TECHNICAL TOOLBOXES

The Solution Buyers' Guide

Pipeline Engineering Operations

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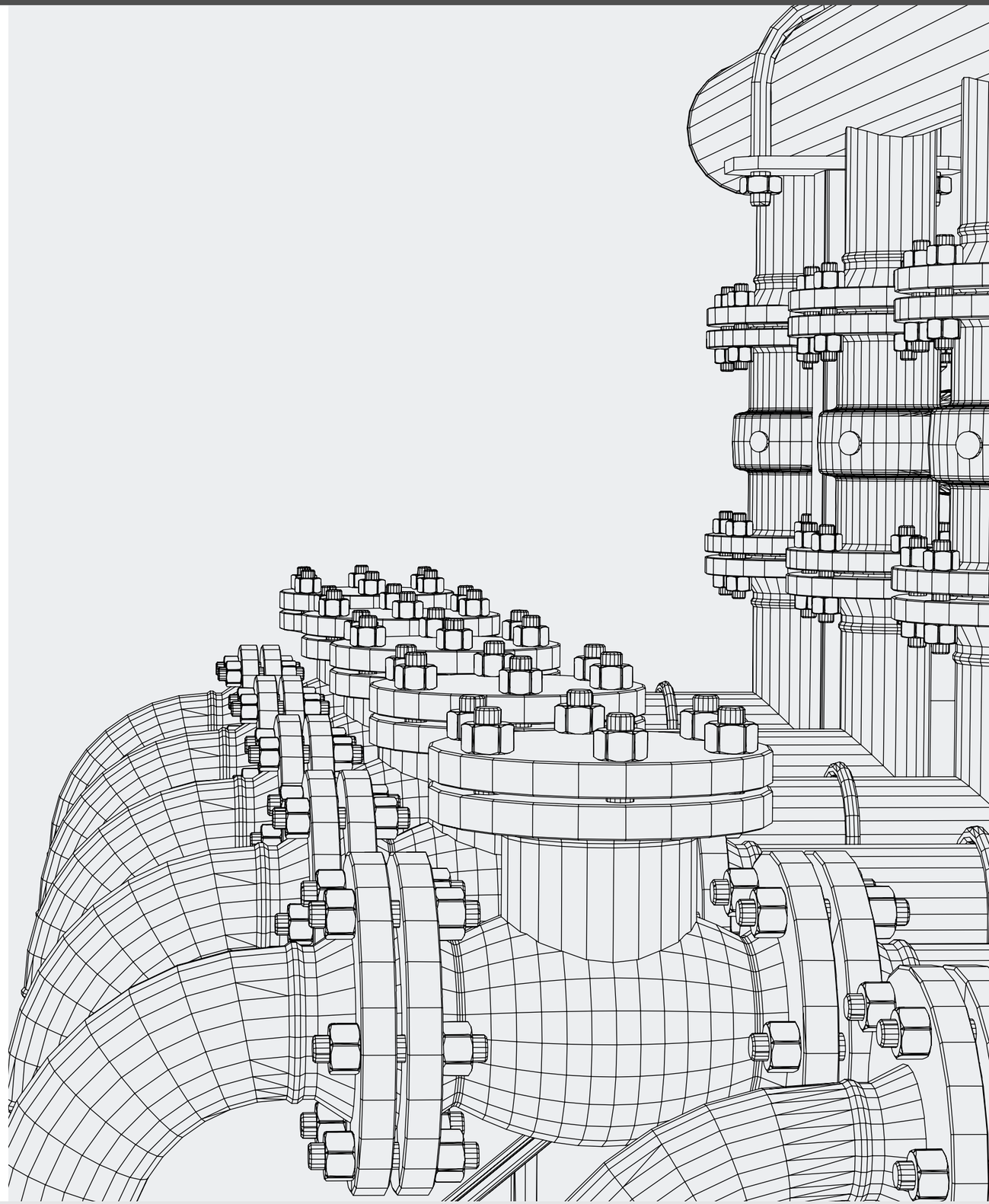
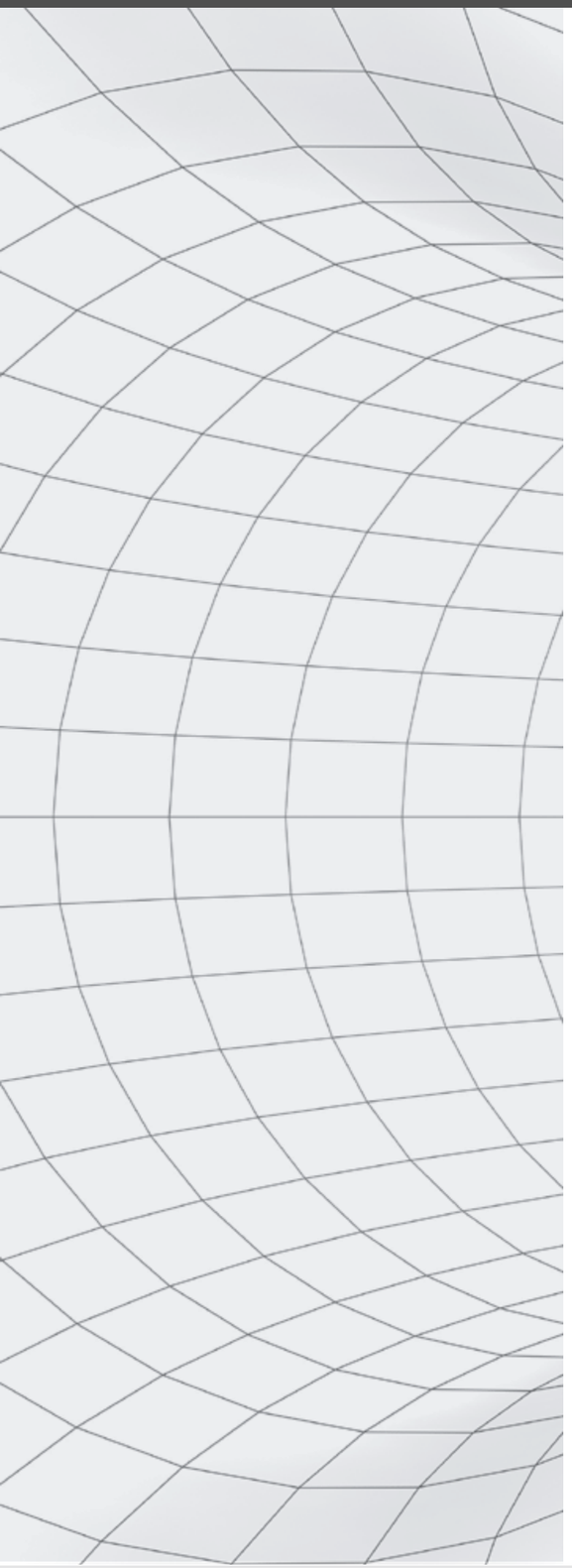




