Connected in quality.

ACCELERATING SPEED-TO-MARKET

HOW DATA CENTER TEAMS REDUCE SCHEDULE RISK AND BRING CAPACITY ONLINE FASTER WITH VIEGA PRESS TECHNOLOGY

SOLUTION BRIEF

viega

EXECUTIVE SUMMARY

As demand for compute capacity accelerates—driven by AI, cloud expansion and digital transformation—data center owners and operators face a critical constraint: **speed-to-market.** The ability to bring capacity online quickly has become a primary competitive differentiator in the data center industry.

While attention frequently focuses on servers, power infrastructure and major cooling equipment, critical bottlenecks can also emerge in the mechanical systems that support cooling technology deployment and overall facility operations. From process cooling applications to core-and-shell piping infrastructure, traditional joining methods such as welding, threading and brazing can introduce delays, variability and risk that can materially slow installation and put project timelines under pressure.

Viega's press connect technology represents a step-change improvement in how data center mechanical systems are installed. By eliminating hot work, simplifying labor requirements and enabling modular construction, press systems can improve deployment timelines, mitigate installation risk and accelerate revenue realization.

> ***"...press systems can improve deployment timelines, mitigate installation risk and accelerate revenue realization."***

PRODUCTS SHOWN: MegaPress® 304 FKM Flange - Model 4159XL | MegaPress 316 Butterfly Valve - Model 5179.8 | MegaPress 304 FKM Flange - Model 4159XL

This install is a distribution header that supports chilled water supply and return.

PRODUCTS SHOWN: MegaPress 304 FKM Union - Model 4160 | MegaPress 304 FKM Ball Valve - Model 4170 | MegaPress 304 FKM Tee - Model 4118

This install supports glycol systems and rack cooling infrastructure.

THE STRATEGIC IMPERATIVE: SPEED-TO-MARKET

The Challenge: Why Speed to Market Matters More Than Ever

Data center construction timelines are tighter than they've ever been. AI is driving unprecedented demand. In fact, according to the McKinsey Global Institute, data center infrastructure spending is projected to exceed $1.7 trillion globally by 2030, largely driven not only by AI but also high-performance computing and edge computing.[1]

Today:

- AI workloads require **rapid scaling of high-density infrastructure**
- Hyperscalers compete on **speed of capacity delivery**
- Delays translate directly into **lost revenue and market share**

In this context, **speed-to-market**—the duration between project initiation and operational capacity—has emerged as a key performance metric.

Yet the role that **mechanical installation constraints** play in extending this timeline is continually underestimated.

The Hidden Bottleneck: Mechanical Infrastructure

Mechanical systems are foundational to data center operation, supporting both critical cooling processes and broader facility infrastructure. Within these systems, cooling loops and piping networks enable the reliable movement of cooling media needed to maintain mission-critical equipment within required operating temperature ranges.

Without these systems performing reliably, data centers cannot achieve the continuous uptime that modern digital operations demand—and the financial consequences of downtime can be significant. According to Uptime Institute's 2025 Annual Outage Analysis, 54% of respondents reported that their most recent significant, serious or severe outage cost more than $100,000, while one in five reported costs exceeding $1 million.[2]

Yet the construction and installation of these systems are often:

- Labor-intensive
- Sequentially installed
- Dependent on scarce skilled trades

As data center construction expands across North America, access to highly specialized mechanical labor has become an increasing challenge. Industry analysts identify shortages of electricians, HVAC technicians and other specialized trades as one of the fastest-growing constraints on AI infrastructure deployment.[3]

And in many markets, the availability of skilled trades is becoming a significant constraint on construction capacity and project delivery. JLL estimates that 2.1 million skilled-trades positions—including electricians, HVAC technicians, plumbers and pipefitters—could go unfilled by 2030. The labor pipeline is already struggling to keep pace: nearly 600,000 jobs for major skilled-trade positions were posted in the U.S. in a recent year, while only about 150,000 new workers entered the labor pool through apprenticeship programs. For data center projects competing for specialized mechanical talent, this widening gap can create another source of schedule pressure and make labor-efficient installation methods increasingly valuable.

This creates potential schedule constraints for projects that rely heavily on traditional joining methods. According to JLL, more than half of global data center projects in 2025 experienced construction delays of three months or longer.[4] Solutions that reduce dependence on scarce labor resources can help data center teams scale construction programs more consistently across regions while maintaining project timelines.

Traditional installation methods introduce several challenges:

PROCESS COMPLEXITY

Welding and brazing require specialized certifications and multiple steps: preparation, execution, inspection, treatment of heat-affected zones and purging or flushing sequences.

HOT WORK CONSTRAINTS

Open flame processes necessitate permits, fire watches and strict scheduling controls, often limiting parallel work that can occur alongside other trades.

