TECHNICAL TOOLBOXES

The API Inspectors Solution Buyers' Guide

Table of Contents

How to Use This Guide

Inspection Reporting

The Critical Dimentions of API Inspection Workflows

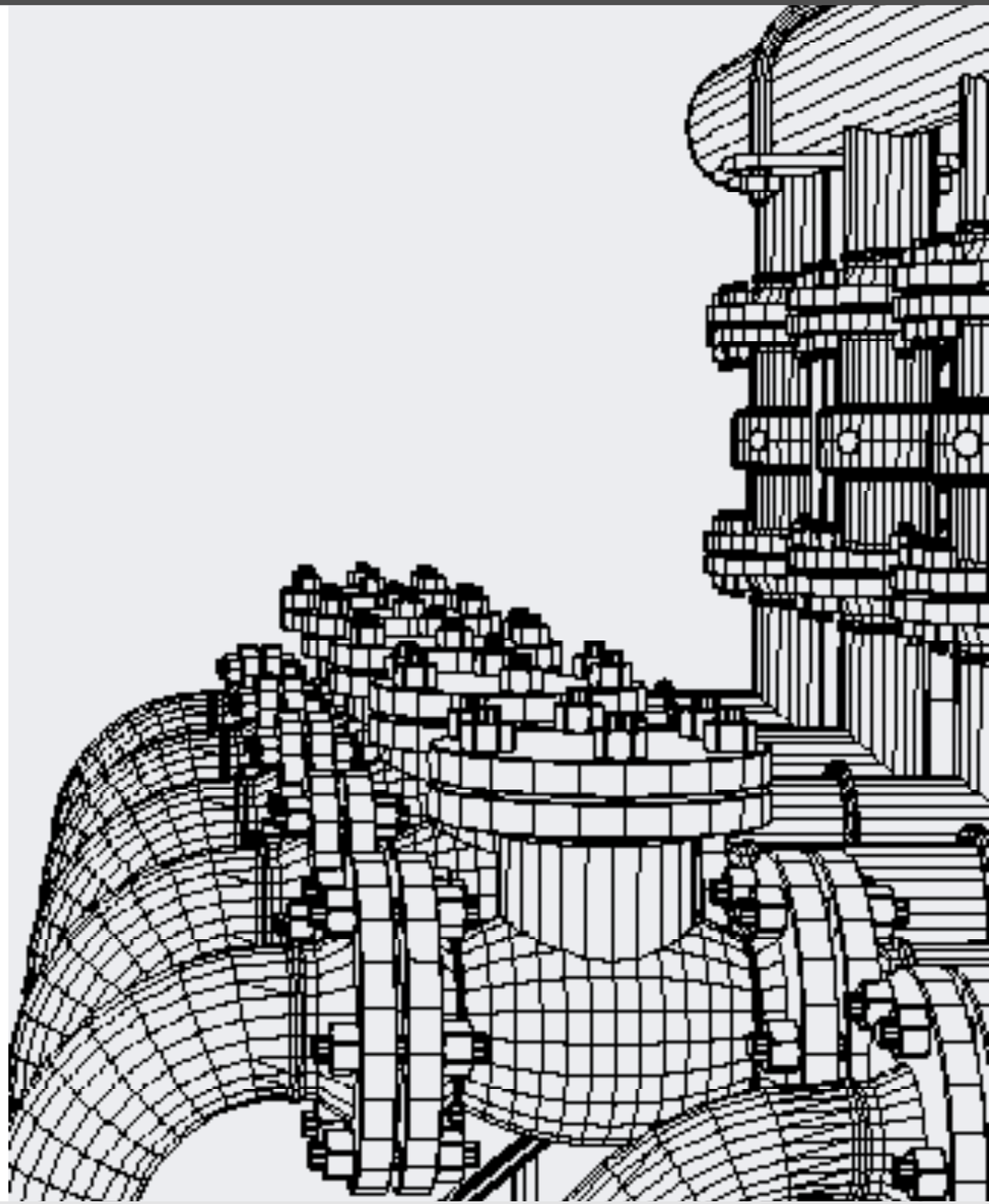
The Case For The API Inspectors Toolbox

API Inspectors Toolbox Dimensions and Benefits

Conclusions

Next Steps

About Technical Toolboxes



How to Use This Guide

API inspectors play a critical role in the operation and integrity management for many types of industrial equipment. The API Inspectors Toolbox is software from Technical Toolboxes that supports inspectors working to the American Petroleum Institute's API 510, API 570, and API 653 Standards.

We designed the API Inspection Solution Buyers' Guide for inspectors, inspection service providers, and engineers. It is a tool to help users assess the value of integrated software solutions. It covers API inspections, calculations, analysis, and reporting. If you or your organization inspect or contract inspections of the assets covered under these codes, the guide will help bring the factors of your decision into focus.