How to Use This Guide

Technical Toolboxes created this guide to help you, as the decision-maker for a midstream operational organization, find better solutions for engineering cases and workflows. Engineers working for small, medium, and large midstream operators today face challenges and demands that are significant, constant, and yet volatile, weighted by different overall risk levels.

The current demands on the oil and gas industry include the COVID-19 Pandemic, demand disruption, and fluctuations in oil and natural gas prices. These challenges compound the managerial and technical pressures on operational engineers.

Technical Toolboxes addresses these threats and more with timely and actionable information, coupled with fit-for-purpose solutions. Gathering the big picture and sharing case histories require unimpeded channels and high-quality data. In the real world, there is always interference.

The Operations Buyers' Guide explains how Technical Toolboxes provide solutions for pipeline engineers from the operational perspective. It classifies the challenges in three distinct dimensions. It describes how these operational factors are manageable if you have access to two things: Timely and specific data, and the analytical tools to compute the solutions.

The engineering tools from Technical Toolboxes have held flagship reputations within the industry for many years. Now, with the Pipeline HUB (HUB^{PL}), these tools do even more to transform how pipeline engineers operate and collaborate in the Information Age.

The Operations Buyers' Guide will show you how the HUB^{PL} provides a platform for data gathering, management, and analysis. The HUB^{PL} integrates established pipeline engineering applications such as the Pipeline Toolbox (PLTB), expanding their scope and utility.

One of our favorite recent quotes comes from an operator with a new interest in Technical Toolboxes. He'd been "[hiring] engineers from bigger operators, where PLTB is as essential as Microsoft..."

"The current demands on the oil and gas industry include the COVID-19 Pandemic, demand disruption, and fluctuations in oil and natural gas prices."

"Maximizing a pipeline asset implies transporting oil and gas at the highest rate of flow or pressure while concurrently operating assets in the safest possible manner."