LABOR DEPENDENCY

Highly skilled welders are in short supply, particularly in regions experiencing rapid data center growth. Today, data center construction is expanding well beyond traditional hubs, such as Northern Virginia, into rapidly growing markets including Atlanta, Dallas-Fort Worth, Phoenix and emerging regions such as Ohio, Nevada, Michigan and Pennsylvania.[5]

VARIABILITY AND REWORK

Quality can vary significantly depending on operator skill, leading to inspection delays and potential rework.

Collectively, these factors create a **critical constraint** that slows overall deployment.

[1] Colocation data centers: The infrastructure race behind AI | [2] Uptime Institute, Annual Outage Analysis 2025, May 2025 | [3] AI data center boom hits a human bottleneck — critical skilled labor shortages could slow deployment despite billions in funding | [4] Data center sector enters hyperdrive as Texas prepares to dethrone Virginia as global leader | [5] Fast-Growing North American Data Center Market Set Records in 2025

THE OPPORTUNITY

The Evolution of Mechanical Installation – From Welding to Modern Press Technology

Press Technology: A Structural Shift in Installation

Press technology fundamentally changes how piping systems are installed. Instead of welding, brazing, groove or clamp, connections are made using mechanical pressing tools that create secure, consistent joints without heat. The table below shows a comparison of installation methods on an identical test fabrication of 11 joints with various sizes and types of fittings, all validated by a third party.

CRITERIA	PRESS	GROOVED	WELDED	THREADED
Man-Hours Required	**0.15**	0.4	2.5	1.0
Training Required	**Low**	Medium	High	Medium
Eliminates Open Flame	**Yes**	Yes	No	Yes
Consistency	**High**	Medium	Variable	Variable
Rework Risk	**Low**	Medium	High	Medium

This shift introduces three structural advantages:

1. SPEED AND SIMPLICITY

From prefabricated piping assemblies and equipment tie-ins to traditional on-site construction, press connections can be completed in seconds, with fewer steps and minimal setup compared with traditional joining methods. This inherent speed can reduce installation time at both the joint and system levels, helping contractors complete more work with less labor on site while supporting greater flexibility across a range of installation methods.

2. ELIMINATION OF HOT WORK

Unlike traditional welding or brazing, press technology creates secure, permanent connections without an open flame. Eliminating hot work simplifies jobsite logistics, reduces administrative burdens and allows mechanical installation to progress with fewer disruptions. For data center projects operating on compressed schedules, this flexibility can help accelerate construction while improving overall jobsite safety.

Because no flame is required:

- Hot work permits and fire watch requirements may be reduced or eliminated, depending on site policies and local regulations.
- Mechanical installation can proceed concurrently with electrical, structural and other construction activities rather than waiting for designated hot work windows.
- Safety risks associated with open flames, sparks and high-temperature work are significantly reduced.
- Less time is spent preparing work areas, coordinating fire protection measures and restoring the site after installation.
- Project teams gain greater scheduling flexibility, helping maintain momentum across multiple workstreams.

> ***The conversation isn't simply about making individual pipe connections faster," said Stephen McAfee, Business Development Manager, Data Centers at Viega North America. "It's about fundamentally changing how mechanical systems are built. Joints are connected in seconds versus minutes or hours. Every minute saved at a connection point compounds across thousands of joints, enabling contractors to complete installations more efficiently, reduce schedule risk and help owners bring critical infrastructure online sooner."***

THE OPPORTUNITY

The Evolution of Mechanical Installation – From Welding to Modern Press Technology