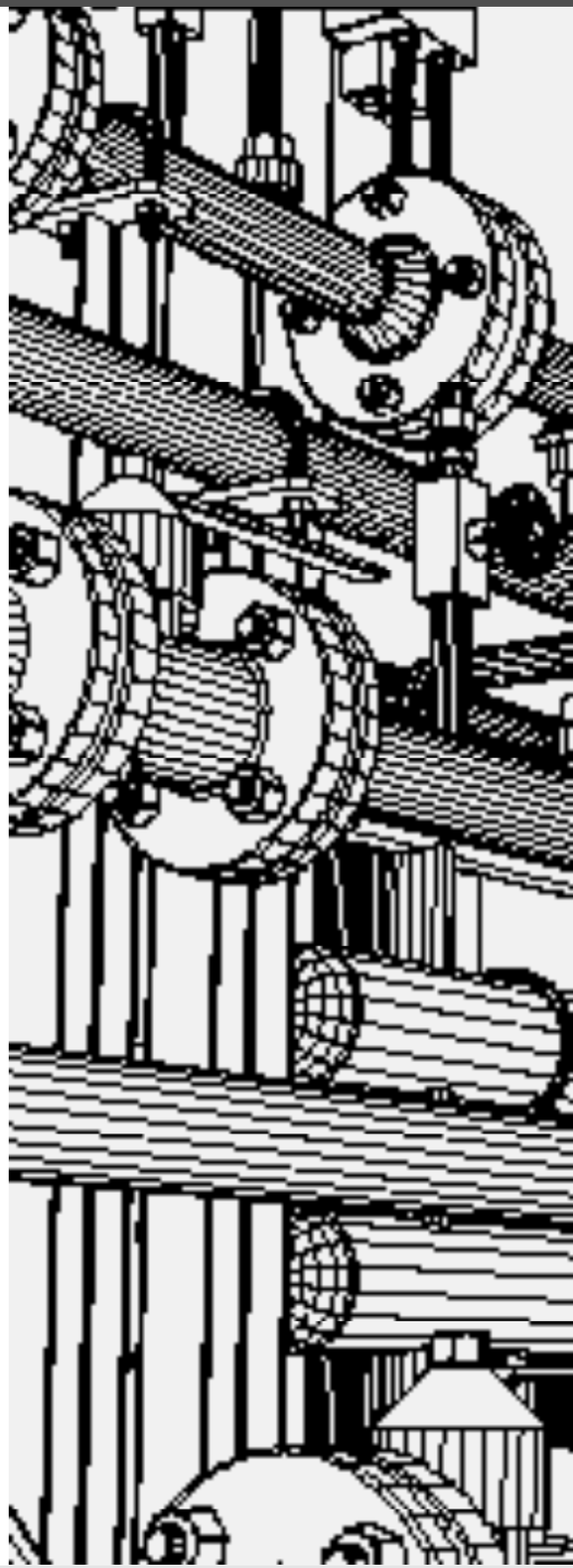
"API inspectors play a critical role in the operation and integrity management for many types of industrial equipment."

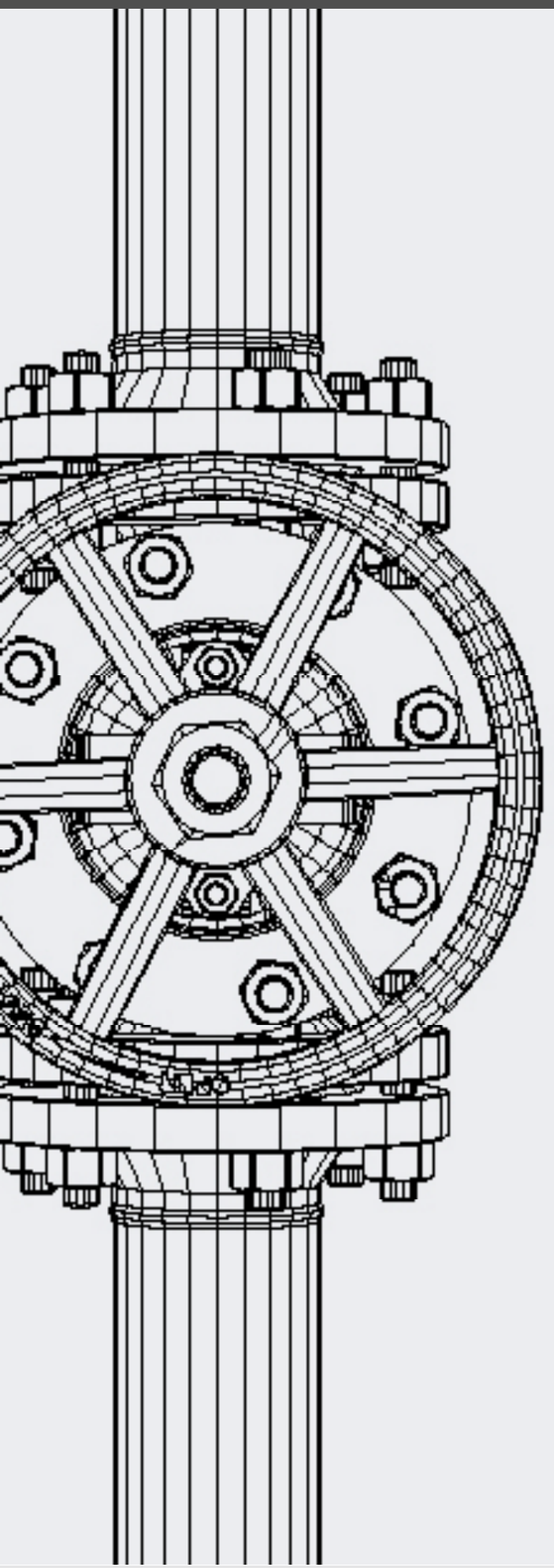
Inspection Reporting

Inspectors report on the conditions and remaining life of a wide array of industrial assets: Power plants, chemical plants, refineries, tank farms, DoD POLs, and the pipework that connects them. Inspectors assess and rate the integrity of pressure vessels, piping, aboveground storage tanks, and all associated fixtures and fittings.