Dimensions to Consider

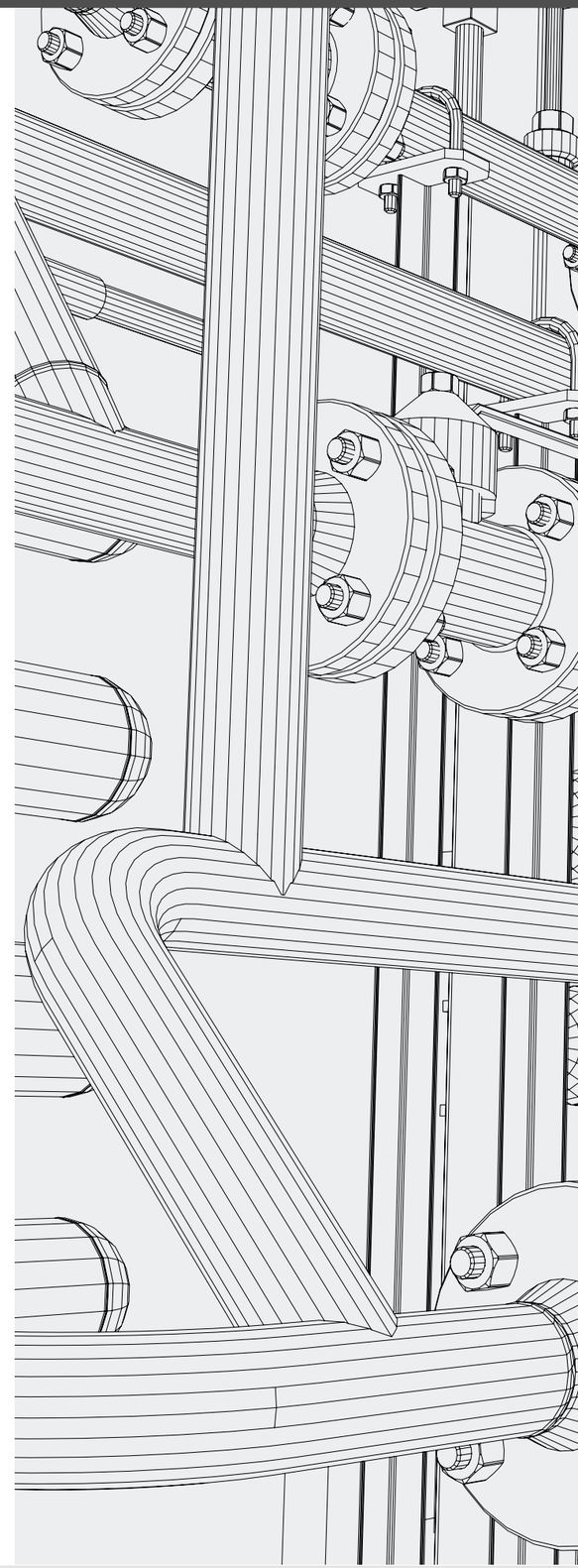
Integrity Management
Integrity management ensures that the people, systems, processes, and resources that deliver the product are in place, in use and fit for purpose over the whole life cycle of the asset. It benefits from data automation, critical analysis, risk assessment, risk reduction, and retaining the knowledge of experienced team members.In ongoing pipeline operations, integrity management plays a vital role. To achieve this requires obtaining complete information about pipeline conditions to ensure high asset utilization while protecting health, safety, and the environment.

In practical terms, it's not that simple. By definition, pipelines are linear assets that span continents. Additionally, they are subject to the attention of diverse team members dispersed across its length. Over time, teams change, and members move on, which leads to loss or disparate information sets, and inefficiency in collecting the data that makes holistic analyses possible.

Productivity Optimization
Maximizing a pipeline asset's value implies transporting the most oil and gas possible, at the highest pressure feasible, while operating the asset in the safest possible manner. Operations engineers strive for consistency and achieving the least amount of down-time. Having easy access to the most up-to-date data about performance and case histories improves engineers' productivity and efficiency.

When engineers work with outdated or ad-hoc analysis tools, they spend much of their time searching for and managing the relevant data. Spreadsheet-based calculations and in-house software solutions often delay answers and introduce a broad range of typical errors. As a result of the need to deliver timely answers, some engineers make simplifying assumptions that introduce risk in calculations. To account for the added risk, they have to allow increased safety margins, which undermine efficient operations.

Standards Compliance
Rules, regulations, and standards define the midstream and downstream sectors of the oil and gas industry. In principle, compliance is a matter of reading the map whereby established best practices in standards compliance mark out plans of action as clearly as signs on the highway. The ability to respond to audits and present data to justify critical decisions is critical to success. However, the specificity of standards, the quantity of information, and the channels through which it's gathered place practical limits on compliance and accuracy. How companies store data, calculations, and case histories impact the quality of solutions and ease of proving compliance with standards.



Pipeline Engineering Operations

The conventional business models of the past made do with limited access to information. Companies depended on large bound volumes of printed data. If they had access to software, it was spreadsheets on stand-alone PCs or terminals connected to mainframe data centers.

These limitations constrained users in narrow silos. As a legacy, engineers still often use spreadsheets or records on PDF files. Connecting, communicating, and coordinating have always offered advantages. Now, with HUB[PL], collaborative best practices are within reach for any pipeline operator.

Facilitating Collaboration with Technical Toolboxes

Technical Toolboxes software gives engineers new collaborative abilities. It provides a holistic perspective that enables operations engineers to engage directly and influence pipeline designers. They can share data and experiences so that designers have an understanding of what the priorities will be in operation.

Engineers and technicians in the field need verification tools, capable of proving that the records match what's in the ground. Also, they need the ability to validate the work of vendors. Concerns often arise when engineers go to the field to assess corrosion and verification digs, discovering issues. Technical Toolboxes provides tools to validate and verify conditions on-site promptly and deliver solutions consistently.