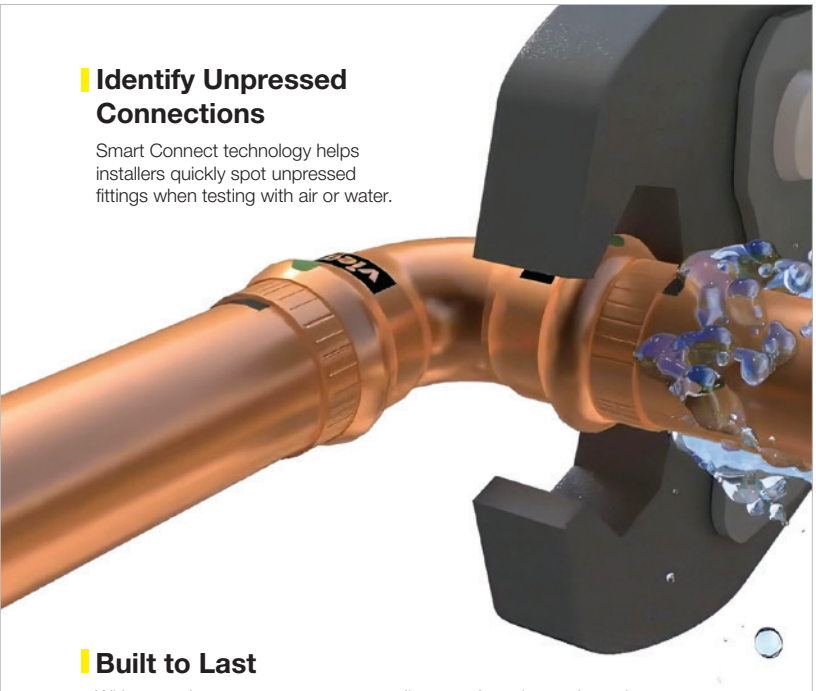
3. CONSISTENCY AND REPEATABILITY

Press technology provides a standardized joining process that delivers consistent, repeatable connections across thousands of joints. By reducing variability introduced by manual installation techniques, project teams can improve quality, simplify inspections and minimize the potential for rework. On large-scale data center projects, where a single facility may contain thousands of piping connections, even small improvements in consistency, paired with product quality, can translate into significant gains in productivity, schedule reliability and long-term system performance.

With many specifications in mission-critical environments requiring stress analysis, seismic testing and compensation for thermal expansion/contraction, Viega has subjected its fittings to extensive vibration, seismic and stress loading tests under ASTM, ASME and more. Viega press fittings are trusted at the highest levels, including recognition by the Open Compute Project as an OCP Solution Provider® and the coveted NAVSEA approval for the use of Viega CuNi fittings on US Navy combat vessels, including aircraft carriers.

Reducing variability up front is key, as is ensuring every connection is secured before systems go live. Viega's patented Smart Connect® Technology detects unpressed connections 100% of the time during pressure testing. This technology helps minimize callbacks and re-work, helping to keep projects on schedule and reduce costly delays or damage further down the line.

> ***Data centers are built with an expectation of near-continuous operation, which means quality can't be left to chance," said McAfee. "Consistency and repeatability are essential because every connection contributes to the performance of the overall system. Standardized installation methods help project teams deliver the level of quality and reliability these mission-critical facilities demand."***

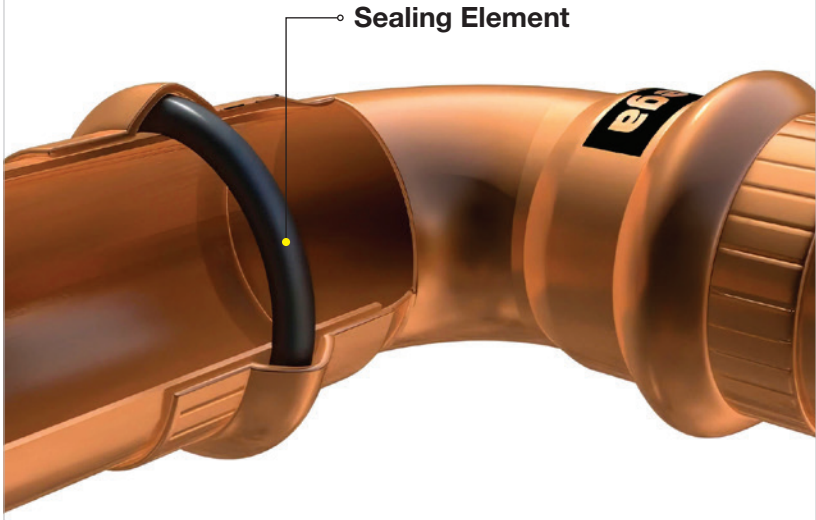


Identify Unpressed Connections

Smart Connect technology helps installers quickly spot unpressed fittings when testing with air or water.

Built to Last

With extensive warranty coverage, quality manufacturing and weather tests, Viega ensures sealing elements perform as intended.



Designed for a secure, reliable seal

Viega sealing elements create a static seal that stays firmly in place once the fitting is pressed.

THE RESULTS

AI and tech leaders are spending tens of millions of dollars every day on processing and infrastructure, with traditional system choices driving a significant share of that spend. See where Viega helps reclaim your dollars.

1 REDUCED INSTALLATION DURATION

Viega press systems can materially compress mechanical installation schedules while improving schedule predictability and reducing delivery risk.

2 PARALLEL WORKSTREAMS

Without hot work restrictions, mechanical installation can proceed concurrently with electrical and IT infrastructure work, rather than sequentially.

3 LOWER REWORK RATES

Viega combines more than 125 years of experience with rigorous testing and proven durability to deliver consistent, reliable connections. That consistency can mean fewer inspection failures and corrections, helping teams avoid rework that can slow deployment.

4 ACCELERATED COMMISSIONING

Fittings are commission-ready as soon as the tool completes the press cycle. Final press specifications calibrated into the tool and jaw/ring eliminate additional post-weld treatment steps, manual go/no-go or questions of torque values. Press also eliminates debris like pipe tape or dope that often end up in the system downstream and risk system performance.