Asset owners and operators bring in API inspectors, most often as third-party contractors. The objective is to inspect and produce written technical documents, which may amount to fifty pages or more in length.

The objective of inspection to API 510, 570, and 653 standards is to inspect and evaluate the mechanical integrity of industrial assets (pressure vessels, storage tanks, piping, et cetera). Furthermore, inspectors and engineers must ensure the aforementioned industrial assets adhere to strict state and federal regulations and pass all internal and external audits. Inspectors and Engineers combine professional experience, asset data, and industry standards to create factual documents based on the code, so owners and operators have a better understanding of their equipment in terms of risk and maintenance.





API 510 — Pressure vessels and related pressure-relieving devices

API 570 — Metallic and fiberglass-reinforced plastic piping systems and related pressure-relieving devices

API 653 — Steel above-ground storage tanks used in the petroleum and chemical industries

Conventionally, the practical requirements of compiling report documents force inspectors to spend more time in the office, rather than inspecting equipment in the field. They perform calculations and analyses and search for hours through reference publications and binders to find obscure but essential data and code references.

Finally, when they have gathered all the facts together, and the references are in place, additional time goes into formatting and editing report documents. Much of this data management work is redundant, with information entered repeatedly for each report.

"Inspectors and Engineers combine professional experience, asset data, and industry standards to create factual documents based on the code..."

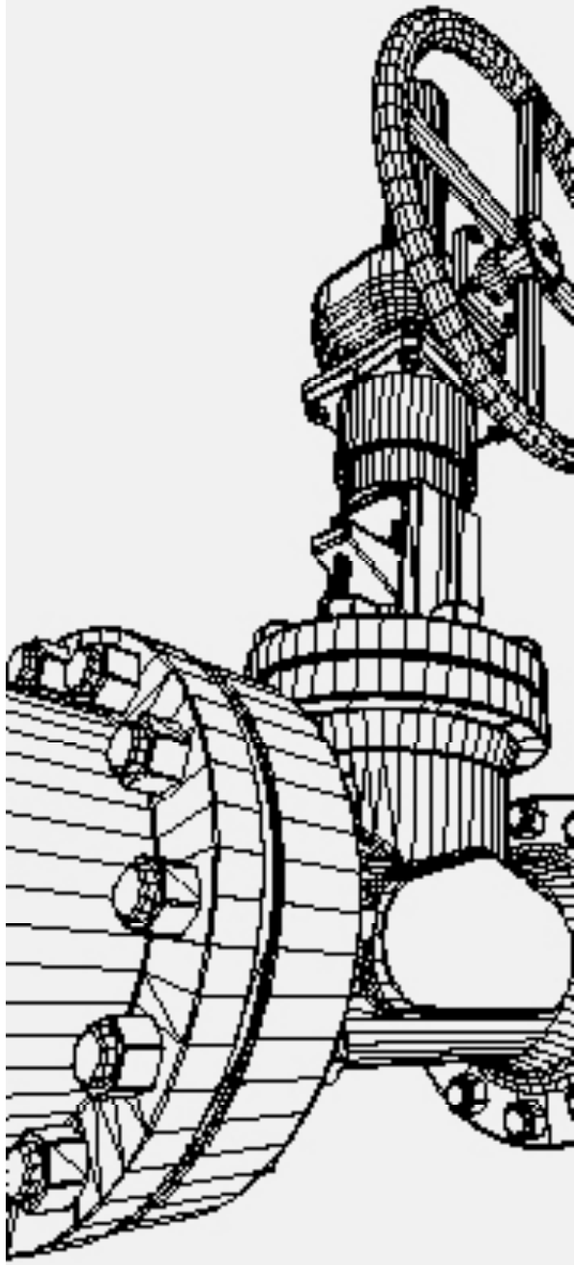
The Critical Dimensions of API Inspection Workflows

