

NEW EQUIPMENT DIGEST

Expert Q&A

The Best Compressed Air Strategy May Start Outside Your Plant Walls

There are times when the traditional in-plant compressed air installation presents challenges. These might include limited floor space, a poor operating environment, or high cost to modify or construct a new compressor room. Fortunately, modern compressed air systems have moved beyond the plant walls into rugged, weatherproof standalone enclosures. What used to be a technical challenge has evolved into a smart solution for facilities facing challenging conditions or high installation costs. By isolating compressed air systems from in-plant operations, facilities can improve reliability and productivity and sometimes even safety while reducing the cost of a plant expansion or upgrade.

Below, **Kaeser Compressors** experts address the advantages of air systems installed in weatherproof enclosures outside the plant. While we specifically mention compressed air, this solution has been successfully applied to blowers at wastewater treatment facilities as well.

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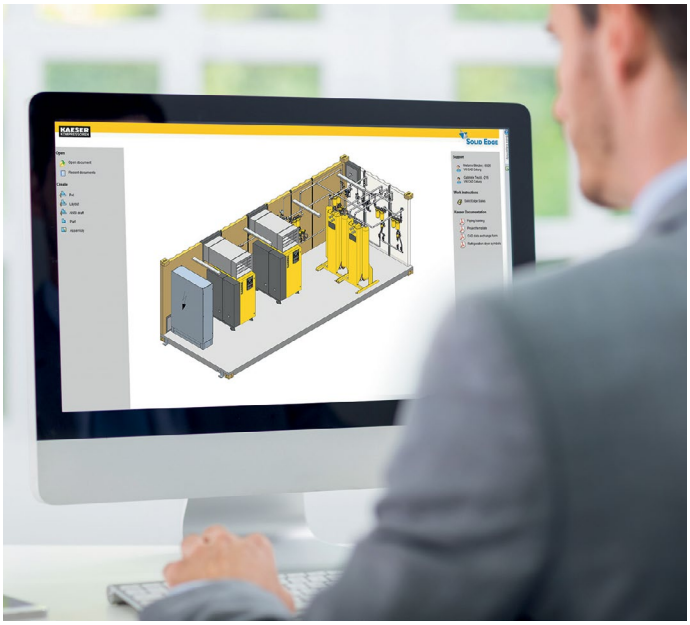
Q: When does an outdoor air system enclosure beat a building expansion or modification?

A: Plant expansions or renovations to accommodate additional compressed air capacity are often slow and expensive. Compressed air systems in stand-alone enclosures offer a plug-and-play alternative for plants facing budget and space constraints, harsh contaminants, or tight production schedules. They are also the perfect fast-track solution when production outpaces your current compressed air system's capacity.

If you're building a new site, prefabricated enclosures can be installed simultaneously with construction to reduce project completion time.

Q: How can a pre-engineered outdoor compressor system save time and money compared with traditional in-plant installation?

A: Moving your air system outdoors isn't just a space-saver; it offers major financial advantages. Why deal with the headaches of a permanent building expansion, when choosing a pre-engineered solution can drastically reduce the high costs and time associated with architectural design, site engineering, and construction? From a financial standpoint, you get a fixed, predictable price tag





instead of the moving target of a new permanent construction or renovation project. The time and cost advantages are even higher in remote locations.

Air system enclosures can be assembled in parallel with site preparation or other plant renovations, and don't face all of the permitting and inspection requirements. And even though they are not permanent structures, they are rated for local climates, wired in accordance with the National Electrical Code, and checked before they ship to the customer.

Q: How do these pre-built air systems deliver the operational agility that permanent installations can't match?

A: Outdoor enclosures offer two simple agility benefits to plant operations. They free up precious floor space in existing facilities to be repurposed for additional production equipment or other important uses that must remain in the plant. They also offer portability. These systems can be moved on property or to a different site if needed. This is uncommon for traditional plant air systems, but there are also some companies that need portable air systems for their business models.

Q: When do engineered enclosures outperform traditional indoor installations in terms of reliability?