One recent compute agreement between Anthropic and xAI, for example, is valued at roughly **$1.25 billion per month—equivalent to approximately $41 million per day.**[6] When infrastructure carries that level of economic value, every day saved on the path to deployment matters.

[6] Channel New Asia: Anthropic nears first quarterly profit, agrees to pay SpaceX $1.25 billion monthly for computing power May 2026

From Construction Efficiency to Business Value

The true value of press technology lies not only in construction efficiency but in its downstream business impact.

1. FASTER REVENUE REALIZATION

Bringing compute capacity online earlier enables operators to:

- Capture demand sooner
- Improve asset utilization
- Increase return on invested capital

2. REDUCED RISK EXPOSURE

Eliminating hot work reduces:

- Fire risk
- Safety incidents
- Insurance and compliance burdens

Third-Party Testing & Certifications:

- ASTM F3226
- ASTM B31.1, B31.3 and B31.9
- Highest US Seismic Standard (ICC-ES AC 156)

Recognitions:

- OCP Accepted® (MegaPress Stainless & ProPress Stainless)

> ***For owners and operators, every day a data center comes online sooner is an opportunity to begin serving customers, generating revenue and meeting growing demand. The true value of Viega press technology lies not only in construction efficiency, but in its downstream business impact. We saved labor hours but more importantly, we were able to accelerate the timeline from capital investment to operational value while reducing the risks that can delay deployment."***
>
> *Jerry Franks, Senior VP Service Operations at CPG*

3. IMPROVED SCHEDULE CERTAINTY

Standardized installation methods reduce variability, enabling more predictable project timelines—critical for hyperscale rollouts.

4. SCALABILITY ACROSS REGIONS

Simplified installation processes and reduced reliance on specialized labor enable standardized scalability and thus more consistent deployment across geographies.

Why Leading Data Center Builders Choose Viega

The advantages of press technology extend beyond faster connections. By simplifying installation, eliminating hot work and delivering consistent, repeatable joint quality, press systems help reduce construction risk, improve labor productivity and create more predictable project outcomes. Realizing the full value of those advantages, however, requires more than a joining technology; it requires a partner with the experience, resources and support to help projects succeed from concept through commissioning with carry-through operation and future maintenance needs.

Viega combines innovative technology with engineering expertise, third-party certifications, application guidance, BIM and design support, jobsite support and training, field technical resources and a reliable North American manufacturing and distribution network. This integrated approach helps owners, engineers, contractors and distribution partners reduce complexity, maintain quality standards and keep critical projects moving on schedule.

Whether supporting greenfield hyperscale campuses or expanding existing facilities, Viega works collaboratively across the project lifecycle to help teams accelerate deployment, improve installation confidence and deliver mechanical systems built for long-term performance and reliability.

The result is more than faster installation. It is greater certainty that mission-critical cooling and utility infrastructure will be installed correctly, commissioned on schedule and ready to support the next generation of AI, cloud and digital infrastructure.

CONCLUSION

In an industry where every day of delay can impact revenue, schedule commitments and competitive positioning, data center teams need more than faster installation methods. They need confidence that critical infrastructure will be installed correctly, commissioned on schedule and engineered for long-term reliability throughout the life of the system. Viega press systems help reduce installation time and complexity while delivering the consistency and reliability needed to support faster deployment and long-term performance of critical cooling infrastructure.

- Eliminating hot work allows parallel construction activities, improving schedule flexibility and overall project velocity.
- Consistent, repeatable connections minimize rework and inspection delays, increasing schedule certainty.
- Accelerated deployment directly drives business value through earlier revenue generation, reduced installation risk and scalable growth.

OCP ACCEPTED®

Viega MegaPress Stainless and **ProPress Stainless** systems have earned **OCP Accepted® Status***

*OCP Accepted® means that these systems align with the open standards set by the data center industry.

Curious about how Viega's range of solutions can help solve for your upcoming data center projects?
Contact datacenters@viega.us or visit https://viega.us/datacenter

This document is subject to updates. For the most current Viega literature, please visit www.viega.us. The term Viega does not apply to a specific company within the various separate and distinct companies comprising the Viega group of companies. The term Viega as used in this publication refers to the Viega brand itself or generally to the Viega group of companies. References to activities in North America specifically refer to activities of Viega LLC. Viega products are designed to be installed by licensed and trained plumbing and mechanical professionals who are familiar with Viega products and their installation. Installation by non-professionals may void Viega LLC's warranty. ©2026, Viega®, MegaPress®, ProPress®, Smart Connect®, XL®, and Viega: Connected in quality® are trademarks of Viega Holding GmbH & Co. KG.