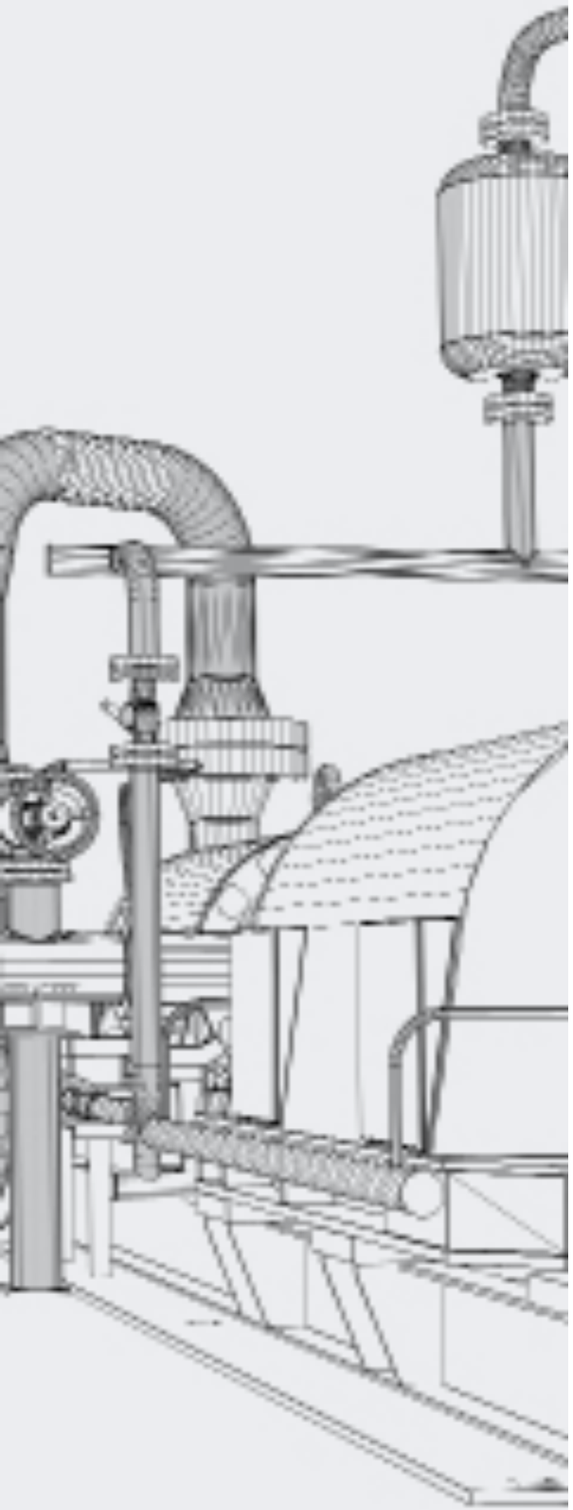
For industrial settings such as midstream oil and gas, downstream oil & gas, petrochemical production, or related industries, performance revolves around three critical factors - standards, quality, and productivity.

The inspection and reporting cycle play a part in achieving the best results in terms of these dimensions. Government regulators and industry bodies govern the activities of industrial processes, transportation, and storage. Companies apply standard operating procedures (SOPs) and observe rules and regulations from a wide range of authorizing authorities.

The latest API, STI, ASME, NBIC, UL, and ASNT codes govern the design, inspection, and repair practices and standards for boilers, pressure vessels, storage tanks, and piping. Asset owners and operators turn to third-party inspection organizations to comply with these external standards for internal auditing purposes or assess risk.

Quality and productivity are interrelated but distinct from one another. Quality is the faithful representation of data in the collection, storage, and processing. Best practices in data management make it possible to collect and quality check data one time and have it available to all users until you decide to remove it.





Productivity determines the success of inspection as a service. Inspection services providers invest time and labor to fulfill contracts for fixed information products. Much of the work spent compiling and writing reports for API inspections can be eliminated. The variable factors are the time spent. As long as standards can be met or exceeded, API inspection reporting's business objective is efficiency.

Inspection and Data Gathering — Inspectors require specific data about the equipment under inspection; therefore, onsite inspection and measurement, office-based research, and file search at the initial stages of a contract are required. Reporting is a factual process that requires accurate data (quality), defined by articles within the code (standards).

Calculating and Analyzing — Calculations relating to the metal thickness and remaining life of materials and equipment must have references and citations. Users should be able to access data from a unified repository, perform calculations, store and access the output.

Code Referencing — Codebooks published by API, STI, ASME, NBIC, UL, and ASNT, which provide the standards for inspections, are fundamental engineering and inspectors' tools. Codes often refer to other sections of code, requiring further research and reading.

"As long as standards can be met or exceeded, API inspection reporting's business objective is efficiency."

“Productivity in the inspection reporting process is the determinant of professional success and profitability.”

Formatting and Publishing — Once inserted into an application, data should cascade through all corresponding fields without repeated data entry. Data entered once should not have to be rekeyed additional times.

Return on Investment — Productivity in the inspection reporting process is the determinant of professional success and profitability. While inspectors generate income by the report, costs accrue by the hour. Inspections that meet or exceed industry standards and client quality for the least expenditure of time and resources generate the highest return on investment levels.

