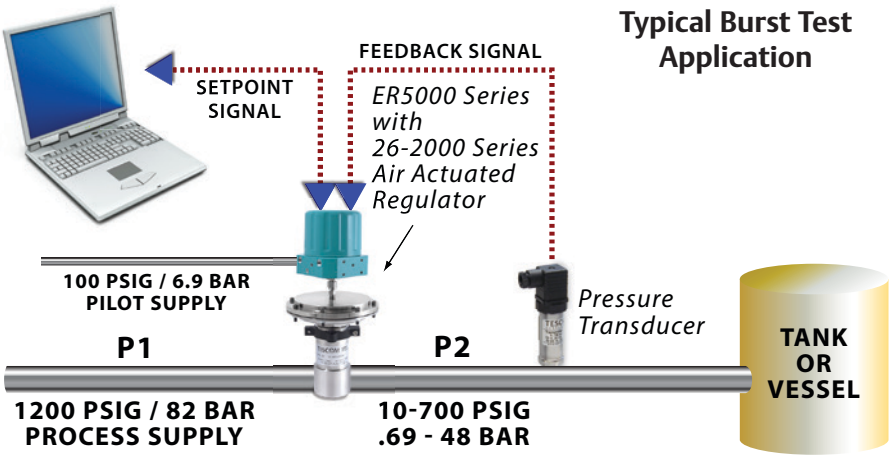
TOTAL SOLUTION

Create an automated closed loop system using an Electropneumatic Controller, air-actuated regulator and a feedback transducer.

Whether the burst testing is done as part of the process or during design and development, pressure can be controlled automatically using a PLC, potentiometer or computer.

When using the intuitive ERTune software, profiles can be created, downloaded and saved for repeatable testing and consistent results.

Typical Burst Test Application



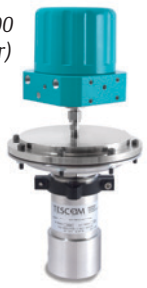
COMPONENTS

- TESCOM ER5000 Series Electropneumatic Controller *(Includes USB cable, fitting assembly, ERTune software and Getting Started guide)*
- TESCOM air-actuated regulator
- Transducer

IDEAL FOR:

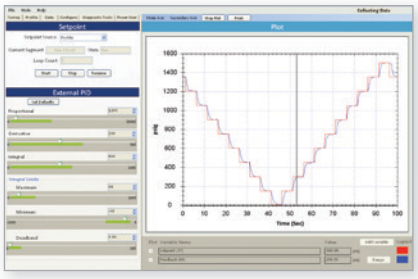
- Gauge manufacturers
- Pipe and hose manufacturers
- Pressure vessel manufacturers
- System manufacturers
- Any application where product design and process verification is required

ER5000
(with TESCOM 26-2000 Air-actuated regulator)



ER5000
(Stand alone)

Transducer
(TESCOM 615 Series)



ERTune™

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