Unplanned events and situations demand responses using the right tools. For example, rerouting a pipeline might lead to the discovery of an unknown or abandoned pipe. As previously mapped, the distance from a feature like a river may have been acceptable, but over time, erosion changes the course of rivers, uncovering the pipes. In such cases, pipeline engineers benefit from the collaborations made possible by Technical Toolboxes.

"Engineers and technicians in the field need verification tools, capable of proving that the records match what's in the ground."

Technical Toolboxes for Pipeline Operations

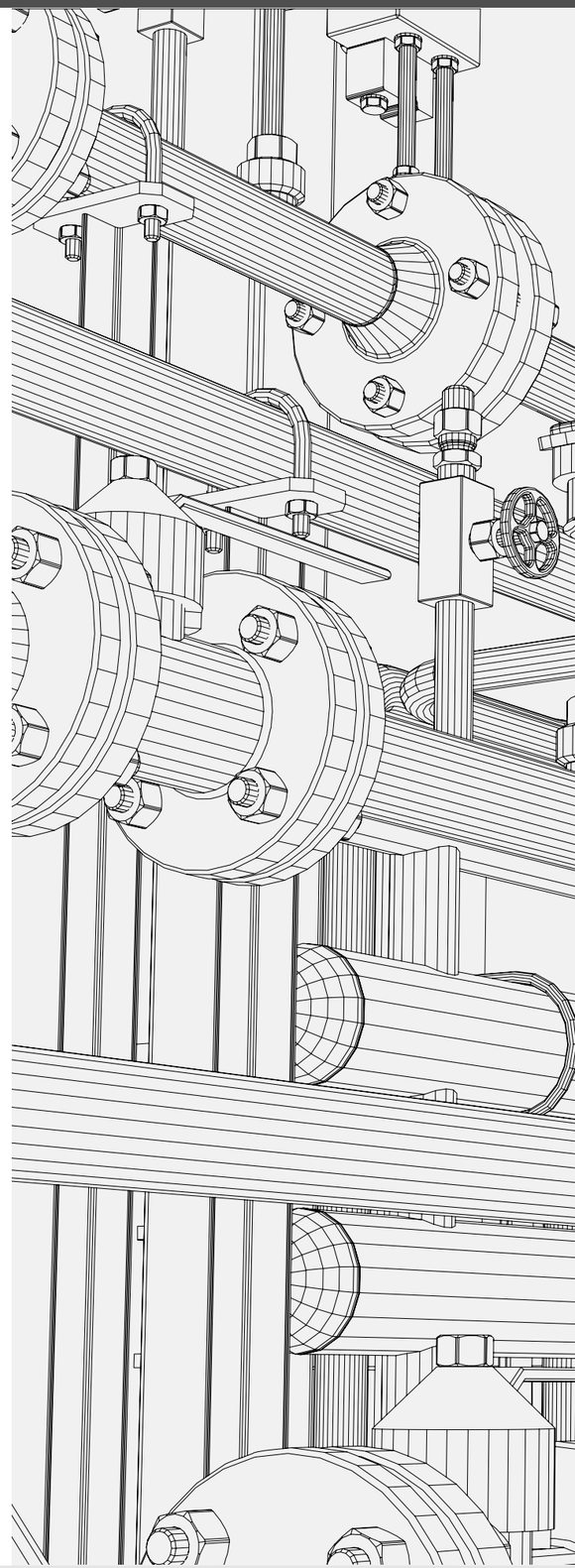
The Pipeline HUB (HUB^{PL})