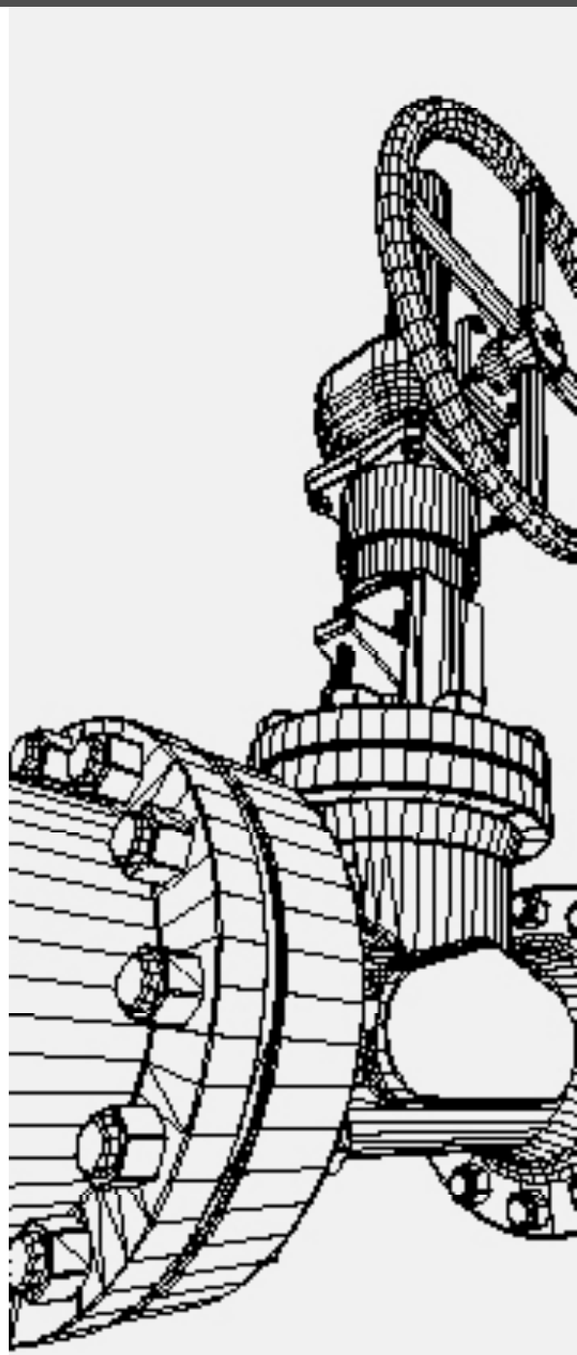
The Case For The API Inspectors Toolbox

The API Inspectors Toolbox from Technical Toolboxes (APITB) gives you tools to maximize API 510, 570, and 653 reporting quality, standards, and productivity. Before APITB, there had not been an adequate tool for the precise technical workflows of API inspectors.

APITB was initially authored by Jeff Walling, a highly experienced and respected inspector. He realized that he could reduce the workload in inspecting and reporting. By writing the first version of APITB, he determined that he could eliminate the inefficiencies and frustrations he experienced day-to-day. That first version became the core of APITB as it is today.

The many in-house solutions and legacy systems used by inspectors suffer from inflexibility and low productivity, taking days or even weeks to compile reports regarding design, installation, repair, or audits. Spreadsheet systems introduce human error risk into pipeline calculations, as individual users can inadvertently change data.

APITB dramatically reduces the time inspectors spend researching, compiling, and formatting to produce the most comprehensive reports with the highest efficiency. All made possible by the knowledge of the author and the software expertise of Technical Toolboxes.



Originally built on MS Access, the latest version of APITB is a cloud-based solution that keeps your inspection data accurate and up to date throughout the asset lifecycle.

The guiding principle at Technical Toolboxes is to facilitate continuous improvement of output quality, productivity, and practice standards for engineers and inspectors. We work ceaselessly to bring data resources and tools together on one canvas, with intuitive navigation.

The Integrated Data Environment of the Pipeline HUB (HUB[PL]) from Technical Toolboxes gives inspectors and engineers a wide array of tools for data management, calculation, and storage. The latest version of APITB aligns with the principles that define the HUB[PL] and will soon integrate seamlessly as a part of the HUB[PL] canvas.

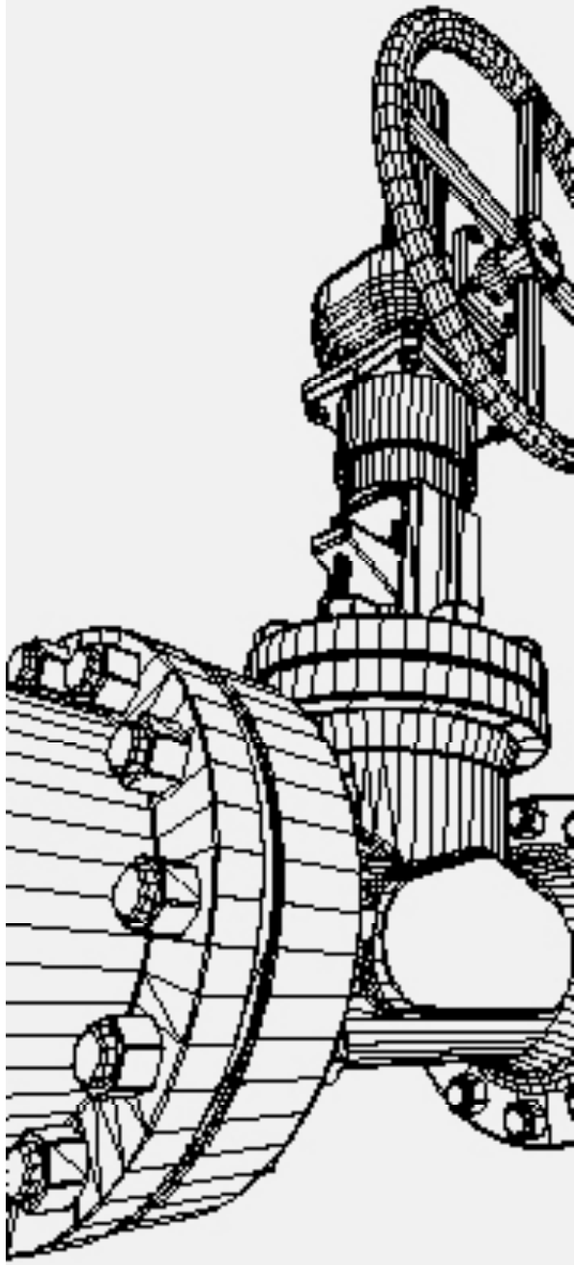
“We work ceaselessly to bring data resources and tools together on one canvas, with intuitive navigation.”