A: Most plants have adequate operating environments for compressed air and blower equipment somewhere in the building. But even in those that do, operators often choose poor locations to suppress noise or to save good spots for other purposes. Dedicated enclosures with thermostatically controlled ventilation optimize compressor efficiency and significantly improve the service life of the compressed air system by removing it from spaces that are too hot (or cold), are dusty/dirty, are in or near corrosive liquids/vapors that can damage compressor coolers, or have inadequate room or lighting for proper maintenance and repair access.

We have built hundreds of these systems. Prime examples include food processing plants with wash-down areas. The chemicals used are often corrosive to aluminum coolers. Another is in recycling operations, where coolers get clogged with debris. We've seen immediate reductions in maintenance and repair costs by simply providing a cleaner, temperature-controlled space. Good enclosure systems are well-lit and designed for easy service access.



Q: How do stand-alone systems reduce risk for hazardous zones and specialized plant environments?

A: These are relatively rare but real cases. For high-security facilities, moving the system outside prevents third-party maintenance from compromising your site's security or safety protocols. External systems allow service providers to come on site for routine maintenance without the need for special escorts or extraordinary

Feature	Traditional In-Plant Expansion	Kaeser Outdoor Enclosure (KASE)
Upfront Costs	Unpredictable / Moving target	Fixed, predictable price tag
Timeline	Slow architectural & site construction	Fast-track / Built in parallel with site prep
Permitting	Lengthy local inspection/permitting loops	Minimal on-site disruption; pre-tested
Footprint	Consumes valuable indoor production floor space	Frees up indoor space for core operations

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security measures to prevent exposure to safety hazards or access to proprietary information or processes.

And then there are rare cases where standard compressed air equipment is not safe to operate. These might include mining operations or petrochemical plants that would normally require specialized (and very expensive) explosion-proof compressors. It is most often faster and less expensive to source standard compressed air equipment in an enclosure and simply install it away from combustible materials.

Q: From initial site survey to final sign-off, what does the air system enclosure installation process look like?

A: The process is straightforward. It starts with the same consultation as any good compressed air project. We meet with the customer to discuss their application and operational needs to identify the equipment to meet their flow, pressure, and air quality needs. If it's an existing plant, we walk it to determine if space or environment concerns warrant an outdoor solution. And we'll conduct a detailed Air Demand Analysis to fully understand the volume required. If it is a new plant, we look at the plans to see if there is a suitable space indoors with good access, ventilation, and lighting.



If the indoor space or conditions are not ideal, or the customer wants to use floor space for other uses, we design a thermostatically controlled enclosure for the required mix of compressed air equipment. In some cases, we custom engineer the system to the customer's specifications, but often, one of our many pre-configured Kaeser Air System Enclosures (KASE) is a great fit and saves further time and money.

Pricing, on-site pad requirements, and electrical specs are all transparent. The customer has the information to decide whether to install in-building or outside. All KASE and custom systems are pre-engineered, assembled, and tested at our Virginia facility to minimize on-site disruption. We work closely with customers to coordinate delivery, placement, and commissioning.

Q: How would you sum it all up?

A: Looking at the price of one of these enclosures may cause a buyer to flinch unless they have realistic estimates on the costs and timeline of design and construction. Removing a source of significant heat and noise from the plant may also enhance worker safety and comfort. Add in enhanced reliability and productivity, added physical security, and shorter wait times for compressed air. In a fair comparison, the choice becomes clear. Because these enclosures stay cleaner and your air system runs cooler, longer, and more reliably, you don't just gain uptime — you gain peace of mind.

NEXT STEPS

For more information on custom-engineered or off-the-shelf solutions, visit: us.kaeser.com/enclosures

Request System Design Support

Kaeser Compressors *delivers world-class, German-engineered compressed air systems that ensure an efficient and reliable supply of clean, dry air for industrial, manufacturing, and processing operations. Our comprehensive portfolio includes proprietary Sigma Profile™ rotary screw compressors, blowers, vacuum pumps, piping and complete air treatment systems. To guarantee maximum uptime and a proven ROI, we leverage data-driven Air Demand Analysis (ADA) to tailor systems to your facility's exact needs while drastically minimizing energy consumption. Every solution is backed by a nationwide network providing expert system design, proactive maintenance, and 24/7 support.*