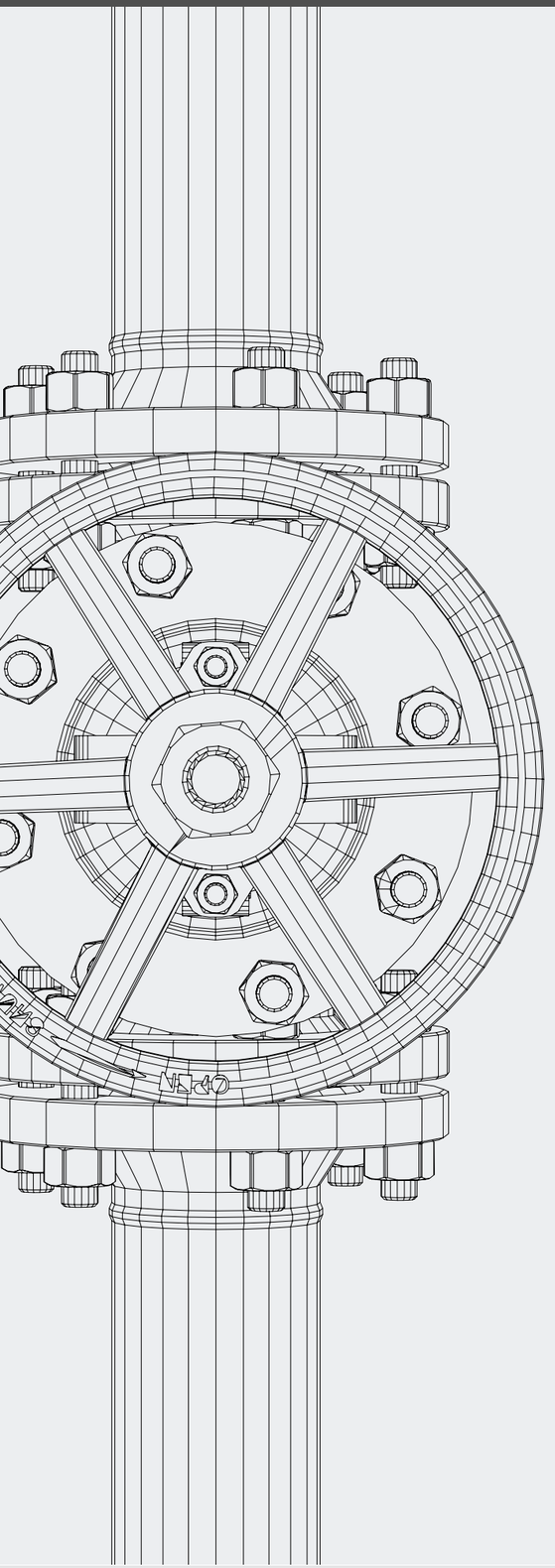
Technical Toolboxes designed the HUB^{PL} specifically as a cloud or desktop-based solution to accelerate project schedules, reduce CapEx/OpEx while lowering risk. The integrated data environment of the HUB^{PL} allows you to leverage many powerful pipeline engineering applications from Technical Toolboxes and other IP sources in one application framework.

Advantages of the HUB^{PL} include time savings from engineered workflows, consolidated applications, and databases, leaving engineers with more time running analyses and less time searching for data, and a collaborative environment in which more eye can view analyses, eliminating duplicates.

ArcGIS Map integration on the HUB^{PL} replaces shelves lined with volumes of printed records. GIS and standards are accessible anywhere. It includes a digital user guide with the answers to many engineering questions. The result is new capabilities for engineers to optimize productivity while maintaining compliance standards and managing pipeline integrity.

The Navigator Hierarchy Panel simplifies how engineers respond to audits or prepare for new regulations, like the Mega Rule. It creates an easily searchable analysis history of your assets, which helps your company avoid the costly fines of failed audits. Furthermore, the Navigator Hierarchy Panel allows Operators to leverage their asset database to perform quick, accurate, and reliable analyses for new and existing assets across business units and assets.





Pipeline Toolbox

The 254-plus calculation tools included in the Pipeline Toolbox provide solutions to daily challenges and unexpected issues. If you need a quick turnaround, costs keep going up as teams wait for determinations. PLTB brings together data, case histories, and calculation tools so that engineers can produce solutions quickly and efficiently.

Engineers sometimes underestimate risk as an issue in decision-making. When engineers visit compressor stations or other facilities, they often encounter the unexpected. Climate changes sometimes expose pipes. It might be leakages, newly exposed pipe due to climate changes, or contractors crossing with heavier equipment than agreed.

PLTB contains the case histories, so you have records that show forgotten events. When engineers conduct hydrostatic testing for integrity, the testing module does the planning for the hydro-test workflow. PLTB on the HUB[PL] gives you the verification tools to measure and manage unexpected events. With it, engineers can deal with anything in the operational environment that demands attention.

An Engineering Manager from one of North America's largest Midstream Operating Companies recently cited the efficiency and reliability of the daily operational analyses and use cases found within PLTB on the HUB[PL].

"Everything is at your fingertips. It is a trustworthy solution, with a wide variety of analyses available at your disposal to solve or QC many challenges we encounter during the operations or integrity stages of a pipeline."

When they encounter projects with challenges they don't usually face, like a movement of in-service pipe design, the team would spend a couple of days trying to figure out how they'd tackle the situation. Now they know there's an intuitive solution already built into another module within their daily working tool, easily advancing projects by a week or two and generating tremendous ROI for the Operator.