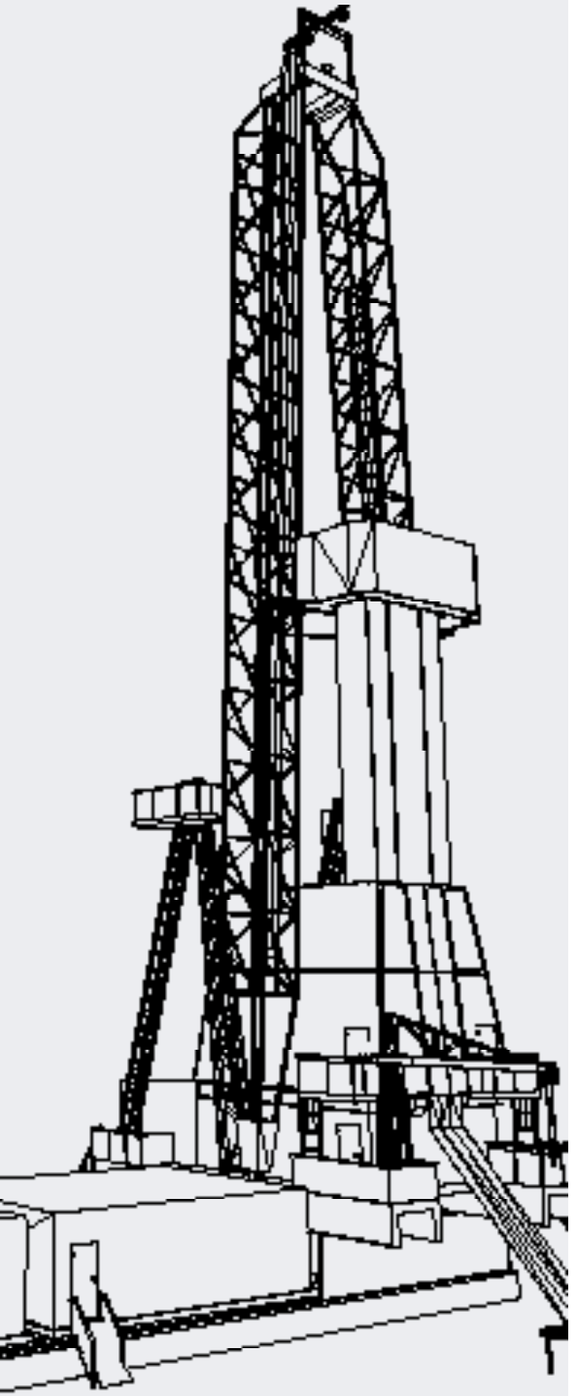
API Inspectors Toolbox Dimensions and Benefits

Inspection and Data Gathering — You enter the data at the start, and it performs all of the required calculations. Once loaded, data cascades through to the appropriate calculations and reporting pages. APITB accelerates your workflow by simplifying and automating your data management. The result is more confidence in your data and increased productivity.

Calculating and Analyzing — Items that are missed by in-house methods and spreadsheets too frequently are all covered automatically. The result is consistently higher standards, achieved with more confidence in your data, and increased productivity.

Code Referencing — Inspectors no longer need to spend hours chasing down information and cross-referencing sources. APITB provides the 510, 570, and 653 codes in a cascading format that is easy to reference and apply. You have immediate access to critical data such as pipe thicknesses and remaining strength. Dozens of files and reference items such as STI, ASME, NBIC, UL, and ASNT standards are all at your fingertips.





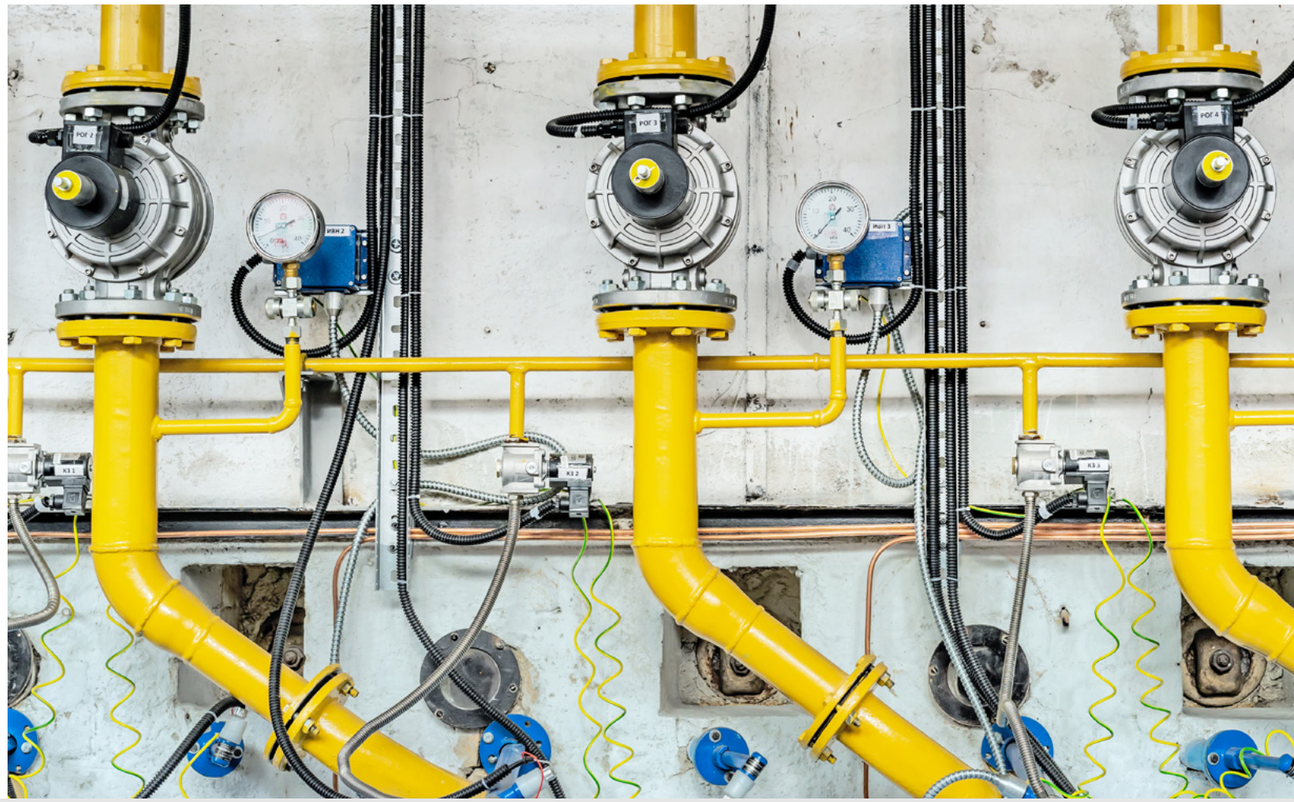
Formatting and Publishing — As a cloud-based solution, the latest version of APITB does not depend on external applications like Microsoft Access. However, the reporting feature assembles all sections as one file and outputs in PDF and Word document format. What otherwise takes inspectors hours to complete can now do in minutes with APITB, transforming your productivity.

Return on Investment — Across the board, inspectors achieve the highest quality and documentation standards in API reporting while reducing the time from days to hours with APITB. As an inspector, APITB is a transformational tool for productivity that provides a return on investment.

Inspectors appreciate the ability to reference the Code quickly and rapidly identify exempt areas and recommended practices, reducing the time they spend compiling reports. One of the most remarkable aspects is how much it reduces kick-backs. Typically, one in every three reports gets kicked back. With APITB, that number of kick-backs for revisions reduces to less than one in twenty, an 85% reduction, further reducing time and cost.

One inspector with APITB can do work that previously required two without it. This improvement means that inspectors can double the billable output they contribute to your company's ROI on the bottom line.

> "What otherwise takes inspectors hours to complete can now do in minutes with APITB, transforming your productivity."