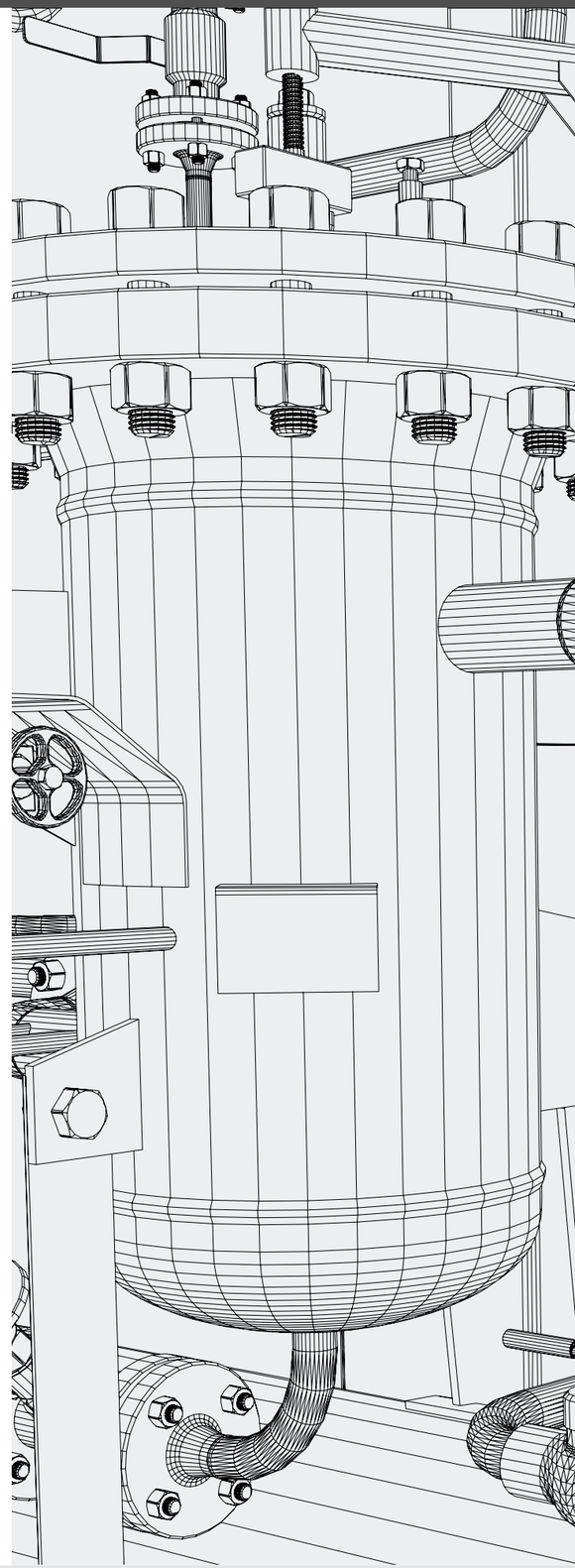
"PLTB brings together data, case histories, and calculation tools so that engineers can produce solutions quickly and efficiently."

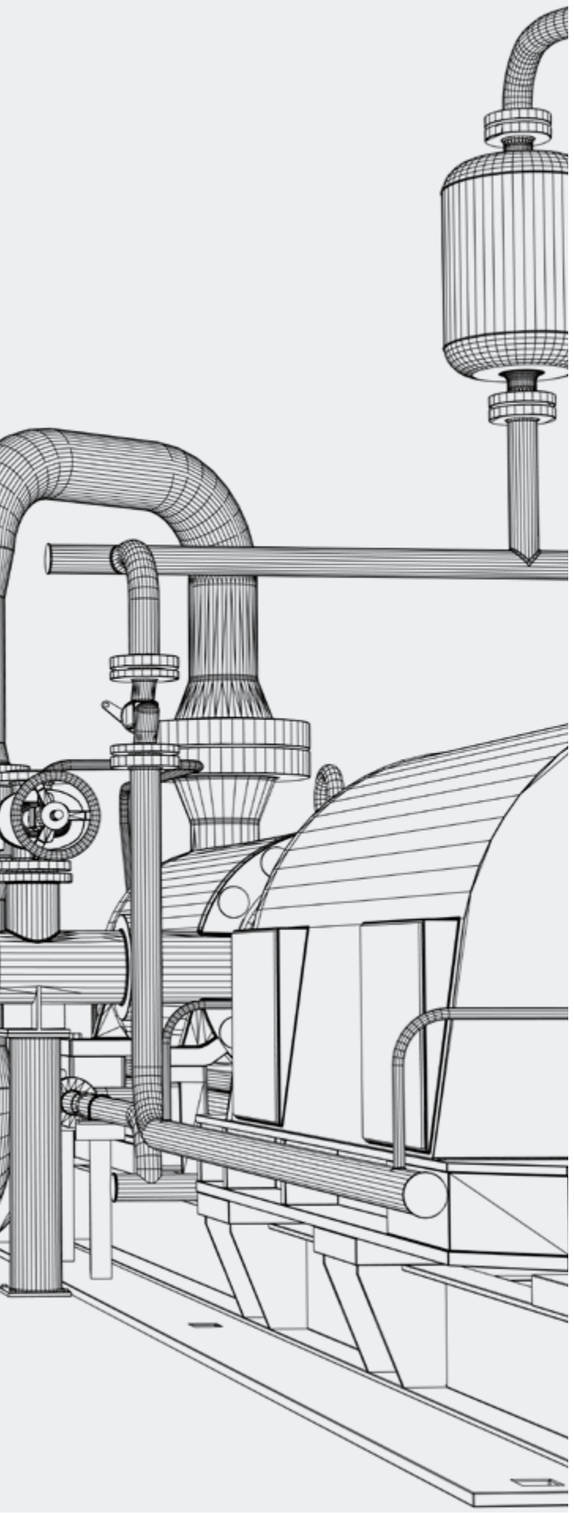
“RSTRENG+ supports operations engineers in managing integrity and optimizing productivity.”

PRCI RSTRENG and RSTRENG+

Technical Toolboxes is an authorized reseller for PRCI software. For integrity management in operations, we provide PRCI RSTRENG, the industry-standard Level 2 corrosion analysis tool. For additional capabilities and HUB^{PL} integration, Technical Toolboxes created RSTRENG+.

RSTRENG+ supports operations engineers in managing integrity and optimizing productivity. Other assessment tools evaluate only the most corroded areas, but RSTRENG+ reveals them throughout the pipe. It includes an automated “zero-out” capability that locates problematic corrosion areas for repair so the pipeline can operate at the desired operating pressure. The Zero-out method creates excellent time savings during project analysis as the automated workflow replaces all the slow and repetitive steps that engineers performed manually previously.





API Inspectors Toolbox

The API Inspectors Toolbox is an additional application that supports API 653, 570, or 510 recommended practices for inspection of valuable assets. It's a Cloud-based solution that ensures you have every component needed to complete a full API inspection report in a fraction of the time it would have previously taken using older report-writing methods. It helps mechanical integrity engineers and inspectors maintain compliance with API 653, API 570, and API 510 standards. Engineers or inspectors can use the downloadable field templates during on-site visits to store, retrieve, and transmit inspection data for their reports upon returning to their office setting.

Conventional report-writing methods are time-consuming, which can be costly in terms of repairs, downtime, and fines for the asset owner. It could take days or even weeks to compile inspection reports regarding design, installation, repair, or audits. With the API Inspectors Toolbox, you have a one-stop-shop by having the recommended practices, regulations, and all other applications needed to complete a full satisfactory report.

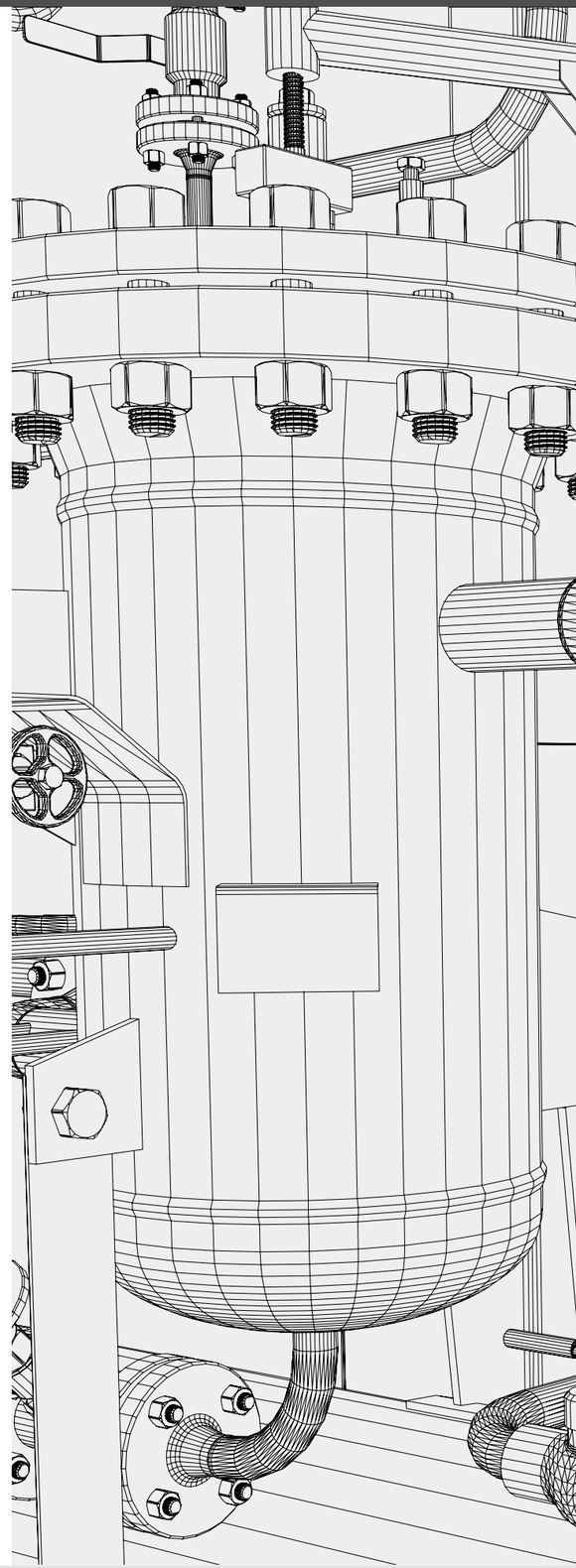
"Legacy systems with slow response times can be costly in terms of repairs, down-time, and fines."