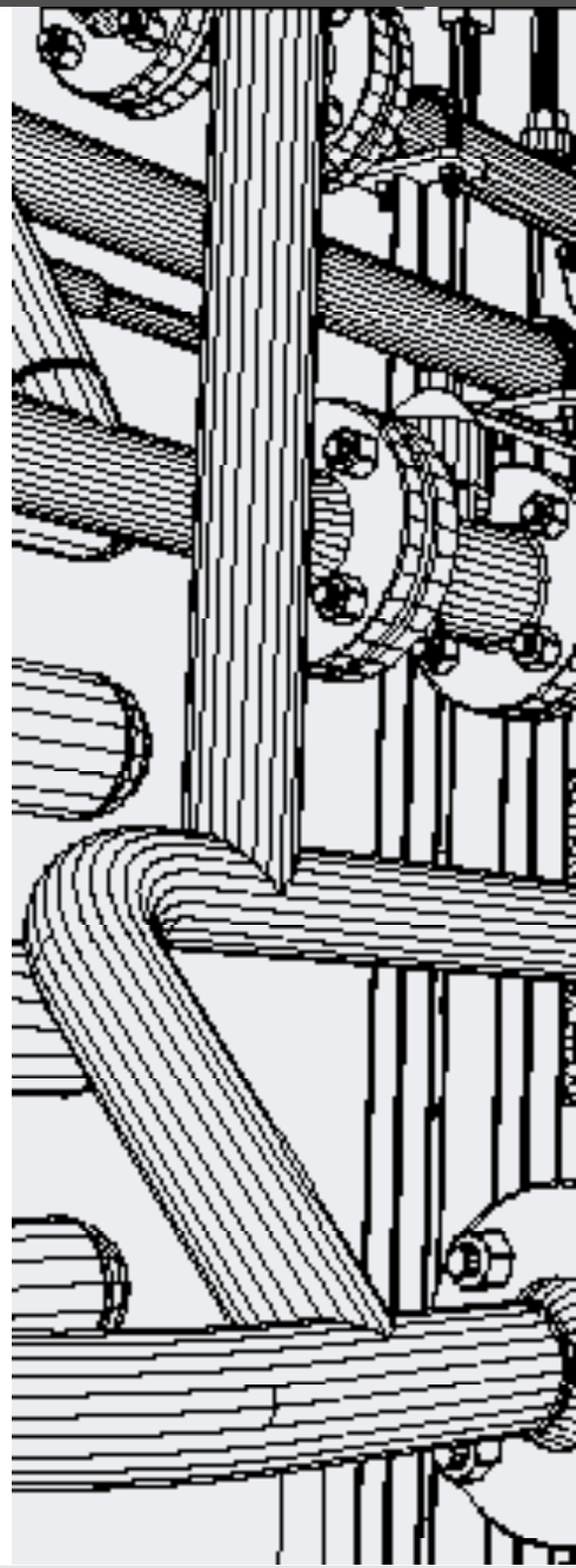


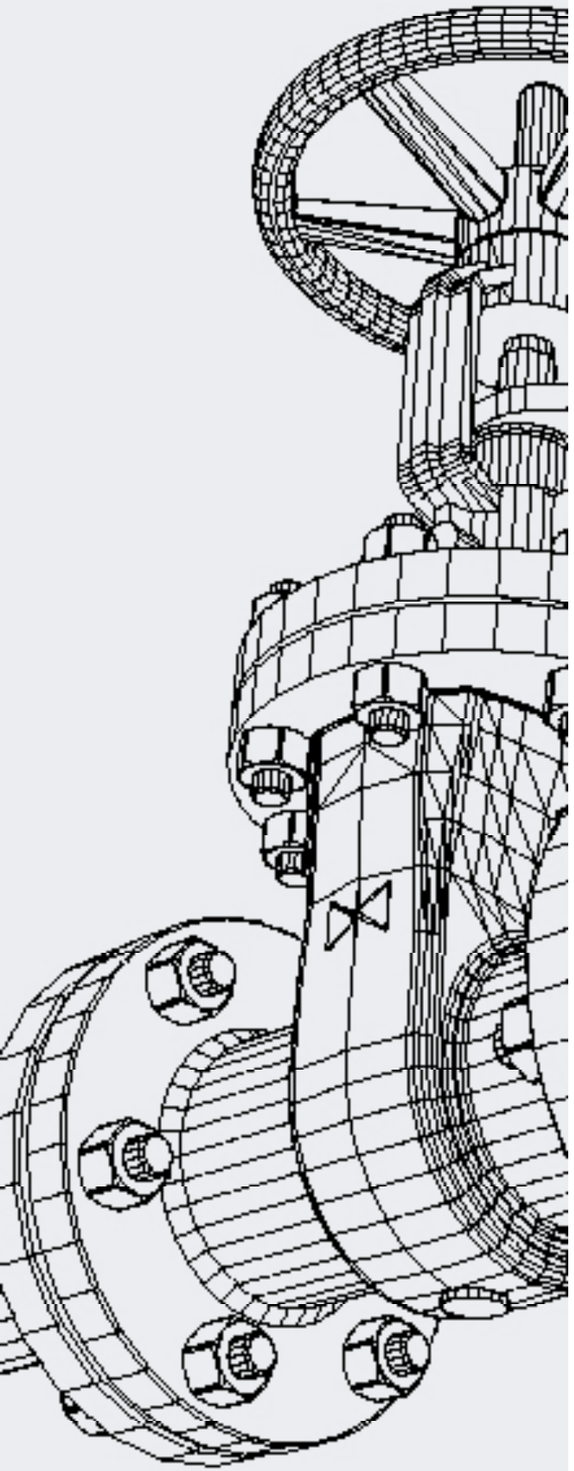
“With APITB, you have more time to pursue more clients or other opportunities for your business.”

Conclusions

Inspectors for pressure vessels, piping, and above ground storage tanks work to the standards of API 510, 570, and 653. The objective is to document and report the condition of assets on behalf of owners and operators. With APITB, the result is information completeness in documents that convey confidence in your methodology and practice.

APITB surpasses the fundamental dimensions of upholding standards while maximizing quality and productivity. Once you upload data, it remains available and cascades through the sections of your report and part of the workflow. It produces accurate calculations and analyses while it reduces time and cost spent, effectively doubling each Inspector’s revenue-generating capabilities.





Next Steps

- Talk to Technical Toolboxes for answers to your questions about APITB
- Book a live APITB software demonstration
- Read APITB Customer Success Stories

TAKE THE NEXT STEP WITH TECHNICAL TOOLBOXES

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Pipeline Crossings Workflow
Pipeline Toolbox
RSTRENG+

PRCI Products:
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HDD Toolbox
Hot Tap Toolbox
On-Bottom Stability
RSTRENG

About Technical Toolboxes

Technical Toolboxes is a leading provider of integrated desktop and cloud-based pipeline software, online resources, and specialized training for pipeline engineering professionals around the world. The integrated software products developed by Technical Toolboxes provide engineering software productivity tools and we deliver oil and gas industry training courses covering a breadth of topics with industry-recognized instructors.