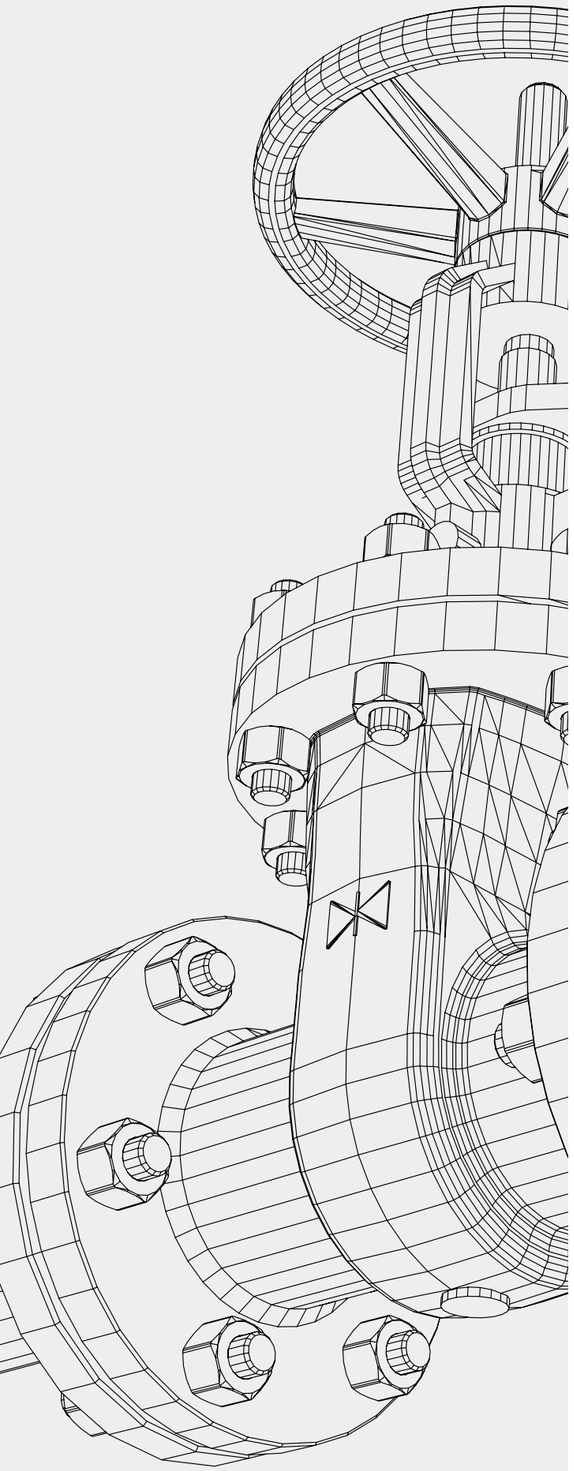
"Our pipeline engineering solutions help you manage your key asset data while maintaining quality and productivity while meeting industry standards and company SOPs in daily operations."

Solutions for Operations in Summary

Technical Toolboxes solutions give you the tools to:

- See the Big Picture by overlaying geographical maps with displays that label the key assets, GIS, and inspection data
- Reduce your workload while implementing standard formulas and improving engineering workflows
- Collaborate on multi-team projects to find solutions that would be lost in the silos of outdated organizations and methodologies
- Respond to unexpected events and deliver answers, which substantially improve the quality of the results that you produce
- Quickly perform and validate engineering calculations in the operations and integrity phases of the pipeline lifecycle
- Stay in compliance with regulations and respond to audits proactively
- Significantly improve your day-to-day productivity and collaboration





Next Steps

Technical Toolboxes offers products designed by pipeline engineers for pipeline engineers, integrity engineers, and operations managers. Our pipeline engineering solutions help you manage your key asset data while maintaining quality and productivity while meeting industry standards and company SOPs in daily operations.

Solutions from Technical Toolboxes give your users the ability to build workflows and implement standard formulas to achieve high-quality results consistently. At the same time, you will have the peace of mind that, if the unexpected occurs, the right tools are at hand to respond promptly and effectively.

Technical Toolboxes allows you to stand back to see the big picture. It gives you new abilities to examine the details of any engineering problem and make smarter decisions collaboratively. Most of all, you'll be able to deploy your engineering teams in ways that make the best use of their skills and knowledge. They spend more time taking care of business and finding new opportunities for you.

If you are seeking the best midstream software solution for your pipeline engineers, contact Technical Toolboxes today. We will answer your questions, arrange a no-obligation software demonstration, or set up a free trial.

Click here to learn more about Technical Toolboxes

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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.